Nortel Symposium

Network Manager's Guide

Reference Guide
for
Installing, Configuring, and Maintaining the
Symposium TAPI Service Provider
for Meridian 1 Release 2

NORTEL NETWORKS

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About this Guide

This *Network Manager's Guide* describes how to install and maintain the Symposium TAPI Service Provider for Meridian 1 Release 2. The Symposium TAPI Service Provider for Meridian 1 Release 2 is also referred to as the Symposium TAPI Service Provider is this document. Information in this document is intended for use by Meridian 1 users who have bought or developed a TAPI-compliant application and need a Symposium TAPI Service Provider platform to support the deployment of the application or for application developers who want to write TAPI-compliant applications for deployment on the Meridian 1.

Note: Exercise caution while performing tasks that may disrupt service. These tasks include taking the Meridian Link off-line, resetting the Meridian Link, reloading the Meridian 1 Windows NT Service driver and changing initialization parameters.

This guide is divided into the following chapters and appendices:

Chapter 1, "Overview," provides an overview of the Symposium TAPI Service Provider and summarizes features supported by the Symposium TAPI Service Provider.

Chapter 2, "Installation," summarizes the installation process and describes in detail how to complete the Symposium TAPI Service Provider installation.

Chapter 3, "Configuration" provides information on configuring the Symposium TAPI Service Provider, using the Configurator application.

Chapter 4: "Configuring the License," provides information on configuring the Symposium TAP Service Provider using the FlexLM Manager software.

Chapter 5: "Networking Call Data," summarizes information about how call data is networked in a variety of environments.

Chapter 6: "Microsoft TAPI 2.1 Upgrade and TCMAPP Configuration," provides the steps to upgrade Microsoft TAPI to 2.1 and to set up the TCMAPP.

Chapter 7: "Additional Tools," describes the ACDProxy Service provided with the Symposium TAPI Service Provider. Also, some tips on using IVR and Microsoft Outlook are included.

Chapter 8: "Troubleshooting Tools," details the Troubleshooting applications provided with the Nortel Symposium TAPI Service Provider, and details possible propblems and the actions taken to resolove them.

The Appendices provide additional information that may be useful when using the Symposium TAPI Service Provider.

This guide also contains a Glossary that lists telephony services terms and definitions used in this document. A Table of Contents and Index provide assist you in locating the desired information.

Document Conventions

The following conventions are used in this document:

1. The individual keys that users are instructed to press appear inside angle brackets.
   For example: <Enter> or <F1>

2. "**Press**," "**Choose,**" or "**Click on**" means to position the cursor over an option, then press and release the left mouse button to activate control and carry out an action.

3. "**Select**" means to position the cursor over an option, then press and release the left mouse button to highlight the selection.

4. "**Double-click**" means to position the cursor over an option, then press and release the left mouse button twice.

5. Information that users are instructed to type appears in bold, italic print.
   For example: Type ***User Id*** or Enter ***User Id***

6. Menu commands and options that are displayed on the window appear in bold print, such as the **Exit** option located on the **File** menu on the Menu bar.

7. Window, screen, dialog box, or data entry field names display in italic print, such as, the *Open* field on the *Run* dialog box.

8. "**Button**" refers to a click or push button displayed on the window that is clicked on or pressed to carry out an action. **For example**: Click on the **OK** button or Click on 

9. **"Check box"** refers to a square box displayed on the window that is clicked on to select or to clear an option. **For example**: ☐ -- option not selected or ☒ -- option selected

10. **"Option" or "Radio" button** refers to a circle displayed on the window that is clicked on to select or to clear an option. **For example**: ○ -- option is not selected or ⓿ -- option is selected

11. ***Note***: Identifies important User information and special instructions.

Note: Notes display in paragraphs separated from other text.

Reference Documentation

The User documents for the Symposium TAPI Service Provider for Meridian 1 Release 2 (Symposium TAPI Service Provider) are provided electronically as online documents. One or more of these documents are contained on the Symposium TAPI Service Provider CD ROM in the **DOC** directory. The online documents are described in the following table:

Document Name	Description
Network Manager's Guide for the Symposium TAPI Service Provider for Meridian 1 Release 2	This user's guide provides information on installing, configuring, and using Symposium TAPI Service Provider for Meridian 1.
Programmer's Guide Volume 1 for the Symposium TAPI Service Provider for Meridian 1 Release 2	This document contains information that is helpful to developers who are writing applications that may use the Symposium TAPI Service Provider for Meridian 1. See the relevant chapter in the Programmer's Guide. Available on-line at the Business Affiliate web page: http://www1.nortelnetworks.com/entprods/bap/sales.htm
IVR/CTI Systems Integration	This document provides information on IVR/CTI Systems Integration and Networking using the Nortel Symposium TAPI Service Provider. See the relevant chapter in the Programmer's Guide. Available on-line at the Business Affiliate web page: http://www1.nortelnetworks.com/entprods/bap/sales.htm
Implementation and Planning Guide for the Symposium TAPI Service Providers	A planning guide for implementing Windows TAPI compliant applications that use the Nortel Symposium TAPI Service Provider. See the relevant chapter in the Programmer's Guide. Available on-line at the Business Affiliate web page: http://www1.nortelnetworks.com/entprods/bap/sales.htm
A Meridian Link/CCR IPE Module Installation Guide	553-3202-210
CCR Release 3B & Meridian Link Release 5 NTPOs	NT1R57AB
CCR 3B & Meridian Link Release 5 Advanced Maintenance Guide Package	PO724945
Merdian ACD Packages A-C2 and Network ACD	PO800525

The Adobe Acrobat Reader must be installed to access the online documentation. After installing the Adobe Acrobat Reader, double-clicking on the .PDF file opens the online document in the *Acrobat Reader* window. For information on using the Adobe Acrobat Reader, refer to Appendix A.

Update Policy

This is the second release of the *Network Manager's Guide for the Symposium TAPI Service Provider for Meridian 1 Release 2*. Whenever the Symposium TAPI Service Provider software is reissued or revised, updates of this guide will include the new capabilities.

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Chapter 1: Overview

This chapter provides general information about the Symposium TAPI Service Provider to acquaint you with the TAPI Service Provider environment, architecture, features, applications, and feature interactions.

Symposium TAPI Service Provider Environment

The Symposium TAPI Service Provider software works in a distributed client/server environment that logically integrates the telephone on a user's desktop with client and server-based applications. The telephone is physically connected to the switch and is not physically connected to the PC. Users' desktops do not require any special telephones, connectors, PC circuit packs, or new wiring.

The Symposium TAPI Service Provider for Meridian 1 is a full function service provider for Microsoft's Telephony application Programming Interface (TAPI) Release 2.0 and 2.1 for Windows NT, Windows 95, and Windows 98. Release 1 of the Symposium TAPI Service Provider provided comprehensive support of Meridian 1 teleset and agent functions, coordinated screen transfer (local and remote), open interface for integration with Interactive Voice Response (IVR) systems for caller entered information, sophisticated applications-based call routing, and the new Meridian Link 5 call processing features. The second release of the Symposium TAPI Service for Meridian 1 extends this capability by providing a direct connection to the Meridian 1 switch without a Meridian Link module.

Symposium TAPI Service Provider for Meridian 1 Release 2 consists of software that runs on a Windows NT Server running 4.0 or greater software (with Service Pack 4 or higher installed) that supports a Telephony Application Programming Interface (TAPI) on a Windows NT or Windows 95 client. A PC application, acting on behalf of a user, can use the API to monitor and control calls at a device associated with the user. TAPI is a set of C-language routines that support telephony control capabilities for the central office switches.

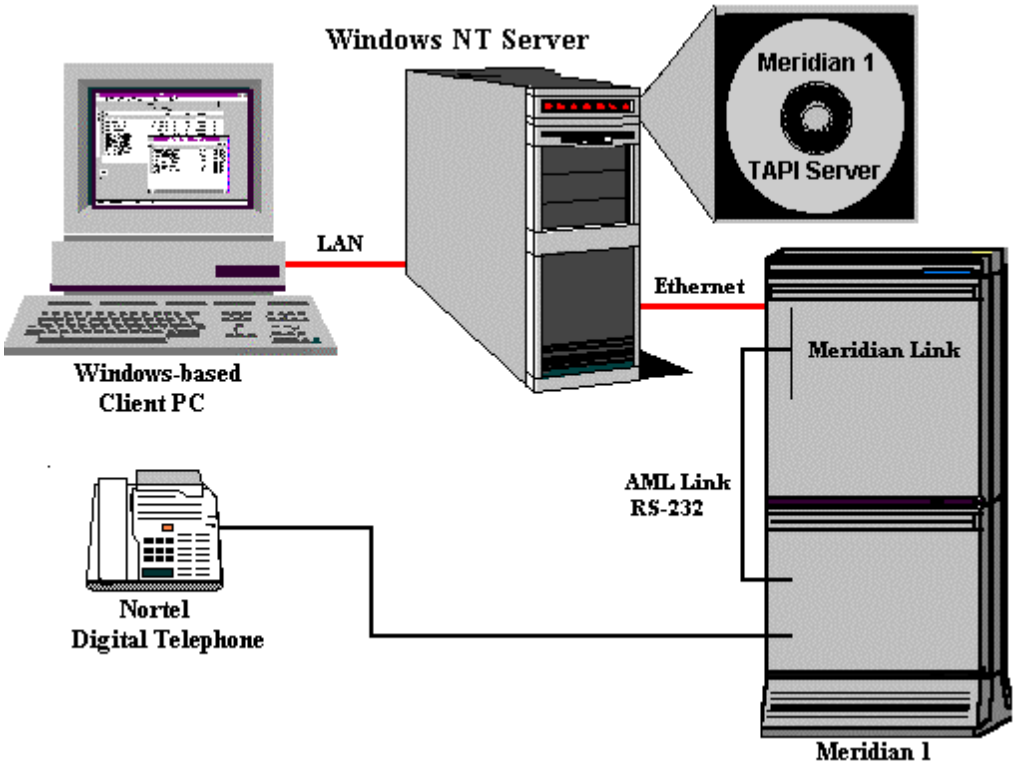


Figure 1 Symposium TAPI Service Provider for Meridian 1

Product Overview

The Nortel Symposium TAPI Service Provider for Meridian 1 Release 2 product includes all of the functionality of Release 1 plus it adds support for an ethernet, TCP/IP-based ELAN connection as its call control link to the Meridian 1 PBX. This new transport uses the ELAN functionality provided on X11 Release 23 and higher PBXs.

System Architecture for Meridian 1

To support multiple CTI server environments where a customer may have another Link-compatible application that must monitor common devices, Release 2 of the Symposium TAPI Service Provider for Meridian 1 integrates with the Meridian 1 using the conventional Meridian Link Module and TCP/IP link over Ethernet. Similarly, to support installations served by the Symposium Call Center Server (SCCS), Symposium TAPI Service Provider integrates with the Meridian 1 using the SCCS version of Meridian Link and the TCP/IP link over Ethernet. To support Release 23 and late non-SCCS Meridian 1 systems, Release 2 interfaces to Meridian 1 directly using the Release 22 TCP/IP version of the ELAN.

Note: This Manual states that a minimum of Service Pack 4 or above is required. Both Service Pack 4 and 5 have been tested in Nortel's laboratories and found to be compatible with thiws version of Symposium TAPI Service Provider.

Conventional Meridian Link Module Configuration

A typical Symposium TAPI Service Provider for Meridian 1 Release 2 configuration (shown in Figure 1) with conventional Meridian Link consists of the following three parts:

- A Meridian Link Intelligent Peripheral Equipment (IPE) Module or an Application Module (AM), in which resides the Meridian Link application. The IPE or AM should be connected to the Customer's supplied LAN.

- A Microsoft NT LAN with a Windows NT Server running 4.0 (with Service Pack 4 or above installed) or above and, if applicable, at least one PC-based client workstation running Windows NT 4.0, Windows 95 or Windows 98.

- A client workstation that contains an application (such as Nortel Symposium Call Manager or Symposium Agent) that uses call control and call monitoring functions.

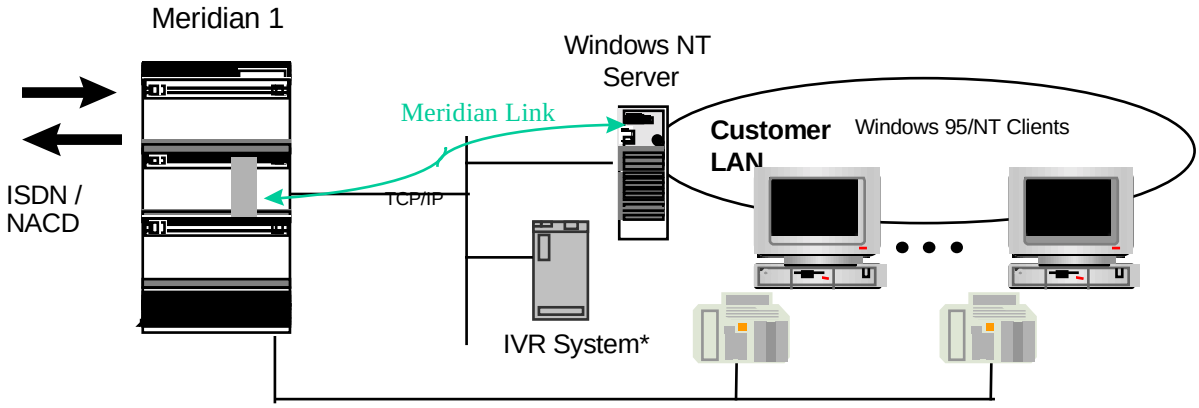


Figure 2: Conventional Meridian Link-based Configuration

A Meridian 1 station set connected to a standard Meridian 1 line card is associated with each PC client. These telephones are referred to as “associated sets.”

Symposium Call Center Server Configuration

When you have deployed the Symposium Call Center Server, Release 2 of the Symposium TAPI Service Provider integrates with the Meridian 1 via the Symposium Server version of Meridian Link (MLSM), using the TCP/IP link over Ethernet as illustrated in figure 3.

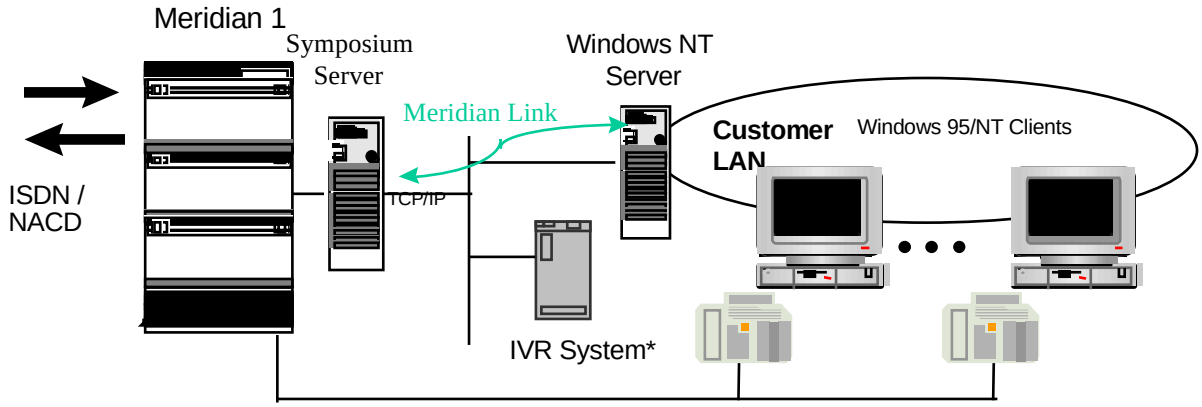


Figure 3 Symposium Call Center Server Configuration

The Symposium Server simultaneously provides Symposium Call Center skills-based routing and call center reporting services.

Direct Connect Configuration

When you do not otherwise require Meridian Link or Symposium Call Center Servers, Release 2 of the Symposium TAPI Service Provider introduces a new direct integration with the Meridian 1 Release 23 and later systems utilizing a direct ELAN-based connection directly to the Meridian 1 CPU as illustrated:

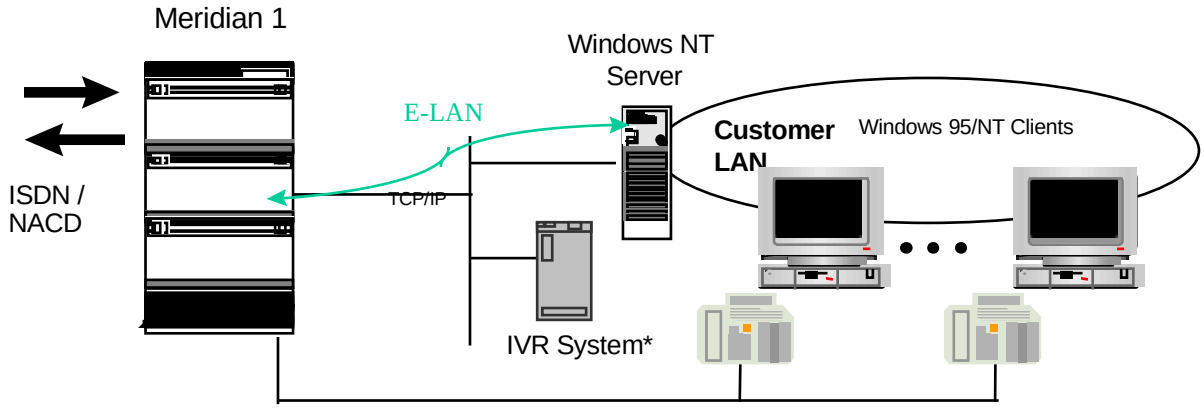


Figure 4 Direct Connect Configuration

Using the Direct Connect option, up to 16 TAPI Servers can be connected to a single Meridian 1 system. Each TAPI Server must monitor and control independent devices.

IVR and Networking

The Nortel Symposium TAPI Service Provider for Meridian 1 Release 2 provides for server to server networking over WAN or LAN as shown in Figure 5. The open interface allows for obtaining information collected by IVR Systems. The Information is passed to TAPI-compliant applications using the standard TAPI interface. The Symposium TAPI Service Provider works transparently with multiple Window NT or Novell TSAPI servers. This environment is commonly used for Network Automatic Call Distribution (NACD). Up to 512 bytes are passed with a call locally or between servers in a Network ACD configuration.

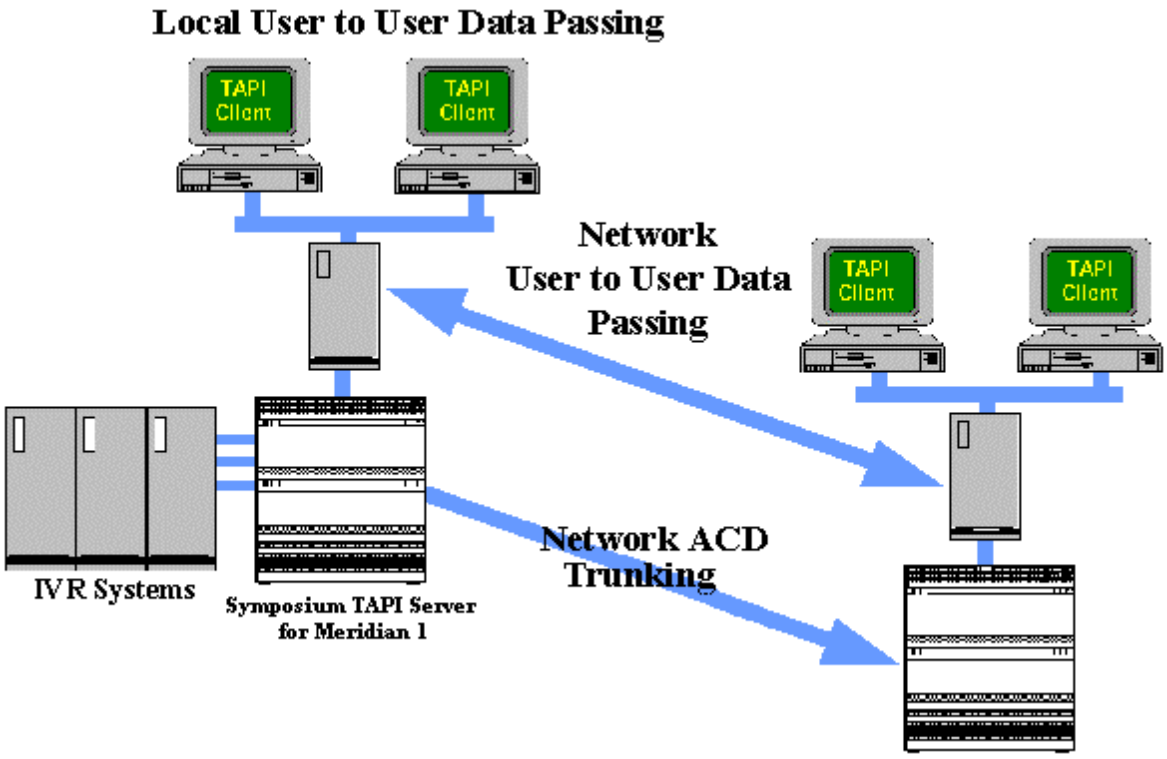
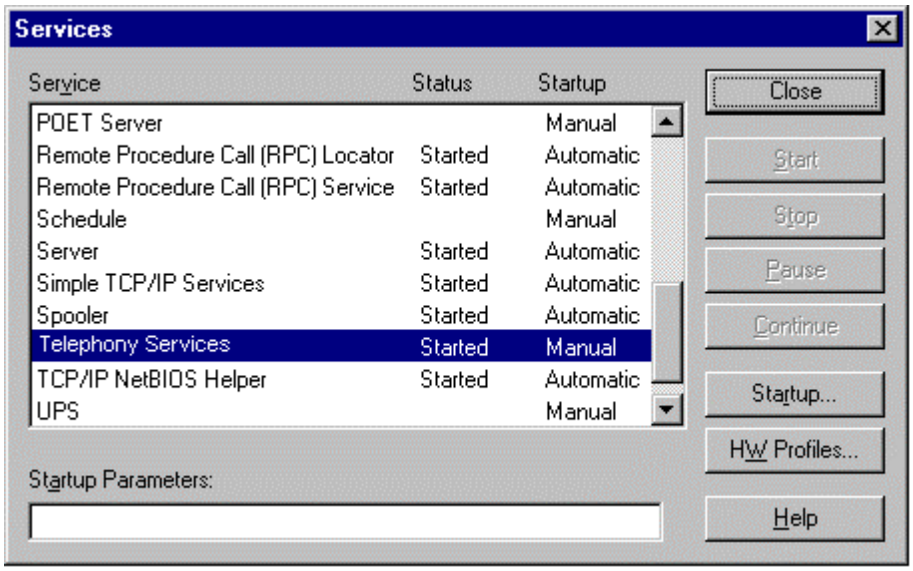


Figure 5 IVR and Networking Configuration

Microsoft TAPI Server (TAPISRV) and the Client

Typically, the Microsoft TAPI Server (TAPISRV) is a separate service available to the client. Access to the TAPISRV is provided by installing the Microsoft Windows Remote Service Provider, a telephony module responsible for routing the TAPI requests to a specific TAPI Service Provider. When the TAPISRV is installed, opening the Control Panel, double-clicking on the **Services** icon to open the *Services* window displays the TAPISRV as Telephony Services**.**



TAPI-compliant applications on the client issue TAPI messages. The TAPISRV communicates to the clients via a Local Area Network (LAN) through TCP/IP. TAPISRV routes the TAPI messages from the TAPI-compliant application on the client to the Symposium TAPI Service Provider. The Symposium TAPI Service Provider for Meridian 1 converts the TAPI messages to corresponding switch messages through the Meridian Link IPE module or direct ELAN-based connection to the Meridian 1. Likewise, the Symposium TAPI Service Provider converts the Meridian 1 switch to TAPI messages for routing to the client application via the TAPISRV.

Meridian Link Overview

Nortel's Meridian Link product enables an application in a host computer to use the call control and call monitoring functions of a Meridian 1 system. The Symposium TAPI Service Provider extends Meridian Link to a client application in a Windows NT client-server local area network (LAN) using TCP/IP on an Ethernet connection. The Symposium TAPI Service Provider supports Meridian Link Version 5 and Symposium Call Center System Meridian Link Service Module (MLSM).

Meridian Link R5C provides the following new functionality:

- 31 digit DNIS: This allows an application to collect the dialed digits of a call arriving on DID or TIE trunk from the external network. This provides users with a means of identifying the purpose of the call. This requires X11 R24 or higher.

- SFN (Login) with Agent ID: This provides an application with an event message when an operation is performed on an AST/Acquired ACD set. It is an unsolicited message sent to the host application when an agent logs in by manually pressing the MSB key on the ACD set or invoke the ACD set feature through the Meridian Link Set Feature Invocation (Login) message. This requires X11 R24 or higher.

Administration and Configuration

Symposium TAPI Service Provider for Meridian 1 Configurator application provides two types of configuration processes for the Administrator. The first method automatically translates and populates the Symposium TAPI Service Provider database tables with information you download from Overlays 20, 21, and 23 on the Meridian 1 switch. The Configurator application displays this information in the configuration dialog boxes for viewing and maintenance. This configuration process is detailed in the "Automatic Configuration Process" section located in Chapter 3.

For instances where it becomes necessary to add, to delete, or to modify the database information, the Configurator application provides access to the configuration dialog boxes. The fields on the configuration dialog boxes allow for adding, modifying, and deleting the information contained in the database tables. The "Customized Configuration" section in Chapter 3 provides information on accessing the configuration dialog boxes. Also, Chapter 3 contains detailed information on configuring the Provider, Host, Control DN, and Log Styles tables. These sections contain information on the dialog boxes associated with the table configurations.

The FLEXlm License Manager allows you to configure the License Manager Server and the License file that you received when you purchased the Meridian 1 TAPI Service Provider. The license file is necessary for the Meridian 1 TAPI Service Provider to work.

The Administrator has the capability to use a sharable centralized database with the use of a network connection. This database can either be shared on a file server or by a database server in a client server architecture. Access restrictions are determined by the privileges assigned within the Windows NT server configuration.

Features of Release 2

Symposium TAPI Service Provider for Meridian1 Release 2 is provided in kits to meet the specific needs of the users. Your kit may or may not contain the following features.

Basic Call Control

Basic Call Control includes support for the following features:

- Make Call
- Answer Call
- Release Call
- Hold Call
- Unhold Call
- Conference Call
- Transfer Call (Blind and Supervised)
- Monitoring of Call Events

Enhanced Call Control

This section outlines the enhanced call control features in Symposium TAPI Service Provider for Meridian 1 Release 2. The basic TAPI functionality (for example, lineOpen) is not included here.

Note: These features are not supported by the Direct Connect option.

- Call information structure updates
- CDN Treatments/Call Routing Features
- CDN Call Model
- Initiate call from Phantom TN (X11 R20)

Automatic Call Distribution

Automatic Call Distribution (ACD) is a set of feature packages based on software that provides call distribution in a call center environment. Some of the features include the following:

- The ability to setup one main number and distribute the calls to a group of agents
- The ability to set up a supervisor position for an ACD group
- The ability to monitor the quality of the service being provided to incoming callers
- The ability to gather information on the calls such as, hold time, time in queue, and the number of agents logged in a queue.

Nortel provides a separate application called ACDProxy Service. This application allows the agents to log in, log out, and go ready or not ready. ACDProxy Service also registers the ACD Queue numbers so an application does not have to be launched prior to an agent logging in to a queue. The setup procedures for the ACDProxy Service are located in Chapter 5.

Note: Microsoft Service Pack 4 or above is required for the ACD Proxy Service to work. Ensure the TCM Application is setup before configuring the ACDProxy Service. Refer to the "Setting up the TCM Application" section located in Chapter 4 for additional information.

The following ACD Features are supported:

- Login/Logout
- Ready/Not Ready
- Make set busy
- Make set in service
- Walkaway
- Walkaway Return

Device Control

The following features are provided to manipulate a device:

- Forward Calls
- Set the message waiting indicator of a device
- Validate a device
- Event management

Direct Connect Option

The Symposium TAPI Service Provider for Meridian 1 Release 2 connects to the switch via a direct ELAN-based connection over Ethernet using TCP/IP protocol.

Open and Integrated IVR Units

The Symposium TAPI Service Provider offers an open interface to IVR systems that allows IVR systems to pass call related data, such as caller entered digits to the TAPI Service Provider then on to TAPI-compliant applications. IVR modules run on both versions of Symposium (open and integrated IVR) machines. The IVR feature is enabled when configuring the Service Provider properties. Refer to the "Configuring the Host Table" section located in Chapter 3.

Note: Whereas the Nortel Symposium TAPI Service Provider supports Predictive Dialing and other Call Data applications, the IVR information in this document is not necessarily IVR specific. The information applies to Predictive Dialing as well as other applications, except as noted.

Predictive Dialing

The Symposium TAPI Service Provider supports outbound and predictive dialing application products that utilize the TAPI Service Provider interface for call control and monitoring. Outbound and predictive dialing applications and tools allow call centers to perform telemarketing, collections, telesales, and account management for various industries efficiently by improving agent productivity and helping supervisors better manage their workforce.

Single Feature Access

Single feature access allows an application to access a specific key on the set. This is useful when there is a second call on the line and the user would like to Display the caller ID information. This is used for other features as well. An important feature is the ability to press the Supervisor Key.

Troubleshooting Tools

The Symposium TAPI Service Provider provides extensive command tracing and debug capabilities to assist technical personnel in troubleshooting the Logger application. When experiencing problems, technical personnel may request you to use the Logger tool to create a trace of the application activities.

During the troubleshooting session, the Logger application writes status and error message data items (as defined on the configuration dialog boxes) to the scrollable *Logger* window and, when full, to the overflow file. You have the option of saving the information in overflow file for support personnel to use for diagnostic and troubleshooting purposes. The Logger application contains print options that allow you to print the file or a highlighted section on the window.

Symposium TAPI Service Provider Feature Interactions

Users of TAPI-compliant applications running in a Symposium TAPI Service Provider for Meridian 1 environment must be aware of the results of some specific feature interactions. The following sections provide the feature interactions with the Symposium Call Center Server, the Direct Connect option, and other applications.

Feature Interactions with the SCCS

Users of TAPI-compliant applications running in a Symposium TAPI Service Provider for Meridian 1 Release 2 environment using Meridian Link Service (MLS) on Symposium Call Center Server (SCCS) must be aware of the some specific features that are not available that include:

1. Not Ready with Optional Disconnect
   This feature allows an application to invoke the NotReady stats for a set without disconnecting the call.

2. Enhanced Time Stamp IE
   This feature is used in StatusChange.

3. Set Feature Notification messages for Ready/Not Ready, Login/LogOut, and Walk Away/Return.

Feature Interactions with the Direct Connect Feature

Users of TAPI-compliant applications running in a Symposium TAPI Service Provider (including the Direct Connect) environment must be aware of the results of some specific feature interactions:

1. You should use your application's interface to perform all of your call control activities in X11 pre-release 23. If you use the application's interface to perform some call control activities and the features on your telephone set to perform others, you will encounter unexpected results. Specifically, the TAPI-compliant application

    - Does not support multiple users putting the call on hold. The Symposium TAPI Service Provider cannot outpulse digits after establishing a call. If a Symposium TAPI Service Provider application station calls another Symposium TAPI Service Provider for Meridian 1application station, only one user can put the call on hold.

