MERLIN MAGIX™ Integrated System

System Programming Basics
Release 2.0 and Earlier

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Issue 1
January 2001

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Notice

Every effort has been made to ensure that the information in this guide is complete and accurate at the time of printing. Information, however, is subject to change. See Appendix A, “Customer Support Information,” in *Feature Reference* for important information.

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Preventing Toll Fraud

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

Avaya Fraud Intervention

If you suspect that you are being victimized by toll fraud and you need technical assistance or support, call the Avaya Customer Care Center at **1 800 628-2888**.

Providing Telecommunications Security

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

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

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

Such intrusions may be either to/through synchronous (time multiplexed and/or circuit-based) or asynchronous (character-, message-, or packet-based) equipment or interfaces for reasons of:

- Utilization (of capabilities special to the accessed equipment)
- Theft (such as, of intellectual property, financial assets, or toll-facility access)
- Eavesdropping (privacy invasions to humans)
- Mischief (troubling, but apparently innocuous, tampering)
- Harm (such as harmful tampering, data loss or alteration, regardless of motive or intent).

Be aware that there may be a risk of unauthorized or malicious intrusions associated with your system and/or its networked equipment. Also realize that, if such an intrusion should occur, it could result in a variety of losses to your company, including, but not limited to, human/data privacy, intellectual property, material assets, financial resources, labor costs, and/or legal costs.

Your Responsibility for Your Company's Telecommunications Security

The final responsibility for securing both this system and its networked equipment rests with you - an Avaya customer's system administrator, your telecommunications peers, and your managers. Base the fulfillment of your responsibility on acquired knowledge and resources from a variety of sources, including, but not limited to:

- Installation documents
- System administration documents
- Security documents
- Hardware-/software-based security tools
- Shared information between you and your peers
- Telecommunications security experts

To prevent intrusions to your telecommunications equipment, you and your peers should carefully program and configure your:

- Avaya provided telecommunications system and their interfaces
- Avaya provided software applications, as well as their underlying hardware/software platforms and interfaces
- Any other equipment networked to your Avaya products

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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 their own expense. For further FCC information, see Appendix A, “Customer Support Information,” in *Feature Reference*.

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Support Telephone Number

In the continental U.S., Avaya provides a toll free customer helpline 24 hours a day. Call the Avaya Customer Care Center at **1 800 628-2888** or your Avaya authorized dealer if you need assistance when installing, programming, or using your system. Outside the continental U.S., contact your local Avaya authorized representative.

Warranty

Avaya provides a limited warranty on this product. Refer to “Limited Warranty and Limitation of Liability” in “Customer Support Information” in *Feature Reference*.

IMPORTANT SAFETY INSTRUCTIONS

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.

When installing telephone equipment, always follow basic safety precautions to reduce the risk of fire, electrical shock, and injury to person, 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 Avaya Inc.-manufactured MERLIN MAGIX Integrated System circuit modules, carrier assemblies, and power units in the MERLIN MAGIX Integrated System control unit.
- Use only Avaya Inc.-recommended/approved MERLIN MAGIX Integrated System accessories.
- If equipment connected to the TDL telephone modules (412 LS-ID-TDL and 024 TDL), the MLX telephone modules (008 MLX, 408 GS/LS-MLX, 408 GS/LS-ID-MLX, and 016 MLX), or the ETR telephone module (016 ETR) 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 MAGIX Integrated 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 MAGIX Integrated 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:

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.

ONLY an authorized technician or dealer representative shall install, set options, or repair an MFM.

SAVE THESE INSTRUCTIONS

System Programming Basics
Master Table of Contents

About This Guide

Intended Audience vii
How to Use This Guide vii
Terms and Conventions Used viii
Security x
Related Documents xi
How to Comment on This Guide xii

1 About System Programming

Overview 1-1
Types of Programming 1-1
Methods of Programming 1-2
About Programming Procedures 1-3
Moving Among System Programming Screens 1-4
About Programming and Idle States 1-4

2 System Programming Console

Overview 2-1
4424LD+ and MLX-20L Console Components 2-4
Direct Station Selector (DSS) 2-5
System Programming Console Buttons 2-7
Console Overlay 2-9
Console and DSS Lights 2-11
Displaying the System Programming Menu from the Console 2-12
Exiting System Programming 2-13

3 About WinSPM

Overview 3-1
System Requirements 3-2
Installing the WinSPM Software 3-3
Setting Up your Desktop 3-5

Defining Your Password 3-8
Setting Up a Site 3-9
About the WinSPM Main Screen Options 3-17
Using View 3-18
Using Tools 3-18
Using Quick Access 3-19
WinSPM Help 3-27
Using Standard SPM Mode 3-27
Basic System Management Procedures 3-31
Board Renumbering with the
016 MLX Module 3-46

System Programming Basics
Master List of Figures

2 System Programming Console

2-1 The 4424-LD+ Telephone 2-2
2-2 The MLX-20L Telephone 2-3
2-3 DSS4450 for 4400-Series Telephones 2-6
2-4 4424LD+ Display Buttons and Main Menu 2-7
2-5 MLX-20L Display Buttons and Main Menu 2-8
2-6 4424LD+ System Programming Console Overlay 2-10
2-7 MLX-20L System Programming Console Overlay 2-11

3 About WinSPM

3-1 WinSPM Main Screen 3-4
3-2 Direct Connection, PC Less Than 50 Feet Away 3-15
3-3 Connecting a Modem to a T/R Extension Jack 3-16
3-4 Connect to the MERLIN MAGIX Internal Modem from a Remote Location . . 3-17
3-5 Standard SPM Mode Display 3-28

System Programming Basics
Master List of Tables

1 About System Programming

1-1 Typefaces Used in Programming Procedures 1-3

2 System Programming Console

2-1 4424LD+ and MLX-20L Console Components 2-4
2-2 DSS 4450 Components 2-7
2-3 Fixed Display Buttons Functions 2-8
2-4 Description of Options in System Programming Menu 2-12
2-5 Selections to Return to the System Programming Menu 2-13

3 About WinSPM

3-1 Function of PC Keys in WinSPM 3-29
3-2 SPM Main Menu Options 3-30
3-3 Board Types 3-34

About This Guide

The MERLIN MAGIX Integrated System is an advanced digital switching system that integrates voice and data communications features. Voice features include traditional telephone features, such as Transfer and Hold, and advanced features, such as Group Coverage, Direct Voice Mail, and Tandem Switching. Data features allow both voice and data to be transmitted over the same system wiring.

Intended Audience

This book provides detailed information about system features, extension features, and system applications of the MERLIN MAGIX Integrated System. It is intended as a reference for anyone needing such information, including support personnel, sales representatives, System Managers, and account executives. It is also intended for technicians who are responsible for system installation, maintenance, and troubleshooting.

How to Use This Guide

This guide has been designed to provide optimal assistance to you in completing the planning forms—for example:

1. Since some chapters and/or sections apply to one or another of the configurations (Key or Behind Switch, Hybrid/PBX, or data communications), these sections are clearly marked—for example, “Hybrid/PBX Only.” Also, you are alerted to proceed to the next appropriate section, or to skip chapters or sections that do not apply to your particular system. Proceed through this guide as appropriate.
2. A list of forms or information that will be needed for particular procedures appears at the beginning of each chapter and section.
3. Where appropriate, examples of completed forms are included so you can confirm what you have done.

Since this guide assumes that you are familiar with the system, detailed information about equipment, features, and programming are not included. Refer to the following documentation for additional information:

- *System Programming* gives procedural instructions for programming system features.
- User and operator guides give procedural instructions for programming and using telephone features.

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

In the USA only, Avaya provides a toll free customer Helpline 24 hours a day. Call the Helpline at 1 800 628-2888 (consultation charges may apply), or contact your Avaya representative if you need assistance when installing, programming, or using your system.

Outside the USA, if you need assistance when installing, programming, or using your system, contact your Avaya authorized representative.

Terms and Conventions Used

The terms described here 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 MAGIX Integrated System to the central office. Technically, a *line* is a loop-start facility or a communications path that does not connect switches—for example, an intercom line or a Centrex line. In actual usage, however, the terms *line* and *trunk* are often applied interchangeably. In this guide, we use *line/trunk* and *lines/trunks* to refer to facilities in general. Specifically, we refer to *digital facilities*. We also use specific terms such as *Personal Line*, *ground-start trunk*, *Direct Inward Dialing* (*DID) trunk*, and so on. When you talk to personnel at 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, as follows:

Old Term	New Term
trunk module	line/trunk module
trunk jack	line/trunk jack
station	extension
station jack	extension jack
analog data station	modem data workstation
digital data station	terminal adapter workstation
7500B data station	ISDN terminal adapter data workstation
digital voice and analog data station	MLX voice and modem data workstation
analog data-only station	modem data-only workstation
digital data-only station	terminal adapter data-only workstation
7500B data-only station	ISDN terminal adapter data-only workstation
digital voice and digital data station	MLX voice and terminal adapter workstation
MLX voice and 7500B data station	MLX voice and ISDN terminal adapter data workstation

Typographical Conventions

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

Convention	Example
Italics or bold indicates emphasis.	It is *very* important that you follow these steps. WARNING: Do **not** remove modules from the carrier without following proper procedures.
Italics also sets off special terms.	The part of the headset that fits over one or both ears is called a *headpiece.*
Plain constant-width type indicates text that appears on the telephone display or PC screen, as well as characters you dial at the telephone or type at the PC.	Choose `Ext Prog` from the display screen. To activate Call Waiting, dial `*11`.

Product Safety Advisories

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

Certain features of the system can be protected by passwords to prevent unauthorized users from abusing the system. You should assign passwords wherever possible and limit distribution 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 in the Feature Reference."*

Throughout this guide, 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, or use by an unauthorized party (e.g., 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 Company's Telecommunications Security" on the inside front cover of this guide and "Security of Your System: Preventing Toll Fraud" in Appendix A, in the "Customer Support Information" section of Feature Reference.

Related Documents

The documents listed in the following table are part of the MERLIN MAGIX documentation set. Within the continental United States, contact the Avaya Publications Center by calling 1 800 457-1235.

Document No.	Title
System Documents:	
555-720-100	*Customer Documentation Package:*
	Consists of paper versions of the *System Manager's Quick Reference* and the *Feature Reference*
555-720-110	*Feature Reference*
555-720-112	*System Planning*
555-720-113	*System Planning Forms*
555-720-119	*System Manager's Quick Reference*
555-661-150	*Network Reference*
555-720-800	*Customer Reference CD-ROM:*
	Consists of the *System Manager's Quick Reference*, and the *Feature Reference*
Telephone User Support:	
555-710-123 (U.S. English)	*4400/4400D Telephone User's Guide*
555-710-123FRC (Canadian French)	*4400/4400D Telephone User's Guide*
555-710-127 (U.S. English)	*4406D+, 4412D+, 4424D+, and 4424LD+ Telephone User's Guide*
555-710-127FRC (Canadian French)	*4406D+, 4412D+, 4424D+, and 4424LD+ Telephone User's Guide*
555-660-122	*MLX Display Telephone User's Guide*
555-630-150	*MLX- 5D, MLX-10D and MLX-10DP Display Telephone Tray Cards* (5 cards)
555-630-152	*MLX-28D and MLX-20L Telephone Tray Cards* (5 cards)
555-660-124	*MLX-5® and MLX-10® Nondisplay Telephone User's Guide*
555-630-151	*MLX-5 and MLX-10 Nondisplay Telephone Tray Cards* (6 cards)
555-630-155	*MLX-16DP Display Telephone Tray Cards* (5 cards)
555-670-151	*MLS and ETR Telephone Tray Cards*
555-670-152	*MLS and ETR Telephone Tray Cards* (16 cards)

Document No.	Title
555-660-126	*Single-Line Telephones User's Guide*
555-660-138	*MDC and MDW Telephones User's Guide*
System Operator Support:	
555-710-134	*Digital Direct Line Console Operator's Guide*
555-710-136	*Digital Queued Call Console Operator's Guide*
Miscellaneous User Support:	
555-661-130	*Calling Group Supervisor and Service Observer User Guide*
555-650-105	*Data and Video Reference*
555-661-140	*Installation, SPM, Maintenance and Troubleshooting*
555-720-140	*Installation, Programming Basics, Maintenance and Troubleshooting*
555-720-116	*Pocket Reference*
Toll Fraud Security:	
555-025-600	*BCS Products Security Handbook*

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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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We'd like your opinion . . .

We welcome your feedback on this document. Your comments can be of great value in helping us improve our documentation.

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System Programming Basics
Issue 1, January 2001
555-710-140, Comcode 108873564

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	Excellent	Good	Fair	Poor
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Accuracy	❑	❑	❑	❑
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2. Please check the ways you feel we could improve this document:

❑ Improve the overview/introduction
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❑ Add more figures
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❑ Make it more concise
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You may FAX your response to 908 953-6912. Thank you.

About System Programming

1

Contents

Overview 1-1

Types of Programming 1-1

Methods of Programming 1-2

About Programming Procedures 1-3

Moving Among System Programming Screens 1-4

About Programming and Idle States 1-4

- System Forced Idle 1-5
- Line or Trunk Idle 1-5
- Extension Forced Idle 1-6
- Forced Idle Reminder Tone 1-6
- 100D, 100DCD, or 100R INA Module Idle 1-6

About System Programming

1

Overview

The MERLIN MAGIX Integrated System offers easy-to-use, menu-driven software for system programming. As part of the installation, the system was programmed with specific features, settings, and options. The system programming software allows you to easily modify the system programming to accommodate a company's changing needs for such enhancements and modifications as upgraded lines, additional modules, and new extension programming.

There are three types of programming, as well as two ways, or methods, to perform the programming. The types and methods of programming as well as some general information about programming procedures are described in the following sections.

Types of Programming

Three types of programming are available for the MERLIN MAGIX system:

- **System Programming**. This type of programming enables the System Manager to program features that affect all or most system users; it requires one of the following:
  - — A system programming console which is an MLX-20L or 4424LD+ telephone connected to one of the first five jacks of the first MLX or TDL module in the control unit. See "System Programming Console Buttons" on page 2-7 for more information.
  - — A PC with Windows System Programming and Maintenance (WinSPM) software. WinSPM provides two interfaces for system programming--Quick Access and Standard SPM Mode.
    - Quick Access provides a graphical user interface (GUI) for those tasks most commonly performed by the System Manager (for example, adding or deleting members of groups, performing system inventories, creating reports, administering multiple systems, making station labels shown on display telephones, and more). Pictorial representations of system components, such as modules and their vintages, and the creation of MLX or 4400-Series telephone button labels are available through Quick Access. See "Using Quick Access" on page 3-19 for more information.

- The Standard SPM Mode provides an emulation display of the system programming console. It allows all system programming of the MERLIN MAGIX system to be performed from a PC and supports programming for options not included in the Quick Access GUI. In addition, the SPM Main Menu provides four options intended for qualified service personnel. See"Using Standard SPM Mode" on page 3-27 for more information.

