AVAYA

Network Manager's Guide for MERLIN MAGIX® Integrated System

PBX Driver

Release 3.0

Copyright and Legal Notices

Notice

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

Avaya Web Page

The world wide web home page for Avaya is http://www.avaya.com.

Preventing Toll Fraud

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

Avaya Fraud Intervention

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

Providing Telecommunications Security

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

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

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

Such intrusions may be either to/through synchronous (time multiplexed and/or circuit-based) or asynchronous (character-, message-, or packet-based) equipment or interfaces for reasons of:
• Utilization (of capabilities special to the accessed equipment)
• Theft (such as, of intellectual property, financial assets, or toll-facility access)
• Eavesdropping (privacy invasions to humans)
• Mischief (troubling, but apparently innocuous, tampering)
• Harm (such as harmful tampering, data loss or alteration, regardless of motive or intent).

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

Your Responsibility for Your Company's Telecommunications Security

The final responsibility for securing both this system and its networked equipment rests with you - an Avaya customer's system administrator, your telecommunications peers, and your managers. Base the fulfillment of your responsibility on acquired knowledge and resources from a variety of sources, including, but not limited to:
• Installation documents
• System administration documents
• Security documents
• Hardware-/software-based security tools
• Shared information between you and your peers
• Telecommunications security experts

To prevent intrusions to your telecommunications equipment, you and your peers should carefully program and configure your:
• Avaya provided telecommunications system and their interfaces
• Avaya provided software applications, as well as their underlying hardware/software platforms and interfaces
• Any other equipment networked to your Avaya products

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Support Telephone Number

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

Network Manager's Guide
Master Table of Contents

3 Administration

4 Maintenance

5 Troubleshooting

C   Appendix

D   Appendix

Introduction

1

Contents

Introduction

1

About This Guide

This guide describes how to install, administer, maintain, and troubleshoot the MERLIN MAGIX® Integrated System PBX Driver (MMPD). Information in this guide is intended for use by Telephony Services Administrators and the service organization that assists administrators when they experience problems with the MMPD. The MMPD operates with the following systems:

■ MERLIN MAGIX® Integrated System

■ MERLIN LEGEND® Advanced Communications System, Release 5.0 or later

The guide contains the following sections:

Chapter 1, "Introduction"	Provides an overview of the MMPD.
Chapter 2, "Installation"	Describes the equipment and resources that are required to properly install and operate the MMPD. Provides instructions on installing the hardware and the software, including the Eicon DIVA ISDN™ interface card and the MMPD client software.
Chapter 3, "Administration"	Describes the MMPD configuration parameters.
Chapter 4, "Maintenance"	Describes WMLOAM.EXE, a Windows® MMPD OA&M utility that can be used from a Windows 95, Windows 98, Windows Millennium Edition (Windows Me), Windows 2000, or Windows NT client workstation to perform MMPD OA&M tasks.
Chapter 5, "Troubleshooting"	Describes actions to take when the MMPD does not appear to be working properly. Provides instructions for diagnosing and correcting problems with the Eicon DIVA ISDN interface card. Lists CSTA errors that may be reported by some applications when a service request fails.
Appendix A	Lists files that are installed or modified as a result of the MMPD installation.
Appendix B	Contains additional procedures that are required when upgrading from the MERLIN LEGEND PBX Driver to the MERLIN MAGIX PBX Driver.

Appendix C	Describes MERLIN MAGIX/LEGEND system administration for your CTI link.
Appendix D	Describes configuration of a client workstation for remote maintenance.

Terms Used in This Guide

CentreVu Telephony Services	A CTI platform supporting the Telephony Services Application Program Interface (TSAPI).
CSTA	Computer Supported Telecommunications Applications. A CTI standard established by the European Computer Manufacturers Association (ECMA).
CTI	Computer-Telephony Integration. In simplest terms, CTI refers to the integration of your telephone (voice) and PC application (data) for intelligent and effective call processing.
CTI Link	The connection between the Telephony Server and the MERLIN MAGIX/LEGEND system that enables Computer-Telephony Integration.
DLL	Dynamic Link Library.
Dynamic Link Library (DLL)	A software module that can be dynamically loaded on Windows-based Operating Systems.
ISDN interface card (also referred to as ISDN adapter board)	This integrated circuit expansion card allows the MERLIN MAGIX PBX Driver to establish a Basic Rate Interface (BRI) connection to an MLX port on the MERLIN MAGIX or MERLIN LEGEND switch. The ISDN interface cards for the MERLIN MAGIX PBX Driver are the Eicon Technology Corporation DIVA 2.01 ISDN ISA interface card or the Eicon Technology Corporation DIVA 2.02, 2.015 or 2.01 ISDN PCI interface card.
MERLIN MAGIX PBX Driver (MMPD)	The MERLIN MAGIX PBX Driver is a Dynamic Link Library (DLL) designed to operate with CentreVu Telephony Services. The MMPD software communicates with both the MERLIN MAGIX (or MERLIN LEGEND) PBX and the Telephony Server to provide switch services to Telephony Services applications.
MERLIN MAGIX Private Data Support Library	Private data is a mechanism that allows a switch to provide value-added services in addition to those defined in the CSTA standard. MERLIN MAGIX CTI provides a number of private data services that make up the support library.
PBX Driver	A PBX-specific Dynamic Link Library (DLL) that receives TSAPI messages from the Tserver, reformats them into a set of messages understood by the PBX, and sends the reformatted messages to the PBX over a CTI link. Within this guide, the term PBX Driver refers to the MERLIN MAGIX PBX Driver.

Telephony Server	A server that has CentreVu® Telephony Services software installed. More than one Telephony Server can exist on a local area network (LAN). See also *Tserver*.
Telephony Services Application Programming Interface (TSAPI)	The interface used by applications to make telephony requests, such as call control requests (make a call, transfer a call), or device monitor requests.
Tserver	A set of DLLs installed on a Windows 2000 or Windows NT server that provides Telephony Services and receives TSAPI messages from client and server applications. (Also used to refer to the machine where the Tserver software is installed.)
WMLOAM	The Windows MERLIN MAGIX PBX Driver Administration utility.

Conventions Used in This Guide

This guide uses the following textual, symbolic, and typographic conventions to help you interpret information.

References to Products

Several versions of the Eicon DIVA ISDN™ interface card can be used with the MMPD. Customers who are upgrading from the MERLIN LEGEND PBX Driver or from an earlier release of the MERLIN MAGIX PBX Driver may continue to use the 2.01 ISA or PCI versions of the card or the 2.015 PCI version of the card. For new installations, the 2.02 PCI version of the Eicon DIVA ISDN interface card should be used.

Symbolic Conventions

NOTE▶ This symbol precedes additional information about a topic. This information is not required to run your system.

⚠ **CAUTION:**
This symbol is used to emphasize possible harm to software, possible loss of data, or possible service interruptions, as well as information that is necessary to correctly install or operate the MERLIN MAGIX PBX Driver or Telephony Services on your system.

Typographic Conventions

This guide uses the following typographic conventions:

`command`	Words printed in this type are commands that you enter into your system.
device	Words printed in this type indicate parameters associated with a command for which you must substitute the appropriate value. For example, when entering the `mount` command, ***device*** must be replaced with the name of the drive that contains the installation disk.
File, **OK**	Words printed in bold type refer to items on menus and screens that you select to perform a task.
italics	Italic type indicates a document that contains additional information about a topic.
<Enter>	Words enclosed in angle brackets represent a single key that should be pressed. These include **<Ctrl>**, **<Enter>**, **<Esc>**, **<Insert>**, and **<Delete>**.

MERLIN MAGIX PBX Driver Overview

The MERLIN MAGIX PBX Driver (MMPD) is a Dynamic Link Library (DLL) that allows Telephony Services to communicate with a MERLIN MAGIX/LEGEND PBX. The following are the primary functions of the MMPD:

■ to interpret Computer Supported Telephony Application (CSTA) requests made by Telephony Services applications and forward them to the PBX

■ to interpret CSTA events reported by the PBX and forward them to Telephony Services applications.

Messages are sent and received across a link that physically connects your Telephony Server (Tserver) to the MERLIN MAGIX/LEGEND system. See Figure 1-1.
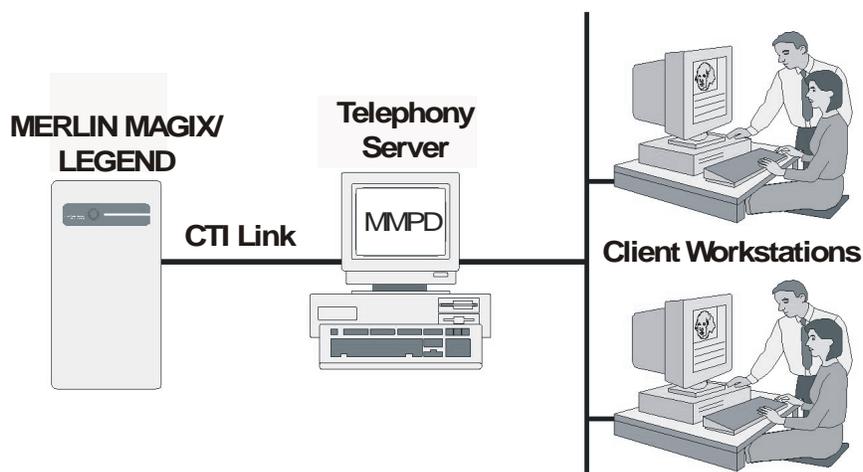
Figure 1-1. MERLIN MAGIX/LEGEND Telephony Services Network

An Integrated Services Digital Network (ISDN) interface card is installed in the Telephony Server (Tserver), providing a Computer-Telephony Integration (CTI) link to an MLX port on the MERLIN MAGIX/LEGEND system. Only one CTI link can be configured.

Online Documentation

The CD-ROM containing CentreVu Computer-Telephony software also includes the Telephony Services customer documents and the Adobe™ Acrobat™ Reader. After you install the documentation, you can view the documents online with the Adobe Acrobat Reader.

Related Documents

The following documents are needed to install and manage the MERLIN MAGIX PBX Driver:

■ *CentreVu Computer-Telephony: Telephony Services and CallVisor PC Installation*

This document describes how to install and configure the CentreVu Computer-Telephony product. It is targeted to customers and independent software vendors (ISVs) and assumes familiarity with the Windows 2000 or Windows NT 4.0 operating system on which Telephony Services will be installed.

This document is provided with the CentreVu Computer-Telephony product.

■ *CentreVu Computer-Telephony: Telephony Services Administration and Maintenance*

This document provides an overview of the CentreVu Telephony Services product. The document describes the integration of Telephony Services with the Windows 2000 or Windows NT 4.0 operating system. This document also includes information on client and server applications, architecture, software components, and Telephony Server administration and maintenance operations. The troubleshooting section of this document describes the Tserver error log.

This document is provided with the CentreVu Computer-Telephony product.

■ *MERLIN LEGEND Communications System Release 7.0 Feature Reference, 555-670-110*

This document provides detailed information about how the MERLIN LEGEND system, Release 7.0 or earlier, and telephone features operate. The document also describes how CTI applications can make use of prompted digits to initiate a screen pop of database information.

This document is provided with the MERLIN LEGEND Communications System products.

■ *MERLIN MAGIX Integrated System Release 3.0 or Earlier Feature Reference, 555-730-110*

This document provides detailed information about how the MERLIN MAGIX 3.0 or earlier switch and telephone features operate. The document also describes how CTI applications can make use of prompted digits to initiate a screen pop of database information.

This document is provided with the MERLIN MAGIX Integrated System product.

Customer Support

If you purchased your system from an Avaya authorized dealer, contact the Avaya authorized dealer for support.

If you purchased your system directly from Avaya, for questions about Telephony Services, Tserver operation, or the MERLIN MAGIX PBX Driver, call the **Avaya Customer Care Center** at:

1 800 628-2888

and follow the voice prompts for MERLIN MAGIX/LEGEND then Computer-Telephony Integration support.

For questions about the MERLIN MAGIX/LEGEND system, call the **Avaya Customer Care Center** at:

1 800 628-2888

and follow the voice prompts for MERLIN MAGIX/LEGEND system support.

Installation

2

Contents

Installation

2

Overview of Installation Procedures

The installation process entails the following phases:

1. Installation of the Eicon DIVA ISDN interface card and its associated software

2. Installation of CentreVu Telephony Services server software

3. Installation of CentreVu Telephony Services client software

4. Installation of online documentation (optional)

5. Installation of server software: the MERLIN MAGIX PBX Driver (MMPD)

6. Installation of MERLIN MAGIX client software (the MERLIN MAGIX Private Data Support Library and the MMPD administration utility)

The following sections contain a summary of system requirements, a pre-install checklist, and a description of each of these phases in detail.

System Requirements

The following equipment and software are *required* to support the MERLIN MAGIX PBX Driver:

- A Pentium® (350 MHz or higher) computer with at least 64 megabytes of RAM and 11 megabytes of disk space. Additional memory may be needed if additional applications will be running on the Telephony Server machine.

- Windows 2000 or Windows NT 4.0 Workstation or Server.

  > **NOTES** ■ With Windows 2000, you should install Service Pack 2 or later, and with Windows NT 4.0, you should install Service Pack 6 or later. Both are available from Microsoft®.
  >
  > ■ Windows 2000 configurations using Active Directory are not supported by CentreVu Telephony Services.

- CentreVu Computer-Telephony software, Release 9.1 or later, and the accompanying Telephony Services license diskette. See "Installing Telephony Services Server Software" on page 2-32.

- MERLIN MAGIX PBX Driver (MMPD) software, and the accompanying authorization diskette. See Table 2-1 on page 2-4 for compatibility of PBX driver releases with releases of MERLIN MAGIX/LEGEND systems.

- CD-ROM drive.

- 3.5-inch floppy drive (for authorization and license diskettes).

- Network interface card configured for TCP/IP (for CentreVu Telephony Services client access).

- Eicon ISDN interface card:

  — For new installations: The Eicon DIVA 2.02 ISDN PCI S/T Interface Card

  — For existing installations: The Eicon DIVA 2.01 ISDN ISA S/T Interface Card or the Eicon DIVA 2.02, 2.015 or 2.01 ISDN PCI S/T Interface Card

- Eicon ISDN interface card associated cable for the CTI link.

- Eicon DIVA software provided on the Diva Client Software Suite CD packaged with the interface card

  > **NOTE** Do not download Eicon driver updates from the Eicon website unless advised to do so by Services. The newest driver updates may not operate correctly with the MMPD.

- An available 16-bit slot for the Eicon DIVA ISDN interface card

- MERLIN LEGEND Communications System, Release 5.0 or later

  or

  MERLIN MAGIX Integrated System, Release 1.0 or later

- The MERLIN MAGIX/LEGEND switch configured in Hybrid/PBX mode.

■ An MLX port board installed in the MERLIN MAGIX/LEGEND switch.

> **NOTE** If you have a 008 MLX or 408 GS/LS-ID-MLX module with Firmware Version 29, or with Firmware Version 42 with Application Version 24, replace the board with an appropriate version, or for a flash card update, call the **Avaya Customer Care Center** at:
>
> **1 800 628-2888**
>
> Follow the voice prompts for MERLIN MAGIX/LEGEND system support.

■ One port on the MLX port board is used for the CTI link. This port cannot be a potential operator port or a console programming port. Valid ports on 008 MLX and 408 GS/LS-ID MLX boards for the CTI link are ports 2-4 and 6-8. Valid ports on 016 MLX boards for the CTI link are ports 2-4, 6-8, 10-12, and 14-16.

■ If the MLX port board for the CTI link is in slot 1 of the MERLIN MAGIX/MERLIN LEGEND switch, you will also need WinSPM to administer your CTI link.

■ The wire installation must conform to the SYSTIMAX® Structured Connectivity Solutions (SCS) requirements.

— If the Tserver is connected remotely to the MERLIN MAGIX/LEGEND switch, a new, discrete, 4-pair, category 3 or higher level wire is to be used for the ISDN link from the switch to the Tserver. The connecting block is to be installed within 7 feet of the Tserver. The cable provided with the Eicon DIVA ISDN interface card goes from the connecting block to the Tserver.

— If the Tserver is co-located with the MERLIN MAGIX/LEGEND switch, the cable provided with the Eicon DIVA ISDN interface card goes from the programmed CTI port to the Tserver.

■ If you will be using prompted digits, your MERLIN MAGIX/LEGEND system must be equipped with a MERLIN Messaging System.

Compatibility of MERLIN MAGIX/LEGEND System Releases with PBX Driver Releases

Table 2-1 below shows compatibility between releases of the MERLIN MAGIX/LEGEND systems and releases of the PBX Driver software. If you upgrade your MERLIN MAGIX Integrated System or MERLIN LEGEND Communications System to a newer release, be sure to check that your PBX Driver supports the new release. If not, you must also upgrade your PBX Driver to the correct release to support your upgraded communications system.

Table 2-1. Compatibility of MERLIN MAGIX/LEGEND System Release with PBX Driver Releases

| | Compatible PBX Driver Releases
MLPD = MERLIN LEGEND PBX Driver
MMPD = MERLIN MAGIX PBX Driver | | | | | |
	MLPD Release 1.0	MMPD Release 1.5	MMPD Release 2.0	MMPD Release 2.1	MMPD Release 2.2	MMPD Release 3.0
MERLIN LEGEND Release 5.0	●	●	●	●	●	●
MERLIN LEGEND Release 6.1	●	●	●	●	●	●
MERLIN LEGEND Release 7.0	●	●	●	●	●	●
MERLIN MAGIX Release 1.0	●	●	●	●	●	●
MERLIN MAGIX Release 1.5	●	●	●	●	●	●
MERLIN MAGIX Release 2.0			●	●	●	●
MERLIN MAGIX Release 2.1				●	●	●
MERLIN MAGIX Release 2.2					●	●
MERLIN MAGIX Release 3.0						●

Pre-install Checklist

To ensure the successful installation and operation of the MMPD, verify that the following system requirements have been met:

☐ 1. If you are upgrading from the MERLIN LEGEND PBX Driver to the MERLIN MAGIX PBX Driver, you need to uninstall the MERLIN LEGEND PBX Driver and the MERLIN LEGEND Win32 client. For detailed instructions, refer to Appendix B.

☐ 2. The Telephony Server machine has at least 64 megabytes of installed memory.

☐ 3. Windows 2000 or Windows NT 4.0 is installed on the server with the latest service pack.

☐ 4. At least 11 megabytes of disk space is available.

☐ 5. CentreVu Computer-Telephony software, Release 9.1 or later, is available for installation.

☐ 6. For new installations:

Eicon DIVA 2.02 (PCI) board, an ISDN interface card from Eicon Technology Corporation, the Diva Client Software Suite CD packaged with the ISDN PCI card, and its associated cable are ready to be installed in the 16-bit PCI slot

For existing installations:

Eicon DIVA 2.02, 2.015 or 2.01 ISDN (PCI) board, an ISDN interface card from Eicon Technology Corporation, the Diva Client Software Suite CD packaged with the ISDN PCI card, and its associated cable are ready to be installed in the 16-bit PCI slot

or

Eicon DIVA 2.01 ISDN (ISA) board, an ISDN interface card from Eicon Technology Corporation, the Diva Client Software Suite CD packaged with the ISDN ISA card, and its associated cable are ready to be installed in the 16-bit ISA slot.

NOTE▶

Do not install more than one Eicon ISDN interface card in the PC. If another Eicon card is currently installed, you must uninstall the DIVA ISDN software (see instructions in "Uninstalling Eicon DIVA ISDN PCI Interface Card Software" on page 2-27), shut down the PC, remove the installed card, and then reboot the PC.

☐ 7. The MERLIN MAGIX Integrated System, Release 1.0 or later

or

The MERLIN LEGEND Advanced Communications System, Release 5.0 or later, which supports the CTI interface, is installed.

☐ 8. The MERLIN MAGIX/LEGEND switch is configured in Hybrid/PBX mode.

☐ 9. An MLX port board is installed in the MERLIN MAGIX/LEGEND switch.

NOTE▶

If you have a 008 MLX or 408 GS/LS-ID-MLX module with Firmware Version 29, or with Firmware Version 42 with Application Version 24, replace the board with an appropriate version, or for a flash card update, call the **Avaya Customer Care Center** at: **1 800 628-2888**. Follow the voice prompts for MERLIN MAGIX/LEGEND system support.

☐ 10. The CTI link requires an available MLX port on the MERLIN MAGIX switch. (The MLX port *cannot* be a potential operator port or a console programming port.)

☐ 11. If the MLX port board for the CTI link is in slot 1 of the MERLIN MAGIX/MERLIN LEGEND switch, you will also need WinSPM to administer your CTI link

☐ 12. The wire installation must conform to the SYSTIMAX® Structured Connectivity Solutions (SCS) requirements.

If the Tserver is connected remotely to the MERLIN MAGIX/LEGEND switch, a new, discrete, 4-pair, category 3 or higher level wire is to be used for the ISDN link from the switch to the Tserver. The connecting block is to be installed within 7 feet of the Tserver. The cable provided with the Eicon DIVA ISDN interface card goes from the connecting block to the Tserver.

If the Tserver is co-located with the MERLIN MAGIX/LEGEND switch, the cable provided with the Eicon DIVA ISDN interface card is connected between the programmed CTI port and the Tserver.

☐ 13. If you will be using prompted digits, your MERLIN MAGIX/LEGEND system must be equipped with a MERLIN Messaging system.

NOTE▶ Do not install the MMPD unless all of the above system requirements have been met.

Environmental Specifications

If the Telephony Server PC and the MERLIN MAGIX switch are to share an equipment room, the room's environment (temperature, humidity, contaminants, EMI, AC power and grounding) must meet the more demanding set of environmental specifications for the two units.

Refer to the specifications for each hardware platform for details.

DIVA ISDN Interface Card

The following sections include detailed instructions for hardware installation, software installation, installation verification, and reconfiguration for the DIVA ISDN interface card.

If you are upgrading from an earlier version of the MERLIN MAGIX PBX driver to Release 3.0, and the DIVA ISDN card is already installed and configured, you may skip to the procedure "Using the Master Installer for MMPD" on page 2-34.

Installing Eicon Technology Corporation DIVA ISDN Interface Card Hardware

Use the following procedure to install the DIVA ISDN interface card for desktops on the Telephony Server PC.

1. Ensure that you have the correct ISDN interface card from Eicon Technology Corporation.

   For new installations: The Eicon DIVA 2.02 ISDN PCI S/T Interface Card

   For existing installations: The Eicon DIVA 2.01 ISDN ISA S/T Interface Card or the Eicon DIVA 2.02, 2.015 or 2.01 ISDN PCI S/T Interface Card

2. Prepare the Telephony Server PC for the installation of the DIVA ISDN interface card, as follows: turn off the Telephony Server PC, disconnect the power cable, and remove the Telephony Server PC cover according to the instructions that came with it.

