

**Lucent Technologies**  
Bell Labs Innovations



**MERLIN LEGEND<sup>®</sup>**  
**Communications System**  
**Release 6.1**

**System Programming and**  
**Maintenance (SPM)**

555-661-140  
Comcode 108289513  
Issue 1  
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## Notice

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

See Appendix A, "Customer Support Information," for important information. It follows *Maintenance and Troubleshooting* in this binder.

## Your Responsibility for Your System's Security

Toll fraud is the unauthorized use of your telecommunications system by an unauthorized party, for example, persons other than your company's employees, agents, subcontractors, or persons working on your company's behalf. Note that there may be a risk of toll fraud associated with your telecommunications system, and if toll fraud occurs, it can result in substantial additional charges for your telecommunications services.

You and your system manager are responsible for the security of your system, such as programming and configuring your equipment to prevent unauthorized use. The system manager is also responsible for reading all installation, instruction, and system administration documents provided with this product in order to fully understand the features that can introduce risk of toll fraud and the steps that can be taken to reduce that risk. Lucent Technologies does not warrant that this product is immune from or will prevent unauthorized use of common-carrier telecommunication services or facilities accessed through or connected to it. Lucent Technologies will not be responsible for any charges that result from such unauthorized use. For important information regarding your system and toll fraud, see Appendix A, "Customer Support Information."

## Federal Communications Commission Statement

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

## Canadian Department of Communications (DOC)

### Interference Information

This digital apparatus does not exceed the Class A limits for radio noise emissions set out in the radio interference regulations of the Canadian Department of Communications.

Le Présent Appareil Numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

## Year 2000 Compliance

The MERLIN LEGEND Communications System is certified to be Year 2000 compliant. Additional information on this certification, and other issues regarding Year 2000 compliance, is available online at <http://www.lucent.com/entreprise/sig/yr2000>.

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<b>Order:</b>	Document No. 555-661-140 Comcode: 108289513 Issue 1, August 1998	

For more information about Lucent Technologies documents, refer to the section entitled, "Related Documents" in *"About This Book."*

## Support Telephone Number

In the continental US, Lucent Technologies provides a toll-free customer helpline 24 hours a day. Call the Lucent Technologies Helpline at **1 800 628-2888** or your Lucent Technologies authorized dealer if you need assistance when installing, programming, or using your system. Outside the continental US, contact your local Lucent Technologies authorized representative.

## Network Engineering Group

For assistance in designing a private network call the Network Engineering Group at 1 888 297-4700.

## Lucent Technologies Corporate Security

Whether or not immediate support is required, all toll fraud incidents involving Lucent Technologies products or services *should be reported* to Lucent Technologies Corporate Security at **1 800 821-8235**. In addition to recording the incident, Lucent Technologies Corporate Security is available for consultation on security issues, investigation support, referral to law enforcement agencies, and educational programs.

## Lucent Technologies Fraud Intervention

If you *suspect you are being victimized* by toll fraud and you need technical support or assistance, call BCS National Service Assistance Center at **1 800 628-2888**.

## Warranty

Lucent Technologies provides a limited warranty on this product. Refer to "Limited Warranty and Limitation of Liability" in Appendix A, "Customer Support Information," which follows *Maintenance and Troubleshooting* in this binder.



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

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## IMPORTANT SAFETY INSTRUCTIONS

When installing telephone equipment, always follow basic safety precautions to reduce the risk of fire, electrical shock, and injury to persons, including:

- Read and understand all instructions.
- Follow all warnings and instructions marked on or packed with the product.
- Never install telephone wiring during a lightning storm.
- Never install a telephone jack in a wet location unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wires or terminals unless the telephone wiring has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.
- Use only Lucent Technologies-manufactured MERLIN LEGEND Communications System circuit modules, carrier assemblies, and power units in the MERLIN LEGEND Communications System control unit.
- Use only Lucent Technologies-recommended/approved MERLIN LEGEND Communications System accessories.

- If equipment connected to the analog extension modules (008, 408, 408 GS/LS) or to the MLX telephone modules (008 MLX, 408 GS/LS-MLX) is to be used for in-range out-of-building (IROB) applications, IROB protectors are required.
- Do not install this product near water, for example, in a wet basement location.
- Do not overload wall outlets, as this can result in the risk of fire or electrical shock.
- The MERLIN LEGEND Communications System is equipped with a 3-wire grounding-type plug with a third (grounding) pin. This plug will fit only into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to replace the obsolete outlet. Do not defeat the safety purpose of the grounding plug.
- The MERLIN LEGEND Communications System requires a supplementary ground.
- Do not attach the power supply cord to building surfaces. Do not allow anything to rest on the power cord. Do not locate this product where the cord will be abused by persons walking on it.
- Slots and openings in the module housings are provided for ventilation. To protect this equipment from overheating, do not block these openings.
- Never push objects of any kind into this product through module openings or expansion slots, as they may touch dangerous voltage points or short out parts, which could result in a risk of fire or electrical shock. Never spill liquid of any kind on this product.
- Unplug the product from the wall outlet before cleaning. Use a damp cloth for cleaning. Do not use cleaners or aerosol cleaners.
- Auxiliary equipment includes answering machines, alerts, modems, and fax machines. To connect one of these devices, you must first have a Multi-Function Module (MFM).
- Do not operate telephones if chemical gas leakage is suspected in the area. Use telephones located in some other safe area to report the trouble.

 **WARNING:**

- *For your personal safety, DO NOT install an MFM yourself.*
- *ONLY an authorized technician or dealer representative shall install, set options, or repair an MFM.*
- *To eliminate the risk of personal injury due to electrical shock, DO NOT attempt to install or remove an MFM from your MLX telephone. Opening or removing the module cover of your telephone may expose you to dangerous voltages.*

**SAVE THESE INSTRUCTIONS**



# About This Book

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System Programming and Maintenance (SPM) is a software tool developed specifically for the MERLIN LEGEND Communications system to allow programming, administration, and maintenance tasks to be done on a PC.

## **Intended Audience**

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This book is intended for anyone who uses a PC to perform programming or maintenance tasks for the communications system. It is especially aimed at system managers and support personnel.

“Related Documents,” later in this section, provides a complete list of system documentation together with ordering information.

**In the USA only**, Lucent Technologies provides a toll-free customer Helpline (1 800 628-2888) 24 hours a day. Call the Helpline, or your Lucent Technologies representative, if you need assistance when installing, programming, or using your system.

## Terms and Conventions Used

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In this document, the terms in the following list are used in preference to other, equally acceptable terms for describing communications systems.

### Lines, Trunks and Facilities

*Facility* is a general term that designates a communications path between a telephone system and the telephone company central office. Technically a *trunk* connects a switch to a switch, for example the MERLIN LEGEND Communications System to the central office. Technically, a *line* is a loop-start facility or a communications path that does not connect two switches (for example, an intercom line or a Centrex line). However, in actual usage, the terms *line* and *trunk* are often applied interchangeably. In this book, we use *line/trunk* and *lines/trunks* to refer to facilities in general. Specifically, we refer to *digital facilities*. We also use terms such as personal line, ground-start trunk, Direct Inward Dialing (DID) trunk, and so on. When you talk to your local telephone company central office, ask them which terms they use for the specific facilities they connect to your system.

Some older terms have been replaced with newer terms. The following list shows the old term on the left and the new term on the right:

trunk module	line/trunk module
trunk jack	line/trunk jack
station	extension
station jack	extension jack
analog data station	modem data station
digital data station	terminal adapter
7500B data station	terminal adapter
analog voice and analog data station	analog voice and modem data
digital voice and analog data station	MLX voice and modem data
analog data only station	modem data only station
digital data only station	terminal adapter only station
7500B data only station	terminal adapter only station
digital voice and digital data station	MLX voice and terminal adapter station
MLX voice and 7500B data station	MLX voice and terminal adapter station

## Typographical Conventions

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Certain type fonts and styles act as visual cues to help you rapidly understand the information presented:

Example	Purpose
It is <i>very</i> important that you follow these steps. You <i>must</i> attach the wristband before touching the connection.	Italics indicate emphasis.
The part of the headset that fits over one or both ears is called a <i>headpiece</i> .	Italics also set off special terms.
If you press the <b>Feature</b> button on an MLX display telephone, the display lists telephone features you can select. A programmed Auto Dial button gives you instant access to an inside or outside number.	The names of fixed-feature, factory-imprinted buttons appear in bold. The names of programmed buttons are printed as regular text.
Choose Ext Prog from the display screen.	Plain constant-width type indicates text that appears on the telephone display or personal computer (PC) screen.
To activate Call Waiting, dial <i>*11</i> .	Constant-width type in italics indicates characters you dial at the telephone or type at the PC.

## Product Safety Labels

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Throughout these documents, hazardous situations are indicated by an exclamation point inside a triangle and the word **CAUTION** or **WARNING**.

### **WARNING:**

*Warning indicates the presence of a hazard that could cause death or severe personal injury if the hazard is not avoided.*

 **CAUTION:**

*Caution indicates the presence of a hazard that could cause minor personal injury or property damage if the hazard is not avoided.*

## Security

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Certain features of the system can be protected by passwords to prevent unauthorized users from abusing the system. You should assign passwords wherever you can and limit knowledge of such passwords to three or fewer people.

Nondisplaying authorization codes and telephone numbers provide another layer of security. For more information, see Appendix A, "Customer Support Information" following *Maintenance and Troubleshooting*.

Throughout this document, toll fraud security hazards are indicated by an exclamation point inside a triangle and the words **Security Alert**.

 **Security Alert:**

*Security Alert indicates the presence of a toll fraud security hazard. Toll fraud is the unauthorized use of your telecommunications system by an unauthorized party (for example, persons other than your company's employees, agents, subcontractors, or persons working on your company's behalf). Be sure to read "Your Responsibility for Your System's Security" on the inside front cover of this book and "Security of Your System: Preventing Toll Fraud" in Appendix A, "Customer Support Information."*

## Related Documents

In addition to this book, the documents listed below are part of the documentation set. Within the continental United States, these documents can be ordered from the Lucent Technologies BCS Publications Center by calling 1 800 457-1235.

Document No.	Title
	<b>System Documents</b>
555-660-100	<i>Customer Documentation Package</i> Consists of paper versions of <i>System Manager's Guide</i> , <i>Feature Reference</i> , and <i>System Programming</i> .
555-661-110	<i>Feature Reference</i>
555-661-111	<i>System Programming</i>
555-661-112	<i>System Planning</i>
555-661-113	<i>System Planning Forms</i>
555-661-116	<i>Pocket Reference</i>
555-661-118	<i>System Manager's Guide</i>
555-661-150	<i>Network Reference</i>
555-661-800	<i>Customer Reference CD-ROM</i> Contains <i>System Manager's Guide</i> , <i>Feature Reference</i> , <i>System Programming</i> , and <i>Network Reference</i> .
	<b>Telephone User Support</b>
555-660-122	<i>MLX Display Telephones User's Guide</i>
555-630-150	<i>MLX-5D, MLX-10D and MLX-10DP Display Telephone Tray Cards (5 cards)</i>
555-630-152	<i>MLX-28D and MLX-20L Telephone Tray Cards (5 cards)</i>
555-660-124	<i>MLX-5 and MLX-10 Nondisplay Telephone User's Guide</i>
555-630-151	<i>MLX-5 and MLX 10 Nondisplay Telephone Tray Cards (6 cards)</i>
555-630-155	<i>MLX-16DP Display Telephone Tray Cards (5 cards)</i>
555-660-120	<i>Analog Multiline Telephones User's Guide</i>
555-660-126	<i>Single-Line Telephones User's Guide</i>
555-660-138	<i>MDC and MDW Telephones User's Guide</i>
	<b>System Operator Support</b>
555-660-134	<i>MLX Direct-Line Consoles Operator's Guide</i>
555-660-132	<i>Analog Direct-Line Consoles Operator's Guide</i>

<b>Document No.</b>	<b>Title</b>
555-660-136	<i>MLX Queued Call Console Operator's Guide</i>
	<b>Miscellaneous User Support</b>
555-661-130	<i>Calling Group Supervisor's Guide</i>
555-650-105	<i>Data and Video Reference</i>
	<b>Documentation for Qualified Technicians</b>
555-661-140	<i>Installation, Programming &amp; Maintenance (IP&amp;M) Binder</i>  <i>Consists of Installation, System Programming &amp; Maintenance (SPM), and Maintenance &amp; Troubleshooting</i>
	<b>Toll Fraud Security</b>
555-025-600	<i>BCS Products Security Handbook</i>

## **How to Comment on This Document**

We welcome your comments, both positive and negative. Please use the feedback form on the next page to let us know how we can continue to serve you. If the feedback form is missing, write directly to:

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Lucent Technologies  
211 Mount Airy Road  
Room 2W226  
Basking Ridge, NJ 07920

# Programming with SPM

---

The System Programming and Maintenance (SPM) software package offers an alternate method of programming the MERLIN LEGEND Communications System using a PC. This method frees the system programming console for other uses and also provides the additional functions listed below:

- Backing up system programming information
- Restoring system programming information from a backup
- Converting system programming information from one release to another (part of the upgrade procedure)
- Printing, viewing, and storing reports
- Programming the communications system remotely
- Programming in surrogate mode

SPM software is available in DOS (which can run as a DOS application or can be installed to run with Windows 95) or UNIX (as part of Intuity Integrated Solution II\*, or Integrated Solution III\*). A Windows version of SPM (MERLIN LEGEND Communications System Win SPM) is also available.

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\* No longer orderable.



**NOTE:**

DOS SPM and Win SPM software can be used directly from the floppy disk or CD-ROM on your PC. However, if your PC has a hard disk, you should install SPM onto the hard disk.

This book describes the use of SPM on a PC with a DOS operating system only. If you are using Win SPM, refer to the documentation that was provided with the Win SPM application for information. If your system includes the Intuity or IS II/III applications, you have the UNIX System version of SPM.

For information about accessing SPM from the IS II/III application, refer to the following books:

- Integrated Solution III System Manager's Guide, order no. 555-601-010
- Integrated Solution III Installation and Maintenance Guide, order no. 555-601-011
- Integrated Solution II System Manager's Guide, order no. 555-600-726
- Integrated Solution II Installation and Maintenance Guide, order no. 555-600-720

## **System Requirements**

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To use SPM for system programming, you need the SPM diskette and an approved PC with version 3.3 (or later) of MS-DOS<sup>®</sup>. At a minimum, your PC should support and include the following items:

- At least 640 kbytes of RAM
- A floppy disk drive that will accommodate the SPM diskette (3.5-inch or 5.25-inch)
- A monochrome or color monitor
- A serial port that can use either a DB-9 or DB-25 connector

- For a DB-9 connector, use a 9-pin to 25-pin adapter to attach the 25-pin connector of the RS-232 interface cable.
- An RS-232 interface cable of appropriate length for your site connection(s)

Depending on how you connect the PC to the control unit, you also need the following items:

- Direct local connection, if the PC is within 50 ft. of the control unit.
  - Either a 355AF modular adapter (if there is a male connector on the interface cable) or a 355A modular adapter (if there is a female connector on the interface cable)
  - A four-pair modular cord (D8W)
- Direct local connection, if the PC is more than 50 ft. from the control unit.
  - 355AF adapter
  - EIA crossover cable
  - Two Z3A2 Asynchronous Data Units (ADUs)
  - ADU crossover cable
  - 400B2 power adapter
  - 2012D transformer
  - BR1A-4P adapter and either a 102 connecting block or 103 connecting block
  - 248B adapter
  - eight-position wall jacks
  - four-pair plug-ended cable
  - D8W cords
  - D6AP power cord
  - EIA-23D cables

- Modem (local or remote) connection
  - A modem that supports 1200- or 2400-bps connections

In addition, a parallel printer is useful for reports (the PC needs a parallel port for the connection).