- **Extension Programming**. This type of programming enables individual extension users and system operators (except for Queued Call Console operators) to change their extension features to meet individual needs. For details about extension programming, see the appropriate user and operator guides.
- **Centralized Telephone Programming**. This type of programming enables the System Manager to program any feature that can be programmed by individual extension users or system operators. Some features can be programmed only in centralized telephone programming. Centralized telephone programming can be done through the system programming console or through WinSPM using Standard SPM Mode. It is provided as an option on the second screen of the System Programming Menu.

Methods of Programming

A System Manager primarily performs system programming and centralized telephone programming. As previously explained, the other type of programming--extension programming--is performed at each individual telephone, usually by the telephone user.

To perform system programming and centralized telephone programming, the following two methods are available:

- Programming from the system programming console.
- Programming from a PC with WinSPM software, using Standard SPM Mode.

NOTE WinSPM also provides Quick Access to manage those tasks most commonly performed by a System Manager. Refer to the documentation and online help provided with the WinSPM application for information on how to program using Quick Access. See "Using Quick Access" on page 3-19 for an overview of this programming method.

About Programming Procedures

Programming procedures using either the system programming console or a PC with WinSPM using the Standard SPM Mode are presented in the same format. Following is an example of a programming procedure and a description of how to follow it from the console or from a PC with WinSPM using the Standard SPM Mode:

Menu →`Sys Program`→`Start`→`Extensions`→`Lines/Trunks` →Dial ext. no. →`Enter`→ `Entry Mode`→Dial line/trunk no. →`Enter` →`Back` →`Back`

- To select **Menu** if you are programming from a system programming console, press the fixed display button; to select **Menu** if you are programming from WinSPM in Standard SPM Mode, click on the picture of the fixed display button in the console display screen emulated on your PC monitor.
- To select Sys Program if you are programming from a system programming console, press the unlabeled display button next to the Sys Program option; to select Sys Program if you are programming from WinSPM in Standard SPM Mode, click on Sys Program in the console display screen emulated on your PC monitor.

NOTE When programming from your PC with WinSPM in Standard SPM Mode, you can also select options from the console display screen by using the function keys on your keyboard. See "Using Standard SPM Mode" on page 3-27.

The arrows within the programming procedure separate each step. Three typefaces are used to help indicate what the step involves, as shown in the following table:

Table 1-1. Typefaces Used in Programming Procedures

Typeface Sample	On System Programming Console	On PC using Standard SPM Mode
More	Select this option by pressing the imprinted button on the console.	Select this option by clicking on the imprinted button on the console emulated on the PC monitor.
`GrpCalling`	Select this menu option by pressing the unlabeled display button next to the option.	Select this menu option by clicking on the option in the console display screen emulated on your PC monitor.
Dial ext. no.	Enter this information.	Enter this information.

Moving Among System Programming Screens

Some general comments regarding moving from one system programming screen to another follow:

- In most cases, you can select Back 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 select Back, you usually move up one screen in the menu hierarchy.

  Occasionally, when you select Back, you return to the previous screen. In a few cases, pressing Back 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, select `Enter`.
- If you are programming a group of sequentially numbered extensions or trunks, you may optionally select `Next`. This saves your entry and automatically provides the number of the next extension or trunk in the sequence, thus saving you several 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 select Back again. This usually takes you back to the System Programming menu. If not, you can continue programming on the current screen or select Back again.

About Programming and Idle States

Some 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 to remain 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, the screen shown below appears.

```
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
- Restore system programming information
- Identify the Music-On-Hold jack
- Program T/R on an 016 ETR module

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 is forced idle, no calls can be made or received on that extension. The following procedures can be performed only when the extension 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-telephone” 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 WinSPM, to remind the System Manager that the system (or at least one extension) is in the forced idle state because of administrative activity.

Forced idle reminder tones occur every 20 seconds. You can adjust the volume of these tones with the volume control on the system console or PC.

100D, 100DCD, or 100R INA Module Idle

The following procedures can be performed only when the 100D, 100DCD, or 100R INA module is idle:

- Specify board type
- Specify frame format
- Specify board signaling format
- Specify board suppression format
- Specify board facility compensation

System Programming Console

2

Contents

Overview 2-1

4424LD+ and MLX-20L Console Components 2-4

Direct Station Selector (DSS). 2-5

System Programming Console Buttons 2-7
- Fixed Display Buttons 2-8
- Unlabeled Display Buttons 2-9

Console Overlay. 2-9

Console and DSS Lights 2-11
- Console Lights 2-11
- DSS Lights 2-12

Displaying the System Programming Menu from the Console. 2-12

Exiting System Programming. 2-13

System Programming Console

2

Overview

The system programming console is a 4424LD+ telephone (see Figure 2-1 on page 2-2) or MLX-20L telephone (see Figure 2-2 on page 2-3) connected to the system programming jack. When you begin system programming on a new system for the first time, the console must be connected to the first jack on the first 412 LS-ID-TDL or 024 TDL module if you are using a 4424 LD+ telephone, or to the first jack on the first 008 MLX module, 016 MLX module, or 408 GS/LS-ID-MLX module if you are using an MLX-20L telephone. The first jack on the first TDL or MLX module is factory set as the system programming jack and as an operator position. When you program for the first time, you can change the system programming jack to any one of the first five jacks on the first 412 LS-ID-TDL module or 024 TDL module, or on the first 008 MLX module or 408 GS/LS-ID-MLX module. This allows you to program without interfering with the operator's call handling.

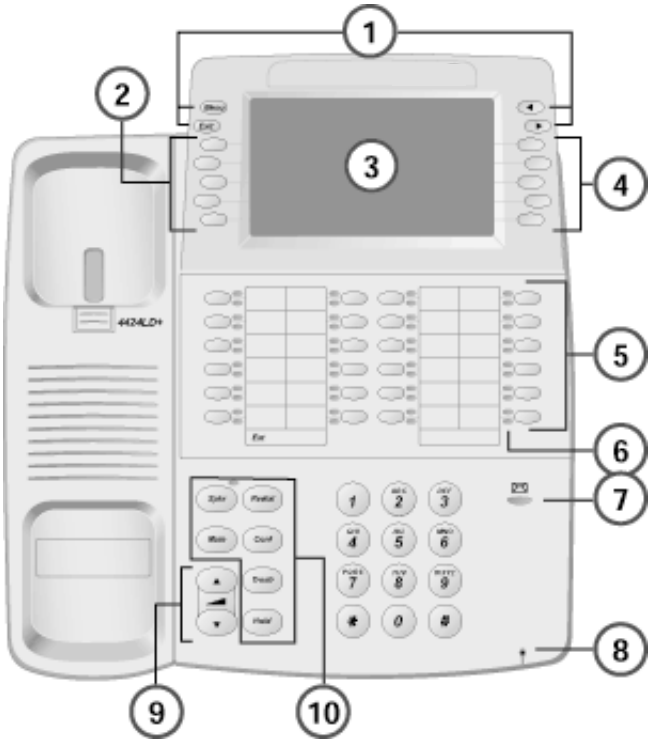


Figure 2-1. The 4424-LD+ Telephone

1	Fixed Buttons
2	Softkeys
3	7 Line x 24 Character Display
4	Softkeys
5	Line Buttons
6	LEDs
7	Message Waiting LED
8	Microphone
9	Volume
10	Fixed Buttons

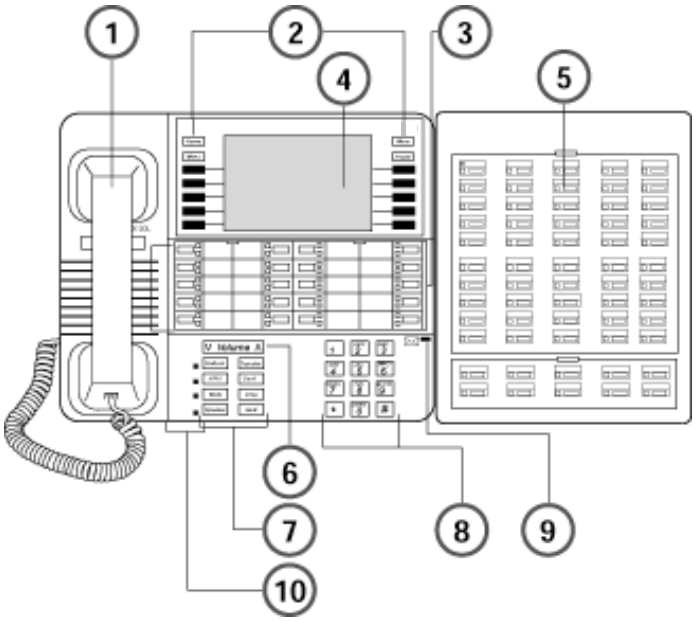


Figure 2-2. The MLX-20L Telephone

1	Handset
2	Display Buttons
3	Call and Fixed-Feature Buttons
4	Display Screen
5	Direct Station Selector (DSS)
6	Volume Control
7	Fixed-Feature Buttons (8)
8	Dial Pad
9	Message Light
10	User Cards and Tray

4424LD+ and MLX-20L Console Components

Refer to the Figure 2-1 on page 2-2 and Figure 2-2 on page 2-3 for the location of the components described in this table.

Table 2-1. 4424LD+ and MLX-20L Console Components

Component	Function
Desk Stand (not shown)	An adjustable stand on the console and the DSS allows a 20- or 30-degree viewing angle (optional on the 4424LD+ telephone).
Button Labeling Cards	Cards labeled with the number or feature assigned to each line button.
Contrast Control (not shown)	A sliding control at the top of the console, used to brighten or dim the display screen.
Fixed Feature Buttons	4424LD+ telephone fixed display buttons for most-used features: ■ **Spkr** (Speaker) for turning the speakerphone on and off. ■ **Mute** for turning the speakerphone's microphone and, if applicable, the headset's microphone on and off. ■ **Trnsfr** (Transfer) for sending a call to another telephone. ■ **Conf** for adding a line or extension to a conference call. ■ **Redial** for redialing the last number dialed from the telephone. ■ **Hold** for putting a call on hold. MLX-20L telephone fixed display buttons for most-used features: ■ **Feature** for viewing the Feature screen and selecting features. ■ **HFAI** (Hands-Free Answer on Intercom) for answering voice-announced calls without the handset. ■ **Mute** for turning the speakerphone's microphone on and off. ■ **Speaker** for talking on a call through the speakerphone without lifting the handset. ■ **Transfer** for sending a call to another telephone. ■ **Conf** for adding a line or extension to a conference call. ■ **Drop** for disconnecting an extension or line from a conference call. ■ **Hold** for putting a call on hold.
Dialpad	Number pad for dialing telephone numbers.
Direct Station Selector (DSS) (not shown)	A device that adds extension buttons and other buttons to the console. See "Direct Station Selector (DSS)" on page 2-5.
Display Buttons	Four fixed display buttons and 10 unlabeled buttons used to view the different screens and select names, features, and options from the display screen. See "System Programming Console Buttons".

Table 2-1. 4424LD+ and MLX-20L Console Components—*Continued*

Component	Function
Display Screen	Screen with a 7-line by 24-character display area that shows call information, features, prompts, date, and time.
Handset	The hand-held part of the console you pick up, talk into, and listen from.
LEDs	(Light-Emitting Diodes) The lights on the console that assist in checking feature status.
Line Buttons	Buttons to make and receive calls; unlabeled buttons are programmable for one-step feature use. The 4424LD+ has 24 line buttons, and the MLX-20L has 20 line buttons.
Message Light	A red light that signals a waiting message.
User Cards and Tray (MLX-20 only)	A slide-out drawer with erasable cards for noting telephone numbers and feature codes.
Volume Control	A button for adjusting the volume of speaker, handset, headset, and ringer.

Direct Station Selector (DSS)

You can also have one or two Direct Station Selectors (DSSs) connected to the system programming console. Each DSS adds 50 extension buttons to the console, which facilitates assigning features to extensions. The DSS for the 4424LD+ console is the DSS 4450 shown in Figure 2-3.

The LEDs on the DSS indicate the status of telephone features during system programming, such as calling restrictions. Each LED on the DSS represents an extension connected to the system. When certain features are selected from the System Programming menu, the LEDs on the DSS indicate the status of the feature for each extension. For example, if Restriction is selected from the Extension menu, the red LED is on for each extension that is toll-restricted.

The LEDs on a DSS change during programming:

- If a local extension is busy because features are being assigned through system or centralized telephone programming, the red LED next to the associated DSS button is on to indicate the busy condition. This occurs when the telephone with the attached DSS is not the one being programmed.
- When you are using a telephone with an attached DSS to program itself or another extension, all but the bottom two rows of LEDs on the DSS turn off during programming mode. The bottom two rows remain unchanged.

When you program a telephone with an attached DSS from another extension, all the LEDs on the DSS turn off, including the bottom two rows, during programming mode.

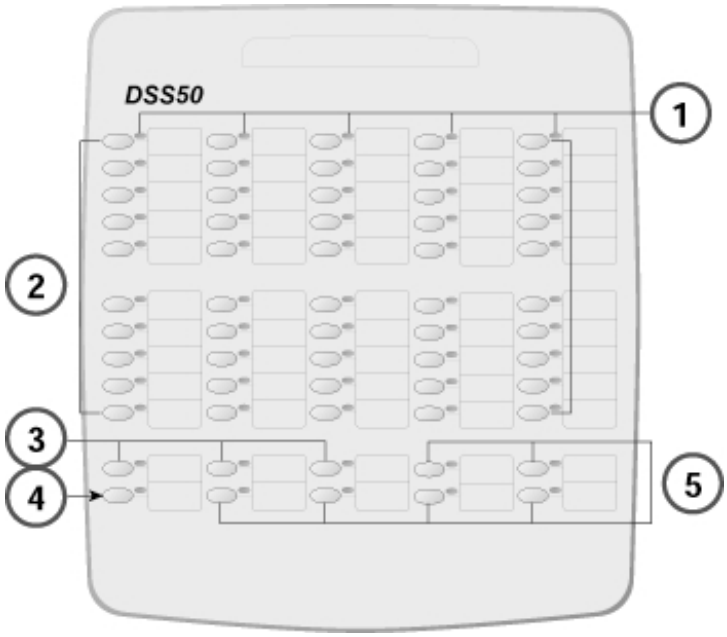


Figure 2-3. DSS4450 for 4400-Series Telephones

1 LEDs (50)

2 DSS Buttons (50)

3 Page Buttons

4 Message Status Button

5 Reserved Buttons

Refer to the Figure 2-3 for the location of the components described in the following table.

Table 2-2. DSS 4450 Components

Component	Function
DSS Buttons	Fifty buttons used for one-touch dialing of co-workers' extensions to make or transfer calls. DSS buttons are also used to page co-workers over speakerphones, to park calls, and to handle outside calls.
Fixed Buttons	Ten additional buttons, including Message Status, Direct Voice Mail (MLX DSS only), and three Page buttons. The five remaining buttons on the first DSS are not used. If a second DSS is connected to the console, the 10 buttons at the bottom of the second DSS are not used. Fixed Message Status button used with fixed Page buttons to see which telephones have Message Lights on. Fixed Page Buttons are three buttons used to select the pages of extensions that the 50 DSS buttons represent.
LEDs (Light-Emitting Diodes)	The lights that assist in checking feature status.

System Programming Console Buttons

Use the 14 buttons located on either side of the 4424LD+ or MLX-20L console display area for system programming. These buttons are arranged in two columns of seven buttons. On the 4424LD+ console, three of the four fixed display buttons have different labels than those on the MLX-20L console, although the same functionality is provided.

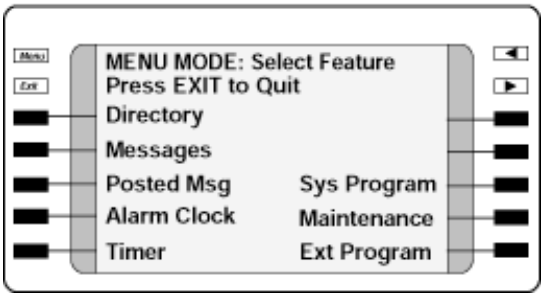


Figure 2-4. 4424LD+ Display Buttons and Main Menu

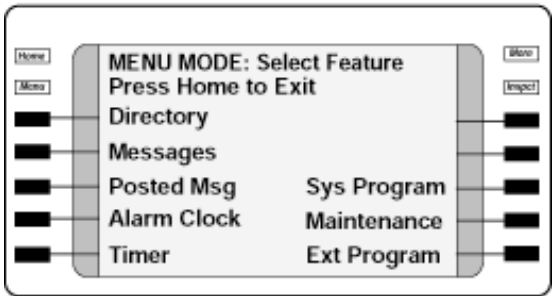


Figure 2-5. MLX-20L Display Buttons and Main Menu

Fixed Display Buttons

The top two buttons in each column have the same labels and functions regardless of the screen display. This type of button is called a fixed display button. The functions of the fixed display buttons for the 4424LD+ and MLX-20L consoles are described in the following table.

Table 2-3. Fixed Display Buttons Functions

MLX-20L Buttons	4424LD+ Buttons	Function
Home	**Exit**	Return to normal call handling mode after you finish programming.
Menu	**Menu**	Display the Main Menu.
More	►	Display more items when a menu is continued on more than one screen, indicated by an angle bracket (>) on the upper right of the screen.
Inspct		(Inspect) View a list of lines or extensions on which a feature is programmed or the settings for a feature. On the 4424LD+ console, an Inspect button must be programmed (programming code *778).
	◄	Return to the previous screen; indicated by an angle bracket (<) on the upper right of the screen. The MLX-20L does not have an equivalent button.

Unlabeled Display Buttons

Use the five unlabeled display buttons on each side of the display screen to select commands, options, or items on the screen. The functions of these buttons vary, based on the option you select.

If you are using WinSPM in Standard SPM Mode for system programming, the simulated 4424DL+ or MLX-20L console screen on your PC monitor shows the PC function keys that correspond to the console screen selections. You can use the PC functions keys on your keyboard to select an item on the screen, or you can use your Mouse to select a function key or option in the simulated console screen.

Console Overlay

The programmable line buttons are on the main part of the console. There are 24 line buttons on the 4424LD+; however, the four buttons on the top row are not used during system programming.

The MLX-20 console has 20 line buttons, but you can use the console overlay to program up to 28 line buttons on any extension through centralized telephone programming. Select Page 1 to access line buttons 1 through 20 and Page 2 to access line buttons 21 to 34. The top line of numbers next to each line button on the console overlay represents line buttons.

When labels or filenames are entered, the letters A through F are displayed on the console screen. Additional letters can be entered by using line buttons 1 through 20 to represent letters G through Z. These letters are also displayed on the top line of the console overlay.

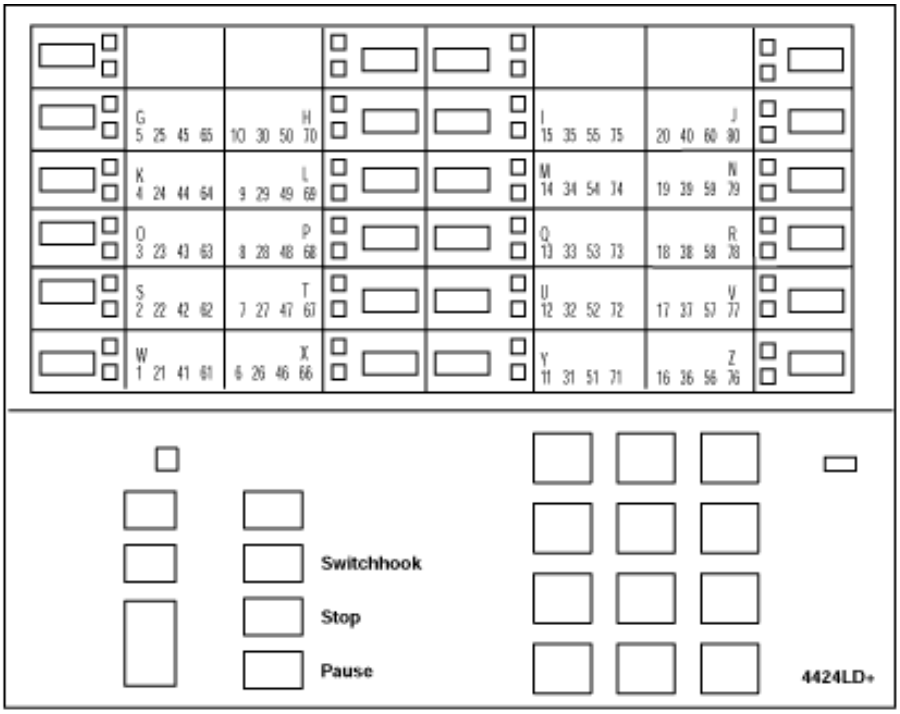


Figure 2-6. 4424LD+ System Programming Console Overlay

NOTE The function labeled **Top Sys Prog** on the MLX-20L console overlay does not appear on the 4424LD+ console overlay. The 4424LD+ does not provide a fixed HFAI (Hands Free Answer on Intercom) button for this feature; however, the HFAI feature can be programmed onto a line button on the 4424LD+ telephone and then used for system programming.

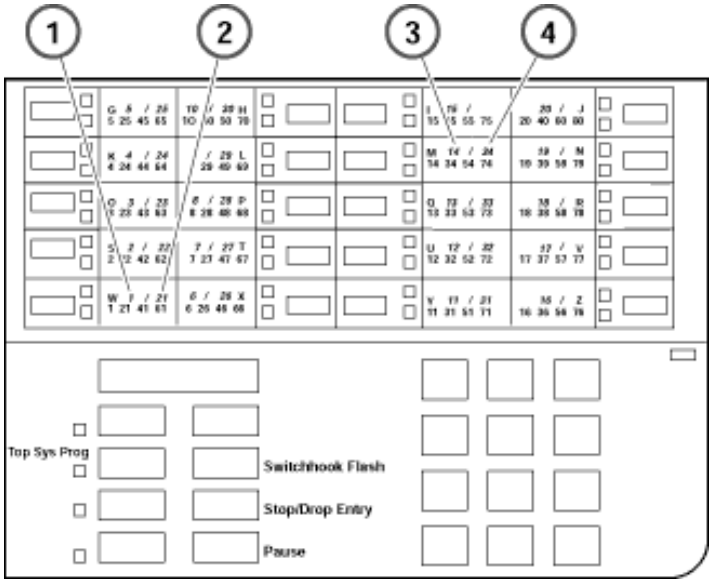


Figure 2-7. MLX-20L System Programming Console Overlay

1 To Central Office or Serving Facility

2 C O LInes

3 C O Line Protector

4 Network Interface

Console and DSS Lights

The red and green lights (LEDs) next to each of the 20 line buttons on the 4424LD+ and MLX-20L console show the status of the line/trunk options. LEDs on the DSS show the status of features programmed on extensions.

Console Lights

The green and red LEDs next to each button on the console display the status of the line/trunk option that is being programmed. For example, when you select Pools from the Lines Trunks menu, the red LED is off if the selected line is not in a pool and on if the line is in a pool. Appendix C in *Feature Reference* provides a table that shows the default LED status for line/trunk options.

DSS Lights

The lights on the DSS (if one is attached to the console) show the status of features being programmed on the extensions. When you select a feature from a menu, the red LED next to the DSS button is on, off, or flashing, depending on whether the feature is already programmed on the corresponding extension. For example, when you select **Toll Restrict** from the Restrictions menu, the red LED next to the DSS button lights for each toll-restricted extension. Appendix C in Feature Reference, provides a table that shows the default DSS status of LEDs for system features.

Displaying the System Programming Menu from the Console

Follow these steps to begin system programming:

Menu →`Sys Program`→`Start`

The System Programming Menu appears:

```
System Programming >
Make a selection
System          Extensions
SysRenumber     Options
Operator        Tables
LinesTrunks     AuxEquip
Back            NightService
```

```
System Programming:
Make a selection
Labeling        Language
Data
Print
Cntr-Prg
Back
```

Table 2-4. Description of Options in System Programming Menu

Option	Description
System	Set system operating conditions.
SysRenumber	Select the system numbering plan and/or reassign extension numbers with 1- to 4-digit numbers that are more appropriate or convenient for your company.
Operator	Assign or remove operator positions, and program operator features (such as Operator Hold Timer or QCC options).
LinesTrunks	Program line/trunk options.
Extensions	Program extension features (such as line assignments).
Options	Program system-wide features (such as Transfer Return).

Table 2-4. Description of Options in System Programming Menu—*Continued*

Option	Description
Tables	Program features that require entering information in a table (such as Allowed Lists and Disallowed Lists).
AuxEquip	Program auxiliary equipment connected to the system (such as loudspeaker paging and fax).
NightSrvce	Program Night Service features.
Labeling	Program the labels shown on display telephones (such as Posted Messages and entries in the System Directory).
Data	Specify extensions that need voice and data capability.
Print	Print system programming reports (such as system configuration and extension assignments).
Cntr-Prog	Perform centralized telephone programming (assign features to specific buttons on telephones).
Language	Select the language for: the system, 4400-Series or MLX display telephones, SMDR reports, and print reports.

Exiting System Programming

Use the information in this table to return to the System Programming menu, the Main menu (Menu Mode screen), or the Home screen from within a programming screen.

Table 2-5. Selections to Return to the System Programming Menu

To return to...	Select...
Previous menu	**Back**
Main menu	**Menu**
Normal Call-Handling	MLX-20L Console: **Home** 4424LD+ Console: **Exit**

About WinSPM

3

Contents

Overview 3-1

System Requirements 3-2

Installing the WinSPM Software 3-3

Setting Up your Desktop 3-5
- Setting Font Size. 3-5
- Setting the Modem Definition 3-5
- Setting the Start Bar “Auto Hide” Property/Changing the Screen Resolution. 3-7

Defining Your Password. 3-8

Setting Up a Site 3-9
- Direct Connection 3-9
- Internal Connection. 3-11
- External Connection 3-12
- Manual Connection. 3-13
- Connecting a PC to a MERLIN MAGIX Integrated System 3-14
- Direct Local Connection 3-14
- About Surrogate Mode Programming 3-15
- Internal Connection. 3-16
- External Connection 3-16

About the WinSPM Main Screen Options 3-17

Using View 3-18

Using Tools 3-18

Using Quick Access 3-19
- Allowed/Disallowed Lists. 3-19
- Automatic Route Selection (ARS). 3-20
- Call Pickup Groups 3-20
- Calling Group 3-20
- Capture Data. 3-22
- Coverage Groups 3-23
- Labeling 3-23
- Personal Lines 3-23
- Set Date and Time 3-24
- Speed Dial 3-24
- Station Responding Test. 3-25
- System Inventory 3-25
- Telephone Programming 3-25

- Telephone Restrictions 3-26

WinSPM Help 3-27

Using Standard SPM Mode 3-27
- Displaying the SPM Main Menu 3-27
- About the Emulation Window 3-28
- Options in the SPM Main Menu 3-30

Basic System Management Procedures 3-31
- Backup 3-31
- Boards 3-33
- Browse 3-36
- Language 3-38
- Maintenance 3-39
- Pass-Thru 3-39
- Password 3-41
- Print Options 3-43
- Restore 3-44
- System Programming 3-46

Board Renumbering with the
016 MLX Module 3-46
- Adding a 016 Module at the End of an Existing System 3-47
- Replacing Two 008 MLX Modules with One 016 MLX Module When the 008 MLX Modules are the Last Two Modules in the System 3-48
- Replacing a 008 MLX Module with a 016 MLX Module 3-49
- Replacing a 008 OPT Module with a 016 MLX Module 3-51
- Replacing a 016 T/R Module with a 016 MLX Module 3-53

About WinSPM

3

Overview

The Windows System Programming and Maintenance (WinSPM) software package offers an alternate method of programming the MERLIN MAGIX Integrated System using a PC. This method frees the system programming console for other uses and also provides the following additional functions:

- Backing up system programming information.
- Restoring system programming information from a backup.
- Printing, viewing, and storing reports.
- Programming the system remotely.
- Programming in surrogate mode.
- Creating button labels.
- Storing print report data and/or user annotation notes using Notepad Editor.

WinSPM provides two modes for programming your MERLIN MAGIX Integrated System:

- **Quick Access Mode**. A graphical interface (GUI) for those tasks most commonly performed by the System Manager–for example, adding or deleting members of groups, performing system inventories, creating reports, administering multiple systems, making station labels shown on display telephones, and more.
- **Standard SPM Mode**. Provides an emulation display of the system programming console. It allows basic SPM programming of the MERLIN MAGIX system and supports SPM programming for options not included in Quick Access mode.

WinSPM is available on CD-ROM. The WinSPM software can be used directly from the CD-ROM on your PC. If your PC has a hard disk, however, you should install WinSPM from the CD-ROM onto the hard disk.

This guide describes the use of WinSPM in Standard SPM Mode. If you are using Quick Access, refer to the documentation and online help provided with the WinSPM application for additional information.

System Requirements

WinSPM is designed to function with:

- Windows 95, Windows 98, or Windows NT Release 4.0 or higher
- IBM-compatible Personal Computer with a Pentium 100 or more (Pentium II or higher recommended)
- 40 MB or more of available space on the hard drive
- 32 MB of RAM (64 MB recommended)
- 1 COM Port
- Modem with auto baud capabilities (PEC 2569-839 recommended), with specific drivers loaded
- Video Card that supports at least 256 colors (65536 or more recommended)

NOTE From the Display Properties window on your Windows desktop, be sure to select Small Fonts for the Font Size option. See "Setting Font Size" under "Setting Up your Desktop".

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 feet 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 feet 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-232-D cables

- Internal or External connection:
  - Modem that supports 1200- or 2400-bps connections
  - Modem cable

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

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

Installing the WinSPM Software

The WinSPM software is installed from the CD-ROM.

1. Insert the CD-ROM into your CD-ROM drive.
2. From the Start menu, select Run.
3. When prompted for the file or folder you want to open, type D:\setup.exe. (If your CD-ROM drive is set up as a different drive letter, replace D as necessary.)

Installation creates a program group named “Lucent Solutions.” This group contains a folder titled “WinSPM,” which contains an icon titled “WinSPM.” Clicking on this icon starts the WinSPM application. Upon installation of the WinSPM software, the WinSPM main screen appears (see “About the WinSPM Main Screen Options” on page 17 for more information):

Figure 3-1. WinSPM Main Screen

After WinSPM is installed, the First Time User Wizard (FTUW) assists you through the following four steps described in detail on the following pages:

- Setting Up Your Desktop
- Defining Your Password
- Setting Up a Site
- Connecting a PC to the MERLIN MAGIX Integrated System

Setting Up your Desktop

Setting up your desktop includes the following tasks:

- Setting Font Size
- Setting the Modem Definition
- Setting the Start Bar Auto Hide Property/Changing the Screen Resolution

Setting Font Size

At present, WinSPM does not support large fonts. Some fonts may be virtually unusable if Large Fonts is selected on the settings tab of the Display Properties window. To correct this setting:

1. Anywhere on your desktop, right-click and select Properties on the pop-up menu. The Display Properties window appears.
2. Click the Settings tab.
3. In the Font Size field, select Small Fonts from the drop-down list box.
4. Click Apply.
5. To close the window, click OK.

Setting the Modem Definition

If you are using a modem to connect to a MERLIN MAGIX Integrated System, and you have set the Maximum Speed to above 2400 baud, the modem in the MERLIN MAGIX Integrated System may time-out before your modem has enough time to step down to 2400 baud and establish communications. For this reason, it is suggested that you use a modem definition with a Maximum Speed of 2400 baud. You can create a new modem definition while retaining your original, higher speed definition if you choose.

Modifying an Existing Modem Definition

If your system is dedicated for connection with WinSPM to the MERLIN MAGIX Integrated System for programming and the modem on that system will *not* be used for any other purpose, do the following:

1. From the desktop, click Start.
2. Go to Settings and choose Control Panel.
3. Double-click the Modems icon. A list of modems configured in the system is displayed.
4. Highlight the name of the modem that is used to connect to the MERLIN MAGIX Integrated System and click the Properties button.
5. On the General tab, change the value in the drop-down list under Maximum Speed to 2400.
6. Verify the following settings:

Connection Preferences

Data Bits: 8

Parity: None

Stop Bits: 1

[X] Wait for dial tone before dialing

Advanced

[X] Use Flow Control

[X] Hardware (RTS/CTS)

7. To save the new settings, click OK.
8. To close the Modem Properties dialog box, click Close.
9. From the Control Panel, click File, then choose Exit to close the Control Panel and return to the Windows desktop.

Adding a New Modem Definition

If the system you are using is not dedicated for connection with WinSPM to the MERLIN MAGIX Integrated System for programming and the modem on that system can be used for other purposes, do the following:

1. From the Windows desktop, click Start.
2. Go to Settings and choose Control Panel.
3. Double-click the Modem icon. A list of modems configured in the system is displayed.
4. Take note of the name of the modem that is currently being used in the system to make connection to the MERLIN MAGIX Integrated System.
5. Press the Add button. The Install New Modem Wizard appears.
6. Select the “Don’t detect my modem” check box and click Next.
7. Highlight the name of the modem manufacturer for your modem.
8. Highlight the name of your modem in the Models list and click Next.
9. Select the COM port that corresponds to the COM port used by your modem and click Next.
10. Once your modem is set up successfully, click Finish to complete the operation. The new modem now appears in the list of modems on the Modem Properties form (usually with the same name as the modem identified in Step 4) with a #2 after it.
11. Highlight the name of the new modem and click Properties.
12. On the General tab, change the value in the drop-down list under Maximum Speed to 2400.

13. Verify the following settings:

    Connection Preferences

    Data Bits: 8

    Parity: None

    Stop Bits: 1

    [X] Wait for dial tone before dialing.

    Advanced

    [X] Use Flow Control

    [X] Hardware (RTS/CTS)

14. To save the new settings, click OK.
15. To close the Modem Properties dialog box, click Close.
16. From the Control Panel, click File, then choose Exit to leave the Control Panel and return to the Windows desktop.

NOTE Be sure to always select the new modem from the list presented during connection to WinSPM.

Setting the Start Bar "Auto Hide" Property/Changing the Screen Resolution

Some WinSPM screens may be difficult to use in 640x480 resolution because they use the full height of the screen. For this reason, you must either turn "Auto hide" on for the Taskbar or increase your screen resolution settings. If you cannot see the OK button at the bottom of the screen, perform one of the following procedures.

Setting the Start Bar "Auto hide" Property

1. Right click an area of the Taskbar that is not a button. By default, the Taskbar is located at the bottom of the screen.
2. Select "Properties" from the pop-up menu.
3. On the Taskbar Properties dialog box, make sure that the "Auto hide" check box is selected.
4. Click Apply, then click OK. The Taskbar disappears. To bring up the Taskbar, simply move your mouse to the edge of the screen where it was previously displayed.
5. You should now be able to see the OK button. Simply click it to continue your first-time execution of WinSPM.

Changing the Screen Resolution

1. On the Taskbar, click Start.
2. Select Settings, then Control Panel.
3. Click the Display icon.
4. When the “Display Properties” dialog box appears, click the Settings tab.
5. Move the Desktop Area slider so that the resolution setting is higher than 640 x 480.
6. Click Apply.
7. You should now be able to see the OK button. Simply click it to continue your first-time execution of WinSPM.

Defining Your Password

There are two passwords in WinSPM:

- **Application Password**. There is an application-level password that serves as a security measure for accessing the WinSPM software itself. You are prompted to enter this password during the application login. Any characters that can be entered with the keyboard are acceptable. An asterisk displays for each password character entered. Since the actual password characters are not displayed, you are prompted to reenter your password for confirmation.
- **System Password**. A password is always required to establish a modem connection with the MERLIN MAGIX Integrated System. You can perform remote system programming only if you enter the correct password. (See “Password” on page 3-41 for details on establishing your system password.)

SECURITY ALERT:

- *The password characters do not appear on the screen as you type them.*
- *Use a minimum of five characters.*
- *Passwords should consist of a random, non-repetitive, hard-to-guess sequence of characters.*

Setting Up a Site

To use the WinSPM software, your PC must be connected to the MERLIN MAGIX Integrated System directly via a serial port on your PC; otherwise you must connect to the MERLIN MAGIX system's internal modem using your PC's modem.