3. Identify the slot in which to insert the card and remove the slot plate.

4. Install the DIVA ISDN interface card inside the workstation or server PC, as follows: open the package containing the card, remove the DIVA ISDN interface card and insert it into the appropriate slot, secure the interface card to the chassis of the PC using the plate-retaining screw, reinstall the cover of the PC, and reconnect the power cable.

5. Connect the MLX port that has been administered as the CTI link on the MERLIN MAGIX switch to the modular jack located on the back of the DIVA ISDN interface card. You may use the cable included with the DIVA ISDN interface card to make this connection. See "System Requirements" on page 2-2 for details about the wire installation.

6. Power on the Telephony Server PC and log in as Administrator or with administrative privileges.

7. Continue with the procedure "Installing the Eicon DIVA ISDN PCI Card Software" on page 2-8.

Installing the Eicon DIVA ISDN PCI Card Software

Install the software for the DIVA ISDN PCI interface card after installing the DIVA ISDN PCI interface card hardware.

You must configure the DIVA ISDN PCI interface card software during the installation procedure so that the interface card will operate correctly with the MMPD.

The procedure you use to install the software depends on whether your PC is running Windows 2000 or Windows NT. Use one of the following procedures to install the software for the Eicon DIVA ISDN Card:

- "Installing the Eicon DIVA 2.02 PCI Software for Windows 2000" on page 2-8

- "Installing the Eicon DIVA 2.02 PCI Software for Windows NT" on page 2-16

Installing the Eicon DIVA 2.02 PCI Software for Windows 2000

Use the following procedure to install the software for the Eicon DIVA 2.02 ISDN PCI card.

If your PC is running Windows NT, use the procedure "Installing the Eicon DIVA 2.02 PCI Software for Windows NT" on page 2-16 to install the software for the Eicon DIVA ISDN Card:

1. If you have not already done so, power on the workstation or server PC and log in as Administrator or with administrative privileges.

2. When you log in for the first time after you power on the PC, the Found New Hardware screen (Figure 2-1) is displayed indicating that new hardware is being installed.
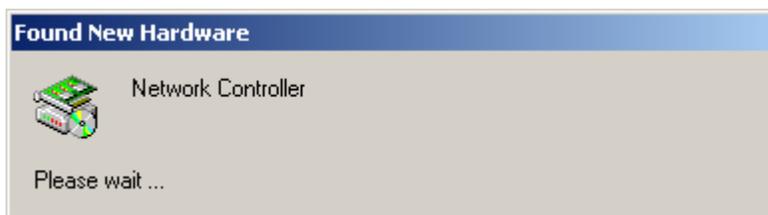
Figure 2-1. Found New Hardware Screen

3. After a few moments, the Welcome Dialog Box for the Found New Hardware Wizard appears, as shown in Figure 2-2.

Figure 2-2. Found New Hardware Wizard Welcome Dialog Box

4. Click **Next** to begin the installation of the Eicon Diva 2.02 device driver. The Install Hardware Device Drivers Dialog Box appears, as shown in Figure 2-3.

Figure 2-3. Install Hardware Device Drivers Dialog Box

5. Select **Search for a suitable driver for my device (recommended)**, and then click **Next**.

6. The Locate Driver Files Dialog Box shown in Figure 2-4 is displayed.
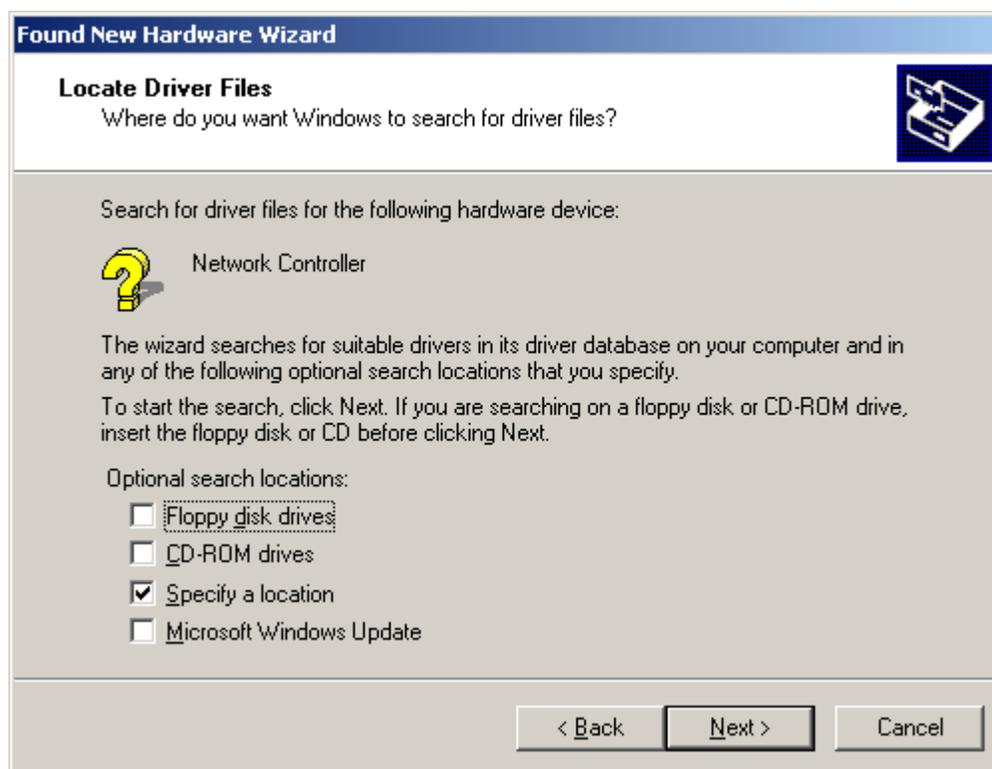
Figure 2-4. Locate Driver Files Dialog Box

7. Make sure that only the **Specify a location** option is selected, insert the Diva Client Software Suite CD into your computer's CD-ROM drive, and then click **Next**.

8. The Found New Hardware Wizard prompts you for the location of the Eicon Diva 2.02 device driver files, as shown in Figure 2-5.

Figure 2-5. Specify Location of Eicon Device Driver Files Dialog Box

9. Enter D:\WIN_2K, (where D: corresponds to the driver letter of your computer's CD-ROM drive), and click **OK**.

10. When the wizard has finished searching for the device driver files, the Driver Files Search Results Dialog Box appears, as shown in Figure 2-6.
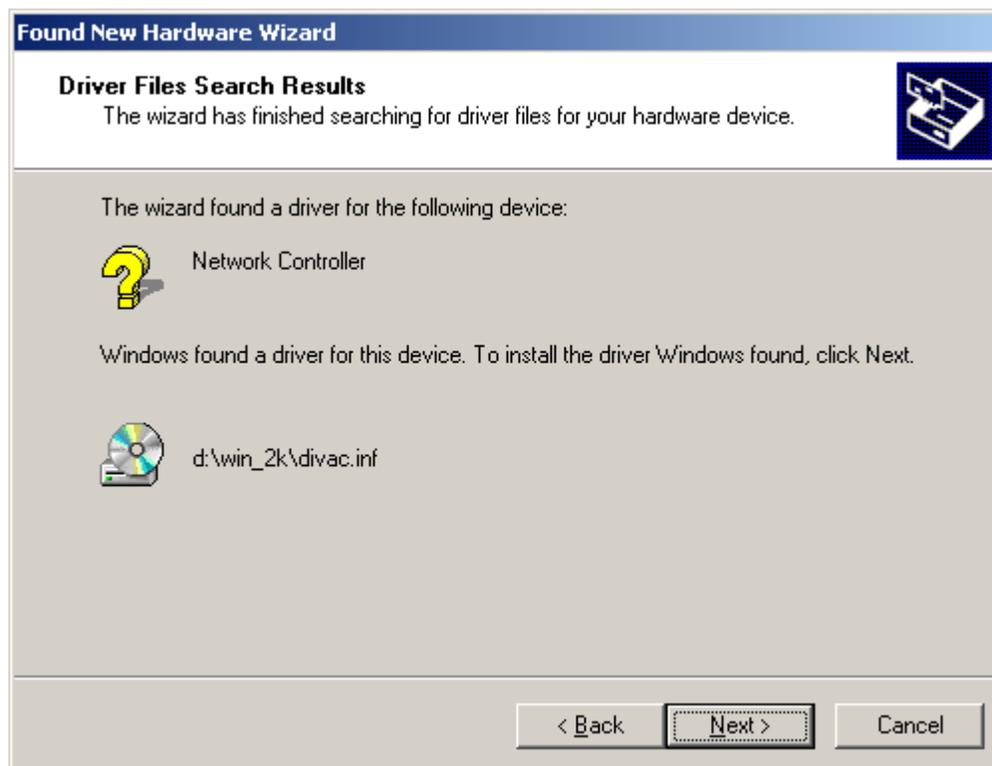
Figure 2-6. Driver Files Search Results Dialog Box

11. Click **Next** to install the device driver.

12. If the Digital Signature Not Found Dialog Box appears (shown in Figure 2-7), or the Not Passed Windows Logo Testing Dialog Box appears (not shown), click on **Yes** or **Continue Anyway** to proceed with the installation. (This dialog box may appear several times.)
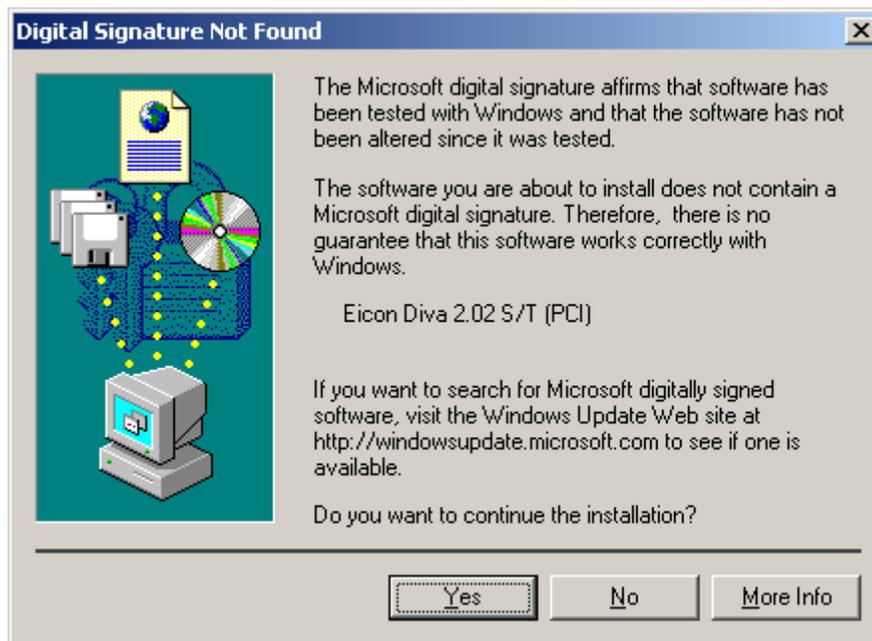
Figure 2-7. Digital Signature Not Found Dialog Box

13. When the installation of the Eicon device driver is complete, the Found New Hardware Wizard will display the Dialog Box shown in Figure 2-8. Click **Finish** to close the wizard.

Figure 2-8. . Found New Hardware Wizard Completion Dialog Box

14. The installation procedure immediately proceeds with the installation of the Diva Tools indicated by the message shown in Figure 2-9.
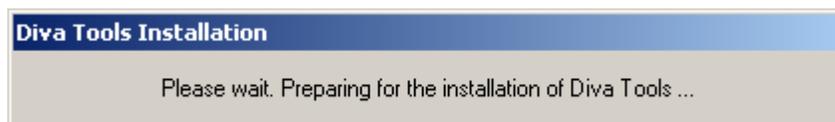
Figure 2-9. Installation of Diva Tools Dialog Box

15. When the Windows Installer prompts you to restart the system, as shown in Figure 2-10, click **Yes**.
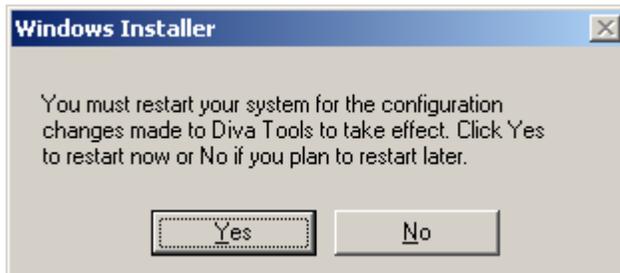
Figure 2-10. Windows Installer Restart System Dialog Box

16. When you log back in after restarting your system, installation of the Diva Tools is completed, and the Diva Assistant is installed automatically.

17. Wait for the installation to complete.

18. Continue with the procedure "Verifying DIVA ISDN Interface Card Software Installation" on page 2-21.

Installing the Eicon DIVA 2.02 PCI Software for Windows NT

Use the following procedure to install the software for the Eicon DIVA 2.02 ISDN PCI card on a Telephony Server PC with Windows NT.

If your PC is running Windows 2000, use the procedure "Installing the Eicon DIVA 2.02 PCI Software for Windows 2000" on page 2-8 to install the software for the Eicon DIVA ISDN Card:

Install the software for the DIVA ISDN PCI interface card after installing the DIVA ISDN PCI interface card hardware.

You must configure the DIVA ISDN PCI interface card software during the installation procedure so that the interface card will operate correctly with the MMPD.

NOTE▶ You can access Help information about the Eicon DIVA ISDN PCI interface card anytime during software installation by pressing **F1**.

1. If you have not already done so, power on the workstation or server PC and log in as Administrator or with administrative privileges.

2. Insert the ISDN Software Suite CD included with the DIVA ISDN interface card in your CD-ROM drive.

> **NOTE**▶ Do not download Eicon driver updates from the Eicon website unless advised to do so by Services. The newest driver updates may not operate correctly with the MMPD.

3. Open the Control Panel group from the Settings folder on the Start menu.

4. Double-click the **Network** icon, select the **Adapters** tab, and select **Add**.

   The Select Network Adapter dialog box is displayed.

5. Select **Have Disk** from the Select Network Adapter dialog box.

   The Insert Disk dialog box is displayed.

6. In the Insert Disk dialog box, enter **D:\WIN_NT**, where **D:** corresponds to the drive letter for your computer's CD-ROM drive, then click **OK**

7. From the displayed list of adapters (Figure 2-11), select **Autodetect Eicon DIVA Client Card (ISAPnP/PCI)** and click the **OK** button.

Select OEM Option

Choose a software supported by this hardware manufacturer's disk.

```
Autodetect Eicon Diva Client Card (ISAPnP/PCI)
Eicon Autoconfiguration EISA/MCA
Eicon Diva (1.0)
Eicon Diva 2.0
```

| OK | Cancel | Help |
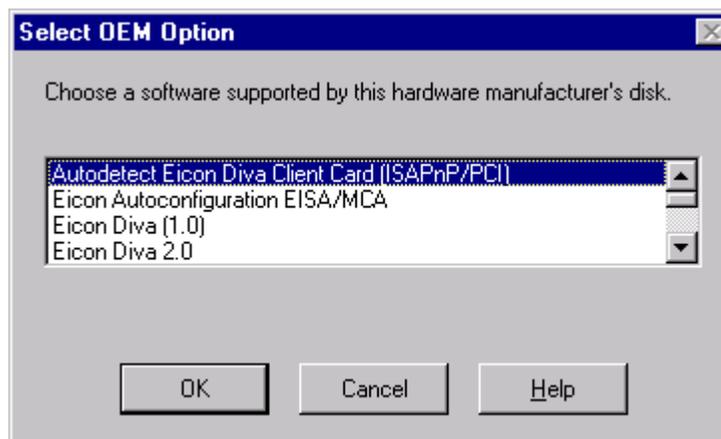
Figure 2-11. Select OEM Option Screen

8. If your computer has more than one bus type, you see the Passive ISDN S0 Adapter Bus Location screen (Figure 2-12). Select **PCI** from the list of bus types displayed, (do not change the bus number), and then select **OK**. If only one bus type is displayed, then simply select **OK**.
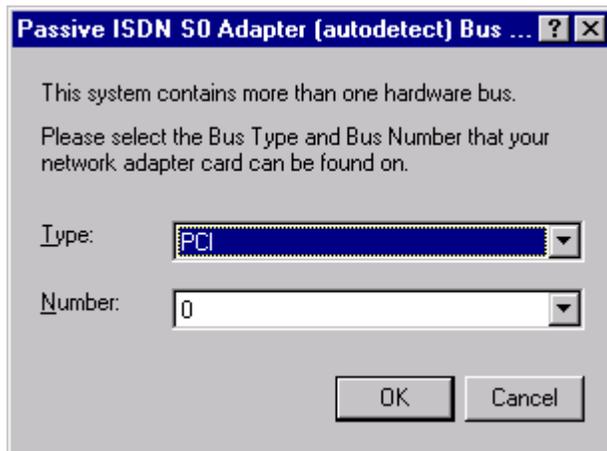
Figure 2-12. Passive ISDN S0 Adapter Bus Location Screen

After the files are copied, the Basic Settings page of the Adapter Setup dialog box is displayed (Figure 2-13).
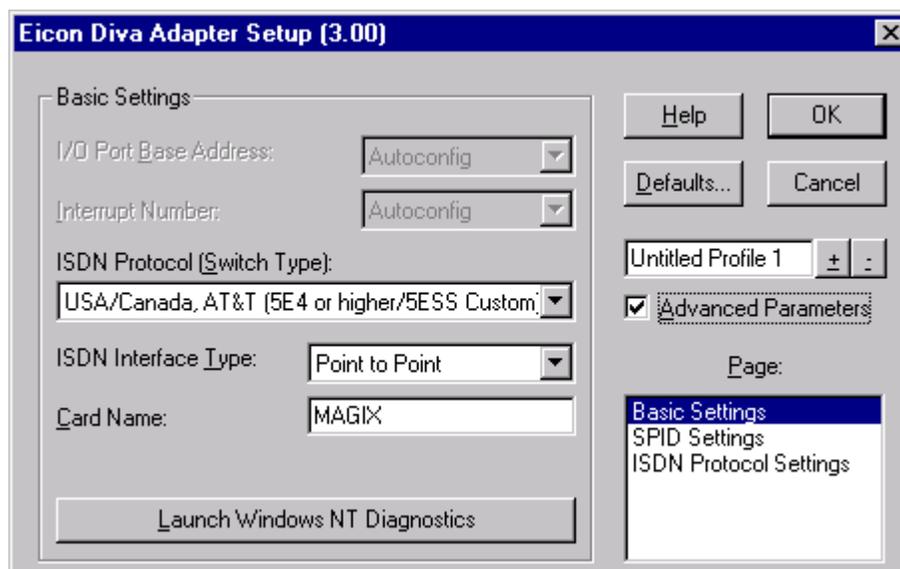
Figure 2-13. The Adapter Setup Dialog Box (Basic Settings) for the PCI Card

The Adapter Setup dialog box permits you to enter settings for the ISDN Protocol (Switch Type), the ISDN Interface Type, and the Card Name.

9. Select the following ISDN Protocol (Switch Type):

    USA/Canada, AT&T protocol (5E4 or higher/5ESS Custom)

10. Select the following ISDN Interface Type:

    Point to Point

11. Type **MAGIX** in the Card Name field.

    (This must be typed all in upper-case over the name shown.)

12. Set the Advanced Parameters checkbox to access the **ISDN Protocol Settings** page.

13. Ignore the SPID Settings page since these settings are not applicable to the CTI link.

14. Click **ISDN Protocol Settings** in the lower right-hand corner to access the ISDN Protocol Settings page (Figure 2-14).
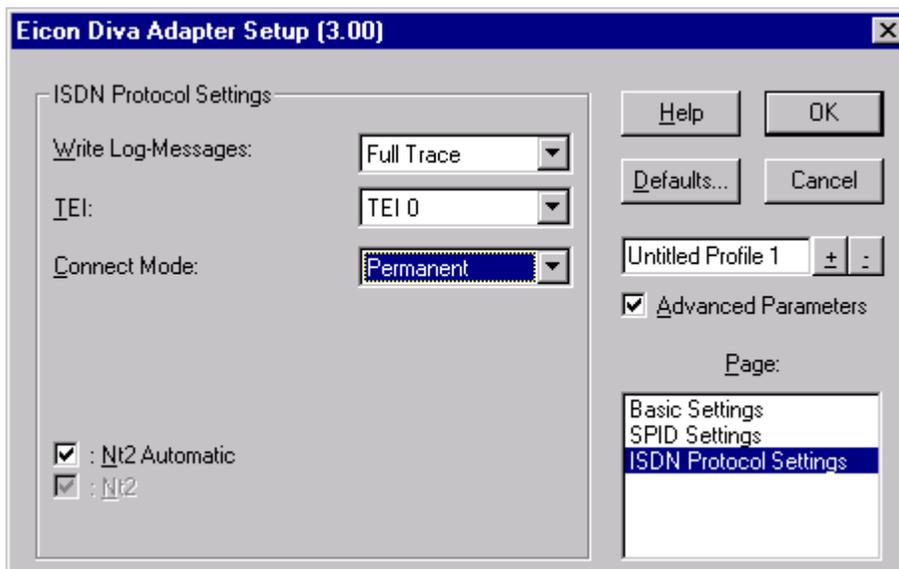
Figure 2-14. The Adapter Setup Dialog Box (ISDN Protocol Settings page)

15. Select appropriate values from the pull-down menus.

    a. Select the following setting for Write Log-Messages:

        Full Trace

    a. Select the following Terminal Endpoint Identifier (TEI):

        TEI 0

    b. Select the following Connect Mode:

        Permanent

16. Click the **OK** button.

    A message indicates that the SPID Settings page is empty and asks if you want to proceed anyway. It prompts you with **Are you sure?**

17. Respond by selecting **Yes**. This indicates that you purposely left the SPID Settings page blank.

    Installation of the DIVA ISDN interface card software proceeds and the **Adapter card installation is complete** message appears.

    This is followed by the message **Do you want to install the WAN-Miniport driver for Windows NT RAS now?**

18. Respond by selecting **No**. Also respond by selecting **No** to any additional messages that ask if you want to install other software.

    Click the **Close** button on the Network Control Panel.

19. The following messages are displayed: **You must shut down and restart your computer before the new settings will take effect** and **Do you want to restart your computer now?**

20. You must restart the computer for the installation of the DIVA ISDN interface card to be complete. We recommend that you restart the computer now by selecting **Yes**. If conditions do not permit the immediate restarting of the computer, select **No** but remember to shut down and restart the computer when conditions permit.

Verifying DIVA ISDN Interface Card Software Installation

After you have completed the DIVA ISDN interface card software installation procedure, shut down and restarted the computer to ensure that the settings took effect, and logged in as the Administrator (or with administrative privileges), you should verify that the installation was performed correctly.

