

**Lucent Technologies**  
Bell Labs Innovations



**MERLIN LEGEND<sup>®</sup>**  
**Communications System**  
**Release 7.0**

System Manager's Quick Reference

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April 1999

## 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*.

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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.

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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.

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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*.

# MERLIN LEGEND<sup>®</sup>

## Communications System Release 7.0

### System Manager's Quick Reference

### System Information Sheet

If you have a problem with your system, you may be able to resolve it quickly and easily by following the appropriate troubleshooting procedure in this guide. If the problem persists or is not listed in this guide, call the Lucent Technologies Helpline at 1-800-628-2888 for further assistance; consultation charges may apply.

When you call the Helpline, the Lucent Technologies representatives can better help you if you have available the following system information and troubleshooting information. Also, obtain system planning Form 2a, System Numbering: Extension Jacks, and Form 2c, System Numbering: Line/Trunk Jacks.

### System Information

Company Name (as on equipment order)

---

Account Number (if known)

---

Customer Identification Number

---

Main Listed Telephone Number (for this location)

---

Lucent Technologies Contact Name and Telephone Number

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### Troubleshooting Information

Type of equipment experiencing the problem (for example, MERLIN LEGEND Communications System, MERLIN LEGEND Mail, or a particular system component).

## System Information Sheet—*Continued*

A description of the problem:

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Has this problem occurred before?

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Have you attempted to troubleshoot the problem?

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# 1 Getting Started

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## Welcome

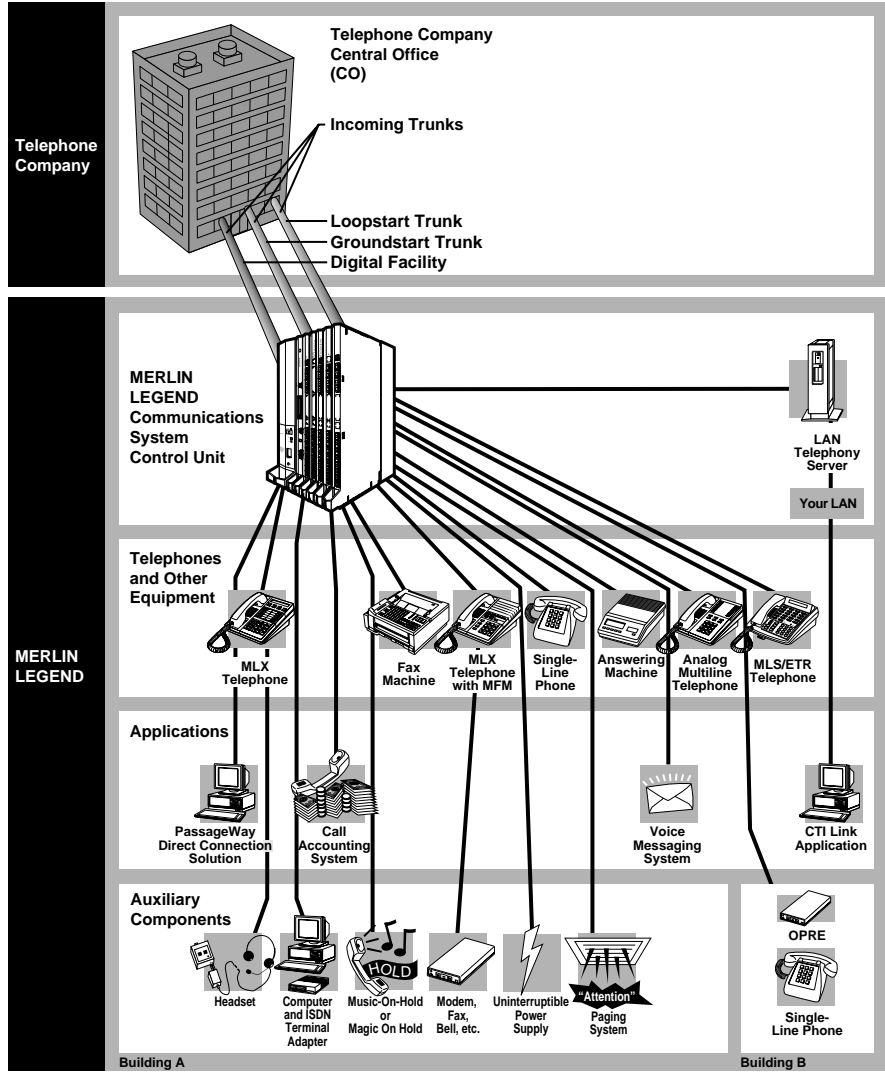
This quick reference is designed to help you administer the MERLIN LEGEND® Communications System. It provides summary programming procedures for everyday tasks you perform in order to manage your system.

Prior to using this guide, you should become familiar with *System Programming*, which provides detailed programming procedures for tasks in this quick reference as well as for all programming tasks that can be performed for the system.

This chapter provides a system overview that describes the major aspects of the system and a programming overview that explains the types of programming available for the system, as well as the methods available to implement the programming.

## System Overview

The MERLIN LEGEND Communications System is a switch located on a company's premises, providing access to powerful features and advanced telephone network applications and services. The system can handle voice and data calls simultaneously, and voice features can enhance the use of data communications. The system accommodates businesses with needs ranging from a few telephones up to 200 telephones. Its modular design allows easy expansion. The following figure illustrates a MERLIN LEGEND Communications System connected to telephones, applications, and auxiliary equipment.



System Overview

## Incoming Trunks

Trunks are the telephone company's facilities, provided by the central office to carry voice and/or data communications. There are a variety of trunks, each with different capabilities, as described in the following table.

### Incoming Trunks

Trunk Type	Description
<b>Loop-Start</b>	Provides incoming and outgoing calls and are intended primarily for key systems and older PBXs. They are the simplest (often the least expensive) and most common facilities in the nationwide telephone network. Although they are not appropriate for some situations, they are necessary for others (for example, some caller identification services).
<b>Ground-Start</b>	Provides a signal at the beginning and end of incoming and outgoing calls to determine the availability of a trunk before the central office routes an incoming call on it. Also, when either the caller or the called party hangs up, the entire circuit is disconnected and dropped.
<b>Tie</b>	Provides private lines that directly connect two communications systems. Using a tie trunk, a user on one system can call an extension on another system by dialing an access code and the extension number or simply the extension number. In Release 6.0 and later systems (Hybrid/PBX mode only), tandem tie trunks, either analog or T1-emulated, can be used for networking. In this case, the user dials only the non-local extension number without an access code. In more complex tie trunk configurations, a person can tie into another system and use a trunk that does not exist on his or her own system.
<b>Direct Inward Dial (DID)</b>	Provides fast access to specific individuals; incoming DID calls can be routed directly to an extension or calling group without system operator assistance.

**Incoming Trunks — Continued**

Trunk Type	Description
<b>T1</b>	<p>In T1 voice operation, a line can be programmed through the system, without the services of a telephone company installer, to emulate a ground-start, loop-start, tie, or DID trunk. T1 operation also gives you access to special services, such as inbound 800 or WATS service for incoming, toll-free service for voice calls.</p> <p>T1 data operation allows high-speed data communications over the public switched network; this is called <i>T1 Switched 56 service</i>. It also provides data tie lines to connect one MERLIN LEGEND Communications System to another or to a DEFINITY system. A T1 data operation line is called a channel.</p>
<b>Primary Rate Interface (PRI)</b>	<p>A digital facility that provides the equivalent of 24 lines, called channels, 23 of which are B-channels. Each B-channel can dynamically provide voice and data services; one D-channel carries signaling information for the 23 B-channels.</p>
<b>Basic Rate Interface (BRI)</b>	<p>A digital facility that provides the equivalent of 3 lines, called channels, 2 of which are B-channels. Each B-channel can dynamically provide voice and data services; one D-channel carries signaling information for the 2 B-channels.</p>



## Modes of Operation

The system operates in one of three modes:

- **Key Mode.** The simplest way to provide people with more than one line from a telephone. Easy to use. Recommended for smaller systems.
- **Hybrid/PBX Mode.** Especially useful where toll fraud/security are a concern. Provides cost-effective call routing, especially useful for special-purpose network services. Recommended for medium to larger systems.
- **Behind Switch Mode.** Used when the system is connected to a system such as DEFINITY. May be appropriate for users who are part of a large organization—for example, a department within a company.

The following table outlines the primary differences among the modes.

### Modes of Operation

	Key Mode	Hybrid/PBX Mode	Behind Switch Mode
<b>Description</b>	<p>Telephones have multiple buttons (or keys) labeled with telephone numbers.</p> <p>Every button corresponds directly to an outside line.</p> <p>Different buttons (ICOM buttons) are used for inside calls.</p>	<p>Outside trunks are grouped in pools for shared use; the system automatically selects an available outside trunk.</p> <p>People use the same button to make both inside and outside calls.</p>	<p>Used when the system (called the local system) is connected to a larger PBX or Centrex system (called the host system).</p> <p>One outside line (a prime line) is assigned to each telephone. The host system provides the interface to outside lines and some features.</p>

**Modes of Operation — Continued**

	Key Mode	Hybrid/PBX Mode	Behind Switch Mode
<b>Types of Trunks</b>	Ground-start Loop-start Tie DS1 (T1 only) BRI	Ground-start Loop-start Tie DS1 (PRI and T1) DID BRI Private network trunks (Release 6.0 and later)	Ground-start Loop-start Tie
<b>Number of Extensions:</b>			
Fewer than 50	Good	Good	Good
More than 50	Not recommended	Good	Good up to 80
<b>Types of Buttons</b>	A line button for each outside line.  Up to 10 ICOM buttons for inside calls.	Up to 10 SA buttons.  Pool button(s) to access a specific pool(s). (Optional) A personal line button for dedicated use of a specific outside trunk.	For multiline phones:  Multiple prime line buttons. Up to 10 ICOM buttons.
<b>User Access to Outside Lines/Trunks</b>	Choosing a specific line button	Dialing a code (usually 9) from an SA button	Dialing the host system's dial-out code (usually 9) from a prime line button.
<b>Types of Operator Consoles</b>	DLCs only	DLC, QCC, or a combination of both	DLCs only

**Modes of Operation — Continued**

	Key Mode	Hybrid/PBX Mode	Behind Switch Mode
<b>Recommended Use</b>	Smaller systems (fewer than 50 extensions)	Medium to larger systems (more than 50 extensions)	For users who are part of a large organization—for example, a department within a company or companies that subscribes to Centrex services for most features.
<b>Comments</b>	<p>It is recommended that users who need to access individual lines have multiline telephones.</p> <p>Line assignments can be customized by telephone or groups of telephones. For example, you can assign tie trunks only to the telephones where they are needed.</p>	<p>Provides the most efficient use of outside trunks. The Automatic Route Selection (ARS) feature can be programmed for the cost-effective use of pools and the greatest protection against toll fraud.</p> <p>Provides greater functionality for single-line phones than other modes. Fewer line buttons required for multiline telephone users.</p>	<p>Users can have access to most features of both the local system and the host system. Single-line phones can be used.</p>

## System Components

The system components include the control unit, telephones, system operator consoles, and line/trunk and extension modules described in the following table.

### System Components

System Component	Description
<b>Control Unit</b>	<p>Circuitry that manages the switching activities of the telephone company's trunks and your system. It consists of carriers into which modules (circuit packs) are inserted. The module types include a processor module (the "brain" of the system), a power supply module, and a variety of line/trunk and/or extension modules with jacks for connecting the incoming trunks and the telephones or adjuncts. See the <a href="#">table on page 10</a> for a description of the line/trunk and extension modules.</p>
<b>Telephones</b>	<p>Include single-line, cordless, wireless, analog multiline, MLS, and ETR telephones, as well as digital MLX telephones that offer a variety of features and advanced capabilities. Most MLX telephones have displays that show call information, list features for using the telephone, and provide menu-driven programming instructions. The MLX telephones include the MLX-5<sup>®</sup>, MLX-5D<sup>®</sup>, MLX-10<sup>®</sup>, MLX-10D<sup>®</sup>, MLX-10DP<sup>®</sup>, MLX-16DP<sup>®</sup>, MLX-20L<sup>®</sup>, and MLX-28D<sup>®</sup>.</p> <p>The MLS telephones include the MLS-6<sup>®</sup>, MLS-12<sup>®</sup>, MLS-12D<sup>®</sup>, MLS-34D<sup>®</sup>, and MLS-18D<sup>®</sup>. The ETR telephones include the ETR-6, ETR-18, ETR-18D, and ETR-34D. Both the MLS and ETR telephones use the ETR protocol. The Business Cordless 905 telephone and the TransTalk™ MDC and MDW telephones are also supported.</p>

**System Components — Continued**

System Component	Description
<b>System Operator Consoles</b>	<p>Telephones programmed to handle a variety of operator functions. Types of consoles include:</p> <p><b>Analog Multiline or MLX Direct-Line Console (DLC).</b> Outside lines are assigned to individual buttons, and the console can have several calls ringing at the same time. Only certain MLX telephones and analog multiline telephones can be used as DLCs. ETR and MLS telephones cannot be used as DLCs.</p> <p><b>MLX Queued Call Console (QCC).</b> Available only in Hybrid/PBX mode. Incoming calls wait in a queue for the operator and reach the QCC on a first-in, first-out basis, according to the call priority level assigned through system programming. Only one call rings at a time. The MLX-20L telephone is the only telephone that can be assigned through system programming to function as a QCC. The buttons on the QCC are factory-set with fixed features.</p>
<b>Line/trunk and Extension Modules</b>	<p>Installed in the control unit, these provide jacks for connecting central office trunks and system telephones to the control unit. A system with a basic carrier has five slots for modules. Up to two expansion carriers can be added, each one providing six slots for modules. See the following section, "<a href="#">Line/Trunk and Extension Modules</a>," for more details.</p>

## Line/Trunk and Extension Modules

The system supports 20 different types of modules that vary in the types of lines/trunks that they support and the types of telephones or other equipment that can be connected to them. The following table describes the line/trunk extension modules in detail.

The names of the modules identify their capacities and capabilities. The first digit tells you the number of line/trunk jacks a module supports, while the last two digits describe the number of extension jacks it supports. Letters can follow to indicate the type of trunk it supports—that is, *LS* for *loop-start* and *GS* for *ground-start*; if the number indicates line/trunk support and no letters follow, the module supports trunks.

An example of a module name is the 408 GS/LS MLX module. It provides four line/trunk jacks and eight MLX extension jacks, and supports ground-start and loop-start trunks

### Line/Trunk and Extension Modules

Module	Line/Trunk	Description
008 (ATL)	none	<p><b>Capacity:</b> 8 analog extension jacks</p> <p><b>Supports:</b> Analog multiline telephones</p>
008 MLX <sup>1</sup>	none	<p><b>Capacity:</b> 8 digital extension jacks, each with 1 or 2 extensions (each extension is assigned an individual extension number)</p> <p><b>Supports:</b> MLX extensions, including:</p> <ul style="list-style-type: none"> <li>— MLX voice only</li> <li>— MLX voice with Voice Announce to Busy</li> <li>— MLX voice and Multi-Function Module (MFM) with T/R adjunct</li> <li>— MLX voice and MFM with Supplemental Station Adapter (SSA)</li> <li>— ISDN terminal adapter only</li> </ul>

**Line/Trunk and Extension Modules — Continued**

Module	Line/Trunk	Description
<b>008 MLX<sup>1</sup></b> <b>(cont.)</b>		<ul style="list-style-type: none"> <li>— Access device for data communications between a PC on the system and a high-speed Internet connection, connection to remote node LAN access server, or ISDN router<sup>2</sup></li> <li>— Computer Telephony Integration (CTI) link<sup>3</sup></li> <li>— Videoconferencing systems using one jack and 2B data feature or 2 jacks with ISDN terminal adapters (depending on video system)<sup>2</sup></li> </ul>
<b>008 OPT<sup>4</sup></b>	none	<p><b>Capacity:</b> 8 T/R extensions on 2-way voice transmission path with support for telephones with message-waiting lights, 2 TTRs</p> <p><b>Supports:</b> On-premises or off-premises single-line telephones</p>
<b>012 (T/R)</b>	none	<p><b>Capacity:</b> 12 T/R extensions on 2-way voice transmission path with support for telephones with message-waiting lights, 2 TTRs</p> <p><b>Supports:</b> Single-line telephones; Intuity AUDIX®; Messaging 2000; T/R adjuncts (such as answering or fax machine); analog data devices (such as modems)</p>
<b>016 (T/R)<sup>1,2</sup></b>	none	<p><b>Capacity:</b> 16 T/R extensions on 2-way voice transmission path with support for telephones with message-waiting lights, 4 TTRs</p> <p><b>Supports:</b> Single-line telephones; Intuity AUDIX®; Messaging 2000; T/R adjuncts (such as answering or fax machine); analog data devices (such as modems)</p>

**Line/Trunk and Extension Modules — Continued**

Module	Line/Trunk	Description
<b>016 ETR</b> <sup>1,5</sup>	none, TTR	<p><b>Capacity:</b> 16 ETR station ports including 6 with T/R functionality and 4 TTRs. First 10 ports are ETR ports only; remaining 6 ports can support either T/R or ETR, but not both simultaneously.</p> <p><b>Supports:</b> MLS, ETR, Business Cordless 905, and TransTalk MDC and MDW telephones; and any T/R device.</p>
<b>016 MLX</b> <sup>1,5</sup>	none	<p><b>Capacity:</b> 16 digital station ports</p> <p><b>Supports:</b> MLX extensions, including:</p> <ul style="list-style-type: none"> <li>— MLX voice only</li> <li>— MLX voice with Voice Announce to Busy</li> <li>— MLX voice and MFM with T/R adjunct</li> <li>— MLX voice and MFM with SSA</li> <li>— ISDN terminal adapter only</li> <li>— Access device for data communications between a PC on the system and a high-speed Internet connection, connection to remote node LAN access server, or ISDN router<sup>2</sup></li> <li>— CTI link<sup>3</sup></li> <li>— Videoconferencing systems using one jack and 2B data feature or 2 jacks with ISDN terminal adapters (depending on video system)<sup>2</sup></li> </ul>
<b>100D</b> <sup>1</sup>	T1 or PRI	<p><b>Capacity:</b> 24 channels (“virtual” lines/trunks) for voice and analog data or for digital data only (T1); or 23 B-channels for voice and data, and 1 channel used for signaling (PRI). Supports private networking in Release 6.0 and later systems, Hybrid/PBX mode only.</p>