Once you install WinSPM on your PC, the First-Time User Wizard guides you through setting up your application password and using the Site Setup option to create "sites" that correspond to the MERLIN MAGIX Integrated System that you are responsible for programming. Each site can be labeled with as much information as you need to differentiate one site from another.

When you set up a site, you must first determine how your PC will connect to the MERLIN MAGIX Integrated System you want to program. A site can have multiple connection types set up. There are four connection types available (setup instructions for each type are provided on the following pages):

- **Direct Connection**. A serial port on your PC is connected directly to the MERLIN MAGIX system programming jack—the lower modular RS-232 jack on the processor module.
- **Internal Connection**. You are using a modem (either connected to or built into your PC) that is connected to the MERLIN MAGIX Integrated System (for example, via a 016 T/R module) to access the MERLIN MAGIX internal modem.
- **External Connection**. You are using a modem (either connected to or built into your PC) and using a dial-up connection to access the MERLIN MAGIX internal modem. The External Connection type requires use of the Remote Access feature to allow you to connect to the MERLIN MAGIX programming port without manual intervention.
- **Manual Connection**. You are using a modem (either connected to or built into your PC) and using a dial-up connection to access the MERLIN MAGIX internal modem. The Manual Connection is used when you must reach the MERLIN MAGIX programming port by placing a call to the site and the person who answers transfers your call to the programming port.

Direct Connection

To set up a site for a Direct Connection, follow these steps:

1. From the Site Setup screen, click Add. The cursor moves to the Site Name field.
2. Type in the Site Name you wish to use and press the TAB key. Site Names are limited to 30 characters. You may only use characters that are acceptable for file names in the Windows environment.

3. Complete the following fields to help differentiate this site from any other site(s) you may want to add. These fields are not required; therefore, you may fill in as many or as few as you determine necessary:
   - Address
   - City
   - State
   - Postal Code
   - Country
   - Contact
   - Telephone
   - Notes
4. Click the Direct Connection tab.
5. Select the Enabled check box. A check mark appears in the box and the COM Port drop-down list box is no longer grayed out.
6. Click the arrow located on the right-hand side of the COM Port drop-down list box to get a list of the available COM ports on your PC. Click once on the number that corresponds to the COM port on your PC that is connected to the MERLIN MAGIX system programming port.
7. For MERLIN MAGIX systems or MERLIN LEGEND systems Release 3.0 and later, make sure that 2400 is shown in the Baud Rate combo box. For MERLIN LEGEND systems Release 1.0/ 2.0, 1200 baud is recommended.
8. If you want to add another site, click Add and begin on Step 2 in the process for the appropriate connection type for the next site.
9. When you finish adding sites, click OK.

NOTES

- If you get a message indicating that the cable between your PC and the communications system is not connected, check to be sure that the cable is connected properly. If the cable is connected properly, try disabling Direct Connection Detection in the Options screen.
- If you have multiple modems installed in your system, after clicking OK, you may be prompted to select the modem you want to connect with.
- Clicking CANCEL from the Connection Selection screen causes you to return to either the Main screen or the First-Time User Wizard, depending on from where the screen was started.

Internal Connection

To set up a site for an Internal Connection, follow these steps:

1. Using the instructions packaged with your PC modem, verify that the software and hardware flow control is disabled in the modem properties. This is required when connecting to a MERLIN MAGIX Release 1.5 or later system, and is recommended for all releases of the communications system.
2. From the Site Setup screen, click Add. The cursor moves to the Site Name field.
3. Type in the Site Name you wish to use and press the Tab key. Site Names are limited to 30 characters. You may only use characters that are acceptable for file names in the Windows environment.
4. Complete the following fields to help differentiate this site from any other site(s) that you may want to add. These fields are not required; therefore, you may fill in as many or as few as you determine necessary:
   - Address
   - City
   - State
   - Postal Code
   - Country
   - Contact
   - Telephone
   - Notes
5. Click the Internal Connection tab.
6. Select the Enabled check box. A check mark appears in the box and the Dial String dialog box is no longer grayed out.
7. Be sure that the Dial String check box displays *10.
8. If you want to add another site, click Add and begin on Step 2 in the process for the appropriate connection type for the next site.
9. When you finish adding sites, click OK.

NOTES
- If you have multiple modems installed in your system, after clicking OK, you may be prompted to select the modem you want to connect with.
- Clicking CANCEL from the Connection Selection screen causes you to return to either the Main screen or the First-Time User Wizard, depending on from where the screen was started.

External Connection

To set up a site for an External Connection, do the following:

1. Using the instructions packaged with your PC modem, verify that the software and hardware flow control is disabled in the modem properties. This is required when connecting to a MERLIN MAGIX Release 1.5 or later system, and is recommended for all releases of the communications system.
2. From the Site Setup screen, click Add. The cursor moves to the Site Name field.
3. Type in the Site Name you wish to use and press the Tab key. Site Names are limited to 30 characters. You may use only characters that are acceptable for filenames in the Windows environment.
4. Complete the following fields to help differentiate this site from any other site(s) that you may want to add. These fields are not required; therefore, you may fill in as many or as few as you determine necessary:
   - Address
   - City
   - State
   - Postal Code
   - Country
   - Contact
   - Telephone
   - Notes
5. Click the External Connection tab.
6. Select the Enabled check box. A check mark appears in the box and the Dial String dialog box is no longer grayed out.
7. Edit the contents of the Dial String dialog box for the exact dial string the modem will need to dial to access the remote MERLIN MAGIX administration port. The dial string must include the Remote Access line, the barrier code (if required), and the dial code for the MERLIN MAGIX admin port (*10). Use commas to create necessary pauses in the dial string.

   Example: You are connecting to a remote MERLIN MAGIX Integrated System via a modem through the Remote Access line 800 555-9999.
   The Remote Access line is set up with barrier code 1234 for access to the remote dial tone. The site from which you are dialing requires you to dial 9 to get an outside line. Using commas for pauses in the dial string, the dial string would be 918005559999,,,,,1234,*10.
8. If you want to add another site, click Add and begin on Step 2 in the process for the appropriate connection type for the next site.
9. When you finish adding sites, click OK.

NOTES

- If you have multiple modems installed in your system, after clicking OK, you may be prompted to select the modem you want to connect with.
- Clicking CANCEL from the Connection Selection screen causes you to return to either the Main screen or the First-Time User Wizard, depending on from where the screen was started.

Manual Connection

To set up a site for a Manual Connection, do the following:

1. Using the instructions packaged with your PC modem, verify that the software and hardware flow control is disabled in the modem properties. This is required when connecting to a MERLIN MAGIX Release 1.5 or later system, and is recommended for all releases of the communications system.
2. From the Site Setup screen, click Add. The cursor moves to the Site Name field.
3. Type in the Site Name you wish to use and press the Tab key. Site Names are limited to 30 characters. You may use only characters that are acceptable for filenames in the Windows environment.
4. Complete the following fields to help you differentiate this site from any other site(s) that you may want to add. These fields are not required; therefore, you may fill in as many or as few as you determine necessary:
   - Address
   - City
   - State
   - Postal Code
   - Country
   - Contact
   - Telephone
   - Notes
5. Click the Manual Connectiontab.
6. Click the Enabled check box. A check mark appears in the box and the Dial String dialog box is no longer grayed out.
7. If you want to add another site, click Add and begin on Step 2 in the process for the appropriate connection type for the next site.
8. When you finish adding sites, click Apply.

When using Manual to connect, a dialog box with an OK button appears. When you see this box, place a voice call to the system on a regular line and ask the operator to transfer you to the MERLIN MAGIX programming port by dialing *10. When you hear the modem answer tone, click OK to complete the connection and then hang up the handset.

NOTES

- If you have multiple modems installed in your system, after clicking OK, you may be prompted to select the modem you want to connect with.
- Clicking CANCEL from the Connection Selection screen causes you to return to either the Main screen or the First-Time User Wizard, depending on from where the screen was started.
- While setting up a Manual Connection, you will also be prompted to set the Maximum Speed for connection. It is recommended that you select 2400.

Connecting a PC to a MERLIN MAGIX Integrated System

There are three ways to connect to the MERLIN MAGIX system:

- Direct Local Connection
- Internal Connection
- External 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 6-2. (The upper jack is reserved for the SMDR printer.)

For direct local connections, the system supports speeds of 1,200 and 2,400 bps.

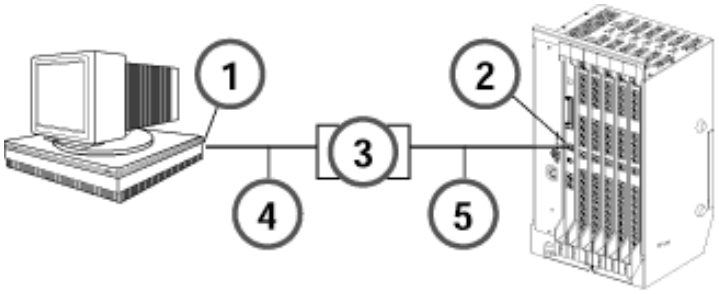


Figure 3-2. Direct Connection, PC Less Than 50 Feet Away

1 Serial Communications Port

2 System Programming Jack

3 355AF Adapter

4 RS-232

5 D8W

To connect a PC more than 50 feet from the control unit, see “Connecting a PC More Than 50 Feet (15.2 m) Away” in the I*nstallation Guide*.

NOTE You must use a direct local connection to program in surrogate mode. See “About Surrogate Mode Programming” for more information.

About Surrogate Mode Programming

Surrogate mode allows qualified service personnel to perform system programming at an off-site service location. The actual system hardware does not have to be installed -- the programmer needs a power supply, carrier, processor, and 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, telephones, and other communications equipment 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 system.

Internal Connection

For an internal 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 a T/R jack on a 016 T/R module, or to a jack that has been programmed for T/R on a 016 ETR module in the control unit, as shown in Figure 6-4.

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

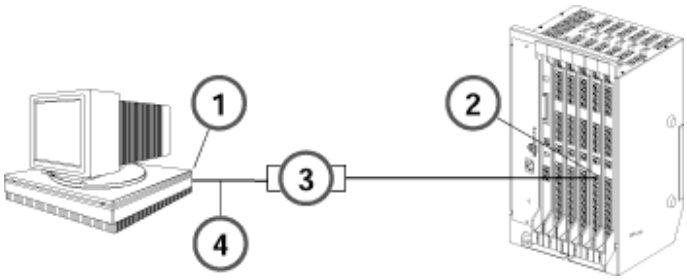


Figure 3-3. Connecting a Modem to a T/R Extension Jack

1 To Central Office or Serving Facility

2 CO LInes

3 CO Line Protector

4 Network Interface

External Connection

For an external 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 6-5.

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

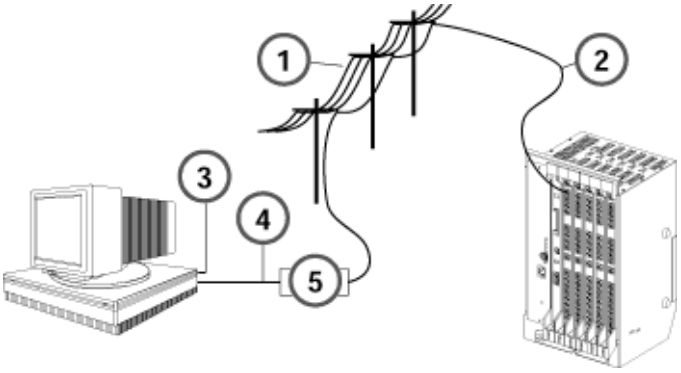


Figure 3-4. Connect to the MERLIN MAGIX Internal Modem from a Remote Location

1 Public or Private Telephone Network

2 Incoming Trunk Line

3 Serial Communications Port

4 RS-232

5 Modem

About the WinSPM Main Screen Options

The following options are available from the left hand panel on the WinSPM Main Screen:

- **Site Setup**. Launches the Site Setup screen which depicts all of the sites defined in the WinSPM application. Used to set up a new site or modify an existing site.
- **Disconnect**. Disconnects you from a MERLIN MAGIX Integrated System once a connection has been established.
- **Standard SPM**. Launches the Standard SPM Mode. See “Using Standard SPM Mode” for more information.
- **Pass-Thru**. This icon appears if a 100R INA module is installed and you are not connected using a Direct Connection. It will launch a terminal emulation window, allowing the user to access the “command line” administration of the 100R INA module.
- **View**. Enables you to access the Log Viewer and browse notes and reports.
- **Settings**. Enables you to define password, options, and TAPT settings.
- **Tools**. Enables you to access the backup, restore, and convert features.

- **Quick Access**. Enables you to access many common features including: Allowed/Disallowed Lists, Automatic Route Selection, Call Pickup Groups, Calling Groups, Capture Data, Coverage Groups, Labeling, Personal Lines, Set Date & Time, Speed Dial, System Inventory, Telephone Programming, Telephone Restrictions.

Using View

WinSPM provides the View interface which allows you to browse and view, save and/or print reports and notes saved in WinSPM. The Tools option is available from the left-hand panel on the WinSPM Main Screen. For instructions on performing these tasks, refer to "Browse" on page 3-36.

Using Tools

WinSPM provides the Tools interface which allows you to complete common system tasks in an extremely user-friendly manner. The Tools option is available from the left-hand panel on the WinSPM Main Screen. For instructions on performing these tasks, refer to "Basic System Management Procedures" on page 3-31.

The following tasks can be performed from the Tools option:

- **Backup**. The Backup option is used by qualified service personnel to create a file of system programming information either in a specified directory (on the hard drive of the PC) or on a floppy disk. For detailed instructions, refer to "Backup" on page 3-31.
- Restore. The Restore option is by qualified service personnel to load system programming from either a disk or from the hard disk into the processor module memory. For detailed instructions, refer to "Restore" on page 3-44.