Instructions for Windows 2000

To verify that the installation was performed correctly on a PC with Windows 2000, do the following:

1. Open **DIVA** from the Programs folder on the Start menu.

2. Select **Line Check** to display the DIVA Line Check dialog box as shown in Figure 2-15.

Figure 2-15. DIVA Line Check Dialog Box

3. Click **Start** to check the DIVA ISDN Interface configuration. If the Line Check is successful, the message **SUCCESS! Line Check test passed** appears in the Result section of the dialog box.

4. Click **Finish** to close the DIVA Line Check dialog box.

Instructions for Windows NT

To verify that the installation was performed correctly on a PC with Windows NT, do the following:

1. Open **Eicon ISDN Tools (Common)** from the Programs folder on the Start menu.

2. Select **Line Check** to display the DIVA Line Check dialog box as shown in Figure 2-16.
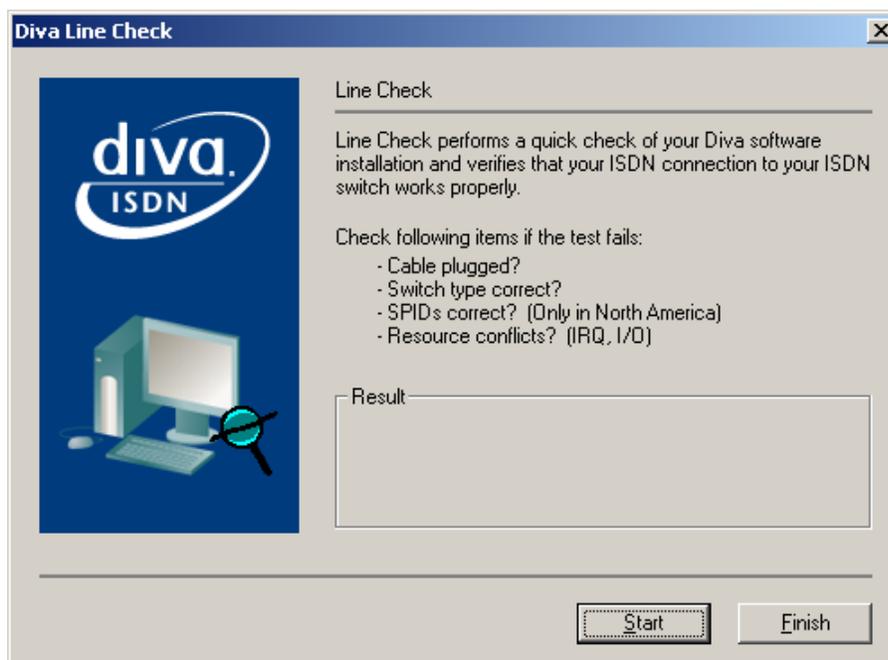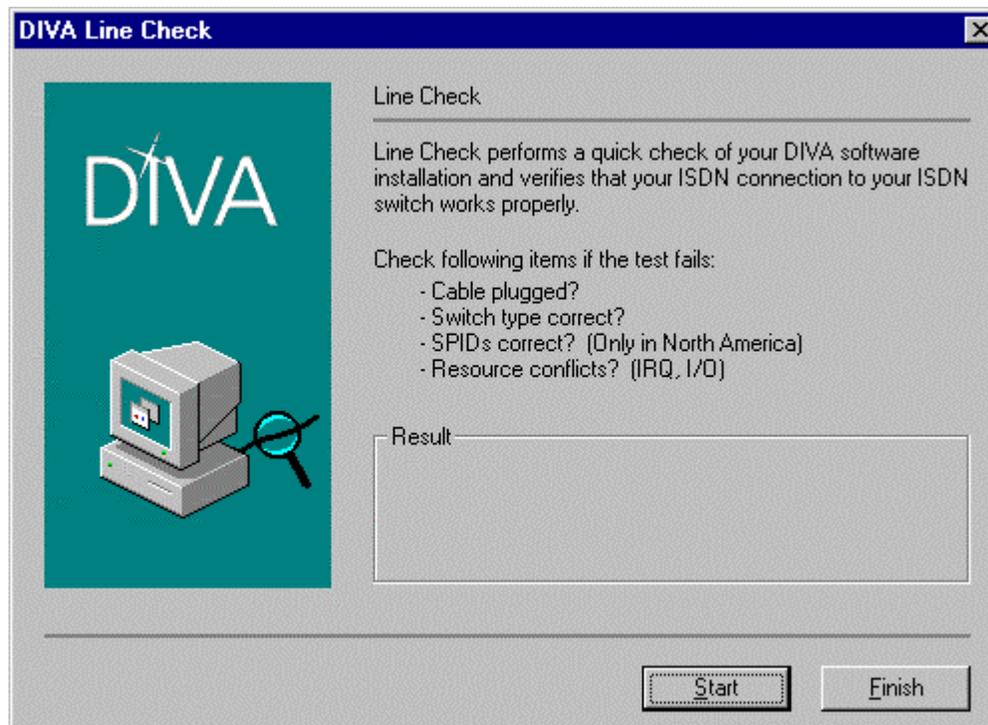

Figure 2-16. DIVA Line Check Dialog Box

3. Click **Start** to check the DIVA ISDN Interface configuration. If the Line Check is successful, the message **SUCCESS! Line Check test passed** appears in the Result section of the dialog box.

4. Click **Finish** to close the DIVA Line Check dialog box.

Reconfiguring DIVA ISDN Interface Card Software

If you encounter problems with the DIVA ISDN interface card, you may need to verify or reconfigure the software settings for the card.

Instructions for Windows 2000

Use the following procedure to reconfigure DIVA ISDN interface card software settings on a PC with Windows 2000.

1. Right-click **My Computer**, select **Properties** from the pop-up menu to display the System Properties dialog box, and then click the **Hardware** tab to display the tab shown in Figure 2-17.
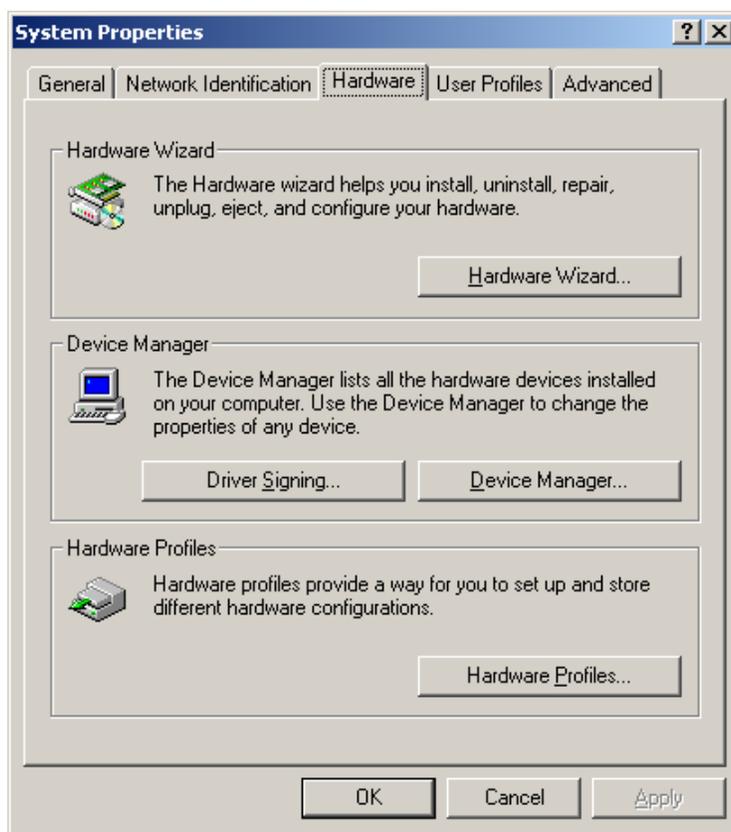
Figure 2-17. Hardware Tab

2. Click the **Device Manager** button on the Hardware tab. The Device Manager dialog box is displayed. Double-click the **Network Adapters** icon to display the installed Network adapters as shown in Figure 2-18.
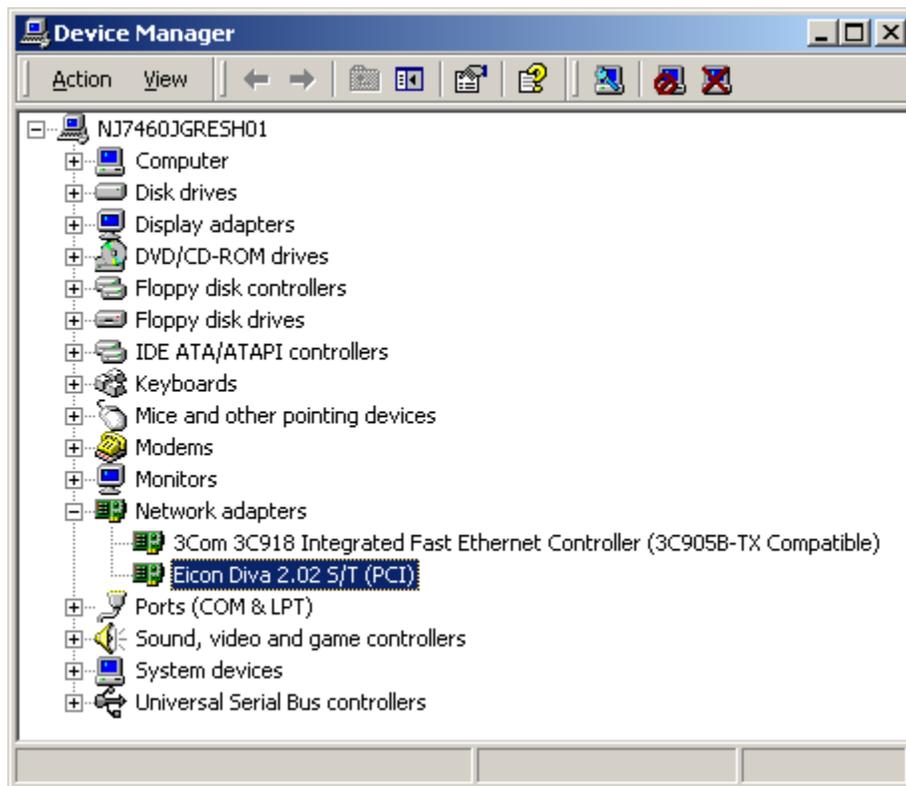
Figure 2-18. Device Manager Dialog Box

3. Double-click **Eicon DIVA 2.02 S/T (PCI)** or **Eicon DIVA 2.01 S/T (PCI)** to view the Properties tabs for the Eicon DIVA card as shown in Figure 2-19.

Figure 2-19. Eicon DIVA Card Properties Tabs

4. Click the **DIVA** tab to show the DIVA properties tab as shown in Figure 2-20.
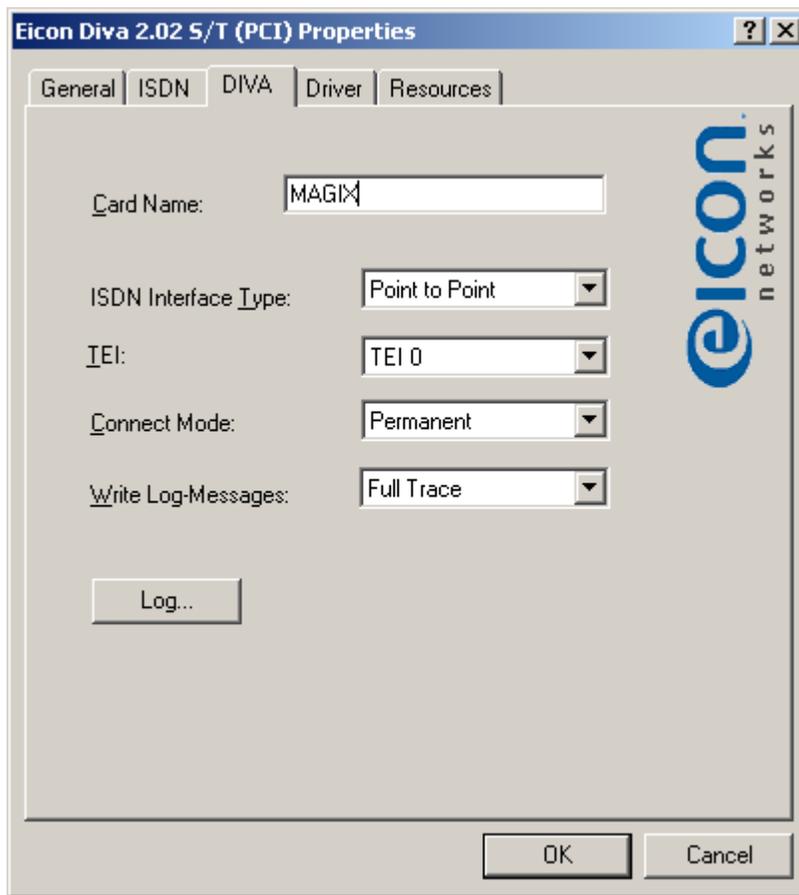
Figure 2-20. DIVA Properties Tab

5. Set the card name to **MAGIX**. The other options must be set to the correct values as shown in Figure 2-20 and Table 2-2:

Table 2-2. DIVA Properties Tab Field Values

Field	Value
ISDN Interface Type	**Point to Point**
TEI	**TEI 0**
Connect Mode	**Permanent**
Write Log-Messages	**Full Trace**

6. You can select the **ISDN** tab and change the protocol to **ESS5 (AT&T) (North America)**, if it was not previously set by default.

7. When finished with your selections, click **OK** to continue.

DIVA ISDN Interface Card

8. Restart the computer to ensure that the settings take effect.

Instructions for Windows NT

Use the following procedure to reconfigure DIVA ISDN interface card software settings on a PC with Windows NT.

1. Open the Control Panel group from the Settings folder on the Start menu.

2. Double-click the Network icon, select the **Adapters** tab, and select **"MAGIX" Autodetect Eicon DIVA Client Card (ISAPnP/PCI)** from the Network Adapters list.

3. Select **Properties** to access the Adapter Setup dialog box. Make appropriate selections from the **Basic Settings** page or click **Advanced Parameters** to access the **ISDN Protocol Settings** page. Leave the **SPID Settings** page blank. Refer to the instructions beginning with Step 9 in "Installing the Eicon DIVA 2.02 PCI Software for Windows NT," on page 2-19.

4. Restart the computer to ensure that the settings take effect.

Uninstalling Eicon DIVA ISDN PCI Interface Card Software

The procedure you use to uninstall the Eicon DIVA ISDN PCI Interface Card Software depends on whether Windows 2000 or Windows NT is installed on your PC.

Use one of the following procedures:

■ "Uninstalling the Eicon DIVA 2.02 PCI Software for Windows 2000" on page 2-27

■ "Uninstalling Eicon DIVA 2.02 PCI Software for Windows NT" on page 2-29

Uninstalling the Eicon DIVA 2.02 PCI Software for Windows 2000

Use the following procedure to uninstall the Eicon DIVA ISDN 2.02 PCI interface card software on a PC with Windows 2000.

1. Open **Diva** from the Programs folder on the Start menu.

2. Select **Uninstall** to display the Uninstall Diva Card dialog box, as shown in Figure 2-21.
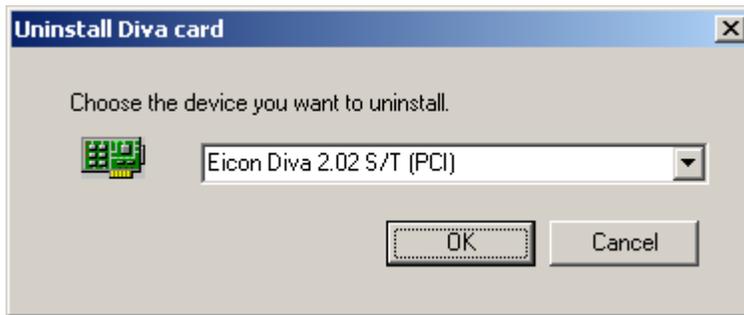
Figure 2-21. Uninstall Diva Card Dialog Box

3. Click **OK**. You are prompted to confirm that you want to uninstall the Eicon Diva 2.02 device driver, as shown in Figure 2-22.

Figure 2-22. Uninstall Diva Card Confirmation Dialog Box

4. Click **OK** to uninstall the software. The dialog box shown in Figure 2-23 appears, prompting you to restart your computer after the software is uninstalled.
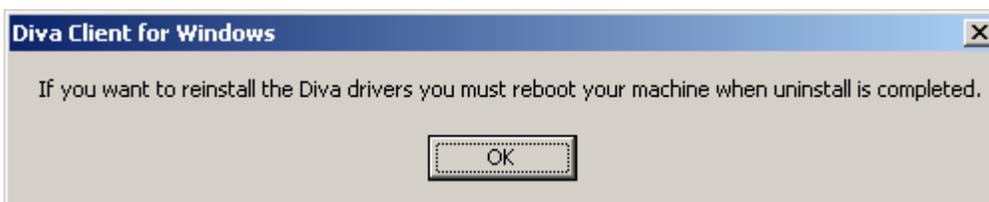
Figure 2-23. Restart Computer After Uninstall Dialog Box

DIVA ISDN Interface Card

5. Click **OK**. The dialog box shown in Figure 2-24 appears when the uninstall completes.

Figure 2-24. Uninstall Has Completed Dialog Box

6. Click **OK**, and shutdown the computer. If desired, uninstall the Eicon card before restarting the computer.

Uninstalling Eicon DIVA 2.02 PCI Software for Windows NT

Use the following procedure to uninstall the Eicon DIVA ISDN 2.02 PCI interface card software on a PC with Windows NT.

1. Open **Eicon ISDN Tools (Common)** from the Programs folder on the Start menu.

2. Select **Uninstall** to display the Eicon Remove Script dialog box, as shown in Figure 2-25.
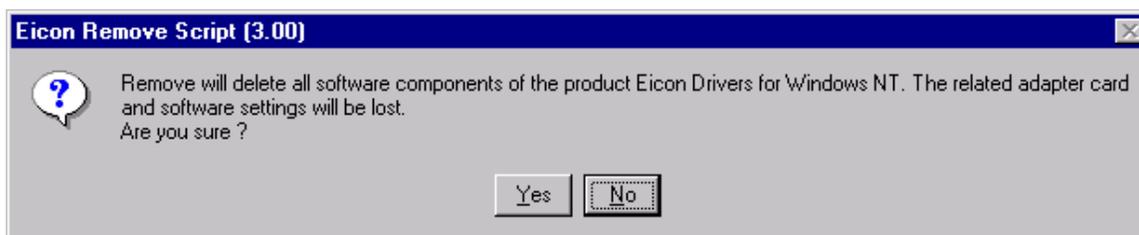
Figure 2-25. Uninstall Diva Card Dialog Box

3. Select **Yes**. The dialog box shown in Figure 2-26 appears, indicating that you will need to restart your computer after the software is uninstalled.

Figure 2-26. Restart Computer After Uninstall Dialog Box

4. Click **OK**. The dialog box shown in Figure 2-27 appears when the uninstall completes.

Figure 2-27. Uninstall Has Completed Dialog Box

5. Click **OK** and shutdown the computer. If desired, uninstall the Eicon card before restarting the computer.

Upgrading from the MERLIN LEGEND PBX Driver
to the MERLIN MAGIX PBX Driver

If you are upgrading from the MERLIN LEGEND PBX Driver to the MERLIN MAGIX PBX Driver, you must do the following prior to installing the MMPD:

■   Uninstall the MERLIN LEGEND PBX Driver software components before you can install the MERLIN MAGIX PBX Driver software components.

■   Rename the DIVA ISDN Interface Card

Refer to Appendix B for instructions for uninstalling software components and renaming the DIVA ISDN Interface Card.

Installing Telephony Services Server Software

If you have not done so already, install the Telephony Services server software. Refer to *CentreVu Computer-Telephony: Telephony Services and CallVisor PC Installation*, Chapter 3, "Installing CVCT Server Software." Follow the instructions in the sections entitled "Specialized Instructions," "Before You Install the CVCT Server Software," and "Procedure for Initial, Default Installation of CVCT Server Software."

NOTE▶ The Telephony Services software includes the Telephony Services Security Data Base, Telephony Services Software, and DEFINITY G3 PBX Driver and CallVisor PC.

Installation of the Telephony Services Security Data Base is optional. However, some Telephony Services applications require the Security Data Base to be installed and administered. Check the specific requirements of your Telephony Services application(s) to determine whether to install the Security Data Base.

When you install the CVCT Server software, do **not** install the DEFINITY G3 PBX Driver. If you have already installed all components of the CVCT Server software, including the DEFINITY G3 PBX Driver, uninstall or unload the DEFINITY G3 PBX Driver before proceeding.

■ To uninstall the DEFINITY G3 PBX Driver on a Windows 2000 system, run the uninstall program by double-clicking the **Add/Remove Programs** icon in the Control Panel. Select **DEFINITY G3 PBX Driver for NT** from the list of currently installed programs, then click **Change/Remove**. Click **Yes** to confirm that you want to uninstall the DEFINITY G3 PBX Driver**,** then select **OK** to complete the uninstall process.

■ To uninstall the DEFINITY G3 PBX Driver on a Windows NT system, run the uninstall program by double-clicking the **Add/Remove Programs** icon in the Control Panel. Select **DEFINITY G3 PBX Driver for NT** from the list of installed software that appears on the Install/Uninstall tab. Then click **Add/Remove**. Select **OK** to complete the uninstall process.

■ To unload the DEFINITY G3 PBX Driver, use the Telephony Services Maintenance Application and select **Driver DLL Information** from Options. Highlight **g3pd.dll**. Press **Unload**. Then press **Remove**. Refer to *CentreVu Computer-Telephony: Telephony Services Administration and Maintenance.*

Installing Telephony Services Client Software

If you have not done so already, install the Telephony Services MERLIN MAGIX Win32 Client Software on each client workstation. Refer to *CentreVu Computer-Telephony: Telephony Services and CallVisor PC Installation*, Chapter 4, "Installing CVCT TSAPI Client Software." Follow the instructions in the sections entitled "Installing Telephony Services Client Software."

NOTE▶ Frequently, the Telephony Server PC will also double as a client workstation.

Using the Master Installer for MMPD

The master installer supports the installation of the following MMPD components.

■   Online documentation

■   Server software

■   Client software

Use the following procedure to start the master installer.

1.   Insert the MERLIN MAGIX PBX Driver CD into the CD-ROM drive.

     The master installer starts automatically when the CD is inserted in the CD-ROM drive on Windows 95, Windows 98, Windows Me, Windows NT, and Windows 2000 systems that have the AutoRun feature enabled. Otherwise, run **\WININST\SETUP.EXE** from the CD-ROM drive. The MERLIN MAGIX Integrated System title screen is displayed.