**Line/Trunk and Extension Modules — Continued**

Module	Line/Trunk	Description
<b>100D<sup>1</sup></b> <b>(cont.)</b>		<b>Supports:</b> T1 emulates 24 lines/trunks: loop-start, ground-start, tie, and Direct Inward Dial (DID; Hybrid/PBX mode only); can also supply subscriber services. In Release 4.0 and later, T1 can also provide high-speed (56K) data communications and digitally emulated tie trunks for data communications. PRI supports subscriber services, allows high-speed digital data communications, and includes special features. For Release 7.0 and later systems, Common Channel Signaling (CCS) is not an option for T1.
<b>400 LS<sup>6</sup></b>	LS, TTR	<b>Capacity:</b> 4 loop-start lines/trunks for 2-way analog voice/data communication, 4 TTRs <b>Supports:</b> 1 PFT telephone
<b>400 EM</b>	Tie trunk	<b>Capacity:</b> 4 analog tie trunks. Supports networking in Hybrid/PBX mode only
<b>400 GS/LS</b>	GS or LS, TTR	<b>Capacity:</b> 4 ground-start and/or loop-start lines/trunks for 2-way analog voice/data communication, 4 TTRs <b>Supports:</b> 1 PFT telephone
<b>408</b> <b>(LS-ATL)<sup>6</sup></b>	LS	<b>Capacity:</b> 4 loop-start lines/trunks for 2-way analog voice/data communication, 8 extensions <b>Supports:</b> Analog multiline telephones; CMS; 1 PFT telephone
<b>408 GS/LS</b>	GS or LS	<b>Capacity:</b> 4 ground-start and/or loop-start lines/trunks for 2-way analog voice/data communication, 8 extensions <b>Supports:</b> Analog multiline telephones; CMS; 1 PFT telephone with GS button

**Line/Trunk and Extension Modules — Continued**

Module	Line/Trunk	Description
<b>408 GS/ LS-MLX<sup>7</sup></b>	GS or LS	<p><b>Capacity:</b> 4 ground-start and/or loop-start lines/trunks, 8 digital extension jacks for MLX extensions, including:</p> <ul style="list-style-type: none"> <li>— MLX voice only</li> <li>— MLX voice with Voice Announce to Busy</li> <li>— MLX voice and MFM with T/R adjunct</li> <li>— MLX voice and MFM with SSA</li> <li>— ISDN terminal adapter only</li> <li>— Access device for data communications between a PC on the system and a high-speed Internet connection, connection to remote node LAN access server, or ISDN router<sup>2</sup></li> <li>— CTI link<sup>3</sup></li> <li>— Videoconferencing systems using one jack and 2B data feature or 2 jacks with ISDN terminal adapters (depending on video system)<sup>2</sup></li> </ul> <p><b>Supports:</b> 1 PFT telephone</p>
<b>408 GS/LS- ID-MLX<sup>1.7</sup></b>	GS or LS	<p><b>Capacity:</b> 4 ground-start and/or loop-start lines/trunks, 8 digital extension jacks for MLX extensions, including:</p> <ul style="list-style-type: none"> <li>— MLX voice only</li> <li>— MLX voice with Voice Announce to Busy</li> <li>— MLX voice and MFM with T/R adjunct</li> <li>— MLX voice and MFM with SSA</li> <li>— ISDN terminal adapter only</li> </ul>

**Line/Trunk and Extension Modules — Continued**

Module	Line/Trunk	Description
<b>408 GS/LS-ID-MLX<sup>1,7</sup></b> <b>(cont.)</b>		<p>— Access device for data communications between a PC on the system and a high-speed Internet connection, connection to remote node LAN access server, or ISDN router<sup>2</sup></p> <p>— CTI link<sup>3</sup></p> <p>— Videoconferencing systems using one jack and 2B data feature or 2 jacks with ISDN terminal adapters (depending on video system)<sup>2</sup></p> <p><b>Supports:</b> 1 PFT telephone; Caller ID<sup>5</sup></p>
<b>412 LS-ID-ETR<sup>1,5</sup></b>	LS, TTR	<p><b>Capacity:</b> 4 LS trunks with Caller ID and 2 TTRs plus 12 ETR station ports, including 4 with T/R functionality. First 8 ports are ETR only; remaining 4 ports can support either T/R or ETR, but not both simultaneously.</p> <p><b>Supports:</b> MLS, ETR, Business Cordless 905, and TransTalk MDC and MDW telephones; and any T/R device. In the event of a power failure, port 12 becomes the PFT port for line 1. If the port is programmed for ETR, a single-line telephone must be plugged into the port. Caller ID, if you subscribe to caller identification from the local telephone company, displays the telephone number of incoming callers on supported display telephones.</p>
<b>800 NI-BRI<sup>1,2</sup></b>	BRI	<p><b>Capacity:</b> 8 BRI facilities, each with 2 B-channels ("virtual" lines) for voice and data and 1 channel used for signaling</p> <p><b>Supports:</b> Voice, data, video, and other services at 64 kbps over standard ISDN lines/trunks</p>
<b>800 (LS)<sup>6</sup></b>	LS	<p><b>Capacity:</b> 8 loop-start lines/trunks for 2-way analog voice/data communications, 2 PFT telephones</p> <p><b>Supports:</b> 2 PFT telephones</p>
<b>800 DID</b>	DID, TTR	<p><b>Capacity:</b> 8 lines/trunks, 2 TTRs</p>

**Line/Trunk and Extension Modules — Continued**

Module	Line/Trunk	Description
<b>800 GS/LS</b>	GS or LS, TTR	<b>Capacity:</b> 8 ground-start and/or loop-start lines/trunks  <b>Supports:</b> 2 PFT telephones with GS button (if using GS lines/trunks)
<b>800 GS/LS-ID<sup>1,8</sup></b>	GS or LS	<b>Capacity:</b> 8 ground-start and/or loop-start lines/trunks; 2 TTRs  <b>Supports:</b> 2 PFT telephones; Caller ID (loop-start trunks only), if you subscribe to caller identification from the local telephone company, displays the number of incoming callers, and in R7.0 and later, the name of incoming callers as well, on MLX, MLS, and ETR display telephones
<b>MERLIN LEGEND Mail 007 MLM<sup>9</sup></b>	none	<b>Capacity:</b> 7 internal, system-defined T/R jacks; 2 TTRs; internal remote maintenance device; serial port for PC connection  <b>Supports:</b> MERLIN LEGEND Mail Voice Messaging System; resides on this module and the internal T/R jacks can be used only for this application

- 1 For newer vintages of this module, firmware can be upgraded by using a PCMCIA card.
- 2 For Release 4.0 and later systems only.
- 3 For Release 5.0 and later systems only.
- 4 The system software recognizes the OPT module as an 012 (T/R) module. Even though the OPT module has only 8 jacks, it uses 12 ports of capacity, thereby decreasing overall extension capacity by 4 extensions for every OPT module.
- 5 For Release 7.0 and later systems.
- 6 Although these MERLIN<sup>®</sup> II modules are supported, the following are recommended for the system: 400 GS/LS, 408 GS/LS, 408 GS/LS-MLX, 800 GS/LS, and 800 GS/LS-ID.
- 7 For Release 2.0 and later systems only.
- 8 For Release 3.0 and later systems only.
- 9 The system software recognizes the MERLIN LEGEND Mail VMS module as an 012 (T/R) module. Even though the module has a maximum of 7 T/R internal ports, including the modem jack, it uses 12 ports of capacity in any of its three configurations.

## Auxiliary Equipment

The following table provides a list of other equipment that is available for use with the system. If you are interested in adding any of this equipment, contact your Lucent Technologies representative or authorized dealer.

### Auxiliary Equipment

Equipment Type	Description
<b>Alerts (AC)</b>	Any audible or visual alert—such as an external ringer—that operates on 20–30 Hz ringing signals. These alerts are associated with a specific extension (MFM in T/R mode or connected to T/R extension jack).
<b>Alerts (DC)</b>	Any audible or visual alert—such as a bell, chime, or strobe—that operates on 48-VDC ringing signals. These alerts are associated with a specific extension (MFM in SSA mode) or work on a programmed trunk port (external alert).
<b>Answer/record machine</b>	An industry-standard answering machine or remote answering system telephone with the ability to recognize 600-ms disconnect signal or other means of automatic disconnect.
<b>Cordless telephone</b>	Must have touch-tone dialing capability when connected via a Multi-Function Module (MFM); rotary or touch-tone dialing can be used on a T/R port.
<b>Credit card verification terminal</b>	Must have touch-tone dialing capability when connected via an MFM; rotary or touch-tone dialing can be used on a T/R port.
<b>Dial dictation</b>	A device that requires contact closure can be used on an LS/GS line jack only with PagePAC®.
<b>Direct Station Selector (DSS)</b>	Connects to telephones to enhance call-handling capabilities of operator and programming consoles. A maximum of 2 DSSs can be connected to an operator console; if 2 DSSs are connected, a power unit must be added to supply additional power.

**Auxiliary Equipment — Continued**

<b>Equipment Type</b>	<b>Description</b>
<b>Fax machine</b>	Must have touch-tone dialing capability when connected via an MFM; rotary or touch-tone dialing can be used on a T/R port. For Release 7.0 and later systems, rotary must be enabled if rotary dialing is used.
<b>Group calling delay announcement</b>	An industry-standard device which must provide automatic disconnect. Each of the 32 calling groups can have its own announcement (Release 5.0 and later up to 10 primary and 1 secondary for each calling group). A device can provide delay announcement for more than one group.
<b>Hands-free unit</b>	Connects directly to analog multiline telephones and allows users to make and receive calls on the speakerphone without using the handset.
<b>Headset for analog multiline telephone</b>	Connects to analog multiline telephones via a headset adapter for hands-free telephone operation.
<b>Headset for MLX telephone</b>	Connects to MLX telephones via a modular base unit for hands-free telephone operation.
<b>Headset for MLS and ETR Telephones</b>	Connects to ETR or MLS telephones via modular base unit for hands-free telephone operation. The receiver must be used to go off-hook and to hang up.
<b>Headset Adapter</b>	Connects directly to the jack labeled Other on the analog multiline telephone.
<b>Loudspeaker Paging</b>	External paging system using dual-tone multifrequency (DTMF) signaling connected to an LS or GS line jack. CPE paging systems require an interface unit; if CPE has 2-wire input, the PagePal interface can be used.
<b>Message Waiting Indicator</b>	Connects directly to single-line telephones.

**Auxiliary Equipment — Continued**

Equipment Type	Description
<b>Modem</b>	If the modem supports touch-tone dialing via the associated data terminal, the keyboard can be used for dialing. If the modem does not support touch-tone dialing, a single-line telephone can be used for dialing.
<b>Music-On-Hold</b>	Any FCC-registered 8-ohm music source or recorded announcement device. 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). Or you can purchase a Magic On Hold system, which does not require such a license, from Lucent Technologies or an authorized dealer.
<b>Speakerphone</b>	Connects directly to single-line telephones.
<b>SMDR printer</b>	Connects to upper RS-232-C jack on the processor module. Must be located within 50 feet of the control unit, or an ADU and peripheral interface unit can be used to extend distance.

## Features

The versatility and power of the system are due, in large part, to the variety of feature settings and services it can provide. The system provides traditional features, such as Transfer and Call Waiting, as well as advanced features, such as Coverage and Park. The table below lists all system features and provides the programming codes used to program the feature. For a detailed description of each feature, see the *Feature Reference*.

### Features and Programming Codes

Feature	Programming Code
Account Code Entry	*82
Alarm <sup>1</sup>	*759
Authorization Code	*80
Auto Answer All	*754
Auto Answer Intercom	*753
Auto Dial	
Inside (ext., group, zone)	*22 + ext. no.
Outside	*21 + tel. no.
Automatic Line Selection	
Begin Sequence	*14
End Sequence	**14
Barge-In <sup>1,2</sup>	*58
Callback	
Automatic	
On	*12
Off	**12
Selective	*55
Caller ID (name/number toggle)	*763
Call Waiting	
On	*11
Off	**11



**Features and Programming Codes — Continued**

<b>Feature</b>	<b>Programming Code</b>
Camp-On	*57
Conference	*772
Coverage	
Receiver buttons	
Group	*42 + ext. no.
Primary	*40 + ext. no.
Secondary	*41 + ext. no.
Sender buttons	
Cover inside and outside calls	*48
Cover outside calls only	**48
Coverage Off	*49
Coverage VMS Off	*46
Data Status	*83 + ext. no.
Direct Voice Mail	*56
Directories	
Extension Directory	(display only)
Personal Directory	(display only)
System Directory	(sys. prog.)
Do Not Disturb	*47
Drop	*773
ETR Drop	*777 (for ETR and MLS telephones)
Extension Status	
Direct-Line Console <sup>1</sup>	
Status Off	*760
Status 1	*761
Status 2	*762
Telephones (rooms or agents)	
Status 1	*45
Status 2	*44
Feature Button	*20

**Features and Programming Codes — Continued**

Feature	Programming Code
Forward Activate Forward (inside) Remote Call Forward and Centrex Transfer via Remote Call Forward (outside)	  *33 *33  
Group Calling In-Queue Alarm button Calling group supervisor Member available Member unavailable Calling group members Sign in (Available) After-call work state (CMS only)	 *22 + calling group ext. no.  *762 *760  *44 *45
Group Page Auto Dial Button	*22 + paging group ext. no.
Headset Options Auto Answer Hang Up <sup>3</sup> Mute (Headset/Handset) Status	 *780 *781 *783 *782
Intercom buttons Assign buttons <sup>2</sup> ICOM (Default Ring) ICOM Originate Only Change button type Ring Voice	  *16 *18  **19 *19
Last Number Dial	*84

**Features and Programming Codes — Continued**

Feature	Programming Code
<b>Messaging</b>	
Leave Message	*25
Message LED off (for non-display telephones)	*54
Message operation mode (for ETR, MLS, and analog multiline display telephones)	*54 (Used to enter/exit Message operation mode. MLS and analog multiline telephones return to normal call handling after 15 seconds if user has no messages; if these users have messages, they must delete them or use feature code or programmed button to exit Message operation. For ETR telephones, feature code or programmed button must be used to exit Message operation mode regardless of whether user has messages.)
Posted Message	*751
Send/Remove Msg <sup>3</sup>	*38
<b>Receiving messages</b>	
Delete Message <sup>3</sup>	*26
Next Message <sup>3</sup>	*28
Return Call <sup>3</sup>	*27
Scroll <sup>3</sup>	*29
<b>Night Service<sup>1</sup></b>	*39
<b>Notify</b>	
Send	*757 + ext. no.
Receive	*758 + ext. no.
<b>Park</b>	*86
<b>Park Zone Auto Dial<sup>1</sup></b>	*22 + park zone
<b>Personal Speed Dial</b>	# + (01-24) + *21 + tel no. +##

**Features and Programming Codes — Continued**

Feature	Programming Code
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
Reminder Service	
Set <sup>4</sup>	*81
Cancel	**81
Missed <sup>1</sup>	*752
Ringin/Idle Line Preference	
On	*343
Off	*344
Ringin Options	
Individual lines	
Immediate ring	*37
Delay ring	*36
No ring	*35
All lines	
Immediate ring	*347
Delay ring	*346
No ring	*345
Abbreviated ring	
On	*341
Off	*342
Send Ring (Shared SA)	
On	*15
Off	**15

**Features and Programming Codes — Continued**

Feature	Programming Code
Saved Number Dial	*85
Send/Remove Message <sup>1</sup>	*38
Service Observing <sup>2,5</sup>	*59 + ext. no.
Signal (manual)	*23 + ext. no.
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 Display telephones only. Programming and feature codes are used with analog multiline telephones only.
- 4 English only: time is 12-hour (0100-1259) + 2 (A) or 7 (P); French and Spanish: time is 24-hour (000-2359).
- 5 MLX telephones only. Cannot be a QCC or CTI link.

## Applications

Numerous add-on products, called applications, are available to enhance the system. Appendix I, "Applications," in the *Feature Reference* provides a description of all available applications. A brief description of some of these applications is provided in the following table.

### Applications

Application	Description
<b>Automated Attendant</b>	Answers incoming calls, provides callers with a menu of choices, such as people or departments, and then transfers the call as prompted by the caller using a touch-tone telephone.
<b>Voice messaging systems</b>	May include Automated Attendant, voice mail services, and/or fax messaging services. Beginning in Release 6.1, one or more MERLIN LEGEND Systems can share the voice messaging system (VMS) of another MERLIN LEGEND System.
<b>Voice mail services</b>	Enable system users, for example, to send voice messages to other users, to forward voice messages with comments, and to return a call. Callers can record messages for system users.
<b>Fax messaging services</b>	Automate the sending, receiving, call-handling, and storage of faxes, in much the same way voice messaging systems handle voice messaging.
<b>Call accounting applications</b>	Manage telephone usage by tracking and sorting telephone costs and producing reports on costs.
<b>Call management applications</b>	Answer and distribute calls to members of specified groups—for example, ticketing agents.

**Applications — Continued**

Application	Description
<b>PassageWay Direct Connection Solution</b>	Provides an interface between an extension and a PC with Microsoft® Windows®, as well as provides utilities and allows the integration of Windows applications with telephone activities.
<b>Group and desktop videoconferencing and data exchange applications</b>	Allow multimedia interaction among people who work together but are geographically distant.
<b>Computer Telephony Integration (CTI) link</b>	For connection to Local Area Networks (LANs), the connection is made through a programmed MLX extension jack. The link allows calls on SA buttons to be monitored and controlled from workstations connected on a LAN to a server running Novell® NetWare® software or Windows NT®. The link supports applications such as pop-up database information about a caller.

## System Capacities

The following table lists the hardware and software capacities of the system. Some constraining factors appear with a checkmark (✓). These are discussed in detail in the next table.