- Browse. The Browse option is used to browse through reports and notes saved in WinSPM. For detailed instructions, refer to "Browse" on page 3-36.

Using Quick Access

WinSPM provides the Quick Access interface which allows you to complete common tasks in an extremely user-friendly manner. The Quick Access tasks are available from the left-hand panel on the WinSPM Main Screen. Overviews of these tasks are provided in this section. For more information on how to use Quick Access, refer to the documentation and online help provided with the WinSPM application.

The Quick Access window displays a series of large graphic buttons representing each of the following supported Quick Access tasks:

- Allowed/Disallowed Lists
- Automatic Route Selection
- Call Pickup Groups
- Calling Groups
- Capture Data
- Coverage Groups
- Labeling
- Personal Lines
- Set Date and Time
- Speed Dials
- System Inventory
- Telephone Programming
- Telephone Restrictions

NOTE For additional information on programming your MERLIN MAGIX Integrated Systems in Quick Access mode, refer to the documentation and online help provided with the WinSPM application. For information on programming your MERLIN MAGIX Integrated System in Standard SPM Mode, see "Using Standard SPM Mode" on page 27.

Descriptions of each of the Quick Access tasks are provided in the following sections.

Allowed/Disallowed Lists

Used in conjunction with Calling Restrictions (Outward and Toll), an Allowed List is a list of numbers that the caller is allowed to dial, despite restrictions. For example, an Allowed List assigned to an outward-restricted extension can allow calls to specific local numbers or toll numbers. For toll-restricted extensions, an assigned Allowed List can allow calls to specific area codes and/or exchanges needed for daily tasks.

A Disallowed List is a list of local or toll numbers that the extension user is not allowed to dial, even if the extension is otherwise unrestricted. Disallowed Lists can be used as an alternative to or in conjunction with Calling Restrictions.

Both Allowed Lists and Disallowed Lists are assigned to individual extensions. Disallowed Lists can also be used in conjunction with Remote Access to restrict calls made through the system from remote locations. In this case, Disallowed Lists can be assigned either to specific Remote Access barrier codes or (if barrier codes are not used) to specific types of lines/trunks (all Tie/ Direct Inward Dialing (DID) and all non-Tie/non-DID trunks). For more information, see “Allowed Lists/Disallowed Lists” in *Feature Reference*.

Automatic Route Selection (ARS)

ARS allows outgoing calls to be dynamically routed over selected facilities after dialing an ARS access code. This enables the system to select the least expensive route for each call. ARS is available only in Hybrid/PBX mode.

Programmable lists, called tables, indicate the desired routes (line/trunk facilities) for specified area codes and/or exchanges. There is a different ARS table for each type of call (local, toll, special number, and so on). The tables are chosen according to the telephone number digits that are dialed by a user. Each ARS table has a particular pool to which it routes calls. For more information, refer to “Automatic Route Selection” in *Feature Reference.*

Call Pickup Groups

An extension that is a member of a Call Pickup Group can program a button on the telephone or dial a feature code to pick up a call ringing on the telephone of any other member extension in that group. There is a limit of 30 groups with15 extensions per group. An extension may be a member of only one Pickup Group. For more information, refer to “Pickup” in *Feature Reference*.

Call Pickup Groups contain the following:

- **Available Extensions**. The list of extensions in the system. Double-click or use the right-arrow button to move extensions into the Selected Extension.
- **Selected Extensions**. The list of extensions that are members of the Call Pickup Group that is selected with the tabs. Double-click or use the right-arrow button to remove extensions to the Available Extensions. Note that this list is limited to 15 extensions per group.
- **Group Number**. Select the Call Pickup Group to display its members in the Selected Extensions list box.

Calling Group

This feature is used to define the extensions that are members of a Calling Group, and to assign the lines/trunks pools that you want to ring directly into this Calling Group. For more information, refer to “Group Calling” in *Feature Reference.*

From the Calling Group Quick Access screen, you pick the Calling Group you wish to modify by highlighting it. There are seven tabs able to be modified for each Calling Group.

These are: General, Primary Delay, Overflow, Queue, Members, Lines & Pools, and Coverage.

- General:
  - **Group Type**. Choose from the drop-down list box.
  - **Hunt Type**. Allows you to specify whether the Hunt Type is circular, linear, or most available. Choose from the drop-down list box.
  - **Secondary Delay Announcement**. Select from the drop-down list box the extension to be used as a secondary delay announcement.
  - **Delay Interval**. Select an interval from 0-900 seconds for the secondary delay.
  - **Delay Announce Repeat**. Select Yes or No if you wish the secondary delay.
  - **Message Waiting Receiver Extension**. Select the extension at which you wish to light a message waiting light if the group is covered by a voice mail box.
- Primary Delay:
  - Select the extensions you want to provide primary delay announcements for the chosen Calling Group.
- Overflow:
  - **Overflow Coverage Calling Group Number or QCC LDN extension**. From the drop-down list box, choose a Calling Group or the QCC queue that you want to provide overflow coverage for this Calling Group.
  - **Overflow Threshold (Calls)**. Choose the number of calls (1-99) that are allowed to stay “queued” in this Calling Group before “overflowing.”
  - **Overflow Threshold Time (seconds)**. Choose the number of seconds (0-900) the oldest waiting call must wait before overflowing.
  - **Prompt-Based Overflow**. Choose Yes or No to allow or disallow a waiting caller the ability to press the pound (#) key on their telephone to initiate overflow.
- Queue:
  - **Calls In Queue Alarm Thresholds (seconds)**. For each choice, choose the flash rate interval. for example:
    - If the number of waiting calls is fewer than the value programmed for Threshold 1 or drops below that level, the LED is unlit.
    - If the number of waiting calls is greater than or equal to the Threshold 1 value, but less than the Threshold 2 value, the LED flashes.
    - If the number of waiting calls is greater than or equal to the Threshold 2 value, but fewer than the value for Threshold 3, the LED winks.
    - If the number of waiting calls is greater than or equal to the highest value, Threshold 3, the LED lights steadily.

    An external alert only signals when the number of calls in the queue is greater than or equal to the programmed Threshold 3 value.

— **External Alert for calls in Queue Alarm**. Choose the adjunct extension associated with the external alert device. There are two choices:

  - An LED on any 4400-Series or MLX telephones can be associated with a Calls-in-Queue Alarm button.
  - An external alert on an MLX telephone using a Multi-Function Module set for Supplemental Alert Adapter operation and programmed as the alert.

— **Queue Control**. Choose the number of calls (0-99) allowed to back up in queue before sending a network busy signal.

- Members:

  — Choose extensions from the list to place them into the selected Calling Group. Note that only the extensions for the tip/ring ports associated with a voice messaging system may be in VMI Calling Groups; there is a system maximum of 20 VMI Calling Groups, and any one Calling Group may have a maximum of 20 members. An extension may be a member of only one Calling Group.

  — Using the non-local UDP (Universal Dial Plan) button, extensions defined in the non-local UDP ranges can be added as a member of a Calling Group. When added to a group, the single non-local extension can be the ONLY member of the group. If there are already “local” members in the group when you attempt to add the Non-Local Extension, you are asked if you want them removed (WinSPM handles the removal).

Capture Data

This feature allows you to read from MERLIN MAGIX in one large batch. This is useful if you are setting up MERLIN MAGIX for the first time or if you are making significant changes. Capture Data reads all of the data needed for each selected Quick Access form.

- **Task Selection**. Check the items that you want to read from the MERLIN MAGIX system. Some of the items are for the whole Quick Access form, some are broken down into the individual tabs that appear on the Quick Access forms. As you check/uncheck items, the estimated number of minutes for completion changes to give you a “best guess” as to how long the reading will take.
- **Baseline Values**. These values help calculate the estimated number of minutes for completion. Some of these values will be changed to the correct values if the data has been retrieved. Other values need to be entered manually. These values are not retained after the Capture Data form is closed.

Coverage Groups

This feature is used to assign or remove an extension from a Coverage Group. A Coverage Group is a group of senders. Group Coverage is an arrangement where calls from a group of senders are redirected to one or more receivers. For more information, refer to “Group Coverage Member Assignments” in the Coverage section of *Feature Reference.*

Coverage Groups include the following:

- **Available Extensions**. The list of extensions in the system. Double-click or use the right-arrow to move extensions into the Selected Extensions.
- **Selected Extensions**. The list of extensions that are members of the Coverage Group that is selected with the tabs. Double-click or use the right-arrow to remove extensions to the Available Extensions.
- **Group Number**. Select the Calling Group Number to display its members in the Selected Extensions list box.

Labeling

This feature allows you to edit the various system labels. System Speed Dial changes are performed separately. A simple dialog box containing the following fields is available.

- **Label Type**. A group of options including: System Directory, Extensions, Adjuncts, Lines and Trunks, Posted Messages, and Group Calling. Select the type for which you want to edit labels.
- **Entry Number**. This field prompt changes to reflect the option you selected for Label Types. Use this field to select the extension number, line, trunk, posted message, or Calling Group that you want to change.
- **Name**. Text for this label. Different label types are limited to different string lengths—for example, extensions and Calling Groups are limited to 7 characters.

NOTE All labels are always printed in capital letters, exactly as they appear on the MERLIN MAGIX display telephones.

Personal Lines

This feature allows you to add lines and pools to buttons on a telephone For more information, refer to “Persona Lines” in *Feature Reference.*

NOTE By default, each added line or pool is programmed on available successive buttons starting with the lowest button on the telephone, and overwrites any programming that may already exist on these buttons.

CAUTION:

After you click the Apply button, you will be able to see where the lines and pools were placed on the telephone. Keep in mind that adding a line that is a member of a pool results in a pool being assigned to the button on the telephone. You cannot assign the same line or pool to more than one button on the telephone twice. Also remember that lines and pools are added on the buttons immediately following the System Access buttons and overwrites any other feature programmed to those buttons.

Set Date and Time

This feature sets the current time and date on the MERLIN MAGIX Integrated System. The dialog box contains the following:

- The PC's date and time.
- The MERLIN MAGIX system date and time, which can be edited and applied back to the MERLIN MAGIX system.
- A Synchronize button that will give you the ability to set the MERLIN MAGIX system date and time to match the PC's.
- An OK button that applies any changes you made to the MERLIN MAGIX system date and time.

Speed Dial

This feature allows you to modify System Speed Dial entries. It consists of a simple display grid containing the following:

- **Speed Dial Code**. A number field defining the system speed dial code (in the range of 600 to 729).
- **Company/Name**. A description of the directory entry.
- **Number**. The number to dial.
- **Display Number**. Select Yes to display the Name when dialing; select No to display the number being dialed.

Use the following buttons to edit the System Speed Dial entries:

- **Add**. Adds a new entry.
- **Modify**. Modifies an existing entry.
- **Delete**. Removes an existing entry.

For more information, refer to "Speed Dial" in *Feature Reference.*

Station Responding Test

For Release 1.5 and later systems, this feature allows you to check the connection between an extension and the system. When you select this test from the maintenance screen, the system sends a request to the telephone at the extension you specify, asking for the telephone's classmark. You can request the Refer to Maintenance and Troubleshooting for details on this test.

System Inventory

This feature offers a report on the MERLIN MAGIX Integrated System hardware configuration. Starting with the processor (installed in slot zero), it obtains the characteristics of the hardware components available in each slot in the MERLIN MAGIX system carrier.

By default, the Hardware Inventory screen lists the Board Type, Hardware Vintage, Firmware Vintage, and Application Vintage of each available control unit module (scroll down for more). To quickly obtain the specifications of a given module, click the module's image. To obtain a total report, click the corresponding Print button.

Use the Print button to view the printed report on the screen (Print Preview). You can either print a paper copy of the report or save the report to a file.

Telephone Programming