2. Symposium TAPI Service Provider supports analog telephone sets slightly differently from digital telephone sets. More specifically, for analog telephone sets, Symposium TAPI Service Provider for Meridian.

    - Does not recognize call activity associated with an analog set's directory number if a call to an analog ACD set is abandoned.
    - Does not support a TAPI-compliant application's answering of calls for analog sets; users of analog sets must lift the handset to answer calls or otherwise cause the line to go off hook
    - Supports a TAPI-compliant application hanging up the telephone of an analog set but the handset cradle must be returned to the cradle before it is picked up again.

3. Other feature interactions include the following:

    - Symposium TAPI Service Provider does not support Multiple Appearance Directory Numbers (MADNs).
    - Symposium TAPI Service Provider does not display the called number (when dialing from the set) until the called party answers.
    - Symposium TAPI Service Provider does not support MCRs (multiple call ring) and MCNs (multiple call no ring).
    - Symposium TAPI Service Provider does not support speed dial feature access codes.
    - Symposium TAPI Service Provider does not recognize callers that hang up during a supervised transfer or conference call.
    - Symposium TAPI Service Provider does not recognize calls that have been manually transferred from a telephone set that has not been configured with the associated set (AST) feature.
    - Symposium TAPI Service Provider does not support the X11 Release 22 Group Call feature.

Feature Interactions with Other Software Products

The Nortel Symposium TAPI Service Provider for Meridian 1 Release 2 is compatible with many other software products. Some examples include two new Nortel products, which were released in 1998, the Nortel Symposium Call Manager and the Symposium Agent. Refer to the user documentation provided with these products for detailed information.

Microsoft Outlook 97 Version 8.02.4212 or above works with the Symposium TAPI Service Provider for Meridian 1 Release 2. Additional information for configuring Microsoft Outlook 97 is provided in the "Microsoft Outlook 97" section located in Chapter 5.

Chapter 2 Installation

This chapter provides information on installing the Symposium TAPI Service Provider. It includes what you should know before installing the Symposium TAPI Service Provider, the hardware and software requirements, an overview of the installation process for the Conventional installation, the Symposium Call Center Server installation, and the Direct Connect option installation, and the steps involved in the Symposium TAPI Service Provider software installation.

Installation Summary of the Conventional Installation

This section summarizes the baseline requirements and the steps for the conventional installation with the Meridian Link. It is important to follow the list of procedures in the order in which they appear.

Note: For information on the installation process with the Symposium Call Center Server, refer to the "Installation Summary of the Symposium Call Center Server" section. For information on the Nortel TAPI Service Provider Direct Connect option, refer to the "Installation Summary of the Direct Connect Option" section.

Baseline Requirements

Whereas Symposium TAPI Service Provider for Meridian 1 Release 2 supports Call ID, the Meridian 1 PBX with a minimal release level of 19 is required. If Voice Processing functions are required, a Meridian Mail system of Release 8 or higher is necessary. Meridian 1 options 11 through 81 are supported. The supported machine types include ST, RT, NT, and XT. If you are using the Direct Connect Option, refer to the "Direct Connect Option Baseline Requirements" section. Likewise, if you are using the Symposium Call Center Server, refer to the "Symposium Call Center Server" section.

Required options and hardware include the following:

- Meridian Link IPE Module or AEM
- ESDI Card (QPC513 Vintage G or later)
- Integrated Messaging (IMS) [35]
- Command and Status Link (CSL) [77]
- ISDN/AP for 3rd Parties (IAP3P) [153]
- Meridian Link (Release 5 or higher) - Meridian Link Packages only
- Meridian Link OA&M [1] - Meridian Link Packages only
- Inbound Call Management [Meridian Link package 97]
- Outbound Call Management [Meridian Link package 98]
- Call ID [247]

Note: Use of the AEM requires a hardware upgrade to make the ethernet port accessible.

Additional options that might be required but not limited to, depending on the TAPI application:

- Basic Automatic Call Distribution (ACD) [40,41,45]
- Dialed Number Identification Service (DNIS) [Meridian Link package 98]
- ACD usage reports [42]
- ACD load management [43]
- Host Enhanced Voice Routing [Meridian Link package 101]
- Host Enhanced Routing [Meridian Link package 100]
- ACD D used for ACD MAX applications [50]
- Enhanced ACD routing (EAR) [214] - for Host Enhanced Routing
- Customer Controlled Routing (CCR) [215] - for Host Enhanced Routing
- Integrated Services Digital Network (ISDN) [145] - for CLID
- Primary Rate Access (PRA) [146] - for CLID
- ISDN Signaling Link (ISL)

The Symposium TAPI Service Provider is designed to be hardware independent. Therefore, all that is required is a system that runs the Windows NT Server 4.0 or higher operating system. This may or may not be a Symposium Call Center Server system.

Minimum Server PC Requirements

The minimum hardware level of the server PC is as follows:

- Pentium 200 MHz CPU
- CD ROM
- 64 Megabytes of RAM
- 10 Megabytes of free disk space for the Symposium TAPI Service Provider, support tools and database (Microsoft TAPI software is already present on the Windows NT server)
- Ethernet card (dedicated LAN to Meridian 1)
- LAN card (for client PC LAN connection)
- Mouse
- VGA or SVGA Display (800X 600 pixels)

Other server activity may affect the Symposium TAPI Service Provider performance. While a dedicated TAPI NT server is not required, some large, time critical applications may warrant one.

The minimum software requirements are as follows:

- Windows NT 4.0 Server Software (do not use Beta NT 4.0 software) with Service Pack 4 or higher installed.

Note: If you install Microsoft TAPI 2.1 for Windows NT 4.0, Service Pack 4 or higher must be installed. Service Pack 4 is not provided on the CD ROM with the Symposium TAPI Service Provider software. Service Pack 4 is available from the Microsoft Web page. You must install it yourself. Refer to the Readme.txt file provided with Microsoft TAPI 2.1 software for additional information.

If you have Service Pack 4 installed, upgrading the Server to Microsoft 2.1 is unnecessary.

- Microsoft TAPI 2.1 files
- Symposium TAPI Service Provider software

Overview of the Meridian Link (Conventional) Installation Process

It is important to follow the list of procedures in the order in which they appear. If you are upgrading from a previous version of the Symposium TAPI Service Provider, be sure to remove this version before installing the new version. Be sure to read the Release notes provided with upgrades and patches before installing them.

1. Verify that Windows NT 4.0 (with Service Pack 4 or above installed) or greater server is installed and running, that all user IDs and passwords are configured properly, and that users can log in to the TAPI NT server.

2. Install and configure TCP/IP software on the TAPI NT server.
   Refer to your Windows NT installation TCP/IP documentation.

3. Verify that the Meridian 1 PBX is equipped with X11 Release 19 or later and includes all software packages needed to support Meridian Link Release 5. Refer to *Meridian 1 System Installation Procedures* (553-3001-210) and *Meridian Link/ Customer Controlled Routing Installation and Upgrade Guide* (553-3202-210).

   (a) Use LD 22 to obtain a printout:
   At the **REQ** prompt, type ***PRT*** and press **<Return>**.
   At the **TYPE** prompt, type ***PKG*** and press **<Return>**.

   (b) Verify that the following packages are installed:
   IAP3P, 153 Application Module Link
   MLM, 209 Meridian Link Module
   EAR, 214 Enhanced ACD Routing
   CALLID, 247 Call ID

4. Configure the Meridian 1 to support Meridian Link.

   Refer to the "Meridian 1 configuration for Meridian Link/CCR" chapter in the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (553-3202-210). Also, refer to "Appendix B: Configuration Files" in this guide for sample configurations of how the system parameters look when configuration is performed properly.

   (a) In LD 17, at the ADAN prompt, configure the AML of Meridian Link as follows:
   ```
   BPS = 19200
   IADR = 3
   RADR = 1
   ```
   (b) Use LD 22 to print out the VAS. Select an unused VSID.
   (c) In LD 17, at the VAS prompt, configure the selected VSID to the AML number of the Meridian Link. In this load, also set the following:
   ```
   SECU = YES
   CONF = DIR
   ```
   (d) In LD 15, at the AML_DATA prompt, set up VSID to the VSID set in LD 17 for your Meridian Link.
   (e) Each telephone DN, that is to be monitored by the TAPI Service Provider, needs to have the AST (using LD 11) configured to the value of the key. IAPG assigns AST DNs to a status message group defined in LD 15. We recommend that the default be set to 1 to send all messages (default 0 sends no messages). For example, if the keys you choose to control are 00 and 03, set the AST values for 00 and 03. To have other TAPI Service Provider call control features, such as transfer and conference, they must be programmed on the set.
   (f) For users who are using ACD functionality, configure the ACD queue. In LD 23 (ACD), the VSID must be defined in order to receive Meridian Link messages. When an event like an incoming ACD call occurs, and the VSID is correctly defined, a Meridian Link message reflects this activity. The VSID value range is 0-15 as defined in the X11 input/output guide.

(g) Use LD 22 to print out your configuration as follows:

At the REQ prompt, type ***PRT*** and press **<Return>**.

At the TYPE prompt, type ***CFN*** and press **<Return>**.

Find the ADAN for the AML.

Compare it with the ADAN for AML7 listed in the example provided in Appendix B.

Find the listing for VAS and locate the VSID for the AML.

Compare it with VSID07 example that is listed in Appendix B.

Note: All telephones being used with Symposium TAPI Service Provider must have six-party conference assigned to the sets to support holding of calls from the TAPI application in X11 Release 22. Refer to the Meridian SL1 X11 Input/Output Guide, PO842663, or contact your system administrator for assistance.

The Multiple Appearance Destination Number (MADN) feature is not supported with the Symposium TAPI Service Provider for Meridian 1.

---

5. If you are running X11 Release 22 or above, omit this step. If you do not have X11 Release 22 or above, install and configure a Phantom DN. Phantom DNs are used to support Hold functions in the Meridian TAPI Service Provider.
   Refer to the "Installing and Configuring the Phantom DN" section later in this chapter.

6. Verify that the setting of port 5 of the IPE Module complements the setting of the ESDI port of the Meridian 1. For example, if the ESDI port of the Meridian 1 is set to DCE, port 5 of the IPE Module must be set to DTE.

Note: Complete step 6 before going to step 7.

---

7. Install the Meridian Link IPE Module or Application Module.

   Refer to the "Hardware installation" chapter in the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide (553-3202-210).*

   This completes installation of all hardware needed to support Symposium TAPI Service Provider for Meridian 1.

8. Install the Meridian Link operating system.

   Refer to Procedures 6 and 7 in the "Software installation, update, and upgrade procedures" chapter of the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (553-3202-210).

9. Install the Meridian Link Release 5 application.

10. Verify that the Meridian link is up by performing "Procedure 12: Verifying the link status," located in *the Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (553-3202-210) and includes the following steps (you must be logged in as mluser):

    a. Type ***status link 0*** and press **<Return>** to verify the status of the link to Meridian 1.
       The response "Link 0: Up" indicates the link is functioning properly.

    b. Type ***status link 1*** and press **<Return>** to verify the status of the link to the host computer.
       The response "Link 1: UP" indicates that the link if functioning properly.

    c. Type **status link 2** and press **<Return>** to verify the status of the link to the host computer.
       The response "Link 2: Up" indicates that the link is functioning properly.

Note: If you receive a different response to a, b, or c, that what is mentioned, refer to the Application Module and Intelligent Peripheral Equipment Module Diagnostic and Maintenance Guide (553-3211-510).

---

11. Verify that the Meridian Link supports TCP/IP by performing the following procedure on the TAPI server system console:

    (a) Type ***ping [IPE TCP/IP Address***]

    For example: ***ping [47.480.49.50]***
    If you are successful, a message is displayed that states the Host was contacted.

    If not successful, the displayed message states the Host was not contacted**.** Proceed to the Troubleshooting section.

    (b) To close the ping window, press <Esc>.

12. Configure the switch to support TAPI Server outbound trunk monitoring. Refer to the "Configuring the Switch to Support Outbound Trunk Monitoring" section for detailed information.

13. Install the Security Device provided with the Symposium TAPI Service Provider. The TAPI Service Provider will not work if the Security Device is not installed. Refer to the "Installing the Security Device" section for detailed information.

14. Install the Symposium TAPI Service Provider software on the server. Add the Symposium TAPI Service Provider in Windows NT. This procedure is outlined in the "Installing the Symposium TAPI Service Provider" section.

Note: If you are upgrading from a previous version of the Symposium TAPI Service Provider for Meridian 1, be sure to remove the previous version of software before installing the current software. Refer to the "Removing Symposium TAPI Service Provider Software" section located in Chapter 7 for detailed information on removing the Symposium TAPI Service Provider software.

Also, before reinstalling the Nortel Symposium TAPI Service Provider, ensure that the TAPISRV.exe is not running and that the Telephony Service has been stopped. Refer to the "TAPI Server (TAPISRV) and the Client" section located in Chapter 1 for additional information on the Telephony Services (TAPISRV). You can verify the status of the TAPISRV (Telephony Services) by the following opening the Control Panel and double-clicking on the Services icon to display the Services dialog box.

---

15. Configure the Symposium TAPI Service Provider for Meridian 1**.** This procedure is detailed in Chapter 3.

16. Run the Microsoft TAPI Browser or the Microsoft Dialer to verify the Symposium TAPI Service Provider is up on the Windows NT server.

17. Install and configure TAPI-compliant application(s). Refer to the application's user documentation.

    The following Figure shows a typical installation.

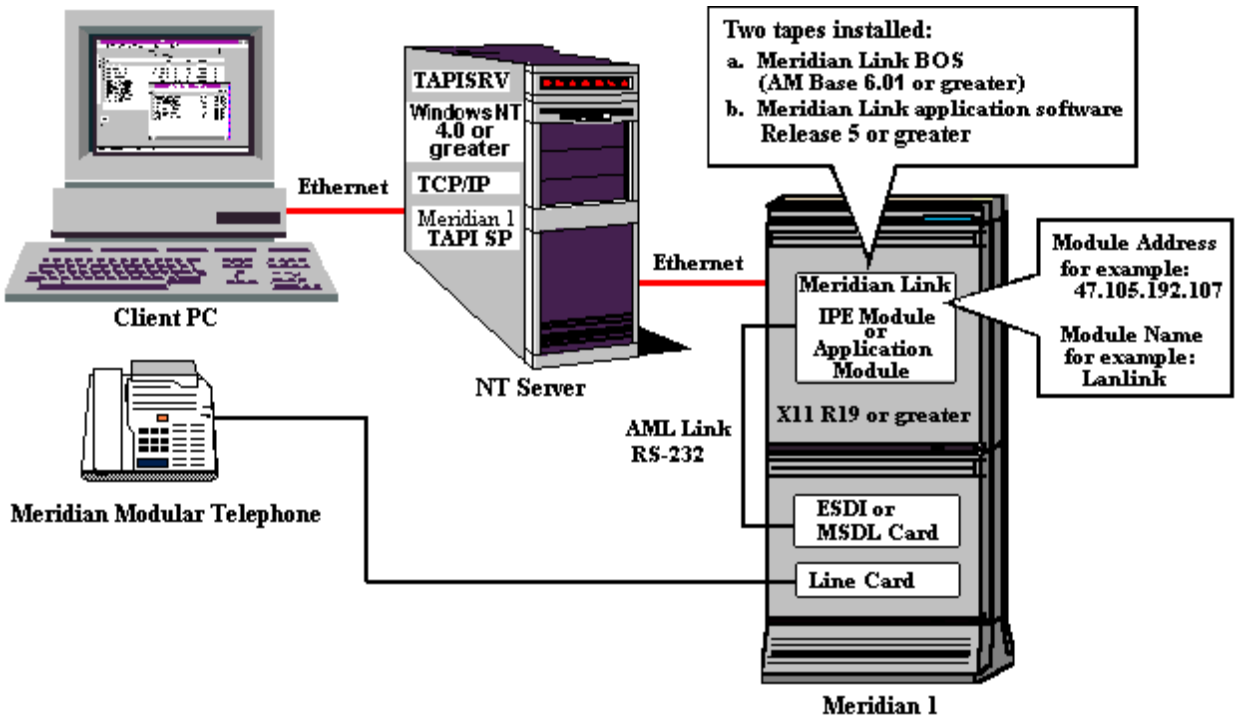


Figure 6 Typical Symposium TAPI Service Provider for Meridian 1 installation

18. Upgrade the Microsoft TAPI to 2.1. (Refer to Chapter 4 of this document for detailed information.)

19 Configure the TCMAPP. (Refer to Chapter 4 of this document for detailed information.)

This completes the installation and setup of the Symposium TAPI Service Provider for Meridian 1 Release 2**.** For additional information, refer to the following:

- *Meridian Link/CCR IPE Module Installation Photo Guide*, H029
- *Meridian ACD packages A-C2 and Network ACD*, P0800525
- *Meridian Link and Customer Controlled Routing Engineering Guide*, P0724947
- *Application Module and Intelligent Peripheral Equipment Module Advanced Maintenance Guide Package*, P0724945

Configuring the Switch to Support Outbound Trunk Monitoring

To monitor the trunk for the status events of answered and disconnected, ensure the following:

- On the Meridian 1, the trunk must be set up as AST
- On the Meridian 1, IAPG must be set up to select the appropriate events (1 = all events)
- The CTI application must register the trunk to be monitored

The status change messages for the monitored trunk can only be sent when the trunk statuses are detected, that is, when the trunk is equipped with answer supervision and disconnect supervision. If the digital trunk interface is not used, the SUPN prompt must be set to ***yes*** in Load 14 so the answer and disconnect supervision is allowed.

Software requirements:

The switch software must be Issue 24 or above.

The Meridian Link must be Version 6.41 or above.

Call Scenarios:

When a Inbound call is received on this trunk, call information is now available for the call. No database configuration is needed.

When a Outbound call is made on this trunk (as configured) and route 118 (example only) is being monitored by the TAPI Service Provider (database configuration is needed), the outbound Trunk ID (route and member call information) is now available from dwTrunk info from the lineGetCallInfo structure.

The following is an example of a route member (for route 118) that is ASTed and IAPG is set to 1.

```
ld 21
PT1000

REQ: prt
TYPE: trk
TN   5 1
DATE
PAGE

DES  LAB_61C
TN   005 01
TYPE TIE
CDEN SD
CUST 0
NCOS 0
RTMB 118 1
B-CHANNEL SIGNALING
TGAR 1
AST  YES
IAPG 1
CLS  CTD DTN WTA LPR APN THFD HKD
    P10 VNL
TKID
DATE 23 NOV 1998


NACT
```

Installing and Configuring the Phantom DN

Note: It is not necessary to install and configure Phantom DNs if you are running X11 Release 22 or above.

Whereas Meridian Link does not support Hold functions, Phantom DNs must be configured on the Meridian 1 to support Hold functions from the TAPI application running on a client PC**.** Configurations of Phantom DNs vary depending on the version of X11 software installed in the Meridian 1.

For a detailed description of the Phantom DN feature, refer to the chapter on “Phantom TNs” in the *X11 Features and Services* (553-3001-305).

X11 Release 19

1. Use LD 10 to configure a standard analog set (see the following sample configuration)**.**

For more information on using LD10, refer to *X11 Administration Programs* (P0800600).

```
REQ                 NEW
TYPE:               500
TN                  4  0  2  12
CDEN                <CR>
DES                 FANTOM
CUST 0              <CR>
DN                  2678  (Phantom DN)
  MARP              <CR>
  CPND              <CR>
  VMB               <CR>
AST                 <CR>
IAPG                <CR>
HUNT                <CR>
TGAR                <CR>
LDN                 <CR>
NCOS                <CR>
RNPG                <CR>
SGRP                <CR>
CLS                 DTN
SCI                 <CR>
MLWU_LANG           <CR>
PLEV                <CR>
FTR                 <CR>
```

2. Short the tip and ring leads of the analog port (TN).

3. Write down the Phantom DN and enter it into a *Phantom DN* field when you install the Symposium TAPI Service Provider for Meridian 1.

X11 Release 20 or later

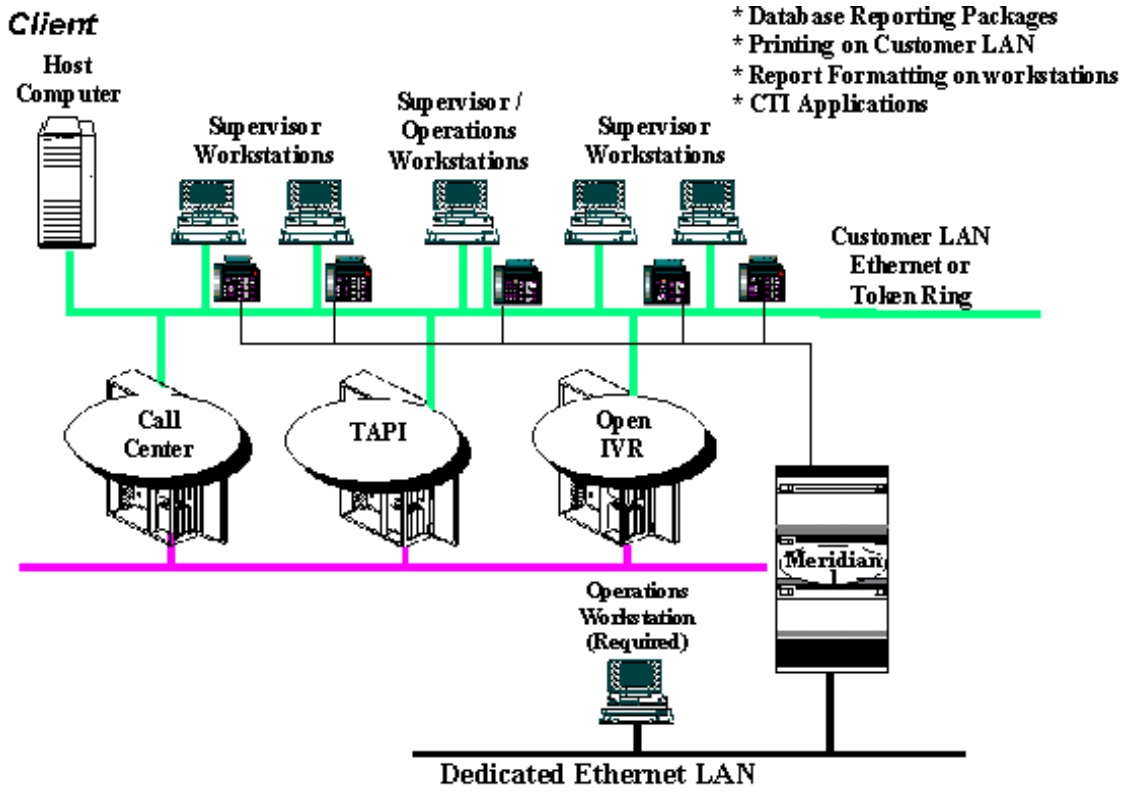
The Phantom TN (PHTN) feature is available as package 254**.** If the Meridian 1 PBX is not equipped with this package, use the procedure for X11 Release 19 or earlier.

For detailed information on how to configure a phantom TN/DN, refer to *X11 Features and Services* (553-3001-305).

Installation Summary of the SCCS

This section summarizes the baseline requirements and the steps for the SCCS installation. It is important to follow the list of procedures in the order in which they appear.

To support installations served by the Symposium Call Center Server (SCCS), the Symposium TAPI Service Provider integrates with the Meridian 1 using the SCCS version of Meridian Link and the TCP/IP link over Ethernet. The following figure provides an overview of the Symposium Call Center System:



Baseline Requirements

Before installing the Symposium TAPI Service Provider for Meridian 1, ensure the following:

- Symposium Call Center Server is fully functioning, and the TAPI Server is connected on the CLAN. You must know the CLAN TCP/IP address to complete the software installation. The defaults for the Meridian Link setup on the TCP/IP are used for the Symposium Call Center Server.

- MLSM (Meridian Link) service is running on the SCCS server.

Overview of the SCCS Installation Process

It is important to follow the list of procedures in the order in which they appear. Be sure to read the Release notes provided with the software, the software upgrades or software patches before installing them.

1. Verify that Windows NT 4.0 (with Service Pack 4 or higher installed) or greater server is installed and running, that all user IDs and passwords are configured properly, and that users can log in to the TAPI NT server.

2. Verify that the Symposium Call Center is fully functioning, that all user IDs and passwords are configured properly, and that users can log in to the TAPI NT server.

3. Configure the telephone User ID's and Passwords needed for skillset routing if the SCCS is used for skillset routing. If the SCCS server is only used for MSLM (Meridian Link), then you do not need to configure the phones.

4. Configure to support SCCS link.
   Each telephone DN, that is to be monitored by the TAPI Service Provider, needs to have the AST (using LD 11) configured to the value of the key. For example, if the keys you choose to control are 00 and 03,

set the values for 00 and 03. To have other TAPI Service Provider call control features, such as transfer and conference, they must be programmed on the set.

Note: Defining a VSID in LD 23 (ACD) is not possible or necessary when using SCCS. When an event such as an incoming ACD call occurs, a message reflecting this activity is sent on the AML/ELAN without a VSID defined in LD 23. The AML/ELAN value range is 16-31.

5. Install the Security Device provided with the Symposium TAPI Service Provider. The TAPI Service Provider will not work if the Security Device is not installed. Refer to the "Installing the Security Device" section for detailed information.

6. Install the Symposium TAPI Service Provider software on the server. Add the Symposium TAPI Service Provider in Windows NT.

Note: If you are upgrading from a previous version of the Symposium TAPI Service Provider for Meridian 1, be sure to remove the previous version of software before installing the current software. Refer to the "Removing Symposium TAPI Service Provider Software" section located in Chapter 7 for detailed information on removing the Symposium TAPI Service Provider software.

This procedure is outlined in the "Installing the Symposium TAPI Service Provider Software" section located in this chapter

7. Configure the Symposium TAPI Service Provider for Meridian 1**.** This procedure is detailed in Chapter 3.

8. Run the Microsoft TAPI Browser or the Microsoft Dialer to verify the Symposium TAPI Service Provider is up on the Windows NT server.

9. Install and configure TAPI-compliant application(s). Refer to the application's user documentation.

10. Upgrade the Microsoft TAPI to 2.1. (Refer to Chapter 4 of this document for detailed information.)

11. Configure the TCMAPP. (Refer to Chapter 4 of this document for detailed information.)

CLAN Configuration Information

Networking with the Symposium TAPI Service Provider for Meridian 1 over a Customer's LAN (CLAN) requires special consideration. An example of this type of networking is when using the Meridian Link on the Symposium Call Center Server (SCCS) which functions only on the CLAN. It is important to configure the TAPI Service Provider on as quiet a CLAN as possible. When the CLAN contends with heavy traffic, certain Symposium TAPI Service Provider for Meridian 1 functions, such as screen-pops, may not function properly. Restricting all unnecessary data traffic from reaching the Symposium TAPI Service Provider enhances the performance and reduces wasted processing time.

Quiet CLAN

One option for configuration is the "Quiet" CLAN. Isolating the Symposium TAPI Service Provider for Meridian 1 from the SCCS server and the CLAN on a quiet CLAN helps restrict traffic to the TAPI Service Provider.

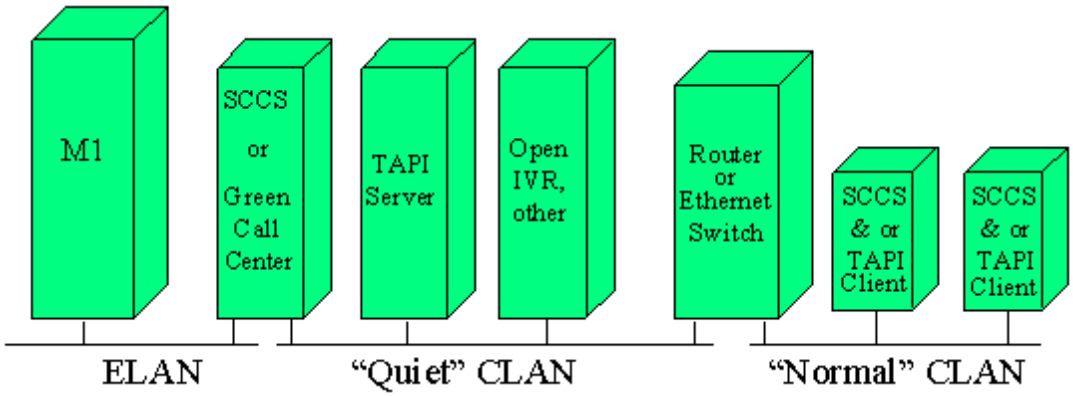


Figure 7 "Quiet" CLAN

In the Quiet CLAN configuration, the M1 and the SCCS are on the ELAN, which is isolated because the SCCS is not acting as a Router. The Quiet CLAN carries only traffic which is telephony centric or involves either the SCCS CLAN NIC or Symposium TAPI Service Provider. This limited traffic is assured by the Router as it passes any messaging from the client machines destined for either the SCCS or Symposium TAPI Service Provider.

Installation Summary of the Direct Connect Option

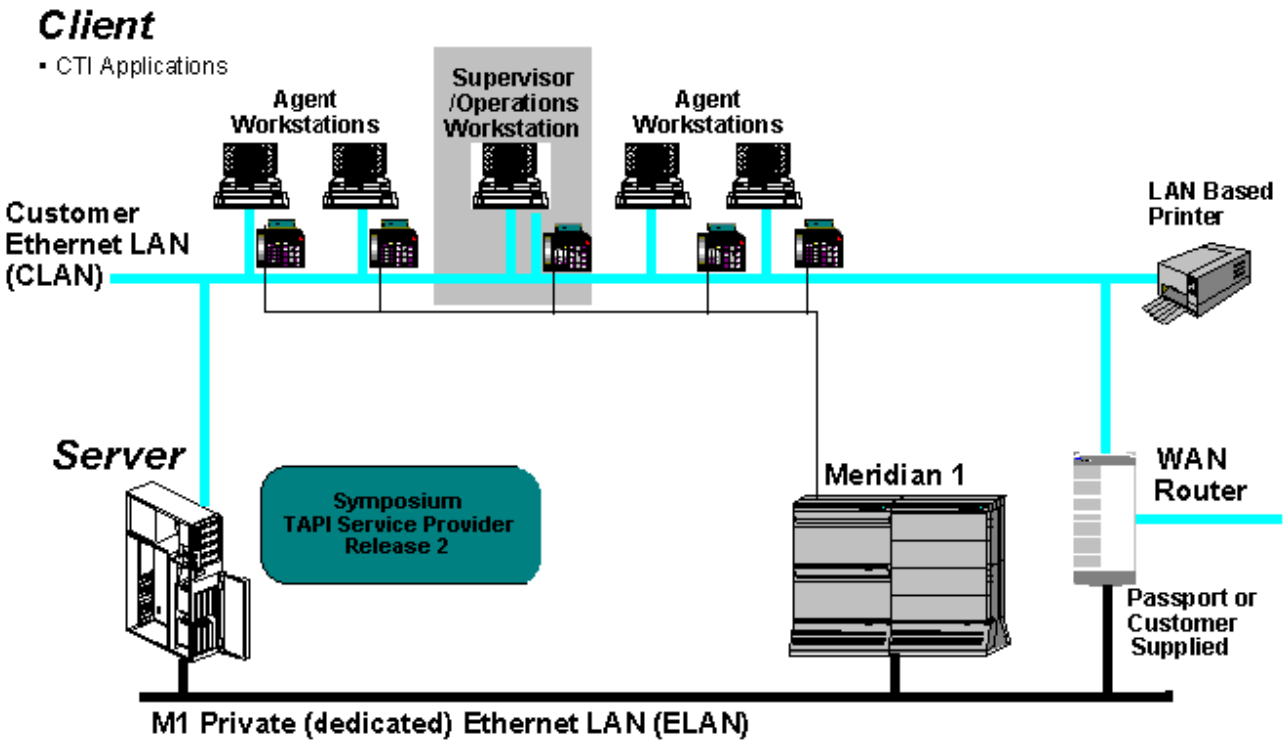
The Meridian 1 is hardware-equipped with an Ethernet controller on each of the I/O processor (IOP) cards. The Ethernet interface is provided by the IOP pack with an AUI cable on the back panel. A unique Ethernet address must be assigned to the Ethernet controller on the IOP card.