**NOTE:**

SPM uses Interrupt 4 and I/O address 3F8 for COM1. It uses Interrupt 3 and I/O address 2F8 for COM2.

## **Installing the SPM Software**

---

Before you install or run SPM, use `diskcopy` on a DOS PC (see your operating system guide) to make a backup copy of the SPM diskette and store the original in a safe place. Use the backup copy to run the installation program.

For installing DOS SPM on a PC, follow the appropriate instructions in the next section of this book. For installing DOS SPM on a Windows 95 PC, follow the instructions provided in “DOS Installation with Windows 95”.



**NOTE:**

If your PC does not have a hard disk, you do not need to run the installation program. Go to “Initializing the SPM Software”.

## **DOS Installation**

---

Use the following procedure to install SPM on the hard drive of a DOS PC.



**NOTE:**

If you are updating SPM, you do not need to remove the current SPM files. The new files will overwrite your current SPM files.

## Considerations

Review the following items before you begin the installation procedure.

The installation program automatically performs the following:

- Checks available space on the hard disk. If space is insufficient, the installation is terminated and an error message is generated.
- Checks the autoexec.bat and config.sys files. If either file is write-protected, the installation is terminated and an error message is generated. SPM must make changes to these files.
- Saves a copy of autoexec.bat as autoexec.old.
- Saves a copy of config.sys as config.old.
- If autoexec.bat has not already been configured for SPM, performs the following:
  - Adds `c:\spm` to the path statement
  - Adds the line `SET AMS PATH=C:`
  - Adds the background print command  
`PRINT /D:PRN /B:4096 /U:3 /M:200 /S:1 >NUL`
- Adds the following line to config.sys if it is not already present  
`DEVICE=C:\ANSI.SYS`.
- Copies the ansi.sys file from the floppy disk to c:\.
- Creates the directory c:\spm.
- Copies the following files from the floppy disk into c:\spm:
  - spm.exe
  - ams\_hlp.eng (English language help file)
  - ams\_hlp.fre (French language help file)
  - ams\_hlp.spa (Spanish language help file)
- Creates the following directories if they do not already exist:
  - c:\spm\backup

- c:\spm\reports
- c:\spm\tmp
- Does one of the following:
  - Creates the SPM configuration file c:\spm\ams.cfg, if it does not already exist. In this case, the `ams.cfg` file consists of only one line, in which the language attribute is specified: `LANG 1` if you specified English or did not specify a language with the `install` command;
  - Modifies the `ams.cfg` file, if it already exists, by adding or changing the `LANG` value.

Follow the steps below to install SPM on the PC's hard disk.

▶ **1. Switch to Drive A, if it is not already the current drive.**

A:> appears on the screen.

▶ **2. Insert the backup copy of the SPM diskette into Drive A.**

▶ **3. Type one of the commands shown below and press .**

- `install`
- `install french`
- `install spanish`

Because English is the default language, `install` and `install english` have the same result. If you do use the language argument (`english`, `french`, or `spanish`), you must type it in lowercase letters as shown. The command `install` may be uppercase or lowercase.

▶ **4. Wait for the message shown below to appear.**

```
SPM HARD DISK INSTALLATION PROGRAM
Strike a key when ready
```

▶ **5. Press any key to begin the installation.**

When the installation is finished, the following message appears:

```
SPM HARD DISK INSTALLATION IS NOW COMPLETE  
YOU MUST REBOOT YOUR SYSTEM BEFORE USING SPM
```

► **6. Remove the SPM diskette from Drive A and reboot your system.**

The installation procedure is complete. Go to “Initializing the SPM Software.”

## DOS Installation with Windows 95

Using DOS SPM with Windows 95 improves the interaction of SPM with the operating system as compared to Windows 3.x installation. For example, the interaction with the print driver is improved. If an online printer is not available when you try to print while using SPM, you see a message box explaining the problem. You can correct the problem by bringing the printer on-line and continuing, or you can cancel the print operation. SPM operation is not affected by the error message or the action you take to correct the problem.

Use the following procedure to install SPM. You do not need to remove the current SPM files. The new files automatically overwrite your current SPM files.



**NOTE:**

This procedure is for installing the DOS version of SPM to run with Windows 95. Do not use this procedure if you have the Win SPM application. For Win SPM, refer to the documentation that was provided with the application.

## Considerations

Review the following items before you begin the installation procedure.

The installation program automatically performs the following:

- If you typed `install` (the command for DOS installation) instead of `install95`, checks if your PC has Windows 95 installed. If Windows 95 is detected, you see an error message that tells you to run the `Instal95` program.
- Creates the directory `c:\spm` if it does not already exist.
- Checks if the `print.exe` file is present in any directory listed in the `PATH` environment variable.
- Runs the DOS `SETVER` command to set the version table for `print.exe` to 6.22. This is required to enable `print.exe` to run on Windows 95.
- Creates an `spm.bat` file in the directory `c:\spm`. The `spm.bat` file contains the `ams_path` and `print` statements required to run SPM.
- Unzips and copies the remaining files into the directory `c:\spm`.
- Instructs you to refer to this document for details on using the PIF Editor to configure an SPM PIF file to work with the `spm.exe` file.

## Installation

With Windows 95 running on your PC, follow these steps to install SPM on the PC's hard disk:

1. Insert the SPM installation disk in any floppy disk drive (usually the A drive).
2. Choose *one* of the following two methods to install SPM:

Method 1 – Install DOS SPM with French, Spanish, or English Language:

- a. Open a DOS Window from Windows Explorer.
- b. At the DOS prompt, switch to the drive with the SPM installation disk (usually the A drive).
- c. At the DOS prompt, type one of the commands shown below and press `Enter` .

- instal95 or instal95 english
- instal95 french
- instal95 spanish



**NOTE:**

Because English is the factory-set language, instal95 and instal95 english have the same result. If you do use the language argument (english, french, or spanish), you must type it in lowercase letters as shown. The command instal95 may be in uppercase or lowercase letters.

Method 2 – Install DOS SPM with French, Spanish, or English Language:

- a. From the Windows Explorer, select the floppy drive that contains the backup copy of the SPM disk.
  - b. Select and run Instal95 (either by double-clicking on the file name or single-clicking on the file name and using the menu choice **File:Open**).
3. After you start the DOS SPM installation using either method, the following message appears:

```
SPM WINDOWS 95 HARD DISK INSTALLATION PROGRAM  
Press any key to continue.
```

4. Press any key to begin the installation.
5. If your PC does not have a copy of print.exe in any directory listed in your system's PATH environment, the following message appears:

```
Copying print.exe to directory c:\spm  
file(s) copied
```

```
WARNING - The application you are adding to the  
Windows version table may not have been verified by  
Microsoft in this version of Windows. Please contact  
your software vendor for information on whether this
```

application will operate properly under this version of Windows. If you execute this application by instructing Windows to report a different MS-DOS version number, you may lose or corrupt data, or cause system instabilities. In that circumstance, Microsoft is not responsible for any loss or damage.

Version table successfully updated.

The version change will take effect the next time you restart your system.

\*\*\*\*\*

SPM Note: The warning message seen above was produced by the SETVER command. This command was used in the SPM install program to set the proper version of PRINT.EXE file in the DOS version table. Please note that in Windows 95, running SETVER always produces the warning message seen above, even when the command is run properly.

\*\*\*\*\*

Press any Key to continue . . .

6. Press any key to continue installation. When SPM installation is complete the following message appears:

Installation of SPM for DOS on your Windows 95 hard drive is now complete. For easy access to SPM from Windows 95, configure an SPM.PIF file. See the SPM Manual for details. Press any key to continue . . .

7. Press any key.
  - If you installed DOS SPM using Method 1 in Step 2, close the DOS Window by typing `exit` at the DOS prompt and pressing . If the window does not close, then the Close on Exit option for the DOS window is not set. In this case, close the window by clicking on the upper right window icon (the box with an **x** in it).
  - If you installed DOS SPM using Method 2 in Step 2, the DOS window closes automatically.

8. If the print.exe file was copied to your PC in Step 5, you must reboot your PC.
9. You should now configure a PIF file for SPM. Use the instructions that follow.

## Configuring a PIF file for DOS SPM

Refer to the Windows 95 Help topic, "PIF editor," for details about using the PIF editor to implement an SPM PIF file to work with the spm.exe file.

Configure a PIF file for DOS SPM by doing the following:

1. In the Windows Explorer, select the SPM application file. Then select the menu item **File:Properties**. The screen that pops up will have tabs along the top.
2. In **Program Tab:**, put the following line in the **Working Directory** entry:  

```
C:\SPM
```
3. In **Program Tab:**, put the following line in the **Batch File** entry:  

```
C:\SPM\SPM.BAT
```
4. In **Program Tab:**, make sure the **Close on Exit** checkbox is checked.

You can now double-click on either the SPM application icon or the SPM "Shortcut to MS-DOS" icon to run SPM. When you quit SPM (by pressing the **Home** key), the window closes automatically.

## Hiding the spm.exe and spm.bat Files

If you want to hide the spm.exe and spm.bat files, use the following steps:

1. In the Windows Explorer, select each file.

2. Click **File** from the menu bar, then select **Properties**.
3. In the Properties dialog box, click on the **Hidden** checkbox located under the **General Tab** in the **Attributes** section.

## Initializing the SPM Software

---

To run correctly, the DOS version of SPM requires certain information (transmission speed, type of monitor, and so on). You need to supply this information only once, the first time you run SPM.

The information you provide during the initialization process is written to the SPM configuration file (ams.cfg). If you need to change this information at some later time, you can do so in either of the following ways:

- Use any of the options in Table 1 to change the information in ams.cfg.
- Edit the ams.cfg file. (If you are unsure about editing the file, you can remove it. You are prompted to reinitialize the next time you invoke SPM. The file is created at that time.)



### NOTE:

The DEBUG attribute is also specified in ams.cfg as `DEBUG=0` (off), the default setting, or `DEBUG=1` (on). This attribute is used to enable the Escape-to-Shell feature of SPM, activated by pressing **Ctrl** + **9**. To turn DEBUG on, you must edit the ams.cfg file; it is not part of the initialization process. The DEBUG attribute is for use by qualified service personnel only.

**Table 1. SPM Configuration File (ams.cfg) Options**

Option	Use
spm-com1	Specifies COM1 as the serial communications port used by SPM
spm-com2	Specifies COM2 as the serial communications port used by SPM
spm-s1200	Specifies modem speed of 1200 bps
spm-s2400	Specifies modem speed of 2400 bps
spm-color	Specifies color monitor
spm-mono	Specifies monochrome monitor
spm-l english	Specifies English as the PC language
spm-l french	Specifies French as the PC language
spm-l spanish	Specifies Spanish as the PC language

Follow the steps below to perform the SPM initialization.

- ▶ **1. Type spm and press  to display the SPM Welcome screen shown in Step 2.**
  - Make your entry at the C:> prompt if your PC has a hard disk.
  - Make your entry at the A:> prompt if you are using the floppy drive.

► **2. Press any key.**

```
Welcome to SPM
The MERLIN LEGEND
System Programming
& Maintenance Utility
Please press any key
to continue
Version X.XX
```

X.XX = current version of SPM

The screens shown in Steps 3 through 7 appear only if the system has not been initialized. Otherwise, the screen shown in Step 8 appears.

► **3. Select the serial communications port used for SPM and press**

.

```
COMM PORT:
1. Comm 1
2. Comm 2
Enter selection #
```

Type 1 for serial port 1 (COM1).

Type 2 for serial port 2 (COM2).

► **4. Select the communications port speed and press** .

```
Speed:
1. 1200
2. 2400
Enter selection #
```

Type 1 for 1200 bps.

Type 2 for 2400 bps.

► **5. Respond to the color prompt and press .**

```
COLOR
Enter selection (y/n):
```

Type **y** if you have a color monitor.  
Type **n** if you do not have a color monitor.

► **6. Select a language and press .**

```
Language:
1. English
2. French
3. Spanish
Enter selection #:
```

Type **1** for English.  
Type **2** for French.  
Type **3** for Spanish.

The language you select here becomes the SPM (PC) language.

► **7. Review your selections.**

```
SPM CONFIGURATION:
Comm Port: x
Speed: x
Color: x
Desire change (y/n)?
```

x = the values entered for each  
entry in Steps 3 through 6

- To change any of the information shown, type **Y** and press . The screen shown in Step 3 appears. Repeat Steps 3 through 6.

- To save the information shown, type **[N]** and press **[Enter]**.
  - If the PC is connected to the processor, the SPM Main Menu appears as shown in Step 8.
  - If the PC is not connected, go to “Connecting the PC.”

► **8. Press the function key that corresponds to the option you want.**

SPM Main Menu		
Menu: Select Function		
<b>[F1]</b>	Sys Program	Maintenance <b>[F6]</b>
<b>[F2]</b>	Backup	Restore <b>[F7]</b>
<b>[F3]</b>	Boards	Pass-Thru <b>[F8]</b>
<b>[F4]</b>	Print Opt	Password <b>[F9]</b>
<b>[F5]</b>	Monitor	Language <b>[F10]</b>



**NOTE:**

The function keys shown on either side of the display are included here for quick reference. See “SPM Screens” for details on using the PC keys in SPM.

## Connecting the PC

There are three ways to connect the PC to the control unit. Choose the method below that is most useful for your installation.

- Direct local connection
- Local modem connection
- Remote modem connection

## Direct Local Connection

---

For a direct local connection, you must connect the PC to the system programming jack. This is the lower modular RS-232 jack on the processor module, as shown in Figure 1. (The upper jack is reserved for the SMDR printer.)

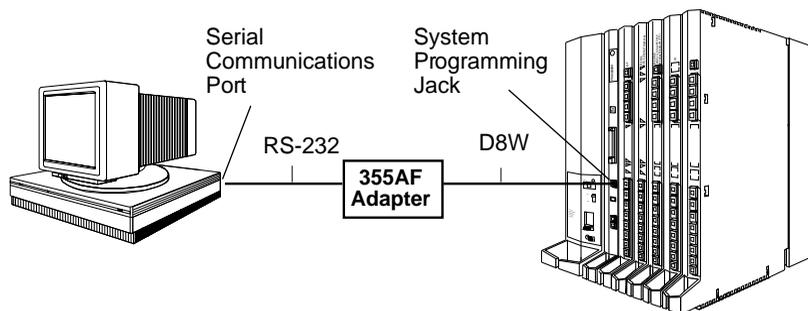
To connect a PC more than fifty feet from the control unit, see Figure 2.

For direct local connections, the system supports speeds of 1200 and 2400 bps.



**NOTE:**

You must use a direct local connection to program in surrogate mode.