2.   After the master installer title screen has been displayed, the MERLIN MAGIX Integrated System Setup screen (Figure 2-28) is displayed prompting you to select a category of software for installation.
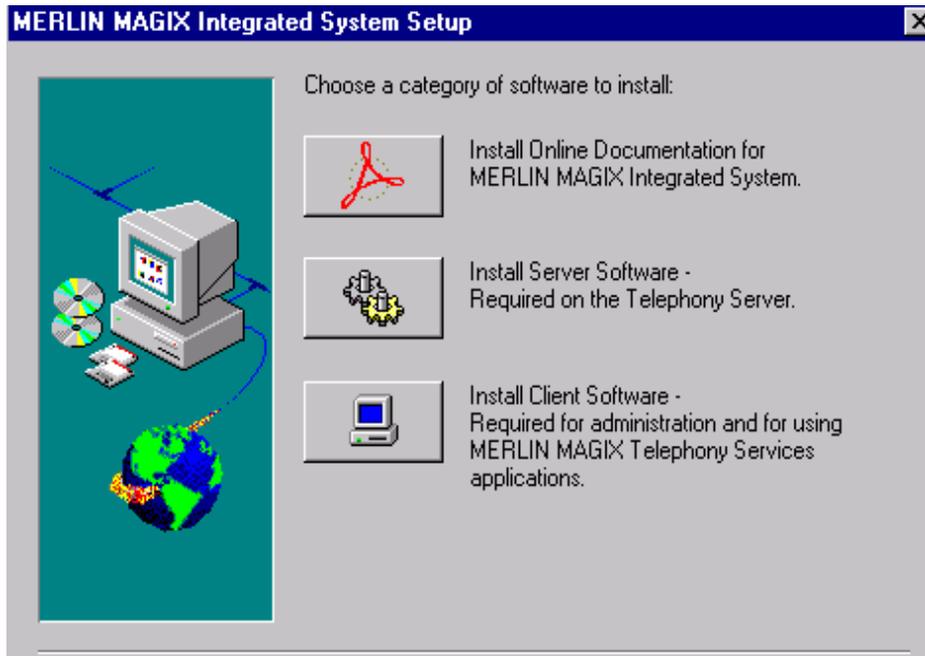

Figure 2-28. The Setup Screen

3. Select a category of software you want to install.

   ■ Install Online Documentation (refer to the "Installing Online Documentation" section on page 2-35)

   ■ Install Server Software (refer to the "Installing the MERLIN MAGIX PBX Driver" section on page 2-35)

   ■ Install Client Software (refer to "MERLIN MAGIX Client Software Installation" on page 2-40)

      You can click **Cancel** or **Exit** at any time to exit from the master installer.

Installing Online Documentation

You will need Adobe Acrobat Reader to view the online documentation. Adobe Acrobat Reader is available on the CentreVu Computer-Telephony CD or from the following web site:

   http://www.adobe.com.

If you wish to install the online documentation for the MERLIN MAGIX PBX Driver, click the **Install Online Documentation** button on the Setup screen. You may choose to leave the documents on the CD or install them on your hard drive. When the installation is complete, you are returned to the Setup screen.

Installing the MERLIN MAGIX PBX Driver

The MERLIN MAGIX PBX Driver installation program installs the MERLIN MAGIX PBX Driver software (MLPD.DLL) and its associated files on the Telephony Server. The program places the MLPD.DLL in the system directory and configures the MERLIN MAGIX PBX Driver parameters.

Before performing this procedure, you must first perform the following procedures, as described in the previous sections.

■ Verify the items in the "Pre-install Checklist" on page 2-5.

■ Install the Eicon Technology Corporation DIVA ISDN interface card and its associated software (see page 2-7).

■ Install the Telephony Services software (refer to Chapter 3 of the *CentreVu Computer-Telephony: Telephony Services and CallVisor PC Installation*).

⚠ **CAUTION:**
   If a version of the MERLIN LEGEND PBX Driver is on the PC, you must manually uninstall it before installing the MERLIN MAGIX PBX Driver. For instructions on how to do this, see Appendix B. If the MERLIN LEGEND Win32 client is installed, it must also be manually removed.

Use the following procedure to install the MERLIN MAGIX PBX Driver software.

1. Stop Telephony Services if it is running.

   From the Start menu, select **Programs**, select **TSAPI Telephony Services**, and select the **TSAPI Telephony Services Controller**. If Telephony Services is running, select the **Stop** button.

   The Telephony Services Controller will display a message asking if you want to stop the Logging Services too. Select the **No** button.

2. Insert the MERLIN MAGIX PBX Driver CD into the CD-ROM drive and click the **Install Server Software** button from the Setup screen. Read the information on the Welcome dialog box and then begin the installation of the MERLIN MAGIX PBX Driver by selecting the **Next** button.

3. If the MERLIN MAGIX PBX Driver has not already been installed, you are prompted for the MERLIN MAGIX PBX Driver directory location for copying files. The default location is C:\Program Files\Telephony Services\MLPD. The program files and the README.TXT file will be copied to this directory. If you are installing an upgrade, the directory of the existing driver software is the default directory.

   If you choose to have MMPD installed in another directory, select **Browse**, specify the full directory path and click the **OK** button on the MERLIN MAGIX PBX Driver Directory dialog box.

4. Select the **Next** button to proceed.

   The MERLIN MAGIX PBX Driver Configuration dialog box is displayed (Figure 2-29), showing the default **MAGIX** for the Advertised Switch Name and the Adapter Name.
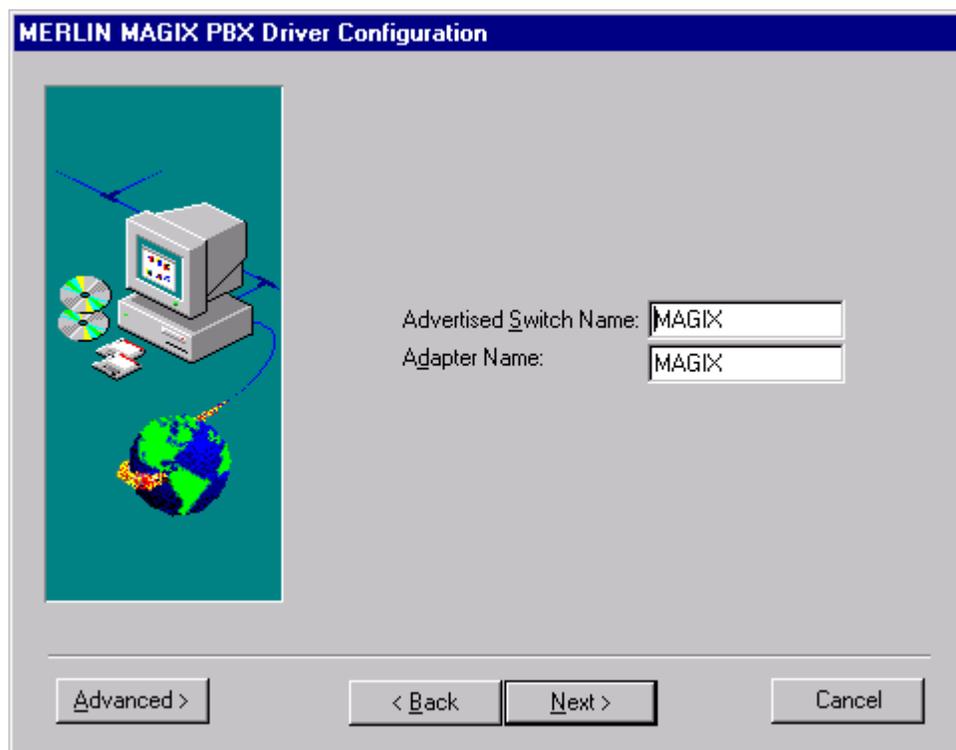
Figure 2-29. The Configuration Dialog Box

The Advertised Switch Name is used by client applications to identify the MERLIN MAGIX/ LEGEND CTI link, while the Adapter Name must match the name used during the installation of the DIVA ISDN interface card software (that is, **MAGIX**) (refer to "Installing the Eicon DIVA ISDN PCI Card Software" on page 2-8). These values are each limited to fourteen (14) characters in length. If this length is exceeded, the value is truncated to 14 characters.

If necessary, you can change the values in the Advertised Switch Name and the Adapter Name fields on the MERLIN MAGIX PBX Driver Configuration dialog box.

If you select the **Advanced** button from the MERLIN MAGIX PBX Driver Configuration dialog box, you will be able to edit additional parameters. *Under most circumstances, this action is not recommended*.

5. To accept the defaults for the Advertised Switch Name, the Adapter Name, and the Advanced Configuration parameters, select the **Next** button to proceed to the Confirmation dialog box. Proceed to Step 8.

6. (**Optional and not recommended**) If you must edit the advanced parameters, for example, under the direction of Services personnel, select the **Advanced** button on the MERLIN MAGIX PBX Driver Configuration dialog box. The Advanced Configuration dialog box is displayed (Figure 2-30).
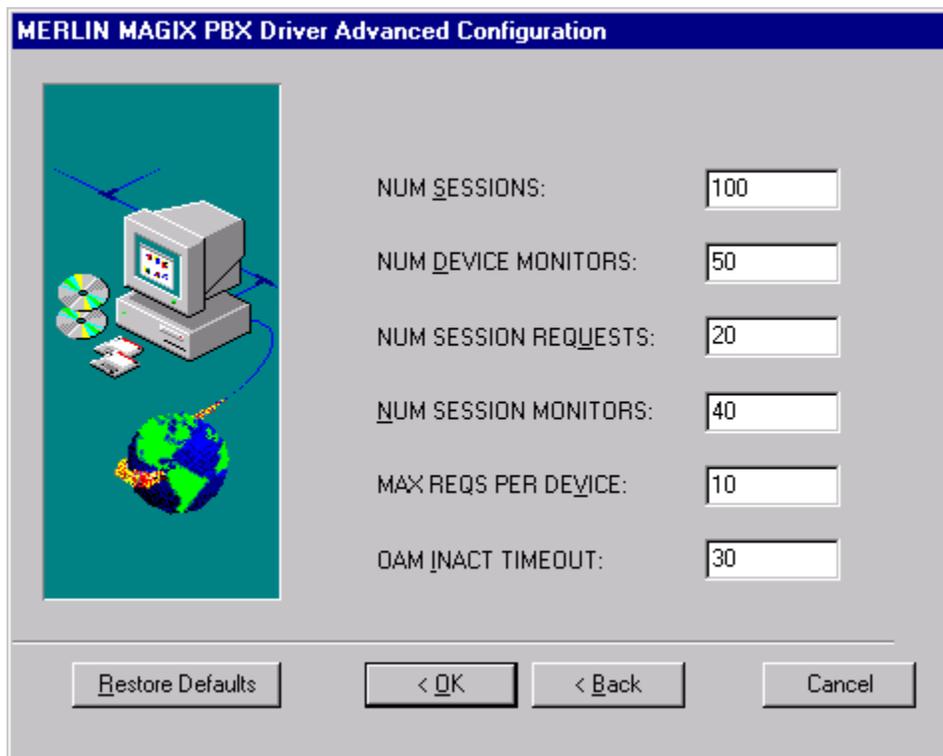
Figure 2-30. The Advanced Configuration Dialog Box

7. Refer to Table 3-1 on page 3-2 for information about each parameter.

   ■ To change the value(s), enter the new value(s), and click the **OK** button.

   ■ To restore all values to their defaults, click the **Restore Defaults** button.

   ■ To accept the displayed values, click the **OK** button.

   ■ If you do not want to make any changes, click the **Back** button and the MERLIN MAGIX PBX Driver Configuration dialog box (Figure 2-29) is displayed.

   ■ To exit the installation, click the **Cancel** button.

8. Once you have returned to the MERLIN MAGIX PBX Configuration dialog box (Figure 2-29), click the **Next** button to proceed.

   The Start Copying Files screen is displayed, giving you the opportunity to see the files that are to be installed and the destination directory.

9. Click the **Back** button to change any of the values you previously entered, or click the **Cancel** button to cancel the installation and exit. To proceed with the installation, click the **Next** button.

   A screen is displayed with the **Please insert the MERLIN MAGIX PBX Driver Authorization [MMPDAUTH] disk into the drive** message.

10. Insert the authorization diskette into the floppy drive and click the **OK** button.

    Progress indicators are displayed while the installation is in progress.

    The README.TXT file and the MERLIN MAGIX Driver Configuration Utility are now accessible from the new \Programs\TSAPI Telephony Services\PBX Drivers\MERLIN MAGIX PBX Driver folder that has been added to the Start menu.

11. We recommend that you restart the Telephony Server PC.

    This completes the installation of the MERLIN MAGIX PBX Driver.

Verifying MERLIN MAGIX PBX Driver Installation

To verify the installation of the MERLIN MAGIX PBX Driver, install the Telephony Services and MERLIN MAGIX Win32 client software with the administrative software according to the directions in "Installing 32-bit Windows Client Software" on page 2-41. Then return to this section to proceed with the verification procedure.

Use the following procedure to verify your installation of the MERLIN MAGIX PBX Driver.

1. If the Telephony Server is not running, start it by using the TSAPI Telephony Services Controller.

    From the Start menu, select the **TSAPI Telephony Services** program folder, access the **TSAPI Telephony Services Controller**, and click the **Start** button to start the Telephony Server and the MERLIN MAGIX PBX Driver.

    NOTE▶ Refer to "Basic Maintenance Tasks" in Chapter 3 of the *CentreVu Computer-Telephony: Telephony Services and CallVisor PC Installation* for details on starting the Tserver.

2. Start the Windows MMPD OA&M utility, log in, and access the Link Status option from the Maint menu. For details, refer to page 4-6.

3. To check the status of the link, verify that the:

    ■ Switch Connection is **active**

    ■ Layer 2 Link Status is **up**

    ■ Layer 4 Link Status is **up**

    If the Link Status option indicates that the link is not up (that is, Switch Connection is **inactive**, Layer 2 Link Status is **down**, or Layer 4 Link Status is **down** or **disabled**), refer to the resolution of these problems described in Chapter 5, "Troubleshooting".

4. Use the **Test** option on the **Maint** menu. For details, refer to page 4-13.

    a. If the test fails, ask your MERLIN MAGIX/LEGEND administrator to check the administration for the CTI link.

    b. If the switch is properly administered and the wiring checks out, contact the **Avaya Customer Care Center** at:

    1 800 628-2888

Uninstalling MERLIN MAGIX PBX Driver

Instructions for Windows 2000

Use the following procedure to uninstall the MERLIN MAGIX PBX Driver from a PC with Windows 2000:

1. Double-click the **Add/Remove Programs** icon in the Control Panel. The Add/Remove Programs dialog box is displayed.

2. Select **MERLIN MAGIX PBX Driver** from the list of currently installed programs.

3. Click the **Change/Remove** button to remove the MERLIN MAGIX PBX Driver. The Confirm File Deletion dialog box is displayed.

4. Click **Yes** to confirm that you want to completely remove the MERLIN MAGIX PBX Driver and all of its installed components.

5. When the uninstall program is finished, click **OK** to complete the uninstall procedure.

Instructions for Windows NT

Use the following procedure to uninstall the MERLIN MAGIX PBX Driver from a PC with Windows NT.

1. Run the uninstall program by double-clicking on the **Add/Remove Programs** icon in the Control Panel.

2. Select **MERLIN MAGIX PBX Driver** from the list of installed software that appears on the Install/Uninstall tab.

3. Click **Add/Remove**.

4. When the program completes, click the **OK** button to complete the uninstall process.

MERLIN MAGIX Client Software Installation

The client TSAPI libraries provide support for all of the CSTA Services and CSTA events plus a private data mechanism for vendor-specific features. If your application uses any features that are unique to the MERLIN MAGIX PBX Driver, you must also install a support library on your client. This support library is called the MERLIN MAGIX Private Data Support Library.

The Win32 client software also allows you to install an administration utility for the MERLIN MAGIX PBX Driver.

The procedures contained in this section explain how to install the MERLIN MAGIX Private Data Support Library on the Windows 95, Windows 98, Windows Me, Windows NT, or Windows 20000 client workstations.

Installing 32-bit Windows Client Software

The MERLIN MAGIX 32-bit Windows client software (MLPRIV32.DLL) can be installed on Windows 95, Windows 98, Windows Me, Windows NT, or Windows 2000 client workstations.

Three installation options are available for installing the MERLIN MAGIX Private Data Support Library Win32 client software:

To Install from	See
CD-ROM	page 2-41
A diskette	page 2-42
A network drive	page 2-43

Installing from the CD

> **NOTE ▶** Use an ASCII text editor such as Windows Notepad to read the README.TXT file located in the \CLIENT\WIN32 directory of the CD-ROM. This file contains information you may need before installing the MERLIN MAGIX Private Data Support Library.

Use the following procedure to install the MERLIN MAGIX Private Data Support Library Win32 client software from the CD.

1. If you are upgrading from the MERLIN LEGEND PBX Driver, uninstall the MERLIN LEGEND Win32 client. See "Uninstall the MERLIN LEGEND PBX Driver Software Components" on page B-1 in Appendix B.

2. Insert the MERLIN MAGIX PBX Driver CD into the CD-ROM drive.

   The master installer starts automatically when the CD is inserted in the CD-ROM drive on Windows 95, Windows 98, Windows Me, Windows NT 4.0 and Windows 2000 systems that have the AutoRun feature enabled. Otherwise, run \WININST\SETUP.EXE from the CD-ROM drive.

3. Select **Install Client Software** from the MERLIN MAGIX Setup screen.

4. Read the information on the Welcome dialog box and then click the **Next** button to begin the installation of the 32-bit Windows client.

5. Choose whether to install MERLIN MAGIX PBX Driver administration software. You must indicate whether the setup program is to copy the files to enable MERLIN MAGIX PBX Driver Administration. If you want to do so, set the checkbox for Install Administration Software. Then press the **Next** button.

6. If you chose to install the administration software in the previous step, you are prompted to select the destination directory for the software.The default directory is C:\Program Files\Telephony Services\MERLIN MAGIX Client 32. To install the software in a different directory, click the **Browse** button, specify the full directory path, and click the **OK** button. Then click the **Next** button.

7. The installation procedure searches your system for versions of the MERLIN MAGIX Private Data Support Library software. If copies of MLPRIV32.DLL are found, the installation procedure prompts you for confirmation to delete the old software. It is recommended that you allow the installation procedure to remove these files.

⚠ CAUTION:

If you do not remove these files, Telephony Services applications may not operate correctly.

The installation procedure copies the appropriate files and creates the MERLIN MAGIX Win32 Client program folder in the Start menu.

8. Click the **OK** button to confirm that the setup is complete.

This completes the 32-bit Windows client installation and setup.

Installing from a Diskette

NOTE▶ Use an ASCII text editor such as Windows Notepad to read the README.TXT file located in the root directory of the diskette. This file contains information you may need before installing the MERLIN MAGIX Win32 Client.

To install 32-bit Windows client software using a diskette, you must first create an installation diskette, then follow the installation procedure using the files on the diskettes. You need one formatted high-density 3.5" diskette for the Win32 Client.

Use the following procedure to install the MERLIN MAGIX Win32 Client software from diskettes.

1. Format one high-density diskette by using the DOS® `format` command, the **Disk** menu from Windows File Manager, or the **File** menu from Windows Explorer.

2. Open the DOS window.

3. Change to the \CLIENT\MAKEDISK directory on the CD-ROM.

4. Use WIN32.BAT to copy files. Type:

   `WIN32` *drive_letter* <**Enter**>

   where *drive_letter* is the drive letter associated with your floppy drive (for example, `A:`). Label the blank, formatted diskette as instructed (for example, **Avaya MERLIN MAGIX Win32 Client <DISK1> Disk 1 of 1**). Insert the diskette in the floppy drive, and press any key to begin copying files from the CD-ROM directory to the diskette.

5. When the copy operation is complete, remove the diskette from the floppy drive.

   NOTE▶ The following steps can be performed on each client workstation on which you wish to install the MERLIN MAGIX Win32 Client.

6. Insert the diskette in the floppy drive of the client workstation, and run SETUP.EXE from the root directory of the diskette.

7. Continue the installation procedure by following the procedure in the section entitled "Installing from the CD," beginning with Step 3 on page 2-41.

Installing from a Network Drive

NOTE▶ Use an ASCII text editor such as Windows Notepad to read the README.TXT file located in the \CLIENT\WIN32 directory of the CD-ROM. This file contains information you may need before installing the MERLIN MAGIX Private Data Support Library.

To install 32-bit Windows client software from a network drive, you must first transfer the WIN32 directory from the CD to the network drive. Then you can install from the file server. Use the following procedure to install the MERLIN MAGIX Win32 Client software from a network drive.

1. Create or locate the \CSTA\MMPD\CLIENT\WIN32 directory on the file server.

2. Open the DOS window.

3. Change to the \CLIENT\WIN32 directory on the CD-ROM.

4. Copy all files from the \CLIENT\WIN32 directory on the CD-ROM to the \CSTA\MMPD\CLIENT\WIN32 directory on the network drive. Use the Windows File Manager or the following DOS command:

   XCOPY *source_directory destination_directory* `/s` `/e`

   NOTES▶ ■ Do not use the COPY command for this procedure. It is important to maintain the directory structure within each subdirectory.

   ■ The following steps can be performed on each client workstation on which you wish to install MERLIN MAGIX Win32 Client (within the limitations of your license agreement).

5. From the client workstation, map a network drive to the file server. Run \CSTA\MMPD\CLIENT\WIN32\SETUP.EXE on the network drive.

6. Continue the installation procedure by following the procedure in the section entitled "Installing from the CD," beginning with Step 3 on page 2-41.

Uninstalling the 32-bit Windows Client Software

Instructions for Windows 2000

If you want to uninstall the 32-bit Windows client software from a PC with Windows 2000:

1. Double-click the **Add/Remove Programs** icon in the Control Panel. The Add/Remove Programs dialog box is displayed.

2. Select **MERLIN MAGIX Win32 Client** from the list of currently installed programs.

3. Click the **Change/Remove** button to remove the MERLIN MAGIX 32-bit Windows client software. The Confirm File Deletion dialog box is displayed.

4. Click **Yes** to confirm that you want to completely remove the MERLIN MAGIX 32-bit Windows client software and all of its installed components.

5. When the uninstall program is finished, click **OK** to complete the uninstall procedure.

Instructions for Windows 95, Windows 98, Windows Me, and Windows NT

If you want to uninstall the 32-bit Windows client software from a PC with Windows 95, Windows 98, Windows Me, or Windows NT:

1. Run the uninstall program by double-clicking on the **Add/Remove Programs** icon in the Control Panel.

2. Select **MERLIN MAGIX Win32 Client** from the list of installed software that appears on the Install/Uninstall tab.

3. Click **Add/Remove**.

4. When the program completes, click the **OK** button to complete the uninstall process.

Administration

3

Contents

Administration

3

Tunable Parameters

The MMPD uses parameters created with appropriate defaults during installation.

Following installation, you can change the MMPD parameters by using the MERLIN MAGIX PBX Driver Configuration Utility. Access this utility from the Programs→TSAPI Telephony Services→PBX Drivers→MERLIN MAGIX PBX Driver folder on the Windows Start menu.

