

**Lucent Technologies**  
Bell Labs Innovations



**MERLIN MAGIX™**  
**Integrated System**  
**Release 1.0**

**System Programming**

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Comcode 108522293  
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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 *System Programming* for important information.

## Your Responsibility for Your System's Security

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

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

## Federal Communications Commission Statement

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

## Canadian Department of Communications (DOC) Interference Information

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

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

## Year 2000 Compliance

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

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

## Support Telephone Number

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

## Network Engineering Group

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

## Lucent Technologies Corporate Security

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

## Lucent Technologies Fraud Intervention

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

## Warranty

Lucent Technologies provides a limited warranty on this product. Refer to "Limited Warranty and Limitation of Liability" in Appendix A, "Customer Support Information," of *System Programming*.

# 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.

To reduce the risk of fire, electrical shock, and injury to persons, follow these basic safety precautions when installing telephone equipment:

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

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## About This Guide

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The power and versatility of the MERLIN MAGIX Integrated System is due in part to its many options and features. These options and features have been recorded on system planning forms and initially programmed at the time of installation. Changes in use patterns, the addition of new equipment, or a change in operating mode may necessitate additional system programming.

### Intended Audience

This guide is intended for System Managers—those personnel who plan, program, maintain, and manage the system. It is also intended for qualified support personnel who are responsible for installation and initial system programming.

### How to Use This Guide

This guide contains all the programming procedures you need to enable your system to function at peak efficiency. Refer to the following documents for additional information:

- *Feature Reference* describes features in detail and any feature interaction.
- *System Planning* describes the System Planning Forms and their use.

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

**In the USA only,** Lucent Technologies provides a toll-free customer Helpline 24 hours a day. Call the Helpline at 1 800 628-2888 (consultation charges may apply), or contact your Lucent Technologies 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 Lucent Technologies 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
analog voice and analog data station	analog voice and modem 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

Italics or bold indicate emphasis.

Italics also set off special terms.

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.

### Example

It is *very* important that you follow these steps.



### WARNING:

*Do not remove modules from the carrier without following proper procedures.*

The part of the headset that fits over one or both ears is called a *headpiece*.

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](#)."

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 "Security of Your System: Preventing Toll Fraud: in Appendix A, "Customer Support Information" and "Your Responsibility for Your System's Security" in the "Copyright and Legal Notices" section at the beginning of this document.*

## Related Documents

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

Document No.	Title
<b>System Documents:</b>	
555-710-100	<i>Customer Documentation Package:</i> Consists of paper versions of the <i>System Manager's Quick Reference</i> , the <i>Feature Reference</i> , and <i>System Programming</i>
555-710-110	<i>Feature Reference</i>
555-710-111	<i>System Programming</i>
555-670-112	<i>MERLIN LEGEND® Communications System, Release 7.0, System Planning</i>
555-710-112	<i>System Planning Supplement</i>
555-710-113	<i>System Planning Forms</i>
555-710-119	<i>System Manager's Quick Reference</i>
555-610-150	<i>MERLIN LEGEND® Communications System, Release 6.1, Network Reference</i>
555-710-800	<i>Customer Reference CD-ROM:</i> Consists of the <i>System Manager's Quick Reference</i> , the <i>Feature Reference</i> , <i>System Programming</i> , and the <i>Network Reference</i>

Document No.	Title
<b>Telephone User Support:</b>	
555-710-123 (U.S. English)	<i>4400/4400D Telephone User's Guide</i>
555-710-123FRC (Canadian French)	<i>4400/4400D Telephone User's Guide</i>
555-710-127 (U.S. English)	<i>4406D+, 4412D+, 4424D+, and 4424LD+ Telephone User's Guide</i>
555-710-127FRC (Canadian French)	<i>4406D+, 4412D+, 4424D+, and 4424LD+ Telephone User's Guide</i>
555-660-122	<i>MLX Display Telephone User's Guide</i>
555-630-150	<i>MLX-5D<sup>®</sup>, MLX-10D<sup>®</sup> and MLX-10DP<sup>®</sup> Display Telephone Tray Cards (5 cards)</i>
555-630-152	<i>MLX-28D<sup>®</sup> and MLX-20L<sup>®</sup> Telephone Tray Cards (5 cards)</i>
555-660-124	<i>MLX-5<sup>®</sup> and MLX-10<sup>®</sup> Nondisplay Telephone User's Guide</i>
555-630-151	<i>MLX-5<sup>®</sup> and MLX-10<sup>®</sup> Nondisplay Telephone Tray Cards (6 cards)</i>
555-630-155	<i>MLX-16DP<sup>®</sup> Display Telephone Tray Cards (5 cards)</i>
555-670-151	<i>MLS and ETR Telephone Tray Cards</i>
555-670-152	<i>MLS and ETR Telephone Tray Cards (16 cards)</i>
555-660-126	<i>Single-Line Telephones User's Guide</i>
555-660-138	<i>MDC and MDW Telephones User's Guide</i>
<b>System Operator Support:</b>	
555-710-134	<i>Digital Direct Line Console Operator's Guide</i>
555-710-136	<i>Digital Queued Call Console Operator's Guide</i>
<b>Miscellaneous User Support:</b>	
555-661-130	<i>Calling Group Supervisor and Service Observer User Guide</i>
555-650-105	<i>Data and Video Reference</i>
<b>Documentation for Qualified Technicians:</b>	
555-661-140	<i>MERLIN LEGEND<sup>®</sup> Communications System, Release 6.1, Installation, SPM, Maintenance and Troubleshooting</i>
555-710-142	<i>Installation, SPM, Maintenance and Troubleshooting Supplement</i>

Document No.	Title
555-710-116	<i>Pocket Reference</i>
<b>Toll Fraud Security:</b>	
555-025-600	<i>BCS Products Security Handbook</i>

## How to Comment on This Guide

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:

Documentation Manager  
Lucent Technologies  
211 Mount Airy Road, Room 2W-330  
Basking Ridge, NJ 07920

# Programming Basics

---

# 1

## Overview

This chapter presents the information you need to master before you begin the programming procedures covered in [Chapter 3, “Programming Procedures.”](#) It covers the following subjects:

- An introduction to system programming basics
- How to use the system programming console
- How the programming screens and keys work
- How to interpret and use the programming procedures
- How to enter and exit system programming
- Which system components require idle states for programming

## Introduction to System Programming

The MERLIN MAGIX™ Integrated System offers easy-to-use, menu-driven software for system programming. After your system is installed, use this software to accommodate your company's changing needs for such enhancements and modifications as upgraded lines, additional modules, and new extension programming.

---

### Planning Forms

Before you begin to program or modify your system, you should familiarize yourself with the system planning forms. Initially, system planning forms are used to plan your system and program your system during installation. After installation, they remain a source for all programming information on your system database. The information ranges from the system time and date to specific equipment configurations and feature programming.

Each planning form is either required or optional:

- Required forms are necessary to program the system.
- Optional forms are needed only if the System Manager included the features or options shown on the forms.

Before you begin to program or modify your system, review the Control Unit Diagram on system planning Form 1 to identify the module types installed in the system's control unit. Use this information to program or modify lines and trunks and assign or reassign lines to extensions. Check the physical control unit to verify that the modules are placed in the slots identified on the diagram. Correct the diagram on Form 1 if there are any discrepancies.

Before you make any changes to your system, be sure to do the following:

- Mark any system modifications or changes on the appropriate planning form. Keep your planning forms up-to-date.
  - Check the *Feature Reference* for possible feature interactions.
  - Program the system or the system component during the appropriate idle state. See [“Idle States” on page 1-22](#).
- 

### Types of Programming

The three types of programming available for the system are:

- **System Programming.** This type of programming enables the System Manager to program features that affect all or most system users, and requires one of the following:
  - A system programming console which is a 4424LD+ or MLX-20L telephone connected to one of the first five jacks of the first TDL or MLX module in the control unit.

- 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, perform system inventories, create reports, administering multiple systems, making station labels appear on display telephones, and more). Pictorial representations of system components, such as modules and their vintage, and the creation of a 4400-Series or MLX telephone button labels are available with WinSPM.

The Standard SPM Mode interface 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 the GUI.

The PC should be connected to the lower port (labeled ADMIN) on the processor module. A PC with a modem can perform system programming remotely through the public network, or by connecting to a tip/ring extension jack (016 (T/R), 016 ETR programmed for T/R operation, or 008 OPT module) on the system. A built-in modem in the processor allows the PC and the system to communicate.

- **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 on the programming console or on a PC with the WinSPM software. See [Chapter 4, “Centralized Telephone Programming.”](#)

## System Programming Console

The system programming console is a 4424LD+ or MLX-20L telephone 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.

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.

A 4424LD+ telephone is shown in [Figure 1-1](#). An MLX-20L telephone is shown in [Figure 1-2](#).



Figure 1-1. 4424LD+ Telephone

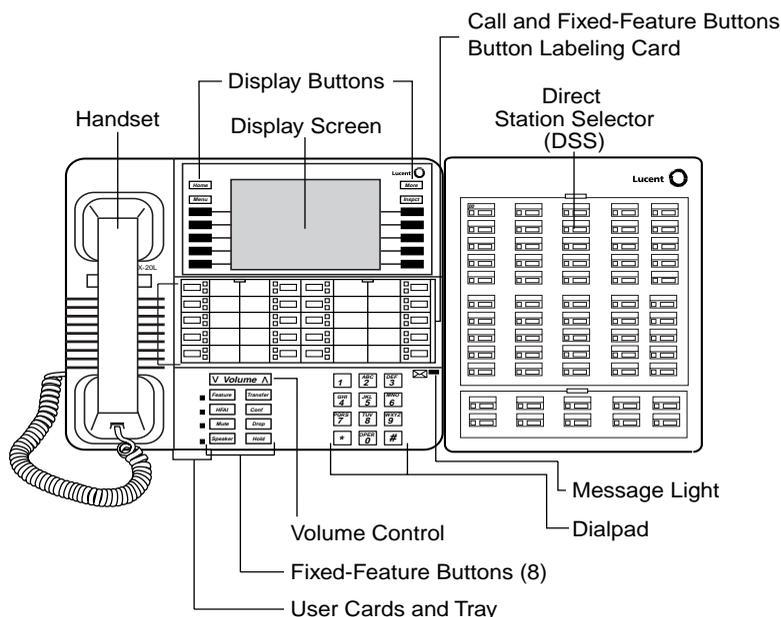


Figure 1-2. MLX-20L Telephone

## Console Components

Table 1-1 describes the components that make up the 4424LD+ or MLX-20L Console. Refer to Figure 1-1 and Figure 1-2 for the location of the components. Table 1-2 describes the components that make up the DSS.

Table 1-1. 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.

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

Component	Function
Fixed Feature Buttons	<p>4424LD+ telephone fixed display buttons for most-used features:</p> <ul style="list-style-type: none"> <li>Spkr (Speaker) for turning the speakerphone on and off.</li> <li>Mute for turning the speakerphone’s microphone and, if applicable, the headset’s microphone on and off.</li> <li>Trnsfr (Transfer) for sending a call to another telephone.</li> <li>Conf for adding a line or extension to a conference call.</li> <li>Redial for redialing the last number dialed from the telephone.</li> <li>Hold for putting a call on hold.</li> </ul> <p>MLX-20L telephone fixed display buttons for most-used features:</p> <ul style="list-style-type: none"> <li>Feature for viewing the Feature screen and selecting features.</li> <li>HFAI (Hands-Free Answer on Intercom) for answering voice-announced calls without the handset.</li> <li>Mute for turning the speakerphone’s microphone on and off.</li> <li>Speaker for talking on a call through the speakerphone without lifting the handset.</li> <li>Transfer for sending a call to another telephone.</li> <li>Conf for adding a line or extension to a conference call.</li> <li>Drop for disconnecting an extension or line from a conference call.</li> <li>Hold for putting a call on hold.</li> </ul>
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 <a href="#">Table 1-2</a> .
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 <a href="#">“Console Buttons” on page 1-8</a> .
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.

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

Component	Function
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.

**Table 1-2. Direct Station Selector (DSS) Components**

Component	Function
Covers	Removable plastic covers to protect the designation cards. The top cover protects the 50 DSS button labels. The lower cover fits over the fixed buttons.
DSS Designation Cards	Cards for labeling the extension or feature assigned to each button.
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	<p>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.</p> <p>Fixed Message Status button used with fixed Page buttons to see which telephones have Message Lights on.</p> <p>Fixed Page Buttons are three buttons used to select the pages of extensions that the 50 DSS buttons represent.</p>
LEDs (Light-Emitting Diodes)	The lights that assist in checking feature status.

## 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, as shown in [Figure 1-3](#) and [Figure 1-4](#). 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 (see [“Fixed Display Buttons”](#) that follows).

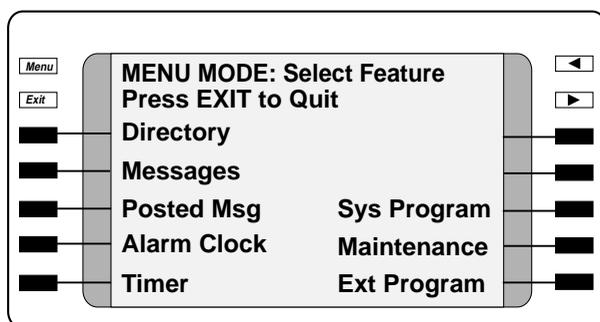


Figure 1-3. 4424LD+ Display Buttons and Main Menu

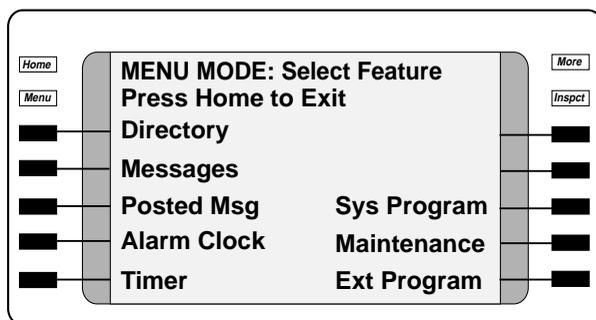


Figure 1-4. MLX-20L Display Buttons and Main Menu

## 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. [Table 1-3](#) describes the functions of the fixed display buttons for the 4424LD+ and MLX-20L consoles.

**Table 1-3. Fixed Display Buttons**

MLX-20L Buttons	4424LD+ Buttons	Function
Home	Exit	Return to normal call handling mode after you finish programming.
Menu	Menu	Display the Main menu shown in <a href="#">Figure 1-3</a> .
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 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 for system programming, the simulated 4424DL+ or MLX-20L console screen on your PC screen shows the function keys that correspond to the console screen selections. For example, to save an entry, you select `Enter` on the console or click `F10` in the emulation display on your PC. See [Chapter 2, "Programming with WinSPM,"](#) for details about using function keys and additional information about WinSPM.

## Console Overlay

The programmable line buttons are on the main part of the console. There are 24 line buttons on the 4424 LD+; 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. See [Figure 1-5](#) and [Figure 1-6](#) that follow.

[Appendix E](#) shows the button diagrams for the telephones used in the system. Refer to this appendix when programming buttons for other telephones.

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.

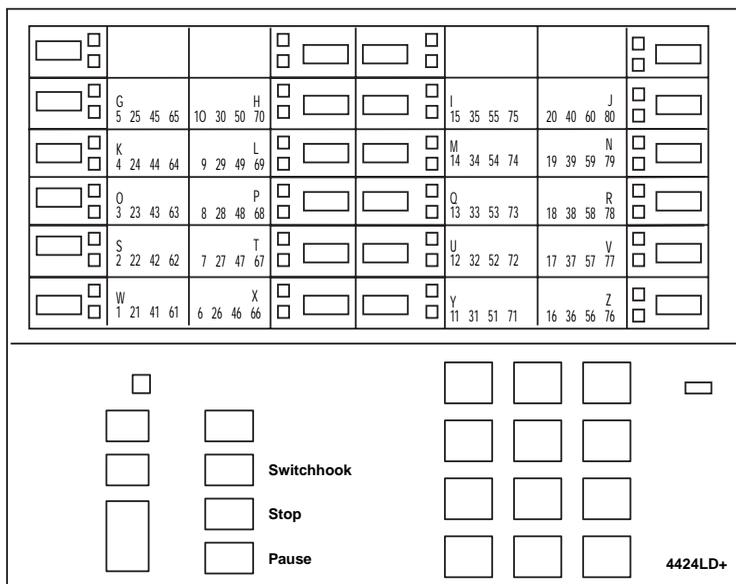


Figure 1-5. 4424LD+ System Programming Console Overlay



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## 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. See [Appendix C, “LED Displays,”](#) for more information.

### 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, “LED Displays,”](#) 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, “LED Displays”](#) provides a table that shows the default DSS status of LEDs for system features.

## Programming Procedures

The programming procedures provide step-by-step instructions for programming the system. This section details how to make the best use of the programming procedures.

---

### Procedure Organization

The programming procedures in [Chapter 3, “Programming Procedures,”](#) are organized into logical groups. The programming procedures associated with a specific aspect of the system are grouped together under one heading. For example, to assign network services for PRI, you would go to the section titled [“PRI Facilities”](#) and then locate the network services procedure. For quick reference, see [“System Programming Hierarchy” on page 1-19](#) for a list of procedures based on the menu hierarchy in [Appendix B](#). It traces the menu path for a specific function.

---

## Procedure Contents

Each procedure begins with a general description of the feature, followed by a summary of programming information that includes the items listed below:

Programmable by	Indicates who has permission to use the procedure.
Mode	Specifies which system mode supports the procedure: Key, Hybrid/PBX, Behind Switch, or a combination.
Idle condition	Specifies the idle state required before the procedure can be performed.
Planning form	Indicates the planning forms that provide information for the procedure.
Factory setting	Shows the factory settings, if any, for equipment or features affected by the procedure.
Valid entries	Specifies the characters, numbers, or values accepted during data entry.
Inspect	Specifies whether or not the feature status can be verified using the Inspect feature.
Copy option	Indicates whether or not the feature can be copied to another system component once it has been programmed.
Console Procedure	Provides a summary of the procedure steps using the system console.
PC Procedure	Provides a summary of the procedure steps using WinSPM.

---

## Programming Screens

There are three types of system programming screens:

- **Information Screens.** To view what is currently programmed on the system.
- **Menu selection screens.** To select options from a menu.
- **Data entry screens.** To enter values or to identify a specific extension or line/trunk you want to program.

[Figure 1-8](#) shows a sample information screen. When you select `Sys Program` from the Main menu screen (shown in [Figure 1-3 on page 1-8](#)), the screen shown in [Figure 1-8](#) appears with system setup information.

```
System Set-up
Review and Exit
Size: xxxx
Type: xxxx
Operator: xxxx xxxx xxxx xxxx
         xxxx xxxx
Back
```

Your system information appears in place of the x's.

---

### Figure 1-8. Information Screen

You cannot make changes on an information screen. Select `Back` (or click `F5`) in the PC emulation display) to continue to the next screen in the procedure.

[Figure 1-9](#) shows a sample menu selection screen.

```
System Programming: >
Make a Selection
System             Extensions
SysReNumber       Options
Operator          Tables
LinesTrunks       AuxEquip
Back              NightSrvc
```

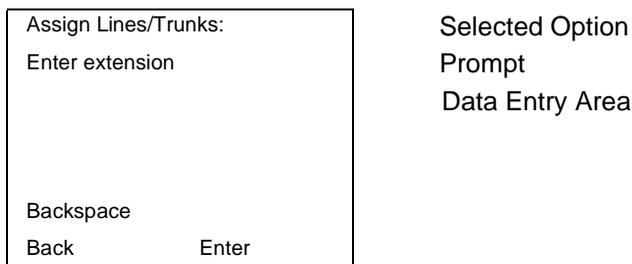
Screen title and More indicator (>)  
Prompt  
Options List

---

### Figure 1-9. Menu Selection Screen

A menu selection screen prompts you to select one of the available options. The screen title is the first line on all screens. The second line contains a system prompt or instruction. The remaining lines of text vary, based on the selected option.

An angle bracket (>) appears in the upper right corner of menu selection screens that have additional option screens. Press `▶` or `More` (or click `PgUp`) in the PC emulation display) to see the additional screens; continue to press or click these buttons to move through the screens and return to the original screen. [Figure 1-10](#) shows a sample data entry screen.



**Figure 1-10. Data Entry Screen**

A data entry screen prompts you to enter specific data or to make specific choices. Data to be entered will be displayed with *n*'s in the text. When *n*'s appear on the data entry screen they indicate data currently programmed for the feature. An exception is the slot/port number which is displayed as *sspp* to distinguish the 2-digit slot number from the 2-digit port number. Slot is the slot number in the carrier and port is the port number on the module.

**NOTE** ▶ The slot/port numbering for adjunct ports on MLX modules begins at 21. The slot/port numbering for adjunct ports on TDL modules begins at 25. For example, on an MLX module in slot 1 of the carrier, to access adjunct port 710, you would enter 0121 as the slot/port number (01 indicates slot 1 on the carrier) while on a TDL module in slot 1 of the carrier, to access adjunct port 710, you would enter 0125.

Many screens show data entered on a previous screen, such as an extension or trunk number. Within the programming procedures, this type of variable information is shown with *x*'s.

When information to be entered varies in the number of digits required (for example, a telephone number that can range from 7 to 20 digits), the data may be displayed as an uppercase *X* or *N*.

Data entry screens may also contain menu selections. Instead of entering data from the dialpad, you select options on the screen, such as *Yes* or *No*, to enable or disable a feature. To select this type of option, press either the unlabeled display button next to the option name, or the function key that corresponds to the option name. Then your selection is highlighted. To program or save the highlighted selection, press the unlabeled display button next to *Enter* (or click **F10** in the PC emulation display).

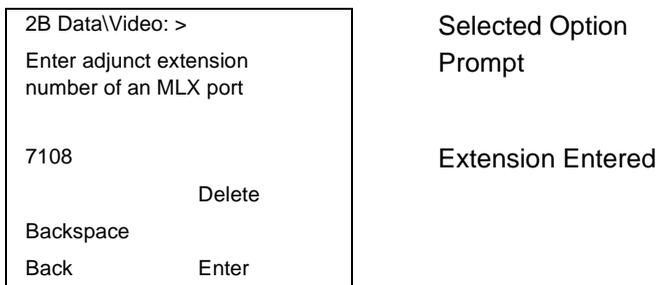
---

## Verifying Data Entry

You can use the Inspect feature to view the entries you save.

The Inspect button is fixed on an MLX-20L. To use the Inspect feature on a 4424LD+ telephone, you must program a line button with the Inspect feature (refer to *Feature Reference* for programming the Inspect button).

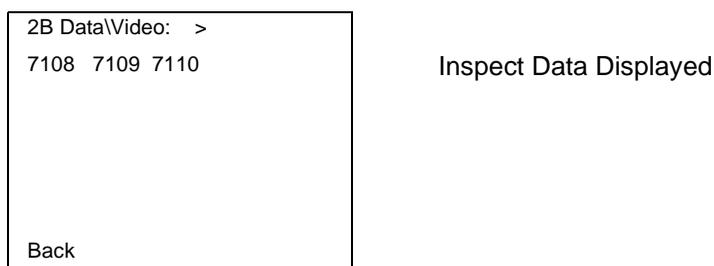
An example of how to use the Inspect feature begins with [Figure 1-11](#). The figure shows a data entry screen with the adjunct extension number of an MLX port.



---

**Figure 1-11. Inspect Example**

After you enter and save 7108, you can enter and save another extension; the extensions you enter appear one at a time in the screen, as you enter and save them. However, if you press the Inspect button (**PgDn** in the PC emulation display), all extension numbers that you have programmed in this data entry screen appear. For example, if you entered 7108, 7109, and 7110, when you press the Inspect button, all the extension numbers appear as shown in the sample Inspect screen in [Figure 1-12](#).



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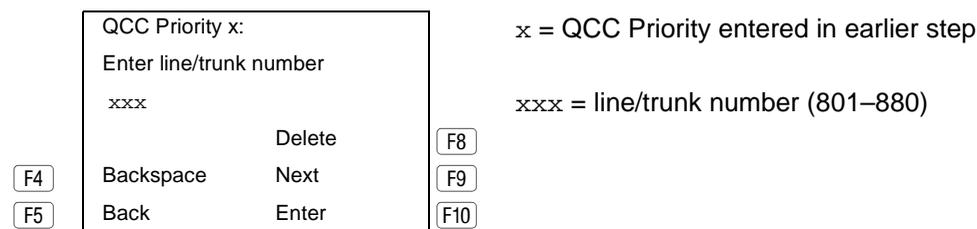
**Figure 1-12. Sample Inspect Screen**

Whenever you want to return to the previous screen, select **Back** (**F5** in the PC emulation display).

The Inspect feature also allows you to check a value that has already been programmed for a feature. This is helpful when you are changing or modifying features. You can also use it when you program sequential extensions or lines to verify the last number programmed. See the *Feature Reference* for details about the Inspect feature.

## Saving Entries and Moving among Screens

At the bottom of each screen, one or more screen keys may appear representing functions that allow you to change your entry, save your entry, or return to a previous screen. Various combinations of these screen keys appear on each programming screen. [Figure 1-13](#) shows the QCC Priority screen with a typical display of screen keys.



**Figure 1-13. Screen Keys**

The PC keys that correspond to the screen key selections are shown here for quick reference. These PC keys do not appear on the console display screen. [Table 1-4](#) contains details on the use of the screen keys.

**Table 1-4. Screen Keys**

Display	PC Key	Function
BackSpace	F4 or ←Bksp	<b>Change your entry.</b> Select Backspace (click F4 or ←Bksp in the PC emulation display) to correct your entry. Each time you select Backspace or click F4, the screen cursor moves backward to erase one character at a time.
Enter	F10 or Enter↵	<b>Save your entry.</b> Typically, you select Enter (click F10 or Enter↵ in the PC emulation display) to complete a procedure and save the information. Occasionally, you must select Exit (click F5 in the PC emulation display) and return to a previous screen after you use Enter. If the entry is not valid, the system may beep and/or display an error message and does not save the entry.
Delete	F8	<b>Delete a current entry.</b> Select Delete (click F8 in the PC emulation display).

**Table 1-4. Screen Keys — Continued**

Next	F9	<b>Program sequentially numbered items.</b> If you are programming a group of sequentially numbered extensions, lines, or trunks, you may optionally select <code>Next</code> (click F9 in the PC emulation display). This saves your entry and automatically provides the number of the next extension or trunk in the sequence. Typically, you remain at the same screen until you select <code>Next</code> . In a few cases, you may return to an earlier screen in the procedure.
Back	F5	<b>Return to the previous screen.</b> Select <code>Back</code> (click F5 in the PC emulation display) when you complete a procedure, to move up one screen in the menu hierarchy. (Appendix B provides a reference to the entire System Programming menu hierarchy.)
		<b>Exit a screen without changes.</b> In most cases, you select <code>Back</code> (click F5 in the PC emulation display) to exit from a screen without making any changes. Exceptions are noted as part of a procedure.
		<b>Complete a procedure.</b> In a few cases, you return to the System Programming menu when you select <code>Back</code> . In most cases, you return to an intermediate step within the procedure. You can then select one of the options shown on the screen and continue programming, or you can continue to use <code>Back</code> until you return to the System Programming menu.

## Using Enter

Pressing `Enter` to save your entry produces one of the following results:

- The next screen in the procedure appears.
- The screen does not change and you can enter another extension or line/trunk. In most of these cases, `Delete` is also an option. `Enter` is used either to assign the extension to a group or to assign a feature to the extension. `Delete` is used to remove the extension from a group or to remove the feature from the extension.
- The procedure is complete and you return to a previous screen.

## Using Next

When you program a feature that applies to a sequence of extensions, lines/trunks, or groups, the screen key `Next` appears on the console display. `Next` (F9 in the PC emulation display) permits you to save your current entry and display the next number in the sequence. You can continue to press `Next` until you finish programming the entire sequence. When the last number in the sequence displays on the screen, press `Enter` (F10 in the PC emulation display) to save the final

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entry and move to the next step of the procedure. Procedures that allow the use of `Next` return you to the correct screen to continue programming.

---

## System Programming Hierarchy

For a complete listing of the options available under each of the System Programming Main menu options displayed on the system programming console, see the fold-out in Appendix B.

## Access to System Programming from the 4424LD+ or MLX-20L or Console

Follow the steps below to begin system programming. All of the procedures in [Chapter 3](#), “[Programming Procedures](#)” begin at the System Programming menu shown in Step 3 of the following procedure.

For information about accessing system programming through a PC with WinSPM, see [Chapter 2](#), “[Programming with WinSPM](#).”

1. Press menu to display the Main menu.

MENU MODE: Select Feature	
Press HOME to Exit	
Directory	
Messages	
Posted Msg	Sys Program
Alarm Clock	Maintenance
Timer	Ext Program

2. Select System Programming. The System Set-Up screen appears.

System Set-up:	
Review and Exit	
Type: xxxx	
Mode: xxxx	
Operator:	xxxx xxxx
xxxx xxxx	xxxx xxxx
Back	

**NOTE** ► Ext Program does not appear on this screen if the programming console is a QCC.

On the System Set-up screen, system information appears in place of the x's.

Type = Voice/Data

Mode = Key, Hybrid/PBX,  
or Behind Switch

Operator = Position extension numbers

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3. Select **Back** . The System Programming menu appears.

System Programming: >	
Make a selection	
System	Extensions
SysRenumbr	Options
Operator	Tables
Lines/Trunks	AuxEquip
Back	NightSrvce

Press the button next to your selection.

## System Programming Menu

[Figure 1-14](#) shows the two screens that make up the System Programming menu.

System Programming: >	
Make a Selection	
System	Extensions
SysRenumbr	Options
Operator	Tables
Lines/Trunks	AuxEquip
Back	NightSrvce

System Programming: >	
Make a Selection	
Labeling	Language
Data	
Print	
Cntr-Prg	
Back	

**Figure 1-14. System Programming Menu Screens**

[Table 1-5](#) describes the options.

**Table 1-5. System Programming Menu Options**

Option	Description
System	Set system operating conditions.
SysRenumbr	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 1-5. System Programming Menu Options — *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).
NightSrvc	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 [Table 1-6](#) to return to the System Programming menu, the Main menu (Menu Mode screen), or the Home screen from within a programming screen.

**Table 1-6. Exiting System Programming**

To return to...	On the console, press...	On the PC display, click...
Previous menu	Back	<input type="button" value="F5"/>
Main menu	Menu	<input type="button" value="End"/>
Normal Call-Handling	MLX-20L Console: Home 4424LD+ Console: Exit	<input type="button" value="Home"/> <input type="button" value="Exit"/>

## 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 a trunk or extension be idle only at the instant of programming. Lengthy procedures require the system, trunk, or extension 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, do the programming outside of normal business hours.

For complete information, refer to “Idle States” in Chapter 2.

# Programming with WinSPM

# 2

## 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 and floppy disks. The WinSPM software can be used directly from the floppy disks or CD-ROM on your PC. If your PC has a hard disk, however, you should install WinSPM from either the floppy disks or 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 [“Font Size Settings”](#) under [“Desktop Setup”](#) later in this chapter.

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 can be installed from either CD-ROM or floppy disks.

---

### 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.)
  4. 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.
- 

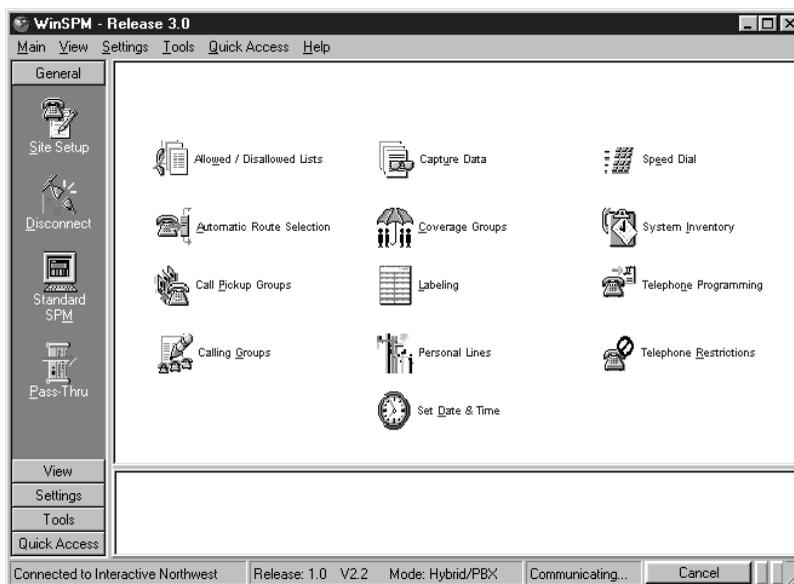
### Floppy Disks

Before installing or running WinSPM, it is recommended that you make a backup copy (see your operating system guide) of the WinSPM disk. Store the original in a safe place. Use the backup copy to run the installation program.

1. Insert diskette number 1 into your 3.5" floppy disk drive.
2. From the Start Menu, click Run.
3. When prompted for the file or folder you want to open, type A:\setup.exe.
4. Insert additional diskettes when prompted to do so.

## Getting Started

Upon installation of the WinSPM software, the following initial screen appears:



**Figure 2-1. WinSPM Main Screen**

The First Time User Wizard (FTUW) assists you through the following four steps:

1. Set up your desktop:
  - Font Size Settings
  - Modem Definition
  - Setting the Start Bar "Auto Hide" Property/Changing the Screen Resolution
2. Define your Password.
3. Set up your site:
  - Direct Connection
  - Internal Connection
  - External Connection
  - Manual Connection
4. Connect to the MERLIN MAGIX Integrated System:
  - Direct Connection
  - Internal Connection
  - External Connection

---

## Desktop Setup

### Font Size Settings

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.

### 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

Wait for dial tone before dialing.

### Advanced

Use Flow Control

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

Wait for dialtone before dialing.

#### Advanced

Use Flow Control

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 "Autohide" 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 2-40](#) 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 pages [2-9](#) through [2-12](#)*):

- **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 an 012 T/R or 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, do the following:

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 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 administration port.

7. Set the COM port speed to 2400 (most instances).
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.

## Internal Connection

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

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) 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
4. Click the Internal tab.
5. Select the Enabled check box. A check mark appears in the box and the Dial String dialog box is no longer grayed out.
6. Be sure that the Dial String check box displays \*10.
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 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. 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 use only characters that are acceptable for filenames in the Windows environment.
3. 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
4. Click the External tab.
5. Select the Enabled check box. A check mark appears in the box and the Dial String dialog box is no longer grayed out.
6. 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.
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 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. 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 use only characters that are acceptable for filenames in the Windows environment.
3. 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
4. Click the Manual tab.
5. Click the Enabled check box. A check mark appears in the box and the Dial String dialog box is no longer grayed out.
6. When you try to connect using the Manual Connection type, WinSPM displays a dialog box with an OK button. Place a voice call to the system on a regular line and ask the operator to transfer you to the MERLIN MAGIX admin port by dialing \*10. When you hear the modem answer tone, click OK to complete the connection and then hang up the handset.
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 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.
  - 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 to a MERLIN MAGIX Integrated System

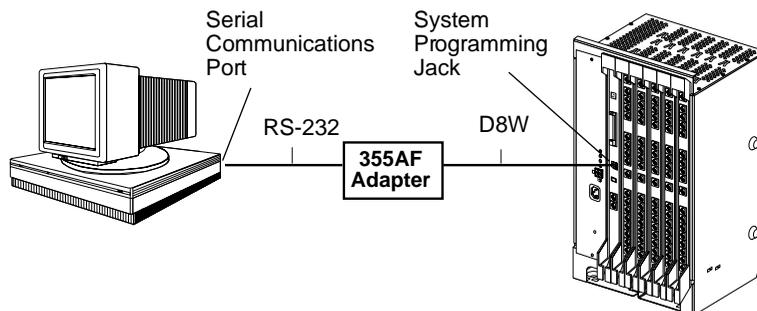
### Direct Local Connection

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 2-2](#). (The upper jack is reserved for the SMDR printer.)

To connect a PC more than 50 feet from the control unit, see [Figure 2-3](#).

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

**NOTE** ► You must use a direct local connection to program in Surrogate mode.



---

Figure 2-2. Direct Connection

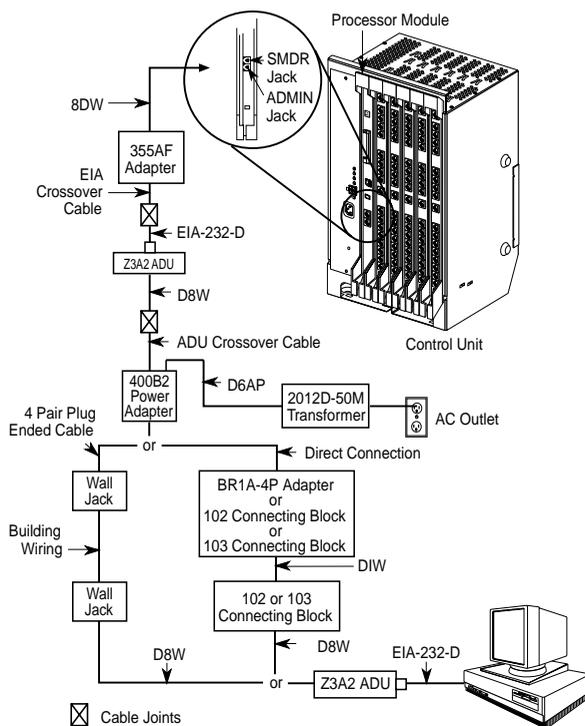


Figure 2-3. Direct Connection, PC More Than 50 Feet Away

## 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 an 012 (T/R) or 016 (T/R) module, or to a jack that has been programmed for T/R on an 016 ETR module in the control unit, as shown in [Figure 2-4](#).

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

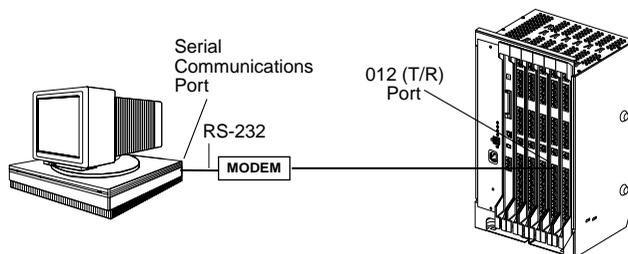
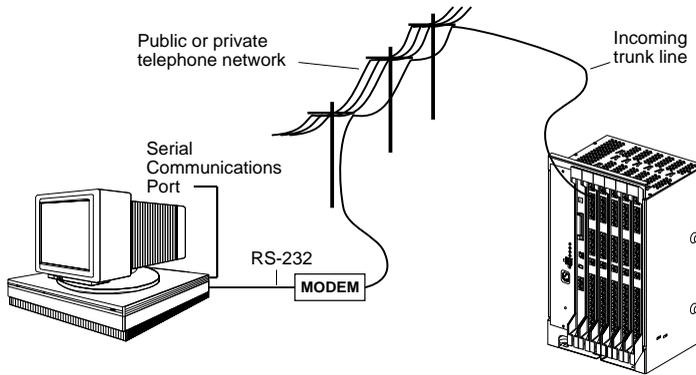


Figure 2-4. Internal Connection

## 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 2-5](#).

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



---

Figure 2-5. External Connection

## WinSPM Main Screen

When you connect your PC to the MERLIN MAGIX Integrated System and start the WinSPM application, the WinSPM Main screen shown in [Figure 2-6](#) appears.



**Figure 2-6. WinSPM Main Screen**

The Main screen icons shown on the left-hand toolbar provide the following functionalities:

- **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.
- **Pass-Thru.** This icon appears if a 100R 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 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 Quick Access

The Quick Access interface allows you to complete common tasks in an extremely user-friendly manner. The Quick Access window (see [Figure 2-6](#)) 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 [page 2-26](#).

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, such as (911) 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, refer to [Chapter 3, "Allowed Lists,"](#) and [Chapter 3, "Disallowed Lists."](#)

---

## 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 [Chapter 3, "Pickup Groups."](#)

---

## 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 with 15 extensions per group. An extension may be a member of only one Pickup Group. For more information, refer to [Chapter 3, "Automatic Route Selection."](#)

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.

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 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 [Chapter 3, “Group Coverage Member Assignments.”](#)

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.

**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.

---

## 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.

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).

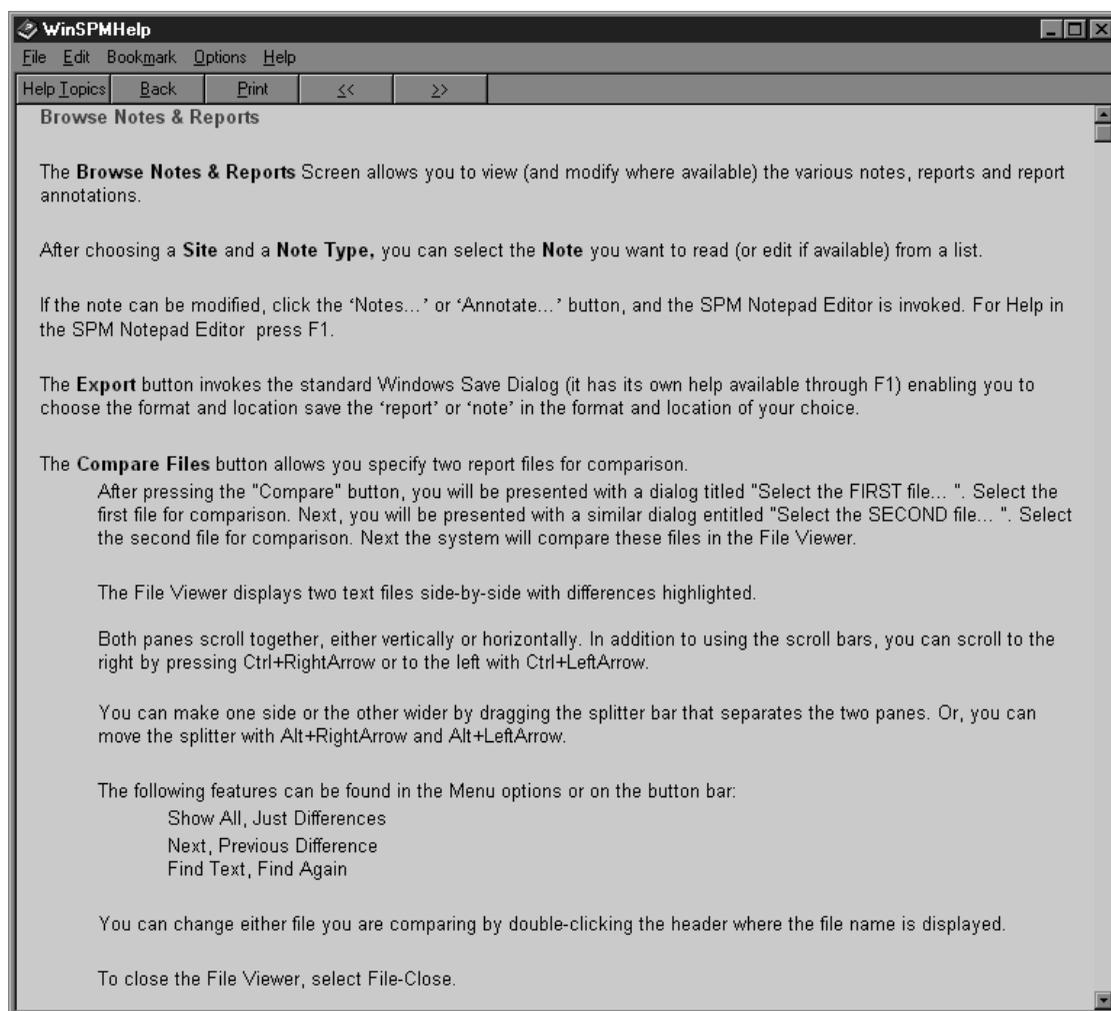


Figure 2-7. Sample WinSPM Help Screen

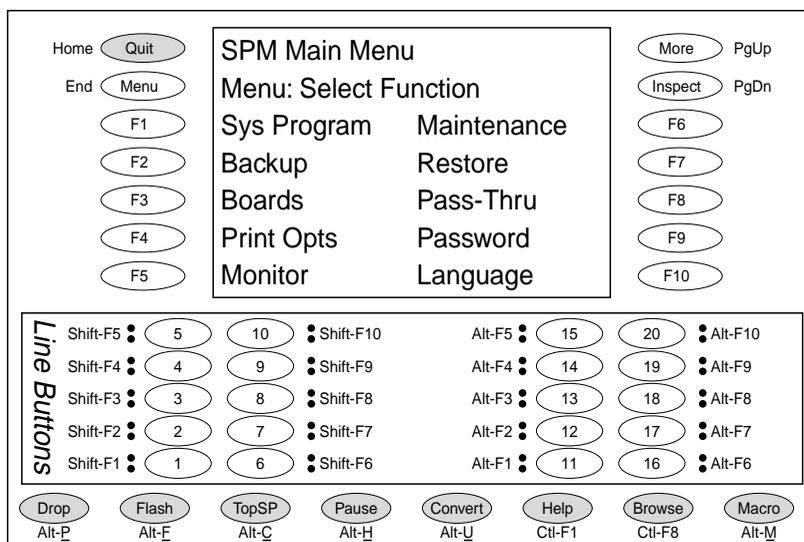
## Using Standard SPM Mode

This section describes how to use the Standard SPM Mode screens.

**NOTE** ► If you are using Quick Access, Backup and Restore can be selected from the Main menu. The System Inventory option in the Quick Access mode provides a graphical representation of your system inventory, which includes all modules and versions. All of the options listed above are available in the Standard SPM Mode. For additional information on using Quick Access, refer to the documentation and online Help provided with WinSPM.

### SPM Screens

Standard SPM Mode screens simulate the system programming console. Each Standard SPM Mode screen includes a 7-line by 24-character console simulation window that corresponds to the display area of the MLX-20L or 4424LD+ telephone. To the right and left of this console simulation window are columns that list the keys corresponding to similarly located buttons on the MLX-20L or 4424LD+ telephone. [Figure 2-8](#) illustrates the Standard SPM Mode display screen.



**Figure 2-8. Standard SPM Mode Display**

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

Below the console simulation window are 20 simulated line buttons. The 20 line buttons can be selected by clicking on the appropriate button. By clicking on **[PgDn]** (the Inspect feature), you can determine the status of each line and the features programmed on each line according to the letter that appears next to the line number.

The labels along the bottom of the screen correspond to buttons on the 4424LD+ or MLX-20L telephone. [Table 2-1](#) describes the function of PC keys in WinSPM.

**Table 2-1. 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-20-L only)		Display the current information that has been programmed for a feature or button. <i>(There is no fixed Inspct button on the 4424LD+ console. This button must be programmed onto a feature key on the 4424LD+ console.)</i>
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.
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 <b>[Ctrl]+[F5]</b> to clear the screen and return to the WinSPM Welcome screen. Note that using <b>[Ctrl]+[F5]</b> drops the modem connection.

**Table 2-1. Function of PC Keys in WinSPM — *Continued***

PC Key	MLX-20L	4424LD+	WinSPM Function
Browse	n/a	n/a	Browse. View print reports saved with Print Opts.
Enter	Enter	Enter	The  key on your PC can be used instead of  when Enter appears as a choice in the console simulation window.
Bksp	Backspace	Backspace	The  key on your PC can be used instead of  (Backspace) when Backspace appears as a choice in the console simulation window.
Del	Delete	Delete	The  key on your PC can be used instead of  (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.

## Basic System Management Procedures

This section demonstrates how to complete the following procedures using WinSPM operating in Standard Mode or the WinSPM menu:

- Backup
- Boards
- Browse
- Language
- Maintenance
- Monitor
- Pass-Thru
- Password
- Print Options
- Restore
- System Programming

[Table 2-2](#) gives a brief description of each procedure.

**Table 2-2. Management Procedures**

Option	Function
Sys Program	To program the system.
Backup <sup>1</sup>	To make a backup copy of your system programming and store it on a floppy disk or on hard disk.
Boards <sup>1</sup>	To show which modules (port boards) are in each slot of the control unit and allows you to assign boards to slots.
Print Opts <sup>1</sup>	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 <sup>1</sup>	To restore your system programming from floppy disk or from hard disk.
Pass-Thru	(IS II/III and 100R only) To make a remote connection, through the control unit, to a 100R 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.)

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

## 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.

To perform the backup procedure, follow the steps below:

### Standard SPM

**F2** → 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

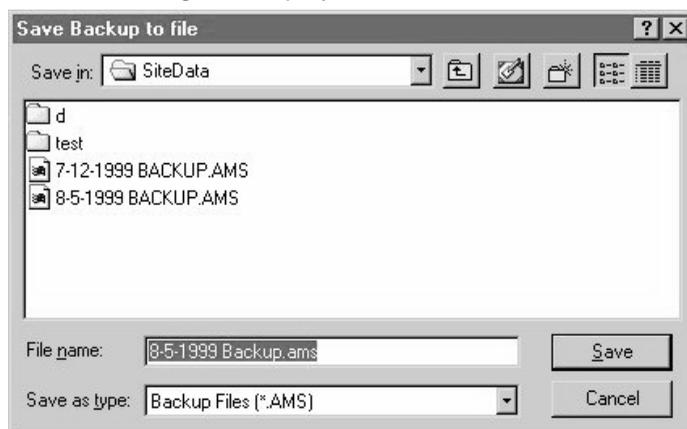
1. From the WinSPM Main window Outlook bar, select **Tools**.
2. From the Outlook bar, click the **Backup** icon.

*A selection dialog box displays.*



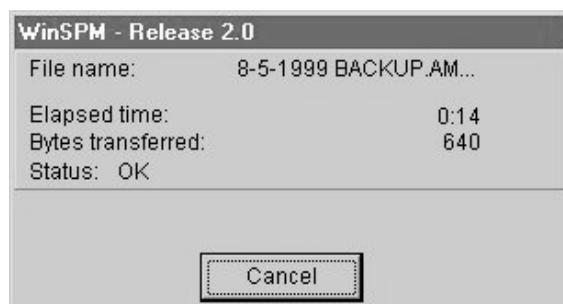
3. Select the File option.
4. Click **OK**.

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 board to the next available slot. The system must be idle to use this option. This option is not available from the system programming console.

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

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

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

2 Programming with WinSPM

Basic System Management Procedures

2-32

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

The Inspect function (PgDn) lets you see which modules have been assigned to slots on the control unit. Note that both phantom boards and real boards display if you use the Inspect feature.

[Table 2-3](#) shows the type of boards that you can select. To see only real board assignments, you must print the System Information report: System→More→Print→SysSet-up.

**Table 2-3. 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); upgradable 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
MsgOPT	008 OPT - 8 tip/ring extension jacks with 2 Touch-Tone Receivers or MERLIN Messaging - 7 internal tip/ring extension jacks with 2 Touch-Tone Receivers; MERLIN Messaging System resides on this module
100D	24 channels ("virtual" lines/trunks); upgradable with PCMCIA card
800BRI	8 BRI facilities
408GLM	4 ground-start/loop-start line jacks and 8 MLX extension jacks (16 endpoints); Caller ID; Upgradable with PCMCIA card
100R	24 channels (virtual lines/trunks) with internal CSU/DSU; upgradable 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
<b>Boards</b>	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

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 in Step 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.

### Standard SPM

**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**.

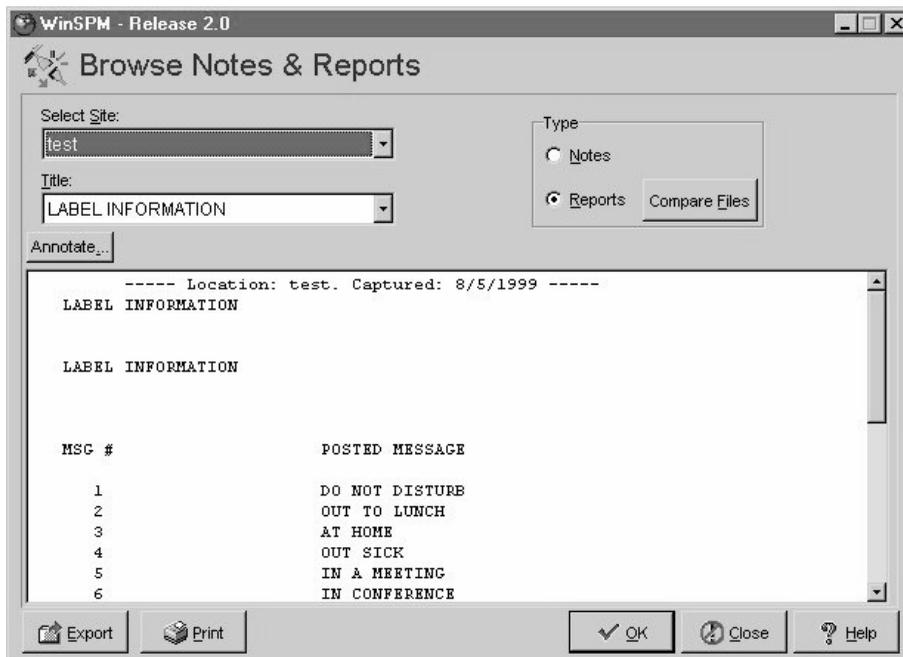
To view the previous page of a report, click **PgUp**.

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.*

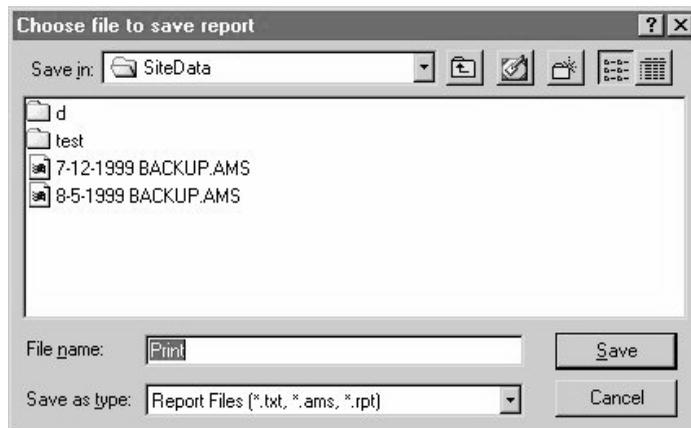


3. From the Type field, select whether you want to view reports or notes.
4. From the drop-down list, select the report/notes you want to view.
5. Click **Print** to print the report to your default printer.

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 discussion refers 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	<b>Language</b>

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:

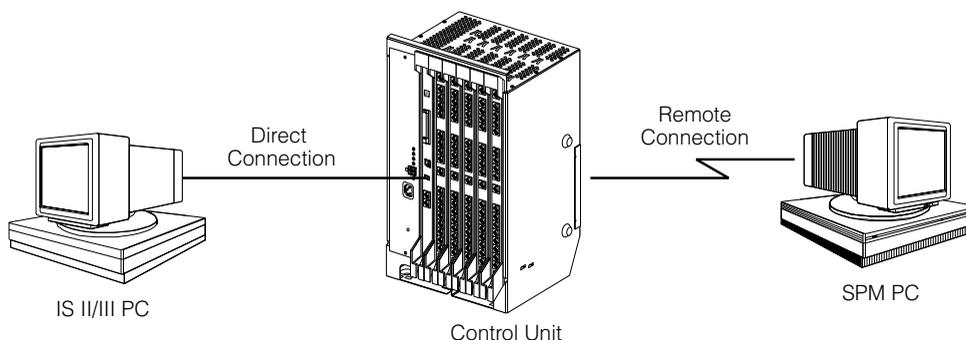
*This option is for use by qualified technicians only. Maintenance procedures are provided in the documentation for qualified technicians. See [“Related Documents” on page xxiv](#).*

### ⚠ 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<sup>1</sup> applications (and a 100R 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. [Figure 2-9](#) illustrates the relationship of the SPM PC, the system control unit, and the IS II/III PC.



**Figure 2-9. Pass-Thru**

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.

<sup>1</sup> Can no longer be ordered.

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<sup>®1</sup>
- Call Accounting System<sup>1</sup>
- Fax Attendant System (IS III only)
- CONVERSANT Intro (IS III only)

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	<b>Pass-Thru</b>
Print Opts	Password
Monitor	Language

1 Can be ordered only as an upgrade to existing CAS installations.

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).

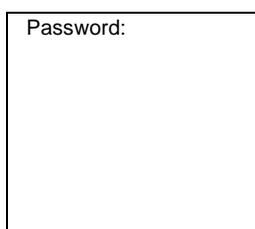
2. Type your login name, and click .



Welcome to IS-II/III

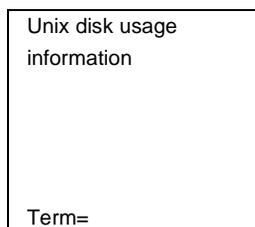
login:

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



Password:

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



Unix disk usage  
information

Term=

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

5. To exit from IS II/III programming, click  (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	<b>password</b>
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
--------------------------------



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

## SMDR Port Output

See [“Printing System Reports” on page 3-201](#) for more information about the print procedure using the system console and the SMDR port.

## PC Port Output

See [“Printing Reports” on page 2-48](#) 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 [“Management Procedures” on page 2-29](#).
- 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:**

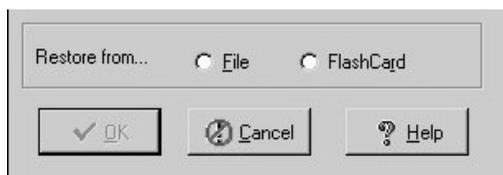
An unsuccessful or terminated restore results in a System Erase (frigid start). All calls are dropped. The system configuration is erased. All system programming is lost and the system returns to the factory settings. If the restore is being done remotely, the connection is dropped immediately. If this 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**

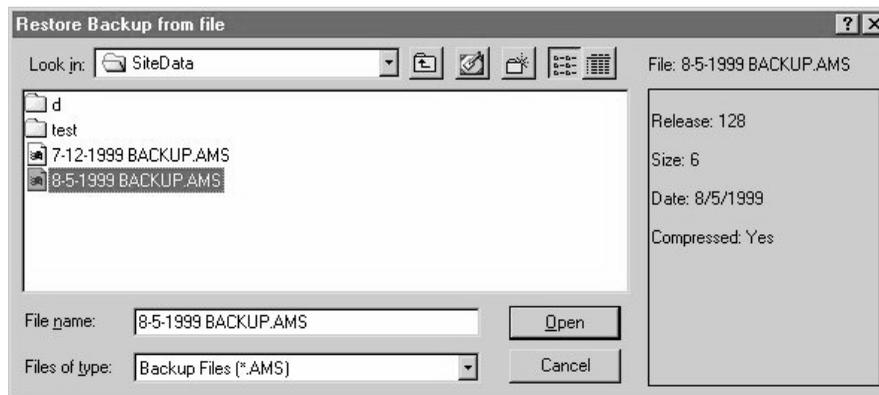
1. From the WinSPM Main window Outlook bar, select **Tools**.
2. From the Outlook bar, click the **Restore** icon.

*A selection dialog box displays.*



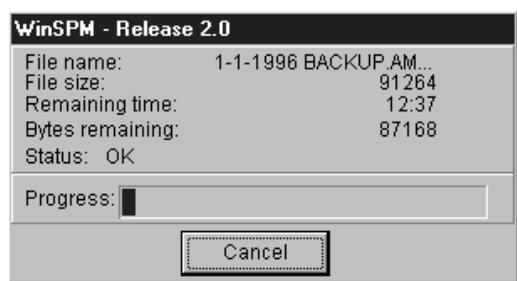
3. Select the File option.
4. Click **Ok**.

*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

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

---

## Basic Programming Information

To begin programming, you must perform one of the following to display the System Programming menu on the MLX-20L or 4424LD+ console, or on the PC:

On the console:                      Menu→Sys Program →Back

On the PC:                              Type `spm` →`[Enter]` →Press any key→`[F1]` →`[F5]`

In most cases, you can click `[F5]` (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 click `[F5]` (Back), you usually move up one screen in the menu hierarchy. Occasionally, when you click `[F5]` (Back), you return to the previous screen. In a few cases, clicking `[F5]` (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, click `[F10]` (Enter).

If you are programming a group of sequentially numbered extensions or trunks, you may have the option of clicking `[F8]` (Next). This saves your entry and automatically provides the number of the next extension or trunk in the sequence, thus saving you a couple of steps. If Next displays on the screen, you can use it with the current option.

In most cases, you will be at an intermediate step in the procedure you have just completed. At that point, you can select one of the options shown on the screen and continue programming, or you can click `[F5]` (Back) again. This usually takes you back to the System Programming menu. If not, you again can continue programming on the current screen or click `[F5]` (Back) again.

## Idle States

A few of the programming procedures can be started only when the entire system or some part of it, such as a trunk or an extension, is idle (not in use). Some procedures require that the trunk or extension be idle only at the instant of programming. Other procedures, which take longer, require the system, trunk, or extension to be forced 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 displays.

```
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 and 100R Module Idle

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

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

## Accessing System Programming

Follow the steps below to access system programming.

1. At the Standard SPM Mode Main menu, click **F1** to select *Sys Program*.

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

2. Click the function key next to the option you want.

System Programming: >		System Programming: >	
Make a selection			
<b>F1</b>	System	Extensions	<b>F6</b>
<b>F2</b>	SysRenumbr	Options	<b>F7</b>
<b>F3</b>	Operator	Tables	<b>F8</b>
<b>F4</b>	LinesTrunks	AuxEquip	<b>F9</b>
<b>F5</b>	Back	NightSrvc	<b>F10</b>
		Labeling	Language
		Data	
		Print	
		Cntr-Prg	
		Exit	

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

## Printing Reports

Use the following procedure to print system reports using WinSPM at the PC. The WinSPM Print Opts must be set to PC Port. See [“Print Options” on page 2-41](#) for details about setting the printer output port.

1. At the second page of the System Programming menu, click **F3** to select `Print`.

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

2. Click the function key that corresponds to the report to be printed.

```
Print (English): >
Make a selection
All           Trunk Info
SysSet-up     T1 Info
Dial Plan     Pri Info
Labels        RmoteAccess
Back          Oper Info
```

3. Use one of the methods shown after this procedure to print the report or reports.

```
Please enter file name

to store print
(default is print.ams)

Press Esc to Abort.
```

```
LPT1:
GOTO FLOPPY

MAKE NEW FILE
PRINT.AMS
```

4. View the print status screen.

```
Print in Progress ...