---

Figure 1. Direct Local Connection

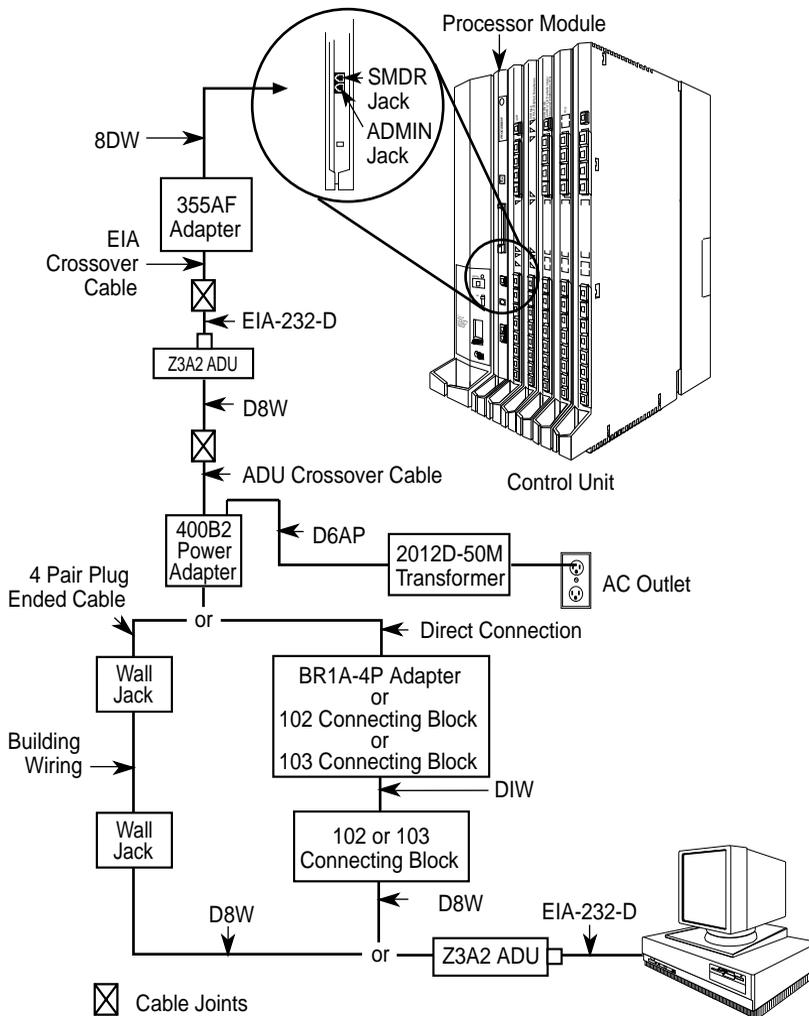


Figure 2. Direct Local Connection, PC More Than 50 ft. Away

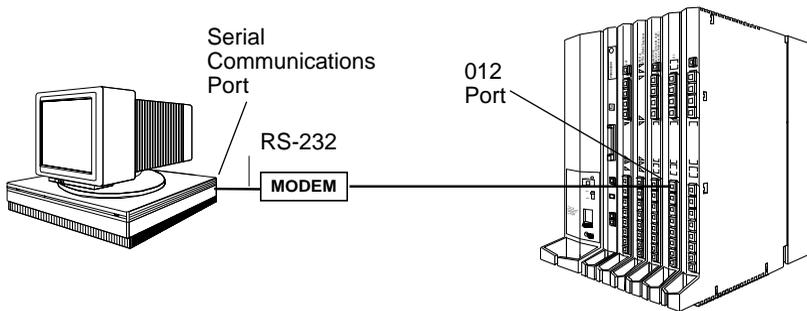
## Local Modem Connection

---

For a local modem connection, you must use a modem (either connected to, or built into, the PC) to access the internal modem in the control unit. Connect the modem to an 012 or 016 module in the control unit, as shown in Figure 3.

The internal modem operates at speeds of 1200 and 2400 bps.

---



---

Figure 3. Local Modem Connection

## Remote Modem Connection

---

For a remote modem connection, you must use a modem (either connected to, or built into, the PC) to access the internal modem in the control unit. You must also use a dial-up connection, as shown in Figure 4. See "Accessing SPM" for details on accessing SPM with a remote modem connection.

The internal modem operates at speeds of 1200 and 2400 bps.

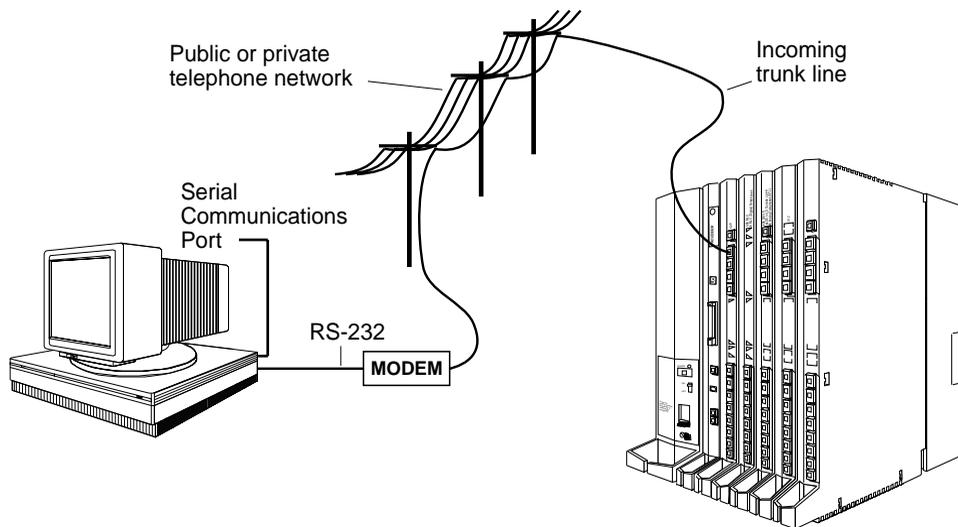


Figure 4. Remote Modem Connection



**NOTE:**

Remote access (modem connection) has priority over local access (direct connection), unless a backup or restore procedure is in progress through a direct local connection. If a modem connection is attempted while any other type of on-site programming is in progress (either at the system or at a directly-connected PC), the system sends a message to the on-site programmer. The message indicates that a modem connection is being established and the on-site programming session is terminated.

## Accessing SPM

---

The procedure for accessing SPM depends on whether your PC is connected to the control unit with a modem (either local or remote) or without a modem (direct). This section covers both of these access procedures.

### With a Direct Local Connection

---

To access SPM when your PC is connected directly to the control unit, follow the steps below.

- ▶ **1. Set up the appropriate physical connections between the PC and the control unit.**

See "Connecting the PC."

- ▶ **2. If you installed SPM on the hard disk of the PC, go to Step 5.**
- ▶ **3. If the PC does not have a hard disk, insert the SPM diskette into Drive A.**
- ▶ **4. Type `a:` and press `Enter`.**

`A:>` appears on the screen.

- ▶ **5. Type `spm` and press `Enter` to display the SPM Welcome screen shown below.**

```
Welcome to SPM
The MERLIN LEGEND
System Programming
& Maintenance Utility
Please press any key
to continue
Version X.XX
```

X.XX current version of SPM

► **6. Press any key to display the SPM Main Menu shown below.**

SPM Main Menu		
Menu: Select Function		
F1	Sys Program	Maintenance F6
F2	Backup	Restore F7
F3	Boards	Pass-Thru F8
F4	Print Opts	Password F9
F5	Monitor	Language F10



**NOTE:**

The function keys shown on either side of the display are included here for quick reference. See “SPM Screens” for details on using the PC keys in SPM.

- If the SPM Main Menu does not appear or if the information on the screen is garbled, press any key again.
  - If the COM Port (communications port) screen appears instead of the SPM Main Menu, it indicates that the SPM software has not been initialized. See “Initializing the SPM Software.”
- **7. To select an option, press the function key that corresponds to the option you want. For example, to select Language press F10.**

## With a Local or Remote Modem Connection

The method you use to access SPM by modem depends on whether you are programming on site (locally) or from a remote location.

- If you are on site, the modem must be connected to an 012 or 016 module on the control unit. To establish a connection to the control unit’s internal modem, dial \*10.
- If you are at a remote location, do one of the following:

- Place a call to the system on a Remote Access line, enter the barrier code (if required), and dial the code for the internal modem (\*10).
- Place a voice call to the system using the line to which the modem is connected and ask the operator to transfer you to the modem (by pressing **Transfer**, dialing \*10, then hanging up the telephone). When you hear the modem answer tone, switch to data mode.

## Considerations

Review the following items before you begin the modem connection procedure.

### Set the Programming Language

If you prefer to program in a language other than the current SPM language setting, see “Language.”

## Modem Connections

You must make a data connection to a modem. The following modem dialing commands are for Hayes® and Hayes-compatible modems. These may not be the commands your modem uses—refer to the user guide that came with your modem for specific information.

- If the PC is in the same location as the control unit, type \*10.
- If the PC is in a remote location and your system has activated the Remote Access feature, type the following and press :
  - Without barrier codes type:
    - ATDT; the remote access telephone number; and W\*10.  
For example: ATDT12015551234 W\*10 .
  - With barrier codes type:

- ATDT ; the remote access telephone number; the barrier code preceded by a “W” and \\*10. The barrier code in the example below is 555555.

For example: ATDT12015551234 W555555 \\*10

.

- The password prompt appears on the screen when the connection is made. (You may have to press  more than once to get the password prompt.)
- If the PC is in a remote location and your system has not activated the Remote Access feature, do the following:
  - Use the main telephone number to place a voice call to the system on the line to which the modem is connected.
  - Instruct the operator to transfer you to the modem (by pressing **Transfer**, dialing \*10, then hanging up the telephone).
  - To put the modem on line, type ATH1 and press , then hang up the telephone.

 **NOTE:**

If you enter a telephone number of fewer than 11 digits, you must end it with a pound sign (#).

To access SPM through a local or remote modem connection, follow the steps below.

- ▶ **1. Set up the appropriate physical connections between the PC and the control unit. See “Connecting the PC.”**

- ▶ **2. Type `spm` and press  to display the SPM Welcome screen shown below.**

```
Welcome to SPM
The MERLIN LEGEND
System Programming
& Maintenance Utility
Please press any key
to continue
Version X.XX
```

X.XX = current version of SPM

If you wish to program in a language other than the current language set for SPM, see “Set the Programming Language.”

- ▶ **3. Press any key to display a blank screen on which you can enter modem commands. (You may have to press the key several times.)**
- ▶ **4. Make a data connection to the modem of the control unit.**

See “Modem Connections.” When the connection is made, the password prompt appears as shown in Step 4.

- ▶ **5. Type the SPM password to display the SPM Main Menu shown in Step 6.**

```
Enter Password:
```

The password does not display as you type it.

- ▶ **6. To select an option, press the function key that corresponds to the option you want. For example, to select Language press **F10**.**

SPM Main Menu		
Menu: Select Function		
F1	Sys Program	Maintenance F6
F2	Backup	Restore F7
F3	Boards	Pass-Thru F8
F4	Print Opts	Password F9
F5	Monitor	Language F10



**NOTE:**

The function keys shown on either side of the display are included here for quick reference. See “SPM Screens” for details on using the PC keys in SPM.

## Using SPM

---

This section describes how to use the SPM screens, SPM Help, and the SPM options listed below.

- Backup
- Boards
- Browse
- Convert
- Language
- Maintenance
- Monitor
- Pass-Thru
- Password

- Print Options
- Restore
- System Programming



**NOTE:**

Some of the procedures described in this section should be performed by qualified service personnel only.

## SPM Screens

SPM screens simulate the system programming console. Each SPM screen includes a 7-line by 24-character console simulation window that corresponds to the display area of the MLX-20L telephone. To the right and left of this console simulation window are columns that list the keys corresponding to similarly-located buttons on the MLX-20L telephone. If you are working with Version 2.0 or higher, the version number appears in the upper left corner of the screen (for example, U6). Figure 5 illustrates the SPM display screen.

U6	QUIT MENU	Home End F1 F2 F3 F4 F5	Welcome to SPM The MERLIN LEGEND System Programming & Maintenance Utility Please press any key to continue. Version 6.25				PgUp PgDn F6 F7 F8 F9 F10	MORE INSP	Drop ALT-P Flash ALT-F TopSP ALT-C Pause ALT-H CONVERT ALT-U HELP CTL-F1 RESET CTL-F5 BROWSE CTL-F8
Shift F5	LINE 05	LINE 10	Shift F10	Alt F5	LINE 15	LINE 20	Alt F10		
Shift F4	LINE 04	LINE 09	Shift F9	Alt F4	LINE 14	LINE 19	Alt F9		
Shift F3	LINE 03	LINE 08	Shift F8	Alt F3	LINE 13	LINE 18	Alt F8		
Shift F2	LINE 02	LINE 07	Shift F7	Alt F2	LINE 12	LINE 17	Alt F7		
Shift F1	LINE 01	LINE 06	Shift F6	Alt F1	LINE 11	LINE 16	Alt F6		

Figure 5. SPM Display

**F1** through **F5**, and **F6** through **F10** display on either side of the console simulation window. They represent the function keys to use when you select screen options. When a screen contains several choices, press the function key identified by the label next to your choice. (If you were programming on the console, you would press the telephone button next to your choice.)

Below the console simulation window are 20 simulated line buttons. The 20 line buttons can be selected using the arrow keys to position the cursor on the appropriate button. Using **PgDn** (the Inspect feature), you can determine the status of each line and the features programmed on each line according to the letter that appears next to the line number (see below).

On the PC screen, the letters **R** and **G** represent the ON state of the red and green LEDs, respectively, that are on the console. For example, if a line, trunk, or pool is assigned to a line button, on the console a green LED lights next to the button. On the PC screen, the letter **G** (for green) displays next to the button. Similarly, if a line, trunk, or pool is not assigned to a line button, neither **G** nor **R** display next to the button on the PC screen. If a trunk is assigned to a pool, an **R** (for red) displays on the PC screen.

The labels in the column on the right side of the screen show key combinations that correspond to buttons on the MLX-20L telephone. Table 2 describes the function of PC keys in SPM.

**Table 2. Function of PC Keys in SPM**

PC Key	Console	SPM Function
<b>Home</b>	<b>Home</b>	Quit. Exit from SPM and return to the DOS prompt when you finish with system programming. If you are using a modem, the call is disconnected.
<b>End</b>	<b>Menu</b>	Return to the SPM Main Menu.
<b>PgUp</b>	<b>More</b>	Display more menu items (when there is another screen and the > symbol appears next to the key).
<b>PgDn</b>	<b>Inspct</b>	Show the current information that has been programmed for a feature or button.
<b>Alt</b> + P	<b>Drop</b>	Enter a stop in a speed dialing sequence. This combination also deletes an entry in a field on any screen except one in which you are entering a speed dialing sequence.
<b>Alt</b> + F	<b>Conf</b>	Flash. Enter a switchhook flash in a speed dialing sequence.
<b>Alt</b> + C	n/a	TopSP. Return to the top of the System Programming menu.
<b>Alt</b> + H	<b>Hold</b>	Pause. Enter a pause in a speed dialing sequence.
<b>Alt</b> + U	n/a	Convert. Convert a backup file from its original Release format to a different Release format.
<b>Alt</b> + n	n/a	Toggle modem speed between 1200 and 2400 bps.
<b>Ctrl</b> + <b>F1</b>	n/a	Help. Display a help screen about SPM operations. To exit from Help, press <b>End</b> .
<b>Ctrl</b> + <b>F5</b>	n/a	Reset. Reset the communications port. For example, if the information on the screen is garbled, try exiting from and then re-entering the screen. If the screen remains garbled, use <b>Ctrl</b> + <b>5</b> to clear the screen and return to the SPM Welcome screen. Note that using <b>Ctrl</b> + <b>5</b> drops the modem connection.
<b>Ctrl</b> + <b>F8</b>	n/a	Browse. View print reports saved with Print Opts.