NOTES ▶ ■ The MMPD reads these parameters only when it is first started. When you make changes, they do not take effect until you unload and reload the MMPD.

■ Under most circumstances, you should not need to modify the default settings provided for the MMPD. If you ever do edit these parameters and subsequent problems result, you can easily restore the default values by selecting "Restore Values" on the MERLIN MAGIX PBX Driver Advanced Configuration dialog box.

The MMPD configuration parameters that can be administered are listed in Table 3-1.

■ Parameters flagged with a dagger (†) are reserved for the Avaya Services organization and should not normally be changed by customers. These parameters could affect overall system performance.

■ Parameters flagged with a double dagger (‡) are guidelines. They should be properly sized for optimal performance, but are not subject to strict limitations (for example, if they are sized too large, memory may be wasted; if they are sized too small, performance decreases slightly).

Table 3-1.   MMPD Configuration Parameters

PARAMETER	TYPE	DEFAULT	COMMENTS
Advertised Switch Name	STRING	MAGIX	Advertised switch name for link 1. This is a string up to 14 characters in length (will be truncated if it is longer).
Adapter Name	STRING	MAGIX	Adapter name that was entered in the Card Name field on the Adapter Setup Dialog Box (Basic Settings) (Figure 2-13) when the Eicon DIVA ISDN interface card was configured. **This adapter name must match exactly;** otherwise, the MMPD will not find the DIVA ISDN interface card. This is a string up to 14 characters in length (will be truncated if it is longer). For instructions, refer to one of the following: ■ Step 21 in "Installing the Eicon DIVA 2.02 PCI Software for Windows 2000" on page 2-7 ■ Step 11 in "Installing the Eicon DIVA 2.02 PCI Software for Windows NT" on page 2-19
NUM SESSIONS‡	INTEGER	50	Guideline for number of simultaneous sessions (active acsOpenStream requests). The minimum is 5 and the maximum is 5000.
NUM DEVICE MONITORS‡	INTEGER	50	Guideline for number of simultaneous cstaMonitorDevice requests. The minimum is 5 and the maximum is 5000.
NUM SESSION REQUESTS‡	INTEGER	20	Guideline for number of simultaneous (not confirmed) CSTA requests for a single session (open stream). The minimum is 5 and the maximum is 5000.
NUM SESSION MONITORS‡	INTEGER	40	Guideline for number of active device monitors for a single session (open stream). The minimum is 5 and the maximum is 5000.
MAX REQS PER DEVICE†	INTEGER	10	The maximum number of CSTA requests queued on any single device (by all clients). The minimum is 1 and the maximum is 20.

Tunable Parameters

Table 3-1.   MMPD Configuration Parameters—*Continued*

PARAMETER	TYPE	DEFAULT	COMMENTS
OAM INACT TIMEOUT	INTEGER	30	The number of minutes of inactivity before the MMPD disconnects WMLOAM. Can be set from 10 minutes to 720 minutes (12 hours).

Additional Configuration Parameters

There are additional parameters, such as TSDI Size, Max Flow Control (Flow Control), and High Water Mark, that may be set through the "**Tlink Information Details**" dialog box in the TSA or the "**Tlink Status Information**" dialog box in the TSM32. For information about changing these parameters, refer to the "Tlink Status" section of Chapter 8 in *CentreVu Computer-Telephony: Telephony Services Administration and Maintenance Manual.*

Memory Use

Table 3-2 lists the memory requirements for a minimally configured MMPD with the Tserver installed.

Table 3-2.   Memory Required for a Minimal MMPD and Tserver with Telephony Server (TSRV) Installed

MEMORY TYPE	SIZE
Memory configuration	64 MB
MMPD disk space requirements (this includes MLPD.DLL, its associated programs and files, such as MLTRACE.EXE, TRACE.BUF, etc., as well as what is required for the Eicon DIVA ISDN interface card)	11 MB

222222222222

Maintenance

4

Contents

Maintenance

4

Overview

This chapter describes the MERLIN MAGIX PBX Driver (MMPD) Windows OA&M utility (WMLOAM). It is a helpful tool for controlling and maintaining the MMPD. This utility can be run from a Windows 95, Windows 98, Windows Me, Windows NT, or Windows 2000 machine.

To log into the Windows MMPD OA&M utility, you must have OA&M privileges administered on the Tserver. For further information, see *CentreVu Computer-Telephony: Telephony Services Administration and Maintenance.*

Windows MMPD OA&M Utility (WMLOAM)

WMLOAM can be run from a Windows 95, Windows 98, Windows Me, Windows NT, or Windows 2000 machine where the Telephony Services Win32 and MERLIN MAGIX Win32 client software have been installed. If WMLOAM.EXE has not yet been installed, see the instructions in "MERLIN MAGIX Client Software Installation" on page 2-40.

Starting WMLOAM

Use the following procedure to start WMLOAM.

1. Select the **MAGIX Driver Admin** program item in the MERLIN MAGIX Win32 Client program folder.

   When you first start WMLOAM, an OA&M service selection screen similar to Figure 4-1 is displayed.
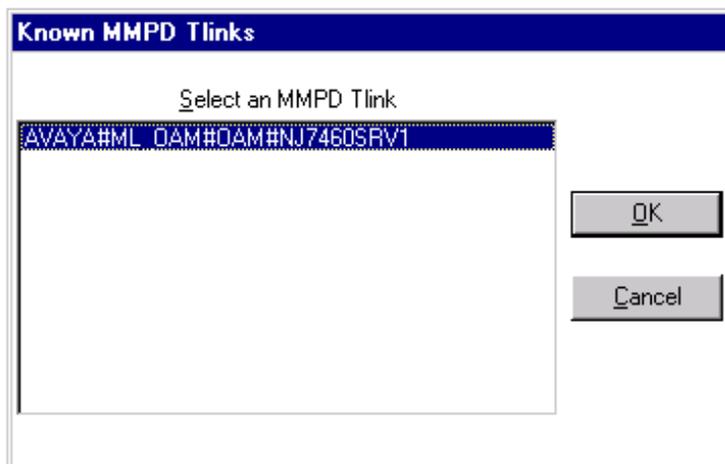

Figure 4-1. Service Selection Dialog Box

The names of the available MMPD services have the following format:

AVAYA#ML_OAM#OAM#*server_name*

2. Double-click the name of the service to which you want to attach.

   or

   Highlight the name of the service to which you want to attach and click the **OK** button.

   If no services are displayed, one of the following conditions may be the cause:

   ■ The Tserver may not be running.

■ The MMPD may not be loaded.

■ Your client workstation may not be configured correctly.

To correct this problem, see problem resolution "Clients Cannot See Advertised PBX Driver" on page 5-5.

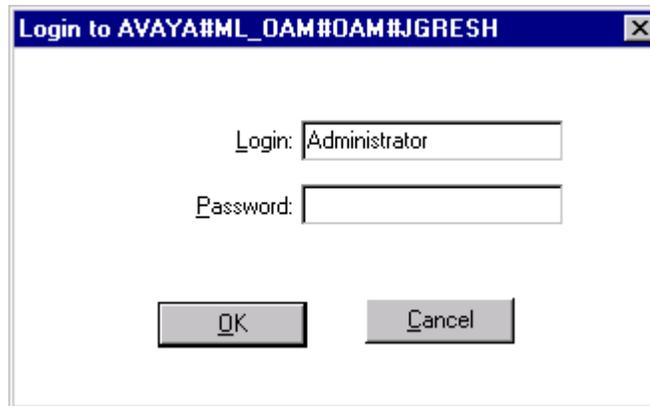Once you have selected a service, the login screen is displayed.

Figure 4-2. Login Dialog Box

3. Enter a valid user name and password and click the **OK** button.

The WMLOAM main screen is displayed. There are three menu options on the main screen: **File**, **Maint**, and **Help**.

File Menu Options

Use the File menu to log out or exit from the Windows MMPD OA&M utility.
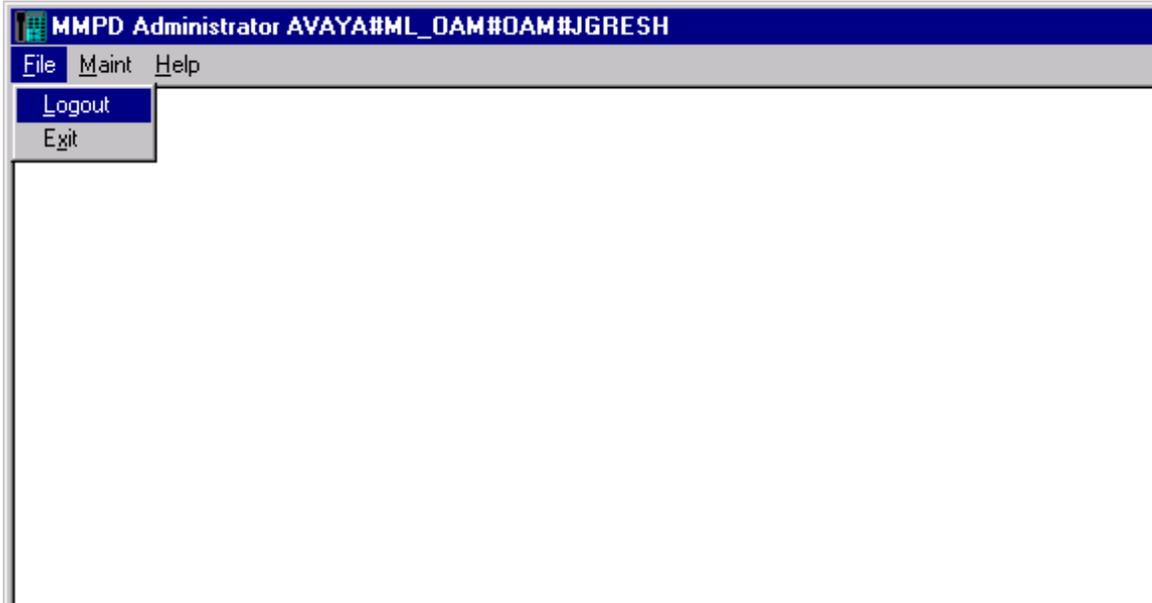

Figure 4-3. File Menu Options

If you select **Logout**, you will end your current session and be presented with the OA&M server selection screen.

If you select **Exit**, the Windows MMPD OA&M application automatically logs out from the MMPD OA&M server and exits.

NOTE▶ OA&M sessions are dropped if no activity is detected for a specified interval of time. For more information, see the OAM_INACT_TIMEOUT entry in Table 3-1.

Maint Menu Options

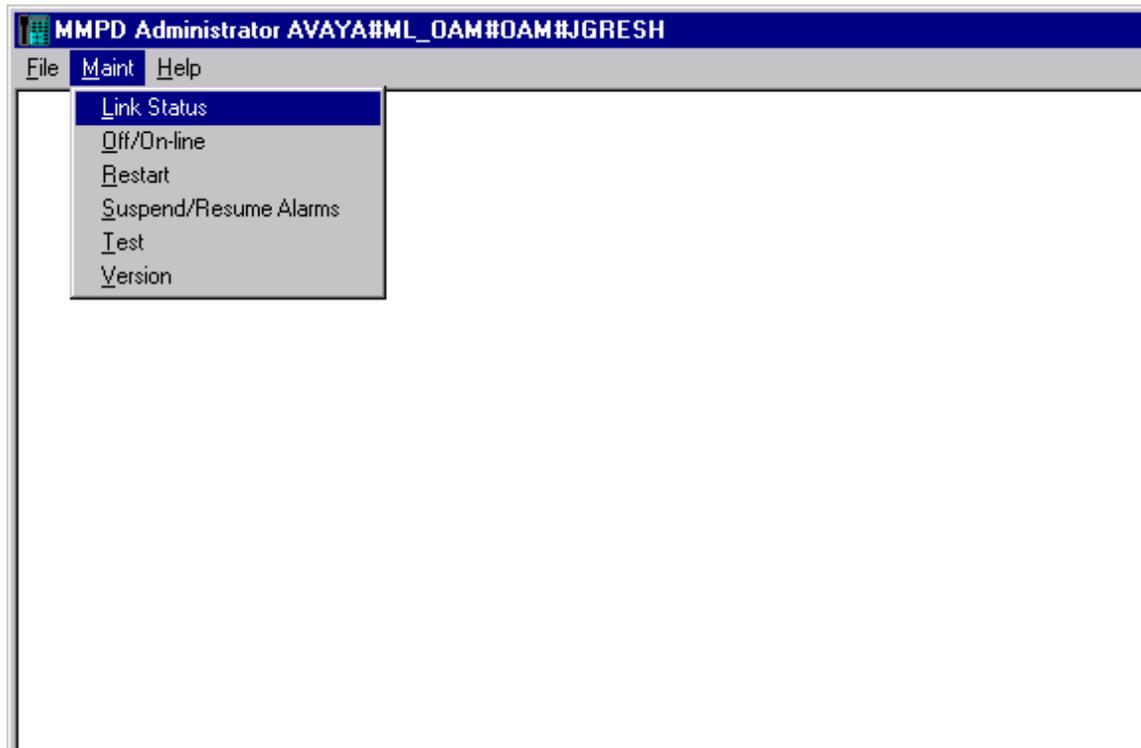Use the options on the Maint menu to view status and to perform various maintenance operations.

Figure 4-4. Maint Menu Options

Link Status Option

Use the Link Status option to display the current status of each equipped MMPD switch link.
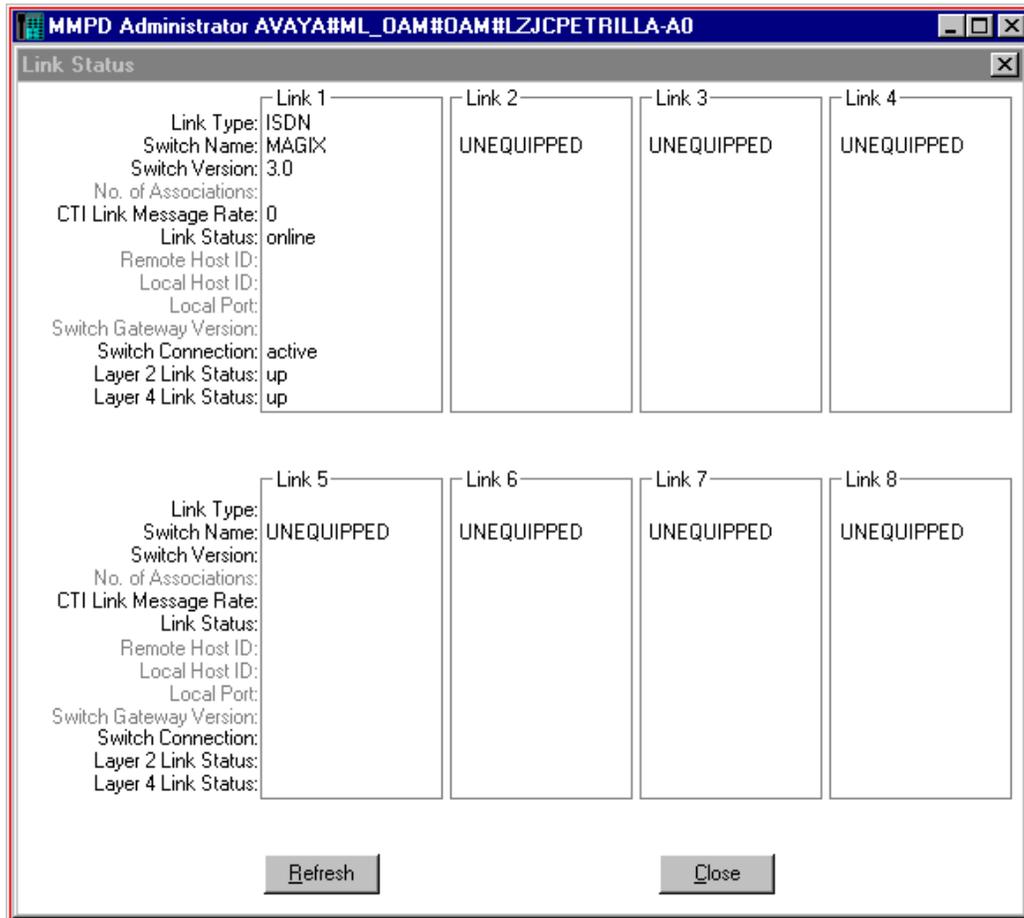

Figure 4-5. Link Status Option Output Window

The window is automatically refreshed every thirty seconds, but you can refresh it immediately by selecting **Refresh**. To exit from the window, click the **Close** button.

The fields on the Link Status output window are described in Table 4-1.

Table 4-1.   Link Status Option Output Window Fields

Field Name	Field Description
Link Type	The link type of the CTI link is ISDN.
Switch Name	The advertised switch name, or UNEQUIPPED. This is the value entered when you installed the MMPD.
Switch Version	The version number of the MERLIN MAGIX/LEGEND switch software.
CTI Link Message Rate	The number of messages sent and received per minute by the switch.
Link Status	Indicates whether the link is online or offline. This is controlled by the **Offline/Online** option.
Switch Connection	The state of the switch connection, **active** or **inactive**. This field reports how the MMPD defines the switch status. If the status is **active**, it indicates that messages can be sent and received. If the status is **inactive**, it indicates one of the following: ■ The physical wiring is not properly connected. ■ The CTI link on the switch is not administered. ■ Someone has busied out the port on the switch. ■ Communication is currently stopped, due to reasons that can be determined from Layer 2 Link Status and Layer 4 Link Status indicators.
Layer 2 Link Status	The status of the layer 2 connection to the switch. The status may be **up** or **down**. If Layer 2 Link Status is **down**, it may indicate a physical wiring problem.
Layer 4 Link Status	The status of the layer 4 (transport layer) connection to the switch. The status may be **up**, **down**, or **disabled**. If the status is **down**, it indicates that MMPD has not been able to establish a connection with the corresponding process on the switch. The transport layer may have been disabled on the switch, the switch may not be administered properly, or the switch may not be running. If the status is **disabled**, it indicates that MMPD is in pass-through mode with messages being sent and received, however, the transport layer services which ensure reliable message delivery are being bypassed.

Offline/Online Option

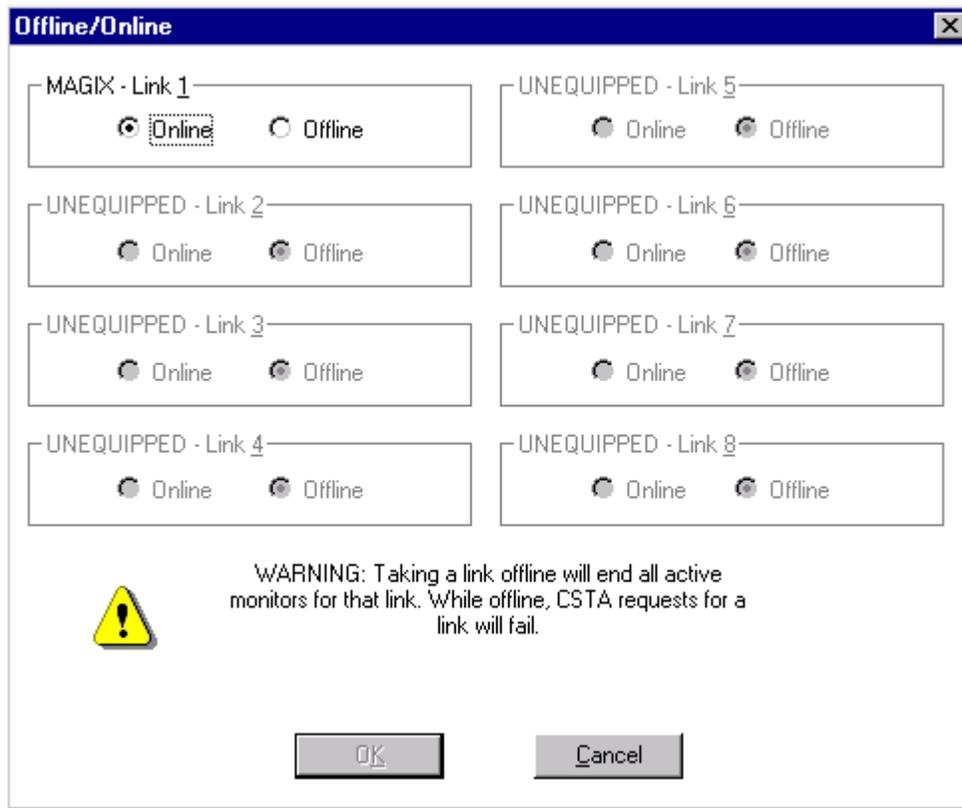Use the Offline/Online option to take the CTI link offline or online.

Figure 4-6. Offline/Online Option Dialog Box

The Offline option is destructive; taking the link offline drops the switch/link connection.

While the link is offline, no CSTA requests for that link can be processed. Furthermore, all existing device monitors are dropped (aborted). A confirmation screen must be acknowledged to complete an Offline request.

When a link is taken offline, alarms for that link are suspended. When the link is brought back online, alarms for that link are resumed.

To bring a link online or offline, select **Online** or **Offline** for that link and then click the **OK** button.

NOTE Each time the MMPD is loaded, all links are returned to the online state.

Restart Option

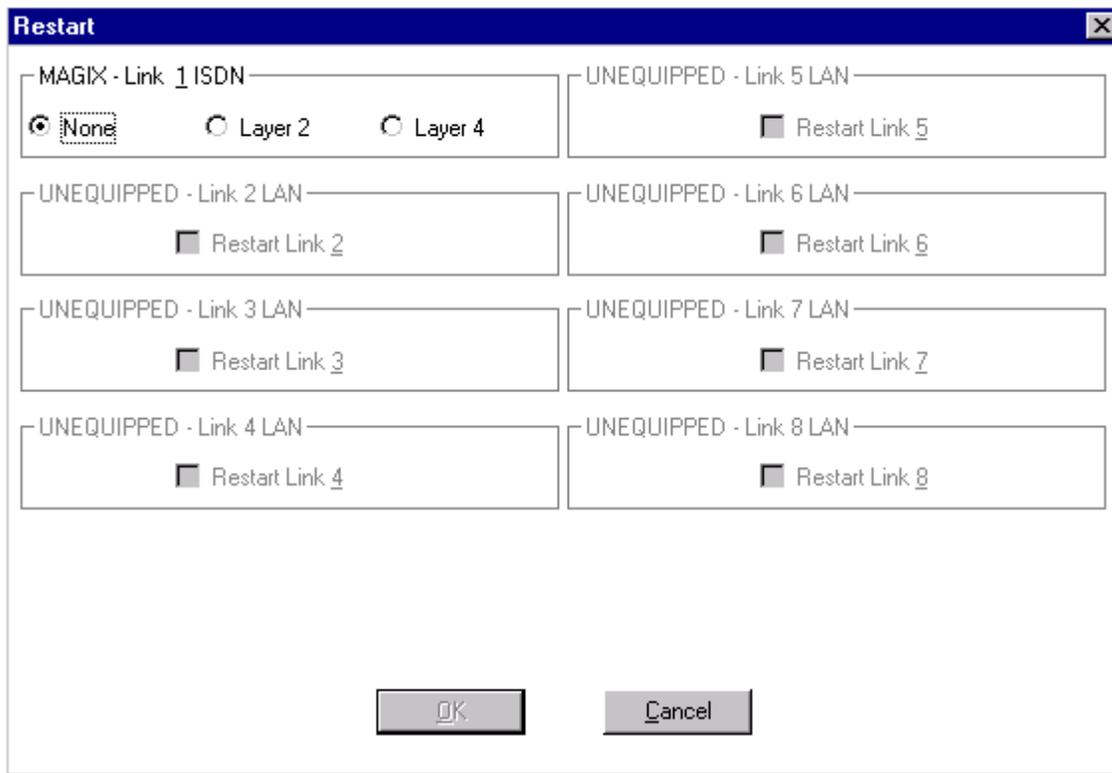Use the Restart option to restart either Layer 2 or Layer 4.