Back
```

To interrupt printing and return to the Standard SPM Mode Main menu, press **F5**.

## Print Hard Copy

To print a hardcopy of the report, use the arrow keys to highlight LPT1 : and press .

## Print to Hard Disk

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

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

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

## Print to Floppy Disk

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

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

## Surrogate Mode Programming

Surrogate mode allows qualified service personnel to perform system programming at an offsite 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.

**2** Programming with WinSPM  
*Surrogate Mode Programming*

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# Programming Procedures

# 3

## Overview

This chapter contains all of the procedures required for programming each of the features and options that is available for the MERLIN MAGIX Integrated System.

Each of the procedures begins at the System Programming menu. Use one of the methods shown below to display the System Programming menu.

- At the console: Menu→Sys Program→Back
- At a PC with WinSPM using Standard SPM Mode, do the following:
  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. On the toolbar on the left side 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. On the toolbar on the left side of the WinSPM main screen, click the Standard SPM icon. *The system programming console appears in the emulation window.*
  7. Click **F1**, then **F5**.

Before you begin any of the procedures in this chapter, you should read and understand all of the information presented in [Chapter 1, "Programming Basics."](#)

## Basic System Operating Conditions

The procedures in this section are all related to the system, rather than to the operation of telephones, operator positions, lines, or trunks. These are operating conditions that must be set only once—when the system is new or when you reset the factory settings.

**NOTE** ► You must reset the system time when Daylight Savings Time begins and ends.

This section contains the following programming procedures:

- System Restart
- System Programming Position Assignment
- System Language
- Board Renumbering
- Mode of Operation
- Automatic Maintenance Busy
- System Date
- System Time

---

## System Restart



### CAUTION:

*This procedure is to be performed by qualified support personnel only.*

Use this procedure to perform a System Restart (cold start). All calls are dropped when you perform this procedure. Existing system programming is saved. Telephones with the Extension Status feature may lose Toll Restrictions as a result of a System Restart.

### Summary: System Restart

<b>Programmable by</b>	Qualified support personnel
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	Not applicable
<b>Factory Setting</b>	None
<b>Valid Entries</b>	None
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	System→Restart→Yes
<b>PC Procedure</b>	<input type="button" value="F1"/> → <input type="button" value="F1"/> → <input type="button" value="F1"/>

## System Programming Position Assignment

Use this procedure to reassign the extension used for system programming. This extension should not be the same extension used for the operator position. The system programming position can be reassigned only to one of the first five extension jacks on the first TDL Module if you are using a 4424LD+ telephone, or the first MLX Module if you are using a MLX-20L telephone. Only one system programming console is allowed per system.

If you are programming on the 4424LD+ or MLX-20L console, be aware of the following:

- The console must be connected to the extension currently assigned for system programming.
- As soon as you change the system programming extension, the system programming session is terminated. To proceed with system programming, you must connect the system programming console to the newly assigned extension and enter system programming again.

### Summary: System Programming Position Assignment

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	1, System Planning
<b>Factory Setting</b>	First extension jack on the first TDL module if you are using a 4424LD+ telephone, or the MLX module if you are using a MLX-20L telephone (also set as an operator position)
<b>Valid Entries</b>	Extension number of one of the first five extension jacks on the first TDL or MLX module
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	System→SProg Port→Drop→Dial ext. no.→Enter→Back
<b>PC Procedure</b>	[F1]→[F2]→[Drop]→Type ext. no.→[F10]→[F5]

## System Language

Your system offers you a choice of three languages (U.S. English, Canadian French, and Latin American Spanish) for the following options:

- **System Language.** For system programming.
- **Station Message Detail Recording (SMDR) Reports.** [See “SMDR Language” on page 3-154.](#)
- **Print Reports.** [See “Report Language” on page 3-200.](#)
- **Extensions.** [See “Optional Extension Features” on page 3-103.](#)

**3** Programming Procedures  
Basic System Operating Conditions

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Use this procedure to set the system language. See the sections listed above to set a different language for SMDR reports and print reports, as well as for 4400-Series or MLX display telephones.

**Summary: System Language**

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	1, System Planning
<b>Factory Setting</b>	U.S. English
<b>Valid Entries</b>	U.S. English, Canadian French, Latin American Spanish
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	More→Language→SystemLang→Yes→ Select a language (English, French, or Spanish)→Enter
<b>PC Procedure</b>	PgUp → F6 → F1 → F3 → Select a language (English, French, or Spanish) → F10

---

**Board Renumbering**

 **CAUTION:**

*This procedure is to be performed by qualified support personnel only.*

Use this procedure to renumber boards that have already been installed. This procedure restarts the system (system programming is not lost). Note that this is not the same procedure used with the Boards option, which is available to qualified service personnel with WinSPM only.

Board Renumbering is a system programming procedure that is required only when an existing module is replaced by a different type of module. When a Board Renumbering is performed, the system reassigns the logical ID numbers to the extension and line ports sequentially from left to right in the control unit and from bottom to top of each module.

## Summary: Board Renumbering

<b>Programmable by</b>	Qualified support personnel only
<b>Mode</b>	All
<b>Idle Condition</b>	System idle
<b>Planning Form</b>	Not applicable
<b>Factory Setting</b>	None
<b>Valid Entries</b>	Not applicable
<b>Inspect</b>	Not applicable
<b>Copy Option</b>	Not applicable
<b>Console Procedure</b>	System→Board Renum→Yes
<b>PC Procedure</b>	<input type="button" value="F1"/> → <input type="button" value="F4"/> → <input type="button" value="F2"/>

---

## Mode of Operation

The system mode—Key, Behind Switch, or Hybrid/PBX—determines how the system operates and directly affects the following operations:

- How lines and/or trunks are provided to users
- Types of operator consoles allowed
- Features available

Changing this option causes a system restart and terminates the programming session. You must enter system programming again to program other features.

**NOTE** ► The Hybrid/PBX option is not available if the control unit processor module has been modified to operate in Permanent Key mode only. See the *Feature Reference* for more information.

The following options cannot be programmed for Behind Switch or Key systems:

- Automatic Route Selection (ARS)
- Pools
- Queued Call Consoles (QCCs) and associated features
- Direct Inward Dialing (DID) Trunks
- System Access buttons
- Dial Plan Routing (PRI)
- Call-by-Call Services (PRI)

The Ground-Start lines/trunks option cannot be programmed if the processor module has been modified for Permanent Key mode operation only.

### Summary: Mode of Operation

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	System idle
<b>Planning Form</b>	1, System Planning
<b>Factory Setting</b>	Hybrid/PBX
<b>Valid Entries</b>	Key, Behind Switch, Hybrid/PBX
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	System→Mode→Select mode (Key, Behind Switch, or Hybrid/ PBX)→Enter
<b>PC Procedure</b>	[F1]→[F3]→Select mode (Key, Behind Switch, or Hybrid/PBX)→[F10]

---

### Automatic Maintenance Busy

Automatic Maintenance Busy allows the system to take a malfunctioning trunk out of service for outgoing calls (incoming calls are never blocked). This prevents faulty outside facilities from causing disruptions in outgoing calling patterns.

For optimal performance, enable Automatic Maintenance Busy for Hybrid/PBX systems with pooled trunks.

**NOTE**▶ No more than half of the trunks in a trunk pool are allowed to be placed in the Maintenance Busy state at one time, unless the central office has failed to disconnect a trunk (which prevents anyone from using that trunk) or an entire trunk module is manually taken out of use (a Maintenance-Busy state deliberately caused by the user).

### Summary: Automatic Maintenance Busy

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	1, System Planning
<b>Factory Setting</b>	Disabled
<b>Valid Entries</b>	Enabled, Disabled
<b>Inspect</b>	No
<b>Copy Option</b>	No

**Console Procedure** To disable Automatic Maintenance Busy:  
System→MaintenBusy→Disable→Enter→  
Back

To enable Automatic Maintenance Busy  
excluding tie trunks:  
System→MaintenBusy→Enable→Enter→Back

To enable/disable with tie trunks:  
System→MaintenBusy→Enable→Enter→  
Enable Or Disable→Enter→Back

**PC Procedure** To disable Automatic Maintenance Busy:  
[F1]→[F6]→[F2]→[F10]→[F5]

To enable Automatic Maintenance Busy excluding tie trunks:  
[F1]→[F6]→[F1]→[F10]→[F5]

To enable/disable with tie trunks:  
[F1]→[F6]→[F1]→[F10]→Enable Or Disable→[F10]→[F5]

---

## Set System Date

The System Date feature allows you to set the month, day, and year that appear on 4400-Series and MLX display telephones as well as on Station Message Detail Recording (SMDR) reports.

- NOTES** ►
- If you plan to use the SMDR feature, make sure the current date is set.
  - Where a MERLIN MAGIX Integrated System is networked in a private network with one or more MERLIN MAGIX Integrated Systems, with one or more MERLIN LEGEND Systems 6.0 or later, or with one or more DEFINITY Communications Systems, SMDR reports may report outgoing calls using more than one call record (for example, for tandem calls), depending upon how SMDR is programmed and how calls are routed. Therefore, if SMDR is reporting outgoing calls and users are employing private network lines to make these calls, ensure that the system date and time are set accurately on each system that carries these calls. As you examine call reports, you may need to be aware of time zone differences among networked system locations.

### Summary: Set System Date

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	1, System Planning
<b>Factory Setting</b>	01-01-00

3 Programming Procedures

Basic System Operating Conditions

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<b>Valid Entries</b>	Month: 01 to 12 Day: 01 to 31 Year: 00 to 99
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	System→Date→Drop→Dial current date (Month: 01–12; Day: 01–31; Year: 00–99)→Enter→Back
<b>PC Procedure</b>	[F1]→[F7]→[Drop]→Type current date (Month: 01–12; Day: 01–31; Year: 00–99)→[F10]→[F5]

---

## Set System Time

- NOTES** ►
- The System Time feature allows you to set the time that appears on 4400-Series, MLX, ETR, and MLS display telephones and on SMDR reports.
  - If you are planning to use the SMDR feature, make sure the system time is set accurately. If you change the system time while the system is in Night Service mode, Night Service is deactivated and must be manually reactivated. If you have installed applications such as MERLIN Messaging or Intuity AUDIX, you may need to set the time in the applications software whenever you reset the system time.
  - When a MERLIN MAGIX Integrated System is networked in a private network with one or more MERLIN MAGIX Integrated Systems, with one or more MERLIN LEGEND Systems 6.0 or later, or with one or more DEFINITY Communications Systems, SMDR reports may report outgoing calls using more than one call record (especially for tandem calls), depending upon how SMDR is programmed and how calls are routed. Therefore, ensure that the system date and time are set accurately on each system that carries these calls. When you examine records for network calls, you may need to be aware of time zone differences among different system locations.

## Summary: Set System Time

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not Required
<b>Planning Form</b>	1, System Planning
<b>Factory Setting</b>	0000
<b>Valid Entries</b>	0000 to 2359
<b>Inspect</b>	No
<b>Copy Option</b>	No

**Console Procedure** System→Time→Drop→Dial current time (0000–2359)→  
Enter→Back

**PC Procedure** [F1]→[F8]→[Drop]→Type current time (0000–2359)→[F10]→[F5]

## System Renumbering

The procedures in this section are used to assign the 2-digit, 3-digit, and Set-Up-Space numbering plans for the local MERLIN MAGIX Integrated System.

Do not attempt to assign a numbering plan without Planning Forms 2a, System Numbering: Extension Jacks; 2b, System Numbering: Digital Adjuncts; and 2d, System Numbering: Special Renumbers. Form 6a, Optional Operator Features, is needed to assign a DSS Page button. This section contains the following programming procedures:

- Select System Numbering Plan
- Single Renumbering
- Block Renumbering
- Non-Local Dial Plan Numbering
- Direct Station Selector (DSS) Page Button Assignment

For the local system, you then select only one of the numbering plans (2-digit numbering, 3-digit numbering, or Set-Up-Space numbering). In addition, you may need to perform single and/or block renumbering. You do not need to assign DSS Page buttons unless the system programming console or one of the operator positions is connected to a DSS. No matter which procedures you need to perform, assign the numbering plan first, then do single and/or block renumbering, and finally, assign DSS Page buttons (if necessary).

You may choose non-local dial plan numbering to specify the numbering of extensions connected to remote private network systems and to allow users on your system to access those extensions as if they were connected to your own system. You specify only ranges of extensions.

**NOTE** ▶ Refer to the *Network Reference* for information on private networking and non-local dial plan numbering.

Use the single renumbering procedure whenever the extension numbers you are changing *from or to are not sequential*.

Block renumbering is quicker, but you can use block renumbering only when the extension numbers you are changing *from and to are sequential*.

When trunk or extension modules are removed from the control unit, the remaining modules must be rearranged so that no empty slots remain. The system does not acknowledge any modules installed after an empty slot; therefore, if the system is renumbered, extensions are not assigned to extension jacks after the empty slots.

**NOTE** ▶ [Figure 3-1](#), [Figure 3-2](#), and [Figure 3-3](#) show the factory settings in the gray spaces. Extensions can be renumbered to any number shown in the white spaces.

0	Operator Console (not flexible) 0				
1	Extensions 10–19				
2	Extensions 20–29				
3	Extensions 30–39				
4	Extensions 40–49				
5	Extensions 50–59				
6	Extensions 60–66	Extra Extensions 6700–6842	6843–6849	Extra 4400-Series Adjuncts/ MFMs/ Terminal Adapters 6850–6992	6993–6999
7	Main Pool 70	Adjuncts 710–766	767– 769	Calling Groups 770–791,7920–7929	Paging Groups 793–799
8	800 <sup>1</sup>	Lines/Trunks 801–880	Park 881–888	889 <sup>2</sup>	Pools 890–899
9	ARS Access (Hybrid/PBX mode)/Idle Line Access 9				

1 LDN (QCC Queue)

2 Remote Access

**Figure 3-1. 2-Digit Numbering**

0	Operator Console (not flexible) 0				
1	Extensions 100–199				
2	Extensions 200–299				
3	4400-Series/MLX Adjuncts 300–399				
4	4400-Series/MLX Adjuncts 400–499				
5	500–599				
6	600–699				
7	Main Pool 70	71–76	Calling Groups 770–791, 7920–7929		Paging Groups 793–799
8	800 <sup>1</sup>	Lines/Trunks 801–880	Park 881–888	889 <sup>2</sup>	Pools 890–899
9	ARS Access (Hybrid/PBX mode)/Idle Line Access 9				

1 LDN (QCC Queue)

2 Remote Access

Figure 3-2. 3-Digit Numbering

0	Operator Console (not flexible) 0					
1	100–199					
2	200–299					
3	300–399					
4	400–499					
5	500–599					
6	600–699					
7	Main Pool 70	Extensions 7100–7299	4400-Series/ MLX Adjuncts 7300–7499	7500–7699	Calling Groups 770–791, 7920–7929	Paging Groups 793–799
8	800 <sup>1</sup>	Lines/Trunks 801–880		Park 881–888	889 <sup>2</sup>	Pools 890–899
9	ARS Access (Hybrid/PBX mode)/Idle Line Access 9					

1 LDN (QCC Queue)

2 Remote Access

Figure 3-3. Set-Up-Space Numbering

---

## Select System Numbering Plan

### WARNING:

*To avoid possible loss of system programming information, renumber the system before you program the rest of the options described in this chapter.*

The three available local system numbering plans listed below appear on System Planning Form 2a.

- **Two-Digit.** This plan is for systems with fewer than 50 extensions and no plans to exceed that number in the foreseeable future. Each of the first 58 extension jacks is assigned a 2-digit extension number, beginning with 10 and ending with 67. Any remaining extensions are assigned 4-digit numbers, starting with 6700 and ending with 6842.
- **Three-Digit.** This plan is for systems with 50 or more extensions or plans to grow to that number in the foreseeable future. All extensions are assigned a 3-digit number, starting with 100 and ending with 299.
- **Set-Up-Space.** This plan is for systems with a need to customize extension numbers or use extension numbers of varying lengths (one to four digits). All extensions are assigned 4-digit numbers in the 7000 range. Extension numbers 1000–6999 are also available for use when you renumber.

In all three local numbering plans, the system assigns 3-digit extension numbers to pools (Hybrid/PBX only), Calling Groups, Paging Groups, Remote Access codes, the Listed Directory Number, park codes, and Idle Line Access (Key and Behind Switch modes). In addition, the system assigns 9 for Automatic Route Selection (Hybrid/PBX only) and Idle Line Access (Key and Behind Switch only). Zero (0) represents a special extension number—actually a fixed dial code—for the primary operator or QCC queue. Any extension number except 0 can be renumbered.

Extension numbers can be composed of any combination of digits; however, no number can begin with 0. Trunk numbers (801–880) are considered to be extensions and can be renumbered.

The system does not provide a message to indicate a successful renumber when either the 2-digit or 3-digit numbering plan is selected. For the Set-Up-Space numbering plan, the system provides a message indicating that all extensions are in the 7000 range.

### CAUTION:

*Select Back on the console, or click **F5** on the PC display, when you have finished selecting the numbering plan. If you press Exit (4424LD+ console) or Home (MLX-20L console), extensions may remain in the forced idle condition (indicated when the LED next to each DSS button is on). To restore extensions to their normal operating state, restart the system.*

### Summary: Select System Numbering Plan

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	System idle
<b>Planning Form</b>	2a, System Numbering: Extension Jacks
<b>Factory Setting</b>	2-Digit
<b>Valid Entries</b>	2-Digit, 3-Digit, SetUp-Space
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	SysRenumber→Default Numbering→ Select numbering plan (2-Digit, 3-Digit, SetUp-Space)→Back→Back
<b>PC Procedure</b>	<input type="button" value="F2"/> → <input type="button" value="F1"/> → Select numbering plan (2-Digit, 3-Digit, SetUp-Space) → <input type="button" value="F5"/> → <input type="button" value="F5"/>

### Single Renumbering

Use this procedure to assign a specified extension number to a telephone, accessory, line, pool (Hybrid/PBX only), Calling Group, Paging Group, or Listed Directory Number. Single renumbering is also used for Remote Access, Park, Idle Line Access (Key and Behind Switch only), and Automatic Route Selection (Hybrid/PBX only).

#### CAUTION:

*Select Back on the console, or click  on the PC display, after renumbering extensions. If you press Exit (4424LD+ console) or Home (MLX-20L console), extensions may remain in the forced idle condition (indicated when the LED next to each DSS button is on). To restore extensions to their normal operating state, restart the system.*

When required, this procedure should be performed immediately following the selection of a system numbering plan.

### Summary: Single Renumbering

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	System idle
<b>Planning Form</b>	2a, System Numbering: Extension Jacks 2b, System Numbering: Digital Adjuncts 2d, System Numbering: Special Renumbers
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Old and new extension numbers

<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	SysRenumber→Single→Select item→Dial old ext. no.→ Enter→Dial new ext. no.→Enter→Back→Back
<b>PC Procedure</b>	[F2]→[F2]→Select item→Type old ext. no.→[F10]→ Type new ext. no.→[F10]→[F5]→[F5]

## Block Renumbering

Use this procedure to assign extension numbers to a group of extensions, accessories, or lines. Both the original numbers and the numbers they are being changed to must be sequentially numbered.

When required, this procedure should be performed immediately following the selection of a system numbering plan.

 **CAUTION:**  
 Select Back on the console, or click [F5] on the PC display, when you have finished renumbering extensions. If you press Exit (4424LD+ console) or Home (MLX-20L console), extensions may remain in the forced idle condition (indicated when the LED next to each DSS button is on). To restore extensions to their normal operating state, restart the system.

### Summary: Block Renumbering

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	System idle
<b>Planning Form</b>	2a, System Numbering: Extension Jacks 2b, System Numbering: Digital Adjuncts 2d, System Numbering: Special Renumbers
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Old and new extension numbers
<b>Inspect</b>	Yes
<b>Copy Option</b>	Yes
<b>Console Procedure</b>	SysRenumber→Block→Select type of group→ Dial no. of first group member→Enter→ Dial no. of last group member→Enter→Dial new beginning no.→ Enter→Back→Back→Back
<b>PC Procedure</b>	[F2]→[F3]→Select type of group→Type no. of first group member→[F10]→Type no. of last group member →[F10]→ Type new beginning no.→[F10]→[F5]→[F5]→[F5]

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## Non-Local Dial Plan Extension Ranges

The System Manager can enter ranges of extensions for non-local systems networked to the local MERLIN MAGIX Integrated System. The process does not affect programming on non-local systems, each system must be individually programmed.

The maximum number of digits (1 to 11) the user can enter to reach an extension on the non-local system is specified for each non-local dial plan extension range. This accelerates dialing by allowing call processing to act immediately when the number of digits entered equals the number specified.

This topic describes the following procedures:

- Specifying new extension number ranges
- Deleting extension number ranges

The extension ranges you enter using this procedure are the numbers that users on your system dial in order to make calls to users on the non-local system. Users select a System Access (SA) button and dial these calls in the same way that they dial inside calls on your local system. In most cases they should be the same numbers that users in the non-local system dial to reach one another. Numbering must be planned to avoid conflicts and provide unambiguous extension numbers across private networks.

**NOTE** ► It is recommended that all extensions in a range be of the same length to help minimize call processing times. For private networks that include Centralized Voice Messaging, it is recommended that all extensions in the private network be of the same length. See the *Network Reference* for additional considerations.

Non-local dial plan calls are routed over pools of private trunks using UDP routing. Maintaining existing dial plans when systems are connected in a private network may not be possible due to ambiguity or when one system's dial plan changes. UDP routing using digit absorption and digit prepending, which allow dialed numbers to be modified before they are actually sent to the remote system, may help to minimize changes. However, this will quickly increase dial plan complexity for private network UDP calls and can affect Centralized Voice Messaging operation. Therefore, these techniques should not be used except in special cases for non-local private network UDP calls. Deleting and prepending digits are very useful methods and are easily set up for routing non-local dial plan calls over the PSTN, if necessary. For additional information about UDP routing, see ["Uniform Dial Plan Routing" on page 3-186](#).

 **WARNING:**

*Use extreme caution when employing the Default Numbering option of System Renumbering. Any numbering you have entered is erased and the system numbering is set to factory settings.*

- NOTES** ►
- The Default Numbering option of System Renumbering renumbers local system extensions only. It also removes the local system's non-local dial plan entries.
  - Non-local dial plan ranges on local systems should be large enough to minimize range renumbering when a remote system changes. When the numbering of a remote system changes, the System Manager should check the new external numbers and ascertain their impact on the non-local dial plan numbers accessed using this procedure, then make changes manually.

## Specifying New Extension Ranges

This procedure verifies that extension numbers on the local system do not conflict with those on a non-local private network switch. For example, if Extension 110 exists in the local system, Extension 1100 cannot exist on a non-local system. It also checks to see whether new extension number ranges conflict with existing ranges set for the non-local system.

MERLIN MAGIX Integrated System non-local dial plan numbering supports extensions up to 4 digits in length (2-, 3-, or 4-digit dial plans), while DEFINITY Communications Systems have 5-digit extension numbers. There are two methods you can use to number DEFINITY non-local dial plan ranges.

Choose one of the following techniques, depending upon the actual extension numbers you are entering in ranges and potential conflicts:

- Specify ranges that include the first four digits in the extension numbers. Each number you enter in the procedure represents 10 numbers in the remote system. For example, an extension range entered as 4321 through 4322 represents remote extensions 43210 through 43220. Users actually dial five digits. The local system recognizes the number range by the first four digits. Program the number of dial digits to 5.
- Enter the last four digits and use UDP routing to prepend the first digit in the DEFINITY extension number. The local system recognizes the number range using the last four digits. Users dial only the last four digits. This method must be used for DID trunks that terminate on a MERLIN MAGIX system which have numbers in the DID range that terminate on a DEFINITY System. For details about UDP routing, see [“Uniform Dial Plan Routing” on page 3-186](#). Program the number of dial digits to 4.

An extension range may stipulate a single extension number.

Renumbering of non-local extensions does not require putting those extensions in the forced-idle condition on the remote system.

The pattern number specified in this procedure creates an index into a group of routes that are used to connect to the non-local dial plan extensions. More than one range of extensions can use the same pattern number. UDP routes within a pattern are assigned pools, routes, and other attributes. For more information, see [“Uniform Dial Plan Routing” on page 3-186](#).

 **SECURITY ALERT:**

*Do not program the remote system ARS access code into the non-local dial plan. To do so will allow unauthorized calling over remote system facilities. If the local system interprets the number as an extension on the remote system, no ARS restriction checking is performed locally. Remote systems normally do not perform ARS restriction checking.*

**Summary: Specifying New Extension Ranges**

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	None
<b>Planning Form</b>	2a, System Numbering: Extension Jacks 2b, System Numbering: Digital Adjuncts 2d, System Numbering: Special Renumbers Non-Local Dial Plan Administration Form in the Installation Specification
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Starting and ending numbers for old and new extension ranges
<b>Ranges</b>	50
<b>Inspect</b>	Yes, existing number ranges
<b>Copy Option</b>	No
<b>Console Procedure</b>	SysRenumber→NonLocal UDP→Dial no. of first extension in range→Enter→Dial no. of last extension in range→Enter→Dial max. no. of digits user can enter to reach an extension in the range (1-11)→Enter→Dial no. of pattern for extension range→Enter→Back→Back
<b>PC Procedure</b>	[F2]→[F4]→Type no. of first extension in range→[F10]→Type no. of last extension in range→[F10]→Type max. no. of digits user can enter to reach an extension in the range (1-11)→[F10]→Type no. of pattern for extension range→[F10]→[F5]→[F5]

**Deleting Extension Ranges**

This procedure deletes the numbering for specified extension ranges of a non-local system and can be used, for example, to prepare for renumbering local or remote system extensions.

## Summary: Deleting Extension Ranges

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	None
<b>Planning Form</b>	2a, System Numbering: Extension Jacks 2b, System Numbering: Digital Adjuncts 2d, System Numbering: Special Renumbers Non-Local Dial Plan Administration Form in the Installation Specification
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Starting numbers for extension ranges to be deleted
<b>Inspect</b>	Yes: existing number ranges
<b>Copy Option</b>	No
<b>Console Procedure</b>	SysRenumber→NonLocal UDP→Dial no. of first extension in range→Enter→DelRange→Back→ Back
<b>PC Procedure</b>	<input type="button" value="F2"/> → <input type="button" value="F4"/> → Type no. of first extension in range → <input type="button" value="F10"/> → <input type="button" value="F8"/> → <input type="button" value="F5"/> → <input type="button" value="F5"/>

---

## Direct Station Selector (DSS) Page Buttons

Use this procedure to set the three Page buttons on the DSS to correspond to the system numbering plan. This procedure assigns extension numbers to DSS buttons. The procedure is the same for MLX DSS and DSS 4450 when used with 4424LD+ and 4424D+ telephones. You cannot program individual buttons on a DSS; this is the only method for programming DSS buttons.

Page button assignment should be sequential. If only one DSS is attached, each Page button assignment sets the console for a range of 50 extension numbers: Page 1: 0 to 49; Page 2: 50 to 99; Page 3: 100 to 149.

If two DSSs are attached, each Page button assignment sets the console for a range of 100 extension numbers. If two DSSs are attached to the console, change the factory setting so that the difference between extension numbers assigned to the range is at least 100. For example, assign Page 1 to begin with extension 10, Page 2 to begin with extension 110, and Page 3 to begin with extension 210.

Operator Park Zone codes must be included in the extension number range specified for one of the Page buttons.

 **CAUTION:**

Select **Back** on the console, or click **F5** on the PC display, when you have finished this procedure. If you press **Exit** (4424LD+ console) or **Home** (MLX-20L console), extensions may remain in the forced idle condition (the LED next to each DSS button is on), and the system may have to be restarted.

### Summary: Assign Direct Station Selector Page Buttons

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	Form 6a, Optional Operator Features
<b>Factory Setting</b>	Page 1=0; Page 2=50; Page 3=100
<b>Valid Entries</b>	1, 2, 3
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	SysRenumbr→Single→More→DSS Buttons→ Dial page no. (1-3)→Enter→Dial first ext. no.→ Enter→Back→ Back
<b>PC Procedure</b>	<b>F2</b> → <b>F2</b> → <b>PgUp</b> → <b>F1</b> → Type page no. (1-3) → <b>F10</b> → Type first ext. no. → <b>F10</b> → <b>F5</b> → <b>F5</b>

## System Operator Positions

A system operator position, for a Queued Call Console (QCC) operator or a Direct-Line Console (DLC) operator, should be programmed before you program lines or trunks.

Use the following procedures to add an operator position or change an existing operator position.

The QCC operator position is available only for Hybrid/PBX systems. The DLC operator position is available in any mode and must be programmed if you have Call Management Systems connected to any operator extension jacks.

[Table 3-1](#) shows the maximum number of operator positions allowed for any one system.

**Table 3-1. Maximum Number of Operator Positions**

Position Type	Type of Telephone	Maximum Positions
QCC	4424LD+ MLX-20L	4
DLC	4424D+ 4424LD+ MLX-20L MLX-28D	8
Total QCC + DLC		8

Any combination of operator positions can be assigned as long as no more than four operator positions are QCCs and the total number of operator positions does not exceed eight.

If you want to designate a new operator position and the system already has the maximum number of operator positions, you must change an existing operator position to a nonoperator position before you designate a new operator position.

**NOTE** ► When you change an extension to an operator position, or vice versa, the system returns the port (extension jack) type of that extension to the factory setting. You must reprogram lines and any features for that telephone or console. You may also need to change any attached accessory equipment and optional features.

## Primary Operator Positions

The primary operator position is the extension to which your call is directed when 0 is dialed on a System Access button. The first extension jack on the first TDL or MLX module in your system is assigned as the primary operator position. If your system has QCC operator positions, this position must be changed from the factory setting (DLC) to a QCC operator position. (The primary operator extension cannot be changed from the first extension on the first TDL or MLX module.)

## QCC System Operator Positions

This procedure applies to Hybrid/PBX systems only. Note that both QCC and DLC operator positions can be assigned with this procedure, although its primary purpose is to assign QCC operator positions.

QCC operators serve as central answering positions for all incoming calls. Incoming calls are held in the QCC queue and are directed to each QCC operator in a prioritized sequence. The calls are received one at a time, regardless of the number of incoming calls to the system.

Additional QCC operator positions can be assigned only to the first and fifth extension jacks of the 412 LS-ID-TDL, 008 MLX, or 408 GS/LS-ID-MLX modules. You can also assign QCC operator positions to the first, fifth, thirteenth, and seventeenth extension jacks of the 024 TDL modules or to the first, fifth, ninth, and thirteenth extension jacks of the 016 MLX modules. A maximum of four QCC operator positions can be assigned. Use this procedure to specify QCC operator positions that serve as central answering positions for all incoming calls.

**NOTE** If you want to add or remove QCC operator positions, the following conditions apply:

- If other QCC positions remain in your system, the primary QCC operator position cannot be removed.
- When QCC operator positions are added, the primary QCC operator position should be the first one added.
- If QCC operator positions are being removed, the primary QCC operator position must be the last one removed.

### Summary: QCC Operator Positions

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	System idle
<b>Planning Form</b>	2a, System Numbering: Extension Jacks
<b>Factory Setting</b>	Type: DLC
<b>Valid Entries</b>	First or fifth extension jack on the 412 LS-ID-TDL, 008 MLX, or 408 GS/LS-ID-MLX modules (maximum: two per module; four QCCs per system). First, fifth, thirteenth, or seventeenth extension jack on an 024 TDL module. First, fifth, ninth, or thirteenth extension jack on an 016 MLX module.
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Operator→Positions→Queued Call→Dial ext. no.→ Enter Or Delete→Store All
<b>PC Procedure</b>	F3 → F1 → F2 → Type ext. no. → F10 or F8 → F3

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## DLC Operator Positions

DLC operator positions can be assigned to the first and fifth extension jacks on the first 412 LS-ID-TDL, 008 MLX, or 408 GS/LS-ID-MLX modules with extension jacks. You also can assign DLC operator positions to the first, fifth, thirteenth, or seventeenth extension jacks on the 024 module or to the first, fifth, ninth, and thirteenth extensions jacks on the 016 MLX modules. A maximum of eight DLC operator positions can be assigned. Any combination of operator positions can be assigned as long as there are no more than four QCC operator positions and no more than a total of eight operator positions.

Use this procedure to specify extensions that serve as central answering positions for all incoming calls or as Calling Group supervisor extensions. (You do not need to use this procedure in a Key or Behind Switch system unless you have more than one DLC position.) For a new system, remove the factory-set DLC operator position assignment for any telephone not used as an operator position.

Lines and trunks are assigned to individual buttons.

### Summary: Identify or Remove DLC Operator Positions

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	System idle
<b>Planning Form</b>	2a, System Numbering: Extension Jacks
<b>Factory Setting</b>	Type: DLC
<b>Valid Entries</b>	First or fifth extension jack on the 412 LS-ID-TDL, 008 MLX, or 408 GS/LS-ID-MLX modules (maximum: two per module; eight DLCs per system). First, fifth, thirteenth, or seventeenth extension jack on an 024 TDL module First, fifth, ninth, or thirteenth extension jack on the 016 MLX module.
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Operator→Positions→Direct Line→Dial ext. no.→ Enter Or Delete→Store All
<b>PC Procedure</b>	[F3]→[F1]→[F1]→Type ext. no.→[F10] or [F8]→[F3]

## Lines and Trunks

The procedures in this section are used to assign optional features to individual lines and trunks. The following optional features can be assigned:

- Type of Trunk
- Outmode Signaling for Loop- or Ground-Start Trunks
- Rotary Trunk Digit Transfer
- Disconnect Signaling Reliability
- Toll Type
- Hold Disconnect Interval
- Principal User for Personal Line
- QCC Queue Priority
- QCC Operator to Receive Calls
- Incoming Call Line Identification Delay
- Trunks to Pools Assignment

The Copy Options feature (described at the end of this section) allows you to copy several optional features from an idle trunk. This option eliminates the need to individually enter each feature.

Separate sections cover [“DS1 Facilities,”](#) [“Tie Trunks,”](#) [“Block Assignment,”](#) [“PRI Facilities,”](#) and [“BRI Facilities.”](#)

A slot is the physical location of the individual module on the control unit. There is a maximum of 17 slots, which are numbered as follows:

- Basic carrier: slots 1 through 5
- First expansion carrier: slots 6 through 11
- Second expansion carrier: slots 12 through 17

A port is a line or trunk jack on the module. Individual modules support different numbers of ports. On any module, port 1 is the lowest physical jack position. For modules with both line and extension jacks, the port numbers for the line jacks follow the numbers for the extension jacks instead of beginning with 1. For example, for a 408 LS-ID-MLS module, the port numbers for the extension jacks are 01 through 08 and the port numbers for the line jacks are 09 through 12.

## Type of Trunk

Use this procedure to specify the type of trunk, loop-start (LS) or ground-start (GS), for each outside trunk connected to one of the following modules:

- 412 LS-ID-TDL
- 408 GS/LS-ID-MLX
- 800 GS/LS-ID (loop-start trunks only)

Any combination of trunk types (all loop-start, all ground-start, or some of each) is permissible.

This procedure is not used for a system registered with a KF registration number (Key or Behind Switch). Ground-start trunks are allowed only for systems with an MF (Hybrid) or PF (PBX) registration number.

### Summary: Type of Trunk

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	2c, System Numbering: Line/Trunk Jacks
<b>Factory Setting</b>	All Loop-Start
<b>Valid Entries</b>	All Ground, All Loop, Ground-Start, Loop-Start
<b>Inspect</b>	Yes
<b>Copy Option</b>	Yes
<b>Console Procedure</b>	LinesTrunks→LS/GS/DS1→Dial slot no. (1-17)→Enter→ Select trunk type (all ground, all loop, ground-start, or loop-start)→ Dial port no.→Enter→Back→Back
<b>PC Procedure</b>	[F4]→[F1]→Type slot no. (1-17)→[F10]→Select trunk type (all ground, all loop, ground-start, or loop-start)→Type port no.→[F10]→ [F5]→[F5]

## Outmode Signaling for Loop- or Ground-Start Trunks

Use this procedure to identify either touch-tone signaling or rotary-dial signaling for outgoing calls placed by using the specified loop- or ground-start trunk.

**NOTE** ▶ Since the factory setting is Touch-Tone, this procedure is not required if your system has only Touch-Tone lines/trunks.

## Summary: Outmode Signaling for Loop- or Ground-Start Trunks

<b>Programmable by</b>	System Manager
<b>Mode</b>	Loop-Start: All; Ground-Start: Hybrid/PBX only
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	2c, System Numbering: Line/Trunk Jacks
<b>Factory Setting</b>	Touch-Tone
<b>Valid Entries</b>	Touch-Tone, Rotary
<b>Inspect</b>	No
<b>Copy Option</b>	Yes
<b>Console Procedure</b>	<p>To program a single-line/trunk:                  LinesTrunks→TT/LS Disc→Outmode→                  Select entry mode (Touch-Tone or rotary)→Dial no. of line/trunk→                  Enter or Delete→Back→Back→Back</p> <p>To program a block of lines/trunks:                  LinesTrunks→TT/LS Disc→OutMode→                  Select block of lines/trunks→Toggle LED On/Off→                  Enter or Delete→Back→Back→Back</p>
<b>PC Procedure</b>	<p>To program a single-line/trunk:                  F4 → F3 → F1 → F6 (Touch-Tone or rotary)→                  Type no. of the line/trunk → F10 or F8 → F5 → F5 → F5</p> <p>To program a block of lines/trunks:                  F4 → F3 → F1 → Select block of lines/trunks→                  Toggle letter G On/Off → F10 or F8 → F5 → F5 → F5</p>

## Rotary Trunk Digit Transfer

Use this procedure to designate whether dialed digits on rotary-dial lines/trunks are sent one by one as they are dialed (no delay), or are stored and sent when dialing is completed (delay). Contact your service provider for more information about the appropriate setting.

## Summary: Rotary Trunk Digit Transfer

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	Form 8a, System Features
<b>Factory Setting</b>	No Delay
<b>Valid Entries</b>	Delay, No Delay

<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Options→More→Rotary→Select option (Delay or No Delay)→Enter→Back
<b>PC Procedure</b>	[F7]→[PgUp]→[F4]→Select option (Delay or No Delay)→[F10]→[F5]

## Ringling Frequency

Use this procedure to program the ringing frequency on an 016 (T/R) module. Contact your service provider for more information about the appropriate setting.

### Summary: Ringling Frequency

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	Form 8a, System Features
<b>Factory Setting</b>	20 Hz
<b>Valid Entries</b>	20 Hz, 25 Hz
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Options→More→Ringling Freq→Dial slot no. (1–17)→Select 20Hz or 25Hz→Enter→Back
<b>PC Procedure</b>	[F7]→[PgUp]→[F8]→Type slot no. (1–17)→Select 20Hz or 25Hz→[F10]→[F5]

## Second Dial Tone Timer

Use this procedure to program the second dial tone timer. The second dial tone timer sets a delay in providing a dial tone after a star code is dialed to obtain special services from the central office. See the *Feature Reference* for information about programming the second dial tone timer to prevent toll fraud.

### Summary: Second Dial Tone Timer

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	8a, System Features

<b>Factory Setting</b>	0 ms
<b>Valid Entries</b>	0–5,000 ms, in increments of 200 ms
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Options→More→SecDT→Drop→Dial second dial tone timer value (0–5000 ms, in increments of 200 ms)→Enter→Back
<b>PC Procedure</b>	[F7]→[PgUp]→[F9]→[Drop]→Type second dial tone timer value (0–5000 ms, in increments of 200 ms)→[F10]→[F5]

## Disconnect Signaling Reliability

Use this procedure to classify the disconnect signal sent by the central office on loop-start trunks as one of the following:

- **Reliable.** Signal sent within a short time.
- **Unreliable.** Signal may not be provided.

### SECURITY ALERT:

*Toll fraud can occur if you have loop-start trunks with unreliable disconnect. In this situation, if someone calls you and you hang up, the central office could send dial tone before the caller hangs up, allowing the caller to place another call as if it originated at your company.*

The setting selected applies to all trunks in the system because trunks cannot be programmed individually. The reliable/unreliable setting does not apply to loop-start trunks emulated on a T1 facility. If you specify a reliable disconnect for trunks programmed with a short hold disconnect interval (see [“Hold Disconnect Interval” on page 3-29](#)), active calls, as well as trunks on hold, may be disconnected. For more information about reliable and unreliable disconnect and its implications, see the *Feature Reference*.

**NOTE** ► Certain features (Remote Call Forwarding and Transfer to outside numbers), applications (MERLIN Messaging System, Octel 100, and Intuity AUDIX), and private network systems are not recommended with loop-start trunks. See [“Hold Disconnect Interval” on page 3-29](#).

## Summary: Disconnect Signaling Reliability

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	2c, System Numbering: Line/Trunk Jacks
<b>Factory Setting</b>	Unreliable
<b>Valid Entries</b>	Unreliable, Reliable

<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→TT/LS Disc→LS Disconnect→ Select Yes Or No→ Enter→Back→Back
<b>PC Procedure</b>	[F4] → [F3] → [F2] → Select Yes or No → [F10] → [F5] → [F5]

## Toll Type

Use this procedure to specify whether users have to dial a toll prefix (1 or 0) before dialing an area code and telephone number. (Your local telephone company should verify toll prefix requirements for each line/trunk.)

This setting is used by the system to classify calls as local or long distance, so that appropriate Toll Restrictions can be applied.

**NOTE** ► This option applies only to loop- and ground-start trunks; it does not apply to tie trunks or DID trunks.

### Summary: Toll Type

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	2c, System Numbering: Line/Trunk Jacks
<b>Factory Setting</b>	Toll prefix required
<b>Valid Entries</b>	Required, Not required
<b>Inspect</b>	No
<b>Copy Option</b>	Yes
<b>Console Procedure</b>	To program a single-line/trunk: LinesTrunks→Toll Type→Select entry mode→ Dial no. of the line/trunk→Enter or Delete→Back→Back→Back  To program a block of lines/trunks: LinesTrunks→Toll Type→Select block of lines/trunks→ Toggle LED On/Off→Enter or Delete→Back→Back→Back

**PC Procedure**

To program a single-line/trunk:

[F4] → [F10] → [F6] → Type no. of the line/trunk → [F10] or [F8] →  
 [F5] → [F5] → [F5]

To program a block of lines/trunks:

[F4] → [F10] → Select block of lines/trunk → Toggle letter G → On/Off →  
 Select Enter or Delete → [F5] → [F5] → [F5]

**Hold Disconnect Interval**

Use this procedure to specify the number of milliseconds before a loop-start line/trunk is released when a caller on hold hangs up and abandons the call. This can be specified as either a long interval (450 ms) or a short interval (50 ms). The hold disconnect interval applies to loop-start trunks; it does not apply to emulated loop-start trunks (T1 facility).

- NOTES** ▶
- If the disconnect interval is longer than the telephone company setting, the line is not released when a caller on hold hangs up.
  - Do not program a short interval unless the local telephone company's central office is the crossbar type.
  - Do not program a reliable disconnect for lines/trunks with a short hold disconnect interval. This can cause active calls as well as lines/trunks on hold to be disconnected. [See "Disconnect Signaling Reliability" on page 3-27.](#)

For more information on Hold Interval Disconnect and Reliable and Unreliable Disconnect, see the *Feature Reference*.

**Summary: Hold Disconnect Interval**

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	2c, System Numbering: Line/Trunk Jacks
<b>Factory Setting</b>	Long interval (450 ms)
<b>Valid Entries</b>	Long interval, Short interval
<b>Inspect</b>	No
<b>Copy Option</b>	No

- Console Procedure** To program a single-line/trunk:  
 LinesTrunks→More→HoldDiscnct→Select entry mode→  
 Dial no. of the line/trunk→ Enter→Back→Back
- To program a block of lines/trunks:  
 LinesTrunks→More→HoldDiscnct→Select block of lines/  
 trunks→Toggle LED On/Off→Enter→Back→Back
- PC Procedure** To program a single-line/trunk:  
 F4 → PgUp → F1 → F6 → Type no. of the line/trunk →  
 F10 → F5 → F5
- To program a block of lines/trunks:  
 F4 → PgUp → F1 → Select block of lines/trunks →  
 Toggle letter G On/Off → F10 → F5 → F5

## Principal User for Personal Line

Use this procedure to assign or remove one telephone as principal user for a Personal Line. When a telephone with Remote Call Forwarding activated is assigned as principal user, calls received on the Personal Line are forwarded to an outside telephone number. In addition, calls received on that line are sent to that telephone's individual and/or Group Coverage receivers unless the Personal Line button is set to No Ring.

The principal user assignment must be removed before the trunk can be removed from a button on the telephone.

When no principal user is assigned for a Personal Line, calls received on the Personal Line are not forwarded to outside telephone numbers; calls received on the Personal Line follow the coverage patterns for all users who share the line.

### Summary: Principal User for Personal Line

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	4l, Extension Copy: Multiline 4400-Series Telephone Template 4m, Multiline 4400-Series Telephone 4d, MLX Telephone 4e, MFM Adjunct: MLX telephone 4f, Tip/Ring Equipment 5b, Direct Line Console 5c, MFM Adjunct: DLC
<b>Factory Setting</b>	No principal user
<b>Valid Entries</b>	Not applicable
<b>Inspect</b>	No

<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→More→PrncipalUsr→Dial line/trunk no.→Enter→Dial ext. no.→Enter or Delete→Back→Back
<b>PC Procedure</b>	[F4]→[PgUp]→[F2]→Type line/trunk no.→[F10]→ Type ext. no.→ Select Enter or Delete→[F5]→[F5]

## QCC Queue Priority Level

Use this procedure to assign QCC queue priority level values (1 to 7) to each loop-start, ground-start, and automatic-in tie trunk in your system. The value assigned determines the order in which calls are sent to the QCC operator positions. Call priority 1 is the highest priority, and 7 is the lowest priority.

**NOTE** ► This procedure applies to Hybrid/PBX mode only in a system that includes QCC operator positions.

### Summary: QCC Queue Priority Level

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	2c, System Numbering: Line/Trunk Jacks
<b>Factory Setting</b>	4
<b>Valid Entries</b>	1 to 7
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	To program a single-line/trunk: LinesTrunks→More→QCC Prior→Dial priority level (1–7)→ Enter→Select entry mode→Dial trunk no.→Enter→Back→Back  To program a block of lines/trunks: LinesTrunks→More→QCC Prior→Dial priority level (1–7)→ Enter→Select block of lines→Toggle LED On/Off→Enter→ Back→Back
<b>PC Procedure</b>	To program a single-line/trunk: [F4]→[PgUp]→[F3]→Type priority level (1–7)→Select entry mode→ Type trunk no.→[F10]→[F5]→[F5]  To program a block of lines/trunks: [F4]→[PgUp]→[F3]→Type priority level (1–7)→[F10]→ Select block of lines→Toggle letter G On/Off→[F10]→[F5]→[F5]

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## QCC Operator to Receive Calls

Use this procedure to specify whether or not incoming calls on each line/trunk ring into the QCC queue and to identify the QCC system operator positions that receive incoming calls on each line/trunk.

- NOTES** ▶
- This procedure applies to Hybrid/PBX mode only in a system that includes QCC operator positions.
  - Each ground-start, loop-start, or automatic-in tie trunk programmed to ring into the QCC queue can be associated with one or more QCC operator positions.
  - If a trunk assigned to ring into the QCC queue is also used for shared Remote Access, see [“Remote Access Features” on page 3-165](#) for instructions. You must assign Remote Access before you assign a QCC system operator to receive calls. See [“QCC Operator to Receive Call Types” on page 3-125](#) for more information.
  - Do not change the factory setting of No QCC Operator Assigned to Receive Calls for trunks dedicated to incoming calls for Calling Groups, trunks used as Personal Lines, DID trunks, unequipped DS1 trunks, or dial-in tie trunks.

### Summary: QCC Operator to Receive Calls

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	2c, System Numbering: Line/Trunk Jacks
<b>Factory Setting</b>	No QCC operator is assigned to receive calls.
<b>Valid Entries</b>	Extension number of first or fifth extension jack
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	To program a single-line/trunk: LinesTrunks→More→QCC Oper→Dial ext. no.→Enter→ Select entry mode→Dial line/trunk no.→Enter→Back→Back  To program a block of lines/trunks: LinesTrunks→More→QCC Oper→Dial ext. no.→Enter→ Select block of lines/trunks→Toggle LED On/Off→Enter→Back→ Back

**PC Procedure**

To program a single-line/trunk:

[F4] → [PgUp] → [F4] → Type ext. no. → [F10] → [F6] → Type line/trunk no. → [F10] → [F5] → [F5]

To program a block of lines/trunks:

[F4] → [PgUp] → [F4] → Type ext. no. → [F10] →

Select block of lines/trunks → Toggle letter G On/Off → [F10] → [F5] →

[F5]

## Loop-Start Identification Delay

Use this procedure to delay the alerting (ringing) of calls arriving at all extensions that are on loop-start lines/trunks connected to a 412 LS-ID-TDL, 408 GL/LS-ID MLX, or 800 GS/LS-ID module, until approximately six seconds have elapsed since the port module informed the system software that the line was ringing, or until the system software has been informed that Caller ID information is available, whichever comes first.

This option can be programmed on a per-trunk basis. It gives the appearance to the users that the Caller-ID information is available the moment the call arrives at the extension, and prevents applications or adjuncts from answering the call too soon.

The LS-ID Delay setting appears on the Ground-Start/Loop-Start Trunk Information report.

Any extension or adjunct that answers an incoming central office line on the first ring causes the Caller ID information associated with the call to be lost. The adjunct must be programmed to either answer the call on the second (or later) ring, or delay the call. The call can be delayed either by setting the ring option on the buttons associated with the adjunct or by using the LS-ID Delay option.

**NOTE** ► Caller-ID information is not available on ground-start lines/trunks.

### Summary: Loop-Start Identification Delay

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	2c, System Numbering: Line/Trunk Jacks
<b>Factory Setting</b>	No delay
<b>Valid Entries</b>	Loop-start line/trunk numbers
<b>Inspect</b>	Yes
<b>Copy Option</b>	Yes, but only to the same trunk type

**Console Procedure**

To program a single-line/trunk:

LinesTrunks→More→LS-ID Delay→Select entry mode→  
 Dial no. of the line/trunk→Enter→Back→ Back

To program a block of lines/trunks:

LinesTrunks→More→LS-ID Delay→Select block of lines/trunks→  
 Toggle LED On/Off→Enter→Back→ Back

**PC Procedure**

To program a single-line/trunk:

[F4] → [PgUp] → [F6] → [F6] → Type no. of the line/  
 trunk → [F10] → [F5] → [F5]

To program a block of lines/trunks:

[F4] → [PgUp] → [F6] → Select block of lines/trunks →  
 Toggle letter G On/Off → [F10] → [F5] → [F5]

## Clock Synchronization

**NOTE** ► The following information is for planning clock synchronization in systems that are not part of a private network. For planning clock synchronization in a private network configuration, see the *Network Reference*.

Use this procedure to specify the primary, secondary, and tertiary clock source. A clock source may be either a 100D or 100R module or a port on an 800 NI-BRI module. See the *Feature Reference* for more information about the appropriate setting. If the clock is taken from a 100D or 100R module, you can also specify whether the clock is synchronized to the outside endpoint (loop) or to the clock reference source (local).

**NOTE** ► This procedure is necessary only if your system includes an 800 NI-BRI module or more than one 100D or 100R module.

### Summary: Clock Synchronization

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3b, Incoming Trunks: DS1 Connectivity 100D and 100R module 3i, Incoming Trunks: BRI Options
<b>Factory Setting</b>	Primary clock: the first 100D/100R module in the control unit carrier
<b>Valid Entries</b>	Primary, Secondary, Tertiary, Loop/Local
<b>Inspect</b>	No
<b>Copy Option</b>	No

**Console Procedure**      LinesTrunks→More→ClockSync→Primary→  
 Dial slot no. (1-17)→Enter→Dial port no. or select source of  
 synchronization→Enter→Secondary→ Dial slot no. (1-17)→  
 Enter→Dial port no. or select source of synchronization→  
 Enter→Tertiary→Dial slot no. (1-17)→Enter→Dial port no. or  
 select source of synchronization→Enter→Back→Back

**PC Procedure**            [F4] → [PgUp] → [F7] → [F1] → Type slot no. (1-17) → [F10] →  
 Type port no. or select source of synchronization → [F10] → [F2] →  
 Type slot no. (1-17) → [F10] → Type port no. or select source of  
 synchronization → [F10] → [F3] → Type slot no. (1-17) → [F10] →  
 Type port no. or select source of synchronization → [F10] → [F5] → [F5]

## Trunks to Pools Assignment

Use this procedure to create trunk pools (groups of outside lines/trunks connected to the system). Trunk pools are used to specify preferred routes for Automatic Route Selection (ARS). In addition, trunk pools enable users to select a line/trunk by dialing a pool dial-out code or by pressing a single button on the telephone. (A separate button for each line/trunk is not needed.) Each pool should contain trunks of the same type (for example, loop- or ground-start or WATS); however, ground- and loop-start trunks of the same type can be included in the same pool. Ground-start trunks must be manually assigned. A maximum of 11 trunk pools is allowed. A trunk can be assigned to only one pool.

Do not mix different service areas of WATS (Wide Area Telecommunications Service) trunks or FX (Foreign Exchange) lines to different cities. Do not include both incoming-only and outgoing-only lines/trunks in the same pool.

When dialing 10\*\*\* and 101\*\*\*\* equal access (Interexchange Carrier or IXC) calls via a private networked switch that is not connected to the public switched network, the private trunks must be assigned to the main pool. When routing Dial 0 and N11 calls via this type of networked switch, the private trunks must be assigned to the main pool containing private network trunks. For more information, see [“Automatic Route Selection” on page 3-175](#).

If you want to reassign a line/trunk to a different pool, you must remove it from the current pool before you assign it to the new pool. Once you assign a line/trunk to a pool, it can be assigned to a button only on a direct-line console operator position; individual lines intended for personal use on telephones other than the DLC console should not be assigned to pools.

DID trunks cannot be grouped in pools. Loop-start trunks are automatically placed in pools and must be removed manually if used for paging loudspeakers, Music-On-Hold, or maintenance alarms.

Dial-in tie trunks should not be grouped in pools if you intend to assign Pool buttons on telephones.

 **SECURITY ALERT:**

*Do not assign pools of non-local tie or PRI tandem trunks to Pool buttons or DSS buttons, or allow dial access to them. When callers in your system need to use these pools for outside calls, use ARS to direct the calls to these pools. Callers in your system use normal calling procedures to reach extensions on private networked systems.*

If you are using Automatic Route Selection, the main pool (factory-set dial-out code 70) must contain loop- or ground-start trunks.

The system provides an error tone when a line/trunk is in use, or if a loudspeaker paging system, Music-On-Hold, or maintenance alarm is already assigned; however, the system does not indicate the reason for the error tone.

**NOTE** ► This procedure applies to Hybrid/PBX mode only.

### Summary: Trunks to Pools Assignment

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Trunk idle
<b>Planning Form</b>	2c, System Numbering: Line/Trunk Jacks
<b>Factory Setting</b>	All loop-start trunks are assigned to the main trunk pool (factory-set extension number 70); all tie trunks are assigned to the trunk pool with the factory-set extension number 891. No factory-set extension numbers are assigned to ground-start trunks.
<b>Valid Entries</b>	Line numbers
<b>Inspect</b>	Yes
<b>Copy Option</b>	Yes
<b>Console Procedure</b>	To program a single-line/trunk: LinesTrunks→Pools→Dial pool dial-out code→ Select entry mode→Dial no. of the line/trunk→Enter→Back→ Back  To program a block of lines/trunks: LinesTrunks→Pools→Dial pool dial-out code→ Select block of lines/trunks→Toggle LED On/Off→Enter→Back→ Back

**PC Procedure**

To program a single-line/trunk:

[F4] → [F9] → Type pool dial-out code → [F10] → [F6] →  
 Type no. of the line/trunk → [F10] → [F5] → [F5]

To program a block of lines/trunks:

[F4] → [F9] → Type pool dial-out code → [F10] →  
 Select block of lines/trunks → Toggle letter R On/  
 Off → [F10] → [F5] → [F5]

## Copy Options for Lines/Trunks

Use this procedure to copy options assigned to loop-start or ground-start trunks, tie trunks, or DID trunks. Note that many of these options apply to Hybrid/PBX systems only. The following information is copied for each line/trunk type:

- Loop-Start or Ground-Start Trunks (including those emulated on T1 facilities). Toll type, signaling type, and trunk pool assignment (Hybrid/PBX only).
- Tie Trunks. Direction, tie trunk type, E&M signal, dial mode, dial tone, answer supervision time, disconnect time, and trunk pool assignment (Hybrid/PBX only).
- DID Trunks (Hybrid/PBX only). Block assignment and disconnect time.

To find out whether there is an optional feature assigned that you would like to copy, use *Inspect* from the system programming console, or click [PgDn](#) in the console emulation display on the PC.

- NOTES** ▶
- You can copy options to a block of lines/trunks only if they are all of the same type (loop-start, ground-start, Tie, or DID). If you attempt to copy assignments and there is a mismatch in line/trunk type, information is copied to that point only. You receive no error message.
    - Options cannot be copied from private lines/trunks.
    - If you are copying options to a block of lines/trunks, they must be sequentially numbered.
    - If the block you are copying to includes an invalid line/trunk type, the copying process stops at the invalid type. Only the lines/trunks that were copied to before the invalid type was found are copied successfully.
    - If you are copying assignments to a block of lines/trunks and one of the lines or trunks is in use, you see the message *Trunk Busy - Pls wait* on your display. The copying for the rest of the lines/trunks in the block is delayed until the busy line/trunk becomes idle. If you exit without waiting for the copying to complete, the copying done up to that point is not cancelled.
    - The *Inspect* feature must be programmed on a line button on the 4424LD+ telephone and is a fixed button on the MLX-20L telephone.

## Summary: Copy Options for Lines/Trunks

<b>Programmable by</b>	System Manager
<b>Mode</b>	All (but note differences)
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	2c, System Numbering: Line/Trunk Jacks 3c, Incoming Trunks: TIE 3d, Incoming Trunks: DID
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Not applicable
<b>Inspect</b>	No
<b>Copy Option</b>	Not applicable
<b>Console Procedure</b>	To copy individual lines/trunks: LinesTrunks→Copy→Single→Dial copy-from trunk no.→ Enter→Dial copy-to trunk no.→Enter→Back→Back→Back  To copy blocks of lines/trunks: LinesTrunks→Copy→Block→Dial copy-from trunk no.→ Enter→Dial first copy-to trunk no. in block→Enter→ Dial last copy-to trunk no. in block→Enter→Back→Back→Back
<b>PC Procedure</b>	To copy individual lines/trunks: F4 → F7 → F1 → Type copy to trunk no. → F10 → Type copy-from trunk no. → F10 → F5 → F5 → F5  To copy blocks of lines/trunks: F4 → F7 → F2 → Type copy-from trunk no. → Type first copy-to trunk no. in block → F10 → F5 → Type last copy-to trunk no. in block → F10 → F5 → F5 → F5

## Uniform Dial Plan Facilities

The system, in Hybrid/PBX mode only, provides support for Uniform Dial Plan (UDP) facilities, private network tandem lines/trunks originating at one or more other MERLIN MAGIX Integrated Systems or DEFINITY Communications Systems. Use the procedures in this section to program the switch identifiers for private network trunks.

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## Switch Identifiers

Switch identifiers are 1- or 2-digit prefixes that appear in print reports and are used by the system for transmission level determination, route checking, and to identify calls. If your system uses private facilities, you must program switch identifiers. Switch identifiers indicate the switch connected to the far end of a private trunk.

The procedures in this topic allow you to add, change, and remove switch identifiers.

Trunks connected to your system from the central office do not require identifiers. They are, by default, correctly assigned a null identifier.

When a private networked trunk is deleted, it is assigned a null identifier, as are trunks newly added to the system.

You can add a switch identifier to a block of trunks, and you can remove a switch identifier from a block of trunks that use the same switch identifier.

The correct switch identifier for a trunk or block of trunks is determined by the type of switch to which the trunk is connected and whether or not that switch is a satellite switch located within 200 miles of the local system. Identifying those switches greater than 200 miles from the local system as satellite is important in assuring transmission quality across the private network. The identifiers are switch numbers that have the following meanings:

- Unassigned (null) = trunk connected to central office
- 1–20 = trunk connected to a non-satellite MERLIN MAGIX, MERLIN LEGEND, DEFINITY ECS, DEFINITY BCS, or DEFINITY ProLogix system with Centralized Voice Messaging more than 200 miles away.
- 21–40 = trunk connected to a satellite MERLIN MAGIX, MERLIN LEGEND, DEFINITY ECS, DEFINITY BCS, or DEFINITY ProLogix system with Centralized Voice Messaging more than 200 miles away.
- 41–50 = trunk connected to a non-satellite DEFINITY ECS, DEFINITY BCS, or DEFINITY ProLogix Solutions system without Centralized Voice Messaging, that is more than 200 miles away.
- 51–60 = trunk connected to a satellite DEFINITY ECS, DEFINITY BCS, or DEFINITY ProLogix Solutions system without Centralized Voice Messaging, that is more than 200 miles away.

**NOTE** ► The Enter Switch Number screens for the switch identifier procedures include a Help option that supplies the information above.

For more information, refer to the *Network Reference*.

## Summary: Switch Identifiers

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	2c, System Numbering: Line/Trunk Jacks 3b, Incoming Trunks: DS1 Connectivity (100D and 100R Module)
<b>Factory Setting</b>	Null (no value)
<b>Valid Entries</b>	No value, 1–20, 21–40, 41–50, 51–60
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	<p>To enter or remove an identifier for one trunk:                  LinesTrunks→More→UDP→SwNum-Single→Dial trunk no. →                  Enter→Dial switch no. (no value, 1–20, 21–40, 41–50, or 51–60)→                  Enter Or Delete→ Back→Back→Back</p> <p>To enter or remove identifiers for a block of trunks:                  LinesTrunks→More→UDP→SwNum-Block→                  Dial starting trunk in block→Enter→Dial ending trunk in block→                  Enter→Dial switch no. (no value, 1–20, 21–40, 41–50, or 51–60)→                  Enter Or Delete→ Back→Back→Back</p>
<b>PC Procedure</b>	<p>To enter or remove an identifier for one trunk:                  F4 → PgUp → F10 → F1 → Type trunk no. → F10 →                  Type switch no. (no value, 1–20, 21–40, 41–50, or 51–60) →                  F10 or F8 → F5 → F5 → F5</p> <p>To enter or remove identifiers for a block of trunks:                  F4 → PgUp → F10 → F2 → Type starting trunk in block → F10 →                  Type ending trunk in block → F10 → Type switch no. (no value, 1–20,                  21–40, 41–50, or 51–60) → F10 or F8 → F5 → F5 → F5</p>

## DS1 Facilities

Use the procedures in this section to program the following options for DS1 (digital signal level 1) facilities (T1 or PRI) connected to a 100D or 100R (DS1) module:

- Activate/Deactivate the On-board CSU (100R)
- Channel Selection
- Type of DS1 facility
  - T1
  - ISDN (Integrated Services Digital Network) Primary Rate Interface (PRI)
- Switched 56 Dial Plan Routing
- Frame Format
- Zero Code Suppression

- Signaling Mode
- Line Compensation
- Channel Service Unit

---

## Activate/Deactivate the On-board CSU

The CSU is activated by default. It can be reached by using the following sequence:

**Console Procedure** SysProg→Lines and Trunks→More→More→CSU/DSU→Select Slot#→Enter→ActivateCSU→  
Select Activated or Deactivated

**PC Procdure** [F4]→More→More→[F1]→Slot#→[Enter↵]→[F1]→  
Select Activated or Deactivated

**NOTE**▶ Setting the CSU/DSU to **Deactivated** may affect voice calls.

---

## Channel Selection

All channels are assigned to the switch by default. The 100R module can accommodate up to 23 PRI channels or 24 T1 channels. Use the following sequence to assign a channel to the router.

**Console Procedure** SysProg→Lines and Trunks→More→More→CSU/DSU→Select Slot#→Enter→ChannelSel→Select Channel#→[Enter↵]

**PC Procdure** [F4]→More→More→[F1]→Select Slot#→[Enter↵]→[F2]→  
Select Channel#→[Enter↵]

**NOTE**▶ For T1 configurations, you can only select a channel for the router if you have administered the channel as **Unequipped** or **All Unequipped** in the T1 properties.

---

## Type of DS1 Facility

Use this procedure to specify the type of facility (T1 or PRI) connected to a 100R (DS1) module. If T1 type is programmed, and the channels are used for emulation and/or AT&T Switched Network (ASN), you must specify the type of channel emulation.

**NOTE**▶ You may order a point-to-point T1 circuit in order to provide amplification but not switching for a PRI tandem trunk that carries calls over long distances. PRI tandem trunks are preferable to T1 tandem trunks. Consult your Lucent Technologies representative for advice.

If the type is T1 and the type of channel emulation is tie trunk, you must specify whether the lines/trunks are TIE-PBX, Toll, or Switched 56 Data service. The valid settings are as follows:

- **TIE-PBX.** Select when emulated tie trunks are used to connect to another system (such as PBX or Centrex).
- **Toll.** Select when emulated tie trunks are used for ASN services (such as Megacom, Megacom 800, or Software Defined Network).

**NOTE** ► The transmit/receive gains are determined by the call constituents.

- **TIE – S56 Data.** Select when emulated tie trunks are used for Switched 56 Data Service. The transmit/receive parameter is set to 0/0.

If the type is T1 and S56 Data Network Service is selected, you must specify the following parameters:

- **Direction.** Specifies whether the trunk operates in one- or two-way direction. For one-way trunks, Outgoing Only or Incoming Only must also be specified.
- **Trunk Seizure Type.** Trunk seizure type is programmed independently for incoming or outgoing directions. Select one of the following: Wink Start, Delay Start, or Automatic Start.
- **Answer Supervision Time.** The time in milliseconds the answer supervision signal must be present to be considered valid.
- **Disconnect Time.** The time in milliseconds the disconnect signal must be present to be considered valid.
- **Dial Mode.** Select either Rotary or Touch-Tone. Dial mode is set independently for incoming or outgoing directions (Inmode or Outmode).

**NOTE** ► Touch-Tone Receivers are required on the far-end switch when the setting is Touch-Tone.

[Table 3-2 on page 3-45](#) shows the factory setting for each S56 Data Network Service option and the valid range for each threshold.

T1 S56 service is not supported for private networks. Use PRI instead.

If you select T1, channels can emulate ground- or loop-start trunks, tie trunks, or DID trunks in any combination. Note that unused channels must be specified as unequipped.

If either T1 or PRI is selected, channels can be used for ASN services. When T1 channels are used for ASN services, each channel must be programmed for tie trunk emulation.

If you select PRI, you must perform additional procedures. At a minimum, the Framing Mode and Zero Code Suppression procedures must be performed. See [“PRI Facilities” on page 3-61](#) for more information.

## Summary: Type of DS1 Facility

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	100R module idle
<b>Planning Form</b>	2c, System Numbering: Line/Trunk Jacks 3b, Incoming Trunks: DS1 Connectivity (100D and 100R module)
<b>Factory Setting</b>	T1, see <a href="#">Table 3-2</a> for options
<b>Valid Entries</b>	T1, PRI
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	<p>To select PRI:              LinesTrunks→LS/GS/DS1→Dial slot no. (1-17)→Enter→              Type→PRI→Enter→ Back→ Back→Back→Back</p> <p>To select T1: All Ground, All Loop, or All Unequip:              LinesTrunks→LS/GS/DS1→Dial slot no. (1-17)→Enter→              Type→T1→Enter→Select type of emulation→Enter→Back→              Back→Back→Back</p> <p>To select T1: Ground-Start, Loop-Start, All Tie, or Unequip:              LinesTrunks→LS/GS/DS1→Dial slot no. (1-17)→Enter→              Type→T1→Enter→Select type of emulation→Enter→              Dial channel no.→ Enter→ Back→Back→Back→Back</p> <p>To select T1: All DID:              LinesTrunks→LS/GS/DS1→Dial slot no. (1-17)→Enter→              Type→T1→Enter→More→All DID→ Enter→Back→Back→              Back→Back</p> <p>To select T1: DID:              LinesTrunks→LS/GS/DS1→Dial slot no. (1-17)→Enter→              Type→T1→Enter→More→DID→Enter→Dial channel no.→              Enter→Back→Back→Back→Back</p> <p>To select T1- All Tie:              LinesTrunks→LS/GS/DS1→Dial slot no. (1-17)→Enter→              Type→T1→Enter→All TIE→Enter→              TIE-PBX, Toll, or S56→Enter→Dial channel no.→Enter→              Back→Back→Back→Back</p> <p>To select T1- Tie:              LinesTrunks→LS/GS/DS1→Dial slot no. (1-17)→ Enter→              Type→T1→Enter→TIE→Enter→TIE-PBX, Toll, or S56→              Enter→Dial channel no.→Enter→Back→Back→Back→Back</p> <p>To select T1: All Switched 56 Data:              LinesTrunks→LS/GS/DS1→Dial slot no. (1-17)→Enter→              Type→T1→Enter→More→ALL S56 Data→Enter→</p>

Select Direction, Intype, Outtype, AnsSupv, Disconnect, Inmode, or Outmode→Program options→Enter→Back→Back→Back→Back

To select T1: Switched 56 Data:

LinesTrunks→LS/GS/DS1→Dial slot no. (1–17)→Enter→Type→T1→Enter→More→S56 Data→Enter→Dial channel no.→Enter→Select Direction, Intype, Outtype, AnsSupv, Disconnect, Inmode, or Outmode→Program options→Enter→Back→Back→Back→Back

## PC Procedure

To select PRI:

F4 → F1 → Type slot no. (1–17) → F10 → F1 → F2 → F10 → F5 → F5 → F5 → F5

To select T1: All Ground, All Loop, All Unequip:

F4 → F1 → Type slot no. (1–17) → F10 → F1 → F1 → F10 → PgUp → Select type of emulation → F10 → F5 → F5 → F5 → F5

To select T1: Ground-Start, Loop-Start, All Tie, or Unequip:

F4 → F10 → Type slot no. (1–17) → F10 → 1 → F1 → F10 → Select type of emulation → F10 → Type channel no. → F10 → F5 → F5 → F5 → F5

To select T1: All DID:

F4 → F1 → Type slot no. (1–17) → F10 → F1 → F1 → F10 → PgUp → F7 → F10 → F5 → F5 → F5 → F5

To select T1: DID:

F4 → F10 → Type slot no. (1–17) → F10 → F1 → F1 → F10 → PgUp → F1 → F10 → Type channel no. → F10 → F5 → F5 → F5 → F5

To select T1- All Tie:

F4 → F1 → Type slot no. (1–17) → F10 → F1 → F1 → F10 → Select F1, F2, or F3 → F10 → F5 → F5 → F5 → F5

To select T1- Tie:

F4 → F1 → Type slot no. (1–17) → F10 → F1 → F1 → F10 → Select F1, F2, or F3 → F10 → Type channel no. → F10 → F5 → F5 → F5 → F5

To select T1: All Switched 56 Data:

F4 → F1 → Type slot no. (1–17) → F10 → F1 → F1 → F10 → PgUp → F7 → F10 → Select F1, F2, F3, F4, F5, F6, or F7 → Program options → F10 → F5 → F5 → F5 → F5

To select T1: Switched 56 Data:

F4 → F1 → Type slot no. (1–17) → F10 → F1 → F1 → F10 → PgUp → F2 → F10 → Type channel no. → F10 → Select F1, F2, F3, F4, F5, F6, or F7 → Program options → F10 → F5 → F5 → F5 → F5

**Table 3-2. Switched 56 Data Signaling Options**

Option	Factory Setting	Range
Direction	Two-Way	Two-Way, Outgoing, Incoming
Intype	Wink-Route by Dial Plant	Wink-Route by Dial Plan, Delay-Route by Dial Plan Auto-Route by Line Appearance
Outtype	Wink	Wink, Delay, Auto
Answer Supervision	300 ms	200–4,800 ms (increments of 20 ms)
Disconnect	300 ms	200–4,800 ms (increments of 20 ms)
Inmode	Touch Tone	Touch Tone, Rotary
Outmode	Touch Tone	Touch Tone, Rotary

## Switched 56 Dial Plan Routing

Dial plan routing provides a way to route incoming calls received on a Switched 56 Network line. An incoming call is routed by matching the incoming number and then optionally deleting and/or adding digits to direct the call to a specific endpoint. The expected digits are the number of incoming digits outputted from the central office.

### Summary: Switched 56 Dial Plan Routing

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	100R module idle
<b>Planning Form</b>	3b, Incoming Trunks: DS1 Connectivity (100D and 100R module)
<b>Factory Setting</b>	D4 compatible
<b>Valid Entries</b>	D4, ESF
<b>Inspect</b>	No
<b>Copy Option</b>	No

**Console Procedure**

To specify Expected Digits:

LinesTrunks→More→T1 Data NW→S56 Dial Plan Routing→  
 Expected Digits→Drop→Dial expected digits→Enter→  
 Back→Back→Back

To specify Delete Digits:

LinesTrunks→More→T1 Data NW→S56 Dial Plan Routing→  
 Delete Digits→Drop→Dial delete digits→Enter→Back→  
 Back→Back

To specify Add Digits:

LinesTrunks→More→T1 Data NW→S56 Dial Plan Routing→  
 Add Digits→Drop→Dial add digits→Enter→Back→Back→  
 Back

**PC Procedure**

To specify Expected Digits:

F4 → PgUp → F9 → F1 → F1 → Drop → Type expected digits →  
 F10 → F5 → F5 → F5

To specify Delete Digits:

F4 → PgUp → F9 → F1 → F2 → Drop → Type delete digits →  
 F10 → F5 → F5 → F5

To specify Add Digits:

F4 → PgUp → F9 → F1 → F3 → Drop → Type add digits →  
 F10 → F5 → F5 → F5

**Frame Format**

Use this procedure to specify the framing format for the 100R module as D4-compatible or Extended Superframe. Your selection must match the framing mode at the far end of the DS1 facility.

**NOTE** Use the Extended Superframe format for tandem PRI trunks.

**Summary: Frame Format**

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	100D module idle
<b>Planning Form</b>	3b, Incoming Trunks: DS1 Connectivity (100D and 100R module)
<b>Factory Setting</b>	D4-compatible
<b>Valid Entries</b>	D4, ESF
<b>Inspect</b>	No

<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→LS/GS/DS1→Dial slot no. (1–17)→ Enter→ FrameFormat→Select D4-Compatible or Extended Superframe→Enter→Back→Back
<b>PC Procedure</b>	[F4]→[F1]→Type slot no. (1–17)→[F10]→[F2]→Select D4- Compatible or Extended Superframe→[F10]→[F5]→[F5]

## Zero Code Suppression

Use this procedure to specify zero code suppression for the 100D module as AMI zero code suppression (AMI-ZCS) or bipolar eight zero suppression (B8ZS). Your selection must match the suppression at the far end of the DS1 facility.

**NOTE** ► Use B8ZS for tandem PRI trunks.

### Summary: Zero Code Suppression

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	100D module idle
<b>Planning Form</b>	3b, Incoming Trunks: DS1 Connectivity (100D and 100R module)
<b>Factory Setting</b>	AMI-ZCS
<b>Valid Entries</b>	AMI-ZCS, B8ZS
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→LS/GS/DS1→Dial slot no. (1–17)→ Enter→ Suppression→AMI-ZCS or B8ZS→ Enter→Back→Back
<b>PC Procedure</b>	[F4]→[F1]→Type slot no. (1–17)→[F10]→[F3]→Select AMI-ZCS or B8ZS→[F10]→[F5]→[F5]

## Signaling Mode

Use this procedure to specify the signaling for the 100D or 100R module as robbed-bit or common-channel signaling.

**NOTE** ► This procedure is needed only for T1 facilities; common-channel signaling is set automatically for PRI facilities. For 100D and 100R modules, however, this procedure is not valid for T1 facilities.

### Summary: Signaling Mode

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	100R module idle
<b>Planning Form</b>	3b, Incoming Trunks: DS1 Connectivity (100D and 100R module)
<b>Factory Setting</b>	Robbed bit
<b>Valid Entries</b>	Robbed Bit, Common Channel
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→LS/GS/DS1→Dial slot no. (1-17)→Enter→ Signaling→Select type of signaling (Robbed Bit or Common Channel)→Enter→Back→Back
<b>PC Procedure</b>	F4 → F1 → Type slot no. (1-17) → F10 → F4 → Select type of signaling (Robbed Bit or Common Channel) → F10 → F5 → F5

---

### Line Compensation

Use this procedure to specify the amount of cable loss in decibels. Cable loss is based on the length of cable between the 100R module and the Channel Service Unit, as shown below:

- 1 = 0.6 dB loss
- 2 = 1.2 dB loss
- 3 = 1.8 dB loss
- 4 = 2.4 dB loss
- 5 = 3.0 dB loss

### Summary: Line Compensation

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	100R module idle
<b>Planning Form</b>	3b, Incoming Trunks: DS1 Connectivity (100D and 100R module)
<b>Factory Setting</b>	1 (0.6 dB loss)
<b>Valid Entries</b>	1 to 5
<b>Inspect</b>	No
<b>Copy Option</b>	No

**Console Procedure** LinesTrunks→LS/GS/DS1→Dial slot no. (1-17)→Enter→  
 Line Comp→Drop→Dial line compensation value (1-5)→Enter→  
 Back→Back

**PC Procedure** [F4] → [F1] → Type slot no. (1-17) → [F10] → [F6] → [Drop] →  
 Type line compensation value (1-5) → [F10] → [F5] → [F5]

## Channel Service Unit

Use this procedure to specify the type of equipment provided by the local telephone company as foreign exchange or special access.

**NOTE** ▶ You do not need to use this procedure unless your system emulates loop-start or ground-start with the T1 type of DS1 facility.

### Summary: Channel Service Unit

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	100R module idle
<b>Planning Form</b>	3b, Incoming Trunks: DS1 Connectivity (100D and 100R module)
<b>Factory Setting</b>	Foreign Exchange
<b>Valid Entries</b>	Foreign Exchange, Special Access
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→LS/GS/DS1→Dial slot no. (1-17)→Enter→ ChannelUnit→Foreign Exchange Or Special Access→ Enter→Back→Back
<b>PC Procedure</b>	[F4] → [F1] → Type slot no. (1-17) → [F10] → [F7] → [F1] or [F2] → [F10] → [F5] → [F5]

## Tie Trunks

This section covers programming procedures for the following tie trunk options:

- Direction
- Tie Trunk Seizure Type
- E&M Signal
- Dial Mode
- Tie Trunk Dial Tone

- Tie Trunk Answer Supervision Time
- Disconnect Time

## Direction

Use this procedure to specify whether tie trunks operate in a one- or two-way direction. For one-way tie trunks, you must also specify whether the direction is out or in.

### Summary: Direction

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Tie trunk idle
<b>Planning Form</b>	3c, Incoming Trunks: Tie
<b>Factory Setting</b>	Two-way
<b>Valid Entries</b>	Two-way, Outgoing, Incoming
<b>Inspect</b>	No
<b>Copy Option</b>	Yes
<b>Console Procedure</b>	LinesTrunks→TIE Lines→Direction→Dial trunk no.→ Enter→Specify direction (Two-way, Outgoing, or Incoming)→ Enter→Back→Back
<b>PC Procedure</b>	[F4]→[F2]→[F1]→Type trunk no.→[F10]→ Specify direction (Two-way, Outgoing, or Incoming)→[F10]→[F5]→[F5]

## Tie Trunk Seizure Type

Use this procedure to specify whether the seizure type of incoming or outgoing tie trunk is wink, delay, immediate, or automatic.

**NOTE** ► Delay-start tie trunks should be used for private networks.

The following settings are recommended when T1 facilities are programmed for tie-trunk emulation to provide special network services [such as Megacom, Megacom 800, or Software Defined Network (SDN)]:

- If ARS is used for all outgoing calls and no Personal Line or Pool buttons are used, assign the wink signaling type. Set the network to wink.

- If Personal Line or Pool buttons (pool or dial-out codes) are used for outgoing calls, assign the immediate signaling type. Set the network to dial. Contact your service provider for more information about the dial setting.
- If Dialed Number Identification Service (DNIS) is used for incoming calls, assign the wink signaling type. The network is also set to wink. (Setting both ends to immediate also works.) Contact your service provider for more information about the appropriate setting.
- When DNIS is not used for incoming calls, assign the automatic signaling type. The network is set to automatic.

### Summary: Tie Trunk Seizure Type

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Tie trunk idle
<b>Planning Form</b>	3c, Incoming Trunks: Tie
<b>Factory Setting</b>	Wink
<b>Valid Entries</b>	Wink, Delay, Immediate, Automatic
<b>Inspect</b>	No
<b>Copy Option</b>	Yes
<b>Console Procedure</b>	LinesTrunks→TIE Lines→Intype or Outtype→ Dial trunk no.→Enter→Specify seizure type (Wink, Delay, Immediate, or Automatic)→Enter→Back→Back
<b>PC Procedure</b>	[F4]→[F2]→[F2] or [F3]→Type trunk no.→[F10]→ Specify seizure type (Wink, Delay, Immediate, or Automatic)→[F10]→ [F5]→[F5]

---

## E&M Signal

Use this procedure to specify the type of tie trunk signal, as follows:

- E&M Mode:
  - **1S, Type 1 Standard.** Tie trunks that are connected through the local telephone company.
  - **1C, Type 1 Compatible.** Tie trunks that are connected directly to a system that uses 1S signaling.
- Simplex Mode:
  - **5, Type 5 Simplex.** Tie trunks that are connected to a system using Type 5 signaling.

**NOTE** E&M trunks that are used for private networking should be programmed at each end with a switch identifier that indicates the remote system where the trunk is connected. See [“Uniform Dial Plan Facilities” on page 3-38](#) for details.

### Summary: E&M Signal

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Tie trunk idle
<b>Planning Form</b>	3c, Incoming Trunks: Tie
<b>Factory Setting</b>	1S
<b>Valid Entries</b>	1S, 1C, 5
<b>Inspect</b>	No
<b>Copy Option</b>	Yes
<b>Console Procedure</b>	LinesTrunks→TIE Lines→E&M Signal→Dial trunk no.→ Enter→Specify signaling type (1S, 1C, or 5)→Enter→Back→ Back
<b>PC Procedure</b>	[F4]→[F2]→[F4]→Type trunk no.→[F10]→ Specify signaling type (1S, 1C, or 5)→[F10]→[F5]→[F5]

---

### Dial Mode

Use this procedure to specify whether an incoming or outgoing tie trunk is Touch-Tone or rotary.

Touch-Tone cannot be programmed for incoming immediate signaling tie trunks. Users of Touch-Tone single-line telephones cannot make calls by using individual trunks programmed for rotary operation. The Touch-Tone signals generated from the telephone while the user is dialing are transmitted to the central office at the same time the rotary signals are sent to the system. The central office receives both signals and cannot process the call.

### Summary: Dial Mode

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3c, Incoming Trunks: Tie
<b>Factory Setting</b>	Rotary
<b>Valid Entries</b>	Rotary, Touch-Tone
<b>Inspect</b>	Yes
<b>Copy Option</b>	Yes

- Console Procedure** To program a single-line/trunk:  
 LinesTrunks→TIE Lines→Inmode or Outmode→  
 Entry Mode→Dial line/trunk no.→ Enter or Delete→Back→  
 Back→Back
- To program a block of lines/trunks:  
 LinesTrunks→TIE Lines→Inmode or Outmode→  
 Select block of lines→Toggle LED On/Off→Back→Back→Back
- PC Procedure** To program a single-line/trunk:  
 F4 → F2 → F6 or F7 → F6 → Type line/trunk no. → F10 or F8 →  
 F5 → F5 → F5
- To program a block of lines/trunks:  
 F4 → F2 → F6 or F7 → Select block of lines →  
 Toggle letter G On/Off → F5 → F5 → F5

## Tie Trunk Dial Tone

Use this procedure to specify whether the system provides dial tone for people calling in on a tie trunk. The settings are remote (system provides dial tone) and local (system does not provide dial tone).

### Summary: Tie Trunk Dial Tone

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3c, Incoming Trunks: Tie
<b>Factory Setting</b>	Remote
<b>Valid Entries</b>	Remote, Local
<b>Inspect</b>	Yes
<b>Copy Option</b>	Yes
<b>Console Procedure</b>	To program a single-line/trunk: LinesTrunks→TIE Lines→Dialtone→Entry Mode→ Dial trunk no.→Enter or Delete→Back→Back→Back
	To program a block of lines/trunks: LinesTrunks→TIE Lines→Dialtone→ Select block of lines/trunks→Toggle LED On/Off→Back→ Back→Back

**PC Procedure**

To program a single-line/trunk:

F4 → F2 → F8 → F6 → Type trunk no. → F10 or F8 → F5 → F5

To program a block of lines/trunks:

F4 → F2 → F8 → Select block of lines → Toggle letter G On/Off →  
 F5 → F5 → F5

## Tie Trunk Answer Supervision Time

Use this procedure to specify the tie trunk answer supervision time in milliseconds. This is the time limit for the called system to respond.

### Summary: Tie Trunk Answer Supervision Time

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3c, Incoming Trunks: Tie
<b>Factory Setting</b>	300 ms
<b>Valid Entries</b>	20 to 4,800 ms, in increments of 20 ms
<b>Inspect</b>	No
<b>Copy Option</b>	Yes
<b>Console Procedure</b>	LinesTrunks → TIE Lines → AnsSupvr → Dial trunk no. → Enter → Drop → Dial no. of ms (20–4,800) → Enter → Back → Back
<b>PC Procedure</b>	F4 → F2 → F9 → Type trunk no. → F10 → Drop → Type no. of ms (20–4,800) → F10 → F5 → F5

## Disconnect Time

Use this procedure to specify the tie trunk disconnect time limit in milliseconds.

### Summary: Disconnect Time

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3c, Incoming Trunks: Tie
<b>Factory Setting</b>	300 ms
<b>Valid Entries</b>	140 to 2,400 ms

<b>Inspect</b>	No
<b>Copy Option</b>	Yes
<b>Console Procedure</b>	LinesTrunks→TIE Lines→Disconnect→Dial trunk no.→Enter→Drop→Dial no. of ms (140–2,400)→Enter→Back→Back
<b>PC Procedure</b>	[F4]→[F2]→[F10]→Type trunk no.→[F10]→[Drop]→Type no. of ms (140–2,400)→[F10]→[F5]→[F5]

## DID Trunks

This section covers programming DID trunks and includes procedures for the following:

- Block Assignment
- DID Trunk Type
- Disconnect Time
- Expected Digits
- Delete Digits
- Add Digits
- Signaling
- Invalid Destination

**NOTE** ▶ These procedures apply to Hybrid/PBX mode only.

---

## Block Assignment

Use this procedure to assign each DID trunk connected to the system to either Block 1 or Block 2.

### Summary: Block Assignment

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3d, Incoming Trunks: DID
<b>Factory Setting</b>	Block 1
<b>Valid Entries</b>	Block 1, Block 2
<b>Inspect</b>	Yes
<b>Copy Option</b>	Yes

**Console Procedure**

To program a single-line/trunk:

LinesTrunks→DID→Block→Dial trunk block no. (1 or 2)→  
Enter→Entry Mode→Type the line/trunk no.→  
Enter or Delete→Back→Back→Back

To program a block of lines/trunks:

LinesTrunks→DID→Block→Dial trunk block no. (1 or 2)→  
Enter→Select trunk lines→Toggle LED On/Off→Enter→Back→  
Back→Back

**PC Procedure**

To program a single-line/trunk:

F4 → F4 → F1 → Type trunk block no. (1 or 2) → F10 →  
Type the line/trunk no. → F10 or F8 → F5 → F5 → F5

To program a block of lines/trunks:

F4 → F4 → F1 → Type trunk block no.(1 or 2) → F10 →  
Select trunk lines → Toggle letter G On/Off → F10 → F5 → F5 → F5

---

## DID Trunk Type

Use this procedure to specify the DID trunk type as either immediate-start or wink-start. Wink-start is more reliable if the local telephone company supports it.

### Summary: DID Trunk Type

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	DID trunk idle
<b>Planning Form</b>	3d, Incoming Trunks: DID
<b>Factory Setting</b>	Wink-start
<b>Valid Entries</b>	Immediate-start, Wink-start
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→DID→Type→Dial trunk block no.→Enter→ Immed or Wink→Enter→Back→Back
<b>PC Procedure</b>	F4 → F4 → F2 → Type trunk block no. → F10 → Select Immed or Wink → F10 → F5 → F5

---

## Disconnect Time

Use this procedure to specify the DID trunk disconnect time limit in milliseconds.

### Summary: Disconnect Time

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3d, Incoming Trunks: DID
<b>Factory Setting</b>	500 ms
<b>Valid Entries</b>	10 to 2,400 ms, in increments of 10 ms
<b>Inspect</b>	No
<b>Copy Option</b>	Yes
<b>Console Procedure</b>	LinesTrunks→DID→Disconnect→Dial trunk no.→ Enter→Drop→Dial no. of ms (10–2,400)→ Enter→Back→Back
<b>PC Procedure</b>	<input type="text" value="F4"/> → <input type="text" value="F4"/> → <input type="text" value="F3"/> → Type trunk no. → <input type="text" value="F10"/> → <input type="text" value="Drop"/> → Type no. of ms (10–2,400) → <input type="text" value="F10"/> → <input type="text" value="F5"/> → <input type="text" value="F5"/>

---

## Expected Digits

Use this procedure to tell the system how many digits are sent by the local telephone Personal Line company.

**NOTE** ► If the dialed digits received on a DID trunk correspond to a non-local extension number, the call is routed to that extension.

 **SECURITY ALERT:**  
*Do not assign a non-local remote ARS code to the non-local dial plan. Doing so would allow DID callers to use the private network to make outside calls. For more information, see [“Uniform Dial Plan Routing” on page 3-186.](#)*

### Summary: Expected Digits

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3d, Incoming Trunks: DID
<b>Factory Setting</b>	3 digits
<b>Valid Entries</b>	1 to 4 digits
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→DID→ExpectDigit→Dial trunk block no. (1 or 2)→Enter→Drop→Dial no. of digits (1-4)→Enter→Back→Back
<b>PC Procedure</b>	[F4]→[F4]→[F4]→Type trunk block no. (1 or 2)→[F10]→[Drop]→Type no. of digits (1-4) [F10]→[F5]→[F5]

### Delete Digits

Use this procedure to specify the number of leading digits to be deleted from the digits sent by the local telephone company. Use this procedure when the number of digits sent by the telephone company is greater than the number in the system numbering plan.

### Summary: Delete Digits

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3d, Incoming Trunks: DID
<b>Factory Setting</b>	0 digits
<b>Valid Entries</b>	0 to 4 digits
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→DID→DeleteDigit→Dial trunk block no. (1 or 2)→Enter→Drop→Dial no. of digits (0-4)→Enter→Back→Back
<b>PC Procedure</b>	[F4]→[F4]→[F6]→Type trunk block no. (1 or 2)→[F10]→[Drop]→Type no. of digits (0-4)→[F10]→[F5]→[F5]

---

## Add Digits

Use this procedure to specify the number of leading digits that must be added to the digits sent by the local telephone company. Use this procedure when the number of digits sent by the telephone company is fewer than the number in the system numbering plan.

### Summary: Add Digits

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3d, Incoming Trunks: DID
<b>Factory Setting</b>	0
<b>Valid Entries</b>	1 to 9999
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→DID→Add Digits→Dial trunk block no. (1 or 2)→Enter→Drop→Dial added digits (1-9999)→Enter→Back→Back
<b>PC Procedure</b>	<input type="text" value="F4"/> → <input type="text" value="F4"/> → <input type="text" value="F7"/> →Type trunk block no. (1 or 2)→ <input type="text" value="F10"/> → <input type="text" value="Drop"/> → Type added digits (1-9999)→ <input type="text" value="F10"/> → <input type="text" value="F5"/> → <input type="text" value="F5"/>

---

## Signaling

Use this procedure to specify whether the type of dialing signal from the local telephone company is touch-tone or rotary. Touch-tone dial mode cannot be programmed for immediate-start DID trunks.

Touch-Tone single-line telephone users cannot make calls by using individual trunks programmed for rotary operation. The Touch-Tone signals generated from the telephone while dialing are transmitted to the central office at the same time the rotary signals are sent to the system. The central office receives both signals and cannot process the call.

### Summary: Signaling

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not Required
<b>Planning Form</b>	3d, Incoming Trunks: DID
<b>Factory Setting</b>	Rotary
<b>Valid Entries</b>	Rotary, Touch-Tone
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→DID→Signaling→Dial trunk block no.→ Enter→Rotary Or TouchTone→Enter→Back→Back
<b>PC Procedure</b>	[F4]→[F4]→[F8]→Type trunk block no.→[F10]→[F1] or [F2]→[F10]→ [F5]→[F5]

### Invalid Destination

Use this procedure to specify where to direct outside calls (received on DID trunks) for unassigned extension numbers. Calls can be either directed to a backup position (normally the primary system operator) or given a fast busy signal. See [“QCC Operator to Receive Call Types” on page 3-125](#) for information on assigning a backup position.

### Summary: Invalid Destination

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3d, incoming Trunks: DID
<b>Factory Setting</b>	Backup (calls are sent to the primary system operator)
<b>Valid Entries</b>	Backup, Fast Busy
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→DID→InvalDstn→Select Send to Backup Extension Or Return Fast Busy→Enter→Back→Back
<b>PC Procedure</b>	[F4]→[F4]→[F9]→Select Send to Backup Extension Or Return Fast Busy→[F10]→[F5]→[F5]

## PRI Facilities

The procedures in this section provide the steps for programming the following options for Primary Rate Interface (PRI) facilities connected to a 100D or 100R (DS1) module:

- Switch Type
- Telephone Number
- B-Channel Groups
- Network Service
- Copy Telephone Number to Send
- Incoming Routing
- Telephone Number to Send
- Test Telephone Number
- Timers and Counters
- Terminal Equipment Identifier
- Dial Plan Routing
- Outgoing Tables
- Network Selection Tables
- Special Services Tables
- Call-by-Call Service Table

**NOTE** ► If you are adding PRI facilities to an existing system, certain values must be set correctly. To inspect or change these values, see [“DS1 Facilities” on page 3-40](#). Do not start these procedures until you have checked the following:

- Type of DS1 Facility must be set to PRI.
- Frame format must be specified correctly.
- Zero code suppression must be specified correctly.
- Clock synchronization source must be set to loop (derived from the T1 line).

The settings for frame format and zero code suppression must be consistent with the options selected when the PRI connection was ordered.

If you are using ARS in connection with PRI, make sure you select voice, data, or voice and data, as appropriate, when you perform the ARS [“Voice and/or Data Routing” on page 3-185](#).

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## Switch Type

Use this procedure to specify the PRI connection through the following switch types:

- 4ESS
- 5ESS
- Nortel DMS-100 BCS 36 for local exchange carrier services
- Nortel DMS-250 serving the MCI network
- Digital Switch Corporation DEX600E serving the MCI network

Two additional switch types allow you to specify additional switch options in order to set up a PRI tandem trunk that connects two MERLIN MAGIX Integrated Systems or a MERLIN MAGIX Integrated System and a DEFINITY Communications System. The two additional options are the following:

- MERLIN-NTWK
- MERLIN-PBX

To set up a PRI tandem trunk, one system is specified as operating in PBX mode and the other as operating in network mode. When you program this switch type, you specify the type of switch at the other end of the PRI trunk, not the local switch. The slot number that you enter is the slot number on the local system.

The following rules apply to PRI tandem trunks in PBX or network mode:

- A single unused B-channel group number is automatically assigned to all 23 B-channels on the trunk; B-channels may be removed or added (for more information, see [“B-Channel Groups” on page 3-64](#)). The group can still exist, even if it includes no B-channels.
- PRI Dial Plan Routing does not apply for incoming calls on the trunk. Incoming routing is automatically set to Route Directly to UDP for B-channels in the automatically assigned group; this cannot be changed as long as the MERLIN-PBX or MERLIN-NTWK switch type is in effect (see [“Incoming Routing” on page 3-68](#)). However, local extensions need not be included in the UDP Routing table.
- PRI outgoing tables do not apply to outgoing calls on the trunk.
- The system automatically assigns Electronic Tandem Network (ETN) as the network service for the B-channel group that is automatically assigned to the PRI tandem trunk; this setting cannot be changed as long as the switch type is in effect (see [“Network Service” on page 3-66](#)).
- The Copy Telephone Number to Send setting is set to Do Not Copy for the PRI tandem trunk B-channel group; this setting cannot be changed as long as the switch type is in effect (see [“Copy Telephone Number to Send” on page 3-67](#)).

### Summary: Switch Type

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3b, Incoming Trunks: DS1 Connectivity (100D and 100R module)
<b>Factory Setting</b>	4ESS
<b>Valid Entries</b>	Not applicable
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→PRI→SwitchType→Dial slot no. (1–17)→ Enter→Specify switch type→Enter→Back→Back
<b>PC Procedure</b>	<input type="button" value="F4"/> → <input type="button" value="F6"/> → <input type="button" value="F9"/> → Type slot no. (1–17) → <input type="button" value="F10"/> → Specify switch type → <input type="button" value="F10"/> → <input type="button" value="F5"/> → <input type="button" value="F5"/>

### Telephone Number

Use this procedure to assign a string of up to 12 digits to each PRI channel. This string must match the number sent by the network (that is, the number provided by the PRI service provider) to indicate the number dialed by an outside caller. The system uses this number to route the call to the correct destination, which means that the number assigned to each channel in the same B-channel group must be unique. Note also that the number cannot be the same as the associated test telephone number.

### Summary: Telephone Number

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX, Key
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3b, Incoming Trunks: DS1 Connectivity (100D and 100R module)
<b>Factory Setting</b>	No digits
<b>Valid Entries</b>	Up to 12 digits (any combination of 0 to 9)
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→PRI→PhoneNumber→Dial trunk no.→Enter→ Drop→Dial telephone no. (up to 12 digits; 0–9)→Enter→Back→ Back
<b>PC Procedure</b>	<input type="button" value="F4"/> → <input type="button" value="F6"/> → <input type="button" value="F1"/> → Type trunk no. → <input type="button" value="F10"/> → <input type="button" value="Drop"/> → Type telephone no. (up to 12 digits; 0–9) → <input type="button" value="F10"/> → <input type="button" value="F5"/> → <input type="button" value="F5"/>

---

## B-Channel Groups

Use this procedure to perform the following:

- Assign B-channels to a group.
- Associate individual ISDN channels (that can place and receive calls) on the B-channels in each group.

B-channels are partitioned into trunk groups when PRI service is ordered. The trunk groups defined when service is ordered must match the B-channel groups defined when the MERLIN MAGIX Integrated System is programmed.

**NOTE** ► When the PRI switch type is set to MERLIN-PBX or MERLIN-NTWK, all B-channels for a PRI tandem trunk are automatically assigned to a single unused B-channel group. If your private network includes drop-and-insert hardware between the networked switches, use this procedure to remove a dropped B-channel from the group, after the switch type has been programmed and the B-channels automatically assigned. This equipment must never drop channel 24, which provides necessary signalling for the B-channels.

Each B-channel can be assigned to only one group, and each ISDN channel can be associated with only one group. Up to 80 B-channel groups can be established.

Each group can contain up to 23 channels; however, all channels assigned must signal through the same D-channel (that is, must be connected to the same 100D module).

### CAUTION:

*B-channels must be assigned in the order of system search (through the group) for an available channel. To minimize call attempts on the same line or trunk, you must arrange B-channels in the opposite order of the hunting arrangement provided by the network service provider.*

B-channels must be identified by control unit slot and port numbers since they are not associated with a line/trunk number or a logical ID.

PRI B-channel groups programmed for line routing perform similarly to loop-start trunks. PRI B-channel groups programmed for dial plan routing perform similarly to DID trunks.

**NOTE** ► If more lines than B-channels are assigned to a B-channel group, users may experience situations where a line that is idle is not able to seize a B-channel. The user receives a fast busy tone.

## Summary: B-Channel Groups

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX, Key
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3b, Incoming Trunks: DS1 Connectivity (100D and 100R module)
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Group numbers (1 to 80)
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	<p>To program a single-line/trunk: LinesTrunks→PRI→B-ChannlGrp→B Channels→ Dial group no. (1-80)→Enter→Dial B-channel slot and port nos.→ Enter→Lines→Dial group no.→Enter→Entry Mode→ Dial line/trunk no.→Enter→Back→Back→Back</p> <p>To program a block of lines/trunks: LinesTrunks→PRI→B-ChannlGrp→B Channels→ Dial group no. (1-80)→Enter→Dial B-channel slot and port no.→ Enter→Lines→Dial group no.→Enter→ Select specific lines/trunks→Toggle LED On/Off→Back→Back→ Back</p>
<b>PC Procedure</b>	<p>To program a single-line/trunk: F4 → F6 → F2 → F1 → Type group no. → Type B-channel slot and port nos. → F5 → Type group no. → F10 → F6 → Type line/trunk no. → F10 → F5 → F5 → F5</p> <p>To program a block of lines/trunks: F4 → F6 → F2 → F1 → Type group no. → Type B-channel slot and port nos. → F5 → Type group no. → F10 → Select specific lines/trunks → Toggle letter G on or off → F5 → F5 → F5</p>

## Network Service

Use this procedure to specify the type of outgoing service provided by each B-channel group.

- You can enter a service not shown on the Network Service screen by using the 5-digit binary code that represents the service in the Network Facilities Information Element of ISDN PRI signaling protocol. For information on these codes, contact your service provider.
- Setting the switch type to MERLIN-PBX or MERLIN-NTWK automatically assigns the B-channels for the specified PRI tandem trunk to a single unused B-channel group. This group is automatically assigned LEGEND UDP as the general type of network service and Electronic Tandem Network (ETN) as specific LEGEND UDP network service. As long as the switch type for the PRI trunk remains as MERLIN-PBX or MERLIN-NTWK, you cannot change the type of network service. For more information about switch types, see [“Switch Type” on page 3-62](#).

### Summary: Network Service

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX, Key
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3b, Incoming Trunks: DS1 Connectivity (100D and 100R module)
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	AT&T Toll, 5ESS Local, MCI Toll, Miscellaneous, DMS-100 Local, LEGEND UDP
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→PRI→B-ChannlGrp→NetworkServ→ Dial group no.→Enter→Specify network service (AT&T Toll, 5ESS Local, MCI Toll, Miscellaneous, DMS-100, Local, Legend UDP)→ Enter→Back→Back→Back→Back
<b>PC Procedure</b>	[F4]→[F6]→[F2]→[F3]→Type group no.→[F10]→ Specify network service (AT&T Toll, 5ESS Local, MCI Toll, Miscellaneous, DMS-100, Local, Legend UDP)→[F10]→[F5]→[F5]→ [F5]→[F5]

## Copy Telephone Number to Send

Use this procedure to indicate whether or not the telephone number to send to the network (for calls going out over ISDN lines assigned to a B-channel group) is copied from the number assigned to that channel.

**NOTE** ► Setting the switch type to MERLIN-PBX or MERLIN-NTWK automatically assigns Copy Number as the option for the single B-channel group associated with PRI tandem trunk that you specified in the Switch Type setting (Hybrid/PBS mode only). As long as the switch type for the slot is set this way, you cannot change the Copy programming. For more information about switch types, see [“Switch Type” on page 3-62](#).

Select Do Not Copy Telephone Number either when a telephone number to send is assigned to each channel in the B-channel group or when no telephone number is to be sent to the network. In the latter case, make sure that no telephone numbers are assigned to any channels in the B-channel group by using the [“Telephone Number to Send”](#) procedure.

### Summary: Copy Telephone Number to Send

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX, Key
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3b, Incoming Trunks: DS1 Connectivity (100D and 100R Module)
<b>Factory Setting</b>	Do Not Copy
<b>Valid Entries</b>	Do Not Copy, Copy
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→PRI→B ChannlGrp→Copy Number→ Dial group no.→Enter→Specify copy or no copy→Enter→ Back→Back→Back
<b>PC Procedure</b>	[F4]→[F6]→[F2]→[F4]→Type group no.→[F10]→ Specify copy or no copy→[F10]→[F5]→[F5]→[F5]

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## Incoming Routing

Use this procedure to specify whether incoming routing is either by line appearance or according to dial plan. Dial Plan Routing is available in Hybrid/PBX mode only.

The Incoming Routing screen displays an option, Route Directly to UDP (Uniform Dial Plan). Setting the switch type to MERLIN-PBX or MERLIN-NTWK automatically assigns Route Directly to UDP as the Incoming Routing option for the single B-channel group associated with the Switch Type setting. As long as the switch type for the slot of the PRI tandem trunk is set this way, you cannot change the incoming routing for the group. This routing option cannot be selected for any other switch type. For more information about switch types, see [“Switch Type” on page 3-62](#).

### Summary: Incoming Routing

<b>Programmable by</b>	System Manager
<b>Mode</b>	Line appearance: Hybrid/PBX, Key; Dial Plan Routing or Route Directly to UDP; Hybrid/PBX only
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3b, Incoming Trunks: DS1 Connectivity (100D and 100R module)
<b>Factory Setting</b>	Line appearance
<b>Valid Entries</b>	Dial Plan Routing, Routing by Line Appearance, Route Directly to UDP
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→PRI→B-ChannlGrp→Incoming Rtg→ Dial B-channel group no.→Enter→Specify routing method (Dial Plan Routing, Routing by Line Appearance, or Route Directly to UDP)→Enter→Back→Back→Back
<b>PC Procedure</b>	[F4]→[F6]→[F2]→[F6]→Type B-channel group no.→[F10]→ Specify routing method (Dial Plan Routing, Routing by Line Appearance, or Route Directly to UDP)→[F10]→[F5]→[F5]→[F5]

## Telephone Number to Send

Use this procedure to assign the telephone number to send to the network when outgoing calls are made on an ISDN line. If the person being called subscribes to an automatic number identification service, the number indicates who is calling.

The number assigned to each channel does not have to be unique because it is not used for routing.

The telephone number sent to the network can be one of the following:

- The extension number assigned to the calling telephone (Select `Extension Only` in Step 4).
- The extension number substituted into the lower order digits of a system-wide base number (Select `Base Number with Ext` in Step 4).
- The facility-based line telephone number (Select `Line Telephone Number` in Step 4).

**NOTE** ▶ Only one base number is supported per system. In systems having non-uniform extension numbers, for example, where there are some 3-digit extension numbers and some 4-digit extension numbers, one base number may not be sufficient to represent all the outside telephone numbers of all extensions.

### Summary: Telephone Number to Send

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3b, Incoming Trunks: DS1 Connectivity (100D and 100R module)
<b>Factory Setting</b>	No digits are assigned
<b>Valid Entries</b>	Up to 12 digits (any combination of 0 to 9)
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	<code>LinesTrunks</code> → <code>PRI</code> → <code>NumbrToSend</code> →Specify type of no.→ <code>Enter</code> → <code>Drop</code> →Dial base no.→ <code>Enter</code> → Dial line no.→ <code>Enter</code> → <code>Drop</code> →Dial telephone no. (up to 12 digits; 0-9)→ <code>Enter</code> → <code>Back</code> → <code>Back</code>
<b>PC Procedure</b>	<code>F4</code> → <code>F6</code> → <code>F3</code> →Specify type of no.→ <code>F10</code> → <code>Drop</code> → <code>Enter</code> →Type base no.→ <code>F10</code> → <code>Drop</code> →Type telephone no. (up to 12 digits; 0-9)→ <code>F10</code> → <code>F5</code> → <code>F5</code>

---

## Test Telephone Number

Use this procedure to assign a test line or trunk telephone number for each 100D module installed in the control unit.

The number assigned to the test line/trunk must be different from the numbers assigned to other channels in the same B-channel group. It must be identical to the number provided by the PRI service provider.

### Summary: Test Telephone Number

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX, Key
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3b, Incoming Trunks: DS1 Connectivity (100D and 100R module)
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Telephone number of up to 12 digits
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→PRI→Test TelNum→Dial slot no. (1-17)→ Enter→Drop→Dial telephone no. (up to 12 digits; 0-9)→Enter→ Back→Back
<b>PC Procedure</b>	[F4]→[F6]→[F4]→Type slot no. (1-17)→[F10]→[Drop]→ Type telephone no. (up to 12 digits; 0-9)→[F10]→[F5]→[F5]

---

## Timers and Counters

Use this procedure to set timer and counter thresholds.

### CAUTION:

*The factory settings for these thresholds are standard and rarely need to be changed. If you are not sure of the correct timer and threshold settings for your PRI lines and trunks, check with your Lucent Technologies representative before you make a change. Incorrect settings can cause your PRI lines and trunks to malfunction.*

If the network does not respond before the programmed time or count, the system takes the appropriate corrective action.

The timers and counters are listed below.

- **T200 Timer.** Times the delay in the link layer acknowledgment of a message sent from the system to the network over a D-channel.
- **T203 Timer.** Times the interval between each exchange of messages between the system and the network on the D-channel.
- **N200 Counter.** Counts the number of times the system has transmitted a message on a D-channel because no link layer acknowledgment is received from the network.
- **N201 Counter.** Counts the maximum number of layer three octets the system can send or receive in a single D-channel message.
- **K Counter.** Counts the number of layer three unacknowledged messages sent from the system to the network on a D-channel.
- **T303 Timer.** Times the delay in network response when the system sends a setup message to initiate an outgoing call.
- **T305 Timer.** Times the delay in network response when the system sends a disconnect message to clear a call.
- **T308 Timer.** Times the delay in network response when the system sends a release message to clear a call.
- **T309 Timer.** Times the duration of a D-channel data link failure (a loss of signaling for the entire PRI connection).
- **T310 Timer.** Times the network delay following the receipt of a call preceding message on an outgoing call.
- **T313 Timer.** Times the delay in network response when the system sends a connect message that indicates the completion of an incoming call.
- **T316 Timer.** Times the delay in network response when the system sends a restart message to clear a B-channel.

**NOTE** ► If you enter an invalid timer value, the number you enter is truncated to the closest valid value. For example, if you enter 45 for a counter that ranges from 0 to 30, 4 is recorded as the counter value.

[Table 3-3](#) shows the factory setting for each timer and counter and the valid range for each threshold.

### Summary: Timers and Counters

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3b, Incoming Trunks: DS1 Connectivity (100D and 100R module)
<b>Factory Setting</b>	See <a href="#">Table 3-3</a>
<b>Valid Entries</b>	See <a href="#">Table 3-3</a>
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→PRI→Protocol→Timers→ Dial slot no. (1-17)→Enter→Select timer/counter→Drop→ Dial no. of ms/octets/and so on→Enter→Back→Back→Back→ Back
<b>PC Procedure</b>	<b>F4</b> → <b>F6</b> → <b>F6</b> → <b>F1</b> → Type slot no. (1-17) → <b>F10</b> → Select timer/counter → <b>Drop</b> → Type no. of ms/octets/and so on → <b>F10</b> → <b>F5</b> → <b>F5</b> → <b>F5</b> → <b>F5</b>

**Table 3-3. Timers and Counters**

Timer/Counter	Purpose	Factory Setting	Valid Range
T200 Timer	Maximum response time	1 second	1,000 to 3,000 ms
T203 Timer	Maximum time	30 seconds	1 to 60 seconds
N200 Counter	Maximum transmissions	3 transmissions	1 to 5 transmissions
N201 Counter	Maximum octets	260 octets	16 to 260 octets
K Counter	Maximum outstanding I-frames	7 frames	1 to 15 frames
T303 Timer	Set up timeout	4 seconds	4 to 12 seconds
T305 Timer	Disconnect timeout	4 seconds	4 to 30 seconds
T308 Timer	Release timeout	4 seconds	4 to 12 seconds
T309 Timer	Signal loss	90 seconds	30 to 120 seconds
T310 Timer	Call Proc. timeout	60 seconds	2 to 120 seconds
T313 Timer	Connect timeout	4 seconds	4 to 60 seconds
T316 Timer	Restart timeout	120 seconds	30 to 120 seconds

## Terminal Equipment Identifier

Use this procedure to assign the link layer address of a piece of equipment connected to each D-channel. Normally, only one piece is connected and the system assumes that the Terminal Equipment Identifier (TEI) is 0.

 **CAUTION:**  
*The value of the TEI rarely has to be changed. Check with your Lucent Technologies representative before changing this value.*

### Summary: Terminal Equipment Identifier

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3b, Incoming Trunks: DS1 Connectivity (100D and 100R module)
<b>Factory Setting</b>	0
<b>Valid Entries</b>	0 to 63
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→PRI→Protocol→TEI→Dial slot no. (1–17)→ Enter→Drop→Dial new ID no. (0–63)→Enter→Back→Back→ Back
<b>PC Procedure</b>	<input type="button" value="F4"/> → <input type="button" value="F6"/> → <input type="button" value="F6"/> → <input type="button" value="F2"/> → Type slot no. (1–17) → <input type="button" value="F10"/> → <input type="button" value="Drop"/> → Type new ID no. (0–63) → <input type="button" value="F10"/> → <input type="button" value="F5"/> → <input type="button" value="F5"/> → <input type="button" value="F5"/>

## Dial Plan Routing

Dial plan routing provides a way to route incoming calls on a “per B-channel group” basis. An incoming call is routed by matching the incoming number (by service, number of digits, and pattern) and then optionally deleting and/or adding digits to direct the call to a specific endpoint. A service must be specified; the number of digits and pattern are optional. For example, you can specify that calls received from a particular area code should be routed to the specific individual or group responsible for accounts in that area.

Dial plan routing is available in Hybrid/PBX mode only. Key systems route incoming calls on a per-line basis.

You can specify the following additional services:

- MCI Toll Services available for a DMS-250 or DEX600E switch type:
  - MCI PRISM
  - MCI Vnet
  - MCI 800
  - MCI 900
- Local exchange carrier services available for a DMS-100 switch type:
  - DMS Private
  - DMS INWATS
  - DMS OUTWATS
  - DMS FX (foreign exchange)
  - DMS Tie Trunk

- NOTES** ►
- You can enter a service not shown on the Network Service screen by using the 5-digit binary code that represents the service in the Network Facilities Information Element of ISDN PRI layer 3 signaling protocol. Contact your service provider for more information about the codes.
  - Dial plan routing does not affect PRI tandem trunks connected to slots with switch types of MERLIN-NTWK or MERLIN-PBX. See [“Switch Type” on page 3-62](#) for details.
  - You must program a service before you program any other Dial Plan Routing function. If you have not programmed a service, complete the procedure below for the Service option and then repeat the procedure for each optional function that you want to program.

### Summary: Dial Plan Routing

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3b, Incoming Trunks: DS1 Connectivity (100D and 100R module)
<b>Factory Setting</b>	Service: empty; Patterns: blank; Total Digits: 0; Delete Digits: 0; Add Digits: 0
<b>Valid Entries</b>	Service: Toll, Local, Miscellaneous Entries: 0–15 Digits per Pattern: 0–8 Total Digits: 1–14 Delete Digits: 0–14, 0=wildcard Add Digits: 0–4 (valid digits: 0–9)
<b>Inspect</b>	No
<b>Copy Option</b>	No

### Console Procedure

To specify Service:

LinesTrunks→PRI→DialPlanRtg→Service→  
Dial entry no.→Enter→Select service (AT&T Toll, 5ESS Local, MCI  
Toll, Miscellaneous, or DMS-100 Local)→Back→Back→Back

To specify Patterns:

LinesTrunks→PRI→DialPlanRtg→Patterns→Dial entry no.→  
Enter→Drop→Dial pattern (0-8)→Enter→Back→Back→  
Back

To specify Total Digits:

LinesTrunks→PRI→DialPlanRtg→Total Digits→  
Dial entry no.→Enter→Drop→Dial digits (1-14)→Enter→  
Back→Back→Back

To specify Delete Digits:

LinesTrunks→PRI→DialPlanRtg→Delete Digits→  
Dial entry no.→Enter→Drop→  
Dial delete digits (0-14; 0=wildcard)→Enter→Back→Back→  
Back

To specify Add Digits:

LinesTrunks→PRI→DialPlanRtg→Add Digits→  
Dial entry no.→Enter→Drop→  
Dial add digits (0-14; valid digits: 0-9)→Enter→Back→Back→  
Back

### PC Procedure

To specify Service:

F4 → F6 → F7 → F2 → Type entry no. → F10 → Select service (AT&T  
Toll, 5ESS Local, MCI Toll, Miscellaneous, or DMS-100 Local) →  
F10 → F5 → F5 → F5

To specify Patterns:

F4 → F6 → F7 → F2 Type entry no. → F10 → Drop →  
Type pattern (0-8) → F10 → F5 → F5 → F5

To specify Total Digits:

F4 → F6 → F7 → F3 → Type entry no. → F10 → Drop →  
Type digits (1-14) → F10 → F5 → F5 → F5

To specify Delete Digits:

F4 → F6 → F7 → F4 Type entry no. → F10 → Drop →  
Type delete digits (0-14; 0=wildcard) → F10 → F5 → F5 → F5

To specify Add Digits:

F4 → F6 → F7 → F5 Type entry no. → F10 → Drop →  
Type add digits (0-14; valid digits: 0-9) → F10 → F5 → F5 → F5

---

## Outgoing Tables

PRI provides tables that work in conjunction with Personal Lines, pools, and ARS tables to route calls. The following tables specify services for outgoing calls:

- **Call-by-Call.** Selects an outgoing service, based on routing digits and the bearer capability (voice, data, or both) of the calling extension. It allows a single group of B-channels to carry a variety of services, such as ACCUNET, SDN, and Megacom WATS.
- **Network Selection.** Selects a long-distance carrier. Calls that match Network Selection tables can be routed to a specific service by the Call-by-Call tables.
- **Special Services.** Selects services, such as international dialing and operator assistance. Calls that match these tables are not routed by the Call-by-Call tables.

- NOTES** ►
- PRI tables that work with pools and ARS apply to Hybrid/PBX mode only.
  - When the PRI switch type is set for MERLIN-PBX or MERLIN-NTWK to support a PRI tandem trunk, outgoing tables do not affect outgoing calls for the PRI facility connected to the slot specified by the Switch Type setting.

---

## Network Selection Tables

Dialed prefixes for selecting long-distance carriers are matched to entries in the four Network Selection tables. Eight default tables are provided, specifying 10\*\*\* and 101\*\*\*\*. The asterisks are wildcards that represent the various long-distance carrier codes. (10\*\*\* is the current U.S. standard for specifying long-distance carriers; 101\*\*\*\* is provided for future use.)

- NOTES** ►
- U.S. customers rarely need to program additional Network Selection tables because long-distance carrier codes match 10\*\*\* or 101\*\*\*\*.
  - When routing private network trunks for ARS 10\*\*\* and 101\*\*\*\* (Interexchange or IXC) calls from a networked switch that is not connected to the public switched network and only has private trunks, the private network trunks must be assigned to the main pool on the switch where ARS is dialed. The ARS access code for local and remote systems must be identical. The following procedure does not affect these PRI tandem trunks.

### Summary: Network Selection Tables

<b>Programmable by</b>	System Manager
<b>Mode</b>	Key and Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3b, Incoming Trunks: DS1Connectivity (100D and 100R module)
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Prefix for long distance carrier
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→PRI→OutgoingTbl→NetwkSelect→ Dial entry no.→Enter→Drop→Dial prefix→Enter→Back→ Back→Back
<b>PC Procedure</b>	<input type="button" value="F4"/> → <input type="button" value="F6"/> → <input type="button" value="F8"/> → <input type="button" value="F1"/> → Type entry no. → <input type="button" value="F10"/> → <input type="button" value="Drop"/> → Type prefix → <input type="button" value="F10"/> → <input type="button" value="F5"/> → <input type="button" value="F5"/> → <input type="button" value="F5"/>

### Special Services Tables

Eight tables provide for international calling and for operator-assisted calls. Default tables include the special prefixes 0 and 00 for operator-assisted calls. Dialed numbers are matched against entries in these tables for patterns (011, 010, 01, 00, 0, and 1); for operator assistance (operator-assisted, presubscribed common carrier operator, and none); and for type of number (national or international). Up to four digits can be deleted.

### Summary: Special Services Tables

<b>Programmable by</b>	System Manager
<b>Mode</b>	Key and Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3b, Incoming Trunks: DS1 Connectivity (100D and 100R module)
<b>Factory Setting</b>	See <a href="#">Table 3-4</a>
<b>Valid Entries</b>	Prefix for international or operator-assisted calls
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	To specify Pattern: LinesTrunks→PRI→OutgoingTbl→SpecialServ→ Pattern→Dial entry no.→Enter→Drop→Dial pattern→ Enter→Back→Back→Back→Back

To specify Operator:

LinesTrunks→PRI→OutgoingTbl→SpecialServ→  
 Operator→Dial entry no.→Enter→Select type of operator→  
 Enter→Back→Back→Back→Back

To specify Type of Number:

LinesTrunks→PRI→OutgoingTbl→SpecialServ→  
 TypeOfNumbr→Dial entry no.→Enter→Select type→Enter→  
 Back→Back→Back→Back

To specify Delete Digits:

LinesTrunks→PRI→OutgoingTbl→SpecialServ→  
 DeleteDigit→Dial entry no.→Enter→Drop→Dial pattern→  
 Enter→Back→Back→Back→Back

PC Procedure

To specify Pattern:

[F4] → [F6] → [F8] → [F2] → [F1] → Type entry no. → [F10] → [Drop] →  
 Type pattern → [F10] → [F5] → [F5] → [F5] → [F5]

To specify Operator:

[F4] → [F6] → [F8] → [F2] → [F2] → Type entry no. → [F10] →  
 Select type of operator → [F10] → [F5] → [F5] → [F5] → [F5]

To specify Type of Number:

[F4] → [F6] → [F8] → [F2] → [F3] → Type entry no. → [F10] →  
 Type number type → [F10] → [F5] → [F5] → [F5] → [F5]

To specify Delete Digits:

[F4] → [F6] → [F8] → [F2] → [F4] → Type entry no. → [F10] → [Drop] →  
 Type digits to be deleted → [F10] → [F5] → [F5] → [F5] → [F5]

Table 3-4. Special Services Table

Table	Pattern (up to 4 digits)	Operator	Delete Digits (0 to 4)
0	011	None	3
1	010	Local Operator	3
2	01	Local Operator	2
3	00	Local Operator/ Presubscribed Carrier	2
4	0	Local Operator	1
5	1	None	1

## Call-by-Call Service Table

When a call is placed on a Call-by-Call B-channel group, a specific service is selected. The selected service depends on the match between the dialed digits and the table entries. A service must be specified; otherwise the entry is ignored.

The Call-by-Call table can contain up to 10 entries. Each entry can contain up to 10 patterns, each with a maximum of eight digits. If a dialed number matches two patterns, the longer pattern takes precedence. For example, 212555 matches both 212555 and 212, but the system will match the longer pattern. In addition to patterns, the Call-by-Call table can be used to specify from 0 through 8 digits to be deleted (the factory setting is 0).

If the last entry in the table is empty (that is, if no pattern is specified), this entry is used as a default and matches any pattern and type of call.

If ARS (Hybrid/PBX only) is used, ARS selects the route. If the route points to a Call-by-Call B-Channel group, Call-by-Call service selects the network service. ARS Call-by-Call service is integrated according to the specified bearer capability (voice, data, or both) for each feature. In addition, ARS digit deletion/addition may help specify the service selected by the Call-by-Call feature. See [“Automatic Route Selection” on page 3-175](#) for more information.

The following additional services are available:

- MCI Toll Services for a DMS-250 or DEX600E switch type:
  - MCI PRISM
  - MCI VNET
- Local exchange carrier services available for a DMS-100 switch type:
  - DMS Private
  - DMS OUTWATS
  - DMS FX (foreign exchange)
  - DMS Tie Trunk

### Summary: Call-by-Call Service Table

<b>Programmable by</b>	System Manager
<b>Mode</b>	Key and Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3b, Incoming Trunks: DS1 Connectivity (100D and 100R module)
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Pattern: up to eight digits Call Type: voice, data, both Service: AT&T Toll, 5ESS Local, MCI Toll, DMS-100 Local, Miscellaneous Delete Digits: 0 to 8

**Inspect** No

**Copy Option** No

**Console Procedure** To specify Patterns:  
LinesTrunks→PRI→OutgoingTbl→CBC Service→  
Patterns→Dial list no. (0-9)→Enter→Drop→  
Dial pattern (up to 8 digits; 0-9)→Enter→Back→Back→Back→  
Back

To specify Voice/Data:  
LinesTrunks→PRI→OutgoingTbl→CBC Service→  
Voice/Data→Dial list no. (0-9)→Enter→  
Select voice, data, or both→Enter→Back→Back→Back→Back

To specify Network Service:  
LinesTrunks→PRI→OutgoingTbl→CBC Service→  
NetwkServ→Dial list no. (0-9)→Enter→Select service (AT&T  
Toll, 5ESS Local, MCI Toll, Miscellaneous, or DMS-100 Local)→  
Enter→Back→Back→Back→Back

To specify Delete Digits:  
LinesTrunks→PRI→OutgoingTbl→CBC Service→  
DeleteDigit→Dial list no.(0-9)→Enter→Drop→  
Dial no. of digits (0-8)→Enter→Back→Back→Back→Back

**PC Procedure**

To specify Patterns:  
[F4] → [F6] → [F8] → [F3] → [F1] → Type list no.(0-9) → [F10] → [Drop] →  
Type pattern (up to 8 digits; 0-9) → [F10] → [F5] → [F5] → [F5] → [F5]

To specify Voice/Data:  
[F4] → [F6] → [F8] → [F3] → [F2] → Type list no.(0-9) → [F10] →  
Select voice, data, or both → [F10] → [F5] → [F5] → [F5] → [F5]

To specify Network Service:  
[F4] → [F6] → [F8] → [F3] → [F3] → Type list no. (0-9) → [F10] →  
Select service (AT&T Toll, 5ESS Local, MCI Toll, Miscellaneous, or  
DMS-100 Local) → [F10] → [F5] → [F5] → [F5]

To specify Delete Digits:  
[F4] → [F6] → [F8] → [F3] → [F4] → Dial list no.(0-9) → [F10] → [Drop] → Dial  
no. of digits(0-8) → [F10] → [F5] → [F5] → [F5]

## BRI Facilities

The procedures in this section provide the steps for programming the following options for Basic Rate Interface (BRI) facilities connected to an 800 NI-BRI module:

- Service Profile Identifier (SPID) and Directory Number (DN)
- Timers

**NOTE** ► If you are adding BRI facilities to an existing system, clock synchronization must be set correctly. To inspect or change these values, see [“Clock Synchronization” on page 3-34](#).

### Service Profile Identifier (SPID) and Directory Number (DN)

Use this procedure to program the Service Profile Identifier (SPID) and Directory Number (DN) for each BRI line in the system. Until these values are programmed for each line, the system considers the BRI line inactive and the line will not initialize.

**NOTE** ► The system will not be forced idle when SPIDs are entered. However, if for some reason a SPID changes, the line must be idle (no active call on the line) in order to change the SPID.

### Summary: Service Profile Identifier (SPID) and Directory Number (DN)

<b>Programmable by</b>	System Manager
<b>Mode</b>	Key, Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3i, Incoming Trunks: BRI Options (800 NI-BRI module)
<b>Factory Setting</b>	none
<b>Valid Entries</b>	SPID: up to 20 digits (any combination of 0 to 9)DN: up to 10 digits (any combination of 0 to 9)
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→  or More→BRI→SPID/DN.→ Dial line/trunk no. (1-80)→Enter→Dial SPID→Enter→ Dial DN→Enter→Back→Back
<b>PC Procedure</b>	 →  →  →  →Type line/trunk no.(1-80)→  → Type SPID→  →Type DN→  →  → 

## Timers

Use this procedure to set timer thresholds.



### CAUTION:

*The factory settings for these thresholds are standard and rarely need to be changed. If you are not sure of the correct timer and threshold settings for your BRI lines and trunks, check with your Lucent Technologies representative before you make a change. Incorrect settings can cause your BRI lines and trunks to malfunction.*

If the network does not respond before the programmed time, the system takes the appropriate corrective action.

The timers are listed below:

- **T200 Timer.** Minimum time that the link layer waits for an acknowledgment of a message sent from the system to the network.
- **T203 Timer.** Maximum time that the link layer can remain inactive.
- **T303 Timer.** Times the delay in network response when the system sends a setup message to initiate an outgoing call.
- **T305 Timer.** Times the delay in network response when the system sends a disconnect message to clear a call.
- **T308 Timer.** Times the delay in network response when the system sends a release message to clear a call.

**NOTE** ► If you enter an invalid timer value, you hear an error beep and the value that was previously stored is displayed on the screen.

[Table 3-5](#) shows the factory setting for each timer and the valid range for each threshold.

**Table 3-5. Timers**

Timer/ Counter	Purpose	Factory Setting	Valid Range	Increments
T200 Timer	maximum response time	1000 ms	500 to 5000 ms	500 ms
T203 Timer	maximum time	33 seconds	10 to 255 sec	1 sec
T303 Timer	Set up timeout	4 seconds	2 to 10 sec	1 sec
T305 Timer	Disconnect timeout	30 seconds	2 to 60 sec	1 sec
T308 Timer	Release timeout	4 seconds	2 to 10 sec	1 sec

## Summary: Timers

<b>Programmable by</b>	System Manager
<b>Mode</b>	Key, Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	Form 3i, Incoming Trunks: BRI Options (800 NI-BRI module)
<b>Factory Setting</b>	See <a href="#">Table 3-5</a>
<b>Valid Entries</b>	See <a href="#">Table 3-5</a>
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→  or More→BRI→Timers→Select timer→Drop→Dial no. of seconds or ms→Enter→Back→Back
<b>PC Procedure</b>	 →  →  →  → Select timer →  → Type no. of seconds or ms →  →  → 

## Extensions

This section contains the following procedures:

- Assigning outside lines or trunks to the buttons on a telephone (including lines and trunks used for loudspeaker paging)
- Copying line button assignments from one extension to either an individual extension or a block of extensions
- Assigning the following buttons on telephones (for Hybrid/PBX systems only):
  - System Access or Intercom Voice
  - System Access or Intercom Ring
  - System Access or Intercom Originate Only
  - Shared System or Intercom Access
- Programming rotary signaling on tip/ring ports
- Assigning tip/ring functionality on the 016 ETR (enhanced tip/ring) module

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## Assign Trunks or Pools to Extensions

Use this procedure to assign outside lines/trunks (connected to the control unit) to specific buttons on each telephone. The lines/trunks assigned to a button on a telephone are called Personal Lines.

This procedure is used only to change or add Personal Lines, Loudspeaker Paging, or Pool buttons (Hybrid/PBX only) to telephones. See [“Assign Intercom or System Access Buttons” on page 3-87](#) to add or change Intercom (ICOM) or System Access (SA) buttons.

### SECURITY ALERT:

*Do not assign private networked lines as Personal Lines on telephone buttons (Hybrid/PBX mode only). Do not assign pools of private network trunks (tandem PRI or tandem tie) to telephones. Do not provide dial access to these pools. Use ARS to provide access to a remote networked system's trunks for making outside calls. System users can reach extensions on the remote system by using normal inside calling procedures.*

Individual lines/trunks can be assigned to a maximum of 64 extensions. Individual pools can be assigned as a Pool button on a maximum of 64 extensions.

The following lines/trunks cannot be assigned to a button on a telephone:

- Lines/trunks used for Music-On-Hold
- Lines/trunks used for maintenance alarms

**NOTE** ► If you use equipment that rebroadcasts music or other copyrighted materials, you may be required to obtain a copyright license from and pay license fees to a third party (such as the American Society of Composers, Artists, and Producers or Broadcast Music Incorporated). Magic On Hold requires no such license and can be purchased from Lucent Technologies.

Pool buttons cannot be assigned to or removed from extensions unless the pool has trunks assigned. If all trunks are to be removed from a pool, all Pool button assignments must first be removed from extensions. Another way of handling this situation is to program another trunk into the pool and then remove the Pool button assignments from the extensions.

- **Hybrid/PBX only.** Individual lines/trunks assigned to a pool can be assigned to a button only on a DLC operator position. If one of the lines/trunks in a pool is assigned to a button on a non-DLC telephone, the result is a Pool button assignment.
- **Key only.** The system assigns the first eight line numbers to buttons on multiline telephones whether or not an outside line is physically connected. If a line is not connected, the button assignment must be removed so the user can assign a feature to the button.
- **For the Transtalk 9031 wireless multiline telephone.** The system assigns the first eight lines connected to the control unit even though the telephone has fewer than eight buttons available. Remove the extra lines in system programming so that the appropriate number of lines is assigned to buttons on these telephones.

Lines and trunks are assigned to buttons in the order in which you press each line button on the system programming console or keyboard. Existing line assignments can be rearranged by removing all current assignments and then pressing the line buttons on the console or keyboard in the order in which they should appear on the buttons. For information on the order of the programmed buttons, refer to the button numbers on the applicable planning form for each telephone.

If you want to reserve some blank buttons for features between line buttons, a line must be assigned as a placeholder for each blank button. After all lines are assigned, remove the lines used as placeholders on the buttons reserved for features.

### Summary: Assign Trunks or Pools to Extensions

<b>Programmable by</b>	System Manager
<b>Mode</b>	All, but note differences in factory settings.
<b>Idle Condition</b>	Extension idle
<b>Planning Form</b>	4l, Extension Copy: Multiline 4400-Series Telephone Template 4m, Multiline 4400-Series Telephone 4d, MLX Telephone 4e, MFM Adjunct: MLX Telephone 4f, Tip/Ring Equipment 4h, ETR Telephone 4j, MLS Telephone 5b, Direct-Line Console (DLC) 5c, MFM Adjunct: DLC Data Form 1a, Modem Data Workstation Data Form 1b, ISDN Terminal Adapter Data Workstation
<b>Factory Setting</b>	<p><b>Key Mode.</b> An Intercom Ring (ICOM Ring) button, an Intercom Voice (ICOM Voice) button, and the first eight lines connected to the control unit are assigned to all multiline 4400-Series telephones, ETR, MLS, and MLX telephones (excluding operator positions), and MFMs connected to MLX telephones. Two ICOM Ring buttons are assigned to 4400, 4400D, and single-line telephones; no outside lines are assigned.</p> <p><b>Behind Switch Mode.</b> ICOM Ring, ICOM Voice, and prime line buttons are assigned to all multiline 4400-Series telephones, ETR, MLS, and MLX telephones (excluding operator positions), and MFMs connected to MLX telephones. Two ICOM Ring buttons are assigned to 4400, 4400D, and single-line telephones; no outside lines are assigned. When prime lines are assigned to MLX extensions, lines are not assigned to MFMs used to connect adjuncts. Lines for MFMs must be assigned separately.</p> <p><b>Hybrid/PBX Mode.</b> System Access Ring (SA Ring), System Access Voice (SA Voice), and System Access Originate Only (SA Orig Only) buttons are assigned to all multiline 4400-Series telephones, ETR, MLS, and MLX telephones (excluding operator positions). Five Call buttons are assigned to QCC operator positions. Two SA Ring</p>

buttons and one SA Orig Only button are assigned to 4400, 4400D, and single-line telephones. No Personal Line or Pool buttons are assigned.

**Valid Entries** Extension numbers

**Inspect** Yes

**Copy Option** Yes

**Console Procedure** To program a single-line/trunk:  
 Extensions→Lines/Trunks→Dial ext. no.→Enter→  
 Entry Mode→Dial line/trunk no.→Enter→Back→Back

To program a block of lines/trunks:  
 Extensions→Lines/Trunks→Dial ext. no.→Enter→  
 Select trunk range→Toggle LED On/Off→Enter→Back→Back

**PC Procedure** To program a single-line/trunk:  
 F6 → F1 → Type ext. no. → F10 → F6 → Type line/trunk no. → F10 →  
 F5 → F5

To program a block of lines/trunks: → F6 → F1 → Type ext. no. →  
 F10 → Select trunk range → Toggle letter G On/Off → F10 → F5 → F5

## Copy Line/Trunk Assignments

Use this procedure to copy outside line/trunk button assignments, pool dial-out code restrictions (Hybrid/PBX only), and (for operator positions only) Night Service information from one extension to another extension or block of extensions with identical requirements.

If you are copying assignments to a block of extensions and one of the extensions in the block is in use, the display shows the *Station Busy - Pls Wait* message. Copying for the rest of the extensions in the block is delayed until the busy extension becomes idle. The number of the busy extension is not shown. If a DSS is attached, the LED associated with the busy extension is on. If you exit instead of waiting for the busy extension to become idle, copying for the rest of the extensions is cancelled; however, the assignments that have already been copied are not cancelled.

If you are copying assignments from an operator position to a block of extensions that includes both operator and non-operator extensions, the information is copied to only the operator positions; the non-operator positions are not affected. Similarly, if you are copying assignments from a non-operator position to a block of extensions that includes both operator and non-operator extensions, the information is copied to only the non-operator positions; the operator positions are not affected. The system does not provide an error tone to signal that the copy did not work for all of the extensions in the block.

## Summary: Copy Line/Trunk Assignments

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Extension idle
<b>Planning Form</b>	4l, Extension Copy: Multiline 4400-Series Telephone Template 4c, Extension Copy: MLX Telephone Template 4g, Extension Copy: ETR Telephone Template 4i, Extension Copy: MLS Telephone Template
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Not applicable
<b>Inspect</b>	Yes: lines/pools assigned to an extension.
<b>Copy Option</b>	Not applicable
<b>Console Procedure</b>	To copy to a single extension: Extensions→Line Copy→Single→Dial copy from ext. no.→ Enter→Dial copy to ext. no.→Enter→Back→Back  To copy to a block of extensions: Extensions→Line Copy→Block→Dial copy from ext. no.→ Enter→Dial ext. no. of first extension in block→Enter→ Dial ext. no of last extension in block→Enter→Back→Back
<b>PC Procedure</b>	To copy to a single extension: [F6]→[F2]→[F1]→Type copy from ext. no.→[F10]→ Type copy to ext. no.→[F10]→[F5]→[F5]  To copy to a block of extensions: [F6]→[F2]→[F2]→Type copy from ext. no.→[F10]→ Type ext. no. of first extension in block→[F10]→ Type ext. no. of last extension in block→[F10]→[F5]→[F5]

## Assign Intercom or System Access Buttons

Use this procedure to assign or change the assignments for Intercom (ICOM) buttons used to make and receive inside calls. This includes the following types of ICOM buttons:

- Ring
- Voice
- Originate Only (Ring or Voice)

In Hybrid/PBX mode only, use this procedure to assign or change assignments for System Access (SA) buttons used to make or receive inside and outside calls. This procedure includes the following types of System Access buttons:

- Ring
- Voice

- Originate Only (Ring or Voice)
- Shared (Ring or Voice)

- NOTES** ►
- You cannot change the factory setting for Call buttons assigned to QCC operator positions, and you cannot assign Ring, Voice, Originate Only, or Shared buttons to QCC operator positions. However, the Call 5 (Ring/Voice) button on a QCC can be programmed for Voice Announce. [See “Voice Announce” on page 3-131](#)
  - System Access or Intercom buttons can be assigned to only the first 10 buttons on a multiline telephone. This allows for a combination of up to 10 SA or ICOM buttons for each telephone (excluding QCC operator positions).
  - You can remove SA or ICOM buttons, but at least one must remain on the extension.

Although you can make selections from the screen (with the `ListFeature` option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

- NOTES** ►
- When 4400, 4400D, and single-line sets are programmed with only one SA or ICOM button, the Transfer, Conference and Drop features are disabled. Other features that require a second dial tone, such as Account Code/Number Entry, After Call Work States, Call Pickup, Call Waiting, and Privacy, are also affected. For more information, see the *Feature Reference*.
  - Each System Access Ring or Voice on an individual telephone can be assigned as a Shared System Access (SSA) button on up to 16 other extensions.
  - Shared SA buttons cannot be assigned to 4400, 4400D, and single-line telephones or other tip/ring equipment connected to an 016 (T/R) or 008 OPT module; or to an 016 ETR port when the port is programmed for T/R operation. Shared SA buttons can be assigned to a tip/ring or external alert device connected to an MFM in an MLX telephone. Shared SA buttons cannot be assigned when the corresponding SA button is on a 4400, 4400D, and single-line telephone.
  - Each System Access Ring or Voice on an individual extension can be assigned as a SSA button on up to 27 other extensions
  - SA and ICOM buttons are centrally programmed and cannot be programmed by individual extension users.

### Summary: Assign Intercom or System Access Buttons

<b>Programmable by</b>	System Manager
<b>Mode</b>	All, but note differences in factory settings
<b>Idle Condition</b>	Extension idle

## Planning Form

4m, Multiline 4400-Series Telephone  
4d, MLX Telephone  
4e, MFM Adjuncts: MLX Telephone  
4f, Tip/Ring Equipment  
4h, ETR Telephone  
4j, MLS Telephone  
5b, Direct-Line Console (DLC)  
5c, MFM Adjunct (DLC)  
Data Form 1a, Modem Data Workstation  
Data Form 1b, ISDN Terminal Adapter Data Workstation

## Factory Setting

**Key Mode.** An Intercom Ring (ICOM Ring) button, an Intercom Voice (ICOM Voice) button, and the first eight lines connected to the system are assigned to all multiline 4400-Series and MLX telephones, excluding operator positions. Two ICOM Ring buttons are assigned to 4400 and 4400D telephones and to tip/ring equipment connected to an 016 (T/R) module or to an 016 ETR port when the port is programmed for T/R operation. An ICOM Ring and an Intercom Originate Only (ICOM Orig Only) button are assigned to tip/ring equipment connected by an MFM. No outside lines are assigned.

**Behind Switch Mode.** An ICOM Ring button, an ICOM Voice button, and a prime line button are assigned to all multiline 4400-Series and MLX telephones, excluding operator positions. Two ICOM Ring buttons and a prime line button are assigned to 4400 and 4400D telephones and to tip/ring equipment connected to an 016 (T/R) module or to an 016 ETR port when the port is programmed for T/R operation. An ICOM Ring button and an Intercom Originate Only Ring button are assigned to tip/ring equipment connected by an MFM. No outside lines are assigned.

**Hybrid/PBX Mode.** System Access Ring (SA Ring), System Access Voice (SA Voice), and System Access Originate Only (SA Orig Only) buttons are assigned to all multiline 4400-Series, ETR, MLS, and MLX telephones, excluding operator positions. Two SA Ring buttons and an SA Orig Only Ring button are assigned to 4400 and 4400D telephones and to tip/ring equipment (for example, single-line telephones or fax machines connected to an 016 (T/R) module). No Personal Line or pool buttons are assigned.

**All Modes.** System Access Ring (Hybrid/PBX mode) or Intercom Ring (Key and Behind Switch modes), System Access Voice (Hybrid/PBX mode) or Intercom Voice (Key and Behind Switch modes), and the first 18 through 29 lines connected to the control unit are assigned to all DLC operator positions. The number of lines assigned depends on the type of telephone used as a DLC operator position. Refer to the appropriate telephone planning form for details.

<b>Valid Entries</b>	Not applicable.
<b>Inspect</b>	Yes: specific button options.
<b>Copy Option</b>	Yes. (You can copy additional SA buttons to another extension, but you cannot overwrite SA buttons that are already assigned.)
<b>Console Procedure</b>	<p>To program an extension:                  More→Cntr-Prg→Program Ext→Dial ext. no.→Enter→Start→Select button→Dial feature code (*16 or *18)→Enter→(repeat from beginning to program another button)→Back→Back</p> <p>To copy extension programming:                  More→Cntr-Prg→Copy ext→Dial copy from ext. no.→Enter→Dial copy to ext. no.→Enter→Back→Back</p>
<b>PC Procedure</b>	<p>To program an extension:                  PgUp → F4 → F1 → Type ext. no. → F10 → F10 → Select button → Type feature code (*16 or *18) → F10 → (repeat from beginning to program another button) → F5 → F5</p> <p>To copy extension programming:                  PgUp → F4 → F2 → Type copy from ext. no. → F10 → Type copy to ext. no. → F10 → F5 → F5</p>

Although you can make selections from the screen (with the ListFeature option) to assign Ring and Voice buttons, using programming codes to perform these functions speeds the button assignment process.

Table 3-6 provides the programming codes for assigning Ring and Voice buttons. You can handle errors in data entry as follows:

- If you enter a code incorrectly while programming, the display shows the Programming Error message and the red LED next to the button flashes. If this happens, press the button again and repeat the procedure.
- If you make a mistake and program the wrong feature on a button, press the button, select Delete (F1) on the PC display, and press the button again.

**Table 3-6. Programming Codes for Assigning Buttons**

To...	On the console...	On the PC...
Assign SA or ICOM Ring button	Dial *16	Type *16
Assign SA or ICOM Voice button	Dial *16, press button being programmed again, and dial *19	Type *16, press v + function key for button being programmed again, and type *19
Assign SA or ICOM Originate Only Ring button	Dial *18	Type *18

**Table 3-6. Programming Codes for Assigning Buttons — *Continued***

To...	On the console...	On the PC...
Assign SA or ICOM Originate Only Voice button	Dial *18, press button being programmed again, and dial *19	Type *18, press v + function key for button being programmed again, and type *19
Assign SA button	Dial *17, press the extension number of principal telephone [nnnn] then press the button number being shared [nn]	Type *17, press the extension number of principal telephone [nnnn] then press the button number of specific button being shared [nn]
Change current assignment for SA or ICOM Voice, Originate Only or Shared SA buttons from Voice to Ring	Dial **19	Type **19

## Rotary Signaling on Tip/Ring Ports

Use this procedure to enable or disable rotary signaling on tip/ring ports. You can program any tip/ring port on an individual basis (including ports on the 016 ETR modules that are programmed for tip/ring operation). The factory setting is that rotary signaling is disabled.

Whenever the system receives a rotary digit on a port, it determines if the port is programmed as rotary-enabled. If the port is rotary-enabled, the system processes the digit. If the port is not rotary-enabled, the digit is rejected. Touch-Tone digits are always accepted by the port, regardless whether it is rotary-enabled or not.

### Summary: Rotary Signaling on Tip/Ring Ports

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	System idle
<b>Planning Form</b>	4f, Tip/Ring Equipment
<b>Factory Setting</b>	Touch-Tone
<b>Valid Entries</b>	Extension numbers for rotary dial telephones
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→▶ or More→▶ or More→RotaryEnabl→ Type rotary ext. no.→Enter→Back→Back

**PC Procedure**

[F6] → [PgUp] → [F7] → Type rotary ext. no. → [F10] → [F5] → [F5]

Although you can make selections from the screen (with the `ListFeature` option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

## Tip/Ring Functionality on 016 ETR Modules

Use this procedure to assign either T/R or ETR functionality to ports on an 016 ETR module. Ports 11–16 can be either T/R or ETR, but *not both simultaneously*. Ports 1–10 can be ETR only.

When a port on an 016 ETR module is changed from ETR to T/R or from T/R to ETR, all programming assigned to the extension (such as inclusion in coverage groups and Calling Groups) is cleared and the extension is restored to the functionality defined with the factory settings (such as calling restrictions and button assignments).

**NOTE** ▶ A system forced idle occurs when you perform this task. In addition to assigning either T/R or ETR functionality, with this task you are also able to determine whether a port on an 016 ETR module has been administered as T/R or ETR. However, because this task forces the entire system into a forced idle state, it is recommended you do not use it to determine how the port has been administered. Instead, to determine the functionality of an ETR port, it is recommended that you do either of the following:

- Print an Extension Print Report. The report shows:
  - “T/R” if the port is programmed as T/R.
  - “ETR” if the port is programmed as ETR and an MLS or ETR telephone is connected to the port.
  - “UNEQUIPPED” if the port is programmed as ETR and an MLS or ETR telephone is not connected to the ports.
- View the extension profile by using this procedure:

Maintenance → Port → Station → Status

The profile shows the same information as previously listed for the Extensions Print Report.

### Summary: Tip/Ring Functionality on 016 ETR Modules

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	System idle
<b>Planning Form</b>	4g, Extension Copy: ETR Telephone Template
<b>Factory Setting</b>	ETR
<b>Valid Entries</b>	Tip/ring port

<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→▶ or More→▶ or More→ETR→Type ext. no.→ Enter→Select port type (ETR or Tip Ring)→Enter→Back→Back
<b>PC Procedure</b>	F6→PgUp→PgUp→F8→Type ext. no.→F10→ Select port type (ETR or Tip Ring)→F10→F5→F5

## Auxiliary Equipment

The procedures in this section describe the steps needed to perform the following:

- Identify the line/trunk jacks used for Music-On-Hold, loudspeaker paging, and maintenance alarms.
- Identify the extension jacks used for fax and CTI link.
- Specify parameters for the MERLIN Messaging System, Octel 100 Messaging, and Intuity AUDIX.

---

## Music-On-Hold

Use this procedure to identify the line/trunk jack reserved for connection of a music source, such as a radio, tape player, or stereo system.

If you use equipment that rebroadcasts music or other copyrighted materials, you may be required to obtain a copyright license from and pay license fees to a third party [such as the American Society of Composers, Artists, and Producers (ASCAP) or Broadcast Music Incorporated (BMI)]. Magic On Hold requires no such license and can be purchased from your Lucent Technologies dealer.

Only one Music-On-Hold line/trunk jack is allowed per system.

You cannot assign the line/trunk identified for Music-On-Hold to a line/trunk pool. If the line/trunk is currently assigned to a pool, you must remove it before you program this option.

You cannot assign the line/trunk identified for use with Music-On-Hold to a button on any extension or as a Remote Access trunk, and you cannot use the line/trunk jack identified for Music-On-Hold for a loudspeaker paging system or maintenance alarm.

Each system in a private network must have its own music source. A music source connected to a remote private networked switch cannot be used by the local system.

Although you can make selections from the screen (with the `ListFeature` option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

## Summary: Music-On-Hold

<b>Programmable by</b>	System Manager
<b>Mode</b>	All, but in Hybrid/PBX mode the line/trunk designated for Music-On-Hold cannot be assigned to a line/trunk pool.
<b>Idle Condition</b>	System idle
<b>Planning Form</b>	2c, System Numbering: Line/Trunk Jacks
<b>Factory Setting</b>	Not Applicable
<b>Valid Entries</b>	Line/trunk number
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	AuxEquip→MusicOnHold→Dial line/trunk no.→Enter→Back
<b>PC Procedure</b>	[F9]→[F1]→Type line/trunk no.→[F10]→[F5]

Although you can make selections from the screen (with the `ListFeature` option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

---

## Loudspeaker Paging

Use this procedure to identify the line/trunk jack reserved for connection of loudspeaker paging equipment.

If you use equipment that rebroadcasts music or other copyrighted materials, you may be required to obtain a copyright license from and pay license fees to a third party (such as ASCAP or BMI). Magic On Hold requires no such license and can be purchased from your Lucent Technologies dealer.

A maximum of three single-zone or multizone loudspeaker paging systems can be connected to the system.

You cannot assign the line/trunk identified for loudspeaker paging equipment to a line/trunk pool. If the line/trunk is currently assigned to a pool, you must remove it before you program this option.

You cannot assign the line/trunk identified for loudspeaker paging equipment as a Remote Access line/trunk, and you cannot use its jack for Music-On-Hold or maintenance alarm.

## Summary: Loudspeaker Paging

<b>Programmable by</b>	System Manager
<b>Mode</b>	All, but in Hybrid/PBX mode the line/trunk designated for loudspeaker paging cannot be assigned to a line/trunk pool.
<b>Idle Condition</b>	Line/trunk idle

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<b>Planning Form</b>	2c, System Numbering: Line/Trunk Jacks
<b>Factory Setting</b>	Not Applicable
<b>Valid Entries</b>	Line/trunk numbers
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	AuxEquip→Ldspkr Pg→Dial line/trunk no.→Enter→Back
<b>PC Procedure</b>	[F9]→[F2]→Type line/trunk no.→[F10]→[F5]

Although you can make selections from the screen (with the ListFeature option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

## Fax Machines

Use this procedure to add a fax machine by assigning the extension jack used to connect the fax machine. To remove a fax machine and free the extension jack for another use, you must remove the extension jack assignment.

In addition, you can specify the extensions to receive a message-waiting indication (MWI) when a fax transmission is received, and specify the length of time before the system registers that a fax has arrived and sends the message-waiting indication.

A maximum of 16 fax machines can have the Fax Message Waiting feature. Additional fax machines (more than 16) can be installed, but these machines cannot have this feature.

You can specify up to four telephones to receive the message-waiting indication when a fax transmission is received. Note that fax machines can only send and not receive message-waiting indications.

### Summary: Fax Machines

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	4m, Multiline 4400-Series Telephone 4d, MLX Telephone 4e, MFM Adjunct: MLX Telephone 4f, Tip/Ring Equipment 4h, ETR Telephone 4j, MLS Telephone 5b, Direct-Line Console (DLC) 5c, MFM Adjunct: DLC
<b>Factory Setting</b>	10 seconds

<b>Valid Entries</b>	0 to 30 seconds
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	To program an extension for a fax machine: AuxEquip→Fax→Extension→Dial ext. no.→Enter→Back  To have a message waiting light for a fax machine: Fax→Extension→Dial ext. no.→Enter→Back→ Msg Waiting→Dial fax machine ext. no.→Enter→ Dial MWI ext. no.→Enter→Threshold→Drop→ Dial no. of seconds (0-30)→Enter→ Back→Back
<b>PC Procedure</b>	To program an extension for a fax machine: [F9]→[F3]→[F1]→Type ext. no.→[F10]→[F5]  To have a message waiting light for a fax machine: [F3]→[F1]→Type ext. no.→[F10]→[F5]→[F2]→ Type fax machine ext. no.→[F10]→Type MWI ext. no.→[F10]→[F3]→ [Drop]→Type no. of seconds (0-30)→[F10]→[F5]→[F5]

## Maintenance Alarms

Use this procedure to identify the line/trunk jack that connects an external alerting device that sounds or flashes when major maintenance problems occur.

You cannot assign the line/trunk identified for the maintenance alarm to a button on any telephone or as a Remote Access trunk, and you cannot use its line/trunk jack to connect a loudspeaker paging system or Music-On-Hold.

### Summary: Maintenance Alarms

<b>Programmable by</b>	System Manager
<b>Mode</b>	All, but in Hybrid/PBX mode, the line/trunk designated for the maintenance alarm cannot be assigned to a line/trunk pool.
<b>Idle Condition</b>	System idle
<b>Planning Form</b>	2c, System Numbering: Line/Trunk Jacks
<b>Factory Setting</b>	Not Applicable
<b>Valid Entries</b>	Line/trunk number
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	AuxEquip→MaintAlarms→Dial line/trunk no.→Enter→Back→ Back
<b>PC Procedure</b>	[F9]→[F4]→Type line/trunk no.→[F10]→[F5]→[F5]

## Voice Messaging System and Automated Attendant

Use this procedure to specify the Touch-Tone duration and the interval between digits in codes sent between a voice messaging system and the MERLIN MAGIX system. The Touch-Tone duration and interval between digit assignment must be the same as those programmed on the voice messaging system.

In addition, this procedure can be used to specify the number of rings before a call transferred to a local extension by the voice messaging system is sent to the backup position for both integrated and generic VMI ports. The number of rings cannot be programmed for individual voice messaging systems; the single setting applies for all. Use the Group Type procedure in [“Optional Group Features” on page 3-131](#) to assign VMI ports as either integrated or generic.

**NOTE** ► This does not apply to calls transferred to a non-local extension. See the *Network Reference* for information.

### SECURITY ALERT:

See [“Security Risks Associated with the Automated Attendant Feature of Voice Messaging Systems” on page A-11](#) and [“Security Risks Associated with Transferring through Voice Messaging Systems” on page A-9 in Appendix A, “Customer Support Information,” for details on preventing toll fraud.](#)

### Summary: Voice Messaging System and Automated Attendant

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	See forms packaged with application
<b>Factory Setting</b>	Touch-Tone duration: 100 ms Interval between digits: 50 ms Number of rings before transfer sent to backup: 4
<b>Valid Entries</b>	Touch-Tone duration: 50 to 200 ms, in increments of 25 ms Interval between digits: 50 to 200 ms, in increments of 25 ms Number of rings before transfer sent to backup: 0 to 9
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	AuxEquip→VMS/AA→TransferRtn→Drop→ Dial no. of rings (0–9)→Enter→TT Duration→Drop→ Dial no. of ms (50–200 ms, in increments of 25 ms)→Enter→ TT Interval→Drop→Dial no. of ms (50–200 ms, in increments of 25 ms)→Enter→ Back→Back

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Computer Telephony Integration (CTI) Link

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**PC Procedure**

[F9] → [F6] → [F1] → [Drop] → Type no. of rings (0–9) → [F10] →  
 [F2] → [Drop] → Type no. of ms (50–200 ms, in increments of 25 ms) →  
 [F10] → [F3] → [Drop] → Type no. of ms (50–200 ms, in increments of 25  
 ms) → [F10] → [F5] → [F5]

## Computer Telephony Integration (CTI) Link

The system supports the use of an MLX port as a Computer Telephony Integration (CTI) link on Hybrid/PBX mode systems. The CTI link feature allows CTI applications to interact with the MERLIN MAGIX Integrated System over a local area network (LAN). The CTI link is the system's hardware and software interface to the Lucent Technologies PassageWay Telephony Services product, which supports the Windows 95, Windows NT, Windows 3.1, Windows 3.11 for Workgroups, Apple® Macintosh® OS and UNIX Systems platforms on the client side. CTI link circuitry connects to an MLX port on the system and to a LAN server using Novell NetWare or Windows NT 4.0 Server or Workstation software (Server is recommended).

### Programming a CTI Link

Before programming a CTI link, refer to the *Feature Reference*, *System Planning*, and the documentation provided with the telephony platform.

The following constraints apply to programming an MLX port as a CTI link:

- CTI links cannot be used with systems operating in Key mode or Behind Switch mode.
- CTI link extensions cannot be programmed on tip/ring extension module ports. You must choose a free extension jack on an MLX extension module. The free extension jack cannot be the first or fifth port on an 008 MLX or 408 GS/LS-ID-MLX module; or the first, fifth, ninth, or thirteenth port on an 016 MLX module.
- You cannot use a port reserved for an operator extension as the CTI link extension.
- You cannot use a system programming port as the CTI link extension.
- You cannot program a port as a CTI link if it has a telephone or other equipment connected to it.
- MLX modules with firmware vintage 29 do not work correctly with the CTI link. You must either choose a port on a board with firmware vintage that is not 29 or replace the module with a module that has a firmware vintage other than 29.

**NOTES** ►

- You should choose a module other than the one that has the system programming port so that you can still perform maintenance and system programming when the board with the CTI link extension is busied-out.
- Be sure to busy-out the board with the CTI link before starting any programming activities.

3 Programming Procedures

Computer Telephony Integration (CTI) Link

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When you add a CTI link, the system performs the following actions:

- The programmed buttons for that extension revert to the factory settings for a non-operator MLX telephone.
- Forwarding is deactivated to the extension.
- The extension is removed from membership in Calling Groups.
- The extension is removed from membership in coverage groups.
- The extension is removed from membership in Service Observing groups, or as an Observer of a Service Observing group.
- The Extension Directory label for the extension is changed to CTILINK.
- The factory setting for alarms is active on this link.
- Dial access to pools is removed from the station.

**NOTES** ■ Be sure to restore the board after finishing any programming activities.

- If the primary and secondary cover buttons are not removed, the following message appears on the programming device (WinSPM, 4424LD+, or MLX-20L):