*Continued on Next Page*

**Table 2. Function of PC Keys in SPM — *Continued***

PC Key	Console	SPM Function
<b>Ctrl</b> + <b>F9</b>	n/a	Escape to shell. To use this key sequence, you must set DEBUG=1 in the configuration file ams.cfg. You can then use this key sequence to execute DOS (or UNIX System) commands. To return to SPM, type exit.
<b>Enter</b> ↵	Enter	The <b>Enter</b> ↵ key on your PC can be used instead of <b>F10</b> when Enter appears as a choice in the console simulation window.
<b>Bksp</b>	Backspace	The <b>Bksp</b> key on your PC can be used instead of <b>F9</b> (Backspace) when it appears as a choice in the console simulation window.
<b>Del</b>	Delete	The <b>Del</b> key on your PC can be used instead of <b>F8</b> (Delete) when it appears as a choice in the console simulation window.
↑ ↓ ← →	n/a	The up, down, left, and right arrow keys can be used to highlight selections in a menu and to select the 20 line buttons below the console simulation window.

## SPM Main Menu Options

The SPM Main Menu provides access to system programming and to the SPM functions listed in Table 3.

**Table 3. SPM Main Menu Options**

<b>SPM Menu Option</b>	<b>Function</b>
Sys Program	To program the system
Backup*	To make a backup copy of your system programming and store it on diskette or on hard disk
Boards*	Shows which modules (port boards) are in each slot of the control unit and allows you to assign boards to slots
Print Opt*s*	Directs reports to the printer or to the PC for storage on diskette or hard disk
Monitor*	Restricted to use by your technical support organization
Maintenance	Restricted to use by your technical support organization and qualified technicians
Restore*	To restore your system programming from diskette or hard disk
Pass-Thru*	(IS II/III only) To make a remote connection, through the control unit, to an IS II/III PC to administer applications on the IS II/III PC.
Password*	To change the password for remote entry into the system.
Language	To select a language (English, French, or Spanish) for the console simulation window on the PC. (There is also a Language option available on the System Programming menu that allows you to set the system language.)

\* SPM option only. Not available on the MLX-20L system programming console. To be used only by qualified service personnel.

## SPM Help

To access the SPM help screens, press **Ctrl** + **F1**.

To review the help screens press, **PgUp** and **PgDn**.

To return to the first help screen, press **[Home]**.

To exit from SPM help, press **[End]**.

A typical help screen is shown in Figure 6.

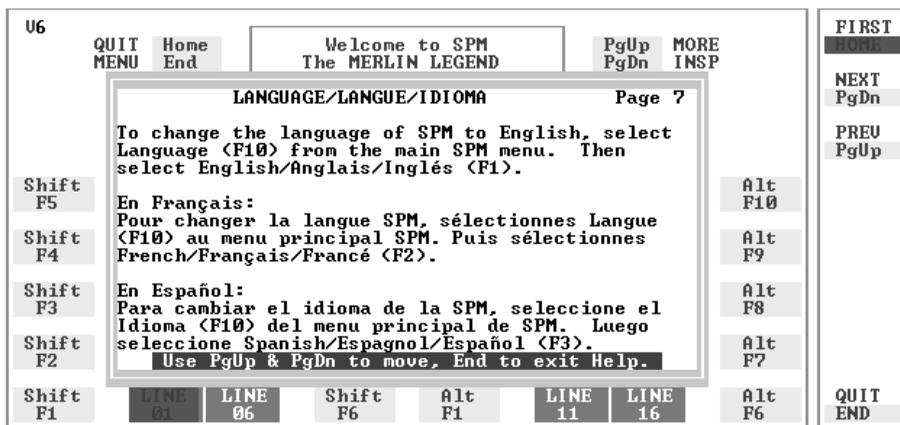


Figure 6. SPM Help

## Backup

The Backup procedure is used by qualified service personnel to create a file of system programming information either in the \spm\backup directory (on the hard drive of the PC) or in the root directory of a diskette (on the floppy disk drive of the PC).



**NOTE:**

Back up your system programming information on a regular basis. A current backup file allows you to quickly and easily restore your system, if the need arises.

## Determining the Release Number of a Backup File

If you have a backup diskette but do not know its release number, you may be able to find this information in the backup header. Beginning with later versions of Release 1.1, the backup file contains a backup header 128 bytes long. Approximately 59 of these bytes are currently used. Bytes 55 through 59 of the header contain the MERLIN Legend Communication System Release number, as shown in Table 4. (Release 1.0 and early versions of Release 1.1 do not contain this information in readable form.)

**Table 4. Backup Header: Release Number**

	Release No.	Build No.	System Size	Mode
Size	2 bytes	12 bytes	1 byte	1 byte
Examples	03 00	32	01	01 - Key
	02 01			02 - Behind Switch
				03 - Hybrid/PBX

The release number is found in the first two bytes (four characters) of the identification number. For example, 0600 = 6.0, 0402 = 4.2.

If the backup file is compressed (Release 1.1 and later), you can read the header but you cannot read the data area following the header. Use `type [backup filename]` to read the header on a DOS system or `cat [backup filename]` to read the header on a UNIX System.

Note that the communication system release number, not the version number of SPM, reflects whether the backup file is compressed or uncompressed. Release 1.0 backups are uncompressed and Release 1.1 and later backups are compressed. Uncompressed files take longer to restore.

## Considerations

Review the following items before you begin the backup procedure:

- The communications system does not have to be idle during backup; however, extension programming is blocked.
- Any objects that are in a maintenance-busy state are stored in that state. When you restore system programming, these objects are busied out, even if they have since been released from the maintenance-busy state.
- If you plan to store your backup file on a diskette, format a DOS diskette. (DOS formatting can be done on either a UNIX System PC or a DOS PC).
- Uncompressed backup files are 100,000 to 210,000 bytes in size; compressed files are about 70,000 to 85,000 bytes.
- Maintenance data (error logs and other data used by qualified service technicians) is not saved in the backup file.

Follow the steps below to perform the backup procedure.

- **1. At the SPM Main Menu, press F2 to select Backup.**

SPM Main Menu

Menu: Select Function

Sys Program          Maintenance

Backup                Restore

Boards                Pass-Thru

Print Options        Password

Monitor                Language

F2

▶ **2. Follow the instructions for a floppy or a hard disk.**

A second window appears which displays the `GOTO FLOPPY` and `MAKE NEW FILE` options and a directory listing for the `C:\spm\backup` directory.

- If you are saving the backup file to a floppy disk, go to Step 3.
- If you are saving the backup file to the hard disk, go to Step 4.

▶ **3. Remove the SPM diskette and insert a formatted diskette. Use the arrow keys to highlight `GOTO FLOPPY` and press `Enter`.**

```
Make a selection for
the BACKUP file.

MAKE NEW FILE will
create a new file
on selected device.

Press ESC to abort.
```

```
GOTO FLOPPY
MAKE NEW FILE
backup.ams
file.1
file.2
```

After you press `Enter`, the `GOTO FLOPPY` statement shown above changes to `GOTO HARD DISK` and the directory listing for `A:\` is displayed. Continue with Step 4.

The screen displays the default name for the backup file (`backup.ams`).

▶ **4. Specify a backup filename.**

- To select the default filename, use the arrow keys to highlight `backup.ams` and press `Enter`. Go to Step 6.
- To enter a different filename, use the arrow keys to select `MAKE NEW FILE` and press `Enter`. Go to Step 5.

► **5. Type the new filename and press `Enter`.**

```
Press ESC to Abort.  
  
Enter filename:  
  
(default is backup.ams)
```

If you are working from the floppy drive, A:\ appears on the screen.

You can specify a drive letter with the filename but no path information.

► **6. Verify that the filename chosen does not already exist.**

The following screen appears only if the filename chosen already exists. Continue with Step 7 if this screen does not appear.

```
The file already exists.  
If you continue, the old  
version will be deleted.  
Press ESC to abort,  
or c to continue.
```

Press `ESC` to abort the backup. Go to Step 1 to create a different backup file.

Press `C` to continue. Go to Step 7.

► **7. Observe the backup status screen.**

```
Press ESC to Abort.  
Est. Blocks: xxx - xxxx  
  
filename  
  
BACKUP IN PROGRESS  
Received Block xx
```

*filename* = the backup filename specified in Step 5

SPM indicates the status of the backup by displaying the number of the last block received (xx). Line 2 of the display screen shows the estimated number of blocks to be sent from the control unit (xxx - xxxx). This line is blank if you are backing up from Release 1.0.

If you abort the backup, the partial backup file is deleted to prevent restoration from a corrupted file and you see the screen shown in Step 8.

When the backup is complete, you see the screen shown in Step 9.

► **8. To abort the backup press `Esc` to return to the SPM Main Menu.**

```
Press ESC to Abort.  
Est. Blocks: xxx - xxxx  
  
filename  
  
BACKUP IN PROGRESS  
XMODEM ABORT - User
```

► **9. When the backup is complete, press `Enter` to return to the SPM Main Menu.**

```
Backup successful.  
Please press Enter  
to see the Main Menu  
  
Received xxx Blocks
```

xxx = total number of blocks received

## Boards

---

The Boards option allows qualified service personnel to add a board to the next available slot. The system must be idle to use this option. This option is not available from the system programming console.

The Boards option is also available in surrogate mode. In surrogate mode, you can assign trunk and extension modules (boards) to slots, even though the boards have not actually been installed. This type of board is referred to as a “phantom” or “null” board.

You cannot use the Boards option to change an actual board type. All boards assigned with the Boards option, including phantom boards, are cleared (unassigned) if you perform a board renumber (System→Board Renum).

### NOTE:

You must assign phantom boards to higher slot numbers than those you assign to any real boards. If you assign a phantom board to a lower slot number than a real board, the control unit does not recognize the real board(s) that follow the phantom board.

### NOTE:

If you remove a board but do not replace it, and then perform a board renumber, the control unit will not recognize any boards that follow the empty slot. You must reseal all of the boards to fill the empty slot before you perform the board renumber.

The Inspect function (PgDn) lets you see which modules have been assigned to slots on the control unit. Note that both phantom boards and real boards display if you use the Inspect function. To see only real board assignments, you must print the System Information report:

System→**More**→Print→SysSet-up.

Table 5 shows the type of boards that you can select.

**Table 5. Board Types**

<b>Board Type</b>	<b>Description</b>
400LSR	4 loop-start line jacks with 4 touch-tone receivers
400GLR	4 ground-start/loop-start line jacks with 4 touch-tone receivers
800LS	8 loop-start line jacks
800GLID	8 ground-start/loop-start line jacks with Caller ID capability available on the loop-start lines and 2 touch-tone receivers
800GLS	8 ground-start/loop-start line jacks
408LSA	4 loop-start line jacks and 8 ATL analog extension jacks
408GLA	4 ground-start/loop-start line jacks and 8 ATL analog extension jacks
408GLM	4 ground-start/loop-start line jacks and 8 MLX extension jacks (16 endpoints)
008ATL	8 analog extension jacks
008MLX	8 MLX-20L extension jacks (16 endpoints)
012TR/OPT	12 tip/ring extension jacks with 2 touch-tone receivers or 008 OPT jacks
016TRR	16 tip/ring extension jacks with 4 touch-tone receivers
800DID	8 DID trunk jacks with 2 touch-tone receivers
400E&M	4 E&M tie trunk jacks
100D	1 DS1 jack (24 channels)
800BRI	8 BRI trunk jacks (16 channels)

Follow the steps below to assign modules.

- ▶ **1. At the SPM Main Menu, press **F3** to select Boards.**

SPM Main Menu	
Menu: Select Function	
Sys Program	Maintenance
Backup	Restore
<b>F3</b> Boards	Pass-Thru
Print Opts	Password
Monitor	Language

- ▶ **2. Press the function key that corresponds to the module you want to select.**

Boards: >	
Make a selection	
<b>F1</b> 40&LSA	80&LS
<b>F2</b> 012TR/OPT	00&ATL
<b>F3</b> 800&ID	00&MLX
<b>F4</b> 800&GLS	400&GLR
<b>F5</b> Exit	400&LSR

Boards:	
Make a selection	
<b>F1</b> 400E&M01&TRR	<b>F6</b>
<b>F2</b> 40&GLA800&GLID	<b>F7</b>
<b>F3</b> 100&800&BRI	<b>F8</b>
<b>F4</b> 40&GLM	
<b>F5</b> Exit	

If the module you want to assign is not shown on the first screen of the Boards menu, press **PgUp** to display the next menu screen.

- ▶ **3. Type the control unit slot number (01 through 17) in which the module is to be installed.**

module name	
Enter slot numbers (01-17)	
	Delete
Backspace	Next
Exit	Enter

*module name* = option selected in Step 2

► **4. Assign or remove the module from the slot entered in Step 3.**

module name	
Enter slot numbers	
(01-17)	
nn	
Delete	F8
Backspace Next	F9
Exit Enter	F10

*module name* = option selected in Step 2  
*nn* = slot entered in Step 3

To remove the module type from the specified slot number, press **F8** (Delete). The Boards menu reappears.

To assign the module type to the specified slot number and assign that same module type to another slot, press **F9** (Next).

To assign the module type to the specified slot number and assign a different module type to another slot, press **F10** (Enter).

To terminate the procedure and assign a different module, press **F5** (Exit) and repeat Steps 2 through 4.

To view types of modules assigned to all slots, press **PgDn** (Inspect).

► **5. Save your entry.**

Select Exit. **F5**

The programming session terminates and the system restarts.

## Browse

---

The Browse option allows you to browse through reports saved in the Reports directory (\spm\reports) on the hard disk of the PC or on a floppy.

- **1. At the SPM Main Menu, press `F3` to activate the Browse option.**

```
SPM Main Menu
Menu: Select Function

Sys Program      Maintenance
Backup           Restore
Boards           Pass-Thru
Print Opts       Password
Monitor          Language
```

- **2. Use the arrow keys to highlight the source (hard disk or floppy) from which you want to view the reports and press `F10`.**

```
Please enter file name

Press ESC to Abort.
```

```
GOTO FLOPPY
FILENAME.XXX
FILENAME.YYY
```

A list of the current reports appears.

*FILENAME.XXX* and *FILENAME.YYY* from the \spm\reports directory of the hard disk.

- **3. Use the arrow keys to highlight the report you want to view and press `F10`.**

The report appears.

- To view the next page of a report, press `PgDn`.
- To view the previous page of a report, press `PgUp`.

- To return to the beginning of a report, press `[Home]`.
- To exit from the Browse option and return to the SPM Main Menu, press `[Esc]`.

