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DMS-100 Family

DMS VoiceMail

System Installation and Modification Guide

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northern telecom

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Standard 02.03 is the first Standard release of the SPM 02 version of this document.

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About this document

This document is intended to be used by service technicians who are familiar with DMS VoiceMail operation and maintenance procedures.

DMS VoiceMail tapes

This section describes some of the DMS VoiceMail tapes and their purposes in various SPM02 processes.

INSTALL/DATA

Required for all offline and some on-line operations described in this guide including: new system installation, conversion, upgrade, expansions (hardware, language, feature), and restore.

You may need additional Install/Data tapes when installing specific combinations of languages. For more information contact your local Northern Telecom representative.

Note 1: For processes that require more than one tape, ensure that all necessary tapes are at the same release level.

Note 2: For all procedures other than Installation, Conversion, and Upgrade, the tape version should match your disk version.

Chapter 1: Understanding DMS VoiceMail

This chapter includes a description of the capabilities and operation of DMS VoiceMail, and the relationship of DMS VoiceMail to the public switching telephone network.

DMS VoiceMail overview

DMS VoiceMail is a voice processing system designed to provide call answering and voice messaging services for the central office (CO) environment. A DMS VoiceMail system uses a service peripheral module (SPM) and voice processing software, and is administered from a local or remote terminal.

In the CO environment, DMS VoiceMail supports the DMS-100 switch as well as other central office switches. DMS VoiceMail provides a variety of voice mail services which are sold to user groups as packages. A package can include some or all of the available services.

DMS VoiceMail users are assigned a voice mailbox which they have the option of accessing with a private password. Recorded prompts guide users whenever necessary, and also assist callers to leave messages.

The Simplified Call Answering feature package includes call answering and message retrieval functions, with a subset for users with dial pulse sets. It is intended for residential and small business users.

The Voice Messaging feature package offers enhanced voice mail capabilities in addition to basic call answering and message retrieval. This feature package is primarily intended for Centrex business users.

Optional feature packages include AMIS Analog Networking, Voice Forms, Voice Menus, and Family Mailboxes.

How typical messaging systems are deployed

Messaging systems can be deployed as either a small adjunct processor located with individual end offices, or as a larger centralized messaging system that supports a number of end offices. In either case, the voice path is usually over dedicated T1 trunks and the signaling path is typically over dedicated simplified message desk interface (SMDI) links.

Figure 1-1 illustrates a typical end office deployment strategy.

Figure 1-1xxx
Typical end office deployment

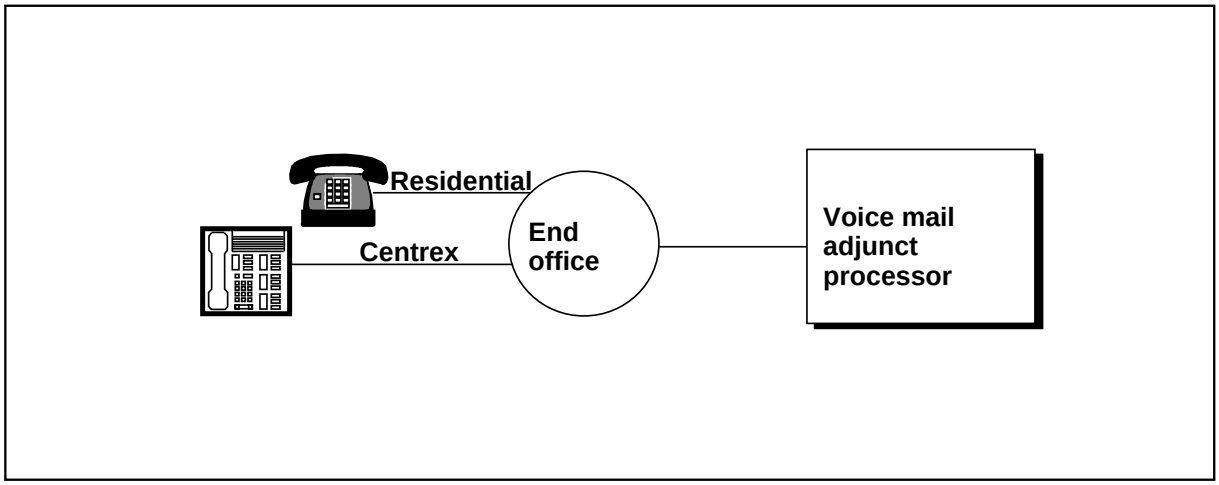
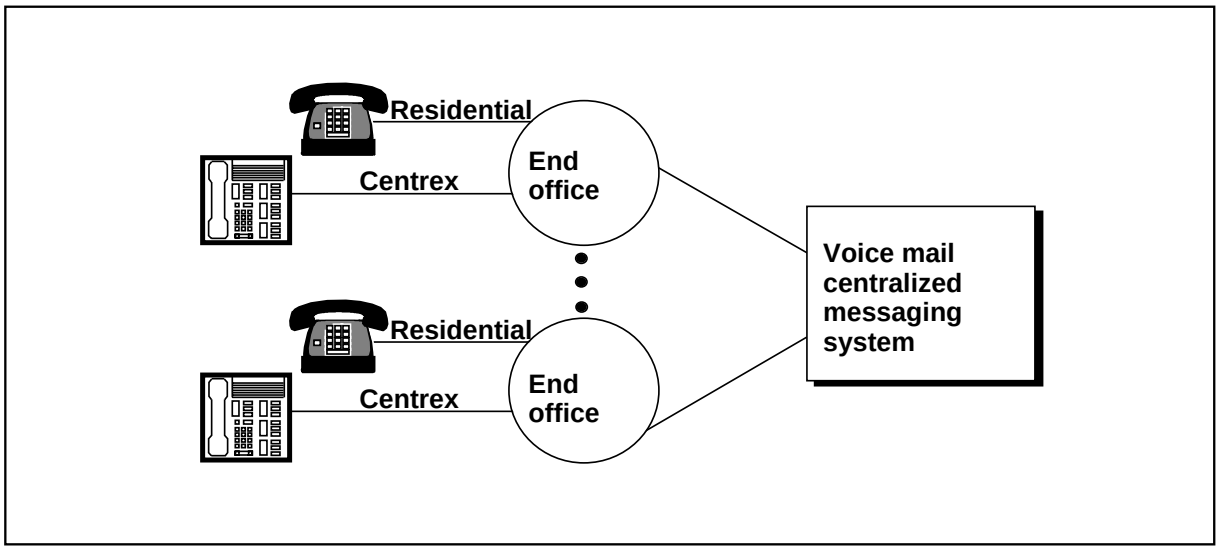


Figure 1-2 illustrates a typical centralized deployment strategy.

Figure 1-2xxx
Typical centralized deployment



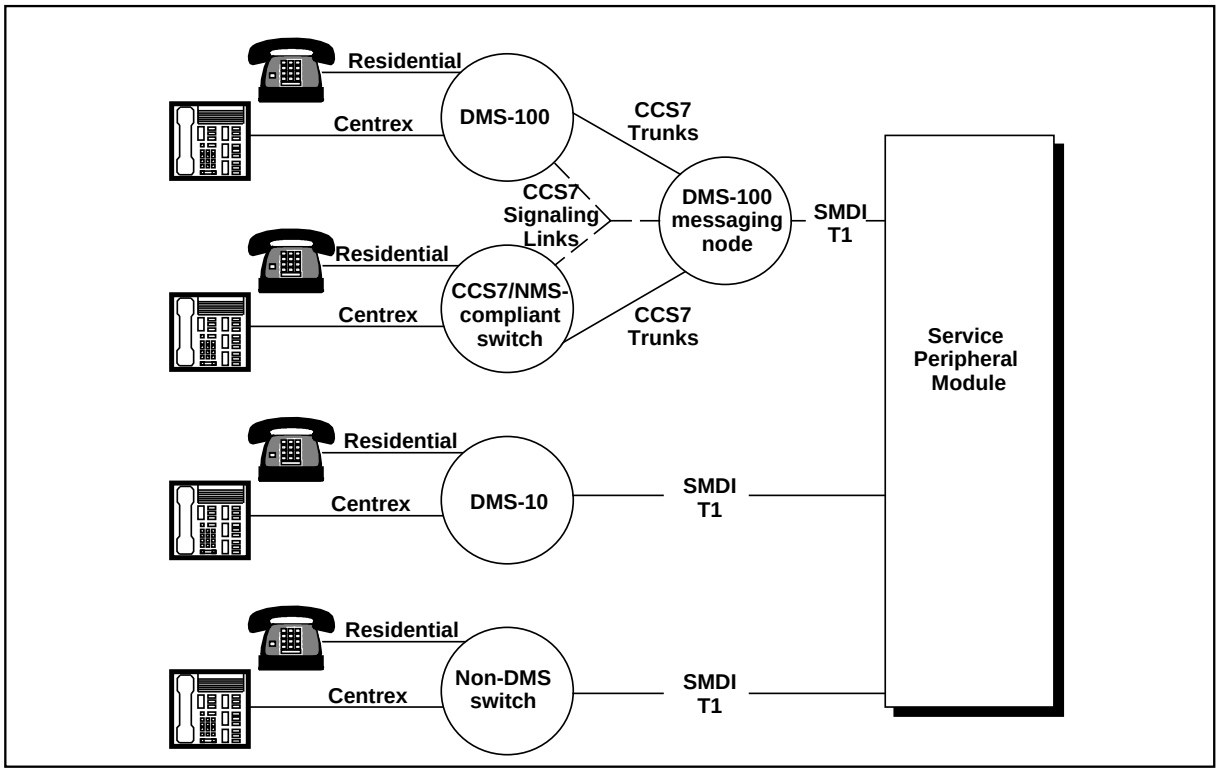
DMS VoiceMail deployment

Deploying an SPM is a solution for messaging systems serving go to 40,000 users. DMS VoiceMail provides a voice messaging system that consists of one SPM and voice processing software, administered from a local or remote terminal.

The SPM is a voice processing server developed for DMS-100 Family and other types of central office switches. The SPM contains up to 192 voice channels for the operating company to provide voice mail service to users.

Figure 1-3 illustrates a typical network configuration using an SPM.

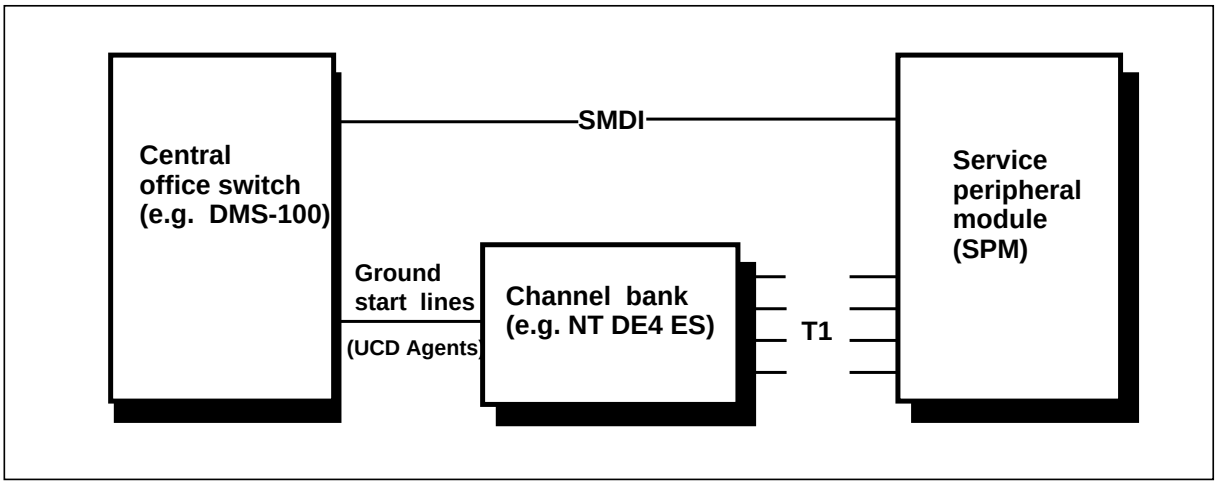
Figure 1-3xxx
SPM deployment



Note: Network Message Service (NMS) is an optional network interface for DMS VoiceMail. NMS uses common channel signaling 7 (CCS7) to offer message service to an entire city, or LATA, from a centralized DMS-100 messaging node in the network.

Figure 1-4 illustrates how the SPM is provisioned with the DMS-100 Family, or alternate, central office switch.

Figure 1-4xxx
SPM hardware configuration



System capacity

The number of mailboxes on a DMS VoiceMail system is calculated by the total available hours of storage, divided by the average time taken by each user's messages and greetings. The average per mailbox time depends on the mailbox size limits and message deletion policy, both of which are set by the service provider.

The SPM is provisioned by selecting appropriate numbers of voice ports and hours of storage. The amount of memory is fixed and is sufficient to run all the supported applications and utilities under full load even in the presence of single point failures. Capacity will be limited more by the number of ports than by limitations of the SPM.

Table 1-1 shows the maximum capacities for the SPM.

Table 1-1xxx
DMS VoiceMail system capacities

Item	System maximum
Voice messaging channels	192
Voice storage hours	1,200
Storage hours for voice menus, voice form definitions, and personal verifications	100
Customer groups per system	2,000
Registered mailboxes per system	40,000
Messages per mailbox	999
Minutes per mailbox	360
Voice service DNs	4,000
Voice menus	4,000
Classes of service	127
Distribution lists per organization	No Limit
Entries per organization distribution list	120
Distribution lists per mailbox	9
Entries per mailbox list	99
Administrative positions	4
Maintenance console	1
Maintenance printer	1
SMDI links	16
Languages	3

System response time

Under normal conditions, for most voice messaging functions, response time should be under one second 95% of the time, and over four seconds no more than one per 10,000 instances.

Administration of DMS VoiceMail

Up to four administrative positions can operate simultaneously from locally or remotely attached terminals: one main administration terminal and up to three multiple administration terminals (MATs) which can only be used to perform user administration, voice services administration, and (view-mode

only) class of service administration. System events are recorded in a log file and reports are printed on a locally attached printer.

The system can be administered remotely through modem access. However, the system cannot be administered both locally and remotely at the same time.

Chapter 2: Using system installation and modification software

Before starting

To use system maintenance, the following preparations must be made:

- The DMS VoiceMail system must be properly configured and be in proper working order.
- The system should be running the most recent software release (contact your support organization if you are unsure). This does not apply if you are upgrading or installing your system.
- Obtain a partial tape backup of your system as it currently exists. This will not include the user voice volume. To obtain a full backup, including the user voice volume, may take up to 24 hours. A full backup will not capture information which changes during the backup process (such as new voice messages or voice menus).
- You must have the correct tapes at hand (see “About this guide” for tape information), including blank tapes for archiving.
- You must have the hardware necessary for the particular option (e.g., modems for networking).
- You should have the information necessary for software installation or expansion at hand (read through the complete procedure before starting).
- If you have a printer attached to your terminal, set your terminal up to automatically print anything that appears on the screen, after the System Installation and Modification menu appears. This can be done by pressing the <CTRL> and <W> keys simultaneously, then pressing <p>. Use the same command to toggle back to normal (non-printing) mode.
- Prior to starting any offline procedure in this document, perform a courtesy down procedure to prevent calls from being abruptly terminated when the operation commences. You do not need to courtesy down for on-line procedures

  Note: 1 During all system maintenance procedures, SEER filtering will be reset to System level. Please reset to the original level once the procedure is complete. For more information, see the description of SEER filtering in the Introduction to *Maintenance Messages (SEERs)* (NTP 297-7001-510) and the SE_UTIL chapter in the *System Administration Utilities* (NTP 555-7001-306).

Note 2: All procedures described in this guide are self-recovering in case of an error. If a problem occurs and the guide suggests a specific work around that does not work, contact your support organization for assistance.

Note 3: It is important that the Install/Data tape be stored in a safe place. This will ensure that if you need to re-install the system you will have access to it.

Note 4: For all procedures other than Installation and Upgrade the tape version should match your disk version. The system will check the tape and disk versions and if they do not match you will see the message:

Software versions on the tape and disk do not match.

Please upgrade your software on disk prior to this operation.

CAUTION
Loss of service
Each of the off-line procedures outlined in this guide will cause service to be interrupted. The on-line procedures will allow service to continue but traffic will be reduced.

Bootup procedures

Throughout the off-line procedures in this guide, you will be instructed to reboot the system following each operation. The procedure to do this is as indicated below.

Power down

Starting at the top shelf, power down each shelf in sequence towards the bottom shelf. Perform this as quickly as possible.

To power down a shelf, use two fingers from each hand. Simultaneously pull down the switches on both power converters on both sides of the shelf. Then proceed quickly to the next shelf.

Power up

Starting at the bottom shelf, power up each shelf in sequence towards the top shelf. Perform this as quickly as possible.

To power up a shelf, use two fingers from each hand. Simultaneously push up the switches on both power converters on both sides of the shelf. Then proceed quickly to the next shelf. After powering up the second disk shelf, pause for 20 seconds before powering up the primary electronics shelf. Then, quickly power up the secondary electronics shelf.

Allow all diagnostics to run without manual intervention. Rebooting the SPM should take at least 20 minutes or more depending on the number of nodes and default software configuration installed.

Node loading

As power is applied to each node, each 68K card goes through an initialization process. Included as part of the process is a check of the physical slot address to determine whether the 68K card is the primary or secondary MSP. Any node other than an MSP places an ‘I’m alive’ message in the transmit buffer of its system bus tap and waits to be polled.

The primary MSP boots from its locally attached disk drive. Once up, the MSP starts polling the other nodes according to its system map. On receiving the ‘I’m alive’ message from a remote node, the primary MSP asks it to initiate its 68K firmware based diagnostics.

If according to its system map the primary MSP expects a node to be there, but receives no response to its poll, the node is reset and the primary MSP attempts to poll again. After three consecutive failures, the node is assumed dead and placed in a faulty state.

After executing its 68K self-test, each node places its status in its own transmit buffer. Nodes that pass the self-test proceed in the boot sequence. Nodes that fail the self-test are marked faulty. Nodes that do not provide a response are treated as faulty.

On successful completion of the diagnostics, the primary MSP loads and starts the appropriate application software.

The SPM system disks are configured to spin-up on receiving an SCSI command rather than at power-up. This allows the SPM to sequence its disk start-ups and therefore avoids a significant +12V current surge that would occur if each disk spun-up in parallel.

Disk shadowing audit

The disk shadowing audit checks for data mismatches and takes corrective action, if required. If the prime node’s disk is shadowed, a disk shadowing audit prompt appears during the system bootup sequence:

Program Resource Manager Node 1 Ver. nnn
PRM (Info): Using software volume :BOOT100:

PRM: found shadowed disk on prime node

Run audit on shadowed disks (10 sec) No

The prompt is displayed for ten seconds waiting for operator input. To initiate the disk shadowing audit, toggle the “No” selection to “Yes”, or type “Yes” directly, then press <Return>. If no input is provided, the system does not run the disk shadowing audit. Depending on what action is taken, the following acknowledgement is displayed showing either “OFF” or “ON”:

PRM: Shadowed disk audit is OFF

If the system does not use disk shadowing, the following prompt is displayed:

PRM: No shadow disk found on prime node rc -2

It is recommended that the disk shadowing audit be run as a precaution during the reboot of systems with disk shadowing. However, it is imperative that the disk shadowing audit runs for systems that are rebooting after a crash under load (for example, if the system was operating under load and crashed due to a power failure).

Off-line Procedures

Procedure 2-1
Displaying the System installation and modification menu

Starting Point

1 Read through the entire procedure before starting any operation.

2 Insert the INSTALL/DATA tape into the tape drive.

Note: If any problems are encountered during the process, remove the Install/Data tape before rebooting the system.

3 Reboot the system by turning off all power supplies affecting MSP1, wait ten seconds, then turn them on again. After a few minutes the System Installation and Modification menu will be displayed.

Figure 2-1
System Installation and Modification menu

```
      System Installation and Modification menu

   1  Install an SPM02 system
   2  Upgrade to the latest SPM02 release
   3  Prepare MM8 system for conversion to SPM02 system
   4  Complete MM8 system Conversion to SPM02 system
   5  Feature Expansion
   6  Hardware Modification
   7  Language Expansion
   8  Restore System from Backup
   9  Change to Default System Password
   10 Move Voice Services Cabinet
   11 Exit to Support Level

      Please enter the operation number:
```

4 Choose an item by typing its number and pressing <Return>. The system will then ask you to confirm the selection, for example:

You have chosen to change the hardware configuration.
Do you wish to continue?
No

If you wish to continue, change the 'No' to 'Yes' by using the up or down arrow keys. If you select No, you are returned to the main menu.

5 Proceed to the appropriate section of this document for further instructions:

On-line procedures

The on-line system maintenance function allows support personnel to perform system maintenance functions without shutting down the system and losing complete service for an extended period of time. The following functions have on-line procedures for them:

- Software upgrade
- Hardware modification
- Language expansion
- Move voice service cabinet
- Feature enable

Platform

The SPM platform supports on-line system maintenance.

Note: On-line functions will only work if SPM is fully redundant.

Terminals

The on-line system maintenance functions can be accessed through a console terminal connected directly to the MSP.

Process

The on-line system maintenance functions require that a redundant system is divided into two separate halves so that one side can take over service while the other side is upgraded. Initially one half, known as the odd node system side, is courtesied down so that the system maintenance procedures can be performed on it. When this happens, the other half (know as the even node system side) serves the users at a reduced capacity. Since service is lessened, you are advised not to perform on-line maintenance procedures during peak hours.

The fact that only one side is functional at a time determines the process for on-line upgrade. All on-line system maintenance functions except Feature Enable are governed by the same three stage process. In general, these are:

1 The Preparation Stage (approximately 20 minutes)

2 The Start System Stage (approx. 90 minutes)

3 The Completion Stage (approx. 20 minutes + 45 minutes to sync disks)

Each stage represents the fact that after a given set of procedures you must log out of the MMI screen and log back in to it. There are two reasons for this structure:

1 You must log out between stages one and two so that system can use the most recent version of the on-line system maintenance software (which has been loaded onto disk during the preparation stage) for software upgrade.

2 You must log out between stages two and three because a switchover between MSP1 and MSP2 must occur in order for both halves of the system to be updated. You are initially logged on to MSP1. At the end of stage 2, this node must be re-booted and have the new software loaded into it while MSP2 takes over service. If you you are performing the On-line maintenance procedures by way of remote access, you must, at this point, connect to the newly active MSP, which in most cases will be MSP2.

In each stage you must:

1 Begin by selecting the same on-line system maintenance function from both the TOOLS menu and the On-line System Maintenance menu that you did at the beginning of the previous stage.

2 End by removing the window after the prompt instructing you to do so, appears on the screen.

Though the system will keep track of the completion of each stage, it is very important to remember that it is a three part process and that all stages must be completed before the maintenance function is done.

Note: During on-line maintenance procedures, the system status screens on the MMI may not be accurate.

Online System Event and Error Report (SEER) Log

Throughout the online-system maintenance procedure, a number of System Events and Error Reports (SEERS) will be generated which will provide important information about the on-line maintenance process. These SEERS fall into the following three categories:

1 SEERS that indicate an event causing the on-line upgrade to fail and the process to abort.

2 SEERS that indicate an unexpected event. You will be prompted with a question asking you if you want to abort or continue.

3 SEERS that indicate events expected by, or part of, the online maintenance process. The process will continue without interruption.

Seers generated during the online maintenance functions are stored in files during each of the separate stages. These files are:

1 :RW1:PrepOL.Log (for SEERs generated during the Preparation stage.)

2 :RW1:StrtOL.Log (for SEERs generated during the Start stage.)

3 :RW1:EndOL.Log (for SEERs generated during the Ending stage.)