Figure 4-7. Restart Option Dialog Box

While a Layer 4 Restart is in progress, CSTA requests for that link may fail.

Select **Layer 2** or **Layer 4** and click the **OK** button to cause a link restart. When the confirmation dialog box is displayed, click the **Yes** button.

Suspend/Resume Alarms Option

Use the Suspend/Resume Alarms option to suspend or resume switch alarms for a given link.
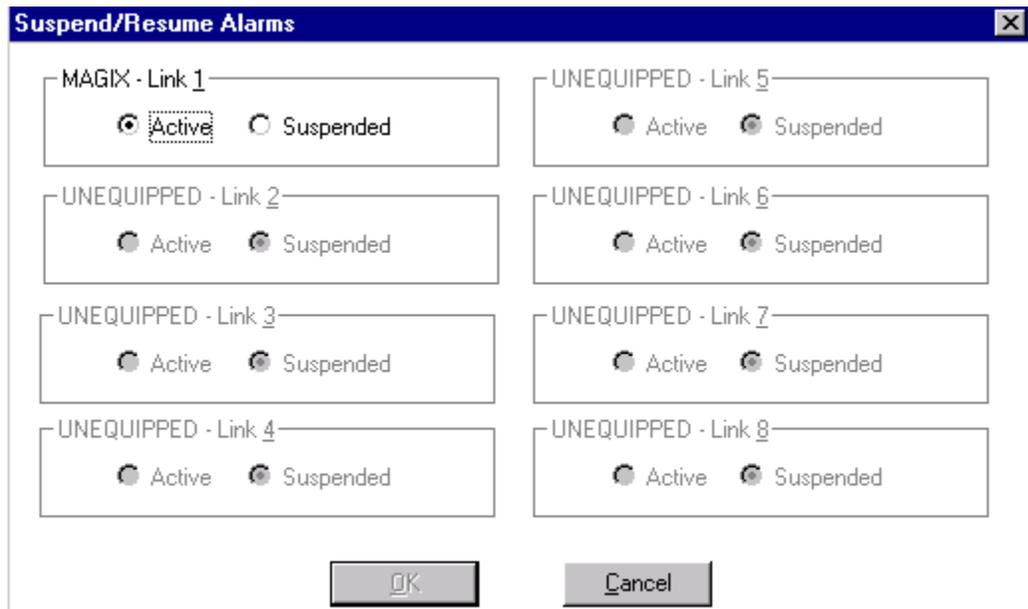

Figure 4-8. Suspend/Resume Alarms Option Dialog Box

Suspend the switch alarms if you are working on the switch link (or associated MMPD Telephony Server) and do not want an alarm to appear on the switch.

To suspend or resume alarms for a link, select the **Suspended** or the **Active** radio button, as appropriate, for that link and then click the **OK** button.

If you suspend the alarms on switch link 1 from a client and click the **OK** button, the Results window shown in Figure 4-9 is displayed on the client.
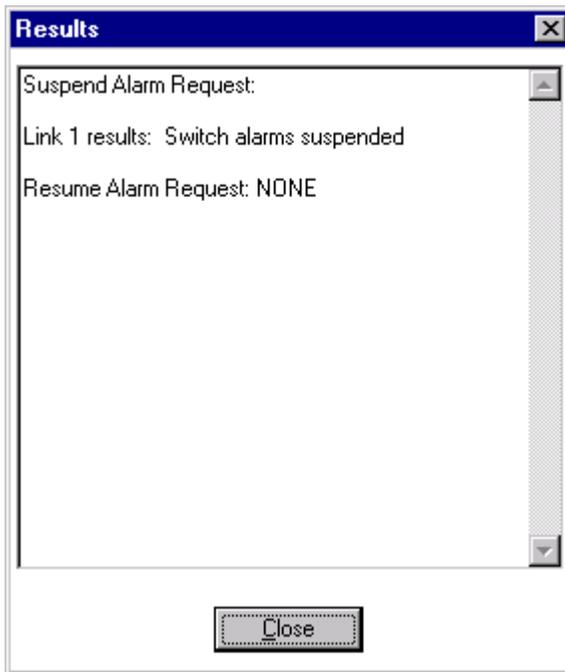
Figure 4-9. Suspend Alarm Option Results Window

NOTE▶ Each time the MMPD is loaded, alarms are resumed.

After suspending alarms on switch link 1, if you resume alarms on switch link 1 from a client and click the **OK** button, the Results window shown in Figure 4-10 is displayed on the client.
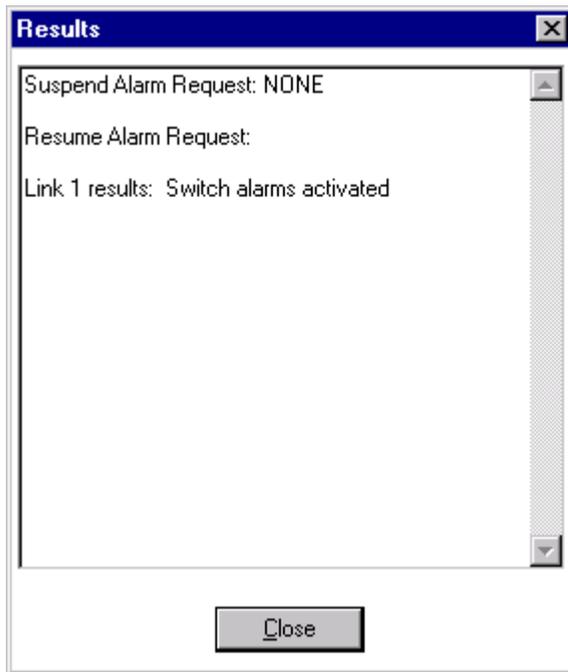
Figure 4-10. Resume Alarms Option Results Window

Test Option

Use the Test option to test a CTI link from the Windows OA&M utility.
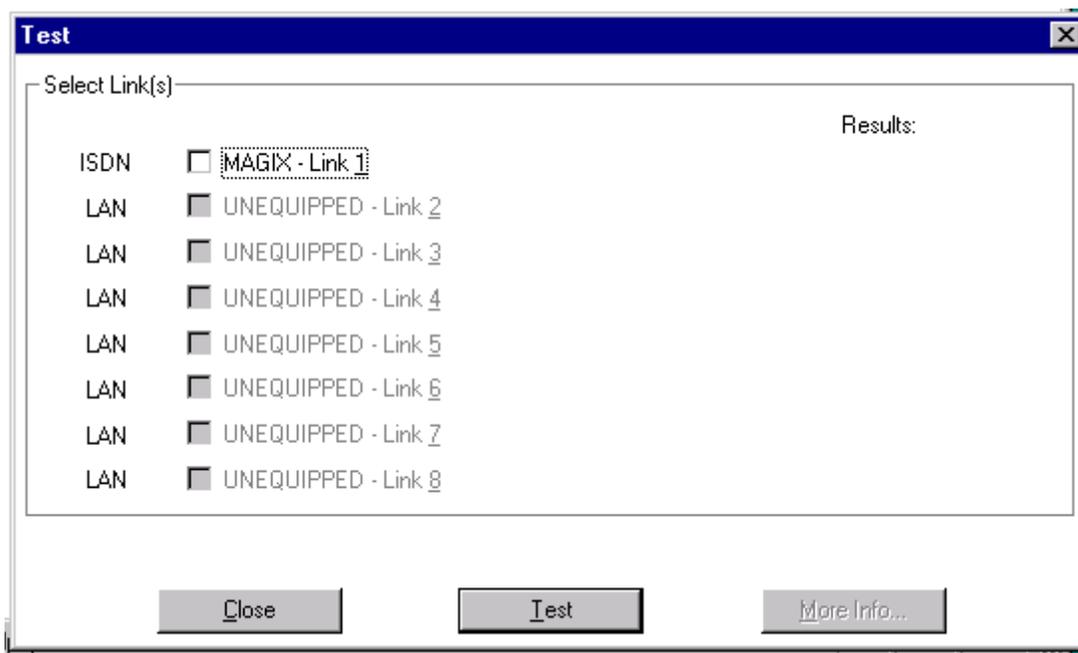

Figure 4-11. Test Option Dialog Box

Click the checkbox beside the link to be tested and then click the **Test** button.

If the switch connection is active, a message is sent to the switch to verify the communication path. The Test Results dialog box is updated with the test results for the selected links. If the test fails, information about the failure is written to the Tserver error log.

If you click the **More Info** button, a Results window providing more detailed information is displayed.
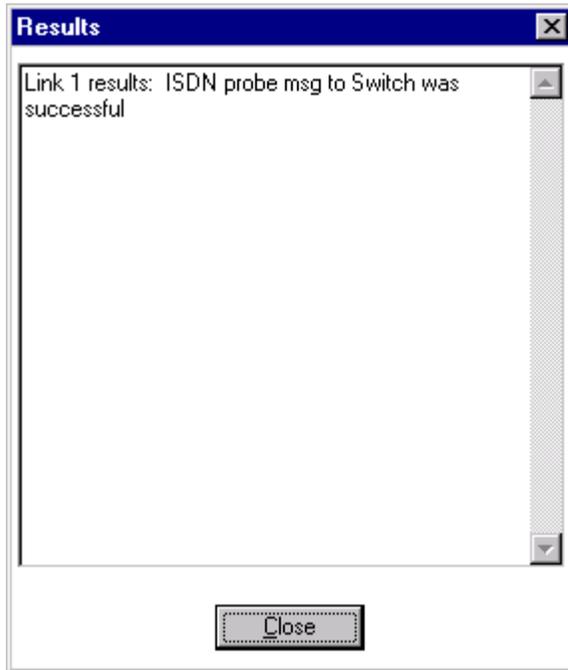
Figure 4-12. More Info Results Window

Version Option

Use the Version option to display the version strings for the MMPD, WMLOAM application, Eicon DIVA ISDN interface card model, and MERLIN MAGIX/LEGEND switch software.
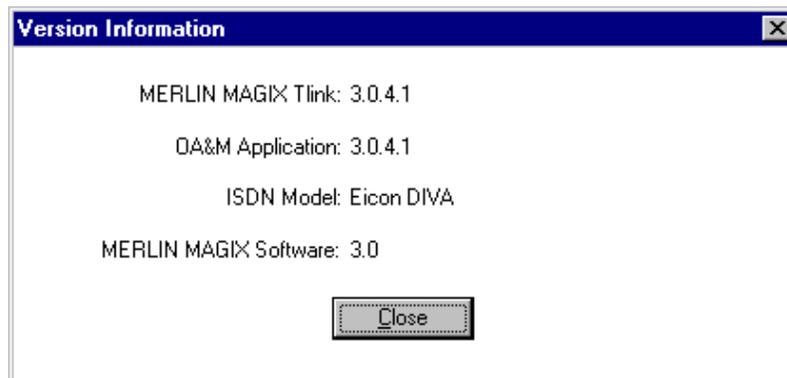
Figure 4-13. Version Option Output Window

Help Option

Use the Help option to access screens providing additional information about a specific option.

Select **Help** from the main menu, or press **<F1>**, at any time to obtain online help for WMLOAM.
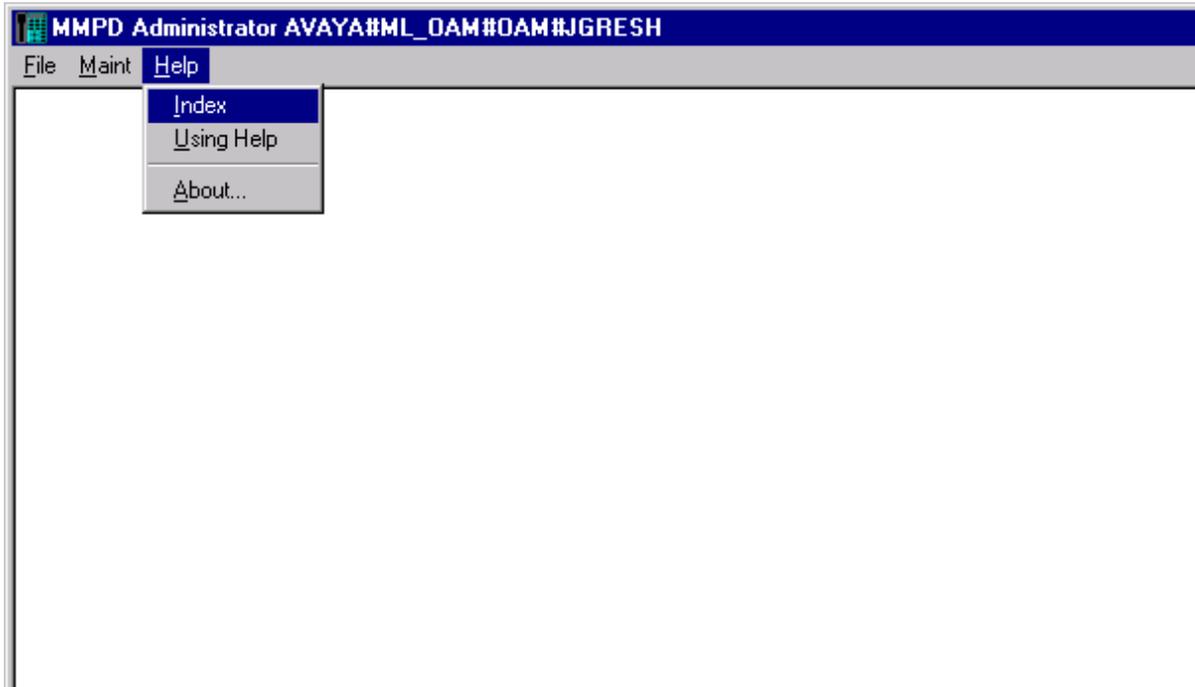
Figure 4-14. Accessing Online Help

Index Option

Use the Index option to display a scrolling window with indexed Help topics.

To access a topic, type a word in the text entry box. The part of the scrolled list with the nearest match to the word you typed is displayed.

Alternately, you may scroll to the desired topic.

Using Help Option

Use the Using Help option to display a file that describes how to use help.

About Option

Use the About option to display version information for the MERLIN MAGIX PBX Driver Administrator.

Figure 4-15. Using the About Option

Troubleshooting

5

Contents

Troubleshooting

5

Overview

This chapter describes problems that can occur with Windows 2000 or Windows NT, the MERLIN MAGIX PBX Driver, the MERLIN MAGIX/LEGEND system, the Eicon DIVA ISDN interface card, and the CTI link, and describes possible solutions to these problems.

For	See
Recommendations for corrective action	
Instructions on using the Eicon DITRACE maintenance tool	
Possible CSTA errors, listed in numerical order, that may be reported by some applications when a service request fails	

Other problems related to the Telephony Server, the services it provides, and applications running on it are discussed in the "Troubleshooting" chapter of *CentreVu Computer-Telephony: Telephony Services Administration and Maintenance* and *CentreVu Computer-Telephony: Telephony Services Troubleshooting.*

⚠ CAUTION:

Use caution before executing any tasks that may disrupt existing service.

It is safe to view the current status of the MMPD driver and associated switch link(s). Viewing the error log, trace files, and running nondestructive tests are also acceptable activities while the MMPD is providing telephony services. All other activities (taking the link offline, restarting the link, unloading the MMPD, etc.) should be run out-of-hours after providing a suitable warning to all affected users.

Problem Descriptions and Resolutions

This section details possible MMPD problems and their solutions.

MMPD Driver Won't Load

Check the Tserver error log. This may give some explanation for the error.

Verify that the MMPD software is properly installed by looking in the system directory (for example, \WINNT\system32) for MLPD.DLL and MLPRIV32.DLL. If these libraries are not in the directory, reinstall the MMPD. Follow the installation procedures in "Installing the MERLIN MAGIX PBX Driver" on page 2-35, and then attempt to load the MLPD.DLL.

NOTE▶ When using Windows Explorer to check for these files, make sure that the Explorer folder options are not set to hide. DLL files. From the Windows Explorer **View** menu, select **Options**. Within the View tab of the Options dialog box, select **Show all files**. Clear the check box for **Hide file extensions for known file types**.

A possible reason that the MMPD will not load is that the Eicon DIVA ISDN interface card settings were not configured correctly during installation. Verify that the adapter name matches (for Windows 2000, see Step 5 on page 2-26. For Windows NT, see Step 11 on page 2-19.). After verifying the installation, you may have to change one or more settings. After changing interface card settings, shut down and reboot the computer to ensure that the new settings take effect. Then attempt to load the MLPD.DLL.

If the MMPD software is installed correctly and the Eicon DIVA ISDN interface card settings are configured correctly but you still encounter this problem, contact Services.

Operating System Frequently Locks Up

The operating system (Windows 2000 or Windows NT) on the Telephony Server PC frequently locks up. The computer freezes, requiring a restart, and the computer screen displays the following text against a blue background:

```
Hardware malfunction
Call your hardware vendor for support
NMI: Parity Check/Memory Parity Error
*** The system has halted ***
```

This problem is caused by an incompatibility between the Eicon 2.015 or 2.01 DIVA ISDN card and a newer standard for PCI buses. Obtain an Eicon 2.02 DIVA ISDN card, or try using a different PC for the Telephony Server that uses the older PCI 2.0 standard.

DIVA ISDN Card Will Not Initialize

After you install the DIVA ISDN interface card and reboot the system, the DIVA ISDN interface card does not initialize. An error may be indicated when you run the DITRACE maintenance tool.

Verify the DIVA ISDN configuration settings. Refer to "Verifying DIVA ISDN Interface Card Software Installation" on page 2-21.

MDL-ERROR(G) Appears in DITRACE Output

The following text consists of a sample portion of DITRACE output that indicates an error (see `12:47:52.593 - MDL-ERROR(G)` in the lines below) that was not severe enough to prevent service operation; however, it may be indicative of some error condition with unknown ramifications. For example, when the ISDN interface type selected during installation was Standard instead of Point-to-Point, the following DITRACE output was produced.

```
------------------------- DITRACE STD EVENTS -----------------------

Build: DIVA for Windows NT 2.08 i386 98-74
_____
12:47:44.687 R 0 DIMAINT: Maintenance_Tools maint/nt 98-180
12:47:44.812 R 1 DIDD: 98-112
12:47:45.968 R 2 DIVA-SESS: DIVA Protocol Drivers for Windows NT protocol/l/
nt 98-205 Proto--12:47:51.968 R 3 DIIOCTL: 98-58
_____
12:47:44.687 L 0 DIMAINT: Maintenance_Tools maint/nt 98-180 Windows NT
Workstation (Feb 27 1998 23:31:05)
12:47:44.812 L 1 DIDD Build 98-112
12:47:44.812 R 1 Register DIWAN ports as TAPI devices
12:47:44.812 L 1 Loaded
12:47:45.968 L 2 DIVA-5ESS: DIVA Protocol Drivers for Windows NT protocol/l/
nt 98205 Protocol 6.00 98-196 [NT4] (Feb 19 1998 13:37:24)

12:47:46.312 L 2 DIVA-5ESS: Loaded
12:47:52.593 - MDL-ERROR(G)
12:47:54.156 - D-X(003) 00 15 7F
12:47:54.187 - D-R(008) FE FF 03 OF 00 00 04 15
12:47:54.187 - D-X(008) FC FF 03 0F 14 30 05 15
12:47:55.718 - D-X(003) 00 15 7F
12:47:55.734 - D-R(008) FE FF 03 0F 00 00 04 15
12:47:55.734 - D-X(008) FC FF 03 OF 06 4B 05 15
12:47:56.453 - SYNC LOST
12:47:56.468 - L1_UP
12:47:57.281 - D-X(003) 00 15 7F
12:47:57.312 - D-R(008) FE FF 03 0F 00 00 04 15
12:47:57.312 - D-X(008) FC FF 03 OF 7C 07 05 15
12:47:58.843 - D-X(003) 00 15 7F
12:47:58.859 - D-R(008) FE FF 03 OF 00 00 04 15
12:47:58.859 - D-X(008) FC FF 03 0F 2A 67 05 15
12:48:00.093 - MDL-ERROR(G)
```

When this error appears in the DITRACE message output, verify the DIVA ISDN configuration settings. Refer to "Verifying DIVA ISDN Interface Card Software Installation" on page 2-21.

Switch Connection Is Not Established

This may be the problem if users are receiving ACS Universal Failure messages with the error DRIVER_LINK_UNAVAILABLE (1007) or CSTA Universal Failure messages with the error RESOURCE_OUT_OF_SERVICE (34).

Use the Link Status option from the WMLOA&M tool (see page 4-6). The Link Status field should say **online**, the Switch Connection field should say **active**, and the Layer 2 Link Status and Layer 4 Link Status fields should both say **up**.

■   If the Layer 4 Link Status is disabled, contact Services.

■   Verify the switch CTI link administration (see Appendix C).

■   Check the DIVA ISDN interface card configuration.

■   Check the firmware version of the MLX port being used for the CTI link. For a 008 MLX or 408 GS/LS-ID-MLX module, make sure that it is not Firmware Version 29 or Firmware Version 42 with Application Version 24. If it is, replace the board with an appropriate version, or obtain and install the flash card update.

■   Check the physical wiring by ensuring that the cable for the CTI link is plugged into the correct port on the MLX port board. For details on the wire installation, refer to "System Requirements" on page 2-2.

■   Verify that neither the MLX port board for the CTI link nor the station corresponding to the CTI link, is in a Maintenance Busy condition.

■   Verify that the physical link and the PBX driver connections are up under the MERLIN MAGIX/ LEGEND switch CTI link maintenance status.

■   Run the demand test on the CTI link under the MERLIN MAGIX/LEGEND switch CTI link maintenance test.

■   Test the status of the MLX hardware on the MERLIN MAGIX/LEGEND switch via the MERLIN MAGIX/LEGEND Maintenance features. Use the Administrative set to access Maintenance and perform a Demand Test on the MLX board. The results indicate whether there are any hardware problems on the switch end of the connection.

■   Configure the CTI link on a different port on the MLX module or on a port on a different MLX module.

■   Examine the Tserver error log for possible causes.