## Convert

---

The Convert option (which can be used remotely) simplifies upgrading from an earlier release to a later release of the communications system. (See “Upgrading the Communications System.”) This procedure should be done only by qualified service personnel.

Convert uses two files: the existing backup file (the “convert from” file) and the converted file (the “convert to” file), which is created when you run the Convert option. The converted file contains system programming information in an uncompressed form. The “convert from” file is unchanged. Because uncompressed files take longer to process than compressed files, you may want to restore this uncompressed backup to the old control unit and then create a new backup. This new backup is in compressed form and does not have to be converted. For more information about compressed and uncompressed files see “Backup.”

To convert system programming to Release 6.0 format, Version 6.15 of SPM is required. This version can be easily identified by the version number, `V6`, in the upper left corner of the screen.

Help screens are available to guide you through the Convert procedure. See “SPM Help.”

Before you use the Convert option, you must complete the following tasks:

- If your PC has a hard disk, install the appropriate version of the SPM software. See “Upgrading the System.”
- Back up system programming. See “Backup.”
- Make sure you know the name of the backup file that you have created.



**NOTE:**

Once the actual file conversion begins, you cannot stop the process; pressing **[Esc]** has no effect.

If multiple MERLIN LEGEND Systems are connected in a private network, when converting to Release 6.1 convert the hub switch first. This provides a working network in the event that all switches in the private network are not converted at the same time.

Follow the steps below to perform the conversion.

- ▶ **1. At the SPM Main Menu, press **[Alt] + [U]** to begin the conversion.**

SPM Main Menu	
Menu: Select Function	
Sys Program	Maintenance
Backup	Restore
Boards	Pass-Thru
Print Opts	Password
Monitor	Language

- ▶ **2. Follow the instructions for a floppy or a hard disk.**

A second window appears which displays the **GO TO FLOPPY** option and a directory listing for the **C:\spm\backup** directory.

- If the backup file is stored on a floppy disk, go to Step 3.
- If the backup file is stored on a hard disk, go to Step 4.

► **3. Use the arrow keys to highlight `GOTO FLOPPY` and press `Enter`.**

```
Please select file name
      to convert from,
      then press Enter

Press ESC to abort.
```

```
GOTO FLOPPY
FILENAME.XXX
FILENAME.YYY
```

`FILENAME.XXX` and `FILENAME.YYY` are from the `\spm\backup` directory.

After you press `Enter`, the `GOTO FLOPPY` statement shown above changes to `GOTO HARD DISK` and a directory listing from the root directory of the floppy disk appears. Go to Step 4.

```
Please select file name
      to convert from,
      then press Enter

Press ESC to abort.
```

```
GOTO HARD DISK
FILENAME.XXX
FILENAME.YYY
```

`FILENAME.XXX` and `FILENAME.YYY` are from the root directory of the disk in Drive A.

► **4. Use the arrow keys to highlight the name of the backup file to be converted and press `Enter`.**

- If the backup file you select is a 6.1 backup, it can not be converted and the following message appears:

```
File has already been converted.
Press Enter to continue.
```

Press  to select another filename, or press  to abort the convert procedure.

- If the backup file you select can be converted, go to Step 6.

► **5. Observe the updated file selection screen and press .**

```
Please select file name
to convert from,
then press Enter

N: FILENAME.XXX
Press ESC to abort.
```

*FILENAME.XXX* = the backup filename  
selected in Step 4  
*N* = drive

► **6. Observe the CONVERT TO screen. Select the CONVERT TO release then press .**

The example screen below appears when converting from Release 1.0 or 1.1. The actual CONVERT TO releases displayed will be dependent upon the release of the backup file that was selected in Step 4.

```
Please enter your
CONVERT TO release
and press ENTER.

1.2  1.4  2.0  2.1
3.0  3.1  4.0  4.1
4.2  5.0  6.0  6.1

Enter number:x.x
```

All characters must be entered as they appear on the screen, including the decimal point.



**NOTE:**

If the CONVERT TO screen is not displayed, an invalid CONVERT FROM filename was specified. Quit SPM and restart the procedure.

► **7. Follow the instructions for a floppy or a hard disk.**

- If the CONVERT TO file will be saved to a floppy disk, go to Step 8.
- If the CONVERT TO file will be saved to the hard disk, go to Step 9.

► **8. Use the arrow keys to highlight GOTO FLOPPY and press .**

```
Please select file name
to convert to, or select
NEW FILE to create a new
file on selected drive.
Enter Filename:
```

```
GOTO FLOPPY
MAKE NEW FILE
FILENAME.XXX
FILENAME.YYY
```

After you press , the GOTO FLOPPY statement shown above changes to GOTO HARD DISK and the directory listing from the root directory of the disk in Drive A appears. Continue with Step 9.

```
Please select file name
to convert to, or select
NEW FILE to create a new
file on selected drive.
Enter Filename:

Press ESC to abort.
```

```
GOTO HARD DISK
MAKE NEW FILE
FILENAME.XXX
FILENAME.YYY
```

► **9. Specify a filename for the converted file.**

- Highlight the name of the file you want to convert to, press , and go to Step 11.
- To enter a different filename, use the arrow keys to select MAKE NEW FILE and press .

► **10. Enter the new filename and press** .

```
Please select file name
to convert to, or select
NEW FILE to create a new
file on selected drive.

Enter Filename:
A:\filename.new
(default is RESTORE.NEW)
```

The converted file cannot have the same name as the file from which you converted. If you specify the same filename, the following screen appears:

```
If you continue, the old
version will be deleted
press ESC to abort,
or c to continue.
```

Press  and repeat this step.

► **11. Check the updated file screen and press** .

```
Please select file name
to convert to, or select
NEW FILE to create a new
file on selected drive.

Enter Filename:
N: FILENAME.NEW
(default is RESTORE.NEW)
```

*FILENAME.NEW* = name entered in  
Step 9 or 10  
*N* = drive

Observe the conversion progress screen.

```
CONVERSION IN PROGRESS

      Converting From:
N:  FILENAME.XXX

      Converting To:
N:  FILENAME.NEW
```

*FILENAME.XXX* = name entered at Step 4  
*FILENAME.NEW* = name entered at  
Step 9 or 10  
*N* = drive

When the conversion completes, the screen shown in Step 12 appears.

► **12. Press any key to return to the SPM Main Menu.**

```
Conversion successful
Please press any key
to continue.
```

## Language

A language attribute in the SPM configuration file `\spm\ams.cfg` (DOS version) or `/usr/ams/ams.cfg` (UNIX System version) specifies whether SPM menus, pop-up windows, and other messages are presented in English, French, or Spanish. A second language selection option affects messages from the control unit to SPM and controls the display on the console simulation window for the duration of the session. These two language options operate independently of each other.

The following discussion refers to the language specified in the SPM configuration file as the *PC language* and the language used by the control unit as the *console window language*.

## PC Language

During SPM installation, you select a language that is recorded in the SPM configuration file. Any time thereafter, SPM can be started with the -l option to specify a different language, using one of the following command lines:

- `spm -l english`
- `spm -l french`
- `spm -l spanish`

Note that the option is a lowercase letter L and not the number 1.

Use of the -l option changes the language attribute in the `ams.cfg` file. The language specified becomes the new PC language, used whenever SPM is started without the -l option.

## Console Window Language

By default, the language used in the console simulation window is the language specified in the `ams.cfg` file; however, you can select a different language for this window for the duration of the current session.

To select a different language, follow the steps below.

- ▶ **1. At the SPM Main Menu press **F10** to select Language.**

```
SPM Main Menu
Menu: Select Function
Sys Program      Maintenance
Backup           Restore
Boards           Pass-Thru
Print Opts       Password
Monitor          Language
```

**F10**

- ▶ **2. Press the function key that corresponds to your language selection.**

```
Display Language
Make a Selection:
English
French
Spanish

Exit
```

The Display Language screen reappears, with the language you selected.

- ▶ **3. Press **F5** to return to the SPM Main Menu or select another language.**

## Maintenance

---

### **CAUTION:**

*This option is for use by qualified technicians only. Maintenance procedures are provided in the documentation for qualified technicians. See "Related Documents."*

**⚠ CAUTION:**

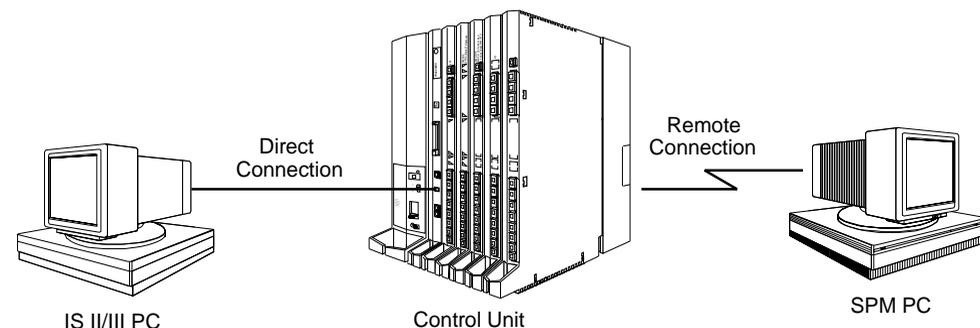
*This is a password-protected option and is for use by your technical support organization only.*

## Pass-Thru

---

The Pass-Thru option allows qualified service personnel to administer IS II/III\* applications on a remote PC. It permits you to establish a remote connection with the control unit to which the IS II/III PC is directly connected. Figure 7 illustrates the relationship of the SPM PC, the communications system control unit, and the IS II/III PC.

---



---

**Figure 7. Pass-Thru**

A Pass-Thru request must be initiated at a DOS PC; it is not available from a UNIX System PC; that is, Pass-Thru cannot be established between two IS II/III PCs. The local admin PC must be in an idle state.

---

\* No longer orderable.

A Pass-Thru request to a locally-connected IS II/III system causes the modem to fall back to 1200 bps if the speed is set to 2400 bps and the modem call to the control unit is at 1200 bps. If necessary, the communications system adjusts its speed to that of the local SPM PC.

Once the Pass-Thru connection is established, you can program in any of the following IS II/III applications from your SPM PC:

- AUDIX Voice Power™\*
- Call Accounting System†
- Fax Attendant System® (IS III only)\*
- CONVERSANT Intro® (IS III only)\*



**NOTE:**

You cannot program the SPM application on the IS II/III PC because the remote call (from your SPM PC) uses the IS II/III PC's COM1 port; therefore, the system programming jack cannot be used for system programming. For the same reason, a user at the IS II/III PC end of the connection cannot use SPM while your Pass-Thru is in effect. If use of SPM is attempted, the user at the IS II/III end sees the following message:

```
PRE-EMPT IN PROGRESS  
Please try again.
```

To initiate Pass-Thru, establish a modem connection between the SPM PC and the control unit.

If the IS II/III PC does not respond to the Pass-Thru request from the control unit (for example, because the PC is turned off), you see the following message:

```
Pass-thru failed.  
Please try again.
```

---

\* No longer orderable.

† Orderable only as an upgrade to existing CAS installations.

If the connection between the control unit and the IS II/III PC fails, the connection between the control unit and the SPM PC is dropped. You see the following message:

```
Pass-through Session
unexpectedly terminated.
Please press Enter
to continue.
```

When you press **Enter** you return to the SPM Main Menu.

Follow the steps below to initiate the Pass-Thru.

- ▶ **1. At the SPM Main Menu press **F8** to select Pass-Thru.**

```
SPM Main Menu
Menu: Select Function
Sys Program      Maintenance
Backup           Restore
Boards           Pass-Thru
Print Options    Password
Monitor          Language
```

**F8**

The display area changes to 24-lines by 80-characters, which is much larger than the display area on the console simulation window (7-lines by 24-characters).

- ▶ **2. Type your login name and press **Enter**.**

```
Welcome to
IS-II/III
```

```
login:
```

- **3. Type the IS II/III password and press** .

Password:

- **4. Type `ams` for the terminal emulation type and press .**

Unix disk usage  
information

Term=

- If you are working with IS II, the IS II main menu appears.
- If you are working with IS III, the system prompts you for your login registration. After you enter your login and press , the IS III main menu appears.

- **5. To exit from IS II/III programming, press  (Exit).**

The system prompts you for confirmation that you want to exit. After confirmation the following message appears.

Returning to SPM

## Password

The Password option is used by qualified service personnel to change the modem connection password. A password is always required to establish a connection with the built-in modem. The password always consists of seven characters. You can perform remote system programming only if you enter the password correctly. A default password is set at the factory. You must obtain this password from your system consultant (SC).

Follow the steps below to change the modem connection password.

- **1. At the SPM Main Menu, press  to select Password.**

SPM Main Menu	
Menu: Select Function	
Sys Program	Maintenance
Backup	Restore
Boards	Pass-Thru
Print Opts	Password <input type="button" value="F9"/>
Monitor	Language

- **2. Type the old (current) password. Do not press .**

Password:
Enter Old Password

If you type the old password incorrectly, the bottom of the screen displays the message Not Equal. Repeat Step 2. If you fail to enter the password correctly after three attempts, the bottom of the screen displays the message Old Password in Use and the procedure terminates. Press  to return to the SPM Main Menu.



## Print Options

---

The Print Opts option allows qualified service personnel to direct the output of system programming reports either to the PC (where you can save them, browse through them, or print them with the system programming Print option) or to the SMDR printer.

Follow the procedure below to direct the output of the system programming reports.

- ▶ **1. At the SPM Main Menu press F4 to select Print Opts.**

### SPM Main Menu

Menu: Select Function

Sys Program          Maintenance

Backup                Restore

Boards                Pass-Thru

Print Opts            Password

Monitor                Language

F4

- ▶ **2. Select the target device for the reports.**

### Printer Options

Make a selection

SMDR Port

PC Port

Exit

F1

F2

- ▶ **3. Press F5 to return to the SPM Main Menu.**

## SMDR Port Output

See “Printing System Reports” in Chapter 3 of *System Programming* for more information about the print procedure using the system console and the SMDR port.

## PC Port Output

See “Printing Reports” for more information about the print procedure using SPM and the PC port.

## Restore

---

The Restore option allows qualified service personnel to load system programming from either a diskette or from the hard disk into the processor module memory.

This procedure is used either to program a new system if a disk was created through surrogate mode programming, or to restore information (using a backup disk) lost through system failure. It is also part of the upgrade procedure.

## Considerations

Review the following items before you begin the restore procedure.

- The system will be forced idle during a restore procedure.
- You must have a backup file containing system programming before you use this procedure. See “Backup.”
- Features that were not programmed when the backup file was created are reset to factory defaults.
- The data restored reflects the number of extensions and lines available on the system at the time the backup was created. The remaining extensions and lines are set to the default values that are initialized during a Restart (cold start).
- Restore is terminated under the following conditions:

- If fewer boards are listed on the disk than on the control unit
  - If any real board is out of sequence with the boards listed on the disk
  - If phantom boards are not listed last
  - If the operating mode of the system being restored is Hybrid/PBX, but the control unit processor module has been modified to operate only in Key mode
- A successful restore is followed automatically by a Restart (cold start)

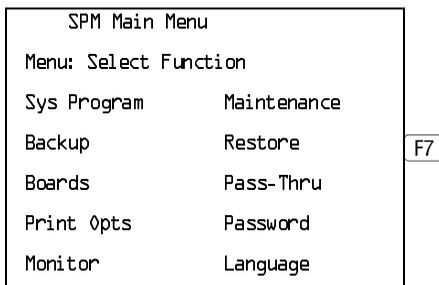


**WARNING:**

*An unsuccessful or terminated restore results in a System Erase (frigid start). All calls are dropped. The system configuration is erased. All system programming is lost and the system returns to the factory settings. If the restore is being done remotely, the connection is dropped immediately. If this happens, attempt to reconnect to the control unit and immediately perform another restore. If this is not successful, programming must be restored on site.*

Follow the steps below to perform a restore.