### Hardware and Software Capacities

	Limit	Constraining Factor
<b>100D Module (maximum 2 per carrier)</b>	3	
<b>800 NI-BRI Module (maximum 3 per carrier)</b>	5	
<b>Account Codes</b>		
Characters per code	16	
<b>Allowed/Disallowed Lists</b>		
Number of lists	8	
Entries per list	10	
Digits per entry	7	
<b>Authorization Codes</b>		
	400	
Digits per code	11	
<b>Automatic Route Selection (ARS)</b>		
Number of ARS tables	16	
Subpatterns per table	2	
Routes per subpattern	6	
Entries per table	100	
Entries across all tables	1600	
Default tables	4	
<b>Callback Calls in Queue</b>	64	



**Hardware and Software Capacities — Continued**

	Limit	Constraining Factor
<b>Calling Groups</b>		
Number of groups	32	
Members per group		✓
Local extensions only	20	
Non-local extensions only	1	
Total agents and supervisors	200	
Total supervisors	8	
Groups per member	1	
Primary delay announcements per system	200	
Secondary delay announcements per system	32	
Primary delay announcements per group	10	✓
Secondary delay announcements per group	1	✓
Groups per delay announcement	32	
External alerts per group	1	
Coverage groups per group	1	
Priority Queuing		
Support Group	31 home	
Home Group	1 support	
<b>Carriers</b>		
Line/trunk and extension module slots per basic carrier	3	
Line/trunk and extension module slots per expansion carrier	5	✓
Maximum slots available for line/trunk and extension modules	6	
	17	

**Hardware and Software Capacities — Continued**

	Limit	Constraining Factor
<b>Coverage Groups</b>		
Number of groups	30	
Senders per group	400	✓
Groups per sender	1	
Receiver buttons per group	8	
Groups per QCC receiver	30	
<b>CTI Link</b>	1	✓
<b>Data Hunt Groups</b>		
Number of groups	32	
Members per group	20	
Groups per member	1	
<b>Direct Inward Dialing</b>		
Number of blocks	2	
Number of trunks	80	
<b>Directories</b>		
System Directory	1	
Listings	130	
Extension Directory	1	
Listings	200	
Personal Directory (MLX-20L only)	48	
Listings	50	
<b>Endpoints (devices)</b>	400	
<b>Extensions</b>		
Total physical jacks	200	
Total endpoints	400	
<b>Fax machines with Message Waiting</b>	16	✓
<b>Lines/Trunks</b>	80	

**Hardware and Software Capacities — Continued**

	Limit	Constraining Factor
<b>Message Waiting Lamp Messages</b>	1499	
<b>Night Service</b>		
Groups	8	
Members per group	400	
Calling groups per group	1	
Groups per member	8	
Emergency Allowed List entries	10	
<b>Park codes (number of codes)</b>	8	
<b>Personal Lines</b>	64	
<b>Pool Buttons</b>	64	
<b>Ports (not simultaneously)</b>		
Voice Announce to Busy extensions	200	
Voice Messaging Interface (VMI)	24	✓
ISDN Terminal Adapter	200	
Paging	3	
Primary delay announcements	200	✓
Secondary delay announcements	32	✓
<b>Remote Access</b>		
Number of barrier codes	16	
Digits per code, systemwide	4–11	
<b>Service Observing Groups</b>		
Number of groups	16	
Observers per group	1	✓
Members per group	400	✓
<b>Shared System Access Buttons</b>		
Number of buttons per principal extension	27	

**Hardware and Software Capacities — Continued**

	Limit	Constraining Factor
<b>Speed Dial</b>		
Personal Speed Dial		✓
Entries per telephone	24	
Entries per system	1200	
Digits per entry	28	
System Speed Dial		
Entries per system	130	
Digits per entry	40	
<b>System Operator Consoles</b>		
Direct-line consoles (DLCs)		✓
MLX-20L or MLX-28D	8	
BIS-22D, BIS-34D, or MERLIN II System Display Consoles	8	
QCCs	4	✓
Combination of DLCs plus QCCs	8	
DSSs	16	
Number of consoles per module		
408 GS/LS-MLX, 408GS/LS-ID-MLX, or 008 MLX	2	
016 MLX	4	
408 (LS-ATL) or 008 (ATL)	2	
<b>System Programming Equipment</b>		
MLX-20L	1	✓
RS-232 jack for PC with SPM or WinSPM	1	
Modem (built-in processor module)	1	

**Hardware and Software Capacities — Continued**

	Limit	Constraining Factor
<b>Telephones (not simultaneously)</b>		
Analog multiline		
Without Voice Announce to Busy	136	
With Voice Announce to Busy	68	
MLX-20L	48	✓
All other MLX telephones (with/without ISDN terminal adapter/MFM)	200	✓
Single-line	200	✓
MLS/ETR	200	✓
Power failure transfer	20	✓
<b>Two-party Conversations</b>	108	
<b>Voice Messaging Systems</b>	24	

**Constraints Identified in Hardware and Software Capacities Table**

<b>Constraints</b>	
<b>Calling Groups</b>	<p><i>Members of groups.</i> QCCs cannot be members of calling groups because the QCC position is set up as a system operator and has its own queue that is different from the group's queue.</p> <p><i>Members per group.</i> The maximum number of local extensions in a calling group is 20. The maximum number of non-local extensions in a calling group is 1. A calling group cannot contain both local and non-local extensions.</p> <p><i>Primary and Secondary Delay Announcements.</i> With Release 5.0 and later systems, up to 10 primary and 1 secondary announcement device can be designated for each calling group. Each announcement device decreases the 200 tip/ring station capacity.</p>
<b>Carriers</b>	The first slot of the basic carrier is used for the processor module with a maximum of 5 port/board slots.
<b>Coverage Groups</b>	<i>Senders per group.</i> QCCs cannot be senders because they do not have coverage available and use Position-Busy instead.
<b>CTI Link</b>	One CTI link is supported in Hybrid/PBX mode only.
<b>Fax Machines with Message-Waiting</b>	The system can support more than 16 fax machines, but those in excess of 16 cannot use fax message-waiting indication.

**Constraints Identified in Hardware and Software Capacities Table — Continued**

<b>Constraints</b>	
<b>Ports (not simultaneously)</b>	<p><i>Voice Messaging Interface.</i> Although the system software supports up to 24 VMI ports, all VMI ports must be in the same calling group, and the maximum number of extensions in a calling group is 20.</p> <p><i>Primary and Secondary Delay Announcements.</i> With Release 5.0 and later systems, up to 10 primary and 1 secondary announcement device can be designated for each calling group. Each announcement device decreases the 200 tip/ring station capacity.</p>
<b>Service Observing Groups</b>	<p>A Service Observer station must be an MLX telephone (except QCC or CTI link). A Service Observing group member station may be any telephone except QCC or CTI link. Maximum number of members per Service Observing group is equal to the maximum number of extensions in the system.</p> <p>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.</p>
<b>Speed Dial</b>	<p><i>Personal Speed Dial.</i> Single-line and 5- or 10-button telephones.</p>

**Constraints Identified in Hardware and Software Capacities Table — Continued**

<b>Constraints</b>	
<b>System Operator Consoles</b>	<p><i>DLCs.</i> Two consoles are allowed for each MLX or analog multiline module, with a maximum of 8 per system. Up to two DSSs can be attached to an MLX operator console, and 1 is built into the MERLIN II System Display Console.</p> <p><i>QCCs.</i> Two consoles are allowed for each MLX module with a maximum of 4 per system.</p>
<b>System Programming Equipment</b>	<p>Remote access overrides onsite programming except during backup or restore.</p>
<b>Telephones (not simultaneously)</b>	<p><i>MLX-20L.</i> RAM limit and the total includes the MLX-20L telephone used for system programming.</p> <p><i>All other MLX telephones.</i> RAM limit. An MFM and an ISDN terminal adapter cannot be connected to the same telephone (including the MLX-20L) at the same time.</p> <p><i>Single-line.</i> Software dial plan limit.</p> <p><i>Power failure transfer.</i> 1 for each 4 LS/GS line/trunk jacks.</p> <p><i>MLS/ETR.</i> RAM limit.</p>



## Related Documents

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

### **MERLIN LEGEND Documentation Set**

Document No.	Title
<b>System Documents:</b>	
555-670-100	<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>
555-670-110	<i>Feature Reference</i>
555-670-111	<i>System Programming</i>
555-670-112	<i>System Planning</i>
555-670-113	<i>System Planning Forms</i>
555-670-116	<i>Pocket Reference</i>
555-670-119	<i>System Manager's Quick Reference</i>
555-661-150	<i>Network Reference</i>
555-670-800	<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>
<b>Telephone User Support:</b>	
555-660-122	<i>MLX Display Telephone User's Guide</i>
555-630-150	<i>MLX- 5D, MLX-10D and MLX-10DP Display Telephone Tray Cards</i> (5 cards)
555-630-152	<i>MLX-28D and MLX-20L Telephone Tray Cards</i> (5 cards)
555-660-124	<i>MLX-5<sup>®</sup> and MLX-10<sup>®</sup> Nondisplay Telephone User's Guide</i>

**MERLIN LEGEND Documentation Set — Continued**

<b>Document No.</b>	<b>Title</b>
555-630-151	<i>MLX-5 and MLX-10 Nondisplay Telephone Tray Cards (6 cards)</i>
555-630-155	<i>MLX-16DP Display Telephone Tray Cards (5 cards)</i>
555-660-120	<i>Analog Multiline Telephones User's Guide</i>
555-670-122	<i>MLS and ETR Telephone Tray 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>	
555-660-134	<i>MLX Direct-Line Consoles Operator's Guide</i>
555-660-132	<i>Analog Direct-Line Consoles Operator's Guide</i>
555-660-136	<i>MLX 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>	
555-670-140ADD	<i>Installation, SPM, Maintenance and Troubleshooting Supplement</i>
<b>Toll Fraud Security:</b>	
555-025-600	<i>BCS Products Security Handbook</i>

## Programming Overview

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

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

---

### Types of Programming

Three types of programming are available for the MERLIN LEGEND Communications System:

- **System Programming.** This type of programming enables the system manager to program features that affect all or most system users; it requires one of the following:
  - A system programming console which is an MLX-20L telephone connected to one of the first five jacks of the first MLX module in the control unit. For more information about the system programming console, see "System Programming Console" in Chapter 1, "Programming Basics," in *System Programming*.
  - The System Programming and Maintenance (SPM) software in a Windows format called WinSPM. For Release 6.0 and later systems, WinSPM provides a graphical user interface (GUI) for those tasks most commonly performed by the system manager (for example, add or delete members of groups, perform system inventories, create reports, administer multiple systems, make station labels shown on display telephones, and more). Pictorial representations of system components, such as modules and their vintages, and the creation of MLX telephone button labels are available with WinSPM. WinSPM also provides an SPM DOS Emulator mode that allows basic SPM

programming of all releases of the MERLIN LEGEND system. Also supported in Release 6.0 and later systems is SPM programming for options not included in the GUI. For Release 6.0 and later systems, WinSPM is supported in Windows 95, Windows NT, and Windows 98 and is available on CD-ROM and floppy disks. DOS SPM and 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 DOS SPM or WinSPM from either the floppy disks or CD-ROM onto the hard disk.

- A PC with System Programming and Maintenance (SPM) software. The SPM software emulates a system programming console on your PC. 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 on the communications system. A built-in modem in the processor allows the PC and the communications system to communicate. For more information about the SPM software, see Chapter 2, "Programming with SPM," in *System Programming*.
- **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 SPM software.

 **NOTE:**

*If your system has the Integrated Solution II or Integrated Solution III (IS II/III) UNIX® application, see Chapter 2, "Programming with SPM" in System Programming for a list of the appropriate documentation. (The IS II/III Unix application is no longer orderable.)*

---

## Methods of Programming

As system manager, you primarily perform system programming and centralized telephone programming. As previously explained, the other type of programming—extension programming—is performed at each individual telephone, usually by the telephone user.

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

- Programming from the system programming console.
- Programming from a PC with DOS SPM or WinSPM software that emulates the system programming console.

---

## Summary Programming Procedures

This quick reference provides summary programming procedures for programming using both the system programming console and a PC with DOS SPM software or WinSPM in the DOS SPM emulator mode. Summary programming procedures for the most common system management tasks are provided.

### NOTE:

*Detailed procedures, which consist of numbered steps and screen displays, for programming from both the system programming console, as well as from a PC with SPM software, are provided in Chapter 3, "Programming Procedures" in System Programming. You should become familiar with the detailed programming procedures in System Programming before you use the summary programming procedures provided in this quick reference.*

Use the programming method that is appropriate for you. The format of the summary programming procedures is as follows:

**Console Procedure**      More→Labeling→Grp Calling→Dial calling  
 group ext. no.→Enter→Drop→Enter  
 label→Enter→Exit→Exit

**PC Procedure**            PgUp → F1 → F4 →Type calling group ext.  
 no.→F10 →  
 Alt + P →Type label → F6 → F5 → F5

The arrows separate each step. The following table shows the typefaces that indicate what the step involves.

**Typefaces Used in Summary Programming Procedures**

Typeface Sample	Meaning
More	Select this option by pressing this imprinted button on the console.
GrpCalling	Select this menu option using an unlabeled display button.
Dial ext. no.	Enter this information.
PgUp	Press this key on the PC.
F1	Press this function key on the PC.
Alt + P	On the PC, hold down the first key and press the second key.

# 2 Managing the System

---

## Overview

This chapter provides summary programming procedures for the most common system management tasks. You should become familiar with the detailed programming procedures in *System Programming* before you use the summary programming procedures provided in this chapter.

For more information, refer to the following guides:

- For detailed programming procedures for all features and options available for the MERLIN LEGEND Communications System, see Chapter 3, "Programming Procedures," in *System Programming*.
- For information about the features, including important feature interactions, see the *Feature Reference*.
- For information about the planning forms, see *System Planning*. If you do not have this guide, contact your Lucent Technologies representative.



### CAUTION:

Do not attempt to change either the system numbering plan or the system operating mode. Changing either of these could cause serious disruption of the system and would require significant time and effort to remedy. Also, do **not** use either the Maintenance or Restart options from the system programming menus except when instructed to do so by a Lucent Technologies representative or when performing the CTI link procedures described in ["Managing CTI Links"](#) at the end of this chapter.

## Starting and Ending System Programming

The information in this section explains how to display the system programming menu, navigate within the system programming screens, and exit system programming.

---

### Displaying the System Programming Menu

To begin programming, perform one of the following to display the System Programming menu on the system programming console or PC with SPM software:

**Console Procedure**                      Menu→Sys Program→Exit

**PC Procedure**                            Type spm→→Press any key→→

---

### About Moving Among System Programming Screens

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

- In most cases, you can press **Exit** or  to exit from a screen without making any changes. Exceptions to this are noted as part of a procedure. When you complete a procedure and press **Exit** (), you usually move up one screen in the menu hierarchy. Occasionally, when you press **Exit** (), you return to the previous screen. In a few cases, pressing **Exit** brings you back to the System Programming menu, where you can select another option to program or exit from system programming.
- To complete a procedure and save the information you have programmed, press **Enter** on the keyboard or .
- If you are programming a group of sequentially numbered extensions or trunks, you may optionally press **Next** (). This saves your entry and automatically provides the number of the next extension or trunk in the sequence, thus saving you several steps. If **Next** displays on the screen, you can use it with the current option.
- In most cases, you will be at an intermediate step in the procedure you have just completed. At that point, you can select one of the options shown on the screen and continue programming, or you can press **Exit** ()



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

---

## Exiting System Programming

Use the information in the following table to return to the System Programming menu, the main menu (Menu Mode screen), or the Home screen.

### Exiting System Programming

To return to:	On the console, press:	On the PC, press:
Previous menu (or, in some cases, to go to next item to program)	Exit	<code>F5</code>
Main menu	Menu	<code>End</code>
Normal call handling	Home	<code>Home</code>

## Setting Basic System Operating Conditions

The procedures in this section are related to the system, rather than to the operation of telephones, operator positions, lines, or trunks. For a list of all system operating conditions that can be set, see "Basic System Operating Conditions" in Chapter 3, "Programming Procedures," in *System Programming*. The procedures included in this section are those you may need to perform more frequently.

---

### Setting System Date

Use this procedure to change the system date. This feature allows you to set the month, day, and year that appear on display telephones and on Station Message Detail Recording (SMDR) reports.

The system date must be set correctly. System date affects the functioning of several system features and applications, including Automatic Backup, Night Service, SMDR reports, stand-alone Auto Attendant systems, voice mail, and Reminder Service.

#### **Console Procedure**

System→Date→Drop→Dial current date or  
time→Enter→Exit

#### **PC Procedure**

**F1** → **F7** or **F8** → **Alt** + **P** → Type current  
date → **F10** → **F5**

---

### Setting System Time

Use this procedure to change the system time. This feature allows you to set the time that appears on display telephones and on SMDR reports.

The system time must be set correctly. System time affects the functioning of several system features and applications, including Automatic Backup, Night Service, SMDR reports, stand-alone Auto Attendant systems, voice mail, and Reminder Service.

 **NOTE:**

*Be sure to change the system time appropriately when Daylight Savings Time starts and when it ends.*

**Console Procedure**                      System→Date or Time→Drop→Dial current time→  
Enter→Exit

**PC Procedure**                              F1 → F7 or F8 → Alt + P → Type current  
time → F10 → F5

## Backing Up the System

Use this procedure to make a copy of your customized system data. The backup does not copy any application data. For information about application backup, see the documentation for the application.

 **NOTE:**

*By default, the system is set to perform a backup automatically once a week. You can change this to daily backups or to manual backups. For more information, see "Automatic Backup" in the "Memory Card" section in Chapter 3, "Programming Procedures" in System Programming.*

*If any type of programming is taking place at another extension when you begin the backup procedure, the backup is canceled and the number of the first busy extension appears on the screen. Attempt the backup procedure again when the busy extension becomes idle.*

**Console Procedure**                      Insert memory card→System→Back/Restore→  
Backup→Select backup file→Dial new backup  
filename (1 to 11  
characters)→Enter→Yes→Exit→Exit→Exit

**PC Procedure**                              Insert memory card→F1 → F9 → F1 →Select backup  
file→Type the new backup filename (1 to 11  
characters)→F6 → F1 → F5 → F5 → F5

## Performing Centralized Telephone Programming

Centralized telephone programming allows you to program any feature that can be programmed by individual telephone users or by operators. Certain features can be copied from one extension to another in the system.

In addition, 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)
- System Access buttons: all types (Hybrid/PBX only)
- Service Observing button (Release 6.1 and later systems)
- If you are programming features onto a single telephone, see [“Programming Features onto a Single Telephone”](#) later in this section.
- If you are programming several telephones of the same type (that is, all analog, all MLX, all MLS, or all ETR), see [“Copying Feature and SA/ICOM Buttons”](#) later in this section.
- If you are copying outside line/trunk button assignments, pool dial-out code restrictions (Hybrid/PBX only), and Night Service information (for operator positions only), see [“Copying Line/Trunk Button Assignments”](#) later in this section.

From the centralized programming menu, you can perform centralized telephone programming by using telephone programming codes or selecting features from the List Feature menu. See [“Features”](#) in Chapter 1 for a list of telephone programming codes. For detailed information about the List Feature menu, see “Using the List Feature Menu” in Chapter 4, “Centralized Telephone Programming,” in *System Programming*.

---

## Programming Features onto a Single Telephone

At the Centralized Programming menu, use the following procedure to program features onto a single telephone. See "[Features](#)" in Chapter 1 for a list of feature codes.