SEER printer

The SPM configuration, SEERs can be obtained from the SEER printer connected to the SPM. In order to maintain SEER reporting during the MSP switchover that occurs during a number of the On-line maintenance functions, the SEER printer must be slaved off CONSOLE.

For detailed information on how to restore when an error occurs see the *Trouble Locating and Alarm Clearing Guide*, (NTP 297-7001-503). For more information on SEERs, see the *Maintenance Messages Manual*, (NTP 297-7001-510.)

Login

You can access on-line system maintenance functions through the console terminal by doing the following:

1 Log in to the main MMI screen using the TOOLS level password. You will see the TOOLS menu illustrated in Figure 2-2.

2 Choose menu item 11 in order to get to the On-line System Maintenance menu Figure 2-3.

3 Select the appropriate system maintenance function.

Figure 2-2
TOOLS Menu

```
                    SPM02 Special Tools Package

                         TOOLS Level Access

 1   Move user                   - moves user cabinets one at a time
 2   Modify hardware             - modify hardware database
 3   Set silence compression     - compress out/leave in recorded silence
 4   Control volume              - increase/decrease voice volume
 5   Update MWI                  - update Message Waiting Indicator
 6   Block DMS VoiceMail         - block access to DMS VoiceMail
 7   Find Users                  - find users in the system
 8   Audit all volumes           - audit all volumes on the system
 9   Rebalance directory         - rebalance the organization directory
10   Convert COS                 - Assign COS to users
11   On-Line system maintenance - perform on-line system upgrade
12   Synchronize Disks           - disk shadowing maintenance
13   Other                       - other system/feature dependant options


Select an item >

 Logoff      Redraw      Help      Release Version
```

* The “Other” option is available if other features are installed.

Figure 2-3
On-line System Maintenance Menu

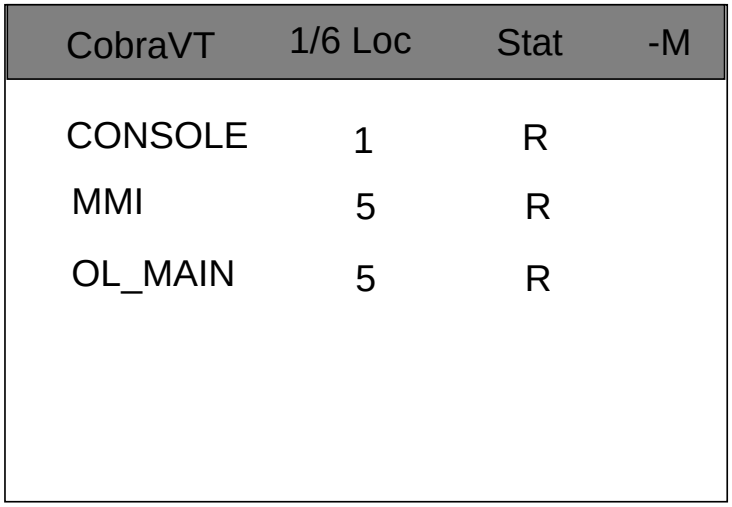
```
On-line System Maintenance
==========================

1  Software Upgrade
2  Hardware Modification
3  Language Expansion
4  Move Voice Service
5  Features Enabling
6  Reset On-line Maintenance Status
7  EXIT On-line System Maintenance
```

Logout

At the end of each stage of the On-Line Maintenance functions, you must log out of the current MMI window. Log out of the MMI menus by doing the following:

1 Remove the window by pressing <Control W>. This will activate CobraVT CLI window as in Figure 2-4.

Figure 2-4
CobraVT CLI window



2 Move the cursor up or down until OL_MAIN is selected.

Note: You must remember to turn the cursor on in order to select choices in the CLI window. This is done by pressing I after the CLI window is activated.

3 Type <R> to remove the OL_MAIN window.

4 Move the cursor up to the MMI Window menu item and press <Return> or type the letter <S> in order to access the MMI TOOLs window again. Figure 2-2 should appear.

Chapter 3: Software installation

This chapter provides information about installing DMS VoiceMail software. It contains details of when an installation should be performed as well as the installation process.

CAUTION
Loss of service
Each of the off-line procedures outlined in this guide will cause service to be interrupted.

This procedure should take approximately 45 minutes plus an additional 20 minutes for each additional language installed. Before beginning this procedure, read Chapter 1 for information about displaying the Software configuration operations menu, selecting an option and rebooting the system. Read and understand all steps in this procedure before proceeding.

If you have a printer attached to your terminal, set your terminal up to automatically print anything that appears on the screen, after the System Installation and Modification menu appears. This can be done by pressing the <CTRL> and <W> keys simultaneously, then pressing <p>. Use the same command to toggle back to normal (non-printing) mode.

Note: Before performing the procedures outlined in this chapter, make sure that you have consulted chapters 1 and 2 of this guide. Failure to do so could cause you to omit important steps in the process.

Procedure 3-1xxx
Software Installation

Starting Point

1. Power the system down. Refer to chapter 1 of this document for details of the power up/power down procedures.
2. Insert the INSTALL/DATA tape into the tape drive.
3. Power the system up. Refer to chapter 1 of this document for details of the power up/power down procedures.
4. The system automatically now will run a series of diagnostic routines.

5 After about a minute or two you will be asked if you want to skip tape retensioning. The following prompt will appear,

Enter NR to skip tape retension (5 sec):

6 To ensure that your INSTALL/DATA tape is in the proper state whenever you need to use it, we recommend that you do not skip tape retensioning. However, if you want to skip tape retensioning, you must enter “NR” within five seconds of the appearance of the prompt. If you want to ensure that you do not miss the 5 second period, type “NR” at any time during the initial system prompting and your entry will be recognized when the prompt appears. If you do not enter “NR”, you will have to wait about 10 minutes longer while the tape rewinds.

Again, you will see a series of system messages. Depending on the number of nodes in the DMS VoiceMail system, it should take between five and ten minutes to load the software. Once loaded, the System Installation and Modification menu is shown.

Figure 3-1
System Installation and Modification menu.

```
    System Installation and Modification menu

1   Install an SPM02 system
2   Upgrade to the latest SPM02 release
3   Prepare MM8 system for conversion to SPM02 system
4   Complete MM8 system Conversion to SPM02 system
5   Feature Expansion
6   Hardware Modification
7   Language Expansion
8   Restore System from Backup
9   Change to Default System Password
10  Move Voice Services Cabinet
11  Exit to Support Level

    Please enter the operation number:
```

Press the up or down arrow key until the number “1” is displayed on the screen, then press <Return>.

You have chosen to Install an SPM02 system.
Do you wish to continue?

7 Press the up or down arrow key until Yes is displayed on the screen, then press <Return>. Select No to return to the main menu.

Various operating system messages will be displayed as files are written to the disk drives. This will take from 3 to 5 minutes.

8 You are then asked if you want to define any optional features.

Do you want to define optional features?

9 If your answer is no, press the up or down arrow key until the word No is displayed on the screen, then press <Return>. If you do want to define optional features select Yes and press <Return>. If you select No, the system causes you to jump to step 11.

Please enter the feature to enable:

10 Select the appropriate feature name followed by <Return>. You may use the up/down arrow keys to move through the list of features. The system will again prompt you to select another feature. Once all desired features have been selected enter “Done” to continue. “Clear” deselects all features.

Note: The features which are AUTOMATICALLY enabled are:

Selection	**Feature Enabled**
MultiCustomer	Multi-Customer
VMUIF voice Messaging	VMUIF voice Messaging
VMUIF Call Answering	VMUIF Call Answering
MM Voice Messaging	Meridian Mail Voice Messaging
FamilyMailbox	Family Mailbox

The features which can be enabled using online feature enable are:

Selection	**Feature Enabled**
AMIS	AMIS (Analog) Networking
VoiceMenus	Voice Menus
VoiceForms	Voice Forms
*AdminPlus	AdminPlus
*Access	Meridian Access
*Networking	Networking

(These features must be installed in your system before they can be enabled)
* The above marked features can be selected during this procedure, but they are not supported in SPM02. As a result, they will NOT be installed.

11 The features enabled will then be displayed:

The following features are enabled:

Feature name
Feature name

If you selected No, the following message is displayed:

The following features are enabled:

VMUIF
FamilyMailbox
MultiCustomer

12 The system will prompt you to re-enter features if they have been incorrectly entered, or none have been selected.

Do you wish to re-enter features?

Press the up or down arrow key until the desired action is displayed on the screen, then press <Return>. If you select No, the process continues with the next step, if you select Yes, you are returned to step 9.

13 You are then asked to enter the customer name. (This name is user assigned and can be an alphanumeric string of up to 30 characters. It cannot contain the characters ?, +,-, _, or *.)

Customer Name: DMS VoiceMail

14 You will now be asked to enter the system configuration information. You are asked to state whether this is a Central Office (CO) or Customer Premise Equipment (CPE) system:

System Environment: CO

Use the up or down arrow key to toggle between CO and CPE, select CO in this case.

15 The hardware configuration is displayed next. For example:

Please enter the following system information:

Node	Card1	Card2	Card3
1	EMPTY	SBC	BUS
2	BUS	EMPTY	SBC
3	SBC	NVP12p	NVP12p
4	NVP12p	NVP12p	SBC
13	T1	EMPTY	SBC
14	SBC	EMPTY	T1

SBC

If the configuration shown above is correct, please enter "YES" to continue.

Enter: Yes

If you enter No, you must power off the system, correct the problem and re-run the process.

16 The system then displays the various languages available on the INSTALL/DATA tape, for example.

Languages Available from this tape are:

1: American English

2: Canadian French

3: From Another Tape

Enter the number of the language you require (0 = done): 1

For two or more languages, follow the screen prompts.

Press the up or down arrow key until the desired number is displayed on the screen (or press backspace), then press <Return>. If you choose 0 at this point, you are advised that you must choose at least one language from this menu and the selection prompt is repeated.

Choose the appropriate entry and press <Return>. The system then responds with:

You have chosen (language name)**.**
Is this correct? Yes

Select Yes or No, as appropriate, and press <Return>. If you select No, the language prompt is repeated. These prompts will be repeated until the maximum number of languages permitted have been selected, or until you select "Done".

If you selected "From Another Tape", you will be prompted to remove the current tape and insert the new tape during Step 30 in this procedure. Follow the instructions on the screen.

17 The next step is to select the Call Progress Tone Detection (CPTD) country index number. Press the up or down arrow key until the desired number is displayed on the screen, then press <Return>.

1 : Generic Settings	**2 : Australia**	**3 : Austria**
4 : Belgium	**5 : Canada**	**6 : Denmark**
7 : Finland	**8 : France**	**9 : Germany**
10 : Hong Kong	**11 : Ireland**	**12 : Italy**
13 : Japan	**14 : Netherlands**	**15 : New Zealand**
16 : Norway	**17 : Singapore**	**18 : Sweden**
19 : Switzerland	**18 : Taiwan**	**21 : United Kingdom**
22 : United States		

Please enter the CPTD country index number :

18 Next, the DSP parameters will be displayed. Press <Return> after each entry or enter the desired value. The defaults (in bold print) are those common to North America.

Please enter the DSP parameters.

DSP Encoding Type: MuLaw

If the above DSP Encoding parameter is set incorrectly, corrupted voice quality may result.

Disable Silence Compression: No Yes

Do you wish to change other DSP parameters? No Yes

The following parameters are not changed in most installations and as a result are only displayed if you select "Yes" above.

Transmit Level: 0 (-10 to +10 dBm)

Receive Level: 0 (-10 to +10 dBm)

DTR Reject Level: (-57) (-60 to -30 in 3dB increments)

***DTR Max Accept Level: (1)** (-11, -8, -5, -2, 1, or 4 dBm)

Disable AGC: No Yes

***AGC Center: -20** (-20 to -10 dBm)

***AGC Span: 16** (16 to 20 dBm)

Telescan Debounce: (128) (96, 112, 128, . . . 512)

Hook Flash Pulse: (320) (304, 320, 336, . . . 512)

Do you want to re-enter the DSP parameters? No Yes

**** Note:*** The above marked DSP parameters cannot be modified. They are reserved for future enhancements.

19 You are next asked to enter the Mailbox levels. (The number of mailboxes is equal to the level multiplied by 432.)

Note: The maximum mailbox level of your system is equal to the number of SPN nodes multiplied by 12.

The number of mailboxes is equal to the level * 432

Enter MMUIF mailbox level: 2

Enter VMUIF mailbox level: 2

Enter Residential mailbox level 2

Enter Family Mailbox level 2

Note: Family Mailboxes may not exceed number of VMUIF mailboxes + Residential

20 Next, you are prompted for an area code.

Enter the Area Code for the first set of subscribers:

Enter the Percentage of Subscribers for this Area Code: 100

Enter the Area Code for the next set of subscribers:

Enter the Percentage of Subscribers for this Area Code:

Note: The two lines above repeat if there are more area codes.

Would you like to re-enter the area codes and percentages? No

21 You are then asked to define the T1 Span parameters. Defaults, which are normally acceptable in North America, are shown in bold face print.

Please enter the T1 Span parameters.

Select InternalBCTiming if a span is connect to the switch via channel banks. Select ExternalT1Timing if connected to a DMS, DTC or DAX.

SPAN A: **InternalBCTiming**, ExternalT1Timing

If a system has 24 channels, you will be prompted for Span A only. If there are 48 channels, prompts for Span A and Span B will appear. Similarly, for 72 channels, you will be prompted for Spans A through C, and so on, until for 192 channels prompts for Spans A through H will be shown.

Line Signalling: **DTMF**, DP

Line Intf Type: **FXOGrdStart**, FXOLoopStart, FXSGrdStart,FXSLoopStart, FourW_EnMtype

Start Type: **WinkStart**, ImmedStart, DelayStart

Trunk Type: **NonDIDTrunk**, DIDTrunk, ASPTrunk

Frame Format: **D4**, ESF

Line Code Format: **B8ZS**, B7, Transparent

Note: Ensure that you are using the same Line code format as in the CO switch. For a system with NT6X50AA cards use **B7**. For a system with NT6X50AB cards use **B8ZS**.

Line Length: **0to133**, 133to266, 266to399, 399to533, 533to655

T1 Alarm: **Bit_Two**,
for D4 Frame Format: s_Bit
for ESF Frame Format: default is **Alternate**, option is Bit_2

T1_Debounce: **130**, 50 to 512 (in increments of 16)

T1_GuardTime: **130,** 0 to 1024 (in increments of 16)

ESFD: **0**, 0 to 253

BCVR: **0**, 0 to 253

OOFD: **0,** 0 to 253

Ring Pulse: **130**, 0 to 500

Hook Flash Pulse: **320**, 0 to 500

Do you wish to re-enter the span parameters? No

22 You are then asked to define the T1 link information:

TI Channel Definition

Select operation: Change

Your options for Select operation are:
Change - to enter settings for a range of channels

The parameters for each channel within the selected range are set to the values entered except, starting with the value entered:
DN - is incremented by one
Message Terminal - is incremented by one

Display - to view settings for a range of channels
Done - to commit the channel settings and continue.

If you choose Display, you will see a listing similar to the following:

Please enter the range of channels for this operation.

First Channel: **1**

Last Channel: **4**

Chan #	DN	UCDDN	Login	Logout	AgtID	Msg Term	LinkID	AgtPos
1	2800	3650	*88	*89	3650	1	1	
2	2801	3650	*88	*89	3650	2	1	
3	2802	3650	*88	*89	3650	3	1	
4	2803	3650	*88	*89	3650	4	1	

Select Operation: **Change** (Done, Display)

There are 48 channels.
Please enter the range of channels for this operation.

First Channel: **1**

Last Channel: **48**

DN : **2800** (Default: may be up to 7 digits. See Service Orders section of *Translations Guide,* (NTP 297-7001-310))

Link Type: **SMDI**

UCDDN: **3650** (See Table DNROUTE in *Translations Guide,* (NTP 297-7001-310))

Login Code: ***85** (See entry for UCDA in Table IBNXLA in *(Translations Guide* NTP 297-7001-310))

Logout Code: ***84** (See entry for UCDD in Table IBNXLA in *Translations Guide* (NTP 297-7001-310))

Agent ID: **3650** Same as UCDDN

NRDD Code: ***88**

Message Desk: **63** **(**See message desk field in Table UCDGRP in *Translations Guide* (NTP 297-7001-310)

Message Terminal: **1** (Agent DN for DMS)

Link ID: **1**

Note: Link ID - The name of the SMDI link. The Link ID for each SMDI port is unique and must be entered at this time. Repeat this operation until all SMDI links have been defined. You can enter numeric or alpha characters in this field. It is recommended that you enter a meaningful name (as opposed to a number) so that it is easy to identify the link.

Agent Position ID: **9999**

Switch Type: **DMSCentrex** *

Select Operation: **Change** (Done, Display)

***** *If you need to modify the switch record data, please refer to System Administration Utilities (NTP 297-7001-310)*

23 The next system action is to display the dataports, for example:

The following dataports are on this system:

Node 1	**Card 2**	**Port 1**	**Console**
Node 1	**Card 2**	**Port 2**	**Con**
Node 1	**Card 2**	**Port 3**	**Con**
Node 1	**Card 2**	**Port 4**	**Printer**
Node 2	**Card 3**	**Port 1**	**Con**
Node 2	**Card 3**	**Port 2**	**Con**
Node 2	**Card 3**	**Port 3**	**Con**
Node 2	**Card 3**	**Port 4**	**Printer**
Node 3	**Card 1**	**Port 1**	**Con**
Node 3	**Card 1**	**Port 2**	**Modem**
Node 3	**Card 1**	**Port 3**	**Con**
Node 3	**Card 1**	**Port 4**	**Con**
Node 4	**Card 3**	**Port 1**	**Con**
Node 4	**Card 3**	**Port 2**	**Modem**
Node 4	**Card 3**	**Port 3**	**Con**
Node 4	**Card 3**	**Port 4**	**Con**
Node 13	**Card 3**	**Port 1**	**SMDI**
Node 13	**Card 3**	**Port 2**	**Modem**
Node 13	**Card 3**	**Port 3**	**Modem**
Node 13	**Card 3**	**Port 4**	**Modem**
Node 14	**Card 1**	**Port 1**	**Modem**
Node 14	**Card 1**	**Port 2**	**Modem**
Node 14	**Card 1**	**Port 3**	**Modem**
Node 14	**Card 1**	**Port 4**	**Modem**

Note: The above are default port assignments for the system.

The following constraints exist for the above dataport assignments:
- Port 2 on all nodes may only be configured as Modem or SMDI.
- With the exception of T1 nodes, ports 1,3 and 4 may not be set to Modem or SMDI.

Please assign the dataport locations.

24 If you need to change the dataport assignments from what is displayed press the up or down arrow key until the desired selection is displayed on the screen, then press <Return>. For this operation the options are Change, Display, and Done. If you have redundant SMDI ports or wish to use the User Administration terminal, you must enter **Change**.

Select Operation: Change

25 The system then asks if you wish to have redundant SMDI ports. If you answer Yes, a redundant partner will be created for the SMDI Port on your system. Also, if any subsequent SMDI ports are added, they will automatically be given a redundant partner.

Does this system including redundant SMDIs?

26 Configure the dataports as desired. (The choices for the non-default dataports are: Modem, Con, SMDI, UAT, and Printer.) Enter the desired dataport type for each port pressing <Return> after each entry. As a final step select "Done" after all entries have been assigned and press <Return>. Note that not all ports can be configured for all dataport types.

Note: Depending on the features installed the system may ask you to define a UAT port.

27 You will then be prompted to enter the Baud rate and Link ID for each SMDI port. If you have selected redundancy, the Baud rate and Link ID will automatically be set to match that of the master port.

Select Operation: Done

Set SMDI baud rates
<Node number><Card number><Port number>

Enter the Baud Rate for this SMDI Port: 2400

Enter the Link ID: 254 (up to eight alpha-numeric characters
-- these must match the switch ID)

Do you wish to re-enter the Baud rates or Link IDs? No

Note: Link ID - The name of the SMDI link. The Link ID for each SMDI port is unique and must be entered at this time. Repeat this operation until all SMDI links have been defined. You can enter numeric or alpha characters in this field. It is recommended that you enter a meaningful name (as opposed to a number) so that it is easy to identify the link.

28 When you select No, by using the up/down arrow keys followed by <Return>, the system responds with the message:

All required information has been input.
Do you wish to continue, re-enter information, or abort? Continue

29 This is the final operation for software installation. If you previously selected "From Another Tape" for Language Expansion, you will be prompted to remove the current tape, insert the new tape, and repeat Step 16 after the system files and the languages which were selected on the initial tape have been copied. (This will take about 45 minutes.)

30 If you select Continue, the system runs a variety of routines, ending as indicated below. If you select Re-enter, you are returned to the beginning of this procedure and may review and/or change information as it is presented again. If you select Abort, all changes made to this point will be lost. The final messages are:

The system has been installed.
Please remove the tape and boot to full service.
#TAPE:MMTAPE1>

Remove the tape, turn the system power off, wait ten seconds then turn it on again. After the system reboots, normal operation can resume.

After booting, the DMS VoiceMail logon screen will appear and normal operation can commence. This will take from ten to fifteen minutes per node. Refer to Chapter 1 for details on rebooting, power-up, and power-down procedures.

Note: It is important that the INSTALL/DATA tape be stored in a safe place. This will ensure that if you need to re-install or modify the system you will have access to it.

Chapter 4: Software upgrade

This chapter tells how to upgrade a DMS VoiceMail system:

- **Upgrade**
  Upgrading is the process of changing the system software within a given release (e.g. from SPM 02 release 1.10 to SPM 02 release 1.20). Upgrading does not allow users to modify the system in any way. Features, hours, languages and hardware cannot be changed during an upgrade. If a user wishes to install new features, the system must first be upgraded then expanded to permit the desired feature(s).

CAUTION
Loss of service
Each of the off-line procedures outlined in this guide will cause service to be interrupted.

Perform a courtesy down procedure on the system prior to commencing any of the procedures described in this guide. This will prevent calls from being abruptly terminated when the operation commences.

If you have a printer attached to your terminal, set your terminal up to automatically print anything that appears on the screen, after the System Installation and Modification menu appears. This can be done by pressing the <CTRL> and <W> keys simultaneously, then pressing <p>. Use the same command to toggle back to normal (non-printing) mode.

Note: Before performing the procedures outlined in this chapter, make sure that you have consulted chapters 1 and 2 of this guide. Failure to do so could cause you to omit important steps in the process.

Procedure 4-1xxx
Upgrade SPM O2

Starting Point

1 Power the system down by turning off all MSP 1 power supplies.

2 Insert the INSTALL/DATA tape into the tape drive.

3 Power the system up by turning all Node 1 power supplies on.

4 After about a minute or two you will be asked if you want to skip tape retensioning. The following prompt will appear,

Enter NR to skip tape retension (5 sec):

5 To ensure that your INSTALL/DATA tape is in the proper state whenever you need to use it, we recommend that you do not skip tape retensioning. However, if you want to skip tape retensioning, you must enter “NR” within five seconds of the appearance of the prompt. If you want to ensure that you do not miss the 5 second period, type “NR” at any time during the initial system prompting and your entry will be recognized when the prompt appears. If you do not enter “NR”, you will have to wait about 10 minutes longer while the tape rewinds.

Again, you will see a series of system messages. Depending on the number of nodes in the DMS VoiceMail system, it should take between five and ten minutes to load the software. Once loaded, the System Installation and Modification menu is shown.