- ▶ **1. At the SPM Main Menu, press F7 to select Restore.**



► **2. Follow the instructions for a floppy or a hard disk.**

A second window appears which displays the `G0T0 FLOPPY` option and a directory listing for `C:\spm\backup`.

- If you are performing a Restore with a file saved on a floppy disk, go to Step 3.
- If you are performing a Restore with a file saved on the hard disk, go to Step 4.

► **3. Use the arrow keys to highlight `G0T0 FLOPPY` and press `Enter`.**

```
Make a selection for
the RESTORE file.

If upgrading, convert
files before restoring.

Press ESC to Abort.
```

```
G0T0 FLOPPY
backup.ams
file.1
file.2
```

After you press `Enter`, the `G0T0 FLOPPY` statement shown above changes to `G0T0 HARD DISK`. Go to Step 5.

► **4. Specify the filename to restore from.**

- To select the default backup filename, use the arrow keys to highlight `backup.ams` and press `F10` `Enter`.
- If you used a different backup filename, use the arrow keys to select one of the other filenames and press `Enter`.

If the file you select is not in the same format as the communications system, the screen below appears. Press  to return to the SPM Main Menu. See “Convert” for details about converting a backup file.

```
File must be converted
before restoring.

Please press Enter
to see the main menu:
```

► **5. Observe the restore progress screen.**

```
Press CTRL-F5 to Abort
Est. total time: xx min

filename
RESTORE IN PROGRESS
Blocks Sent   Remaining
           xxxx           xxxx
```

*xx* = approximate number of minutes  
*filename* = name entered in Step 5  
*xxxx* = number of blocks

To abort the restore press . You return to the SPM Main Menu.

► **6. When the restore completes, press  to return to the SPM Main Menu.**

```
Restore successful.
Please press Enter
to see the Main Menu

Sent xxxx Blocks
```

*xxxx* = number of blocks sent

## System Programming

A primary function of SPM is to provide a method for programming the communications system. The Sys Program option gives you access to all of the system programming features available from the system programming console.

### Basic Programming Information

To begin programming, you must perform one of the following to display the System Programming menu on the console or PC:

On the console:

**Menu**→Sys Program →Exit

On the PC:

Type spm→→Press any key→→

In most cases, you can press Exit or  to exit from a screen without making any changes. Exceptions to this are noted as part of a procedure. When you complete a procedure and press Exit () , you usually move up one screen in the menu hierarchy. Occasionally, when you press Exit () , you return to the previous screen. *In a few cases*, pressing Exit brings you back to the System Programming menu where you can select another option to program or exit from system programming.

To complete a procedure and save the information you have programmed, press Enter () .

If you are programming a group of sequentially numbered extensions or trunks, you may have the option of pressing Next () . This saves your entry and automatically provides the number of the next extension or trunk in the sequence, thus saving you a couple of steps. If Next displays on the screen, you can use it with the current option.

In most cases, you will be at an intermediate step in the procedure you have just completed. At that point, you can select one of the options

shown on the screen and continue programming, or you can press Exit (F5) again. This usually takes you back to the System Programming menu. If not, you again can continue programming on the current screen or press Exit (F5) again.

## Idle States

---

A few of the programming procedures can be started only when the entire system or some part of it, such as a trunk or an extension, is idle (not in use). Some procedures require that the trunk or extension be idle only at the instant of programming. Other procedures, which take longer, require the system, trunk, or extension to be forced into remaining idle until programming is completed. These procedures wait for the system, trunk, or extension to become idle and then prevent the initiation of any new calls. This condition is called *forced idle*.



### NOTE:

If a procedure requires an idle condition, perform the programming outside of normal business hours.

If a procedure requires that the system be in an idle state and the system is busy when you begin, you see the screen shown below.

```
System Busy  Pls wait
```

```
Dial Code:   nnnn
```

```
Slot/Port:   ss/pp
```

```
Exit
```

The screen changes to the appropriate programming screen when the system is no longer busy.

## System Forced Idle

When the entire system is forced idle, no calls can be made or received. The procedures listed below can be performed only when the entire system (every line and every extension) is idle:

- Select system mode
- Identify system operator positions
- Renumber boards
- Renumber system
- Identify telephones with voice signal pairs for the Voice Announce to Busy feature
- Identify telephones that need the Simultaneous Voice and Data feature
- Restore system programming information
- Identify the Music On Hold jack

When the system is forced idle, the following occurs: multiline telephone users hear a reminder tone that indicates the telephone cannot be used; display telephone users see the message `Wait: System Busy`; single-line telephone users do not hear a dial tone.

## Line or Trunk Idle

Since these procedures require the line or trunk to be idle *only* at the instant of programming, the line or trunk is not forced idle. The following procedures can be performed only when the line or trunk being programmed is idle:

- Identify loudspeaker paging line jack
- Assign trunks to pools
- Specify incoming or outgoing DID- or tie-trunk type
- Specify tie-trunk direction

- Specify tie-trunk E&M signal

## **Extension Forced Idle**

When an extension or data terminal is forced idle, no calls can be made or received on that extension or data terminal. The following procedures can be performed only when the extension or data terminal being programmed is idle:

- Assign call restrictions
- Assign pool dial-out restrictions
- Copy extension assignments
- Assign lines, trunks, or pools to extensions
- Assign labels to a personal directory
- Use centralized telephone programming

When the extension is forced idle, the following occurs: multiline telephone users hear a reminder tone that indicates the telephone cannot be used; display telephone users see the message `Wait: System Busy`; single-line telephone users do not hear a dial tone.

## **Forced Idle Reminder Tone**

The forced idle reminder tone is a high-low “door-phone” tone—400 ms of 667 Hz tone followed by 400 ms of 571 Hz tone. The tone is provided under the following circumstances:

- At the extension, to remind the user that the system or the extension is in the forced idle state
- At the programming console or at a PC running SPM, to remind the system manager that the system (or at least one extension) is in the forced idle state because of administrative activity

In Release 1.1 and higher of the communications system, forced idle reminder tones occur every 20 seconds. You can adjust the volume of these tones with the volume control on the system console.

## Accessing System Programming

Follow the steps below to access system programming.

- **1. At the SPM Main Menu press **F1** to select Sys Program. Press the**

SPM Main Menu	
Menu: Select Function	
Sys Program	Maintenance
Backup	Restore
Boards	Pass-Thru
Print $\phi$ pts	Password
Monitor	Language

**function key next to the option you want.**

System Programming: >	
Make a selection	
<b>F1</b>	System Extensions
<b>F2</b>	SysRenumbr Options
<b>F3</b>	Operator Tables
<b>F4</b>	LinesTrunks AuxEquip
<b>F5</b>	Exit NightSrvce

System Programming:	
Make a selection	
<b>F1</b>	Labeling Language
<b>F2</b>	Data
<b>F3</b>	Print
<b>F4</b>	Cntr-Prg
<b>F5</b>	Exit

If the option you want does not appear on the first screen of the System Programming menu, press **PgUp** to display the second screen of the menu.

## Printing Reports

Use the following procedure to print system reports using SPM at the PC. The SPM Print  $\phi$ pts must be set to PC Port. See "Print Options" for details about setting the printer output port.

- **1. At the second page of the System Programming menu, press  $\boxed{F3}$  to select Print.**

	System Programming: >
	Make a selection
$\boxed{F1}$	Labeling
$\boxed{F2}$	Data
$\boxed{F3}$	Print
$\boxed{F4}$	Cntr-Prg
$\boxed{F5}$	Exit

- **2. Press the function key that corresponds to the report to be printed.**

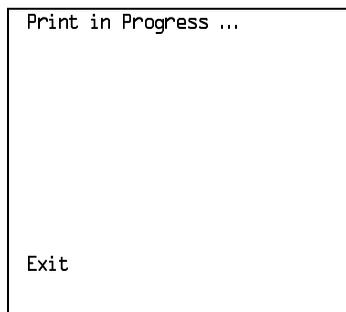
	Print (English ): >	
	Make a selection	
$\boxed{F1}$	All Trunk Info	$\boxed{F6}$
$\boxed{F2}$	SysSet-up Tl Info	$\boxed{F7}$
$\boxed{F3}$	Dial Plan Pri Info	$\boxed{F8}$
$\boxed{F4}$	Labels RmoteAccess	$\boxed{F9}$
$\boxed{F5}$	Exit $\phi$ per Info	$\boxed{F10}$

- **3. Use one of the methods shown after this procedure to print the report(s).**

Please enter file name to store print (default is print.ams)  Press Esc to Abort.
---

LPT1: GOTO FLOPPY MAKE NEW FILE PRINT.AMS
--

► **4. Observe the print status screen.**



You can press **F5** to interrupt printing and return to the SPM Main Menu.

## Print Hard Copy

To print a hard copy of the report, use the arrow keys to highlight LPT1: and press **Enter**.

## Print to Hard Disk

To print the reports to the hard disk if the print file does not exist, use the arrow keys to highlight MAKE NEW FILE and press **Enter**.

- To save to the default print filename (print.ams), press **Enter**.
- To save to the filename of your choice, type [*filename*] and press **Enter**.

To print the reports to the hard disk if the print file already exists, use the arrow keys to highlight the [*filename*] and press **Enter**.

## Print to Floppy Disk

Use the arrow keys to highlight GOT0 FLOPPY: and press **Enter**. Use one of the methods shown below.

- To print the reports to a floppy disk if the print file does not exist, use the arrow keys to highlight MAKE NEW FILE and press .
- To save to the default print filename (print.ams), press .
- To save to the filename of your choice, type [*filename*] and press .
- To print the reports to a floppy disk if the print file already exists, use the arrow keys to highlight the [*filename*] and press .

## Upgrading the System

---



### WARNING:

*The following procedures are to be used by qualified technicians or service personnel only. Installation or maintenance of this product by anyone other than qualified personnel may damage or impair the product; your limited warranty does not cover such damage. For details, see your limited warranty in the Customer Support Information in the back of this book. Hazardous electrical voltages are present inside this product.*

This section describes upgrading your communications system to Release 6.1. You can use this procedure to perform the following upgrades:

- From Release 1.0 to Release 6.1
- From Release 1.1 to Release 6.1
- From Release 2.0 to Release 6.1
- From Release 2.1 to Release 6.1
- From Release 3.0 to Release 6.1
- From Release 3.1 to Release 6.1
- From Release 4.0 to Release 6.1

- From Release 4.1 to Release 6.1
- From Release 4.2 to Release 6.1
- From Release 5.0 to Release 6.1
- From Release 6.0 to Release 6.1

MERLIN II Communications System programming cannot be upgraded to this communications system. The new communications system must be completely reprogrammed.

## **Before You Begin**

---

Before you begin the upgrade to Release 6.1, you will need the items listed below.

- Any version of SPM to backup system programming information.
- SPM Version 6.25 or later to convert and restore system programming information.



### **NOTE:**

If SPM is already installed, the `Welcome to SPM` screen that appears when you start SPM identifies the version on both the last line of the console simulation window and in the upper left corner of the screen. If you are working with Version 6.25, `VL` appears in the upper left-hand corner of the screen and `Version 6.25` appears on the last line of the console simulation window.



### **NOTE:**

The version of SPM packaged with Intuity does not support conversion. The most current version of SPM is available for download from NSAC.

- A processor module with a PCMCIA memory card slot (if one is not already installed in the system).
- An R6.1 Forced Installation PCMCIA Memory Card.



**NOTE:**

If a new processor module is installed as part of the upgrade procedure, the system software is already installed. The R6.1 Forced Installation memory card is only required if upgrading a system and the processor module is not replaced.

## Inter-Release Compatibility

It is important to understand compatibility between files created on each of the different versions of SPM, not only for upgrading but also for programming.

Table 6 summarizes programming compatibility. (It is assumed that the majority of the programming is done in surrogate mode and backed up on disk).

**Table 6. Programming Compatibility**

SPM Version	Program Backup from	Restore on									
		1.0	1.1	2.0/2.1	3.0	3.1	4.0	4.1/4.2	5.0	6.0	6.1
1.13	1.0	yes	no	no	no	no	no	no	no	no	no
1.16	1.0	yes	yes	no	no	no	no	no	no	no	no
2.09	1.0	yes	yes	yes*	no	no	no	no	no	no	no
2.16	1.0	yes	yes	yes*	no	no	no	no	no	no	no
3.18	1.0	yes	yes	yes*	yes*	yes*	no	no	no	no	no
4.15	1.0	yes	yes	yes*	yes*	yes*	yes*	no	no	no	no
4.25	1.0	yes	yes	yes*	yes*	yes*	yes*	yes*	no	no	no
5.15	1.0	yes	yes	yes*	yes*	yes*	yes*	yes*	yes*	no	no
6.15	1.0	yes	yes	yes*	yes*	yes*	yes*	yes*	yes*	yes*	no
6.25	1.0	yes	yes	yes*	yes*	yes*	yes*	yes*	yes*	yes*	yes*

*Continued on next page*

**Table 6. Programming Compatibility (Continued)**

SPM Version	Program Backup from	Restore on										
		1.0	1.1	2.0/2.1	3.0	3.1	4.0	4.1/4.2	5.0	6.0	6.1	
1.16	1.1	no	yes	no	no	no	no	no	no	no	no	no
2.09	1.1	no	yes	yes*	no	no	no	no	no	no	no	no
2.16	1.1	no	yes	yes*	no	no	no	no	no	no	no	no
3.18	1.1	no	yes	yes*	yes*	yes*	no	no	no	no	no	no
4.15	1.1	no	yes	yes*	yes*	yes*	yes*	no	no	no	no	no
4.25	1.1	no	yes	yes*	yes*	yes*	yes*	yes*	no	no	no	no
5.15	1.1	no	yes	yes*	yes*	yes*	yes*	yes*	yes*	no	no	no
6.15	1.1	no	yes	yes*	yes*	yes*	yes*	yes*	yes*	yes*	yes*	no
6.25	1.1	no	yes	yes*	yes*	yes*	yes*	yes*	yes*	yes*	yes*	yes*
2.09	2.0	no	no	yes	no	no	no	no	no	no	no	no
2.16	2.0	no	no	yes	no	no	no	no	no	no	no	no
3.18	2.0	no	no	yes	yes*	yes*	no	no	no	no	no	no
4.15	2.0	no	no	yes	yes*	yes*	yes*	no	no	no	no	no
4.25	2.0	no	no	yes*	yes*	yes*	yes*	yes*	no	no	no	no
5.15	2.0	no	no	yes*	yes*	yes*	yes*	yes*	yes*	no	no	no
6.15	2.0	no	no	yes*	yes*	yes*	yes*	yes*	yes*	yes*	yes*	no
6.25	2.0	no	no	yes*	yes*	yes*	yes*	yes*	yes*	yes*	yes*	yes*