### Console Procedure

Sys  
Programming→More→Cntr-Prg→Program  
Ext→Dial ext. no.→Enter→Start→Select  
button→Dial feature code→Enter→(repeat from  
beginning to program another button)→Exit

### PC Procedure

**F5** → **PgUp** → **F4** → **F1** → Type ext.  
no. → **F10** → **F10** →  
Select button (**Shift** + function key or **Alt** + function  
key) → Type feature code → **F10** → (repeat from  
beginning to program another button) → **F5**

---

## Copying Feature and SA/ICOM Buttons

Use the Copy Extension feature to copy an extension's programmed buttons (with some exceptions) to one or more extensions. Program the features individually on an extension to create 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, analog to analog, MLX to MLX, MLS to MLS, and ETR to ETR) because the four telephones have different button layouts. You need one template for each type of telephone in your system.

A Multi-Function Module's (MFM) programming can be copied to or from another MFM. A Direct Line Console (DLC) can be copied only to another DLC. Single-line telephone and QCC features *cannot* be copied.

For features that can be copied, see "Features That Can Be Copied" in the "Copy Extension" section of Chapter 4, "Centralized Telephone Programming," in *System Programming*.

**Console Procedure**

More→Cntr-Prg→Copy Ext→Dial copy from ext. no.→Enter→Dial copy to ext. no.→Enter→(return to "Dial copy from ext. no." to copy another extension)

**PC Procedure**

PgUp→F4→F2→Type copy from ext. no.→F10→Type copy to ext. no.→F10→(return to "Type copy from ext. no." to copy another extension)

---

## Copying Line/Trunk Button Assignments

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

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 only to 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 only to 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.

**Console Procedure**

To copy to a single extension:  
Extensions→Line Copy→Single→Dial copy from ext. no.→Enter→Dial copy to ext. no.→Enter→Exit→Exit

To copy to a block of extensions:  
Extensions→Line Copy→Block→Dial copy from ext. no.→Enter→Dial ext. no. of first telephone in block→Enter→Dial ext. no. of last telephone in block→Enter→Exit→Exit

**PC Procedure**

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 telephone in block → [F10] →  
Type ext. no. of last telephone in  
block → [F10] → [F5] → [F5]

## Managing Telephones

This section includes adding, moving, and removing extensions; assigning a HotLine extension; and changing calling restrictions.

---

### Adding/Removing an Extension

When you add or remove an extension, you must first understand system numbering. In addition, when adding an extension, you must make decisions about which features and buttons to assign to the extension and when removing an extension you must remove all features that were programmed for that extension. Also, when removing an extension, you must remove it from any groups and lists to which it is assigned (for example, allowed lists, calling restrictions, coverage, calling group, pickup group, paging group, and/or night service).

See both "System Renumbering" and "Extensions" in Chapter 3 in *System Programming* for detailed information about system numbering and the planning required to add or remove an extension.

- If your system uses the Set Up Space numbering plan (see Form 2a in *System Planning*) and you want to add or remove a single extension, see ["Single Renumbering" on page 54](#).
- If your system uses the Set Up Space numbering plan (see Form 2a in *System Planning*) and you want to add or remove a group of extensions, see ["Block Renumbering" on page 54](#).
- If you are adding or removing a personal line, Loudspeaker Paging, or Pool buttons, see ["Assigning/Unassigning Trunks or Pools to Extensions" on page 55](#).
- If you are adding an extension and you want to copy line/trunk button assignments, pool dial-out code restrictions (Hybrid/PBX only), and Night Service information (for operator positions only), see ["Copying Line/Trunk Button Assignments" on page 50](#).
- If you want to assign or unassign ICOM or SA buttons, see ["Assigning/Unassigning ICOM or SA Buttons" on page 55](#).



- On the MLS-12 and MLS-12D telephones, some features and lines may be assigned to telephone buttons that do not have lights. You may want to reassign the features or lines to buttons with lights. To do this, see [“Assigning/Unassigning ICOM or SA Buttons” on page 55.](#)
- The system software cannot distinguish between ETR-6 and MLS-6 telephones; it sees the two telephones as one type of telephone. The default button assignments, however, are different. You should change the MLS-6 button assignments to the ETR-6 assignments to reduce confusion. To do this, see [“Assigning/Unassigning ICOM or SA Buttons” on page 55.](#)
- If you need to program a 412 LS-ID-ETR or 016 ETR module for tip/ring functionality, see [“Programming for Tip/Ring on 412 LS-ID-ETR and 016 ETR Modules” on page 56.](#)
- If the telephone you are adding or removing is an analog multiline telephone and does not have a built-in speakerphone (BIS) or Hands-Free Answer on Intercom (HFAI), you must identify it as such to the system. See [“Identifying Analog Multiline Telephones without BIS or HFAI Capability” on page 57.](#)
- If the telephone you are adding or removing is an analog multiline telephone and requires a dedicated pair of extension jacks to provide the Voice Announce feature when the telephone is busy, you must identify it as such to the system. See [“Identifying Analog Multiline Telephones for the Voice Announce Feature” on page 58.](#)
- If you are adding a Business Cordless 905 telephone or a TransTalk MDC or MDW telephone connected through an ETR module, the system assigns buttons the same as those assigned for an MLS-12D telephone.
- If the telephone you are adding or removing is an analog multiline telephone and requires a dedicated pair of extension jacks to provide voice and data features, you must identify it as such to the system. See [“Identifying Analog Multiline Telephones at Data Workstations” on page 58.](#)
- To program or remove any additional features to the extension, refer to “Optional Telephone Features,” “Optional Group Features,” and “System Features” in Chapter 3 in *System Programming*.

---

## Single Renumbering

If your system uses the Set Up Space numbering plan and you want to add, remove, or move a single extension, use this procedure to single-renumber the extension jack.

### NOTE:

*A system forced idle occurs when you perform this task.*

#### Console Procedure

SysRenumber→Single→Select item→Dial old ext.  
no.→Enter→Dial new ext.  
no.→Enter→Exit→Exit

#### PC Procedure

→  → Select item → Type old ext.  
no. →  → Type new ext. no. →  →  →

---

## Block Renumbering

If your system uses the Set Up Space numbering plan and you want to add, remove, or move a group of extensions, use this procedure to renumber the group of extensions. Both the original numbers and the numbers they are being changed to must be sequentially numbered.

### NOTE:

*A system forced idle occurs when you perform this task.*

#### Console Procedure

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→Exit→Exit→Exit

#### PC Procedure

→  → Select type of group → Type no. of first  
group member →  → Type no. of last group member  
→  →  
Type new beginning no. →  →  →  →

---

## Assigning/Unassigning Trunks or Pools to Extensions

If you are adding or removing a personal line, Loudspeaker Paging, or Pool buttons (Hybrid/PBX only), use this procedure to assign or unassign the outside lines/trunks to the buttons on the telephone.

### Console Procedure

To program a single line/trunk:  
Extensions → Lines/Trunks → Dial ext.  
no. → Enter → Entry Mode → Dial line/trunk  
no. → Enter → Exit → Exit

To program a block of lines/trunks:  
Extensions → Lines/Trunks → Dial ext.  
no. → Enter → Select trunk range → Toggle LED  
on/off → Enter → Exit →  
Exit

### 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]

---

## Assigning/Unassigning ICOM or SA Buttons

Use this procedure to assign or unassign the Intercom (ICOM) buttons used to make and receive inside calls. In Hybrid/PBX mode only, use this procedure to assign or unassign System Access (SA) buttons used to make and receive inside and outside calls.

### Console Procedure

To program an extension:  
Sys  
Programming → 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)→Exit→Exit

To copy extension programming:  
Sys Programming→More→Cntr-Prg→Copy ext→Dial copy from ext. no.→Enter→Dial copy to ext. no.→Enter→Exit→Exit

### PC Procedure

To program an extension:

[F5] → [PgUp] → [F4] → [F1] → Type ext. no. → [F10] → [F10] →

Select button (Shift + function key or [Alt] + function key) → Type feature code (\*16 or \*18) → [F10] → (repeat from beginning to program another button) → [F5]

To copy extension programming:

[F5] → [PgUp] → [F4] → [F2] → Type copy from ext. no. → [F10] →

Type copy to ext. no. → [F10] → [F5] → [F5]

---

### Programming for Tip/Ring on 412 LS-ID-ETR and 016 ETR Modules

Use this procedure to program ports 9 through 12 on the 412 LS-ID-ETR module or ports 11 through 16 on the 016 ETR module as T/R ports.

When a port on a 412 LS-ID-ETR or 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 a 412 LS-ID-ETR or 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 one 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 port*
- *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.*

**Console Procedure**

Extensions→More→More→ETR→Type ext.  
no.→Enter→Select port type (ETR or Tip  
Ring)→Enter→Exit→Exit

**PC Procedure**

**F6** → **PgUp** → **PgUp** → **F8** → Type ext. no. → **F10** →  
Select port type (ETR or Tip Ring) → **F10** → **F5** → **F5**

---

**Identifying Analog Multiline Telephones without BIS or HFAI Capability**

Use this procedure to identify analog multiline telephones with flat membrane buttons that do not have Built-in Speakerphone (BIS) or Hands-Free Answer on Intercom (HFAI) capability. The models that must be identified are 5-button, 10-button, 34-button, and 34-button deluxe analog multiline models with flat membrane buttons.

Keep the factory setting for analog multiline models with raised plastic buttons, including the following models: 10-button HFAI, 34-button with speakerphone (SP-34), 34-button with speakerphone and display (SP-34D), BIS-10, BIS-22, BIS-34, BIS-22D, and BIS-34D.

This procedure is not necessary for MLX or single-line telephones.

**Console Procedure** Extensions→BIS/HFAI→Dial ext.  
no.→Enter→Exit→Exit

**PC Procedure** [F6] → [F8] → Type ext. no. → [F10] → [F5] → [F5]

---

### **Identifying Analog Multiline Telephones for the Voice Announce Feature**

Use this procedure to dedicate a voice or voice pair to be used to provide the Voice Announce feature on an analog multiline telephone when it is busy.

The extension number associated with the first (odd-numbered) extension jack in the pair is the telephone's extension number. The extension number for the second (even-numbered) extension jack is dedicated to the Voice Announce feature when the telephone is busy, or off-hook. Calls cannot be placed to the extension jack reserved for the Voice Announce feature when the telephone is busy.

The Voice Announce feature must be disabled at data workstations.

#### **NOTE:**

*This procedure does not apply to MLX telephones (Voice Announce when the telephone is off-hook is automatically provided) and cannot be programmed for ETR, MLS, and single-line telephones.*

**Console Procedure** Extensions→VoiceSignl→Dial ext.no.→Enter→Exit→Exit

**PC Procedure** [F6] → [F10] → Type ext. no. → [F10] → [F5] → [F5]

---

### **Identifying Analog Multiline Telephones at Data Workstations**

Use this procedure to dedicate a pair of extension jacks to provide the voice and data to an analog data workstation. The extension number associated with the first (odd-numbered) extension jack in the pair is the telephone's extension

number. The extension number for the second (even-numbered) extension jack is dedicated to Data.

Calls cannot be placed to the extension jack reserved for data. The Voice Announce feature must be disabled at data workstations.

When you select **Enter** after entering the voice extension number in the data entry screen, the system automatically assigns the data extension. Use the **Inspect** feature to verify extension pairs.

**Console Procedure**            More→Data→Voice/Data→Dial ext. no.→  
Enter→Exit

**PC Procedure**                PgUp → F2 → F1 → Type ext. no. → F10 → F5

## Moving an Extension

When you move an extension, you must renumber the extension. Renumbering changes the extension number, but the programming of the extension stays the same.

To renumber an extension or group of extensions, see [“Single Renumbering” on page 54](#) or [“Block Renumbering” on page 54](#).

## Assigning a HotLine Extension

When a user lifts the handset of a HotLine telephone, the telephone automatically dials an inside extension or outside number. This feature is designed to allow immediate access to certain numbers—for example, an 800 number catalog sales department, a security office, a hotel concierge, or another inside or outside destination that people need to reach quickly and effortlessly.

**Console Procedure**            Extensions→More→More→HotLine→Dial  
hotline ext. no.→Enter→Exit→Exit

**PC Procedure**                F6 → PgUp → PgUp → F3 → Type hotline ext.  
no. → F10 →  
F5 → F5

---

## Changing Calling Restrictions

Use this procedure to change individual extensions' calling restrictions to one of the following:

- Unrestricted
- Restricted from making all outgoing calls
- Restricted from making toll calls

Changing calling restrictions may affect other features, including Allowed Lists, Auto Dial, Automatic Route Selection (ARS), Callback, Conference, Coverage, Disallowed Lists, Display, Extension Status, Forward and Follow Me, Night Service, personal lines, Pools, Speed Dial, and SA/ICOM buttons. For more information, see the *Feature Reference*.

### Console Procedure

Extensions → Restriction → Dial ext.  
no. → Enter → Select restriction → Enter → Exit

### PC Procedure

F6 → F4 → Type ext. no. → F10 → Select restriction →  
F10 → F5

---

## Changing Trunk-to-Trunk Transfer Status

Use this procedure to enable or disable trunk-to-trunk transfer at one or more extensions. Trunk-to-trunk transfer is the transferring of an outside call to another outside number. When trunk-to-trunk transfer is allowed, there is a risk of toll fraud.



### SECURITY ALERT:

**The factory setting for all extensions, including voice messaging (VMI) ports and remote access barrier codes, disallows trunk-to-trunk transfer. If you elect to enable this feature at an extension, consider the risk of toll-fraud abusers obtaining access to your system and calling out of the system using this feature.**



**Console Procedure**

Extensions→More→More→TrkTransfer→  
Toggle LED on/off or dial ext.  
no.→Enter→Exit→Exit

**PC Procedure**

[F6]→[PgUp]→[PgUp]→[F7]→Toggle letter R on/off or  
type ext. no.→[F10]→[F5]→[F5]

---

## Changing Coverage Delay Rings

Use this procedure to change coverage delay rings at an extension. Coverage delay is specified by ring delay settings for each extension.

The *Feature Reference* provides a full description of Coverage options, including detailed tables and illustrations that highlight the enhancements provided in Release 4.1 and later systems. Before programming coverage delays, you should review this information.

**Console Procedure**

Change the number of rings before a call is sent to Group Coverage receivers:

Extensions→More→More→Cover Delay→  
Group→Dial sender's ext. no.→Enter→  
Dial no. of rings (1 to 9)→Enter→Exit→Exit

Change the delay for Primary Cover buttons programmed for Delay Ring; change the additional delay before a call is sent to Group Coverage receivers when Primary or Secondary Coverage Receivers are available:

Extensions→More→More→Cover Delay→  
Primary→Dial sender's ext. no.→Enter→  
Dial no. of rings (1 to 6)→Enter→Exit→Exit

Change the delay for Secondary Cover buttons programmed for Delay Ring:

Extensions→More→More→Cover Delay→  
Secondary→Dial sender's ext. no.→Enter→  
Dial no. of rings (1 to 6)→Enter→Exit→Exit

**PC Procedure**

Change the number of rings before a call is sent to Group Coverage receivers:

F6 → PgUp → PgUp → F2 → F3 → Type sender's ext.  
no. → F10 → Type no. of rings (1 to  
9) → F10 → F5 → F5

Change the delay for Primary Cover buttons programmed for Delay Ring; change the additional delay before a call is sent to Group Coverage receivers when Primary or Secondary Coverage Receivers are available:

F6 → PgUp → PgUp → F2 → F1 → Type sender's ext.  
no. → F10 → Type no. of rings (1 to  
6) → F10 → F5 → F5

Change the delay for Secondary Cover buttons programmed for Delay Ring:

F6 → PgUp → PgUp → F2 → F2 → Type sender's ext.  
no. → F10 → Type no. of rings (1 to  
6) → F10 → F5 → F5

---

## Adding/Removing a Line

You must contact your central office to obtain a new line or to disconnect a line. If you are adding a line, after the central office is contacted, call Lucent Technologies at 1-800-247-7000 to arrange for a Lucent Technologies technician to connect the line to the system and set it up (charges may apply).

### NOTE:

*If you are adding a line but there is no spare jack, you also need to add a new module. Contact your Lucent Technologies representative. After the line is connected and set up, or after it is disconnected, you must program it.*

Assign the line to or unassign the line from a pool, to/from extensions (if it is a personal line), to/from a calling group, or to/from Remote Access, as appropriate. See "Extensions" in Chapter 3 in *System Programming*.

---

## Managing the DLC and QCC Operator Positions

This section provides summary procedures for assigning or removing a Direct-Line Console (DLC) or Queued Call Console (QCC) operator position. Prior to assigning a DLC or QCC operator position, you must make decisions about which features and buttons to assign to the extension. Refer back to [“Adding/Removing an Extension”](#) earlier in this chapter.

A detailed discussion of system operator positions is provided in “System Operator Positions” in Chapter 3, “Programming Procedures,” in *System Programming*.

---

### **Assigning a DLC Operator Position**

Use this procedure to assign DLC operator positions to the first and fifth extension jacks on an MLX or analog multiline module. You cannot assign a DLC operator position on an ETR module.

The first jack on the first extension module in your system is automatically assigned as the primary operator position.



**NOTE:**

*A system forced idle occurs when you perform this task.*

#### **Console Procedure**

Operator → Positions → Direct Line → Dial  
ext. no. → Enter or Delete → Store All

#### **PC Procedure**

**F3** → **F1** → **F1** → Type ext. no. → **F10** or **F8** → **F3**

---

### **Assigning a QCC Operator Position**

Use this procedure to assign a QCC operator position to the first and fifth extension jacks of an MLX module. The first jack on the first extension module in

your system is automatically assigned as the primary operator position. QCC button assignments are automatic and factory-set.

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.

 **NOTE:**

*A system forced idle occurs when you perform this task.*

**Console Procedure**

Operator→Positions→Queued Call→Dial  
ext. no.→Enter or Delete→Store A1

**PC Procedure**

**F3** → **F1** → **F2** → Type ext. no. → **F10** or **F8** → **F3**

---

## Assigning 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.

**Console Procedure**

To program a single line/trunk:  
LinesTrunks→More→QCC Oper→Dial ext. no.→  
Enter→Select entry mode→Dial line/trunk  
no.→Enter→Exit→Exit

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→Exit→Exit

**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**

---

## Assigning 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. The default value is 4.

### Console Procedure

To program a single line/trunk:  
LinesTrunks→More→QCC Prior→  
Dial priority level (1 to 7)→Enter→Select entry  
mode→  
Dial trunk no.→Enter→Exit→Exit

To program a block of lines/trunks:  
LinesTrunks→More→QCC Prior→  
Dial priority level (1 to 7)→Enter→Select block of  
lines→  
Toggle LED on/off→Enter→Exit→Exit

### PC Procedure

To program a single line/trunk:  
[F4] → [PgUp] → [F3] → Type priority level (1 to 7) →  
Select entry mode → Type trunk no. → [F10] → [F5] → [F5]

To program a block of lines/trunks:  
[F4] → [PgUp] → [F3] → Type priority level (1 to 7) → [F10] →  
Select block of lines → Toggle letter G  
on/off → [F10] → [F5] → [F5]

---

## Adding Optional Operator Features

In Hybrid/PBX mode, you can add the following features to the DLC and/or QCC operator positions.