Figure 4-1
System Installation and Modification menu.

```
    System Installation and Modification menu

1   Install an SPM02 system
2   Upgrade to the latest SPM02 release
3   Prepare MM8 system for conversion to SPM02 system
4   Complete MM8 system Conversion to SPM02 system
5   Feature Expansion
6   Hardware Modification
7   Language Expansion
8   Restore System from Backup
9   Change to Default System Password
10  Move Voice Services Cabinet
11  Exit to Support Level

    Please enter the operation number:
```

6 Press the up or down arrow key until the number “2” is displayed on the screen, then press <Return>, or enter the digit “2”.

You have chosen to Upgrade to the latest SPM 02 Software
Do you wish to continue?

7 Press the up or down arrow key until the word “Yes” is displayed on the screen, then press <Return>. Selecting No, returns you to the main menu.

Upgrade to the latest SPM 02 Software

8 If the system has languages with prompts stored on another tape, after all the required software and languages have been copied from the first tape, you will see the following prompt after about 45 minutes:

Please remove the current tape

9 Remove the tape and press <Return>.

Insert new tape

10 Insert the new tape and press <Return>. If another tape is required, steps 8 to 10 will be repeated.

11 The software upgrade procedure continues without further intervention (this will take approximately 1 hour, plus 20 minutes per language installed) until the following message appears:

The system has been upgraded to the latest SPM 02 software release

12 As a final step the system prompts you with:

Please remove the tape and boot to full service.

Remove the tape, turn the system power off, wait ten seconds then turn it on again. After the system reboots, normal operation can resume. Refer to Chapter 1 for details on rebooting.

Chapter 5: Software upgrade (On-line)

This chapter tells how to upgrade a DMS VoiceMail system using On-line procedures:

- **Upgrade**
  Upgrading is the process of changing the system software within a given release (for example, from SPM 02. release 1.10 to SPM 02 release 1.20). Upgrading does not allow users to modify the system in any way. Features, hours, languages and hardware cannot be changed during an upgrade. If a user wishes to install new features, the system must first be upgraded then expanded to permit the desired feature(s).

The following are time estimates for each of the separate on-line stages:
The Preparation Stage (approximately 20 minutes)
The Start System Stage (approx. 90 minutes)
The Completion Stage (approx. 20 minutes + 45 minutes to sync disks)

Note: Before performing the procedures outlined in this chapter, make sure that you have consulted chapters 1 and 2 of this guide. Failure to do so could cause you to omit important steps in the process.

Note : If errors occur during On-line system maintenance, gather the related SEER reports and consult the *Maintenance Messages Manual,* (NTP 297-7001-510), and the *Trouble Locating and Alarm Clearing guide,* (NTP 297-7001-503), for information on how to recover from the problem.

Note : During On-line maintenance procedures, the system status screens on the MMI may not be accurate.

Procedure 5-1xxx
Software upgrade (On-line)

Starting Point: MMI login screen

1 Logon to the Tools level. (For more information on how to do this see the *System Administration Tools Guide*, (NTP 297-7001-305)). The screen below should appear.

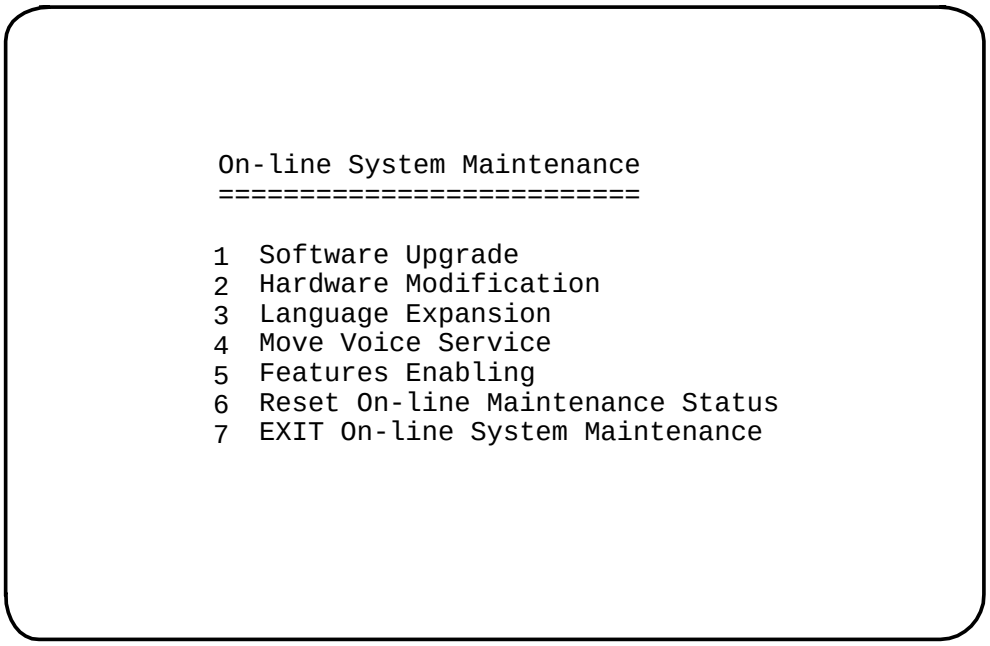
Figure 5-1
SPM 02 special tools package menu

```
                   SPM02 Special Tools Package

                       TOOLS Level Access

 1   Move user                   - moves user cabinets one at a time
 2   Modify hardware             - modify hardware database
 3   Set silence compression     - compress out/leave in recorded silence
 4   Control volume              - increase/decrease voice volume
 5   Update MWI                  - update Message Waiting Indicator
 6   Block DMS VoiceMail         - block access to DMS VoiceMail
 7   Find Users                  - find users in the system
 8   Audit all volumes           - audit all volumes on the system
 9   Rebalance directory         - rebalance the organization directory
10   Convert COS                 - Assign COS to users
11   On-Line system maintenance - perform on-line system upgrade
12   Synchronize Disks           - disk shadowing maintenance
13   Other                       - other system/feature dependant options

________________________________________________________________________
Select an item >

  Logoff        Redraw        Help        Release
                                          Version
```

* The "Other" option is available if other features are installed.

2 Select number 11 from the menu. The On-line System Maintenance menu should appear as shown below.

Figure 5-2x
On-line system maintenance menuxx



Note: The “Reset On-line Maintenance Status” selection above is used only if a problem occurs during an On-line Maintenance function. Refer to the *Trouble Locating and Alarm Clearing Guide*, (NTP 297-7001-503), for more information on how to use it.

3 Once you have the On-line System Maintenance menu, enter number 1 at the prompt to begin preparation of the Software Upgrade procedure.

Select an item:

Preparation stage

4 You have now started the preparation stage of the On-line System Maintenance operation. After the following system messages, you will be asked if you want to proceed

Start On-line Maintenance Operation

Create On-line log file

If a On-line log file already exists, you will get the following two prompts asking you if you want to remove it.

Previous On-line log file Exists

Save old log file (Yes or No)?

5 Toggle the up or down arrow key until the word Yes or No appears.

You are about to prepare the system for On-line Software upgrade

Do you wish to continue (Yes or No)?

6 Toggle the up or down arrow key until the word Yes appears. If you chose No the operation will abort.

7 A number of messages will appear on the console declaring that the system is checking status.

8 If the disks on your system are not shadowed, or if the MSP nodes and T1 Spans are not redundant, a warning will occur and the system will ask you if you want to continue.

9 Next you will be asked how long you would like the system to wait before courtesy disconnecting active calls. Enter the appropriate length of time at the prompt.

During the On-line maintenance process, the system will courtesy disconnect all active calls for a short period of time. You can specify how long the system will wait before all remaining active calls are forced to disconnect. This warning time can be specified from 0 to 5 minutes in one minute increments.

Enter waiting time (minutes): 5

10 A number of system messages will appear until the following message appears instructing you to install the tape. This will allow the Upgrade software and data files to be copied from tape to disk.

Please insert Install/Data tape
Hit <CR> to continue

11 Install the tape and press <Return> to continue. A number of system messages will appear on the console indicating that the system record is being updated.

12 When the preparation stage of the On-line upgrade process is completed, the following messages will appear:

The On-line maintenance preparation process is completed
Please remove the On-line Maintenance window and restart
the On-line Maintenance operation from the TOOLS level again.

Commit and close On-line log file

On-line maintenance terminated

On-line Maintenance window terminated

Please remove this window!

13 At this point, remove the window by pressing <Control>< W>. This will activate the CLI window.

14 Move the cursor up or down until OL_MAIN is selected.

Note: You must remember to turn the cursor on in order to select choices in the CLI window. This is done by pressing I after the CLI window is activated.

15 Type “R” to remove the OL_MAIN window.

16 Move the cursor up to the MMI Window menu item and press <Return> or type the letter “S” in order to access the MMI TOOLs window again. Figure 5-1 should appear.

17 Logon to the On-line maintenance screen by selecting number 11.

Start system stage

18 Once you have the On-line System Maintenance menu (see Figure 5-2), enter number 1 at the prompt in order to begin On-line Software upgrade operation.

Select an item:

19 You have now started the On-line System Maintenance operation. The following system messages should appear indicating that the process has started

Start On-line Maintenance Operation

Create On-line log file

20 At this point you are given the opportunity to abort the operation.

You are about to start the system for On-line Software upgrade

Do you wish to continue (Yes or No)? Yes

21 Toggle the arrow key up or down and choose YES if you want to continue.

22 At this point the following message appears instructing you to install the tape. The system will copy the operating system from tape to disk.

Please insert Install/Data tape
Hit <CR> to continue

23 Install the tape and press <Return> to continue. A number of system messages will appear on the console indicating that the operating system files are being copied from tape to disk, nodes are being rebooted and files are being updated. During this time, MSP node 2 will take over operation from MSP node 1 as it is rebooted so that MSP node 1 can be upgraded. The process will continue without interruption until the following messages appear:

Reboot MSP node 1

On-line Maintenance window terminated

Please remove this window!

Note: For a period of approximately 60 seconds after the on-line maintenance window has been terminated, the following SEER may print out: “3502: SEER server no longer filing SEERs on disk.” This is not a serious problem, however, be aware that although SEERs are printing at the printer, they may not be saving to disk during this time.

24 In order to remove the window, perform steps 13-16 above

Completion Stage

Note: During this final stage of the on-line upgrade the following SEER message may appear: “MS_INFO: Failed to communicate with SD_MMI”. This is normal and does not indicate a problem with the procedure or the system.

If you are performing On-line Software upgrade by way of remote access, be sure, at this point, to establish your connection with the newly active MSP .

25 During step 23, a switchover occurred from MSP1 to MSP2 because MSP1 was rebooted. You are now connected to MSP2. Once you have the On-line System Maintenance menu again, enter number 1 at the prompt in order to complete On-line Software upgrade operation.

Select an item:

26 You have now begun the completion stage of the On-line System Maintenance operation. The following system messages will appear indicating that the process has started.

Start On-line Maintenance Operation

Create On-line log file

Previous On-line log file exist

27 You will next be asked if you want to save the old log file. Choose Yes or No at the prompt.

Save old log file (Yes or No)? Yes

28 After this action you are given the opportunity to abort the operation.

You are about to complete the system for On-line Software upgrade

Do you wish to continue (Yes or No)? Yes

29 Toggle the arrow key up or down and choose yes if you want to continue.

30 Next you will be asked to check if the system is functioning properly. You can check the system sanity by,
1. Sending a voice mail message to a mailbox;
2. Pressing <Control><W>, selecting the MMI screen, and accessing the System Status and Maintenance Menus. You must remove this window before proceeding. Before you check system sanity, note the following warning that appears on your console:

Note: Some voice channels may still be disabled
Do not enable these channels until the whole
On-line maintenance is completed.

Is the system functioning (Yes or No)? Yes

The above prompt will appear again later in the process because only one side of the system is rebooted at a time.

31 Toggle the arrow key up or down and choose yes if you want to continue.

32 A number of system messages will appear on the console indicating that the system is updating files and rebooting nodes. The process will continue without interruption until completed. When the completion stage of the On-line upgrade process is finished, the following messages will appear:

Commit and close On-line log file

On-line Maintenance window terminated

Please remove this window!

33 Perform steps 13 -16 above.

34 This concludes the On-line procedure for Software upgrade.

Chapter 6: Conversion from MM8 to SPM02

This chapter tells how to convert a DMS VoiceMail release MM8 to an SPM 02 system (for the Dedicated SPM only).

- **Conversion**
  Conversion is the process of changing the system software from one release to another (for example, from MM8 to SPM02). Conversion does not allow users to modify the system in any way. Features, hours, languages and hardware cannot be changed during a conversion.

  Note: If problems occur during Conversion refer to the *Trouble Locating and Alarm Clearing Guide*, (NTP 297-7001-503) and the *Maintenance Messages (SEER) manual*, (NTP 297-7001-510).

Overview of conversion procedures

The conversion from MM8 to SPM02 is performed in 3 stages which consist of one or more steps. All stages must be completed for a successful conversion to SPM02.

1 Prepare the MM8 system for Conversion to SPM02.
   a. Boot the system from tape
   b. Select the menu item entitled Prepare MM8 System for Conversion to SPM02 System from the System Installation and Modification menu. (This action will copy the necessary files for the next stage in the conversion process.)
   c. Boot the system to full service. (At this point you will still have an MM8 system running.)

2 Perform an online directory conversion on the running MM8 system from the ETAS utilities screen.

3 Complete the MM8 to SPM02 Conversion.
   a. Boot the system from tape
   b. Select Complete MM8 system conversion to SPM02 system from the System Installation and Modification menu. (At this point your system has been converted to SPM02.)

c. Boot your system to full service.

CAUTION
Loss of service
Each of the off-line procedures outlined in this guide will cause service to be interrupted.

If you have a printer attached to your terminal, set your terminal up to automatically print anything that appears on the screen, after the System Installation and Modification menu appears. This can be done by pressing the <CTRL> and <W> keys simultaneously, then pressing <p>. Use the same command to toggle back to normal (non-printing) mode.

Note: Before performing the procedures outlined in this chapter, make sure that you have consulted chapters 1 and 2 of this guide. Failure to do so could cause you to omit important steps in the process.

Procedure 6-1xxx
Conversion from MM8 to SPM02

Starting Point: Running MM8 system

Prepare MM8 system for MM8 to SPM02 conversion

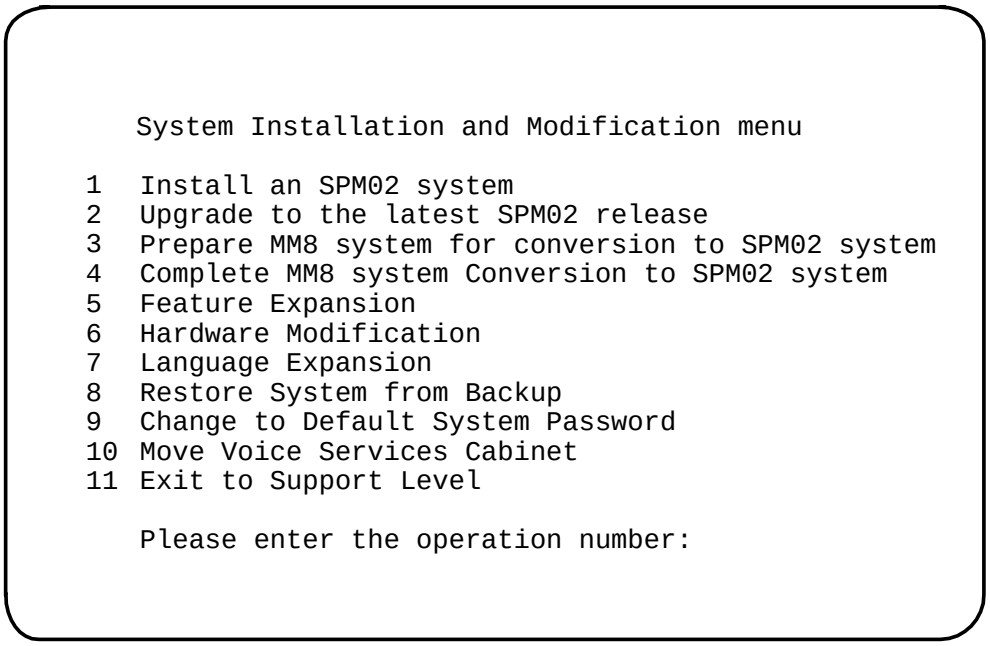
1. Courtesy down the system (See chapter 2 for detailed procedures).
2. Power the system down (See chapter 2 for detailed procedures).
3. Insert the INSTALL/DATA tape into the tape drive.
4. Power the system up (See chapter 2).
5. After about a minute or two you will be asked if you want to skip tape retensioning. The following prompt will appear,

   Enter NR to skip tape retension (5 sec):

6. To ensure that your INSTALL/DATA tape is in the proper state whenever you need to use it, we recommend that you do not skip tape retensioning. However, if you want to skip tape retensioning, you must enter “NR” within five seconds of the appearance of the prompt. If you want to ensure that you do not miss the 5 second period, type “NR” at any time during the initial system prompting and your entry will be recognized when the prompt appears. If you do not enter “NR”, you will have to wait about 10 minutes longer while the tape rewinds.

   Again, you will see a series of system messages. Depending on the number of nodes in the DMS VoiceMail system, it should take between five and ten minutes to load the software. Once loaded, the System Installation and Modification menu is shown.

Figure 6-1
System Installation and Modification menu.



**** Note:*** The above marked system operations are only used to perform the conversion from one platform to another and are documented in the specific Platform Conversion manuals. Please contact your Northern Telecom support organization for more information.

7 Press the up or down arrow key until the number “3” is displayed on the screen, or enter the digit “3” and then press <Return>.

8 You will now see the following messages on the console.

You have chosen to prepare MM8 system for conversion to SPM02 system Do you wish to continue?

9 Press the up or down arrow key until the word “Yes” is displayed on the screen, then press <Return>. Selecting No, returns you to the main menu.

10 You will now see the following messages on the console.

Prepare MM8 system for conversion to SPM02 system.

Copying conversion utilities

The preparation of your MM8 system has successfully completed

Please remove the tape and boot to full service

On-line DR conversion

11 Power the system down (See chapter 2 for detailed procedures).

12 Power the system up (See chapter 2) to reboot the system.

13 Once the system has been re-booted, log in to ETAS utilities level maintenance at main login screen. Note that the system is now in full service and will be answering calls.

14 Choose “MD_DR” from the ETAS menu.

15 Go to the MD_DR window

16 Enter the command <load dr8to1conv> to load the conversion software.

17 Press <Control><W><P> for autoprint.

18 Enter the command <dr8to1conv> to run the conversion.

19 You will be presented with the following message.

MM8 to SPM02 OnLine Conversion

Before continuing ensure that you have read the NTP and are following the steps outlined

Continue? No

20 Use the up or down arrow keys to change from No to Yes, then press <Return>.

21 You will next be prompted for the following information

Enter length of Network DN: (This is the length of the area code+exchange +number. In North America this is typically a 10 digit number. For example: (416-598-0196).

Enter NPA Code for converting mailboxes: (This is the area code used in converting mailboxes. It will be the area code for the current subscribers in the system.)

Number of expected entries for priming: (In the conversion process, priming refers to setting aside space in an empty organization directory for the anticipated user data. The number of entries is a function of the number of voice nodes on the system. The values entered should be:

Number of voice nodes	Expected number of entries
2	12,000
3	18,000
4	24,000
5	30,000
6	36,000
7	42,000
8	48,000

The default corresponds to the number of voice nodes currently on your system. If you expect your system to grow, then enter the number of entries corresponding to your anticipated number of voice nodes.

22 You will now be prompted to enter the space needs of users mailboxes on a per area code basis. Up to five area codes and their percentage of use may be specified. The total percentage for all the area codes entered must add up to 100%. For example with two area codes, if you choose 90% for the first area code, then you must enter 10% for the second area code. To finish entering area codes enter 0%.

Enter the area code for the first set of subscribers:

Enter the percentage of subscribers for this area code:

Enter the area code for the next set of subscribers:

Enter the percentage of subscribers for this area code:

23 You will now be given the opportunity to re-enter the area codes and percentages.

Would you like to re-enter the area codes and percentages? Yes

Select YES to re-enter and NO to continue with the process.

24 You will be given one last chance to re-enter all of your input data or quit. Press the up or down arrow key until the word the appropriate selection appears. If you wish to continue press <Return>.

About to do an actual conversion (Continue, Re-enter all data, Quit) Continue

Use the up or down arrow keys to choose either Continue, Re-enter or Quit followed by <Return>. If you choose Re-enter, you will be returned to step 21. If you choose Quit, you will be safely returned to the MD_DR prompt and nothing will have been changed. If you choose Continue, the conversion will proceed.

The system will now begin creating a conversion directory and filling it with converted entries.

As the conversion continues, status information will be displayed on the terminal. The text that appears on the screen is as follows:

Creating new, empty directory files
for conversion directory...
xxx

Note: The xxx is a counter of files created and will be less than the number of expected entries.

Starting conversion directory server...

Auditing system volume...

Disabling updates and audits on
the main directory. They will
remain disabled.

As the conversion continues, status information will be displayed on the terminal. The text that appears on the screen is as follows:

Beginning conversion of xxx directory entries...

Ongoing status and errors will be displayed.

Updating system distribution lists on conversion directory...

Ongoing status and errors will be displayed.

Conversion directory populated.

If any entries are lost that information will be reported here.

Auditing conversion directory...*Regular progress will be reported as well as any errors encountered. If errors in conversion do occur, SEERS will be printed so that the user can use them to correct the problem and re-run the conversion. For more information on correcting problems see the Maintenance Messages manual (SEERS) (*NTP 297-7001-510)*, and the Trouble Locating and Alarm Clearing Procedures manual,* (NTP 297-7001-503)*.*

25 You will next be asked whether or not you want to shut down the conversion directory. Press the up or down arrow key until the word “Yes” is displayed on the screen, then press <Return>. Selecting No, will allow you to continue to monitor converted entries.

Shutdown conversion directory server?

When the DR conversion has completed, you would typically shutdown the conversion directory server. However, if you are familiar with the MD_DR utility, you may exit the directory server leaving the conversion directory running in order to view converted entries.

The conversion utility will finish with a summary of the results. If errors were encountered during the conversion, the software will re-enable the updates on the DR Server. This gives the administer the chance to correct problem users at the User Administration screen and re-run the conversion. (see (NTP 297-7001-301) *for more information). If changes are made after the DR conversion, the process will have to be re-run or else the updates will be lost.*

Note: *The entire DR conversion process will take approximately 3-5 seconds per user.*

Re-running DR conversion

After the DR conversion, depending on what the system has reported, you may want to correct any errors encountered and re-run the DR conversion. To do this, start again at step 15.

Since the DR conversion directory will still be on disk, the following prompt will appear indicating that the existing DR conversion directory can be used during the re-run. This significantly reduces the time it takes to do the DR conversion since only the corrected data is added to the process (3-5 seconds for each user to be converted plus overhead required to scan the entire directory).

Conversion directory still on disk. Continue previous conversion?

If you have not shut down the conversion directory server as in step 25, you may also be prompted with the following:

Conversion directory server still running. Continue previous conversion?

26 At both or either of the above prompts, press the up or down arrow key until the word YES is displayed on the screen, then press <Return>. If you select NO, the previous DR directory will be removed and you will be prompted for all DR conversion information over again as in steps 21-25 and all the users will be re-converted. This process will take approximately 3-5 seconds per user.

Complete MM8 to SPM02 conversion

27 Courtesy down the system (See chapter 2 for detailed procedures).

28 Power the system down (See chapter 2 for detailed procedures).

29 Insert the INSTALL/DATA tape into the tape drive.

30 Power the system up (See chapter 2).

31 After about a minute or two you will be asked if you want to skip tape retensioning. The following prompt will appear,

Enter NR to skip tape retension (5 sec):

32 To ensure that your INSTALL/DATA tape is in the proper state whenever you need to use it, we recommend that you do not skip tape retensioning. However, if you want to skip tape retensioning, you must enter “NR” within five seconds of the appearance of the prompt. If you want to ensure that you do not miss the 5 second period, type “NR” at any time during the initial system prompting and your entry will be recognized when the prompt appears. If you do not enter “NR”, you will have to wait about 10 minutes longer while the tape rewinds.