*Continued on next page*

Table 6. Programming Compatibility – Continued

SPM Version	Program Backup from	Restore on										
		1.0	1.1	2.0/2.1	3.0	3.1	4.0	4.1/4.2	5.0	6.0	6.1	
2.16	2.1	no	no	no	no	no	no	no	no	no	no	no
3.18	2.1	no	no	no	yes*	yes*	no	no	no	no	no	no
4.15	2.1	no	no	no	yes*	yes*	yes*	no	no	no	no	no
4.25	2.1	no	no	no	yes*	yes*	yes*	yes*	no	no	no	no
5.15	2.1	no	no	no	yes*	yes*	yes*	yes*	yes*	no	no	no
6.15	2.1	no	no	no	yes*	yes*	yes*	yes*	yes*	yes*	yes*	no
6.25	2.1	no	no	no	yes*	yes*	yes*	yes*	yes*	yes*	yes*	yes*
3.18	3.0	no	no	no	no	no	no	no	no	no	no	no
4.15	3.0	no	no	no	no	no	yes*	no	no	no	no	no
4.25	3.0	no	no	no	no	no	yes*	yes*	no	no	no	no
5.15	3.0	no	no	no	no	no	yes*	yes*	yes*	no	no	no
6.15	3.0	no	no	no	no	no	yes*	yes*	yes*	yes*	yes*	no
6.25	3.0	no	no	no	no	no	yes*	yes*	yes*	yes*	yes*	yes*
3.18	3.1	no	no	no	no	no	no	no	no	no	no	no
4.15	3.1	no	no	no	no	no	yes*	no	no	no	no	no
4.25	3.1	no	no	no	no	yes	yes*	yes*	no	no	no	no
5.15	3.1	no	no	no	no	yes	yes*	yes*	yes*	no	no	no
6.15	3.1	no	no	no	no	yes	yes*	yes*	yes*	yes*	yes*	no
6.25	3.1	no	no	no	no	yes	yes*	yes*	yes*	yes*	yes*	yes*
4.15	4.0	no	no	no	no	no	yes	no	no	no	no	no
4.25	4.0	no	no	no	no	no	yes*	yes*	no	no	no	no
5.15	4.0	no	no	no	no	no	yes	yes*	yes*	no	no	no
6.15	4.0	no	no	no	no	no	yes	yes*	yes*	yes*	yes*	no
6.25	4.0	no	no	no	no	no	yes	yes*	yes*	yes*	yes*	yes*

Continued on next page

**Table 6. Programming Compatibility (Continued)**

SPM Version	Program Backup from	Restore on									
		1.0	1.1	2.0/2.1	3.0	3.1	4.0	4.1/4.2	5.0	6.0	6.1
4.25	4.1/4.2	no	no	no	no	no	no	yes	no	no	no
5.15	4.1/4.2	no	no	no	no	no	no	yes	yes*	no	no
6.15	4.1/4.2	no	no	no	no	no	no	yes	yes*	yes*	no
6.25	4.1/4.2	no	no	no	no	no	no	yes	yes*	yes*	yes*
5.15	5.0	no	no	no	no	no	no	no	yes	no	no
6.15	5.0	no	no	no	no	no	no	no	yes	yes*	no
6.25	5.0	no	no	no	no	no	no	no	yes	yes*	yes*
6.15	6.0	no	no	no	no	no	no	no	no	yes	no
6.25	6.0	no	no	no	no	no	no	no	no	yes	yes*
6.25	6.1	no	no	no	no	no	no	no	no	no	yes

\* The backup file must be converted before it is restored.

**⇒ NOTE:**

The default barrier code and any programmed barrier codes from Release 2.1 and earlier are carried over to Release 3.0 and later with no change and the barrier code length is four (4). It is the responsibility of the system manager to change the barrier code length and the barrier codes if so desired.

**Upgrade Procedure**

---

**⇒ NOTE:**

The system upgrade procedure must follow the order of the steps shown below.

- ▶ **1. Back up your system programming.**

This step creates a file containing system programming information. See “Backup”. Any version of SPM may be used to back up system programming.

► **2. Install SPM.**

You must have Version 6.25 of SPM to upgrade the system to Release 6.1. If Version 6.25 of SPM is already installed on your system, proceed to [Step 3](#).

If Version 6.25 of SPM is not already installed on your system, install (or upgrade to) Version 6.25 of SPM. See “Installing the SPM Software”.

► **3. Convert your backup file.**

This step converts the backup file created in [Step 1](#). Refer to Table 6 to determine if the backup file needs to be converted to Release 6.1 format.

- If not required, continue with the next step.
- If required, convert the backup file. See “Convert”, then continue with the next step.

► **4. Turn off AC power switches on the control unit in the following order:**

1. Basic carrier
2. Expansion carrier 1, if present
3. Expansion carrier 2, if present

► **5. If the system already has a processor module with a PCMCIA memory card slot installed, proceed to [Step 6](#). Otherwise, continue with this step to replace the processor module.**

1. Unplug the interface cords from the SPM and SMDR printer ports on the processor module.

2. Remove the processor module from Slot 0.
3. Install the new processor module in Slot 0.
4. Plug the interface cords into the SPM and SMDR printer ports on the processor module.

- ▶ **6. If a new processor module was installed in [Step 5](#), proceed to [Step 7](#). Otherwise, insert the R6.1 forced installation memory card into the PCMCIA memory card slot on the processor module.**



**NOTE:**

Using the forced installation memory card will cause a frigid start.

- ▶ **7. Turn on the AC power switches on the control unit in the following order:**

1. Expansion carrier 2, if present
2. Expansion carrier 1, if present
3. Basic carrier

- ▶ **8. Restore your system programming.**

The system is forced idle and cannot be used during this procedure. See "Restore".

- ▶ **9. Program new features.**

If you wish to use the factory settings for the new features available with Release 6.1, skip this step.



**NOTE:**

When upgrading from a networked Release 6.0 system, the non-local dial plan extension ranges must be programmed to suit the customer's configuration.

See the following tables, which follow this list:

- **Table 7.** Lists the features added with Release 1.1 of the communications system.
- **Table 8.** Lists the features added with Release 2.0 or 2.1 of the communications system.
- **Table 9.** Lists the features added with Release 3.0 of the communications system.
  - When you upgrade from Release 2.0 or 2.1 to Release 3.0, you must program these features as the last step of the upgrade procedure.
  - When you upgrade from Release 1.1 to Release 3.0, you must program the features listed in Table 8, then the features listed in Table 9.
  - When you upgrade from Release 1.0 to Release 3.0, you must first program the features listed in Table 7, then the features listed in Table 8, then the features listed in Table 9.
- **Table 10.** Lists the features added with Release 3.1 of the communications system.
  - When you upgrade from Release 3.0 to Release 3.1, you must program these features as the last step of the upgrade procedure.
  - When you upgrade from Release 2.0 or 2.1 to Release 3.1, you must program the features listed in Table 9, then the features listed in Table 10.
  - When you upgrade from Release 1.1 to Release 3.1, you must program the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10.
  - When you upgrade from Release 1.0 to Release 3.1, you must first program the features listed in Table 7, then the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10.

- **Table 11.** Lists the features added with Release 4.0 of the communications system.
  - When you upgrade from Release 3.1 to Release 4.0, you must program these features as the last step of the upgrade procedure.
  - When you upgrade from Release 3.0 to Release 4.0, you must program the features listed in Table 10, then the features listed in Table 11.
  - When you upgrade from Release 2.0 or 2.1 to Release 4.0, you must program the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11.
  - When you upgrade from Release 1.1 to Release 4.0, you must program the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11.
  - When you upgrade from Release 1.0 to Release 4.0, you must first program the features listed in Table 7, then the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11
- **Table 12.** Lists the features added with Release 4.1 of the communications system.
  - When you upgrade from Release 4.0 to Release 4.1, you must program the features listed in Table 12.
  - When you upgrade from Release 3.1 to Release 4.1, you must program the features listed in Table 11, then the features listed in Table 12.
  - When you upgrade from Release 3.0 to Release 4.1, you must program the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12.

- When you upgrade from Release 2.0 or 2.1 to Release 4.1, you must program the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12.
  - When you upgrade from Release 1.1 to Release 4.1, you must program the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12.
  - When you upgrade from Release 1.0 to Release 4.1, you must first program the features listed in Table 7, then you must program the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12.
- **Table 13.** Lists the features added with Release 4.2 of the communications system.
- When you upgrade from Release 4.1 to Release 4.2, you must program the features listed in Table 13.
  - When you upgrade from Release 4.0 to Release 4.2, you must program the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14.
  - When you upgrade from Release 3.1 to Release 4.2, you must program the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13.
  - When you upgrade from Release 3.0 to Release 4.2, you must program the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13.

- When you upgrade from Release 2.0 or 2.1 to Release 4.2, you must program the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13.
- When you upgrade from Release 1.1 to Release 4.2, you must program the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13.
- When you upgrade from Release 1.0 to Release 4.2, you must first program the features listed in Table 7, then you must program the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13.
- **Table 14.** Lists the features added with Release 5.0 of the communications system.
  - When you upgrade from Release 4.2 to Release 5.0, you must program the features listed in Table 14.
  - When you upgrade from Release 4.1 to Release 5.0, you must program the features listed in Table 13, then the features listed in Table 14.
  - When you upgrade from Release 4.0 to Release 5.0, you must program the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14.
  - When you upgrade from Release 3.1 to Release 5.0, you must program the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14.

- When you upgrade from Release 3.0 to Release 5.0, you must program the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14.
- When you upgrade from Release 2.0 or 2.1 to Release 5.0, you must program the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14.
- When you upgrade from Release 1.1 to Release 5.0, you must program the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14.
- When you upgrade from Release 1.0 to Release 5.0, you must first program the features listed in Table 7, then you must program the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14.
- **Table 15.** Lists the features added with Release 6.0 of the communications system.
  - When you upgrade from Release 5.0 to Release 6.0, you must program the features listed in Table 15.
  - When you upgrade from Release 4.2 to Release 6.0, you must program the features listed in Table 14, then the features listed in Table 15.
  - When you upgrade from Release 4.1 to Release 6.0, you must program the features listed in Table 13, then the features listed in Table 14, then the features listed in Table 15.

- When you upgrade from Release 4.0 to Release 6.0, you must program the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14, then the features listed in Table 15.
- When you upgrade from Release 3.1 to Release 6.0, you must program the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14, then the features listed in Table 15.
- When you upgrade from Release 3.0 to Release 6.0, you must program the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14, then the features listed in Table 15.
- When you upgrade from Release 2.0 or 2.1 to Release 6.0, you must program the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14, then the features listed in Table 15.
- When you upgrade from Release 1.1 to Release 6.0, you must program the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14, then the features listed in Table 15.
- When you upgrade from Release 1.0 to Release 6.0, you must program the features listed in Table 7, then the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14, then the features listed in Table 15.

- **Table 16.** Lists the features added with Release 6.1 of the communications system.
  - When you upgrade from Release 6.0 to Release 6.1, you must program the features listed in Table 16.
  - When you upgrade from Release 5.0 to Release 6.1, you must program the features listed in Table 15, then the features listed in Table 16.
  - When you upgrade from Release 4.2 to Release 6.1, you must program the features listed in Table 14, then the features listed in Table 15, then the features listed in Table 16.
  - When you upgrade from Release 4.1 to Release 6.1, you must program the features listed in Table 13, then the features listed in Table 14, then the features listed in Table 15, then the features listed in Table 16.
  - When you upgrade from Release 4.0 to Release 6.1, you must program the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14, then the features listed in Table 15, then the features listed in Table 16.
  - When you upgrade from Release 3.1 to Release 6.1, you must program the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14, then the features listed in Table 15, then the features listed in Table 16.
  - When you upgrade from Release 3.0 to Release 6.1, you must program the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14, then the features listed in Table 15, then the features listed in Table 16.
  - When you upgrade from Release 2.0 or 2.1 to Release 6.1, you must program the features listed in Table 9, then the features listed in Table 10, then the features listed in Table

11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14, then the features listed in Table 15, then the features listed in Table 16.

- When you upgrade from Release 1.1 to Release 6.1, you must program the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14, then the features listed in Table 15, then the features listed in Table 16.
- When you upgrade from Release 1.0 to Release 6.1, you must program the features listed in Table 7, then the features listed in Table 8, then the features listed in Table 9, then the features listed in Table 10, then the features listed in Table 11, then the features listed in Table 12, then the features listed in Table 13, then the features listed in Table 14, then the features listed in Table 15, then the features listed in Table 16.

**Table 7. Programming Needed after Upgrade to Release 1.1**

---

<b>Feature</b>	<b>Sequence</b>
System language	SysProgram→ <b>More</b> →Language→SystemLang
Extension language	SysProgram→ <b>More</b> →Language→Extensions
SMDR language	SysProgram→ <b>More</b> →Language→SMDR
Printer language	SysProgram→ <b>More</b> →Language→Printer

---

**Table 8. Programming Needed after Upgrade to Release 2.0**

Feature	Sequence
Primary Rate	SysProgram→LinesTrunks→LS/GS/DSL→Type→PRI
Interface (PRI)	SysProgram→LinesTrunks→LS/GS/DSL→FrameFormat
	SysProgram→LinesTrunks→LS/GS/DSL→Suppression
	SysProgram→LinesTrunks→PRI→PhoneNumber
	SysProgram→LinesTrunks→PRI→B-ChannlGrp
	SysProgram→LinesTrunks→PRI→NumbrToSend
	SysProgram→LinesTrunks→PRI→Test TelNum
	SysProgram→LinesTrunks→PRI→Protocol
	SysProgram→LinesTrunks→PRI→DialPlanRtg
	SysProgram→LinesTrunks→PRI→OutgoingTbl
	SysProgram→Tables→ARS
DID Emulation on T1	SysProgram→LinesTrunks→LS/GS/DSL→Type→ <b>More</b> →DID/All DID
Night Service Calling Group	SysProgram→NightSrvce→GroupAssign→Calling Group
Coverage VMS Off	SysProgram→ <b>More</b> →Cntr-Prg→Program Ext
Data Status	SysProgram→ <b>More</b> →Cntr-Prg→Program Ext
Extension Copy	SysProgram→ <b>More</b> →Cntr-Prg→Copy Ext
Posted Message button on analog multiline and MLX-10 non-display telephones (for use with Do Not Disturb)	SysProgram→ <b>More</b> →Cntr-Prg→Program Ext

**Table 9. Programming Needed after Upgrade to Release 3.0**

<b>Feature</b>	<b>Sequence</b>
Automatic Backup	SysProgram→System→Back/Restore→Auto Backup
Incoming Call Line Identification Delay	LinesTrunks→ <b>More</b> →LS-ID Delay→ <b>Drop</b> →Dial trunk no.→Enter
Remote Access Barrier Codes	LinesTrunks→RemoteAccss→BarrierCode→Code Info→Code Length LinesTrunks→RemoteAccss→BarrierCode→Code Info→Code Entry
Authorization Codes	Extensions→ <b>More</b> →Auth Code