- You can add Operator Hold Timer to both the DLC and QCC operator positions.
- You can add DLC Operator Automatic Hold to DLC operator positions only.
- You can add the following features to QCC operator positions only:

- 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
- Voice Announce (Release 4.0 and later systems only)
- Message Center Operation
- Automatic or Manual Extended Call Completion
- Return Ring
- Position-Busy Backup



**NOTE:**

*Some of these options cannot be programmed for an individual operator position, but rather to all operator positions in the system. These are: Operator Hold Timer, Hold Return, Automatic Hold or Release, Extended Call Completion, Return Ring, Queue over Threshold, Elevate Priority, and QCC Operator to Receive Call Types. In addition, only one Position-Busy Backup can be programmed per system.*

---

### Setting 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.

#### Console Procedure

Operator → Hold Timer → Drop → Dial no. of seconds (10 to 255 seconds) → Enter → Exit

#### PC Procedure

**F3** → **F3** → **Alt** + **P** → Type no. of seconds (10 to 255 seconds) → **F10** → **F5**

---

### **Enabling the 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.

**Console Procedure**            Operator → DLC Hold → Automatic Hold  
   Enable or Automatic Hold  
   Disable → Enter → Exit

**PC Procedure**                [F3] → [F4] → [F1] or [F2] → [F10] → [F5]

---

### **Programming 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.

**Console Procedure**            Operator → Queued Call → Hold Rtrn →  
   Return to Queue or Remain on  
   Hold → Enter → Exit →  
   Exit

**PC Procedure**                [F3] → [F2] → [F1] → [F1] or [F2] → [F10] → [F5] → [F5]

---

### **Programming 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.

**Console Procedure**      Operator → Queued Call → Hold/Release →  
Auto Hold or Auto  
Release → Enter → Exit → Exit

**PC Procedure**            [F3] → [F2] → [F2] → [F1] or [F2] → [F10] → [F5] → [F5]

---

### **Setting 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.

**Console Procedure**      Operator → Queued  
Call → Threshold → Drop →  
Dial no. of calls (0 to 99) → Enter → Exit → Exit

**PC Procedure**            [F3] → [F2] → [F3] → [Alt] + [P] → Type no. of calls (0 to  
99) →  
[F10] → [F5] → [F5]

---

### **Programming 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.



**Console Procedure** Operator → QueuedCall → ElvatePrior → Drop  
→  
Dial no. of seconds (0 for same priority or 5 to  
30) → Enter →  
Exit → Exit

**PC Procedure** [F3] → [F2] → [F4] → [Alt] + [P] → Type no. of seconds (0  
for same priority or 5 to 30) → [F10] → [F5] → [F5]

---

### Programming 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.

**Console Procedure** Operator → Queued Call → InQue Alert →  
Dial ext. no. → Enter → InQue Alert Enable or  
InQue Alert Disable → Enter → Exit → Exit

**PC Procedure** [F3] → [F2] → [F6] → Type ext. no. → [F10] → [F1] or [F2] →  
[F10] → [F5] → [F5]

---

### Programming a 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).

**Console Procedure**

Operator→Queued Call→Call Types→  
Select a call type→Operator→Dial coverage group  
no.→  
Enter→Dial ext.  
no.→Enter→Exit→Exit→Exit→  
Exit→Exit

**PC Procedure**

[F3] → [F2] → [F7] → Select a call type → [F2] →  
Type coverage group no. → [F10] → Type ext.  
no. → [F10] → [F5] →  
[F5] → [F5] → [F5] → [F5]

---

**Assigning QCC 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 default value is 4. 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 [“Assigning QCC Queue Priority Level” on page 65.](#)

**Console Procedure**

Operator→Queued Call→Call Types→  
Select call type→Priority→Drop→Dial priority level  
(1 to 7)→Enter→Exit→Exit→Exit→Exit

**PC Procedure**

F3 → F2 → F7 → Select call type → F1 → Alt +  
P →  
Type priority level (1 to  
7) → F10 → F5 → F5 → F5 → F5

---

**Enabling Voice Announce**

Use this procedure to enable or disable Voice Announce for the QCC. Voice Announce is available only on a QCC in Release 4.0 and later.

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.

**Console Procedure**

Operator → Queued Call → More → Voice  
Annc →  
Enabled or Disabled → Enter → Exit → Exit

**PC Procedure**

F3 → F2 → PgUp → F2 → F1 or  
F2 → F10 → F5 → F5

---

**Programming for 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.

**Console Procedure**      Operator→Queued Call→Msg Center→  
Dial QCC ext. no.→Enter→Exit→Exit→Exit

**PC Procedure**            F3 → F2 → F8 →Type QCC ext.  
no.→F5 →F5 →F5

### Programming for Extended 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 complete the transfer when transferring a call using a DSS.

This option cannot be programmed for individual QCC operator positions. The setting applies to all QCC operator positions.

**Console Procedure**      Operator→Queued Call→ExtndComplt→  
Automatic Complete or Manual  
Complete→Enter→  
Exit→Exit

**PC Procedure**            F3 →F2 →F9 →F1 or F2 →F10 →F5 →F5

### Setting 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.*

**Console Procedure**

Operator → Queued Call → Return  
Ring → Drop →  
Dial no. of rings (1 to 15) → Enter → Exit → Exit

**PC Procedure**

F3 → F2 → F10 → Alt + P → Type no. of rings (1 to 15) →  
F10 → F5 → F5

---

**Programming for 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.

**Console Procedure**

Operator → Queued Call → More → QCC  
Backup →  
Drop → Dial ext. number → Enter or  
Delete → Exit → Exit

**PC Procedure**

F3 → F2 → PgUp → F1 → Alt + P → Type ext.  
number →  
F10 or F8 → F5 → F5

---

**Connecting Auxiliary Equipment**

This section provides procedures to program line/trunk or extension jacks used for auxiliary equipment and applications—for example, a music source for

Music-On-Hold, loudspeaker paging equipment, maintenance alarms, or a fax machine.

This section also provides procedures to specify the extensions that receive a message-waiting indication (MWI) and procedures to specify the touch-tone duration and the interval between digits in codes sent between the voice messaging system and the communications system.

---

### ***Programming for 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. Only one Music-On-Hold line/trunk jack is allowed per system. Note the following conditions:

- 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 telephone or as a Remote Access trunk.
- You cannot use the line/trunk jack identified for Music-On-Hold for a loudspeaker paging system or maintenance alarm.

In Release 6.0 and later systems, 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.

#### ***Console Procedure***

AuxEquip→MusicOnHold→Dial line/trunk  
no.→Enter→  
Exit

#### ***PC Procedure***

→  → Type line/trunk no. →  →

---

### ***Programming for Loudspeaker Paging***

Use this procedure to identify the line/trunk jack reserved for connection of loudspeaker paging equipment. A maximum of three single-zone or multizone

Loudspeaker paging systems can be connected to the system. Note the following conditions:

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

**Console Procedure**

AuxEquip → Ldspkr Pg → Dial line/trunk  
no. → Enter →  
Exit

**PC Procedure**

[F9] → [F2] → Type line/trunk no. → [F10] → [F5]

---

**Programming for Fax Machines**

Use this procedure to assign 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 MWI.

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

 **NOTE:**

*Fax machines should not be connected to analog multiline telephones with a General-Purpose Adapter (GPA). In a GPA configuration, features cannot be assigned to the fax machine independently of the telephone.*

You can specify up to four telephones to receive the MWI when a fax transmission is received. Fax machines can only send and not receive MWIs.

**Console Procedure**

To program an extension for a fax machine:  
AuxEquip→Fax→Extension→Dial ext. no.→  
Enter→Exit

To have a message waiting light for a fax machine:  
Fax→Extension→Dial ext. no.→Enter→  
Exit→Msg Waiting→Dial fax machine ext.  
no.→Enter→Dial MWI ext.  
no.→Enter→Threshold→Drop→Dial no. of  
seconds (0 to 30)→Enter→Exit→Exit

**PC Procedure**

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] → [Alt] + [P] → Type no. of seconds  
(0 to 30) → [F10] → [F5] → [F5]

**Programming for 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.

**Console Procedure**

AuxEquip→MaintAlarms→Dial line/trunk  
no.→Enter→  
Exit

**PC Procedure**

[F9] → [F4] → Type line/trunk no. → [F10] → [F5] → [F5]



---

## **Programming for 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 communications 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.



### **SECURITY ALERT:**

**See “Security Risks Associated with the Automated Attendant Feature of Voice Messaging Systems” and “Security Risks Associated with Transferring through Voice Messaging Systems” in Appendix A of System Programming for details on preventing toll fraud.**

#### **Console Procedure**

AuxEquip→VMS/AA→TransferRtn→Drop→Dial no. of rings (0 to 9)→Enter→TT Duration→Drop→Dial no. of ms (50 to 200 in increments of 25)→Enter→TT Interval→Drop→Dial no. of ms (50 to 200 in increments of 25)→Enter→Exit→Exit

#### **PC Procedure**

[F9] → [F6] → [F1] → [Alt] + [P] → Type no. of rings (0 to 9) →  
[F10] → [F2] → [Alt] + [P] → Type no. of ms (50 to 200 in increments of 25) → [F10] → [F3] → [Alt] + [P] → Type no. of ms (50 to 200 in increments of 25) → [F10] → [F5] → [F5]

---

## Managing Group Features

This section provides summary procedures for changing both group calling member assignments and group coverage member assignments.

---

### **Changing 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.

#### **Console Procedure**

Extensions→More→Grp  
Calling→Members→  
Dial calling group ext. no.→Enter→Dial ext.  
no.→Enter→Exit→Exit→Exit

#### **PC Procedure**

[F6] → [PgUp] → [F4] → [F9] → Type calling group ext.  
no. → [F10] → Type ext. no. → [F10] → [F5] → [F5] → [F5]

---

### **Changing Group Coverage Member Assignments**

Use this procedure to assign or remove an extension to or 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.

#### **Console Procedure**

Extensions→More→Group Cover→Dial group  
no.  
(1 to 30)→Enter→Dial ext.  
no.→Enter→Exit→Exit

#### **PC Procedure**

[F6] → [PgUp] → [F3] → Type group no. (1 to 30) → [F10] →  
Type ext. no. → [F10] → [F5] → [F5]

---

## Managing Lists

This section provides summary procedures for revising an allowed list and a disallowed list and assigning them to extensions.

---

### ***Revising an Allowed List***

Use this procedure to revise an allowed list. An allowed list is a list of telephone numbers that can be dialed from specified telephones, regardless of any calling restrictions assigned to the telephones.

An Allowed List provides some flexibility for extensions with calling restrictions by allowing specified extensions to dial certain numbers (for example, 911), regardless of the extension's calling restrictions.

A Disallowed List takes precedence over an Allowed List.

#### **Console Procedure**

Tables → AllowList → Dial list no. (0 to 7) and entry no. (0 to 9) → Enter → Drop → Dial telephone no. (1 to 6 digits with leading 1 if necessary) → Enter → Exit

#### **PC Procedure**

**F8** → **F1** → Type list no. (0 to 7) and entry no. (0 to 9) → **F10** →  
**Alt** + **P** → Type telephone no. (1 to 6 digits with leading 1 if necessary) → **F10** → **F5**

#### **⇒ NOTE:**

*In Release 3.1 and later systems, you can enter a star code (a star digit followed by a 2- or 3-digit number) before the telephone number in Allowed List and Disallowed List entries. The star codes that the system recognizes are:*

- 2-digit codes: \*(00–19, 40–99)
- 3-digit codes: \*(200–399)

*For more information on star codes, see “Star Codes and Allowed/Disallowed Lists” under*

*"Allowed Lists/Disallowed Lists" in the Feature Reference.*

---

### **Assigning an Allowed List to Extensions**

Use this procedure to assign an established Allowed List to individual extensions. Note that more than one Allowed List can be assigned to an extension.

**Console Procedure**      Tables→AllowTo→Dial list no. (0 to 7)→Enter→  
Dial ext. no.→Enter→Exit→Exit

**PC Procedure**      [F8]→[F2]→Type list no. (0 to 7)→[F10]→Type ext.  
no.→[F10]→[F5]→[F5]

---

### **Revising a Disallowed List**

Use this procedure to revise a Disallowed List that contains telephone numbers that cannot be dialed from specified telephones (including unrestricted telephones). A Disallowed List takes precedence over an Allowed List.

**Console Procedure**      Tables→Disallow→Dial list no. (0 to 7) and entry  
no.  
(0 to 9)→Enter→Drop→Dial telephone no. (11 digits  
consisting of area code, exchange, and extension plus a  
wildcard Pause character entered by pressing the Hold  
button)→Enter→Exit

**PC Procedure**      [F8]→[F3]→Type list no. (0 to 7) and entry no. (0 to  
9)→[F10]→  
[Alt] + [P]→Type telephone no. (11 digits consisting of  
area code, exchange, and extension plus a wildcard  
Pause character entered by pressing the Hold  
button)→[F10]→[F5]

### **⇒ NOTE:**

*In Release 3.1 and later systems, you can enter a star code (a star digit followed by a 2- or 3-digit number) before the telephone number in Allowed*

List and Disallowed List entries. The star codes that the system recognizes are:

- 2-digit codes: \*(00–19, 40–99)
- 3-digit codes: \*(200–399)

For more information on star codes, see “Star Codes and Allowed/Disallowed Lists” under “Allowed Lists/Disallowed Lists” in the Feature Reference.

---

### Assigning a Disallowed List to Extensions

Use this procedure to assign an established Disallowed List to individual extensions.

#### Console Procedure

Tables→DisallowTo→Dial list no. (0 to 7)→Enter→  
Dial ext. no.→Enter→Exit→Exit

#### PC Procedure

→  → Type list no. (0 to 7) →  → Type ext. no. →  →  →

---

## Managing Night Service Features

This section provides summary procedures for revising Night Service with group assignments and with coverage control.

---

### Revising Night Service with Group Assignments

Use this procedure to add or remove extensions, lines (Release 4.1 and later systems only), and a calling group to a Night Service group for after-hours coverage.

**Console Procedure**

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→Exit→Exit

To assign an extension to a Night Service group:  
NightSrvce→GroupAssign→Extensions→  
Dial ext. no. of Night Service operator→Enter→  
Dial ext. no. of member→Enter→Exit→Exit

To assign a line to a Night Service group (Release 4.1  
and later systems only):

NightSrvce→GroupAssign→Lines→  
Dial ext. no. of Night Service operator→Enter→  
Dial outside line no.  
(801-880)→Enter→Exit→Exit

**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 ext. no. of  
member → F10 → F5 → F5

To assign a line to a Night Service group (Release 4.1  
and later systems only):

F10 → F1 → F3 → Type ext. no. of Night Service  
operator → F10 → Type outside line no.  
(801-880) → F10 → F5 → F5

---

## Revising Night Service with Coverage Control

In Release 4.1 and later systems, you can coordinate the status of Coverage VMS Off buttons programmed at extensions with Night Service operation.

With this feature enabled (the factory setting is disabled), the following occurs:

- When Night Service is turned on, all Coverage VMS Off buttons are deactivated—that is, the programmed voice-messaging system calling group takes calls.
- When Night Service is turned off and normal operation is resumed, all Coverage VMS Off buttons are activated. Calls follow normal coverage patterns for business-hours operation.

### Console Procedure

To enable or disable Night Service with Coverage Control:  
NightSrvce→Cover Control→Enable or  
Disable→Enter→Exit

### PC Procedure

To enable or disable Night Service with Coverage Control:  
F10→F9→F1 or F2→F10→F5

---

## Changing Labels

This section provides summary procedures for changing labels for the following:

- Extension Directory
- Lines or Trunks
- Posted Message
- Group Calling
- System Speed Dial Directory

---

## Changing Extension Directory Labels

Use this procedure to change the alphanumeric system labels, so that display telephone users can identify the co-worker who is calling or leaving a message or to program the Extension Directory feature for MLX telephones.

A label can have a maximum of seven characters. Labels can contain capital letters, numbers, and eight types of characters: ampersands (&), dashes (-), spaces, periods (.), commas (,), apostrophes ('), stars (\*), and pound signs (#).

**Console Procedure**      More→Labeling→Directory→Extension→  
Dial ext. no.→Enter→Drop→Dial label (up to 7  
characters)→Enter→Exit→Exit→Exit

**PC Procedure**            PgUp → F1 → F1 → F2 → Type ext. no. → F10 →  
Alt + P → Type label (up to 7  
characters) → F6 → F5 → F5 → F5

---

## Changing Trunk Labels

Use this procedure to establish alphanumeric system labels for display telephone users to identify the line or trunk being used.

Each label can have a maximum of seven characters. Labels can contain capital letters, numbers, and eight types of characters: ampersands (&), dashes (-), spaces, periods (.), commas (,), apostrophes ('), stars (\*), and pound signs (#).

**Console Procedure**      More→Labeling→LinesTrunks→Dial line/trunk  
no.→Enter→Drop→Dial label (up to 7  
characters)→Enter→Exit→Exit

**PC Procedure**            PgUp → F1 → F2 → Type line/trunk no. → F10 →  
Alt + P → Type label (up to 7  
characters) → F6 → F5 → F5



---

## Changing Posted Message Labels

Use this procedure to change existing posted messages. 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. Labels can contain capital letters, numbers, and eight types of characters: ampersands (&), dashes (-), spaces, periods (.), commas (,), apostrophes ('), stars (\*), and pound signs (#).

### Console Procedure

More→Labeling→PostMessage→Dial message no. (1 to 20)→Enter→Drop→Dial message (up to 16 characters)→Enter→Exit→Exit

### PC Procedure

PgUp → F1 → F3 → Type message no. (1 to 20) → F10 →  
Alt + P → Type message (up to 16 characters)  
F6 → F5 → F5

---

## Changing Calling Group Labels

Use this procedure to change alphanumeric system labels for display telephone users to identify calling groups.

Each label can have a maximum of seven characters. Labels can contain capital letters, numbers, and eight types of characters: ampersands (&), dashes (-), spaces, periods (.), commas (,), apostrophes ('), stars (\*), and pound signs (#).

### Console Procedure

More→Labeling→Grp Calling→Dial calling group ext. no.→Enter→Drop→Dial label (up to 7 characters)→Enter→Exit→Exit

### PC Procedure

PgUp → F1 → F4 → Type calling group ext. no. → F10 →  
Alt + P → Type label (up to 7 characters) → F6 → F5 → F5

---

## Changing System Speed Dial Labels

Use this procedure to change System Speed Dial numbers for all system users. You can also use this procedure to change the alphanumeric labels shown on the MLX display telephones.