Again, you will see a series of system messages. Depending on the number of nodes in the DMS VoiceMail system, it should take between five and ten minutes to load the software. Once loaded, the System Installation and Modification menu, as indicated in Figure 6-1, is shown.

33 Press the up or down arrow key until the number “4” is displayed on the screen, or enter the digit “4” and then press <Return>.

34 You will now see the following messages on the console.

You have chosen to complete conversion of MM8 system to SPM02 system
Do you wish to continue?

35 Press the up or down arrow key until the word “Yes” is displayed on the screen, then press <Return>. Selecting No, returns you to the main menu.

36 You will now see the following messages on the console.

Converting MM8 system to SPM02 system

Checking version of current software

Converting MM8 System record to SPM02 format

Saving system record to disk

37 Next you will be prompted for Conversion information.

Gathering Conversion Information

->Recreate DSP configuration file? No

->Enter length of Network DN: 10 (maximum of 18)

->Enter NPA Code: 416

The network DN length and NPA Code must be the same as in Step 21.

38 After you have entered the above information, the system will continue without interruption until it is done. This will take about one hour or more depending on the number of user mailboxes on the system. A number of system messages will appear informing you that files are being created and copied. When the process is done the following message will appear:

The system has been converted to the latest SPM02 release

39 As a final step the system prompts you with:

Please remove the tape and boot to full service.

40 At this point you can reboot, however; before you do, we recommend that you verify that the procedure has worked correctly by performing the following procedures. *This verification procedure will only work if you have not rebooted your system.*

Checking log files after conversion

41 In order to check if a conversion has been successful, you will need to examine the Log files created by the profile conversion portion of the program. In order to do this follow these steps.

a. At the prompt, type the following commands exactly as shown.

fkvs1

load :rw1:area:med_pkg

cd :rw1:fieldsupport : convlogs

listdir

The first command starts up the necessary volume server. The second command above loads the system editor into memory. The third command places the user into the log file directory. The log files will be displayed on the screen when you enter the command "listdir".

The name of the log file that contains system and customer profile conversion information is "orglog.txt." There will also be one log file for each existing voice node on the system. Each file will named according to the following format: "perlogNN.txt" where "NN" is a two digit number representing the system's voice nodes. For example, if the system's voice nodes are 2 and 3, two files should exist in the above directory named "perlog02" and "perlog03." Each log file will contain information about that particular voice node.

b. You will next invoke the editor with the command "ed" in order to view the contents of your selected log file. Enter the following command, where "NN" is represents the number of the voice node you wish to view.

ed perlogNN

c. Once the file has been loaded into the editor, use the cursor keys to move around the screen. Look for a message informing you that the conversion has either completed or aborted.

The content of the log file will vary depending on what went on during the conversion. There should, however, be a line informing you that the personal profile conversion has started, one that tells you that it has completed or aborted, and between the two entries there will be entries giving information on the status of individual profiles.

Due to the possibly large number of users converting, only profiles that failed to convert will be logged. The log will clearly state the mailbox number of the profile that failed as well as a return code which will help you diagnose the problem. In some cases there will be a message that states the customer profile of a particular mailbox could not be read. This indicates the profile of the mailbox was not converted because in order to convert the profile, both the user profile and the associated customer profile must be opened.

Within the log there may also be a message indicating that a number of users were converted in a certain period of time. For example the following message may appear

20 users were converted in 0 minutes

The above message means that 20 user profiles were converted in less than 1 minute. On average, a user profile is converted in 2-3 seconds. A message indicating that on average a profile took over 10 seconds to convert, may indicate that something is wrong with the system setup or the program itself.

In analyzing a failed conversion the following two courses can be taken:
1. If the organization profiles have not been converted, examine the return codes associated with each user profile in order to fix the problem. After all the profiles have been fixed, start the last conversion process again.

2. If the organizational profiles have been converted and the user profiles have not, you must reboot the system, delete the unconverted user profiles and re-add them to the system by going to the User Administration screen (see (NTP 297-7001-301*)).*

The log file may indicate that the conversion has aborted. In this case you will not know how many profiles have been converted. This usually indicates that a system resource was unavailable. For example, the DR may become corrupted which will not allow the system to retrieve information from it during the conversion. In order to correct this problem, fix the resource, reboot, and try the conversion again.

In the case where the a conversion has been re-run, the log files will contain multiple instances of messages. Look at the latest one to understand what has happened during the last conversion

d. In order to exit from the editor enter **<Tab> q** in order to get the menu, followed by **e** to exit.

e. Next view the “orglog” file to see if the system and customer profile information has converted correctly. To do this type in the following at the prompt.

ed orglog

f. Once the file has been loaded into the editor, use the cursor keys to move around the screen. Look for a message informing you that the conversion has either completed or aborted.

g. For each organization profile converted, an entry will be added to the “orglog” file. You will see entries similar to the following

Starting organizational profile conversion...

Converting the system profile...

Converting the profile of customer 1...

Converting the profile of customer 2...

Error! Unable to read profile’s VSP record. Rc = 1003

Converting the profile of customer 5...

The above example shows that the system profile and the customer profile of customer 1 were converted successfully. However, customer 2’s profile was NOT converted properly. Use the return code to find out the reason for the failure, correct the problem and then re-run the conversion. Since the organizational profile conversion does not always depend on the personal profiles, it is always possible to rerun it. Also check carefully through the file to make sure all customer profiles were converted.

In some cases there may be a warning entry in the log. A warning usually indicates that a minor problem has occurred. This type of problem can usually be corrected after the reboot. In this case it is not necessary to rerun the conversion.

The log file may indicate that the conversion has aborted. This usually indicates that a system resource was unavailable. For example, the DR may become corrupted which will not allow the system to retrieve information from it during the conversion. In order to correct this problem, fix the resource, reboot, and try the conversion again.

In the case where the conversion has been re-run, the log files will contain multiple instances of messages. Look at the latest one to understand what has happened during the last conversion.

h. In order to exit from the editor enter **<Tab> q** in order to get the menu, followed by **e** to exit.

Remove the tape, turn the system power off, wait ten seconds then turn it on again. After the system reboots, normal operation can resume. Refer to Chapter 2 in the section entitled ”Bootup Procedures” for details on power up/power down procedures. After the conversion to SPM02, the system is now running the new software. You may notice that some of the MMI screens may have changed from MM8, however, customer groups and mailboxes have been retained.

New MMI screens after conversion

After you have converted your system to SPM02 system software, you may notice that the appearance of some of the MMI screens have changed slightly from what you were used to in MM8. For example, you will notice that the Customer Administration screen has changed. In previous releases of the software, all of the customer groups were automatically displayed at once. Now however, the user selects particular search criteria and pressing a softkey, displays the required customer group. For more information on MMI screens, see the *Customer Administration Guide*, (NTP 297-7001-301).

Chapter 7: Feature Expansion

Feature expansion allows you to add DMS VoiceMail features such as Voice Forms, Voice Menus.

This procedure should take approximately two hours. The time is the same for all systems. Before beginning this procedure, read Chapter 1 for information about displaying the Software configuration operations menu and selecting an option. Read and understand all steps in this procedure before proceeding.

CAUTION
Loss of service
Each of the off-line procedures outlined in this guide will cause service to be interrupted.

Perform a courtesy down procedure on the system prior to performing any of the procedures described in this guide. This will prevent calls from being abruptly terminated when the operation commences. Refer to Chapter 1 for details on powering down the system.

If you have a printer attached to your terminal, set your terminal up to automatically print anything that appears on the screen, after the System Installation and Modification menu appears. This can be done by pressing the <CTRL> and <W> keys simultaneously, then pressing <p>. Use the same command to toggle back to normal (non-printing) mode.

Note: Before performing the procedures outlined in this chapter, make sure that you have consulted chapters 1 and 2 of this guide. Failure to do so could cause you to omit important steps in the process.

Procedure 7-1
Feature Expansion

Starting point

1 Power the system down. Refer to chapter 1 of this document for details of the power up/power down procedures.

2 Insert the INSTALL/DATA tape into the tape drive.

3 Power the system up.

4 The system will automatically run a series of diagnostic routines. This should take two to three minutes. Once these routines have been executed the DMS VoiceMail software will be loaded from the tape.

Note: Booting from tape should take about five minutes. Once the software is loaded, the System Installation and Modification menu indicated below, will be shown.

Figure 7-1
System Installation and Modification menu.

```
    System Installation and Modification menu

1   Install an SPM02 system
2   Upgrade to the latest SPM02 release
3   Prepare MM8 system for conversion to SPM02 system
4   Complete MM8 system Conversion to SPM02 system
5   Feature Expansion
6   Hardware Modification
7   Language Expansion
8   Restore System from Backup
9   Change to Default System Password
10  Move Voice Services Cabinet
11  Exit to Support Level

    Please enter the operation number:
```

5 Press the up or down arrow key until the number 5 is displayed on the screen, then press <Return>.

You have chosen Feature expansion
Do you wish to continue?

6 Press the up or down arrow key until the word Yes is displayed on the screen, then press <Return>. A number of system messages will appear indicating that software is being loaded. This should take about 5 minutes.

Do you want to define optional features:

Press the up or down arrow key until the word Yes is displayed on the screen, then press <Return>. If you select No, you are returned to the main menu.

Please enter the feature to enable:

7 Select the appropriate feature name followed by <Return>. You may use the up/down arrow keys to move through the list of features. The system will again prompt to select a feature. Once all desired features have been selected enter Done to continue. Reset reverts to only those features which have already been installed.

Note: The features which are AUTOMATICALLY enabled are:

Selection	**Feature Enabled**
MultiCustomer	Multi-Customer
VMUIF voice Messaging	VMUIF voice Messaging
VMUIF Call Answering	VMUIF Call Answering
MM Voice Messaging	Meridian Mail Voice Messaging
FamilyMailbox	Family Mailbox

The features which can be enabled by selecting them are:

Selection	**Feature Enabled**
AMIS	AMIS (Analog) Networking
VoiceMenus	Voice Menus
VoiceForms	Voice Forms
Multi SMDI	Multiple SMDI links
*AdminPlus	AdminPlus
*Access	Meridian Access
*Networking	Networking

* The above marked features can be selected during this procedure, but they are not supported in SPM02. As a result, they will NOT be installed

8 The features enabled will then be displayed.

The following features are enabled:
Feature name
Feature name

9 The system will prompt you to re-enter features if they have been incorrectly entered.

Do you wish to re-enter features?

Press the up or down arrow key until the desired action is displayed on the screen, then press <Return>. If you select No, the process continues with the next step, if you select Yes, you are returned to step 6.

10 You are next asked to enter the Mailbox levels.

Note: The maximum mailbox level of your system is equal to the number of SPN nodes multiplied by 12.

Enter MMUIF mailbox level: 2
Enter VMUIF mailbox level: 2
Enter Residential mailbox level 2

Enter Family Mailbox level 2

Note: Family Mailbox may not exceed number of VMUIF mailboxes + Residential

11 You are then asked to enter the customer name. (This name is user assigned and can be an alphanumeric string of up to 30 characters. It cannot contain the characters ?, +,-, _, or *.)

Customer Name: DMS VoiceMail

12 You should now see a message indicating that the system is reading the hardware database for information,

13 The next system action is to display the dataports. The last field will include a four digit number after the prefix.

The following dataports are on this system:

Node 1	**Card 2**	**Port 1**	**Console**
Node 1	**Card 2**	**Port 2**	**Con**
Node 1	**Card 2**	**Port 3**	**Con**
Node 1	**Card 2**	**Port 4**	**Printer**
Node 2	**Card 3**	**Port 1**	**Con**
Node 2	**Card 3**	**Port 2**	**Con**
Node 2	**Card 3**	**Port 3**	**Con**
Node 2	**Card 3**	**Port 4**	**Printer**
Node 3	**Card 1**	**Port 1**	**Con**
Node 3	**Card 1**	**Port 2**	**Modem**
Node 3	**Card 1**	**Port 3**	**Con**
Node 3	**Card 1**	**Port 4**	**Con**
Node 4	**Card 3**	**Port 1**	**Con**
Node 4	**Card 3**	**Port 2**	**Modem**
Node 4	**Card 3**	**Port 3**	**Con**
Node 4	**Card 3**	**Port 4**	**Con**
Node 13	**Card 3**	**Port 1**	**SMDI**
Node 13	**Card 3**	**Port 2**	**Modem**
Node 13	**Card 3**	**Port 3**	**Modem**
Node 13	**Card 3**	**Port 4**	**Modem**
Node 14	**Card 1**	**Port 1**	**Modem**
Node 14	**Card 1**	**Port 2**	**Modem**
Node 14	**Card 1**	**Port 3**	**Modem**
Node 14	**Card 1**	**Port 4**	**Modem**

Note: The above are default port assignments for the system.

Please assign the dataport locations.

14 If you need to change the dataport assignments from what is displayed press the up or down arrow key until the desired selection is displayed on the screen, then press <Return>. For this operation the options are Change, Display, and Done.

15 Select Operation: Change

16 Configure the dataports as desired. (The choices for the non-default dataports are: Modem, Con, SMDI, UAT, and Printer.) Enter the desired dataport type for each port pressing <Return> after each entry. As a final step select “Done” after all entries have been assigned and press <Return>. Note that not all ports can be configured for all dataport types.

Select Operation: Done

17 The software will analyze the information entered and will prompt you to enter additional information if necessary.

Set SMDI baud rates

<Node number><Card number><Port number>

Enter the Baud rate for this port:2400

Enter Link ID: 254 (up to eight alpha-numeric characters -- these must match the switch ID)

Note: Link ID - The name of the SMDI link. The Link ID for each SMDI port is unique and must be entered at this time. Repeat this operation until all SMDI links have been defined. You can enter numeric or alpha characters in this field. It is recommended that you enter a meaningful name (as opposed to a number) so that it is easy to identify the link.

18 When you select DONE by using the up or down arrow keys followed by <Return>, the system will prompt you with the message:

All required information has been input.

Do you wish to continue, re-enter information, or abort?

19 This is the final operation for Feature Expansion. If the current tape does not contain all of the languages installed on your system, you will be prompted to insert another tape after the system files and the languages on the current tape have been copied. If you select Continue, the system runs a variety of routines, ending as indicated below. If you select Re-enter Information, you are returned to the beginning of this procedure and may review and/or change information as it is presented again. If you select Abort, all changes made to this point will be lost.

20 Once all of the information above has been entered, the procedure will proceed uninterrupted for approximately 1 hour. You will see a number of system messages on the console indicating that files are being copied and updated.

21 When the procedure is completed, the following messages will appear:

Shutting down tape server.

The system features have been expanded

Please remove the tape and boot to full service.

#TAPE:MMTAPE1>

Remove the tape, turn the system power off, wait ten seconds then turn it on again. After the system reboots, normal operation can resume.

After booting, the DMS VoiceMail logon screen will appear and normal operation can commence. This will take from ten to fifteen minutes per node. Refer to Chapter 1 for details on rebooting, power-up, and power-down procedures.

Note: It is important that the INSTALL/DATA tape be stored in a safe place. This will ensure that if you need to re-install or modify the system you will have access to it.

Chapter 8: Feature enable (on-line)

This procedure should be followed when a new node or card, not a replacement, has been added to the system.

On-line feature enable is the on-line system maintenance function that allows you to add features to a running DMS VoiceMail system without requiring a complete shutdown of services. The following procedures do not follow the normal three stage process of the other on-line functions.

The following are time estimates for each of the separate on-line stages:

the preparation stage (approximately 20 minutes)
the start system stage (approx. 90 minutes)
the completion stage (approx. 20 minutes + 45 minutes to sync disks)

Note 1: Before performing the procedures outlined in this chapter, make sure that you have consulted chapters 1 and 2 of this guide. Failure to do so could cause you to omit important steps in the process.

Note 2: If errors occur during on-line system maintenance, gather the related SEER reports and consult the *Maintenance Messages Manual, NTP 297-7001-510*, and the *Trouble Locating and Alarm Clearing guide, NTP 297-7001-503,* for information on how to recover from the problem.

Procedure 8-1
Feature Enable (On-line)

Starting Point: MMI login screen

1 Logon to the Tools level. (For more information on how to do this, see the System Administration Tools guide, (NTP 297-7001-305)). The screen below should appear.

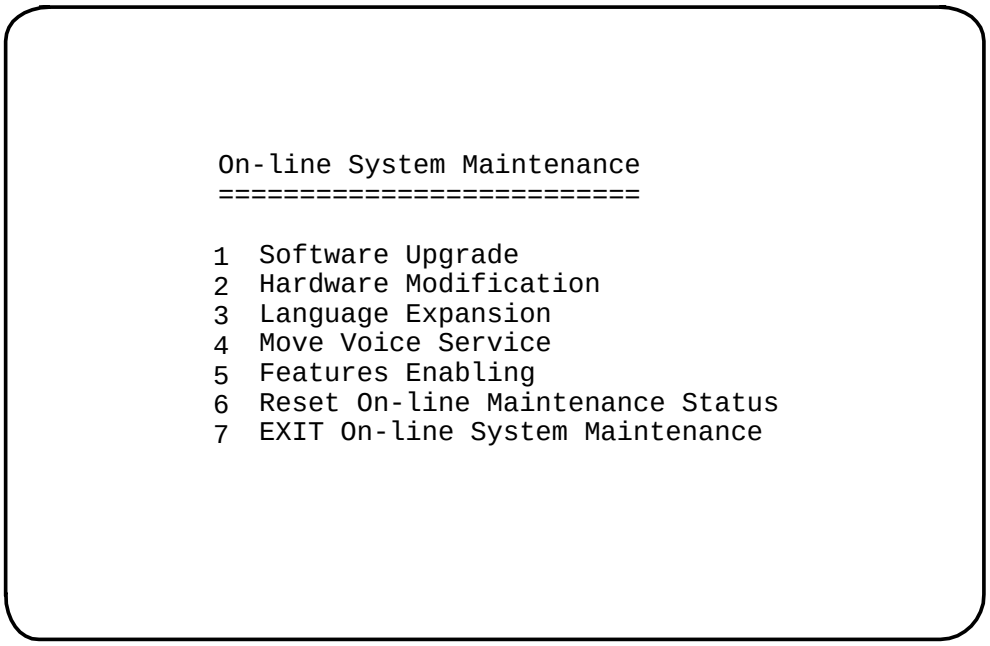
Figure 8-1
SPM 02 special tools package menu

```
                    SPM02 Special Tools Package

                         TOOLS Level Access

 1   Move user                   - moves user cabinets one at a time
 2   Modify hardware             - modify hardware database
 3   Set silence compression     - compress out/leave in recorded silence
 4   Control volume              - increase/decrease voice volume
 5   Update MWI                  - update Message Waiting Indicator
 6   Block DMS VoiceMail         - block access to DMS VoiceMail
 7   Find Users                  - find users in the system
 8   Audit all volumes           - audit all volumes on the system
 9   Rebalance directory         - rebalance the organization directory
10   Convert COS                 - Assign COS to users
11   On-Line system maintenance - perform on-line system upgrade
12   Synchronize Disks           - disk shadowing maintenance
13   Other                       - other system/feature dependant options


Select an item >

 Logoff    Redraw    Help    Release Version
```

* The “Other” option is available if other features are installed.

2 Select number 11 from the menu. The On-line System Maintenance menu should appear as shown below.

Figure 8-2
On-line system maintenance menu



3 Press the up or down arrow key until the number 5 is displayed on the screen, then press <Return>.

Select an item:

4 A number of system messages will appear indicating that software is being loaded. This should take about 5 minutes. The following messages should appear.

Package OL_FEATPKG.AREA loaded

Do you want to define optional features? Yes

5 Press the up or down arrow key until the word Yes is displayed on the screen, then press <Return>. If you select No, you are returned to the main menu.

Please enter the feature to enable: Done

6 Select the appropriate feature name followed by <Return>. You may use the up/down arrow keys to move through the list of features. The system will again prompt to select a feature. Once all desired features have been selected enter Done to continue. Reset reverts to only those features which have already been installed.

Note: The features which are AUTOMATICALLY enabled are:

Selection	Feature Enabled
MultiCustomer	Multi-Customer
VMUIF voice Messaging	VMUIF voice Messaging
VMUIF Call Answering	VMUIF Call Answering
MM Voice Messaging	Meridian Mail Voice Messaging
FamilyMailbox	Family Mailbox

The features which can be enabled using online feature enable are:

Selection	Feature Enabled
AMIS	AMIS (Analog) Networking
VoiceMenus	Voice Menus
VoiceForms	Voice Forms
*AdminPlus	AdminPlus
*Access	Meridian Access
*Networking	Networking

(These features must be installed in your system before they can be enabled)
* The above marked features can be selected during this procedure, but they are not supported in SPM 02. As a result, they will NOT be installed.

7 The features enabled will then be displayed.

The following features are enabled:
Feature name
Feature name

8 The system will prompt you to re-enter features if they have been incorrectly entered.

Do you wish to re-enter features?

Press the up or down arrow key until the desired action is displayed on the screen, then press <Return>. If you select No, the process continues with the next step, if you select Yes, you are returned to step 4-“Please enter the feature to enable:”.

9 You are next asked to enter the Mailbox levels.

Note: The maximum mailbox level of your system is equal to the number of SPN nodes multiplied by 12.

Do you want to change mailbox levels?

Enter MMUIF mailbox level: 2

Enter VMUIF mailbox level: 2

Enter Residential mailbox level 2

Enter Family Mailbox level 2

Note: Family Mailbox may not exceed number of VMUIF mailboxes + Residential

10 After you have entered your Mailbox levels the system will update the files until the following message will appear indicating that the process is completed:

Features Enabled

11 You have now completed the on-line Features Enabling procedure.

Chapter 9: Hardware modification

The hardware modification program enables the administrator or technician to modify software to agree with the hardware in the system in turn allowing for channel and node expansion. This allows the expansion of a system from any channel capacity to any other higher channel capacity, or to add additional nodes and to change the Call Progress Tone Detection (CPTD) country code. This implies that node expansion may automatically be invoked. Follow the procedures below to perform hardware modification on a system.

This procedure should be followed when a new node or card, not a replacement, has been added to the system.

Before you start...

Read the Using System Installation and Modification section of this document before continuing with this section. It contains the full list of steps involved as well as important preparation steps.

The system must be properly “courtesied down” before being taken out of service. For more information on courtesy down procedures, refer to the *System Administration Guide* (NTP 555-7001-300).

CAUTION
Loss of service
Each of the off-line procedures outlined in this guide will cause service to be interrupted.

If you have a printer attached to your terminal, set your terminal up to automatically print anything that appears on the screen, after the System Installation and Modification menu appears. This can be done by pressing the <CTRL> and <W> keys simultaneously, then pressing <p>. Use the same command to toggle back to normal (non-printing) mode.

Note: Before performing the procedures outlined in this chapter, make sure that you have consulted chapters 1 and 2 of this guide. Failure to do so could cause you to omit important steps in the process.

In order to restore the system from disk in the event that an error occurs during the operation, it is important to disable Disk Syncing for each pair of disks on your system by going to the Disk Maintenance Screen and then to the Disk Pair Status screen. See the chapter entitled “System Status and Maintenance” in the *System Administration Guide*, (NTP 297-7001-300), for more information.

Procedure 9-1
Hardware Modification

Starting Point

1 Courtesy down the system (See chapter 2 for detailed procedures).

2 Power the system down (See chapter 2 for detailed procedures).

3 Install the new hardware. Refer to *Service Peripheral Module (SPM) Stand-Alone and Operational Tests* (Installation Manual - Section 5091) for installation details.