**Table 10. Programming Needed after Upgrade to Release 3.1**

<b>Feature</b>	<b>Sequence</b>
Trunk-to-Trunk Transfer	Extensions→ <b>More</b> → <b>More</b> →TrkTransfer→Toggle LED On/Off or Dial ext. no.→Enter→Exit→Exit
Second Dial Tone Timer	Options→ <b>More</b> →SecDT→dial second dial tone timer value→Enter

**Table 11. Programming Needed after Upgrade to Release 4.0**

Feature	Sequence
Delayed Call Forwarding	Extensions→ <b>More</b> →Delay Frwd→ <b>Dial ext. no.</b> →Enter→Dial no. of delay rings→Enter
Group Calling Overflow and Thresholds	Extensions→ <b>More</b> →Grp Calling→Overflow→Dial calling group ext. no.→Enter→Dial ext. no.→Enter→Number Based Overflow→ <b>Drop</b> →Dial no. of calls→Enter→Time Based Overflow→ <b>Drop</b> →Dial no. of seconds→Enter
Voice Announce on a QCC	Operator→Queued Call→ <b>More</b> →Voice Annc→Enabled or Disabled→Enter
2B Data	Data→2B Data→Dial adjunct ext. no.→Enter
Basic Rate Interface (BRI)	LinesTrunks→ <b>More</b> →BRI→SPID/DN.→Dial line/trunk no.→Enter→ <b>Drop</b> →Dial SPID→Enter→ <b>Drop</b> →Dial DN→Enter
	LinesTrunks→ <b>More</b> →BRI→Timers→Select timer→ <b>Drop</b> →Dial no. of seconds or ms→Enter
Clock Synchronization	LinesTrunks→ <b>More</b> →ClockSync→Primary→ <b>Drop</b> →Dial slot no.→Enter→Dial port no. OR Select source of synchronization→Enter→Secondary→Dial slot no.→Enter→Dial port no. OR Select source of synchronization→Enter→Tertiary→dial slot no.→Enter→Dial port no. OR Select source of synchronization→Enter
Ringing Frequency (016 module)	Options→ <b>More</b> →Ringing Freq→dial slot no.→Select 20Hz or 25Hz→Enter

**Table 12. Programming Needed after Upgrade to Release 4.1**

Feature	Sequence
Group Coverage Ring Delay	SysProgram→Extensions→ <b>More</b> → <b>More</b> →Cover Delay→ Group Cover→sender's extension→number of rings→Enter
Primary Cover Ring Delay	SysProgram→Extensions→ <b>More</b> → <b>More</b> →Cover Delay→ Primary→sender's extension→number of rings→Enter
Secondary Cover Ring Delay	SysProgram→Extensions→ <b>More</b> → <b>More</b> →Cover Delay→Secondary→sender's extension→number of rings→Enter
Night Service Group Line Assignment	SysProgram→NightSrvce→GroupAssign→Lines→ Night Service attendant position number→Enter→line number→Enter
Night Service Coverage Control	SysProgram→NightSrvce→CoverContr1→Enable or Disable→Enter
Board Renumber	System→Board Renum→Yes
(When an 012 module is replaced by an 016 module)	

*Continued on next page*

Table 12. Programming Needed after Upgrade to Release 4.1 – Continued

Feature	Sequence
Switched 56 Data	<p>To select T1- All Tie: Switched 56 Data:                      LinesTrunks→LS/GS/DSL→Dial slot                      no.→Enter→Type→T1→Enter→All                      TIE→Enter→S56→Enter→Dial channel                      no.→Enter→Exit→Exit→Exit→Exit</p> <p>To select T1- Tie: Switched 56 Data:                      LinesTrunks→LS/GS/DSL→Dial slot                      no.→Enter→Type→T1→Enter→TIE→Enter→S56→                      Enter→Dial channel                      no.→Enter→Exit→Exit→Exit→Exit</p> <p>To select T1-All :Switched 56 Data:                      LinesTrunks→LS/GS/DSL→Dial slot                      no.→Enter→Type→T1→Enter→<b>More</b>→ALL S56                      Data→Enter→Select Direction, Intype, Outtype,                      AnsSupv, Disconnect, Inmode, or Outmode→Program                      options→Enter→Exit→Exit→Exit→Exit</p> <p>To select T1:Switched 56 Data:                      LinesTrunks→LS/GS/DSL→Dial slot                      no.→Enter→Type→T1→Enter→<b>More</b>→S56                      Data→Enter→Dial channel no.→Enter→Select                      Direction, Intype, Outtype, AnsSupv, Disconnect,                      Inmode, or Outmode→Program                      options→Enter→Exit→Exit→Exit→Exit</p>

*Continued on next page*

**Table 12. Programming Needed after Upgrade to Release 4.1 – Continued**

Switched 56 Data Network Dial Plan Routing	To specify Expected Digits: LinesTrunks→ <b>MORE</b> →T1 Data NW→S5b Dial Plan Routing→Expected Digits→ <b>Drop</b> →Dial expected digits→Enter→Exit→Exit→Exit
	To specify Delete Digits: LinesTrunks→ <b>MORE</b> →T1 Data NW→S5b Dial Plan Routing→Delete Digits→ <b>Drop</b> →Dial delete digits→Enter→Exit→Exit→Exit
	To specify Add Digits: LinesTrunks→ <b>MORE</b> →T1 Data NW→S5b Dial Plan Routing→Add Digits→ <b>Drop</b> →Dial add digits→Enter→Exit→Exit→Exit

**Table 13. Programming Needed after Upgrade to Release 4.2**

Feature	Sequence
SMDR Talk Time	Options→SMDR→Talk Time→Enable or Disable→Enter→Exit→Exit
PRI Switch Types	To select the Nortel DMS-250 for MCI services: SysProgram→Exit→LinesTrunks→PRI→SwitchType→Slot Number→Enter→DMS-250→Enter  To select the Digital Switch Corporation DEX600E for MCI services: SysProgram→Exit→LinesTrunks→PRI→SwitchType→Slot Number→Enter→DEX600E→Enter  To select the Nortel DMS-100 for local exchange carrier services: SysProgram→Exit→LinesTrunks→PRI→SwitchType→Slot Number→Enter→DMS-100→Enter

*Continued on next page*

**Table 13. Programming Needed after Upgrade to Release 4.2 – Continued**

PRI Network Service	<p>To select MCI Toll services for a DMS-250 or DEX600E switch type:                  SysProgram→Exit→LinesTrunks→PRI→B-ChannlGrp                  →NetworkServ→B-Channel group                  number→Enter→MCI Toll→MCI PRISM or MCI VNET or                  MCI 800 or MCI 900→Enter</p> <p>To select local exchange carrier services for a DMS-100 switch type:                  SysProgram→Exit→LinesTrunks→PRI→B-ChannlGrp                  →NetworkServ→B-Channel group                  number→Enter→DMS-100Local→DMS-Private or                  DMS-INWATS or DMS-OUTWATS or DMS-FX or                  DMS-TieTrk→Enter</p>
PRI Dial Plan Routing	<p>To specify MCI Toll Dial Plan Routing services for a DMS-250 or DEX600E switch type:                  SysProgram→Exit→LinesTrunks→PRI→DialPlanRtg                  →Service→Entry number→Enter→MCI Toll→MCI                  PRISM or MCI VNET or MCI 800 or MCI 900→Enter</p> <p>To specify local exchange carrier Dial Plan Routing services for a DMS-100 switch type:                  SysProgram→Exit→LinesTrunks→PRI→DialPlanRtg                  →Service→Entry number→Enter→DMS-100Local                  →DMS-Private or DMS-INWATS or DMS-OUTWATS or DMS-FX                  or DMS-TieTrk→Enter</p>
PRI Call-by-Call Services Table	<p>To select MCI Toll Call-by-Call Services for a DMS-250 or DEX600E switch type:                  SysProgram→Exit→LinesTrunks→PRI→OutgoingTbl                  →CBC Service→NetworkServ→List                  number→Enter→MCI Toll→MCI PRISM or MCI                  VNET→Enter</p> <p>To specify local exchange carrier Dial Plan Routing services for a DMS-100 switch type:                  SysProgram→Exit→LinesTrunks→PRI→OutgoingTbl                  →CBC Service→NetworkServ→List number→Enter→                  DMS-100Local→DMS-Private or DMS-OUTWATS or                  DMS-FX or DMS-TieTrk→Enter</p>

**Table 14. Programming Needed after Upgrade to Release 5.0**

Feature	Sequence
CTI Link	Busy out the board first: <b>Menu</b> →Maintenance→Slot→Dial the slot no.→Enter→Busy-Out→Yes * This is a Maintenance step. Start the procedure from the main menu, not the System Programming screen. Program the CTI Link (Note: The switch must be in Hybrid/PBX mode): AuxEquip→CTI Link→Dial extension number→Enter→Exit→Exit Restore the slot: <b>Menu</b> →Maintenance→Slot→Dial the slot no.→Enter→Restore→Yes * This is a Maintenance step. Start the procedure from the main menu, not the System Programming screen.
<p><b>⇒ NOTE:</b>                      If the MLX module containing the CTI Link is the first module, use the SPM program to busy-out the slot.</p>	
Calling Group Alarm Thresholds	Extensions→ <b>More</b> →Grp Calling→Queue Alarm→Dial calling group ext. no.→Enter→Alarm Threshold 1 or Alarm Threshold 2 or Alarm Threshold 3→ <b>Drop</b> →Dial no. of calls→Enter→Exit→Exit
HotLine	Extensions→ <b>More</b> → <b>More</b> →HotLine→Enter HotLine extension→Enter→Exit→Exit
Calling Group Hunt Type	Extensions→ <b>More</b> →Grp Calling→Hunt Type→Dial calling group ext. no.→Enter→Circular, Linear, or Most Idle→Enter→Exit→Exit→Exit
Group Calling Delay Primary Announcement	Extensions→ <b>More</b> →Grp Calling→DelayAnnce→Dial calling group ext. no.→Enter→Primary Announcement→Enter Exstension number of Announcent device→Enter (to program another Announcement device) or Exit (to end procedure)→Exit

*Continued on next page*

**Table 14. Programming Needed after Upgrade to Release 5.0 – Continued**

<b>Feature</b>	<b>Sequence</b>
Group Calling Delay Secondary Announcement	Extensions→ <b>More</b> →Grp Calling→DelayAnnce→Dial calling group ext. no.→Enter→Secondary Announcement→Enter Exstension number of Announcent device→Enter→Exit→Exit
Group Calling Announcement Interval	Extensions→ <b>More</b> →Grp Calling→DelayAnnce→Dial calling group ext. no.→Enter→Announcement Interval→Enter Announcent Interval in seconds→Enter→Exit→Exit
Group Calling Repeat Announcement	Extensions→ <b>More</b> →Grp Calling→DelayAnnce→Dial calling group ext. no.→Enter→Repeat Announcement→Yes or No→Enter→Exit→Exit

**Table 15. Programming Needed after Upgrade to Release 6.0**

<b>Feature</b>	<b>Sequence</b>
UDP Routing Patterns	Sys Program→Tables→UDP Routing→Enter Pattern Number (1-20)→Enter→Enter Route Number (1-4)→Enter→Pool→Enter pool dialout code
	Sys Program→Tables→UDP Routing→Enter Pattern Number (1-20)→Enter→Enter Route Number (1-4)→Enter→FRL→Enter restriction level (0-6)
	Sys Program→Tables→UDP Routing→Enter Pattern Number (1-20)→Enter→Enter Route Number (1-4)→Enter→Absorb→Enter number absorption digits (0-11)
	Sys Program→Tables→UDP Routing→Enter Pattern Number (1-20)→Enter→Enter Route Number (1-4)→Enter→Digits→Enter other digits

*Continued on next page*

Feature

Sequence

Sys Program→Tables→UDP Routing→Enter Pattern Number (1-20)→Enter→Enter Route Number (1-4)→Enter→Data→Select Voice Only, Data Only, or Voice/Data

Sys Program→Extensions→**More**→**More**→DisplayPre→Dial ext. no.→Enter→Select Calling Name, Calling Num, or Both

Sys Program→SysRenumber→NonLocal UDP→Enter starting number→Enter→Enter ending number

Sys Program→LinesTrunks→**More**→UDP→SwNum-Single→Enter trunk number→Enter→Enter switch number→Enter

Sys Program→LinesTrunks→**More**→UDP→SwNum-Block→Enter starting number→Enter→Enter ending trunk→Enter→Enter switch number→Enter

Sys Program→LinesTrunks→**More**→UDP→SMDR→Enter trunk number→Enter→Select Log incoming, Log outgoing, Log both, or Log none

Sys Program→LinesTrunks→PRI→B-ChannlGrp→NetworkServ→Enter→LegendUDP→Select ElecTandNtwk

Sys Program→LinesTrunks→PRI→B-ChannlGrp→IncomingRtg→Enter→Route Directly to UDP→Enter

Sys Program→LinesTrunks→PRI→SwitchType (Select Legend-Ntwk or Legend-PBX)→Enter

---

**Table 16. Programming Needed after Upgrade to Release 6.1**

Feature	Sequence
Service Observing	<p>To assign a Service Observer to a Service Observing group:                      Extensions→<b>More</b>→<b>More</b>→ServiceObs→Observer→                      Dial group no.→Enter→Dial ext. no. of Service                      Observer→Enter or Delete→Exit→Exit</p> <p>To enable or disable Warning Tone on a per group basis:                      Extensions→<b>More</b>→<b>More</b>→ServiceObs→Warning→                      Dial group no.→Enter→Yes or No→Enter→Exit→                      Exit</p> <p>To assign a member extension to a Service Observing group:                      Extensions→<b>More</b>→<b>More</b>→ServiceObs→Members→                      Dial group no.→Enter→Dial ext. no.→Enter or                      Delete→Exit→Exit→Exit</p>
SMDR Log UDP Calls	<p>Options→SMDR→UDP→Log Incoming/Outgoing or                      Log None→Exit</p>
Non-Local Dial Plan Extension Ranges	<p>SysRenumbr→NonLocal UDP→Dial no. of first extension                      in range→Enter→Dial no. of last extension in range→                      Enter→Dial max. no. of digits user can enter to reach an                      extension in the range→Enter→Dial pattern no. for                      extension range→Enter→Exit→Exit</p>

## Surrogate Mode Programming

Surrogate mode allows qualified service personnel to perform system programming at an off-site service location. The actual communications system hardware does not have to be installed—the programmer needs only a direct connection from the PC to the processor module. By following a customer’s set of completed planning forms, the system can be programmed as if the appropriate modules, trunks, and telephones have been installed. When system programming is completed, a system backup is performed to save the information on disk. This backup disk is

then taken to the new installation site and used with the Restore option to provide complete system programming for a new communications system.

You do not “select” surrogate mode programming—you enter it automatically under the following conditions:

- The PC is connected to the lower RS-232 port on a control unit (direct local connection).
- Only the processor and power modules are connected.

Once you enter surrogate mode programming, you must follow the sequence of procedures shown below.

- At the service location, perform the following:
  1. System Erase
  2. Program the Boards
  3. System Programming
  4. Backup
- At the installation site, perform a Restore.

While you are in surrogate mode, the Pass-Thru and Password options are not available.



**NOTE:**

Surrogate mode is available only through the local programming port. You cannot access surrogate features through the system programming console.



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