There can be a total of 130 numbers, with a maximum of 11 characters per label. Labels can contain capital letters, numbers, and eight types of characters: ampersands (&), dashes (-), spaces, periods (.), commas (,), apostrophes ('), stars (\*), and pound signs (#).

### Console Procedure

More→Labeling→Directory→System→  
Dial code no. (600 through 729)→Enter→Drop→  
Dial label (up to 11  
characters)→Enter→Backspace→  
Dial telephone no.→Enter→Yes or  
No→Enter→Exit→ Exit→Exit

### PC Procedure

PgUp → F1 → F1 → F1 → Type dial code no. (600  
through 729) → F10 → Alt + P → Type label (up to 11  
characters) → F6 → F2 → Type telephone  
no. → F6 → F1 or F2 → F6 → F5 → F5 → F5

---

## Managing CTI Links

This section provides summary procedures to:

- Print a System Information report to determine the slot number of the MLX port on the 408 GS/LS-MLX, 408 GS/LS-ID-MLX, 008 MLX, or 016 MLX modules.
- Busy-out the MLX module.
- Add a Computer Telephony Integration (CTI) link.
- Remove a CTI link.
- Restore the MLX module.

You must busy-out the module before you add or remove a CTI link and then restore the module after the CTI link has been added or removed. These procedures are typically reserved for Lucent Technologies technicians.

Release 5.0 and later systems support the use of an MLX port as a CTI link on Hybrid/PBX mode systems. The CTI link feature allows CTI applications to interact with the MERLIN LEGEND Communications System over a 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 (releases 3.12, 4.1, and 4.11) or Windows NT software.

---

### **Printing a System Information Report**

Use this procedure to print or view a System Information report in order to determine the slot number of a 408 GS/LS-MLX, 408 GS/LS-ID-MLX, 008 MLX, or 016 MLX module.

#### **Console Procedure**

To print system information:  
More→Print→SysSet-up→Exit

#### **PC Procedure**

To print system information:

PgUp → F3 → F2 → F5

To save report on disk:

PgUp → F3 → F2 → F10 →select GOTO FLOPPY from below console simulation screen→F10

To view the report on the screen:

Ctrl + F8

---

### **Busying Out the MLX Module**

Use this procedure to busy-out the MLX module. If the busy-out procedure is taking a long time to complete, someone is using an extension or facility on the module. The actual time it takes to busy-out or restore a module is less than one second.

Note that you select the Maintenance option from the Main menu, not the System Programming menu.

**Console Procedure**      Menu→Maintenance→Slot→Dial slot no.  
(1-17)→ Enter→Busy-Out→Yes

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

---

### Adding a CTI Link

Use this procedure to add a CTI link to an MLX port on a 408 GS/LS-MLX, 408 GS/LS-ID-MLX, or 008 MLX module.

**Console Procedure**      AuxEquip→CTI Link→Extension→Dial ext.  
no.→ Enter→Exit→Exit

**PC Procedure**            [F9] → [F3] → [F1] →Type ext. no.→[F10] → [F5] → [F5]

---

### Removing a CTI Link

Use this procedure to remove the programming for a CTI link from an MLX port on an 008, 408, or 016 MLX module.

**Console Procedure**      AuxEquip→CTI  
Link→Extension→Delete→ Exit→Exit

**PC Procedure**            [F9] → [F3] → [F1] → [F8] → [F5] → [F5]

---

### Restoring the MLX Module

Use this procedure to restore the MLX module.

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

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

# 3 About Reports

---

## Overview

The system generates a variety of reports that can help you with your system management tasks:

- The Station Message Detail Recording (SMDR) feature provides information about incoming and outgoing calls. The content of the report depends on which of two formats (Basic or ISDN) you select and can include the type of call (voice or data), the date, the time of the call, the called number, the duration of the call, the number of the trunk used to make or receive the call, and an account code, if applicable. This report prints on the SMDR printer.
- The system programming reports include reports that describe how various aspects of the system are programmed (for example, trunk information, label information, Allowed and Disallowed Lists, and Pickup Groups). There is also an Error Log that describes any system errors that may occur. You reach these reports from the System Programming menu.

The available system programming reports are listed below. With the exception of Trunk Information, the dash items under the bullets show the sections of each report that automatically print when that report option is selected.

- All
  - Each report
  - All report options
- System Set Up (System Information Report)

- 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 (trunk option must be specified)
  - Tie
  - DID
  - Loop/Ground
  - General
- T1 Information
- PRI Information
- BRI Information
- Remote Access
  - General Options
  - Non-Tie Restrictions
  - Tie Restrictions
  - Barrier Code Restrictions
- 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

## Printing SMDR Reports

Station Message Detail Recording (SMDR) reports print automatically on a serial printer connected to the SMDR jack on the control unit. The reports contain sequential call records.

If the printer is off, is out of paper, or has a paper jam, up to 100 SMDR records can be stored in the SMDR queue. The printing of system programming reports takes precedence; while these reports are printing, SMDR records are stored in the queue.

For more information, see "Station Message Detail Recording (SMDR)" in the *Feature Reference*.



## Printing System Programming Reports

Use this procedure to print system programming reports. System programming reports can be printed out or viewed on the screen of a PC with SPM or printed out on a serial printer connected to the SMDR jack on the processor module in the control unit.

You can print individual reports or use the All option to print the entire set of available reports, including all report sections and options.

For more information, see "Print Reports" in Chapter 3, "Programming Procedures," in *System Programming*. Appendix F of *System Programming* provides samples of the reports.

### Console Procedure

To print trunk information:

More→Print→Trunk Info→Select trunk  
type→Exit

To print extension information

More→Print→More→Ext Info→Dial ext.  
no.→Enter→  
Exit

To print all other reports:

More→Print→Select report→Exit

### PC Procedure

To print trunk information:

PgUp → F3 → F6 → Select trunk type → F5

To print extension information:

PgUp → F3 → PgUp → F10 → Type ext. 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 from below console simulation screen → F10

To view report:

Ctrl + F8

 **NOTE:**

*The Extension Information report incorrectly lists MLX-16DP telephones as MLX-28D telephones. In releases prior to 5.0, MLX-5D and MLX-5 telephones are listed as MLX-10D and MLX-10 telephones, respectively. If you have MLX-16DP, MLX-5D, and MLX-5 telephones in your system, keep a separate log of the extension numbers. In Release 5.0 and later systems, MLX-5 and MLX-5D telephones are correctly identified in the report.*

*In Release 7.0 and later systems, MLS-6 and ETR-6 telephones are both reported as an MLS/ETR telephone. TransTalk MDC and MDW telephones and the Business Cordless 905 telephone are identified as an MLS-12D telephone.*

# 4 Troubleshooting the System

---

## Overview

This chapter provides procedures for solving the most common problems that you may encounter with the system. You may be able to resolve a problem quickly and easily by following the appropriate steps.

For information about troubleshooting data and video communications, see the *Data/Video Reference*. For more information about troubleshooting a Computer Telephony Integration (CTI) link, see the *PassageWay Telephony Services Network Manager's Guide*.



### NOTE:

*Release 6.0 and later systems (Hybrid/PBX mode only) support private connections between MERLIN LEGEND Communications Systems and a DEFINITY Enterprise Communications Server (ECS) or DEFINITY ProLogix Solutions systems using private networks or the public switched telephone network. This aspect of the system is not covered in this guide. For complete troubleshooting information, see the Network Reference.*

It is helpful to have the *Feature Reference*, *System Programming*, and system planning forms on hand to perform some procedures. If the procedure involves using system programming or centralized telephone programming to check a system or feature setting, the troubleshooting procedures indicate where in *System Programming* you can find the programming steps.

You should also have available the System Information Sheet from the front of this guide.

 **CAUTION:**

If you must check something on the control unit, proceed with caution. Do not stand on a box or chair to reach the unit if it is installed out of easy reach. If you do not have a stable ladder or other proper equipment, do not proceed; wait for the Lucent Technologies technician or authorized dealer.

 **NOTE:**

*If power to the system is cut off, the system will retain its programming for four to five days after it stops receiving power. Then all of the system's programmed settings may return to the factory settings.*

*Be sure to change the system time appropriately when Daylight Savings Time starts and when it ends. System time affects the functioning of several system features—including Automatic Backup, Night Service, Station Message Detail Recording (SMDR) reports, stand-alone Auto Attendant systems, voice mail, and Reminder Service.*

*For information about removing the control unit housing, contact your Lucent Technologies Representative or authorized dealer.*

## All Telephones Are Dead (No Dial Tone or Lights)

---

**Possible Cause 1:** The control unit is not receiving power.



### **WARNING:**

**When checking the power cord on the control unit, as instructed in the following procedure, do not stand on a box or chair to reach the unit if it is out of easy reach. If you do not have a stable ladder or other proper equipment, do not proceed; wait for the Lucent Technologies technician.**

**What to do:** Make sure the control unit's power cord is plugged securely into the wall outlet. Also, if convenient and safe to do so, make sure the other end of the power cord is securely connected to the power supply in the control unit.

- If all telephones now have dial tone and lights, you have solved the problem.
- If all telephones are still dead, go to Possible Cause 2.

---

**Possible Cause 2:** The power outlet into which the control unit is plugged is faulty.

**What to do:** Test the outlet by plugging in an appliance that you know is working—for example, a lamp or radio.

- If the appliance does not work, the outlet is faulty. If possible, plug the control unit into a different outlet, check the circuit breaker, or call an electrician.
- If the appliance works, the wiring may be faulty elsewhere in the system. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).

## Some Telephones Are Dead (No Dial Tone or Lights)

---

**Possible Cause 1:** The telephones are not receiving power.

**What to do:** Check that each telephone is plugged into a telephone wall jack that you know is working.

- If the telephones now have dial tone and lights, there may be a problem with the system wiring or the control unit associated with the faulty telephone or telephones. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).
- If the telephones are still dead, go to Possible Cause 2.

---

**Possible Cause 2:** For single-line telephones, the Idle Line Selection may be set incorrectly. (If not a single-line telephone, go to Possible Cause 4.)

**What to do:** Use centralized telephone programming to ensure that the Ringing/Idle Line Preference is set to on (see Chapter 4 in *System Programming*). Check to see whether the telephone now has dial tone.

- If the telephone receives a dial tone, you have solved the problem.
- If the telephone is still dead, go to Possible Cause 3.

---

**Possible Cause 3:** For single-line telephones, the Auto Line Selection may be set incorrectly; see Chapter 4 in System Programming. (If not a single-line telephone, go to Possible Cause 4.)

**What to do:** Use centralized telephone programming to set the Auto Line Selection for the extension. Check to see whether the telephone now has a dial tone.

- If the telephone receives a dial tone, you have solved the problem.
- If the telephone is still dead, go to Possible Cause 5.



**NOTE:**

*The following procedure may help Lucent Technologies Helpline technicians analyze your problem. You should not perform this procedure, however, unless you have experience removing the control unit cover and working with the control unit extension jacks. Before proceeding, consult System Planning Form 2a, System Numbering: Extension Jacks.*



**WARNING:**

**If you must check something on the control unit, proceed with caution. Do not stand on a box or chair to reach the unit if it is installed out of easy reach. If you do not have a stable ladder or other proper equipment, do not proceed; wait for the Lucent Technologies technician.**

---

**Possible Cause 4:** If an MLX telephone is not working, it may be plugged into an MLX extension jack that is programmed for CTI link.

**What to do:** Follow the procedure for printing an Extension Information Report to determine whether the jack is programmed for CTI link. See [“Managing CTI Links” on page 86](#) or “Managing CTI Links” in *System Programming* for details.

- If the jack is programmed for a CTI link and you wish to retain the link, plug the MLX telephone into another available MLX jack.
- If the jack is programmed for a CTI link and you wish to remove the link programming, unplug the telephone from the MLX jack. Then see [“Managing CTI Links” on page 86](#) or “Managing CTI Links” in *System Programming* for the correct procedure.
- If the jack is not programmed for a CTI link, go to Possible Cause 5.

---

**Possible Cause 5:** The telephones may be defective.

**What to do:** Test each telephone by replacing the dead telephone with a similar telephone that you know is working.

- If the replacement telephone receives a dial tone and its lights function, then replace it with the original telephone and check again. If the original telephone still does not receive a dial tone and its lights do not function, then the original telephone may be defective. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).



- If the replacement telephone does not receive a dial tone and its lights do not function, there may be a problem with the system wiring or the control unit. To test one possible wiring problem, go to Possible Cause 6.

 **NOTE:**

*The following procedure may help Lucent Technologies Helpline technicians analyze your problem. You should not perform this procedure, however, unless you have experience removing the control unit cover and working with the control unit extension jacks. Before proceeding, consult System Planning Form 2a, System Numbering: Extension Jacks.*

 **WARNING:**

**If you must check something on the control unit, proceed with caution. Do not stand on a box or chair to reach the unit if it is installed out of easy reach. If you do not have a stable ladder or other proper equipment, do not proceed; wait for the Lucent Technologies technician.**

---

**Possible Cause 6:** A module (or modules) may be defective.

**What to do:** Identify the control unit module or modules where the telephones are connected.

- If the telephones are all connected to one module, there may be a problem with the module. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).
- If the dead telephones are connected to modules that also connect working telephones, test the jacks on the modules. Identify the port where each nonfunctional telephone is connected. Identify a second port in the same module connected to a working telephone and

unplug the jack from the module. Plug the jack for the dead telephone into the extension jack that is now open. If the telephone works, call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).

- If the telephones do not work when plugged into module jacks that are known to be functioning, call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).

## Difficulty Making Outside Calls

### SECURITY ALERT:

When changing calling restrictions and other security settings, take care not to compromise the security of your system. For more information, consult “Security of Your System: Preventing Toll Fraud” in Appendix A, “Customer Support Information,” in *System Programming*.

---

**Possible Cause 1:** This extension is restricted from making outside calls.

**What to do:** Use system programming to check the extension's calling restrictions, if any (see Chapter 3 in *System Programming*). If the extension is toll- or outward-restricted, change it to unrestricted, if appropriate. Try again to make an outside call from the extension.

- If you can make outside calls from the extension, you have solved the problem.
- If you cannot make outside calls, go to Possible Cause 2.

---

**Possible Cause 2:** If the system (Hybrid/PBX mode) uses pool dial-out codes, the extension may be restricted from dialing the pool dial-out code.

**What to do:** Use system programming to determine whether the pool dial-out code has been assigned for the extension (see Chapter 3 in *System Programming*).

- If the pool dial-out code is missing, assign it, if appropriate, and try again to make an outside call. If you can, you have solved the problem. If you cannot, go to Possible Cause 3.

- If the pool dial-out code is not missing, go to Possible Cause 3.

---

**Possible Cause 3:** If the system (Hybrid/PBX mode) is set up for Automatic Route Selection (ARS), the extension's Facility Restriction Level (FRL) may be set too low (see Chapter 3 in *System Programming*). The extension's FRL must be greater than or equal to the route's FRL.

**What to do:** Use system programming to check the extension's FRL.

- If the FRL is set to less than 6, increase the FRL to 6 and try again to make an outside call. If you can now make outside calls on the telephone, adjust the FRL as needed. You have solved the problem.



**SECURITY ALERT:**

**Changing the extension's Facility Restriction Level may compromise the security of your system. If you leave the FRL at 6, ensure that the person at the extension is authorized to make toll calls. For more information, consult the section entitled "Automatic Route Selection" in the *Feature Reference* and "Security of Your System: Preventing Toll Fraud" in Appendix A, "Customer Support Information," in *System Programming*.**

- If, after setting the FRL to 6, the problem persists, change the FRL back to the original setting and go to Possible Cause 4.



**NOTE:**

*Calls going across a private network may be affected by the improper setting of the FRL. See the Network Reference for details.*

---

**Possible Cause 4:** ARS tables are not programmed correctly.

**What to do:** Use system programming to check for correct pools, correct digit manipulation (prepending, dropping, etc.), and correct type of call (data only, voice only, or both).

---

**Possible Cause 5:** A Disallowed List is assigned to the extension.

**What to do:** Use system programming to check whether a Disallowed List is assigned to the extension (see Chapter 3 in *System Programming*).

- If a Disallowed List is assigned to the extension, remove it, if appropriate. Try again to make an outside call. If you can, you have solved the problem. If you cannot, go to Possible Cause 6.
- If a Disallowed List is not assigned to the extension, go to Possible Cause 6.

---

**Possible Cause 6:** Night Service with Outward Restriction is activated.

**What to do:** Check to determine whether Night Service with Outward Restriction is activated by checking the light next to the Night Service button on the operator's console.

- If the light is on, then Night Service is activated and there are restrictions on outside calls. Use the Night Service password, if known, or use system programming to put the extension on the Night Service Exclusion List, if appropriate. Finally, try again to make an outside call. If you can, you have solved the problem. If you cannot, go to Possible Cause 7.



### **SECURITY ALERT:**

**Extensions on the Night Service Exclusion List have unrestricted calling privileges and are not protected from unauthorized after-hours use.**

- If the light is off and Night Service is not activated, go to Possible Cause 7.

---

**Possible Cause 7:** Forced Account Code Entry is assigned to the extension.

**What to do:** Use system programming to determine whether Forced Account Code Entry is required for that extension (see Chapter 3 in *System Programming*).

- If it is, remove the extension from the list of extensions required to use account codes, if appropriate. Try again to make an outside call. If you can, you have solved the problem. If you cannot, go to Possible Cause 8.
- If the extension is not on the list, go to Possible Cause 8.

---

**Possible Cause 8:** In Hotel mode, the extension may be restricted from making calls.

**What to do:** Check the Extension Status of the extension by observing its lights on the operator's DLC. To do this, change the console from a normal operator position to a calling supervisor's console by pressing the Feature button and dialing 32, then touching the Hold button. Check either the red light next to the extension's DSS button or the green light next to the Auto Dial button programmed for the extension.

- If the light is flashing or on, the extension is restricted from making outside calls. To change the Extension Status to 0 and remove restrictions, press the Feature

button and dial 760 , then press the DSS button for the extension.

Change the console back to normal operator status by pressing the Feature button and dialing 32, then pressing the Drop button. Try again to make an outside call. If you can, you have solved the problem. If you cannot, go to Possible Cause 9.

- If the light is off, change the console back to the normal operator position by pressing the Feature button and dialing 32, then pressing the Drop button. Go to Possible Cause 9.

---

**Possible Cause 9:** The telephone may be defective.

**What to do:** Test the telephone by replacing it with a similar telephone that you know is working properly.

- If the replacement telephone can make outside calls, then replace it with the original telephone and check again. If the original telephone still cannot make outside calls, then it may be defective. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).
- If the replacement telephone cannot make outside calls, there may be a problem with the system wiring or the control unit. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).