On a single CPU M1 system, there is only one IOP, which contains an Ethernet interface. Single CPU systems use only a Primary IP address. On a redundant or dual CPU M1 system, two IP addresses must be specified: Primary and Secondary. Normal operation will use the Primary IP address. Split mode operation will use the Secondary IP address.

The Meridian 1 private Ethernet is used by all Meridian 1 devices for system access and control. An internal gateway must be used to isolate the Meridian 1 private Ethernet from the customer LAN. Routing information is required if an internet gateway or router connects a Meridian 1 private network to the customer's LAN.

ELAN addresses are dynamically assigned by the Meridian 1. Each application connects to ELAN using the IP address and Port number 8888. The Meridian 1 assigns the appropriate ELAN address for each application. Resources for the Direct Connect option are acquired by Associated sets (AST). All unsolicited messages (USM) are requested as part of the acquire. ACD DNs are acquired for monitoring abandoned calls.

The following is an example of an ELAN configuration.



Direct Connect Option Baseline Requirements

TAPI Service Provider Direct Connect Option works in conjunction with Meridian 1 C-processor based systems (11C, 51C, 61C, 81, 81C). Other hardware and software requirements include the following:

- X11 Release 23.30 or above
- Symposium TAPI Direct Connect Option, if number of Associated Stations (ATSs) are over the initial 20
- ELAN connection (there is only one ELAN per Meridian 1 - if you already have the Meridian Administration Terminal (MAT) 5 or above connected to the system via ELAN, no other hardware is required.
- Ethernet Cable (NT7D90DA)- to connect from the ethernet port on the backplane of the NT5D21 CoreNet, NT6D60 Core, or NT9D11 CoreNet Module to J23 at the module I/O panel.
- IOP (NT6D63BA) or IOP/CDMU (NT5D20BA) card - to configure an Ethernet port on the Meridian 1 system.
- Dedicated LAN

Overview of the Direct Connect Option Installation Process

Verify that all baseline requirements are met. It is important to follow the list of procedures in the order in which they appear.

1. Verify that Windows NT 4.0 (with Service Pack 4 or higher installed) or greater server is installed and running, that all user IDs and passwords are configured properly, and that users can log in to the TAPI NT server.

2. Configure to support Direct Connect.
   Each telephone DN, that is to be monitored by the TAPI Service Provider, needs to have the AST (using LD 11) configured to the value of the key. For example, if the keys you choose to control are 00 and 03, set the values for 00 and 03. To have other TAPI Service Provider call control features, such as transfer and conference, they must be programmed on the set.

Note: Defining a VSID in LD 23 (ACD) is not possible or necessary when using the Direct Connect option. When an event such as an incoming ACD call occurs, a message reflecting this activity is sent on the AML/ELAN without a VSID defined in LD 23. The AML/ELAN value range is 16-31.

---

3. Configure the hardware for the Ethernet Port. Refer to the "Hardware Configuration for the Ethernet Port" section.

4. Configure the software for the Ethernet Port. Refer to the "Software Configuration for the Ethernet Port" section.

5. Install the Security Device provided with the Symposium TAPI Service Provider. The TAPI Service Provider will not work if the Security Device is not installed. Refer to the "Installing the Security Device" section for detailed information.

6. Install the Symposium TAPI Service Provider software on the server. Add the Symposium TAPI Service Provider in Windows NT.

Note: If you are upgrading from a previous version of the Symposium TAPI Service Provider for Meridian 1, be sure to remove the previous version of software before installing the current software. Refer to the "Removing Symposium TAPI Service Provider Software" section located in Chapter 7 for detailed information on removing the Symposium TAPI Service Provider software.

   This procedure is outlined in the "Installing the Symposium TAPI Service Provider Software" section located in this chapter

7. Configure the Symposium TAPI Service Provider for Meridian 1**.** This procedure is detailed in Chapter 3.

8. Run the Microsoft TAPI Browser or the Microsoft Dialer to verify the Symposium TAPI Service Provider is up on the Windows NT server.

9. Install and configure TAPI-compliant application(s). Refer to the application's user documentation.

10. Upgrade the Microsoft TAPI to 2.1. (Refer to Chapter 4 of this document for detailed information.)

11. Configure the TCMAPP. (Refer to Chapter 4 of this document for detailed information.)

Hardware Configuration of the Ethernet Port

The following steps should be followed to hardware configure an Ethernet port on the Meridian 1 system:

1. For systems configured with the NT5D20BA, IOP/CMDU card:

   a. Identify the card slot location of the NT5D20BA, IOP/CMDU card in your system:
      - In NT5D21 CoreNet Modules, the IOP/CMDU will be located in either slot 16, or slot 17.
      - In NT6D60 Core Modules, the IOP/CMDU will be located in slot 16.
      - In NT9D11 CoreNet Modules, the IOP/CMDU will be located in slot 16.

b. Connect the NT7D90DA, Ethernet cable to the backplane. Be sure to align the connector exactly with the bottom row of backplane pins:
   - Connect the cable to the backplane at location 17F, if the IOP/CMDU is installed in slot 17.
   - Connect the cable to the backplane at location 16F, if the IOP/CMDU is installed in slot 16.

2. For systems configured with the NT6D63BA, IOP card :

   a. Confirm the card slot location of the NT6D63BA, IOP card in your system:
      - In NT6D60 Core Modules, the IOP will be located in slot 16.
      - In NT9D11 CoreNet Modules, the IOP will be located in slot 16.

   b. Connect the NT7D90DA, Ethernet Cable to the backplane. Be sure to align the connector exactly with the bottom row of backplane pins:
      - Connect the cable to the backplane at location 16F.

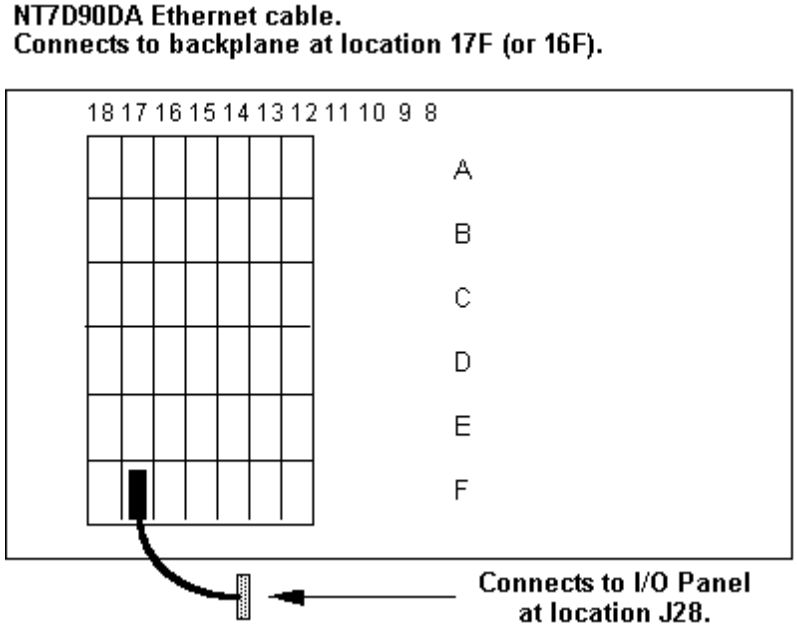


Figure 8 Ethernet Cable Connection on Direct Connect Option

3. Connect the 10BaseT connector on the NT7D90DA cable to the module I/O panel at location J28.

4. For a dual CPU machine, repeat steps 1-3 above to configure the Ethernet port in the second CPU.

Note: Additional equipment will be required to configure and connect the MAT Release 5 application to the Ethernet port at the I/O panel. Please refer to the MAT Release 5 Common Services User Guide Release 5.0 (part number A0858266) for further detail.

Software Configuration of the Ethernet Port

The following steps should be followed to configure Ethernet ports in software for the Meridian 1 system.

1. >LD117

2. >NEW HOST M1SERVER_A 47.1.1.10

- *(Where 47.1.1.10 is the IP address of the active IOP or IOP/CMDU card.)*
- *(Where M1SERVER _A is the host name for the IP address.)*

3. >CHG ELNK ACTIVE M1SERVER_A
4. >CHG MASK 255.255.255.0
   - *(Where 255.255.255.0 represents the local subnet mask.)*

For a dual CPU machine, repeat the process for the backup, inactive CPU:

5. >LD117
6. >NEW HOST M1SERVER_B 47.1.1.11

   (Where 47.1.1.11 is the IP address of the standby IOP or IOP/CMDU card.)

   (Where M1SERVER _B is the host name for the IP address.)
7. >CHG ELNK INACTIVE M1SERVER_B
8. Manually INIT the system to activate the newly entered IP address information.

   If you have a default gateway in the network, define the routing table by completing the following steps. The routing table provides the Meridian 1 with the IP addresses of the gateway server so that the Meridian 1 can send return messages to the gateway for forwarding to the requesting client.
9. >LD117
10. NEW ROUT 0.0.0.0 47.1.1.250
    - *(0.0.0.0 should be entered to identify the default route.)*
    - *(Where 47.1.1.250 is the IP address of the gateway .)*

Primary IP Address Procedures

Instructions are provided for the activation, validation, and recovery procedures for the Primary IP Address.

Primary IP Address Activation Procedure

Manually INIT the system to activate the connection to the IP address configured in OVL 117.

Note: A manual initialization must be performed to establish a connection to the primary IP address. Once the connection is established, another manual initialization is only required if the primary IP address is changed, or if the revised parallel upgrade process is not followed (see section 8.0 of this bulletin).

Primary IP Address Validation Procedure

The following procedure should be followed to validate that the primary IP address is active. The technician will compare the IP configured in overlay 117 with the actual IP used in overlay 137. If these two IP addresses are identical, then the system is using the correct IP address. Otherwise, the IP address is invalid, and the recovery procedure needs to be performed. Refer to the “Primary IP Address Recovery Procedure” section for additional information.

Example:

Active host name and IP address:	"PRIMARY_IP"	"47.48.49.50"
Inactive host name and IP address:	"SECONDARY_IP"	"47.48.49.51"

To Perform the Primary IP Address Validation Procedure:

1. Load overlay 117

   >LD 117<cr>

   OAM000

2. Type "PRT ELNK<cr>" to display the IP address configured.

   => PRT ELNK<cr>

   ACTIVE ETHERNET: "PRIMARY_IP" "47.48.49.50" ; **<= IP configured**

   INACTIVE ETHERNET: "SECONDARY_IP" "47.48.49.51"

   OK

3. Load overlay 137

   >LD 137<cr>

   CIOD000

4. Type "STAT ELNK<cr>" to display Ethernet and network status

   .STAT ELNK<cr>

   ELNK ENABLED

   Ethernet (ln unit number 0):

   Host: PRIMARY_IP

   Internet address: 47.48.49.50 ; **<=actual IP used**

   Broadcast address: 47.48.49.255

   Ethernet address: 00:00:75:32:1e:ca

   Netmask: 0xff000000; Subnetmask: 0xffffff000

   33520 packets received; 12308 packets sent

   0 input errors; 0 output errors

   0 collisions

Primary IP Address Recovery Procedure

If the connection to the Primary IP Address as configured in OVL 117 is lost, it can be reestablished by following the steps:

1. Manually INIT the system to reestablish a connection to the primary IP address.

2. Perform the "Primary IP Address Validation Procedure" (see section 6.0 above) to confirm the Ethernet connection.

Revised Parallel Upgrade Procedure

The Parallel Upgrade procedure that must be followed to ensure the primary IP address remains active following a software upgrade. Please refer to the *MAT Release 5 Common Services User Guide Release 5.0* (part number A0858266) for further detail.

To Perform the Parallel Upgrade Procedure:

1. The M1 is put into split mode with side 0 handling call processing.
2. Software install floppy is inserted in side 1 CMDU or IOP/CMDU.
3. Side 1 is sysloaded to enter software installation.

Note: At this point, side 1 takes the secondary IP address as its active IP address, since side 0 still has control over the primary IP address.

---

4. Software install is completed on side 1.
5. Call processing is switched from side 0 to side 1 by completing the following steps in quick succession:
   a. Faceplate disable the IOP or IOP/CMDU card on side 0 (which will relinquish side 0 control over the primary IP address).
   b. Faceplate disable the CNI cards in side 0.
   c. Faceplate enable the CNI cards in side 1.
   d. INIT side 1, to switch call processing from side 0 to side 1.

Note: At this point, side 1 will seize control of the primary IP address.

---

6. Software install floppy is inserted in side 0 CMDU or IOP/CMDU.
7. Faceplate enable the IOP or IOP/CMDU card on side 0.
8, Side 0 is sysloaded to enter software installation.
9. Continue with software installation on side 0, and complete the remainder of the parallel upgrade.

   - Once back in redundant mode, an INIT (planned, or unplanned) will result in the active CPU seizing the primary IP address.
   - Upon switchover, the primary IP address will be seized by the new active (formerly standby) CPU.

Sample of Meridian 1 ELAN Print Outs

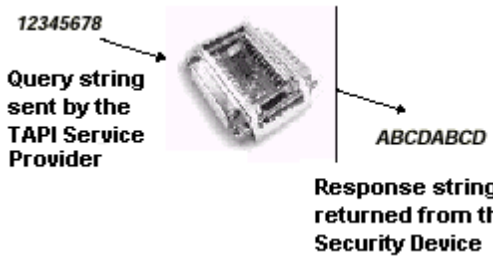
```
LD 117
=> PRT HOST
 ID  Hostname        IP Address
 1  LOCAL_PPP_IF    137.135.192.4
 2  REMOTE_PPP_IF   100.1.1.1
 3  SECONDARY_IP    47.106.100.2
 4  OPTION61C       47.106.100.1

=> STAT HOST
*** Active Internet Host Table ***
 ID  Hostname        IP Address
 --  localhost       127.0.0.1
 4  OPTION61C       47.106.100.1
 1  LOCAL_PPP_IF    137.135.192.4
 2  REMOTE_PPP_IF   100.1.1.1
 3  SECONDARY_IP    47.106.100.2

=> PRT MASK
SUBNET MASK: "255.255.240.0"

>LD 137
.STAT ELNK

ELNK   ENABLED
Ethernet (ln unit number 0):
Host: OPTION61C
Internet address: 47.106.100.1
Broadcast address: 47.106.111.255
Ethernet address: 00:00:75:32:31:ad
Netmask: 0xff000000; Subnetmask: 0xfffff000
81212 packets received; 99819 packets sent
0 input errors; 0 output errors
0 collisions
```

```
>LD 22
REQ  PRT
TYPE ADAN

ADAN    ELAN 16
 CTYP ELAN
 DES  NUMBER1
 N1   128
ADAN    ELAN 17
 CTYP ELAN
 DES  elan2
 N1   512
ADAN    ELAN 18
 CTYP ELAN
 DES  edlan3
 N1   512
...
REQ  PRT
TYPE VAS
....
 VSID  16
  DLOP
  ELAN 16
   SECU YES
   INTL 0001
   MCNT 9999

 VSID  17
  DLOP
  ELAN 17
   SECU YES
   INTL 0001
   MCNT 9999
```

```
VSID  18
  DLOP
  ELAN 18
   SECU YES
   INTL 0001
   MCNT 9999

 VSID  19
  DLOP
  ELAN 19
   SECU YES
   INTL 0001
   MCNT 9999

 VSID  20
  DLOP
  ELAN 20
   SECU YES
   INTL 0001
   MCNT 9999
...
>LD 48
.STAT ELAN

SERVER TASK:  ENABLED
ELAN #: 16  DES: NUMBER1
  APPL  IP  ID: 47 .106 .100 .11 LYR7: ACTIVE  EMPTY
  APPL ACTIVE
ELAN #: 17  DES: elan2
  APPL_IP_ID: 47 .106 .100 .255 LYR7: DOWN DSBL
ELAN #: 18  DES: edlan3
  APPL_IP_ID: 47 .106 .100 .50 LYR7: ACTIVE  EMPTY
  APPL ACTIVE
ELAN #: 19  DES: elan4
  APPL_IP_ID: 0 .0 .0 .0 LYR7: DOWN DSBL
ELAN #: 20  DES: elan5
  APPL_IP_ID: 0 .0 .0 .0 LYR7: DOWN DSBL
```

Installing the Security Device

The Security Device must be installed on the machine where the TAPI Service Provider is (or will be) installed. The Security Device provides software protection so that when the Security Device is not attached, the TAPI Service Provider for Meridian 1 will not run.



The Security Device has a 25-pin connector that attaches the end of the Security Device labeled ↑COMPUTER↑ to a parallel printer port of an IBM PC/XT/AT, PS/2, or true IBM-compatible computer.

The Security Device can be attached to any parallel port. Tighten the screws to connect the Security Device securely to the port. If a printer is connected to the computer, attach a shielded printer cable to the outside connector of the Security Device.

If the computer is close to a wall or another obstacle, you can attach an extension cable to the port, then attach the Security Device to the cable. Use a straight-through DB-25 male-to-DB-25 female cable.

Installing the Symposium TAPI Service Provider Software

Ensure the baseline requirements are met before installing the Symposium TAPI Service Provider for Meridian 1 Release 2**.** If you are upgrading from a previous version of the TAPI Service Provider for Meridian 1, be sure to remove the previous version before installing the current version. Information is provided in the "Removing TAPI Service Provider Software" section located in Chapter 7.

You must have administrative rights to install this software and be familiar with the TAPISRV operation. Before reinstalling Symposium TAPI Service Provider software, be sure that the TAPI SERV.exe (Telephony Services) is not running and that the Telephony Service has been stopped. You can verify this by accessing the Control Panel and double-clicking on the Services icon to display the *Services* dialog box.

Note: Do not install the Symposium TAPI Service Provider software using the Add/Remove program on the Control Panel. Using the Add/Remove program displays a warning to close all open windows (including the Control Panel) before continuing with the installation. Follow the directions as provided in this section for completing the installation.

Special installation instructions may be required if, after installing the Symposium TAPI Service Provider software, the need arises to upgrade or to install a patch for the installed software. These instructions are contained in the Release Notes provided with the new software.

Note: TCP/IP must be configured and operational on both the Meridian 1 host link and on the TAPI Service Provider.

Installing the Symposium TAPI Service Provider for Meridian 1 Release 2 consists of accessing the *Select Installation* dialog box, selecting the type of installation you prefer, and before completing the installation, selecting to view or not view the Readme.txt file. Choosing to view the Readme.txt file displays it on your desktop when the installation is complete.

Note: Do not minimize the install shield or other dialog boxes during installation. You are required to enter information during the installation process on certain dialog boxes and these dialog boxes do not display if you minimize the program.

To Install the Symposium TAPI Service Provider Software:

1. Access the *Select Installation* dialog box:

   a. Log on to the Windows NT Server.
   b. Insert the Symposium TAPI Service Provider CD ROM into the CD ROM driver.

c. Run the **Setup.exe** program.
Select **Run** from the Start menu to display the *Run* dialog box.
Type the CD ROM drive\setup.exe
For example, ***E:\setup.exe***

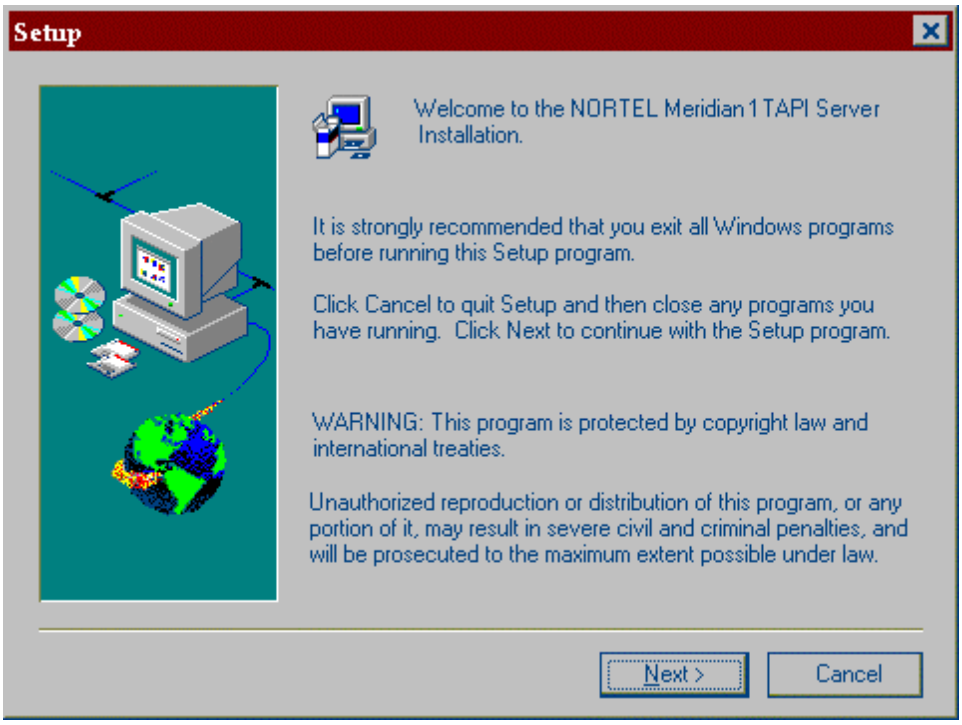
Note: We do not recommend that you install the Symposium TAPI Service Provider software using the Add/Remove program on the Control Panel. Using the Add/Remove program displays a warning to close all open windows (including the Control Panel) before continuing with the installation.

Or

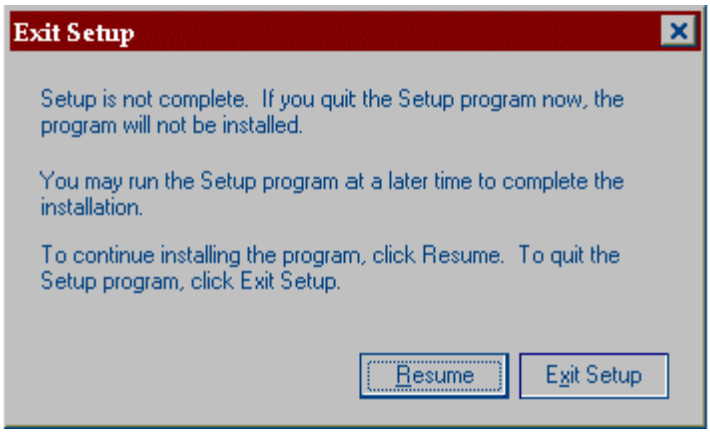
From the *Windows NT Explorer* window, click on the CD ROM drive to display the folders and files.
Double-click on the **Setup.exe** file.

The Meridian TAPI Service Provider installation process begins.

The *Welcome* screen is displayed.



d. Click on the **Next >** button to continue the installation process.
Or
Click on the **Cancel** button located on any installation dialog box to cancel the installation at any time.

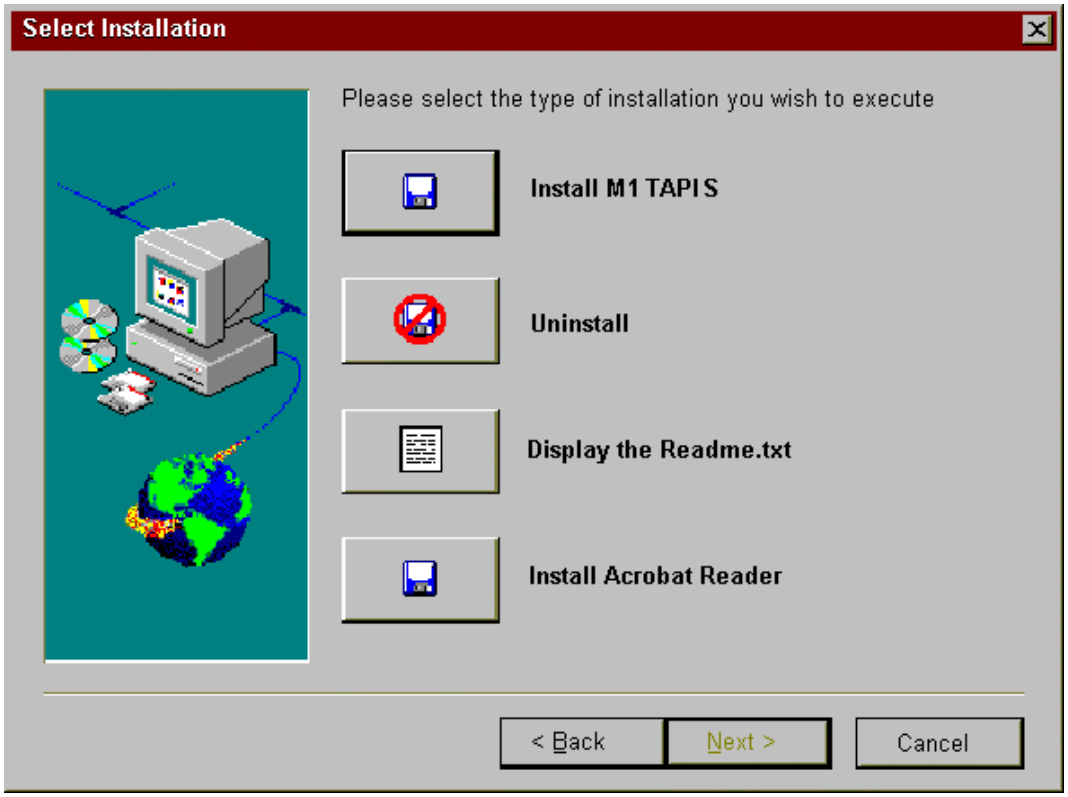


Click on the **Exit Setup** button to cancel the installation process.

Or

Click on the **Resume** button to continue the installation process.

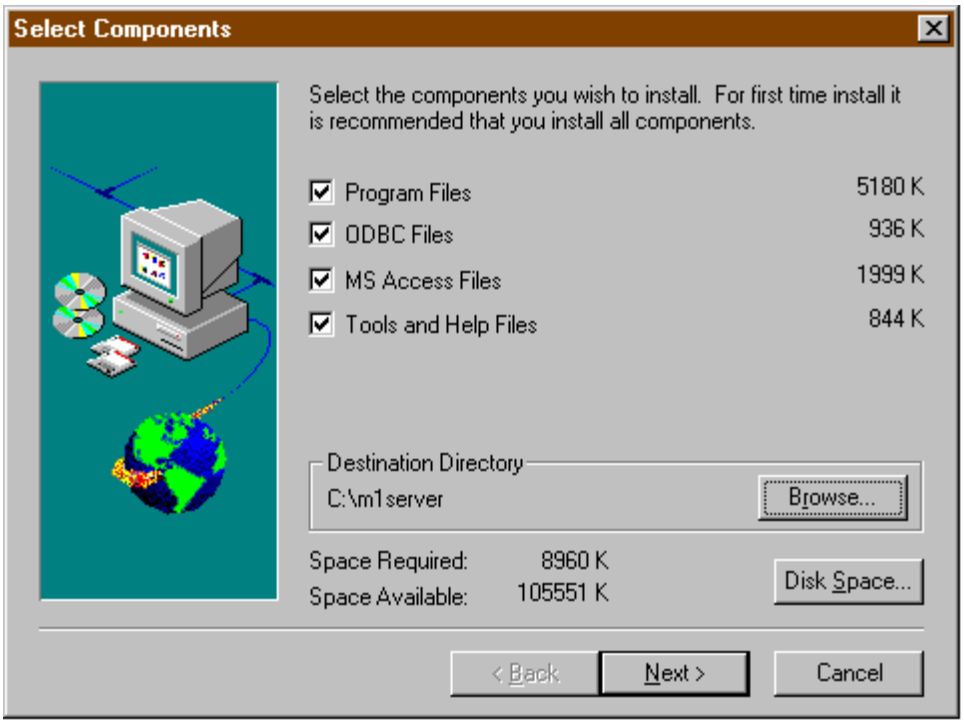
The *Select Installation:* dialog box is displayed.



2. Click on the **Install M1TAPIS** button.

Note: From this dialog box, you have the option to uninstall the Symposium TAPI Service Provider software, to display the Readme.txt file or to install the Acrobat Reader.

3. Click on the **Next >** button.
   The *Select Components* dialog box is displayed.

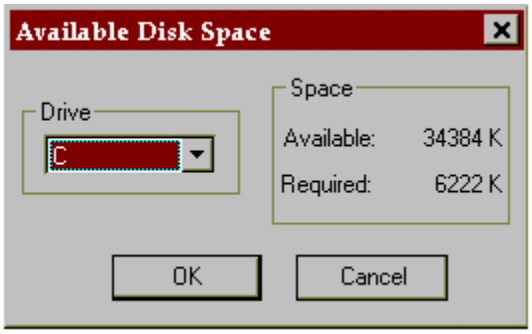


4. The option to install the available files is designated by a check mark in the check box. Click on the check box to deselect the option. Ensure a check mark is displayed in the check boxes of the files you wish to install.

5. Ensure that the destination directory is correct. The default directory is displayed.
If the default directory is not correct, click on the **Browse** button to access the *Choose Directory* dialog box.

Type or Select the ***desired path and directory*** and click on the **OK** button.