```
CTI Link Extension xxxx  
added, but it has  
primary or secondary  
cover buttons at other  
extensions.  
Please remove them.  
Exit
```

Although you can make selections from the screen (with the `ListFeature` option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

### Summary: CTI Link

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	2b, System Numbering: Digital Adjuncts
<b>Factory Setting</b>	No port programmed as CTI link
<b>Valid Entries</b>	Any extension on an MLX port board except the System Programming console port and the first and fifth ports.
<b>Inspect</b>	Yes
<b>Copy Option</b>	No

### Console Procedure

Busy out the board first. This is a Maintenance step. Start the procedure from the Main menu, not the System Programming screen.  
Menu→Maintenance→Slot→Dial slot no. (1-17)→Enter→Busy-Out→Yes

Program the CTI link:

AuxEquip→CTI Link→Dial extension no.→Enter→Back→Back

Restore the slot. This is a Maintenance step. Start the procedure from the Main menu, not the System Programming screen.

Menu→Maintenance→Slot→Dial slot no. (1-17)→Enter→Restore→Yes

### PC Procedure

Busy out the board first:

[F6]→[F2]→Type slot no. (1-17)→[F10]→[F2]→[F1]

Program the CTI link:

[F9]→[F7]→Type extension number→[F10]→[F5]→[F5]

Restore the slot. This is a Maintenance step. Start the procedure from the Main menu, not the System Programming screen.

[F6]→[F2]→Dial slot no. (1-17)→[F10]→[F3]→[F1]

Although you can make selections from the screen (with the `ListFeature` option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

---

## CTI Link Programming Errors

During the programming of the CTI link, entering an inappropriate extension number can give you an error message. This section contains displays of each screen and information about what to do if the screen appears.

### System Not in Hybrid/PBX Mode

CTI Link Extensions: Extension xxxx Failed.  System Not in Hybrid/PBX Mode.  Back
---

This message appears if the system is not in Hybrid/PBX mode. CTI links cannot be used with systems operating in Key mode or Behind Switch mode.

### Extension Selected Not on MLX Port Module

```
CTI Link Extensions:
Extension xxxx Failed.

Not on MLX Port Module.

Back
```

This message appears if you have chosen an extension that is not on an MLX Port Module. CTI link extensions cannot be programmed on tip/ring extension module ports. You must choose an extension that is on an MLX port module (008 MLX, 016 MLX, or 408 GS/LS-ID-MLX).

### Extension Selected Is System Programming Port

```
CTI Link Extensions:
Extension xxxx Failed.

Extension Selected is
System Programming Port.

Back
```

This message appears if you have chosen an extension that has been programmed as a system programming port, which is not permitted as the CTI link port. You must choose another port for the CTI link extension.

**NOTE** ▶ You should choose a module other than the one that has the system programming port, so that you can still perform maintenance and system programming when the board with the CTI link extension is busied-out.

### MLX Port Module Contains Firmware Vintage 29

```
CTI Link Extensions:
Extension xxxx Failed.

MLX Port Module Contains
Firmware Vintage 29.