 **NOTE:**

*If you are dialing an outside number on a private-networked system, the problem may be that the PRI PSTN outgoing tables are not programmed correctly. See the Network Reference for details.*

## Telephone Does Not Ring

---

**Possible Cause 1:** The telephone's ringer volume control is set too low.

**What to do:** While the telephone is idle and the handset is in the cradle, adjust the volume control up. From another extension, dial the extension with the problem.

- If you can hear the telephone ring, you have solved the problem.
- If the telephone still does not ring, go to Possible Cause 2.

---

**Possible Cause 2:** The Do Not Disturb feature is turned on.

**What to do:** Check the green light next to the programmed Do Not Disturb button to determine whether Do Not Disturb is turned on.

- If the green light is on, then Do Not Disturb is turned on. Press the button to deactivate the feature and to turn the light off. From another extension, dial the problem extension. If the telephone rings, you have solved the problem. If not, go to Possible Cause 3.
- If the green light is not on, then Do Not Disturb is off; go to Possible Cause 3.



---

**Possible Cause 3:** The Forward feature is turned on.

**What to do:** Turn off the Forward feature. Use one of the following methods, depending on the type of telephone:

- At an MLX or analog multiline telephone with a programmed Forward button, deactivate the feature and turn the light off by pressing the button (if the green light is on, indicating that the feature is active). From another extension, dial the extension with the problem. If the telephone rings, you have solved the problem. If the telephone still does not ring, go to Possible Cause 4.
- At an MLX telephone without a programmed Forward button, deactivate Forward by pressing the Feature button and dialing 33 plus the extension number of the telephone that is not receiving calls. From another extension, dial the extension where the problem is. If the telephone rings, you have solved the problem. If the telephone still does not ring, go to Possible Cause 4.
- At an analog multiline telephone, deactivate Forward by pressing the programmed Feature button and dialing 33 plus the extension number of the telephone that is not receiving calls. From another extension, dial the extension with the problem. If the telephone rings, you have solved the problem. If the telephone still does not ring, go to Possible Cause 4.
- At a single-line telephone, deactivate Forward by dialing #33 plus the extension number of the single-line telephone. From another extension, dial the extension with the problem. If the telephone rings, you have solved the problem. If the telephone still does not ring, go to Possible Cause 4.

---

**Possible Cause 4:** The Ringing Options setting of the Ring Timing feature for the extension is programmed for No Ring or Delayed Ring.

**What to do:** Use centralized telephone programming or extension programming to check the Ringing Options setting for the extension (see Chapter 4 of *System Programming*).

 **NOTE:**

*You can check the Ringing Options setting at an MLX display telephone by first pressing the Inspct button and then a line button. Ringing can be set for each line or for all lines. To change a setting, use extension programming. At an analog multiline or single-line telephone, check the Ringing Options settings for each line by using centralized telephone programming.*

- If the Ringing Options setting is No Ring or Delay Ring, change the setting to Immediate, if appropriate. From another extension, dial the problem extension. If the telephone now rings, you have solved the problem. If not, go to Possible Cause 5.
- If the Ringing Options setting is Immediate, go to Possible Cause 5.

---

**Possible Cause 5:** The telephone may be defective.

**What to do:** Test the telephone by replacing it with a similar telephone that you know is working.

- If the replacement telephone rings, then replace it with the original telephone and check again. If the original telephone still does not ring, then the original telephone may be defective. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).

- If the replacement telephone does not ring, there may be a problem with the system wiring or the control unit. To test one wiring possibility, go to Possible Cause 6.

 **NOTE:**

*The following procedure may help Lucent Technologies Helpline technicians analyze your problem. You should not perform this procedure, however, unless you have experience removing the control unit cover and working with the control unit extension jacks. Before proceeding, consult system planning Form 2a, System Numbering: Extension Jacks.*

 **CAUTION:**

If you must check something on the control unit, proceed with caution. Do not stand on a box or chair to reach the unit if it is installed out of easy reach. If you do not have a stable ladder or other proper equipment, do not proceed; wait for the Lucent Technologies technician.

---

**Possible Cause 6:** The wiring is faulty somewhere in the system.

**What to do:** Test the control unit module and jack into which the telephone is plugged.

- Identify the port where the nonfunctional telephone is connected. Identify a second port in the same module connected to a functional telephone and unplug the jack from the module. Plug the jack for the non-working telephone into the extension jack that is now open. If the telephone works, call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).
- If the telephone still does not work, call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).

## DLC Not Ringing for Incoming Calls

---

**Possible Cause 1:** The Do Not Disturb feature is turned on.

**What to do:** Check the green light next to the programmed Do Not Disturb button to determine whether Do Not Disturb is turned on.

- If the green light is on, then Do Not Disturb is turned on. Press the button to deactivate the feature and to turn the light off. Finally, check whether incoming calls ring at the console. If they do, you have solved the problem. If not, go to Possible Cause 2.
- If the green light is not on, then Do Not Disturb is not turned on; go to Possible Cause 2.

---

**Possible Cause 2:** The Ring Timing setting of the Ringing Options feature for the extension is programmed for No Ring or Delayed Ring.

**What to do:** Use centralized telephone programming to check the Ringing Options setting for the extension and each line (see Chapter 4 in *System Programming*).

- If the Ringing Options setting for one or more lines is No Ring or Delay Ring, change the setting to Immediate, if appropriate. Finally, check to see whether incoming calls ring at the console. If they do, you have solved the problem. If not, go to Possible Cause 3.
- If the Ringing Options setting is Immediate, go to Possible Cause 3.

---

**Possible Cause 3:** The telephone may be defective.

**What to do:** Test the telephone by replacing it with a similar telephone that you know is working.

- If the replacement telephone rings for incoming calls, then replace it with the original telephone and check again. If the original telephone still does not ring for incoming calls, then the original telephone may be defective. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).
- If the replacement telephone does not ring for incoming calls, there may be a problem with the system wiring or the control unit. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).

## QCC Not Ringing for Incoming Calls

---

**Possible Cause 1:** The lines are not assigned to the QCC queue.

**What to do:** Use system programming to assign the lines to the QCC queue (see "QCC Operator to Receive Calls" in the "Lines and Trunks" section of Chapter 3, in *System Programming*). Finally, check to see whether incoming calls ring at the console.

- If the console rings for incoming calls, you have solved the problem. If not, go to Possible Cause 2.
- If the console is still not ringing, go to Possible Cause 2.

---

**Possible Cause 2:** The Position Busy feature is turned on.

**What to do:** Check the green light next to the Position Busy button.

- If the green light is on, then Position Busy is turned on. Press the button to deactivate the feature and to turn the light off. Finally, check to see whether incoming calls ring at the console. If they do, you have solved the problem. If not, go to Possible Cause 3.
- If the green light is off, then Position Busy is not turned on; go to Possible Cause 3.

---

**Possible Cause 3:** The Calls-In-Queue Alert option is disabled (this is the factory setting). The number of calls in the queue has exceeded the programmed threshold, or the callers have waited too long, and calls are being directed to a backup.

**What to do:** Use system programming to check and see whether the QCC's optional Calls-In-Queue Alert is disabled (see Chapter 3 in *System Programming*).

- If the Calls-In-Queue Alert option is set to Disable, change it to Enable, if appropriate. Finally, check whether incoming calls ring at the console. If they do, you have solved the problem. If not, go to Possible Cause 4.
- If the Calls-In-Queue Alert option is set to Enable, go to Possible Cause 4.

---

**Possible Cause 4:** Night Service may be on, and calls may be ringing at extensions assigned to the Night Service group rather than at the QCC.

**What to do:** Check the green light next to the Night Service button. In Release 4.0 and prior systems, if there is more than one QCC, all must have Night Service activated in order for calls to ring at Night Service group extensions. In Release 4.1 and later systems, lines assigned to a Night Service group ring when the QCC assigned for that group has Night Service turned on; other QCCs do not need Night Service turned on.

- If the green light is on at all QCCs in the system, then Night Service is turned on. Press the button to deactivate the feature and to turn the light off. Finally, check whether incoming calls ring at the console. If they do, you have solved the problem. If not, go to Possible Cause 5.
- If the green light is off, then Night Service is not turned on; go to Possible Cause 5.

---

**Possible Cause 5:** The telephone may be defective.

**What to do:** Test the telephone by replacing it with another MLX-20L telephone that you know is working properly.

- If only one MLX-20L is available, plug that telephone into a jack that you know is working and then retest. If the telephone rings for incoming calls, then the original jack may be faulty; call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply). If the telephone still does not ring, there may be a problem with the system wiring or the control unit; call the Lucent Technologies Helpline.
- If the replacement telephone rings for incoming calls, then replace it with the original telephone and check again. If the original telephone still does not ring for incoming calls, then the original telephone may be defective. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).
- If the replacement telephone does not ring for incoming calls, there may be a problem with the system wiring or the control unit. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).



## Single-Line Telephones Ring Back after Completed Call

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**Possible Cause 1:** The switchhook is pressed and released too quickly after a call is completed.



**NOTE:**

*Some single-line telephones have a positive disconnect switch. If the switch is set to positive disconnect, Possible Cause 1 does not apply. In this case, skip to Possible Cause 2.*

**What to do:** Instruct the user to always replace the handset carefully for at least one to two seconds between calls. If the problem is not resolved, go to Possible Cause 2.

---

**Possible Cause 2:** The telephone may be defective.

**What to do:** Test the telephone by replacing it with a similar telephone that you know is working.

- If the replacement telephone does not ring back, then replace it with the original telephone and check again. If the original telephone still rings back, then the original telephone may be defective. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).
- If the replacement telephone rings back, there may be a problem with the system wiring or the control unit. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).

## Cannot Transfer Call after Answer on an Outside Line

---

**Possible Cause 1:** There may be custom calling features (for example, call waiting or three-way calling) from the local telephone company that are interfering with system timer settings.

**What to do:** To check whether you have any custom calling features, contact your local telephone company representative.

- If you have custom calling features, Transfer usually works. When it does not, warn the caller that a loud tone will sound; then dial # while on the call and try to transfer the call again. If you can transfer the call, you have solved the problem. If you cannot, go to Possible Cause 2. If you do not use the custom calling features, ask the central office to remove them.
- If you have no custom calling features, go to Possible Cause 2.

---

**Possible Cause 2:** The telephone may be defective.

**What to do:** Test the telephone by replacing it with a similar telephone that you know is working properly.

- If the replacement telephone can transfer a call, then replace it with the original telephone and check again. If the original telephone still cannot transfer a call, then the original telephone may be defective. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).
- If the replacement telephone cannot transfer a call, there may be a problem with the system wiring or the control unit. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).

## Night Service Not Working

### NOTE:

*Be sure to change the system time appropriately when Daylight Savings Time starts and when it ends. System time affects the functioning of several system features, including Automatic Backup, Night Service, Station Message Detail Recording (SMDR) reports, stand-alone Auto Attendant systems, voice mail, and Reminder Service.*

*In Release 4.1 and later systems, Night Service with Coverage Control affects the status of voice mail coverage for extensions with programmed Coverage VMS Off buttons. If you are having problems with this aspect of Night Service, see [“Calls Not Going to Voice Mail” on page 123](#), beginning with Possible Cause 3.*

---

**Possible Cause 1:** The system time and/or day may be set incorrectly.

**What to do:** Use system programming to check the setting of the system time and date (see Chapter 3 in *System Programming*) or check the time at an MLX display telephone.

- If the settings are incorrect, correct them and activate Night Service again. If it is now working, you have solved the problem. If not, go to Possible Cause 2.
- If the settings are correct, go to Possible Cause 2.

---

**Possible Cause 2:** If the system has Night Service with Time Set, the start and stop time or day of week may be set incorrectly (see Chapter 3 in *System Programming*).

**What to do:** Use system programming to check the settings for the Night Service with Time Set daily start and stop times.

- If the settings are incorrect, correct them and activate Night Service again. If it is now working, you have solved the problem. If not, go to Possible Cause 3.
- If the settings are correct, go to Possible Cause 3.

---

**Possible Cause 3:** The Night Service button may be programmed incorrectly at one or more DLCs.

**What to do:** Use centralized telephone programming to check that the button on the DLC operator console is, in fact, programmed for Night Service (see Chapter 4 in *System Programming*); or, at the DLC, press the Inspct button and then the programmed Night Service button.

- If the Night Service button is not programmed, program it and activate Night Service again. If it is now working, you have solved the problem. If not, go to Possible Cause 4.
- If the Night Service button is programmed correctly, go to Possible Cause 4.

---

**Possible Cause 4:** If the system has more than one operator console and the night destination is a voice mail system, one of the consoles may not have Night Service on.

**What to do:** Check that the green light next to the Night Service button at each console is lit.

- If Night Service now works, you have solved the problem.
- If Night Service is still not working and yours is a Release 4.1 or later system, go to Possible Cause 5.
- If Night Service is still not working and your system release is prior to 4.1, call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).

---

**Possible Cause 5:** Lines may not be programmed as part of a Night Service Group. Night Service lines do not have to appear on operator consoles, and lines on operator consoles are not automatically part of that operator's Night Service Group; they must be assigned.

**What to do:** Check the Night Service line assignments, following the instructions for "Night Service Group Assignment" in the "Labeling" section of Chapter 3 in *System Programming*, or in "[Revising Night Service with Group Assignments](#)" in [Chapter 2](#) of this quick reference.

- If the lines are correctly assigned, call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).
- If the lines are not assigned, program them as members of a Night Service group. If Night Service now works, you have solved the problem. If Night Service still does not work, call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).

## Calls Not Going to Voice Mail

For calls to go to voice mail, the extension must be part of a coverage group, the coverage group must have a receiver, and the receiver must be the voice mail calling group. A quick way to check this is to review the planning forms for Group Coverage and group calling.



### NOTE:

*In Release 6.1 and later systems, calls going across the private network to a Centralized Voice Messaging system may experience problems because of an incorrect setup. See the Network Reference for details.*

---

**Possible Cause 1:** The extension may not be a member of a coverage group.

**What to do:** Use system programming to check that the extension is a member of a coverage group. (See “Group Coverage Member Assignments” in the “Optional Group Features” section of Chapter 3 in *System Programming*.)

- If the extension is not assigned, assign it, if appropriate. Check to see whether calls are now going to voice mail. If they are, you have solved the problem. If not, go to Possible Cause 2.
- If the extension is already assigned, go to Possible Cause 2.

---

**Possible Cause 2:** The coverage group may not have the voice mail calling group as its receiver.

**What to do:** Use system programming to check that the coverage group has a receiver and that the receiver is the voice mail calling group. (See “Group Calling Member Assignments” in the “Optional Group Features” section of Chapter 3 in *System Programming*.)

- If the voice mail calling group is not assigned as the receiver, assign it, if appropriate. Check to see whether calls are now going to voice mail. If they are, you have solved the problem.
- If the voice mail calling group is assigned as the receiver and your system is Release 4.1 or later, go to Possible Cause 3.
- If the voice mail calling group is assigned as the receiver and your system is not Release 4.1 or later, go to Possible Cause 4.

---

**Possible Cause 3:** Night Service with Coverage Control (Release 4.1 and later systems) has automatically activated the extensions' Coverage VMS Off buttons for normal business operation (Night Service off, no voice mail coverage).



**NOTE:**

*If Night Service is on and Night Service with Coverage Control is enabled, someone at a telephone may have manually overridden the systemwide setting, after it took effect, to prevent voice mail coverage at their extension. Follow the instructions in this Possible Cause to check current settings for Night Service on/off status and Coverage Control. Then, look at the telephone buttons as outlined in Possible Cause 4.*

**What to do:** Check the Night Service button lights at each operator console to see whether Night Service is off (buttons are not lit).

Use system programming to find out whether Night Service with Coverage Control is enabled. Follow the instructions for "Night Service with Coverage Control" in Chapter 3 in *System Programming*, or see ["Revising Night Service with Coverage Control" on page 83](#).



If Night Service with Coverage Control is enabled and Night Service is off when you expect it to be on, see [“Night Service Not Working” on page 120](#).

- If Night Service with Coverage Control is disabled, and this is appropriate, voice mail coverage is controlled only by the users at extensions. Go to Possible Cause 4.
- If Night Service with Coverage Control is enabled, and this setting is appropriate, users at the extensions should deactivate their Coverage VMS Off or Coverage Off buttons to receive voice mail coverage. If voice mail still does not work, go to Possible Cause 5.

---

**Possible Cause 4:** The user's telephone has Coverage Off or Coverage VMS Off activated. (In Release 4.1, the user at the telephone can override Night Service with Coverage Control by pressing the programmed Coverage VMS Off button after the last Night Service status change.)

**What to do:** Check the light next to the programmed Coverage Off button or the programmed Coverage VMS Off button.

- If the light is on, then outside calls do not go to voice mail. Press the button to deactivate the feature and to turn the light off. Check to see whether calls are now going to voice mail. If they are, you have solved the problem.
- If the lights are off, go to Possible Cause 5.

---

**Possible Cause 5:** A call arrives on a Personal Line, but the user is not the owner or principal user of the line.

**What to do:** Check the programming and do either of the following:

- Change the principal user.
- Remind the user of the telephone that calls coming in on a Personal Line go to the principal user's mailbox only.

---

**Possible Cause 6:** Forwarding or Remote Call Forwarding is active.

**What to do:** Print the Extension Report to determine whether Forward is active for that extension. Check the telephone to see if the LED next to the Forwarding button is lit. If the telephone has no Forwarding button, program one on it.

---

**Possible Cause 7:** The voice mail system may not be working.

**What to do:** If convenient, check that the power light on the voice mail system unit is on. For a MERLIN LEGEND Mail Voice Messaging System, it has a green LED at the bottom of its module; the light blinks to indicate a malfunction and is unlit when the module is not properly installed. Try placing a call to other extensions to see whether the calls go to voice mail.

- If the voice mail system power light is off (or if a MERLIN LEGEND Mail VMS system status LED is blinking or off), and/or voice mail does *not* work at other extensions, then the voice mail system is not working. Check the system documentation; if it is a Lucent Technologies voice mail system, call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).
- If the power light is on and voice mail works at other extensions, call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).

## Callers Receiving Incorrect Response from Voice Mail

Outside callers who reach the system may get the wrong response when the voice mail system answers calls. For example, they may hear an off-hours message during business hours. In Release 6.1 and later systems, calls going across the private network to a Centralized Voice Messaging system may experience problems because of an incorrect setup. See the *Network Reference* for details.