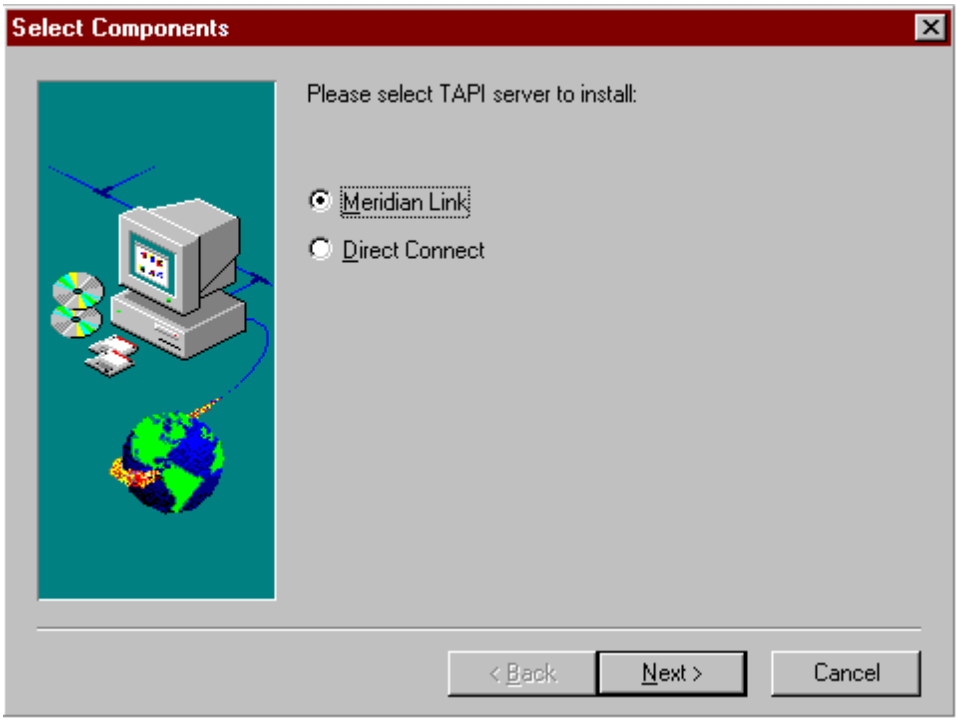
6. The *Select Components* dialog box displays the available disk space. If the selected directory does not have enough disk space, click on the **Disk Space...** button.
   The *Available Disk Space* dialog box is displayed.



   a. Click on the down arrow located next to the *Drive* listbox to display the list of available drives.
   b. Select the new drive.
   c. Click on the **OK** button to close the *Available Disk Space* dialog box.

7. Click on the **OK** button located on the *Select Components* dialog box to continue the installation.
   If you selected the **Tools and Help Files** check box, the *Enter Password* dialog box is displayed.
   Enter the ***password*** for the accessing the *Programmer's Guide* document and press **Next**
   Or
   Press **Next** to continue the installation.

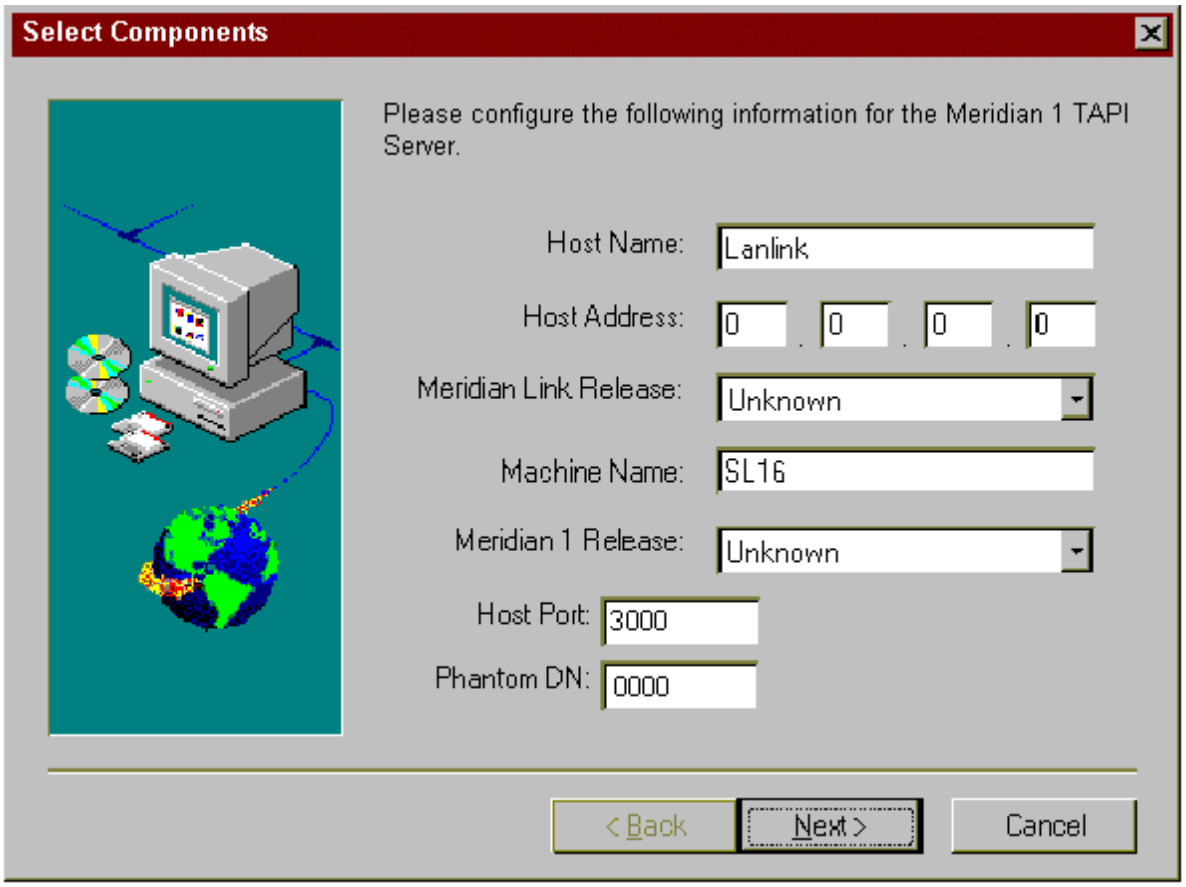
   If you selected the **Program files** check box, the following dialog box is displayed.



   Click in the Radio button to select the type of Symposium TAPI Service Provider to install. The default is **Meridian Link**. For the Symposium Call Center Server, select the **Meridian Link** option.

The Symposium TAPI Service Provider installation files are copied to the designated directory.

When the files are copied, the following dialog box is displayed.



8. Perform the following configurations on this dialog box:

   a. Verify the following **defaults** and change them only if they do not contain the correct information:

      1. *Host Name*: The default is **Lanlink.**
         This name must match the name configured in Meridian Link.
         For Meridian Link, SCCS, and Direct Connect, accept the default.

Note: We recommend that you do not change this field as changing this field may cause your system to malfunction.

      2. *Machine Name:* The default is **SL16**.
         This name must match the Meridian 1 name configured in Meridian Link.
         For Meridian Link, SCCS or Direct Connect, accept the default **SL16**.

      3. *Host Port*: The default is **3000**.
         The host port must match the one configured in Meridian Link.
         For Meridian Link or SCCS, accept the default 3000.
         Enter ***8888*** if you are installing the Direct Connect option.

   b. Enter the ***Host address*** in the fields provided. This is the TCP/IP address for the following:

      1. Meridian Link module (Meridian Link), or
      2. SCCS CLAN (SCCS server), or
      3. the Meridian 1ELAN (Direct Connect).

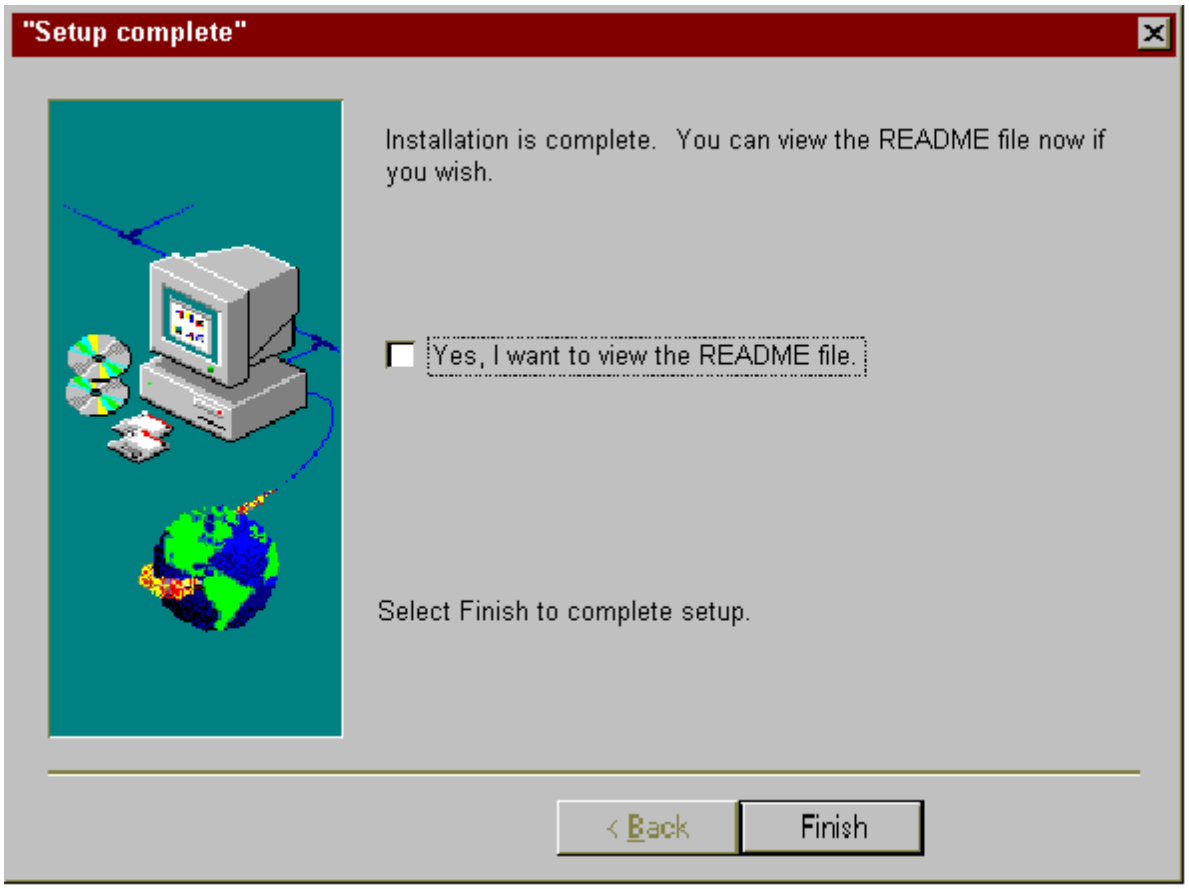
c. Click on the down arrow next to the *Select the Meridian Link Release* field to display the list of available releases and select the Meridian Link Release you have installed.

d. Click on the down arrow next to the *Meridian 1 Release* field to display the list of available releases and select the Meridian 1 release you have installed.

e. If you configured in step 5 of the "Overview of the Complete Installation Process" section, click in the *Phantom DN* field and enter the ***configured Phantom DN number***. This is not necessary if you have X11 Release 22 or above.

f. Click on the **Next** > button.

The installation is complete. If you selected the **Tools and Help Files** option on the *Select Components* dialog box, you are provided the option to read the Readme.txt file now.



9. Click on the **Yes I want to view the README file** check box to display the Readme.txt file on the desktop. The Readme.txt file provides valuable information on the Symposium TAPI Service Provider for Meridian 1. We recommend that you read this file before configuring and using the Symposium TAPI Service Provider for Meridian 1.
Click on the **Finish** button. The *Information* dialog box is displayed.

Or

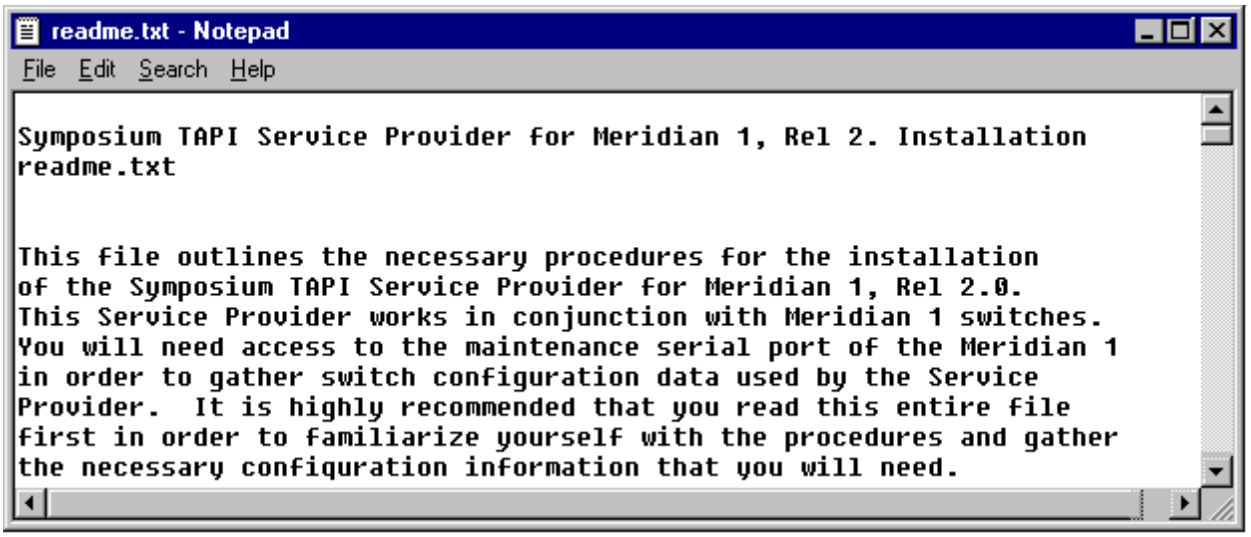
If you did not select the **Tools and Help Files** option on the *Select Components* dialog box, the following Information dialog box is displayed.

Click on the **Yes** button.

The *NORTEL M1TAPIS* program group is displayed on the Program list.

Viewing the Readme.txt File

If you selected to read the Readme.txt document during installation, it displays on the desktop when the installation is complete.



If you did not select to view the Readme.txt file during the installation process, you can access the file from the *NORTEL M1TAPIS* program list.

To Access the Readme.txt File:

Click on **Start** and select the Select **Readme.txt** from the *NORTEL M1TAPIS* program list.

The Readme.txt file is displayed on the desktop with the Notepad application. The Notepad application provides the option to print the Readme.txt file by selecting the **Print** option from the **File** menu.

You are now ready to configure the Symposium TAPI Service Provider and the License. Refer to Chapter 3 for detailed information on configuring the Symposium TAPI Service Provider and the License.

Verifying Product or Patch

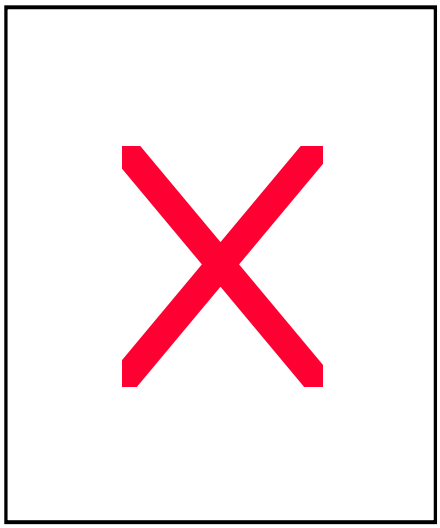
To verify the product and/or patch currently installed:

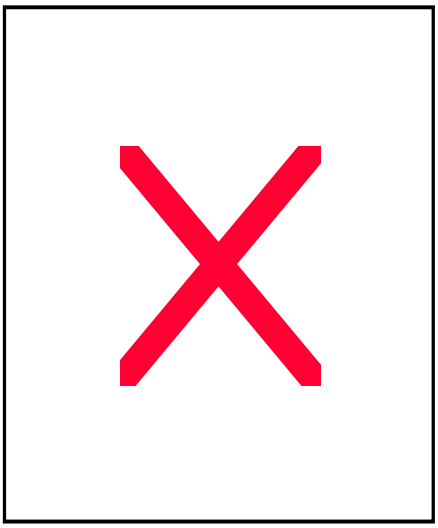
1. Navigate to the drive where Windows NT is installed.

2. Select Winnt/system32 on the default drive

3. Find the following files:
   - linksp.tsp
   - mlinksp.cfg

4. Highlight either one of the files. Right click and select **Properties.** The window that opens should display information similar to the following.





Chapter 3 Configuration

This chapter provides an overview of the Configurator application and the FLEXlm License Manager. It includes the tasks necessary to configure the Symposium TAPI Service Provider and the License. The License must be configured before initializing the Meridian 1 TAPI Service Provider.

The Configurator Application Overview

The Configurator application allows you to populate and maintain the Symposium TAPI Service Provider database tables. These tables include entries for each controllable telephone. The Configurator application contains a series of configuration dialog boxes that display the database information and allow for adding, modifying, and deleting this information. In addition, when you have multiple customer numbers (0 and 1), you can maintain customer information in separate databases.

The Configurator application provides an easy method to download information from the Meridian 1 switch and use this information to populate the Symposium TAPI Service Provider database. After you download information files from the Meridian 1 switch, the Configurator application translates these files and populates the Symposium TAPI Service Provider database. Accessing the Configurator application displays the database information in the various configuration dialog boxes. These dialog boxes allow you to maintain the database tables by adding, modifying, or deleting the information contained in the fields.

Note: The Configurator dialog boxes contain information that was downloaded from the Meridian 1 switch or information that was manually entered. Adding, modifying, or deleting information on the configuration dialog boxes does NOT affect the switch. Likewise, changes to the switch do NOT automatically change the information on the configuration dialog boxes (Symposium TAPI Service Provider database).

In addition, you have the option to populate the Symposium TAPI Service Provider database tables manually without downloading the Meridian 1 switch files. You access the configuration dialog boxes and manually enter the information in the fields provided on the various configuration dialog boxes. Depending upon the number of phones your Windows NT server controls, the information required for the database tables may be extensive. As such, manually populating the Symposium TAPI Service Provider database would be very time consuming.

As an Administrator, you are provided the ability to share this centralized database with a network connection. This database can either be shared on a file server or by a database server in a client-server architecture. Access restrictions are determined by the privileges assigned within the Windows NT server configuration.

This chapter contains the following sections to assist you in configuring the Symposium TAPI Service Provider database:

- *Running the Configurator Application* - Provides information on starting the Configurator Application. This application accesses the *M1S Configuration* dialog box. This dialog box provides access to the configuration dialog boxes and to the Convert Text File tool that is used in the Automatic Configuration process.
- *Downloading the Symposium TAPI Service Provider Database Information* - Lists the steps involved in acquiring the Meridian 1 switch information and adding the information to the database file.
- *Configuring the Symposium TAPI Service Provider Database Information* - Lists the steps for accessing the Symposium TAPI Service Provider *Configuration* dialog box. This dialog box provides access to the configuration dialog boxes used to configuration the database tables. In addition, the sections contain detailed information on configuring each database table and the dialog boxes used to configure the database tables.

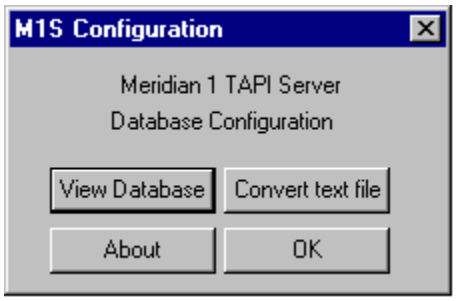
Running the Configurator Application

Running the Configurator application displays the *M1S Configuration* dialog box. This box provides push buttons that to access the configuration dialog boxes and the Convert Text File tool. The **Convert Text File** conversion tool is used during the Automatic Configuration process. The **View Database** button is used to access the configuration dialog boxes.

To Run the Configurator Application:

Select the **Config Database** program from the *NORTEL M1TAPIS* program group.

The *M1S Configuration* dialog box is displayed.



Downloading and Translating Meridian 1 Switch Information

The Configurator application automatically translates and populates the Symposium TAPI Service Provider for Meridian 1 database tables from downloaded Meridian 1 switch information. This process saves valuable time when extensive information is required for the database tables. However, if you do not want to download information from the Meridian 1 switch, proceed to the "Configuring the Symposium TAPI Service Provider for Meridian 1 Database Information" section in this chapter. This section provides you with the information to manually enter the required information.

Note: The dialog boxes in the Configurator application contain information that was downloaded from the Meridian 1 switch or information that was manually entered. Adding, modifying, or deleting information on the configuration dialog boxes does NOT affect the switch. Likewise, changes to the switch do NOT automatically change the information on the configuration dialog boxes (Symposium TAPI Service Provider database).

Downloading and translating Meridian 1 switch information consists of the following steps:

1. Create the configuration information text file (download.txt) that receives the information that is downloaded from the Meridian 1 switch overlay programs.

2. Download the switch configuration information to the configuration information text file (download.txt) created in the first step.

   This step involves capturing your Meridian 1 switch configuration information and adding the information to a configuration database on the server. The Symposium TAPI Service Provider uses this information to control the telephone sets. The following overlay programs contain the Meridian 1 switch configuration information:

Overlay Program	Request	Type	
Overlay 20 (LD 20)	PRT	TNB	to list all the used Terminal Number Blocks
Overlay 21 (LD 21)	PRT	RDB	to list Route Data Blocks (Customer number and route number)
Overlay 23 (LD 23)	PRT	CDN	to list all Control Directory Number Blocks configured within the switch

3. Convert the Text file (download.txt) and populate the Host, Provider, and Log style tables in the database with the information obtained from the switch.

Step 1: Creating the Switch Configuration Information Text File

To Create the switch configuration information text file:

1. Create a text file (**download.txt**) using Notepad.exe or another text file editor.

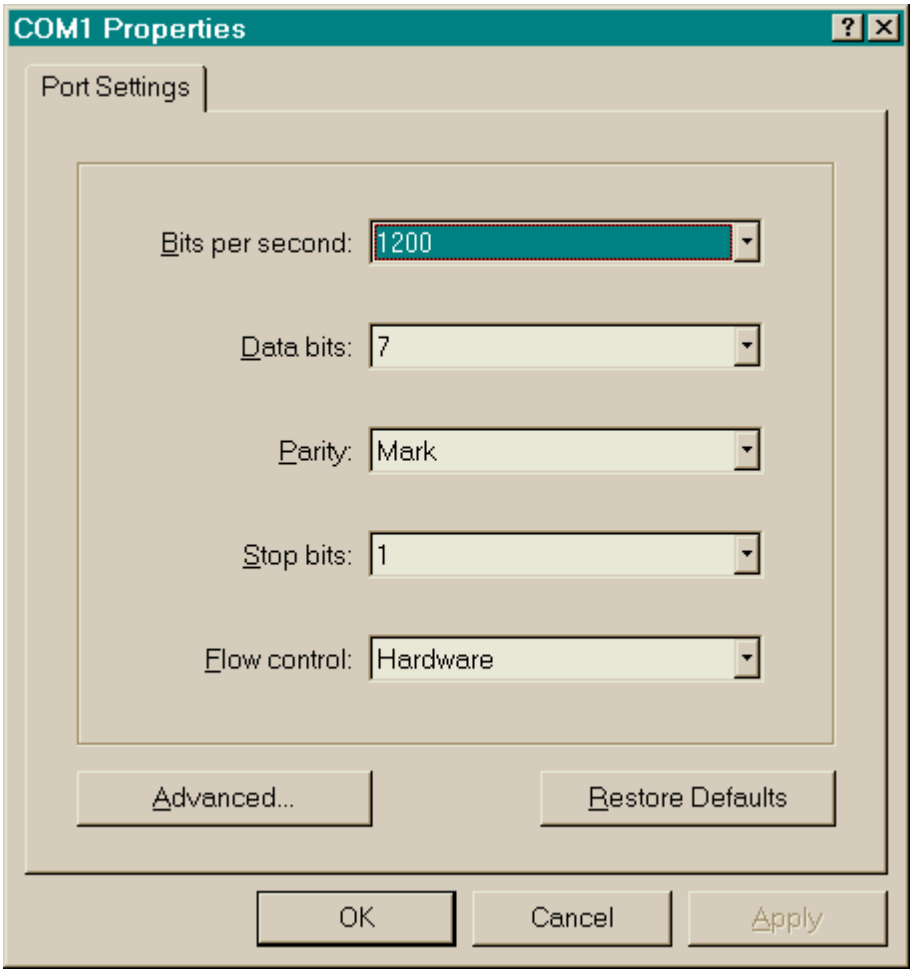
2. Save the text file in the **c:\M1Server** directory.

Step 2: Downloading the Switch Configuration Information

To Download the Switch Configuration Information to the Text File:

1. Connect to your Meridian 1 switch (either remote or direct) using the **Terminal.exe** or the **Hyperterminal.exe** program included in Windows NT. The Terminal application (using a baud rate of 1200) dials the modem number of your Meridian 1 switch.

   The *Port Settings* dialog box is displayed (for demonstration purposes, the dialog box is from the Hyperterminal.exe program).



2. Log on to the switch.

3. Save the switch configuration information to the **download.txt** file (created in Step 1: Creating the Switch Configuration Information Text File)

   a. Under the *Transfers* menu,
   select the **Receive Text File** option if using the **Terminal.exe** program.
   Or
   select the **Capture Text** option if using the **Hyperterminal.exe** program.

   b. Select the **download.txt** file (located in the c:**M1Server** directory).

Note: The commands listed in steps c, d, and e are the relevant commands for this process. Other commands may appear on your display. If so, press <return> until a command listed is displayed.

   c. Capture the LD 20 information:

At this command	**Type this response**
>	LD 20
REQ:	PRT
TYPE:	TNB
CUST	0 (or customer number if not 0)
~	
DES	<return>

Wait for the Load 20 to finish. This is usually be a lengthy process. Return to the ready (>) prompt, for example, type ****.

d. Capture the LD 21 information:

At this command	Type this response
>	LD 21
REQ:	PRT
TYPE:	RDB
CUST	0 (or customer number if not 0)
~	
ACOD	<return>

Wait for the Load 21 to finish. This is usually be a lengthy process. Return to the ready (>) prompt, for example, type ****.

e. Capture the LD 23 information:

At this command	Type this response
>	LD 23
REQ:	PRT
TYPE:	CDN
CUST	0 (or customer number if not 0)
~	
CDN...	<return>

Wait for the Load 23 to finish. This is usually be a lengthy process.

4. Turn off the text file receive option.

   If you are using the **Terminal.exe** program, select the **Stop** button.
   Or
   If you are using the **Hyperterminal.exe** program, select the **Capture Text Stop** option on the *Transfers* menu.

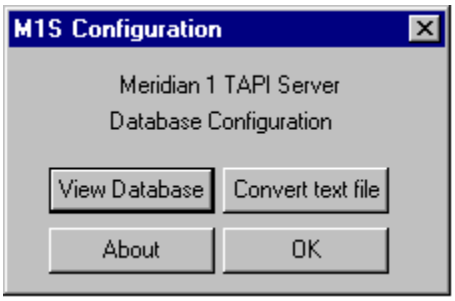
5. Close the Terminal application. The server information is saved to the disk.

Step 3: Converting the Text File

To Convert the Text File:

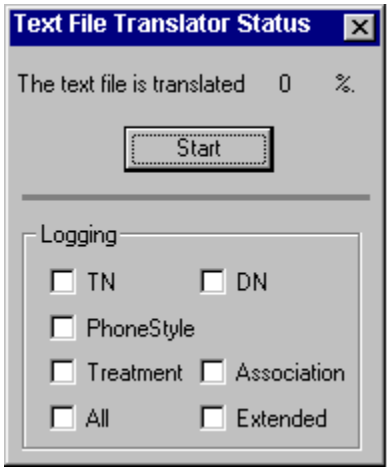
1. Run the Configurator application. Refer to the "Running the Configurator Application" section in this chapter.

   The *M1S Configuration* dialog box is displayed.



2. Click on the **Convert text file** button.
   The *Open* dialog box is displayed.

3. Select the **c:\M1SERVER\download.txt** file and click on the **Open** button.
   The *Text File Translator Status* dialog box is displayed.



4. Click on the **Start** button.

5. When the file translation is complete, click on the **Close** button.

Note: This process adds all downloaded Meridian 1 switch information to the Meridian TAPI Service Provider database. Certain information may be added that is not necessary or may be omitted, so configuring the database tables is necessary to accurately reflect your circumstances. For example, if you are monitoring IVR ports, they must be set on the TN Table dialog box or the Symposium TAPI Service Provider for Meridian 1 assumes they are analog. Also, the download process downloads all CDNs. You must delete any CDNs not used by this program.

The Configurator application provides configuration dialog boxes for viewing, adding, modifying and deleting the information contained in the Symposium TAPI Service Provider *for* Meridian 1 database tables. Refer to the "Configuring the TAPI Service Provider Database Information" section for information on accessing the configuration dialog boxes.

Creating an Additional Database

When you have multiple customer numbers (0 and 1), you have the option to create an additional Symposium TAPI Service Provider database. You will follow the same steps for the downloading and translating the Meridian 1 switch information. However, the new database must either have a different name or be located in a different directory than the first database.

Also, when downloading the switch configuration information, you must type the correct customer number, for example, type 1 instead of 0.

Note: If you create an additional database, be sure the correct database file is loaded before you access the Configurator application to view the database information. There is no way to switch databases after accessing the Configurator application. You must close the Configurator application, reload the correct database file, and reopen the Configurator application.

This function is recommended for experienced database administrators only.

Configuring the TAPI Service Provider Database Information

The Configurator application provides a series of dialog boxes for configuring the Symposium TAPI Service Provider database information. If you did not download Meridian 1 switch information, the fields are blank and allow you to enter all required information. However, if you downloaded Meridian 1 switch information, this information is displayed in the fields on the dialog boxes. It may be necessary to configure this downloaded information to reflect your particular circumstances.

Note: The information displayed in the configuration dialog boxes is information contained in the Symposium TAPI Service Provider database. This information was downloaded from the Meridian 1 switch or manually entered. Adding, modifying, and deleting information on the configuration dialog boxes do NOT affect the switch or the set configuration. Likewise, changes to the switch configuration do NOT automatically change the information in the configuration dialog boxes (Symposium TAPI Service Provider database).

The "Verifying the Symposium TAPI Service Provider is Installed and Configured Properly" section located in Chapter 5, provides helpful information on ensuring the Symposium TAPI Service Provider is properly installed and configured.

Configuring the Symposium TAPI Service Provider Database information consists of the following steps:

1. Start the Configurator application to access the *Database Configuration* dialog box.

2. Configure the Provider table by accessing the *Provider Table* dialog box and adding, modifying, or deleting the information.

3. Configure the Host table by accessing the *Host Table* dialog box (and, in turn, the *Treatment Table*, *TN*, *Phone Styles*, and *DN Table* dialog boxes) and adding, modifying, or deleting the information. Select IVR (on the TN table dialog box), if necessary.

4. Configure the Control DN table by accessing the *CDN* dialog box and adding, modifying, or deleting the information. Delete any CDNs not controlled by this program.