Back
```

This message appears when the port that you are programming as the CTI link is on an MLX module with firmware vintage 29. Modules with this firmware vintage do not work correctly with the CTI link. You must either choose a port on a board with firmware vintage other than 29 or replace the module with a module that has a firmware vintage other than 29.

## Port Reserved for Operator Positions

CTI Link Extensions:  
Extension xxxx Failed.  
This Port is Reserved  
For Operator Positions.

Back

This message appears when the port that you are programming as the CTI link is on the Operator Position list (as a QCC or DLC). Check your printout of the Operator Information Report for programmed operator positions.

## Extensions Covered by Extension

CTI Link Extension: xxxx  
added, but it has  
primary or secondary  
cover buttons at other  
extensions.  
Please remove them.

Back

This message appears when the port that you are programming as the CTI link is covered by other extensions. You should remove the Cover buttons on these extensions.

## Slot Not Busied-Out

CTI Link Extension: xxxx  
not added. Please  
busy out slot xx first.  
If this is the only MLX  
port module, use SPM for  
CTI link administration

Back

This message appears when the port that you are programming as the CTI link is on a board that has not been busied-out. Busy-out the board.

## Optional Extension Features

The summaries in this section detail the steps in programming the following optional features:

- Extension Language
- Pool Dial-Out Code
- Calling Restrictions
- Copy Calling Restrictions
- ARS Restriction Level for Extensions
- Forced Account Code Entry
- Microphone Operation
- Authorization Codes
- Remote Call Forwarding
- Delayed Call Forwarding
- Trunk-to-Trunk Transfer
- Primary Cover Ring Delay
- Secondary Cover Ring Delay
- Group Coverage Ring Delay
- Hotline (single-line telephone only)
- Display Preference
- Service Observing

---

### Extension Language

Use this procedure to change the language for 4400-Series, ETR, and MLX display telephones.

#### Summary: Extension Language

<b>Programmable by</b>	Users and System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	4d, MLX Telephone 4h, ETR telephone 4k, 4400/4400D telephone 5b, Direct-Line Console (DLC) Data Form 1b, ISDN Terminal Adapter Data Workstation
<b>Factory Setting</b>	U.S. English
<b>Valid Entries</b>	U.S. English, Canadian French, Latin American Spanish

<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	<p>To program a single extension: ▶ or More → Language → Extensions → Single → Dial ext. no. → Enter → Select a language (English, French, or Spanish) → Enter → Back → Back</p> <p>To program a block of extensions: ▶ or More → Language → Extensions → Block → Dial starting ext. no. → Enter → Dial ending ext. no. → Enter → Select a language (English, French, or Spanish) → Enter → Back → Back</p>
<b>PC Procedure</b>	<p>To program a single extension: PgUp → F6 → F2 → F1 → Type ext. no. → F10 → Select a language (English, French, or Spanish) → F10 → F5 → F5</p> <p>To program a block of extensions: PgUp → F6 → F2 → F2 → Type starting ext. no. → F10 → Type ending ext. no. → Select a language (English, French, or Spanish) → F10 → F5 → F5</p>

---

## Pool Dial-Out Code

Use this procedure to allow or restrict dialing pool dial-out codes and placing calls on specific line/trunk pools. The factory settings restrict all extensions from dialing any line/trunk pool dial-out code.

**NOTE** ▶ The factory settings allow all extensions to dial any line/trunk pool dial-out code. Entering a pool dial-out code and then deleting that code restricts the user from using the pool associated with the entered code.

### SECURITY ALERT:

*Do not allow dial access to pools of non-local tie or PRI tandem trunks (Hybrid/PBX mode only). When callers in your system need to use these pools for outside calls, use ARS to direct the calls to these pools. Callers in your system use normal inside calling procedures to reach extensions on private networked systems.*

## Summary: Pool Dial-Out Code

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Extension idle
<b>Planning Form</b>	4m, Multiline 4400-Series Telephone 4k, 4400/4400D Telephone 4d, MLX Telephone 4e, MFM Adjunct: MLX Telephone 4f, Tip/Ring Equipment 4h, ETR Telephone 4j, MLS Telephone 5b, Direct-Line Console (DLC) 5c, MFM Adjunct (DLC) 5d, Queued Call Console (QCC) Data Form 1a, Modem Data Workstation Data Form 1b, ISDN Terminal Adapter Data Workstation
<b>Factory Setting</b>	Main pool: 70; All other pools: 890 to 899. All telephones are restricted from dialing any pool dial-out code.
<b>Valid Entries</b>	Pool numbers
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→Dial OutCd→Dial ext. no.→Enter→ Dial pool dial-out code→Enter→Back→Back
<b>PC Procedure</b>	<input type="button" value="F6"/> → <input type="button" value="F3"/> → Type ext. no. → <input type="button" value="F10"/> → Type pool dial-out code → <input type="button" value="F10"/> → <input type="button" value="F5"/> → <input type="button" value="F5"/>

Although you can make selections from the screen (with the `ListFeature` option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

## Calling Restrictions

Use this procedure to change individual extension calling restrictions to one of the following:

- Unrestricted
- Restricted from making all outgoing calls
- Restricted from making toll calls

 **SECURITY ALERT:**

*Toll fraud can occur if extensions are not properly restricted. See [“Security of Your System: Preventing Toll Fraud”](#) on page A-7 in [Appendix A](#) for more information and security procedures.*

**NOTE** ► Outward and toll calling restrictions are automatically removed when a caller dials an extension in the non-local dial plan. FRL restrictions still apply. For details, see [“Uniform Dial Plan Routing”](#) on page 3-186.

### Summary: Calling Restrictions

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Extension idle
<b>Planning Form</b>	4m, Multiline 4400-Series Telephone 4k, 4400/4400D Telephone 4d, MLX Telephone 4e, MFM Adjunct: MLX Telephone 4f, Tip/Ring Equipment 4h, ETR Telephone 4j, MLS Telephone 5b, Direct-Line Console (DLC) 5c, MFM Adjunct: DLC 5d, Queued Call Console (QCC) Data Form 1a, Modem Data Workstation Data Form 1b, ISDN Terminal Adapter Data Workstation
<b>Factory Setting</b>	Unrestricted
<b>Valid Entries</b>	Unrestricted, Outward restricted, Toll restricted
<b>Inspect</b>	No
<b>Copy Option</b>	Yes
<b>Console Procedure</b>	Extensions→Restriction→Dial ext. no.→Enter→ Select restriction (Unrestricted, Outward restricted, or Toll restricted)→Enter→Back
<b>PC Procedure</b>	<input type="text" value="F6"/> → <input type="text" value="F4"/> →Type ext. no.→ <input type="text" value="F10"/> →Select restriction (Unrestricted, Outward restricted, or Toll restricted)→ <input type="text" value="F10"/> → <input type="text" value="F5"/>

## Copy Calling Restrictions

Use this procedure to copy calling restrictions, Allowed Lists, and Disallowed Lists. Feature assignment must be completed for the “copy from” extension. These features can then be copied to an individual extension or block of extensions with identical calling restriction requirements.

If you are copying restrictions to a block of extensions and one of the extensions in the block is in use, the display shows the *Station Busy - Pls Wait* message. Copying for the rest of the extensions in the block is delayed until the busy extension becomes idle. The number of the busy extension is not shown. If a DSS is attached, the LED associated with the busy extension is on. If you exit instead of waiting for the busy extension to become idle, copying for the rest of the extensions in the block is cancelled; however, the restrictions that have already been copied are not cancelled.

If you are copying restrictions to a block of extensions, they must be sequentially numbered.

The extensions you are copying to and from can be both operator and nonoperator positions.

**NOTE** ► Dial-out code restrictions are not copied.

### Summary: Copy Calling Restrictions

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	“Copy to” extension or extensions idle
<b>Planning Form</b>	4m, Multiline 4400-Series Telephone 4k, 4400/4400D Telephone 4d, MLX Telephone 4e, MFM Adjunct: MLX Telephone 4h, ETR Telephone 4j, MLS Telephone 5b, Direct-Line Console (DLC) 5c, MFM Adjunct: DLC 5d, Queued Call Console (QCC) Data Form 1a, Modem Data Workstation Data Form 1b, ISDN Terminal Adapter Data Workstation
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Not applicable
<b>Inspect</b>	No
<b>Copy Option</b>	Not applicable

**Console Procedure**

To copy to a single extension:

Extensions→RestrctCopy→Single→Dial copy from  
 ext. no.→Enter→Dial copy to ext. no.→Enter→Back→  
 Back→Back

To copy to a block of extensions:

Extensions→RestrctCopy→Block→Dial copy from ext. no.→  
 Enter→Dial first no. in copy to block→Enter→  
 Dial last no. in copy to block→Enter→Back→Back→Back

**PC Procedure**

To copy to a single extension:

[F6]→[F6]→[F1]→Type copy from ext. no.→[F10]→  
 Type copy to ext. no.→[F10]→[F5]→[F5]→[F5]

To copy to a block of extensions:

[F6]→[F6]→[F2]→Type copy from ext. no.→[F10]→  
 Type first copy no. in copy to block→[F10]→[F5]→[F5]→[F5]

## ARS Restriction Level for Extensions

Use this procedure to assign an ARS restriction level to an extension. Outgoing calls can be made only to routes that have a Facility Restriction Level (FRL) lower than or equal to that of the extension for which the call is being made. Only outgoing calls are affected; users can receive inside, local, and toll calls on restricted telephones and can join any type of call in progress.

The restriction level assigned to extensions is opposite to the FRL assigned to routes, where 0 is the most and 6 is the least restrictive.

FRLs assigned to extensions apply not only to ARS calls, but also to calls for non-local dial plan extensions connected by private trunks to your local system. For this reason, use care in assigning FRLs both to extensions and to UDP routes. For example, if a user must be restricted from toll calls on your local system, you may need to plan UDP routes' FRLs to allow the user to reach necessary non-local dial plan extensions. For details, see ["Uniform Dial Plan Routing" on page 3-186.](#)

### Summary: Assigning ARS Restriction Level For an Extension

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX only
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	4m, Multiline 4400-Series Telephone 4k, 4400/4400D Telephone 4d, MLX Telephone 4e, MFM Adjunct: MLX Telephone 4f, Tip/Ring Equipment 4h, ETR Telephone 4j, MLS Telephone

	5b, Direct-Line Console (DLC) 5c, MFM Adjunct: DLC 6g, Call Restriction Assignments and Lists
<b>Factory Setting</b>	3
<b>Valid Entries</b>	0–6 (0 is most restrictive and 6 is least restrictive)
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→▶ or More→ARS Restrict→Dial ext. no.→Enter→ Drop→Dial restriction level (0–6)→Enter→Back
<b>PC Procedure</b>	F6 → PgUp → F6 → Type ext. no. → F10 → Drop → Type restriction level (0–6) → F10 → F5

## Forced Account Code Entry

Use this procedure to assign or remove Forced Account Code Entry. When this feature is programmed on individual extensions, the user must enter a 1- to 16-digit account code before making an outside call.

### Summary: Forced Account Code Entry

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	4m, Multiline 4400-Series Telephone 4k, 4400/4400D Telephone 4d, MLX Telephone 4e, MFM Adjunct: MLX Telephone 4f, Tip/Ring Equipment 4h, ETR Telephone 4j, MLS Telephone 5b, Direct-Line Console (DLC) 5c, MFM Adjunct: DLC 5d, Queued Call Console (QCC) Data Form 1a, Modem Data Workstation Data Form 1b, ISDN Terminal Adapter Data Workstation
<b>Factory Setting</b>	Not assigned
<b>Valid Entries</b>	Assigned, not assigned
<b>Inspect</b>	Yes
<b>Copy Option</b>	No

**Console Procedure** Extensions→Account→Toggle LED On/Off or dial ext. no.→  
 Enter→Back→Back

**PC Procedure** [F6]→[F7]→Toggle letter R On/Off or type ext. no.→[F10]→[F5]→[F5]

## Microphone Operation

Use this procedure to enable or disable microphones on MLX telephones (except QCC operator positions). When the microphone is disabled, users cannot use the speakerphone to conduct conversations.

**NOTE**▶ The microphone cannot be disabled on MLX telephones used as QCC operator positions.

### Summary: Microphone Operation

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	4d, MLX Telephone 5b, Direct-Line Console (DLC)
<b>Factory Setting</b>	Enabled
<b>Valid Entries</b>	Enabled, Disabled
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→▶ or More→Mic Disable→ Toggle LED On/Off or dial ext. no.→Enter→Back→Back
<b>PC Procedure</b>	[F6]→[PgUp]→[F7]→Toggle letter R On/Off or type ext. no.→[F10]→ [F5]→[F5]

## Authorization Codes

The Authorization Code feature allows you to pick up someone else's telephone, enter your authorization code, and complete a call with the restrictions that apply to your own telephone (home extension). This includes toll restrictions, outward restriction, FRL, Allowed Lists,

Disallowed Lists, Forced Account Code Entry (FACE), Night Service Exclusion List, and Dial Access to Pools.

**NOTE** ▶ A user can activate Call Forwarding and Remote Call Forwarding by entering his or her home extension authorization code while at any telephone in the system; this is useful when activating Call Forwarding or Remote Call Forwarding at phantom stations. It is also useful when a single-line telephone extension needs a PAUSE character in the Remote Call Forwarding digit string.

Use this procedure to assign or remove an authorization code to an extension. The authorization code can range from 2 to 11 characters (0 – 9, \*) and must be unique for each extension. An authorization code cannot begin with an “\*.”

If you are assigning authorization codes for a group of sequential extensions, begin programming the lowest extension number to take advantage of the **Next** screen key (see “Standard Procedures”).

### Summary: Authorization Codes

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	6h, Authorization Codes
<b>Factory Setting</b>	Not assigned
<b>Valid Entries</b>	2–11 characters (0–9, *)
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions →  or More → Auth Code → Dial ext. no. → Enter → Dial authorization code (2–11 digits, 0–9, *) → Enter → Back → Back
<b>PC Procedure</b>	 →  →  → Type ext. no. →  → Type authorization code (2–11 digits, 0–9, *) →  →  → 

Although you can make selections from the screen (with the **ListFeature** option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

---

## Remote Call Forwarding

Use this procedure to allow or disallow the Remote Call Forwarding capability, which permits users to forward calls to an outside number. Remote Call Forwarding must be enabled in order for an extension user to activate Centrex Transfer via Remote Call Forwarding. Remote Call Forwarding may be used to forward calls across the private network.

If an extension with Remote Call Forwarding has one or more Personal Lines assigned, that extension can be assigned as the principal user, and calls received on that line are forwarded to outside numbers. [See “Principal User for Personal Line” on page 3-30.](#)

- NOTES** ▶
- This feature is not recommended unless you have ground-start trunks. See [“Disconnect Signaling Reliability” on page 3-27.](#)
  - Ensure that the number of rings for Remote Call Forwarding is less than the Coverage Delay or the call will not forward.
  - Use the Forwarding feature.

 **SECURITY ALERT:**

See [“Security of Your System: Preventing Toll Fraud” on page A-7 in Appendix A](#) for more information and security procedures on preventing toll fraud with Remote Call Forwarding.

**Summary: Remote Call Forwarding**

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	4m, Multiline 4400-Series Telephone 4k, 4400/4400D Telephone 4d, MLX Telephone 4e, MFM Adjunct: MLX Telephone 4f, Tip/Ring Equipment 4h, ETR Telephone 4j, MLS Telephone 5b, Direct-Line Console (DLC) 5c, MFM Adjunct: DLC 5d, Queued Call Console (QCC) Data Form 1a, Modem Data Workstation Data Form 1b, ISDN Terminal Adapter Data Workstation
<b>Factory Setting</b>	Disallowed
<b>Valid Entries</b>	Disallowed, allowed
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→▶ or More→Remote Frwd→ Toggle LED On/Off or dial ext. no.→Enter→Back→Back
<b>PC Procedure</b>	F6 → PgUp → F8 → Toggle letter R On/Off or type ext. no. → F10 → F5 → F5

## Delayed Call Forwarding

Delayed Call Forwarding allows a user to answer or screen a call arriving at an extension before the call is forwarded through Call Forwarding, Remote Call Forwarding, or Follow Me. The forwarding delay is the number of rings before the call is forwarded. This delay can range from 0 to 9 rings. If the forwarding delay is set to 0, the call is forwarded immediately.

**NOTE** ► When Do Not Disturb is activated at an extension, it overrides Delayed Call Forwarding and the call is forwarded immediately.

Use this procedure to assign or remove Delayed Call Forwarding from an extension. If you are assigning Delayed Call Forwarding to a group of sequential extensions, begin by programming the lowest extension number to take advantage of the `Next` screen key (see "Standard Procedures").

### Summary: Delayed Call Forwarding

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	4m, Multiline 4400-Series Telephone 4d, MLX Telephone 4e, MFM Adjunct: MLX Telephone 4f, Tip/Ring Equipment 4h, ETR Telephone 4j, MLS Telephone 5b, Direct-Line Console (DLC) 5c, MFM Adjunct: DLC 5d, Queued Call Console (QCC) Data Form 1a, Modem Data Workstation Data Form 1b, ISDN Terminal Adapter Data Workstation
<b>Factory Setting</b>	0 rings
<b>Valid Entries</b>	0–9 rings
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions →  or More → Delay Frwd → Dial ext. no. → Enter → Drop → Dial no. of delay rings (0–9) → Enter → Back → Back
<b>PC Procedure</b>	 →  →  → Type ext. no. →  →  → Type no. of delay rings (0–9) →  →  → 

## Trunk-to-Trunk Transfer

Use this procedure to enable or disable trunk-to-trunk transfer at an extension. When trunk-to-trunk transfer is disabled, users cannot transfer an outside call to an outside line.

**NOTE** ▶ Calls can be transferred to members in the non-local dial plan tables, even if trunk-to-trunk transfer is not allowed (Hybrid/PBX mode only). This allows users of single-line telephones to transfer incoming calls from the PSTN to non-local dial plan extensions.

### Summary: Trunk-to-Trunk Transfer

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	4m, Multiline 4400-Series Telephone 4k, 4400/4400D Telephone 4d, MLX Telephone 4e, MFM Adjunct: MLX Telephone 4f, Tip/Ring Equipment 4h, ETR Telephone 4j, MLS Telephone 5b, Direct-Line Console (DLC) 5c, MFM Adjunct: DLC 5d, Queued Call Console (QCC) Data Form 1a, Modem Data Workstation Data Form 1b, ISDN Terminal Adapter Data Workstation
<b>Factory Setting</b>	Disabled
<b>Valid Entries</b>	Enabled, Disabled
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→▶ or More→▶ or More→TrkTransfer→ Toggle LED On/Off or dial ext. no.→Enter→Back→Back
<b>PC Procedure</b>	F6 → PgUp → PgUp → F1 → Toggle letter R On/Off or type ext. no. → F10 → F5 → F5

## Primary Cover Ring Delay

Use this procedure to specify the following:

- The delay before a Primary Cover button, programmed for Delay Ring, begins to ring audibly.
- The delay, in addition to the Group Coverage Ring Delay, before sending calls to Group Coverage when the sender has Primary or Secondary Coverage and any receiver is available.

The Primary Cover Ring Delay is programmed for each sender's extension.

### Summary: Primary Cover Ring Delay

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	4m, Multiline 4400-Series Telephone 4k, 4400/4400D Telephone 4d, MLX Telephone 4e, MFM Adjunct: MLX Telephone 4f, Tip/Ring Equipment 4h, ETR Telephone 4j, MLS Telephone 5b, Direct-Line Console (DLC) 5c, MFM Adjunct: DLC
<b>Factory Setting</b>	2 rings
<b>Valid Entries</b>	1–6 rings
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→ or More→ or More→Cover Delay→ Primary→Dial sender's extension→Enter→Dial no. of rings (1-6)→Enter→Back
<b>PC Procedure</b>	→  →  →  →  → Type sender's extension →  → Type no. of rings (1-6) →  →

## Secondary Cover Ring Delay

Use this procedure to specify the delay, in addition to the fixed Secondary Coverage Delay Interval (two rings), before a Secondary Cover button programmed for Delay Ring begins to ring audibly.

The Secondary Cover Ring Delay is programmed for each sender's extension.

### Summary: Secondary Cover Ring Delay

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	4m, Multiline 4400-Series Telephone 4k, 4400/4400D Telephone 4d, MLX Telephone 4e, MFM Adjunct: MLX Telephone 4f, Tip/Ring Equipment 4h, ETR Telephone 4j, MLS Telephone 5b, Direct-Line Console (DLC) 5c, MFM Adjunct: DLC
<b>Factory Setting</b>	2 rings
<b>Valid Entries</b>	1–6 rings
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→▶ or More→▶ or More→Cover Delay→ Secondary→Dial sender's extension→Enter→Dial no. of rings (1–6)→Enter→Back→Back
<b>PC Procedure</b>	[F6]→PgUp→PgUp→[F2]→[F2]→Type sender's extension→[F10]→ Type no. of rings (1–6)→[F10]→[F5]→[F5]

### Group Coverage Ring Delay

Use this procedure to specify the following:

- The number of rings before sending calls to Group Coverage when the sender does not have Primary or Secondary Coverage or the receivers are not available, and the Group Coverage receiver is either a Calling Group only or the QCC queue only (no Group Cover buttons on multiline telephones)
- The number of rings, in addition to the Primary Cover Ring delay, before sending calls to Group Coverage when the sender has Primary or Secondary Coverage and the receivers are available

The Group Coverage Ring Delay is programmed for each sender's extension.

### Summary: Group Coverage Ring Delay

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required

<b>Planning Form</b>	4m, Multiline 4400-Series Telephone 4k, 4400/4400D Telephone 4d, MLX Telephone 4e, MFM Adjunct: MLX Telephone 4f, Tip/Ring Equipment 4h, ETR Telephone 4j, MLS Telephone 5b, Direct-Line Console (DLC) 5c, MFM Adjunct: DLC
<b>Factory Setting</b>	3 rings
<b>Valid Entries</b>	1–9 rings
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→▶ or More→▶ or More→Cover Delay→ Group→Dial sender's extension→Enter→Dial no. of rings (1–9)→Enter→Back→Back
<b>PC Procedure</b>	F6 → PgUp → PgUp → F2 → F3 → Type sender's extension → F10 → Type no. of rings (1–9) → F10 → F5 → F5

---

## HotLine

Use this procedure to enable or disable the HotLine feature on a tip/ring single-line telephone or device.

### Summary: HotLine

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	4f, Tip/Ring Equipment
<b>Factory Setting</b>	Disabled
<b>Valid Entries</b>	Yes, No
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→▶ or More→▶ or More→HotLine→ Enter HotLine extension→Enter→Back→Back
<b>PC Procedure</b>	F6 → PgUp → PgUp → F3 → Type HotLine extension → F10 → F5 → F5

## Display Preference

Use this procedure to specify display preferences for incoming inside calls or non-local dial plan calls that arrive on PRI tandem trunks. Non-local dial plan calls that arrive on private networked tandem tie trunks are not affected; such calls display on the recipient's telephone like outside calls do—that is, they do not have Calling Party information. For details about the display content, see the *Feature Reference*.

### Summary: Display Preference

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	Non-Local Dial Plan Administration Form in the Installation Specification
<b>Factory Setting</b>	Calling Number
<b>Valid Entries</b>	Calling Name, Calling Number, Both
<b>Inspect</b>	No
<b>Copy Option</b>	Yes
<b>Console Procedure</b>	Extensions→▶ or More→▶ or More→DisplayPref→ Dial extension no.→Enter→Select display option (Calling Name, Calling Number, or Both)→Enter→Back→Back
<b>PC Procedure</b>	F6→PgUp→PgUp→F4→Type extension no.→F10→ Select display option (Calling Name, Calling Number, or Both)→ F10→F5→F5

## Service Observing

Use this procedure to configure up to 16 Service Observing groups on a system. Each Service Observing group consists of one Service Observer and a list of the stations (up to the system maximum of 200) that the observer is allowed to monitor. A warning tone is programmed on a per group basis to provide an audible indication that a station is being observed.

**NOTE**▶ Service Observing may be subject to federal, state, or local laws, rules, or regulations or require the consent of one or both of the call parties. You must check in your jurisdiction and comply with all applicable laws, rules, and regulations before using this feature. Failure to comply may result in severe penalties.

## Summary: Service Observing

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	4d, MLX Telephone 4m, Multiline 4400-Series Telephone 5b, Direct-Line Console (DLC) 11, Service Observing: Group Assignment
<b>Factory Setting</b>	Warning: Yes
<b>Valid Entries</b>	Warning: Yes, No
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	<p>To assign a Service Observer to a Service Observing group:                  Extensions→▶ or More→▶ or More→ServiceObs→                  Observer→Dial group no. (1-32)→Enter→Dial ext. no. of Service                  Observer→Enter or Delete→Back→Back</p> <p>To enable or disable Warning Tone on a per group basis:                  Extensions→▶ or More→▶ or More→ServiceObs→                  Warning→Dial group no. (1-32)→Enter→Yes or No→                  Enter→Back→Back</p> <p>To assign a member extension to a Service Observing group:                  Extensions→▶ or More→▶ or More→ServiceObs→                  Members→Dial group no. (1-32)→Enter→Dial ext. no.→                  Enter or Delete→Back→Back→Back</p>
<b>PC Procedure</b>	<p>To assign a Service Observer to a Service Observing group:                  F6→PgUp→PgUp→F6→F1→Type group no. (1-32)→F10→                  Type ext. no. of Service Observer→F10 or F8→F5→F5</p> <p>To enable or disable Warning Tone on a per group basis:                  F6→PgUp→PgUp→F6→F2→Type group no. (1-32)→F10→                  F2 or F3→F10→F5→F5</p> <p>To assign a member extension to a Service Observing group:                  F6→PgUp→PgUp→F6→F3→Type group no. (1-32)→F10→                  Type ext. no.→F10 or F8→F5→F5→F5</p>

## Optional Operator Features

The summaries in this section affect feature programming for both DLC and QCC operator positions and include the following:

- Operator Hold Timer
- DLC Operator Automatic Hold

QCC operator features are covered in the next section.

---

### Operator Hold Timer

Use this procedure to set the length of the operator hold timer for all DLCs and QCCs. If the system operator does not pick up the call within the time programmed, an abbreviated ring reminds the operator that a call is being held.

This option cannot be programmed for individual operator positions.

#### Summary: Operator Hold Timer

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	6a, Optional Operator Features
<b>Factory Setting</b>	60 seconds
<b>Valid Entries</b>	10 to 255 seconds
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Operator→Hold Timer→Drop→Dial no. of seconds (10-255)→ Enter→Back
<b>PC Procedure</b>	[F3]→[F3]→[Drop]→Type no. of seconds(10-255)→[F10]→[F5]

Although you can make selections from the screen (with the `ListFeature` option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

---

## DLC Operator Automatic Hold

Use this procedure to enable or disable the DLC Operator Automatic Hold feature for DLC operator positions. When this feature is enabled, it prevents accidental call disconnection.

### Summary: DLC Operator Automatic Hold

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	6a, Optional Operator Features
<b>Factory Setting</b>	Disabled
<b>Valid Entries</b>	Disabled, Enabled
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Operator→DLC Hold→Automatic Hold Enable or Automatic Hold Disable→Enter→Back
<b>PC Procedure</b>	[F3]→[F4]→[F1] or [F2]→[F10]→[F5]

## QCC Optional Features

This section contains programming summaries for the following options for QCC operator positions:

- Hold Return
- Automatic Hold or Release
- Queue over Threshold
- Elevate Priority
- Calls-in-Queue Alert
- QCC Operator to Receive Call Types
- Call Type Queue Priority Level
- Message Center Operation
- Automatic or Manual Extended (Directed) Call Completion
- Return Ring
- Position Busy Backup
- Voice Announce

**NOTE**  These options are available in Hybrid/PBX mode only.

---

## Hold Return

Use this procedure to determine whether calls on hold are returned to the QCC queue or remain on hold, on the QCC operator console, after the hold timer has expired twice. After the hold timer expires the first time, the operator hears an abbreviated ring as a call-on-hold reminder. If another call is received at the same time that the hold timer expires, 10 seconds are added to the programmed operator hold timer interval for the first call. If the QCC operator does not pick up a call by the time the hold timer expires twice, the call can be programmed to either remain on hold or return to the QCC queue.

This option cannot be programmed for individual QCC operator positions. The single setting applies to all QCC operator positions.

### Summary: Hold Return

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	6a, Optional Operator Features
<b>Factory Setting</b>	Calls remain on hold
<b>Valid Entries</b>	Remain on hold, Return to QCC queue
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Operator→Queued Call→Hold Rtrn→Select Return to Queue OR Remain on Hold→Enter→Back→Back
<b>PC Procedure</b>	F3→F2→F1→Select Return to Queue OR Remain on Hold→F10→F5→F5

Although you can make selections from the screen (with the `ListFeature` option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

## Automatic Hold or Release

Use this procedure to specify whether a call in progress (on a Call button) is automatically put on hold (Automatic Hold) or disconnected (Automatic Release) when the operator presses another button.

This option cannot be programmed for individual QCC operator positions. The single setting applies to all QCC operator positions.

### Summary: Automatic Hold or Release

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	6a, Optional Operator Features
<b>Factory Setting</b>	Automatic Release
<b>Valid Entries</b>	Auto Hold, Auto Release
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Operator→Queued Call→HoldRelease→Select Auto Hold Or Auto Release→Enter→Back→Back
<b>PC Procedure</b>	<input type="button" value="F3"/> → <input type="button" value="F2"/> → <input type="button" value="F2"/> → Select Auto Hold or Auto Release → <input type="button" value="F10"/> → <input type="button" value="F5"/> → <input type="button" value="F5"/>

Although you can make selections from the screen (with the ListFeature option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

## Queue over Threshold

Use this procedure to specify the maximum number of calls (threshold) in the QCC queue before system operators are notified with a tone that the threshold has been reached or exceeded. If the threshold is set to 0, operators are not notified.

### Summary: Queue over Threshold

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	6a, Optional Operator Features

<b>Factory Setting</b>	0
<b>Valid Entries</b>	0 to 99
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Operator→Queued Call→Threshold→Drop→ Dial no. of calls (0-99)→Enter→Back→Back
<b>PC Procedure</b>	<input type="button" value="F3"/> → <input type="button" value="F2"/> → <input type="button" value="F3"/> → <input type="button" value="Drop"/> → Type no. of calls(0-99) → <input type="button" value="F10"/> → <input type="button" value="F5"/> → <input type="button" value="F5"/>

Although you can make selections from the screen (with the ListFeature option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

## Elevate Priority

Use this procedure to specify the length of time before calls waiting in the QCC queue are automatically reprioritized to a higher level. If priority is set to 0, calls are not prioritized.

### Summary: Elevate Priority

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	Form 6a, Optional Operator Features
<b>Factory Setting</b>	0 seconds
<b>Valid Entries</b>	0 and 5 to 30 seconds
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Operator→QueuedCall→ElevatePrior→Drop→Dial no. of seconds (0 and 5-30)→ Enter→Back→Back
<b>PC Procedure</b>	<input type="button" value="F3"/> → <input type="button" value="F2"/> → <input type="button" value="F4"/> → <input type="button" value="Drop"/> → Type no. of seconds (0 and 5-30) → <input type="button" value="F10"/> → <input type="button" value="F5"/> → <input type="button" value="F5"/>

Although you can make selections from the screen (with the ListFeature option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

## Calls-In-Queue Alert

Use this procedure to specify whether each QCC operator is notified (with a single beep) when a new call enters the QCC queue.

### Summary: Calls-In-Queue Alert

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	6a, Optional Operator Features
<b>Factory Setting</b>	Disable
<b>Valid Entries</b>	Enable, Disable
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Operator→Queued Call→InQue Alert→Dial ext. no.→ Enter→Select InQue Alert Enable or InQue Alert Disable→ Enter→Back→Back
<b>PC Procedure</b>	[F3]→[F2]→[F6]→Type ext. no.→[F10]→Select InQue Alert Enable or InQue Alert Disable→[F10]→[F5]→[F5]

Although you can make selections from the screen (with the `ListFeature` option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

## QCC Operator to Receive Call Types

Use this procedure to specify which QCC operators receive the following types of calls:

- Dial 0 calls (internal calls to the system operator)
- DID calls to invalid destinations (unassigned extension numbers)
- Calls to the Listed Directory Number (extension for the QCC queue)
- Calls programmed to return to the QCC queue (returning from directing, camped-on, held calls, and operator parked calls)
- Group Coverage calls
- Forward/Follow Me calls

The QCC queue can be a receiver for the maximum number of coverage groups (30).

- NOTES** ►
- If you want a QCC operator position to operate as a message center (receiving returning parked and directed calls, Group Coverage calls, and calls to unassigned DID numbers), program the Message Center option before you assign the operator to receive call types.
  - This procedure does not include use of the menu options Follow/Frwd or QCC Ext. These two options are used to assign queue priorities and are not associated with individual QCC operators. See [“Call Type Queue Priority Level” on page 3-127.](#)
  - This procedure does not include programming the operator position to receive calls on individual lines or trunks.
  - Programming an operator position to receive DID calls to invalid destinations does not cause the calls to ring into the QCC queue unless you program such calls to be sent to a backup extension. When no operator is assigned to receive the call types, the call does not ring into the QCC queue, and the caller hears an error tone.
  - If a trunk assigned to ring into the QCC queue is to be assigned shared Remote Access, assign that trunk Remote Access before performing this procedure. See [“Remote Access Features” on page 3-165.](#)

### Summary: QCC Operator to Receive Call Types

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	6a, Optional Operator Features
<b>Factory Setting</b>	QCC operator receives the following calls: Dial 0 Unassigned DID Listed Directory Number Returning
<b>Valid Entries</b>	Not applicable
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Operator→Queued Call→Call Types→Select a call type→Operator→Dial coverage group no.→Enter→Dial ext. no.→Enter→Back→Back→Back→Back→Back
<b>PC Procedure</b>	[F3]→[F2]→[F7]→Select a call type→[F2]→Type coverage group no.→[F10]→Type ext. no.→[F10]→[F5]→[F5]→[F5]→[F5]→[F5]

## Call Type Queue Priority Level

Use this procedure to assign a priority value (1 to 7) that determines the order in which calls programmed to ring into the QCC queue are sent to QCC system operator positions. A value of 1 is the highest priority. The QCC queue priority level is assigned for the following types of calls:

- Dial 0 calls (internal calls to the system operator)
- DID calls to invalid destinations (unassigned extension numbers)
- Calls to the Listed Directory Number (extension for the QCC queue)
- Calls programmed to return to the QCC queue (returning from extending, camped-on, held calls, and operator parked calls)
- Group Coverage calls
- Calls signed in (Follow) or forwarded to the system operator
- Calls to a system operator extension number

This procedure does not include programming the QCC queue priority level for individual lines or trunks to ring into the queue. [See "QCC Queue Priority Level" on page 3-31.](#)

### Summary: Call Type Queue Priority Level

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	6a, Optional Operator Features
<b>Factory Setting</b>	4
<b>Valid Entries</b>	1 to 7
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Operator→Queued Call→Call Types→Select call type→Priority→Dial group coverage number (1-30)→Enter→Drop→Dial priority level (1-7)→Enter→Back→Back→Back→Back
<b>PC Procedure</b>	[F3]→[F2]→[F7]→Select call type→[F1]→Type Group Coverage number (1-30)→[F10]→[Drop]→Type priority level (1-7)→[F10]→[F5]→[F5]→[F5]→[F5]

Although you can make selections from the screen (with the `ListFeature` option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

## Message Center Operation

Use this procedure to designate one or more QCC operator positions to operate as a message center. The following options are automatically set for the message center position:

- Incoming calls are not directed to this position
- Returning calls are directed to this position (return from extending and operator parked calls)
- All group coverage calls are directed to this position
- All DID calls to invalid destinations are directed to this position

Designating message center operation does not change any call type option programming, except that the call types mentioned above are added to the calls received at the QCC Message Center.

### Summary: Message Center Operation

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	6a, Optional Operator Features
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	QCC extension numbers
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Operator→Queued Call→Msg Center→Dial ext. no.→ Enter→Back→Back→Back
<b>PC Procedure</b>	[F3]→[F2]→[F8]→Type ext. no.→[F5]→[F5]→[F5]

Although you can make selections from the screen (with the `ListFeature` option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

## Extended (Directed) Call Completion

Use this procedure to specify one of the two basic options shown below for QCC operator positions with a DSS only:

- **Automatic Completion.** Allows one-touch call transfer—that is, calls are transferred by touching only an extension button on the DSS. The operator does not have to press the Release button.
- **Manual Completion.** QCC operators must press the Release button to direct a call using a DSS.

This option cannot be programmed for individual QCC operator positions. The setting applies to all QCC operator positions.

Although you can make selections from the screen (with the `ListFeature` option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

### Summary: Extended (Directed) Call Completion

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	6a, Optional Operator Features
<b>Factory Setting</b>	Automatic Extended Completion
<b>Valid Entries</b>	Automatic, Manual
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Operator→Queued Call→ExtndComplt→Select Automatic Complete or Manual Complete→Enter→Back→ Back
<b>PC Procedure</b>	[F3]→[F2]→[F9]→Select Automatic Complete or Manual Complete→[F10]→[F5]→[F5]

### Return Ring

Use this procedure to specify the number of rings before an unanswered directed call is returned to the QCC queue or QCC Message Center position.

This option cannot be programmed for individual QCC operator positions. The setting applies to all QCC operator positions.

**NOTE** ► If you want unanswered calls to proceed to voice mail, lengthen the return ring setting.

Although you can make selections from the screen (with the `ListFeature` option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

### Summary: Return Ring

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	6a, Optional Operator Features
<b>Factory Setting</b>	4 rings
<b>Valid Entries</b>	1 to 15 rings
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Operator→Queued Call→Return Ring→Drop→ Dial no. of rings (1-15)→Enter→Back→Back
<b>PC Procedure</b>	<input type="button" value="F3"/> → <input type="button" value="F2"/> → <input type="button" value="F10"/> → <input type="button" value="Drop"/> → Type no. of rings (1-15) → <input type="button" value="F10"/> → <input type="button" value="F5"/> → <input type="button" value="F5"/>

---

### Position Busy Backup

Use this procedure to designate or remove the Calling Group to provide the backup position for the QCC queue. The specified Calling Group receives incoming calls when all QCC operator positions are in position-busy mode.

Position Busy Backup is programmed for the QCC queue rather than for individual QCC operator positions. The Calling Group designated as the QCC queue backup serves as the backup for the Remote Access feature and as backup when the QCC is being used as the system programming console.

Only one Position Busy Backup can be programmed per system.

### Summary: Position Busy Backup

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	6a, Optional Operator Features
<b>Factory Setting</b>	No backup
<b>Valid Entries</b>	Calling Group number
<b>Inspect</b>	No
<b>Copy Option</b>	No

- Console Procedure** Operator→Queued Call→▶ or More→QCC Backup→Drop→  
 Dial ext. number→Select Enter or Delete→Back→Back
- PC Procedure** F3→F2→PgUp→F1→Drop→Type ext. number→Select  
 Enter or Delete→F5→F5

## Voice Announce

Use this procedure to enable or disable Voice Announce for the QCC.

When Voice Announce is enabled, every QCC in the system has one Voice Announce Call button, the Call 5 (Ring/Voice) button. All Intercom calls that originate from a QCC Call 5 (Ring/Voice) button are delivered as Voice Announce calls.

When Voice Announce is disabled, all Intercom calls originating at the QCC Call buttons are Intercom Ringing calls.

### Summary: Voice Announce

- |                          |   |
|--------------------------|---|
| <b>Programmable by</b>   | System Manager  |
| <b>Mode</b>              | Hybrid/PBX  |
| <b>Idle Condition</b>    | Not required  |
| <b>Planning Form</b>     | 6a, Optional Operator Features  |
| <b>Factory Setting</b>   | Disabled  |
| <b>Valid Entries</b>     | Disabled, Enabled   |
| <b>Inspect</b>           | No  |
| <b>Copy Option</b>       | No  |
| <b>Console Procedure</b> | Operator→Queued Call→▶ or More→Voice Annc→Select<br>Enabled or Disabled→Enter→Back→Back |
| <b>PC Procedure</b>      | F3→F2→PgUp→F2→Select Enabled or<br>Disabled→F10→F5→F5                                   |

## Optional Group Features

This section contains programming summaries for the following optional features:

- Pickup Groups
- Group Paging
- Group Coverage Member Assignments
- Group Calling Member Assignments

- Group Calling Line/Trunk or Pool Assignments
- Priority Call Queuing for Group Calling

---

## Pickup Groups

Use this procedure to assign or remove an extension from a call pickup group. A pickup group consists of telephone users who can answer each other's calls either by pressing a button or by dialing a code.

- NOTES** ▶
- A maximum of 30 pickup groups, with a maximum of 15 extensions per group, is allowed.
  - An extension can belong to only one group.
  - Before reassigning an extension to a new group, you must remove it from its current group.

### Summary: Pickup Groups

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	7a, Pickup Groups
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Pickup group number, extension number
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→Call Pickup→Dial pickup group no.→Enter→ Dial ext. no.→Enter→Enter→ Back→Back
<b>PC Procedure</b>	[F6] → [F9] → Type pickup group no. → [F10] → Type ext. no. → [F10] → [F5] → [F5]

---

## Group Paging

Use this procedure to assign or remove an extension from a Paging Group. A Paging Group consists of telephone users who hear common announcements over the telephone speakerphone. Only multiline 4400-Series, ETR, MLS and MLX telephones with speakerphones can be members of a Paging Group.

A maximum of six Paging Groups with a maximum of 10 extensions per group is allowed. A seventh Paging Group, called the Page All group, is not limited and includes all telephones connected to the system. Extensions cannot be added to or removed from the Page All group.

To reassign an extension to a new Paging Group, just assign it; the extension is automatically removed from its old Paging Group.

### Summary: Group Paging

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	7b, Group Paging
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Extension number
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→▶ or More→Group Page→Dial Paging Group no.→Enter→Dial ext. no.→Enter→Back→Back
<b>PC Procedure</b>	F6→PgUp→F2→Type Paging Group no.→F10→Type ext. no.→ F10→F5→F5

Although you can make selections from the screen (with the `ListFeature` option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

---

## Group Coverage Member Assignments

Use this procedure to assign or remove an extension from a coverage group. A coverage group is a group of senders. Coverage is an arrangement in which calls from a group of senders are redirected to one or more receivers.

**NOTE** ▶ ■ This procedure assigns senders. Before you begin, make certain that the receivers for the coverage group are also programmed. Receivers can be assigned through individual or centralized telephone programming. You can also use the Integrated Solution III/IV feature, Integrated Administration, to assign coverage receivers. See [Chapter 4, “Centralized Telephone Programming,”](#) for information about the appropriate centralized programming procedure.

A maximum of 30 coverage groups are allowed, each with an unlimited number of members. Up to eight receivers can be assigned per coverage group.

An extension can be a sender in only one group; it can be a receiver for more than one coverage group. A Calling Group can be assigned as a receiver for a coverage group (see [“Group Coverage Receiver” on page 3-140](#)). In Hybrid/PBX mode only, the QCC queue can be a receiver for up to 30 coverage groups. See [“QCC Operator to Receive Calls” on page 3-32](#).

If the sender’s extension has one or more Personal Lines assigned, the sender can be assigned as the principal user so that calls received on the Personal Line are sent to receivers programmed for Individual or Group Coverage. [See “Principal User for Personal Line” on page 3-30](#).

To reassign an extension to a new coverage group, just make the assignment; the extension is automatically removed from its old group.

### Summary: Group Coverage Member Assignments

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	7c, Group Coverage
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Extension numbers
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→  or More→Group Cover→Dial group no. (1-30)→Enter→Dial ext. no.→Enter→ Back→Back
<b>PC Procedure</b>	 →  →  → Type group no. (1-30) →  → Type ext. no. →  →  → 

---

### Group Calling Member Assignments

Use this procedure to assign or remove an extension to or from a Calling Group. A Calling Group is used to direct calls to a group of people who all handle the same type of call. A single extension number is assigned to the group and is used by both inside and outside callers to reach the group.

To reassign an extension to a new Calling Group, you must remove it from its old group before programming the new assignment.

Although you can make selections from the screen (with the ListFeature option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

- NOTES** ▶
- If a linear hunting pattern is indicated on the back of the system planning form (6d), be sure to assign extensions to the group in the exact order that they are shown on the form. The system searches for an available member in the order in which you assign the extensions to the group.
  - A maximum of 32 Calling Groups with a maximum of 20 extensions per group is allowed.
  - An extension can belong to only one Calling Group. A QCC cannot be a member of a Calling Group. A delay announcement device should not be programmed as a Calling Group member.
  - The extension status feature must be set to the Calling Group or CMS mode before you assign members to the group. [See “Extension Status” on page 3-153.](#)
  - One non-local member may be in a Calling Group. A Calling Group cannot contain both local and non-local members. See the *Network Reference* for information.

### Summary: Group Calling Member Assignments

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	7c, Group Coverage
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Extension numbers
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions →  or More → Grp Calling → Members → Dial Calling Group ext. no. → Enter → Dial ext. no. → Enter → Back → Back → Back
<b>PC Procedure</b>	 →  →  →  → Type Calling Group ext. no. →  → Type ext. no. →  →  →  → 

Although you can make selections from the screen (with the ListFeature option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

---

## Group Calling Line/Trunk or Pool Assignments

Use this procedure to assign or remove lines, trunks, or pools (Hybrid/PBX only) that ring directly into a Calling Group.

Incoming calls on each line/trunk or pool can be directed to only one Calling Group.

To reassign a line/trunk or pool to a new Calling Group, you must remove it from its old group before making the new assignment.

### Summary: Group Calling Line/Trunk or Pool Assignments

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	7d, Group Calling
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Line, trunk, or pool number
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions →  or More → Grp Calling → Line/Pool → Dial Calling Group ext. no. → Enter → Dial line/trunk no. → Enter → Back → Back → Back
<b>PC Procedure</b>	 →  →  →  → Type Calling Group ext. no. →  → Type line/trunk no. →  →  →  → 

---

## Priority Call Queuing

Use this procedure to establish a supportive relationship between Calling Groups. Calls that arrive in one Calling Group (a home group) can be processed by another Calling Group (a support group) when no one from the first Calling Group is available to answer the call.

A Calling Group can be assigned a priority level between 1 (highest priority) and 32 (lowest priority) and then designated as a support group for a home group. There can be only one support group per home group. Each support group can support up to 31 home groups.

## Summary: Priority Call Queuing

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not Required
<b>Planning Form</b>	7d, Group Calling
<b>Factory Setting</b>	16
<b>Valid Entries</b>	Priority Level (1 to 32)
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→[▶] or More→Grp Calling→[▶] or More→ Priority→Enter extension number of group→Enter→ Enter Group Priority (1-32)→ (To program the next group, select Next)→Enter→Back→ Support→Enter extension number of group→Enter→Enter Support Group→(To program the next group, select Next)→ Enter→Back→Back→Back
<b>PC Procedure</b>	[F6]→[PgUp]→[F4]→[PgUp]→[F3]→Type extension number of group→[F10]→Type Group Priority (1-32)→ (To program the next group, press [F9])→[F10]→[F5]→[F4]→ Type extension number of group→[F10]→Type support group→ (To program the next group, press [F9])→[F10]→[F5]→[F5]→[F5]

## Optional Group Calling Features

This section includes programming summaries for the following optional group calling features:

- Hunt Type
- Group Calling Delay Announcements
- Group Calling Announcement Interval
- Group Calling Repeat Announcement
- Group Coverage Receiver
- Group Calling Overflow and Thresholds
- Group Calling Message-Waiting Indicator
- Group Calling Calls-in-Queue Alarm Threshold
- Group Calling External Alert for Calls-in-Queue Alarm
- Group Type
- Queue Control

## Hunt Type

Use this procedure to assign one of the following hunt-type patterns to Calling Groups:

- **Circular Hunting Pattern.** The system distributes calls to group members by hunting in a circular pattern for the first available extension after the one that received the last call to the group.
- **Linear Hunting Pattern.** The system searches for an available group member in the order in which the extensions were assigned to the Calling Group.
- **Most Idle Hunting Pattern.** The system searches for the available member that is “most idle.” This distribution scheme can be more equitable than the circular hunting pattern.

### Summary: Hunt Type

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	7d, Group Calling
<b>Factory Setting</b>	Circular hunting pattern
<b>Valid Entries</b>	Circular, Linear, Most Idle
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→  or More→Grp Calling→Hunt Type→Dial Calling Group ext. no.→Enter→Circular, Linear, or Most Idle→Enter→Back→Back→Back
<b>PC Procedure</b>	 →  →  →  → Type Calling Group ext. no. →  →  or  or  →  →  →  → 

## Group Calling Delay Announcements

Use this procedure to designate the announcement devices used to play messages to callers while they are waiting in the queue.

Two announcement devices can be designated for each Calling Group; however, more than one Calling Group can use the same announcement device. The extensions to which the delay announcement devices are connected should not be programmed as a Calling Group member.

If the extension jack or MFM was previously programmed as a regular extension, you must remove all line/trunk button assignments before you designate the extension jack as a delay announcement device.

**NOTE** ▶ A delay announcement device must be in the local system; it cannot be shared by non-local private networked systems (Hybrid/PBX mode only).

### Summary: Group Calling Delay Announcement

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	7d, Group Calling
<b>Factory Setting</b>	No delay announcement devices are assigned
<b>Valid Entries</b>	Primary Announcement, Secondary Announcement
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions →  or More → Grp Calling → DelayAnnce → Dial Calling Group ext. no. → Enter → Select Primary Announcement or Secondary Announcement → Enter extension number of announcement device → Enter → Back → Back → Back
<b>PC Procedure</b>	 →  →  →  → Type Calling Group ext. no. →  → Select Primary Announcement or Secondary Announcement → Enter ext. no. of announcement device →  →  → 

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### Group Calling Announcement Interval

Use this procedure to set the delay before the secondary announcement is played and/or repeated.

### Summary: Group Calling Announcement Interval

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	7d, Group Calling
<b>Factory Setting</b>	0 (disabled)
<b>Valid Entries</b>	0-900 seconds

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<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→▶ or More→Grp Calling→DelayAnnce→ Dial Calling Group ext. no.→Announcement Interval→ Enter the Announcement Interval (0-900)→Enter→Back→Back
<b>PC Procedure</b>	[F6]→[PgUp]→[F4]→[F2]→Type Calling Group ext. no.→[F3]→ Type the Announcement Interval (0-900)→[F10]→[F5]→[F5]

## Group Calling Repeat Announcement

Use this procedure to set the secondary announcement to repeat after the Announcement Interval.

### Summary: Group Calling Repeat Announcement

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	7d, Group Calling
<b>Factory Setting</b>	No repeat
<b>Valid Entries</b>	Yes, No
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→▶ or More→Grp Calling→DelayAnnce→ Dial Calling Group ext. no.→Enter→Repeat Announcement→Select Yes or No→Enter→Back→Back
<b>PC Procedure</b>	[F6]→[PgUp]→[F4]→[F2]→[F4]→Type Calling Group ext. no.→ Select Yes or No→[F10]→[F5]→[F5]

Although you can make selections from the screen (with the ListFeature option) to assign Ring and Voice buttons, the following procedure provides the programming codes to perform these functions. Using the codes speeds the button assignment process.

## Group Coverage Receiver

Use this procedure to assign or remove a Calling Group as a receiver for a coverage group.

Calling Group member assignments must be made before you assign the group as a receiver for a coverage group.

## Summary: Group Coverage Receiver

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	7c, Group Coverage
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Group numbers
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→▶ or More→Grp Calling→Grp Coverage→ Dial Calling group ext. no.→Enter→Dial coverage group no.→ Enter→Back→Back→Back
<b>PC Procedure</b>	F6→PgUp→F4→F3→Type Calling Group ext. no.→F10→ Type coverage group no.→F10→F5→F5→F5

## Group Calling Overflow and Thresholds

Use this procedure to designate either another Calling Group or the QCC queue (Hybrid/PBX only) to receive overflow calls. This procedure also specifies overflow threshold and methods.

Call overflow occurs in one of the three following ways:

- The number of calls waiting in the queue for a Calling Group is equal to or greater than the programmed threshold (overflow threshold).
- The time that a call has spent in the queue exceeds the programmed timeout value (overflow threshold time).
- A caller responds to a voice prompt by pressing the # key to indicate that his or her call should be handled as an overflow call. For example, a delay announcement may specify that a caller can press # to leave a message with voice mail or an operator.

If the overflow threshold time is set to 0 seconds (factory setting), then overflow by time is turned off. Prompt-based overflow distribution can coexist with either or both of the other methods. Overflow distribution based on the number of calls in the queue or the time spent in the queue takes precedence over calls that go to overflow because of the caller's prompt.

Overflow coverage can be provided only by Calling Groups or the QCC queue (Hybrid/PBX only), not by individual extensions.

A Calling Group or the QCC queue (Hybrid/PBX only) can provide overflow coverage for more than one Calling Group; however, the particular group whose calls go to an available member in the overflow Calling Group is unpredictable.

The factory-set extension number for the QCC Listed Directory Number is 800.

## Summary: Group Calling Overflow and Thresholds

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	7d, Group Calling
<b>Factory Setting</b>	Overflow coverage: none Threshold: 1 call Timeout: 0 sec Prompt-based overflow: Disabled
<b>Valid Entries</b>	Overflow coverage: Backup extension number Threshold: 1 to 99 calls Timeout: 0 to 900 seconds Prompt-based overflow: Enabled, Disabled
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→  or More→Grp Calling→Overflow→ Dial Calling Group ext. no.→Enter→Dial overflow ext. no.→ Enter→Number Based Overflow→Drop→Dial no. of calls (1-99)→Enter→Time Based Overflow→Drop→ Dial no. of seconds(0-900)→Enter→Prompt Based Overflow→ Select Yes or No→Enter→Back→ Back→Back
<b>PC Procedure</b>	 →  →  →  →Type Calling Group ext. no.→  → Type overflow ext. no.→  →  →  →Type no. of calls(1-99)→  →  →  →Type no. of seconds(0-900)→  →  → Select Yes or No→  →  →  → 

## Group Calling Message-Waiting Indicator

Use this procedure to designate the extension to receive message-waiting indications (MWIs) for the Calling Group.

Only one extension can be designated as a message-waiting receiver for each Calling Group; however, more than one Calling Group can use the same message-waiting receiver. The extension assigned as a message-waiting receiver does not have to be a member of the Calling Group.

Message-waiting indications cannot be sent to the extension assigned to the group unless this option is programmed. The message-waiting receiver cannot distinguish between messages left for the Calling Group and personal messages.

## Summary: Group Calling Message-Waiting Indicator

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	7d, Group Calling
<b>Factory Setting</b>	No message-waiting receiver assigned
<b>Valid Entries</b>	Extension number
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→▶ or More→Grp Calling→Message→ Dial Calling Group ext. no.→Enter→Dial ext. no. for MWI receiver→Enter→Back→Back
<b>PC Procedure</b>	[F6]→PgUp→[F4]→[F4]→Type Calling Group ext. no.→[F10]→ Type ext. no. for MWI receiver→[F10]→[F5]→[F5]

## Group Calling Calls-In-Queue Alarm Thresholds

Use this procedure to specify the number of unanswered calls that wait in the Calling Group queue before group members are notified with either an external alert (an external alert is turned on when the third threshold is met) or a light on the telephone. Group members are notified when the number of calls waiting in the queue is equal to or greater than the programmed thresholds as follows:

- First Threshold, flashing light
- Second Threshold, winking light
- Third Threshold, solid light

**NOTE**▶ To configure only one threshold, set all thresholds to the same number. The LED states are off and on. To configure only two thresholds, set two of the thresholds to be the same number.

## Summary: Group Calling Calls-In-Queue Alarm Thresholds

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	7d, Group Calling
<b>Factory Settings</b>	1 call, for all Thresholds

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<b>Valid Entries</b>	1 to 99
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→▶ or More→Grp Calling→Queue Alarm→ Dial Calling Group ext. no.→Enter→Select Alarm Threshold 1 or Alarm Threshold 2 or Alarm Threshold 3→Drop→ Dial no. of calls (1-99)→ Enter→Back→Back
<b>PC Procedure</b>	[F6]→[PgUp]→[F4]→[F6]→Type Calling Group ext. no.→ [F10]→[Drop]→Select Alarm Threshold 1 or Alarm Threshold 2 or Alarm Threshold 3→Type no. of calls (1-99)→[F10]→ [F5]→[F5]

## Group Calling External Alert for Calls-In-Queue Alarm

Use this procedure to designate the external alert device used to notify Calling Group members when the number of calls in the queue reaches the programmed Threshold 3.

Only one external alert device can be designated for each Calling Group. Since the external alert signal is continuous, it is recommended that only light-type external alert devices be designated for the Calls-in-Queue alarm.

### Summary: Group Calling External Alert for Calls-In-Queue Alarm

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	7d, Group Calling
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Extension number
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions→▶ or More→Grp Calling→Xtnl Alert→ Dial Calling Group ext. no.→Enter→Drop→Dial ext. no. for alert→ Enter→Back→Back
<b>PC Procedure</b>	[F6]→[PgUp]→[F4]→[F7]→Type Calling Group ext. no.→[F10]→ [Drop]→Type ext. no. for alert→[F10]→[F5]→[F5]

## Group Type

Use this procedure to determine whether or not the system automatically logs in members of a Calling Group after a power failure. This setting also determines the type of voice messaging interface when the Calling Group is used to connect voice messaging or Automated Attendant applications. The settings are listed below.

- **Automatic Log Out.** Used for Calling Groups to specify that the system does not automatically log in Calling Group members after a power failure. Calling Group members must manually log themselves into the group.
- **Automatic Log In.** Used for Calling Groups that consist of fax machines or data workstations (also called data hunt groups) to specify that the system automatically logs in Calling Group members after a power failure. This setting can also be used for Calling Groups consisting of telephones.
- **Integrated VMI.** Used when a voice messaging system that requires special signaling for integrated operation (for example, MERLIN Messaging, Intuity AUDIX, or IS III) is connected to one or more extension jacks assigned to a Calling Group. The system automatically logs in the group members after a power failure.
- **Generic VMI.** Used when a voice messaging system that does not need special signaling is connected to one or more extension jacks assigned to a Calling Group. The system automatically logs in the group members after a power failure.

**NOTE** ► Any port programmed as a VMI port is programmed with:

- Outward restriction on
- A factory set FRL of 0 (the most restrictive)
- A factory set Disallowed List (List 7) that includes the numbers frequently associated with fraud

If the System Manager changes a VMI port to non-VMI port, the restrictions are not turned off. To remove restrictions, the System Manager must change them through system programming.

### Summary: Group Type

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	7d, Group Calling
<b>Factory Setting</b>	Automatic Log Out
<b>Valid Entries</b>	Automatic login, Automatic logout, Integrated VMI, Generic VMI
<b>Inspect</b>	No
<b>Copy Option</b>	No

**Console Procedure** Extensions→ or More→Grp Calling→More→ Group Type→Dial Calling Group ext. no.→Enter→Specify login type (Auto login, Auto logout, Integrated VMI, or Generic VMI)→ Enter→ Back→Back→Back

**PC Procedure**  → → → → →Type Calling Group ext. no.→ →Specify login type (Auto login, Auto logout, Integrated VMI, or Generic VMI)→ → → →

## Queue Control

The System Manager can control the maximum number of calls allowed in the primary Calling Group queue for calls that arrive on the following types of facilities:

- DID (Direct Inward Dialing) and dial-in TIE
- PRI facilities programmed for dial plan routing
- All calls transferred from a VMI (voice messaging interface) port
- Internal calls to the Calling Group
- Internal calls to the Calling Group through the QCC Position-Busy backup (PBB)
- Intrasystem calls to the Calling Group
- All private network dialed calls, including remote DID

When the number of the calls in queue reaches the programmed maximum, subsequent callers receive a busy signal.

**NOTE** ► Dial-in tie trunks, including private tandem tie trunks (Hybrid/PBX mode only) cannot be assigned directly to Calling Groups.

Remote-access calls to a Calling Group, coverage calls directed to a Calling Group, and all outside/central office calls are not eligible for queue control.

Queue control does not apply to calls received directly on any of the following facilities:

- Loop-start lines
- Ground-start lines/trunks
- Auto-in tie trunks
- BRI (Basic Rate Interface) channels
- T1 facilities emulating ground-start or loop-start lines/trunks
- PRI facilities programmed for line-appearance routing

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Optional Group Calling Features

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When a call arrives on one of the above facilities, it is added to the Calling Group queue, even if that queue has reached or exceeded the programmed maximum number of calls. For example, if the maximum number of Calling Group calls is set to 40, and 40 calls have come in, subsequent callers on eligible facilities hear the busy tone. Calls that come in on an LS line, however, are added to the queue.

**Summary: Queue Control**

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	7d, Group Calling
<b>Factory Setting</b>	99 calls
<b>Valid Entries</b>	0-99 (0 indicates no calls are queued)
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Extensions →  or More → Grp Calling → More → Queue Ctrl → Dial Calling Group ext. no. → Enter → Dial no. of calls allowed in queue (0-99) → Enter → Back → Back → Back
<b>PC Procedure</b>	 →  →  →  →  → Type Calling Group ext. no. →  → Type no. of calls allowed in queue (0-99) →  →  →  → 

## System Features

This section contains programming summaries for the optional system features that affect all or most system users and includes the following:

- Transfer Return Time
- One-Touch Transfer/Hold
- Transfer Audible
- Type of Transfer
- Camp-On Return Time
- Call Park Return Time
- Delay Ring Interval
- Automatic Callback Interval
- Extension Status
- SMDR Language
- SMDR Call Report Format
- SMDR Call Length
- SMDR Calls Recorded on Call Report
- SMDR Account Code Format
- SMDR Talk Time
- SMDR UDP Calls Recorded on Call Report
- Inside Dial Tone
- Reminder Service Cancel
- Redirect Outside Calls to Unassigned Extension Numbers
- Host System Dial Codes for Behind Switch Mode
- Recall Timer
- Interdigit Timers
- Allowed Lists
- Assign Allowed Lists to Extensions
- Disallowed Lists
- Assign Disallowed Lists to Extensions

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## Transfer Return Time

Use this procedure to specify the number of times the telephone rings before a call transferred to another inside telephone is returned to the originator. A setting of 0 means that transferred calls are never returned to the originator.

**NOTE** ► The transfer return time should not be set to 0 in a system with single-line telephones.

### Summary: Transfer Return Time

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	8a, System Features
<b>Factory Setting</b>	4 rings
<b>Valid Entries</b>	0 to 9 rings
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Options → Transfer → Return Time → <input type="text" value="Drop"/> → Dial no. of rings (0–9) → Enter → Back → Back
<b>PC Procedure</b>	<input type="text" value="F7"/> → <input type="text" value="F1"/> → <input type="text" value="F1"/> → <input type="text" value="Drop"/> → Type no. of rings (0–9) → <input type="text" value="F10"/> → <input type="text" value="F5"/> → <input type="text" value="F5"/>

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## One-Touch Transfer/One-Touch Hold

Use this procedure to assign either the One-Touch Transfer or One-Touch Hold feature.

One-Touch Transfer allows users to initiate transfers to another extension by pressing an Auto Dial or DSS button for that extension. If the One-Touch Transfer feature is assigned, you must also specify whether the transfer completion is manual (the user has to press another button to complete the transfer) or automatic (the transfer is completed automatically).

**NOTE** ► The One-Touch Transfer feature is not available on single-line telephones.

One-Touch Hold applies to incoming central office calls only. When the user presses an Auto Dial or DSS button to initiate a transfer, the outside caller is put on hold. The system automatically selects an intercom facility and dials the transfer destination. There is no transfer return function with this method. Consequently, if the transfer destination does not answer or is busy, the user who initiates the transfer must notify the outside caller, or the outside caller will remain on hold.

One-Touch Hold is the factory setting in Behind Switch mode only.

### Summary: One-Touch Transfer/Hold

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	8a, System Features
<b>Factory Setting</b>	One-Touch Transfer, automatic completion (One-Touch Hold is the factory setting in Behind Switch mode.)
<b>Valid Entries</b>	Transfer, Hold
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	To program One-Touch Transfer: Options→Transfer→One Touch→Transfer→ Enter→Select Manual or Automatic→Enter→Back→Back  To program One-Touch Hold: Options→Transfer→One Touch→Hold→Enter→Back→ Back
<b>PC Procedure</b>	To program One-Touch Transfer: [F7]→[F1]→[F2]→[F1]→[F10]→Select Manual or Automatic→[F10]→[F5]→[F5]  To program One-Touch Hold: [F7]→[F1]→[F2]→[F2]→[F10]→[F5]→[F5]

### Transfer Audible

Use this procedure to specify whether an outside caller hears ringing (also called ringback) or Music-On-Hold while being transferred. Inside callers always hear ringback during a transfer.

- NOTES** ▶
- If you use equipment that rebroadcasts music or other copyrighted materials, you may be required to obtain a copyright license from and pay license fees to a third party (such as the American Society of Composers, Artists, and Producers or Broadcast Music Incorporated). Magic On Hold requires no such license and can be purchased from Lucent Technologies.
  - When extensions are programmed to use the Centrex Transfer via Remote Call Forwarding feature, do not program Music-On-Hold as the transfer audible. If Music-On-Hold is programmed in this case, a caller being transferred hears a click, three seconds of Music-On-Hold, a second click, silence for about 10 seconds, then ringback or a busy tone from the central office. This can confuse callers, who may then hang up.

### Summary: Transfer Audible

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	8a, System Features
<b>Factory Setting</b>	Music-On-Hold
<b>Valid Entries</b>	Music-On-Hold, Ringback
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Options→Transfer→Audible→Select Music-On-Hold or Ringback→Enter→Back→Back
<b>PC Procedure</b>	[F7]→[F1]→[F3]→Select Music-On-Hold or Ringback→[F10]→[F5]→[F5]

### Type of Transfer

Use this procedure to specify whether the system automatically selects an Intercom or System Access Ring or Voice button when the Transfer button or an Auto Dial or DSS button (for One-Touch Transfer) is pressed.

### Summary: Type of Transfer

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	8a, System Features

<b>Factory Setting</b>	Ring button (Intercom or System Access) is automatically selected
<b>Valid Entries</b>	Voice Announce, Ring
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Options→Transfer→Type→Select Voice Announce or Ring→Enter→Back→Back
<b>PC Procedure</b>	[F7]→[F1]→[F4]→Select Voice Announce or Ring→[F10]→[F5]→[F5]

## Camp-On Return Time

Use this procedure to specify the number of seconds before a camped-on call (a call transferred to a busy telephone with the Camp-On feature) is returned to the originator.

### Summary Camp-On Return Time:

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	6f, System Features
<b>Factory Setting</b>	90 seconds
<b>Valid Entries</b>	30 to 300 seconds, in 10-second increments
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Options→CampOn→[Drop]→Dial no. of seconds (30–300)→Enter→Back
<b>PC Procedure</b>	[F7]→[F2]→[Drop]→Type no. of seconds (30–300)→[F10]→[F5]

## Call Park Return Time

Use this procedure to specify the number of seconds before a call put on hold with the Park feature is returned to the originator.

### Summary: Call Park Return Time

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required

<b>Planning Form</b>	8a, System Features
<b>Factory Setting</b>	180 seconds
<b>Valid Entries</b>	30 to 300 seconds, in 10-second increments
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Options→CallParkRtn→ <b>Drop</b> →Dial no. of seconds (30–300)→Enter→Back
<b>PC Procedure</b>	<b>F7</b> → <b>F3</b> → <b>Drop</b> →Type no. of seconds (30–300)→ <b>F5</b> → <b>F5</b>

## Automatic Callback Interval

Use this procedure to specify the number of times the telephone rings at the originator's telephone before the system cancels a Callback request.

### Summary: Automatic Callback Interval

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	8a, System Features
<b>Factory Setting</b>	3 rings
<b>Valid Entries</b>	1 to 6 rings
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Options→Callback→ <b>Drop</b> →Dial no. of rings (1–6)→Enter→Back
<b>PC Procedure</b>	<b>F7</b> → <b>F6</b> → <b>Drop</b> →Type no. of rings (1–6)→ <b>F10</b> → <b>F5</b>

## Extension Status

Use this procedure to specify whether the Extension Status (ES) feature is used in Hotel mode or Group Calling Supervisor mode.

The calling mode affects the meaning of the LEDs and the use of Auto Dial or DSS buttons when the DLC operator position is in Extension Status mode.

In Hotel mode, telephones are restricted from making calls in Extension Status states 1 and 2 (ES1 and ES2). In Group Calling Supervisor mode, ES states reflect member or agent status

without restricting the telephones. In the Group Calling Supervisor mode, the Extension Status feature is used by the agents to log in and out, and by the supervisor to see agent status.

### Summary: Extension Status

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	8a, System Features
<b>Factory Setting</b>	Group Calling Supervisor
<b>Valid Entries</b>	Group Calling Supervisor, Hotel mode
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Options→Ext Status→Select Hotel or GrpCallSupv→Enter→Back
<b>PC Procedure</b>	[F7]→[F7]→Select Hotel or GrpCallSupv→[F10]→[F5]

### SMDR Language

Use this procedure to change the language of the SMDR reports. The report language is initially set to the same as that set for the system language. See ["System Language" on page 3-3](#).

### Summary: SMDR Language

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	1, System Planning
<b>Factory Setting</b>	U.S. English (matches System Language setting)
<b>Valid Entries</b>	U.S. English, Canadian French, Latin American Spanish
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	More→Language→SMDR→Select language (English, French, or Spanish)→Enter→Back
<b>PC Procedure</b>	[PgUp]→[F6]→[F3]→Select language (English, French, or Spanish)→[F10]→[F5]

---

## SMDR Call Report Format

Use this procedure to specify whether the SMDR call reports are printed in Basic format or ISDN format. In ISDN format, Automatic Number Identification (ANI) or Caller ID information appears in the Calling Number field in place of IN (which appears in the Basic report format). The call recording type for these calls is I in ISDN format and C in Basic format.

**NOTE** ► Caller ID name information is not captured in SMDR call reports.

ISDN format should be used only in conjunction with ANI or Caller ID service subscription.

### Summary: SMDR Call Report Format

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	8a, System Features
<b>Factory Setting</b>	Basic format
<b>Valid Entries</b>	Basic, ISDN
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Options→SMDR→Format→Select Basic SMDR or ISDN SMDR→ Enter→Back→Back
<b>PC Procedure</b>	[F7]→[F8]→[F1]→Select Basic SMDR or ISDN SMDR→[F10]→[F5]→[F5]

---

## SMDR Call Length

Use this procedure to set the minimum time length of a call before it is recorded on SMDR call reports.

- NOTES** ►
- If the majority of lines/trunks are PRI, the recommended call length is 1. See the *Feature Reference* for more information.
  - The outbound call of a Centrex Transfer via Remote Call Forwarding call will not be recorded unless the minimum time length is set to zero (0). The inbound Centrex call to the Principle User who has Centrex Transfer via Remote Call Forwarding will also not be recorded unless the minimum time length is 0.

### Summary: SMDR Call Length

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	8a, System Features
<b>Factory Setting</b>	40 seconds
<b>Valid Entries</b>	0 to 255 seconds
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Options→SMDR→Call Length→ <b>Drop</b> → Dial no. of seconds (0-255)→Enter→Back→Back
<b>PC Procedure</b>	<b>F7</b> → <b>F8</b> → <b>F2</b> → <b>Drop</b> →Type no. of seconds (0-255)→ <b>F10</b> → <b>F5</b> → <b>F5</b>

---

### SMDR Calls Recorded on Call Report

Use this procedure to specify whether SMDR information should be recorded for both incoming and outgoing non-private network calls or for outgoing non-private network calls only.

**NOTE**▶ Refer to [“SMDR UDP Calls Recorded on Call Report” on page 3-158](#) to program call recording for calls on private network tandem trunks.

### Summary: SMDR Calls Recorded on Call Report

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	8a, System Features
<b>Factory Setting</b>	Incoming and outgoing
<b>Valid Entries</b>	In/Out, Out Only
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Options→SMDR→Call Report→Select In/Out or Out Only→ Enter→Back→Back
<b>PC Procedure</b>	<b>F7</b> → <b>F8</b> → <b>F3</b> →Select In/Out or Out Only→ <b>F10</b> → <b>F5</b> → <b>F5</b>

---

## SMDR Account Code Format

For calls made using an authorization code, SMDR can be programmed to have either the “home extension” or the actual authorization codes recorded in the Account Code field if no Account Code is entered. Account Code overrides the Authorization Code entry in the SMDR record when both features are used.

### Summary: SMDR Account Code Format

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	6h, Authorization Codes
<b>Factory Setting</b>	Home Extension Number
<b>Valid Entries</b>	Home Extension Number, Authorization Code
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Options→SMDR→Auth Code→Select Home Extension Number or Authorization Code→Enter→Back→Back
<b>PC Procedure</b>	[F7]→[F8]→[F6]→Select Home Extension Number or Authorization Code→[F10]→[F5]→[F5]

---

## SMDR Talk Time

The Talk field was added to the SMDR call record. The Talk field is designed for the MERLIN MAGIX Reporter application that is used to capture detailed information on incoming and outgoing voice and data calls with a special emphasis on Calling Groups. The Talk field contains the talk-time duration—the amount of time (59:59 maximum) that a Calling Group agent spends on an incoming call, including any actions that the agent takes while handling the call.

If your system includes an MERLIN MAGIX Reporter, the Talk Time option must be enabled. All other configurations must have the Talk Time option disabled.

### Summary: SMDR Talk Time

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	8a, System Features
<b>Factory Setting</b>	Disabled
<b>Valid Entries</b>	Enable, Disable
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Options→SMDR→Talk Time→Select Enable or Disable→Enter→Back→Back
<b>PC Procedure</b>	[F7]→[F8]→[F7]→Select Enable or Disable→[F10]→[F5]→[F5]

---

### SMDR UDP Calls Recorded on Call Report

Use this procedure to specify whether SMDR information should be recorded for both incoming and outgoing calls on private network tandem trunks, or if call recording will not be performed on private network calls.

**NOTE** ▶ Refer to [“SMDR Calls Recorded on Call Report” on page 3-156](#) to program call recording for non-private network calls.

### Summary: SMDR UDP Calls Recorded on Call Report

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	8a, System Features
<b>Factory Setting</b>	Log Incoming/Outgoing
<b>Valid Entries</b>	Log Incoming/Outgoing, Log None
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Options→SMDR→UDP→Select Log Incoming/Outgoing or Log None→Enter→Back→Back
<b>PC Procedure</b>	[F7]→[F8]→[F8]→Select Log Incoming/Outgoing or Log None→[F10]→[F5]→[F5]

---

## Inside Dial Tone

Use this procedure to set the inside (system) dial tone to be either different from, or the same as the outside line/trunk dial tone.

**NOTE** ► The inside dial tone must be the same as the outside dial tone when the internal dial tone is not recognized by software applications or modems.

### Summary: Inside Dial Tone

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	8a, System Features
<b>Factory Setting</b>	Inside dial tone is different from outside dial tone
<b>Valid Entries</b>	Inside, Outside
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Options→InsideDial→Select Inside or Outside→Enter→Back
<b>PC Procedure</b>	[F7]→[F9]→Select Inside or Outside→[F10]→[F5]

---

## Reminder Service Cancel

Use this procedure to set the time of day when all programmed Reminder Service calls are automatically cancelled.

To deactivate Reminder Service Cancel, erase the currently programmed time and do not enter a new time.

### Summary: Reminder Service Cancel

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	8a, System Features
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	0000 to 2359

<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	To deactivate Reminder Service Cancel: Options→Reminder Srv→(Drop)→Enter→Back  To set Reminder Service Cancel time: Options→Reminder Srv→(Drop)→Dial time (0000–2359)→ Enter→Back
<b>PC Procedure</b>	To deactivate Reminder Service Cancel: (F7)→(F10)→(Drop)→(F10)→(F5)  To set Reminder Service Cancel time: (F7)→(F10)→(Drop)→Type time (0000–2359)→(F10)→(F5)

## Redirect Outside Calls to Unassigned Extension Numbers

Use this procedure to specify the extension number to receive redirected calls. Redirected calls include calls made to unassigned numbers by Remote Access users, by users on DID trunks (Hybrid/PBX only), or by users on dial-in tie trunks. Calls can be redirected to the following locations:

- QCC queue (Hybrid/PBX only)
- Another extension number
- A Calling Group

This setting does not affect calls received on DID trunks if you have specified that calls to unassigned DID extensions are to receive a fast busy signal. [See “Invalid Destination” on page 3-60](#)

### Summary: Redirect Outside Calls to Unassigned Extension Numbers

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	8a, System Features
<b>Factory Setting</b>	Extension number of primary operator
<b>Valid Entries</b>	QCC queue extension number, other extension number
<b>Inspect</b>	No
<b>Copy Option</b>	No

**Console Procedure** To select QCC queue:  
 Options→More→Unassigned→QCC Queue→Enter→Back

To select extension or Calling Group:  
 Options→More→Unassigned→Select Extension or  
 Grp Calling→  
 Enter→Dial ext. no. or group no.→Enter→Back

**PC Procedure**

To select QCC queue:  
 [F7]→[PgUp]→[F1]→[F1]→[F10]→[F5]

To select extension or Calling Group:  
 [F7]→[PgUp]→[F1]→Select Extension or Grp Calling→Type ext.  
 no. or group no.→[F10]→[F5]

## Host System Dial Codes for Behind Switch Mode

Use this procedure to assign the host system dial codes for the Transfer, Conference, and Drop features.

When multiline telephone users press the Transfer, Conference, or Drop button, a signal is sent to the host service and the system features are not accessed. Assigning dial codes to these features ensures that users can take advantage of them through the host system.

**NOTE**▶ This procedure applies to Behind Switch mode only.

### Summary: Host System Dial Codes for Behind Switch Mode

<b>Programmable by</b>	System Manager
<b>Mode</b>	Behind Switch
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	1, System Planning
<b>Factory Setting</b>	No host dial codes are assigned
<b>Valid Entries</b>	Host system dial code of up to six digits
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Options→More→BehndSwitch→Select feature→[Drop]→ Dial host system dial code (up to 6 digits)→Enter→Back→Back
<b>PC Procedure</b>	[F7]→[PgUp]→[F2]→Select feature→[Drop]→ Type host system dial code (up to 6 digits)→[F10]→[F5]→[F5]

---

## Recall Timer

Use this procedure to designate the length of the timed flash that is sent when Recall is used to disconnect a call and get a new dial tone without hanging up. Both the interval of the timed flash and the way Recall works depend on the type of telephone and system operating mode.

The recall timer should be reset if multiline telephone users experience either of the following problems:

- Nothing happens when the user presses the Recall button on an outside call. This indicates that the interval is too short and should be increased to 650 milliseconds or one second.
- In a system operating in Behind Switch mode, the call is disconnected when the user presses the Recall button on an outside call. This indicates that the interval is too long and should be decreased to 350 milliseconds.

### Summary: Recall Timer

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	8a, System Features
<b>Factory Setting</b>	450 ms
<b>Valid Entries</b>	350 ms, 450 ms, 650 ms, 1 second
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Options→More→RecallTimer→Select time (350 ms, 450 ms, 650 ms, or 1 second)→Enter→Back
<b>PC Procedure</b>	[F7]→[PgUp]→[F3]→Select time (350 ms, 450 ms, 650 ms, or 1 second)→[F10]→[F5]

---

## Interdigit Timers

Programming for interdigit timers is reserved for Lucent Technologies technical support personnel or authorized dealers.

Interdigit timers are used by the MERLIN MAGIX Integrated System to determine when a user originating an outside call has completed dialing the digits. The information is necessary to allow the system to perform subsequent operations. You should not change the factory settings for interdigit timers unless instructed to do so by Lucent Technologies technical support or by an authorized dealer.

---

## Allowed Lists

Use this procedure to establish Allowed Lists. These lists are telephone numbers that can be dialed from specified telephones, regardless of any calling restrictions assigned to the telephones.

A maximum of eight lists (numbered 0 through 7) with a maximum of 10 numbers each (numbered 0 through 9) are allowed. Each allowed number can be no more than six digits (an area code plus an exchange) or six digits with a leading 1, where required.

If you program 0 as the first digit of a list entry, any Toll Restriction assigned to the extension is removed for calls that can be placed by a toll operator.

Special characters (such as Pause) are not permitted in Allowed List entries.

### Summary: Allowed Lists

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	6g, Call Restriction Assignments and Lists
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Area code/exchange (1- to 6-digits with leading 1, if necessary)
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Tables→AllowList→Dial list no. (0-7) and entry no. (0-9)→ Enter→Drop→Dial no.→Enter→Back
<b>PC Procedure</b>	F8→F1→Type list no. (0-7) and entry no. (0-9)→F10→ Drop→Type no.→F10→F5

---

## Assign Allowed Lists to Extensions

Use this procedure to assign individual extensions access to established Allowed Lists. More than one Allowed List can be assigned to an extension.

### Summary: Assign Allowed Lists to Extensions

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	6g, Call Restriction Assignments and Lists

<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	0 to 7
<b>Inspect</b>	Yes
<b>Copy Option</b>	Yes
<b>Console Procedure</b>	Tables→AllowTo→Dial list no. (0-7)→Enter→Dial ext. no.→Enter→Back→Back
<b>PC Procedure</b>	[F8]→[F2]→Type list no. (0-7)→[F10]→Type ext. no.→[F10]→[F5]→[F5]

## Disallowed Lists

Use this procedure to establish Disallowed Lists. These lists are telephone numbers that cannot be dialed from specified extensions (including unrestricted extensions).

A maximum of eight lists (numbered 0 through 7) with 10 entries each (numbered 0 through 9) is allowed. Each number can have a maximum of 11 digits, including wildcards. The Pause character (entered by pressing the Hold button) is used to designate a wildcard character—for example, to indicate that calls to a given exchange are restricted in every area code.

### SECURITY ALERT:

*Create a Disallowed List or use the pre-prepared Disallowed List number 7 to disallow dialing 0, 11, 10, 1700, 1809, 1900, and 976 or 1(wildcard)976. Disallowed List number 7 does not include 800 and 1800 and 411 and 1411, but Lucent Technologies recommends that you add them. Assign all voice mail port extensions to this Disallowed List. Lucent Technologies recommends assigning Disallowed List number 7. This is an added layer of security in case outward restriction is inadvertently removed. (Voice messaging ports are assigned, 3 by default, to Disallowed List number 7.)*

### Summary: Disallowed Lists

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	6g, Call Restriction Assignments and Lists
<b>Factory Setting</b>	List #7, containing the following: 0, 10, 11, 1809, 1700, 1900, 976, 1ppp976 (p = wildcard), *
<b>Valid Entries</b>	1- to 11-digits (including wildcards)
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Tables→Disallow→Dial list no.(0-7) and entry no. (0-9)→Enter→[Drop]→Dial no.→Enter→Back

**PC Procedure**

**F8** → **F3** → Type list no.(0-7) and entry no. (0-9) → **F10** → **Drop** →  
Type no. → **F10** → **F5**

---

## Assign Disallowed Lists to Extensions

Use this procedure to assign established Disallowed Lists to individual extensions. Each restricted extension can be assigned to more than one list.

### Summary: Assign Disallowed Lists to Extensions

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	6g, Call Restriction Assignments and Lists
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	0 to 7
<b>Inspect</b>	Yes
<b>Copy Option</b>	Yes
<b>Console Procedure</b>	Tables → DisallowTo → Dial list no. (0-7) → Enter → Dial ext. no. → Enter → Back → Back
<b>PC Procedure</b>	<b>F8</b> → <b>F4</b> → Type list no. (0-7) → <b>F10</b> → Type ext. no. → <b>F10</b> → <b>F5</b> → <b>F5</b>

## Remote Access Features

This section covers the following Remote Access features:

- Remote Access over Networked Tandem and Tie Trunks
- Remote Access Trunk Assignment
- Remote Access Automatic Callback
- Remote Access without Barrier Codes
- Remote Access Barrier Codes
- Remote Access with Barrier Codes

## SECURITY ALERT:

*As a customer of a new system, you should be aware that telephone fraud has become an increasingly prevalent problem. It can occur in many forms, despite the numerous efforts of telephone companies and telephone equipment manufacturers to control it. Some individuals use electronic devices to prevent or falsify records of these calls. Others charge calls to someone else's number by illegally using lost or stolen calling cards, billing innocent parties, clipping on to someone else's line, or breaking into someone else's telephone equipment physically or electronically. In certain instances, unauthorized individuals make connections to the public switched network through the use of Remote Access features.*

*The Remote Access feature of your system, if you choose to use it, permits off-premises callers to access the system from a remote telephone by using an 800 number or a 7- or 10-digit telephone number. The system returns an acknowledgment signaling the user to key in his or her barrier code, which is selected and programmed by the System Manager. After the barrier code is accepted, the system returns dial tone to the user. If you do not program specific restrictions, the user will be able to place any call normally dialed from a telephone associated with the system. Such an off-premises network call is originated at and will be billed from the system location.*

*The Remote Access feature helps the customer, through proper administration, to minimize the ability of unauthorized persons to gain access to the network. Most commonly, telephone numbers and codes are compromised when overheard in a public location, through theft of a wallet or purse containing access information, or through carelessness (writing codes on a piece of paper and improperly discarding it). Additionally, hackers may use a computer to dial an access code and then publish the information to other hackers. Enormous charges can be run up quickly. It is the customer's responsibility to take the appropriate steps to properly implement the features, evaluate and program the various restriction levels, and protect and distribute access codes only to individuals who have been fully advised of the sensitive nature of the access information.*

*Common carriers are required by law to collect their tariffed charges. While these charges are fraudulent charges when made by persons with criminal intent, applicable tariffs state that the customer of record is responsible for payment of all long-distance or other network charges. Lucent Technologies cannot be responsible for such charges and will not make any allowance or give any credit for charges that result from unauthorized access.*

*To minimize the risk of unauthorized access to your system, follow these basic rules:*

- *Use a nonpublished Remote Access number.*
- *Assign barrier codes randomly to users on a need-to-have basis, keeping a log of ALL authorized users and assigning one code to one person.*
- *Use random sequence barrier codes, which are less likely to be broken.*
- *Deactivate all unassigned codes promptly.*
- *Ensure that Remote Access users are aware of their responsibility to keep the telephone number and any barrier codes secure.*
- *When possible, restrict the off-network capability of off-premises callers using the Calling Restrictions and Disallowed List capabilities.*

- *When possible, block out-of-hours calling.*
- *Frequently monitor system call detail reports for quicker detection of any unauthorized or abnormal calling patterns.*
- *Limit remote call forward to persons on a need-to-have basis.*
- *Always use the longest length password allowed on the system.*
- *Passwords should consist of a random, non-repetitive, hard-to-guess sequence of digits.*

---

## Remote Access over Networked Tandem PRI and Tie Trunks

In Hybrid/PBX mode only, an ARS call originating at a remote, private networked system can arrive on a networked tandem tie or PRI trunk of the local system and receive remote-access treatment automatically. This operation allows callers on one system to use lines on another system speedily and transparently when optimal cost efficiency dictates the need for lines connected to a different switch in the organization's private network. (In prior systems and for calls over other Remote Access trunks, it is necessary to make an explicit remote-access call, enter a barrier code, and finally use ARS.)

To permit this operation, both the local and remote systems must be programmed using ARS and Remote Access options. If two or more different System Managers program the private networked systems, they should work together to coordinate their efforts.

### Local Users Calling out on Private Networked Lines

To implement this operation on a local system where callers will use the networked lines on a *remote* system, use the procedures outlined in the section, [“Automatic Route Selection” on page 3-175](#).

### Remote Users Calling out on Local Lines

When your system is in a private network with a remote system, you can set up your system so that remote users can use public switched network trunks connected to your control unit for cost-efficient calling. Your system treats such calls as Remote Access calls, but the networked user does not enter a barrier code. Instead, the system applies default restrictions that apply to all tie and/or all non-tie trunks, as described later in this topic. These restrictions do not affect other remote-access trunks that are programmed for use with barrier codes.

Calling restrictions should be imposed at the remote originating switch using ARS and extension FRLs as necessary. In addition, it is unnecessary to assign tandem trunks for Remote Access. It is easiest if private networked systems that share outside facilities also use the same ARS access code (9, for example).

To implement this operation on a local system where callers on a remote networked system will use the *local* trunks connected to your MERLIN MAGIX Integrated System control unit, use the procedures in this chapter as outlined below. The relevant topics provide additional details.

- It is not necessary to assign private networked trunks for Remote Access. Callback for non-local trunk-to-trunk tandem calls does not work. Automatic Callback can be used at the local system when all private networked trunks are busy.
- Specify that all tie trunks (that is, networked tandem tie trunks) and/or all non-tie trunks (that is, all PRI tandem trunks) will not require barrier codes. This will not affect calls dialing the Remote Access code if the trunks on the remote system are regular, assigned remote-access trunks accessed by Remote Access users on your own system. [See “Remote Access without Barrier Codes” on page 3-170.](#)
- Change the factory set class of restrictions, as necessary, on tie or non-tie trunks. Any necessary restrictions should be imposed by the System Manager for a call at the originating switch. For example, extensions may be assigned a Disallowed List to prevent 900 and 976 calls. If certain private trunks are reserved for particular purposes, the remote System Manager may use UDP routing FRLs for this purpose.
- Make any necessary changes to ARS in order to route remote users' calls to yet another system if more cost effective, or to add or absorb digits (an area code, for example) before sending a call over a trunk that is connected to your system. See [“Automatic Route Selection” on page 3-175](#) for the procedures.

---

## Remote Access Trunk Assignment

Use this procedure to assign or remove the trunks used for Remote Access. You can also use this procedure to specify whether the Remote Access feature is dedicated (always used for Remote Access) or shared (used for Remote Access only when Night Service is activated).

Trunks used for dedicated Remote Access must not be assigned to ring into a Calling Group or the QCC queue (Hybrid/PBX mode only).

A remote-access caller who calls into his or her own local system can reach extensions private-networked to the local system (non-local dial plan extensions), just as on-site users of the local system can.

In Hybrid/PBX mode, if a trunk assigned to ring into the QCC queue is also used for shared Remote Access, perform the procedure below before you attempt the procedure [“QCC Operator to Receive Calls” on page 3-32.](#)

**NOTE** ► A loop-start line must be programmed for Reliable Disconnect if it is to be used for Remote Access (See [“Disconnect Signaling Reliability” on page 3-27.](#))

### Summary: Remote Access Trunk Assignment

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3a, Incoming Trunks: Remote Access
<b>Factory Setting</b>	Remote Access is not assigned
<b>Valid Entries</b>	Dedicated, Shared, No Remote
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→RemoteAccss→LinesTrunks→ Dial line/trunk no.→Enter→specify how trunk is used (Dedicated, Shared, No Remote)→Enter→Back→Back
<b>PC Procedure</b>	[F4]→[F8]→[F1]→Type line/trunk no.→[F10]→ specify how trunk is used (Dedicated, Shared, No Remote)→[F10]→ [F5]→[F5]

---

### Remote Access Automatic Callback

Use this procedure either to allow Remote Access users to use the Automatic Callback feature to request busy lines/trunks or pools or to prevent use of the Automatic Callback feature.

**NOTE** ► This feature applies to Hybrid/PBX mode only.

### Summary: Remote Access Automatic Callback

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3a, Incoming Trunks: Remote Access
<b>Factory Setting</b>	Disable
<b>Valid Entries</b>	Disable, Enable
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	LinesTrunks→RemoteAccss→AutoQueuing→Select Enable Or Disable→Enter→Back→Back
<b>PC Procedure</b>	[F4]→[F8]→[F6]→Select Enable or Disable→[F10]→[F5]→[F5]

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## Remote Access without Barrier Codes

Use this procedure to change the class of restriction for one of the following:

- All non-tie lines/trunks
- All tie trunks and DID trunks with Remote Access
- DID Remote Access code

### SECURITY ALERT:

*Your system will be highly susceptible to toll fraud if you activate the Remote Access feature without barrier codes. Lucent Technologies does not recommend doing this except in cases where your remote-access trunks are being used by external users connected to a system that is in a private network with your own. Even in these cases, the lack of barrier codes poses a risk of toll fraud. Be sure that the remote System Manager assigns any necessary restrictions.*

**NOTE** ► If barrier code requirements have been established for Remote Access users, use [“Remote Access with Barrier Codes” on page 3-174](#); do *not* use this procedure.

The class of restriction assigned may be one of the following:

- **Restriction.** Determines whether Remote Access users can make local and/or toll calls and includes the following settings:
  - Unrestricted
  - Toll restricted
  - Outward restricted
- **ARS Facility Restriction Level** (Hybrid/PBX only). Allows or disallows use of outgoing trunks by assigning a facility restriction level from 0 through 6. The FRL ranges from 0 (most restrictive) to 6 (least restrictive). The FRL value assigned here is the opposite of the FRL value assigned to the ARS route, where a value of 0 is the least restrictive and a value of 6 is the most restrictive.
- **Allowed Lists Assignment.** Assigns Allowed Lists and is used when Remote Access users are restricted from making local or toll calls.
- **Disallowed Lists Assignment.** Assigns Disallowed Lists and is used when Remote Access users are not restricted from making local or toll calls.

A maximum of eight Allowed or Disallowed Lists can be assigned to lines/trunks.

Class of restriction settings are assigned either to all non-tie trunks or to all tie trunks and DID trunks. They cannot be assigned to each trunk on an individual basis.

## Summary: Remote Access without Barrier Codes

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3a, Incoming Trunks: Remote Access
<b>Factory Setting</b>	Call restriction: Outward restricted ARS restriction level: 3
<b>Valid Entries</b>	Unrestricted, Toll Restricted, Outward Restricted; 0 to 6
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	<p>To change calling restrictions: LinesTrunks→RemoteAccss→Select Non-TIE or TIE Lines→ Restriction→Select restriction→Enter→Back→Back→ Back→Back</p> <p>To change ARS Facility Restriction Level: LinesTrunks→RemoteAccss→Select Non-TIE or TIE Lines→ ARS Restrict→Drop →Dial FRL value→Enter→Back→Back→ Back→Back</p> <p>To assign/remove Allowed Lists: LinesTrunks→RemoteAccss→Select Non-TIE or TIE Lines→ Allow List→Dial list no.→Enter→Back→Back→Back→Back</p> <p>To assign/remove Disallowed Lists: LinesTrunks→RemoteAccss→Select Non-TIE or TIE Lines→ DisallowLst→Dial list no.→ Enter→Back→Back→Back→ Back</p>
<b>PC Procedure</b>	<p>To change calling restrictions: F4 → F8 →Select Non-TIE or TIE Lines→ F2 →Select restriction→F10 → F5 → F5 → F5 → F5</p> <p>To change ARS Facility Restriction Level: F4 → F8 →Select Non-TIE or TIE Lines→ F3 →Drop → Type FRL value→F10 → F5 → F5 → F5 → F5</p> <p>To assign/remove Allowed Lists: F4 → F8 →Select Non-TIE or TIE Lines→ F4 →Type list no.→ F5 → F5 → F5 → F5</p> <p>To assign/remove Disallowed Lists: F4 → F8 →Select Non-TIE or TIE Lines→ F6 →Type list no.→ F10 → F5 → F5 → F5 → F5</p>

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## Remote Access Barrier Codes

Use this procedure to establish or remove barrier code requirements, as well as to establish or remove the barrier codes themselves.

Barrier codes are security passwords that restrict users from making unauthorized Remote Access calls on tie and non-tie lines and trunks. Callers are allowed three attempts per call to enter the correct Remote Access barrier code. If the caller enters an incorrect barrier code or times out during code entry, the caller hears the retry tone. The caller can erase an entered code by dialing \*\* (two asterisks). Code erasure is counted as one of the three permitted attempts. After three unsuccessful attempts, the caller hears a reorder tone and the call is disconnected. If this happens, the SMDR contains sixteen 0s in the Account Code field to flag the three failed attempts.

A maximum of 16 barrier codes are allowed for all lines/trunks. Each of the 16 barrier codes may be programmed with its own class of restriction (COR).

The system-wide barrier code length can range from a minimum of 4 characters to a maximum of 11 characters. The factory setting length is 7. If you enter a length that is less than 4 or greater than 11, the entry is erased and the previous entry displays on the screen. When the barrier code length is changed, all barrier codes are erased and must be reassigned. If the barrier code length is changed and barrier codes are not reassigned, users can dial into Remote Access trunks and enter a barrier code, but are denied access into the Remote Access trunks no matter what code is entered.

### SECURITY ALERT:

*Always use the longest length barrier code allowed on the system. The code should consist of a random, non-repetitive, hard-to-guess sequence of digits.*

The time and date of the most recent change made to the system-wide barrier code length is shown during the system programming procedure, as well as on the Remote Access DISA Information report. The SMDR record for incoming Remote Access trunks includes the barrier code IDs established in this procedure.

Use numbers 0 through 9 and the asterisk (\*) to enter the barrier codes. The codes cannot start with an asterisk and cannot contain two consecutive asterisks. (The use of two consecutive asterisks is reserved for users to erase an incorrect barrier code entry.)

See [“Remote Access without Barrier Codes” on page 3-170](#) to allow or deny use of system features for each barrier code assigned.

## Summary: Remote Access Barrier Codes

**Programmable by** System Manager

**Mode** All

**Idle Condition** Not required

**Planning Form** 3a, Incoming Trunks: Remote Access

**Factory Setting** No barrier codes are established

**Valid Entries** Not applicable

**Inspect** No

**Copy Option** No

**Console Procedure** To establish or remove code requirements:  
LinesTrunks→RemoteAccss→Select Non-TIE or TIE Lines→  
BarrierCode→Specify whether barrier codes are required→  
Enter→Back→Back→Back

To change barrier code length:  
LinesTrunks→RemoteAccss→BarrierCode→Code Info→  
Code Length→(Drop) →Dial code length→Enter→Yes→Back→  
Back→Back

To change barrier code:  
LinesTrunks→RemoteAccss→BarrierCode→Code Info→  
Code Entry→Dial code ID→Enter→(Drop) →Dial code→Enter→  
Back→Back→Back

**PC Procedure** To establish or remove code requirements:  
(F4) → (F8) → Select Non-TIE or TIE Lines → (F1) →  
Specify whether barrier codes are required → (F10) → (F5) → (F5) → (F5)

To change barrier code length:  
(F4) → (F8) → (F4) → (F2) → (F1) → (Drop) → Type code length → (F10) →  
(F2) → (F5) → (F5) → (F5)

To change barrier code:  
(F4) → (F8) → (F4) → (F2) → (F2) → Type Code ID → (F10) → (Drop) →  
Dial code length → (F10) → (F5) → (F5) → (F5)

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## Remote Access with Barrier Codes

Use this procedure to change the class of restriction for individual Remote Access barrier codes. The class of restriction assigned to each barrier code allows or denies the use of the following system features:

- **Restriction.** Determines whether Remote Access users can make local and/or toll calls, and includes the following settings:
  - Unrestricted
  - Toll restricted
  - Outward restricted
- **ARS Facility Restriction Level** (Hybrid/PBX only). Allows or restricts use of outgoing trunks by assigning a facility restriction level (FRL) from 0 through 6. The FRL ranges from 0 (most restrictive) to 6 (least restrictive). The FRL value assigned here is the opposite of the FRL value assigned to the ARS route, where a value of 0 is the least restrictive and a value of 6 is the most restrictive.
- **Allowed Lists Assignment.** Assigns Allowed Lists and is used when Remote Access users are restricted from making local or toll calls.
- **Disallowed Lists Assignment.** Assigns Disallowed Lists and is used when Remote Access users are not restricted from making local or toll calls.

A maximum of eight Allowed or Disallowed Lists can be assigned to each barrier code. Class of restriction settings apply to individual barrier codes.

**NOTE** ► If barrier code requirements have not been established or have been removed for Remote Access users, do not use this procedure. [See "Remote Access without Barrier Codes" on page 3-170.](#)

### Summary: Remote Access with Barrier Codes

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3a, Incoming Trunks: Remote Access
<b>Factory Setting</b>	Calling restrictions: Barrier Code: outward restricted All other barrier codes: unrestricted ARS restriction level: 3
<b>Valid Entries</b>	Unrestricted, Toll Restricted, Outward Restricted; 0 to 6
<b>Inspect</b>	No
<b>Copy Option</b>	No

- Console Procedure**    LinesTrunks→RemoteAccss→BarrierCode→  
 Restriction→Dial barrier code no.→Enter→Select  
 restriction→  
 Enter→ARS Restrict→Dial barrier code no.→Enter→**[Drop]** →  
 Dial FRL value→Enter→Select Allow List or Disallow List→  
 Dial barrier code no. (1-16)→Enter→Dial list no.→Enter→  
 Back→Back→Back→Back
- PC Procedure**        **[F4]** → **[F8]** → **[F4]** → **[F3]** →Type barrier code no.→**[F10]** →  
 Select restriction→**[F10]** → **[F4]** →Type barrier code no. (1-16)→  
**[F10]** → **[Drop]** →Type FRL value→**[F10]** →Select Allow List or  
 Disallow List→Dial barrier code no.→ **[F10]** → **[F5]** → **[F5]** → **[F5]**  
 → **[F5]**

## Automatic Route Selection

This section contains programming procedures for the following Automatic Route Selection (ARS) features:

- 1 + 7-Digit Dialing Requirements
- ARS Tables
- Start and Stop Times for Subpatterns
- Pool Routing
- Facility Restriction Level (FRL)
- Digit Absorption
- Other Digits
- N11 Special Numbers Tables
- Dial 0 Table
- Voice and/or Data Routing

**NOTE** ► ARS applies to Hybrid/PBX mode only.

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## ARS over Private Networked Tandem PRI and Tie Trunks

In Hybrid/PBX mode only, callers on one system can use lines on another system quickly and transparently for optimal cost by routing calls to a different switch in the organization's private network (in prior systems, it is necessary to make an explicit Remote Access call, enter a barrier code, and finally use ARS). To permit this operation, both the local and remote systems must be programmed using ARS and Remote Access options.

## Remote Users Calling out on Local Private Networked Lines

To implement this operation on a local system where remote callers will use the private networked lines connected to your system, use the procedures outlined in the section [“Remote Access Features” on page 3-165](#).

## Local Users Calling out on Private Networked Lines

To implement this operation on a local system where callers will use the trunks on a *remote* system, use the procedures outlined in this section. The relevant topics provide additional details.

- Assign the private networked tandem tie and/or PRI tandem trunks to a pool or pools including only those types of trunks. [See “Trunks to Pools Assignment” on page 3-35](#).
- Use one or more ARS tables for routing calls. Typically, you might need an area code table. For example, if the remote system is in the 617 area code, and your local system is in the 908 area code, the area code table that you set up should include the entry 617. The type of table required depends upon how users in your system will employ private networked lines. At the remote system, ARS can be used, if necessary, to route the call to yet another networked system. [See “ARS Tables” on page 3-177](#).
- Set up the subpatterns for the table. In doing so, you may wish to check with the remote System Manager to ensure that routing will stipulate the most cost-effective timing based on the rates at the remote location. If the remote system is in a different time zone from your own, you may need to take this into consideration as well. [See “Start and Stop Times for Subpatterns” on page 3-178](#).
- Assign each tandem and/or tie trunk pool to an ARS table. [See “Pool Routing” on page 3-179](#).
- Assign appropriate Facility Restriction Levels to the routes and to the extensions that will use the private network lines. Factory settings restrict toll calls. See [“Facility Restriction Level” on page 3-180](#) and [“ARS Restriction Level for Extensions” on page 3-108](#), respectively.
- Assign absorbed and other (added) digits as required by the final destination. The local ARS feature adds (prepends) the ARS access code of the remote system. At the remote system, digit absorption may be needed. For example, if local callers are in the 908 area code but the private network lines are connected to a system in the 617 area code, callers might dial 916175551212, where 9 is the local ARS access code. At the remote system, because the call would be a local call, the absorbed digits would be 1617. See the ARS topics [“Digit Absorption” on page 3-182](#) and [“Other Digits” on page 3-183](#) for additional information.



### SECURITY ALERT:

*Do not place remote ARS access codes in the non-local dial plan by specifying, for example, a non-local extension range such as 9000–9050 when the remote ARS access code is 9. Doing so allows DID callers to make outside calls through the remote switch and may allow transferring of outside callers to outside dial tone on a remote switch, possibly resulting in toll fraud.*

## 1 + 7-Digit Dialing Requirements

Use this procedure for calls placed within the same (home) area code as the system. The procedure allows you to specify whether or not the local telephone company requires a 1 to precede the 7-digit number. The two available settings are:

- **Within Area Code.** Requires that a 1 plus a 7-digit number must be dialed; the system checks the 1 plus 7-digit tables for routing.
- **Not within Area Code.** Does not require that a 1 precede the 7-digit number (the system does this automatically).

### Summary: 1 + 7-Digit Dialing Requirements

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3f, Automatic Route Selection Tables
<b>Factory Setting</b>	Not within area code
<b>Valid Entries</b>	Not within area code, Within area code
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Tables→ARS→ARS 1+7Dial→Select Within Area Code or Not within Area Code→Enter→Back→Back
<b>PC Procedure</b>	[F8]→[F6]→[F1]→Select Within Area Code or Not within Area Code→[F10]→[F5]→[F5]

## ARS Tables

Use this procedure for the following tasks:

- To specify type of table (6-digit, area code, exchange, or 1 plus 7-digit number)
- To add or change area codes to be included in each table
- To add or change exchanges to be included in each table

A maximum of 16 tables can be established, numbered 1 through 16. Each table can have a maximum of 100 entries, numbered 1 through 100. Tables 17 and 18, the Default Toll and Default Local tables respectively, cannot be changed.

The first entry in a 6-digit table must be the area code. Subsequent entries consist of exchanges within that area code.

Area code tables can contain only area codes. These tables are often used to provide cost-efficient calling through private network lines/trunks connected to another system. The type of table required depends upon how users in the networked systems will employ networked lines. When you use ARS in this way, the ARS access code is only permitted on private trunks and is blocked from calls that arrive from the public switched network.

Exchange and 1 plus 7-digit tables can contain only exchanges.

The wildcard character (Pause) cannot be used to enter area codes or exchanges in ARS tables.

### Summary: ARS Tables

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3f, Automatic Route Selection Tables
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Not applicable
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Tables→ARS→ARS Input→Dial table no.→Enter→Specify table type→Enter→Dial entry no.→Enter→ <b>Drop</b> →Dial no.→Enter→Back→Back
<b>PC Procedure</b>	<b>F8</b> → <b>F6</b> → <b>F2</b> →Type table no.→ <b>F10</b> →Select table type→ <b>F10</b> →Type entry no.→ <b>F10</b> → <b>Drop</b> →Type no.→ <b>F10</b> → <b>F5</b> → <b>F5</b>

### Start and Stop Times for Subpatterns

Use this procedure to specify the time of day that calls are routed using Subpattern B routing information.

Subpatterns are used to provide two different routing patterns according to the time of day. This allows you to take advantage of lower rates that may apply to some or all lines, or to change restrictions on some facilities during off hours.

The stop time for Subpattern B is the start time for Subpattern A.

Enter the time in 4-digit, 24-hour notation, using leading zeros as necessary.

If you are setting up ARS to allow local users to make cost-efficient calls on trunks connected to remote systems, you may wish to check with the remote System Manager to ensure that routing stipulates the most cost-effective timing based on the rates at the remote location. If the remote system is in a different time zone from your own, you may need to take this into consideration as well

## Summary: Start and Stop Times for Subpatterns

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3f, Automatic Route Selection Tables 3g, Automatic Route Selection Default and Special Numbers Tables
<b>Factory Setting</b>	No time is specified, thus all calls are routed according to Subpattern A.
<b>Valid Entries</b>	0000 to 2359
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Tables → ARS → Sub B Start → Dial table no. → Enter → <b>Drop</b> → Dial start time (0000–2359) → Enter → Sub B Stop → Dial table no. → Enter → <b>Drop</b> → Dial stop time → Enter → Back → Back
<b>PC Procedure</b>	<b>F8</b> → <b>F6</b> → <b>F8</b> → Type table no. → <b>F10</b> → <b>Drop</b> → Type start time (0000–2359) → <b>F10</b> → <b>F8</b> → Type table no. → <b>F10</b> → <b>Drop</b> → Type stop time → <b>F10</b> → <b>F5</b> → <b>F5</b>

## Pool Routing

Use this procedure to identify the trunk pools on which to route calls to area codes and/or exchanges included in ARS tables.

A maximum of six routes (numbered 1 through 6) can be specified for each subpattern. Pool routing is programmed for Tables 1 through 16. Tables 17 and 18, the Default Toll and Default Local tables respectively, are factory set to the main pool and can be changed.

- NOTES** ▶
- When routing for ARS 10\*\*\* and 101\*\*\*\* equal-access calls (Interexchange Carrier or IXC) from a private networked switch that is not connected to the public switched network and only has private network tandem trunks, the private network tandem trunks must be assigned to the main pool on the system where ARS is dialed. The ARS access code for the caller's system must match that of the system where the public switched network trunks are connected. For this reason, consider using the same ARS access code for all systems in the private network.
  - For Dial 0 and Special Numbers N11 calls (for example, 411 or 911) routed from systems with only private trunks, the private trunks must be assigned to the main pool, and the ARS access code of the remote system must be prepended to the dialed number (see [“Dial 0 Table” on page 3-185](#) and [“N11 Special Numbers Tables” on page 3-184](#)). ARS access codes, therefore, should be the same.

## Summary: Pool Routing

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3f, Automatic Route Selection Tables 3g, Automatic Route Selection Default and Special Numbers Tables
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Not applicable
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Tables→ARS→Sub A Pools or Sub B Pool→ Dial table no. and pool route no.→Enter→ Dial pool dial-out code→Enter→Back→Back
<b>PC Procedure</b>	<input type="button" value="F8"/> → <input type="button" value="F6"/> → <input type="button" value="F3"/> or <input type="button" value="F10"/> →Type table no. and pool route no.→ <input type="button" value="F10"/> →Type pool dial-out code→ <input type="button" value="F10"/> → <input type="button" value="F5"/> → <input type="button" value="F5"/>

---

## Facility Restriction Level

Use this procedure to assign a Facility Restriction Level (FRL) to each route. The FRL ranges from 0 (least restrictive) to 6 (most restrictive) and is used to restrict user access to the route. The FRL assigned to extensions and Remote Access users is the opposite of the FRL assigned to routes, where 0 is the most restrictive and 6 is the least restrictive.

**NOTE** ► Pool routes must be programmed before you assign Facility Restriction Levels.

Facility Restriction Levels are assigned to Tables 1 through 18. Tables 17 and 18, the Default Toll and Default Local tables respectively, cannot be changed.

### Summary: Facility Restriction Level

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3f, Automatic Route Selection Tables 3g, Automatic Route Selection Default and Special Numbers Tables
<b>Factory Setting</b>	3 (Table 18, the Default Local table has a factory setting of 2)
<b>Valid Entries</b>	0 to 6
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Tables→ARS→Sub A FRL  or More and Sub B FRL→ Dial table no. (1-18) and pool route no. (1-6)→Enter→ Dial restriction level (0-6)→Enter→Back→Back
<b>PC Procedure</b>	 →  →  or  and  →Type table no. (1-18) and pool route no. (1-6)→  →Type restriction level (0-6)→  →  → 

## Digit Absorption

Use this procedure to specify how many of the digits dialed (0 through 11) by the caller should be absorbed (not sent to the telephone company's central office) by the system when a call is made on an identified route.

Entries of 1 through 11 indicate that the system should not send the specified number of digits, starting with the first digit dialed by the user after the dial-out code.

Digit absorption is assigned to Tables 1 through 18.

- NOTES** ▶
- Pool routes must be programmed before you assign digit absorption.
  - Where remote users will dial out via private network lines, absorbed digits are often useful. For example, if remote callers are in the 908 area code but your system is in the 617 area code, callers might dial 916175551212, where 9 is the remote ARS access code. Because the call is a local call on the remote system, the absorbed digits on that system would be 1617.

### Summary: Digit Absorption

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3f, Automatic Route Selection Tables
<b>Factory Setting</b>	0
<b>Valid Entries</b>	0 to 11
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Tables→ARS→SubA Absorb or  or More and SubB Absorb→Dial table no. (1-18) and pool route no. (1-6)→Enter→  →Dial no. of digits to absorb (0-11)→Enter→Back→Back
<b>PC Procedure</b>	 →  →  or  and  →Type table no. (1-18) and pool route no. (1-6)→  →  →Type no. of digits to absorb (0-11)→  →  → 

## Other Digits

Use this procedure to specify other (extra) digits that must be added by the system to the beginning of the number dialed by the caller when calls are placed on an identified route.

- NOTES** ▶
- Pool routes must be programmed before you assign other digits.
  - Where ARS calls will be made from lines/trunks connected to a remote private network system, the local ARS feature adds (prepends) the ARS access code of the remote system.

A maximum of 20 digits can be added in any combination of the digits 0 through 9.

Special characters such as switchhook flash, Stop, and # cannot be included as extra digits. Pause is allowed in every position but the first.

Other digits are assigned to Tables 1 through 18.

### Summary: Other Digits

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3f, Automatic Route Selection Tables
<b>Factory Setting</b>	0
<b>Valid Entries</b>	Up to 20 digits (any combination of 0 to 9)
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Tables→ARS→Sub A Digit or  or More and Sub B Digit→ Dial table no. (1–18) and pool route no. (1–6)→Enter→  → Dial digits to be added (up to 20 digits; any combination of 0–9)→ Enter→Back→Back
<b>PC Procedure</b>	 →  →  or  and  → Type table no. (1–18) and pool route no. (1–6)→  →  → Type digits to be added (up to 20 digits; any combination of 0–9)→  →  → 

## N11 Special Numbers Tables

Use this procedure to specify FRL and/or digits that must be added when emergency numbers in the N11 Special Numbers table are dialed (for example, 411, 811, or 911).

Subpattern B, absorb, and pool routing cannot be programmed for the N11 Special Numbers tables.

**NOTE** ► When routing for ARS Special Numbers N11 calls from a private network switch that is not connected to the public switched network, the private trunks must be assigned to the main pool (factory set to 70). The local system must prepend the ARS access code of the connected switch from which the calls will be directed to the public switched network.

### Summary: N11 Special Numbers Tables

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3g, Automatic Route Selection Default and Special Numbers Tables
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Not applicable
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	<p>To change Facility Restriction Level:                      Tables→ARS→▶ or More→Spec1Number→ARS FRL→Drop →                      Dial FRL value→Enter→Back→Back→Back</p> <p>To program other digits:                      Tables→ARS→▶ or More→Spec1Number→ARS Digit→                      Drop →Dial digits→Enter→Back→Back→Back</p>
<b>PC Procedure</b>	<p>To change Facility Restriction Level:                      F8 → F6 →PgUp → F4 → F1 →Drop →Type FRL value→F10 →                      F5 → F5</p> <p>To program other digits:                      F8 → F6 →PgUp → F4 → F2 →Drop →Type digits→F10 →                      F5 → F5</p>

## Dial 0 Table

Use this procedure to specify pool routing, FRL, and Other Digits for the Dial 0 table.

Only one route can be specified. The Subpattern B route cannot be specified for this table, and digit absorption cannot be specified.

**NOTE** ► When routing for ARS Dial 0 calls via a private network switch that is not connected to the public switched network, the external private trunks must be assigned to a pool, and the ARS access code must be prepended to the dialed number using this procedure.

### Summary: Dial 0 Table

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3g, Automatic Route Selection Default and Special Numbers Tables
<b>Factory Setting</b>	3
<b>Valid Entries</b>	0 to 6
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Tables→ARS→  or More→Dial 0→Select ARS Pool or ARS FRL (0-6) or ARS Digits→Dial value→Enter→Back→Back→Back
<b>PC Procedure</b>	 →  →  →  → Select ARS Pool or ARS FRL (0-6) or ARS Digits→Type value→  →  →  → 

## Voice and/or Data Routing

Use this procedure to route voice, data, or voice and data. The voice/data specification is used mainly in conjunction with PRI. See [“PRI Facilities” on page 3-61](#), especially its subtopic, [“Outgoing Tables” on page 3-76](#).

Voice/data routes can be associated with Subpattern A or Subpattern B.

## Summary: Voice and/or Data Routing

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	3g, Automatic Route Selection Default and Special Numbers Tables
<b>Factory Setting</b>	Voice
<b>Valid Entries</b>	Voice Only, Data Only, Voice/Data
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Tables→ARS→  or More→Sub A Data or Sub B Data→Dial table no. and route no.→Enter→Select capability (Voice Only, Data Only, or Voice/Data)→Enter→Back→Back
<b>PC Procedure</b>	 →  →  →  or  →Type table no. and route no.→  →Select capability (Voice Only, Data Only, or Voice/Data)→  →  → 

## Uniform Dial Plan Routing

This section includes programming procedures for assigning Uniform Dial Plan (UDP) Routing, available for Hybrid/PBX mode only.

UDP Routing is very similar to Automatic Route Selection (ARS). UDP Routing allows system users to reach non-local extensions at a remote DEFINITY or MERLIN MAGIX Integrated System that is connected to the local system in a private network. Users simply dial the non-local extension number as they would an inside extension number. Then UDP Routing associates the dialed extension number with one of up to 20 programmed patterns. For each pattern, you can specify up to four routes. For each route, you specify a pool dial-out code. Then you can program FRLs, absorbed digits, added digits, and voice and/or data capability.

**NOTE** ► Before assigning routes, patterns must be assigned to non-local extensions, which is part of the numbering of the extensions. To perform this procedure, see [“Non-Local Dial Plan Extension Ranges” on page 3-15.](#)

This section contains programming procedures for the following UDP Routing features:

- UDP Pool Routing
- Facility Restriction Level (FRL)
- Digit Absorption
- Other Digits
- Voice and/or Data Routing

 **SECURITY ALERT:**

*Do not include the ARS codes of non-local systems in the non-local dial plan, or calling restrictions may be violated.*

Refer to the *Network Reference* for additional information.

---

## UDP Pool Routing

Before beginning this procedure, assign tandem tie or PRI trunks to pools. To do so, see [“Trunks to Pools Assignment” on page 3-35](#). In UDP routing, routes (1–4) are associated with patterns, which are assigned first. Each route has various attributes (FRL, digit absorption, and so on) for call delivery. You may assign from one to four routes, with Route 1 having the highest priority. See the *Network Reference* for additional information.

In many cases, only one pool may be needed. Multiple pools, however, can help prioritize certain types of calls and maximize the use of shared facilities.

PRI tandem trunk pools, if available, should be included in the first route.

 **SECURITY ALERT:**

*Do not provide dial access to PRI or tie tandem trunk pools or assign these trunk pools to buttons on telephones or DSS buttons (Hybrid/PBX mode only). Use ARS to provide access to a remote private network system’s trunks for making outside calls. System users can reach extensions on the remote system by using normal calling procedures.*

### Summary: UDP Pool Routing

<b>Programmable by</b>	System Manager																									
<b>Mode</b>	Hybrid/PBX																									
<b>Idle Condition</b>	Not required																									
<b>Planning Form</b>	Non-Local Dial Plan Administration Form in the Installation Specification																									
<b>Factory Setting</b>	Not applicable																									
<b>Valid Entries</b>	Routes (1–4)																									
<b>Inspect</b>	Yes																									
<b>Copy Option</b>	No																									
<b>Console Procedure</b>	Tables→UDP Routing→Dial pattern no. (1–20)→ Enter→ Dial route no. (1–4)→Enter→Pool→Dial pool dial-out code (up to 4 digits)→Enter→ Back→Back→Back→Back																									
<b>PC Procedure</b>	<table><tr><td></td><td>→</td><td></td><td>→</td><td>Type pattern no. (1–20)→</td><td></td><td>→</td><td>Type route no. (1–4)→</td></tr><tr><td></td><td>→</td><td></td><td>→</td><td>Type pool dial-out code (up to 4 digits)→</td><td></td><td>→</td><td></td><td>→</td></tr><tr><td></td><td>→</td><td></td><td>→</td><td></td><td colspan="3"></td></tr></table>		→		→	Type pattern no. (1–20)→		→	Type route no. (1–4)→		→		→	Type pool dial-out code (up to 4 digits)→		→		→		→		→				
	→		→	Type pattern no. (1–20)→		→	Type route no. (1–4)→																			
	→		→	Type pool dial-out code (up to 4 digits)→		→		→																		
	→		→																							

## UDP Facility Restriction Level

Use this procedure to assign a FRL to each UDP route. The FRL ranges from 0 (least restrictive) to 6 (most restrictive) and prevents users from accessing the route. The FRL assigned to extensions and Remote Access users is the opposite of the FRL assigned to routes, with 0 being the most restrictive FRL, and 6 the least restrictive. A call will succeed if the extension's (or Remote Access) FRL is greater than or equal to the facility's FRL.

FRLs assigned to extensions (or Remote Access) apply not only to ARS calls but also to calls for non-local dial plan extensions connected by private trunks to your local system. For this reason, use care in assigning FRLs both to extensions and to UDP routes. For example, if a user must be restricted from toll calls on your local system, you may need to plan UDP routes' FRLs to be unrestricted so that the user can reach necessary non-local dial plan extensions. For information about assigning FRLs to extensions, see [“ARS Restriction Level for Extensions” on page 3-108](#).

- NOTES** ▶
- UDP pool routes must be programmed before you assign Facility Restriction Levels to those routes.
  - Extension outward and toll calling restrictions are removed when a user dials a non-local dial plan extension. FRL extension restrictions, however, remain in effect but are not sent with the call.
  - If you have Centralized Voice Messaging, program an FRL of 0 for the routes used to send calls to Centralized Voice Messaging. See the *Network Reference* for additional information.

### Summary: UDP Route Facility Restriction Level

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	Non-Local Dial Plan Administration Form in the Installation Specification
<b>Factory Setting</b>	3
<b>Valid Entries</b>	0 to 6
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Tables→UDP Routing→Dial pattern no. (1–20)→ Enter→ Dial route no. (1–4)→Enter→FRL→Dial restriction level (0–6)→ Enter→Back→Back→Back→Back
<b>PC Procedure</b>	[F8] → [F7] → Enter pattern no. (1–20) → [F10] → Type route no. (1–4) → [F10] → [F2] → Type restriction level (0–6) → [F10] → [F5] → [F5] → [F5] → [F5]

## UDP Digit Absorption

Use this procedure to specify how many of the digits dialed (0 to 11) by the caller should be absorbed (not sent over the trunk) by the system when a UDP call to a non-local extension is made on an identified route. If the number is dialed without a pool access code or without using a Pool button, therefore, the dialed digits correspond to the non-local dial plan numbering. Digit absorption can be used to modify the digits that are actually sent to the remote system.

Entries of 1 through 11 indicate that the system should not send the specified number of digits, starting with the first digit dialed by the user.

- NOTES** ►
- UDP pool routes must be programmed before you assign digit absorption.
  - Do not use this procedure to overcome conflicts between local and remote extension numbering. Such conflicts can result in numerous problems with system features.

### Summary: UDP Digit Absorption

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	Non-Local Dial Plan Administration Form in the Installation Specification
<b>Factory Setting</b>	0
<b>Valid Entries</b>	0 to 11
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Tables→UDP Routing→Dial pattern no. (1-20)→ Enter→ Dial route no. (1-4)→Enter→Absorb→Drop → Dial number of absorption digits (0-11)→Enter→Back→Back→ Back→Back
<b>PC Procedure</b>	F8 → F7 → Enter pattern no. (1-20) → F10 → Type route no. (1-4) → F10 → F3 → Drop → Type number of digits to absorb (0-11) → F10 → F5 → F5 → F5 → F5

## UDP Other Digits

Use this procedure to specify other (extra) digits that must be added by the system to the beginning of the dialed digits when calls are placed on an identified route. You may need to prepend a digit in order to accommodate the 5-digit numbering of DEFINITY Communications System extensions in your private network. For more information about techniques for handling these non-local dial plan extension numbers, see [“Non-Local Dial Plan Extension Ranges” on page 3-15.](#)

The user does not use a Pool button or pool dial-out code. The dialed digits, therefore, correspond to the non-local dial plan numbering.

- NOTES** ▶
- UDP pool routes must be programmed before you assign digit absorption.
  - Do not use this procedure to overcome conflicts between local and remote extension numbering. Such conflicts can result in numerous problems with system features.

A maximum of 20 digits can be added, in any combination of digits 0 through 9.

Special characters such as switchhook flash, Stop, and # cannot be included as extra digits. Pause is allowed in every position except the first.

### Summary: UDP Other Digits

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	Non-Local Dial Plan Administration Form in the Installation Specification
<b>Factory Setting</b>	0
<b>Valid Entries</b>	Up to 20 digits (any combination of 0 to 9)
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Tables→UDP Routing→Dial pattern no. (1–20)→ Enter→ Dial route no. (1–4)→Enter→Digits→Drop → Dial digits to add (up to 20; any combination of 0–9)→Enter→ Back→Back→Back→Back
<b>PC Procedure</b>	[F8] → [F7] → Enter pattern no. (1–20) → [F10] → Type route no. (1–4) → [F10] → [F4] → Drop → Type digits to add (up to 20; any combination of 0–9) → [F10] → [F5] → [F5] → [F5] → [F5]

## UDP Voice and/or Data Routing

Use this procedure to route voice, data, or voice and data. For UDP routing, the voice/data specification is used in conjunction with PRI tandem trunks. See [“PRI Facilities” on page 3-61](#) for more information. When using Fractional-T1 tandem trunks, each channel on the trunk can be used for either voice or data, but not for voice/data. See [“DS1 Facilities” on page 3-40](#) for more information.

Voice/data routes can be associated with any UDP pattern.

### Summary: UDP Voice and/or Data Routing

<b>Programmable by</b>	System Manager
<b>Mode</b>	Hybrid/PBX
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	Non-Local Dial Plan Administration Form in the Installation Specification
<b>Factory Setting</b>	Voice/Data
<b>Valid Entries</b>	Voice Only, Data Only, Voice/Data
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	Tables→UDP Routing→Dial pattern no.→ Enter→ Dial route no.→Enter→Data→Select capability (Voice Only, Data Only, Voice/Data)→ Enter→Back→Back→Back→Back
<b>PC Procedure</b>	[F8]→[F7]→Type pattern no.→[F10]→Type route no.→[F10]→[F6]→ Select capability (Voice Only, Data Only, Voice Data)→[F10]→[F5]→ [F5]→[F5]→[F5]

## Night Service

The procedures in this section cover how to program the following optional Night Service features:

- Night Service Group Assignment
- Night Service with Outward Restriction
- Night Service with Time Set
- Night Service with Coverage Control

---

## Night Service Group Assignment

Use this procedure to assign extensions and Calling Groups to a Night Service group for coverage after hours.

A maximum of eight Night Service groups can be assigned (no more than one for each operator position assigned). Any number of extensions can be assigned to a Night Service group, and an extension can belong to more than one group.

A Calling Group can also be assigned to a Night Service group.

This option allows the System Manager to assign outside lines to Night Service groups in addition to extensions and Calling Groups for coverage after hours.

Any number of outside lines can be assigned to a Night Service group. Each outside line can belong to more than one group.

### Summary: Night Service Group Assignment

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	9a, Night Service: Group Assignment
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Not applicable
<b>Inspect</b>	Yes (extensions only)
<b>Copy Option</b>	No
<b>Console Procedure</b>	To assign a Calling Group to a Night Service group: NightSrvce→GroupAssign→Calling Group→Dial ext. no. of Night Service operator→Enter→Dial Calling Group no.→Enter→ Back→Back  To assign an extension to a Night Service group: NightSrvce→GroupAssign→Extensions→ Dial ext. no. of Night Service operator→Enter→ Dial no. of extension→Enter→Back→Back  To assign an outside line to a Night Service group: NightSrvce→GroupAssign→Lines→ Dial ext. no. of Night Service operator→Enter→ Dial outside line number (801-880)→Enter→Back→Back

**PC Procedure**

To assign a Calling Group to a Night Service group:

**F10** → **F1** → **F2** → Type ext. no. of Night Service operator → **F10** →  
 Type Calling Group no. → **F10** → **F5** → **F5**

To assign an extension to a Night Service group:

**F10** → **F1** → **F1** → Type ext. no. of Night Service operator → **F10** →  
 Type no. of extension → **F10** → **F5** → **F5**

To assign an outside line to a Night Service group:

**F10** → **F1** → **F3** → Type ext. no. of Night Service operator → **F10** →  
 Type outside line number (801–880) → **F10** → **F5** → **F5**

## Night Service with Outward Restriction

Use this procedure to prevent unauthorized use of telephones after hours. This feature requires the user to enter a password to make a call when Night Service is activated, unless one of the lists below applies. It also requires an operator to enter a password in order to activate Night Service manually.

To remove the password requirement, follow the procedure below and delete the current password (press the **Drop** button).

This procedure is also used to establish the following lists:

- **Emergency Allowed List.** A list of telephone numbers that can be dialed without a password.
- **Exclusion List.** A list of extensions that are exempt from password requirements.

A maximum of 10 telephone numbers can be included on the Emergency Allowed List, each number with a maximum of 12 digits.

Extensions included in the Exclusion List keep normal call restrictions (if any are assigned); however, they are not protected in any other way from unauthorized use after hours.

### Summary: Night Service with Outward Restriction

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	9b, Night Service: Outward Restrictions
<b>Factory Setting</b>	No password
<b>Valid Entries</b>	Four digits (any combination of 0 to 9)
<b>Inspect</b>	Yes (Exclusion List)
<b>Copy Option</b>	No

**Console Procedure**    NightSrvce→OutRestrict→Drop→  
Dial password (4 digits; 0–9)→Enter→Emergency→  
Dial item no.→Enter→Drop→Dial telephone no.→Enter→  
ExcludeList→Dial ext. no.→Enter→Back→Back

**PC Procedure**        F10→F2→Drop→Type password (4 digits; 0–9)→F10→F3→  
Type item no.→F10→Drop→Type telephone no.→F10→F4→  
Type ext. no.→F10→F5→F5

---

## Night Service with Time Set

Use this procedure to specify the time of day and the days of the week when Night Service is to be activated and deactivated.

Enter the time of day as four digits, using 24-hour notation. Enter the day of the week as a single digit (0 to 6), with 0 being Sunday. If you enter an invalid number, the system truncates the number.

If you change the system time while Night Service is active, Night Service is deactivated automatically and you must manually reactivate it.

Operators can override the timer and turn Night Service on and off manually. This feature can be deactivated when out-of-the-ordinary situations occur (for example, a midweek holiday).

If system programming information is being loaded into memory from a backup diskette, the current day of the week must be reset.

Night Service can be turned off by using the following procedure:

NightSrvce→Day of Week→Dial 9→Enter→Back

### Summary: Night Service with Time Set

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	9c, Night Service: Time Set
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Day: 0 to 6; Time: 0000 to 2359
<b>Inspect</b>	No
<b>Copy Option</b>	No

**Console Procedure** To add or change start/stop time:  
 NightSrvce→Start→**Drop**→  
 Dial start day (0–6) and time (0000–2359)→Enter→Stop→  
**Drop**→Dial stop day and time→Enter→Back

To activate/deactivate:  
 NightSrvce→Time Control→Off or On→Enter→Back

**PC Procedure** To add or change start/stop time:  
**F10**→**F6**→**Drop**→Type start day (0–6) and time (0000–2359)→  
**F10**→**F7**→**Drop**→Type stop day (0–6) and time (0000–2359)→  
**F10**→**F5**

To activate/deactivate:  
**F10**→**F8**→**F1** or **F2**→**F10**→**F5**

## Night Service with Coverage Control

Use this procedure to enable or disable the Night Service Coverage Control option to automatically control the status of programmed Coverage VMS Off buttons.

When the Coverage Control option is enabled, a transition into Night Service (either by pressing a Night Service button or automatically by the Time Set option) automatically deactivates the VMS Coverage Off buttons (LED is off) and allows outside calls to go to VMS Coverage at night. When the system is taken out of Night Service (either by pressing a Night Service button or automatically by the Time Set option), programmed VMS Coverage Off buttons are activated (LED is on) and outside calls are prevented from going to VMS Coverage during the day.

When the Coverage Control option is disabled, Night Service status has no effect on programmed VMS Coverage Off buttons.

### Summary: Night Service with Coverage Control

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	9c, Night Service: Options
<b>Factory Setting</b>	Disabled
<b>Valid Entries</b>	Enable or Disable
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	NightSrvce→CoverContrl→Select Enable or Disable→Enter→Back
<b>PC Procedure</b>	<b>F10</b> → <b>F9</b> →Select Enable or Disable→ <b>F10</b> → <b>F5</b>

## Labeling

The procedures in this section cover how to add or change labels for the following:

- Extension Directory
- Lines or Trunks
- Posted Message
- Group Calling
- System Speed Dial Directory

Programming on the system programming console:

Use the buttons next to the display to specify the letters A through I and punctuation. Use the line/feature buttons to specify additional alphanumeric characters for labels. Use the template provided with the 4424LD+ or MLX-20L telephone to see which line buttons correspond to which alphanumeric characters.

Programming with WinSPM:

- Use the PC keyboard for labels. All letters appear on the screen in uppercase.

**NOTE** ► See the *4424LD+ User's Guide* or the *MLX-20L User's Guide* for instructions on creating or editing a personal directory.

---

## Extension Directory

Use this procedure to establish alphanumeric system labels for display telephone users to identify the person calling or leaving a message. This procedure is also used to program the Extension Directory feature for the 4412D+, 4424D+, and 4424LD+ telephones and for the MLX telephones.

- NOTES** ►
- Where private networked systems are connected by PRI tandem trunks, programmed labels for extensions on the remote system may be displayed at a call recipient's 4400-Series, ETR, MLS, or MLX display telephone on a local system. If other types of trunks connect the private network systems, the call display is the same as for an outside call. For additional information about controlling the display for such incoming calls, see ["Display Preference" on page 3-118](#).
  - A label can have a maximum of seven characters.

### Summary: Extension Directory

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	2a, System Numbering: Extension Jacks
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Not applicable
<b>Inspect</b>	No Copy Option No
<b>Console Procedure</b>	[▶] or More → Labeling → Directory → Extension → Dial ext. no. → Enter → [Drop] → Enter label → Enter → Back → Back → Back
<b>PC Procedure</b>	[PgUp] → [F1] → [F1] → [F2] → Type ext. no. → [F10] → [Drop] → Type label → [F6] → [F5] → [F5] → [F5]

---

### Lines or Trunks

Use this procedure to establish alphanumeric system labels for display telephone users to identify the line or trunk being used.

### Summary: Lines or Trunks

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	2c, System Numbering: Line/Trunk Jacks
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Not applicable
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	[▶] or More → Labeling → LinesTrunks → Dial line/trunk no. → Enter → [Drop] → Enter label → Enter → Back → Back
<b>PC Procedure</b>	[PgUp] → [F1] → [F2] → Type line/trunk no. → [F10] → [Drop] → Type label → [F6] → [F5] → [F5]

---

## Posted Message

Use this procedure to add or change existing posted messages. The posted messages allow callers with display telephones to know why the called extension does not answer.

Each posted message can have a maximum of 16 characters. Messages 2 through 20 can be changed through programming. Message 1, Do Not Disturb, cannot be changed.

**NOTE** ► Posted messages are not supported across private network systems.

### Summary: Posted Messages

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	8a, Label Form: Posted Message
<b>Factory Setting</b>	First 10 messages
<b>Valid Entries</b>	1 to 20
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	► or More → Labeling → PostMessage → Dial message no. (1-20) → Enter → <b>Drop</b> → Enter message → Enter → Back → Back
<b>PC Procedure</b>	PgUp → <b>F1</b> → <b>F3</b> → Type message no. (1-20) → <b>F10</b> → <b>Drop</b> → Type message → <b>F6</b> → <b>F5</b> → <b>F5</b>

---

## Group Calling

Use this procedure to establish alphanumeric system labels for display telephone users to identify Calling Groups.

A label can have a maximum of seven characters.

## Summary: Group Calling

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	6e, Group Calling
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Not applicable
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	<b>[▶]</b> or More → Labeling → Grp Calling → Dial Calling Group ext. no. → Enter → <b>[Drop]</b> → Enter label → Enter → Back → Back
<b>PC Procedure</b>	<b>[PgUp]</b> → <b>[F1]</b> → <b>[F4]</b> → Type Calling Group ext. no. → <b>[F10]</b> → <b>[Drop]</b> → Type label → <b>[F6]</b> → <b>[F5]</b> → <b>[F5]</b>

---

## System Speed Dial Directory

Use this procedure to establish System Speed Dial numbers for all system users. You can also use this procedure to enter the alphanumeric labels shown on display telephones (for the System Directory feature of the MLX telephone).

A total of 130 System Speed Dial numbers can be entered, with a maximum of 11 characters per label.

Speed dial code assignments are 600 through 729.

## Summary: System Speed Dial Directory

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	8b, System Speed Dial
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	600 to 729
<b>Inspect</b>	No
<b>Copy Option</b>	No

**Console Procedure**   ▶ or More→Labeling→Directory→System→  
Dial dial code no. (600-729)→Enter→Drop→Enter label→  
Enter→Backspace→Dial telephone no. (up to 20 digits and  
special characters)→Enter→ Yes or No→Enter→Back→  
Back→Back

**PC Procedure**       PgUp→F1→F1→F1→Type dial code no. (600-729)→F10→  
Drop→Type label→F6→F2→Type telephone no. (up to 20 digits  
and special characters)→F6→F1 or F2→F6→F5→F5→F5

## Print Reports

Use the procedures in this section to change the language for system reports and to print the system reports.

---

## Report Language

Use this procedure to change the language of the system reports. Unless you change the report language, reports are printed in the language chosen as the system language.

### Summary: Report Language

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	1, System Planning
<b>Factory Setting</b>	U.S. English
<b>Valid Entries</b>	U.S. English, Canadian French, Latin American Spanish
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	▶ or More→Language→Printer→Select English or French or Spanish→Enter→Back
<b>PC Procedure</b>	PgUp→F6→F4→Select English or French or Spanish→F10→F5

---

## Printing System Reports

The system can be used to print a variety of reports. You can print individual reports or use the All option to print the entire set of available reports, including all report sections and options. See [Appendix F](#) for samples of the print reports.

Use this procedure to print the reports listed below. With the exception of Trunk Information, the dash lists under the bullets show the sections of each report that automatically print when the report option is selected.

- All
  - Each report
  - All report options
- System Set Up
- System Dial Plan
  - Pools
  - Telephone Paging Zones
  - Direct Group Calling
  - Lines/Trunks
  - Stations (Extensions)
- Label Information
  - Telephone Personal Directory
  - Message Numbers and Posted Messages
- Trunk Information<sup>1</sup>
  - TIE
  - DID
  - Loop/Ground
  - General
  - Switched 56 Data
- T1 Information
- PRI Information
- Remote Access
  - General Options
  - Non-TIE Restrictions
  - TIE Restrictions
  - Barrier Code Restrictions

---

<sup>1</sup> Trunk option must be specified

- Operator Information
  - Position
  - General Options
  - DSS Options
  - QCC Operators
  - Operator Information
- Allowed Lists
- Allowed Lists Assigned to Extensions
- Disallowed Lists
- Disallowed Lists Assigned to Extensions
- Automatic Route Selection
- Tables
- Extension Directory
- System Directory
- Group Page
- Extension Information
- Group Coverage
- Group Calling
- Night Service
- Call Pickup Groups
- Error Logs
- Authorization Codes
- BRI Information Report
- Non-Local Dial Plan
- Service Observing Groups

**NOTE** ► If you select the All option, keep in mind that the reports take from 30 minutes to 6 hours to print depending on the size of the system. You may want to schedule use of the printer during off-peak hours.

If you select a report for which there is no information, the report header still prints.

Print reports if you cannot back up your system programming information.

Do not print reports if your system must handle more than 100 calls per hour.

If you are printing from the console, your printer must be connected to the SMDR port. If you are programming on a PC with WinSPM, you have the following choices:

- Print reports on the SMDR printer (if available)
- Print reports on the PC printer
- Save reports (on hard disk or floppy)
- View reports (browse)

See [Chapter 2, "Programming with WinSPM,"](#) for details.

### Summary: Printing System Reports

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required
<b>Planning Form</b>	Not applicable
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Any saved report
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	To print trunk information: ▶ or More→Print→Trunk Info→Select trunk type→Back  To print extension information: ▶ or More→Print→More→Ext Info→Dial extension no.→ Enter→Back  To print all other reports: ▶ or More→Print→Select report→Back
<b>PC Procedure</b>	To print trunk information: PgUp→F3→F6→Select trunk type→F5  To print extension information: PgUp→F3→PgUp→F10→Type extension no.→F10→F5  To print all other reports: PgUp→F3→Select report→F5  To save report on disk: PgUp→F3→Select report→F10→Select GOTO FLOPPY→F10  To view report: Browse

## Data Features

Other data programming procedures can be found in earlier sections of this book (see [Table 3-7](#)), with the exception of ringing options. See ["Ringing Options" on page 4-35](#) for information about ringing options.

**Table 3-7. Other Data Programming Procedures**

Procedure	Location
Assign Trunks or Pools to Data Workstations	<a href="#">"Assign Trunks or Pools to Extensions" on page 3-84</a>
Copy Trunk Assignments	<a href="#">"Copy Line/Trunk Assignments" on page 3-86</a>
Assign Intercom or System Access Buttons	<a href="#">"Assign Intercom or System Access Buttons" on page 3-87</a>
Pool Dial-Out Code (Hybrid/PBX only)	<a href="#">"Pool Dial-Out Code" on page 3-104</a>
Calling Restrictions	<a href="#">"Calling Restrictions" on page 3-105</a>
Copy Calling Restrictions	<a href="#">"Copy Calling Restrictions" on page 3-107</a>
Forced Account Code Entry	<a href="#">"Forced Account Code Entry" on page 3-109</a>
Ringing Options	<a href="#">"Ringing Options" on page 4-35</a>
Assign Data Hunt Group Members	<a href="#">"Group Calling Member Assignments" on page 3-134</a>
Assign Data Hunt Group Trunks or Pools	<a href="#">"Group Calling Line/Trunk or Pool Assignments" on page 3-136</a>
Group Type	<a href="#">"Group Type" on page 3-145</a> (choice restricted to Automatic Log In)

---

## 2B Data

Use this procedure to program an MLX port for 2B data capability. Assigning a port for 2B data allows both B-channels of a single MLX port to be used for speeds up to 128 Kbps on data calls.

Consider the following when programming ports for 2B data capability:

- The extension number of the port cannot be the first or fifth port on an MLX module. These ports are designated as potential operator ports and cannot be used for 2B data connections.
- The extension number must correspond to the adjunct extension number of an MLX port. By default, these extensions begin with "7."
- Devices that are not intended for 2B data should not be connected to a port programmed for 2B data. These devices probably will not work.

### Summary: 2B Data

<b>Programmable by</b>	System Manager
<b>Mode</b>	Key, Hybrid/PBX
<b>Idle Condition</b>	Required
<b>Planning Form</b>	Data Form 2b, Digital Data Workstation
<b>Factory Setting</b>	None
<b>Valid Entries</b>	Adjunct extension number up to four digits
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Data→2B Data→Dial adjunct ext. no.→Enter→Back→Back
<b>PC Procedure</b>	<input type="text" value="F2"/> → <input type="text" value="F2"/> →Type adjunct ext. no.→ <input type="text" value="F10"/> → <input type="text" value="F5"/> → <input type="text" value="F5"/>

## Memory Card

A PCMCIA (Personal Computer Memory Card International Association) interface slot is present on the processor module. The slot is a standard interface through which information can be added to or obtained from the system using a memory card. The PCMCIA interface slot accepts one memory card at a time.

This section covers the following memory card functions:

- Memory Card Formatting
- Backup
- Automatic Backup
- Restore

---

## Card Types

The types of memory cards are described below. The card type is identified by a preprinted, color-coded label.

- **Upgrade Card.** This card is used for MERLIN MAGIX Integrated System software upgrades. The upgrade can be performed by the System Manager using the memory card and the Maintenance option on the SPM Main menu. See *Maintenance and Troubleshooting* for information about this feature.

This card is identified by an orange label with black lettering.

- **Translation Card.** The backup and restore procedures previously available to System Managers through SPM (using the PC and floppy disks) can now be performed using the memory card and the new Backup/Restore option on the System menu. A new automatic backup feature permits you to set the system to perform automatic backups to the memory card on a daily or weekly basis. See [“Backup” on page 3-211](#) and [“Restore” on page 3-216](#) for more information.

This card is identified by a white label with black lettering.

- **Forced Installation.** For use by qualified service technicians only, this card is used when the system software has been corrupted and a re-installation must be done at the customer site. The use of the card for forced installation is reserved for emergency situations in which the system software on the processor module has been damaged.

This card is identified by an orange label with black lettering. In addition, black stripes are present on the card to distinguish it from an upgrade card.

Figure 3-4 shows a sample Translation card.

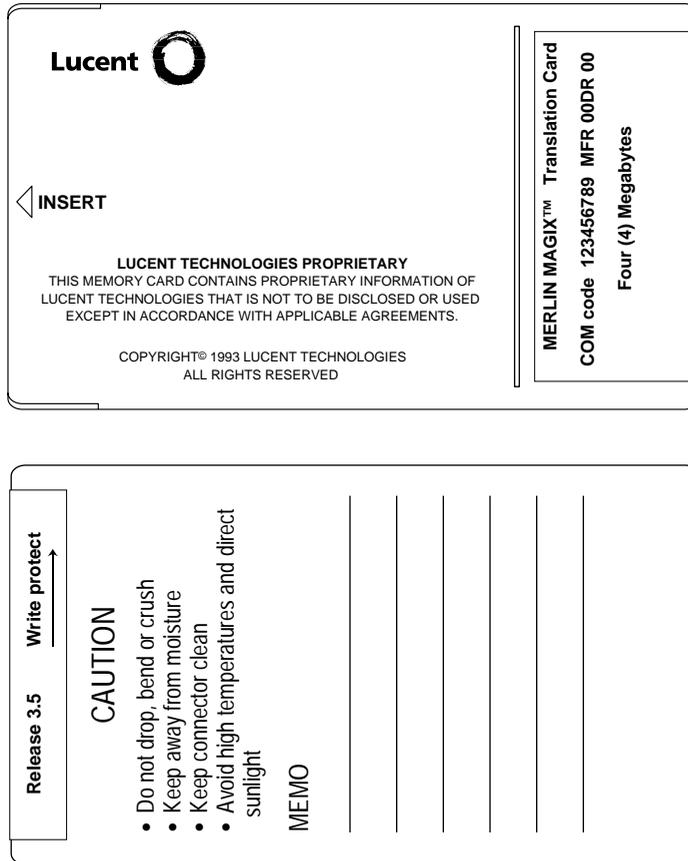


Figure 3-4. PCMCIA Memory Card

## Inserting the Card

To insert the card, hold the card with the Lucent logo facing up and the arrow pointing toward the slot. See [Figure 3-5](#) for the proper way to insert the memory card into the slot on the processor module.

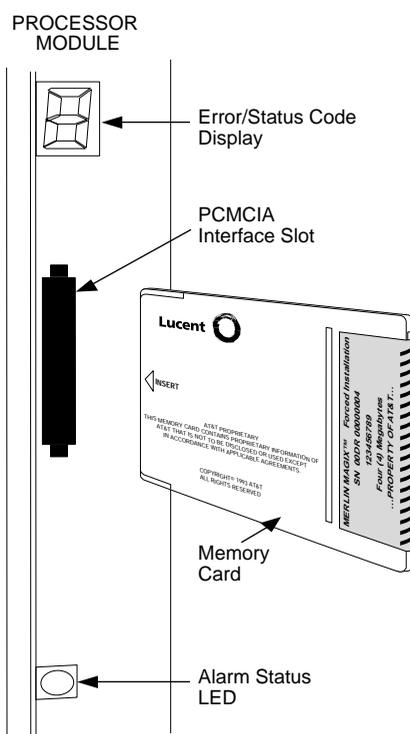


Figure 3-5. Inserting the Memory Card

## Memory Card Formatting

The memory card may have to be formatted before you begin any manual or automatic backup procedures. This section details the screens and messages that appear during the format procedure.

### CAUTION:

*Formatting overwrites previous data on the memory card. Make certain that there is no important information on the card before you begin formatting.*

## Unformatted Card

Memory Card Backup:  
Inserted Memory Card is  
not the correct type.  
Do you want it formatted?  
Yes  
No  
Back

If you begin a backup procedure with an unformatted or incorrectly formatted card, the above screen appears.

The inserted memory card is not the correct type. You have the option of formatting the memory card as a translation memory card or repeating the backup procedure with a different memory card.

- NOTES** ►
- Only 4 MB Series I or Series II PCMCIA memory cards may be formatted, except those already formatted as translation cards.
  - If a memory card cannot be formatted, a message appears on screen. These messages are noted in the procedures as appropriate.
  - A memory card may need to be formatted if it is intended for use as a translation card but is currently blank or contains data other than MERLIN MAGIX Integrated System backup files.

## Format Warning