4 Insert the INSTALL/DATA tape into the tape drive.

5 Power the system up (See chapter 2).

6 After about a minute or two you will be asked if you want to skip tape retensioning. The following prompt will appear,

Enter NR to skip tape retension (5 sec):

7 To ensure that your INSTALL/DATA tape is in the proper state whenever you need to use it, we recommend that you do not skip tape retensioning. However, if you want to skip tape retensioning, you must enter “NR” within five seconds of the appearance of the prompt. If you want to ensure that you do not miss the 5 second period, type “NR” at any time during the initial system prompting and your entry will be recognized when the prompt appears. If you do not enter “NR”, you will have to wait about 10 minutes longer while the tape rewinds.

Again, you will see a series of system messages. Depending on the number of nodes in the DMS VoiceMail system, it should take between five and ten minutes to load the software. Once loaded, the System Installation and Modification menu is shown.

8 Power up the system.

For more information on power up/down procedures, refer to *Service Peripheral Module (SPM) Stand-Alone and Operational Tests* (Installation Manual - Section 5091), and to Chapter 2 of this document.

9 The system will automatically run a series of diagnostic routines. This should take two to three minutes. Once these routines have been executed the System Installation and Modification software will be loaded from the tape.

Note: Booting from tape should take about five minutes. Once the software is loaded, the System Installation and Modification menu indicated below, will be shown.

Figure 9-1
System Installation and Modification menu.

```
    System Installation and Modification menu

1   Install an SPM02 system
2   Upgrade to the latest SPM02 release
3   Prepare MM8 system for conversion to SPM02 system
4   Complete MM8 system Conversion to SPM02 system
5   Feature Expansion
6   Hardware Modification
7   Language Expansion
8   Restore System from Backup
9   Change to Default System Password
10  Move Voice Services Cabinet
11  Exit to Support Level

    Please enter the operation number:
```

10 At the prompt “Please enter the operation number:” type the number 6 and press <Return> to select the Hardware Modification menu item.

The following message appears:

You have chosen to modify the hardware configuration.
Do you wish to continue? Yes

11 Use the up or down arrow key to select “Yes” and press <Return>. Selecting No returns you to the main menu. If you select Yes, you should see the following message:

Modify the hardware configuration

12 After selecting “Yes” the system will load the appropriate programs (this will take about five to ten minutes).

13 The hardware configuration is displayed next. You are asked to verify that the display is correct. For example:

Node	Card1	Card2	Card3
1	**EMPTY**	**SBC**	**BUS**
2	**BUS**	**EMPTY**	**SBC**
3	**SBC**	**NVP12p**	**NVP12p**
4	**NVP12p**	**NVP12p**	**SBC**
13	**T1**	**EMPTY**	**SBC**
14	**SBC** SBC	**EMPTY**	**T1**

If the configuration shown above is correct, please enter "YES" to continue.

Enter: Yes

If you choose NO, you must power down the affected node, correct the fault and re-run the full procedure. If you choose YES you will now be asked if you want to change your CPTD selection. Normally this should not be changed.

Do you wish to change your CPTD selection? No

14 You are then asked to define the T1 Span parameters. Defaults, which are normally acceptable in North America, are shown in bold face print, options are in light face.

Please enter the T1 Span parameters.

SPAN A: **ExternalT1Timing**, InternalBCTiming,

Select InternalBCTiming if a span is connect to the switch via channel banks. Select ExternalT1Timing if connected to a DMS, DTC or DAX.

If a system has 24 channels, you will be prompted for Span A only. If there are 48 channels, prompts for Span A and Span B will appear. Similarly, for 72 channels, you will be prompted for Spans A through C, and so on, until for 192 channels prompts for Spans A through H will be shown.

Line Signalling: **DTMF,** DP

Line Intf Type: **FXOGrdStart**, FXOLoopStart, FXSGrdStart,FXFLoopStart, 4W_EnMtype

Start Type: **WinkStart**, ImmedStart, DelayStart

Trunk Type: **NonDIDTrunk**, DIDTrunk, ASPTrunk

Frame Format: **D4**, ESF

Line Code Format: **B8ZS**, B7, Transparent

Note: Ensure that you are using the same Line code format as in the CO switch. For a system with NT6X50AA cards use **B7**. For a system with NT6X50AB cards use **B8ZS**.

Line Length: **0to133**, 133to266, 266to399, 399to533, 533to655

T1 Alarm: **s_Bit,** Bit_Two,
for D4 Frame Format: s_Bit
for ESF Frame Format: default is **Alternate**, option is Bit_2

T1_Debounce: **130**, 50 to 512

T1_GuardTime: **130,** 0 to 1024

ESFD: **0**, 0 to 253

BCVR: **0**, 0 to 253

OOFD: **0,** 0 to 253

Ring Pulse: **130**, 0 to 500 in increments of 16

Hook Flash Pulse: **320**, 0 to 500 in increments of 16

Do you wish to re-enter the span parameters? No

15 You are then asked to define the T1 link information:

TI Channel Definition

You may select one of the following operations:

Change - to enter settings for a range of channels

(The parameters for each channel within the range are set to the values entered except, starting with the value entered:
DN - is incremented by one
Message Terminal - is incremented by one)

Display - to view settings for a range of channels
Done - to commit the channel settings and continue.

If you choose Display, you will see a listing similar to the following:

Please enter the range of channels for this operation.

First Channel: **1**

Last Channel: **4**

Chan #	DN	UCDDN	Login	Logout	AgtID	Msg Term	LinkID	AgtPos
1	2800	3650	*88	*89	*98	1	1	3650
2	2801	3650	*88	*89	*98	2	1	3650
3	2802	3650	*88	*89	*98	3	1	3650
4	2803	3650	*88	*89	*98	4	1	3650

Select Operation: **Change**

If you select Change from First to Last, all the data below will be duplicated except DN, which will automatically increment by one for each channel.

There are 48 channels.
Please enter the range of channels for this operation.

First Channel:	**1**	
Last Channel:	**48**	
DN (VoiceLink ID)**		**2800** (Default: may be up to 7 digits. (See Service Orders section of *Translations Guide,* (NTP 297-7001-310))
UCDDN:	**3650**	(See Table DNROUTE in *Translations Guide,* (NTP 297-7001-310))
Login Code:	***85**	(See entry for UCDA in Table IBNXLA in *Translations Guide* (NTP 297-7001-310))
Logout Code:	***84**	(See entry for UCDD in Table IBNXLA in *Translations Guide* NTP 297-7001-310)
Agent ID:	**3650**	Same as UCDDN
NRDD Code:	***88**	
Message Desk:	**63**	**(**See message desk field in Table UCDGRP in *Translations Guide* (NTP 297-7001-310))
Message Terminal:	**1**	(Agent DN for DMS)
Link ID:	**1**	

Note: Link ID - The name of the SMDI link. The Link ID for each SMDI port is unique and must be entered at this time. Repeat this operation until all SMDI links have been defined. You can enter numeric or alpha characters in this field. It is recommended that you enter a meaningful name (as opposed to a number) so that it is easy to identify the link.

Agent Position ID:	**9999**
Switch Type:	**DMSCentrex** *
Select Operation:	**Done**

****** If you need to modify the switch record data, please refer to System Administration Utilities (NTP 297-7001-310)*

16 Verify that the channels are correct as defined.

17 Use the up or down arrow key to select “Done” and press <Return>.

18 The next system action is to display the dataports.

The following dataports are on this system:

Node 1	**Card 2**	**Port 1**	**Console**
Node 1	**Card 2**	**Port 2**	**Con**
Node 1	**Card 2**	**Port 3**	**Con**
Node 1	**Card 2**	**Port 4**	**Printer**
Node 2	**Card 3**	**Port 1**	**Con**
Node 2	**Card 3**	**Port 2**	**Con**
Node 2	**Card 3**	**Port 3**	**Con**
Node 2	**Card 3**	**Port 4**	**Printer**
Node 3	**Card 1**	**Port 1**	**Con**
Node 3	**Card 1**	**Port 2**	**Modem**
Node 3	**Card 1**	**Port 3**	**Con**
Node 3	**Card 1**	**Port 4**	**Con**
Node 4	**Card 3**	**Port 1**	**Con**
Node 4	**Card 3**	**Port 2**	**Modem**
Node 4	**Card 3**	**Port 3**	**Con**
Node 4	**Card 3**	**Port 4**	**Con**
Node 13	**Card 3**	**Port 1**	**SMDI**
Node 13	**Card 3**	**Port 2**	**Modem**
Node 13	**Card 3**	**Port 3**	**Modem**
Node 13	**Card 3**	**Port 4**	**Modem**
Node 14	**Card 1**	**Port 1**	**Modem**
Node 14	**Card 1**	**Port 2**	**Modem**
Node 14	**Card 1**	**Port 3**	**Modem**
Node 14	**Card 1**	**Port 4**	**Modem**

Note: The above are default port assignments for the system.

The following constraints exist for the above dataport assignments:
- Port 2 on all nodes may only be configured as Modem or SMDI.
- With the exception of T1 nodes, ports 1,3 and 4 may not be set to Modem or SMDI.

Please assign the dataport locations.

19 If you need to change the dataport assignments from what is displayed press the up or down arrow key until the desired selection is displayed on the screen, then press <Return>. For this operation the options are Change, Display, and Done.

Select Operation: Change

20 The system then asks if you wish to have redundant SMDI ports. If you answer YES, a redundant partner will be created for the SMDI Port on your system. Also, if any subsequent SMDI parts are added, they will automatically be given a redundant partner.

Would you like to enable redundant SMDI?

21 Configure the dataports as desired. (The choices for the non-default dataports are: Modem, Con, SMDI, UNX**, UAT, and Printer.) Enter the desired dataport type for each port pressing <Return> after each entry. As a final step select Done after all entries have been assigned and press <Return>. Note that not all ports can be configured for all types.

Note: If you have not defined a UAT port, the system will ask if you wish to define one now.

Select Operation: Done

22 You will then be prompted to enter the Baud rate and Link ID for each SMDI port. If you have selected redundancy, the Baud rate and Link ID will automatically be set to match that of the master port.

Note: If you selected YES for redundant SMDI links, all such links will have the same baud rate and successively numbered Link IDs.

Select Operation: Done

Set SMDI baud rates
<Node number><Card number><Port number>

Enter Baud Rate for this Port: 2400

Enter Link ID: 1 (up to eight alpha-numeric characters -- these must match the switch ID)

Note: Link ID is the name of the SMDI link. The Link ID for each SMDI port is unique and must be entered at this time. Repeat this operation until all SMDI links have been defined. You can enter numeric or alpha characters in this field. It is recommended that you enter a meaningful name (as opposed to a number) so that it is easy to identify the link.

If your system has redundant SMDI, the redundant partners baud rate and link ID has also been set.

23 Once all of the information above has been entered, the procedure will proceed uninterrupted for approximately 1 hour. You will see a number of system messages on the console indicating that files are being created and updated. When the procedure is completed, the following messages will appear:

Saving system record to disk

Shutting down tape server

Hardware Modification has completed

24 As a final step the system prompts you with:

Please remove the tape and boot to full service.

Remove the tape, turn the system power off, wait ten seconds then turn it on again. After the system reboots, normal operation can resume. Refer to Chapter 1 for details on rebooting.

After completion of all the preceding steps, you will have to add information to tables for the DMS/SL-100 as indicated in the *DMS VoiceMail Translations Guide* (297-7001-310). Specifically, you will have to:

1 Add Line Equipment Numbers (LENs) to Table LNINV. One LEN is needed for each new channel added.

2 Expand the maximum position number in Table UCDGRP. Here, you will change the MAXPOS field to the number of channels to which you are expanding.

3 Perform a Service Order for each new UCD Agent.

Chapter 10: Hardware modification (on-line)

On-line Hardware Modification is the On-line maintenance function that allows you to change the hardware configuration of a running DMS VoiceMail system without having to shutdown system operation.

The On-line hardware modification program enables the administrator or technician to modify software on a running DMS VoiceMail system to agree with the hardware in the system in turn allowing for channel and node expansion. This allows the expansion of a system from any channel capacity to any other higher channel capacity, or to add additional nodes and to change the Call Progress Tone Detection (CPTD) country code without the need to shut down complete system operation. This implies that node expansion may automatically be invoked. Follow the procedures below to perform On-line hardware modification on a system.

This procedure should be followed when a new node or card, not a replacement, has been added to the system.

The following are time estimates for each of the separate on-line stages:

The Preparation Stage (approximately 20 minutes)
The Start System Stage (approx. 90 minutes)
The Completion Stage (approx. 20 minutes + 45 minutes to sync disks)

Note: Before performing the procedures outlined in this chapter, make sure that you have consulted chapters 1 and 2 of this guide. Failure to do so could cause you to omit important steps in the process.

In order to restore the system from disk in the event that an error occurs during the operation, it is important to disable Disk Syncing for each pair of disks on your system (except for the disks on the prime node) by going to the Disk Maintenance Screen and then to the Disk Pair Status screen. See the chapter entitled “System Status and Maintenance” in the *System Administration Guide*, (NTP 297-7001-300), for more information.

Note 2: If errors occur during On-line system maintenance, gather the related SEER reports and consult the *Maintenance Messages Manual,* (NTP 297-7001-510), and the *Trouble Locating and Alarm Clearing guide,* (NTP 297-7001-503)*,* for information on how to recover from the problem.

Note 3: During On-line maintenance procedures, the system status screens on the MMI may not be accurate.

Procedure 10-1xxx
Hardware Modification (On-line)

Starting Point: MMI login screen

1 Install the new hardware. Refer to *Service Peripheral Module (SPM) Stand-Alone and Operational Tests* (Installation Manual - Section 5091) for installation details.

2 Logon to the Tools level. (For more information on how to do this, see the System Administration Tools guide, (NTP 297-7001-305)). The screen below should appear.

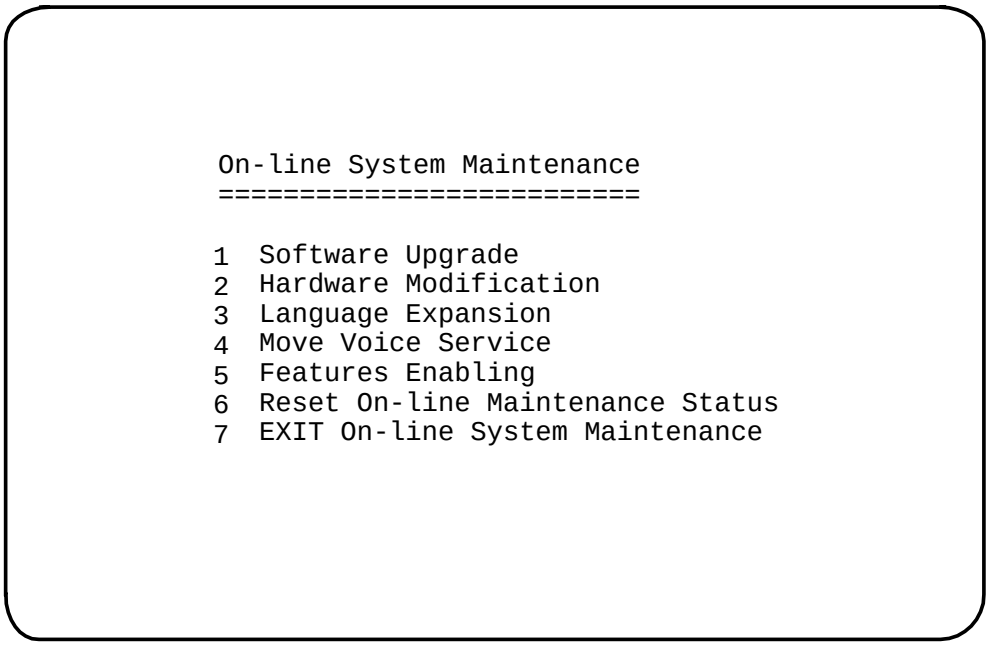
Figure 10-1xxx
SPM 02 special tools package menu

```
                    SPM02 Special Tools Package

                         TOOLS Level Access

 1   Move user                   - moves user cabinets one at a time
 2   Modify hardware             - modify hardware database
 3   Set silence compression     - compress out/leave in recorded silence
 4   Control volume              - increase/decrease voice volume
 5   Update MWI                  - update Message Waiting Indicator
 6   Block DMS VoiceMail         - block access to DMS VoiceMail
 7   Find Users                  - find users in the system
 8   Audit all volumes           - audit all volumes on the system
 9   Rebalance directory         - rebalance the organization directory
10   Convert COS                 - Assign COS to users
11   On-Line system maintenance - perform on-line system upgrade
12   Synchronize Disks           - disk shadowing maintenance
13   Other                       - other system/feature dependant options


Select an item >

 Logoff    Redraw    Help    Release Version
```

* The “Other” option is available if other features are installed.

3 Select number 11 from the menu. The On-line System Maintenance menu should appear as shown below.

Figure 10-2
On-line system maintenance menu



Note: The “Reset On-line Maintenance Status” selection above is used only if a problem occurs during an On-line Maintenance function. Refer to the Trouble Locating and Alarm Clearing Guide, (NTP 297-7001-503), for more information on how to use it.

4 Once you have the On-line System Maintenance menu, enter number 2 at the prompt to begin preparation of the On-line Hardware Modification.

Select an item: 2

Preparation stage

5 You have now started the preparation stage of the On-line System Maintenance operation. After the following system messages, you will be asked if you want to proceed.

Start On-line Maintenance Operation

Create On-line log file

Previous On-line log file exit

Save old log file (Yes or No)?

You are about to prepare the system for On-line Hardware Modification

Do you wish to continue (Yes or No)?

6 Toggle the up or down arrow key until the word Yes appears.

7 A number of messages will appear on the console declaring that the system is checking status. If there are some redundancy deficiencies on your system a warning will occur and you will be asked if you want to continue.

8 Next you will be asked how long you would like the system to wait before courtesy disconnecting active calls. Enter the appropriate length of time at the prompt.

During the On-line maintenance process, the system will courtesy disconnect all active calls for a short period of time. You can specify how long the system will wait before all remaining active calls are forced to disconnect. This warning time can be specified from 0 to 5 minutes in one minute increments.

Enter waiting time (minutes): 5

9 A number of system messages will appear on the console indicating that files are being updated.

10 When the preparation stage of the On-line upgrade process is completed, the following messages will appear:

The On-line maintenance preparation process is completed
Please remove the On-line Maintenance window and restart
the On-line Maintenance operation from the TOOLS level again.

Commit and close On-line log file

On-line maintenance terminated

On-line Maintenance window terminated

Please remove this window!

11 At this point, remove the window by pressing <Control><W>. This will activate the CLI window.

12 Move the cursor up or down until OL_MAIN is selected.

Note: You must remember to turn the cursor on in order to select choices in the CLI window. This is done by pressing I after the CLI window is activated.

13 Type “R” to remove the OL_MAIN window.

14 Move the cursor up to the MMI Window menu item and press <Return> or type the letter “S” in order to access the MMI TOOLs window again. Figure 5-1 should appear.

15 Logon to the On-line maintenance screen by pressing selecting number 11.

Start system stage

16 Once you have the On-line System Maintenance menu (see Figure 5-2), enter number 2 at the prompt in order to begin the On-line Hardware Modification operation.

Select an item:

17 You have now started the On-line System Maintenance operation. The following system messages should appear indicating that the process has started

Start On-line Maintenance Operation

Create On-line log file

18 At this point you are given the opportunity to abort the operation.

You are about to start the system for On-line Hardware Modification

Do you wish to continue (Yes or No)? Yes

19 Toggle the arrow key up or down and choose yes if you want to continue.

20 A number of system messages will appear on the console. The process will continue without interruption until the following message appears asking you to confirm the current hardware configuration:

Node	Card1	Card2	Card3
1	EMPTY	SBC	BUS
2	BUS	EMPTY	SBC
3	SBC	NVP12p	NVP12p
4	NVP12p	NVP12p	SBC
13	T1	EMPTY	SBC
14	SBC	EMPTY	T1

If the configuration shown above is correct, please enter "YES" to continue.

Enter: Yes

21 If you choose Yes, continue with the next step. If you choose No, you must power down the affected node, correct the fault and re-run the full procedure.

22 You are then asked to define the T1 Span parameters. Defaults, which are normally acceptable in North America, are shown in bold face print, options are in light face. At the end of each of the following sections you will be given the opportunity to re-enter the information.

Please enter the T1 Span parameters.

Select InternalBCTiming if a span is connected to the switch via channel banks. Select ExternalT1Timing if connected to a DMS, DTC or DAX.

SPAN A: **ExternalT1Timing**, InternalBCTiming

If a system has 24 channels, you will be prompted for Span A only. If there are 48 channels, prompts for Span A and Span B will appear. Similarly, for 72 channels, you will be prompted for Spans A through C. For 192 channels, prompts for Spans A through H will be shown.

Line Signalling: **DTMF**, DP

Line Intf Type: **FXOGrdStart**, FXOLoopStart, FXSGrdStart,FXSLoopStart, FourW_EnMtype

Start Type: **WinkStart**, ImmedStart, DelayStart

Trunk Type: **NonDIDTrunk**, DIDTrunk

Frame Format: **D4**, ESF

Line Code Format: **B8ZS**, B7, Transparent

Line Length: **0to133**, 133to266, 266to399, 399to533, 533to655

T1 Alarm: **s_Bit**, Bit_Two
for D4 Frame Format: s_Bit
for ESF Frame Format: default is **Alternate**, option is Bit_Two

T1_Debounce: **130**, 50 to 512

T1_GuardTime: **130,** 0 to 1024

ESFD: **0**, 0 to 253

BCVR: **0**, 0 to 253

OOFD: **0,** 0 to 253

Ring Pulse: **130**, 0 to 500 in increments of 16

Hook Flash Pulse: **320**, 0 to 500 in increments of 16

Do you wish to re-enter the span parameters? No

23 You are then asked to define the T1 link information:

TI Channel Definition

You may select one of the following operations:

Change - to enter settings for a range of channels

(The parameters for each channel within the range are set to the values entered except, starting with the value entered:
DN - is incremented by one
Message Terminal - is incremented by one)

Display - to view settings for a range of channels
Done - to commit the channel settings and continue.

If you choose Display, you will see a listing similar to the following:

Please enter the range of channels for this operation.

First Channel: **1**

Last Channel: **4**

Chan #	DN	UCDDN	Login	Logout	AgtID	Msg	LinkID	AgtPos
1	2800	3650	*88	*89	*98	1	1	3650
2	2801	3650	*88	*89	*98	2	1	3650
3	2802	3650	*88	*89	*98	3	1	3650
4	2803	3650	*88	*89	*98	4	1	3650

Select Operation: **Change**

If you select Change from First to Last, all the data below will be duplicated except the DN field ,which will automatically increment by one for each channel.

There are 48 channels.
Please enter the range of channels for this operation.

First Channel:	**1**	
Last Channel:	**48**	
DN :	**2800**	(Default: may be up to 7 digits. See Service Orders section of *Translations Guide,* (NTP 297-7001-310))
Link Type:	**SMDI**	
UCDDN:	**3650**	(See Table DNROUTE in *Translations Guide,* (NTP 297-7001-310))
Login Code:	***85**	(See entry for UCDA in Table IBNXLA in *Translations Guide* (NTP 297-7001-310))
Logout Code:	***84**	(See entry for UCDD in Table IBNXLA in *Translations Guide* (NTP 297-7001-310))
Agent ID:	**3650**	Same as UCDDN
NRDD Code:	***88**	
Message Desk:	**63**	**(**See message desk field in Table UCDGRP in *Translations Guide* (NTP 297-7001-310))
Message Terminal:	**1**	(Agent DN for DMS)
Link ID:	**1**	(If more than 1 SMDI Link, you must enter the SMDI Link ID)

Note: Link ID - The name of the SMDI link. The Link ID for each SMDI port is unique and must be entered at this time. Repeat this operation until all SMDI links have been defined. You can enter numeric or alpha characters in this field. It is recommended that you enter a meaningful name (as opposed to a number) so that it is easy to identify the link.