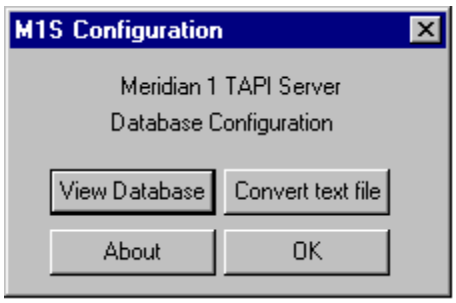
5. Configure the Log Styles table by accessing the *Log Styles* dialog box and creating new log styles. Logging styles are used by the Logger application to determine which data items are logged for troubleshooting purposes. The logging styles are selected on the configuration dialog boxes. Selecting the default "1" style allows the Logger application to log all data items. (Selecting the default "0" turns off the logging on all data items. Creating a new Log style allows you to select specific data items for logging purposes.

Accessing the Database Configuration Dialog Box

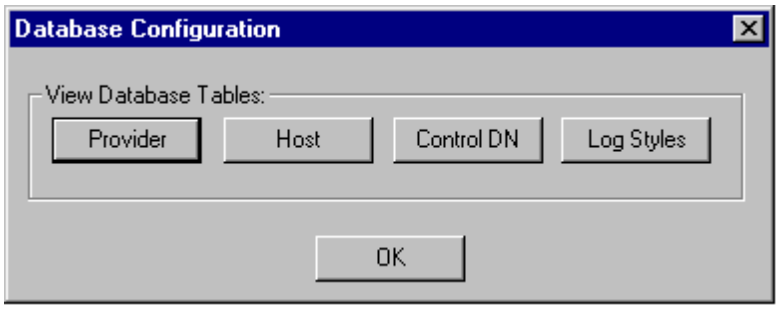
The *Database Configuration* dialog box provides access to the configuration dialog boxes.

To Access the *Database Configuration* dialog box:

1. Run the Configurator application. Refer to the "Running the Configurator Application" section. The *M1S Configuration* dialog box is displayed.



2. Click on the **View Database** button.
   The *Database Configuration* dialog box is displayed.



The *Database Configuration* dialog box buttons provide access to the following dialog boxes:

Button	Dialog Box
Provider button	*Provider* dialog box - Provides access to the *Log Style Table* for the Provider table
Host button	*Host Table* dialog box - Provides access to the *Treatment Table* dialog box * Provides access to view the *Log Style Table* for the Treatment table - Provides access to the *TN Table* dialog box * Provides access to the *Phone Style* dialog box + Provides access to view the *Log Style Table* for the LineStyle (Phone) table + Provides access to view the *Log Style Table* for the Address Style (Phone) table * Provides access to the *DN Table* dialog box + Provides access to view the *Log Style Table* for the DN table * Provides access to view the *Log Style Table* for the TN table - Provides access to view the *Log Style* table dialog box for the Host table
Control DN button	*CDN* dialog box
Log Styles button	*Log Styles* dialog box

Each table allows you to add, edit, or delete information as necessary.

Configuring the Provider Table

The *Provider* dialog box allows you to add or modify the provider database information. The *Provider* dialog box displays information on the application currently registered with the Meridian Link Module.

In addition, you have the option to select the style that this information is displayed in the Logger application for troubleshooting purposes. Two default styles (0=no data items display, 1=all data items display) are provided. Refer to the “Configuring the Log Style Table” section for information on creating additional styles.

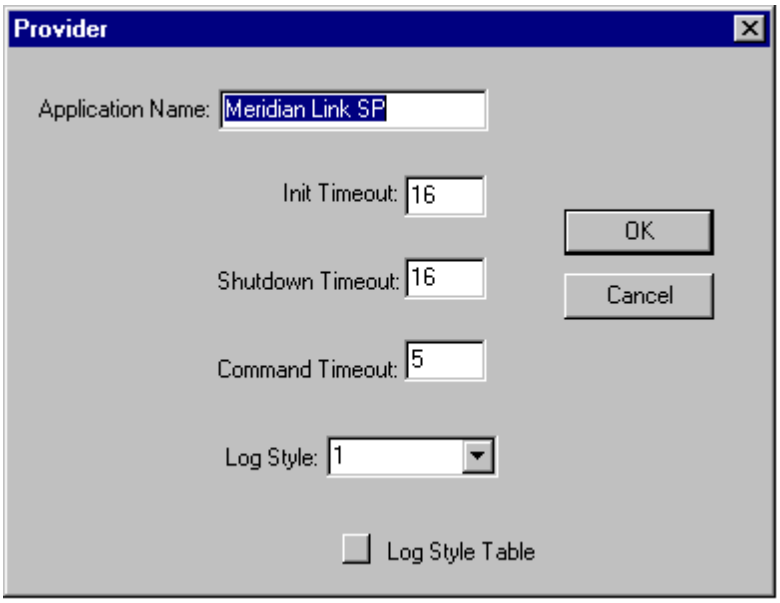
Configuring the Provider Table consist of the following three steps (detailed information is provided for each step):

1. Access the *Provider* dialog box.
2. Add or modify the information.
3. Close the *Provider* dialog box.

To Access the *Provider* dialog box*:*

From the *Database Configuration* dialog box (refer to the "Accessing the *Database Configuration* Dialog Box" section):

Click on the **Provider** button.
The *Provider* dialog box is displayed.



The *Provider* dialog box fields and buttons*:*

Provider Data Fields	Description
Application ID	A maximum of 20 ASCII characters that uniquely identifies the originating application from other application registered with the Meridian Link Module.
InitTimeout	The length of time the application will wait during the initialization process to establish communication before generating an error (default = 16).
ShutdownTimeout	The length of time the application will wait for shut down to be complete before generating an error (default = 16).
Command Timeout	The length of time the service provider will wait for command responses before generating an error (default = 5)
Provider Log Style	The Number of the Log Style that is defined for this application (default = 1).
Provider Buttons	**Description**
Log Style Table	Displays the *Log Styles* dialog box with the data items that will be logged and transferred to the *Logger* window when the Logger application is running.

To Modify the *Provider* dialog box information*:*

1. Click in the field to be changed and enter the information.
2. Select the Log Style.
   a. Click on the down arrow located in the Log Style field to display the available log styles.
   b. Click on the desired style.

   Clicking on the **Log Style Table** button displays the selected data items associated with the selected Log Style. Refer to the "Configuring the Log Styles Table" for information on creating additional log styles.

To Close the *Provider* dialog box*:*

1. Click on the **OK** button to close the *Provider* dialog box and save the information.
   Or
   Click on the **Cancel** button to close the *Provider* dialog box and cancel any changes.
   The *Database Configuration* dialog box is displayed.

2. Click on the **OK** button to close the *Database Configuration* dialog box.
   The *M1S Configuration* dialog box is displayed.

3. Click on the **OK** button to exit the Configurator application.
   Or
   Click on a button to view another database table information.

Configuring the Host Table

The *Host Table* dialog box allows you to add or modify the Host/Machine/Association information contained in the database. The *Host Table* dialog box displays information that the Symposium TAPI Service Provider needs regarding the Meridian Link and the Meridian 1. The buttons located at the bottom of the *Host Table* dialog box provide access to additional dialog boxes for adding and maintaining specific database information.

Note: Adding, modifying, and deleting the information on the Treatment, TN, or DN configuration dialog boxes changes the information contained in the Symposium TAPI Service Provider database. This does not affect the Meridian 1 Switch or the set configuration. Likewise, changes to the switch configurations are not automatically reflected in the Symposium TAPI Service Provider database or on these dialog boxes.

In addition, you have the option to select the style that this information is displayed in the Logger application for troubleshooting purposes. Two default styles (0=no data items display, 1=all data items display) are provided. Refer to the "Configuring the Log Style Table" section for information on creating additional styles.

Configuring the Host Table consist of the following four steps (detailed information is provided for each step):

1. Access the *Host Table* dialog box.
2. Add or modify the information on the *Host Table* dialog box.
3. Access the other dialog boxes associated with the Host database information.
   a. Access the *Treatment Table* dialog box and add or modify the information.
   b. Access the *TN Table* dialog box and add or modify the information.

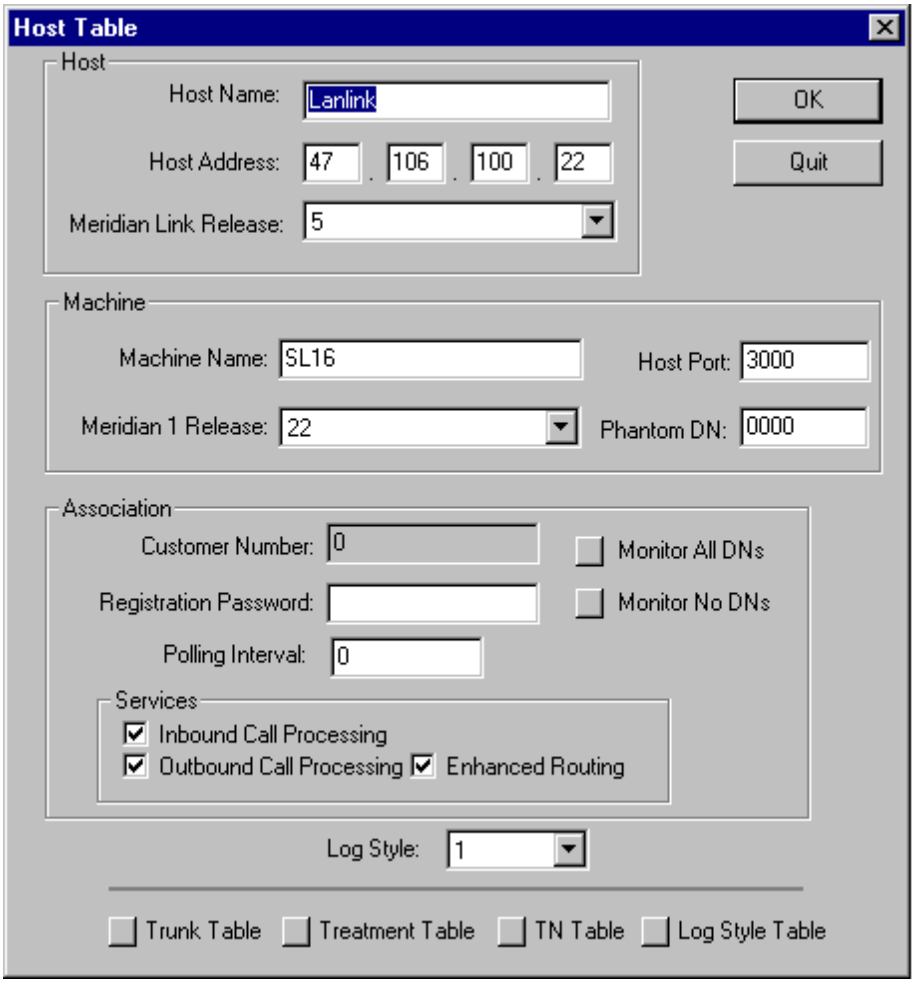
   From the *TN Table* dialog box, access the *Phone Style* dialog box and add or modify the phone style information associated with the TN displayed on the *TN Table* dialog box.

   From the *TN Table* dialog box, access the *DN Table* dialog box and add or modify the DN information associated with the TN displayed on the *TN Table* dialog box.
4. Close the *Host Table* dialog box.

To Access the *Host Table* Dialog Box:

From the *Database Configuration* dialog box (refer to the "Accessing the *Database Configuration* Dialog Box" section):

Click on the **Host** button.
The *Host Table* dialog box is displayed.



Click on the down arrow located next to the *Meridian Link Release, Meridian 1 Release, and Log Style* fields to display the available information in those fields.

The *Host Table* dialog box fields, check boxes, and buttons*:*

Host Section Data fields	Description
Host Name	A maximum of 20 ASCII character ID that uniquely identifies the originating host that corresponds to the registered application. We recommend that you do not change the default field. The name in this field **must** match the Meridian Link configuration. This field is case sensitive.
Host Address	The TCP/IP address of the host for the following: Meridian Link module (Meridian Link), or SCCS CLAN (SCCS server), or the Meridian 1ELAN (Direct Connect).
Meridian Link Release	Displays a list of available Meridian Link software release numbers.
Machine Section Data fields	**Description**
Machine Name	A maximum 20 ASCII character ID that uniquely identifies the Meridian 1 that is associated with the registering application. This must match the Meridian Link configuration.
Host Port	Indicates the host port number. The host port must match the one configured in Meridian Link. For Meridian Link or SCCS, accept the default. Enter ***8888*** if you are installing the Direct Connect option
Meridian 1 Release	Displays a list of available Meridian 1 release numbers (5.0 or greater).
Phantom DN	A reserve directory number configured on the switch for call features hold, transfer, redirect or conference.
Association Data Section fields	**Description**
Customer Number	Integer that identifies the assigned customer number on the Meridian 1. (Values = 0 - 99)
Registration Password	An optional field for a minimum 4-character and a maximum 16-character string (ASCII number). The password is to be included if the application requires a password associated with the specific application registration.
Polling Interval	An integer number in 10 second units represented in HEX. (i.e., 1 = 10 seconds - 60 = 600 seconds)
Monitor all DNs button	Clicking on this button selects the option to monitor all DNs. This is the default. (The check box on the *DN Table* dialog box contains a check mark.)
Monitor No DNs button	Clicking on this button deselects the option to monitor all DNs. (The check box on the *DN Table* dialog box is empty.)
Services Check boxes	**Description**
Inbound Call Processing	Meridian 1 service associated with the application.
Outbound Call Processing	Meridian 1 service associated with the application.
Enhanced Routing	Meridian 1 service associated with the application.
Log Style	The Number of the Log Style that is defined for this application (default = 1).
Host buttons	**Description**
Trunk Table	Displays the *Trunk Table* dialog box. This dialog box contains information pertaining to the Trunk table route numbers.
Treatment Table	Displays the *Treatment Table* dialog box. This dialog box contains information pertaining to the Meridian 1 routes.
TN Table	Displays the *TN Table* dialog box. This dialog box contains information pertaining to the TN mappings within the Meridian 1 switch. In addition, the *TN Table* dialog box provides access to the *Phone Styles* and *DN Table* dialog boxes are provided.

Log Styles Table	Displays the *Log Styles* dialog box with the data items that will be logged and transferred to the *Logger* window when the Logger application is running.

To Add or Modify the Information on the *Host Table* Dialog Box:

1. Verify the displayed information in the following fields:

   Host Name: The default is **Lanlink.**

   The name in this field **must** match the Meridian Link configuration and it is case sensitive.

   For Meridian Link, SCCS, and Direct Connect, accept the default.

Note: We recommend that you do not change this field as changing this field may cause your system to malfunction.

   Host Address: The TCP/IP address for the following:

   Meridian Link module (Meridian Link), or
   SCCS CLAN (SCCS server), or
   the Meridian 1ELAN (Direct Connect).

   Meridian Link Release: The displayed release is the correct Meridian Link release.

   Machine Name: The default is **SL16**.

   This name must match the Meridian 1 name configured in Meridian Link.

   For SCCS and Direct Connect, accept the default **SL16**.

   Host Port: The default is **3000**.

   The host port must match the one configured in Meridian Link.
   For Meridian Link or SCCS, accept the default.
   Enter ***8888*** if you are installing the Direct Connect option.

   Meridian 1 Release: Displays a list of available Meridian Link software release numbers.

2. Click in the field and enter the information for the following:

   Phantom DN
   Customer Number
   Registration Number
   Polling interval

3. Click on the button to select to **Monitor** or to **Not Monitor all DNs**. The *DN Table* dialog box provides the option to monitor a specific DN.

4. Select the Services by clicking in the check box to display a check mark. (Selecting all services is recommended.)

5. Select the Log Style.

   a. Click on the down arrow located in the Log Style field to display the available log styles.
   b. Click on the desired style.

   Clicking on the **Log Style Table** button displays the selected data items associated with the selected Log Style. Refer to the "Configuring the Log Styles Table" for information on creating additional log styles.

To Access the Other Dialog Boxes associated with the Host database table:

1. Access the *Trunk Table* dialog box and add or edit the information. Refer to the "Trunk Table Dialog Box" section for detailed information on this dialog box.

2. Access the *Treatment Table* dialog box and add or edit the information. Refer to the "Treatment Table Dialog Box" section for detailed information on this dialog box.

3. Access the *TN Table* dialog box and add or edit the information. Refer to the "TN Table Dialog Box" section for detailed information on this dialog box.

To Close the *Host Table* dialog box*:*

1. Click on the **OK** button to close the *Host Table* dialog box and save the information.
   Or
   Click on the **Cancel** button to close the *Host Table* dialog box and cancel any changes.
   The *Database Configuration* dialog box is displayed.

2. Click on the **OK** button to close the *Database Configuration* dialog box.
   The *M1S Configuration* dialog box is displayed.

3. Click on the **OK** button to exit the Configurator application.
   Or
   Click on a button to view another database table information.

Trunk Table Dialog Box

The Trunk Table database information is used to monitor outbound trunk routing. The *Trunk Table* dialog box allows you to add the route or routes to be monitored.

To monitor the trunk for the status events of answered and disconnected, ensure the following:

- On the Meridian 1, the trunk must be set up as AST
- On the Meridian 1, IAPG must be set up to select the appropriate events (1 = all events)
- The CTI application must register the trunk to be monitored

The status change messages for the monitored trunk can only be sent when the trunk statuses are detected, that is, when the trunk is equipped with answer supervision and disconnect supervision. If a digital trunk interface is used, the answer supervision and disconnect supervision are available. However, if a Universal trunk card is used, the SUPN prompt must be set to ***yes*** in Load 14 so the answer supervision and the disconnect supervision are allowed.

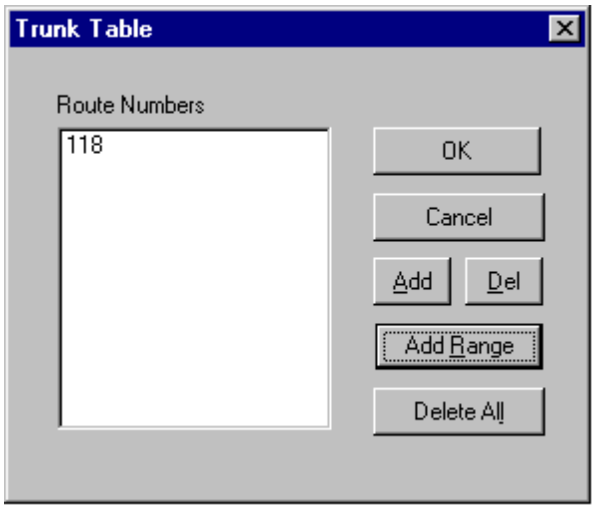
Note: Adding, modifying, or deleting a Route on this dialog box changes only the information contained in the Symposium TAPI Service Provider database. This does not affect the switch configuration.

Configuring the Trunk Table may consist of the following (detailed information is provided for each step):

1. Access the *Trunk Table* dialog box.
2. Add a new Route or Range of Routes to the Trunk table.
3. Delete the Route information on the Trunk table.
4. Close the *Trunk Table* dialog box.

To Access the *Trunk Table* dialog box:

From the *Host Table* dialog box, click on the **Trunk Table** button.
The *Trunk Table* dialog box is displayed.

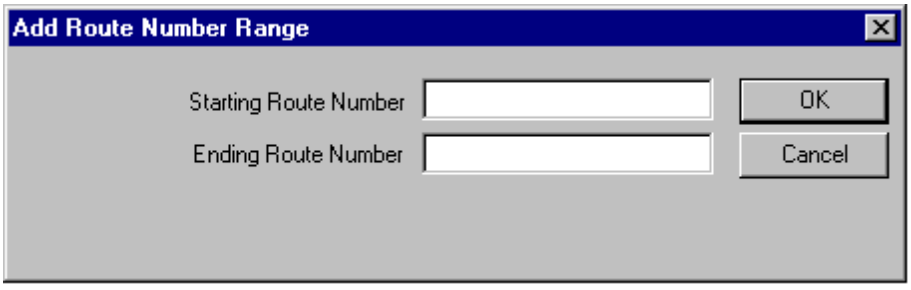


The *Trunk Table* dialog box fields and buttons*:*

Trunk Data fields	Description
Route Numbers	Displays the Route Numbers that are configured.
Treatments buttons	**Description**
Add	Displays a *Add Route Number* dialog box to enter information for adding a new Route number.
Del	Deletes the selected Route(s).
Add Range	Displays the *Add Route Number Range* dialog box for adding a range for the Route Numbers.
Delete All	Deletes all of the Route Number information contained in the Symposium TAPI Service Provider database.

To Add a Route Number Range:

1. From the *Trunk Table* dialog box, click on the **Add Range** button to display the *Add Route Number Range* dialog box.

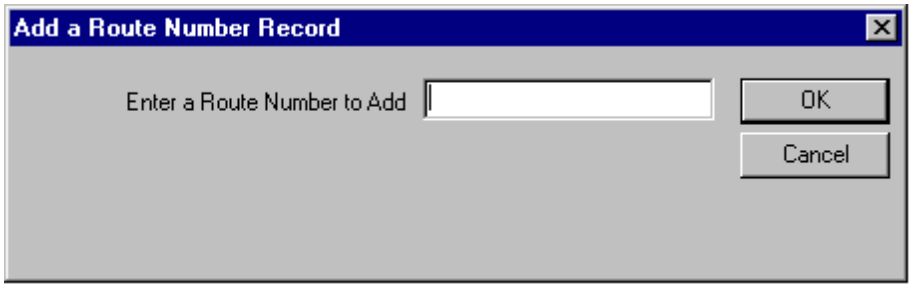


2. Enter the ***starting route number*** and the ***ending route number*** in the fields provided.

3. Click on the **OK** button.

To Add a Route Number Record:

1. From the *Trunk Table* dialog box, click on the **Add** button to display the *Add Route Number Record* dialog box.



2. Enter the ***Route Number*** information for a new route.

3. Click on the **OK** button.

To Delete the Route Number Information:

From the *Trunk Table* dialog box, click on the Route number to highlight it and click on the **Del** button.
Or
Click on the **Delete All** button to delete all Route numbers.

To Close the *Trunk Table* dialog box:

Click on the **OK** button to save the changes and close the *Trunk Table* dialog box.
Or
Click on the **Cancel** button to close the *Trunk Table* dialog box without saving any changes.

Treatments Table Dialog Box

The Treatments database information is used by the routing applications. The *Treatments Table* dialog box allows you to create a new treatment type and to modify an existing treatment type.

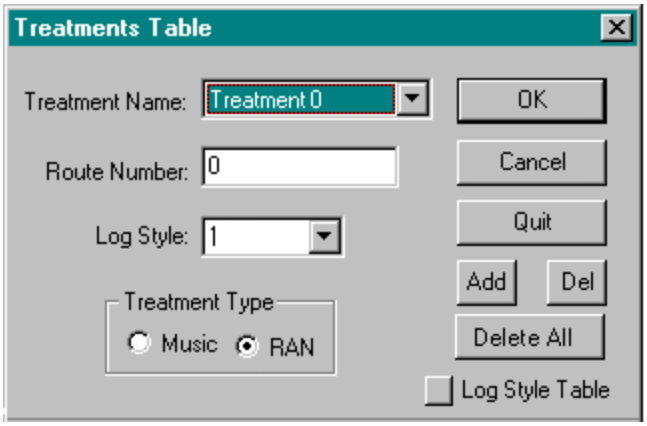
Note: Adding, modifying, or deleting a Treatment on this dialog box changes only the information contained in the Symposium TAPI Service Provider database. This does not affect the switch configuration.

Configuring the Treatments Table may include the following (detailed information is provided for each step):

1. Access the *Treatments Table* dialog box.
2. Add a new Treatment to the Treatments table.
3. Modify the treatment information on the Treatments table
4. Delete the treatment information on the Treatments table.
5. Close the *Treatments Table* dialog box.

To Access the *Treatments Table* dialog box:

1. From the *Host Table* dialog box, click on the **Treatments Table** button.
   The *Treatments Table* dialog box is displayed.



2. Click on the down arrow located next to the *Treatment Name* field to display the available information in that field.

The *Treatments Table* dialog box fields and buttons*:*

Treatments Data fields	Description
Treatment Name	User-define name to label this treatment. (Maximum length of 32 characters)
Route Number	0 - 511
Treatment Log Style	The Number of the Log Style that is defined for this application (default = 1).
Treatments Radio buttons	**Description**
Treatment Type	
Music	To select to play music.
RAN	To select to play a recorded message.
Treatments buttons	**Description**
Add	Displays a dialog box to enter information for adding a new treatment name.
Del	Deletes the displayed Treatment.
Delete All	Deletes all of the Treatments Table information contained in the Symposium TAPI Service Provider database.
Log Styles Table	Displays the *Log Styles* dialog box with the data items that will be logged and transferred to the *Logger* window when the Logger application is running.

3. Click on the down arrow next to the *Treatment Name* field to display the Treatment Names in the database Treatments Table.

To Add a New Treatment to the Treatments Database table:

1. Click on the **Add** button.
   The *Add New Treatment* dialog box is displayed.

2. Type the ***new Name*** in the edit field.

3. Click on the **OK** button to close the dialog box.

4. Enter the ***Route Number***.

5. Select the Log Style.

Clicking on the **Log Style Table** button displays the selected data items associated with the selected Log Style. Refer to the "Configuring the Log Styles Table" for information on creating additional log styles.

6. Click in the **Music** or **RAN** radio button to select the Treatment Type.

To Modify the Information Associated with a Treatment name:

1. Click on the down arrow next to the *Treatment Name* field to display the list of treatments.

2. Click on the treatment name you wish to edit.
   The treatment name displays in the *Treatment Name* field.

3. Make changes to the Route number, Log style, or Treatment Type.

To Delete a Treatment from the Treatments Database table:

1. Click on the down arrow next to the Treatment Name field to display the list of treatments.

2. Click on the treatment name you wish to delete.
   The treatment name displays in the Treatment Name field.

3. Click on the **Del** button to delete the displayed treatment from the Treatments database table.
   Or
   Click on the **Delete All** button to delete all Treatments from the Treatments database table.

To Close the *Treatments Table* dialog box:

Click the **OK** button to close the dialog box and save the changes.
Or
Click on the **Cancel** button to close the dialog box without saving the changes.

The *Host Table* dialog box is displayed.

To Quit the Configurator application.

1. Click on the **Quit** button to exit the Configurator application.
   The *M1S Configuration* dialog box is displayed.

2. Click on the **OK** button to close the *M1S Configuration* dialog box and exit the Configurator application.

TN Table Dialog Box

The *TN Table* dialog box reflects the TN and DN mappings within the switch. This dialog box allows you to create a user-defined reference for a terminal number in the TN database table. In addition, the *TN Table* dialog box provides access to the *Phone Styles* and *DN Table* dialog boxes.

Note: Adding, modifying, or deleting a TN on this dialog box changes only the information contained in the Symposium TAPI Service Provider database. This does not affect the switch configuration.

Configuring the TN Table may consist of the following (detailed information is provided for each step):

1. Access the *TN Table* dialog box.

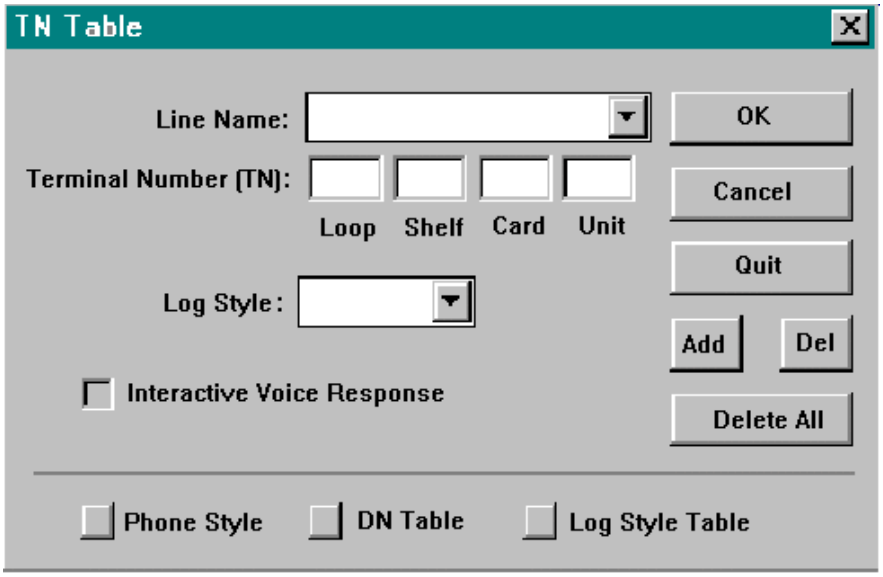
2. Add or modify the information in the fields.
   a. Adding a Terminal Number to the TN database table.
   b. Deleting a Line Name from the TN database table.
   c. Deleting the TN Table information from the TN database table.

3. Access the other dialog boxes to add or modify information.
   a. Access the *Phone Styles* dialog box to add or modify the information.
   b. Access the *DN Table* dialog box to add or modify the information.

4. Close the *TN Table* dialog box.

To Access the *TN Table* dialog box:

From the *Host Table* dialog box, click on the **TN Table** button.
The *TN Table* dialog box is displayed.



Click on the down arrow located next to the *Line Name* field to display the available information in that field.

The *TN Table* dialog box fields and buttons*:*

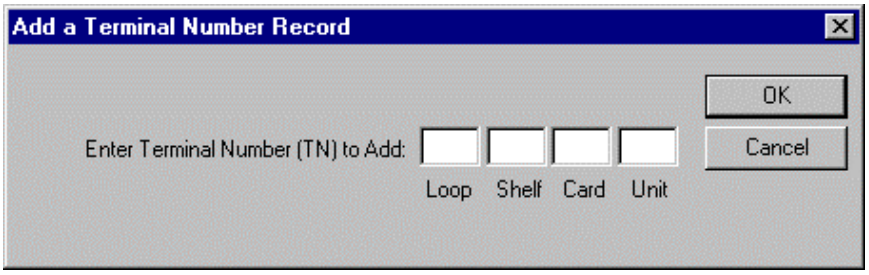
TN Data fields	Description
Line Name	List of Line Names that reference terminal numbers.
TN Number	The line card number configured in the Meridian 1 switch. This defines the location of the telephone by loop, shelf, card and unit.
TN Log Style	The Number of the Log Style that is defined for this application (default = 1).
Check Boxes	**Description**
Interactive Voice Response	Check box for when the Terminal Number is an Interactive Voice Response port. This check box is active only when the Symposium TAPI Service Provider provides the optional IVR.

***TN Table* dialog box fields and buttons, cont.**

TN buttons	Description
Add	Displays a dialog box to enter information for adding a new TN in the *TN Line Name* field.
Del	Deletes the displayed Line Name.
Delete All	Deletes all of the TN Table information contained in the Symposium TAPI Service Provider database.
Phone Style	Displays the *Phone Styles* dialog box to add or edit the phone style information associated with the displayed Line Name in the *Line Name* field.
DN Table	Displays the *DN Table* dialog box to add or edit the DN Table information associated with the displayed Line Name in the *Line Name* field.
Log Style Table	Displays the *Log Styles* dialog box with the data items that will be logged and transferred to the *Logger* window when the Logger application is running.