Telephone programming allows the centralized programming of a subscriber's telephone. When you select this feature, a window is displayed containing the following elements:

- A list of extensions, labels (if read), and logical IDs. To sort this list, click the arrow on the header bar for the column you want to sort by.
- Notes window. Use this window to create or edit annotations.
- OK button. Highlight the extension you wish to program and click OK. (Double-click the extension to go to the next screen.)
- Print button. Use this button to print the list of extensions, labels, and LIDs.
- Cancel button. Use this button to cancel and return to the previous menu.
- Help button. Use this button to display Help information.

Telephone Restrictions

This feature is used to configure Calling Restrictions for an extension. Calling Restrictions include extension restrictions, Automatic Route Selection (ARS) restriction level, and Forced Account Entry. This feature is also used to assign Allowed Lists and Disallowed Lists to an extension. For more information, refer to “Calling Restrictions” in *Feature Reference.*

This feature includes the following:

- **Authorization Code**. Enter a unique 2 to 11-digit Access code for this extension. (Optional)
- **Restriction Level**. Select Unrestricted, Outward Restrict, or Toll Restrict.
- **Facility Restriction Levels**. Select ARS restriction level (0-6).
- **Delayed Call Forwarding Rings**. Select the number of rings (0-9) before a call is forwarded using the Forward or Follow Me Feature.
- **Allow Trunk-to-Trunk Transfers**. If checked, the extension user must enter an account code before making an outside call.
- **Remote Call Forwarding**. Allows the extension user to forward all calls to an outside telephone number.
- **Pool Dial-Out Codes**. The list of trunk pools that the extension user is allowed to use to make outside calls. A list box appears, plus two buttons (>>> and <<<). To add pools, highlight the pool dial-out code in the Available box and then click the >>> button. To remove pools, highlight one or more in the Selected list box and then click the <<< button.
- **Allowed Lists**. Use to assign one or more Assigned Lists to the extension. Use the Allowed List tab to view the current extensions in that list. Use the ‘Is User’ check box to add/remove the selected extension from the lists. Allowed List defines area codes and exchange prefixes that this extension user is allowed to dial when making an outside call.
- **Disallowed Lists**. Use to assign one or more Unassigned Lists to the extension. Use the allowed list tab to view the current extensions in that list. Use the ‘Is User’ check box to add/remove the selected extension from the lists. Disallowed List defines area codes and exchange prefixes that this extension user is *not* allowed to dial when making an outside call.
- **Show Number List**. If checked, the Allowed or Disallowed List is read from the MERLIN MAGIX system and displayed for the currently selected Allowed/Disallowed List.

NOTES

- The Standard SPM Mode Interface must be used to define Night Service Coverage.
- Automatic Route Selection (ARS) allows outgoing calls to be dynamically routed over selected facilities after dialing an ARS access code (usually 9). This enables the MERLIN MAGIX Integrated System to select the least expensive route for each call based on the area code and prefix that the extension user dials.

WinSPM Help

To access the WinSPM Help screens, perform one of the following:

- Press F1.
- Press Alt+H.
- Click the Help button (when available).

Using Standard SPM Mode

Standard SPM provides an emulation display of the system programming console. It allows all system programming of the MERLIN MAGIX system to be performed from a PC and supports programming for options not included in the Quick Access GUI. In addition, the SPM Main Menu provides four options-- Backup, Boards, Print Opts, and Restore --that are intended for qualified service personnel only and are not available from the system programming console.This section describes how to use the Standard SPM Mode screens.

Displaying the SPM Main Menu

To open WinSPM and display the SPM Main Menu, follow these steps:

1. On your desktop, double-click the WinSPM icon. (Depending on options selected during installation, you might select WinSPM from your Start Menu or Lucent Solutions folder.)
2. Enter your user name and password, then click OK. The WinSPM main screen appears.
3. In the left-hand panel of the WinSPM main screen, click the Connect button. The Connection Selection screen appears.
4. From the Connection Selection screen, click the site name for the site you want to connect to.
5. Click the Connection Type for the session, then click OK.
6. In the left-hand panel of the WinSPM main screen, click the Standard SPM icon. The system programming console appears in the emulation window and the SPM Main Menu appears in the console display area (Figure 3-5).

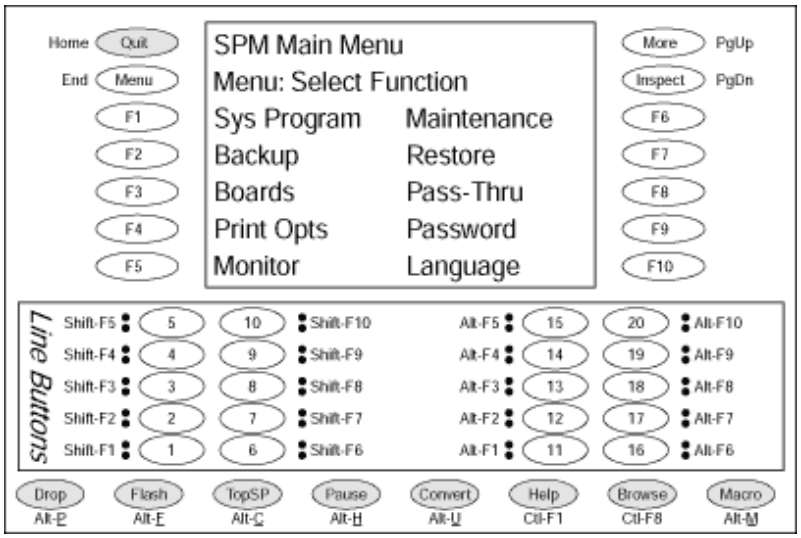


Figure 3-5. Standard SPM Mode Display

About the Emulation Window

The standard SPM Mode screens simulate the programming console. The screen consists of the following:

- A 7-line by 24-character console simulation screen that corresponds to the display area of the MLX-20L or 4424LD+ telephone.
- Four PC keys (Home, End, PgUp, and PgDn) displayed on either side of the console simulation screen. They represent the fixed display buttons on the MLX-20L or 4424LD+ telephone.
- Function keys F1 through F10 displayed on either side of the console simulation screen. They represent the keyboard function keys to use to select the corresponding options. They are similarly located to the telephone buttons on the MLX-20L or 4424LD+ telephone that you would use to select a programming option.
- 20 simulated line buttons displayed below the console simulation screen. Press the key combination on the keyboard to select the corresponding line button.
- 8 labels along the bottom of the screen correspond to buttons on the 4424LD+ or MLX-20L telephone.

NOTE Rather than using the keyboard, you can use your mouse to select any option in the Standard SPM Mode screens.

Table 3-1 describes the function of PC keys in Standard SPM Mode.

Table 3-1. Function of PC Keys in WinSPM

PC Key	MLX-20L	4424LD+	WinSPM Function
Home	Home	Exit	Quit. Exit from WinSPM when you finish with system programming. If you are using a modem, the call is disconnected.
End	Menu	Menu	Return to the WinSPM Main menu.
PgUp	More	>	Display more menu items (when there is another screen and the > symbol appears next to the key).
PgDn	Inspct (MLX- 20L only)		Display the current information that has been programmed for a feature or button. *(There is no fixed Inspct button on the 4424LD+ console. This button must be programmed onto a feature key on the 4424LD+ console.)*
Drop	Drop	Drop	Enter a stop in a speed-dialing sequence. This combination also deletes an entry in a field on any screen, except the one in which you are entering a speed-dialing sequence. *(There is no fixed Drop button on the 4424LD+ console. This button must be programmed onto a feature key on the 4424LD+ console.)*
Flash	Conf	Conf	Flash. Enter a switchhook flash in a speed-dialing sequence.
TopSP	n/a	n/a	TopSP. Return to the top of the System Programming menu.
Pause	Hold	Hold	Pause. Enter a pause in a speed-dialing sequence.
Toggle	n/a	n/a	Toggle modem speed between 1200 and 2400 bps.
Help	n/a	n/a	Help. Display a Help screen about WinSPM operations.
Reset	n/a	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 Ctrl+F5 to clear the screen and return to the WinSPM Welcome screen. Note that using Ctrl+F5 drops the modem connection.
Browse	n/a	n/a	Browse. View print reports saved with Print Opts.
Enter	Enter	Enter	The Enter key on your PC can be used instead of F10 when `Enter` appears as a choice in the console simulation window.
Bksp	Backspace	Backspace	The Bksp key on your PC can be used instead of F9 (Backspace) when `Backspace` appears as a choice in the console simulation window.

Table 3-1. Function of PC Keys in WinSPM—*Continued*

PC Key	MLX-20L	4424LD+	WinSPM Function
Del	Delete	Delete	The Del key on your PC can be used instead of F8 (Delete) when `Delete` appears as a choice in the console simulation window.
↑ ↓ ← →	n/a	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.

Options in the SPM Main Menu

Table 3-2 lists the options in the SPM Main Menu and gives a brief description of each option. Detailed procedures for each option are on the following pages.

Table 3-2. SPM Main Menu Options

Option	Function
`Sys Program`	To program the system.
`Backup`[1]	To make a backup copy of your system programming and store it on a floppy disk or on hard disk.
`Boards`[1]	To show which modules (port boards) are in each slot of the control unit and allows you to assign boards to slots.
`Print Opts`[1]	To direct reports to printer or to the PC for storage on a floppy disk or on hard disk.
`Monitor`	Restricted to use by your technical support organization.
`Maintenance`	Restricted to use by your technical support organization and qualified technicians.
`Restore`[1]	To restore your system programming from floppy disk or from hard disk.
`Pass-Thru`	(IS II/III and 100R INA only) To make a remote connection, through the control unit, to a 100R INA module or IS II/III PC to program applications on the IS II/III PC.
`Password`	To change the password for remote entry into the system
`Language`	To select a language (U.S. English, Canadian French, or Latin American 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.)

1 WinSPM option only. Not available on the system programming console. To be used only by qualified service personnel.

Basic System Management Procedures

This section contains detailed instructions for the following basic system management tasks:

Backup

Boards

Browse

Language

Maintenance

Monitor

Pass-Thru

Password

Print Options

Restore

Instructions are provided for completing each of these task using WinSPM in Standard Mode and where available, using the Tools option from the WinSPM Main Screen. Tasks are listed in alphabetical order in this section. Refer to "Displaying the System Programming Menu from the Console" on page 2-12.

Backup

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

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.

Considerations

Review the following items before you begin the backup procedure:

- The 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 floppy disk, format a DOS disk.
- 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.

Standard SPM Mode Procedure

To perform the backup procedure in the Standard SPM mode, follow the steps below:

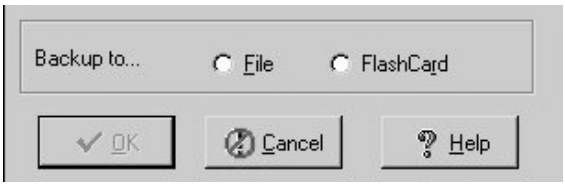
`Backup`→Select `GOTO FLOPPY` or `GOTO HARD DISK`→[Enter]→Specify default filename or Make new file name→[Enter]→ [C] to continue or [Esc] to abort→[Esc] to abort or [Enter] to return to the Standard SPM Main menu

WinSPM Tools Menu Procedure

To perform the backup procedure using the WinSPM Tools Menu, follow the steps below:

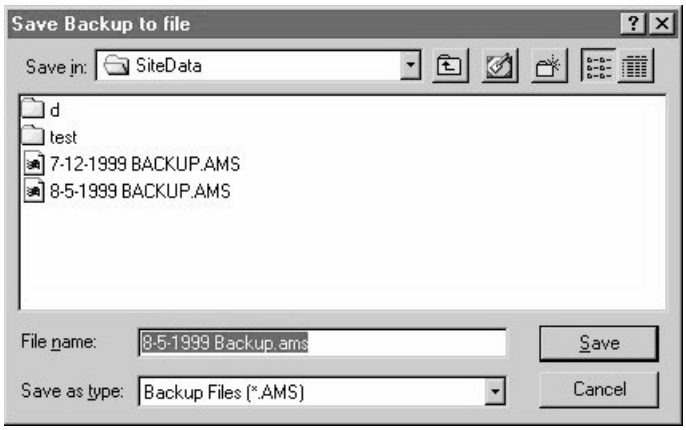
1. From the WinSPM Main window Outlook bar (left-hand panel), select **Tools**.
2. From the Outlook bar (left-hand panel), click the **Backup** icon.

   A selection dialog box displays.



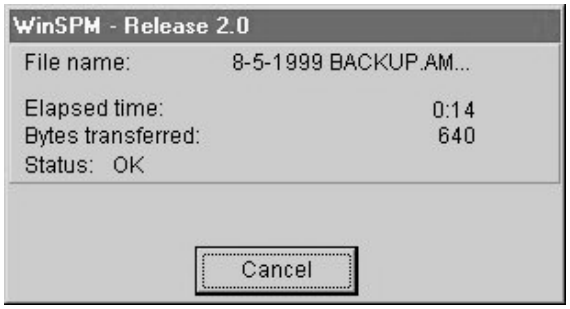
3. Select the File option.
4. Click **OK**.

The Save dialog box displays.



5. Enter the name and location of the file to be saved.
6. Click **Save**.

   The progress dialog box displays.



7. Click **Cancel** to exit.

Boards

The Boards option allows qualified service personnel to add a module 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 modules 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 module type. All modules assigned with the Boards option, including phantom modules, are cleared (unassigned) if you perform a board renumber (`System`→`Board Renum`). See “Board Renumbering with the 016 MLX Module” on page 3-46 for complete instructions for board renumbering when replacing MLX modules.

- You must assign phantom modules to higher slot numbers than those you assign to any real modules. If you assign a phantom module to a lower slot number than a real module, the control unit does not recognize the real module or modules that follow the phantom module.
- If you remove a module but do not replace it, and then perform a board renumber, the control unit will not recognize any modules that follow the empty slot. You must reseat all of the modules to fill the empty slot before you perform the board renumber. See "Board Renumbering with the 016 MLX Module" on page 3-46 for complete instructions for board renumbering when replacing MLX modules.

The Inspect function (PgDn) lets you see which modules have been assigned to slots on the control unit. Note that both phantom modules and real modules appear if you use the Inspect feature. Table 6-3 shows the type of boards that you can select. To see only real module assignments, you must print the System Information report: `System`→More→`Print`→`SysSet-up`.

Table 3-3. Board Types

Board Type	Description
412LUP	4 loop-start line jacks and 12 digital extension jacks with 4 touch-tone receivers; Caller ID
024UPO	24 digital extension jacks
016MLX	16 MLX extension jacks (32 endpoints); upgradeable with PCMCIA card
008MLX	8 MLX extension jacks (16 endpoints)
016ETR	16 ETR extension jacks including 6 with tip/ring functionality with 4 touch-tone receivers
016TRR	16 tip/ring extension jacks with 4 touch-tone receivers
008OPT	008 OPT - 8 tip/ring extension jacks with 2 touch-tone receivers
MERLINMsg	MERLIN Messaging - 11internal tip/ring extension jacks with 2 touch-tone receivers; MERLIN Messaging System resides on this module
100D	24 channels ("virtual" lines/trunks); upgradeable with PCMCIA card
800BRI	8 BRI facilities
408GLM	4 ground-start/loop-start line jacks and 8 MLX extension jacks (16 endpoints); Caller ID; upgradeable with PCMCIA card
100R	24 channels (virtual lines/trunks) with internal CSU; upgradeable with PCMCIA card
100DCD	24 channels (virtual lines/trunks) with internal CSU/DSU; upgradeable with PCMCIA card
800DID	8 DID line jacks
800LID	8 loop-start line jacks, Caller ID
400E&M	4 tie trunks

Follow the steps below to assign modules:

1. At the Standard SPM Mode Main menu, click F3 to select `Boards`.

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

2. Click the function key that corresponds to the module you want to select.