```
Format Memory Card:
All data on card will be
DELETED.
Do you want to continue?
Yes
No
Back
```

This screen appears if you respond to the system prompt to format the memory card.

Select **Yes** (or click **F3**) to begin the memory card format. [Table 3-8](#) lists the screen messages that may appear while formatting is in progress.

**Table 3-8. Memory Card Formatting Messages**

Message	What it Means
Formatting Memory Card	The format is in progress.
Formatting of Memory Card Completed	The format was successful and has completed.
Memory Card cannot be formatted	The memory card cannot be formatted. Remove the card and repeat the procedure with another card.
Formatting of Memory Card FAILED	The format was unsuccessful. Remove the card and repeat the procedure with another card.
Missing Card or Card Not Inserted Correctly	Verify that the card is inserted correctly and repeat the procedure.

If Exit (on the 4424LD+ telephone), Home (on the MLX-20L telephone) or Menu (on both telephones) is pressed during a format procedure, the format is terminated. The data on the memory card may be lost. See [Chapter 1](#), "[Programming Basics](#)," for details about these keys.

---

## Backup

Use this procedure to make a copy of your customized system data. You should create a backup at least three times during system installation (so that programmed information is not lost) and once after each system upgrade, service technician visit, or major system reconfiguration.

The Inspect feature (Inspct or **PgDn**) is available to view the attributes of the backup files on the memory card prior to initiating the backup procedure. The attributes included on the Inspect screen are the filename, the time and date of the file creation/update, the location of the system programming port, and information about the system software release from which the backup was made.

The list of backup files contains three manual backup filenames and two automatic backup filenames. The factory set names of the manual backup files are BACK1.\*\*\*\*, BACK2.\*\*\*\*, and BACK3.\*\*\*\*. When you select one of the backup filenames, the system automatically replaces the \* in the filename with the current month and day (mmdd). For example, BACK1.0116 would appear if you selected BACK1.\*\*\*\* and performed the backup procedure on January 16. You can rename any of the three files during the backup procedure. The automatic backup filenames are AUTO.BACK1 and AUTO.BACK2. You cannot change the names of these files.

If you enter a filename that currently exists, the message `File already exists` appears. You must enter another filename.

While the backup is in progress, you cannot access system programming functions, your Personal Directory, or alarm clock functions (any programmed alarms are temporarily deactivated). You may terminate the backup procedure at any point prior to receiving confirmation of a successful backup.

If any type of programming is taking place at another extension when you begin the backup procedure, the backup is cancelled and the number of the first busy extension appears on the screen. Attempt the backup procedure again when the busy extension becomes idle.

If the system is turned off during a backup procedure, the backup is terminated. The system performs a System Reset (cold start), after which you may repeat the backup procedure.

If Exit (on the 4424LD+ telephone), Home (on the MLX-20L telephone) or Menu (on both telephones) is pressed during a backup procedure, the backup is terminated. This may result in the deletion of an old backup file. See [Chapter 1](#), [“Programming Basics,”](#) for details about these keys.

**NOTE** ► If the system performs a System Erase (frigid start), all programming is set to the factory-set values. If a previous backup file is available, perform a restore. If not, the system must be reprogrammed. See [“Restore” on page 3-216](#) for information about the system restore procedure. Also see [“Backup Messages” on page 3-214](#) for information about errors that may occur during the backup procedure.

## Summary: Backup

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required (No extensions are allowed to be in programming mode except system programming console)
<b>Planning Form</b>	1, System Planning
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	1- to 11-character filename
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Insert memory card→System→Back/Restore→Backup→ Select backup file→Dial the new backup filename→Enter→Yes→ Back→Back→Back
<b>PC Procedure</b>	Insert memory card→ <b>F1</b> → <b>F9</b> → <b>F1</b> →Select backup file→ Type the new backup filename→ <b>F6</b> → <b>F1</b> → <b>F5</b> → <b>F5</b> → <b>F5</b>

---

## Automatic Backup

To preserve the most recent copy of your customized system data, you can program the system to automatically backup programming information onto the translation memory card. Automatic backups may be set for daily or weekly operation. If automatic backup is activated, the time may be set for daily backup (factory setting is 2:00 am) or the time and day may be set for weekly backup (factory setting is 2:00 am Sunday).

The system places the automatic backup into one of two designated files: AUTO.BACK1 and AUTO.BACK2. If both files are empty, the system places the backup in AUTO.BACK1. If both files already contain backups, the system selects the older of the two files and overwrites it. The system performs this file "toggle" each time it performs an automatic backup.

While the backup is in progress, you cannot access system programming functions, your Personal Directory, or alarm clock functions (any programmed alarms are temporarily deactivated).

If any type of programming is taking place at an extension during the automatic backup procedure, the backup is cancelled. The system does not re-attempt the backup.

If an automatic backup fails for any reason (including a system-busy condition), all of the programmed alarm buttons on system operator consoles light and the information is recorded in both the permanent error log and the last 10 error logs. The system does not re-attempt the backup.

Also see "[Backup Messages](#)" on page 3-214 for information about errors that may occur during the automatic backup procedure.

**NOTE** ► If an automatic backup fails for any reason (except when the failure results because the memory card is write-protected), the automatic backup feature is turned off. Follow the procedure below to reprogram automatic backups.

### Summary: Automatic Backup

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	Not required (No extensions are allowed to be in programming mode, including the system programming console)
<b>Planning Form</b>	1, System Planning
<b>Factory Setting</b>	Weekly backup: Sunday at 2:00 am (if daily backup is selected, time is factory set for 2:00 am)
<b>Valid Entries</b>	Daily: hhmm (00 to 23; 00 to 59) Weekly: dhhmm (0 to 6; 00 to 23; 00 to 59)
<b>Inspect</b>	No
<b>Copy Option</b>	No
<b>Console Procedure</b>	To program daily backup: Insert memory card → System → Back/Restore → Auto Backup → Daily → <b>Drop</b> → Dial time (00–23; 00–59) → Enter → Back → Back  To program weekly backup: Insert memory card → System → Back/Restore → Auto Backup → Weekly → <b>Drop</b> → Dial day and time (0–6; 00–23; 00–59) → Enter → Back → Back
<b>PC Procedure</b>	To program daily backup: Insert memory card → <b>F1</b> → <b>F9</b> → <b>F2</b> → <b>F2</b> → <b>Drop</b> → Type time (00–23; 00–59) → <b>F10</b> → <b>F5</b> → <b>F5</b>  To program weekly backup: Insert memory card → <b>F1</b> → <b>F9</b> → <b>F2</b> → <b>F3</b> → <b>Drop</b> → Type day and time (0–6; 00–23; 00–59) → <b>F10</b> → <b>F5</b> → <b>F5</b>

## Backup Messages

During manual or automatic backup procedures, additional screens may appear to alert you to problems with the translation memory card, the backup file, or the backup procedure. This section contains displays of each screen and information about what to do if the screen appears.

**NOTE** ► The screens shown in this section are from the manual backup procedure; however, the screens that may appear in both the manual and automatic backup procedures are similar. The screens in both procedures differ only in the appearance of the first line. On the automatic backup screens, Auto Memory Card Backup replaces Memory Card Backup shown on the screens below.

## Backup Cancelled

If the system detects an error, either on the Memory Card or with the backup file, or if you terminate the backup, this screen appears.

```
Backup x:  
BACKUP IS CANCELLED.  
File has been DELETED.  
  
Back
```

x = backup filename

The backup file being created is deleted and the backup is terminated. You must repeat the backup procedure.

## Card Removed While Backup Is in Progress

The Memory Card is not inserted or is inserted incorrectly while a backup is in progress. The backup file that was being created is deleted and the backup is terminated. You must reinsert the Memory Card and repeat the backup procedure.

```
Backup x:  
BACKUP IS CANCELLED.  
Verify that Memory Card  
has been inserted  
correctly.  
File has been DELETED.  
  
Back
```

x = backup filename

## Card Missing or Card Not Inserted Correctly

The Memory Card is either not inserted or is inserted incorrectly. The backup is terminated. You must reinsert the Memory Card and repeat the backup procedure. This screen may also appear if the wrong type of Memory Card is inserted and a backup or automatic backup is requested within one minute of insertion. Verify that the card is a translation Memory Card.

Memory Card Backup:  
Verify that Memory Card  
has been inserted  
correctly.

Back

## Card Is Write-Protected

The Memory Card is write-protected. You must remove the Memory Card, flip the write-protect tab, reinsert the Memory Card, and repeat the backup procedure.

Memory Card Backup:  
Memory Card is Write-  
Protected.  
Reset Write-Protect Tab  
on Memory Card.

Back

 **CAUTION:**  
*The Memory Card may be write-protected to avoid the accidental erasure of the backup files. Make certain this is not the case before you change the Write-Protect Tab.*

## Card Failure

If the card is damaged, repeat the backup with a different card. If a backup is in progress and fails, the system makes two additional attempts at the backup. At the start of each attempt, a message appears with the percentage of the backup that is completed. If the backup fails after three attempts, the screen shown below appears. Repeat the backup procedure using a different file and/or Memory Card.

Memory Card Backup:  
Backup Failure  
Try a different file or  
a new Memory Card.

Back

---

## Restore

Use this procedure to restore system conditions that were backed up onto a translation memory card. The information in a backup file on the translation card is copied to the system.

The restore procedure is necessary under the following conditions:

- System RAM is corrupt.
- A previously stored set of system conditions is preferred over the current set.
- Processor module is replaced.
- After a System Erase (frigid start) has been performed.
- System software has been reinstalled.

The Inspect feature (Inspct or PgDn) is available to view the attributes of the backup files on the memory card prior to initiating the restore procedure. The attributes included on the Inspect screen are the filename, the time and day of the file creation/update, the location of the system programming port, and information about the system software release from which the backup was made.

If any type of programming is taking place at another extension when you begin the restore procedure, the restore is cancelled and the number of the first busy extension appears on the screen. Repeat the restore procedure when the busy extension becomes idle.

If a line is busy (incoming call or active call) when you begin the restore procedure, the restore is cancelled and the number of the first active line appears on the screen. Repeat the restore procedure when the line becomes idle.

Also see [“Restore Messages” on page 3-217](#) for information about errors that may occur during the restore procedure.

## Summary: Restore

<b>Programmable by</b>	System Manager
<b>Mode</b>	All
<b>Idle Condition</b>	System Forced Idle
<b>Planning Form</b>	Not applicable
<b>Factory Setting</b>	Not applicable
<b>Valid Entries</b>	Not applicable
<b>Inspect</b>	Yes
<b>Copy Option</b>	No
<b>Console Procedure</b>	Insert memory card→System→Back/Restore→Restore→ Select restore file→Yes
<b>PC Procedure</b>	Insert memory card→ <b>F1</b> → <b>F9</b> → <b>F5</b> →Select restore file→ <b>F3</b>

---

## Restore Messages

During the restore procedure, additional screens may appear to alert you to problems with the translation Memory Card, the backup file or the restore procedure. This section contains displays of each screen and information about what to do if the screen appears.

### Card Missing or Card Not Inserted Correctly

Memory Card Restore:  
Verify that Memory Card  
has been inserted  
correctly.

Back

The Memory Card is either not inserted or inserted incorrectly. The restore is aborted. You must reinsert the card and repeat the restore procedure. This screen may also appear if the wrong type of Memory Card is inserted and a restore is requested within one minute of insertion. Verify that the card is a translation Memory Card.

## Card Removed after Confirmation

```
Memory Card Restore:
RESTORE IS CANCELLED.
System is DOWN.
```

The Memory Card was removed from the PCMCIA interface slot while the restore was in progress. The restore is aborted and the system performs a System Erase (frigid start). You must reinsert the Memory Card and repeat the restore procedure.

## Wrong System Programming Port

```
Restore n:
Change Sys Programming
Port to Extension xxxx
before Restoring.

Back
```

n = filename selected  
xxxx = system programming port  
extension

The system programming port is not set to the same system programming port as that set in the backup file. The restore is aborted. Use the Inspect feature to view the port of the file on the card. Change the system programming port to match the port shown on the card (see [“System Programming Position Assignment”](#) on page 3-3) and repeat the restore procedure.

## Release Mismatch

```
Restore n:
File is Not Compatible
for Release X.Y
Restore Cancelled.
Conversion Required.

Back
```

n = filename selected  
X.Y = release number

This screen only appears if the releases are not compatible.

## Card Failure Before Confirmation

Memory Card Restore:  
Restore Failure.  
Try a different file  
or a new Memory Card.

Back

If the restore fails because the card is damaged, repeat the restore procedure using a different file and/or Memory Card.

## Card Failure after Confirmation

Restore n:  
Restore Failure  
RESTORE IS CANCELLED.

System is DOWN.

n = filename selected

If the restore fails because the card is damaged, the system performs a System Erase (frigid start). Repeat the restore procedure using a different file and/or Memory Card.

## Wrong Type of Card

Memory Card Restore:  
Inserted Memory Card is  
not the correct type.  
Remove and insert MERLIN  
MAGIX Backup/Restore  
Card.  
Back

The inserted card does not match the card option selected from the System menu. Remove the card and repeat the restore procedure with the correct type of card. See [“Card Types” on page 3-206](#) for information about the card labels.

**3** Programming Procedures  
    *Memory Card*

3-220

# Centralized Telephone Programming

---

# 4

## Overview

This chapter describes centralized telephone programming for the System Manager and includes the following information:

- Accessing centralized telephone programming
- Programming the features available with this function
- Programming a single telephone
- Copying programmed features from one extension to another extension

See the *Feature Reference*, or the appropriate user or operator guide, for details about each feature.

**NOTE** ► Only the System Manager should perform the programming procedures described in this chapter.

## Introduction

Centralized telephone programming allows the System Manager to program any feature that can be programmed by individual telephone users, or by the system operator, onto another telephone in the system. Any feature that can be programmed at an individual telephone can be programmed using centralized telephone programming.

The following features can be programmed only by using centralized programming:

- Barge-In
- Headset Hang Up
- Intercom buttons: all types (Key and Behind Switch mode only)
- Service Observing button
- System Access buttons: all types (Hybrid/PBX mode only)

**NOTE** ► Service Observing may be subject to federal, state, or local laws, rules, or regulations, or require the consent of one or both of the call parties. You must check in your jurisdiction and comply with all applicable laws, rules, and regulations before using this feature. Failure to comply may result in severe penalties.

To perform centralized telephone programming, you can use the system programming console (see [Chapter 1, “Programming Basics”](#)) or a PC with SPM software (see [Chapter 2, “Programming with WinSPM”](#)).

If you are programming several telephones of the same type (that is, all 4400-Series or all MLX), program one extension and then use the programmed extension as a template for programming additional extensions. See [“Copy Extension” on page 4-12](#), and also refer to the planning forms.

Some programming can be performed only when the entire system or some part of it (such as a trunk or an extension) is idle. See [“Idle States” on page 1-22](#).

## Access to Centralized Telephone Programming

Access the Centralized Programming menu from the System Programming menu. Centralized programming is performed by selecting features from the display or by using programming codes.

Follow the procedure below to access the Centralized Programming menu.

### Console Display/Instructions

### Additional Information

### PC

1. Go to the second screen of the System Programming menu.

```
System Programming:  >
Make a Selection
System Extensions
SysRenumbr   Options
Operator     Tables
LinesTrunks  AuxEquip
Back         NightSrvc
```

Press More.

**PgUp**

2. Select Centralized Programming.

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

**F4**

**Console Display/Instructions**

**Additional Information**

**PC**

3. Select a programming option.

Centralized Programming:	
Make a selection	
Program Ext	
Copy Ext	
Back	Enter

Select Program Ext  
 or Copy Ext .

4. Go to the "Program Extension" or "Copy Extension" section, as appropriate.

The sections that follow explain the use of menu selections for programming a single extension (Program Extension), and for using one extension as a template for programming several extensions of the same type (Copy Extension).

**NOTE** ► It is recommended that you use the programming codes for centralized programming; however, you may also use the List Features option that is available on the programming screen. [See "Using the List Feature Menu" on page 4-11](#) for details about this option.

## Program Extension

Review the items below before you begin to program extensions.

- Use [Table 4-1 on page 4-6](#) to locate the code for the feature that you want to program.
- If you enter a feature code incorrectly or enter a feature code that is not appropriate for the button, a beep sounds or the message `Programming Error` appears and the green LED next to the button flashes. If this happens, press the button again and repeat the procedure.
- If you make a mistake and program the wrong feature on a button, follow the steps below:
  1. Press the button.
  2. Select `Delete` (press 2 on the PC).
  3. Press the button again.
- If you press a line button that is not active, the screen shown here appears. Press  (4424LD+ telephone) or  (MLX-20L telephone) to return to the Home screen.

Blank	
Press HOME to Exit	
	Page 1
	Page 2
Sys Program	ListFeature

- You can use the Extension Information (Ext Info) report option on the Print menu to print all of the programmed features for a specific extension.

At the Centralized Programming menu, follow the procedure below to program features onto a single telephone.

**Console Display/Instructions**

**Additional Information**

**PC**

1. Select Program Extension.

Centralized Programming:  
Make a selection  
**Program Ext**  
Copy Ext

Back                      Enter

F1

2. Specify the extension you want to program.

Centralized Programming:  
Enter extension

Backspace

Back                      Enter

**SP: "Entering an Extension"**



3. Save your entry.

Select Enter.

F10

4. Select Start.

Extension Program    xxxx  
Press HOME to Exit

Sys Program                      **Start**

xxxxx = extension entered in Step 2

F10

**Console Display/Instructions**

**Additional Information**

**PC**

5. Select the line button to which you want to assign the feature.

```
Select Button:
Extension Program  xxxx
                  Page 1
                  Page 2

Sys Program
```

xxxxx = extension entered in Step 2

Press the line button or click the function key that corresponds to your selection



or select Page 2 to access line button 21 and above.

F7

If you are programming a telephone with more than 20 line buttons, use Page 2 to select line button 21 and above. See [Appendix E](#) for button diagrams of all telephones.

6. Program the feature or features.

```
Line xxx *
Press HOME to Exit
                  Page 1
                  Page 2