Clients Cannot See Advertised PBX Driver

The MMPD is not visible to applications or WMLOAM.EXE. Perform the following steps:

a. Use the Telephony Services Controller to verify that Telephony Services is running. Refer to *CentreVu Computer-Telephony: Telephony Services Administration and Maintenance.*

b. From the TSA or TSM32, choose the **Driver DLL Information** option to verify that the driver is loaded. If it is not in the list or not loaded, try to load it. If this fails, refer to "MMPD Driver Won't Load" on page 5-2.

c. If you are migrating to CentreVu Telephony Services from Telephony Services for NetWare®, check that you have the correct version of software for the Telephony Services client libraries. Only the client libraries provided on the CentreVu Telephony Services CD-ROM are able to connect to a CentreVu Telephony Server.

d. Check that the TSLIB.INI file on the client workstation includes the IP address of the Tserver.

e. Open an MS-DOS box on the client and use the `ping` command to ping the Tserver machine from the client workstation. If a reply is not received for each packet sent, there may be a problem with the TCP/IP configuration on the client or server, the configuration of the network adapter cards on the client or server, the configuration of routers and hubs between the client and server, or the physical wiring. Verify that the link integrity settings for the network adapter cards installed in the client and server are consistent with the settings on any Ethernet hubs.

If you are able to ping the Tserver from other client workstations, then the problem is most likely *not* with the server configuration.

If you are able to ping other TCP/IP machines from the client workstation, then the problem is most likely *not* with the client configuration.

If your TSLIB.INI file contains host names rather than IP addresses, use the command `ping` *<hostname>* to verify that host name resolution is operational from the client.

f. If the driver is loaded, run the TSA or TSM32 and choose the **Tlink Information** option to verify that the driver is registered with the Tserver. If the Tlink name is not in the list or it is not registered, view the Tserver error log for more information.

If the problem still exists, check a different client to see if the problem is with the MMPD or the Tserver, or with the client itself.

Switch Error Log Reporting CTI LINK HIDDEN RESET (A801)

A hidden reset is a momentary interruption of data flow across the CTI link. It does not cause any loss of data or any kind of application failure. If the event occurs only occasionally, it is no cause for concern. If it occurs more often (for example, every day), it may be a symptom of a more serious problem, and you should notify Tier 4 Support.

Hidden resets may occur normally during periods of maintenance affecting the MERLIN MAGIX/ LEGEND switch, the Tserver, or the CTI link. A hidden reset may also occur during startup processing for either the MMPD or the MERLIN MAGIX/LEGEND switch. In those circumstances, the hidden reset message can be ignored.

Not All Events Are Received by the Application

An example of this problem occurs when a user receives a call but the application does not notify the user. First, verify that the settings for the EICON ISDN interface card are correct. If not, correct them. Otherwise, start the tracing utility program for the client or the Tserver (TS Spy) to see if the event is being sent to the client workstation. If it is, then there is a problem with the application.

If the TS Spy indicates that event messages are not being received, contact Services.

Clients Fail to Connect (acsOpenStream) to a Visible MMPD

Errors related to this connection are visible in the Tserver error log, or may be determined from the returned error code (for example, if the switch link is down, the MMPD returns DRIVER_LINK_UNAVAILABLE (1007) when the client attempts an open). Use the Link Status option to verify that the link is on line. Follow the recommendations given in "Switch Connection Is Not Established" on page 5-4.

Slow Performance

Slow performance is frequently caused by insufficient memory. You must do one of the following:

- Reduce the number of applications running on your server.
- Reconfigure MMPD memory usage.
- Add more memory to the server.

To reconfigure MMPD memory, access the MERLIN MAGIX Driver Configuration Utility from the Programs->TSAPI Telephony Services->PBX Drivers-> MERLIN MAGIX PBX Driver folder that is accessible from your Start menu. Refer to Table 3-1 on page 3-2 for details about the tunable parameters.

Poor Link Performance or Unexplained Lost Messages

During MMPD initialization (when the MMPD is loaded), a set of system parameters is written to the Tserver error log, along with the value being used for each. Generally, these parameters are used to tune system performance and should *never* need to be changed. If a problem in system operation or performance arises, it may be useful to look in the Tserver error log for these parameters, and see if any of them are set to any value other than the system defaults. If they are, contact Tier 4 Support.

The listing below includes a portion of the Tserver error log, showing the parameters and the default values of each. The parameters and their default values are shown following the string AUDIT_TRAIL:

```
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: IPCI_INTR = 0
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: LINK1_NAME = MAGIX
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: OAM_NAME = ML_OAM
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: IPCI_UNITS = 1
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: NUM_SESSIONS = 50
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: NUM_DEVICE_MONITORS = 50
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: NUM_SESSION_REQUESTS = 20
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: NUM_SESSION_MONITORS = 40
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: OAM_INACT_TIMEOUT = 30
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: MAX_TDI_MEMORY = 1048576
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: HWM_TDI_MEM PERCENT = 80
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: MAX_REQS_QUEUED_PER_DEV = 10
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: MAX_REQS_QUEUED_PER_PBX = 10
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: LINK1_TYPE = ISDN
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: LINK1_DEST =
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: LOCAL_IP = (null)
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: LAN_UNITS = 0
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: VENDOR_NAME = AVAYA
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: PROJECT_PATH = C:\PROGRAM
FILES\TELEPHONY SERVICES\MLPD\
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: HIDING TIME = 25
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: ADAPTER1 NAME = MAGIX
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: MLTP ACK TIME = 4
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: MLTP RE_XMIT COUNT = 1
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: MLTP MSG WINDOW = 3
8/27/01 10:49:12 MLPD 58001 0 AUDIT_TRAIL: MLTP DISABLED = 0
```

Configurable parameters for the MLPD are described in .

CSTA RESOURCE_OUT_OF_SERVICE (34) Error Received

The user receives CSTA Universal Failure messages with the error RESOURCE_OUT_OF_ SERVICE (34) or is notified that device monitoring has ended. Either or both of these problems may occur if the CTI link between the Telephony Server and the MERLIN MAGIX/LEGEND switch goes down or is restarted, if the physical wiring was disconnected, or if the MLX port for the CTI link was in a Maintenance Busy condition.

a. Check the wiring.

b. Use the Link Status option to verify that the CTI link is on line (see page 4-6). Follow the recommendations given in "Switch Connection Is Not Established" on page 5-4.

c. Check MERLIN MAGIX/LEGEND switch administration for recent changes to MERLIN MAGIX/LEGEND switch configurations, such as board renumbering.

d. If the link is restarting, the RESOURCE_OUT_OF_SERVICE errors should clear up when the restart is complete.

e. Check the configuration of the Eicon DIVA ISDN interface card. Refer to one of the following procedures depending on the type of Eicon DIVA ISDN card installed and the Windows system on the PC:

■ "Installing the Eicon DIVA 2.02 PCI Software for Windows 2000" on page 2-8

■ "Installing the Eicon DIVA 2.02 PCI Software for Windows NT" on page 2-16

■ "Installing the Eicon DIVA 2.02 PCI Software for Windows NT" on page 2-16

f. If the link has gone down and does not come back up, unloading and reloading the MMPD may clear the problem.

If either of these problems occurs frequently for unexplained reasons, there is most likely a problem with the CTI link, and you should report this to the Services organization.

CSTA Error REQUESTS_ON_DEVICE_EXCEEDED REJECTION (79) Received

The user receives CSTA Universal Failure messages with the error REQUESTS_ON_DEVICE_ EXCEEDED_REJECTION (79). This error indicates that the number of outstanding requests for a particular device has been exceeded. You can increase the maximum number of outstanding requests by increasing the value assigned to the MAX_REQS_PER_DEVICE parameter. Refer to page 3-2.

Follow the recommendations given in "Poor Link Performance or Unexplained Lost Messages" on page 5-7.

Information about many of the CSTA errors are found in "CSTA Errors" on page 5-20.

Application Received an ACS Error

Applications use API Control Services (ACS) to manage their sessions with Telephony Services. The Telephony Server may report an ACS error to the application. These errors are defined in Chapter 11 of the *CentreVu Computer-Telephony: Telephony Services Administration and Maintenance* Manual.

ACS Error TSERVER_DRIVER_CONGESTION (73) Received

If this ACS error message is received, the Max Flow Allowed parameter (also referred to as Flow Control) may have to be adjusted. This parameter controls the amount of memory allocated to the Tlink. It may be set through the Tlink Information Details dialog box in the TSA or the Tlink Status dialog box in the TSM32. For information about changing this parameter, refer to the "Tlink Status" section of Chapter 8 in the *CentreVu Computer-Telephony: Telephony Services Administration and Maintenance Manual*.

This ACS error may also occur if your CTI application generates a large number of outstanding CTI requests without processing the responses from the MMPD. In this case, report the problem to your application vendor.

Questions About Switch Feature Operations

For information on the parameters to use for controlling calls, refer to the *Telephony Services Application Programming Interface (TSAPI)*, Version 2 document. For descriptions on actual feature behavior, refer to MERLIN MAGIX *Feature Reference* or MERLIN LEGEND *Feature Reference*.

How a Dropped CTI Link Affects Telephony Services Requests

If the link goes down, all outstanding requests associated with that link (monitors, etc.) are aborted by the switch. The client receives:

■ A CSTA Universal Failure event for each outstanding request (***cstaMakeCall()***, etc.). An outstanding CSTA request is one that has not yet received a confirmation event. The error code is set to RESOURCE_OUT_OF_SERVICE (34).   The user should reissue the request. Once the link is available again, a new request should be successful.

■ A Monitor Ended event for any previously established monitor requests. The cause is EC_NETWORK_NOT_OBTAINABLE (21). The client should re-establish the monitor request. This may require restarting the application. Once the link is available again, a new monitor request should be successful.

How a Dropped CTI Link Affects Open Streams

If service becomes unavailable because the CTI link is down, any subsequent Telephony Services requests over any open streams receive a CSTA Universal Failure event RESOURCE_OUT_OF_SERVICE (34).

Any attempts to open a stream to a PBX that has no links available result in an ACS Universal Failure message with the error code set to DRIVER_LINK_UNAVAILABLE (1007).

Tserver Error Log

The error logging feature provides a common error log for viewing the errors generated by the Tserver, the MMPD, and any other PBX drivers that are configured to log to this file.

For the Tserver's interpretation of each of the six severity levels, refer to the severity level descriptions in section "Tserver Error Log" in Chapter 11 of *CentreVu Computer-Telephony: Telephony Services Administration and Maintenance*.

Troubleshooting the DIVA ISDN Interface Card

Problems with the Eicon ISDN drivers or the ISDN connection (that is, the Eicon Technology Group DIVA ISDN interface card) can be tracked by doing one of the following:

■ For installations using the 2.02 or 2.015 PCI card, use Line Check, an Eicon Maintenance tool described in the following sections.

■ For installations using the 2.01 PCI or ISA card, DITRACE, an Eicon maintenance tool, is available and is described in the following sections.

NOTES▶ ■ Most likely you will never need to use the information in this section and it can be safely ignored. This information is provided for the rare instance when you encounter a problem with an Eicon ISDN driver or the ISDN connection and have been instructed by Services personnel to run the DITRACE maintenance tool.

■ For information about installing the Eicon Technology Corporation DIVA ISDN interface card, refer to .

Instructions for Windows 2000

To view and analyze errors if you have problems with either the Eicon ISDN drivers or the ISDN connection on a PC with Windows 2000, do the following:

1. Open **DIVA** from the Programs folder on the Start menu.

2. Select **Line Check** to display the DIVA Line Check dialog box as shown in Figure 5-1.
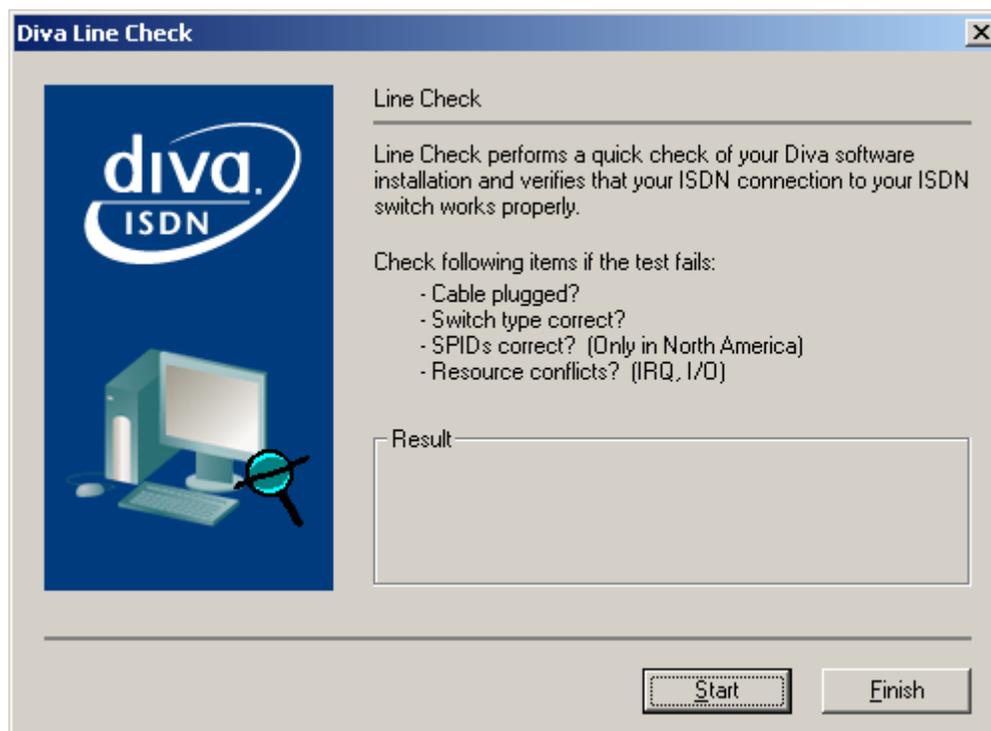
Figure 5-1. DIVA Line Check Dialog Box

3. Click **Start** to check the DIVA ISDN Interface configuration. If the Line Check is successful, the message **SUCCESS! Line Check test passed** appears in the Result section of the dialog box.

4. Click **Finish** to close the DIVA Line Check dialog box.

Instructions for Windows NT

To view and analyze errors if you have problems with either the Eicon ISDN drivers or the ISDN connection on a PC with Windows NT, use one of the following procedures:

■   for Installations with the 2.02 or 2.015 PCI Card, follow instructions under "Using Line Check (for Installations with the 2.02 or 2.015 PCI Card)" on page 5-12

■   for Installations with the 2.01 PCI Card or ISA Card, follow instructions under "Using the DITRACE Tool (for Installations with the 2.01 PCI Card or ISA Card)" on page 5-13

Using Line Check (for Installations with the 2.02 or 2.015 PCI Card)

For installations with the 2.02 or 2.015 PCI card on a PC with Windows NT, the Line Check tool is used to view and analyze errors if you have problems with either the Eicon ISDN drivers or the ISDN connection.

1. Open **Eicon ISDN Tools (Common)** from the Programs folder on the Start menu.

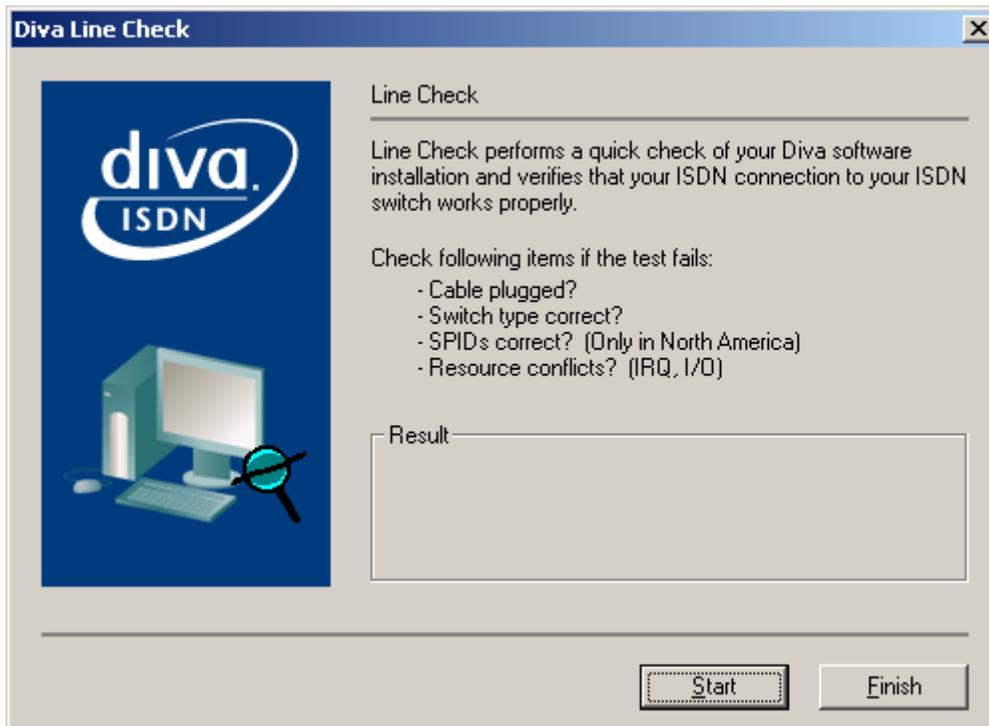2. Select **Line Check** to display the DIVA Line Check dialog box as shown in Figure 5-2.

Figure 5-2. DIVA Line Check Dialog Box

3. Click **Start** to check the DIVA ISDN Interface configuration. If the Line Check is successful, the message **SUCCESS! Line Check test passed** appears in the Result section of the dialog box.

4. Click **Finish** to close the DIVA Line Check dialog box.

Using the DITRACE Tool (for Installations with the 2.01 PCI Card or ISA Card)

For installations with the 2.01 PCI card or with the ISA card on a PC with Windows NT, the DITRACE tool is used to view and analyze errors if you have problems with either the Eicon ISDN drivers or the ISDN connection. When used on the Eicon DIVA ISDN interface card, DITRACE records adapter messages from the drivers, as well as information on ISDN D-channel activities. This allows you to get information on the status of the ISDN connection.

During operation, each Eicon driver sends status messages and error messages, if they occur. The messages are written into a memory range of fixed size so that the oldest messages are overwritten when the memory range is full.

When the DITRACE Standard option of the DITRACE tool is run, the message content output is recorded as ASCII text output. When DITRACE is stopped by pressing <**CTRL**> + <**C**>, the ASCII text file is automatically started in your default text viewer for viewing and editing purposes. If you have defined a temporary directory (for example, c:\temp), the file is stored there; otherwise, it is stored in the Windows directory.

When the DITRACE All Events option of the DITRACE tool is run, the message content is recorded as binary output. When DITRACE is stopped by pressing <**CTRL**> + <**C**>, the binary output is written to a default log file. Each time you run DITRACE, each subsequent default log file is numbered consecutively, for example, Ditrc_001, Ditrc_002, Ditrc_003, and so forth.

Starting DITRACE

To start the DITRACE tool, select one of the program items located in the Programs folder on the Start menu. The items are:

DITRACE All Events

DITRACE CAPI Events

DITRACE PPP Events

DITRACE Standard

DITRACE Window

Readme

You will typically use either DITRACE Standard or DITRACE Window. The DITRACE Standard icon will provide a record of all standard events taking place. The DITRACE Window allows you to have access to a window in which you can enter DITRACE commands using specific parameters, such as `DITRACE -l -p`.

Listing the Drivers

Use the following procedure to list the drivers that are loaded.

1. Select **DITRACE Window** that is located in the Programs folder on the Start menu.

   A DITRACE window opens.

2. Type **DITRACE -l** on the command line and wait a few seconds.

Sample output is shown in Figure 5-3 with the names of the drivers along with the number assigned to each driver in the order in which it was loaded.

```
C:\TEMP>ditrace -l
14:15:05.390 R 0 DIMAINT: Maintenance_Tools maint/nt 98-180
14:15:05.453 R 1 DIDD: 98-112
14:15:06.578 R 2 DIVA-5ESS: DIVA Protocol Drivers for Windows NT
protocol/1/nt 98-205 Proto 14:15:07.750 R 3 DIIOCTL: 98-58
```

Figure 5-3. Sample DITRACE Message Showing Drivers Loaded

In Figure 5-3, the **DIMAINT** driver is assigned the number **0** and the **DIVA Protocol Drivers for Windows NT** is assigned the number **2**. These numbers are important since they are used to refer to the drivers in the trace messages. The names of the drivers are not used.

The DITRACE tool produces information about the following drivers. Each driver is described in Table 5-1

Table 5-1. Eicon ISDN Drivers

ISDN Driver	Description
DIMAINT	Maintenance Driver: This driver buffers the DITRACE messages. It is installed automatically with the first DIVA for Windows NT or Windows 2000 component you install on your system.
DIDD	ISDN Direct Interface Driver: This driver performs management tasks in conjunction with the other card drivers. It is installed automatically with the first ISDN Software Suite component you install on your system.
DIVA	This driver supports the DIVA Client family of Eicon ISDN adapters.
DIIOCTL	The User Mode IDI driver provides you with a user mode interface to access the Eicon ISDN adapters at the IDI (ISDN Direct Interface) level. The ISDN Direct Interface is a low-level abstraction layer to ISDN services common to all Eicon ISDN adapters. It is intended for those users who want to develop applications that require additional ISDN features that are not accessible through the known standard interfaces. The DIIOCTL driver implements this so-called IOCTL interface and executes the instructions of the attached application.

Troubleshooting the DIVA ISDN Interface Card

Using DITRACE Command Line Parameters

You can enter the DITRACE command using command line parameters to set an individual debug mask and thereby control the trace. The meanings of the DITRACE command line parameters are described in Table 5-2.

Table 5-2.   DITRACE Command Line Parameters

Parameter	Description
-l	List driver_id / version of currently registered drivers.
-d	Specify driver to debug / for configuration.
-m	Get/set debug mask for driver <driver_id>.
-p	Poll debug driver continuously.
-o	File for raw debug data output (automatic file extension.3).
-r	Interactively insert remarks preceded by <tag>.
-s	Milliseconds between periodic buffer flushes.
-w	Wraparound size limit for <output_file> in kilobytes.
-i	Interpret raw debug data from <debug_file> or stdin.

Select **DITRACE Window** from the Programs folder on the Start menu. A DITRACE window opens. To display the drivers that are loaded, use the `-l` parameter; to continuously display the trace messages every two seconds, use the `-p` parameter; and to direct the output to a file, use the `-o` parameter followed by the name of the file (for example, `log`).

To combine these parameters, type `DITRACE -l -p -o log` on the command line. Stop the trace activity by pressing <**CTRL**> + <**C**>. The trace output is stored in the file `log.3` (it is automatically given a `.3` extension). If there are older trace files, they are automatically renamed with each new restart of the DITRACE tool. They are renamed from `log.3` to `log.2`; then `log.2` to `log.1`; then `log.1` to `log.0`.