Agent Position ID:	**9999**
Switch Type:	**DMSCentrex** *

****** If you need to modify the switch record data, please refer to System Administration Utilities (NTP 297-7001-310)*

24 Verify that the channels are correct as defined.

25 Use the up or down arrow key to select “Done” and press <Return>.

Select Operation: Done

26 The next system action is to display the dataports.

The following dataports are on this system:

Node 1	**Card 2**	**Port 1**	**Console**
Node 1	**Card 2**	**Port 2**	**Con**
Node 1	**Card 2**	**Port 3**	**Con**
Node 1	**Card 2**	**Port 4**	**Printer**
Node 2	**Card 3**	**Port 1**	**Con**
Node 2	**Card 3**	**Port 2**	**Con**
Node 2	**Card 3**	**Port 3**	**Con**
Node 2	**Card 3**	**Port 4**	**Printer**
Node 3	**Card 1**	**Port 1**	**Con**
Node 3	**Card 1**	**Port 2**	**Modem**
Node 3	**Card 1**	**Port 3**	**Con**
Node 3	**Card 1**	**Port 4**	**Con**
Node 4	**Card 3**	**Port 1**	**Con**
Node 4	**Card 3**	**Port 2**	**Modem**
Node 4	**Card 3**	**Port 3**	**Con**
Node 4	**Card 3**	**Port 4**	**Con**
Node 13	**Card 3**	**Port 1**	**SMDI**
Node 13	**Card 3**	**Port 2**	**Modem**
Node 13	**Card 3**	**Port 3**	**Modem**
Node 13	**Card 3**	**Port 4**	**Modem**
Node 14	**Card 1**	**Port 1**	**Modem**
Node 14	**Card 1**	**Port 2**	**Modem**
Node 14	**Card 1**	**Port 3**	**Modem**
Node 14	**Card 1**	**Port 4**	**Modem**

Note: The above are default port assignments for the system.

Please assign the dataport locations.

27 If you need to change the dataport assignments from what is displayed press the up or down arrow key until the desired selection is displayed on the screen, then press <Return>. For this operation the options are Change, Display, and Done.

Select Operation: Change

28 Configure the dataports as desired. (The choices for the non-default dataports are: Modem, Con, SMDI, UAT, and Printer.) Enter the desired dataport type for each port pressing <Return> after each entry. As a final step select Done after all entries have been assigned and press <Return>. Note that not all ports can be configured for all types.

Note: If you have not defined a UAT port, the system will ask if you wish to define one now.

Select Operation: Done

Set SMDI baud rates

<Node number><Card number><Port number>

Enter the Baud rate for this SMDI port:

Enter the Link ID:

Do you with to re-enter the Baud rates or Link IDs?

29 At this point a series of system messages will appear indicating such things as the following:

- the hardware database is being updated
- nodes are being rebooted. In particular, a switchover will occur from MSP node 1 to MSP node 2 as it is rebooted and then updated.
- files are being updated

30 The process will continue without interruption until the following messages appear:

On-line maintenance terminated

On-line Maintenance window terminated

Please remove this window!

Note: For a period of approximately 60 seconds after the on-line maintenance window has been terminated, the following SEER may print out: “3502: SEER server no longer filing SEERs on disk.” This is not a serious problem, however, be aware that although SEERs are printing at the printer, they may not be saving to disk during this time.

31 In order to remove the window, perform steps 11-15 above

Completion Stage

If you are performing On-line Hardware Modification by way of remote access, be sure, at this point, to establish your connection with the newly active MSP .

32 An MSP switchover has occurred During step 29 from MSP 1 to MSP 2 because MSP1 was rebooted. You are now connected to MSP2. Once you have the On-line System Maintenance menu again, enter number 2 at the prompt in order to complete the On-line Hardware Modification operation.

Select an item:

33 You have now begun the completion stage of the On-line System Maintenance operation. The following system messages will appear indicating that the process has started.

Start On-line Maintenance Operation

Create On-line log file

Previous On-line log file exist

34 You may be asked if you want to save the old log file. Choose Yes or No at the prompt.

Save old log file (Yes or No)? Yes

35 After this action you are given the opportunity to abort the operation.

Your are about to complete the system for On-line Hardware Modification

Do you wish to continue (Yes or No)? Yes

36 Toggle the arrow key up or down and choose yes if you want to continue.

37 A number of system messages will appear on the console indicating that the system is updating files and rebooting nodes. You may be asked if you wish to continue with the operation if the system detects a deficiency in the configuration of your system. If you choose Yes. the process will continue without interruption until completed. When the On-line Hardware Modification process is finished, the following messages will appear:

Commit and close On-line log file

On-line Maintenance window terminated

Please remove this window!

38 Perform steps 11-14 above.

39 This concludes the On-line procedure for Hardware Modification.

Chapter 11: Language expansion

This procedure allows installation of additional languages.

CAUTION
Removing a language
There are two ways to remove a language. One is to re-install the system from scratch. The other is to re-install the system from a backup made before the language was added.

CAUTION
Loss of service
Each of the off-line procedures outlined in this guide will cause service to be interrupted.

Perform a courtesy down procedure on the system prior to beginning any of the procedures described in this guide. This will prevent calls from being abruptly terminated when the operation commences.

If you have a printer attached to your terminal, set your terminal up to automatically print anything that appears on the screen, after the System Installation and Modification menu appears. This can be done by pressing the <CTRL> and <W> keys simultaneously, then pressing <p>. Use the same command to toggle back to normal (non-printing) mode.

Note: Before performing the procedures outlined in this chapter, make sure that you have consulted chapters 1 and 2 of this guide. Failure to do so could cause you to omit important steps in the process.

Procedure 11-1xxx
Language Expansion

Starting point

1. Courtesy down the system (See chapter 2 for detailed procedures).
2. Power the system down (See chapter 2 for detailed procedures).
3. Insert the INSTALL/DATA tape into the tape drive.

4 Power the system up (See chapter 2).

For more information on power up/down procedures, refer to *Service Peripheral Module (SPM) Stand-Alone and Operational Tests* (Installation Manual - Section 5091).

5 After about a minute or two you will be asked if you want to skip tape retensioning. The following prompt will appear,

Enter NR to skip tape retension (5 sec):

6 To ensure that your INSTALL/DATA tape is in the proper state whenever you need to use it, we recommend that you do not skip tape retensioning. However, if you want to skip tape retensioning, you must enter “NR” within five seconds of the appearance of the prompt. If you want to ensure that you do not miss the 5 second period, type “NR” at any time during the initial system prompting and your entry will be recognized when the prompt appears. If you do not enter “NR”, you will have to wait about 10 minutes longer while the tape rewinds.

Again, you will see a series of system messages. Depending on the number of nodes in the DMS VoiceMail system, it should take between five and ten minutes to load the software. Once loaded, the System Installation and Modification menu is shown.

Figure 11-1
System Installation and Modification menu.

```
    System Installation and Modification menu

1   Install an SPM02 system
2   Upgrade to the latest SPM02 release
3   Prepare MM8 system for conversion to SPM02 system
4   Complete MM8 system Conversion to SPM02 system
5   Feature Expansion
6   Hardware Modification
7   Language Expansion
8   Restore System from Backup
9   Change to Default System Password
10  Move Voice Services Cabinet
11  Exit to Support Level

    Please enter the operation number:
```

7 Either enter the digit 7, or press the up or down arrow key until the number 7 is displayed on the screen, then press <Return>.

You have chosen to add a language to the system.
Do you wish to continue? Yes

8 Either YES, or press the up or down arrow key until the word YES is displayed on the screen, then press <Return>.

9 The system then displays the languages available from the Install/Data tape.

Languages available from this tape are:

1 - American English

2 - Canadian French

3 - From Another Tape

Enter the number of the language you require (0 = done)

10 Enter the desired number and press <Return>.

You have chosen <language>
Is this correct?

11 If you choose From Another Tape, you will be prompted to remove the current tape and insert the new tape. You may select any language(s) from this tape and/or “From Another Tape”. The following messages will appear on the screen:

12 When you have finished adding languages press 0 (zero) at the “Enter the number of the language you require” prompt.

13 The Language Expansion procedure proceeds without further intervention for about 20 to 40 minutes. If you have chosen a language on the current tape, proceed with step 15. If you have chosen a language from another tape, the following message will appear.

Please remove the tape currently in the drive
Please insert an Install/Data tape.
Press <Return> when ready

14 Repeat Step 9.

15 When the Language expansion process is complete, the following message will appear:

The number of Languages on this system is now n (where n is the number of languages on your system)

16 As a final step, the system prompts you with:

Please remove the tape and boot to full service.

Remove the tape, turn the system power off, wait ten seconds then turn it on again. After the system reboots, normal operation can resume.

After booting, the DMS VoiceMail logon screen will appear and normal operation can commence. This will take from ten to fifteen minutes per node. Refer to Chapter 1 for details on rebooting, power-up, and power-down procedures.

Note: It is important that the INSTALL/DATA tape be stored in a safe place. This will ensure that if you need to re-install or modify the system you will have access to it.

Chapter 12: Language expansion (on-line)

On-line language expansion is the On-line maintenance function that allows you to add languages to a running DMS VoiceMail system without having to do a complete shutdown of system operations.

The following are time estimates for each of the separate on-line stages:
the preparation stage (approximately 20 minutes)
the start system stage (approx. 90 minutes)
the completion stage (approx. 20 minutes + 45 minutes to sync disks)

CAUTION
Removing a language
There are two ways to remove a language. One is to re-install the system from scratch. The other is to re-install the system from a backup made before the language was added.

Note: Before performing the procedures outlined in this chapter, make sure that you have consulted chapters 1 and 2 of this guide. Failure to do so could cause you to omit important steps in the process.

Note 2: If errors occur during On-line system maintenance, gather the related SEER reports and consult the *Maintenance Messages Manual,* (NTP 297-7001-510), and the *Trouble Locating and Alarm Clearing guide, (*NTP 297-7001-503), for information on how to recover from the problem.

Note 3: During On-line maintenance procedures, the system status screens on the MMI may not be accurate.

Procedure 12-1
Language Expansion (On-line)

Starting Point: MMI login screen

1 Logon to the Tools level. (For more information on how to do this, see the System Administration Tools guide, (NTP 297-7001-305)).The screen below should appear.

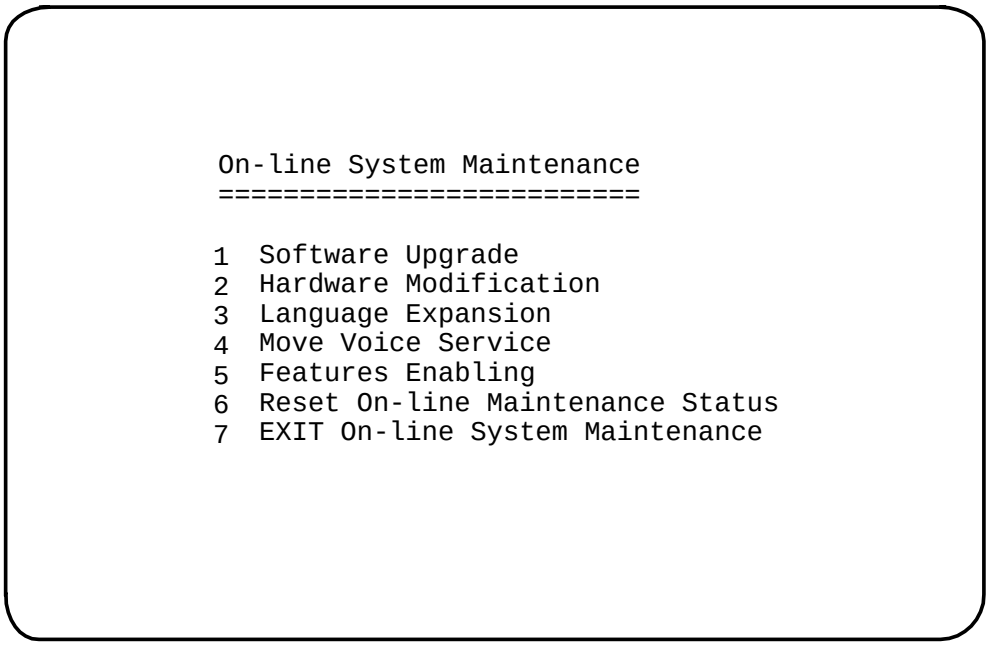
Figure 12-1
SPM02 special tools package menu

```
                    SPM02 Special Tools Package

                         TOOLS Level Access

 1   Move user                   - moves user cabinets one at a time
 2   Modify hardware             - modify hardware database
 3   Set silence compression     - compress out/leave in recorded silence
 4   Control volume              - increase/decrease voice volume
 5   Update MWI                  - update Message Waiting Indicator
 6   Block DMS VoiceMail         - block access to DMS VoiceMail
 7   Find Users                  - find users in the system
 8   Audit all volumes           - audit all volumes on the system
 9   Rebalance directory         - rebalance the organization directory
10   Convert COS                 - Assign COS to users
11   On-Line system maintenance - perform on-line system upgrade
12   Synchronize Disks           - disk shadowing maintenance
13   Other                       - other system/feature dependant options


Select an item >

 Logoff    Redraw    Help    Release Version
```

* The “Other” option is available if other features are installed.

2 Select number 11 from the menu. The On-line System Maintenance menu should appear as shown below.

Figure 12-2
On-line system maintenance menu



Note: The “Reset On-line Maintenance Status” selection above is used only if a problem occurs during an On-line Maintenance function. Refer to the Trouble Locating and Alarm Clearing Guide, (NTP 297-7001-503), for more information on how to use it.

3 Once you have the On-line System Maintenance menu, enter number 3 at the prompt to begin the preparation stage of the On-line Language Expansion operation.

Select an item:

Preparation stage

4 You have now started the preparation stage of the On-line System Maintenance operation. After the following system messages, you will be asked if you want to proceed

Start On-line Maintenance Operation

Create On-line log file

If a On-line log file already exists, you will get the following two prompts asking you if you want to remove it.

Previous On-line log file exist

Save old log file (Yes or No)? No

5 Toggle the up or down arrow key until the word Yes or No appears.

Your are about to prepare the system for On-line Language expansion

Do you wish to continue (Yes or No)? Yes

6 Toggle the up or down arrow key until the word Yes or No appears.

7 A number of messages will appear on the console declaring that the system is checking status. If there are some redundancy deficiencies on your system a warning will occur and you will be asked if you want to continue.

8 Next you will be asked how long you would like the system to wait before courtesy disconnecting active calls. Enter the appropriate length of time at the prompt.

During the On-line maintenance process, the system will courtesy disconnect all active calls for a short period of time. You can specify how long the system will wait before all remaining active calls are forced to disconnect. This warning time can be specified from 0 to 5 minutes in one minute increments.

Enter waiting time (minutes): 5

9 A number of system messages will appear on the console indicating that files are being updated. You will then be prompted to insert the INSTALL/DATA tape so that files can be copied onto the system.

10 When the preparation stage of the On-line upgrade process is completed, the following messages will appear:

The On-line maintenance preparation process is completed
Please remove the On-line Maintenance window and restart
the On-line Maintenance operation from TOOLS level again.

Commit and close On-line log file

On-line maintenance terminated

On-line Maintenance window terminated

Please remove this window!

11 At this point remove the window by pressing <Control><W>. This will activate the CLI window.

12 Move the cursor up or down until OL_MAIN is selected.

Note: You must remember to turn the cursor on in order to select choices in the CLI window. This is done by pressing I after the CLI window is activated.

13 Type “R” to remove the OL_MAIN window.

14 Move the cursor up to the MMI Window menu item and press <Return> or type the letter “S” in order to access the MMI TOOLs window again. Figure 12-1 should appear.

15 Logon to the On-line maintenance screen by selecting number 11.

Start system stage

16 Once you have the On-line System Maintenance menu (Figure 12-2), enter number 3 at the prompt in order to begin the On-line Language Expansion operation.

Select an item:

17 You have now started the On-line System Maintenance operation. The following system messages should appear indicating that the process has started

Start on-line Maintenance Operation

Create on-line log file

Previous on-line log file exist (only if this utility has been used before)

18 You will next be asked if you want to save the old log file.

Save old log file (Yes or No)? Yes (only if this utility has been used before)

19 At this point you are given the opportunity to abort the operation.

Your are about to start the system for On-line Language Expansion

Do you wish to continue (Yes or No)? Yes

20 Toggle the arrow key up or down and choose Yes if you want to continue.

21 The system will now prompt you to insert the INSTALL/DATA tape so that the expansion process can continue.

Please insert Install/Data tape

Hit <CR> to continue

22 Once the tape is inserted and you have pressed <return> to continue, a series of prompts will appear on the screen. Enter the information and press return at each stage. When you are done adding languages, enter 0 at the prompt to indicate that you are done. The following message will appear indicating that the system has begun adding the languages.

Creating required cabinets

23 At this point a number of system messages will appear on the console indicating that the system is checking states, and rebooting nodes. During this time, MSP node 2 will take over operation from MSP node 1 as it is rebooted so that MSP node 1 can be upgraded. The start system processes will continue without interruption until the following message is displayed:

Reboot MSP node 1

On-line maintenance terminated

On-line Maintenance window terminated

Please remove this window!

During the sequence described in step 23, the system will display a warning indicating the method you should use to end stage one and begin stage two of On-line language expansion:

Note: For a period of approximately 60 seconds after the on-line maintenance window has been terminated, the following SEER may print out: “3502: SEER server no longer filing SEERs on disk.” This is not a serious problem, however, be aware that although SEERs are printing at the printer, they may not be saving to disk during this time.

24 In order to remove the window, perform steps 11-14 above.

Completion Stage

If you are performing On-line Feature Expansion by way of remote access, be sure, at this point, to establish your connection with the newly active MSP .

25 During step 23, a switchover occurred from MSP1 to MSP2 because MSP1 was rebooted. You are now connected to MSP 2.Once you have access to the the On-line System Maintenance menu again, enter number 3 at the prompt in order to complete the On-line Language Expansion operation.

Select an item:

26 You have now begun the completion stage of the On-line System Maintenance operation. The following system messages will appear indicating that the process has started.

Start On-line Maintenance Operation

Create on-line log file

27 After some system messages appear on the console, you are given the opportunity to abort the operation.

Your are about to complete the system for On-line Language Expansion

Do you wish to continue (Yes or No)? Yes

28 Toggle the arrow key up or down and choose Yes if you want to continue.

29 Next you will be asked to check if the system is functioning properly. You can check the system sanity by,
1. Sending a voice mail message to a mailbox;
2. Pressing <Control><W>, selecting the MMI screen, and accessing the System Status and Maintenance Menus. You must remove this window before proceeding. Before you check system sanity, note the following warning that appears on your console:

Note: Some voice channels may still be disabled
Do not enable these channels until the whole
On-line maintenance is completed.

Is the system functioning (Yes or No)? Yes

The above prompt will appear again later in the process because only one side of the system is rebooted at a time.

30 A number of system messages will appear on the console indicating that the system is updating files and rebooting nodes. The completion process will continue without interruption until the following messages appear:

Commit and close On-line log file

On-line Maintenance window terminated

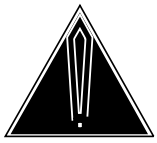
Please remove this window!

31 Perform steps 11-14 above in order to remove the window.

32 This concludes the On-line procedure for Language expansion.

Chapter 13: Restore system from backup

Restore should be performed by personnel who are familiar with how to insert and remove tape cartridges and reboot the system. If necessary, a Northern Telecom representative can run the restore and recovery procedures by remote login provided the necessary tapes and materials are present onsite.



CAUTION
Loss of data possible
The restore process erases all information currently on the disk. Be sure you are restoring the appropriate disk.

CAUTION
Loss of service
Each of the off-line procedures outlined in this guide will cause service to be interrupted.

The purpose of a restore operation is to return the system to the same operational state it had before-or as close to that state as possible. In particular, the system will be running the same software release as it was before the restore is performed. It is recommended that a printer be attached to the terminal.

If you have a printer attached to your terminal, set your terminal up to automatically print anything that appears on the screen, after the System Installation and Modification menu appears. This can be done by pressing the <CTRL> and <W> keys simultaneously, then pressing <p>. Use the same command to toggle back to normal (non-printing) mode.

Note: Before performing the procedures outlined in this chapter, make sure that you have consulted chapters 1 and 2 of this guide. Failure to do so could cause you to omit important steps in the process.

Restoration Time

The amount of time required to restore depends upon the number of tapes created during the backup process and the number of users being restored. Each tape requires approximately 45 minutes to restore, plus approximately three seconds per user being restored (from a partial backup).

Materials required on site

- The most recent INSTALL/DATA tape for the current software release.
- A tape head cleaning kit
- A person who knows how to:
  a. insert and remove tape cartridges
  b. reboot a DMS VoiceMail system
  c. clean tape heads
  d. perform a simple test of the most commonly used facilities.

Information required at the remote location

- This document, other related DMS VoiceMail NTPs, and utility documents
- Knowledge about the repairs that were made to the system, particularly which disks were replaced or reformatted
- Knowledge about the backups that are available. Ideally the two most recent backups should be available. You must know whether the backups were *full* or *partial* backups

Overview of the restore process

Restore refers to the process of copying the necessary data from the backup tapes to the new disk drive that will now be used in normal system operation.

Procedure 13-1
Restore system from backup

Starting Point

1 Power the system down by turning off all power supplies.

2 Insert the INSTALL/DATA tape into the tape drive.

3 Power the system up by turning on all power supplies.

4 The system will automatically run a series of diagnostic routines. This should take two to three minutes. Once these routines have been executed the DMS VoiceMail software will be loaded from the tape.

It should take about five minutes to load the software. Once loaded, the System Installation and Modification menu as indicated below, will be shown.

Figure 13-1
System Installation and Modification menu.

```
      System Installation and Modification menu

   1   Install an SPM02 system
   2   Upgrade to the latest SPM02 release
   3   Prepare MM8 system for conversion to SPM02 system
   4   Complete MM8 system Conversion to SPM02 system
   5   Feature Expansion
   6   Hardware Modification
   7   Language Expansion
   8   Restore System from Backup
   9   Change to Default System Password
   10  Move Voice Services Cabinet
   11  Exit to Support Level

      Please enter the operation number:
```

5 Enter 8, then press <Return>. You will see the following message:

You have chosen to Restore from backup
Do you wish to continue?

6 Press the up or down arrow key until the word “Yes” is displayed on the screen, then press <Return>.

The system will then display:

Restore from backup

7 After a number of system message the following warning will appear reminding you to validate you information before entering:

The restore procedure is unable to validate any of the information entered. Please ensure that the information that you enter is valid, otherwise the restore will fail

You will however be given an option of re-entering all information before the restore proceeds.

8 Next you will be asked which nodes you would like restored and what type of backup it was.

Do you wish to restore node n? Yes

What type of backup was volume VS20n? Voice_Data

9 Press the up or down arrow key until the either “Yes” or “No” is displayed on the screen, then press <Return>.

10 After you identified all the nodes that you want restored, you will be asked to verify the information. A table like the following will appear indicating the nodes that you wish restored:

You have selected to restore the following:

Node	Volume	Type	From
n	VS1	Data and Voice	Tape
n	VS20n	Data and Voice	Tape
n	VS20n	Data and Voice	Tape

Do you wish to change the above information? No

11 Press the up or down arrow key until your desired choice appears. If you choose “Yes” , you will be prompted to enter your information again. If you choose “No” , you will be given the opportunity to abort the entire operation if you wish or proceed.