Sys Program      ListFeature
```

xxx = line selected in Step 5

\* = current feature programmed

Use [Table 4-1](#) to dial or type the programming code: \*[nnn]



or select ListFeature.

F10

(See ["Using the List Feature Menu" on page 4-11.](#))

When the line button is programmed, the system automatically returns to the screen in Step 5.

7. Repeat Steps 5 and 6 for each line button you want to program for the extension, or press **Exit** (4424LD+ telephone) or **HOME** (MLX-20L telephone) to return to the Centralized Programming menu.

## Programming Codes

[Table 4-1](#) provides a quick reference to the programming codes for the system features using the List Feature menu.

**Table 4-1. Features and Programming Codes**

Feature	Programming Code
Account Code Entry	*82
Alarm <sup>1</sup>	*759
Authorization Code	*80
Auto Dial Multiline 4400-Series, MLX, ETR, and MLS telephones <i>Inside (ext., group, zone)</i> <i>Outside</i> 4400, 4400D, single-line telephones (see Personal Speed Dial)	*22 + ext. no. *21 + tel. no.
Automatic Line Selection Begin Sequence End Sequence	*14 **14
Barge-In <sup>1,2</sup>	*58
Call Waiting On Off	*11 **11
Callback Automatic <i>On</i> <i>Off</i> Selective	*12 **12 *55
Caller ID Number/Name Toggle Button <sup>3</sup>	*763
Camp-On	*57
Conference	*772

**Table 4-1. Features and Programming Codes — *Continued***

Feature	Programming Code
Coverage Receiver buttons <i>Group</i> <i>Primary</i> <i>Secondary</i> Sender buttons Cover inside and outside calls Cover outside calls only Coverage Off Coverage VMS Off	 *42 + ext. no. *40 + ext. no. *41 + ext. no.  *48 **48 *49  *46
Data Status	*83 + ext. no.
Direct Voice Mail	*56
Directories Extension Directory Personal Directory System Directory	 (display only) (display only) (sys. prog.)
Do Not Disturb <sup>4</sup>	*47
Drop MLX, ETR, and MLS telephones <i>ETR Drop button</i> Multiline 4400-Series telephones <i>4400-Series Drop button</i>	 *773 *777 *771 *787
Extension Status Direct-Line Console <sup>1</sup> <i>Status Off</i> <i>Status 1</i> <i>Status 2</i> Telephones (rooms or agents) <i>Status 1</i> <i>Status 2</i>	 *760 *761 *762  *45 *44
Feature Button	*20
Forward Activate <i>Forward (inside)</i> <i>Remote Call Forward (outside)</i> <i>Centrex Transfer via Remote Call Forward</i>	 *33 *33 *33 + dial-out code or * + optional pauses + tel. no. + #

**Table 4-1. Features and Programming Codes — *Continued***

Feature	Programming Code
Group Calling In-Queue Alarm button Calling Group supervisor <sup>1</sup> <i>Member available</i> <i>Member unavailable</i> Calling Group members <i>Sign in (Available)</i>	*22 + Calling Group ext. no.  *762 *760  *44
Group Page Auto Dial Button	*22 + Paging Group ext. no.
Headset Options Auto Answer Hang Up <sup>2</sup> Mute (Headset/Handset) Status	*780 *781 *783 *782
Inspect Button (Multiline 4400-Series telephones only)	*778
Intercom buttons Assign buttons <sup>2</sup> <i>ICOM (Default Ring)</i> <i>ICOM Originate Only</i> Change button type <i>Ring</i> <i>Voice</i>	*16 *18  **19 *19
Messaging Leave Message Message LED Off (for non-display telephones) Message operation mode (for 4406D+,ETR, and MLS display telephones) <sup>5</sup> Posted Message Send/Remove Msg <sup>1</sup> Receiving Messages <i>Delete Message</i> <sup>6</sup> <i>Delete Message (for 4400/4400D, single-line telephones)</i> <i>Next Message</i> <sup>6</sup> <i>Return Call</i> <sup>6</sup> <i>Scroll</i> <sup>6</sup>	*25 *54  *54  *751 *38  *26 *25 within 15 seconds of entering ext. no.  *28 *27 *29
Night Service <sup>1</sup>	*39
Notify Send Receive	*757 + ext. no. *758 + ext. no.

**Table 4-1. Features and Programming Codes — *Continued***

Feature	Programming Code
Park	*86
Park Zone Auto Dial <sup>1</sup>	*22 + Park Zone
Personal Speed Dial	# + (01–24) +*21 + tel no. +##
Personalized Ringing	*32 + ring (1–8)
Pickup	
General use	*9
Specific extension	*9 + ext. no.
Specific line	*9 + line no.
Group	*88
Privacy On	*31
Recall	*775
Redial (4400, ETR, and MLS telephones only) <sup>7</sup>	*84
Reminder Service	
Set <sup>8</sup>	*81
Cancel	**81
Missed <sup>1</sup>	*752
Ringing/Idle Line Preference	
On	*343
Off	*344
Ringing Options	
Individual lines	
<i>Immediate ring</i>	*37
<i>Delay ring</i>	*36
<i>No ring</i>	*35
All lines	
<i>Immediate ring</i>	*347
<i>Delay ring</i>	*346
<i>No ring</i>	*345
Abbreviated ring	
On	*341
Off	*342
Send Ring (Shared SA)	
On	*15
Off	**15
Saved Number Dial	*85
Send/Remove Message <sup>1</sup>	*38
Service Observing <sup>2</sup>	*59 + ext. no.
Signal (manual)	*23 + ext. no.

**Table 4-1. Features and Programming Codes — *Continued***

Feature	Programming Code
System Access buttons	
Assign buttons <sup>2</sup>	
SA (Default Ring)	*16
SA Originate Only	*18
Shared SA	*17 + primary ext. no.
Change type (SA or Shared SA)	
Ring	**19
Voice	*19
System Speed Dial	*24 + code (600–729)
Transfer	*774
Voice Announce	
On	*10
Off	**10
VA on Idle Only (MLX telephones only)	*130

- 1 System operator feature only.
- 2 Centralized telephone programming only.
- 3 You cannot program a button on a 4400D telephone, but you can use the feature by dialing #763.
- 4 Does not work for 4400/4400D telephones.
- 5 For the 4406D+, MLS, and ETR display telephone user, pressing \*54 enters/exits Message operation mode. MLS telephones return to normal call handling after 15 seconds if the user has no messages. If MLS telephone users have messages, they must delete them or use the feature code or programmed button to exit Message operation mode. 4400-Series and ETR telephone users must use the feature code or programmed button to exit Message operation mode whether or not they have messages.
- 6 Display telephones only. Programming codes are used for ETR and MLS telephones. Feature codes are used for 4400, 4400D, ETR, and MLS telephones.
- 7 The 4400-Series telephones (excluding the 4400 telephone) have a fixed Redial button.
- 8 U.S. English only: time is 12-hour (0100-1259) + 2 (A) or 7 (P); Canadian French and Latin American Spanish: time is 24-hour (000-2359).

## Using the List Feature Menu

You can use the List Feature menu to select a feature, instead of using a programming code. When you select ListFeature (or press 0), the first screen of features appears as shown below.

Select a Feature:	>
Extension Program	xxxx
Find Feature	Barge In
AccountCode	Call Waiting
Auth Code	Camp On
Auto Dial	Cback Auto
AutoLineSel	Cback Sel

xxxxx = previously entered extension

There are additional feature option screens. Press  (4424LD+ telephone) or More (MLX-20L telephone) to move through the screens. Press the button or click the function key that corresponds to your selection. You can also use the FindFeature option to display alphabetized lists of features that begin with the letter or letters you select.

The Find Feature screen is shown below.

Choose Starting Letter	
Press HOME to Exit	
ABC	PQRS
DEF	TUV
GHI	WXYZ
JKL	
MNO	

Press the button or click the function key that corresponds to the first letter of the feature you want. The resulting screen displays all of the features that begin with the selected letters. If the list of features for the letters you select does not fill a complete screen, the screen display continues with the next alphabetic feature. Press Exit (4424LD+ telephone) or Home (MLX-20L telephone) to return to the Home screen.

## Copy Extension

The System Manager uses the copy extension feature to copy an extension's programmed buttons (with some exceptions) to one or more extensions. The features are individually programmed on an extension, creating a template that can then be copied to other extensions in the system.

Only extensions of the same type can be copied to one another (that is, 4400-Series to 4400-Series, and MLX to MLX) since the two extension types have different button layouts. For a system that has both 4400-Series and MLX telephone types, you will need two templates: one for 4400-Series and one for MLX.

An MFM can be copied to or from another MFM. A DLC can be copied only to another DLC. Single-line telephones and QCCs cannot be copied to or from.

---

## Features That Can Be Copied

[Table 4-2](#) lists the features that can be copied to another extension. Features that can be copied for DLC operator extensions are listed in [Table 4-3 on page 4-15](#).

**Table 4-2. Features That Can Be Copied: All Telephones**

Feature	Multiline 4400-Series Telephones	MLX Telephones	MLS Telephones	ETR Telephones
Account Code Entry	✓	✓	✓	✓
Authorization Code	✓	✓	✓	✓
Auto Answer All	✓			
Auto Answer Intercom	✓			
Auto Dial Inside	✓	✓	✓	✓
Auto Dial Outside <sup>1</sup>	✓	✓	✓	✓
Barge-In	✓	✓	✓	✓
Callback-Selective	✓	✓	✓	✓
Camp-On	✓	✓	✓	✓
Conference <sup>2</sup>	✓	✓	✓	✓
Coverage: Group	✓	✓	✓	✓
Coverage: Primary	✓	✓	✓	✓
Coverage Off	✓	✓	✓	✓
Coverage VMS Off	✓	✓	✓	✓
Data Status	✓	✓	✓	✓

**Table 4-2. Features That Can Be Copied: All Telephones — *Continued***

<b>Feature</b>	<b>Multiline 4400-Series Telephones</b>	<b>MLX Telephones</b>	<b>MLS Telephones</b>	<b>ETR Telephones</b>
Delete Message	✓		✓	✓
Direct Voice Mail	✓	✓	✓	✓
Do Not Disturb	✓	✓	✓	✓
Drop	✓	✓	✓	✓
ETR Drop			✓	✓
Extension Status 2 (ES2) (Non-operator)	✓	✓	✓	✓
Extension Status 1 (ES1) (Non-operator)	✓	✓	✓	✓
Feature Button	✓			
Forward	✓	4	✓	✓
Group Calling	✓	✓	✓	✓
Group Page	✓	✓	✓	✓
Headset Auto Answer		✓		
Headset Hang Up		✓		
Headset Status		✓		
Headset/Handset Mute		✓		
Redial <sup>1</sup>	✓	✓	✓	✓
Leave Message	✓	✓	✓	✓
Message Light Off	✓	✓	✓	✓
Next Message	✓		✓	✓
Notify			✓	✓
Park	✓	✓	✓	✓
Personal Speed Dial			✓	✓
Pickup: Group	✓	✓	✓	✓
Pickup: General	✓	✓	✓	✓
Pickup: Extension	✓	✓	✓	✓
Pickup: Line	✓	✓	✓	✓
Posted Message	✓	✓	✓	✓
Privacy	✓	✓	✓	✓
Recall	✓	✓	✓	✓

**Table 4-2. Features That Can Be Copied: All Telephones — *Continued***

Feature	Multiline 4400-Series Telephones	MLX Telephones	MLS Telephones	ETR Telephones
Reminder Service: Set	✓	✓	✓	✓
Reminder Service: Cancel	✓	✓	✓	✓
Return Call	✓		✓	✓
SA Shared <sup>3</sup>	✓	✓	✓	✓
SA/ICOM Ring <sup>3</sup>	✓	✓	✓	✓
SA/ICOM Voice <sup>3</sup>	✓	✓	✓	✓
SA/ICOM Originate Only <sup>3</sup>	✓	✓	✓	✓
Saved Number Dial <sup>1</sup>	✓	✓	✓	✓
Scroll	✓	✓	✓	
More				✓
Secondary Coverage			✓	✓
Signaling	✓	4	4	4
System Speed Dial	✓	4	4	4
Transfer <sup>2</sup>	✓	4	4	4
Account Code Entry	✓	4	4	4

1 Number is **not** copied.

2 Behind Switch mode only.

3 Ringing options (No Ring, Delay Ring, and Immediate Ring) are copied with the button.

Table 4-3 shows the operator features than can be copied for operator consoles. QCC features cannot be copied.

**Table 4-3. Features That Can Be Copied: Direct-Line Consoles Only**

Feature	4400-Series Direct Line Console (DLC)	MLX Direct Line Console (DLC)
Alarm	✓	✓
Extension Status Off	✓	✓
Extension Status 1	✓	✓
Extension Status 2	✓	✓
Missed Reminder	✓	✓
Night Service	✓	✓
Operator Park	✓	✓
Send/Remove Message	✓	✓

Use the procedure below to copy programming from one extension to another.

**Console Display/Instructions**

**Additional Information**

**PC**

1. Select Copy Extension.

Centralized Programming:  
 Make a selection  
 Program Ext  
**Copy Ext**

Back                      Enter

F2

2. Specify the number of the extension from which you want to copy programming features.

Extension Program Copy:  
 Enter extension to copy  
 from

Backspace  
 Back                      Enter

**SP: "Entering an Extension"**



3. Save your entry.

Select Enter.

F10

**Console Display/Instructions**

**Additional Information**

**PC**

4. Specify the number of the extension to which you want to copy programming features.

Copy extension xxxx to: Enter extension   Backspace Back                    Enter
--

xxxxx = extension entered in Step 2

**SP:** "Entering an Extension"



5. Continue to copy line assignments from the copy extension shown to another extension or go to Step 7.

Select `Enter`

**F10**

or `Next` .

**F9**

Use `Enter` to continue to copy line assignments from the extension currently displayed on Line 1 to additional extensions.

Use `Next` if the extension numbers to be copied to are sequential. Select `Enter` after completing programming.

**F10**

Go to Step 4 to continue programming. The extension to be copied from will be displayed on Line 1.

6. Return to Centralized Programming menu.

Select `Back` .

**F5**

## Feature Quick Reference

The following feature descriptions provide a quick reference for using centralized telephone programming.

---

### Account Code Entry

Assign a button for account code entry.

#### Summary: Account Code Entry

<b>Telephones</b>	Multiline 4400-Series (except QCC), MLX (except QCC), MLS, and ETR telephones
<b>Mode</b>	All (except 4400, 4400D, and single-line telephones in Behind Switch mode)
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*82
<b>Display Label</b>	AccountCode

---

### Alarm

Assign a button to alert the operator to system problems.

#### Summary: Alarm

<b>Telephones</b>	DLC operator only
<b>Mode</b>	All
<b>Programmable by</b>	DLC operator and System Manager
<b>Programming Code</b>	*759
<b>Display Label</b>	Alarm

---

## Authorization Code

Assign a button for authorization code entry.

### Summary: Authorization Code

<b>Telephones</b>	All (except QCC)
<b>Mode</b>	All (except 4400, 4400D, and single-line telephones in Behind Switch mode)
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*80
<b>Display Label</b>	Auth Code

---

## Auto Dial

Assign buttons for one-touch dialing of frequently called inside or outside numbers.

### Summary: Auto Dial Inside and Outside

<b>Telephones</b>	Multiline 4400-Series (except QCC), MLX (except QCC), MLS, and ETR telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	Inside: *22 + ext. no. + Enter Outside: *21 + telephone no. + Enter
<b>Display Label</b>	Auto Dial Inside/Outside

---

## Automatic Line Selection

Select the order in which the system makes outside lines available to the user.

**NOTE** ► Your current Automatic Line Selection table is deleted immediately after you select this feature by either selecting `AutoLineSel` from the display or pressing \*14. There is no way to cancel the operation. You must program new selections and then press \*\*14 to end the operation.

### Summary: Automatic Line Selection

<b>Telephones</b>	Multiline 4400-Series, MLX, MLS, and ETR telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	Enter: *14 Exit: **14
<b>Display Label</b>	AutoLineSel

---

### Barge-In

Assign a button to allow an operator to interrupt a user's call in an emergency.

### Summary: Barge-In

<b>Telephones</b>	All except 4400, 4400D, and single-line telephones or QCC
<b>Mode</b>	All
<b>Programmable by</b>	System Manager only
<b>Programming Code</b>	*58
<b>Display Label</b>	Barge In

---

### Callback

With Automatic Callback turned on, the system retries calls to busy extensions or busy trunk pools. Assign a Selective Callback button to allow the system to retry calls to busy extensions or busy trunk pools on a call-by-call basis.

**NOTE** ► To use the Callback feature on loop-start lines/trunks, the loop-start line/trunk must be programmed for reliable disconnect. [See "Disconnect Signaling Reliability" on page 3-27.](#)

### Summary: Automatic Callback

<b>Telephones</b>	All
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	On: *12 Off: **12
<b>Display Label</b>	Cback Auto On/Off

### Summary: Selective Callback

<b>Telephones</b>	All
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*55
<b>Display Label</b>	Cback Sel

---

### Caller Number and Name on Caller ID

This feature allows the display of caller number or caller name when Caller ID is subscribed to through your local telephone company. Once programmed, the user can toggle between the display of number or name.

**NOTE** ► The calling party name can be up to 15 characters on 4400-Series, MLX, ETR, and MLS display telephones.

### Summary: Caller Number and Name

<b>Telephones</b>	4400-Series, MLX, MLS, and ETR display telephones (Only Caller Number is displayed on the QCC; Caller Name is not displayed)
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*763
<b>Display Label</b>	Calling Party Name or Calling Party Number

---

### Call Waiting

With Call Waiting turned on, a user on a call will know that another call is waiting. The person at the extension hears one beep for a waiting inside call, two for an outside call.

### Summary: Call Waiting

<b>Telephones</b>	All
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	On: *11 Off: **11
<b>Display Label</b>	CallWaiting On/Off

---

### Camp-On

Assign a button to allow a user to complete a transfer to a busy extension.

### Summary: Camp-On

<b>Telephones</b>	Multiline 4400-Series (except QCC), MLX (except QCC), MLS, and ETR telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*57
<b>Display Label</b>	Camp On

---

### Conference

Assign a button to access the host system conference feature.

### Summary: Conference

<b>Telephones</b>	Multiline 400-Series (except QCC), MLX (except QCC), MLS, and ETR telephones
<b>Mode</b>	Behind Switch
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*772
<b>Display Label</b>	Conference

---

## Coverage

Assign a button to establish Coverage; senders' calls are covered by receivers.

### Summary: Receiver Buttons—Primary, Secondary, Group

This procedure assigns primary, secondary, or group coverage receivers.

<b>Telephones</b>	All (except QCC)
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	Primary: *40 + ext. no. + Enter Secondary: *41 + ext. no. + Enter Group: *42 + group no. + Enter
<b>Display Label</b>	Coverage Primary/Secondary/Group

### Summary: Coverage Inside Off/On

This procedure allows or prevents Coverage of inside calls.

<b>Telephones</b>	Multiline 4400-Series (except QCC), MLX (except QCC), MLS, and ETR telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	In/Outside Calls: *48 Outside Calls Only: **48
<b>Display Label</b>	CoverInside, On/Off

### Summary: Sender Buttons, Coverage Off

This procedure turns off all Coverage.

<b>Telephones</b>	Multiline 4400-Series (except QCC), MLX (except QCC), MLS, and ETR telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*49
<b>Display Label</b>	Coverage Off

## Summary: Coverage VMS Off

This procedure prevents outside calls from being sent to voice mail.

<b>Telephones</b>	Multiline 4400-Series (except QCC), MLX (except QCC), MLS, and ETR telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming code</b>	*46
<b>Display Label</b>	Coverage VMS Off

---

## Data Status

Assign a button to indicate when a data call is in progress.

## Summary: Data Status

<b>Telephones</b>	All (except QCC)
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*83 + ext. no. + Enter
<b>Display Label</b>	Data Status

---

## Direct Voice Mail

This feature allows one user to call another user's voice mail, without ringing that user's telephone.

## Summary: Direct Voice Mail

<b>Telephones</b>	All
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*56
<b>Display Label</b>	Direct VoiceMail

## Do Not Disturb

Assign a button to prevent calls from ringing at the telephone.

### Summary: Do Not Disturb

<b>Telephones</b>	Multiline 4400-Series (except QCC), MLX (except QCC), MLS, and ETR telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*47
<b>Display Label</b>	DoNotDisturb

## Drop

Drop is a function that allows a conference participant to eliminate a party from a conference.

### Summary: Drop

<b>Telephones</b>	Multiline 4400-Series (except QCC), MLX (except QCC), MLS, and ETR telephones.
	In Hybrid/PBX and Key modes, MLX telephones have a fixed Drop button, while multiline 4400-Series, MLS, and ETR telephones do not. On the multiline 4400-Series, MLS, and ETR telephones, an ETR Drop button can be programmed with program code *777.
	In Behind Switch mode for multiline 4400-Series, MLX, MLS, and ETR telephones, rather than using a fixed drop button, use program code *773 to program a drop button on the telephone.
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*773 (for multiline 4400-Series, MLX, MLS, and ETR telephones in Behind Switch mode)  *777 (to program a Drop button for MLS and ETR telephones) *787 (to program a Drop button for 4400-Series telephones)
<b>Display Label</b>	Drop

## Extension Status

Assign a button to allow system operators or supervisors to monitor the status of extensions and restrict use of telephones (hotel configuration) or change group members' availability to take calls (Group Calling/CMS configuration).

### Summary: DLC Extension Status

<b>Telephones</b>	DLCs
<b>Mode</b>	All
<b>Programmable by</b>	System Manager only
<b>Programming Code</b>	Off: *760 ES1: *761 ES2: *762
<b>Display Label</b>	OperatorES, ESOff/ES1/ES2

### Summary: Telephone Extension Status 1 and 2

<b>Telephones</b>	All
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	ES1: *45 ES2: *44
<b>Display Label</b>	ES Status, ES1/ES2

## Feature Button

Assign a button to press in conjunction with features that require dial codes.

### Summary: Forward

<b>Telephones</b>	Multiline 4400-Series telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*20
<b>Display Label</b>	FeatureBtn

---

## Forward

Assign a button to activate the forwarding of a user's calls to another extension or to an outside number.

### Summary: Forward

<b>Telephones</b>	Multiline 4400-Series (except QCC), MLX (except QCC), MLS, ETR, and single-line telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*33
<b>Display Label</b>	Forward

---

## Group Calling

Assign buttons to allow the Calling Group supervisor or group members to monitor the number of calls in the queue.

### Summary: Calls-In-Queue Alarm Button

<b>Telephones</b>	Multiline 4400-Series, MLX, ETR, and MLS telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*22 + Calling Group ext. no. + Enter
<b>Display Label</b>	Group Call

---

## Calling Group Supervisor

Assign buttons to allow the Calling Group supervisor to monitor the number of calls in the queue or to change Calling Group members' availability to take calls.

### Summary: Calling Group Supervisor

<b>Telephones</b>	4412D+, 4424D+, 4424LD+, MLX-28D, and MLX-20L
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	ES2, Available: *762 ES Off, Unavailable: *760
<b>Display Label</b>	OperatorES, ES2/ES Off

### Summary: Calling Group Members

<b>Telephones</b>	All
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	Sign-in, Available: *44 After-Call Work State, CMS only: *45
<b>Display Label</b>	ES Status, ES2/ES1

---

## Group Page Auto Dial Button

Assign a button to allow the user to broadcast an announcement to individuals or groups using a speakerphone or loudspeaker.

### Summary: Group Page Auto Dial button

<b>Telephones</b>	Multiline 4400-Series and MLX telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*22 + Paging Group ext. no. + Enter
<b>Display Label</b>	Group Page

---

## Headset

Program headset buttons on most 4400-Series telephones and all MLX telephones.

### Summary: Headset Auto Answer

Assign a button to automatically answer a ringing call.

<b>Telephones</b>	Multiline 4400-Series, and all MLX telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*780
<b>Display Label</b>	Hdset Auto Answer

### Summary: Headset Hang Up

Assign a button to disconnect a call.

<b>Telephones</b>	Multiline 4400-Series, and all MLX telephones
<b>Mode</b>	All
<b>Programmable by</b>	System Manager only
<b>Programming Code</b>	*781
<b>Display Label</b>	Hdset Hang Up

### Summary: Headset Mute

Assign a button to turn microphone operation on or off for both headset and handset.

<b>Telephones</b>	Multiline 4400-Series, and all MLX telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*783
<b>Display Label</b>	Hdset Mute

## Summary: Headset Status

Assign a button to activate headset operation.

<b>Telephones</b>	Multiline 4400-Series, and all MLX telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*782
<b>Display Label</b>	Hdset Status

---

## Redial

Assign a button to redial the last number dialed.

## Summary: Redial

<b>Telephones</b>	All
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*84
<b>Display Label</b>	LastNumDial

---

## Messaging

Assign a button to allow users to send, receive, and post messages.

## Summary: Leave Message After Calling

<b>Telephones</b>	4400-Series, MLX, MLS, and ETR telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*25
<b>Display Label</b>	Leave Msg

### Summary: Leave Message–Message LED Off

<b>Telephones</b>	Multiline 4400-Series, MLX, MLS, and ETR telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*54
<b>Display Label</b>	none

### Summary: Posted Message

<b>Telephones</b>	4400-Series, MLX, MLS, and ETR telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*751
<b>Display Label</b>	Posted Msg

### Summary: Send/Remove Message

<b>Telephones</b>	DLC operator only
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*38
<b>Display Label</b>	Send/RmvMsg

### Summary: Receiving Messages–Delete

<b>Telephones</b>	4406D+, MLS, and ETR telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*26
<b>Display Label</b>	Messages Delete Msg

### Summary: Receiving Messages–Next

<b>Telephones</b>	4406D+, MLS, and ETR telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*28
<b>Display Label</b>	Messages Next Msg

### Summary: Receiving Messages–Return Call

<b>Telephones</b>	4406D+, MLS, and ETR telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*27
<b>Display Label</b>	Return Call

---

### Night Service

Assign a button to activate telephone operation after normal business hours.

### Summary: Night Service

<b>Telephones</b>	DLC operator only (4424D+, 4424LD+, MLX-28D, or MLX-20L telephones)
<b>Mode</b>	All
<b>Programmable by</b>	Operators and System Manager
<b>Programming Code</b>	*39
<b>Display Label</b>	Night Srvc

---

### Notify

Assign buttons to allow users to send a visual signal to another extension without making a call to that extension.

### Summary: Notify–Send and Receive

<b>Telephones</b>	Multiline 4400-Series, MLX, MLS, and ETR telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	Send: *757 + ext. no. + Enter Receive: *758 + ext. no. + Enter
<b>Display Label</b>	Notify Send/Receive

---

## Park

Assign a button to hold a call and allow the call to be picked up at any telephone in the system.

### Summary: Park

<b>Telephones</b>	All (except single-line telephones in Behind Switch mode)
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*86
<b>Display Label</b>	Park

---

## Park Zone Auto Dial

Assign a button to allow DLC operators to hold a call at a specified extension or Park Zone.

### Summary: Park Zone Auto Dial

<b>Telephones</b>	DLC operator only
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*22 + Park Zone + Enter
<b>Display Label</b>	Park Zone

---

## Personal Speed Dial

Program codes that allow users to dial outside numbers by dialing a 2-digit code.

### Summary: Personal Speed Dial

<b>Telephones</b>	Multiline telephones with 10 or fewer buttons, 4400, 4400D+, and single-line telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	# + 2-digit code (01–24) + *21 + tel. no. + # + Enter
<b>Display Label</b>	PerSpeedD1

---

## Pickup

Assign buttons to allow users to answer calls that are ringing, parked, or on hold anywhere in the system.

### Summary: Pickup—General Use, Specific Extension, Specific Line

<b>Telephones</b>	All
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	General: *9 Specific line or ext.: *9 + line no./ext. no. + Enter Group: *88
<b>Display Label</b>	General Use, Specific Extension, Specific Line: Pickup General/Extension/Line  Group: Pickup Group

---

## Privacy

Assign a button to prevent other users from connecting to a call on this telephone.

### Summary: Privacy

<b>Telephones</b>	All
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*31
<b>Display Label</b>	Privacy

---

## Recall

Assign a button to send a switchhook flash.

### Summary: Recall

<b>Telephones</b>	Multiline 4400-Series, MLX, MLS, and ETR telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*775
<b>Display Label</b>	Recall

---

## Reminder Service

Assign buttons to allow the system to make calls automatically at preset times and cancel reminder service calls and operator reminder calls that were not answered.

### Summary: Set, Cancel, or Missed Reminder Service

<b>Telephones</b>	All
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	Set: *81 Cancel: **81 Missed: *752
<b>Display Label</b>	Reminder Set/Cancel/Missed

---

## Ringling/Idle Line Preference

Turn on Ringling/Idle Line Preference.

### Summary: Ringling and Idle Line Preference

<b>Telephones</b>	4400-Series, MLX, MLS, and ETR telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	On: *343 Off: *344
<b>Display Label</b>	Line Prefer, On/Off

---

## Ringling Options

### Summary: Personalized Ringling

Individualize the telephone ring.

<b>Telephones</b>	Multiline 4400-Series, MLX, MLS, and ETR telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*32 + ring pattern (1-8)
<b>Display Label</b>	Personal Ring Pattern #n

## Summary: Ring Timing Options

Establish whether and how individual lines, or all lines, ring at a telephone.

<b>Telephones</b>	4400-Series, MLX, MLS, and ETR telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	Individual Lines: Immediate: *37 Delay: *36 No Ring: *35  All Lines: Immediate: *347 Delay: *346 No Ring: *345
<b>Display Label</b>	Individual Lines: Ring Options One Line Immed/Delay/No Ring  All Lines: Ring Options All Lines Immed/Delay/No Ring

## Summary: Abbreviated Ringing Options

Turn abbreviated ringing on or off.

<b>Telephones</b>	Multiline 4400-Series, MLX, MLS, and ETR telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	On: *341 Off: *342
<b>Display Label</b>	Ring Options Abbreviated On/Off

## Summary: Send Ringing Options

Override Delay Ring on an extension with Shared SA buttons.

<b>Telephones</b>	All
<b>Mode</b>	Hybrid/PBX
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	On: *15 Off: **15
<b>Display Label</b>	Shared SA Ring On/Off

---

## Saved Number Dial

Assign a button to selectively save the last number dialed and call that number again without manually redialing.

### Summary: Saved Number Dial

<b>Telephones</b>	4400-Series, MLX, MLS, and ETR telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*85
<b>Display Label</b>	SaveNumDial

---

## Send/Remove Message

Assign a button to allow the system operator to turn the Message LED on or off for any telephone connected to the system.

### Summary: Send/Remove Message

<b>Telephones</b>	DLC operator only
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*38
<b>Display Label</b>	Send/RmvMsg

---

## Service Observing

Assign a button to allow a Service Observer to monitor calls at a specified station.

**NOTE** ► Service Observing may be subject to federal, state, or local laws, rules, or regulations or require the consent of one or both of the call parties. You must check in your jurisdiction and comply with all applicable laws, rules, and regulations before using this feature. Failure to comply may result in severe penalties.

## Summary: Service Observing

<b>Telephones</b>	Multiline 4400-Series telephones (except QCC); MLX telephones (except QCC or CTI link)
<b>Mode</b>	All
<b>Programmable by</b>	System Manager only
<b>Programming Code</b>	*59 + ext. no.
<b>Display Label</b>	Service Observing: nnnn

---

## Signaling

Assign a button to allow a user to send an audible signal to another extension without making a call to that extension.

## Summary: Signaling (manual)

<b>Telephones</b>	Multiline 4400-Series, MLX, MLS, and ETR telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*23 + ext. no. + Enter
<b>Display Label</b>	Signal

---

## System Access/Intercom Buttons

Assign Intercom or System Access buttons on telephones.

## Summary: Assign System Access/Intercom Buttons

<b>Telephones</b>	All
<b>Mode</b>	Intercom buttons Key, Behind Switch System Access buttons Hybrid/PBX
<b>Programmable by</b>	System Manager only

<b>Programming Code</b>	Intercom buttons: Assign Intercom Ring button: *16 Assign Intercom Originate Only button: *18  System Access buttons: Assign Ring button: *16 Assign Originate Only button: *18
<b>Display Label</b>	SysAccess/SysAcc-00

**Summary: Assign Shared System Access Buttons**

<b>Telephones</b>	All
<b>Mode</b>	Hybrid/PBX
<b>Programmable by</b>	System Manager only
<b>Programming Code</b>	*17 + primary ext. no.
<b>Display Label</b>	ShareSysAcc

**Summary: Change Type of System Access Button**

<b>Telephones</b>	All
<b>Mode</b>	Intercom buttons: Key, Behind Switch  System Access buttons: Hybrid/PBX
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	Ring: **19 Voice: *19
<b>Display Label</b>	Voice Annce , Place Ring/Voice

**System Speed Dial**

Assign a button to dial any 3-digit speed dial code.

**Summary: System Speed Dial**

<b>Telephones</b>	All
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*24 + 3-digit code (600–729) + Enter
<b>Display Label</b>	SysSpeedD1

---

## Transfer

Assign a button to access the host system Transfer feature.

### Summary: Transfer

<b>Telephones</b>	Multiline 4400-Series, MLX, MLS, and ETR telephones
<b>Mode</b>	Behind Switch
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	*774
<b>Display Label</b>	Transfer

---

## Voice Announce

Allows users to prevent inside calls on their speakerphone, receive inside calls on their speakerphone whether they are busy on a call or not, or—for MLX telephone users only—receive inside calls on their speakerphone only when their telephone is idle and they are not busy on a call.

### Summary: Voice Announce

<b>Telephones</b>	Multiline 4400-Series, MLX, MLS, and ETR telephones
<b>Mode</b>	All
<b>Programmable by</b>	Users and System Manager
<b>Programming Code</b>	On: *10 Off: **10 VA on Idle Only: *999130 (MLX telephones only)
<b>Display Label</b>	Voice Annce Receive On/Off/ VA on Idle Only

# Customer Support Information



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## Support Telephone Number

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

**Outside the USA**, if you need assistance when installing, programming, or using your system, contact your Lucent Technologies representative.

## Federal Communications Commission (FCC) Electromagnetic Interference Information

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

## Canadian Department of Communications (DOC) Interference Information

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

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

## FCC Notification and Repair Information

This equipment is registered with the FCC in accordance with Part 68 of its rules. In compliance with those rules, you are advised of the following:

- **Means of Connection.** Connection of this equipment to the telephone network shall be through a standard network interface jack, USOC RJ11C, RJ14C, or RJ21X. Connection to E&M tie trunks requires a USOC RJ2GX. Connection to off-premises extensions requires a USOC RJ11C or RJ14C. Connection to 1.544-mbps digital facilities must be through a USOC RJ48C or RJ48X. Connection to DID requires a USOC RJ11C, RJ14C, or RJ21X. These USOCs must be ordered from your telephone company. Connection to 56-kbps or 64-kbps facilities requires a USOC RJ11C, RJ14C, or RJ21.
- **Party Lines and Coin Telephones.** This equipment may not be used with party lines or coin telephone lines.
- **Notification to the Telephone Companies.** Before connecting this equipment, you or your equipment supplier must notify your local telephone company's business office of the following:
  - The telephone number or numbers you will be using with this equipment.
    - The appropriate registration number and ringer equivalence number (REN), which can be found on the back or bottom of the control unit, as follows:
    - If this equipment is to be used as a Key system, report the number AS593M-72914-KF-E.
    - If the system provides both manual and automatic selection of incoming/outgoing access to the network, report the number AS593M-72682-MF-E.
    - If there are no directly terminated trunks, or if the only directly terminated facilities are Personal Lines, report the number AS593M-65646-PF-E.
    - The REN (Ringer Equivalence Number) for all three systems is 1.5A.
  - The facility interface code (FIC) and service order code (SOC): For tie line connection, the FIC is TL31M and the SOC is 9.0F.
    - For connection to off-premises stations, the FIC is OL13C and the SOC is 9.0F.
    - For equipment to be connected to DID facilities, the FIC is 02RV2-T and the SOC is AS.2.
    - For equipment to be connected to 1.544-mbps digital service, the SOC is 6.0P and the FIC is:
      - 04DU9-BN for D4 framing format with AMI zero code suppression.
      - 04DU9-DN for D4 framing format with bipolar 8 zero code suppression (B8ZS).04DU9-IKN for extended superframe format (ESF) with AMI zero code suppression.
      - 04DU9-ISN with ESF and B8ZS.
    - For equipment to be connected to 56-kbps or 64-kbps digital facilities, the FIC is 02B1Q.
  - The quantities and USOC numbers of the jacks required.
  - For each jack, the sequence in which lines are to be connected, the line types, the FIC, and the REN by position, when applicable.

- **Ringer Equivalence Number (REN).** The REN is used to determine the number of devices that may be connected to the telephone line. Excessive RENs on the line may result in the devices not ringing in response to an incoming call. In most, but not all, areas, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the local telephone company to determine the maximum REN for the calling area.
- **Disconnection.** You must also notify your local telephone company if and when this equipment is permanently disconnected from the line or lines.

## Installation and Operational Procedures

The guides for your system contain information about installation and operational procedures.

- **Repair Instructions.** If you experience trouble because your equipment is malfunctioning, the FCC requires that the equipment not be used and that it be disconnected from the network until the problem has been corrected. Repairs to this equipment can be made only by the manufacturers, their authorized agents, or others who may be authorized by the FCC. In the event repairs are needed on this equipment, contact your authorized Lucent Technologies dealer or, **in the USA only**, contact the National Service Assistance Center (NSAC) at 1 800 628-2888.
- **Rights of the Local Telephone Company.** If this equipment causes harm to the telephone network, the local telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But if advance notice is not practical, you will be notified as soon as possible. You will also be informed of your right to file a complaint with the FCC.
- **Changes at Local Telephone Company.** Your local telephone company may make changes in its facilities, equipment, operations, or procedures that affect the proper functioning of this equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.
- **Hearing Aid Compatibility.** The custom telephone sets for this system are compatible with inductively coupled hearing aids as prescribed by the FCC.
- **Automatic Dialers.** WHEN PROGRAMMING EMERGENCY NUMBERS AND/OR MAKING TEST CALLS TO EMERGENCY NUMBERS:
  - Remain on the line and briefly explain to the dispatcher the reason for the call.
  - Perform such activities in off-peak hours, such as early morning or late evening.
- **Direct Inward Dialing (DID).** This equipment returns answer supervision signals to the Public Switched Telephone Network when:
  - Answered by the called station.
  - Answered by the attendant.
  - Routed to a recorded announcement that can be administered by the customer premises equipment user.
  - Routed to a dial prompt.

This equipment returns answer supervision on all DID calls forwarded back to the Public Switched Telephone Network. Permissible exceptions are when:

- A call is unanswered
- A busy tone is received
- A reorder tone is received

Allowing this equipment to be operated in such a manner as not to provide proper answer supervision signaling is in violation of Part 68 rules.

**New Network Area and Exchange Codes.** The MERLIN MAGIX Integrated System software does not restrict access to any new area codes or exchange codes established by a local telephone company. If the user has established Toll Restrictions on the system that could restrict access, then the user should check the lists of allowed and disallowed dial codes and modify them as needed.

**Equal Access Codes.** This equipment is capable of providing users access to interstate providers of operator services through the use of access codes. Modifications of this equipment by call aggregators to block access dialing codes is a violation of the Telephone Operator Consumers Act of 1990.

## DOC Notification and Repair Information

**NOTICE:** The Canadian Department of Communications (DOC) label identifies certified equipment. This certification means that the equipment meets certain protective, operational, and safety requirements of the telecommunications network. The DOC does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to connect it to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring for single-line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or any equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure, for their own protection, that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected. This precaution may be particularly important in rural areas.

### CAUTION:

*Users should not attempt to make such connections themselves, but should contact the appropriate electrical inspection authority or electrician.*

**A** Customer Support Information

*Renseignements sur la Notification du Ministère des Communications du Canada et la*

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To prevent overloading, the Load Number (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop used by the device. The termination on a loop may consist of any combination of devices subject only to the requirement that the total of the Load Numbers of all the devices does not exceed 100.

**DOC Certification No.:** 230 4095A

**CSA Certification No.:** LR 56260

**Load No.:** 6

## **Renseignements sur la Notification du Ministère des Communications du Canada et la Réparation**

**AVIS:** L'étiquette du ministère des Communications du Canada identifie le matériel homologué. Cette étiquette certifie que le matériel est conforme à certaines normes de protection, d'exploitation et de sécurité des réseaux de télécommunications. Le Ministère n'assure toutefois pas que le matériel fonctionnera à la satisfaction de l'utilisateur.

Avant d'installer ce matériel, l'utilisateur doit s'assurer qu'il est permis de le raccorder aux installations de l'entreprise locale de télécommunication. Le matériel doit également être installé en suivant une méthode acceptée de raccordement. Dans certains cas, les fils intérieurs de l'entreprise utilisés pour un service individuel à ligne unique peuvent être prolongés au moyen d'un dispositif homologué de raccordement (cordon prolongateur téléphonique interne). L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empêchent pas la dégradation du service dans certaines situations. Actuellement, les entreprises de télécommunication ne permettent pas que l'on raccorde leur matériel à des jacks d'abonné, sauf dans les cas précis prévus par les tarifs particuliers de ces entreprises.

Les réparations de matériel homologué doivent être effectuées par un centre d'entretien canadien autorisé désigné par le fournisseur. La compagnie de télécommunications peut demander à l'utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l'utilisateur ou à cause de mauvais fonctionnement.

Pour sa propre protection, l'utilisateur doit s'assurer que tous les fils de mise à la terre de la source d'énergie électrique, des lignes téléphoniques et des canalisations d'eau métalliques, s'il y en a, sont raccordés ensemble. Cette précaution est particulièrement importante dans les régions rurales.

**AVERTISSEMENT:** L'utilisateur ne doit pas tenter de faire ces raccordements lui-même; il doit avoir recours à un service d'inspection des installations électriques, ou à un électricien, selon le cas.

L'indice de charge (IC) assigné à chaque dispositif terminal indique, pour éviter toute surcharge, le pourcentage de la charge totale qui peut être raccordée à un circuit téléphonique bouclé utilisé par ce dispositif. La terminaison du circuit bouclé peut être constituée de n'importe quelle combinaison

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de dispositifs, pourvu que la somme des indices de charge de l'ensemble des dispositifs ne dépasse pas 100.

No d'homologation: 230 4095A

No de certification: CSA LR 56260

L'indice de charge: 6

MERLIN MAGIX D.O.C.  
Location Label Placement

Ministère des Communications  
du Canada emplacement de  
l'étiquette

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Complies with Part 68, FCC Rules. See the System Reference Manual for proper FCC Classification.  
FCC Reg. Nos. MF: AS593M-72682-MFE  
KF: AS593M-72914-KF-E  
PF: AS593M-65646-PF-E  
REN: 1.5A

**Lucent**

**MERLIN MAGIX**

**Model 511A Control Unit**

LISTED 538E

TELEPHONE EQUIPMENT

SA® LR 56260

MADE IN U.S.A.

Use only Lucent Technologies manufactured MERLIN MAGIX circuit modules, carrier assemblies, and power units, as specified in the Installation Manual, in this product. There are no user serviceable parts inside. Contact your authorized agent for service and repair.

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

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

**CANADA**

**DR ID**

WARNING: If equipment is used for out-of-building applications, approved secondary protectors are required. See Installation Manual.

AVERTISSEMENT: Si l'équipement est utilisé pour des applications extérieures, l'installation d'un protecteur secondaire est requise. Voir le manuel d'installation.

## Security of Your System: Preventing Toll Fraud

As a customer of a new telephone system, you should be aware that there is an increasing problem of telephone toll fraud. Telephone toll fraud can occur in many forms, despite the numerous efforts of telephone companies and telephone equipment manufacturers to control it. Some individuals use electronic devices to prevent or falsify records of these calls. Others charge calls to someone else's number by illegally using lost or stolen calling cards, billing innocent parties, clipping on to someone else's line, and breaking into someone else's telephone equipment physically or electronically. In certain instances, unauthorized individuals make connections to the telephone network through the use of the Remote Access features of your system.

The Remote Access features of your system, if you choose to use them, permit off-premises callers to access the system from a remote telephone by using a telephone number with or without a barrier code. The system returns an acknowledgment, signaling the user to key in his or her barrier code, which is selected and administered by the System Manager. After the barrier code is accepted, the system returns dial tone to the user. Barrier codes are, by default, restricted from making outside calls. If no specific outward calling restrictions are programmed, the user is able to place any call normally dialed from a telephone associated with the system. Such an off-premises network call is originated at, and will be billed from, the system location.

The Remote Access feature, as designed, helps the customer, through proper administration, to minimize the ability of unauthorized persons to gain access to the network. Most commonly, telephone numbers and codes are compromised when overheard in a public location, through theft of a wallet or purse containing access information, or through carelessness (for example, writing codes on a piece of paper and improperly discarding it). Additionally, hackers may use a computer to dial an access code and then publish the information to other hackers. Enormous charges can be run up quickly. It is the customer's responsibility to take the appropriate steps to properly implement the features, evaluate and administer the various restriction levels, protect access codes, and distribute access codes only to individuals who have been fully advised of the sensitive nature of the access information.

Common carriers are required by law to collect their tariffed charges. While these charges are fraudulent charges made by persons with criminal intent, applicable tariffs state that the customer of record is responsible for payment of all long-distance or other network charges. Lucent Technologies cannot be responsible for such charges and will not make any allowance or give any credit for charges that result from unauthorized access.

To minimize the risk of unauthorized access to your system:

- Use an unpublished Remote Access number.
- Assign access codes randomly to users on a need-to-have basis, keeping a log of *all* authorized users and assigning one code to each person.
- Use random-sequence access codes, which are less likely to be broken.
- Use the longest-length access codes the system will allow.
- Deactivate all unassigned codes promptly.
- Ensure that Remote Access users are aware of their responsibility to keep the telephone number and any access codes secure.

- When possible, restrict the off-network capability of off-premises callers, using calling restrictions, Facility Restriction Levels (Hybrid/PBX mode only), and Disallowed List capabilities. A prepared Disallowed List (number 7) is provided and is designed to prevent the types of calls that toll fraud abusers often make.
- When possible, block out-of-hours calling.
- Frequently monitor system call detail reports for quicker detection of any unauthorized or abnormal calling patterns.
- Limit Remote Call Forwarding to persons on a need-to-have basis.
- Change access codes every 90 days.
- Use the longest-length barrier codes possible, following the guidelines for passwords. (See [“Choosing Passwords” on page A-15.](#))

## Toll Fraud Prevention

Toll fraud is the unauthorized use of your telecommunications system by third parties to make long-distance telephone calls. Under the law, you, the customer, are responsible for paying part or all of those unauthorized calls. Thus, the following information is of critical importance.

Unauthorized persons concentrate their activities in two areas with the MERLIN MAGIX Integrated System:

- They try to transfer out of the MERLIN MAGIX Integrated System to gain access to an outgoing trunk and make long-distance calls.
- They try to locate unused or unprotected mailboxes and use them as drop-off points for their own messages.

The following is a discussion of how toll fraud is often perpetrated and ways to prevent unauthorized access that can lead to toll fraud.

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## Physical Security, Social Engineering, and General Security Measures

Criminals called hackers may attempt to gain unauthorized access to your system and voice messaging system in order to use the system features. Hackers often attempt to trick employees into providing them with access to a network facility (line/trunk) or a network operator. This is referred to as social engineering. Hackers may pose as telephone company employees or employees of Lucent Technologies or your authorized dealer. Hackers will go through a company's trash to find directories, dialing instructions, and other information that will enable them to break into the system. The more knowledgeable they appear to be about the employee names, departments, telephone numbers, and the internal procedures of your company, the more likely it is that they will be able to trick an employee into helping them.

## Preventive Measures

Take the following preventive measures to limit the risk of unauthorized access by hackers:

- Provide good physical security for the room containing your telecommunications equipment and the room with administrative tools, records, and System Manager information. These areas should be locked when not attended.
- Provide a secure trash disposal for all sensitive information, including telephone directories, call accounting records, or anything that may supply information about your system. This trash should be shredded.
- Educate employees that hackers may try to trick them into providing them with dial tone or dialing a number for them. All reports of trouble, requests for moving extensions, or any other administrative details associated with the MERLIN MAGIX Integrated System should be handled by one person (the System Manager) or within a specified department. Anyone claiming to be a telephone company representative should be referred to this person or department.
- No one outside of Lucent Technologies needs to use the MERLIN MAGIX Integrated System to test facilities (lines/trunks). If a caller claims to be a Lucent Technologies employee, the System Manager should ask for a telephone number where the caller can be reached. The System Manager should be able to recognize the number as a Lucent Technologies telephone number. *Before connecting the caller to the administrative port of the MERLIN MAGIX Integrated System, the System Manager should feel comfortable that a good reason to do so exists.* In any event, it is not advisable to give anyone access to network facilities or operators, or to dial a number at the request of the caller.
- Any time a call appears to be suspicious, call the Lucent Technologies BCS Fraud Intervention Center at 1 800 628-2888 (fraud intervention for System 25, PARTNER, MERLIN, and MERLIN MAGIX systems).
- Customers should also take advantage of Lucent Technologies monitoring services and devices, such as the NetPROTECT family of fraud-detection services, CAS with HackerTracker, and CAT Terminal with Watchdog. Call 1 800 638-7233 to get more information on these Lucent Technologies fraud detection services and products.

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## Security Risks Associated with Transferring through Voice Messaging Systems

Toll fraud hackers try to dial into a voice mailbox and then execute a transfer by dialing \*T. The hacker then dials an access code (either 9 for Automatic Route Selection or a pooled facility code), followed by the appropriate digit string to either direct dial or access a network operator to complete the call.

**NOTE** ▶ All extensions are initially, and by default, restricted from dial access to pools. In order for an extension to use a pool to access an outside line/trunk, this restriction must be removed.

## Preventive Measures

Take the following preventive measures to limit the risk of unauthorized transfers by hackers:

- Confirm that all MERLIN MAGIX Integrated System voice mail port extension numbers are outward restricted. This denies access to facilities (lines/trunks). Voice mail ports are, by default, outward restricted.
- As an additional security step, network dialing for all extensions, including voice mail port extensions, should be processed through ARS using dial access code 9.



### SECURITY ALERT:

*The MERLIN MAGIX Integrated System ships with ARS activated with all extensions set to Facility Restriction Level 3, allowing all international calling. **To prevent toll fraud**, ARS Facility Restriction Levels (FRLs) should be established using:*

- *FRL 0 for restriction to internal dialing only.*
- *FRL 2 for restriction to local network calling only.*
- *FRL 3 for restriction to domestic long-distance (excluding area code 809 for the Dominican Republic as this is part of the North American Numbering Plan, unless 809 is required).*
- *FRL 4 for international calling.*



### WARNING:

*Default local and default toll tables are factory-assigned an FRL of 2. This simplifies the task of restricting extensions: the FRL for an extension merely needs to be changed from the default of 3.*



### WARNING:

*Each extension should be assigned the appropriate FRL to match its calling requirements. All voice mail port extensions not used for Outcalling should be assigned to FRL 0 (the factory setting).*

- Deny access to pooled facility codes by removing pool dial-out codes 70, 890 899, or any others on your system.
- Create a Disallowed List or use the pre-prepared Disallowed List number 7 to disallow dialing 0, 11, 10, 1700, 1809, 1900, and 976 or 1 (wildcard) 976. Disallowed List number 7 does not include 800, 1800, 411, and 1411, but Lucent Technologies recommends that you add them.



**NOTE** Assign all voice mail port extensions to this Disallowed List. Lucent Technologies recommends assigning Disallowed List number 7. This is an added layer of security, in case outward restriction is inadvertently removed. (Voice messaging ports are assigned, by default, to Disallowed List number 7.)

If Outcalling is required by voice messaging system extensions:

- Program an ARS Facility Restriction Level (FRL) of 2 on voice mail port extensions used for Outcalling.
- If 800 and 411 numbers are used, remove 1800, 800, 411, and 1411 from Disallowed List number 7.
- If Outcalling is allowed to long-distance numbers, build an Allowed List for the voice mail port extensions used for Outcalling. This list should contain the area code and the first three digits of the local exchange telephone numbers to be allowed.

Additional general security for voice messaging systems:

- Use a secure password for the General Mailboxes.
- The default administration mailbox, 9997, must be reassigned to the System Manager's mailbox/extension number and securely password protected.
- All voice messaging system users must use secure passwords known only to the user.

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## Security Risks Associated with the Automated Attendant Feature of Voice Messaging Systems

Two areas of toll fraud risk associated with the Automated Attendant feature of voice messaging systems are:

- Pooled facility (line/trunk) access codes are translated to a menu prompt to allow Remote Access. If a hacker finds this prompt, the hacker has immediate access. (Dial access to pools is initially factory-set to restrict all extensions: to allow pool access, this restriction must be removed by the System Manager.)
- If the Automated Attendant prompts callers to use Remote Call Forwarding (RCF) to reach an outside telephone number, the system may be susceptible to toll fraud. An example of this application is a menu or submenu that says, "To reach our answering service, select prompt number 5," and transfers a caller to an external telephone number.

Remote Call Forwarding can be used securely only when the central office provides "reliable disconnect" (sometimes referred to as forward disconnect or disconnect supervision), which guarantees that the central office does not return a dial tone after the called party hangs up. In most cases, the central office facility is a loop-start line/trunk which does not provide reliable disconnect. When loop-start lines/trunks are used, if the calling party stays on the line, the central office does return a dial tone at the conclusion of the call, enabling the caller to place another call as if it were being placed from your company. Ground-start trunks provide reliable disconnect and should be used whenever possible.

## Preventive Measures

Take the following preventive measures to limit the risk of unauthorized use of the Automated Attendant feature by hackers:

- *Do not* use Automated Attendant prompts for Automatic Route Selection (ARS) codes or Pooled Facility codes.
- Assign all unused Automated Attendant selector codes to zero, so that attempts to dial these are routed to the system attendant.
- If Remote Call Forwarding (RCF) is required, MERLIN MAGIX Integrated System owners should coordinate with their Lucent Technologies Account Team or authorized dealer to verify the type of central office facility used for RCF. If it is a ground-start line/trunk, or if it is a loop-start line/trunk and central office reliable disconnect can be ensured, then nothing else needs to be done.

**NOTE** ▶ In most cases, these are loop-start lines/trunks without reliable disconnect. The local telephone company must be involved in order to change the facilities used for RCF to ground-start line/trunks. Usually, a charge applies for this change. Also, hardware and software changes may be necessary in the MERLIN MAGIX Integrated System. The MERLIN Messaging Automated Attendant feature merely accesses the RCF feature in the MERLIN MAGIX Integrated System. Without these changes being made, this feature is highly susceptible to toll fraud. These same preventive measures must be taken if the RCF feature is active for MERLIN MAGIX Integrated System extensions, whether or not it is accessed by an Automated Attendant menu.

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## Security Risks Associated with the Remote Access Feature

Remote Access allows the MERLIN MAGIX Integrated System owner to access the system from a remote telephone and make an outgoing call or perform system administration using the network facilities (lines/trunks) connected to the MERLIN MAGIX Integrated System. Hackers, scanning the public switched network by randomly dialing numbers with war dialers (a device that randomly dials telephone numbers, including 800 numbers, until a modem or dial tone is obtained), can find this feature, which will return a dial tone to them. They can even employ war dialers to attempt to discover barrier codes.

## Preventive Measures

Take the following preventive measures to limit the risk of unauthorized use of the MERLIN MAGIX Integrated System Remote Access feature:

- The Remote Access feature can be abused by criminal toll fraud hackers if it is not properly administered. Therefore, this feature should not be used unless there is a strong business need.

- It is strongly recommended that customers invest in security adjuncts, which typically use one-time passcode algorithms. These security adjuncts discourage hackers. Since a secure use of the Remote Access feature generally offers savings over credit-card calling, the break-even period can make the investment in security adjuncts worthwhile.
- If a customer chooses to use the Remote Access feature without a security adjunct, then multiple barrier codes should be employed, with one per user, if the system permits. The MERLIN MAGIX Integrated System permits a maximum of 16 barrier codes.
- The maximum length should be used for each barrier code, and should be changed periodically. Barrier codes, like passwords, should consist of a random, hard-to-guess sequence of digits. The MERLIN MAGIX Integrated System permits a barrier code of up to 11 digits.

## Other Security Hints

Make sure that the Automated Attendant selector codes do not permit outside line selection.

Multiple layers of security are always recommended to keep your system secure.

A number of measures and guidelines that can help you ensure the security of your system and voice messaging system follows:

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## Educating Users

Everyone in your company who uses the telephone system is responsible for system security. Users and attendants/operators need to be aware of how to recognize and react to potential hacker activity. Informed people are more likely to cooperate with security measures that often make the system less flexible and more difficult to use.

- Never program passwords or authorization codes onto Auto Dial buttons. Display telephones reveal the programmed numbers and internal abusers can use the Auto Dial buttons to originate unauthorized calls.
- Discourage the practice of writing down barrier codes or passwords. If a barrier code or password needs to be written down, keep it in a secure place and never discard it while it is active.
- Instruct operators and attendants to inform tell their System Manager whenever they answer a series of calls where there is silence on the other end or the caller hangs up.
- Advise users who are assigned voice mailboxes to frequently change personal passwords and not to choose obvious passwords.
- Ensure that the System Manager advises users with special telephone privileges (such as Remote Access, Outcalling, and Remote Call Forwarding) of the potential risks and responsibilities.
- Be suspicious of any caller who claims to be with the telephone company and wants to check an outside line. Ask for a callback number, hang up, and confirm the caller's identity.

- Never distribute the office telephone directory to anyone outside the company; be careful when discarding it (shred the directory).
  - Never accept collect telephone calls.
  - Never discuss your telephone system's numbering plan with anyone outside the company.
- 

## Educating Operators

Operators or attendants need to be especially aware of how to recognize and react to potential hacker activity. To defend against toll fraud, operators should follow the guidelines below:

- Establish procedures to counter *social engineering*. Social engineering is a con game that hackers frequently use to obtain information that may help them gain access to your system or voice messaging system.
  - When callers ask for assistance in placing outside or long-distance calls, ask for a callback extension.
  - Verify the source. Ask callers claiming to be maintenance or service personnel for a callback number. Never transfer to \*10 without this verification. Never transfer to extension 900.
  - Remove the headset and/or handset when the console is not in use.
- 

## Detecting Toll Fraud

To detect toll fraud, users and operators should look for the following:

- Lost voice mail messages, mailbox lockout, or altered greetings
- Inability to log into voice mail
- Inability to get an outside line
- Foreign language callers
- Frequent hang-ups
- Touch-Tone sounds
- Caller or employee complaints that the lines are busy
- Increases in internal requests for assistance in making outbound calls (particularly international calls or requests for dial tone)
- Outsiders trying to obtain sensitive information
- Callers claiming to be the "telephone" company
- Sudden increase in wrong numbers

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## Establishing a Policy

As a safeguard against toll fraud, follow these guidelines for your MERLIN MAGIX Integrated System and voice messaging system:

- Change passwords frequently (at least quarterly). Changing passwords routinely on a specific date (such as the first of the month) helps users to remember to do so.
- Always use the longest-length password allowed.
- Establish well-controlled procedures for resetting passwords.
- Limit the number of invalid attempts to access a voice mailbox to five or less.
- Monitor access to the MERLIN MAGIX Integrated System dial-up maintenance port. Change the access password regularly and issue it only to authorized personnel. Disconnect the maintenance port when not in use. (This however, eliminates Lucent Technologies' 24-hour maintenance surveillance capability and may result in additional maintenance costs.)
- Create a system management policy concerning employee turnover and include these suggestions:
  - Delete all unused voice mailboxes in the voice mail system.
  - If a terminated employee had Remote Access calling privileges and a personal authorization code, remove the authorization code immediately.
  - If barrier codes and/or authorization codes were shared by the terminated employee, these should be changed immediately.
- Regularly back up your MERLIN MAGIX Integrated System files to ensure a timely recovery should it be required. Schedule regular, off-site backups.
- Keep the Remote Maintenance Device turned off when not in use by Lucent Technologies or your authorized dealer.
- Limit transfers to registered subscribers only.
- Use the Security Violations Notification options (Mailbox Lock or Warning Message) to alert you of any mailbox break-in attempts. Investigate all incidents.
- Review security policies and procedures and keep them up to date.

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## Choosing Passwords

Passwords should be the maximum length allowed by the system.  
Passwords should be hard to guess and should not contain:

- All the same numbers (for example, 1111, 666666)
- Sequential characters (for example, 123456)
- Numbers that can be associated with you or your business, such as your name, birthday, business name, business address, telephone number, or social security number
- Words and commonly used names

Passwords should be changed regularly—at least on a quarterly basis. Recycling old passwords is not recommended. Never program passwords (or authorization codes or barrier codes) onto a speed dial button.

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## Physical Security

You should always limit access to the system console (or attendant console) and supporting documentation. The following are some recommendations:

- Keep the system console and supporting documentation in an office that is secured with a changeable combination lock. Provide the combination only to those individuals having a real need to enter the office.
- Keep telephone wiring closets and equipment rooms locked.
- Keep telephone logs and printed reports in locations that only authorized personnel can enter.
- Design distributed reports so they do not reveal password or trunk access code information.
- Keep the voice messaging system Remote Maintenance Device turned off.

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## Limiting Outcalling

When Outcalling is used to contact subscribers who are off-site, use the MERLIN MAGIX Integrated System Allowed Lists and Disallowed Lists or Automatic Route Selection features to minimize toll fraud.

If the Outcalling feature will not be used, outward restrict all voice messaging system ports. If Outcalling will be used, for the MERLIN Messaging System, ports to be *unrestricted* are port 2 on a 2-port system, port 4 on a 4-port system, or port 6 on a 6-port system. All other ports should be *restricted*. Use Outward Restriction, Toll Restrictions, Allowed Lists, Disallowed Lists and Facility Restrictions Levels, as appropriate, to minimize the possibility of toll fraud.

## Limited Warranty and Limitation of Liability

Lucent Technologies warrants to you, the customer, that your MERLIN MAGIX Integrated System will be in good working order on the date Lucent Technologies or its authorized reseller delivers or installs the system, whichever is later (“Warranty Date”). If Lucent Technologies determines that your system cannot be repaired or replaced, Lucent Technologies will remove the system and, at your option, refund the purchase price of your system or apply the purchase price towards the purchase of another Lucent Technologies system.

If you purchased your system directly from Lucent Technologies, Lucent Technologies will perform warranty repair in accordance with the terms and conditions of the specific type of Lucent Technologies maintenance coverage you selected. If you purchased your system from a Lucent Technologies-authorized reseller, contact your reseller for the details of the maintenance plan applicable to your system.

The following will not be deemed to impair the good working order of the system, and Lucent Technologies will not be responsible under the limited warranty for damages resulting from:

- Failure to follow Lucent Technologies' installation, operation, or maintenance instructions
- Unauthorized system modification, movement, or alteration
- Unauthorized use of common carrier communications services accessed through the system
- Abuse, misuse, or negligent acts or omissions of the customer and persons under the customer's control
- Acts of third parties and acts of God
- Power surges, including power surges due to lightning

LUCENT TECHNOLOGIES' OBLIGATION TO REPAIR, REPLACE, OR REFUND AS SET FORTH ABOVE IS YOUR EXCLUSIVE REMEDY.

EXCEPT AS SPECIFICALLY SET FORTH ABOVE, LUCENT TECHNOLOGIES, ITS AFFILIATES, SUPPLIERS, AND AUTHORIZED RESELLERS MAKE NO WARRANTIES, EXPRESS OR IMPLIED, AND SPECIFICALLY DISCLAIM ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

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## Limitation of Liability

Except as provided below, the liability of Lucent Technologies and its affiliates and suppliers for any claims, losses, damages, or expenses from any cause whatsoever (including acts or omissions of third parties), regardless of the form of action, whether in contract, tort, or otherwise, shall not exceed the lesser of: (1) the direct damages proven; or (2) the repair cost, replacement cost, license fee, annual rental charge, or purchase price, as the case may be, of the equipment that gives rise to the claim. Except as provided below, Lucent Technologies and its affiliates and suppliers shall not be liable for any incidental, special, reliance, consequential, or indirect loss or damage incurred in connection with the equipment. As used in this paragraph, consequential damages include, but are not limited to, the following: lost profits, lost revenues, and losses arising out of unauthorized use (or charges for such use) of common carrier telecommunications services or facilities accessed through or connected to the equipment. For personal injury caused by Lucent Technologies's negligence, Lucent Technologies's liability shall be limited to proven damages to person. **No action or proceeding against Lucent Technologies or its affiliates or suppliers may be commenced more than twenty-four (24) months after the cause of action accrues.** THIS PARAGRAPH SHALL SURVIVE FAILURE OF AN EXCLUSIVE REMEDY.

## Remote Administration and Maintenance

The Remote Administration and Maintenance feature of your telecommunications system, if you choose to use it, permits users to change the system features and capabilities from a remote location.

The Remote Administration and Maintenance feature, through proper administration, can help you reduce the risk of unauthorized persons gaining access to the network. However, telephone numbers and access codes can be compromised when overheard in a public location, or lost through theft of a wallet or purse containing access information or through carelessness (for example, writing codes on a piece of paper and improperly discarding them). Additionally, hackers may use a computer to dial an access code and then publish the information to other hackers. Substantial charges can accumulate quickly. It is your responsibility to take appropriate steps to implement the features properly, evaluate and administer the various restriction levels, and protect and carefully distribute access codes.

Under applicable tariffs, you will be responsible for payment of toll charges. Lucent Technologies cannot be responsible for such charges and will not make any allowance or give any credit resulting from unauthorized access.

To reduce the risk of unauthorized access through Remote Administration and Maintenance, please observe the following procedures:

- The System Administration and Maintenance capability of a Hybrid/PBX or Key system is protected by a password.
  - Change the default password immediately
  - Continue to change the password regularly
  - Give the password only to people who need it and impress upon them the need to keep it secret
  - If anyone who knows the password leaves the company, change the password immediately
- If you have a special telephone line connected to your Hybrid/PBX or Key system for Remote Administration and Maintenance, you should do one of the following:
  - Unplug the line when it is not being used
  - Install a switch in the line to turn it off when it is not being used
  - Keep the Remote Administration and Maintenance telephone number secret. Give it only to people who need to know it, and impress upon them the need to keep it a secret. Do not write the telephone number on the Hybrid/PBX or Key system, the connecting equipment, or anywhere else in the system room

If your Remote Administration and Maintenance feature requires that someone in your office transfer the caller to the Remote Administration and Maintenance extension, you should impress upon your employees the importance of transferring only authorized individuals to that extension.

# Menu Hierarchy

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# B

## Overview

The system programming menu hierarchy details the sequence of menu screens that appear when you select the system programming options. The choice of an option on the first menu screen leads to either a second menu screen or a data-entry screen. A second menu screen may lead to still another menu screen, and so on, up to six screens, as shown on the following pages.

You can use the Inspect feature in system programming to display the telephone or line/trunk numbers that are programmed with a specific feature. Inspect is helpful either when you must assign a feature to many lines/trunks or extensions and you do not have a Direct Station Selector (DSS) attached to the system programming console, or when you are programming using a PC with the WinSPM program.

Inspect can be used with the menu options on the following pages that have an asterisk (\*) next to them. To use Inspect in system programming, choose an eligible option, and press one of the following:

- Programmed Inspect button (4400-Series telephones)
- Fixed Inspect button (MLX telephones)
- PgDn



# LED Displays

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# C

## Overview

[Table C-1](#) defines LED status on the 4424LD+ and MLX-20L consoles. LED status is indicated on the LEDs next to the 20 buttons below the display area on the system programming console. LED status is simulated on the computer screen when you use WinSPM.

[Table C-2](#) defines LED status on the DSS console. LED status is indicated on the red LED next to the 50 extension buttons.

**Table C-1. Line or Trunk Status for 4424LD+ and MLX-20L Consoles**

System Programming Menu Option	Option	LED Status <sup>1</sup>					
		Green LED			Red LED		
		ON	OFF	FLASHING	ON	OFF	FLASHING
Lines Trunks	Tie Lines						
	Inmode	Incoming tie line is Touch-Tone	Incoming tie line is rotary dial <sup>2</sup>				
	Outmode	Outgoing tie line is Touch-Tone	Outgoing tie line is rotary dial <sup>2</sup>				
	Dialtone	Remote dial tone <sup>2</sup>	Local dial tone				
Lines Trunks	TT/LS Disc						
	Outmode	Line/Trunk is Touch-Tone <sup>2</sup>	Line/trunk is rotary dial				
Lines Trunks	Pools				Trunk is in pool	Trunk is not in pool	
Lines Trunks	Toll Type	Must dial 1 + area code <sup>2</sup>	1 + dialing is not needed				

**Table C-1. Line or Trunk Status for 4424LD+ and MLX-20L Consoles — *Continued***

System Programing Menu Option	Option	LED Status <sup>1</sup>					
		Green LED			Red LED		
		ON	OFF	FLASHING	ON	OFF	FLASHING
Lines Trunks	Hold Disconct	Long-450 ms <sup>2</sup>	Short-50 ms				
Lines Trunks	LS-ID Delay	LS-ID Delay is on	LS-ID Delay is off <sup>2</sup>				
Extensions	Lines Trunks	Line/trunk or pool is assigned to button	Line/trunk or pool is not assigned to button		Trunk is assigned to a pool		

1 LED Status is indicated on LEDs next to the 20 buttons below the display area of the system programming console, or simulated on the computer screen when using WinSPM.

2 This is the factory setting.