To Add a Terminal Number to the TN Database Table:

1. Click on the **Add** button.
   The *Add a New Terminal Number Record* dialog box is displayed.



2. Type the Loop, Shelf, Card, and Unit numbers.

3. Click on the **OK** button.
   The *TN Table* dialog box is displayed.

4. Select the Log Style for the TN.

5. Check the **Interactive Voice Response** check box, if applicable.

6. Access the *Phone Style* and *DN Table* dialog boxes and add or modify the information associated with this Terminal Number.

To Delete a Line Name from the TN Database Table:

1. Click on the down arrow next to the *Line Name* field to display the list of Line Names.

2. Click on the line name you wish to delete.
   The Line name displays in the *Line Name* field.

3. Click on the **Del** button to delete the displayed Terminal Number from the TN Table in the database.

To Delete a the TN Table Information from the Symposium TAPI Service Provider Database:

1. Click on the **Delete All** button.

2. Confirm the delete action on the confirmation dialog box.
   The information is deleted.

To Access Another Configuration Dialog Box:

1. Select the desired Line Name. The Terminal Number is displayed.

2. Click on the **Phone Style** button or on the **DN Table** button to access the dialog box associated with the button.

   Refer to the "Phone Style Dialog Box" section or the "DN Table" section for detailed information on these dialog boxes.

3. Make additions or changes as necessary.

4. Click on the **OK** button to close the dialog box and return to the *TN Table* dialog box.

To Close the *TN Table* Dialog Box:

1. Click the **OK** button to close the dialog box and save the changes.
   Or
   Click on the **Cancel** button to close the dialog box without saving the changes.

   The *Host Table* dialog box is displayed.

To Quit the Configurator application.

1. Click on the **Quit** button to exit the Configurator application.
   The *M1S Configuration* dialog box is displayed.

2. Click on the **OK** button to close the *M1S Configuration* dialog box and exit the Configurator application.

Phone Styles Dialog Box

The *Phone Styles* dialog box information is used for telephone configuration. This dialog box reflects the TAPI controllable feature keys and allows you to select the options for the Terminal Number displayed on the *TN Table* dialog box.

Configuring the Phone Styles may consist of the following (detailed information is provided for each step):

1. Access the *Phone Styles* dialog box.

2. Set the options for a phone type.

3. Close the *Phone Styles* dialog box.

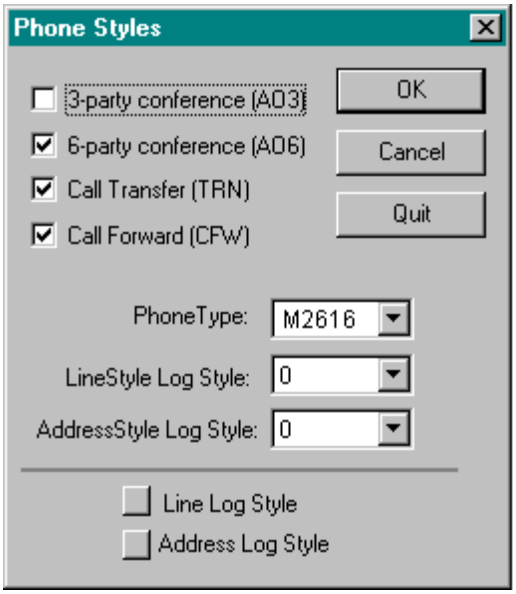
To Access the *Phone Styles* dialog box:

1. From the *Host Table* dialog box, click on the **TN Table** button.
   The *TN Table* dialog box is displayed.

2. Select the desired Terminal Number. The selected TN is displayed in the *Line Name* field on the *TN Table* dialog box.

3. Click on the **Phone Style** button located on the bottom of the *TN Table* dialog box.

   The *Phone Styles* dialog box displays the information associated with the selected TN on the *TN Table* dialog box.



Click on the down arrow located next to the *Phone Type*, *LineStyle Log Style*, or *AddressStyle Log Style* fields to display the available information in that field.

The *Phone Styles* dialog box fields, check boxes and buttons*:*

Phone Styles Data fields	Description
Phone Type	Displays a list of available telephone model types.
LineStyle Log Style	The Number of the Log Style that is defined for the Line (default = 1).
AddressStyle Log Style	The Number of the Log Style that is defined for the Address (default = 1).
Phone Styles Check boxes	**Description**
3-party conference (AO3)	Check this box to assign a 3-party conference to the phone associated with the Line Name displayed on the *TN Table* dialog box.
6-party conference (AO6)	Check this box to assign a 6-party conference to the phone associated with the Line Name displayed on the *TN Table* dialog box.
Call Transfer	Check this box to assign the call transfer option to the Line Name displayed on the *TN Table* dialog box.
Call Forward	Check this box to assign a call forward option to the Line Name displayed on the *TN Table* dialog box.
Phone Styles buttons	**Description**
LineStyle Log Style	Displays the *Log Styles* dialog box with the data items that will be logged and transferred to the *Logger* window when the Logger application is running.
AddressStyle Log Style	Displays the *Log Styles* dialog box with the data items that will be logged and transferred to the *Logger* window when the Logger application is running.

To Set the Options for a Phone Type:

1. Click in the check boxes to select (with a check mark) or deselect (blank) the option.
2. Select the desired phone type.
   a. Click on the down arrow located next to the *Phone Type* field.
   The list of available phone types is displayed.
   b. Click on the desired phone type to select it.
3. Select the LineLog style and the Address Log style.

To Close the *Phone Styles* dialog box:

Click the **OK** button to close the dialog box and save the changes.
Or

Click on the **Cancel** button to close the dialog box without saving the changes.
The *TN Table* dialog box is displayed. Closing the *TN Table* dialog box displays the *Host Table* dialog box.

To Quit the Configurator application.

1. Click on the **Quit** button to exit the Configurator application.
   The *M1S Configuration* dialog box is displayed.

2. Click on the **OK** button to close the *M1S Configuration* dialog box and exit the Configurator application.

DN Table Dialog Box

The *DN Table* dialog box is used for telephone configuration. This dialog box displays the DN information for the Terminal Number that is displayed on the *TN Table* dialog box. The *DN Table* dialog box allows you to add or modify the DN database information. The *DN Table* dialog box presents one or two DNs. The number of DNs is limited by the number of AST devices per telephone.

Note: Adding, modifying, or deleting a DN on this dialog box changes only the information contained in the Symposium TAPI Service Provider database. This does not affect the switch or the set configuration.

Configuring the DN Table may consist of the following (detailed information is provided for each step):

1. Access the *DN Table* dialog box.

2. Add, change, or delete the DN database table information.
   a. Adding a DN to the DN database table
   b. Changing the information associated with a DN on the DN database table
   c. Deleting a DN from the DN database table

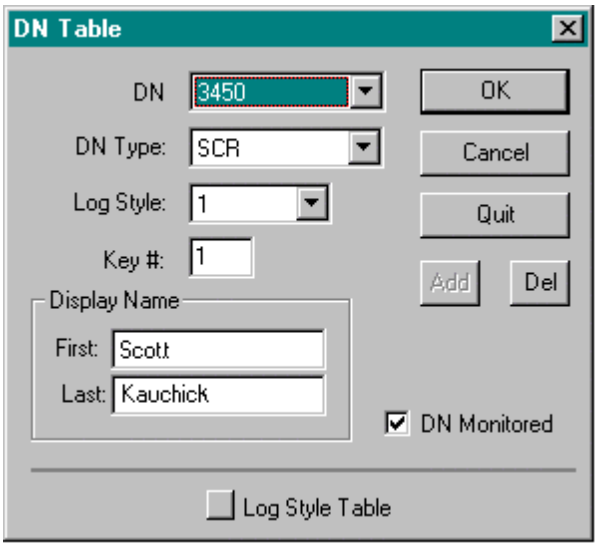
3. Close the *Phone Styles* dialog box.

To Access the *DN Table* dialog box:

1. From the *Host Table* dialog box, click on the **TN Table** button.
   The *TN Table* dialog box is displayed.

2. Click on the **DN Table** button located on the bottom of the *TN Table* dialog box.

3. Select the desired TN. The selected TN is displayed in the *Line Name* field on the *TN Table* dialog box. The *DN Table* dialog box displays the information associated with the TN selected on the *TN Table* dialog box.



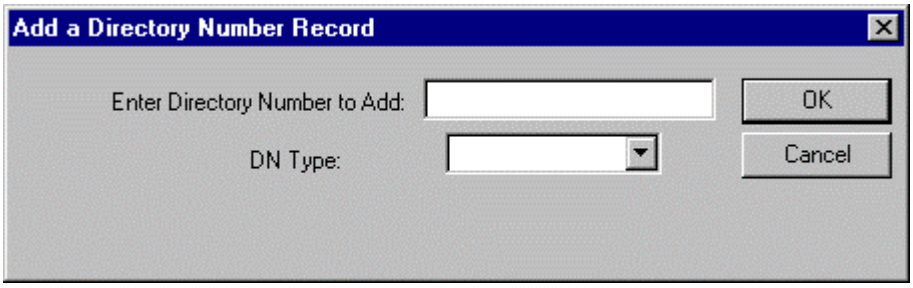
Click on the down arrow located next to the *DN*, *DN Type*, or *Log Style* fields to display the available information in that field.

The *DN Table* dialog box fields, check boxes, and buttons*:*

DN Data fields	Description
DN Number	Indexing will start a zero, this is used by Symposium TAPI Service Provider.
DN Type	Displays the list of DN types that include SCR (single call ring), SCN (single call no ring), MCR (multiple call ring), and MCN (multiple call no ring).
DN Log Style	The Number of the Log Style that is defined for the application (default = 1).
Key #	DN key number on the phone
Display Name	Displays the name that appears on the phone's display.
DN Check boxes	**Description**
Interactive Voice Response	This box is active when your version of Symposium TAPI Service Provider includes the IVR option.
DN Monitored	Selects (with check mark) or deselects (blank) the displayed DN for monitoring. The *Host Table* dialog box provides a button for selecting this option for all DNs.
DN buttons	**Description**
Add	Displays a dialog box to enter information for adding a new DN in the *DN* field.
Del	Deletes the displayed Line Name.
Log Style Table	Displays the *Log Styles* dialog box with the data items that will be logged and transferred to the *Logger* window when the Logger application is running.

To Add a DN to the Database:

1. Click on the **Add** button.
   The *Add a Directory Number Record* dialog box is displayed.



2. Enter ***the Directory Number*** and ***DN Type*** in the fields provided.

3. Click on the **OK** button to close the *Add a Directory Number Record* dialog box.
   The new number displays in the *DN Number* field

4. Select the Log style.

5. Add or modify the other fields as required.

To Change the Information Associated with a DN:

1. Click on the down arrow next to the *DN* field to display the list DNs.

2. Click on the DN you wish to edit.
   The DN displays in the *DN* field.

3. Make changes as necessary.

To Delete a DN from the DN Database table:

1. Click on the down arrow next to the *DN* field to display the list of DNs.

2. Click on the DN you wish to delete.
   The DN displays in the *DN* field.

3. Click on the **Del** button to delete the displayed DN from the DN Table in the database.

To Close the *DN Table* dialog box:

Click the **OK** button to close the dialog box and save the changes.
Or
Click on the **Cancel** button to close the dialog box without saving the changes.

The *TN Table* dialog box is displayed. Closing the *TN Table* dialog box displays the *Host Table* dialog box.

To Quit the Configurator application.

1. Click on the **Quit** button to exit the Configurator application.
   The *M1S Configuration* dialog box is displayed.

2. Click on the **OK** button to close the *M1S Configuration* dialog box and exit the Configurator application.

Configuring the Control DN

The Control DN database information is used for host enhanced routing applications. The *CDN* dialog box allows you to add or modify the Control DN information contained in the database.

In addition, you have the option to select the style that this information is displayed in the Logger application for troubleshooting purposes. Two default styles (0=no data items display, 1=all data items display) are provided. Refer to the "Configuring the Log Style Table" section for information on creating additional styles.

Configuring the Control DN Table may consist of the following:

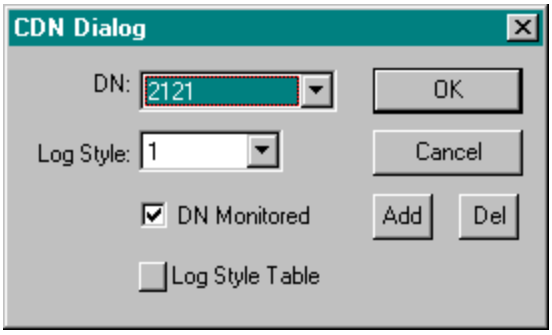
1. Access the *CDN* dialog box.
2. Add a new Control DN or modify an existing Control DN.
3. Close the *CDN* dialog box.

Note: Adding, modifying, or deleting a Control DN on this dialog box changes only the information contained in the Symposium TAPI Service Provider database. This does not affect the switch configuration.

To Access the *CDN* dialog box:

From the *Database Configuration* dialog box (refer to the "Accessing the Database Configuration Dialog Box" section):

Click on the **Control DN** button.
The *CDN* dialog box is displayed.

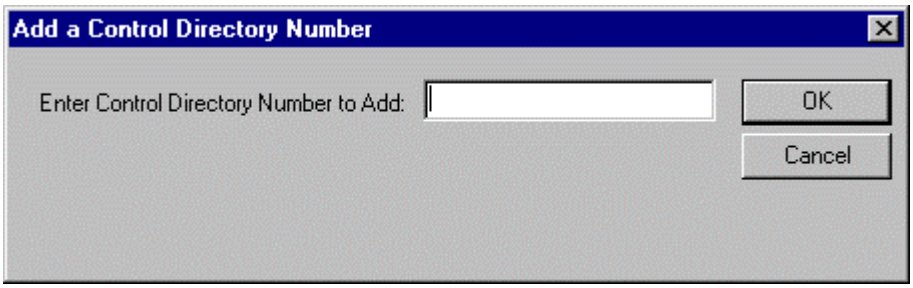


The *CDN* dialog box fields, check boxes, and buttons*:*

CDN Data fields	Description
DN	Indexing will start a zero, this is used by Symposium TAPI Service Provider.
Log Style Table	The Number of the Log Style that is defined for the application (default = 1).
CDN Check boxes	Description
DN Monitor	Selects (with check mark) or deselects (blank) the displayed DN for monitoring. The *Host Table* dialog box provides a button for selecting this option for all DNs.
CDN buttons	Description
Add	Displays a dialog box to enter information for adding a new Control DN in the *DN* field.
Del	Deletes the displayed Line Name.
Log Style Table	Displays the *Log Styles* dialog box with the data items that will be logged and transferred to the *Logger* window when the Logger application is running.

To Add a New Control DN:

1. Click on the **Add** button.
   The *Add a Control Directory Number* dialog box is displayed.



2. Enter the new ***Control Directory Number***.

3. Click on the **OK** button.
   The *CDN* dialog box is displayed.

4. Select the Log Style.

   a. Click on the down arrow located in the Log Style field to display the available log styles.
   b. Click on the desired style.

   Clicking on the **Log Style Table** button displays the selected data items associated with the selected Log Style. Refer to the "Configuring the Log Styles Table" for information on creating additional log styles.

5. Click in the **DN Monitor** check box to select or deselect the option to have this DN monitored.
   A check mark in the check box means the option to monitor the DN is selected.

To Modify a Control DN:

1. Click on the down arrow located next to the *DN* field to display the available DNs.
2. Click on the desired DN to select it. The selected DN displays in the *DN* field.
3. Make changes as required.

To Delete the Control DN:

1. Click on the down arrow located next to the *DN* field to display the available DNs.

2. Click on the desired DN to select it. The selected DN displays in the *DN* field.

3. Click on the **Del** button.
   The selected Control DN is deleted.

To Close the *CDN* dialog box:

1. Click the **OK** button to close the dialog box and save the changes.
   Or
   Click on the **Cancel** button to close the dialog box without saving the changes.

2. Click on the **OK** button to close the *Database Configuration* dialog box.
   The *M1S Configuration* dialog box is displayed.

3. Click on the **OK** button to exit the Configurator application.
   Or
   Click on a button to view another database table information.

Configuring the Log Styles Table

The information on the Log Styles table is used by the Logger troubleshooting application. Each data item has a logging style assigned to it. There are two default log styles that cannot be modified or removed, log style "0" (for logging no items) and log style "1" (for logging all items). For troubleshooting purposes, you may be requested by technical support personnel to create additional log styles to trace specific data items. The *Log Styles* dialog box allows you to create these additional styles. Log styles are always numbered consecutively. For example, the first log style you create is number "2" (number 0 and number 1 already exist). If you create an additional log style, it is numbered "3."

When deleting log styles, it is also important to remember that the numbers are always numbered consecutively. For example, if you decide to delete the logging styles as defined on log style "2" but keep the logging styles as defined on log style "3," deleting "2" moves the logging styles on "3" to the "2" position. In addition, this action changes any dialog boxes that contained the "3" logging style to "2."

Accessing the Logger application and running a program displays the logging information in the format selected on the configuration dialog boxes. From the *Logger* window, this information is saved to the overflow file. Refer to the "The Logger Troubleshooting Tool "section in Chapter 6 for detailed information on the Logger application.

Configuring the Log Styles Table may consist of the following:

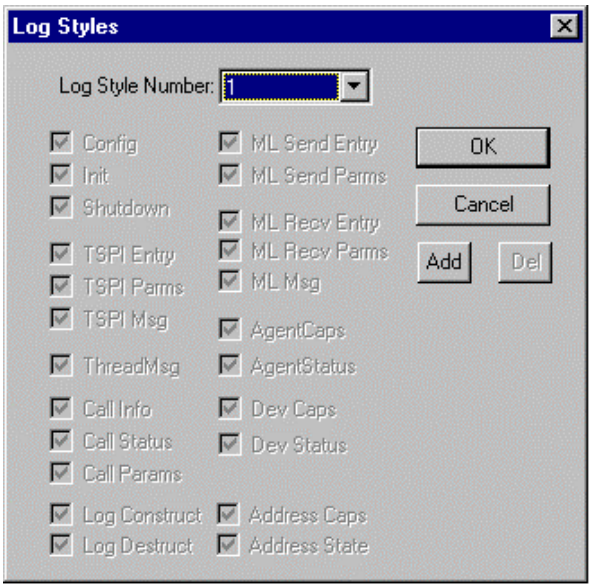
1. Access the *Log Styles* dialog box.
2. Create a new Log Style or modify an existing (user-created) log style.
3. Close the *Log Styles* dialog box.

Note: You can view the Log Styles dialog box from many other dialog boxes. However, the add and delete options are available only when you access the Log Styles dialog box by selecting the Log Styles button on the Meridian 1 TAPI Server Configuration dialog box.

To Access the *Log Styles* Dialog Box:

From the *Meridian 1 TAPI Server Configuration* dialog box (refer to the "Accessing the *Database Configuration* Dialog Box" section):

Click on the **Log Styles** button.
The *Log Styles* dialog box is displayed.



Clicking on the **Log Styles** button located on the *Provider Table*, *Host Table*, *Treatments Table*, *TN Table*, *DN Table*, and the *CDN* dialog boxes displays the *Log Styles* dialog box. Clicking on the **LineStyle Log Style** and the **Address Log Style** buttons on the *Phone Styles* dialog box also displays the *Log Styles* dialog box.

Click on the down arrow located next to the *Log Style Number* field to display the available information in that field.

The *Log Styles* dialog box fields and buttons*:*

Log Style Data fields	Description
LogStyleNumber	Integer, 0 and 1 are defaults that cannot be edited or removed.
Config	TBD
Init	Check box to allow the logging of service provider initialization.
Shutdown	Check box to allow the logging of service provider shutdown.
TSPI Entry	Check box to allow the logging of entry points into the service provider.
TSPI Parms	Check box to allow the logging of parameters passed to the service provider.
TSPI Msg	Check box to allow the logging of messages sent to the service provider.
Thread Msg	Check box to allow service provider thread messages to be logged.
CallInfo	Check box to allow call information to be logged.
CallStatus	Check box to allow call status information to be logged.
CallParams	Check box to allow call parameters to be logged.
Construct	Check box to allow the logging of the object list construction.
Destruct	Check this box to allow logging of the object list destruction.
ML Send Entry	Check box to allow the logging of entry points to the Meridian 1 message formatter.
MLSendParms	Check box to allow the logging of parameters to the Meridian 1 message formatter.
ML Recv Entry	Check box to allow logging of the entry points to the Meridian 1 message parser.
ML Recv Parms	Check box to allow logging of the parameters to the Meridian 1 message parser.
ML Msg	Check box to allow raw messages to and from the Meridian 1 switch.
Agent Caps	Check box to allow agent caps to be log.
Agent Status	Check box to allow agent status information to be logged.
Dev Caps	Check box to allow device caps to be logged.
Dev Status	Check box to allow device status information to be logged.
Address Caps	Check box to allow address caps to be logged.
Address Status	Check box to allow address status to be logged.
Log Style Data buttons	Description
Add	Enters a new Log Style number in Log Style Number field and allows for selecting the data items to be logged.
Delete	Deletes a user-created Log Style number. (Log Styles 0 and 1 cannot be deleted)

To Create Additional Log Styles:

1. Click on the **Add** button.
   The next consecutive number is displayed in the *Log Style Number* field.

2. Click on the **OK** button.
   The *Database Configuration* dialog box is displayed.

3. Click on the **Log Styles** button.
   The *Log Styles* dialog box is displayed.

4. Click in the check boxes next to the data items you wish to have the Logger application log and display.

5. Click on the **OK** button. The *Log Styles* dialog box closes and the changes are saved. The new Log Style is now an option on the configuration dialog boxes.

To Edit an Existing Log Styles (Styles O and 1 cannot be edited or deleted):

1. Click on the down arrow next to the *Log Style Number* field to display the list of existing Log Styles.

2. Click on the Log Style you wish to edit.

3. Click in the check boxes next to the data items you wish select or deselect. A check mark means the data item will be logged.

4. Click on the **OK** button. The *Log Styles* dialog box closes and the changes are saved.

To Delete an Existing Log Style (Styles O and 1 cannot be edited or deleted):

1. Click on the down arrow next to the *Log Style Number* field to display the list of existing Log Styles.

2. Click on the Log Style you wish to delete.

3. Click on the **Delete** button.
   The user-created Log Style is deleted.

4. Click on the **OK** button. The *Log Styles* dialog box closes and the changes are saved.

To Close the *Log Styles* dialog box:

1. Click the **OK** button to close the dialog box and save the changes.
   Or
   Click on the **Cancel** button to close the dialog box without saving the changes.

   The *Host Table* dialog box is displayed.

2. Click on the **OK** button to close the *Host Table* dialog box and save the changes.
   Or
   Click on the **Cancel** button to close the *Host Table* dialog box and cancel the changes.

3. Click on the **OK** button to close the *Database Configuration* dialog box.
   The *M1S Configuration* dialog box is displayed.

4. Click on the **OK** button to exit the Configurator application.
   Or
   Click on a button to view another database table information.

Chapter 4: Configuring the License

The FLEXlm License Manager allows you to configure the License Manager Server and the License file that you received when you purchased the Meridian 1 TAPI Service Provider. The license file is necessary for the Meridian 1 TAPI Service Provider to work.

Configuring the FLEXlm License Manager may consist of the following:

1. Installing the License file.
2. Accessing the *FLEXlm License Manager* window.
3. Configuring the License Manager.
4. Configuring the License file.
5. Starting the License Manager Server.
6. Viewing additional License Manager information.

Accessing the FLEXlm License Manager opens the *FLEXlm License Manager* main window. The *FLEXlm License Manager* main window provides tab pages that allow you to configure the License Manager Server and the License file and to view certain information regarding the Meridian 1 TAPI Service Provider license that you purchased.

Installing the License File

The License file (License.dat) is not automatically installed with the Meridian 1 TAPI Service Provider software. This file must be loaded on the TAPI Server. We recommend that you place the file in the Winnt\System32 folder. In addition, we recommend that you make a back-up copy of the license file before configuring it.

To Install the License File:

1. Make a back-up copy of the License.dat file.
2. Copy the file to the default directory: c:\Winnt\System32.

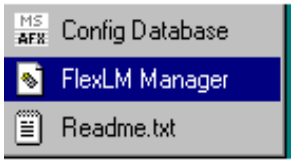
Accessing the FLEXlm License Manager Window

The FLEXlm License Manager is accessed from the Windows Start/Programs/Nortel M1TAPI program.

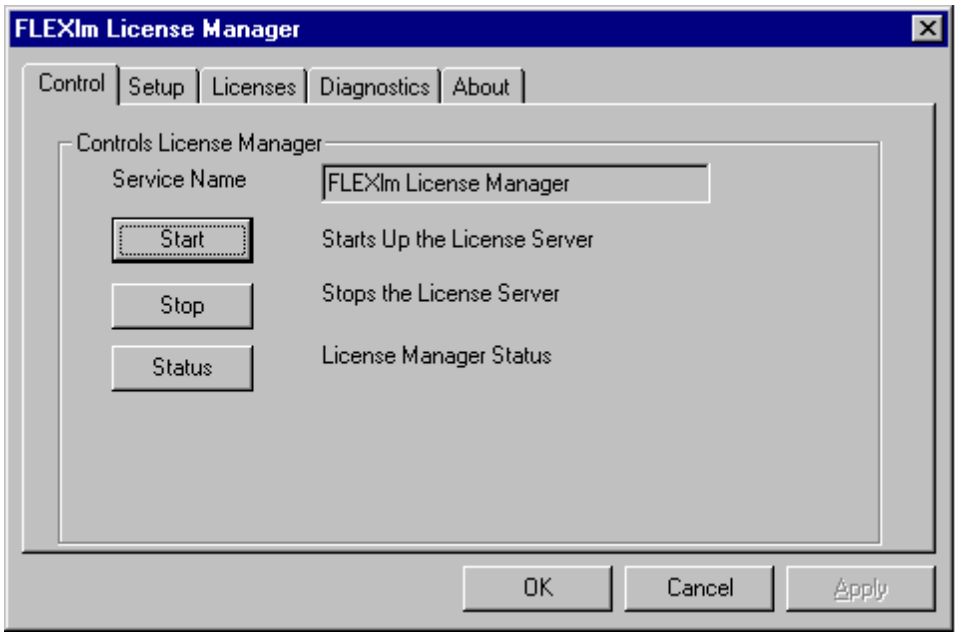
To Access the FLEXlm License Manager:

1. Select **NORTELM1TAPI** program from the Windows Start/Programs to display the options.

2. Click on the **FlexLM Manager** option.



The *FLEXlm License Manager* main window opens.



FLEXlm License Manager tab pages	Description
Control	Allows you to view the status of the License Manager and to start and to stop the License Manager.
Setup	Allows you to configure the License Manager.
Licenses	Allows you to view the License file and to modify it where necessary.
Diagnostics	Provides information regarding the License Manager.
About	Provides information regarding the version of FLEXlm License Manager installed on your machine.

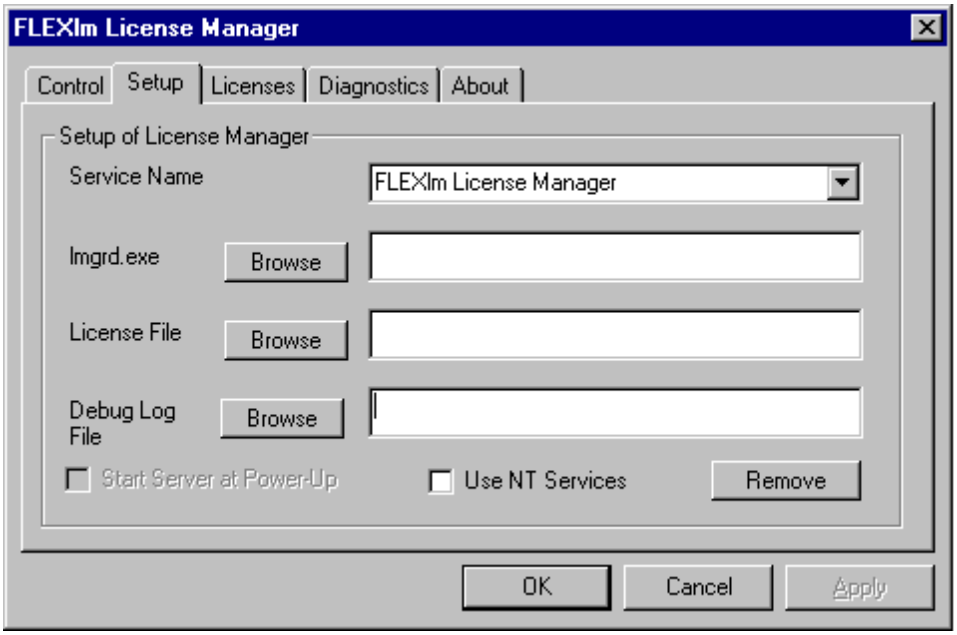
Configuring the License Manager

The License Manager is configured on the *Setup* tab page located on the *FLEXlm License Manager* window.

To Configure the License Manager:

1. Access the FLEXlm License Manager window. Refer to the "Accessing the FLEXlm License Manager Window" section.

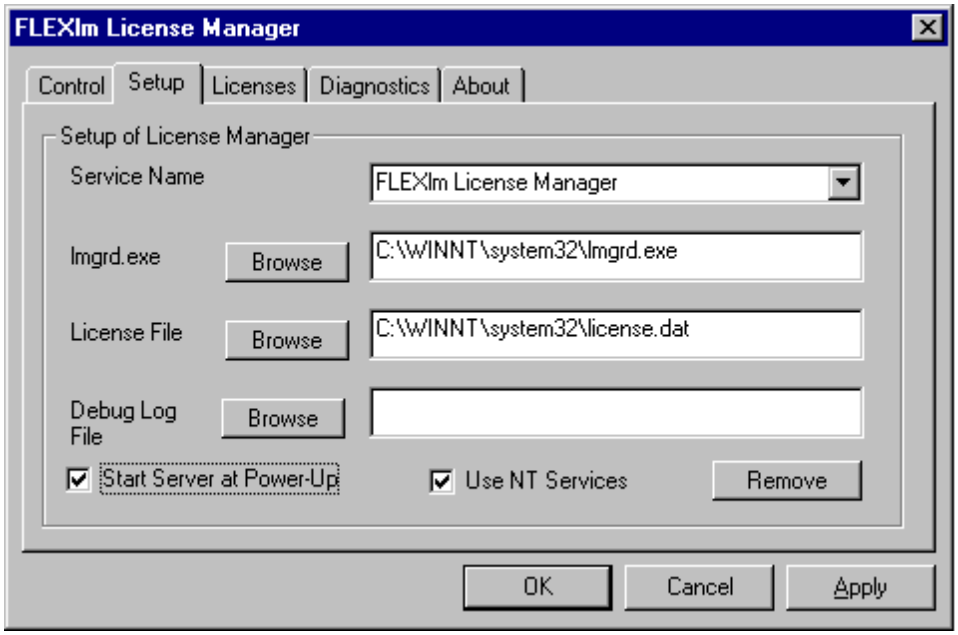
2. Click on the **Setup** tab to display the Setup fields.