Do you wish to continue? Yes

12 The following message will appear informing you that the disks are being prepared to receive the backup.

Formatting disks to be restored: this will take approximately 45 minutes for unshadowed systems and 90 minutes for shadowed systems.

13 When the disks are prepared, the following messages will appear along with information telling you what blocks of memory are occupied:

System successfully written to disk

Shutting down tape server

14 Next, the system asks you to insert the tape containing VS1 on it. Because the Install/Data tape does not contain a backup on it, you will be asked to remove the Install/Data tape and insert the backup tape or the first of a series of backup tapes. At the prompt press Rreturn>

Please insert tape containing VS1 and then press return

15 A number of system messages will appear giving you information on the back-up. If there more than one backup tape, you will be prompted to enter each backup tape as necessary until all the data is copied to disk and all required cabinets are created. The following messages should appear:

Starting the DR Server
Creating required cabinets
Copying Prompts from Tape to Disk

16 You will now be prompted to enter the Install/Data tape in order for the system to re-install various system prompts.

Please insert the Install/Data tape
Hit <CR> to continue

17 The procedure will continue without intervention until completed. A number of messages will appear until the following message appears indicating that the procedure is done.

Restore Completed
Reboot system into full service

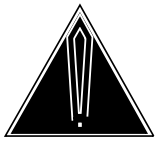
Remove the tape from the drive, disconnect the terminal. See Power up and Power down procedures in the "Using System Installation and Modification" chapter in this document for more information. After the system reboots, normal operation can resume.

Chapter 14: Change to default system password

In the event that the system password is lost or forgotten, it can be reset to the default password (ADMINPWD) by using this procedure.

Perform a courtesy down procedure on the system prior to commencing any of the procedures described in this guide. This will prevent calls from being abruptly terminated when the operation commences.

If you have a printer attached to your terminal, set your terminal up to automatically print anything that appears on the screen, after the System Installation and Modification menu appears. This can be done by pressing the <CTRL> and <W> keys simultaneously, then pressing <p>. Use the same command to toggle back to normal (non-printing) mode.



CAUTION
Store printout in safe place
Store your password in a safe place, where it cannot readily be seen by others. Remember where it is stored.

CAUTION
Loss of service
Each of the off-line procedures outlined in this guide will cause service to be interrupted.

Note: Before performing the procedures outlined in this chapter, make sure that you have consulted chapters 1 and 2 of this guide. Failure to do so could cause you to omit important steps in the process.

Procedure 14-1
Change to system default password

Starting Point

1 Power the system down.

For more information on power up/down procedures, refer to *Service Peripheral Module (SPM) Stand-Alone and Operational Tests* (Installation Manual - Section 5091).

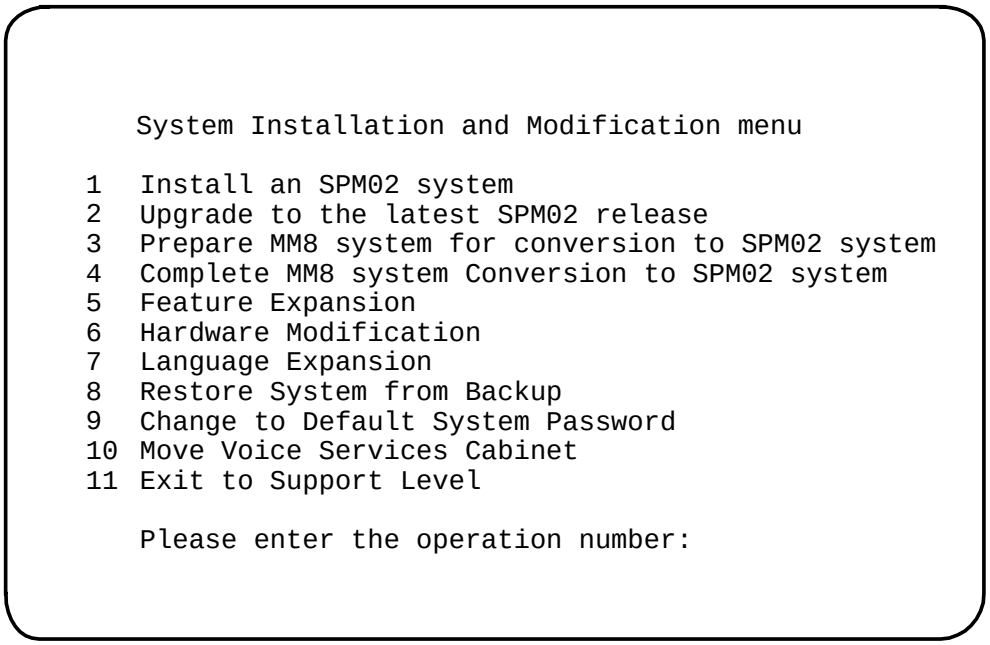
2 Insert the INSTALL/DATA tape into the tape drive.

3 Power the system up.

4 The system will automatically run a series of diagnostic routines. This should take two to three minutes. Once these routines have been executed the DMS VoiceMail software will be loaded from the tape.

Note: Booting from tape should take about five minutes. Once the software is loaded, the System Installation and Modification menu indicated below, will be shown.

Figure 14-1
System Installation and Modification menu.



5 Press the up or down arrow key until the number “9” is displayed on the screen, then press <Return>. The system responds with:

You have chosen to Change to default system password
Do you wish to continue?

6 Press the up or down arrow key until the word “Yes” is displayed on the screen, then press <Return>.

The system will then display:

Change to default system password
The System Administrator’s Password has been reset to the default.
Please reboot your system into full service.

Remove the tape, turn the system power off, wait ten seconds then turn it on again. After the system reboots, normal operation can resume.

The password has now been reset to the default (ADMINPWD).

Chapter 15: Move voice services

This procedure causes voice services to be moved from cabinet VS1 to VS2.

Perform a courtesy down procedure on the system prior to commencing any of the procedures described in this guide. This will prevent calls from being abruptly terminated when the operation commences.

CAUTION
Loss of service
Each of the off-line procedures outlined in this guide will cause service to be interrupted.

If you have a printer attached to your terminal, set your terminal up to automatically print anything that appears on the screen, after the System Installation and Modification menu appears. This can be done by pressing the <CTRL> and <W> keys simultaneously, then pressing <p>. Use the same command to toggle back to normal (non-printing) mode.

Note: Before performing the procedures outlined in this chapter, make sure that you have consulted chapters 1 and 2 of this guide. Failure to do so could cause you to omit important steps in the process.

In order to restore the system from disk in the event that an error occurs during the operation, it is important to disable Disk Syncing for each pair of disks on your system by going to the Disk Maintenance Screen and then to the Disk Pair Status screen. See the chapter entitled “System Status and Maintenance” in the *System Administration Guide*, NTP 297-7001-300, for more information.

Procedure 15-1
Move voice services

Starting Point

1. Courtesy down the system (See chapter 2 for detailed procedures).
2. Power the system down (See chapter 2 for detailed procedures).
3. Insert the INSTALL/DATA tape into the tape drive.
4. Power the system up (See chapter 2).

For more information on power up/down procedures, refer to *Service Peripheral Module (SPM) Stand-Alone and Operational Tests* (Installation Manual - Section 5091).

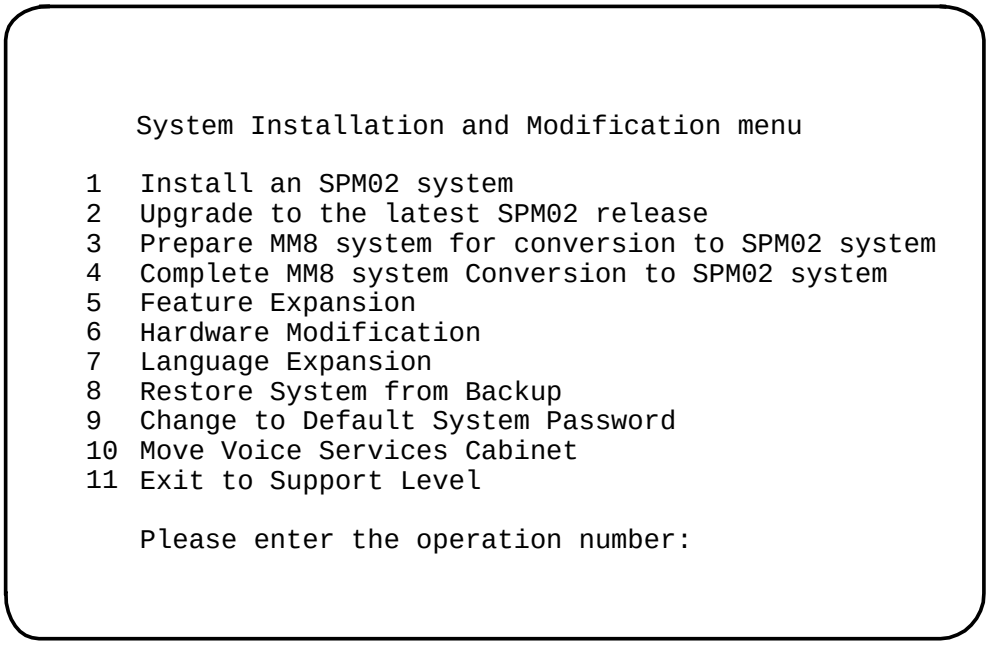
5 After about a minute or two you will be asked if you want to skip tape retensioning. The following prompt will appear,

Enter NR to skip tape retension (5 sec):

6 To ensure that your INSTALL/DATA tape is in the proper state whenever you need to use it, we recommend that you do not skip tape retensioning. However, if you want to skip tape retensioning, you must enter “NR” within five seconds of the appearance of the prompt. If you want to ensure that you do not miss the 5 second period, type “NR” at any time during the initial system prompting and your entry will be recognized when the prompt appears. If you do not enter “NR”, you will have to wait about 10 minutes longer while the tape rewinds.

Again, you will see a series of system messages. Depending on the number of nodes in the DMS VoiceMail system, it should take between five and ten minutes to load the software. Once loaded, the System Installation and Modification menu is shown.

Figure 15-1
System Installation and Modification menu.



7 Press the up or down arrow key until the number “10” is displayed on the screen, then press <Return>.

You have chosen to Move the voice service cabinet.
Do you wish to continue?

8 Press the up or down arrow key until the word “Yes” is displayed on the screen, then press <Return>.

The system will then display the following, asking you to confirm the information:

Move the voice service cabinet

The voice service cabinet will be moved from VS1 to VS203

Note: If the voice service cabinet is already on VS203 and this procedure is run, the cabinet will be moved to VS1.

At this point the software will query all possible nodes in the system and a time-out will occur for each node location that is not installed.

Once completed the system will prompt:

Do you want to continue?

9 Press the up or down arrow key until the word “Yes” is displayed on the screen, then press <Return>.

The procedure continues without further operator intervention until the completion message appears.

The system’s Voice Services have been moved to 203

Please remove the tape and boot to full service.

Remove the tape, turn the system power off, wait ten seconds then turn it on again. After the system reboots, normal operation can resume.

Chapter 16: Move voice services (on-line)

On-line Move voice services is the On-line maintenance function that allows you to move voice services from cabinet VS1 to VS2 on a running DMS VoiceMail system without having to do a complete shutdown of system operations.

The following are time estimates for each of the separate on-line stages:

The Preparation Stage (approximately 20 minutes)
The Start System Stage (approx. 90 minutes)
The Completion Stage (approx. 20 minutes + 45 minutes to sync disks)

Note 1: Before performing the procedures outlined in this chapter, make sure that you have consulted chapters 1 and 2 of this guide. Failure to do so could cause you to omit important steps in the process.

In order to restore the system from disk in the event that an error occurs during the operation, it is important to disable Disk Syncing for each pair of disks on your system by going to the Disk Maintenance Screen and then to the Disk Pair Status screen. See the chapter entitled “System Status and Maintenance” in the *System Administration Guide*, (NTP 297-7001-300), for more information.

Note 2: If errors occur during On-line system maintenance, gather the related SEER reports and consult the *Maintenance Messages Manual,* (NTP 297-7001-510), and the *Trouble Locating and Alarm Clearing guide,* (NTP 297-7001-503), for information on how to recover from the problem.

Note 3: During On-line maintenance procedures, the system status screens on the MMI may not be accurate.

Procedure 16-1
Move voice services (On-line)

Starting Point: MMI login screen

1 Logon to the Tools level. (For more information on how to do this, see the System Administration Tools guide, (NTP 297-7001-305)). The screen below should appear.

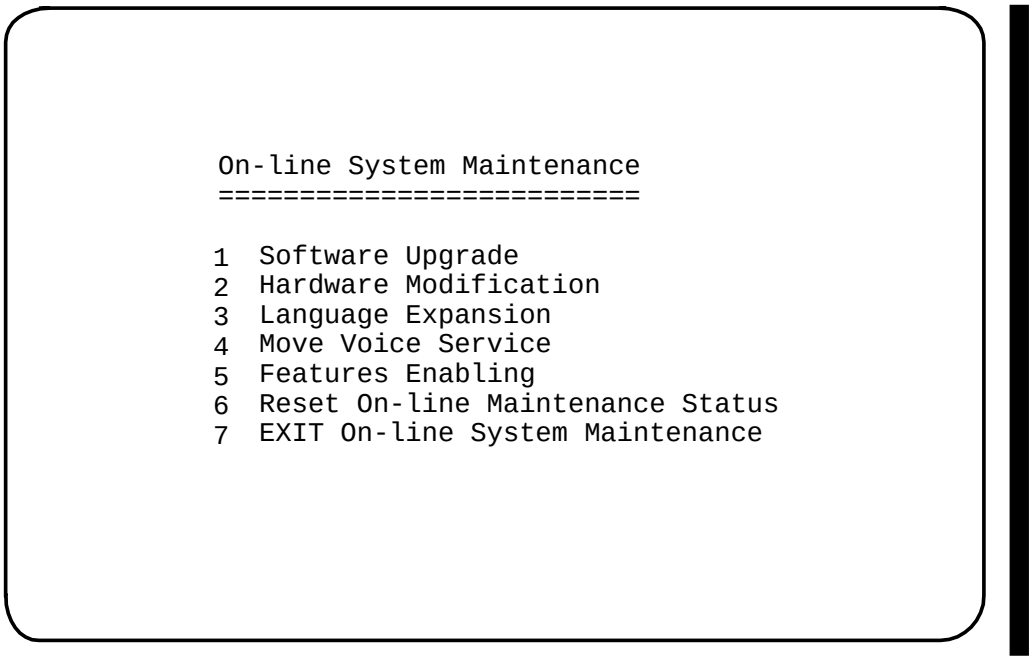
Figure 16-1
SPM 02 special tools package menu

```
                       SPM02 Special Tools Package

                            TOOLS Level Access

 1   Move user                   - moves user cabinets one at a time
 2   Modify hardware             - modify hardware database
 3   Set silence compression     - compress out/leave in recorded silence
 4   Control volume              - increase/decrease voice volume
 5   Update MWI                  - update Message Waiting Indicator
 6   Block DMS VoiceMail         - block access to DMS VoiceMail
 7   Find Users                  - find users in the system
 8   Audit all volumes           - audit all volumes on the system
 9   Rebalance directory         - rebalance the organization directory
10   Convert COS                 - Assign COS to users
11   On-Line system maintenance - perform on-line system upgrade
12   Synchronize Disks           - disk shadowing maintenance
13   Other                       - other system/feature dependant options

Select an item >

   Logoff        Redraw         Help        Release
                                            Version
```

* The “Other” option is available if other features are installed.

2 Select number 11 from the menu. The On-line System Maintenance menu should appear as shown below.

Figure 16-2xxx
On-line system maintenance menu



Note: The “Reset On-line Maintenance Status” selection above is used only if a problem occurs during an On-line Maintenance function. Refer to the Trouble Locating and Alarm Clearing Guide, (NTP 297-7001-503), for more information on how to use it.

3 Once you have the On-line System Maintenance menu, enter number 4 at the prompt to begin preparation of On-line Move voice service operation.

Select an item:

Preparation stage

4 You have now started the preparation stage of the On-line System Maintenance operation. After the following system messages, you will be asked if you want to proceed

Start On-line Maintenance Operation

Create On-line log file

If a On-line log file already exists, you will get the following two prompts asking you if you want to remove it.

Previous On-line log file Exists

Save old log file (Yes or No)?

5 Toggle the up or down arrow key until the word Yes or No appears.

Your are about to prepare the system for On-line Move Voice Service

Do you wish to continue (Yes or No)?

6 Toggle the up or down arrow key until the word Yes or No appears.

7 A number of messages will appear on the console declaring that the system is checking status.

8 If the software detects deficiencies in the system, a warning will occur and the system will ask you if you want to continue.

9 Next you will be asked how long you would like the system to wait before courtesy disconnecting active calls. Enter the appropriate length of time at the prompt.

During the On-line maintenance process, the system will courtesy disconnect all active calls for a short period of time. The Technician can specify how long the system will wait before all remaining active calls are forced to disconnect. This warning time can be specified from 0 to 5 minutes in one minute increments.

Enter waiting time (minutes): 5

10 A number of system messages will appear on the console indicating that files are being updated. When the preparation stage of the On-line upgrade process is completed, the following messages will appear:

The On-line maintenance preparation process is completed
Please remove the On-line Maintenance window and restart
the On-line Maintenance operation from the TOOLS level again.

Commit and close On-line log file

On-line maintenance terminated

On-line Maintenance window terminated

Please remove this window!

11 At this point remove the window by pressing <Control><W>. This will activate the CLI window.

12 Move the cursor up or down until OL_MAIN is selected.

Note: You must remember to turn the cursor on in order to select choices in the CLI window.

13 Type “R” to remove the OL_MAIN window.

14 Move the cursor up to the MMI Window menu item and press <Return> or type the letter “S” in order to access the MMI TOOLs window again. Figure 16-1 should appear.

15 Logon to the On-line maintenance screen by selecting number 11.

Start system stage

16 Once you have the On-line System Maintenance menu (Figure 16-2), enter number 4 at the prompt in order to begin On-line Move voice service cabinet operation.

Select an item:

17 You have now started the On-line System Maintenance operation. The following system messages should appear indicating that the process has started

Start On-line Maintenance Operation

Create On-line log file

Previous On-line log file exist

18 You will next be asked if you want to save the old log file.

Save old log file (Yes or No)? Yes

19 At this point you are given the opportunity to abort the operation.

You are about to start the system for On-line Move Voice Service

Do you wish to continue (Yes or No)? Yes

20 Toggle the arrow key up or down and choose yes if you want to continue.

21 The system will prompt you as to how you want the Voice Services moved. You can move them from 1 to 203 or from 203 to 1. Select Yes or No at the following prompt:

The Voice Services will be moved from volume 1 to volume 203
Enter either Yes or No.

Do you want to continue? Yes

22 At this point a number of system messages will appear on the console indicating that the system is checking states and that the nodes are rebooting. In addition, some instructions will be given for the performing the next maintenance function. During this time, MSP node 2 will take over operation from MSP node 1 as it is rebooted so that MSP node 1 can be upgraded. The processes will continue without interruption until the following message is displayed:

Reboot MSP node 1

Final System shutdown message (SPM1_1)

System going down immediately

Connection closed

On-line maintenance terminated

On-line Maintenance window terminated

Please remove this window!

Note: For a period of approximately 60 seconds after the on-line maintenance window has been terminated, the following SEER may print out: “3502: SEER server no longer filing SEERs on disk.” This is not a serious problem, however, be aware that although SEERs are printing at the printer, they may not be saving to disk during this time.

23 In order to remove the window, perform steps 11 -15 above

Completion Stage

If you are performing On-line Move voice services by way of remote access, be sure, at this point, to establish your connection with the newly active MSP .

24 During step 22, a switchover occurred from MSP1 to MSP2 because MSP1 was rebooted. You are now connected to MSP 2. Once you have the On-line System Maintenance menu again (16-2), enter number 4 at the prompt in order to complete On-line Move voice service cabinet operation.

Select an item:

25 You have now begun the completion stage of the On-line System Maintenance operation. The following system messages will appear indicating that the process has started.

Start On-line Maintenance Operation

Create On-line log file

Previous On-line log file exist

26 You will next be asked if you want to save the old log file. Choose Yes or No at the prompt.

Save old log file (Yes or No)? Yes

27 After this action, you are given the opportunity to abort the operation.

You are about to complete the system for On-line Move Voice Service

Do you wish to continue (Yes or No)? Yes

28 Toggle the arrow key up or down and choose yes if you want to continue.

29 Next you will be asked to check if the system is functioning properly. You can check the system sanity by,
1) Sending a voice mail message to a mailbox;
2) Pressing Control W, selecting the MMI screen, and accessing the System Status and Maintenance Menus. You must remove this window before proceeding. Before you check system sanity, note the following warning that appears on your console:

Note: Some voice channels may still be disabled
Do note enable these channels until the whole
On-line maintenance is completed.

Is the system functioning (Yes or No)? Yes

The above prompt will appear again later in the process because only one side of the system is rebooted at a time.

30 Toggle the arrow key up or down and choose Yes if you want to continue.

31 A number of system messages will appear on the console indicating that the system is updating files and rebooting nodes. The process will continue without interruption until completed. When the completion stage of the On-line upgrade process is finished, the following messages will appear:

Commit and close On-line log file

On-line Maintenance window terminated

Please remove this window!

32 Perform steps 11-15 above.

33 This concludes the On-line procedure for moving the voice service cabinet.

Chapter 17: Exit to support level

This procedure is most commonly used by support personnel who require specialized access to the system.

Note: Before performing the procedures outlined in this chapter, make sure that you have consulted chapters 1 and 2 of this guide. Failure to do so could cause you to omit important steps in the process.

CAUTION
Authorized personnel only
The exit to support level selection should only be used by authorized personnel. If you inadvertently enter this portion of the program, you should return to the main menu immediately. Major damage to the system could result from inexperienced personnel changing important parameters.

Procedure 17-1xxx
Exit to Support Level

Starting Point

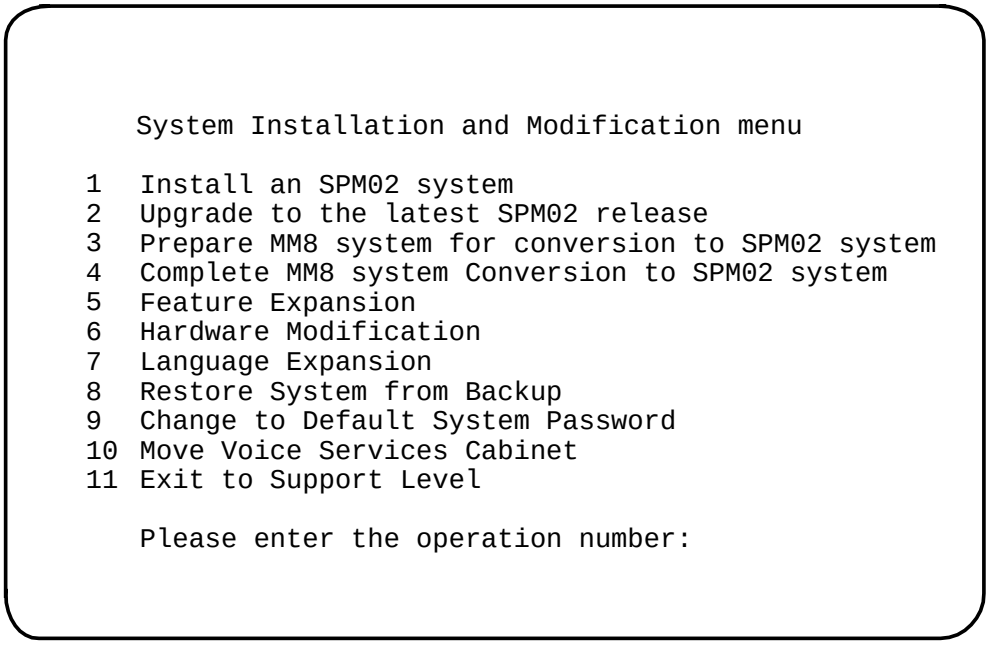
1. Power the system down. Refer to chapter 1 of this document for details of the power up/power down procedures.
2. Insert the INSTALL/DATA tape into the tape drive.
3. Power the system up. Refer to chapter 1 of this document for details of the power up/power down procedures.
4. The system will now automatically run a series of diagnostic routines.
5. After about a minute or two you will be asked if you want to skip tape retensioning. The following prompt will appear,

   Enter NR to skip tape retension (5 sec):

6 To ensure that your INSTALL/DATA tape is in the proper state whenever you need to use it, we recommend that you do not skip tape retensioning. However, if you want to skip tape retensioning, you must enter “NR” within five seconds of the appearance of the prompt. If you want to ensure that you do not miss the 5 second period, type “NR” at any time during the initial system prompting and your entry will be recognized when the prompt appears. If you do not enter “NR”, you will have to wait about 10 minutes longer while the tape rewinds.