**Table C-2. Telephone Feature Status for DSS Console Only**

System Programming Menu Option	Option	Red LED Status			
		ON	OFF	FLASHING	WINK
Extensions	Account (FACE)	Forced Account Code Entry assigned	Forced Account Code Entry not assigned <sup>1</sup>		
Extensions	Call Pickup	Telephone is assigned to Call Pickup Group	Telephone is not assigned to Call Pickup Group <sup>1</sup>		
Extensions	VoiceSignl	Voice Announce to Busy assigned	Voice Announce to Busy not assigned <sup>1</sup>		
Extensions	Ext Status	Extension Status assigned	Extension Status not assigned	Extension Status can be assigned	
Extensions	Group Page	Telephone is in group	Telephone is not in group <sup>1</sup>		
Extensions	Group Cover	Telephone is in coverage group	Telephone is not in coverage group <sup>1</sup>		
Extensions	Group Calling Members	Telephone is assigned to group	Telephone is not assigned to group <sup>1</sup>		
Extensions	Mic Disable	Telephone microphone is disabled	Telephone microphone is enabled		
Extensions	Remote Frwd	Telephone can transfer calls to remote telephone number	Telephone cannot transfer calls to remote telephone number <sup>1</sup>		
Night Service	Group Assign	Telephone is in group	Telephone not in group <sup>1</sup>		
Night Service	Exclude List	Telephone is excluded	Telephone is not excluded <sup>1</sup>		

**Table C-2. Telephone Feature Status for DSS Console Only — *Continued***

System Programming Menu Option	Option	Red LED Status			
		ON	OFF	FLASHING	WINK
Aux Equip	Msg Waiting	A fax message-waiting extension	Not a fax message-waiting extension		
Aux Equip	Fax Extension	Extension is a fax machine	Extension not a fax machine		
Tables	AllowTo	Allowed List assigned to telephone	Allowed List not assigned to telephone <sup>1</sup>		
Tables	DisallowTo	Disallowed List assigned	Disallowed List not assigned <sup>1</sup>		
Data	Voice/Data	Voice/Data pair	Not Voice/Data pair <sup>1</sup>		
Operator	Direct Trunk Queued Call	Operator position	Other	Can be assigned as operator position	
Operator	Queued Call Message Center	Message Center position	Other	Can be assigned as Message Center	
Operator	In Queue Alert	Position receives In-Queue Alert for Thresh. 3	Other	Position receives In-Queue Alert for Thresh. 1	Position receives In-Queue Alert for Thresh. 2

<sup>1</sup> This is the factory setting.



# General Feature Use and Telephone Programming

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# D

This appendix contains information on the general use of features for the 4400-Series, MLX, ETR, MLS, analog multiline, and single-line telephones. It covers telephone and operator features and the acceptable programming codes for each. It also describes how to program these features on 4400-Series, MLX, ETR, and MLS telephones.

## General Feature Use Information

The following sections provide general instructions for feature use on 4400-Series, MLX, ETR, MLS, and single-line telephones. Features can be used in the following ways:

- Pressing a fixed feature button.
- Pressing a programmed button.
- Dialing the feature code.

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## Fixed Features

All multiline telephones have a group of fixed feature buttons that are programmed and labeled at the factory. The functions of these buttons, which include Conf, Transfer, and Speaker, cannot be changed. Press the button for the feature you want to use.

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## Programmed Buttons

Any unlabeled line button on multiline telephones can be programmed with a feature for one-touch activation. See Tables D-7 through D-10 for additional information about programming features onto line buttons.

Some features, such as Auto Dial, must be programmed onto line buttons in order to function. Other features, such as Privacy, are best used if programmed onto line buttons—the LED next to the line button provides visual indication that the feature is in use. The following features must be programmed onto line buttons:

- 4400-Series Drop
- Auto Answer Headset

D General Feature Use and Telephone Programming  
General Feature Use Information

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- Auto Dial
- Barge-In
- Coverage
  - Group Coverage
  - Primary Coverage
  - Secondary Coverage
  - Coverage Off
  - Coverage VMS Off
- Do Not Disturb
- Extension Status-Agent Login/Logout
- Feature Button (multiline 4400-Series telephones only)
- Headset/Handset Mute (MLX telephones only)
- Headset Status
- Headset Hang Up
- HFAI (multiline 4400-Series telephones only)
- Inspect (multiline 4400-Series telephones only)
- Notify
- Posted Message (available from display on MLX and certain 4400-Series display telephones)
- Saved Number Dial
- Service Observing
- Signal

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## Feature Codes

Feature codes are 1-, 2-, and 3-digit codes that activate features. Use a feature code by doing one of the following:

- Pressing a programmed Feature button on 4400-Series multiline telephones.
- Pressing the fixed Feature button on MLX, ETR, or MLS telephones.
- Dialing # on 4400, 4400D, or single-line telephones.

Each of these methods sends a signal to the system that a feature code is about to be dialed. When the code is dialed, the feature is activated.

**NOTE** ► Queued Call Console (QCC) system operators cannot use feature codes.

The following features can be used only by dialing feature codes:

- Pickup
- Forward/Follow Me—Cancel One
- Forward/Follow Me—Cancel All
- Message Cancel
- Personal Speed Dial
- System Speed Dial

**NOTE** ▶ Pressing the Conf, Transfer, Speaker, or Feature button while activating a feature cancels the process. Pressing any other button (such as the Mute, HFAI, Message Status, DSS Page, Right and Left arrows, More, Message or Clock button) does not cancel the feature activating process

## Telephone and Operator Features

Tables D-1, D-2, D-3, and D-4 list the telephone and operator features that can be assigned to telephones or consoles either through centralized telephone programming or by users from their telephones.

**Table D-1. Telephone and Operator Features for MLX Telephones**

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display	MLX-5D/10D	MLX-28D	MLX-20L	MLX-5/10
Account Code Entry	*82	82 + code	Acct	AccountCode	K P B	K P B	K P B	
Alarm <sup>1</sup>	*759		Alarm	Alarm		K P B	K P B	
Alarm Clock			AlClk	Alarm Clock	K P B	K P B	K P B	
Authorization Code	*80	80	Auth	Auth Code	K P B	K P B	K P B	K P B
Auto Dial Inside (ext., group, zone) Outside	*22 + ext. no. *21 + tel. no.		AutoD In Out	Auto Dial Inside Outside	K P B	K P B	K P B	K P B
Automatic Line Selection Begin Sequence End Sequence	*14 **14				K P B	K P B	K P B	K P B
Barge-In <sup>1,2</sup>	*58		Barge	Barge In	K P B	K P B	K P B	K P B
Call Waiting On Off	*11 **11		CWait On Off	CallWaiting On Off	K P B	K P B	K P B	K P B
Call Waiting Pickup		87						
Callback Automatic On Off Selective Cancel Selective	*12 **12 *55	55 *55	CbckA On Off CbckS	Cback Auto On Off Cback Sel	K P B	K P B	K P B	K P B
Caller ID Number/ Name Toggle Button	*763	763	CName	CallID Name	K P B	K P B	K P B	K P B
Camp-On	*57	57	Camp	Camp On	K P B	K P B	K P B	K P B

**Table D-1. Telephone and Operator Features for MLX Telephones — *Continued***

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display	MLX-5D/10D	MLX-28D	MLX-20L	MLX-5/10
Conference	*772	772	Conf	Conference	B	B	B	B
Contrast			Ctrst		K P B	K P B	K P B	
Coverage			Cover	Coverage	K P B	K P B	K P B	K P B
<i>Cover inside and outside calls</i>	*48		CvIns, On	CoverInside, On				
<i>Cover outside calls only</i>	**48		CvIns, Off	CoverInside, Off				
Receiver Buttons								
<i>Group</i>	*42 + ext. no.		Group	Group	K P B	K P B	K P B	K P B
<i>Primary</i>	*40 + ext. no.		Prmry	Primary	K P B	K P B	K P B	K P B
<i>Secondary</i>	*41 + ext. no.		Secnd	Secondary	K P B	K P B	K P B	K P B
Sender Buttons								
<i>Coverage Off</i>	*49		CvOff	CoverageOff	K P B	K P B	K P B	K P B
<i>Coverage VMS Off</i>	*46				K P B	K P B	K P B	K P B
Data Status	*83 + ext. no.				K P B	K P B	K P B	K P B
Direct Voice Mail	*56	56	DrcVM	Direct VM	K P	K P	K P	K P
Directories			Dir	Directory				
Extension Directory	(display only)		ExtDir	Ext Dir	K P B	K P B	K P B	
Personal Directory	(display only)			Personal Dir			K P B	
System Directory	(sys. prog.)		SysDir	System Dir	K P B	K P B	K P B	
Do Not Disturb	*47		DND	DoNotDistrb	K P B	K P B	K P B	K P B
Drop	*773	773	Drop	Drop	B	B	B	B

Table D-1. Telephone and Operator Features for MLX Telephones — *Continued*

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display	MLX-5D/10D	MLX-28D	MLX-20L	MLX-5/10
Extension Status								
Direct-Line Console <sup>1</sup>						K P B	K P B	
<i>Status Off</i>	*760	760 + DSS button	OpEs, ESOff	OperatorES, ESOff				
<i>Status 1</i>	*761	761 + DSS button	OpEs, ES1	OperatorES, ES1				
<i>Status 2</i>	*762	762 + DSS button	OpEs, ES2	OperatorES, ES2				
Telephones (rooms or agents)					K P B	K P B	K P B	K P B
<i>Status Off</i>		*44						
<i>Status 1</i>	*45	45	ES, ES1	ES Status, ES1				
<i>Status 2</i>	*44	44	ES, ES2	ES Status, ES2				
Feature Button	*20			Feature Btn				

**Table D-1. Telephone and Operator Features for MLX Telephones — *Continued***

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display	MLX-5D/10D	MLX-28D	MLX-20L	MLX-5/10
Forward and Follow Me					K P B	K P B	K P B	K P B
Activate								
<i>Forward (inside)</i>	*33	33 + ext. no.	Forwd	Forward				
<i>Remote Call</i>	*33	33 + tel no.	Forwd	Forward				
<i>Forward (outside)</i>								
<i>Centrex Transfer via Remote Call Forward</i>	*33 + dial-out code or * + optional Pauses + tel. no. + #							
<i>Follow Me</i>		34 + sending ext. no.	FlwMe	Follow Me				
Cancel								
<i>Cancel sending from your telephone</i>		33 + your ext. no.		CancelFollow (QCC only)				
<i>Cancel sending from one extension</i>		*34 + ext. no.		CancelFollow (QCC only)				
<i>Cancel sending from all extensions</i>		*34*						

Table D-1. Telephone and Operator Features for MLX Telephones — *Continued*

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display	MLX-5D/10D	MLX-28D	MLX-20L	MLX-5/10
Group Calling In-Queue Alarm Button	*22 + Calling Group ext. no.		GrpCl	Group Call	K P B	K P B	K P B	K P B
Calling Group Supervisor <sup>1</sup> <i>Enter supervisor mode<sup>1</sup></i> <i>Exit supervisor mode<sup>1</sup></i>		32 + Hold 32 + Drop				K P B	K P B	
<i>Available (ES Status 2)</i>	*762	762 + DSS bt.	OpEs, ES2	OperatorES, ES2				
<i>Unavailable (ES Status Off)</i>	*760	760 + DSS bt.	OpEs, ESOff	OperatorES, ES Off				
Calling Group Members <i>Sign in (Available)</i> <i>Sign out (Unavailable)</i>	*44	44 *44	ES ES,Off	Status, ES2 ES Status, ES Off	K P B	K P B	K P B	K P B
Group Page Auto Dial Button	*22 + Paging Group ext. no.		GrpPg	Group Page	K P B	K P B	K P B	K P B
Headset Options Auto Answer Hang Up <sup>2</sup> Mute (Headset/Handset) Status	*780 *781 *783 *782		Hdset Auto Mute Stat	Hdset Auto Answer Hang Up Mute Status	K P B	K P B	K P B	K P B
Hold Hold Release		771 **			P B B	P B B	P B B	P B B

Table D-1. Telephone and Operator Features for MLX Telephones — *Continued*

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display	MLX-5D/10D	MLX-28D	MLX-20L	MLX-5/10
Intercom Buttons					K B	K B	K B	K B
Assign Buttons <sup>2</sup>								
<i>ICOM (Default Ring)</i>	*16			SysAccess				
<i>ICOM Originate Only</i>	*18			SysAcc-00				
Change Button Type	**19		Voice, Place, Ring	Voice Annce, Place, Ring				
<i>Ring</i>			Voice, Place, Voice	Voice Annce, Place, Voice				
<i>Voice</i>	*19							
Language Choice					K P B	K P B	K P B	K P B
English		790						
French		791						
Spanish		792						
Messaging			Msgs	Messages				
Leave Message	*25		LvMsg	Msg Leave	K P B	K P B	K P B	K P B
<i>After calling</i>		25						
<i>Without calling</i>		53 + ext no.						
<i>Cancel msg. left</i>		*53 + ext no.						
Message LED Off	*54	54						
Posted Message	*751		Post	Posted Msg	K P B	K P B	K P B	K P B
Send/Remove Msg <sup>1</sup>	*38	38 + ext no.	SdMsg	Send/RmvMsg	K P B	K P B	K P B	K P B
Receiving Messages								
Delete Message <sup>3</sup>	*26	26	Msgs	Messages	K P B	K P B	K P B	
Next Message <sup>3</sup>	*28	28	Dlete	Delete Msg	K P B	K P B	K P B	
Return Call <sup>3</sup>	*27	27	Next	Next Msg	K P B	K P B	K P B	
Scroll <sup>3</sup>	*29	29	Call	Return Call		K P B	K P B	
Night Service <sup>1</sup>	*39	39	Night	Night Srvc		K P B	K P B	

Table D-1. Telephone and Operator Features for MLX Telephones — *Continued*

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display	MLX-5D/10D	MLX-28D	MLX-20L	MLX-5/10
Notify Send	*757 + ext. no.		Ntfy Send	Notify Send	K P B	K P B	K P B	K P B
Receive	*758 + ext. no.		Recv	Receive				
Paging Group Paging Loudspeaker Paging			GrpPg LdsPg	Group Page Loudspkr Pg	K P B	K P B	K P B	K P B
Park	*86		Park	Park	K P B	K P B	K P B	K P B
Park Zone Auto Dial <sup>1</sup>	*22 + Park Zone		PrkZn	Park Zone		K P B	K P B	
Personal Speed Dial	# + (01–24) + *21 + tel no. + ##				K P B			K P B
Personalized Ringing	*32 + ring (1–8)		PRing, Pat#1... Pat#8	PersonalRng, Pattern #1... Pattern #8	K P B	K P B	K P B	K P B
Pickup General Use Specific Extension Specific Line Group	*9 *9 + ext. no. *9 + line no. *88	9 + ext. no. 9 + line no. 88	Pkup Genrl Ext Line PkupG	Pickup General Extension Line Pickup Grp	K P B	K P B	K P B	K P B
Privacy On Off	*31	31 *31	Prvcy	Privacy	K P B	K P B	K P B	K P B
Recall	*775	775	Recll	Recall	K P B	K P B	K P B	K P B
Redial	*84	84	Rdial	Redial	K P B	K P B	K P B	K P B

Table D-1. Telephone and Operator Features for MLX Telephones — *Continued*

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display	MLX-5D/10D	MLX-28D	MLX-20L	MLX-5/10
Reminder Service Set <sup>4</sup>	*81	81 + time + A or P	Rmind Set	Reminder Set	K P B	K P B	K P B	K P B
Operator Set <sup>1,4</sup>		81 + ext. no. + time + A or P						
Cancel Operator Cancel <sup>1</sup>	**81	*81	Cancl	Cancel				
Missed <sup>1</sup>	*752	*81 + ext. no.	Missd	Missed				
Ringing/Idle Line Preference					K P B	K P B	K P B	K P B
On	*343		LnPrf, On	Line Prefer, On				
Off	*344		LnPrf, Off	Line Prefer, Off				
Ringing Options Individual Lines			RngOp 1Line	RingOptions One Line	K P B	K P B	K P B	K P B
Immediate ring	*37		Immed	Immed Ring				
Delay ring	*36		Delay	Delay Ring				
No ring	*35		No	No Ring				
All Lines			AllLn	All Lines	K P B	K P B	K P B	K P B
Immediate ring	*347		Immed	Immed Ring				
Delay ring	*346		Delay	Delay Ring				
No ring	*345		No	No Ring				
Abbreviated Ring			Abbrv	Abbreviated	K P B	K P B	K P B	K P B
On	*341		On	On				
Off	*342		Off	Off				
Send Ring (Shared SA)			ShRng	SharedSARng	P	P	P	P
On	*15		On	On				
Off	**15		Off	Off				
Saved Number Dial	*85		Save#	SaveNumDial	K P B	K P B	K P B	K P B
Service Observing <sup>2</sup>	*59			Service Obs	K P B	K P B	K P B	K P B

**Table D-1. Telephone and Operator Features for MLX Telephones — *Continued***

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display	MLX-5D/10D	MLX-28D	MLX-20L	MLX-5/10
Signal (manual)	*23 + ext. no.		Sign1	Signal	K P B	K P B	K P B	K P B
System Access Buttons					P	P	P	P
Assign Buttons <sup>2</sup>								
SA (Default Ring)	*16			SysAccess				
SA Originate Only	*18			SysAcc-00				
Shared SA	*17 + primary ext. no.			ShareSysAcc				
Change Type (SA or Shared SA)								
Ring	**19							
Voice	*19							
System Speed Dial	*24 + code (600-729)	600-729	SpdD1	SysSpeedD1	K P B	K P B	K P B	K P B
Transfer	*774	774	Trans	Transfer	B	B	B	B
Voice Announce			Voice	Voice Annce	K P B	K P B	K P B	K P B
On	*10		On	On				
Off	**10		Off	Off				
VA on Idle Only	*131		Idle	Idle				

1 System operator feature only.

2 Centralized telephone programming only.

3 Display telephones only.

4 U.S. English only: time is 12-hour (0100-1259) + 2 (A) or 7 (P). Canadian French and Latin American Spanish: time is 24-hour (0000-2359).

**Table D-2. Telephone and Operator Features for Multiline 4400-Series Telephones**

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display	4406D+ <sup>1</sup>	4412D+, 4424D+	4424LD+
Account Code Entry	*82	82 + code	Acct	AccountCode	K P B	K P B	K P B
Alarm <sup>2</sup>	*759		Alarm	Alarm		K P B	K P B
Alarm Clock			AlClk	Alarm Clock	K P B	K P B	K P B
Authorization Code	*80	80	Auth	Auth Code	K P B	K P B	K P B
Auto Dial			AutoD	Auto Dial	K P B	K P B	K P B
Inside (ext., group, zone)	*22 + ext. no.		In	Inside			
Outside	*21 + tel. no.		Out	Outside			
Automatic Line Selection					K P B	K P B	K P B
Begin Sequence	*14						
End Sequence	**14						
Barge-In <sup>2,3</sup>	*58		Barge	Barge In	K P B	K P B	K P B
Call Waiting			CWait	CallWaiting	K P B	K P B	K P B
On	*11		On	On			
Off	**11		Off	Off			
Call Waiting Pickup		87					
Callback					K P B	K P B	K P B
Automatic			CbckA	Cback Auto			
On	*12		On	On			
Off	**12		Off	Off			
Selective	*55	55	CbckS	Cback Sel			
Cancel Selective		*55					
Caller ID Number/ Name Toggle Button	*763	763	CName	CallID Name	K P B	K P B	K P B
Camp-On	*57	57	Camp	Camp On	K P B	K P B	K P B
Conference	*772	772	Conf	Conference	B	B	B

Table D-2. Telephone and Operator Features for Multiline 4400-Series Telephones — *Continued*

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display	4406D+ <sup>1</sup>	4412D+, 4424D+	4424LD+
Coverage			Cover	Coverage	K P B	K P B	K P B
<i>Cover inside and outside calls</i>	*48		CvIns, On	CoverInside, On			
<i>Cover outside calls only</i>	**48		CvIns, Off	CoverInside, Off			
Receiver Buttons							
<i>Group</i>	*42 + ext. no.		Group	Group	K P B	K P B	K P B
<i>Primary</i>	*40 + ext. no.		Prmry	Primary	K P B	K P B	K P B
<i>Secondary</i>	*41 + ext. no.		Secnd	Secondary	K P B	K P B	K P B
Sender Buttons							
<i>Coverage Off</i>	*49		CvOff	CoverageOff	K P B	K P B	K P B
<i>Coverage VMS Off</i>	*46				K P B	K P B	K P B
Direct Voice Mail	*56	56	DrcVM	Direct VM	K P	K P	K P
Directories			Dir	Directory			
Extension Directory	(display only)		ExtDir	Ext Dir	K P B	K P B	K P B
Personal Directory	(display only)			Personal Dir			K P B
System Directory	(sys. prog.)		SysDir	System Dir	K P B	K P B	K P B
Do Not Disturb	*47		DND	DoNotDistrb	K P B	K P B	K P B
Drop	*771	771	Drop	Drop	B	B	B
4400-Series Drop	*787	787	44Drp	4400-Series Drop	K P B	K P B	K P B

Table D-2. Telephone and Operator Features for Multiline 4400-Series Telephones — *Continued*

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display	4406D+ <sup>1</sup>	4412D+, 4424D+	4424LD+
Extension Status							
Direct-Line Console <sup>2</sup>						K P B	K P B
<i>Status Off</i>	*760	760 + DSS button	OpEs, ESOff	OperatorES, ESOff			
<i>Status 1</i>	*761	761 + DSS button	OpEs, ES1	OperatorES, ES1			
<i>Status 2</i>	*762	762 + DSS button	OpEs, ES2	OperatorES, ES2			
Telephones (rooms or agents)					K P B	K P B	K P B
<i>Status Off</i>		*44					
<i>Status 1</i>	*45	45	ES, ES1	ES Status, ES1			
<i>Status 2</i>	*44	44	ES, ES2	ES Status, ES2			
Feature Button	*20	20	Feat	Feature	K P B	K P B	K P B

Table D-2. Telephone and Operator Features for Multiline 4400-Series Telephones — *Continued*

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display	4406D+ <sup>1</sup>	4412D+, 4424D+	4424LD+
Forward and Follow Me					K P B	K P B	K P B
Activate							
<i>Forward (inside)</i>	*33	33 + ext. no.	Forwd	Forward			
<i>Remote Call</i>	*33	33 + tel no.	Forwd	Forward			
<i>Forward (outside)</i>							
<i>Centrex Transfer via Remote Call Forward</i>	*33 + dial-out code or * + optional Pauses + tel. no. + #						
<i>Follow Me</i>		34 + ext. no.	FlwMe	Follow Me			
Cancel							
<i>Cancel sending from your telephone</i>		33 + your ext. no.		CanclFollow (QCC only)			
<i>Cancel sending from one extension</i>		*34 + ext. no.		CanclFollow (QCC only)			
<i>Cancel sending from all extensions</i>		*34*					

**Table D-2. Telephone and Operator Features for Multiline 4400-Series Telephones — *Continued***

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display	4406D+ <sup>1</sup>	4412D+, 4424D+	4424LD+
Group Calling			GrpCl	Group Call			
In-Queue Alarm Button	*22 + Calling Group ext. no.				K P B	K P B	K P B
Calling Group Supervisor <sup>2</sup>						K P B	K P B
<i>Enter supervisor mode<sup>2</sup></i>		32 + Hold					
<i>Exit supervisor mode<sup>2</sup></i>		32 + Drop					
<i>Available (ES Status 2)</i>	*762	762 + DSS button	OpEs, ES2	OperatorES, ES2			
<i>Unavailable (ES Status Off)</i>	*760	760 + DSS button	OpEs, ESOff	OperatorES, ES Off			
Calling Group Members					K P B	K P B	K P B
<i>Sign in (Available)</i>	*44	44	ES	Status, ES2			
<i>Sign out (Unavailable)</i>		*44	ES,Off	ES Status, ES Off			
Group Page Auto Dial Button	*22 + Paging Group ext. no.		GrpPg	Group Page	K P B	K P B	K P B
Headset Options			Hdset	Hdset	K P B	K P B	K P B
Auto Answer	*780		Auto	Auto Answer			
Hang Up <sup>3</sup>	*781			Hang Up			
Mute (Headset/Handset)	*783		Mute	Mute			
Status	*782		Stat	Status			
HFAI Button	*779	779	HFAI	HFAI	K P B	K P B	K P B
Hold		771			B	B	B
Hold Release		**			B	B	B
Inspect Button	*778	778	Insp	Inspect	K P B	K P B	K P B

Table D-2. Telephone and Operator Features for Multiline 4400-Series Telephones — *Continued*

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display	4406D+ <sup>1</sup>	4412D+, 4424D+	4424LD+
Intercom Buttons Assign Buttons <sup>3</sup>					K B	K B	K B
<i>ICOM (Default Ring)</i>	*16			SysAccess			
<i>ICOM Originate Only</i>	*18			SysAcc-00			
Change Button type <i>Ring</i>	**19		Voice, Place, Ring	Voice Annce, Place,Ring			
<i>Voice</i>	*19		Voice, Place, Voice	Voice Annce, Place,Voice			
Language Choice					K P B	K P B	K P B
English		790					
French		791					
Spanish		792					
Messaging			Msgs	Messages			
Leave Message <i>After calling</i>	*25	25	LvMsg	Msg Leave	K P B	K P B	K P B
<i>Without calling</i>		53 + ext no.					
<i>Cancel msg. left</i>		*53 + ext no.					
Message LED Off	*54	54					
Posted Message	*751		Post	Posted Msg	K P B	K P B	K P B
Send/Remove Msg <sup>2</sup>	*38	38 + ext no.	SdMsg	Send/RmvMsg	K P B	K P B	K P B
Receiving Messages			Msgs	Messages		K P B	K P B
Delete Message	*26	26	Dlete	Delete Msg	K P B	K P B	K P B
Next Message	*28	28	Next	Next Msg	K P B	K P B	K P B
Return Call	*27	27	Call	Return Call	K P B	K P B	K P B
Scroll	*29	29					
Night Service <sup>2</sup>	*39	39	Night	Night Srvc		K P B	K P B

**Table D-2. Telephone and Operator Features for Multiline 4400-Series Telephones — *Continued***

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display	4406D+ <sup>1</sup>	4412D+, 4424D+	4424LD+
Notify Send	*757 + ext. no.		Ntfy Send	Notify Send	K P B	K P B	K P B
Receive	*758 + ext. no.		Recv	Receive			
Paging Group Paging Loudspeaker Paging			GrpPg LdsPg	Group Page Loudspkr Pg	K P B	K P B	K P B
Park	*86		Park	Park	K P B	K P B	K P B
Park Zone Auto Dial <sup>2</sup>	*22 + Park Zone		PrkZn	Park Zone		K P B	K P B
Personal Speed Dial	# + (01–24) + *21 + tel no. + ##				K P B		
Personalized Ringing	*32 + ring (1–8)		PRing, Pat# 1 ...Pat#8	PersonalRng, Pattern # 1 ...Pattern #8	K P B	K P B	K P B
Pickup General Use Specific Extension Specific Line Group	*9 *9 + ext. no. *9 + line no. *88	9 + ext. no. 9 + line no. 88	Pkup Genrl Ext Line PkupG	Pickup General Extension Line Pickup Grp	K P B	K P B	K P B
Privacy On Off	*31	31 *31	Prvcy	Privacy	K P B	K P B	K P B
Recall	*775	775	Rec11	Recall	K P B	K P B	K P B
Redial	*84	84	Rdial	Redial	K P B	K P B	K P B

Table D-2. Telephone and Operator Features for Multiline 4400-Series Telephones — *Continued*

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display	4406D+ <sup>1</sup>	4412D+, 4424D+	4424LD+
Reminder Service Set <sup>4</sup>	*81	81 + time + A or P	Rmind Set	Reminder Set	K P B	K P B	K P B
Operator Set <sup>2,5</sup>		81 + ext. no.+ time + A or P					
Cancel Operator Cancel <sup>2</sup>	**81	*81 *81 + ext. no.	Cancl	Cancel			
Missed <sup>2</sup>	*752		Missd	Missed			
Ringing/Idle Line Preference					K P B	K P B	K P B
On	*343		LnPrf, On	Line Prefer, On			
Off	*344		LnPrf, Off	Line Prefer, Off			
Ringing Options			RngOp	RingOptions			
Individual Lines			lLine	One Line	K P B	K P B	K P B
<i>Immediate ring</i>	*37		Immed	Immed Ring			
<i>Delay ring</i>	*36		Delay	Delay Ring			
<i>No ring</i>	*35		No	No Ring			
All Lines			AllLn	All Lines	K P B	K P B	K P B
<i>Immediate ring</i>	*347		Immed	Immed Ring			
<i>Delay ring</i>	*346		Delay	Delay Ring			
<i>No ring</i>	*345		No	No Ring			
Abbreviated Ring			Abbrv	Abbreviated	K P B	K P B	K P B
<i>On</i>	*341		On	On			
<i>Off</i>	*342		Off	Off			
Send Ring (Shared SA)			ShRng	SharedSARng	P	P	P
<i>On</i>	*15		On	On			
<i>Off</i>	**15		Off	Off			
Saved Number Dial	*85		Save#	SaveNumDial	K P B	K P B	K P B

**Table D-2. Telephone and Operator Features for Multiline 4400-Series Telephones — *Continued***

Feature	Prog Code	Feature Code	2-Line Display	7-Line Display	4406D+ <sup>1</sup>	4412D+, 4424D+	4424LD+
Service Observing <sup>3</sup>	*59			Service Obs	K P B	K P B	K P B
Signal (manual)	*23 + ext. no.		Signl	Signal	K P B	K P B	K P B
System Access Buttons					P	P	P
Assign Buttons <sup>3</sup>							
SA (Default Ring)	*16			SysAccess			
SA Originate Only	*18			SysAcc-00			
Shared SA	*17 + primary ext. no.			ShareSysAcc			
Change type (SA or Shared SA)							
Ring	**19						
Voice	*19						
System Speed Dial	*24 + code (600-729)	600-729	SpdDl	SysSpeedDl	K P B	K P B	K P B
Transfer	*774	774	Trans	Transfer	B	B	B
Voice Announce			Voice	Voice Annce	K P B	K P B	K P B
On	*10		On	On			
Off	**10		Off	Off			

1 You cannot select features from the display of a 4406D+ telephone.

2 System operator feature only.

3 Centralized telephone programming only.

4 U.S. English only: time is 12-hour (0100-1259) + 2 (A) or 7 (P). French and Spanish: time is 24-hour (0000-2359).

D General Feature Use and Telephone Programming  
 Telephone and Operator Features

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**Table D-3. Telephone Features for 4400, 4400D, and Single-Line Telephones**

Feature	Prog Code	Feature Code	4400, 4400D <sup>1</sup>	Single-Line
Account Code Entry	*82	82 + code	K P B	K P
Authorization Code	*80	80	K P B	K P B
Call Waiting			K P B	K P B
On	*11			
Off	**11			
Call Waiting Pickup		87		
Callback			K P B	K P B
Automatic				
On	*12			
Off	**12			
Selective				
Cancel Selective	*55	55 *55		
Caller ID Name <sup>2</sup>	*763	763	K P B	N/A
Camp-On	*57	57	K P B	K P B
Conference	*772	772	B	B
Coverage			K P B	K P B
<i>Cover inside and outside calls</i>				
<i>Cover outside calls only</i>				
Receiver Buttons				
Group			K P B	K P B
Primary			K P B	K P B
Secondary			K P B	K P B
Direct Voice Mail	*56	56	K P	K P
Directories				
System Directory	(sys. prog.)		K P B	K P B
Extension Status			K P B	K P B
Telephones				
(rmns or agents)				
<i>Status Off</i>		*44		
<i>Status 1</i>		45		
<i>Status 2</i>		44		

**Table D-3. Telephone Features for 4400, 4400D, and Single-Line Telephones — *Continued***

Feature	Prog Code	Feature Code	4400, 4400D <sup>1</sup>	Single-Line
Forward and Follow Me			K P B	K P B
Activate				
<i>Forward (inside)</i>		33 + ext. no.		
<i>Remote Call</i>		33 + tel no.		
<i>Forward (outside)</i>				
<i>Centrex Transfer</i>	*33 + dial-out code			
<i>via Remote Call</i>	or * + optional			
<i>Forward</i>	Pauses + tel. no. + #			
<i>Follow Me</i>		34 + ext. no.		
Cancel				
<i>Cancel sending from your telephone</i>		33 + your ext. no.		
<i>Cancel sending from one extension</i>		*34 + ext. no.		
<i>Cancel sending from all extensions</i>		*34*		
Group Calling				
Calling Group			K P B	K P B
Members				
<i>Sign in (Available)</i>		44		
<i>Sign out</i>		*44		
<i>(Unavailable)</i>		45		
Hold		771	P B	P B
Hold release		**	P B	P B
Paging			K P B	K P B
Group Paging				
Loudspeaker Paging				
Park	4400 and single-line: Recall or Flash + your ext. 4400D: Trnsfr + your ext. + Trnsfr		K P B	K P B
Personal Speed Dial	# + (01–24) + *21 + tel no. + ##		K P B	K P B
Pickup			K P B	K P B
General Use				
Specific Extension		9 + ext. no.		
Specific Line		9 + line no.		
Group		88		
Privacy			K P B	K P B
On		31		
Off		*31		

**Table D-3. Telephone Features for 4400, 4400D, and Single-Line Telephones — *Continued***

Feature	Prog Code	Feature Code	4400, 4400D <sup>1</sup>	Single-Line
Recall		775	K P B	K P B
Redial		84	K P B	K P B
Reminder Service Set <sup>3</sup>		81 + time + A	K P B	K P B
Cancel		or P *81		
Ringing/Idle Line Preference			K P B	K P B
On	*343			
Off	*344			
Ringing Options				
Individual lines			K P B	K P B
<i>Immediate ring</i>	*37			
<i>Delay ring</i>	*36			
<i>No ring</i>	*35			
System Speed Dial		600-729	K P B	K P B
Transfer		774	B	B

1 You cannot select a feature from the display of a 4400D telephone.

2 4400D telephone only.

3 U.S.English only: time is 12-hour (0100-1259) + 2 (A) or 7 (P). French and Spanish: time is 24-hour (0000-2359).

**Table D-4. Telephone Features for ETR and MLS Telephones**

Feature	Prog Code	Feature Code	ETR Display	MLS Display	ETR	MLS
Account Code Entry	*82	82 + code	Acct:	Acct?	K P B	K P B
Authorization Code	*80	80	Auth:	Auth?	K P B	K P B
Auto Dial Inside (ext., group, zone) Outside	*22 + ext. no. *21 + tel. no.		Inside Outside	Auto Dial Inside Outside	K P B	K P B
Automatic Line Selection Begin Sequence End Sequence	*14 **14				K P B	K P B
Barge-In <sup>1</sup>	*58		Barge In		K P B	K P B
Callback Automatic On Off Selective	*12 **12 *55	55	Cbck Auto On Off Cback Sel	AutoCallback On AutoCallback Off Callback Sel	K P B	K P B
Call Waiting On Off	*11 **11		CallWaiting On Off	Call Waiting On Call Waiting Off	K P B	K P B
Call Waiting Pickup		87				
Caller ID Number/Name Toggle Button	*763	763	Caller's number/ name	Caller's number/name	K P B	K P B
Camp-On	*57	57	Camp On	Camp On	K P B	K P B
Conference	*772	772			B	B
Contrast <sup>2</sup>				N/A		

Table D-4. Telephone Features for ETR and MLS Telephones — *Continued*

Feature	Prog Code	Feature Code	ETR Display	MLS Display	ETR	MLS
Coverage			Coverage	Coverage	K P B	K P B
Cover Inside and Outside Calls	*48		On	Cover Inside On		
Cover Outside Calls only	**48		Off	Cover Inside Off		
Receiver Buttons						
Group	*42 + ext. no.		Group	GroupCov	K P B	K P B
Primary	*40 + ext. no.		Primary	PrmryCov	K P B	K P B
Secondary	*41 + ext. no.		Secondary	SecndCov	K P B	K P B
Sender Buttons						
Coverage Off	*49		Coverage Off	Coverage Off	K P B	K P B
Coverage VMS Off	*46		Coverage VMS	Coverage VMS	K P B	K P B
Data Status	*83 + ext. no.		Data Status	Data Status	K P B	K P B
Direct Voice Mail	*56	56	Direct VM	Direct VoiceMail	K P B	K P B
Do Not Disturb	*47		DoNotDistrb	DO NOT DISTURB	K P B	K P B
Drop	*773	773			B	B
ETR Drop Button	*777	777	ETR Drop		K P B	K P B

**Table D-4. Telephone Features for ETR and MLS Telephones — *Continued***

Feature	Prog Code	Feature Code	ETR Display	MLS Display	ETR	MLS
Forward and Follow Me Activate					K P B	K P B
<i>Forward (inside)</i>	*33	33 + ext. no.	Forward	Forward		
<i>Remote Call Forward (outside)</i>	*33	33 + tel no.	Forward	Forward		
<i>Centrex Transfer via Remote Call Forward</i>	*33 + dial-out code or * + optional Pauses + tel. no. + #					
<i>Follow Me</i>		34 + ext. no.				
Cancel						
<i>Cancel sending from your telephone</i>		33 + your ext. no.				
<i>Cancel sending from one extension</i>		*34 + ext. no.				
<i>Cancel sending from all extensions</i>		*34*				
Group Calling			Group Call	Group Call	K P B	K P B
In-Queue Alarm button	*22 + Calling Group ext. no.					
Calling Group Members						
<i>Sign in (Available)</i>	*44	44	ES2	ES2	K P B	K P B
<i>Sign out (Unavailable)</i>		*44	ES1	ES1	K P B	K P B
Group Page Auto Dial Button	*22 + Paging Group ext. no.		Group Page	Group Page	K P B	K P B
Hold		771			B	B
Hold Release		**			B	B

Table D-4. Telephone Features for ETR and MLS Telephones — *Continued*

Feature	Prog Code	Feature Code	ETR Display	MLS Display	ETR	MLS
Intercom Buttons					K P B	K P B
Assign Buttons <sup>2</sup>						
<i>ICOM (Default Ring)</i>	*16		SysAccess	SysAccess		
<i>ICOM Originate Only</i>	*18		SysAcc-00	SysAcc-00		
Change Button Type						
<i>Ring</i>	**19		Place; Ring	Place Ring Calls		
<i>Voice</i>	*19		Place; Voice	Place Voice Calls		
Language Choice					K P B	K P B
English		790				
French		791				
Spanish		792				
Messaging						
Leave Message	*25			Leave Message	K P B	K P B
<i>After calling</i>		25	Msg Leave	Msg Leave	K P B	K P B
<i>Without calling</i>		53 + ext no.			K P B	K P B
<i>Cancel msg. left</i>		*53 + ext no.			K P B	K P B
Message LED Off (non- display telephones)	*54	54	Msg Lamp	Message Lamp	K P B	K P B
Message Operation Mode (display telephones) <sup>3</sup>	*54	54			K P B	K P B
Posted Message	*751		Posted Msg	Posted Message	K P B	K P B
Receiving Messages						
Delete Message <sup>4</sup>	*26	26	Msg Delete	Delete Message	K P B	K P B
Next Message <sup>4</sup>	*28	28	Msg Next	Next Message	K P B	K P B
Return Call <sup>4</sup>	*27	27	Msg RtnCall	Message Return call	K P B	K P B
Scroll <sup>4</sup>	*29	29	Msg Scroll	Scroll Message	K P B	K P B
Notify			Notify		K P B	K P B
Send	*757 + ext. no.		Send	Notify Send		
Receive	*758 + ext. no.		Receive	Notify Recv		

**Table D-4. Telephone Features for ETR and MLS Telephones — *Continued***

Feature	Prog Code	Feature Code	ETR Display	MLS Display	ETR	MLS
Paging Group Paging Loudspeaker Paging			Group Page		K P B	K P B
Park	*86		Park		K P B	K P B
Personal Speed Dial	# + (01–24) + *21 + tel no. + ##		PersSpeedDl	PersSpeedDial	K P B	K P B
Personalized Ringing	*32 + ring (1–8)		PersonalRng	Personal Ring	K P B	K P B
Pickup General Use Specific Extension Specific Line Group	*9 *9 + ext. no. *9 + line no. *88	9 + ext. no. 9 + line no. 88	Pickup General Extension Line Group	Pickup Pickup General Pickup Ext. Pickup Line Pickup Group	K P B	K P B
Privacy On Off	*31	31 *31	Privacy	Privacy	K P B	K P B
Recall	*775	775	Recall	Recall	K P B	K P B
Redial	*84	84	Rdial	Redial	K P B	K P B
Reminder Service Set <sup>5</sup>  Cancel	*81  **81	81 + time + A or P *81	Reminder Set  Cancel	Reminder Reminder Set  Reminder Cancel	K P B	K P B
Ringing/Idle Line Preference On Off	*343 *344		Line Prefer On Off	LinePreferenceOn LinePreferenceOff	K P B	K P B

Table D-4. Telephone Features for ETR and MLS Telephones — *Continued*

Feature	Prog Code	Feature Code	ETR Display	MLS Display	ETR	MLS
Ringing Options			RingOptions	RingOptions	K P B	K P B
Individual Lines <sup>6</sup>			One Line		K P B	K P B
<i>Immediate ring</i>	*37		Immed Ring	Immed Ring	K P B	K P B
<i>Delay ring</i>	*36		Delay Ring	Delay Ring	K P B	K P B
<i>No ring</i>	*35		No Ring	No Ring	K P B	K P B
All Lines			All Lines		K P B	K P B
<i>Immediate ring</i>	*347		Immed Ring	All Lines - I	K P B	K P B
<i>Delay ring</i>	*346		Delay Ring	All Lines - D	K P B	K P B
<i>No ring</i>	*345		No Ring	All Lines - N	K P B	K P B
Abbreviated Ring			Abbreviated		K P B	K P B
<i>On</i>	*341		On	AbbreviatedRngOn	K P B	K P B
<i>Off</i>	*342		Off	AbbreviatedRngOff	K P B	K P B
Send Ring (Shared SA)			SharedSARng		P	P
<i>On</i>	*15		On	SharedSA Rng On	P	P
<i>Off</i>	**15		Off	SharedSA Rng Off	P	P
Saved Number Dial	*85		SaveNumDial	Save Number Dial	K P B	K P B
Signal (manual)	*23 + ext. no.		Signal	Signal	K P B	K P B
System Access Buttons					P	P
Assign Buttons <sup>2</sup>						
<i>SA (Default Ring)</i>	*16		SysAccess	SysAccess	P	P
<i>SA Originate Only</i>	*18		SysAcc-00	SysAcc-00	P	P
<i>Shared SA</i>	*17 + primary ext. no.		ShareSysAcc	ShareSysAcc	P	P
Change Type (SA or Shared SA)						
<i>Ring</i>	**19		Place; Ring	Place Ring Calls	K P B	K P B
<i>Voice</i>	*19		Place; Voice	Place Voice Calls	K P B	K P B
System Speed Dial	*24 + code (600-729)	600-729	SysSpeedDl	SysSpeedDial	K P B	K P B
Transfer	*774	774	Trans		B	B

**Table D-4. Telephone Features for ETR and MLS Telephones — *Continued***

Feature	Prog Code	Feature Code	ETR Display	MLS Display	ETR	MLS
Voice Announce			Voice Annce	Voice Annce	K P B	K P B
On	*10		Receive; On	RecvVoiceAnn On		
Off	**10		Receive; Off	RecvVoiceAnn Off		

- 1 Centralized telephone programming only.
- 2 Press the \* button and use the volume up and down key; for ETR telephones only.
- 3 For 4406D+, ETR, and MLS display telephone users, pressing \*54 enters/exits Message operation mode. MLS telephones return to normal call handling after 15 seconds if the user has no messages. If an MLS telephone user has messages, he or she must delete the messages or use the feature code or programmed button to exit Message operation. A 4406D+ or ETR telephone user must use the feature code or the programmed button to exit Message operation whether or not he or she has messages.
- 4 Display telephones only. Programming and feature codes are used with analog multiline, ETR, and MLS telephones.
- 5 U.S. English only: time is 12-hour (0100–1259) + 2 (A) or 7 (P). French and Spanish: time is 24-hour (0000–2359).
- 6 With Immediate Ring (steady red LED), incoming calls are immediately delivered. With Delay Ring (slow red LED), incoming calls are delayed (default is 2 rings). With No Ring (LED off), no calls are delivered.

## Telephone Programming

The following describes how to program features on multiline 4400-Series, MLX, ETR, and MLS telephones. Because Personal Speed Dial is the only feature that 4400, 4400D, and single-line telephone users can program, general programming instructions for these telephones are not provided.

**NOTE** ► Features cannot be programmed on QCCs in system operator positions. Features assigned to these consoles are fixed and cannot be changed.

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### Programming Methods

Telephones can be programmed by dialing programming codes or, on 4412D+, 4424D+, and 4424LD+ telephones and MLX display telephones, by selecting features from the display. ETR, MLS, and 4406D telephones cannot be programmed by selecting features from the display.

To program a telephone, first enter programming mode:

- On ETR and MLS telephones, press the Feature button and dial 00.
- On MLX-10 and MLX-5 nondisplay telephones, press the Feature button and dial 00.
- On MLX display telephones, press the Feature button and dial 00, or enter programming mode by pressing the menu button for `Ext Program [Prog]` from the menu screen on the display.
- On 4406D+ telephones, go off-hook and dial #00.
- On 4412D+, 4424D+, and 4424LD+ telephones, use the same procedure as for the 4406D+ telephones, or enter programming mode by pressing the menu button for `Ext Program [Prog]` from the menu screen on the display.
- On TransTalk MDW 9000 telephones, press the imprinted Feat button and dial 00.
- On Business Cordless 905, press SHIFT + PROG.

See the appropriate user or operator guide for more information.

**NOTE** ► Features can also be programmed onto individual telephones through centralized telephone programming. The steps for using programming codes vary, depending on the telephone. Tables D-7 through D-10 list the basic steps for programming each telephone type.

**Table D-5. Programming 4406D+ Telephones**

Step	Action
1 Label the button.	Remove the clear label cover from the telephone.
<p>► <b>NOTE:</b>                      Skip this step if the feature is not programmed on a button.</p>	<p>Write the feature name on the card next to the button to be programmed.</p> <p>Replace the cover.</p>
2 Begin programming.	Lift the receiver, and dial #00.
3 Select the feature or setting.	Press the button you labeled.
	<p>► <b>NOTE:</b>                      If the feature does not get programmed onto a button, press any line button. This does not affect the button in any way.</p> <p>Dial the programming code.</p> <p><i>The feature is programmed.</i></p>
4 End programming.	Dial #*00, or hang up.

**Table D-6. Programming 4412D+, 4424D+, and 4424LD+ Telephones by Using the Display**

Step	Action
1 Label the button to be programmed.	Remove the clear label cover from the telephone.
<p>► <b>NOTE:</b>                      Skip this step if the feature will not be programmed onto a button.</p>	<p>Write the feature name on the card next to the button to be programmed.</p> <p>Replace the cover.</p>
2 Begin programming.	Press Menu.
	Select Ext Program [Prog] from the display.
	Select Start from the display.

**Table D-6. Programming 4412D+, 4424D+, and 4424LD+ Telephones by Using the Display — *Continued***

Step	Action
3 Identify the button to be programmed.	<p>Press the button you labeled.</p> <p>► <b>NOTE:</b>                      If the feature does not get programmed onto a button, press any line button. This does not affect the button in any way.</p> <p><i>The display identifies the feature currently programmed on the button. If no feature is programmed, the display indicates that the button is blank.</i></p>
To delete the features currently programmed on the button:	<p>Select <code>Delete [Delete]</code> from the display.</p> <p><i>The button is now blank.</i></p> <p>Press the button you labeled again to continue programming.</p> <p>► <b>NOTE:</b>                      If the currently programmed feature was not deleted from the button, the new feature programmed onto it will replace it.</p> <p>Select <code>List Feature [List]</code> from the display.</p> <p><i>The screen lists feature names in alphabetical order.</i></p>
4 To display feature, select the feature.	<p>If the feature name is on the display:                      Press the button next to or below the name of the feature to be programmed.</p> <p>If the feature name is not on the display:                      Press <code>▶</code>.</p> <p>To move through the list of features page by page:                      Press <code>▶</code>.</p> <p>To jump to the screen that displays the feature name:                      Select <code>Find Feature [Find]</code> from the display.</p> <p>Select the range of letters from the display that corresponds to the first letter of the feature name (for example, if the feature begins with A, select ABC).</p> <p>If the feature is not displayed on the page that you jumped to, press <code>▶</code>.</p> <p>When you find the feature you want, press the button next to or below it.</p>

Table D-6. Programming 4412D+, 4424D+, and 4424LD+ Telephones by Using the Display — *Continued*

Step	Action
5	Respond to any additional prompts on the display.  Select the appropriate prompt (for example, select <i>On</i> or <i>Off</i> to turn inside Coverage on or off), and/or enter required information (for example, dial a telephone number for Auto Dial).  Select <i>Enter</i> .
6	End programming.  To return to the Home screen: Press <i>Exit</i> or lift and replace the handset.  To return to the Menu screen: Press <i>Menu</i> .

**NOTE** ► You also can program the 4412D+, 4424D+, and 4424LD+ telephones by using the method described for the 4406D+ telephones. For example, the programming mode can be entered by pressing the programmed Feature button, dialing 00, and then referring to the display to continue the programming process. Or you can enter programming by using the display and then dialing a programming code to select the feature, rather than selecting it from the display.

**Table D-7. Programming MLX-10 and MLX-5 Nondisplay Telephones**

Step	Action
1 Label the button.	Remove the clear label cover from the telephone: pull up on the tab that extends from the top of the cover.
<p>► <b>NOTE:</b>                      Skip this step if the feature will not be programmed onto a button.</p>	<p>Write the feature name on the card next to the button to be programmed.</p> <p>Replace the cover.</p>
2 Begin programming.	Press the Feature button, and then dial 00.
3 Select the feature or setting.	<p>Press the button you labeled.</p> <p>► <b>NOTE:</b>                      If the feature does not get programmed onto a button, press any line button. This does not affect the button in any way.</p> <p>Dial the programming code.</p> <p><i>The feature is programmed.</i></p>
4 End programming.	Press the Feature button, and dial *00.

**Table D-8. Programming MLX Telephones by Using the Display**

Step	Action
1 Label the button to be programmed.	Remove the clear label cover from the telephone by pulling up on the tab that extends from the top of the cover.
<p>► <b>NOTE:</b>                      Skip this step if the feature will not be programmed onto a button.</p>	<p>Write the feature name on the card next to the button to be programmed.</p> <p>Replace the cover.</p>
2 Begin programming.	<p>Press Menu.</p> <p>Select Ext Program [Prog] from the display.</p> <p>Select Start from the display.</p>

**Table D-8. Programming MLX Telephones by Using the Display — *Continued***

Step	Action
3 Identify the button to be programmed.	Press the button you labeled.  <b>►NOTE:</b> If the feature does not get programmed onto a button, press any line button. This does not affect the button in any way.
To delete the features currently programmed on the button:	<p><i>The display identifies the feature currently programmed on the button. If no feature is programmed, the display indicates that the button is blank.</i></p> Select <code>Delete [Delete]</code> from the display. <i>The button is now blank.</i>  Press the button you labeled again to continue programming.  <b>►NOTE:</b> If the currently programmed feature was not deleted from the button, the new feature programmed onto it will replace it.  Select <code>List Feature [List]</code> from the display. The screen lists feature names in alphabetical order.
4 To display the feature, select the feature.  If the feature name is on the display:  If the feature name is not on the display:  To move through the list of features page by page:  To jump to the screen that displays the feature name:	Press the button next to or below the name of the feature to be programmed.  Press <code>More</code> .  Press <code>More</code> .  Select <code>Find Feature [Find]</code> from the display. Select the range of letters from the display that corresponds to the first letter of the feature name (for example, if the feature begins with A, select <code>ABC</code> ).  If the feature is not displayed on the page that you jumped to, press <code>More</code> .  When you find the feature you want, press the button next to or below it.

**Table D-8. Programming MLX Telephones by Using the Display — *Continued***

Step	Action
5	Respond to any additional prompts on the display.  Select the appropriate prompt (for example, select <i>On</i> or <i>Off</i> to turn inside Coverage on or off), and/or enter required information (for example, dial a telephone number for Auto Dial).  Select <i>Enter</i> .
6	End programming.  To return to the Home screen: Press <i>Home</i> or lift and replace the handset.  To return to the Menu screen: Press <i>Menu</i> .

**NOTE** ► You also can program MLX display telephones by using the method described for MLX-10 and MLX-5 non-display telephones. That is, programming mode can be entered by pressing the *Feature* button, dialing 00, and then referring to the display to continue the programming process. Or you can enter programming by using the display and then dialing a programming code to select the feature, rather than selecting it from the display.

**Table D-9. Programming ETR and MLS Telephones**

Step	Action
1	Label the button.  ► <b>NOTE:</b> Skip this step if the feature is not programmed on a button.
	Remove the clear label cover from the telephone.  Write the feature name on the card next to the button to be programmed.  Replace the cover.
2	Begin programming.
3	Select the feature or setting.  ► <b>NOTE:</b> If the feature does not get programmed onto a button, press any line button. This does not affect the button in any way.  Dial the programming code.  <i>The feature is programmed.</i>
4	End programming.
	Press the <i>Feature</i> button, and dial *00, or hang up.

**Table D-10. Programming TransTalk MDW 9000 Telephones**

Step	Action
1 Label the button to be programmed.  ► <b>NOTE:</b> Skip this step if the feature will not be programmed onto a button.	Remove the clear label cover from the telephone by pulling up on the tab that extends from the top of the cover.  Write the feature name on the card next to the button to be programmed.  Replace the cover.
2 Begin programming.	Press the imprinted Feat button.  Dial 00.
3 Select the feature or setting.	Press the button you labeled.  ► <b>NOTE:</b> If the feature does not get programmed onto a button, press any line button. This does not affect the button in any way.  Dial the programming code.  <i>The feature is programmed.</i>
4 End programming.	Press the imprinted Feat button.  Dial 00.



# Button Diagrams

# E

This appendix contains the button diagrams for Hybrid/PBX, Key, and Behind Switch systems.

## 4400-Series Telephones

<input type="checkbox"/> 21 <input type="checkbox"/>			<input type="checkbox"/> 23 <input type="checkbox"/>	<input type="checkbox"/> 25 <input type="checkbox"/>			<input type="checkbox"/> 27 <input type="checkbox"/>
<input type="checkbox"/> 5 <input type="checkbox"/>			<input type="checkbox"/> 10 <input type="checkbox"/>	<input type="checkbox"/> 15 <input type="checkbox"/>			<input type="checkbox"/> 20 <input type="checkbox"/>
<input type="checkbox"/> 4 <input type="checkbox"/>			<input type="checkbox"/> 9 <input type="checkbox"/>	<input type="checkbox"/> 14 <input type="checkbox"/>			<input type="checkbox"/> 19 <input type="checkbox"/>
<input type="checkbox"/> 3 <input type="checkbox"/>	SA Orig. Only		<input type="checkbox"/> 8 <input type="checkbox"/>	<input type="checkbox"/> 13 <input type="checkbox"/>			<input type="checkbox"/> 18 <input type="checkbox"/>
<input type="checkbox"/> 2 <input type="checkbox"/>	SA Ring		<input type="checkbox"/> 7 <input type="checkbox"/>	<input type="checkbox"/> 12 <input type="checkbox"/>			<input type="checkbox"/> 17 <input type="checkbox"/>
<input type="checkbox"/> 1 <input type="checkbox"/>	SA Ring		<input type="checkbox"/> 6 <input type="checkbox"/>	<input type="checkbox"/> 11 <input type="checkbox"/>			<input type="checkbox"/> 16 <input type="checkbox"/>

Figure E-1. 4412D+, 4424D+, and 4424LD+ Telephones (Hybrid/PBX Mode)

<input type="checkbox"/> 3 <input type="checkbox"/>	SA Orig. Only		<input type="checkbox"/> 6 <input type="checkbox"/>
<input type="checkbox"/> 2 <input type="checkbox"/>	SA Voice		<input type="checkbox"/> 5 <input type="checkbox"/>
<input type="checkbox"/> 1 <input type="checkbox"/>	SA Ring		<input type="checkbox"/> 4 <input type="checkbox"/>

Figure E-2. 4406D+ Telephone (Hybrid/PBX Mode)

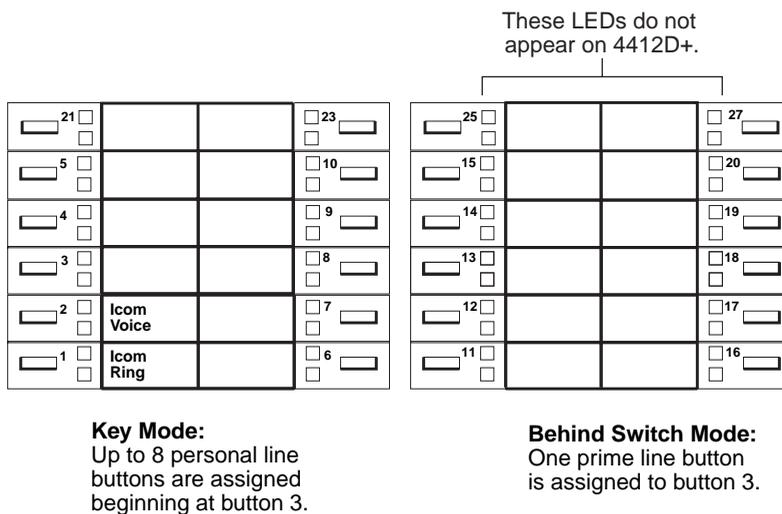
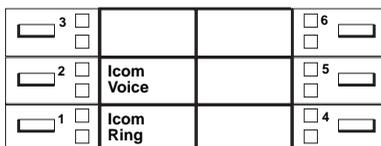


Figure E-3. 4412D+, 4424D+, and 4424LD+ Telephones (Key and Behind Switch Modes)



**Key Mode:**  
 Up to 8 personal line buttons are assigned beginning at button 3.

**Behind Switch Mode:**  
 One prime line is assigned to button 3.

Figure E-4. 4406D+ Telephone (Key and Behind Switch Modes)

# MLX Telephones

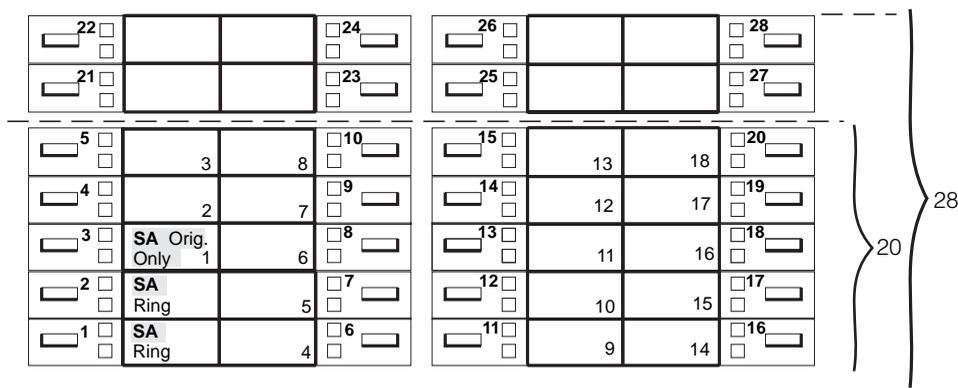


Figure E-5. MLX-20L and MLX-28D Telephones (Hybrid/PBX Mode)

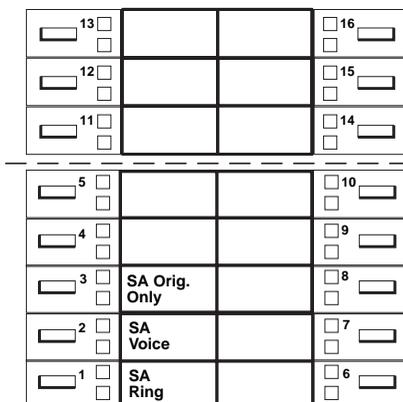


Figure E-6. MLX-16DP Telephone (Hybrid/PBX Mode)

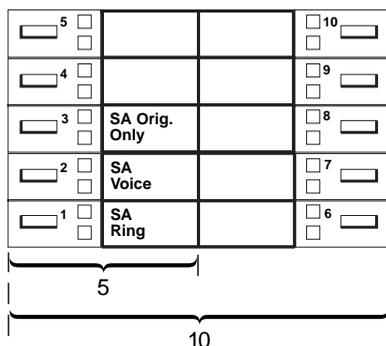
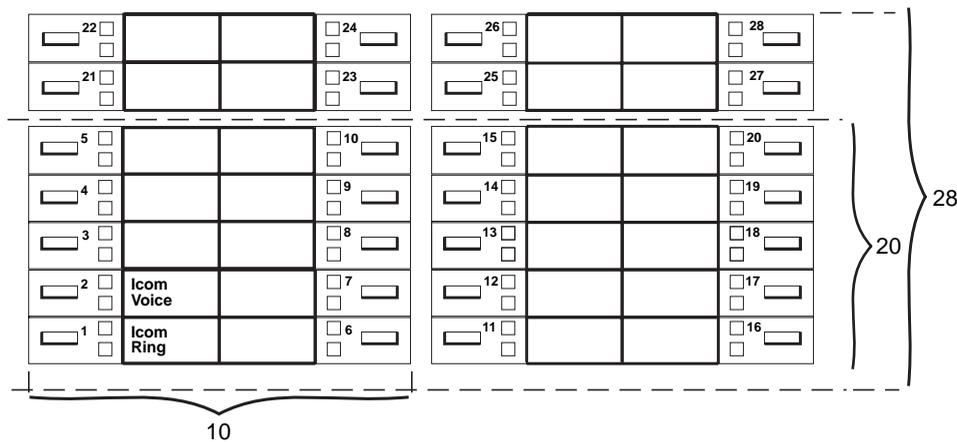


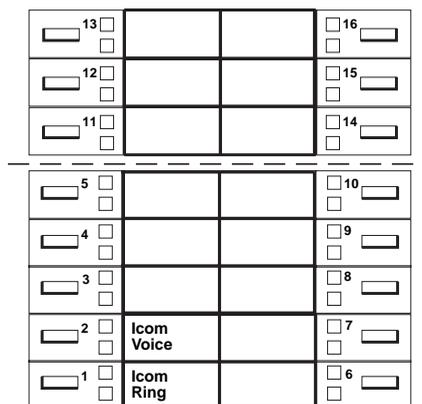
Figure E-7. MLX 5- and 10-Button Telephones (Hybrid/PBX Mode)



**Key Mode:**  
 Up to 8 personal line  
 buttons are assigned  
 beginning at button 3.

**Behind Switch Mode:**  
 One prime line  
 is assigned to button 3.

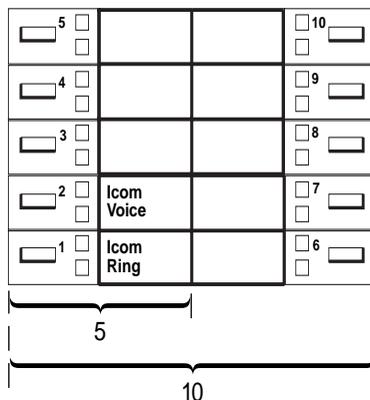
Figure E-8. MLX-20L and MLX-28D Telephones (Key and Behind Switch Modes)



**Key Mode:**  
 Up to 8 personal line  
 buttons are assigned  
 beginning at button 3.

**Behind Switch Mode:**  
 One prime line button  
 is assigned to button 3.

Figure E-9. MLX-16DP Telephone (Key and Behind Switch Modes)



**Key Mode:**  
 Up to 8 personal line  
 buttons are assigned  
 beginning at button 3.

**Behind Switch Mode:**  
 One prime line is assigned  
 to button 3.

Figure E-10. MLX 5- and 10-Button Telephones (Key and Behind Switch Modes)

# ETR and MLS Telephones

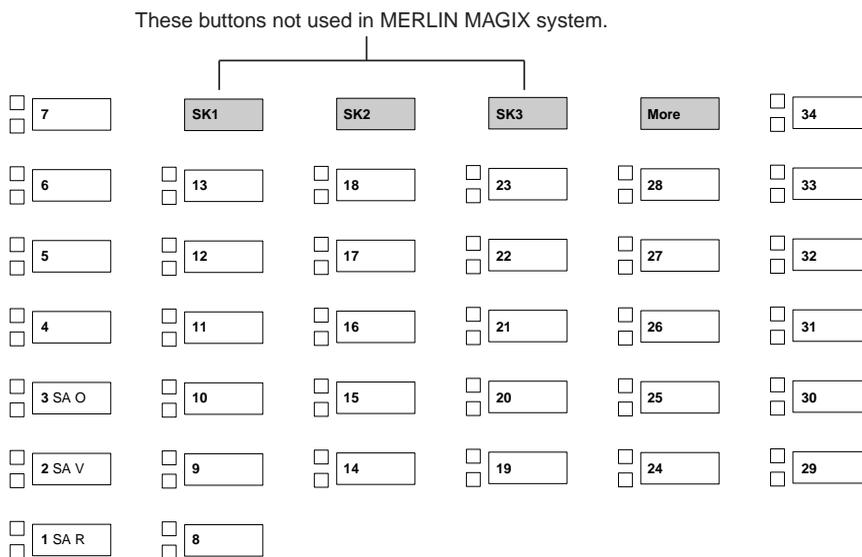


Figure E-11. ETR-34D Telephone (Hybrid/PBX Mode)

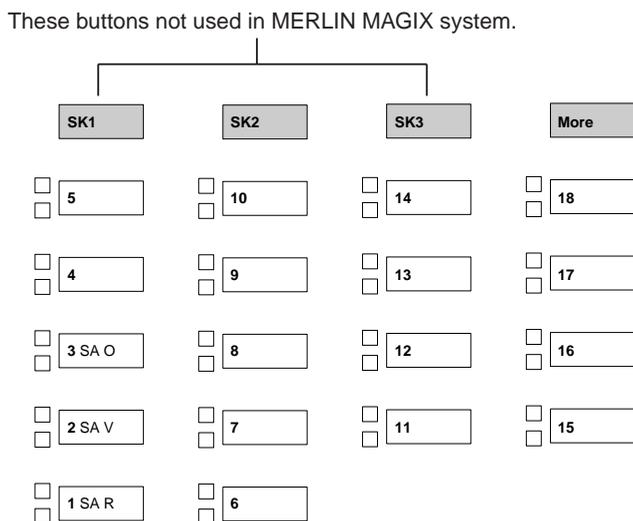
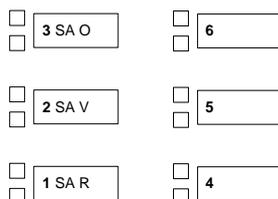
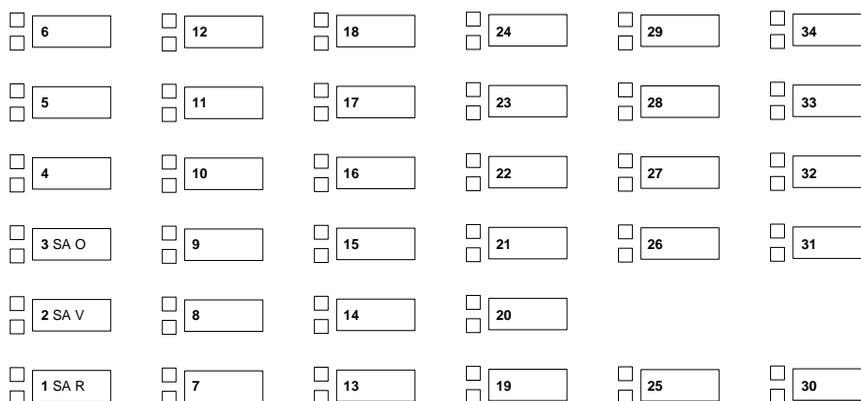


Figure E-12. ETR-18/18D Telephones (Hybrid/PBX Mode)



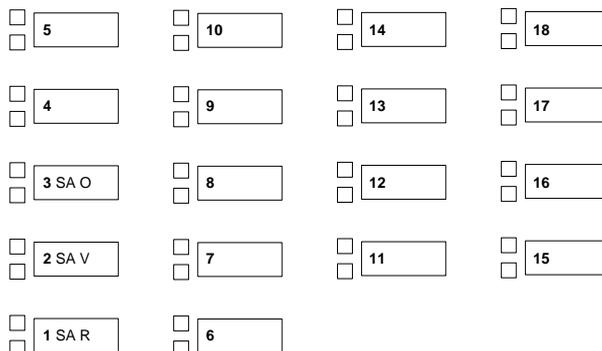
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**Figure E-13. ETR-6 Telephone (Hybrid/PBX Mode)**



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**Figure E-14. MLS-34D Telephone (Hybrid/PBX Mode)**



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**Figure E-15. MLS-18D Telephone (Hybrid/PBX Mode)**

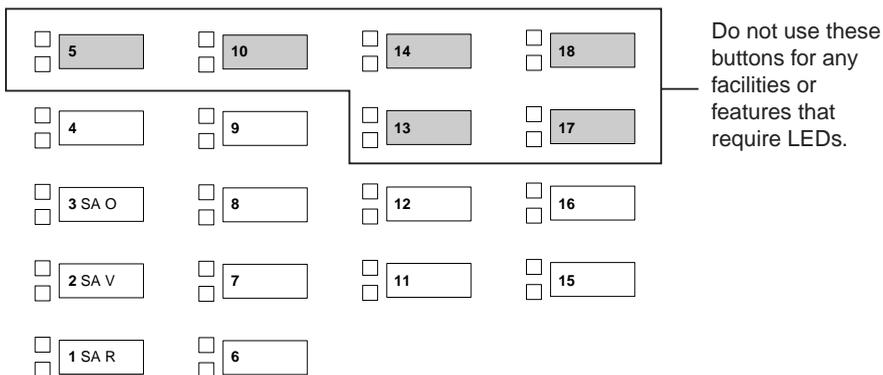


Figure E-16. MLS-12/12D Telephones (Hybrid/PBX Mode)

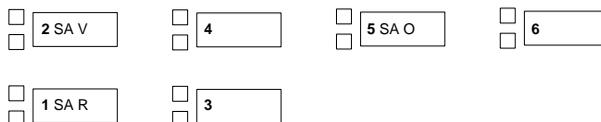


Figure E-17. MLS-6 Telephone (Hybrid/PBX Mode)

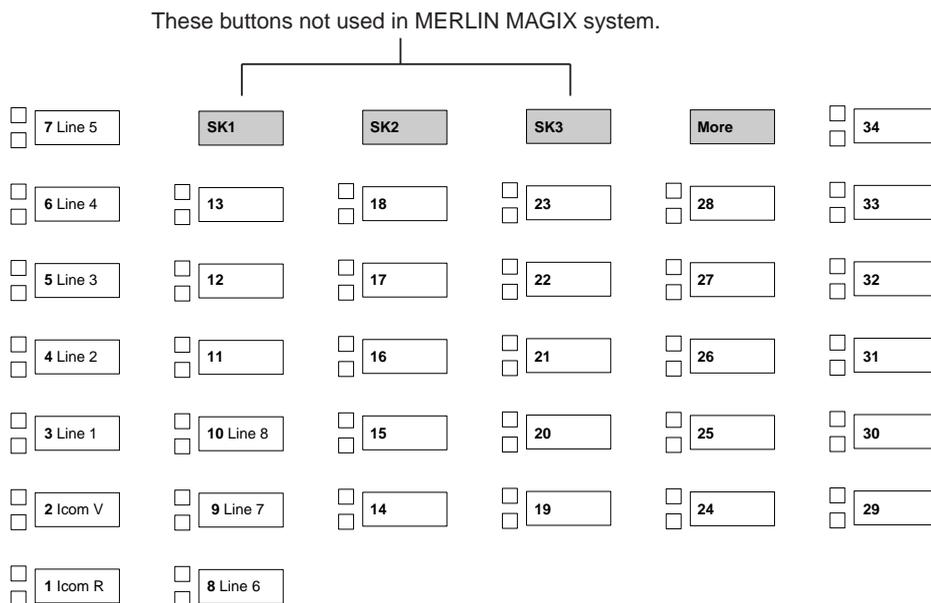


Figure E-18. ETR-34D Telephone (Key Mode)

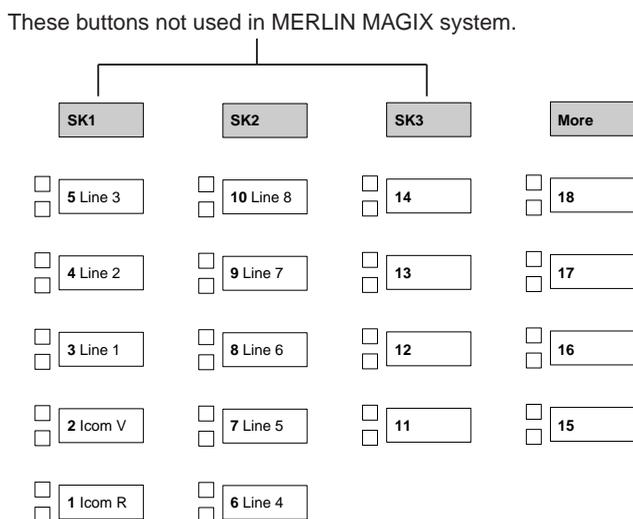


Figure E-19. ETR-18/18D Telephones (Key Mode)

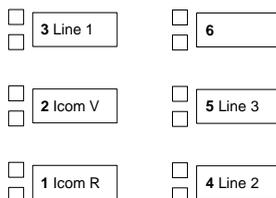


Figure E-20. ETR-6 Telephone (Key Mode)

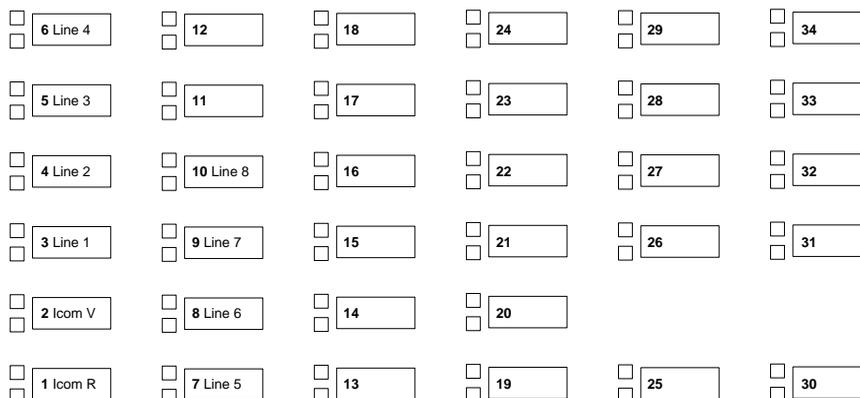


Figure E-21. MLS-34D Telephone (Key Mode)

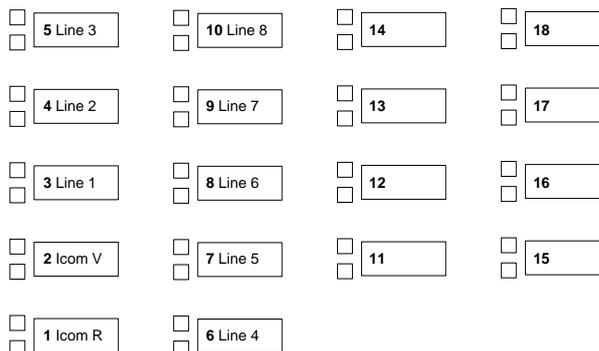


Figure E-22. MLS-18D Telephone (Key Mode)

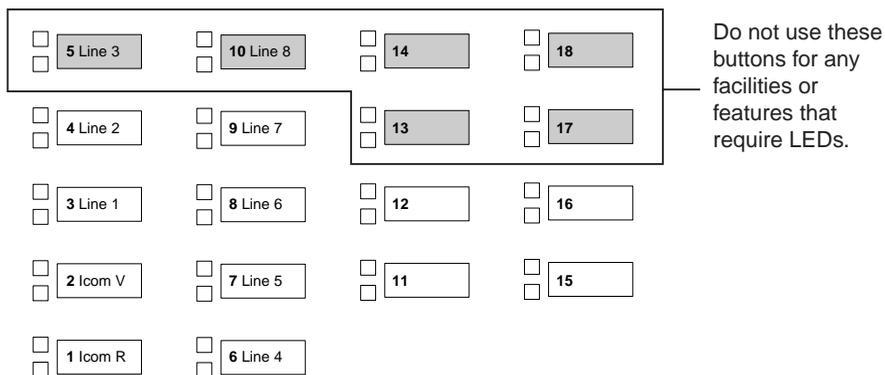


Figure E-23. MLS-12/12D Telephones (Key Mode)

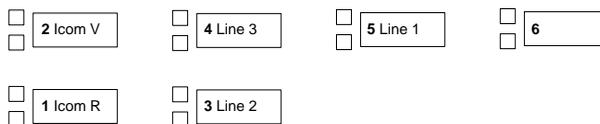


Figure E-24. MLS-6 Telephone (Key Mode)

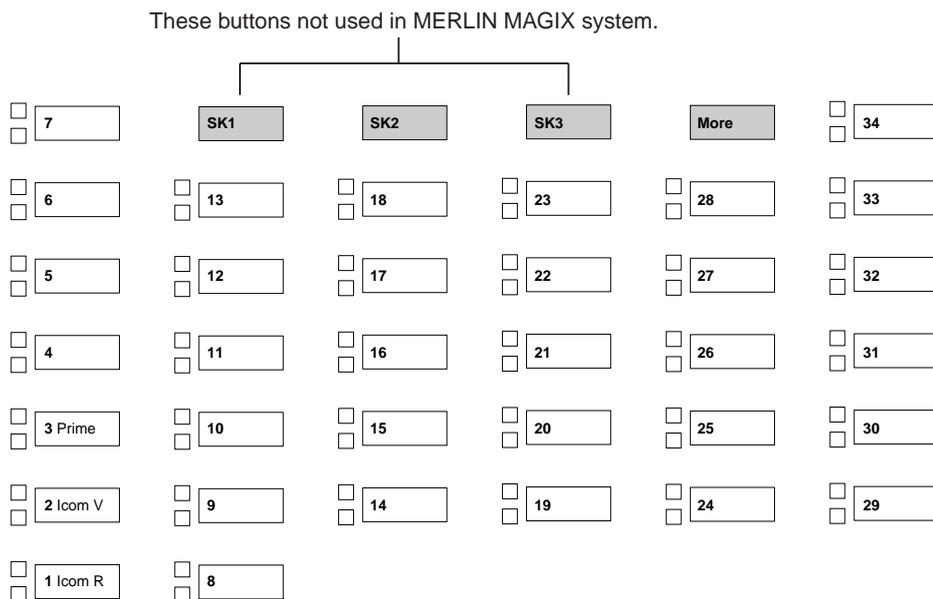


Figure E-25. ETR-34D Telephone (Behind Switch Mode)

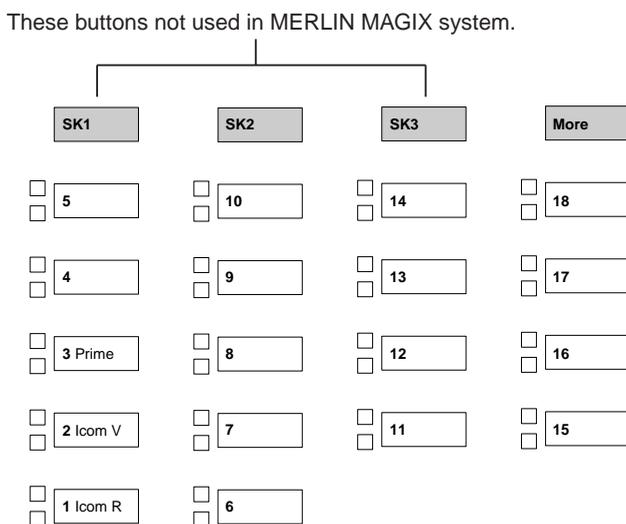


Figure E-26. ETR-18/18D Telephone (Behind Switch Mode)

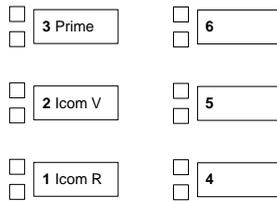


Figure E-27. ETR-6 Telephone (Behind Switch Mode)

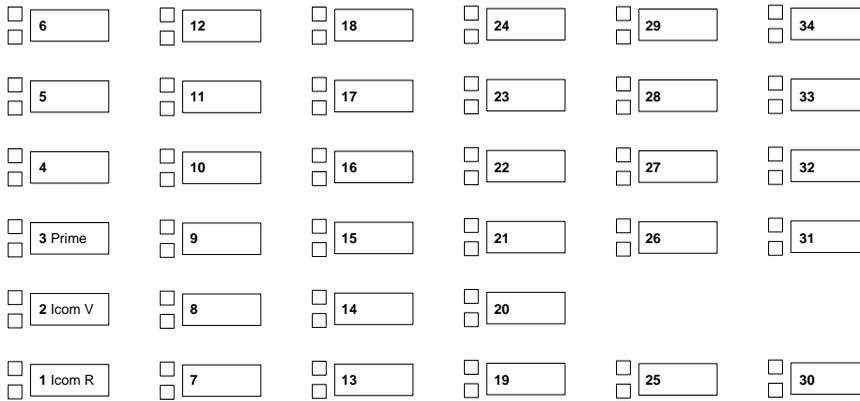


Figure E-28. MLS-34D Telephone (Behind Switch Mode)

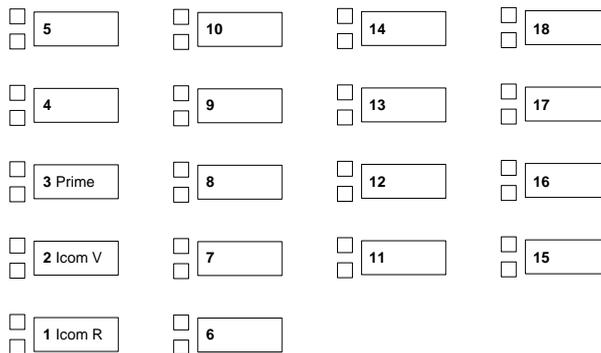


Figure E-29. MLS-18D Telephone (Behind Switch Mode)

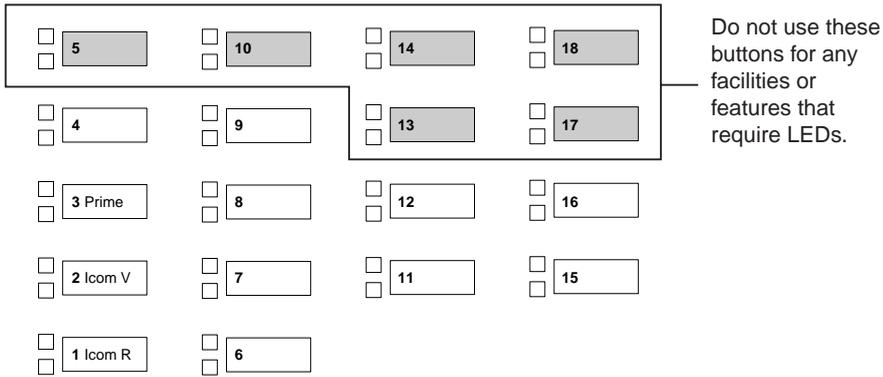


Figure E-30. MLS-12/12D (Behind Switch Mode)

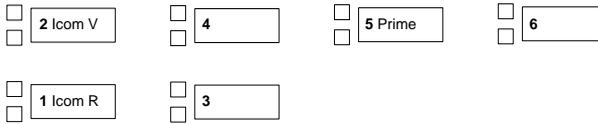


Figure E-31. MLS-6 Telephone (Behind Switch Mode)

## TransTalk MDW 9031 Telephone

Blank	Blank	Blank	Blank
5	6	7	8
SA OO 1	Blank 2	Blank 3	Blank 4
SA Ring A	SA Voice B	Blank C	Drop D

**Figure E-32. TransTalk MDW 9031 Telephone (Hybrid/PBX Mode)**

Line 5	Line 6	Line 7	Line 8
5	6	7	8
Line 1	Line 2	Line 3	Line 4
1	2	3	4
ICOM Ring A	ICOM Voice B	Blank C	Blank D

**Figure E-33. TransTalk MDW 9031 Telephone (Key Mode)**

Blank	Blank	Blank	Blank
5	6	7	8
Blank	Blank	Blank	Blank
1	2	3	4
ICOM Ring A	ICOM Voice B	Blank C	Blank D

**Figure E-34. TransTalk MDW 9031 Telephone (Behind Switch Mode)**

## Business Cordless 905 Telephone

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SA Ring 1	SA Voice 2	SA OO 3	Blank 4	Drop 5
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**Figure E-35. Business Cordless 905 Telephone (Hybrid/PBX Mode)**

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ICOM Ring 1	ICOM Voice 2	Blank 3	Blank 4	Blank 5
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**Figure E-36. Business Cordless 905 Telephone (Hybrid/PBX Mode)**

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ICOM Ring 1	ICOM Voice 2	Line 1 3	Line 2 4	Line 3 5
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**Figure E-37. Business Cordless 905 Telephone (Hybrid/PBX Mode)**

# Sample Reports

# F

## Overview

This appendix includes samples of the print reports generated by the system. [Table F-1](#) lists the system reports and the pages in this appendix where samples can be found.

**NOTE** ► The system's Station Message Detail Recording (SMDR) feature reports incoming and outgoing call details

**Table F-1. Sample Report Pages**

For...	See...
System Information Report	<a href="#">F-6</a>
Dial Plan Report	<a href="#">F-7</a>
Non-Local Dial Plan Report	<a href="#">F-10</a>
Label Information Report	<a href="#">F-11</a>
Tie Trunk Information Report	<a href="#">F-12</a>
DID Trunk Information Report	<a href="#">F-13</a>
GS/LS Trunk Information Report	<a href="#">F-14</a>
General Trunk Information Report	<a href="#">F-15</a>
DS1 Information Report	<a href="#">F-16</a>
PRI Information Report	<a href="#">F-17</a>
Remote Access (DISA) Information Report	<a href="#">F-21</a>
Operator Information Report	<a href="#">F-22</a>
Allowed Lists Report	<a href="#">F-24</a>
Access to Allowed Lists Report	<a href="#">F-25</a>
Disallowed Lists Report	<a href="#">F-26</a>
Access to Disallowed Lists Report	<a href="#">F-27</a>
Automatic Route Selection Report	<a href="#">F-28</a>

**Table F-1. Sample Report Pages — *Continued***

For...	See...
Extension Directory Report	<a href="#">F-30</a>
System Directory Report	<a href="#">F-31</a>
Group Paging Report	<a href="#">F-32</a>
Extension Information Report	<a href="#">F-33</a>
Group Coverage Information Report	<a href="#">F-35</a>
Direct Group Calling Information Report	<a href="#">F-36</a>
Night Service Information Report	<a href="#">F-37</a>
Group Call Pickup Report	<a href="#">F-38</a>
Error Log Report	<a href="#">F-39</a>
Authorization Code Information Report	<a href="#">F-40</a>
BRI Information Report	<a href="#">F-41</a>
Switch 56 Data Information Report	<a href="#">F-42</a>

[Table F-2](#) lists all of the system reports and includes the print menu option used to print each report, the report name, and a brief description of each report.

To access the menu options in [Table F-2](#), select the `Print` option on the System Programming menu.

**Table F-2. System Reports**

Menu Option	Report Name	Description
All		Prints each of the reports available on the Print menu, from <code>SysSet-up</code> to <code>Error Log</code> .  <b>► NOTE:</b> With <code>All</code> selected, four trunk information reports automatically print. See <code>Trunk Info</code> .
<code>SysSet-up</code>	System Information	System-wide information such as return intervals, system mode, system programming port, slot assignments, and so on.
<code>Dial Plan</code>	Dial Plan	Extensions assigned to pools, paging zones, Calling Groups, lines or trunks, and stations (in the report); labels for lines/trunks and stations.
<code>Labels</code>	Label Information	Labels assigned to stations (extensions), Posted Messages, and names and telephone numbers in MLX-20L and 4424LD+ Personal Directory.

**Table F-2. System Reports** — *Continued*

Menu Option	Report Name	Description
Trunk Info		Select to display four trunk options: Tie, DID, Loop/Ground, General.
TIE	TIE Trunk Information	Extensions assigned to and signaling attributes associated with Tie trunks.
DID	DID Trunk Information	Extensions assigned to and signaling attributes associated with DID trunks.
Loop/ Ground	GS/LS Trunk Information	Extensions assigned to signaling attributes for ground- and loop-start lines/trunks.
General	General Trunk Information	All identified extensions and feature-related attributes of each extension.
T1 Info	DS1 information	Options (line, signal, and so on) assigned to T1 trunks or lines.
PRI Info	PRI Information	PRI trunks assigned to B-channel groups.
Rmote Access	Remote Access (DISA) Information	Remote Access dial code, class of restriction, barrier code information.
Oper Info	Operator Information	For each system operator position: logical ID, extension number, label, type (DLC or QCC). All general system operator options—such as backup position, call types, and priorities.
AllowList	Allowed Lists	Telephone numbers included in Allowed Lists. Lists numbered 0–7; entries numbered 0–9.
AllowListTo	Access to Allowed Lists	Lists numbered 0–7. If the Allowed List is assigned to Remote Access users and barrier codes are used, barrier codes are numbered 0–16. If no barrier codes are used, 17 means list is assigned to tie-trunk users and 18 means list is assigned to non-tie-trunk users.
DisallowLst	Disallowed Lists	Telephone numbers included in Disallowed Lists. Lists are numbered 0–7, and entries are numbered 0–9.
DisallowTo	Access to Disallowed Lists	Telephones to which Disallowed Lists are assigned. Lists are numbered 0–7. If the Disallowed List is assigned to Remote Access users and barrier codes are used, the barrier codes are numbered 0–16. If no barrier codes are used, 17 means the Disallowed List is assigned to tie-trunk users and 18 means the Disallowed List is assigned to non-tie-trunk users.
ARS	Automatic Route Selection	Access code; table types with area codes and exchanges; routes for subpatterns A and B, FRL, absorb digit, delete digit, Dial 0, and N11 tables.

**Table F-2. System Reports** — *Continued*

Menu Option	Report Name	Description
Ext Direct	Extension Directory	Slot/port addresses, extensions, labels, and feature-related attributes. Column headings are printed on the first page only and are not carried over to subsequent pages. Column headings 4 through 10 (and 14 through 20) should be read vertically. That is: FACE (Forced Account Code Entry); RCFW (Remote Call Forward); MICD (Microphone Disable); SIG (Voice Signal); RSTR (Calling Restrictions); ARSR (ARS Restriction Level); 2BDT (2B Data Capability).
Sys Direct	System Directory	System Speed Dial number, label and telephone number in System Directory, and whether number should display.
Group Page	Group Paging	Extension number for each group and the extension number of each telephone assigned to the group.
Ext Info	Extension Information	For each specified station (extension), type of equipment connected, features assigned, ESS supervisor status, and features assigned to each button. On this report, MLX-16DP telephones are reported as MLX-28D.
GrpCoverage	Group Coverage Information	Extension number for each group and the extension number for each telephone assigned to the group. Information is printed only for Calling Groups with members and/or lines/trunks assigned.
GrpCalling	Direct Group Calling Information	Group calling options (hunt, type, message waiting, station, delay announcements, alarm thresholds, and so on), the extension number for each telephone assigned to the group, and the lines or trunks assigned to the group.
Night Service	Night Service Information	The operator, password required, time-of-day, and Emergency Allowed List extension numbers.
NonLcl UDP	Non-Local Dial Plan	Ranges of extension numbers for non-local dial plan extensions connected to a networked external switch; pattern number associated with each range. For each pattern, shows Pool number, absorbed and prepended (other) digits, FRL, and call type (voice, data, or both).
Call Pickup	Group Call Pickup	Extension numbers for telephones assigned to each group; pickup groups numbered 1–30.

**Table F-2. System Reports** — *Continued*

Menu Option	Report Name	Description
Error Log	Error Log	Error message and code, time and day error occurred, frequency of error. See the <i>Maintenance and Troubleshooting</i> guide.
Auth Code	Authorization Code Information	Authorization Code and permissions for extensions to which authorization codes are assigned.
BRI	BRI Information Report	Service Profile ID and Directory Number for each BRI line, flexible timers, and fixed timers and counters.
Switch 56	Switch 56 Data Information Report	Dial Plan Routing information and programmable options.

# System Information Report

Print Menu Option: SysSet-up

## SYSTEM INFORMATION

Current Date: 01/04/00  
Current Time: 00:21:15  
System : Mode AutoMaintBusy AutoBusyTie  
: Hybrid/PBX Disable Disable  
Language: SystemLang SMDR Printer  
English English English  
CTI Links : 19  
Direct Line Operators : 14 18 22 42  
Queued Call Operators: 10  
SysProg Port: 10 Password : craftr4  
Transfer: Type Audible OneTouch(Complete) ReturnTimer  
: Ring MusicOnHold Transfer(Auto) 5 rings  
VMS Transfer Return Interval : 4  
Paging System Lines :  
Music On Hold Line : 804  
Camp On Time : 90 sec  
Call Park Return Time : 180 sec  
Auto Callback Rings : 3  
Extension Status (ESS) : Group Call Supv  
ESS Operators :  
SMDR : Min.CallTime CallReport Format  
: 40 sec In/Out Basic  
Intercom Dial Tone : Inside  
Reminder Service Cancel : :  
Behind Switch Code : Drop Transfer Conference  
Inter-digit Timer (seconds) : 24 24 24 10 10 10 10 5 5  
Recall Timer : 450 msec  
Second Dial-tone Timer : 200 msec  
Rotary Line Cut Through : Delay  
Unassigned Extension : 10  
Automatic Backup : Weekly - 04:30 Sunday  
TI/PRI/BRI Clock Synchronization:  
Primary Secondary Tertiary  
02/01 Loop 04/01 Local 04/02 Local  
Slot # 1: 008 MLX  
Slot # 2: 408 GS/LS-MLX  
Slot # 3: 408 GS/LS-MLX  
Slot # 4: 024 TDL  
Slot # 5: 800 GS/LS  
Slot # 6: 008 GS/LS-MLX  
Slot # 7: 800 CO-BRI  
Slot # 8: 008 GS/LS-MLX  
Slot # 9: 016 MLX  
Slot #10: 408 GS/LS  
Slot #11: 008 GS/LS  
Slot #12: 412 LS-TDL  
Slot #13: 800 DID  
Slot #14: 400 EM  
Slot #15: 016 ETR  
Slot #16: 008 MLX  
Slot #17: 408 GS/LS-MLX \* Not Present \*

# Dial Plan Report

**Print Menu Option:** Dial Plan  
**Sections:** Pools; Telephone Paging Zones; Direct Group Calling Group; Lines/  
Trunks; Stations; Stations and Adjuncts

## DIAL PLAN FOR POOLS

POOL.# 1: 70  
POOL.# 2: 890  
POOL.# 3: 891  
POOL.# 4: 892  
POOL.# 5: 893  
POOL.# 6: 894  
POOL.# 4: 895  
POOL.# 8: 896  
POOL.# 9: 897  
POOL.# 10: 898  
POOL.# 11: 899

## DIAL PLAN FOR TELEPHONE PAGING ZONES

TPZ # 1: 793  
TPZ # 2: 794  
TPZ # 3: 795  
TPZ # 4: 796  
TPZ # 5: 797  
TPZ # 6: 798  
TPZ # 7: 799

## DIAL PLAN FOR DIRECT GROUP Calling Group

DGCG # 1: 770  
DGCG # 2: 771  
DGCG # 3: 772  
DGCG # 4: 773  
DGCG # 5: 774  
.  
.  
.  
DGCG # 32: 7929

## DIAL PLAN FOR LINES/TRUNKS

LINE # 1:	801	OUTSIDE	LINE # 2:	802	OUTSIDE
LINE # 3:	803	OUTSIDE	LINE # 4:	804	OUTSIDE
LINE # 5:	805	OUTSIDE	LINE # 6:	806	OUTSIDE
LINE # 7:	807	OUTSIDE	LINE # 8:	808	OUTSIDE
LINE # 9:	809	OUTSIDE	LINE # 10:	810	OUTSIDE
.			.		
.			.		
.			.		
LINE # 79:	879	OUTSIDE	LINE # 80:	880	OUTSIDE

# Dial Plan Report—Continued

## DIAL PLAN FOR STATIONS

STN #:	1	10	OPERATR	STN	#: 2	710	
STN #:	3	11		STN	#: 4	711	
STN #:	5	12		STN	#: 6	712	
STN #:	7	13	EXT 13	STN	#: 8	713	
STN #:	9	14	EXT 14	STN	#: 10	714	
STN #:	11	15		STN	#: 12	715	
STN #:	13	16		STN	#: 14	716	
STN #:	15	17		STN	#: 16	717	
STN #:	17	18	EXT 18	STN	#: 18	19	
STN #:	19	20		STN	#: 20	21	
STN #:	21	22	OPERATR	STN	#: 22	23	
STN #:	23	24		STN	#: 24	25	
STN #:	25	26		STN	#: 26	21	
STN #:	27	28		STN	#: 28	29	
STN #:	29	30	AUDIXVP	STN	#: 30	31	AUDIXVP
STN #:	31	32	AUDIXVP	STN	#: 32	33	AUDIXVP
STN #:	33	34		STN	#: 34	35	
STN #:	35	36		STN	#: 36	31	
STN #:	37	38		STN	#: 38	39	
STN #:	39	40		STN	#: 40	41	
STN #:	41	42	EXT 42	STN	#: 42	742	
.				.			
.				.			
.				.			
STN #:	121	7198		STN	#: 122	7398	
STN #:	123	5555		STN	#: 124	7399	

# Dial Plan Report—Continued

COMPLETE DIAL PLAN FOR STATIONS AND ADJUNCTS

ID #:	1	4000	7300	ID #:	2	4001	7301
ID #:	3	4002	7302	ID #:	4	4003	7303
ID #:	5	4004	7304	ID #:	6	4005	7305
ID #:	7	4006	7306	ID #:	8	4007	7307
ID #:	9	4008	7308	ID #:	10	4009	7309
ID #:	11	4010	3000	ID #:	12	4011	3001
ID #:	13	4012	3002	ID #:	14	4013	3003
ID #:	15	4014	3004	ID #:	16	4015	3005
ID #:	17	4016	3006	ID #:	18	4017	3007
ID #:	19	4018	3008	ID #:	20	4019	3009
ID #:	21	4020	3010	ID #:	22	4021	3011
ID #:	23	4022	3012	ID #:	24	4023	3013
ID #:	25	4024	3014	ID #:	26	4025	3015
ID #:	27	4026	3016	ID #:	28	4027	3017
ID #:	29	4028	3018	ID #:	30	4029	3019
ID #:	31	4030	3020	ID #:	32	4031	3021
ID #:	33	4032	3022	ID #:	34	4033	3023
ID #:	35	4034	3024	ID #:	36	4035	3025
ID #:	37	4036	3026	ID #:	38	4037	3027
ID #:	39	4038	3028	ID #:	40	4039	3029
ID #:	41	4040	3030	ID #:	42	4041	3031
ID #:	43	4042	3032	ID #:	44	4043	3033
ID #:	45	4044	3034	ID #:	46	4045	3035
ID #:	47	4046	3036	ID #:	48	4047	3037
ID #:	49	4048	3038	ID #:	50	4049	3039
ID #:	51	4050	3040	ID #:	52	4051	7351
ID #:	53	4052	3042	ID #:	54	4053	7353
ID #:	55	4054	7354	ID #:	56	4055	7355
ID #:	57	4056	7356	ID #:	58	4057	7357
ID #:	59	4058	7358	ID #:	60	4059	7359
ID #:	61	7160	7360	ID #:	62	7161	7361
ID #:	63	7162	7362	ID #:	64	7163	7363
ID #:	65	7164	7364	ID #:	66	7165	7365
ID #:	67	7166	7366	ID #:	68	7167	7367
ID #:	69	7168	7368	ID #:	70	7169	7369
.				.			
.				.			
.				.			
ID #:	191	5151	7490	ID #:	192	5152	7491
ID #:	193	5153	7492	ID #:	194	5154	7493
ID #:	195	5155	7494	ID #:	196	5156	7495
ID #:	197	5156	7496	ID #:	198	5158	7497
ID #:	199	5158	7498	ID #:	200	5160	7499

F Sample Reports

Non-Local Dial Plan Report

F-10

# Non-Local Dial Plan Report

**Print Menu Option:** NonLcl1 UDP (Release 6.0 and later systems only)

**Sections:** Ranges; Patterns

Range	Ptn	Range	Ptn	Range	Ptn	Range	Ptn
01) 2400-2449	01 14)	5000-5049	09 27)	7000-7049	12 39)	8050-8059	15
02) 2550-2559	02 15)	5050-5079	10 28)	7050-7050	20 40)	8060-8069	03
03) 2560-2569	03 16)	5080-5099	01 29)	7051-7059	01 41)	8070-8099	04
04) 2570-2589	04 17)	5100-5199	02 30)	7060-7099	02 42)	8100-8199	05
05) 2590-2609	04 18)	5200-5200	11 31)	7100-7119	03 43)	8200-8229	06
06) 2610-2649	05 19)	5201-5202	12 32)	7220-7449	04 44)	8230-8259	16
07) 2650-2679	06 20)	5203-5204	13 33)	7450-7549	05 45)	8260-8289	17
08) 3100-3109	07 21)	5205-5206	14 34)	7550-7589	06 46)	8290-8389	18
09) 3110-3129	07 22)	5207-5209	15 35)	7590-7609	07 47)	8390-8429	19
10) 3130-3159	02 23)	5210-5230	03 36)	7610-7709	08 48)	8430-8459	20
11) 3160-3179	06 24)	5231-5250	17 37)	7710-7809	09 49)	8460-8489	03
12) 3180-3199	08 25)	5251-5270	18 38)	7810-7899	10 50)	8490-8499	02
13) 4000-4025	08 26)	6050-6079	14				

Pattern 01:

Pool	Absorb	Other Digits	FRL	Call type
1)3871	00		0	BOTH
2)3892	00		0	BOTH
3)3893	00		0	BOTH
9957	0	BOTH		4)389400

Pattern 02:

Pool	Absorb	Other Digits	FRL	Call type
1)4590	00		2	BOTH
2)4592	00		2	Voice
3)3893	00		0	BOTH
9957	0	BOTH		4)389400
.	.	.	.	.
.	.	.	.	.

Pattern 20:

Pool	Absorb	Other Digits	FRL	Call type
1)4591	00		3	Data
Data				2)459200 3
3)3894	00	9957	3	BOTH
9957	4	BOTH		4)387000

# Label Information Report

**Print Menu Option:** Labels

**Sections:** Telephone Personal Directory; Posted Messages and Numbers

## LABEL INFORMATION

Executive Telephone # 10: Personal Directory

Name	Number	Display
------	--------	---------

Executive Telephone # 14: Personal Directory

Name	Number	Display
------	--------	---------

Executive Telephone # 15: Personal Directory

Name	Number	Display
------	--------	---------

MSG # POSTED MESSAGE

1	DO NOT DISTURB
2	OUT TO LUNCH
3	AT HOME
4	OUT SICK
5	IN A MEETING
6	IN CONFERENCE
7	WITH A CLIENT
8	WITH A CUSTOMER
9	AWAY FROM DESK
10	OUT ALL DAY
11	CUSTM MSG11
12	CUSTM MSG12
13	CUSTM MSG13
14	CUSTM MSG14
15	CUSTM MSG15
16	CUSTM MSG16
17	CUSTM MSG17
18	CUSTM MSG18
19	CUSTM MSG19
20	CUSTM MSG20

# Tie Trunk Information Report

**Print Menu Option:** Trunk Info and TIE

## TIE TRUNK INFORMATION

TRUNK	849	Slot/Port : 14/ 1	TIE-PBX
Direction:	2 Way	E&M Signal: Type1S	Dialtone : Remote
InType	: Wink	InMode : Rotary	AnsSupvr : 300 ms
OutType	: Wink	OutMode : Rotary	Disconnect: 300 ms

TRUNK	850	Slot/Port : I4/ 2	TIE-PBX
Direction:	2 Way	E&M Signal: Type1S	Dialtone : Remote
InType	: Wink	InMode : Rotary	AnsSupvr : 300 ms
OutType	: Wink	OutMode : Rotary	Disconnect: 300 ms

TRUNK	851	Slot/Port : 14/ 3	TIE-PBX
Direction:	2 Way	E&M Signal: Type1S	Dialtone : Remote
InType	: Wink	InMode : Rotary	AnsSupvr : 300 ms
OutType	: Wink	OutMode : Rotary	Disconnect: 300 ms

TRUNK	852	Slot/Part : 14/ 4	TIE-PBX
Direction:	2 Way	E&M Signal: Type1S	Dialtone : Remote
InType	: Wink	InMode : Rotary	AnsSupvr : 300 ms
OutType	: Wink	OutMode : Rotary	Disconnect: 300 ms

## DID Trunk Information Report

Print Menu Option: Trunk Info and DID

DID TRUNK INFORMATION

Trk	SS/PP	Blk	DiscTime	Type	ExpDig	DelDig	AddDig	Signal	InvDest
841	13/	1	1	500ms	Wink	4	3	1	TouchTone BkupExt
842	13/	2	1	500ms	Wink	4	3	1	TouchTone BkupExt
843	13/	3	2	500ms	Wink	3	0	Rotary	BkupExt
844	13/	4	2	500ms	Wink	3	0	Rotary	BkupExt
845	13/	5	1	500ms	Wink	4	3	1	TouchTone BkupExt
846	13/	6	1	500ms	Wink	4	3	1	TouchTone BkupExt
847	13/	7	2	500ms	Wink	3	0	Rotary	BkupExt
848	13/	8	1	500ms	Wink	4	3	1	TouchTone BkupExt

# GS/LS Trunk Information Report

**Print Menu Option:** Trunk Info and Loop/Ground

GS/LS TRUNK INFORMATION

Trk	SS/PP	Type	OutMode	RelDisc	ChannelUnit	LS-ID	Delay
801	2/ 1	Loop	TouchTone	Yes	N/A	N/A	N/A
802	2/ 2	Loop	TouchTone	Yes	N/A	N/A	N/A
803	2/ 3	Loop	TouchTone	Yes	N/A	N/A	N/A
804	2/ 4	Loop	TouchTone	Yes	N/A	N/A	N/A
805	4/ 1	Loop	Rotary	Yes	N/A	N/A	N/A
806	4/ 2	Loop	Rotary	Yes	N/A	N/A	N/A
807	4/ 3	Loop	Rotary	Yes	N/A	N/A	N/A
808	4/ 4	Loop	Rotary	Yes	N/A	N/A	N/A
809	5/ 1	Ground	TouchTone	N/A	N/A	N/A	N/A
810	5/ 2	Ground	TouchTone	N/A	N/A	N/A	N/A
811	5/ 3	Loop	Rotary	Yes	N/A	N/A	N/A
812	5/ 4	Loop	Rotary	Yes	N/A	N/A	N/A
813	5/ 5	Loop	Rotary	Yes	N/A	N/A	N/A
814	5/ 6	Loop	Rotary	Yes	N/A	N/A	N/A
815	5/ 7	Loop	TouchTone	Yes	N/A	N/A	N/A
816	5/ 8	Loop	Rotary	Yes	N/A	N/A	N/A
817	6/ 1	Ground	Rotary	N/A	N/A	N/A	N/A
.							
.							
879	15/ 7	LS-ID	Rotary	Yes	N/A	N/A	Yes
880	15/ 8	LS-ID	Rotary	Yes	N/A	N/A	No

# General Trunk Information Report

Print Menu Option: Trunk Info and General

## GENERAL TRUNK INFORMATION

Trk	SS/PP	RemAccess	Pool	TlPrfx	HldDisc	Principal	QCC Prty	QCC Oper	Extern Switch
801	2/1	No Remote	70	Yes	Long		4		60
802	2/2	No Remote	70	Yes	Long		4		02
803	2/3	No Remote	70	Yes	Long		4		21
804	2/4	No Remote		Yes	Long				
805	4/1	No Remote		Yes	Long				
806	4/2	No Remote		Yes	Long		4		
807	4/3	No Remote		Yes	Long		4		
808	4/4	No Remote		Yes	Long		4		
809	5/1	No Remote		Yes	Long		4	10	
810	5/2	No Remote	890	Yes	Long		4		
811	5/3	No Remote		Yes	Long		4		
812	5/4	No Remote		Yes	Long		4		
813	5/5	No Remote		Yes	Long		4		
814	5/6	No Remote		Yes	Long		4		
815	5/7	No Remote		Yes	Long		4		
816	5/8	No Remote		Yes	Long		4		
817	6/1	Dedicated		Yes	Long	42	4		
.	.	.		.	.	.	.	.	.
.	.	.		.	.	.	.	.	.
912	10/1	No Remote		Yes	Long		4		12
913	10/2	No Remote		Yes	Long		4		13

# DS1 Information Report

Print Menu Option: T1 Info

DS1 SLOT ATTRIBUTES

Slot	Type	Format	Supp	Signal	LineComp	ClkSync	Src	Active
2	T1	D4	ZCS	Rob Bit	1	Prim	Loop	Yes
3	T1	D4	ZCS	Rob Bit	1	None	Local	Yes

# PRI Information Report

Print Menu Option: PRI Info

Sections: Network Selection, Special Service, Call-by-Call and Dial Plan Routing  
Tables; PRI Information

Slot 5                   Switch: DMS-100  
  
Slot 11                  Switch: MERLIN-PBX  
  
Slot 12                  Switch: MERLIN-Ntwk

System: By line

BcchnlGrp #:	Slot:	TestTelNum:	NtwkServ:	Incoming Routing:
5	5		CallbyCall	By Dial Plan

Channel ID:	23	22	21	20	19	18	17	16	15	14
	13	12	11	10	9	8	7	6	5	4
	3	2	1							

Line	PhoneNumber	NumberToSend
801		
802		
803		
804		
805		
806		
807		
808		
809		
810		
811		
812		
813		
814		
815		
816		
817		
818		
819		
820		
821		
822		
823		

## PRI Information Report—Continued

BchnlGrp #: Slot: TestTelNum: NtwkServ: Incoming Routing:  
79 12 ElecTandNtwkRoute Directly to UDP

Channel ID: 1 2 3 4 5 6 7 8 9 10  
11 12 13 14 15 16 17 18 19 20  
21 22 23

Line	PhoneNumber	NumberToSend
849		
850		
851		
852		
853		
854		
855		
856		
857		
858		
859		
860		
861		
862		
863		
864		
865		
866		
867		
868		
869		
870		
871		

BchnlGrp #: Slot: TestTelNum: NtwkServ: Incoming Routing:  
80 11 ElecTandNtwk Route Directly to UDP

Channel ID: 1 2 3 4 5 6 7 8 9 10  
11 12 13 14 15 16 17 18 19 20  
21 22 23

Line	PhoneNumber	NumberToSend
825		
826		
827		
828		
829		

## PRI Information Report—Continued

830  
 831  
 832  
 833  
 834  
 835  
 836  
 837  
 838  
 839  
 840  
 841  
 842  
 843  
 844  
 845  
 846  
 847

### Network Selection Table

Entry Number:	0	1	2	3
Pattern to Match:	101****	10***		

### Special Service Table

Entry Number:	0	1	2	3	4	5	6	7
Pattern to Match:	011	010	01	00	0	1		
Operator:	none	OP	OP	OP/P	none	none	none	none
Type of Number:	I	I	I	N	N	N	N	N
Digits to Delete:	3	3	2	2	1	0	0	0

### Call-By-Call Service Table

Entry Number:	0	1	2	3	4
Pattern 0:	957	7			
Pattern 1:		1			
Pattern 2:		2			
Pattern 3:		3			
Pattern 4:		4			
Pattern 5:		5			
Pattern 6:		6			
Pattern 7:		7			
Pattern 8:		8			

## PRI Information Report—Continued

Pattern 9:	9				
Call Type:	BOTH	BOTH	BOTH	BOTH	BOTH
NtwkServ:	DMS-Private	DMS-Private			
DeleteDigits:	0	0	0	0	0
Entry Number:	5	6	7	8	9
Call Type:	BOTH	BOTH	BOTH	BOTH	BOTH
NtwkServ:					
DeleteDigits:	0	0	0	0	0

### Dial Plan Routing Table

Entry Number:	0	1	2	3
NtwkServ:	Any service	Any service	Any service	
Expected Digits:	4	7	10	0
Pattern to Match:				
Digits to Delete:	0	7	10	0
Digits to Add:		13	13	

Entry Number:	4	5	6	7
NtwkServ:				
Expected Digits:	0	0	0	0
Pattern to Match:				
Digits to Delete:	0	0	0	0
Digits to Add:				

Entry Number:	8	9	10	11
NtwkServ:				
Expected Digits:	0	0	0	0
Pattern to Match:				
Digits to Delete:	0	0	0	0
Digits to Add:				

Entry Number:	12	13	14	15
NtwkServ:				
Expected Digits:	0	0	0	0
Pattern to Match:				

Digits to Delete:	0	0	0	0
Digits to Add:				

## Remote Access (DISA) Information Report

**Print Menu Option:** Rmote Access

**Sections:** **General Options; System Default Class of Restrictions (Non-TIE); System Default Class of Restrictions (TIE); Barrier Code Administration**

### GENERAL OPTIONS (ACCESS CODE 889)

Barrier Code required for Non-TIE DISA lines : Yes  
Barrier Code required for TIE DISA lines :No  
Automatic Queuing enabled for DISA lines :Yes  
System Wide Barrier Code Length: 07  
Date And Time of Last Barrier Code Length Change: 09:23:94, 09:45 PM

### SYSTEM DEFAULT CLASS OF RESTRICTIONS (NON-TIE)

Restriction : UNRESTRICTED  
ARS Restriction Level: 3  
Allowed Lists :  
Disallowed Lists :

### SYSTEM DEFAULT CLASS OF RESTRICTIONS (TIE)

Restriction : UNRESTRICTED  
ARS Restriction Level: 3  
Allowed Lists :  
Disallowed Lists :

### BARRIER CODE ADMINISTRATION

Barrier Code number : 1  
Barrier Digits : 2468345  
Restriction : OUTWARD RESTRICTED  
ARS Restriction Level: 3  
Allowed Lists :  
Disallowed Lists :

Barrier Code number : 2  
Barrier Digits : 1234693  
Restriction : UNRESTRICTED  
ARS Restriction Level: 3  
Allowed Lists :  
Disallowed Lists :

.  
Barrier Code number : 16  
Barrier Digits : 9876115  
Restriction : OUTWARD RESTRICTED  
ARS Restriction Level: 0  
Allowed Lists :  
Disallowed Lists :

# Operator Information Report

**Print Menu Option:** Oper Info  
**Sections:** Operator Positions; General Options; DSS Options; QCC Operator Options; QCC Call Types

## OPERATOR POSITIONS

PORT	ADDR.	EXT #	LABEL	TYPE	CALL ALERT (QCC ONLY)
====	=====	=====	=====	=====	=====
1/ 1	10		OPERATR	QCC	No
1/ 5	14		EXT 14	DLC	N/A
2/ 1	18		EXT 18	DLC	N/A
2/ 5	22		OPERATR	DLC	N/A
6/ 1	42		EXT 42	DLC	N/A

## GENERAL OPTIONS

Length of hold reminder timer: 60 sec  
DLC Automatic hold enabled : No

## DIRECT STATION SELECTOR (DSS) OPTIONS

BUTTON NUMBER	FIRST DIAL CODE
=====	=====

1	0
2	50
3	100

Operator Call Park codes: 881 882 883 884 885 886 884 888

## QCC OPERATOR OPTIONS

Listed Directory Number for queue : 800  
Held calls return to queue : No  
Automatic hold enabled : No  
Calls-in-queue alarm threshold : 0  
Time until priorities are elevated: 0 sec  
Message Center Operators :  
One Touch Extend : AUTOMATIC  
Rings before extended calls return: 4  
Backup operator station :  
Voice Announce on Call 5 button : Disable

# Operator Information Report—Continued

QCC CALL TYPES:

CALL TYPE	PRIORITY	OPERATORS
Dial 0 Operator	4	10
Follow Forward	4	N/A
Unassigned DID	4	10
Listed Directory Number	4	10
Operator's Extension	4	N/A
Returning	4	0
Group Coverage		
Group # 1	4	
Group # 2	4	
Group # 3	4	
Group # 4	4	
Group # 5	4	
Group # 6	4	
Group # 7	4	
Group # 8	4	
Group # 9	4	
Group # 10	4	
Group # 11	4	
Group # 12	4	
Group # 13	4	
Group # 14	4	
Group # 15	4	
Group # 16	4	
Group # 17	4	
Group # 18	4	
Group # 19	4	
Group # 20	4	
Group # 21	4	
Group # 22	4	
Group # 23	4	
Group # 24	4	
Group # 25	4	
Group # 26	4	
Group # 27	4	
Group # 28	4	
Group # 29	4	
Group # 30	4	

# Allowed Lists Report

**Print Menu Option:** AllowList  
**Sections:** Lists 1 through 7

## ALLOWED LISTS

List : 0

Entry 0: -----  
Entry 1: -----  
Entry 2: -----  
Entry 3: -----  
Entry 4: -----  
Entry 5: -----  
Entry 6: -----  
Entry 7: -----  
Entry 8: -----  
Entry 9: -----

.  
. .  
. .

List : 7

Entry 0: -----  
Entry 1: -----  
Entry 2: -----  
Entry 3: -----  
Entry 4: -----  
Entry 5: -----  
Entry 6: -----  
Entry 7: -----  
Entry 8: -----  
Entry 9: -----

# Access to Allowed Lists Report

**Print Menu Option:** AllowListTo

ACCESS TO ALLOWED LISTS