### NOTE:

*In Release 6.1 and later systems, calls going across the private network to a Centralized Voice Messaging system may experience problems because of an incorrect setup. See the Network Reference for details.*

*Be sure to change the system time appropriately when Daylight Savings Time starts and when it ends. System time affects the functioning of several system features—including Automatic Backup, Night Service, Station Message Detail Recording (SMDR) reports, stand-alone Auto Attendant systems, voice mail, and Reminder Service.*

---

**Possible Cause 1:** The system time may be set incorrectly.

**What to do:** Check the time at the system programming console or another MLX display telephone. If the time is correct, go to Possible Cause 2.

---

**Possible Cause 2:** If system uses the Night Service feature and has more than one operator console, one of the consoles may not have the Night Service button activated.

**What to do:** Check that the green light next to the Night Service button at each operator's console is on.

- If a green light is off, then Night Service is not activated; press the button to activate Night Service. Place a call to determine whether you get the correct voice mail greeting. If you do, you have solved the problem.
- If each green light is on, then Night Service is activated for that operator's console. Go to Possible Cause 3.

---

**Possible Cause 3:** The time settings for the voice mail system do not match the system date and time.

**What to do:** Follow the instructions in your voice mail system documentation to check that the settings match the system. If the settings are correct or if it is a Lucent Technologies voice mail system, call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).

## Calls Not Going to Coverage



### NOTE:

*In Release 6.1 and later systems, network-specific coverage problems can occur. See the Network Reference for details.*

---

**Possible Cause 1:** An Individual Coverage receiver may not be assigned.

**What to do:** At the extension that is to receive calls, program a Cover button for the sender's extension. If a Cover button is programmed, go to Possible Cause 2.

---

**Possible Cause 2:** The user's telephone has Coverage Off or Coverage VMS Off activated.

**What to do:** Check the light next to the programmed Coverage Off button or the programmed Coverage VMS Off button.

- If the light is on, then outside calls do not go to coverage. Press the button to deactivate the feature and to turn the light off. Check to determine whether calls are now going to coverage. If they are, you have solved the problem.
- If the lights are off, go to Possible Cause 3.

---

**Possible Cause 3:** The extension may not be assigned to a coverage group.

**What to do:** Use system programming to check that the extension is a member of a coverage group. (See "Group Coverage Member Assignments" in the "Optional Group Features" section of Chapter 3 in *System Programming*.)

- If the extension is not assigned, assign it, if appropriate. Check to determine whether calls are now going to coverage. If they are, you have solved the problem. If not, go to Possible Cause 4.
- If the extension is assigned, go to Possible Cause 4.

---

**Possible Cause 4:** The coverage group may not have a receiver assigned.

**What to do:** Use system programming to check that a receiver is assigned to the coverage group (see Chapter 3 in *System Programming*).



**NOTE:**

*When you call the Helpline, consultation charges may apply. Before calling the Helpline, you may wish to consult the documentation for your voice messaging system.*

- If a receiver is not assigned, assign one, if appropriate. Check to see whether calls are now going to coverage. If they are, you have solved the problem. If not, call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).
- If the receiver is assigned correctly, call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).

## Trouble Hearing Called Party

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**Possible Cause 1:** If a speakerphone is being used, there may be environmental factors that affect the performance of the speaker or microphone (for example, too much background noise).

**What to do:** Eliminate the background noise or other interference. If the problem persists or if a speakerphone is not being used, go to Possible Cause 2.

---

**Possible Cause 2:** The telephone handset may be defective.

**What to do:** Replace the handset with a handset from the same type of telephone. If you can now hear the called party, contact your Lucent Technologies representative to order a new handset. If you still have trouble hearing, go to Possible Cause 3.



---

**Possible Cause 3:** The telephone may be defective.

**What to do:** Test the telephone by replacing it with a similar telephone that you know is working.

- If you can hear the called party on the replacement telephone, then replace it with the original telephone and check again. If you still have trouble hearing the called party on the original telephone, then the original telephone may be defective. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).
- If you cannot hear the called party on the replacement telephone, there may be a problem with the system wiring or the control unit. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).

## Programmed Button Fails

### NOTE:

*Extension programming is not stored in the telephone itself; therefore, if you move a telephone to a different extension, the programming for the previous telephone at that extension remains in effect. The extension must be reprogrammed as appropriate.*

---

**Possible Cause 1:** The programmed button may be incorrectly programmed or may not be programmed at all.

You can check the programming of a button at an MLX display telephone by first pressing the Inspct button and then the line button.

**What to do:** Use centralized telephone programming to check the programming for the telephone's buttons (see Chapter 4 in *System Programming*).

- If the programming is incorrect, reprogram it. Try to use a programmed button. If the button works, you have solved the problem. If not, go to Possible Cause 2.
- If the programming is correct, go to Possible Cause 2.

---

**Possible Cause 2:** The telephone may be defective.

**What to do:** Test the telephone by replacing it with a similar telephone that you know is working properly. Program the buttons as appropriate.

- If the programmed button works properly on the replacement telephone, then replace it with the original telephone and check again. If the programmed button on the original telephone still fails, then the original

telephone may be defective. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).

- If the programmed button on the replacement telephone fails, there may be a problem with the system wiring or the control unit. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).

## Reminder Messages Received with the Wrong Time



### NOTE:

*Be sure to change the system time appropriately when Daylight Savings Time starts and when it ends. System time affects the functioning of several system features—including Automatic Backup, Night Service, Station Message Detail Recording (SMDR) reports, stand-alone Auto Attendant systems, voice mail, and Reminder Service.*

---

**Possible Cause:** The system time may be set incorrectly.

**What to do:** At the programming console or any MLX display telephone, check the system time. If the time is correct, call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).

## Recall/Switchhook Does Not Work

When this problem occurs, pressing the Recall button or switchhook disconnects the call or fails to return dial tone.

### NOTE:

*If the telephone is an MLX or analog multiline telephone, pressing the switchhook disconnects the call. On these telephones, you must use a programmed (on MLX telephones) or fixed (on analog telephones) Recall button to activate custom or Centrex calling features.*

---

**Possible Cause 1:** The Recall timer may be set incorrectly.

### NOTE:

*Some single-line telephones have a positive disconnect switch. If the switch is set to positive disconnect, this Possible Cause 1 does not apply. If this is the case, go to Possible Cause 2.*

**What to do:** Use system programming to check the setting of the Recall timer system feature (see Chapter 3 in *System Programming*).

- If the setting is less than 650 ms, change the setting to 650 ms or to 1 sec. Have someone place a call to the extension, answer it, and press the Recall button or the switchhook. If you do not disconnect the caller or you do get a dial tone, you have solved the problem. If you do disconnect the caller or you do *not* get dial tone, go to Possible Cause 2.
- If the setting is for 650 ms or for 1 sec, go to Possible Cause 2.

---

**Possible Cause 2:** The line may not have custom calling features.

**What to do:** Check with the central office.

- If there are custom calling features, obtain instructions on the use of the features and the Recall timing.
- If there are no custom calling features, go to Possible Cause 3.

---

**Possible Cause 3:** The telephone may be defective.

**What to do:** Test the telephone by replacing it with a similar telephone that you know is working properly. Program the buttons as appropriate.

- If the problem is resolved on the replacement telephone, then replace it with the original telephone and check again. If the problem persists on the original telephone, then the original telephone may be defective. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).
- If the problem persists on the replacement telephone, there may be a problem with the system wiring or the control unit. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).

## Calling Group Members Not Receiving Calls

### NOTE:

*In Release 6.1 and later systems, a calling group on a MERLIN LEGEND System can contain the non-local extension number of a calling group on another system in the private network. See the Network Reference for network-specific problems with calling groups.*

---

**Possible Cause 1:** The calling group member's telephone is not available.

**What to do:** Log the member in by doing one of the following:

- Using the operator's or calling group supervisor's DLC, enter supervisory mode by pressing the Feature button, dialing 32, and pressing the Hold button. Check the light next to the Auto Dial or DSS button for the member's extension; it is either off or flashing when the member is unavailable to take calls. Log the member in by pressing a programmed Available button, or by pressing the Feature button and dialing 762, before pressing the Auto Dial or DSS button for the extension. Finally, check to see whether calls to the calling group are received. If they are, you have solved the problem. If they are not, go to Possible Cause 2.
- At the member's telephone, do either of the following:
  - If the member's telephone has a programmed Available button and the light next to it is off, the member is logged out. Log the member in by pressing the button. Check whether calls to the calling group are now received. If they are, you have solved the problem. If they are not, go to Possible Cause 2.

- If the member's telephone does not have a programmed button (including single-line telephones), log the member in by dialing #44 while off-hook on an SA or ICOM line. Check whether calls to the calling group are now received. If they are, you have solved the problem. If they are not, go to Possible Cause 2.

---

**Possible Cause 2:** The lines/trunks may not be assigned to the calling group.

**What to do:** Assign incoming lines to the calling group extension number (see Chapter 3 in *System Programming*). If calls on these lines still do not reach the calling group members, go to Possible Cause 3.

---

**Possible Cause 3:** In Release 6.0 or later, the queue control setting may be too low, so that callers are receiving a busy signal.

**What to do:** Consult *System Programming*, Chapter 3, to set the queue control value to a higher number. The factory-set default is 99 calls allowed in the queue, but the value can be set to any number between 0 and 99. If the queue control value is properly set, go to Possible Cause 4.

---

**Possible Cause 4:** The telephone may be defective.

**What to do:** Test the telephone by replacing it with a similar telephone that you know is working. Program the buttons as appropriate.



- If calling group calls are received on the replacement telephone, then replace it with the original telephone and check again. If the problem persists on the original telephone, then the original telephone may be defective. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).
- If calling group calls are not received on the replacement telephone, there may be a problem with the system wiring or the control unit. Call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).

## Calls Not Receiving Screen-Pop

In Release 5.0 and later systems with a CTI link (Hybrid/PBX mode only), screen-pop of caller information occurs when a call arrives at an SA button. The call may be a calling group call, a transfer or conference call from a QCC or a DLC that does not use CTI applications, or a PRI call where routing is by dial plan. If the problem occurred at the extension of an overflow calling group member, see "[Calling Group Overflow Calls Not Receiving Screen-Pop](#)" on page [145](#).

### NOTE:

*In Release 6.0 and later systems, screen-pop may or may not work across a private network. See the Network Reference for more details.*

---

**Possible Cause 1:** The call may not have arrived on an SA button.

**What to do:** The user at the extension may have a personal line for a call that also arrives on an SA button. If the user has not answered the call at a personal line button, go to Possible Cause 2.

---

**Possible Cause 2:** The receiving extension may not be using a CTI link application.

**What to do:** Check the system planning form for the extension. Then do one of the following:

- If the extension includes an analog multiline BIS or MLX telephone and is not assigned as a PassageWay Telephony Services client extension, this is most likely the cause of the problem. Consult the *PassageWay Telephony Services Network Manager's Guide* for information about changing the extension's status.
- If the extension is assigned to receive CTI treatment, go to Possible Cause 3.

---

**Possible Cause 3:** The call may have been transferred from a monitored Direct-Line Console (DLC) that is using a CTI link application.

**What to do:** Check the system planning form for the DLC that transferred the call or consult the DLC operator. Then do one of the following:

- If the call was from another source, go to Possible Cause 5.
- If the DLC is monitored, this is the cause of the problem. If you wish the DLC to be unmonitored, consult the *PassageWay Telephony Services Network Manager's Guide* for information about changing the extension's status.
- If the DLC is unmonitored, the call arrived on an ISDN line routed by dial plan, or the call was transferred or conferenced by a QCC; go to Possible Cause 6.

---

**Possible Cause 4:** The loop-start ID delay timer on the 800 GS/LS-ID module is not turned on.

**What to do:** Turn on the delay timer in system programming.

---

**Possible Cause 5:** The call may be an outside call transferred from another non-operator system extension.

**What to do:** Screen-pop shows only the caller information for the inside extension.

---

**Possible Cause 6:** The CTI link is not working.

**What to do:** Check the CTI link.

- Consult the *PassageWay Telephony Services Network Manager's Guide* for troubleshooting information.
- If you cannot solve the problem yourself, call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).

## Calling Group Overflow Calls Not Receiving Screen-Pop

In Release 5.0 and later systems with a CTI Link (Hybrid/PBX mode only), screen-pop of caller information occurs when a call arrives at an SA button of a calling group member or overflow calling group member.



### NOTE:

*In Release 6.0 and later systems, screen-pop may or may not work across a private network. See the Network Reference for more details.*

---

**Possible Cause 1:** The call was not delivered to an SA button.

**What to do:** In cases where a call is directed to an overflow calling group member who has a personal line for the call and that member's SA buttons are unavailable, the call can be delivered to the personal line and not initiate screen-pop. To assure proper delivery, set all personal lines on overflow group members' telephones to No Ring. If this is not the problem, go to Possible Cause 2.

---

**Possible Cause 2:** The CTI link is not working.

**What to do:** Check the CTI link.

- Consult the *PassageWay Telephony Services Network Manager's Guide* for troubleshooting information.
- If you cannot solve the problem yourself, call the Lucent Technologies Helpline at 1-800-628-2888 (consultation charges may apply).

## Secondary Announcements Not Playing as Programmed

In Release 5.0 and later systems, as many as ten primary delay announcement devices and one secondary device can be assigned to play messages for callers waiting for calling group agents. When a delay announcement is first set up or is changed, it may be necessary to adjust the interval between announcements; this interval applies to the delay between the primary and secondary announcements as well as to the interval between repetitions of the secondary announcement (if the secondary announcement is programmed to repeat).

Problems occur when callers do not experience the delay interval programmed and they do not hear the secondary announcement when you planned it. The seriousness of the problem can be analyzed through the use of a programmed Calls-in-Queue Alarm button that responds to tiered alarm thresholds.



### NOTE:

*The Feature Reference includes detailed information about setting up Group Calling delay announcements and other calling group options. Consult the Feature Reference and System Programming as you troubleshoot announcement delays.*

To analyze a problem with secondary announcements, follow these preliminary steps:

- 1 The Calls-In-Queue Alarm Threshold setting should determine when an alarm is signalled. Set the overflow threshold time to 0.
- 2 Set up primary and secondary announcements of durations that seem appropriate for your needs.
- 3 Specify a reasonable announcement interval (for example, 30 seconds).
- 4 Refer to the following table and divide the announcement interval (Y) by the length of the secondary announcement (Z).
- 5 Round off the result, and use this value as an alarm threshold when a Calls-in-Queue Alarm button signals a problem.

**Checking the Effectiveness of Delay Announcements**

Calls Waiting for Secondary Announcement (N)	Length of Secondary Announcement in Seconds (Z)	Announcement Interval in Seconds (Y)	$N * Z$	Is $N * Z > Y$ ?
3	10	30	30	No
3	20	30	60	Yes
5	15	90	75	No
10	15	90	150	Yes

When the number of calls waiting for a secondary announcement multiplied by the length of that announcement is greater than the announcement interval, an alarm is triggered. The preceding table illustrates situations where a programmed Calls-in-Queue Alarm button would or would not indicate a problem.

If problems arise, use the display at the calling group supervisor DLC console to monitor the situation while the problem is most severe. Try to adjust the announcement duration and the interval setting so that the announcement interval is greater than or equal to the length of the secondary announcement multiplied by the number of calls waiting for the secondary announcement ( $Y \geq N * Z$ ).

---

**Possible Cause 1:** The announcement interval may be too short or the secondary announcement may be too long.

**What to do:** Check the number of callers waiting when the alarm goes off, as well as the delay interval and the length of the secondary announcement.

- If only a few callers are waiting when an alarm is signalled, increase the announcement interval or shorten the secondary announcement to solve the problem (see the second example in the preceding table).
- If more than a few callers are waiting, go to Possible Cause 2.

---

**Possible Cause 2:** The primary announcement or announcements require adjustment.

**What to do:** Depending upon your customer needs and current Group Calling options, do one of the following to decrease the queue for the secondary announcement:

- If you are using several primary announcements, decrease the number of primary announcements.
- If the primary announcement is very short, increase its length so that customers are not immediately sent to the secondary announcement queue.
- If neither of the above conditions applies, go to Possible Cause 3.



---

**Possible Cause 3:** The secondary announcement is set to repeat, and too many callers are waiting to hear the repeated announcement.

**What to do:** Set the repeat option for the secondary announcement to off. If the secondary announcement is not set to repeat, go to Possible Cause 4.

---

**Possible Cause 4:** Because the secondary announcement is shared by more than one calling group, callers are waiting too long to hear it.

**What to do:** Make the secondary announcement exclusive to the group whose callers are experiencing the problem. If the announcement is not shared, go to Possible Cause 5.

---

**Possible Cause 5:** The secondary announcement device is also providing the primary announcement, so that too many callers are waiting for the secondary announcement.

**What to do:** Set up a separate secondary announcement. If one announcement is not serving as both primary and secondary, go to Possible Cause 6.

---

**Possible Cause 6:** The calling group is set to use the Prompt-Based Overflow setting that allows callers to dial # in response to a delay announcement, so that they can be connected to a voice mail system or other overflow receiver. The system lacks sufficient touch-tone receivers (TTRs), however, to handle the callers' requests. If you are not using this setting, go to Possible Cause 7.

**What to do:** Depending upon your customer needs, do one of the following to make more TTRs available:

- Shorten the length of the primary delay announcement that includes the prompt to dial #.
- Decrease the number of primary delay announcement devices.
- Provide more TTRs for the calling group. For information about your options, consult your Lucent Technologies representative.
- Stop using the Prompt-Based Overflow setting. Modify the recording on the delay announcement accordingly.
- If none of these options cures the problem, or if the prompted requests do not seem to be the cause, go to Possible Cause 7.

---

**Possible Cause 7:** There are not enough agents to serve the call volume.

**What to do:** Log in additional agents or increase the number of agents in the group.

## On 016 MLX Module, Ports 1–8 Work, but Ports 9–16 Do Not

In Release 7.0 and later, the 016 MLX module requires a CKE4 or later processor module.

---

**Possible Cause:** A CKE3 or earlier processor is installed with the 016 MLX module.

**What to do:** Check maintenance inventory to determine which processor module is installed. If it is a CKE3, change it to a CKE4 or later processor module.

## **Other or Unresolved Problems**

If you have a problem not listed in this chapter, or if after you complete the appropriate troubleshooting procedure, the problem persists, call the Lucent Technologies Helpline at 1-800-628-2888 for further assistance (consultation charges may apply). When you call the Helpline, use a copy of the System Information Sheet at the front of this guide to note a few details about your system, along with troubleshooting information.



*We'd like your opinion ...*

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Your comments can be of great value in helping us improve our documentation.

**MERLIN LEGEND® Communications System Release 7.0**  
**System Manager's Quick Reference**  
**Issue 1, April 1999**  
**555-670-119, Comcode 108370321**

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