```
Boards:         >
Make a selection
412LUP          016ETR
024UPO          016TTR
016MLX          MsgOPT
008MLX          100D
Back            800BRI
```

NOTE Select 100D for either a 100D-U or a 100 DCD module. When you use the Inspect feature, 100DCD is shown on the list. To see the module that is physically installed, use a print report or inventory screen.

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

```
Boards:
Make a selection
408GLM          400E&M
100R
800DID
800LID
Back
```

4. 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
Back            Enter
```

`module name` = option selected inStep 2

5. Assign or remove the module from the slot entered in the previous Step.

module name	
Enter slot numbers	
(01–17)	
nn	
	Delete
Backspace	Next
Back	Enter

`module name` = option selected in Step 2

`nn` = slot entered in Step 5 (second digit will not display.

- To remove the module type from the specified slot number, click 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, click F9 (`Next`).
- To assign the module type to the specified slot number and assign a different module type to another slot, click F10 (`Enter`).
- To terminate the procedure and assign a different module, click F5 (`Back`) and repeat Steps 2 through 4.
- To view types of modules assigned to all slots, click PgDn (`Inspect`).

6. To save your entry, click F5 (`Back`).

   The programming session terminates and the system restarts.

Browse

The Browse option allows you to browse through reports and notes saved in WinSPM.

Ctrl F8 →Select `hard disk` or `floppy`→F10→Select a Report→ F10→ Esc to Exit

To view the next page of a report, click PgDn.

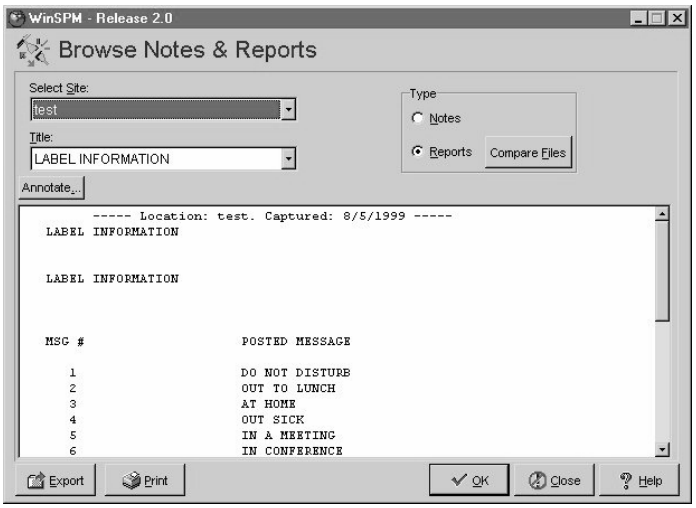
To view the previous page of a report, click PgUp.

To return to the beginning of a report, click Home.

WinSPM

1. From the WinSPM Main window Outlook bar, select **View**.
2. From the Outlook bar, click the **Browse Notes & Reports** icon.

The Browse Notes & Reports dialog box displays.

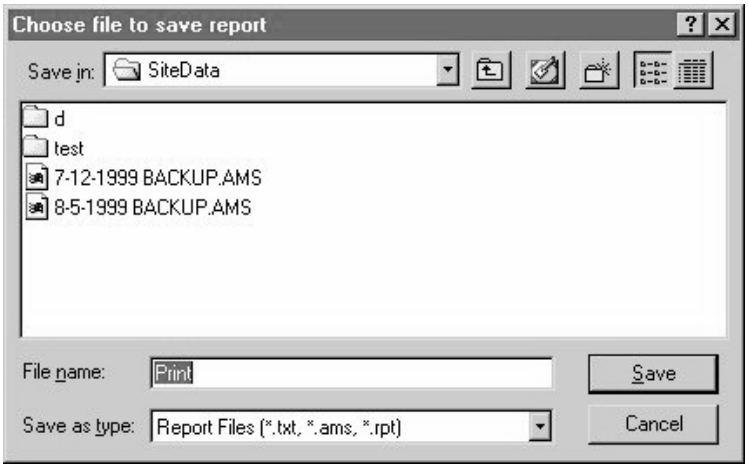


3. From the Type field, select whether you want to view reports or notes.
4. From the drop-down list, select the report/notes you want to view.
5. Click **Print** to print the report to your default printer.

   or

   Click **Export**.

   The Save dialog box displays.



6. Enter the name and location of the file to be saved.
7. Click **Save**.
8. Click **Close** to exit the Browse Notes and Reports dialog box.

Language

A Language attribute in WinSPM specifies whether WinSPM menus, pop-up windows, and other messages are presented in U.S. English, Canadian French, or Latin American Spanish. A Second Language selection option affects messages from the control unit to WinSPM, 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 information pertains to the console window language.

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 for the current session, follow the steps below:

1. At the Standard SPM Mode Main menu, click F10 to select `Language`.

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

2. Click the function key that corresponds to your language selection.

Display Language
Make a Selection:
English
French
Spanish
Back

   The Display Language screen reappears with the language you selected.

3. Click F5 (`Back`) to return to the Standard SPM Mode 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.

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 program IS II/III[1] applications (and a 100R INA module) 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.

A Pass-Thru request must be initiated at a 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.

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 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[2]
- Fax Attendant System (IS III only)
- CONVERSANT Intro (IS III only)

1 Can no longer be ordered.
2 Can be ordered only as an upgrade to existing CAS installations.

To initiate the Pass-Thru, follow the steps below:

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.
```

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.

1. At the SPM Main menu, click [F8] to select `Pass-Thru`.

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

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 click [Enter↵].

```
Welcome to IS-II/III

login:
```

3. Type the IS II/III password, and press Enter↵.

```
Password:
```

4. Type `ams` for the terminal emulation type, and press Enter↵.

```
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 Enter↵, the IS III Main menu appears.

5. To exit from IS II/III programming, click F5 (`Back`).

   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).

To change the modem connection password, follow the steps below:

1. At the Standard SPM Mode Main menu, click F9 to select `Password`.

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

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

```
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 Enter↵ to return to the Standard SPM Mode Main menu.

3. Type the new password (any seven characters). Do *not* press Enter↵

```
Password
Enter New Password
```

⚠ SECURITY ALERT:

- *The password does not appear on the screen as you type it.*
- *Always use the longest length password allowed on the system.*
- *Passwords should consist of a random, non-repetitive, hard-to-guess sequence of characters.*

4. Type the new password again. Do not press Enter↵.

```
Password
Enter New Password again



New Password in use
```

5. To return to the Standard SPM Mode Main menu, click F5 (`Back`).

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.

To direct the output of the system programming reports, follow the steps below:

1. At the Standard SPM Mode Main menu, click F4 to select `Print Opts`.

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

2. Select the target device for the reports.