FOR Remote Access 17 & 18 MEAN TIE & NON-TIE RESTRICTIONS

List 1 STNS 10

RACC 1 17 18

List 3 STNS 33

RACC

# Disallowed Lists Report

**Print Menu Option:** DisallowLst  
**Sections:** Lists 1 through 7

## DISALLOWED LISTS

List : 0

Entry 0: -----  
Entry 1: -----  
Entry 2: -----  
Entry 3: -----  
Entry 4: -----  
Entry 5: -----  
Entry 6: -----  
Entry 7: -----  
Entry 8: -----  
Entry 9: -----

.  
. .

List : 7

Entry 0: -----  
Entry 1: -----  
Entry 2: -----  
Entry 3: -----  
Entry 4: -----  
Entry 5: -----  
Entry 6: -----  
Entry 7: -----  
Entry 8: -----  
Entry 9: -----

# Access to Disallowed Lists Report

Print Menu Option: DisallowTo

ACCESS TO DISALLOWED LISTS

FOR Remote Access 17 & 18 MEAN TIE & NON-TIE RESTRICTIONS

List	1	STNS	33
		RACC	9
List	3	STNS	33
		RACC	

# Automatic Route Selection Report

Print Menu Option: ARS

Sections: Tables

## AUTOMATIC ROUTE SELECTION

ARS IS: ACTIVE ACCESS CODE: 9

TABLE 17: Default Toll Output Table

Pool	Absorb	Other Digits	FRL	Call type	Start	Pattern
1)70--	00	-----	3	BOTH	--:--	A
2)----	--	-----	-	-----	--:--	A
3)----	--	-----	-	-----	--:--	A
4)----	--	-----	-	-----	--:--	A
5)----	--	-----	-	-----	--:--	B
6)----	--	-----	-	-----	--:--	B

Pool	Absorb	Other Digits	FRL	Call type	Start	Pattern
1)70--	00	-----	3	BOTH	--:--	B
2)----	--	-----	-	-----	--:--	B
3)----	--	-----	-	-----	--:--	B
4)----	--	-----	-	-----	--:--	B
5)----	--	-----	-	-----	--:--	B
6)----	--	-----	-	-----	--:--	B

TABLE 18: Default Local Output Table

Pool	Absorb	Other Digits	FRL	Call type	Start	Pattern
1)70--	00	-----	3	BOTH	--:--	A
2)----	--	-----	-	-----	--:--	A
3)----	--	-----	-	-----	--:--	A
4)----	--	-----	-	-----	--:--	A
5)----	--	-----	-	-----	--:--	B
6)----	--	-----	-	-----	--:--	B

# Automatic Route Selection Report— Continued

Pool	Absorb	Other Digits	FRL	Call type	Start	Pattern
1)70--	00	-----	3	BOTH	--:--	B
2)----	--	-----	-	----	--:--	B
3)----	--	-----	-	----	--:--	B
4)----	--	-----	-	----	--:--	B
5)----	--	-----	-	----	--:--	B

TABLE 19: Dial 0 Output Table

Pool	Absorb	Other Digits	FRL	Call type	Start	Pattern
1)70--	00	-----	3	BOTH	--:--	A

TABLE 20: N11 Output Table  
 01)411 02)611 03)811 04)911

Pool	Absorb	Other Digits	FRL	Call type	Start	Pattern
1)70--	00	-----	3	BOTH	--:--	A

# Extension Directory Report

Print Menu Option: Ext Direct

## EXTENSION DIRECTORY

Port	Ext #	Label	F H R M V R A 2	Port	Ext #	Label	F H R M V R A 2
Addr			A B C I S S R B	Addr			A B C I S S R B
			C I F C I T S D				C I F C I T S D
			E S W D G R R T				E S W D G R R T
1/ 1	10	OPERATR	N N N N U 3 N	1/21	710		N N N N U 3 N
1/ 2	11		N N N N O 3 Y	1/22	711		N N N N U 3 N
1/ 3	12		N N N N U 3 Y	1/23	712		N N N N U 3 N
1/ 4	13	EXT 13	N N N N U 3 N	1/24	713		N N N N U 3 N
1/ 5	14	EXT 14	N N N N U 3 N	1/25	714		N N N N U 3 N
1/ 6	15		N N N N U 3 N	1/26	715		N N N N U 3 N
1/ 7	16		N N N N U 3 N	1/27	716		N N N N U 3 N
1/ 8	17		N N N N U 3 N	1/28	717		N N N N U 3 N
2/ 1	18	EXT 18	N N N N U 3 N	2/ 2	19		N N N N U 3 N
2/ 3	20		N N N N U 3 N	2/ 4	21		N N N N U 3 N
2/ 5	22	OPERATR	N N N N U 3 N	2/ 6	23		N N N N U 3 N
2/ 7	24		N N N N U 3 N	2/ 8	25		N N N N U 3 N
3/ 1	26		N N N N U 3 N	3/ 2	27		N N N N U 3 N
3/ 3	28		N Y N N U 3 N	3/ 4	29		N N N N U 3 N
3/ 5	30	AUDIXVP	N N N N U 3 N	3/ 6	31		N N N N U 3 N
3/ 7	32	AUDIXVP	N N N N U 3 N	3/ 8	33		N N N N U 3 N
4/ 1	34		N N N N U 3 N	4/ 2	35	AUDIXVP	N N N N U 3 N
4/ 3	36	AUDIXVP	N N N N U 3 N	4/ 4	37		N N N N U 3 N
4/ 5	38		N N N N U 3 N	4/ 6	39		N N N N U 3 N
4/ 7	40		N N N N U 3 N	4/ 8	41		N N N N U 3 N
6/ 1	42	EXT 42	N N N N U 3 N	6/21	742		N N N N U 3 N
.							
.							
.							
7/ 1	54	EXT 54	N N N N U 3 N	7/2	754		N N N N U 3 N

# System Directory Report

Print Menu Option: Sys Direct

## SYSTEM DIRECTORY

Code	Name	Number	Display
600	ABC Company	555-9999	YES
601	Jacques Smith	5551212	YES
605	Travel Agency	912015556677	YES

# Group Paging Report

Print Menu Option: Group Page

GROUP PAGING

Group #	793	STNS	:	20	21	22	23	24	25
---------	-----	------	---	----	----	----	----	----	----

Group #	794	STNS	:	15	16	17	18	19
---------	-----	------	---	----	----	----	----	----

## Extension Information Report

**Print Menu Option:** Ext Info plus extension number

### EXTENSION INFORMATION

Extn SS/PP            Type

10 1/ 1            MLX-20L + 1 DSS

CTI Link            : NO Alarms: ACTIVE (SUSPENDED)  
Pool Access        : 70 890 891 892 893 894 895 896 897 898 899  
Page Group         :  
Primary Coverage   :  
Secondary Coverage :  
Coverage Group    : 5  
Group Coverers    : 773  
NS Groups         : 10  
Group Calling Member:  
Pickup Groups     :  
Allowed Lists      :  
Disallowed Lists   :  
Restrictions       : UNRESTRICTED  
ESS Sup. Status   : ESS-0 -NO RESTRICTION  
ESS Restrictions   : ON  
Auto Callback     : OFF  
Call Waiting      : ON  
Abbreviated Ring   : ON  
Line Preference   : ON  
Shared SA Ring    : ON  
Receive Voice Calls : ON  
Coverage Inside   : OFF  
Forwarding to     :  
Delay Forwarding   : 0  
ARS Restriction    : 3  
Forced Account Code : No  
Microphone Disable : No  
Rotary Enable      : No  
Remote Forward Allow : No  
Trunk Transfer Allow : No  
NS Exclusion       : No  
Voice Announce Pair : No  
Voice/Data Pair   : No  
BIS/HFAI          : No  
Language          : English  
Authorization Code : 3134  
2B Data Port      : No  
Primary Ring Delay : 2  
Secondary Ring Delay : 2  
Group Cover Delay : 3  
HotLine Extension : No  
Networking and ISDN Display Preference: Name  
Service Observer   :  
Service Observing Group :

F Sample Reports

Extension Information Report—Continued

## Extension Information Report—Continued

EXTENSION INFORMATION

Extn	SS/PP	Type	
10	1/ 1	MLX-20L + 1 DSS	
Button	34	Blank	Status None
Button	33	Blank	Status None
Button	32	Blank	Status None
Button	31	Blank	Status None
Button	30	Blank	Status None
Button	29	Blank	Status None
Button	28	Blank	Status None
Button	27	Blank	Status None
Button	26	Blank	Status None
Button	25	Blank	Status None
Button	24	Blank	Status None
Button	23	Blank	Status None
Button	22	Blank	Status None
Button	21	Blank	Status None
Button	20	Forced Release	Status None
Button	19	Pool Inspect	Status None
Button	18	Headset Auto Answer	Status Off
Button	17	Join	Status None
Button	16	Cancel	Status None
Button	15	Alarm Status	Status Off
Button	14	Night Service	Status Off
Button	13	Headset Status	Status Off
Button	12	Destination	Status None
Button	11	Release	Status None
Button	10	Position Busy	Status Off
Button	9	Send/Remove Message	Status None
Button	8	Handset/Headset Mute	Status Off
Button	7	Source	Status None
Button	6	Start	Status None
Button	5	Call 5	Status None
Button	4	Call 4	Status None
Button	3	Call 3	Status None
Button	2	Call 2	Status None
Button	1	Call 1	Status None

# Group Coverage Information Report

Print Menu Option: GrpCoverage

## GROUP COVERAGE INFORMATION

Group #	2	Senders	:	6802	6804								
Group #	5	Senders	:	10	11	12	13	14	18	19	20	42	
				44	45	47	681						

# Direct Group Calling Information Report

**Print Menu Option:** Grp Calling

**Sections:** Each programmed group

## DIRECT GROUP CALLING INFORMATION

Group # : 782                    Group Type : AutoLogout  
Call Distribution Type : CIRCULAR

PryAnn No.	Ext #	LABEL
1	27	ANN1
2	28	ANN2

Secondary Announcement Ext # : 29  
Time Between Delay Announcements : 0  
Repeat Secondary Announcement: NO  
Message Waiting Station : NONE  
Queue Control Limit: 99  
Calls-in-queue Threshold 1: 1  
Calls-in-queue Threshold 2: 1  
Calls-in-queue Threshold 3: 1  
External Alert ext # : NONE  
Overflow Threshold (#) : 1  
Overflow Threshold (Time): 0  
Prompt-Based Overflow Option: No  
Overflow to DGC group # : NONE

Group Coverage : 1

Member No.	EXT #	LABEL
1	12	
2	13	
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

LINES:

## DIRECT GROUP CALLING INFORMATION

Group Priority:16  
Support Group:

Home Group(s)/Priority:

# Night Service Information Report

Print Menu Option: Night Service

## NIGHT SERVICE INFORMATION

OPERATOR	10	DGCG	#:	
		STNS	:	10
		LINES	:	801
OPERATOR	14	DGCG	#:	
		STNS	:	14
		LINES	:	804
OPERATOR	18	DGCG	#:	
		STNS	:	18
		LINES	:	808
OPERATOR	22	DGCG	#:	
		STNS	:	22
		LINES	:	822
OPERATOR	42	DGCG	#:	
		STNS	:	42
		LINES	:	842

Password :

Current Day : OFF

Turn off at: Turn on at:

Sunday	:	:
Monday	:	:
Tuesday	:	:
Wednesday	:	:
Thursday	:	:
Friday	:	:
Saturday	:	:

Emergency Allowed List:

- 0)
- 1)
- 2)
- 3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

NS Excluded STNS:

61 62 63 64 65



# Error Log Report

Print Menu Option: Error Log

ERROR LOG

Last 30 System Errors:

Message	ss/pp	Cnt	First	Last	Code
PRI SVC AUDIT TIMEOUT	00/00	-	-	01/08 00:00:53	7001
TIMEOUT COLD START	00/00	-	-	01/11 00:04:08	0001
PRI SVC AUDIT TIMEOUT	00/00	-	-	01/11 00:04:14	7001
TIMEOUT COLD START	00/00	-	-	01/21 00:22:14	0001
PRI SVC AUDIT TIMEOUT	00/00	-	-	01/03 00:22:14	7001
PRI SVC AUDIT TIMEOUT	00/00	-	-	01/04 00:22:14	7001
SOFTWARE COLD START	00/00	-	-	01/04 00:21:14	0003
SOFTWARE COLD START	00/00	-	-	01/04 00:21:14	0003
PRI SVC AUDIT TIMEOUT	00/00	-	-	01/04 00:21:14	7001
SOFTWARE COLD START	00/00	-	-	01/04 00:22:11	0003
PRI SVC AUDIT TIMEOUT	00/00	-	-	01/08 00:00:53	7001
TIMEOUT COLD START	00/00	-	-	02/11 00:04:08	0001
PRI SVC AUDIT TIMEOUT	00/00	-	-	02/11 00:04:14	7001
TIMEOUT COLD START	00/00	-	-	02/21 00:22:14	0001
PRI SVC AUDIT TIMEOUT	00/00	-	-	02/03 00:22:14	7001
PRI SVC AUDIT TIMEOUT	00/00	-	-	02/04 00:22:14	7001
SOFTWARE COLD START	00/00	-	-	02/04 00:21:14	0003
SOFTWARE COLD START	00/00	-	-	02/04 00:21:14	0003
PRI SVC AUDIT TIMEOUT	00/00	-	-	02/04 00:21:14	7001
SOFTWARE COLD START	00/00	-	-	02/04 00:22:11	0003
PRI SVC AUDIT TIMEOUT	00/00	-	-	02/08 00:00:53	7001
TIMEOUT COLD START	00/00	-	-	03/11 00:04:08	0001
PRI SVC AUDIT TIMEOUT	00/00	-	-	03/11 00:04:14	7001
TIMEOUT COLD START	00/00	-	-	03/21 00:22:14	0001
PRI SVC AUDIT TIMEOUT	00/00	-	-	03/03 00:22:14	7001
PRI SVC AUDIT TIMEOUT	00/00	-	-	03/04 00:22:14	7001
SOFTWARE COLD START	00/00	-	-	03/04 00:21:14	0003
SOFTWARE COLD START	00/00	-	-	03/04 00:21:14	0003
PRI SVC AUDIT TIMEOUT	00/00	-	-	03/04 00:21:14	7001
SOFTWARE COLD START	00/00	-	-	03/04 00:22:11	0003

# Authorization Code Information Report

**Print Menu Option:** Auth Code

SMDR Option for the Account Code Field is Home Extension

Extension	Authorization Code
10	3124
15	1357921
20	6578
23	443796

# BRI Information Report

Print Menu Option: BRI

## BRI INFORMATION

### Flexible Timers:

T200 = 1000 ms    T203 = 33 sec    T303 = 4 sec    T305 = 30 sec    T308 = 4 sec

### Fixed Timers and Counters:

T202 = 2 sec    T309 = 90 sec    T310 = 60 sec    T313 = 4 sec  
K Cntr = 1    N200 = 3    N201 = 260    N202 = 3

Line	Service Profile ID	Directory Number
801	908555100001	9085551000
802	908555100101	9085551001
803	908555100201	9085551002
804	908555100301	9085551003
805	908555100401	9085551004
806	908555100501	9085551005
807	908555100601	9085551006
808	908555100701	9085551007

# Switch 56 Data Information Report

Print Menu Option: Switch 56

Dial Plan Routing for Network Service

Expected Digits: 3  
Digits to Delete: 0  
Digits to Add: 0

Trk	ss/pp	Dirction	InType	OutType	AnsSup	Discnt	Inmode	Outmode	Service
801	02/01	2 Way	Wink	Wink	120	180	T-Tone	T-Tone	TIE
802	02/02	Outgoing	Delay	Delay	160	180	Rotary	T-Tone	S56
803	02/03	Incoming	Auto	Auto	100	140	Rotary	Rotary	S56
.									
.									
.									
808	02/08	2 Way	Wink	Wink	120	180	Rotary	Rotary	TIE

# General System Programming Sequence

# G

This appendix lists the basic procedures, in the order in which they must be performed, to program a new system. In some instances, you may need to rearrange the system planning forms to match this order.

**NOTE** ► If your MERLIN MAGIX system is part of a private network, contact the Network Engineering Group for assistance. Refer to the *Network Reference* for additional programming that is required.

## Basic System Operating Conditions

- Select the system programming position:  
System→SProg Port
- Select the system language:  
More→Language→SystemLang
- Select the system mode:  
System→Mode
- Enable Automatic Maintenance Busy:  
System→MaintenBusy
- Set the system time:  
System→Time Set the system date:  
System→Date
- Schedule automatic backups:  
System→Backup/Restore→Auto Backup

## System Renumbering

- Select the system numbering plan:  
SysRenumber→Default Numbering
- Single renumbering:  
SysRenumber→Single
- Block renumbering:  
SysRenumber→Block
- DSS console page buttons:  
SysRenumber→Single→More→DSS buttons

## Identify System Operator Positions

- Identify QCC system operator positions:  
Operator→Positions→Queued Call
- Identify DLC system operator positions:  
Operator→Positions→Direct Line

## Lines and Trunks

- Specify type of trunk on 400 or 800 GL/LS module:  
LinesTrunks →LS/GS/DS1
- Identify dial signaling for loop-start/ground-start trunks:  
LinesTrunks→TT/LS Disc→Outmode
- Classify disconnect signaling reliability for loop-start trunks:  
LinesTrunks→TT/LS Disc→LS Disconnect
- Specify toll prefix requirements:  
LinesTrunks→Toll Type
- Specify Hold Disconnect interval:  
LinesTrunks→More→HoldDiscnct
- Assign the QCC queue priority:  
LinesTrunks→More→QCC Prior
- Identify QCC operator to receive calls:  
LinesTrunks→More→QCC Oper
- Assign trunks to pools:  
LinesTrunks→Pools

## Complex Lines

- Program DS1 trunks:  
LinesTrunks→LS/GS/DS1
- Program tie lines:  
LinesTrunks→TIE Lines
- Program DID trunks:  
LinesTrunks→DID
- Program PRI trunks:  
LinesTrunks→PRI
- Program BRI trunks:  
LinesTrunks→BRI

## Telephones

Many System Managers prefer to program auxiliary equipment before programming telephones.

- Assign trunks to telephones:  
Extensions→LinesTrunks
- Copy trunk assignments:  
Extensions→Line Copy
- Identify principal user for Personal Line:  
LinesTrunks→More→PrncipalUsr
- Assign ring, voice, outgoing only, shared buttons:  
More→Cntr Prg
- Copy telephone button assignments:  
More→Cntr Prg

## Auxiliary Equipment

- Program Music-On-Hold:  
AuxEquip→MusicOnHold
- Program loudspeaker paging:  
AuxEquip→Ldspkr Pg
- Program a fax port:  
AuxEquip→Fax
- Identify the jack used for maintenance alarms:  
AuxEquip→MaintAlarms
- Program voice mail and Automated Attendant:  
AuxEquip→VMS/AA→TransferRtn

## Print Reports

- Print system reports to simplify checking your work and to provide a paper copy of system configuration:  
More→Print

# Programming Special Characters

# H

This appendix provides the special characters used in dialing sequences for numbers dialed automatically, such as on Auto Dial buttons. The characters allowed depend on the type of telephone.

## 4400 and Single-Line Telephones

Some dialing sequences need special characters. For example, the user presses and releases either the Recall or Flash button or the switchhook to insert a Pause character in a dialing sequence after a dial out code to allow the system to seize an outside line/trunk before dialing the number.

**Table H-1. Special Characters for 4400 and Single-Line Telephones**

Press...	Means...
Recall, Flash, or switchhook <sup>1</sup>	<b>Pause.</b> Inserts a 1.5-second pause in the dialing sequence. Multiple consecutive pauses are allowed.
#	<b>End of Dialing.</b> Used to signal the end of the dialing sequence or to separate one group of dialed digits from another, such as an account code from a telephone number.

<sup>1</sup> On single-line telephones with positive or timed disconnect (such as the 2500YMGL), the Recall or Flash button, instead of the switchhook, must be used.

## 4400D and Multiline 4400-Series Telephones

Some dialing sequences need special characters—for example, the user presses Hold to insert a Pause character after the dial-out code in a dialing sequence to allow the system to seize an outside line before dialing the number. A Pause character can also be used to separate a telephone number from an extension number.

**Table H-2. Special Characters for 4400D and Multiline 4400-Series Telephones**

Press...	See...	Means...
Trnsfr	s	<b>Stop.</b> Inserts a Stop within a sequence of automatically dialed numbers—for example, an outside Auto Dial button may be programmed with a password, then a Stop, then a telephone number. To use Auto Dial with a Stop in the sequence, the user presses the button to dial the password, listens for the dialing and connection, and presses the button again to dial the number.
Hold	p	<b>Pause.</b> Inserts a 1.5-second pause in the dialing sequence. Multiple consecutive pauses are allowed.
Conference	f	<b>Flash.</b> Sends a switchhook flash. Must be the first entry in the dialing sequence.
##	#	<b>End of Dialing for Auto Dial buttons.</b> Used at the end of a dialing sequence to indicate that the user has finished dialing or to separate one group of dialed digits from another.
#	#	<b>End of Dialing.</b> Used at the end of a dialing sequence to indicate that the user has finished dialing or to separate one group of dialed digits from another.

## MLX-10 and MLX-5 Non-Display Telephones

Some dialing sequences need special characters—for example, the user presses Hold to insert a Pause character after the dial-out code in a dialing sequence to allow the system to seize an outside line before dialing the number. A Pause character can also be used to separate a telephone number from an extension number.

**Table H-3. Special Characters for MLX-10 and MLX-5 Non-Display Telephones**

Press...	Means...
Drop	<b>Stop.</b> Halts the dialing sequence to allow for system response.
Hold	<b>Pause.</b> Inserts a 1.5-second pause in the dialing sequence. Multiple consecutive pauses are allowed.
Conf	<b>Flash.</b> Sends a switchhook flash. Must be the first entry in the dialing sequence.
#	<b>End of Dialing for extension programming only.</b> Used at the end of a dialing sequence to indicate that the user has finished dialing or to separate one group of dialed digits from another.
##	<b>End of Dialing.</b> Used to signal the end of the dialing sequence or to separate one group of dialed digits from another.

## MLX Display Telephones

Some dialing sequences need special characters—for example, the user presses Hold to insert a Pause character in a dialing sequence after a dial-out code to allow the system to seize an outside line before dialing the number. A Pause character can also be used to separate a telephone number from an extension number.

**Table H-4. Special Characters for MLX Display Telephones**

Press...	See...	Means...
Drop	s	<b>Stop.</b> Halts the dialing sequence to allow for system response.
Hold	p	<b>Pause.</b> Inserts a 1.5-second pause in the dialing sequence. Multiple consecutive pauses are allowed.
Conf	f	<b>Flash.</b> Sends a switchhook flash. Must be the first entry in the dialing sequence.
#	#	<b>End of Dialing for extension programming only.</b> Used at the end of a dialing sequence to indicate that the user has finished dialing or to separate one group of dialed digits from another.
##	#	<b>End of Dialing.</b> Used to signal the end of the dialing sequence or to separate one group of dialed digits from another.

## ETR and MLS Non-Display Telephones

Some dialing sequences need special characters—for example, the user presses Hold to insert a Pause character after the dial-out code in a dialing sequence to allow the system to seize an outside line before dialing the number. A Pause character can also be used to separate a telephone number from an extension number.

**Table H-5. Special Characters for ETR and MLS Non-Display Telephones**

Press...	Means...
Trnsfr	<b>Stop.</b> Halts the dialing sequence to allow for system response.
Hold	<b>Pause.</b> Inserts a 1.5-second pause in the dialing sequence. Multiple consecutive pauses are allowed.
Conf	<b>Flash.</b> Sends a switchhook flash. Must be the first entry in the dialing sequence.
#	<b>End of Dialing for extension programming only.</b> Used at the end of a dialing sequence to indicate that the user has finished dialing or to separate one group of dialed digits from another.
##	<b>End of Dialing.</b> Used to signal the end of the dialing sequence or to separate one group of dialed digits from another.

## ETR and MLS Display Telephones

Some dialing sequences need special characters—for example, the user presses Hold to insert a Pause character in a dialing sequence after a dial-out code to allow the system to seize an outside line before dialing the number. A Pause character can also be used to separate a telephone number from an extension number.

**Table H-6. Special Characters for ETR and MLS Display Telephones**

Press...	See...	Means...
Trnsfr	s	<b>Stop.</b> Halts the dialing sequence to allow for system response.
Hold	p	<b>Pause.</b> Inserts a 1.5-second pause in the dialing sequence. Multiple consecutive pauses are allowed.
Conf	f	<b>Flash.</b> Sends a switchhook flash. Must be the first entry in the dialing sequence.
#	#	<b>End of Dialing for extension programming only.</b> Used at the end of a dialing sequence to indicate that the user has finished dialing or to separate one group of dialed digits from another.
##	#	<b>End of Dialing.</b> Used to signal the end of the dialing sequence or to separate one group of dialed digits from another.

# Glossary

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## Numerics

### 2B Data

Digital information carried by two *B-channels* for better performance and quality; the *bit rate* is twice that of one B-channel used alone.

### 4400-Series Telephones

A family of digital multiline and digital single-line telephones.

## A

### Account Code

Code used to associate incoming and outgoing calls with corresponding accounts, employees, projects, and clients.

### ACCUNET

AT&T's switched digital service for 56-kbps, 64-kbps restricted, and 64-kbps clear circuit-switched data calls.

### Address

Coded representation of the destination of data or of the data's originating terminal, such as the dialed extension number assigned to the data terminal. Multiple terminals on one communications line each must have a unique address.

### ADDS

*Automated Document Delivery System*. Computer-based application that stores documents in a database and automatically faxes them on request.

### Adjunct

Optional equipment used with the communications system, such as an alerting device or *modem* that connects to a multiline telephone or to an extension jack.

### ALS

*Automatic Line Selection*. Programmed order in which the system makes outside lines available to a user.

### **Ambiguous Numbering**

Numbering of extension ranges, remote access codes, or other system components that causes conflicts in network operations. These numbers can be unique and still be ambiguous. For example, Extension 441 is different from Extension 4410; for *UDP routing* purposes, however, the two numbers are ambiguous and a call intended for Extension 4410 would be misrouted, on the first three digits sent, to Extension 441. See also [Unambiguous Numbering](#).

### **AMI**

*Alternate Mark Inversion*. Line coding format in which a binary one is represented by a positive or negative pulse, a binary zero is represented by no line signal, and subsequent binary ones must alternate in polarity; otherwise, a *bipolar violation* occurs. AMI is used in the *DS1* interface.

### **Analog Data Station**

See [Modem Data Station](#).

### **Analog Transmission**

Mode of transmission in which information is represented in continuously variable physical quantities, such as amplitude, frequency, phase, or resistance. See also [Digital Transmission](#).

### **ANI**

*Automatic Number Identification*. Process of automatically identifying a caller's billing number and transmitting that number from the caller's local central office to another point on or off the public network.

### **Application**

Software and/or hardware that adds functional capabilities to the system. For example, MERLIN MAGIX Reporter is an application that provides call management information (if available in the local area or jurisdiction).

### **ARS**

*Automatic Route Selection*. System feature that routes calls on outside facilities according to the number dialed and line/trunk availability. To initiate ARS, the user dials a *dial-out code*, also called an "ARS access code."

### **ASCAP**

*American Society of Composers, Artists, and Producers*.

### **Ascend Pipeline**

ISDN-BRI bridge/router that enables high-speed Internet access over a digital facility. It makes outgoing calls only.

## ASN

*AT&T Switched Network.* AT&T telecommunications services provided through an Integrated Digital Services Network Primary Rate Interface (ISDN-PRI) trunk, *ACCUNET* switched digital service, *MEGACOM*, *MEGACOM 800*, Software Defined Network (*SDN*), Multiquest, and Shared Access for Switch Services (*SASS*).

## Asynchronous Data Transmission

Method of transmitting a short bitstream of digital data, such as printable characters represented by a 7- or 8-bit ASCII code. Each string of data bits is preceded by a start bit and followed by a stop bit, thus permitting data to be transmitted at irregular intervals. See also [Synchronous Data Transmission](#).

## AT&T Attendant

Application with equipment that connects to one or more *tip/ring* extension jacks and automatically answers incoming calls with a recorded announcement; directs calls in response to touch tones.

## AT&T Switched Network

See [ASN](#).

## Automated Attendant

An application that automatically answers incoming calls with a recorded announcement and directs callers to a department, an extension, or the system operator.

## Automated Document Delivery System

See [ADDS](#).

## Automatic Immediate Cycling

Process that occurs in a *private network* when all available routes for a call specify systems with matching *switch identifiers*. The call is routed from the originating system to the destination system and back to the originating system in a continuous loop. *Switch identifier* labeling systems must be unique across a network.

## Automatic Line Selection

See [ALS](#).

## Automatic Number Identification

See [ANI](#).

## Automatic Ringdown Tie-Trunk

See [Automatic-Start Tie Trunk](#).

### Automatic Route Selection

See [ARS](#).

### Automatic-Start Tie Trunk

*Tie trunk* on which incoming calls are routed to an operator or other designated destination without a start signal, as soon as the trunk is seized; the destination is specified during programming. Also called “Automatic Ringdown” or “Auto-In” Tie Trunk.

## B

### B8ZS

*Bipolar 8 Zero Substitution*. Line-coding format that encodes a string of eight zeros in a unique binary sequence to detect bipolar violations.

### Backup

Procedure for saving a copy of system programming onto a floppy disk or *memory card*. See also [Restore](#).

### Bandwidth

Difference, expressed in hertz, between the highest and lowest frequencies in a range that determines channel capacity.

### Barrier Code

Password used to limit access to the *Remote Access* feature of the system. In a *private network*, it is especially important that barrier codes be required for all types of remote access.

### Basic Carrier

Hardware that holds and connects the *processor module*, *power supply module*, and up to five other modules in the system. See also [Expansion Carrier](#).

### Baud Rate

Strictly speaking, a measurement of transmission speed equal to the number of signal level changes per second. In practice, often used synonymously with *bit rate* and *bps*.

### B-Channel

*Bearer-Channel*. 64- or 56-kbps channel that carries a variety of digital information streams, such as voice at 64 kbps, data at up to 64 kbps, wideband voice encoded at 64 kbps, and voice at less than 64 kbps, alone or combined.

### Basic Rate Interface

See [BRI](#).

### Bearer-Channel

See [B-Channel](#).

### Behind Switch Mode

One of three modes of system operation in which the control unit is connected to (behind) another telephone switching system, such as *Centrex* or *DEFINITY*, which provides features and services to telephone users. See also [Hybrid/PBX Mode](#) and [Key Mode](#).

### Binary Code

Electrical representation of quantities or symbols expressed in the base-2 number system, which includes zeros and ones.

### Bipolar 8 Zero Substitution

See [B8ZS](#).

### Bipolar Signal

Digital signal in which pulses (ones) alternate between positive and negative. See also [AMI](#), [B8ZS](#), and [Bipolar Violation](#).

### Bipolar Violation

Condition occurring when two positive or two negative pulses are received in succession. See also [AMI](#) and [B8ZS](#).

### Bit

*Binary Digit*. One unit of information in binary notation; it can have one of two values—zero or one.

### Bit Rate

Speed at which bits are transmitted, usually expressed in *bps*. Also called “data rate.”

### Blocking

Condition in which end-to-end connections cannot be made on calls because of a full load on all possible services and facilities. See also [Glare](#).

### BMI

*Broadcast Music Incorporated*.

### Board

Module—for example, 100D or 408 MLX GS/LS—that allows you to connect lines/trunks and extensions to the communications system.

### Board Assignment

System Programming and Maintenance (SPM) procedure for assigning line/trunk and extension modules to slots on the control unit.

### **Board Renumbering**

System programming procedure for renumbering boards that have already been assigned to specific slots on the control unit.

### **bps**

*Bits per second.*

### **BRI**

*Basic Rate Interface.* Standard protocol for accessing Integrated Service Digital Network (ISDN) services.

### **Broadband**

Transmission path having a bandwidth greater than a voice-grade channel.

### **Bus**

Multiconductor electrical path used to transfer information over a common connection from any of several sources to any of several destinations.

### **Button**

Key on the face of a telephone that is used to access a line, activate a feature, or enter a code on a communications system.

### **Byte**

Sequence of eight *bits* processed together. Also called "octet."

## **C**

### **Call Accounting System**

See [CAS](#).

### **Call Accounting Terminal**

See [CAT](#).

### **Caller ID**

Service provided by some local telephone companies (if local regulations allow) that supplies the calling party telephone number and name. An 800 GS/LS-ID, 408 GS/LS-ID-MLX, or 412 LS-ID-TDL module can capture both the number and name of the calling party and display them on the screens of 44xx, MLX, ETR, and MLS telephones. See also [ANI](#).

### **Calling Group**

Team of individuals who answer the same types of calls.

### **Calling Party Name on Caller ID**

This central office service allows a subscriber to view the name of the calling party on a 44xx, MLX, ETR, or MLS display telephone.

### **Calling Party Number on Caller ID**

This central office service allows a subscriber to view the number of the calling party on a 44xx, MLX, ETR, or MLS display telephone.

### **CAS**

*Call Accounting System.* DOS- or UNIX System-based application that monitors and manages telecommunications costs.

### **CAT**

*Call Accounting Terminal.* Stand-alone unit with a built-in microprocessor and data buffer that provides simple call accounting at a low cost.

### **CCITT**

*International Telegraph and Telephone Consultative Committee.*

### **CCS**

*Common-Channel Signaling.* Signaling in which one channel of a group of channels carries signaling information for each of the remaining channels, permitting each of the remaining channels to be used to nearly full capacity. In the system's 100D module, channel 24 can be designated as the signaling channel for channels 1–23.

### **Centralized Telephone Programming**

Programming of features on individual telephones; performed at a central location by the system manager. See also [System Programming](#) and [Extension Programming](#).

### **Centralized Voice Messaging**

Sharing of a voice messaging system by two or more directly connected MERLIN MAGIX, MERLIN LEGEND (Release 6.1 or higher), DEFINITY ECS, DEFINITY BCS, or DEFINITY ProLogix Solutions systems in a *private network*.

### **Central Office**

See [CO](#).

### **Centrex**

Set of system features to which a user can subscribe on telephone trunks from the local telephone company.

### **Channel**

Telecommunications transmission path for voice and/or data.

### **Channel Service Unit**

See [CSU](#).

### Checksum

Sum of ones in a sequence of ones and zeros, used to detect or correct errors in data transmission.

### Circuit-Switched Data Call

Data call made through an exclusively established and maintained connection between *data stations*.

### Class of Restriction

See [COR](#).

### Clear Data Channel

Clear data channels (also called unrestricted data channels) allow the transmission of occurrences of more than seven contiguous zero bits. If a clear data channel is requested and only restricted channels are available, the call will be rejected. See also [Restricted Data Channel](#).

### Clock Synchronization

When digital signals are transmitted over a communications link, the receiving end must be synchronized with the transmitting end to receive the digital signals without errors using clock synchronization. A system synchronizes itself by extracting a timing signal from an incoming digital stream. All the digital facilities in a network operate from a single common clock—preferably a port connected to a digital *PSTN* facility on a *hub system* or a system that connects two network systems. In this case, all digital facilities specify a loop clock source. One system in a network may be specified as a local clock source when no functioning digital facility in the network is connected to the *PSTN*. All other digital facilities then use this clock and specify their clock sources as loop. Primary, secondary, and tertiary clock sources are specified to allow backup synchronization in the event that the primary source is out of service.

### CO

*Central Office*. Location of telephone switching equipment that provides local telephone service and access to toll facilities for long-distance calling.

### Coaxial Cable

Cable consisting of one conductor, usually a small copper tube or wire within, and insulated from, another conductor of larger diameter—usually copper tubing or copper braid.

### Codec

*Coder-Decoder*. Device used to convert analog signals— such as speech, music, or television—to digital form for transmission over a digital medium and back to the original analog form.

### Collected Digits

Digits that a caller dials in response to an integrated voice response application's menus; collected digits may be used to initiate a *screen pop* at a system extension. See also [CTI Link](#) and *Enhanced Customer Care Solution*.

### Combination Configuration

*Private network* arrangement that combines characteristics of *Virtual Private Network (VPN)*, a *series configuration*, and a *star configuration*.

### Common Channel Signaling

See [CCS](#).

### Control Unit

*Processor module, power supply module, other modules, carriers, and housing* of the system.

### Console

Telephone and *adjuncts* (if any) at an operator or system programmer extension.

### CONVERSANT

Entry-level voice response application that automatically answers and routes calls and executes telephone transactions.

### Conversion Resource

See [Modem Pool](#).

### Coordinating System Manager

In a *private network* that includes more than two systems, the system manager who acts as a clearinghouse for any changes made on local systems that affect the network, assuring that all system managers work together and that local system changes do not have undesirable effects on the network as a whole.

### COR

*Class of Restriction*. Various types of restrictions that can be assigned to *remote access* trunks or barrier codes. These restrictions consist of calling restrictions, *ARS Facility Restriction Levels (FRLs)*, Allowed Lists, Disallowed Lists, and Automatic Callback queuing.

### Coverage

Set of system features that can determine how an extension's calls are covered when the person at the extension is busy or not available.

### CRC

*Cyclic Redundancy Check*. Error-detection code used on *DS1* facilities with the extended superframe format (*ESF*).

### CSU

*Channel Service Unit*. Equipment used on customer premises to provide *DS1* facility terminations and signaling compatibility.

### CTI Link

*Computer Telephony Integration.* Hardware/software feature that is part of the PassageWay Telephony Services application. It allows the use of Lucent Technologies-certified software applications on a LAN running Novell NetWare or Windows NT software in a *Hybrid/PBX mode* system. These applications may provide special features for client control of such calling activities as power dialing. See also [Screen Pop](#).

### Cyclic Redundancy Check

See [CRC](#).

## D

### D4 Framing Format

*Framing format* consisting of a sequence of individual frames of 24 eight-bit slots and one signal bit (193 bits) in a 12-frame superframe. See also [ESF](#).

### Data-Channel

See [D-Channel](#).

### Data Communications Equipment

See [DCE](#).

### Data Module

Type of *ISDN terminal adapter* that acts as the *DCE* at a *data workstation* that communicates over high-speed *digital* facilities.

### Data Rate

See [bps](#).

### Data Station

Special type of extension where data communications take place; includes *DTE* and *DCE*; sometimes a telephone is also part of a data station.

### Data Terminal

Input/output device (often a personal computer) that can be connected to the control unit via an interface.

### Data Terminal Equipment

See [DTE](#) and [Data Terminal](#).

### Data Workstation

Special type of extension where data communications take place; includes *DTE* and *DCE*; sometimes a telephone is also part of a data workstation.

## DCE

*Data Communications Equipment.* Equipment, such as *modems* or ISDN terminal adapters, used to establish, maintain, and terminate a connection between the system and data terminal equipment (*DTE*)—such as printers, personal computers, host computers, or network workstations.

## DCP

*Digital Communications Protocol.* AT&T proprietary protocol to transmit digitized voice and data over the same communications link.

## D-Channel

*Data-Channel.* 16- or 64-kbps channel that carries signaling information or data on a *PRI* or *BRI*.

## Dedicated Feature Buttons

The imprinted feature buttons on a telephone: for example, Conf or Conference, Drop, Feature, HFAI (Hands-Free Answer on Intercom), Hold, Message, Mute or Microphone, Recall, Speakerphone or Spkrphone, and Transfer.

## Delay-Start Tie Trunk

*Tie trunk* or *tandem tie trunk* on which the originating end of the tie trunk transmits an off-hook signal to the receiving end and waits for the receiving end to send an off-hook signal followed by an on-hook signal. Also called “dial-repeating tie trunk.”

## Desktop Videoconferencing System

System application that allows face-to-face, simultaneous video and voice communications between individuals and requires high-speed data transmission facilities. See also [Group Videoconferencing System](#).

## DFT

*Direct Facility Termination.* See [Personal Line](#).

## DHG

*Data Hunt Group.* Group of analog or digital *data stations* that share a common access code. Calls are connected in a round-robin fashion to the first available data station in the group.

## Dial Access

See [Feature Code](#).

## Dialed Number Identification Service

See [DNIS](#).

## Dial-Out Code

Digit (usually a 9) or digits dialed by telephone users to get an outside line.

## Dial Plan

Numbering scheme for system extensions, lines, and trunks.

## Dial-Repeating Tie Trunk

*Tie trunk* on which the originating end of the tie trunk transmits an off-hook signal to the receiving end and waits for the receiving end to send an off-hook signal followed by an on-hook signal.

## DID

*Direct Inward Dial*. Service that transmits from the telephone company central office and routes incoming calls directly to the called extension, *calling group*, or outgoing line/trunk *pool*, bypassing the system operator.

## DID Trunk

Incoming trunk that receives dialed digits from the local exchange, allowing the system to connect directly to an extension without assistance from the system operator.

## Digital

Representation of information in discrete elements—such as off and on or zero and one. See also [Analog Transmission](#).

## Digital Communications Protocol

See [DCP](#).

## Digital Data Station

See [ISDN Terminal Adapter Data Station](#).

## Digital Signal 0

See [DS0](#).

## Digital Signal 1

See [DS1](#).

## Digital Subscriber Line

See [DSL](#).

## Digital Transmission

Mode of transmission in which the information to be transmitted is first converted to digital form and then transmitted as a serial stream of pulses. See also [Analog Transmission](#).

## DIP Switch

*Dual In-line Package*. Switch on a 400EM module used to select the signaling format for tie-line transmission. Also used on other equipment for setting hardware options.

### Direct Facility Termination

*DFT.* See [Personal Line](#).

### Direct Inward Dial

See [DID](#).

### Direct-Line Console

See [DLC](#).

### Direct Station Selector

See [DSS](#).

### Display Buttons

Buttons on a 4412D+, 4424D+, 4424LD+, or MLX display telephone used to access the telephone's display.

### DLC

*Direct-Line Console.* Telephone used by a system operator to answer outside calls (not directed to an individual or a group) and inside calls, to transfer calls, to make outside calls for users with outward calling restrictions, to set up conference calls, and to monitor system operation.

### DNIS

*Dialed Number Identification Service.* Service provided by AT&T and MCI to route incoming 800 or 900 calls according to customer-selected parameters, such as area code, state, or time of call.

### Door Answering Unit

Device connected to a *tip/ring* jack and used at an unattended extension or front desk.

### DOS

*Disk Operating System.*

### Drop-and-Insert Equipment

Device that can be installed between systems connected by *tandem PRI trunks* or T1-Emulated *tandem tie trunks* to allow fractional use of the facility—that is, use of fewer than 23 of the PRI *B-channels* or fewer than 24 of the T1 *channels*. In a PRI facility, the equipment must never drop Channel 24, the *D-channel*. All channels must still be programmed and all count towards the system maximum of 80 lines.

### DS0

*Digital Signal 0.* Single 64-kbps voice or data channel.

## DS1

*Digital Signal 1.* Bit-oriented signaling interface that multiplexes twenty-four 64-kbps channels into a single 1.544-mbps stream.

## DSL

*Digital Subscriber Line.* Digital Subscriber Line provides full-duplex service on a single twisted metallic pair (2-wire) at a rate sufficient to support ISDN Basic Rate Access.

## DSS

*Direct Station Selector.* Fifty-button *adjunct* that enhances the call-handling capabilities of a 4424D+, 4424LD+, MLX-20L, or MLX-28D telephone used as an operator console.

## DTE

*Data Terminal Equipment.* Equipment that makes the endpoints in a connection over a data connection—for example, a data terminal, personal computer, host computer, or printer.

## DTMF signaling

*Dual-Tone Multifrequency Signaling.* Touch-tone signaling from telephones using the voice transmission path. DTMF signaling provides 12 distinct signals, each representing a dialed digit or character, and each composed of two voiceband frequencies.

# E

## E&M Signaling

Trunk supervisory signaling, used between two communications systems, in which signaling information is transferred through two-state voltage conditions (on the Ear and Mouth leads) for analog applications and through two *bits* for digital applications. See also [Tie Trunk](#).

## EIA

*Electronic Industries Association.*

## EIA-232-D

Physical interface, specified by the *EIA*, that transmits and receives asynchronous data at speeds of up to 19.2-kbps over cable distances of 50 feet (15 meters).

## Electronic Switching System

See [ESS](#).

## Endpoint

Final destination in the path of an electrical or telecommunications signal.

### **Enhanced Customer Care Solution**

Application that sends calls to available agents in a calling group. The Enhanced Customer Care Solution places calls in queue, plays announcements, tracks agent activity and availability, and provides real-time reports.

### **ESF**

*Extended Superframe Format.* PRI framing format consisting of individual frames of 24 eight-bit slots and one signal bit (193 bits) in a 24-frame extended superframe.

### **ESS**

*Electronic Switching System.* Class of central office (CO) switching systems developed by Lucent Technologies in which the control functions are performed principally by electronic data processors operating under the direction of a stored program.

### **ETR Telephone**

Enhanced tip/ring telephone (Series 4).

### **Expansion Carrier**

Carrier added to the control unit when the basic carrier cannot house all of the required modules. Houses a power supply module and up to six additional modules.

### **Extended Superframe Format**

See [ESF](#).

### **Extension**

*Endpoint* on the internal side of the communications system. An extension can be a telephone with or without an adjunct. Also called "station." See also [Data Workstation](#).

### **Extension Jack**

An analog, digital, or *tip/ring* physical interface on a module in the control unit for connecting a telephone or other device to the system. Also called "station jack."

### **Extension Programming**

Programming performed at an extension to customize telephones for personal needs; users can program features on buttons, set the telephone ringing pattern, and so on. See also [Centralized Telephone Programming](#) and [System Programming](#).

## F

### Facility

Equipment (often a *line/trunk*) constituting a telecommunications path between the system and the telephone company central office (*CO*).

### Facility Restriction Level

See [FRL](#).

### Factory Setting

Default state of a device or feature when an optional setting is not programmed by the user or system manager.

### Fax

*Facsimile*. Scanning and transmission of a graphic image over a telecommunications facility, or the resulting reproduced image, or the machine that does the scanning and transmitting.

### FCC

*Federal Communications Commission*.

### Feature

Function or service provided by the system.

### Feature Code

Code entered on a dialpad to activate a feature.

### Feature Screen

Display screen on 4412D+, 4424D+, 4424LD+, and MLX display telephones; provides quick access to commonly used features.

### Flash ROM

Type of read-only memory provided on the *processor module*, used to supply system features.

### Foil Shield

Copper foil sheet (for power units), used to prevent excessive noise on the module.

### Forced Idle

Condition of the system during certain programming or maintenance procedures; system prevents initiation of new calls.

### Foreign Exchange

See [FX](#).

### Fractional-T1

A digital transmission facility consisting of at least one, and fewer than 24, *DS0* channels using robbed-bit signaling, and connecting a *PBX* and a *central office* or toll office.

### Frame

One of several segments of an analog or digital signal that has a repetitive characteristic. For example, a *DS1* frame consists of a framing *bit* and 24 bytes, which equals 193 bits.

### Framing Format

Pattern of *frames* used in transmissions.

### FRL

*Facility Restriction Level*. Calling restriction type that restricts calls to certain specified *ARS* and *UDP* routes.

### FX

*Foreign Exchange*. *Central office* other than the one that is providing local access to the public telephone network.

## G

### Glare

Condition that occurs when a user tries to call out on a *loop-start line* at the same time that another call arrives on the same line.

### Ground-Start Trunk

Trunk on which the communications system, after verifying that the trunk is idle (no ground on tip lead), transmits a request for service (puts ground on ring lead) to the telephone company *central office*.

### Group IV (G4) Fax Machine

Fax unit, offering 400 by 100 dots per inch (DPI) in fine mode, that can operate at any speed for communication with a Group III (G3) fax machine or another Group IV (G4) fax machine.

### Group Videoconferencing System

System application that allows face-to-face, simultaneous video and voice communications between groups and requires high-speed data transmission facilities. See also [Desktop Videoconferencing System](#).

## H

### Hands-Free Answer Intercom

See [HFAI](#).

### Headset

Lightweight earpiece and microphone used for hands-free telephone operation.

## HFAI

*Hands-Free Answer Intercom.* Feature that allows a user to answer a voice-announced call.

## Home Screen

Display normally shown on a 44xx or MLX display telephone; shows time, date, and call information, as well as when some features are in use.

## Host

Telephone company or other switch providing features and services to the system users, usually when the system is operating in *Behind Switch mode*.

## Hub System

In a *private network* that is arranged in a *star configuration*, the communications system through which all calls across the network pass.

## Hybrid/PBX Mode

One of three modes of system operation in which the system uses line/trunk *pools* and *ARS* in addition to *personal lines*. Provides a single interface (SA buttons) to users for both internal and external calling. See also [Behind Switch Mode](#) and [Key Mode](#).

# I

## ICLID

*Incoming Call Line Identification.* See [Caller ID](#).

## ICOM Buttons

*Intercom Buttons.* Telephone buttons that provide access to inside system lines for calling other extensions or receiving calls from them.

## Immediate-Start Tie Trunk

*Tie trunk* on which no start signal is necessary; dialing can begin immediately after the trunk is seized.

## In-Band Signaling

See [Robbed-Bit Signaling](#).

## Inside Dial Tone

Tone users hear when they are off-hook on an SA or ICOM *button*.

## Inspect Screen

Display screen on a multiline 44xx or MLX display telephone that allows the user to preview incoming calls and view a list of the features programmed on line buttons.

### **Integrated Services Digital Network**

See [ISDN](#).

### **Integrated Solution III**

See [IS III](#).

### **Integrated System**

Software-controlled processor complex that interprets dialing pulses, tones, and/or keyboard characters and makes the proper interconnections—both inside and outside. Consists of a computer, software, a storage device, and carriers with special hardware to perform the actual connections. Provides voice and/or data communications services, including access to public and private networks, for telephones and other equipment. Also referred to in this guide as “system,” short for MERLIN MAGIX Integrated System.

### **Intercom Buttons**

See [ICOM Buttons](#).

### **Interface**

Hardware and/or software that links systems, programs, or devices.

### **Intersystem Calls**

In a *private network*, calls between a local extension and a *local* or *non-local dial plan* extension.

### **Intuity**

Set of integrated applications that provides voice mail, fax messaging, Automated Attendant, call accounting, and system programming.

### **Intuity CONVERSANT**

Voice response application that automatically answers and routes calls and executes telephone transactions.

### **I/O Device**

*Input/Output Device*. Equipment that can be attached to a computer internally or externally for managing a computer system's input and output of information.

### **IROB Protector**

*In-Range Out-of-Building protector*. Surge-protection device for off-premises telephones at a location within 1000 feet (305 meters) of cable distance from the control unit.

### **IS III**

*Integrated Solution III*. Set of UNIX System-based applications that augments and provides additional services using the system. IS III is no longer available.

## ISDN

*Integrated Services Digital Network.* Public or private network that provides end-to-end digital connectivity for all services to which users have access by a limited set of standard multipurpose user and *network interfaces*; provides digital circuit-switched or packet-switched connections within the network and to other networks for national and international digital connectivity.

## ISDN Terminal Adapter

*Integrated Services Digital Network Terminal Adapter.* A device that connects the communications system with *data terminal equipment (DTE)*.

## ISDN Terminal Adapter Data Station

Type of data station that includes an ISDN terminal adapter as its DCE. It may also include an MLX telephone for simultaneous voice and data (ISDN terminal adapter data-only station). These data stations connect to MLX extension jack modules for digital transmission of data over a DS1 facility.

## J

### Jack

Physical connection point to the system for a telephone, line/trunk, or other device. Also called "port."

## K

### kbps

*kilobits per second.*

### Key Mode

One of three modes of system operation, in which the system uses personal lines on line buttons for outside calls, with a separate interface (*ICOM buttons*) for inside calling. See also [Behind Switch Mode](#) and [Hybrid/PBX Mode](#).

## L

### LAN

*Local Area Network.* Arrangement of interconnected personal computers or terminals, which sometimes access a host computer, and sometimes sharing resources such as files and printers.

### LDN

*Listed Directory Number.*

### LED

*Light-Emitting Diode.* Semiconductor device that produces light when voltage is applied; light on a telephone.

### Line

Connection between extensions within the communications system; often, however, used synonymously with *trunk*.

### **Line and Trunk Assignment**

Assignment of lines and trunks connected to the system control unit to specific buttons on each telephone.

### **Line Coding**

Pattern that data assumes as it is transmitted over a communications channel.

### **Line Compensation**

Adjustment for the amount of cable loss in decibels (dB), based on the length of cable between a 100D module and a channel service unit (CSU) or other far-end connection point.

### **Line/Trunk**

Refers to inside system lines and outside lines/trunks in general terms. See also [Line](#) and [Trunk](#).

### **Line/Trunk Jack**

Physical interface on a module in the control unit for connecting an outside line/trunk to the communications system. Also called "trunk jack."

### **Line/Trunk and Extension Module**

Module on which the jacks for connecting central office lines/trunks and/or the jacks for connecting the extensions are located.

### **Local Dial Plan**

In a system that is part of a *private network*, list of extension ranges that the local system refers to in order to route local *intersystem calls via UDP*.

### **Local Extension**

In a system that is part of a *private network*, extension that is listed in the system's *local dial plan*.

### **Local Host Computer Access**

Method for connecting an extension jack to an on-site computer for data-only calls through a *modem* or *ISDN terminal adapter*.

### **Local Loop**

The two-way connection between a customer's premises and the *central office*.

### **Local User**

In a *private network*, person whose extension is connected to the local control unit.

### Logical ID

Unique numeric identifier for each *extension* and *line/trunk jack* in the system control unit.

### Loop-Start Line

Line on which a closure between the tip and ring leads is used to originate or answer a call. High-voltage 20-Hz AC ringing current from the *central office* signals an incoming call.

## M

### Magic On Hold

Lucent Technologies Music-On-Hold enhancement that promotes a company's products or services.

### mbps

*megabits per second.*

### Megacom

AT&T tariffed digital *WATS* offering for outward calling.

### Megacom 800

AT&T tariffed digital 800 offering for inward calling.

### Memory Card

Storage medium, similar in function to a floppy disk, that allows information to be added to, or obtained from, the communications system through the PCMCIA interface slot on the processor module.

### MERLIN Messaging System

Voice-messaging system that provides Automated Attendant, call answering, and voice-mail services. It is housed in its own module.

### Messaging 2000

See *Octel 100*.

### MFM

*Multi-Function Module.* Adapter that has a *tip/ring* mode for answering machines, modems, fax machines, and tip/ring alerts, and an *SAA* mode for -48 VDC alerts. It is installed inside an MLX telephone and is used to connect optional equipment to the telephone. The optional equipment and the telephone operate simultaneously and independently.

### MLS Telephone

An enhanced *tip/ring* (Series 3) telephone. No longer available.

### **MLX Telephone**

Multiline button telephone that transmits and receives digital signals.

### **Mode Codes**

Streams of touch-tone codes used by voice messaging applications to communicate with the system's control unit.

### **Modem**

Device that converts digital data signals to analog signals for transmission over a telephone line, and analog signals received on a telephone line to digital signals.

### **Modem Data Station**

Type of data station that includes a modem as its DCE. It may also include an MLX telephone for simultaneous voice and data (MLX voice and modem data station), an analog multiline telephone (analog voice and modem data station), or a single-line telephone for dialing only (modem data-only station). These data stations connect respectively to MLX, analog, or *tip/ring* extension jack modules. They provide analog transmission of data.

### **Modem Pool**

Pair, or group of pairs, of *modems* and data modules with interconnected RS-232 interfaces that converts digital signals to analog, or analog signals to digital, thereby allowing users with *ISDN terminal adapter data stations* to communicate with users who have analog *modem data stations*.

### **Module**

Circuit pack in the control unit that provides the physical jacks for connecting telephones and/or outside lines/trunks to the communications system. In the name of a module, the first digit indicates the number of *line/trunk jacks* it contains; the last digit indicates the number of *extension jacks* it contains. If no letters appear after the number, a line/trunk module provides *loop-start lines* or an extension jack module provides analog or *tip/ring* jacks. For example, a 408 GS/LS-MLX module contains four line/trunk jacks and eight digital (MLX) extension jacks, and provides either *loop-start* (LS) or *ground-start* (GS) *trunks*.

### **Monitored Extension**

Extension for which one or more CTI applications is receiving call information. The CTI application does not have to be directly attached to the equipment at the extension in order to monitor calls. The call information may appear on the PC screen of another extension that has been programmed to receive it. See also [CTI Link](#) and [Unmonitored Extension](#).

### **Multi-Function Module**

See [MFM](#).

### **Multiline Telephone**

Telephone that provides multiple line buttons for making or receiving calls or programming features.

### **Multiplexing**

Division of a transmission channel into two or more independent channels—either by splitting the frequency band into a number of narrower bands or by dividing the channel into successive time slots.

### **Music-On-Hold**

Customer-provided music source or Magic On Hold connected to the system through a *loop-start* jack.

## **N**

### **Network**

Configuration of communications devices and software connected for information interchange.

### **Network Interface**

Hardware, software, or both that links two systems in an interconnected group of systems—for example, between the local telephone company and a PBX.

### **NI-1 BRI**

*National Integrated Services Digital Network 1 Basic Rate Interface.* Type of digital facility that carries the equivalent of three lines. Two are called *B-channels* and provide voice and data communications services. A third *D-channel* controls signaling and maintains operations on the B-channels.

### **Non-Local Dial Plan**

In a system that is part of a *private network*, list of extension ranges that the local system references in order to route non-local *intersystem calls via UDP*.

### **Non-Local Extension**

In a system that is part of a *private network*, extension that is in the *non-local dial plan*.

### **Non-Local User**

In a *private network*, user who is connected to another system in the network and not to the local system.

### **Non-Satellite System**

In a *private network, communications system* that is directly connected to and located more than 200 miles from the local system.

## **O**

### **Octel 100 Messaging**

Voice-messaging system housed in a PC that connects to *tip/ring* ports on the system's modules. Messaging 2000 provides voice mail, Automated Attendant, call answering, and fax messaging services.

### Off-Hook

Telephone is said to be off-hook when the user has lifted the handset, pressed the speakerphone button to turn on the speakerphone, or used a headset to connect to the communications system or the telephone network.

### Off-Premises Telephone

See [OPT](#).

### Ones Density

Requirement for channelized *DS1* service to the public network that prohibits eight consecutive zeros in a digital data stream.

### On-Hook

Telephone is said to be on-hook when the handset is hung up, the speakerphone is turned off, and the user is not using a headset to connect to the communications system or the telephone network.

### OPT

*Off-Premises Telephone. Single-line telephone or other tip/ring device connected to the system via a 008 OPT module in the control unit. Appears as an inside extension to the system, but may be physically located away from the system.*

### OPX

*Off-Premises Extension.*

### Out-of-Band Signaling

Signaling that uses the same path as voice-frequency transmission and in which the signaling is outside the band used for voice frequencies.

## P

### Parity

Addition of a *bit* to a bit string so that the total number of ones is odd or even; used to detect and correct transmission errors.

### PassageWay Direct Connection Solution

Set of software applications that provides an interface between a personal computer and an MLX telephone.

### PBX

*Private Branch Exchange.* Local electronic telephone switch that serves local stations (for example, extensions within a business) and provides them with access to the public network.

### PC

*Personal Computer.*

### PCMCIA Memory Card

*Personal Computer Memory Card International Association Memory Card.* See [Memory Card](#).

### Peripheral System

In a *private network*, system that does not connect to more than one other system, sometimes called an “end node.”

### Personal Line

*Central office line/trunk* that terminates directly at one or more extensions. In *Hybrid/PBX mode*, a personal line cannot be part of a line/trunk *pool*. Also called “DFT” (Direct Facility Termination).

### PFT

*Power Failure Transfer.* Feature that provides continuity of telephone service during a commercial power failure by switching some of the system’s line/trunk connections to telephones connected to specially designated extension jacks.

### Phantom Extension

Extension that is not actually plugged into the system, but is used, for example, as a calling group member covered by a *voice messaging system*.

### Pool

In *Hybrid/PBX mode*, a group of outside lines/trunks that users can access with a Pool button or by dialing an access code on an SA *button*. Also used by the *ARS* feature when choosing the least expensive route for a call.

### Point-to-Point Facility

In a *private network*, a line/trunk that passes through the *PSTN* without using the switching capabilities of the *PSTN*.

### Port

See [Jack](#). Also, refers to *extension* or *line/trunk jacks* before these are numbered according to the *dial plan* during programming. The lowest jack on a module is always Port 1.

### Power Failure Transfer

See [PFT](#).

### Power Supply Module

Device that directs electricity to modules and telephones on the system. One power supply module is needed for each carrier.

## PRI

*Primary Rate Interface*. Standard interface that specifies the protocol used between two or more communications systems. As used in North America, it provides twenty-three 64-kbps *B-channels* for voice and/or data and one 16-kbps *D-channel*, which carries multiplexed signaling information for the other 23 channels.

## Primary System Operator Position

First extension *jack* on the first TDL or MLX module in the control unit—that is, the extension jack with the lowest logical ID in the system.

## Prime Line

Individual extension number assigned to a telephone in a system operating in *Behind Switch mode*. Each telephone user has his or her own prime line and is automatically connected to that line when he or she lifts the handset.

## Priority Call Queuing

System function that prioritizes calling groups, thereby allowing certain incoming calls to be answered before others.

## Private Communications Network

See [Private Network](#).

## Private Network

Interconnected group of *communications systems*, which may consist of MERLIN MAGIX Integrated Systems, MERLIN LEGEND Communications Systems, DEFINITY Enterprise Communications Servers (ECS), DEFINITY Business Communications Servers (BCS), and/or DEFINITY ProLogix Solutions.

**Reviewers: Is this the correct name for BCS?**

## Private Network Trunks

Facilities that connect *communications systems* in a *private network*. See also [Tandem Tie Trunk](#) and [Tandem PRI Trunk](#).

## Processor Module

Module in the second slot of the control unit (Slot 0, to the right of the *power supply module*). Includes the software and memory that runs the system.

## Programming Port Reassignment

Reassignment of the system programming jack position to any of the first five extension jacks on the first TDL or MLX module in the control unit.

## Protocol

Set of conventions governing the format and timing of message exchanges between devices, such as an MLX telephone and the control unit.

## PSTN

*Public Switched Telephone Network.* Network that is commonly accessible for local or long-distance calling. Also called “public network” or “public switched network.”

## PSTN Trunk

In a *private network*, facility that connects a networked system to the *public switched telephone network*.

## Public switched Telephone Network

See [PSTN](#).

## Q

### QCC

*Queued Call Console.* A 4424LD+ or MLX-20L telephone used by a system operator in *Hybrid/PBX mode* only. Used to answer outside calls (directed to a system operator position) and inside calls, to direct inside and outside calls to an extension or to an outside telephone number, to serve as a message center, to make outside calls for users with outward calling restrictions, to set up conference calls, and to monitor system operation.

## R

### RAM

*Random-Access Memory.* Computer memory in which an individual *byte* or range of bytes can be addressed and read or changed without affecting other parts of memory.

## Read-Only Memory

See [ROM](#).

## Remote Access

System feature that allows an outside caller to gain access to the system, almost as if at a system extension. In a *private network*, remote access settings are used to control calls routed via *ARS* or *UDP* routing across the network.

## Restore

Procedure whereby saved and archived system programming is reinstated on the system, from a floppy disk or *memory card*. See also [Backup](#).

## Restricted Data Channel

Channels that do not allow the transmission of occurrences of more than seven contiguous zero bits. See also [Unrestricted Data Channels](#).

## Rotary Dial Enable

Through centralized programming, T/R ports (including the T/R ports on the new ETR modules) can be programmed to accept rotary-dial and touch-tone digits or just touch-tone digits.

### Riser Cable

Cable that runs between floors in a multi-story building and connects wiring closets.

### RS-232

Physical interface, specified by the Electronics Industries Association (EIA), that transmits and receives asynchronous data at distances of up to 50 feet (15 meters).

### Robbed-Bit Signaling

Signaling in which the least significant *bit* of every sixth *frame* per channel is used for signaling in that channel.

### ROM

*Read-Only Memory*. Computer memory that can be read, but cannot be changed.

## S

### SA buttons

Telephone buttons that provide access to both inside and outside calls.

### Satellite System

In a *private network*, a *communications system* that is directly connected to, and located within 200 miles of the local system.

### Screen Pop

Refers to a computer-telephony software application that takes caller information (for example, the calling party number provided by Caller ID service), queries a database, and displays a screen with information about the caller onto a user's PC screen. Screen pop requires that an identifying number or code be available to identify the calling party. See also [CTI Link](#).

### SDN

*Software Defined Network*. AT&T private networking service created by specialized software within the public network.

### Series Configuration

*Private network* arrangement whereby either two or four or more communications systems are connected in a line, with no particular system acting as the *hub system*. See also [Star Configuration](#).

### Service Observing

Feature that allows one extension to listen in (observe) on calls that arrive at another extension.

### SID

*Station (Extension) Identification*.

## Signaling

Sending of information between devices to set up, maintain, or cease a connection, such as a telephone call.

## Simplex Signaling

Transmission of signals in one direction only, across a telecommunications channel.

## Single-Line Telephone

Industry-standard touch-tone or rotary dial telephone that handles one call at a time. It is connected to the system via an *extension jack* on a 016 (T/R) or 008 OPT module, or via a *port* on an 016 ETR module programmed for *tip/ring* operation.

## Slot

Position in a carrier for a module; numbered from 0.

## SMDR

*Station Message Detail Recording*. Feature that captures usage information on incoming and outgoing calls.

## SMDR Printer

Printer used to produce *SMDR* reports. Connected to the system via an RS-232 *jack* on the *processor module*.

## Software Defined Network

See [SDN](#).

## Special Character

Pause, Stop, or End-of-Dialing signal in a programmed dialing sequence, such as a speed dial number.

## Square Key

Configuration in *Key mode* operation in which all outside lines appear on all telephones.

## Star Configuration

*Private network* arrangement whereby either three or more communications systems are connected with one system acting as the *hub system*. See also [Series Configuration](#).

## Station

See [Extension](#).

### Station Jack

See [Extension Jack](#).

### Station Message Detail Recording

See [SMDR](#).

### Switch

See [Integrated System](#).

### Switched 56 Service

*DS1* Switched 56 service is an end-to-end digital, 56-kbps, full-duplex, synchronous, circuit-switched service offering. The service is offered by network service providers and by some Local Exchange Carriers (LECs) as circuit-switched, 56-kbps service. T1-emulated *tandem tie trunks* in a *private network* can be programmed for data.

### Switchhook Flash

Momentary (320 ms to 1 sec) on-hook signal used as a control; may be directed to the control unit or to a *host* switch outside the system. Also called "Recall" or "timed flash."

### Switch Identifier

Number assigned to a *tandem trunk* in a *private network*. It identifies the system connected to the far end of the trunk. A switch identifier is based on the type of system and its distance from the system where the identifier is assigned. See also [Satellite System](#) and [Non-Satellite System](#).

### Synchronous Data Transmission

Method of transmitting a continuous digital data stream in which the transmission of each binary *bit* is synchronized with a master clock. See also [Asynchronous Data Transmission](#).

### System Acceptance Test

Test of all trunks, telephones, data terminals, and features after installation to ensure that they are working correctly.

### System Access Buttons

See [SA buttons](#).

### System Date and Time

Date and time that appear on 44xx, MLX, and ETR display telephones and *SMDR* reports.

## System Programming

Programming of system functions and features that affect most users, performed from a 4424LD+ or MLX-20L telephone or a computer using *WinSPM*. See also [Extension Programming](#) and [Centralized Telephone Programming](#).

## System Programming and Maintenance

See *WinSPM*.

## System Renumbering

Procedure used to change the numbers assigned to telephones, *adjuncts*, *calling groups*, paging groups, park zones, *Remote Access*, and lines/trunks.

# T

## T1

Type of digital transmission facility that, in North America, transmits at the *DS1* rate of 1.544 mbps.

## T1-Emulated Data

A T1 *tie trunk* programmed for S56DATA for use by data calls at speeds up to 56 kbps. These trunks may be used for tandem and non-tandem operation.

## T1-Emulated Voice

A T1 *tie trunk* programmed for Tie-PBX or Tie-Toll for use by voice calls.

## T1 Switched 56 Service

*T1* digital data transmission over the *public network* or over a *private network* at 56 kbps. See [Switched 56 Service](#).

## Tandem Switching

Capability of *private network* communications systems that allows them to direct outside calls from one facility to another, rather than just to an extension. Calls may be sent, for example, from a *PSTN* facility to a *tandem trunk*, or vice versa.

## Tandem Trunk

Private outside facility (as opposed to an inside system line) that connects two communications systems in a *private network* and can carry calls to another outside facility through *tandem switching*. The trunk is not connected to the *PSTN*.

## Tandem Tie Trunk

*Tandem trunk* that is an analog *delay-start tie trunk*, providing a single line/trunk per facility and allowing *analog transmission* of voice and low-speed data; or a T1 facility offering 24 channels on emulated tie trunks and programmed for voice or data.

### **Tandem PRI Trunk**

*Tandem Primary Rate Interface Trunk. Private network trunk.*

### **TAPI**

*Telephony Application Programming Interface. Application programming interface that allows computer telephony applications to be used with MLX telephones. See also [Passageway Direct Connection Solution](#).*

### **Telephone Power Supply Unit**

Equipment that provides power to an individual telephone.

### **Terminal Adapter**

See [ISDN Terminal Adapter](#).

### **Tie Trunk**

Private trunk directly connecting two telephone switches.

### **Timed Flash**

See [Switchhook Flash](#).

### **Tip/Ring**

Contacts and associated conductors of a *single-line telephone* plug or jack.

### **Touch-Tone Receiver**

See [TTR](#).

### **T/R**

See [Tip/Ring](#).

### **Trunk**

Telecommunications path between the communications system and the telephone company *central office* or another switch. Often used synonymously with *line*.

### **Trunk Jack**

See [Line/Trunk Jack](#).

### **Trunk Pool**

See [Pool](#).

### **TSAPI**

*Telephony Services Application Programming Interface. Application programming interface that allows computer telephony applications to be used. See also [TAPI](#) and [CTI Link](#).*

## TTR

*Touch-Tone Receiver.* Device used to decode *DTMF* touch-tones dialed from *single-line* or *Remote Access* telephones.

## U

### UDP

*Uniform Dial Plan.* Composed of the *local dial plan* and *non-local dial plan*. A dial plan that allows a caller at any *extension* in a *private network* to dial the same number of digits to reach any other extension in the private network, even if the originating extension is physically connected to one communications system and the terminating extension is physically connected to a different communications system.

### Unambiguous Numbering

Practice of numbering of extension ranges, remote access codes, or other system components to avoid routing conflicts in network or local calling. For example, Extension 441 is unique when compared to Extension 4410; however, this is ambiguous, because the system routes as soon as it matches the digits sent for a call with the digits in a *local dial plan* or in a *non-local dial plan* extension range. When a caller dials 4410, therefore, the system routes the call to Extension 441 without considering the last dialed digit.

### Uniform Dial Plan

See [UDP](#).

### Uninterruptible Power Supply

See [UPS](#).

### Unit Load

Measure of the power load drain of a module, telephone, or *adjunct*.

### Unmonitored Extension

*Extension* for which no CTI application is receiving call information. See also [CTI Link](#) and [Monitored Extension](#).

### Unrestricted Data Channels

Also called *Clear Data Channels*. Allow the transmission of occurrences of more than seven contiguous zero bits. If an unrestricted data channel is requested and only restricted channels are available, the call will be rejected. See also [Restricted Data Channel](#).

### UPS

*Uninterruptible Power Supply.* Device that connects to the system to provide 117 VAC to the equipment when the commercial power source fails.

## V

### VAC

*Alternating Current Voltage.*

### VDC

*Direct Current Voltage.*

### VMI

*Voice Messaging Interface.* Enhanced *tip/ring* port.

### VideoconferencingSystem

System application that allows face-to-face meetings, with voice and video, between individuals or groups. This application requires high-speed data transmission facilities. See also [Desktop Videoconferencing System](#) and [Group Videoconferencing System](#).

### Virtual Private Network

See [VPN](#).

### VPN

*Virtual Private Network.* Type of *private network* that uses the switching capabilities of the *PSTN*, rather than *tandem switching*, to direct calls between connected communications systems. A VPN may constitute a part of a private network.

### Voice Announce

System feature that allows users to receive voice announcements on their telephones. In Release 7.0 and later systems, the VA On Idle Only option (only for MLX telephones) allows voice announcement calls to go through only when the telephone is idle.

### Voice-Band Channel

Transmission channel, generally in the 300–3400-Hz frequency band.

### Voice Mail

Application that allows users to send messages to other system extensions, to forward messages received with comments, and to reply to messages.

### Voice Messaging Interface

See [VMI](#).

## W

### WATS

*Wide Area Telecommunications Service.* Service that allows calls to certain areas for a flat-rate charge based on expected usage.

### Wink-Start Tie Trunk

*Tie trunk* on which the originating end transmits an off-hook signal and waits for the remote end to send back a signal (a wink) that it is ready for transmission.

### WinSPM

*Windows System Programming and Maintenance.* Windows-based application for programming the system.

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