3. Click on the **Browse** button to locate the lmgrd.exe file. The default is the c:\Winnt\System32 directory.

4. Click on the **Browse** button to located the License.dat file. This file is located in the directory where you copied it. The recommended location is the c:\Winnt\System32 directory.

5. Click on the check box to select to **Use NT Services** and to **Start the Server at Power-up**. The License Manager service must be started before the Meridian 1 TAPI Service Provider will start.



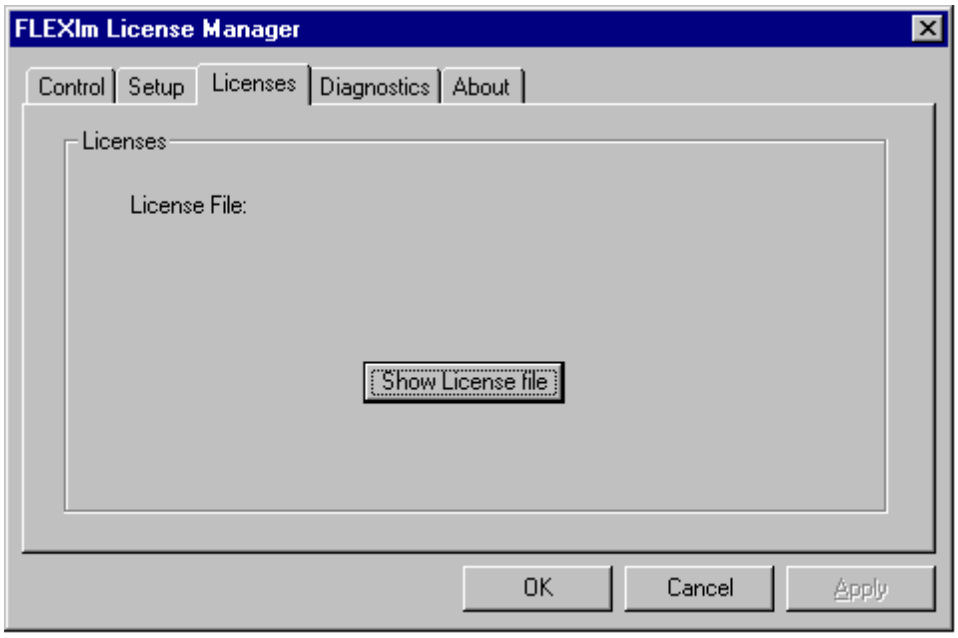
Note: Clicking on the Remove button will remove the License Manager from the NT Services. Unless the License Manager is started, the Meridian 1 TAPI Service Provider will not work. We recommend that you do not remove the License Manager from the NT Services.

Configuring the License File

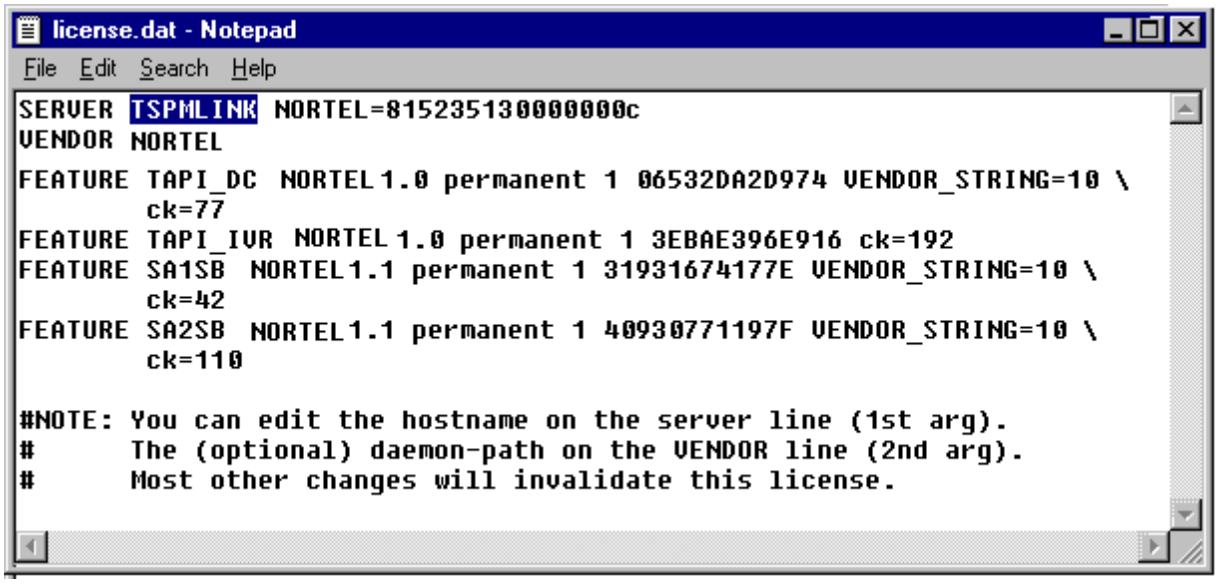
To Configure the License File:

1. Access the FLEXlm License Manager window. Refer to the "Accessing the FLEXlm License Manager Window" section.

2. Click on the **Licenses** tab to display the *Licenses* tab page.



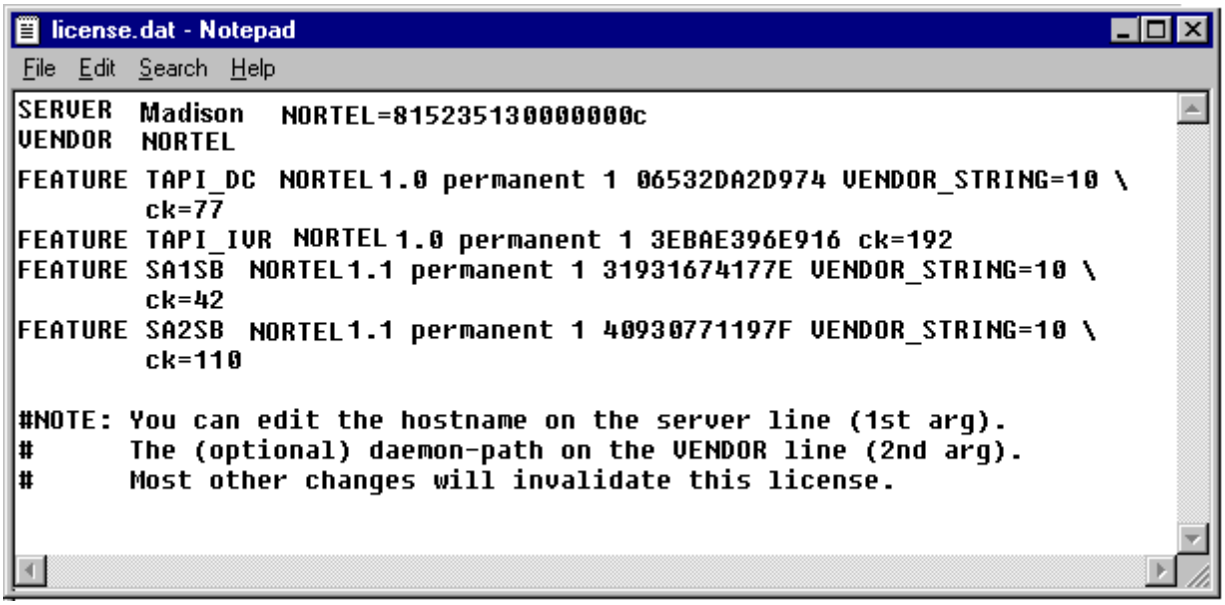
3. Click on the **Show License file** button to display the License.dat file.



Note: The example of the License provided is for demonstration purposes only. Your license information will vary depending upon your purchase.

4. On the **Server** line, edit ***TSPMLINK*** to the name of your Host computer. This must be exact. If you do not know your Host computer name, refer to the "Viewing Additional License Manager Information" section.

Note: Edit only the field that you are instructed to edit. Editing other fields will corrupt the License.dat file and the Meridian 1 TAPI Service Provider will not work.



5. Save the changes by selecting the **Save** option on the **File** menu.

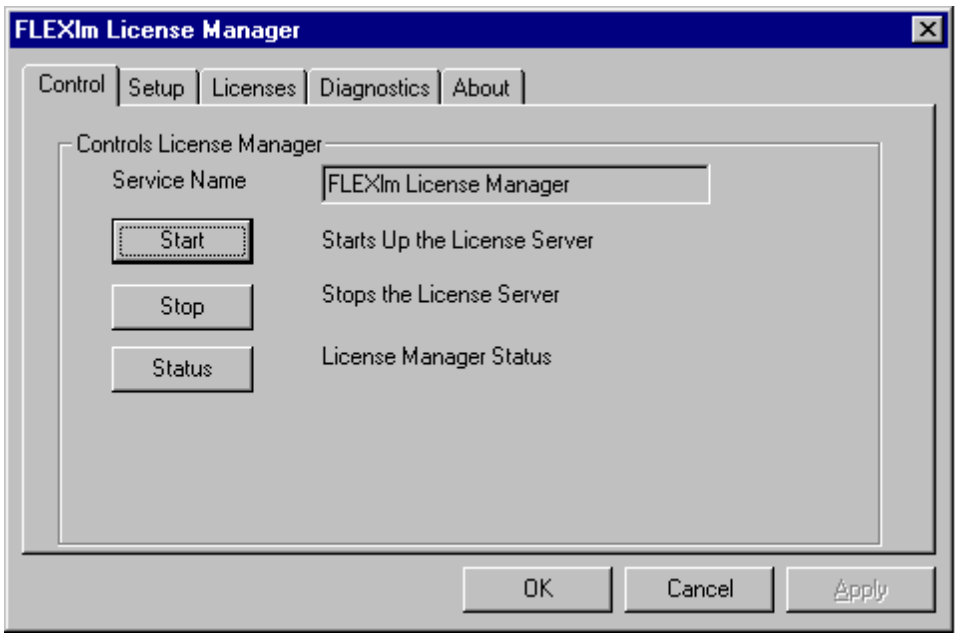
6. Close the file by selecting the **Close** option on the **File** menu.

Starting the License Manager Server

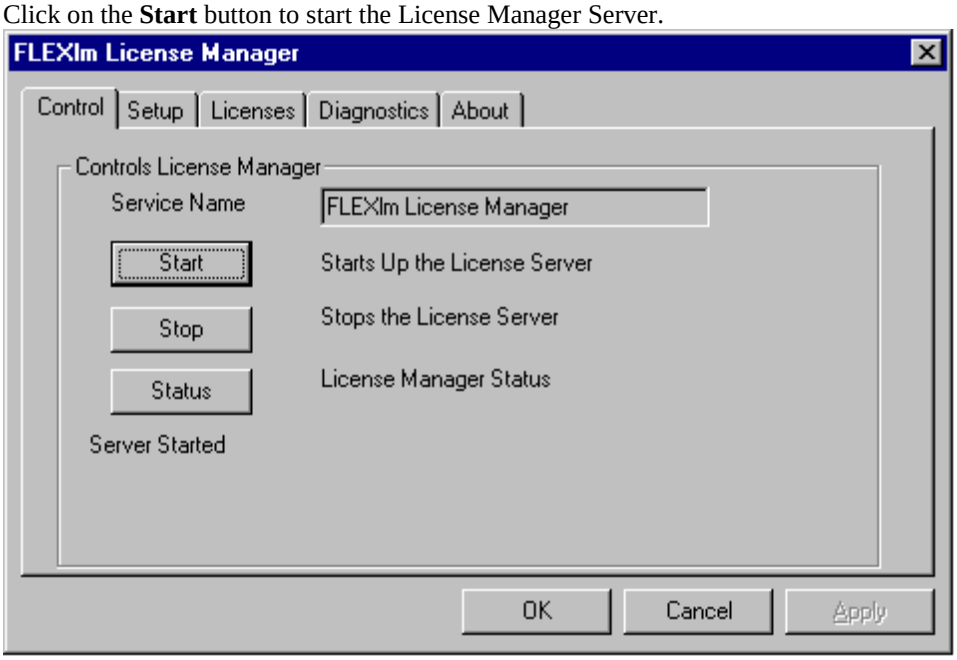
If you selected the Start Server at Power-up option on the Setup tab page, restarting you computer automatically starts the License Manager. However, after configuring the License Manager Server and the License.dat file, you have the option to start the License Manager Server without restarting you computer.

To Start the License Manager Server.

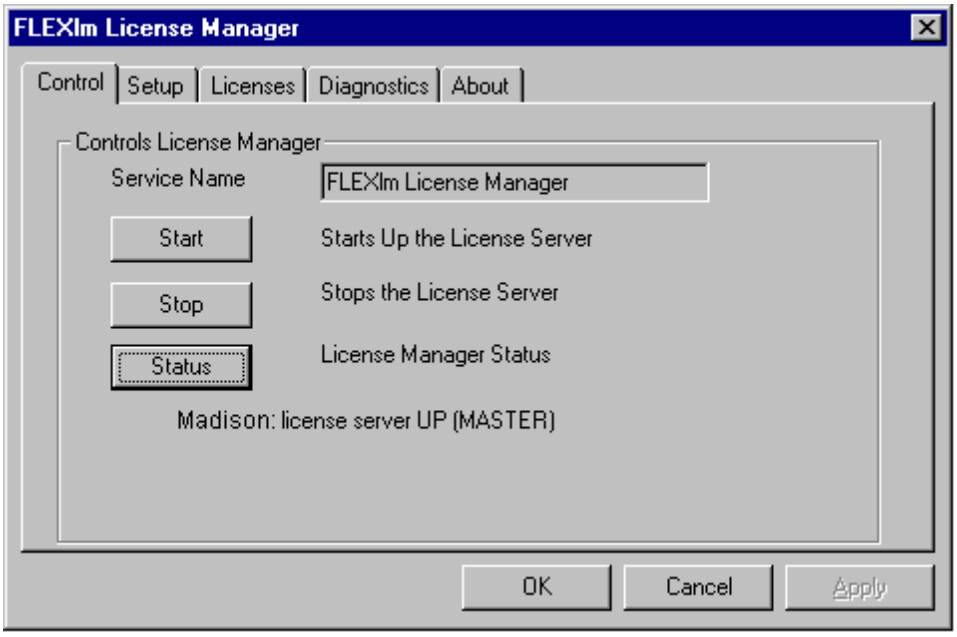
1. Click on the **Control** tab to display the *Control* tab page.



2. Click on the **Start** button to start the License Manager Server.



3. Click on the **Status** button to view the status of the License Manager Server.
   The License Manager Server status is displayed at the bottom of the screen.



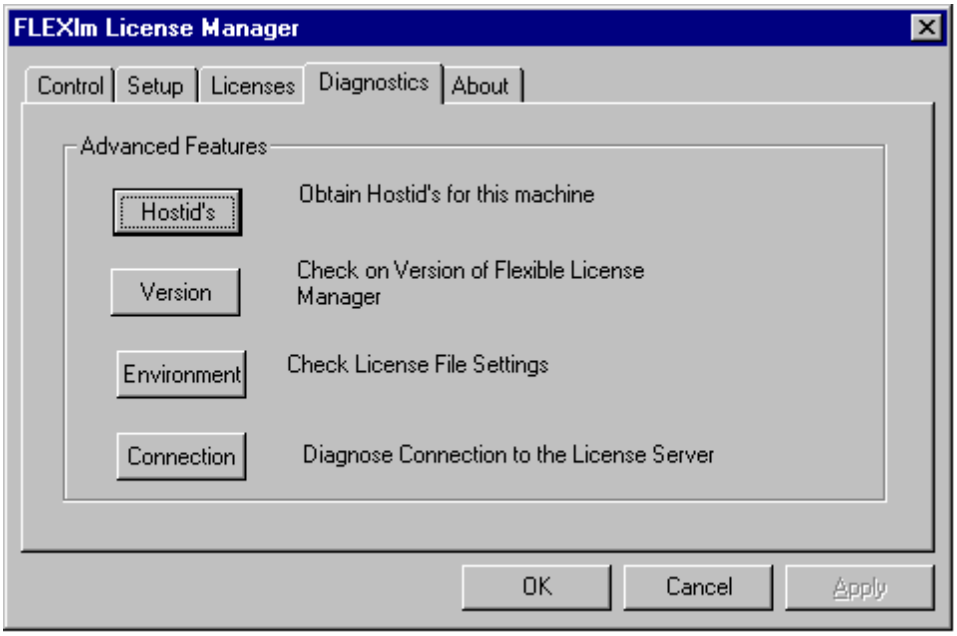
Note: The server name in this example is for demonstration purposes only. The name that you see depends upon your host computer's name.

Viewing Additional License Manager Information

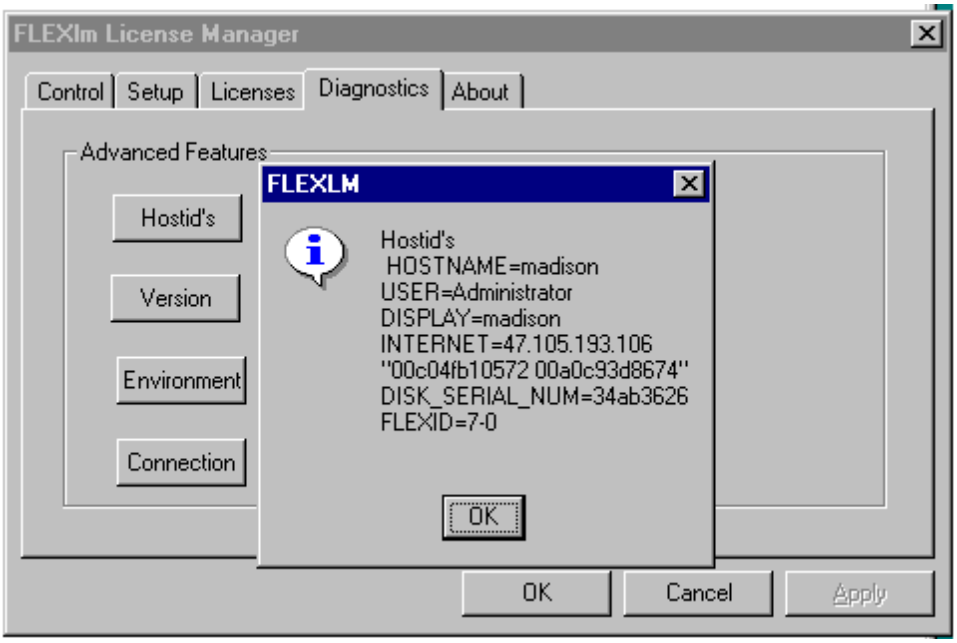
The **Diagnostics** and **About** tabs provide access to additional information about the License Manager.

To View Additional Information about the License Manager:

1. Click on the **Diagnostics** tab to display the *Diagnostics* tab page.



2. Click on the **Hostid's** button to display the Host computer name and other information about the Host.

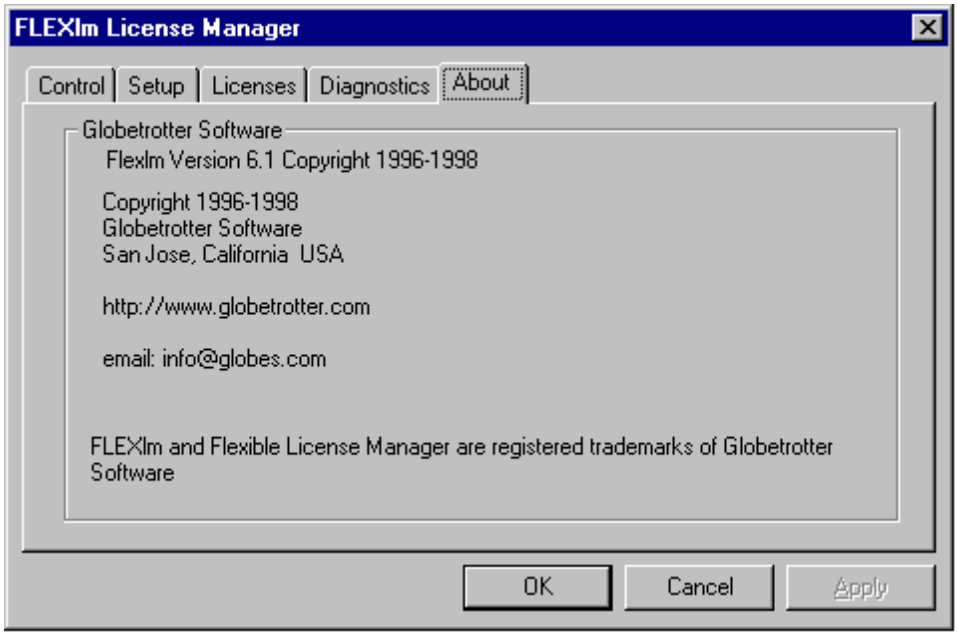


Note: The information displayed is for demonstration purposes only. The information you see depends upon your specific host machine.

3. Click on the **OK** button to close the information box.

4. Click on the **Version**, **Environment**, or **Connection** button to view the information provided.

5. Click on the **About** tab to display information regarding the FLEXlm Version you have installed.



6. Click on the **OK** button to close the *FLEXlm License Manager* window.

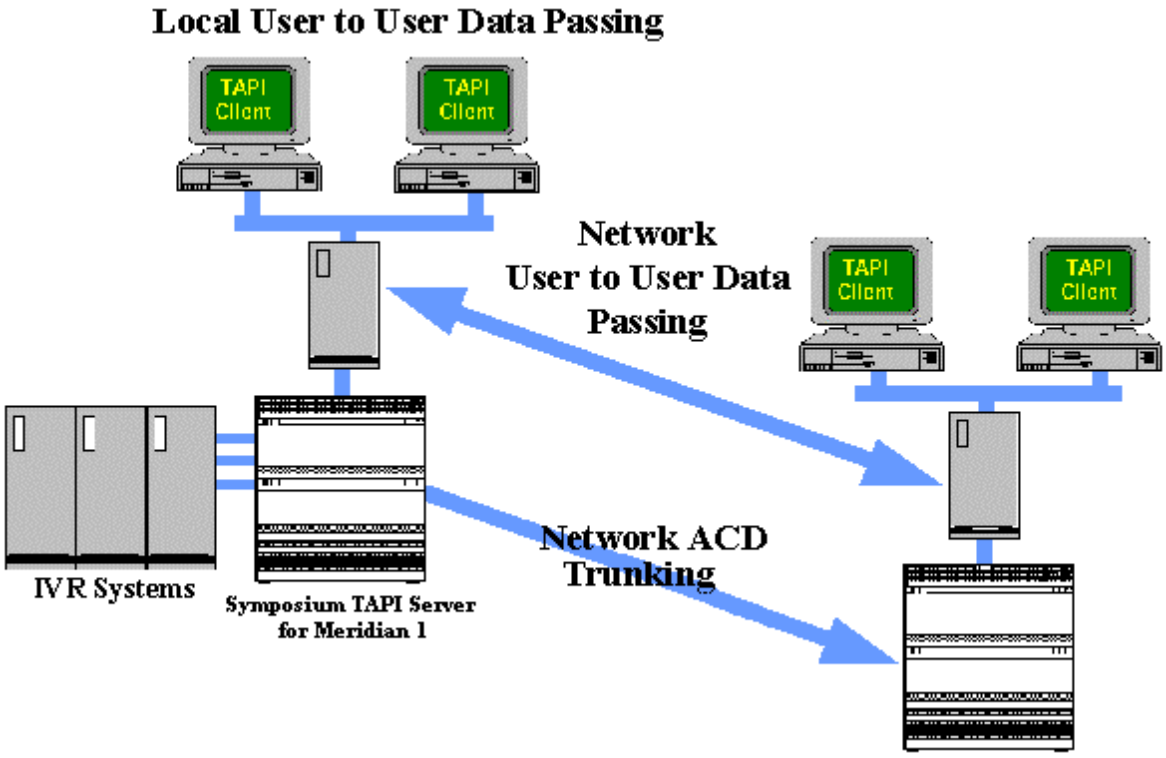
Chapter 5: Networking Call Data

Overview

What is Networking Call Data?

In the context of Microsoft's Telephony API (TAPI), networking is defined as the ability to associate and deliver user data with a call. User data can be an account code entered via the IVR system, a transaction account record number, agent-entered notes, or whatever is meaningful within the context of an individual call. This can facilitate the coordination of data available to agents when calls are transferred or conferenced locally.

In addition, Symposium TAPI Service Provider for Meridian1 allows the Networking Call Data functionality to consistently and reliably track call data related to calls that are NACD overflowed, transferred, or conferenced outside the switch to an another Meridian 1 switch.



The Meridian1 switch supports call routing between a network of Meridian 1 switches through ISDN trunk using Network Automatic Call Distribution (NACD). This functionality allows Symposium TAPI Service Provider for Meridian1 to consistently and reliably track CALLDATA related to calls that overflow from one Meridian 1 to another Meridian 1. The CALLDATA is obtained through the network over UDP/IP using the documented protocol illustrated in the *Symposium TAPI Service Provider's Programmer Manual*, which is available for download at the BAP (Business Affiliate Partner) Internet site.

Requirements of Networking Call Data

- In order for call data networking to function, all switches must be on an ISDN trunk and configured to pass network call ID. Refer to the “Configuring Data Networking” section in this chapter.
- The NACD package (package 207) must be installed on the Meridian 1 for NACD overflow to work. To verify, (1) go to Meridian 1 LD 22, (2) at the REQ prompt type PRT, and (3) at the TYPE prompt type PKG.
- Each switch must have a unique home location code (HLOC). Refer to LD 15 customer data block prompt HLOC.
- All Symposium TAPI Servers must be running version 2.1 or lower of the software to communicate.
- All machines must be seen via TCP/IP and must have the ability to be “pinged” by the TCP/IP “ping” utility.
- The supplied license file for local and remote Symposium TAPI Servers must include the TAPI_IVR feature option. Refer to Chapter 4
- The MLINKSP.INI file must be configured properly to pass call data between participating Symposium TAPI Servers. Refer to the “Configuring Data Networking” section in this chapter.

Restriction for Network ACD Overflow and Call Data

Network CALLDATA works only if the call comes from another ACD Queue via another M1. The destination of the call on the receiving side must be ACD queue or CDN.

Performance of Network ACD Overflow and Call Data

From lab measurements, a call rate of 1.15 calls/seconds overflowing used 20 percent of the CPU on a Pentium PRO 200.

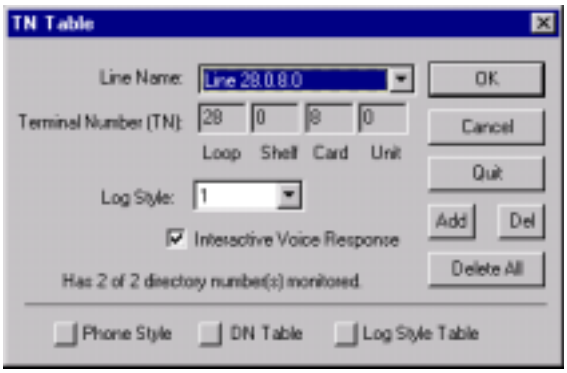
Multiple Symposium TAPI Service providers share the call data across the different domains.

Description of Different Call Data Networking Scenarios

This section outlines various methods of networking call data between IVR and Symposium TAPI Service Providers.

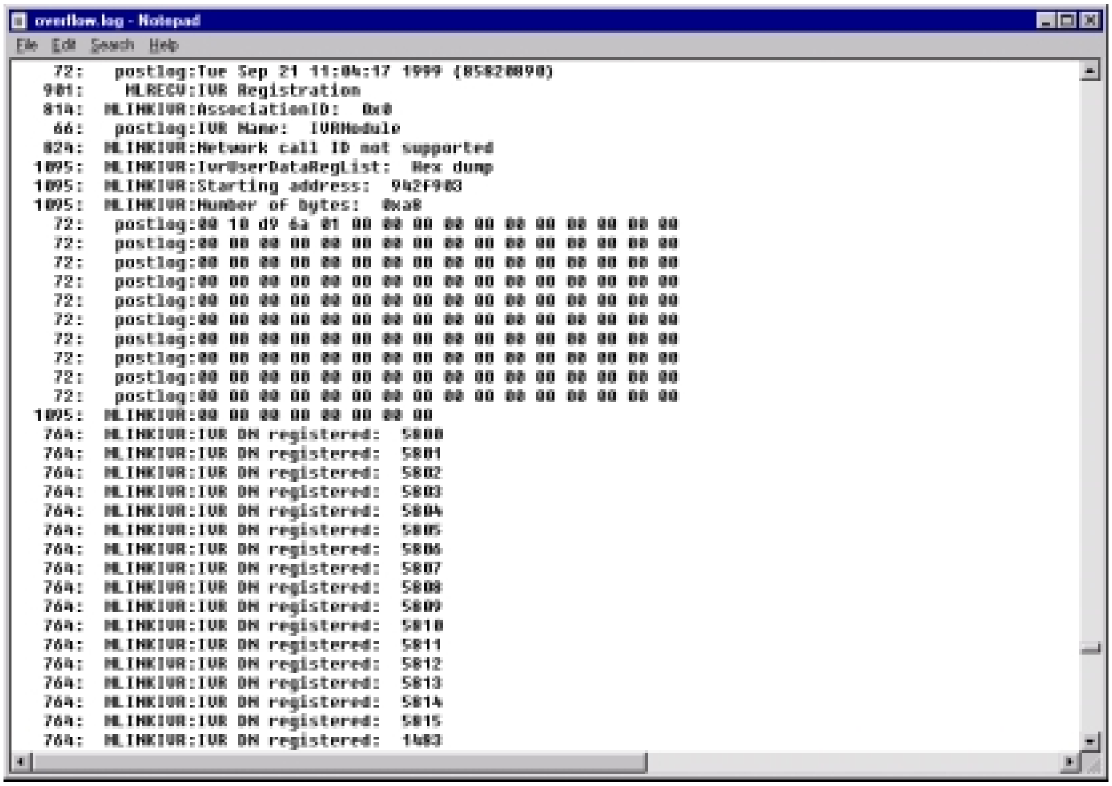
Call Data Networking Between IVR and TAPI Service Provider

The following is an example of how call data is communicated from the Interactive Voice Response (IVR) unit to the Symposium TAPI Service Provider for Meridian 1.