The trace messages in the `log.3` output file are binary encoded and cannot be read. In order to interpret the messages, enter the following command to convert the binary information into a text file.

```
DITRACE -l log.3 > log.txt
```

The log.txt file can be read with a text editor. You can now select the output pertaining to a single driver using the `-d` option and/or special debug masks with the option `-m`.

Analyzing DITRACE Errors

DITRACE tool errors consist of loading and connection errors that can be read in the `log.txt` file. The first part of the `log.txt` file shows the loading process of the drivers. You can determine whether the interface card can be accessed and which drivers are loaded. The remaining part of the `log.txt` file indicates whether there were any connection errors.

If a connection cannot be established, the log file can help you find the reason for the connection failure. Every connection attempt ends with a state value (cause code).

The error messages are structured as follows:

`0931= xx (yy)`

The error code is enclosed within parentheses (*yy*)**.** Explanations of the error codes are shown in Table 5-3.

Table 5-3.   DITRACE Error Codes

Error Code	Description
00	No cause
Normal Events	
81	Unallocated (unassigned) number
82	No route to specified transit network
83	No route to destination
86	Channel unacceptable
87	Call awarded and being delivered in an established channel
90	Normal call clearing
91	User busy
92	No user responding
93	No answer from user (user alerted)
95	Call rejected
96	Number changed
9A	Non selected user clearing
9B	Destination out of order
9C	Invalid number format
9D	Facility rejected
9E	Response to STATUS ENQUIRY
9F	Normal, unspecified
Resource Unavailable	
A2	No circuit/channel available
A6	Network out of order
A9	Temporary failure
AA	Switching equipment congestion
AB	Access information discarded

Table 5-3. DITRACE Error Codes—*Continued*

Error Code	Description
AC	Requested circuit/channel not available
AF	Resources unavailable, unspecified
Service or Option not Available	
B1	Quality of service unavailable
B2	Requested facility not subscribed
B9	Bearer capability not authorized
BA	Bearer capability not presently available
BF	Service or option not available, unspecified
Service or Option not Implemented	
C1	Bearer capability not implemented
C2	Channel type not implemented
C5	Requested facility not implemented
C6	Only restricted digital information bearer capability is available
CF	Service or option not available, unspecified
Invalid Message	
D1	Invalid call reference value
D2	Identified channel does not exist
D3	A suspended call exists, but this call identity does not
D4	Call identity in use
D5	No call suspended
D6	Call having the requested call identity has been cleared
D8	Incompatible destination
DB	Invalid transit network selection
DF	Invalid message, unspecified
Protocol Error	
E0	Mandatory information element is missing
E1	Message type nonexistent or not implemented
E2	Message not compatible with call state or message type nonexistent or not implemented
E3	Information element nonexistent or not implemented

Troubleshooting the DIVA ISDN Interface Card

Table 5-3. DITRACE Error Codes—*Continued*

Error Code	Description
E4	Invalid information element contents
E5	Message not compatible with call state
E6	Recovery on timer expiry
EF	Protocol error, unspecified
Internetworking	
FF	Internetworking, unspecified

For More Information About the Eicon DIVA ISDN Card

You can contact Eicon Technology Corporation directly via the web. Their main URL is: **http://www.eicon.com**.

NOTE▶ Do not download Eicon driver updates from the Eicon website unless advised to do so by Services. The newest driver updates may not have been tested by Avaya.

CSTA Errors

This section describes the possible CSTA errors, listed in numerical order, that may be reported by some applications when a service request fails.

NOTE▶ If you experience persistent problems, and the error descriptions provided below do not explain the cause, there may be a problem with the application's configuration, or a software error may have occurred within the application. Contact your application provider for additional assistance.

GENERIC_UNSPECIFIED (0)

This error indicates that the application attempted a service request, but one of the following conditions occurred:

■ The application requested a call control service for a call that appeared on an unsupported button type. MERLIN LEGEND systems and MERLIN MAGIX Release 1.0 and 1.5 systems do not support call control services for calls appearing on Shared System Access, Coverage, Personal Line and Pool buttons. MERLIN MAGIX Release 2.0 and later systems do not support call control services for calls appearing on Shared System Access buttons.

■ The application attempted to make a conference call or transfer a call but the call was Senderized.

■ The application attempted to make a conference call or transfer a call but the call was in a Directed Group Calling (DGC) queue.

■ The application attempted to make a conference call to a busy extension.

■ The application attempted to make a conference call, but the request exceeded the limitation on the number of parties permitted by the switch.

■ The application attempted to hold, retrieve, conference, or transfer an observed call at the station of a service observer.

■ The application attempted to transfer or add a party to an existing conference call.

■ The service request could not be completed for some other unspecified reason.

GENERIC_OPERATION (1)

This error most likely indicates a software error in the application. This error applies only when the application attempted to make a conference call or transfer a call. Contact your application provider for assistance.

VALUE_OUT_OUT_RANGE (3)

For MERLIN MAGIX Release 3.0 and later systems, this error indicates that the application attempted to enter an Agent ID (using set agent state) for an extension and the Agent ID was outside the administered range.

INVALID_CALLING_DEVICE (5)

This error indicates that there was a problem with the originating extension when the application attempted to make a call. The problem may have been that the originating extension:

■ Was not a valid extension in the dial plan.

■ Was not a supported extension set type.

■ Was not in Responding Mode. (The extension may have been out of service.)

■ Was configured as a Queued Call Console (QCC).

■ Did not have a System Access (SA) button available to originate the call.

■ Was not provided by the application.

Check the status of the extension and the application's configuration.

INVALID_CALLED_DEVICE (6)

This error indicates that the called number specified for the service was invalid. This may have been because:

■ The calling number and the called number were the same. (An extension cannot place a call to itself.) This applies when the application attempted to make a call, a consultation call, conference a call, or transfer a call.

■ For MERLIN LEGEND Release 5.0 or later systems and MERLIN MAGIX Release 1.0 systems, the called number was an external number, a non-local extension in the Uniform Dialing Plan (UDP), or was not a valid number in the dial plan. This applies for attempts to conference a call, transfer a call, or make a consultation call.

■ For MERLIN MAGIX 2.0 and later systems only, the application attempted to deflect a call to an extension configured as a Queued Call Console (QCC), to a non-local extension in the UDP, or to a calling group with a non-local member.

INVALID_CSTA_DEVICE_IDENTIFIER (12)

This error indicates that the application attempted to request a service for an ineligible device.

■ The application attempted to monitor a QCC position, a non-local extension, or, prior to MERLIN MAGIX Release 1.5, attempted to monitor a calling group.

■ The application requested a call-control service for a QCC position, for a non-local extension in the Uniform Dialing Plan (UDP), or for a station that is non-responding (unplugged).

■ The application attempted to set or query the agent state of a QCC or a non-station extension number, for example a trunk or a calling group extension.

■ The application attempted to set or query the status of the Do Not Disturb feature for a QCC position, or for a non-station extension number.

■ The application attempted to set or query the status of the Message Waiting light for a QCC position, or for a non-station extension number.

- The application attempted to obtain information about calls appearing at a non-station extension number.

- The application attempted to retrieve a list of calling group members for an extension that is not a calling group.

- The application attempted to obtain Group Calling administration data for an extension that is not a calling group.

- The application attempted to obtain the number of queued calls for an extension that is not a calling group.

- The application requested the administered label for an extension that is not a station, line or a calling group (for example, for a paging group).

- The application attempted to obtain the trunk status for a device that is not a line or trunk, for example, a station.

INVALID_CSTA_CONNECTION_IDENTIFIER (13)

This applies when the application attempted to answer a call, clear a connection, conference a call, make a consultation call, hold a call, retrieve a call, or transfer a call.

This error indicates that the call and/or extension specified for the service was not valid. Some possible reasons are:

- The call did not exist in the MERLIN MAGIX/LEGEND switch. The call may have been terminated before the service request was received.

- The call was not present at the extension.

- The extension was configured as a Queued Call Console (QCC).

- The extension was not a supported set type.

- The extension was not in Responding Mode (The extension may be out of service.)

- There was a software error in the application.

- The application attempted to deflect (redirect) an alerting call that is not present at a local extension or in a calling group queue.

INVALID_FEATURE (15)

This error indicates that the application requested a service that is not supported by the MERLIN MAGIX PBX Driver or by the switch, or that the application attempted to set the state of an agent and the requested agent state is not valid. Valid agent states are: Available, Unavailable, and After Call Work State.

INVALID_CROSS_REF_ID (17)

Most likely this error indicates that there is a software error in the application. This applies only when the application attempted to end a device monitor. Contact your application provider.

INVALID_OBJECT_TYPE (18)

This error indicates that the Calling Group number specified for a service was a calling group with a non-local member.

GENERIC_STATE_INCOMPATIBILITY (21)

This error indicates that the application attempted to deflect a call, but the following condition occurred:

- The called extension is present but is not in the proper state to receive a DGC call.

INVALID_OBJECT_STATE (22)

This error indicates that the extension or call specified for a service was not in an appropriate state. To determine the cause of the problem, consult the section below for the appropriate operation attempted by the application. The operations are listed in alphabetical order.

Attempted to Answer a Call

This error indicates that the application attempted to answer a call that was present at the extension, but one of the following conditions occurred:

- The call was not ringing (it may already have been answered).

- The extension was active on another call.

- The extension was Responding, but was not in Normal Mode (for example, the extension was in Program or Feature mode).

- Answering the call would have disrupted some activity already in progress at the extension.

Attempted to Change Do Not Disturb Feature Status

This error indicates that the application attempted to change the Do Not Disturb feature status and the extension was not in the normal mode.

Attempted to Conference a Call

This error indicates that the application attempted to conference a call and one of the following conditions occurred:

- The extension attempting to conference the call is not the conference originator. Only the conference originator can add additional parties to a conference call.

- The connection for the party being added to the call was not in the active state. It was on hold or in some other state.

- The original call was being held at the extension, but that connection was not held-for-conference or held-for-transfer. It was in some other state. This occurs if the call on hold was on regular hold.

- The extension was Responding, but was not in Normal Mode (for example, the extension was in Program or Feature mode).

- The last party added to the call was not added on an SA button and a conference call request was made.

Attempted to Deflect a Call (MERLIN MAGIX 2.0 and Later Only)

This error indicates that the application attempted to deflect a call, and one of the following conditions occurred:

- The call was not a Calling Group call.

- The call was not alerting or queued.

- The call is already on a button other than an SA button, for example, a coverage button.

- The application attempted to deflect a returning call at the agent (that is, transfer return).

Attempted to Disconnect a Call

This error indicates that the application attempted to clear a connection (that is, disconnect the call) and either the call or the extension was not in the correct state. Possible causes include:

- The call was on hold or was ringing.

- The extension was Responding, but was not in Normal Mode (for example, the extension was in Program or Feature mode).

Attempted to Enter an Agent ID (MERLIN MAGIX 3.0 and Later Only)

In Release 3.0 and later systems, this error indicates that the application attempted to enter an Agent ID (using set agent state) for an extension and the Agent ID is in use by another Calling Group member.

Attempted to Hold a Call

This error indicates that the application attempted to hold a call and one of the following conditions occurred:

- The call was not in the active state.

- The extension was active on another call.

- The extension was Responding, but was not in Normal Mode (for example, the extension was in Program or Feature mode).

- On a 4400D telephone attempting to place a call on hold, there already is a call on hold.

Attempted to Make a Call

This error indicates that the application attempted to make a call and one of the following conditions occurred:

■ The originating extension was active on another call (you cannot originate a call while active on another call).

■ The originating extension was not in a suitable initial state (on-hook idle or off-hook listening to dial tone).

■ The originating extension was Responding, but was not in Normal Mode (for example, the extension was in Program or Feature mode).

Attempted to Make a Consultation Call

This error indicates that the application attempted to make a consultation call and one of the following conditions occurred:

■ The application attempted to transfer or add a party to an existing conference call.

■ The existing call was not in the active state.

■ The extension was active on another call.

■ The extension was Responding, but was not in Normal Mode (for example, the extension was in Program or Feature mode).

■ There was no SA button available to place the consultation call on the extension specified.

■ There was already another call on-hold-for-transfer or on-hold-for-conference at the extension specified.

Attempted to Retrieve a Call

This error indicates that the application attempted to retrieve a call and one of the following conditions occurred:

■ The call was not in the held state.

■ The extension was active on another call.

■ The extension was Responding, but was not in Normal Mode (for example, the extension was in Program or Feature mode).

Attempted to Transfer a Call

This error indicates that the application attempted to transfer a call and one of the following conditions occurred:

■ The connection for the transfer destination was present at the extension, but that connection was not in the active state. It was on hold or in some other state.

■ The original call was being held at the extension, but the connection was not held-for-transfer. It was in some other state. This occurs if the call was on regular hold.

■ The call on hold was a conference call.

■ The transfer destination was a conference call and the user was the conference controller.

■ The extension was Responding, but was not in Normal Mode (for example, the extension was in Program or Feature mode).

■ For MERLIN LEGEND Release 5.0 and later systems and MERLIN MAGIX 1.0 systems, an attempt was made to transfer the call to an external party.

RESOURCE_BUSY (33)

This error indicates that a needed resource is not available. Specifically, the MERLIN MAGIX/ LEGEND switch was already processing a request for the extension when the application attempted to perform a second operation on that extension. If the problem persists, contact Services.

RESOURCE_OUT_OF_SERVICE (34)

This error indicates that the CTI link is disconnected or not in service. Refer to "CSTA RESOURCE_OUT_OF_SERVICE (34) Error Received" on page 5-8 for suggestions on how to resolve this problem.

OVERALL_MONITOR_LIMIT_EXCEEDED (37)

This error indicates that the MERLIN MAGIX/LEGEND switch or the MERLIN MAGIX PBX Driver is at the limit for the number of monitors supported. This applies only when the application attempted to monitor a device.

NOTE For MERLIN MAGIX Release 2.0 systems, this error may also indicate that the application is attempting to monitor more than 50 extensions or more than 10 Calling Group queues. Contact your Avaya representative or authorized dealer for an available software update that can increase these limits.

GENERIC_SUBSCRIBED_ RESOURCE_AVAILABILITY (41)

This error indicates that the application attempted to change the Do Not Disturb feature status for an extension that did not have a Do Not Disturb button.

OUTSTANDING_REQUEST_LIMIT_EXCEEDED (44)

This error indicates that the maximum number of outstanding requests permitted at either the MERLIN MAGIX/LEGEND switch or the MERLIN MAGIX PBX Driver has been exceeded. If this is an intermittent problem, this is most likely due to a temporary surge of activity. If the problem persists, contact Services.

RESOURCE_LIMITATION_REJECTION (75)

This error indicates that one of the following conditions exists:

■ An internal limitation or a maximum of the MERLIN MAGIX/LEGEND switch or the MERLIN MAGIX PBX Driver has been exceeded. This error may also be generated due to an internal limitation. If this seems to be the case, contact Services.

■ An application attempted to turn on an extension's Message Waiting light but the extension's mailbox was already full.

REQUEST_TIMEOUT_REJECTION (78)

This error indicates that the MERLIN MAGIX PBX Driver sent a request to the MERLIN MAGIX/ LEGEND switch, but did not receive a response within the allotted time. This is usually an indication that there is a problem with the CTI link.

REQUESTS_ON_DEVICE_EXCEEDED_ REJECTION (79)

This error indicates that the number of outstanding requests for a particular device has been exceeded. You can increase the maximum number of outstanding requests by increasing the value assigned to the MAX_REQS_PER_DEVICE parameter. Refer to page 3-2 for information about this parameter.

DRIVER_RESOURCE_LIMITATION (1005)

This error indicates that the number of simultaneous sessions or the number of requests during one session has been exceeded.

■ You can increase the maximum number of simultaneous sessions by increasing the value assigned to the NUM_SESSIONS parameter. Refer to page 3-2 for information about this parameter.

■ You can increase the maximum number of requests in one session by increasing the value assigned to the NUM_SESSION_REQUESTS parameter. Refer to page 3-2 for information about this parameter.

Appendix

A

Files Installed or Modified

The following files can be found on the server where the MMPD is installed. This is in the Windows System32 directory, typically in the C:\WINNT\SYSTEM32 directory.

MLPD.DLL	The MERLIN MAGIX PBX Driver (MMPD).
MLPRIV32.DLL	The private data encoding/decoding DLL needed for the MMPD to run.

If the default directory is selected during installation, the following files are placed on the server in the Program Files\Telephony Services\MLPD directory:

MLCONFIG	This directory contains the set of files in the MMPD configuration utility. These files are used to reconfigure the MMPD configuration parameters after the software has been installed.
MLINSTAL.DLL	This is used by the installation program.
MLPD.LIC	This is the MMPD license.
MLPEEK.EXE	The troubleshooting utility installed for use by the Services organization.
MLTRACE.EXE	This utility is installed for use by the Services organization.
README.TXT	The Readme file contains information that may be important for using MMPD.

Appendix

B

Additional Instructions for Upgrades from the MERLIN LEGEND PBX Driver to the MERLIN MAGIX PBX Driver

If you are upgrading from the MERLIN LEGEND PBX Driver to the MERLIN MAGIX PBX Driver, you must do the following:

■ Uninstall the MERLIN LEGEND PBX Driver software components before you can install the MERLIN MAGIX PBX Driver software components.

■ Rename the DIVA ISDN Interface Card

This appendix contains the instructions for Windows NT systems only. (The MERLIN LEGEND PBX Driver is not available for Windows 2000.)

Uninstall the MERLIN LEGEND PBX Driver Software Components

To uninstall the MERLIN LEGEND PBX Driver software components on a PC with Windows NT do the following:

1. Double-click on the Add/Remove Programs icon in the Control Panel.

2. Select **MERLIN LEGEND PBX Driver** from the list of installed software that appears on the **Install/Uninstall** tab.

3. Click on **Add/Remove**.

4. When the program completes, click on **OK** to complete the uninstall process.

If the MERLIN LEGEND Win32 Client is also installed, repeat steps 2 through 4 for the **MERLIN LEGEND Win32 Client** software component.

If the MERLIN LEGEND Documents are also installed, repeat steps 2 through 4 for the **MERLIN LEGEND Documents** software component.

Rename the DIVA ISDN Interface Card

You may continue to use the same DIVA ISDN Interface Card with the MERLIN MAGIX PBX Driver. However, it is recommended that you rename the card from **LEGEND** to **MAGIX** so that the card name will match the default Adapter Card Name used by the MERLIN MAGIX PBX Driver installation program.

To rename the Eicon DIVA 2.02 or 2.015 PCI interface card, follow the procedure "Reconfiguring DIVA ISDN Interface Card Software" on page 2-23.

To rename the Eicon DIVA 2.01 PCI or ISA interface card, use the following procedure:

1. Double-click on the **Network** icon in the Control Panel.

2. Select **LEGEND Eicon DIVA 2.01 Adapter** from the Network Adapters list.

3. Click on **Properties**.

   The Eicon DIVA Adapter Setup dialog box is displayed.

4. In the Eicon DIVA Adapter Setup dialog box, change the **Card Name** from **LEGEND** to **MAGIX**.

5. Click **OK**.

   A message indicates that the SPID Settings page is empty and asks if you want to proceed anyway. It prompts you with **Are you sure?**

6. Select **Yes**. This indicates that you purposely left the SPID Settings page blank.

7. Click on **Close** on the Network Control Panel.

   You will see Y**ou must shut down and restart your computer before the new settings will take effect** and **Do you want to restart your computer now?**

8. You must restart the computer before the changes to the DIVA ISDN interface card will take effect. We recommend that you restart the computer now by selecting **Yes**. If conditions do not permit the immediate restarting of the computer, select **No** but remember to shut down and restart the computer when conditions permit.

Appendix

C

MERLIN MAGIX/LEGEND Administration for the CTI Link

When an ISDN interface board is used in the server PC to provide a communications path to a MERLIN MAGIX/LEGEND PBX, the connecting four-pair wire must be plugged into an MLX port on the MERLIN MAGIX/LEGEND switch.

Before the link is operational, the MLX port must be administered correctly through MERLIN MAGIX/LEGEND System Administration.

Use the following procedure to administer the MLX port.

1. Select an eligible MLX port to become a CTI link port. There are certain restrictions on which port can be selected for the CTI link:

   ■ It must not be a port that is eligible to be a MERLIN MAGIX/LEGEND attendant port.

   ■ No other device can be plugged into the port while it is being administered.

   ■ The MLX port board must **not** have Firmware Version 29 or Firmware Version 42 with Application Version 24.

   NOTE If you have Firmware Version 29 or Firmware Version 42 with Application Version 24, replace the board with an appropriate version, or for a flash card update, call the **Avaya Customer Care Center** at:

   1 800 628-2888

   Follow the voice prompts for MERLIN MAGIX/LEGEND support.

   ■ The switch must be in Hybrid/PBX operating mode.

   ■ The port cannot be a potential operator port or a console programming port. Valid ports on 008 MLX and 408 GS/LS-ID MLX boards for the CTI link are ports 2-4 and 6-8. Valid ports on 016 MLX boards for the CTI link are ports 2-4, 6-8, 10-12, and 14-16.

2. Go into System Maintenance and "busy out" the slot containing the board with the new CTI link port. System Administration cannot set up the CTI link unless the slot is "busied out."

3. Go into System Programming, select Auxiliary Equipment, and then the CTI Link option. This option allows you to add and/or delete CTI link ports. Enter the extension number of the port selected and select **Enter**.

   ■ If any of the restrictions have been violated, the system will not let you proceed.

   ■ If the addition is successful, go back to the CTI Link screen and select the INSPECT option. The system will display a list of all the CTI Link ports. If this list is correct, you can continue putting the slot back into service.

4. Go into System Maintenance and restore the slot containing the CTI Link port. Check the status of the slot to make sure it has become active.

   At this point, the CTI Link port is ready for use.

Appendix

D

Remote Maintenance

If it becomes necessary for the Avaya Services organization to diagnose problems with your Telephony Server or MMPD, it is beneficial if the Telephony Server and/or at least one client workstation on your LAN is configured to allow remote maintenance.

Use the following procedure to configure a client workstation for remote maintenance.

1. Select a Windows 95, Windows 98, Windows NT, or Windows 2000 client workstation on your Telephony Services LAN that is equipped with a modem, preferably at a speed of 28.8 bps or higher.

2. Install the Telephony Services Win32 client software, including the Telephony Services administration applications, on the selected client workstation.

3. Install the MERLIN MAGIX Win32 client software, including the MMPD administration application, on the same client workstation.

4. Install pcANYWHERE32™ from Symantec™ on the same client workstation, and follow the instructions for configuring the workstation as a Host PC.

   When remote maintenance becomes necessary, start the pcANYWHERE32 program on the client workstation and indicate that the PC will "**Be a Host PC**" using the modem. You and/or the Services organization will then be able to perform remote maintenance tasks by starting a "**Remote Control**" session from another workstation running pcANYWHERE32.

Index