```
Printer Options
Make a selection
SMDR Port
PC Port



Back
```

3. To return to the Standard SPM Mode Main menu, click F5 (`Back`).

SMDR Port Output

See “Printing System Reports” in *Feature Reference* for more information about the print procedure using the system console and the SMDR port.

PC Port Output

See “Printing Reports” in *Feature Reference* for more information about the print procedure using WinSPM and the PC port.

Restore

The Restore option allows qualified service personnel to load system programming from either a disk 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” on page 3-31.
- Features that were not programmed when the backup file was created are reset to factory settings.
- 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 factory settings that are initialized during a Restart (cold start).
- Restore is terminated under the following conditions:
  - — If fewer boards are listed on the backup disk than on the control unit.
  - — If any real board is out of sequence with the boards listed on the backup 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:

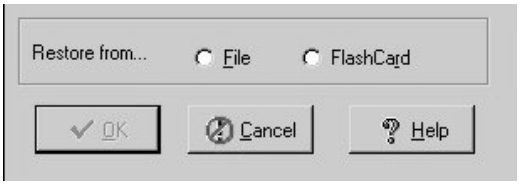
An unsuccessful or terminated restore results in a System Erase (frigid start). All calls are dropped. The system configuration is erased. All system programming is lost and the system returns to the factory settings. If the restore is being done remotely, the connection is dropped immediately.
If this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

Standard SPM [F7]→Select `Restore`→Select `hard disk` or `floppy`→[F10]→Select a file→[Enter]→[Ctrl][F5] to abort→[Enter]

WinSPM

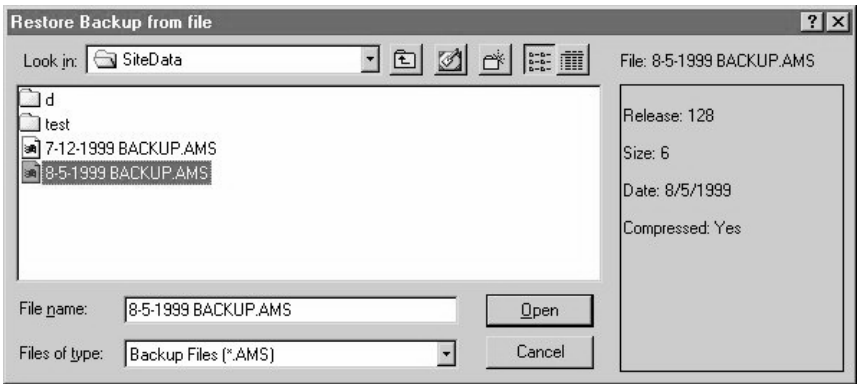
1. From the WinSPM Main window Outlook bar, select **Tools**.
2. From the Outlook bar, click the **Restore** icon.

   A selection dialog box displays.



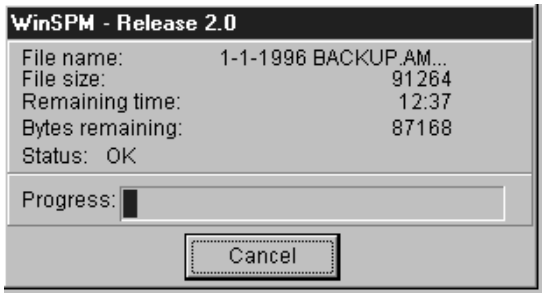
3. Select the File option.
4. Click **OK**.

   The Restore dialog box displays.



5. Enter the name and location of the file to be restored.
6. Click **Open**.

   The progress dialog box displays.



7. Click **Cancel** to exit.

System Programming

The **Sys Program** option provides the System Programming Menu from which you can perform all system programming available on the system programming console.

Procedure

To display the System Programming Menu from the SPM Main Menu, follow these steps:

`Sys Program`→`Start` (System Programming Menu appears)→**More** (to view the second page of the System Programming Menu)→`Back` (to return to previous menu)

See "Description of Options in System Programming Menu" on page 2-12 for a brief description of each option on the System Programming Menu.

Board Renumbering with the 016 MLX Module

CAUTION:

For installed MERLIN MAGIX systems:

- *Replacing one module (such as the 008 MLX module) with the 016 MLX module may result in the shifting of logical IDs and require numerous extension programming changes.*
- *This document includes the supported configurations where you can use the Board Renumber procedure instead of reprogramming the system and includes detailed procedures that you must follow for each configuration.*
- *For instructions on how to remove or install modules in a carrier, please see "Replacing a Module" in the Installation Guide (document number 555-661-140) for details. If you do not have the Installation Guide, you can order one by calling the BCS Publications Center at 1 800 457-1235.*

Your service call may involve installing a 016 MLX module to replace other telephone modules in the MERLIN MAGIX Integrated System. Replacing another module with a 016 MLX module may cause the logical IDs to shift. In some cases, you can use the Board Renumber procedure to reassign the logical ID numbers to the extension and line ports. In other cases, you must completely reprogram the entire system to restore the customer's configuration.

The following are SUPPORTED configurations where you can use Board Renumber procedure to reassign the logical ID numbers:

- Adding a 016 MLX module at the end of an existing system.
- Replacing two 008 MLX modules that are the last two modules in the system with one 016 MLX module.
- Replacing a 008 MLX module with a 016 MLX module.

- Replacing a 008 OPT module with a 016 MLX module.
- Replacing a 016 T/R module with a 016 MLX module.

The procedure for each of the supported configurations is explained in the following sections. If you have a situation that is different from one of these configurations, you must completely reprogram the system. A Board Renumber will not correct the logical ID shift.

NOTES
- You may encounter more than one of these configurations while completing an installation. Be sure to finish one procedure completely before you start the procedure for another configuration. An example of this is when a customer wants to replace one 008 MLX module and one 008 OPT module with two 016 MLX modules. Complete all steps for the 008 MLX procedure before doing the 008 OPT procedure.
- If you are replacing a 016 ETR module with a 016 MLX module, contact the Avaya Customer Care Center at 1 800 628-2888.

CAUTION:
This procedure does not apply for exchanges of any module that includes line/trunk ports. If you must exchange a line/trunk module (408 GS/LS-ID-MLX, etc.), you must completely reprogram the entire system manually to restore the customer's configuration. A Board Renumber procedure should not be used.

Adding a 016 Module at the End of an Existing System

Follow these steps when you are adding a 016 MLX module to the end of an existing system:

1. Back up the system programming to the customer backup card. Use a filename that describes the pre-016 MLX configuration-for example, “pre-016 MLX.”
2. Print a System Setup report. Determine whether the last slot/slots are programmed with phantom modules. If there are phantom modules, the programming for these modules will be removed when the new 016 MLX module is implemented.
3. If no phantom modules are programmed, go to Step 4. If there are phantom modules, print all Extension Information reports for the extensions and MFMs connected to the phantom modules. The extensions must be re-programmed after the new 016 MLX module is implemented.
4. Power down the system and install the 016 MLX module in the next available slot.
5. Power up the system.
6. Perform a Board Renumber procedure (`Sys Program` (F1) →`System` → (F1)→ `Board Renum` (F1)→`Yes` (F2)).
7. Print an Extension Directory report to verify the new extension numbers on the 016 MLX module, and program as necessary to meet customer needs.
8. If phantom modules were programmed, re-program the phantom modules, as needed using the information in the Extension Information reports printed in Step 3.

9. Back up the system to a new filename to keep the first backup intact. Use a filename that describes the post-016 MLX configuration-for example, “post-016 MLX.”

Replacing Two 008 MLX Modules with One 016 MLX Module When the 008 MLX Modules are the Last Two Modules in the System

Follow these steps when you are replacing two 008 MLX modules at the end of the system with one 016 MLX module:

1. Back up the system programming to the customer backup card. Use a filename that describes the pre-016 MLX configuration-for example, “pre-016 MLX.”
2. Print a System Setup report. Determine whether the last slot/slots are programmed with phantom modules. If there are phantom modules, the programming for these modules will be removed when the new 016 MLX module is implemented.
3. If no phantom modules are programmed, go to Step 4. If there are phantom modules, print all Extension Information reports for the extensions and MFMs connected to the phantom modules. The extensions must be re-programmed after the new 016 MLX module is implemented.
4. Print an Extension Directory report. (This report also includes phantom extension numbers.)
5. Print a Group Calling Information report.
6. Print a Group Coverage Information report.
7. Print Extension Information reports for all ports (including MFMs) on the two 008 MLX modules that are being replaced.
8. Identify all Inside Auto Dial, Manual Signal, or Extension Pickup buttons programmed on other telephones that point to the extensions on the 008 MLX module to be replaced. The programming for these buttons will be removed after the Board Renumber procedure. These buttons are not shown on the Extension Information report, so you must identify these buttons with the customer.
9. Power down the system, and replace the two 008 MLX modules with the 016 MLX module.
10. Power up the system.
11. Perform a Board Renumber procedure: `Sys Program` (F1)→`System` (F1) → `Board Renum` (F4) →`Yes` (F2).
12. Print a new Extension Directory report. Verify that the extensions on the new 016 MLX match those of the previous two 008 MLX modules.
13. Program the extensions and MFMs by using the Extension Information reports printed in Step 7.
14. Program any Calling Group or coverage group membership, and any buttons identified in Step 8.
15. If phantom modules were programmed, re-program the phantom modules, as needed using the information in the Extension Information reports printed in Step 3.

16. Back up the system to a new filename to keep the first backup intact. Use a filename that describes the post-016 MLX configuration-for example, “post-016 MLX.”

Replacing a 008 MLX Module with a 016 MLX Module

WARNING:

If you are replacing more than one 008 MLX module, repeat Steps 1-17 for each module. Do not try to replace more than one 008 MLX module at a time, because the system programming will be corrupted and you will need to completely reprogram the entire system manually to restore the customer's configuration.

Follow these steps to replace a 008 MLX module with a 016 MLX module:

NOTE This procedure adds eight additional logical IDs to the system configuration, starting after the first eight ports of the new 016 MLX module. (This occurs because you are adding eight ports to the system for each 016 MLX module that replaces a 008 MLX module.) The second set of eight ports on the 016 MLX module will acquire the extension numbers from the next extension module to the right in the system. This slippage continues for the rest of the extension modules in the system. You must do extensive station renumbering for the extensions that follow the new 016 MLX module.

1. Back up the system programming to the customer backup card. Use a filename that describes the pre-016 MLX configuration-for example, “pre-016 MLX.”
2. Print a System Setup report. Determine whether the last slot/slots are programmed with phantom modules. If there are phantom modules, the programming for these modules will be removed when the new 016 MLX module is implemented.
3. If no phantom modules are programmed, go to Step 4. If there are phantom modules, print out all the Extension Information reports for the extensions and MFMs connected to the phantom modules. The extensions must be re-programmed after the module is implemented.
4. Print an Extension Directory report. (This report also includes phantom extension numbers.)
5. Print a Group Calling Information report.
6. Print a Group Coverage Information report.
7. Print Extension Information reports for all ports (including MFMs) on the 008 MLX module that is being replaced.
8. Power down the system and replace the 008 MLX module with the 016 MLX module.
9. Power up the system.
10. Perform a Board Renumber procedure: `Sys Program` (F1)→`System` (F1)→ `Board Renum` (F4)→`Yes` (F2).

11. Print a new Extension Directory report.

    NOTE Remember that the extension numbers have increased by eight, beginning after the first eight extension numbers on the 016 MLX module.

12. Extension numbers from the module immediately to the right of the 016 MLX module have migrated to the top eight ports of the 016 MLX module. Renumber these ports to unused extensions. This releases the migrated extensions to be moved back into their original slot/ports.
13. Using the Extension Directory report that was printed in Step 4, renumber the extensions back to their original ports. Start the renumbering with the first module after the 016 MLX module. Use the eight extensions that were released in Step 12. These extensions are the extensions originally located on the first eight ports of the module after the replaced module. Use individual or block renumber as needed to perform this operation.
14. Continue to renumber the rest of the extensions back to their original ports until you reach the end of the system.
15. Print a Group Calling Information report, and compare it to the Group Calling Information report you printed in Step 5. Since Calling Group extensions may reverse themselves after a Board Renumber, verify that the extension numbers are in the correct order. If the extensions are reversed, re-program as necessary to put in correct order.
16. Verify the programming on the first eight ports of the 016 MLX module. Use the Extension Information reports that were printed in Step 7.
17. Print a new Group Coverage Information report and compare it to the previous Group Coverage Information report. Verify that the appropriate members are in the group. Program as necessary to match the previously printed report.
18. If additional 016 MLX modules are to be added, repeat ALL of the above steps for each module. If not, go to Step 19.
19. If phantom modules were programmed, re-program the phantom modules, as needed using the information in the Extension Information reports printed in Step 3.
20. Program the new extension ports to meet the customer's needs.
21. Back up the system to a new filename to keep the first backup intact. Use a filename that describes the post-016 MLX configuration-for example, “post-016 MLX.”

Replacing a 008 OPT Module with a 016 MLX Module

WARNING:

If you are replacing more than one 008 OPT module, repeat Steps 1-19 for each module. Do not try to replace more than one 008 OPT module at a time, because the system translations will be corrupted and you will need to completely reprogram the entire system manually to restore the customer's configuration.

NOTE This procedure adds an additional four logical IDs to the system configuration, starting after the first 12 ports of the new 016 MLX module. (This occurs because you are adding four ports to the system for each 016 MLX module.) The four top ports on the 016 MLX module will acquire the extension numbers from the next extension module to the right in the system. This slippage continues for the rest of the extension modules in the system. You must do extensive renumbering for the extensions that follow the new 016 MLX module. This procedure removes any T/R functionality, any features that may have been programmed, and any buttons (for example Inside Auto Dial) that point to those extensions.

Follow these steps to replace a 008 OPT module with a 016 MLX module:

1. Back up the system programming to the customer backup card. Use a filename that describes the pre-016 MLX configuration-for example, “pre-016 MLX.”
2. Print a System Setup report. Determine whether the last slot/slots are programmed with phantom modules. If there are phantom modules, the programming for these modules will be removed when the new 016 MLX module is implemented.
3. If no phantom modules are programmed, go to Step 4. If there are phantom modules, print all Extension Information reports for the extensions and MFMs connected to the phantom modules. The extensions must be re-programmed after the new 016 MLX module is implemented.
4. Print an Extension Directory report. (This report also includes phantom extension numbers.)
5. Print a Group Calling Information report.
6. Print a Group Coverage Information report.
7. Print Extension Information reports for all ports on the 008 OPT module that is being replaced.
8. Identify all Inside Auto Dial, Manual Signal, or Extension Pickup buttons programmed on other telephones that point to the extensions on the 012 (T/R) module to be replaced. The programming for these buttons will be removed after the Board Renumber procedure. These buttons are not shown on the Extension Information report, so you must identify these buttons with the customer.
9. Power down the system and replace the 008 OPT module with the 016 MLX module.
10. Power up the system.
11. Perform a Board Renumber procedure: `Sys Program` (F1)→`System` (F1)→ `Board Renum` (F4)→`Yes` (F2).

12. Print a new Extension Directory report.

    NOTE Remember that the extension numbers have increased by four, beginning after the first 12 extension numbers on the 016 MLX module.

13. Extension numbers from the module immediately to the right of the 016 MLX module have migrated to the top four ports of the 016 MLX module. Renumber these ports to unused extensions. This releases the migrated extensions to be moved back into their original slot/ports.
14. Using the Extension Directory report that was printed in Step 4, renumber the extensions back to their original ports. Start the renumbering with the first module after the 016 MLX module. Use the four extensions that were released in Step 13. These extensions are the extensions originally located on the first four ports of the module after the replaced module. Use individual or block renumber as needed to perform this operation.
15. Continue to renumber the rest of the extensions back to their original ports until you reach the end of the system.
16. Print a Group Calling Information report, and compare it to the Group Calling Information report you printed in Step 5. Since Calling Group extensions may reverse themselves after a Board Renumber, verify that the extension numbers are in the correct order. If the extensions are reversed, re-program as necessary to put in correct order.
17. Verify the programming on the first eight ports of the 016 MLX module. Use the Extension Information reports that were printed in Step 7.
18. Print a new Group Coverage Information report and compare it to the previous Group Coverage Information report. Verify that the appropriate members are in the group. Program as necessary to match the previously printed report.
19. Program the buttons that were identified in Step 8 that previously pointed to the extensions on the 008 OPT module you replaced.

    NOTE Because the extension type changed for the T/R extensions, these buttons may not be needed. Confirm the need with the customer before restoring.

20. If additional 016 MLX modules are to be added, repeat ALL of the above steps. If not, go to Step 21.
21. If phantom modules were programmed, re-program the phantom modules, as needed using the information in the Extension Information reports printed in Step 3.
22. Program the new extension ports to meet the customer's needs.
23. Back up the system to a new filename to keep the first backup intact. Use a filename that describes the post-016 MLX configuration-for example, “post-016 MLX.”

Replacing a 016 T/R Module with a 016 MLX Module

WARNING:

If you are replacing more than one 016 T/R module, repeat Steps 1-15 for each module. Do not try to replace more than one 016 T/R module at a time, because the system translations will be and you will need to completely reprogram the entire system manually to restore the customer's configuration.

NOTE This procedure removes any T/R or single-line telephone functionality, any features that may have been programmed, any buttons (for example Inside Auto Dial) that point to those extensions.

Follow these steps to replace a 016 T/R module with a 016 MLX module:

1. Back up the system programming to the customer backup card. Use a filename that describes the pre-016 MLX configuration-for example, “pre-016 MLX.”
2. Print a System Setup report. Determine whether the last slot/slots are programmed with phantom modules. If there are phantom modules, the programming for these modules will be removed when the new 016 MLX module is implemented.
3. If no phantom modules are programmed, go to Step 4. If there are phantom modules, print all Extension Information reports for the extensions and MFMs connected to the phantom modules. The extensions must be re-programmed after the new 016 MLX module is implemented.
4. Print an Extension Directory report. (This report also includes phantom extension numbers.)
5. Print a Group Calling Information report.
6. Print a Group Coverage Information report.
7. Print Extension Information reports for all ports on the 016 T/R module that is being replaced.
8. Identify all Inside Auto Dial, Manual Signal, or Extension Pickup buttons programmed on other telephones that point to the extensions on the 016 T/R module to be replaced. The programming for these buttons will be removed after the Board Renumber procedure. These buttons are not shown on the Extension Information report, so you must identify these buttons with the customer.
9. Power down the system and replace the 016 T/R module with the 016 MLX module.
10. Power up the system.
11. Perform a Board Renumber procedure: Sys Program (F1)→`System` (F1)→ `Board Renum` (F4)→`Yes` (F2).
12. Print a new Extension Directory report.
13. Print a Group Calling Information report, and compare it to the Group Calling Information report you printed in Step 5. Since Calling Group extensions may reverse themselves after a Board Renumber, verify that the extension numbers are in the correct order. If the extensions are reversed, re-program as necessary to put in correct order.

14. Print a new Group Coverage Information report and compare it to the previous Group Coverage Information report. Verify that the appropriate members are in the group. Program as necessary to match the previously printed report.
15. Program the buttons that were identified in Step 8 that previously pointed to the extensions on the 016 T/R module you replaced.

NOTE Because the extension type changed for the T/R extensions, these buttons may not be needed. Confirm the need with the customer before restoring.

16. If additional 016 MLX modules are to be added, repeat ALL of the above steps. If not, go to Step 17.
17. If phantom modules were programmed, re-program the phantom modules, as needed using the information in the Extension Information reports printed in Step 3.
18. Program the new extension ports to meet the customer's needs.
19. Back up the system to a new filename to keep the first backup intact. Use a filename that describes the post-016 MLX configuration-for example, “post-016 MLX.”