Again, you will see a series of system messages. Depending on the number of nodes in the DMS VoiceMail system, it should take between five and ten minutes to load the software. Once loaded, the System Installation and Modification menu is shown.

Figure 17-1
System installation and modification menu.



Press the up or down arrow key until the number “11” is displayed on the screen, then press <Return>. The system prompt is then displayed.

7 After performing the support operations, type SC_OPS followed by <Return>. This returns you to the system installation and modification menu.

Remove the tape, turn the system power off, wait ten seconds then turn it on again. After the system reboots, normal operation can resume.

Appendix A: **Restore**

The purpose of this appendix is to provide some background information about the disk and tape devices used in DMS VoiceMail systems. It would be beneficial to have received training in DMS VoiceMail system support and operation before attempting a restore and voice volume recovery on the system.

Backup copies of the system data are fundamental to restoring the system with as little disruption and data loss as possible. For this reason, it is important that the system administrator backup the system on a regular basis.

DMS VoiceMail backup devices for non-shadowed systems

DMS VoiceMail systems feature a streaming tape drive to allow system and user information to be copied from disk onto one or more quarter-inch tape cartridges. If a disk drive fails, the system can be restored to a working state by copying the data back from tape onto a replacement disk. It is also possible to copy data onto another DMS VoiceMail system, if necessary.

DMS VoiceMail backup

DMS VoiceMail systems have two (or four) disk drives per node. On these systems, all data is written to both (or pairs of) disks. In the event that one disk fails, the system automatically writes data to and reads from the functioning disk until the faulty disk is replaced. The result is that there is no data loss.

Hardware basics

Disk drive failures

The Mean Time Between Failure (MTBF) of the disk drives used in DMS VoiceMail is 17 years for the 3 1/2 inch drives, 11 years for the 5 1/4 inch drives. Note that this is the *mean time*; it does not mean that every drive can be expected to operate without failure for the full duration of this time.

The most common type of disk drive failure is a “medium error” which results in an unrecoverable read error and loss of data. Medium errors are caused by defects or scratches in the coating on the disk platters at one or more places in the drive. Once such medium defects occur, DMS VoiceMail

system operation is likely to become unreliable unless some repair action is taken.

When a medium error occurs, the disk drive automatically retries the read operation multiple times and attempts to recover the data using error correcting codes. If all attempts fail, the data is lost and an error reported. Depending on which data block is lost, the system may or may not be affected catastrophically.

Related System Event and Error Reports (SEERs) may also be generated as higher-level software components report that they encountered a disk error. These other SEERs will usually mention the return code 1130. From these higher level SEERs it is usually possible to determine what is being affected by the lost data, and therefore how serious the impact will be.

If the disk error is something other than an unrecoverable read error, the error codes may be different.

Disk drive replacement and restore

Since system reliability is impaired by an unreliable disk, it is normally recommended that if a disk of a system generates errors, it should be replaced with a new disk and the data on that disk should be restored from the most recent backup.

Disk drive reformatting and restore

A disk drive which generates medium errors can often be repaired by physically reformatting it. As part of the reformatting operation (which takes 45 minutes), the disk drive checks each block on the disk and substitutes a good block for any defective ones by drawing on a pool of spare blocks. This does not reduce the capacity of the disk in any way since spare blocks have already been set aside. All data is erased from the disk and a restore must be done from the most recent backup.

The utility used to format a disk is called SCSI_UTIL or SCSI_PKG.

Electronics replacement

If the drive failure is not in the medium or read/write head assemblies, it is sometimes possible to repair a drive without loss of data by changing the electronics on the disk drive subsystem. This technique allows recovering data even though a backup is not available. Contact Northern Telecom for details.

Sector reallocation

For the disk drives used in DMS VoiceMail, it is possible to replace a bad disk sector with a good one from the pool of spare sectors without having to reformat the whole disk. The data from the bad sector will be lost, but the remaining data on the disk is preserved. The disk capacity is not reduced

since spare sectors have already been set aside. If critical data has been lost, a restore from backup must be done, however, if the data lost is not critical (e.g., a voice block in a voice message approximately 3.4 seconds of voice), it may be possible to avoid having to do a restore.

Sector reallocation is carried out using using the utility SCSI_UTIL and is described in *System Administration Utilities (RSC)*, (NTP 555-7001-306). This operation should only be performed with the DMS VoiceMail system booted into the CI - attempting it on a live system may result in a reboot. This utility provides commands to verify all or part of a disk's surface and to reallocate any specified bad sector. The sector numbers used by SCSI_UTIL refer to 512 byte sectors and are measured from the beginning of the disk.

A disk drive with many bad sectors should be replaced since the number of spare sectors is limited.

Tape drive operation

DMS VoiceMail systems use industry standard 1/4" data cartridges. Data is recorded on multiple tracks on the tape. Each track runs from one end of the tape to the other end. At the end of the tape, the tape head is positioned to the next track and the tape direction is reversed.

The tape drive has a tape head assembly with multiple heads, two for each direction of tape movement. For each direction there are write heads and read heads.

All data blocks have an associated error checking code so that errors can be detected. After a data block is written on the tape, it is automatically checked by reading it back with the read head. If a block cannot be correctly read, it is written again. This allows a proper backup to be made even if the tape has media imperfections. A block will be rewritten up to 16 times before the user is informed of an error.

The tape drive detects the beginning and end of tape optically, by detecting holes in the tape. The drive can determine the exact type of tape inserted by the positions of the holes. Use only the types of tapes recommended for the tape drive.

Tapes can be write-protected by turning the rotating knob on the tape cartridge until the arrow points to SAFE. Any attempt to write on a write-protected tape will generate an error.

Cleaning tape heads

As a tape drive is used, debris collects on the tape heads. If too much debris collects, the tape drive is unable to write or read data correctly and the tape head must be cleaned. Note that this is not only a problem with Voice Mail systems but is an inherent characteristic of high-capacity removeable media such as tapes and floppy disks.

The tape drive manufacturers recommend cleaning the tape heads after a brand new tape has been used for the first time, and after every 8 hours of tape drive operation. If media (parity) errors occur when reading or writing tapes, it is an indication of either a faulty tape or dirty tape heads.

The recommended tape cleaner is the Archive streamer head cleaner, Part No. 14916-001. To use the cleaner, follow the instructions included in the package.

Retensioning tape cartridges

Tape cartridge manufacturers recommend that their tapes be retensioned when first inserted into the drive. This is done by winding the tape from one end to the other and back. Voice Mail software automatically retensions tapes before writing or reading them to increase tape reliability. The retensioning takes about 2 minutes for a 450 ft (137.16 m) tape and about 5 minutes for a 1000 ft (304.80 m) tape.

Tape drive formats

The more recent DMS VoiceMail systems use a tape drive called Viper, manufactured by Archive Corporation. This drive can read the standard 450 ft (137.16 m) DC300XL/P tapes (9 track QIC-24 format) but cannot write them. It can also read 600 ft (182.88 m) DC600A tapes recorded in QIC-24 format but does not write these tapes in this format. It can write up to 120 Mb on 600 ft (182.88 m) DC600A tapes (in 15 track QIC-120 format), up to 150 Mb on DC6150 tapes (in 18 track QIC-150 format), and up to 250 Mb on DC6250 tapes (in 18 track format).

Note: The amount of data which can be written on a tape depends on the condition of the cartridge. If a cartridge has many media imperfections, it will store less data since blocks will have to have been rewritten.

Volume and backup information

Disk volume summary

A CO Voice mail system, depending on its size, may consist of a number of nodes with one or two disks per node. (Systems with disk shadowing can have two disks per node.) Each physical disk drive is divided into multiple *volumes*. Different types of data are stored in different volumes according to access and backup requirements.

If a volume name ends in “T”, it is a *text volume* having a 1k block size. If it ends in “V”, it is a *voice volume* having an 8k block size. Except for VS1 and VS2 which are both on node 1, the last two digits of a volume name are the node number on which it is stored.

Boot tracks

The operating system of all CO Voice mail systems is stored in the first 1016k of the disk on node 1. These are not disk volumes in the normal sense. The boot tracks are rewritten as part of the MSP 1 disk initialization procedure.

VS1T

This volume is on node 1 and has a 1k block size. It is the *software volume* where user directory, system distribution lists, organization profile, operational measurements, languages for DMS VoiceMail, and other system information is stored. It is on node 1 and has a 1k block size.

This volume may also include the Voice Menus.

VS1T is also the *system volume* where the user directory, system distribution lists, organization profile, operational measurements and other system information is stored.

VS1V

This is a voice volume associated with VS1T. It stores the user personal verifications and may also store voice menus and announcements. On single-language systems converted from SP4, and VS1V will store the voice portion of languages. VS1V is on node 1 and has an 8k block size.

VS2T

This is on node 1. It stores languages one and two for all systems. It has a 1k block size.

VS2V

This is the voice volume associated with VS2T. It stores the voice portion of languages one and two.

VS2*xx*T

This is a *user volume*. It stores the cabinets, profiles, personal distribution lists and message headers of users added to volume 2*xx*.

Note: 'xx' is the node number. For example, VS205T is on node 5.

VS2*xx*V

The voice part of VS2*xx* holding user voice messages and greetings on node 2. Also has a copy of the voice prompts.

VS*xxx*B

Volumes ending in the letter 'B' are temporary volumes created during an on-line backup of the VS*xx* volume. It has a 1k block size and is deleted after it has been copied to tape.

VS901T

This exists on node 1. It stores a copy of all the user profiles on user volumes VS203, VS210. This includes personal distribution lists. The profiles are copied to VS901 by a partial backup. In the case of a disk-to-tape backup, VS901T is then copied to tape.

VS902T

This is present on node 2, but only on a 2-node system. It holds copies of all user profiles on volume VS2. The profiles are copied to VS902 by a partial backup. In the case of a disk-to-tape backup, VS902T and VS902V are then copied to tape.

Types of backup

Full backup

A full backup copies all system and user data. This includes all user voice messages, all user greetings and all voice menus. Due to the large amount of data, full backups may require many tapes and a considerable length of time to perform.

Partial backup

In most cases it is sufficient to perform a partial backup rather than a full backup. The purpose of a partial backup is to save the administrative configuration of the system but not all the user voice messages and greetings. This saves the effort of re-entering the user database and parameters should a disk drive fail. A partial backup saves the user directory, user profiles, personal distribution lists, system distribution lists, personal verifications, user passwords, operational measurements, network configuration and other system configuration information.

If a system is restored from a partial backup (a *partial restore*), the user mailboxes on the volumes restored will be empty and greetings will be lost. This is usually acceptable since voice messages are so transient that it is of little value to restore old voice messages.

On-line backup

Normally an administrator will do an on-line backup while the system is still providing service. The on-line backup mechanism takes a “snapshot” of the state of the disk volume at the time the backup was started. This ensures that the data within a volume is consistent even though the volume may be changed during the time the backup is in progress. On-line backup should not be done at hours of peak system usage since it increases the load on the disk drives. It cannot be performed between 1:00 a.m. and 5:30 a.m. since various system audit programs are active at this time. Backups can be performed automatically using the Scheduled Backup feature. A temporary volume, VSnB, is created by an on-line backup.

Off-line backup

An off-line backup is a backup which is done by Northern Telecom personnel.

Appendix B: **Remote Access**

Remote access procedures

Procedure 19-1
Remote Access Installation

Set up the remote access cabling as in Table 19-1.

Table 19-1
Remote Access Installation

I/O Panel Connector	I/O Panel PIN Number	Signal Name	Binder	Color	Port Description	
					Relays Energized	Relays Un-energized
P1A	3 13	MR02 MT02	Blue	G2W G1W	Remote Access Modem Port (MSP 1) Shelf 26 Right	Remote Access Modem Port (MSP 1) Shelf 26 Right
P1B	1 11	MR12 MT12	Blue	BL2BK BL1BK	Remote Access Modem Port (MSP 2) Shelf 26 Right	Remote Access Modem Port (MSP 2) Shelf 26 Right
					Shelf 26 Left	Shelf 39 Left
P1A	3 13	MR02 MT02	Blue	G2W G1W	SPN 1 (Port 2) Modem Port	SPN 5 (Port 2) Modem Port
P1B	1 11	MR12 MT12	Blue	BL2BK BL1BK	SPN 2 (Port 2) Modem Port	SPN 6 (Port 2) Modem Port
P1B	8 18	MR22 MT22	Orange	O2W O1W	SPN 3 (Port 2) Modem Port	SPN 7 (Port 2) Modem Port
P10	6 16	MR42 MT42	N/A	R(BL) BL(R)	SPN 4 (Port 2) Modem Port	SPN 8 (Port 2) Modem Port

Overview

Procedure 19-2
Remote terminal and modem installation

1 Place the VT220-compatible terminal and modem in a suitable location for remote administration.

2 Plug the power cord for the remote terminal into the appropriate AC receptacle.

3. Plug one end of the 10-foot, 9-pin RS-232 modem cable (A0355244) into the modem's RS-232 connector marked RS-232/EIA (DTE on the UDS modem). Attach the other end of the cable into port A of the remote terminal and screw the cable into place.
4. For the Ven-Tel modem, plug one end of the RJ-11c jacked cable (RJ-11 for UDS modem) into the modem's TELCO receptacle and the other end into the telephone outlet installed for the remote site.
5. Plug the end of the modem power cord into the nearest AC receptacle.

Remote access enable/disable

Once the remote access has been enabled from the local console, the remote access user simply calls in and hits the break key to gain control of the main console screen. (The main console screen contains the MMI virtual window, the CONSOLE virtual window, and the Cobra selection window.) After gaining control of the main console screen, press <CR>. If <CR> does not return with any prompt then hit <CNTL-R> to redraw the current screen.

To enable remote access from virtual windows, use the CobraVT selection window. This will turn the modem on and set the modem to Auto Answer calls.

Procedure 19-3
Enabling remote access

1 To bring up the CobraVT selection window, type <CNTL W>

Note: For help using CobraVT, type a question mark (?). A help screen will appear.

2 Type 'M' (case does not matter).
To disable the remote access, repeat the above steps as the enabling process is a toggle.
The DCD status of the modem port which indicates whether a remote connection is present or not is not available to the user.

Remote access status

Procedure 19-4
Remote access status

1 Typing <CNTL W> will bring up the Cobra selection window that shows the current status of the remote access.

2 If '-M' appears in the top right hand corner, remote access is enabled.

A CobraVT selection window with remote access enabled looks like the following:

CobraVT	1/6 Loc	Stat	-M
CONSOLE	1	R	
MMI	5	R	

The DCD status of the modem port is not available to the user.

Gaining control

To gain control of the main console port, press the <Break> key (in Crosstalk or Kermit programs, the <Break> key may be mapped to the <Alt-Break> or <Cntl-Break> keys), causing the main console port to be routed to that port. This works for either remote or on-site users. Due to the line characteristics, it may be necessary for the operator at the remote site to hold the BREAK key until gaining control of the console.

Security

Security is the responsibility of the on-site administrator, ensuring that the modem is on only when necessary. The Cobra selection window can get the remote access status at any time.

Booting up

When the operating system is booting, it checks whether the modem is connected. If the modem carrier is detected, the system routes the main console port to the modem port. This allows the remote user to boot the system without intervention from the on-site user.

Errors

Modem/phone line malfunction

Upon detection of loss of carrier, modem access will be disabled and the console will be set to the local administrator.

Redundancy switchover

Within a redundant MSP environment, if a switchover occurs, the console will be set to the local administrator.

During a remote session on the active MSP, if a switchover occurs, the remote session will not switchover to the new active MSP. The remote user will remain connected to what is now the backup MSP. To regain remote access to the now active MSP, the local user must enable the remote access on the newly active MSP and the remote user must dial into the line going to the active MSP.

Internal modem configuration

Autoconfiguration

The internal modem is automatically configured as soon as the Meridian Mail system is turned on. The parameters are as follows:

Table 19-2
Internal Modem, Default Parameter Settings

Parameter	Default Setting
Datatype	Terminal
Parity	None
Start Bit	1
Stop Bit	0
Terminal Type	VT220
Duplex	Yes
Global Register	Yes
Number of Windows	1
Baud Rate	2400
Window Width	80
Window Height	24
Name	(variable)
TermCap	sp5_vt220

List of terms

68K card

68010 processor card. This is a card with a 12Mhz 68010 processor, SCSI interface, serial port and the capability of addressing either 6 or 8 MB of accessible RAM.

AMIS

See audio messaging interchange specification.

Analog transmission

Transmission of a continuously variable signal, as opposed to a discretely variable signal.

Audio messaging interchange specification (AMIS)

An industry standard specification that allows users of voice messaging products residing on systems of differing architectures to exchange voice messages.

Card

Card is the term for a plug-in printed circuit pack or board.

Central office (CO)

A switching office for terminating subscriber lines and for establishing connections to and from other switching offices. Synonymous with class 5 office, end office, and local office.

Centrex

Centralized service that provides a business telephone subscriber with direct inward dialing to extensions on the same system and direct outward dialing from all extensions. Centrex switching equipment is normally located at the central office, but may be located on the operating company client's premises.

CO

See central office.

CPE

See customer premises equipment.

Customer premises equipment (CPE)

Refers to equipment that is located on the customer's premises.

Dial pulse (DP)

Method of transmitting signaling information from a telephone set or a trunk circuit. Dial pulses are generated by alternately opening and closing a contact in the telephone through which the dc current flows.

Digital

Pertaining to digits or to the representation of data or physical quantities by digits. It contrasts with analog.

Digital multiplex system (DMS)

A central office switching system in which all external signals are converted to digital data and stored in assigned time slots. Switching is performed by reassigning the original time slots.

Directory number (DN)

The full complement of digits required to designate a subscriber's station within one NPA-usually a three-digit central office code followed by a four-digit station number.

DMS

See digital multiplex system.

DMS SuperNode

A central control complex for the DMS-100. The two major components of DMS SuperNode are the computing module and the message switch.

DN

See directory number.

DP

See dial pulse.

DTMF

See dual-tone multifrequency dialing.

Dual-tone multifrequency (DTMF) dialing

A service-related telephony feature that provides for the generation of address information from a telephone set in the form of DTMF signals by pressing non-locking buttons. It contrasts with dial pulse.

Frame supervisory panel (FSP)

Accepts the frame battery feed and ground return from the power distribution center and distributes the battery feed to the shelves of the frame or bay in which the FSP is grounded. The FSP also contains alarm circuits.

FSP

See frame supervisory panel.

Input/output (I/O)

Refers to a device or medium that is used to achieve a bidirectional exchange of data. Data exchange in the DMS-100 Family system is performed in accordance with the input/output message system.

I/O

See input/output.

Link interface unit 7 (LIU7)

The LIU7 is a peripheral module that processes messages entering and leaving a link peripheral processor (LPP) through an individual signaling data link.

Link peripheral processor (LPP)

The LPP is an equipment frame that contains peripheral modules, such as LIU7s, EIUs, and an LMS.

Local message switch (LMS)

The LMS controls messaging between LIU7s, EIUs, and other application processors in a link peripheral processor (LPP). The LMS also controls messaging between the LPP and the DMS Bus.

Log system

Used by the DMS software to record (that is, log) the occurrence of all significant events (for example, equipment failure), and then report the events to operating company personnel.

Maintenance and administrative position (MAP)

The MAP provides a man-machine interface between operating company personnel and the DMS-100 Family switch. It consists of a visual display unit and keyboard, a voice communications module, test facilities, and MAP furniture.

MDC

See meridian digital centrex.

Meridian digital centrex (MDC)

A special DMS business services package that utilizes the data-handling capabilities of DMS-100 Family offices to provide a centralized telephone exchange service. It is formerly known as the integrated business network (IBN).

Meridian Mail (MMail)

A voice processing system designed for use with Northern Telecom's Meridian 1 Communication Systems.

Meridian Mail user interface (MMUI)

It is Northern Telecom's proprietary voice messaging user interface.

Message waiting indication (MWI)

MWI is a visible or audible indicator (that is, lamp or stutter dial tone) at the subscriber's set that informs the subscriber of a message waiting in his or her voice mailbox.

MMail

See Meridian Mail.

MMUI

See Meridian Mail user interface.

MSP

See multiserver processor.

Multiprotocol controller (MPC)

The MPC is a general purpose data communications card that allows communication between a DMS-100 Family switch and an external computer. The MPC card resides on the IOC shelf. The MPC supports asynchronous communication between SMDI datalinks and the ISN.

Multiserver processor (MSP)

A node running multiserver programs in a multinode environment on the service peripheral module.

Node

The terminating point of a link. In DMS, it can mean a unit of intelligence within a system, including the central processing unit, network module, and peripheral modules.

Operational measurements (OM)

The hardware and software resources of the DMS-100 Family switches that control the collection and display of measurements taken on an operating system. OMs organize the measurement data and manage its transfer to

displays and records on which maintenance, traffic, accounting, and provisioning decisions are based.

PBX

See private branch exchange.

Private branch exchange (PBX)

A private telephone exchange, either automatic or attendant-operated, serving extensions in an organization and providing access to the public network.

Service peripheral module (SPM)

A voice processing server used to provide voice messaging and related services for residential and business subscribers of DMS-100 or other central office switches.

Signal processing node (SPN)

A node on the service peripheral module that is used for signal processing.

Simplified Message Desk Interface (SMDI)

An interface feature that enables a DMS-100 switch to communicate with a message desk. It provides the directory number of the called station, the calling station number (if available), and the reason for the call being forwarded to a message desk. In addition, it provides the message desk with the ability to activate or deactivate the message waiting indication for any station able to forward calls to the desk.

SMDI

See simplified message desk interface.

SPM

See service peripheral module.

SPN

See signal processing node.

Telephony interface node (TIFN)

A node that is used to interface between incoming telephony lines and place the communications on the MMail bus of the service peripheral module.

TIFN

See telephony interface node.

T1

The standard 24-channel, 1.544 MB/s pulse code modulation system used in North America. This digital carrier carries a signal whose designation is DS1.

VMUIF

See Voice Messaging user interface forum.

Voice Processor-12 (VP12) card

A twelve-port card that is used in the service peripheral module for voice processing.

Voice Messaging user interface forum (VMUIF)

The call answering interface that has been defined by the Voice Messaging user interface forum.

VP12

See Voice Processor-12 card.

DMS-100 Family

DMS VoiceMail

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