1. The M1S Configuration (M1CFG.EXE) utility must be used to configure all IVR Ports (lines attached to the IVR unit). Simply check the Integrated Voice Response box. This allows the Symposium TAPI Service Provider to monitor all call activity on the IVR unit.
2. The IVR unit registers itself with the Symposium TAPI Service Provider. The IVR unit connects to a known TCP port (5000) and sends a registration message. This registration message is part of the Nortel Networks

proprietary protocol developed for IVR integration (see Figure below).



```
overflow.log - Notepad
File  Edit  Search  Help
  72:   postlog:Tue Sep 21 11:04:17 1999 (85820890)
 901:    MLRECV:IVR Registration
 814:  MLINKIVR:AssociationID:  0x0
  66:   postlog:IVR Name:  IVRModule
 824:  MLINKIVR:Network call ID not supported
1095:  MLINKIVR:IvrUserDataRegList:  Hex dump
1095:  MLINKIVR:Starting address:  942F903
1095:  MLINKIVR:Number of bytes:  0xa0
  72:   postlog:00 10 d9 6a 01 00 00 00 00 00 00 00 00 00 00 00
  72:   postlog:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  72:   postlog:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  72:   postlog:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  72:   postlog:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  72:   postlog:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  72:   postlog:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  72:   postlog:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  72:   postlog:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  72:   postlog:00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
1095:  MLINKIVR:00 00 00 00 00 00 00 00
 764:  MLINKIVR:IVR DN registered:  5800
 764:  MLINKIVR:IVR DN registered:  5801
 764:  MLINKIVR:IVR DN registered:  5802
 764:  MLINKIVR:IVR DN registered:  5803
 764:  MLINKIVR:IVR DN registered:  5804
 764:  MLINKIVR:IVR DN registered:  5805
 764:  MLINKIVR:IVR DN registered:  5806
 764:  MLINKIVR:IVR DN registered:  5807
 764:  MLINKIVR:IVR DN registered:  5808
 764:  MLINKIVR:IVR DN registered:  5809
 764:  MLINKIVR:IVR DN registered:  5810
 764:  MLINKIVR:IVR DN registered:  5811
 764:  MLINKIVR:IVR DN registered:  5812
 764:  MLINKIVR:IVR DN registered:  5813
 764:  MLINKIVR:IVR DN registered:  5814
 764:  MLINKIVR:IVR DN registered:  5815
 764:  MLINKIVR:IVR DN registered:  1403
```

3. When a call is placed to a line attached to the IVR unit, the Symposium TAPI Service Provider detects the call because it is monitoring all lines on the IVR unit and saves the Call ID for that call.

4. The IVR unit plays prompts and collects data.

5. Using TCP/IP, the IVR unit passes the collected data to the Symposium TAPI Service Provider. This TCP/IP message is part of the Nortel Networks proprietary protocol developed for IVR integration.

6. The Symposium TAPI Service Provider creates a call data block that contains both the call data and the Call ID.

7. The IVR unit transfers the call from its port to a destination DN on the switch. Typically it transfers the call to an ACD queue. In turn, the ACD software presents the call to a call center agent.

8. The Symposium TAPI Service Provider informs all TAPI applications monitoring the agent’s telephone of the new call. The TAPI applications retrieve the data by calling lineGetCallInfo. This data is commonly used for screen pop purposes

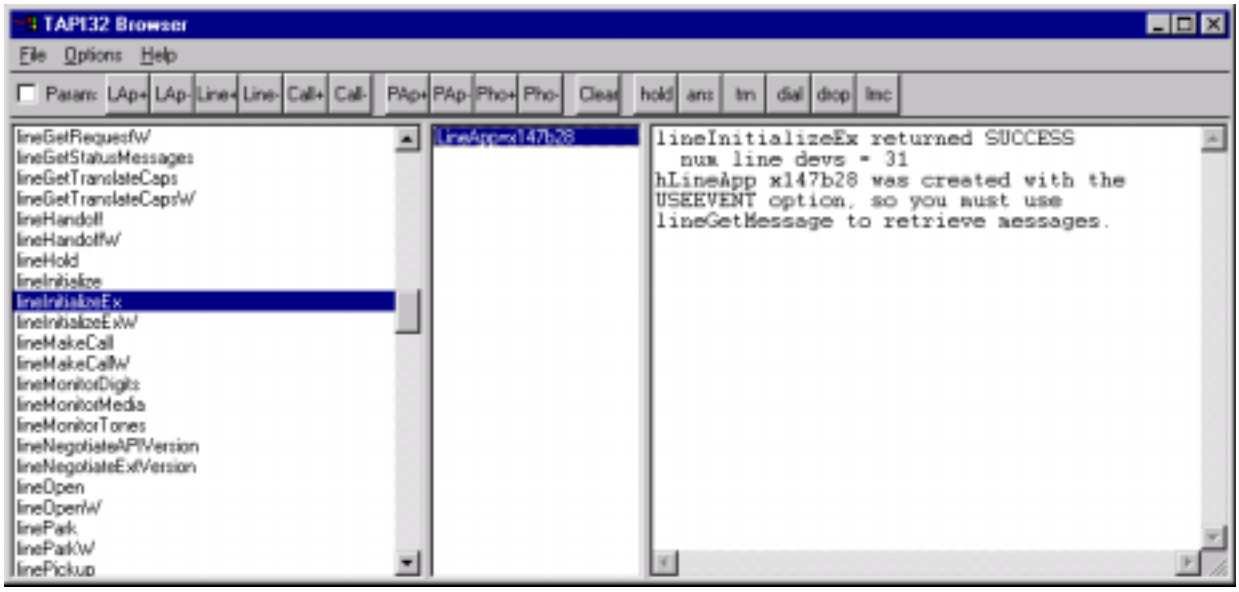
Verifying the Above Method Using TAPI32 Browser (Tb20w.exe) Application

This assumes that the IVR unit and MLINKSP.INI file are properly configured before starting the Symposium TAPI Service Provider. Please verify that the IVR is configured properly and the script is running on the IVR unit.

Please use the steps below and use the TAPI32 browser application to verify that call data is being received:

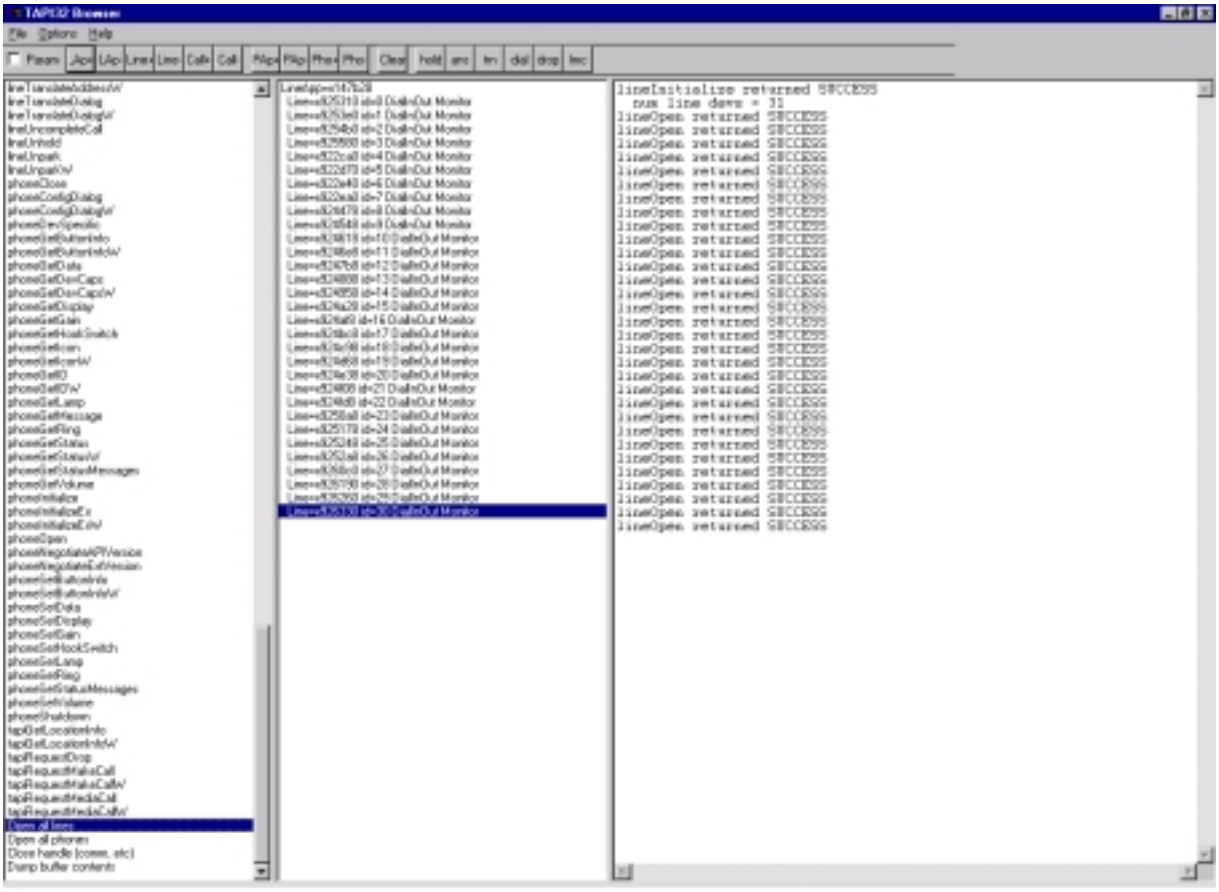
1. Run TAPI32 browser (Tb20w.exe) application.

2. Select **lineInitializeEx** function from the left most split window of the TAPI32 browser application and double-click on it.

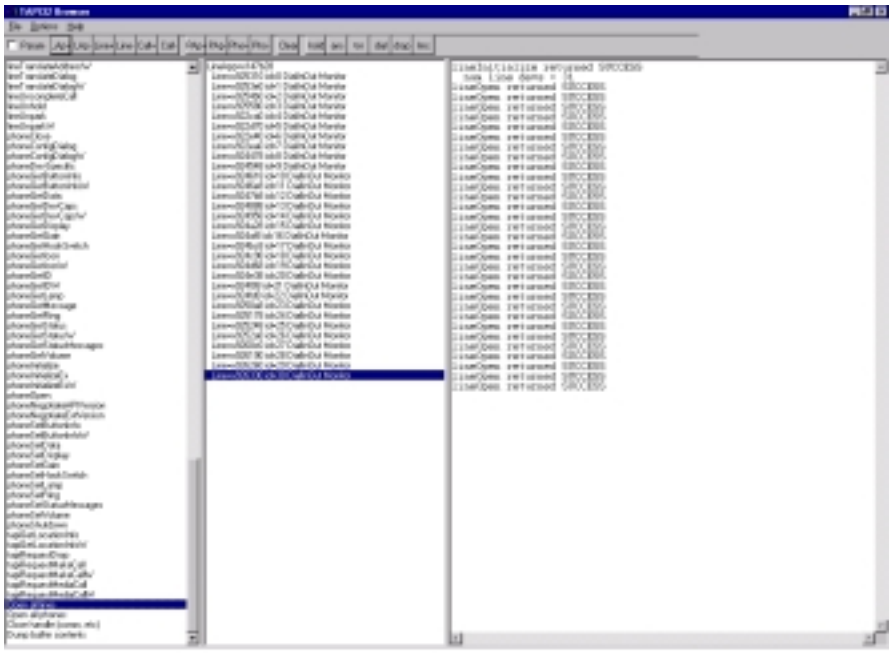


3. The right-most split window of TAPI32 browser shows “lineInitializeEx returned SUCCESS, num line devs = n”, where n is the number of TNs successfully registered with the Meridian1 switch.

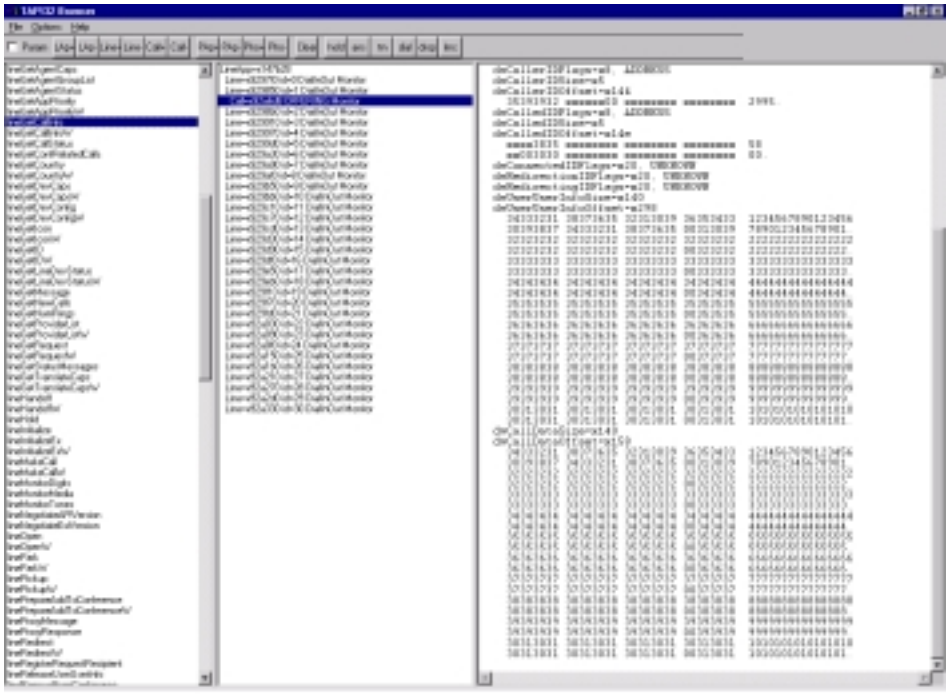
4. Go to the left-most function window of TAPI32 browser and scroll down to “**Open all lines**” function and double-click on it



5. Depending upon how many TNs you have configured, the middle window shows several lines such as "Line=x63456 id=0 DialInOut Monitor.".
6. Use any non-monitored phone set (TN or DN) to make a call to the IVR port. Follow the voice prompts set by the script to enter call data.
7. At the same time, the TAPI browser displays a call appearing on one of the lines. This is the line monitoring the current called IVR port DN.
8. When the call data entry is complete, the IVR unit transfers the call to an ACD queue.
9. The call appears in TAPI browser as OFFERING to one of the lines in the ACD queue in which the agent is logged.
10. Select the OFFERING call from the middle window and scroll to the left window to locate l**ineGetCallInfo** function from TAPI browser application.
11. Select **lineGetCallInfo** function and double-click on it.



12. The right-most window of TAPI browser application shows the result of values returned by TAPI Service Provider. The *dwUserUserInfo* and *dwCallData* fields of LINECALLINFO structure show the call data entered by the user.



Call Data Networking Between TAPI Service Providers with Network ACD Overflow

The following is an example of how call data is communicated from a local Symposium TAPI Service Provider for M1 to a remote Symposium TAPI Service Provider for M1.

Imagine a network consisting of two Meridian 1 PBXs connected via ISDN/PRI trunks: M1-A and M1-B. The IVR unit is attached to M1-A. Both Meridian 1 PBXs are using Symposium TAPI Service Provider for Meridian 1 version 2.1 or lower. Also, the ACD queue to which the IVR unit transfers the call to immediately overflows to M1-B.

The steps for Symposium TAPI Service Provider for M1-A are:

1. A call arrives on a line attached to the IVR unit and monitored from the TAPI server. Since M1-A is part of a network of Meridian 1 PBXs, the Call ID contains an identifier that uniquely identifies it as a Call ID on M1-A. This unique identifier is referred to as a Home Location Code (HLOC). The IVR unit plays prompts and collects data.

2. Using TCP/IP, the IVR unit sends collected data along with information about the port or DN on which the data was collected to the Symposium TAPI Service Provider for M1-A.

3. The Symposium TAPI Service Provider for Meridian 1-A updates its call data object list and sends a UDP/IP message to all the Symposium TAPI service Providers participating in network Meridian 1 switches.

4. The IVR unit transfers the call from its port to a destination DN on the switch. Typically it transfers the call to an ACD queue.

Note: The list of all participating TAPI service providers is read from the mlinksp.ini file during initialization of Symposium TAPI Service Provider for Meridian1.

The call has now left M1-A and is delivered to an ACD queue on M1-B. The steps for Symposium TAPI Service Provider for M1-B are:

1. The Symposium TAPI Service Provider for M1-B receives a UDP/IP message about the call data from Symposium TAPI Service Provider for M1-A. The Symposium TAPI Server for M1-B adds the call data to its call data list for the configured time of call data life span.

2. The M1-B TAPI server receives call offered from Meridian 1 switch. The message, in addition to all mandatory information elements, also contains NetworkCallID. The M1-B TAPI server interprets the message as if the call originated from the remote Meridian 1 and transferred it to Meridian 1-B switch.

3. The M1-B TAPI server searches NetworkCallID in its call data list. If the call data is found, it replaces the Call ID field with the M1-B current local call ID.

4. M1-B Symposium TAPI server passes the data to any TAPI applications monitoring the agent's telephone via a LINECALLINFO message and the subsequent **lineGetCallInfo** function call.

Verifying this method using TAPI Browser (Tb20w.exe) application

This assumes that the IVR unit and MLINKSP.INI file are properly configured before starting Symposium TAPI Service Provider. Please verify that the IVR is configured properly and the script is running on the IVR unit. Also verify that Network ACD overflow time is set in switch for ACD queue on M1-A to overflow the call to ACD queue on M1-B.

Please use the following steps on the Symposium TAPI Server for M1-A to verify the passing of network call data using the TAPI32 browser application:

1. Run TAPI32 browser (Tb20w.exe) application.
2. Select **lineInitializeEx** function from the left-most split window of the TAPI32 browser application and double-click on it.
3. The right-most split window of TAPI32 browser shows "lineInitializeEx returned SUCCESS, num line devs = n", where n is the number of TNs successfully registered with the Meridian1 switch.
4. Go to the left-most function window of TAPI32 browser and scroll down to "**Open all lines**" function and double-click on it
5. Depending upon how many TNs you have configured, the middle window shows several lines such as "Line=x63456 id=0 DialInOut Monitor.".
6. Use any non-monitored phone set (TN or DN) to make a call to the IVR port. Follow the voice prompts set by the script to enter call data.
7. At the same time, the TAPI browser displays a call appearing on one of the lines. This is the line monitoring the current called IVR port DN.
8. When the call data entry is complete, the IVR unit transfers the call to the ACD queue of M1-A.
9. The NACD Overflow option set on M1-A switch will cause the call to be overflowed to the ACD queue on M1-B switch.

Please use the following steps on the Symposium TAPI Server for M1-B to verify the passing of network call data using the TAPI32 browser application:

1. Follow steps 1-6 from the above M1-A server. These steps must be done before the call is made to IVR port in M1-A switch.
2. The call appears in TAPI browser as OFFERING to one of the lines in the ACD queue in which the agent is logged.
3. Select the OFFERING call from the middle window and scroll to the left window to locate l**ineGetCallInfo** function from TAPI browser application.
4. Select **lineGetCallInfo** function and double-click on it.
5. The right-most window of TAPI browser application shows the result of values returned by TAPI Service Provider. The *dwUserUserInfo* and *dwCallData* fields of LINECALLINFO structure show the call data entered by the user.

Call Data Networking Between TAPI Service Providers Without Network ACD Overflow

The following is an example of how call data is communicated from a local Symposium TAPI Service Provider for M1 to a remote Symposium TAPI Service Provider for M1 without the IVR unit and Network ACD overflow switch setting. This example uses **lineSetCallData** to establish call data on an active call and then transfers or conferences to an ACD queue on the remote Meridian 1 switch.

Imagine a network consisting of two Meridian 1 PBXs: M1-A and M1-B connected via ISDN/PRI trunks. Both Meridian 1 PBXs are using the Symposium TAPI Service Provider for Meridian 1 version 2.1 or lower.

The steps for the Symposium TAPI Service Provider for M1-A are:

1. A call arrives on the ACD queue., ACD software on M1-A presents the call to a call center agent.
2. Select the active call and use lineSetCallData to set call data. The Symposium TAPI Service Provider informs all TAPI applications monitoring the agent's telephone of the new call data available. The TAPI applications retrieve the data by calling **lineGetCallInfo**. This data is commonly used for screen pop purposes.
3. The Symposium TAPI Service Provider for Meridian 1-A updates its call data object list and sends a UDP/IP message to all the Symposium TAPI service Providers participating in network Meridian 1 switches.
4. Transfer or Conference the active call to an ACD queue on remote M1-B switch.

Note: The list of all participating TAPI service providers is read from mlinksp.ini file during initialization of Symposium TAPI Service Provider for Meridian1.

The steps for Symposium TAPI Service Provider for M1-B are:

1. The Symposium TAPI Service Provider for M1-B receives the UDP/IP message about the call data from Symposium TAPI Service Provider for M1-A. The Symposium TAPI Server for M1-B adds the call data to its call data list for the configured time of call data life span.

2. The M1-B TAPI server receives call offered from Meridian 1 switch. The message, in addition to all mandatory information elements, also contains NetworkCallID. The M1-B TAPI server interprets the message as if the call originated at the remote Meridian 1 and then transferred it to this switch.

3. The M1-B TAPI server searches NetworkCallID in its call data list. If the call data is found, it replaces the *Call ID* field with the M1-B current local call ID.

4. M1-B Symposium TAPI server passes the data to all TAPI applications monitoring the agent's telephone via a LINECALLINFO message and the subsequent **lineGetCallInfo** function call.

Verifying this method using TAPI Browser (Tb20w.exe) application

The following tasks are provided for users who require additional methods to ensure the Symposium TAPI Service Provider is properly installed and working.

TAPI Server A is connected to switch A, TAPI Server B is connected to switch B.

On Server A:

1. Run the **TB20w.exe** program and load the Service Provider. Refer to the "Using the Browser Tool" section.
2. Check the **Params** box.
3. Open all lines.
   a. Double-click on the **Open All Lines** command (use the left scroll bar to view this command).

On Server B:

1. Run the **TB20w.exe** program and load the Service Provider. Refer to the "Using the Browser Tool" section.
2. Check the **Params** box.
3. Open all lines.
   a. Double-click on the **Open All Lines** command (use the left scroll bar to view this command).

To answer an incoming call on Server A:

1. From another phone set, call the DN of a monitored set.
2. Position on the *Offering call* in the Browser window.
3. Double-click on the **lineAnswe**r command.
4. Click **OK**.

To do a blind transfer with Call Data on Server A

1. Position on the *connected line* and double-click on **lineSetupTransfer** command
2. Click **OK**
3. Double-click on **lineSetCallData** command

Note: If your version of TAPI Browser does not support setting Call Data then set the --- size to less than 512 or 0x200 bytes and click OK.

4. Click **OK**.
5. Position on Dialtone line and double-click Line Dial
6. Click **IpszDestAddress** and enter a valid Dn on switch B to transfer to.
7. Click **OK.**

To Do a lineGetCallInfo on Server B

1. Position on the *Offering call* in the Browser window.
2. Double-click on the **lineAnswe**r command.
3. Double-click on **lineGetCallInfo** commandThe right-most window of TAPI browser application shows the result of values returned by TAPI Service Provider. The *dwUserUserInfo* and *dwCallData* fields of LINECALLINFO structure show the call data entered by the user.

Configuring Data Networking

Configure ISDN/PRI Trunks

In order for call data networking to function, all participating Meridian 1 switches must be configured to support Network Call ID. Configure the network call trace feature to verify that Meridian1 passes Network Call ID between them.

These Reference documents provide help in setting up ISDN/PRI trunk:

- P0868068 Networking Features
  - 553-290-100 ISDN/PRI Description
  - 553-290-200 ISDN/PRI Installation
  - 553-290-500 ISDN/PRI Maintenance
- P08688071 Automatic Call Distribution Reference guide
- P0868065 X11 Input / Output guide

The above documents can be found in the NORTEL Electronic Reference Library or Northern Telecom Practices (NTPs).

Configure TAPI Server to PING

All the participating Symposium TAPI Service providers must be configured for TCP/IP protocol. To verify this, each participating TAPI Server must be able to ping each other. Ping is a diagnostic utility to find out if a system is up and running and understands the TCP/IP protocol. The ping utility is distributed by Microsoft as part of the Windows NT OS.

Configure Symposium TAPI Service Provider

Configure NORTEL Network's Open IVR Module

IVR Module is configured using IVRmodule.cfg file and must reside in the same directory as IVR module executable may reside.

The IVR configuration file (IVRmodule.cfg) contains various configuration parameters. These parameters are listed one per line in any order and identified by a keyword beginning on the first column of each line and followed by a space and the actual parameter value. The keywords include the following:

Keyword	Description	Operand
Homehost name	Defines the name of the machine on which the IVR module resides and executes	Name is an alphanumeric string designated as the host name on your machine
Externhost name	Defines the name or IP Address of the machine on which the Symposium TAPI Service Provider resides and executes. If you enter name of the Symposium TAPI Service Provider machine make sure etc/hosts file has corresponding IP address for that machine name.	Name is an alphanumeric string designated as the host name on your machine
Portnumber n	Defines the port number on which Symposium TAPI Service Provider and IVR module will be channeled. This port number must be 5000.	n is a numeric value usually in the range 1 – 10000
Timeoutval n	Defines the maximum time in seconds that the IVR module will wait for response from the Symposium TAPI Service Provider indicating data transfer is complete and the call should be transferred. After this time period elapses, the IVR module will automatically transfer the call. This value will default to 20 if not specified	n is a decimal value within the range 1 – 100
Homeloccode n	Defines the Home Location Code of the M1 switch to which the IVR module is attached	n is a decimal value within the range 3 – 100
Nwcallid YES | NO	Specifies whether or not the network call ID is available with call information	The strings YES or NO are the only acceptable values
Monitordn nnnn	This parameter is only valid if NO has been specified for the nwcallid parameter. This specifies a four digit extension of an incoming line to be monitored for call information. One may specify any number of these extensions, listing one per line always using the monitordn keyword. Although the configuration options may be listed in any order, the monitordn listings must appear in numeric order by the channels to which they are assigned. In other words, the DN of the first channel assigned to this application must be listed first. The DN of the second channel assigned to this application must be listed second, and so on	nnnn is a four digit extension of an operator/agent's telephone
Logduration n	Defines the number of days IVR log files will remain in the directory with the IVR module executable before being deleted. This value will default to 1	n is a decimal value indicating number of days within the range 1 - 100.

If a required configuration option is missing or contains syntax errors, the IVR module will issue error messages in the current logfile and fail to startup. Refer to the *IVR Messages* section located in Chapter 5 for additional information on the error messages.

Configure IVR Ports in Symposium TAPI Server Database

1. Run Start->Programs->NORTEL M1TAPIS->Config Database. The M1s Configuration dialog box appears. Refer Chapter 3:Configuration:Running the Configurator Application.
2. Click *View Database* to manually enter the TNs and DNs of the IVR Ports used by IVR Module (refer Chapter3:Configuration:Configuring the TAPI Service Provider Database Information) OR Click *Convert text*

file to automatically updating TAPI Server database (refer Chapter 3:Configuration: Downloading and Translating Meridian1 Switch Information).

NOTE: Symposium TAPI Service Provider must be shutdown before adding, removing, or modifying entries of any participating TAPI servers in MLINKSP.INI file.

Configure MLINKSP.INI file

When networking across the WAN (not applicable when using UDP Broadcast messages in LAN), you must configure the TCP/IP address of the servers by creating or manually editing the MLINKSP.INI file. This file is created automatically by the TAPI Server when you initialize the TAPI Service Provider and there are other TAPI Servers running the same software. The file resides in the Windows directory on the TAPI Server machine.

When Symposium TAPI Service Provider is installed, there is no MLINKSP.INI file. It is created during the first initialization of Symposium TAPI Service Provider. When it shuts down, the Symposium TAPI service provider writes back some of the information regarding the IP Addresses of remote TAPI servers to MLINKSP.INI file.

Note: The Symposium TAPI Service Provider must be shutdown before adding, removing, or modifying entries of any participating TAPI servers in MLINKSP.INI file.

Configuring Remote Host Addresses of TAPI Servers

When Symposium TAPI Service Provider is being initialized, the TAPI Server sends a message on the network to determine if there are any other TAPI Servers. If there are, they respond. The IP Address is placed into the MLINKSP.INI file. In the case of a WAN, some routers do not allow a "broadcast" packet to pass through. If you want to share call data information to any remote TAPI Server, you can place the IP address in the MLINKSP.INI file manually as long as the structure is defined as follows:

```
[COUNT]
Count= n

[IPADDRESS]
        IP1=
        IP2=
```

Note: Count = n, where n is the number of TCP/IP addresses in IPADDRESS section of MLINKSP.INI file.

For example,

```
[COUNT]
Count=2

[IPADDRESS]
IP1=47.105.207.136
IP2=47.233.333.565
```

In the above example of an MLINKSP.INI file, there are two IP addresses. Therefore the count is two.

To add an additional IP address, change the Count to 3 and add the TCP/IP address.
For example,

```
[COUNT]
Count=3

[IPADDRESS]
IP1=47.105.207.136
```

IP2=47.233.333.565
IP3=12.121.122.344

To delete a TCP/IP address IP2 = 47.233.333.565.
For example,
[COUNT]
Count=2

[IPADDRESS]
IP1=47.105.207.136
IP2=12.121.122.344

Configuring Call Data Life Span

The Call Data object created lasts for the configured amount of time in memory using Call Data list. The Symposium TAPI Service Provider maintains the Call Data list. After the amount of configured Call Data Life Span time has elapsed, it removes the Call Data object not referenced by any call from Call Data list. The Call Data Life Span time is configured in seconds using TIMER_COUNT section in MLINKSP.INI file. The default value of Call Data Life Span time is 1800 seconds (30 minutes). The minimum possible value is 120 seconds (2 minutes).

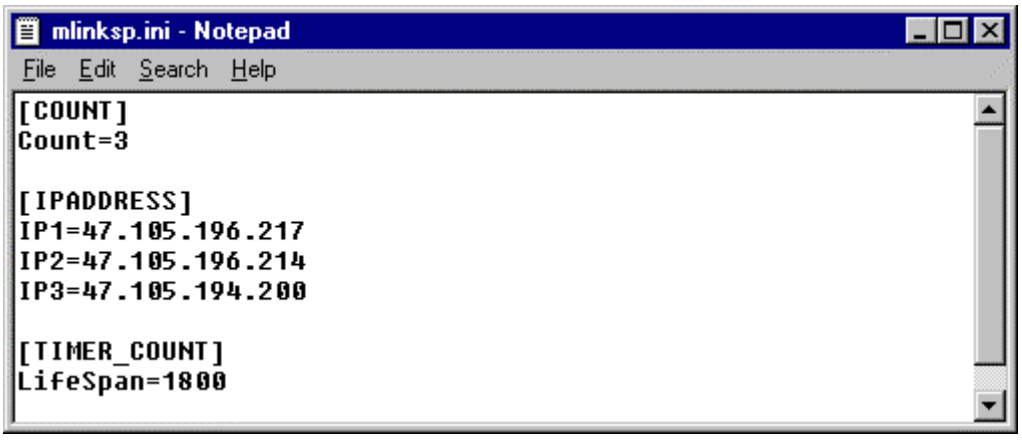
For example,

[TIMER_COUNT]

;In Seconds

LifeSpan=1800

Note: Call Data Size is not configurable using Symposium TAPI Service Provider for Meridian 1 Release 2.1 or lower. The Maximum supported Call Data size is 512 or 0x200 bytes.



Troubleshooting

While troubleshooting keep the Logger application running. Clear the log file before any major operation or whenever you do not want current logs appended to previously stored log information.

To permanently store the important log information you must rename or save Overflow.log file to a different location.

This troubleshooting section assumes that the user is comfortable using debug tools such as Logger and TAPI32 Browser application. It is also assumed that the user understands basic operations, such as how to start and stop Symposium TAPI Service provider.

For help on how to run, save, and clear the log file using Logger application, refer section Logger Troubleshooting tool in chapter 7.

There is no IVR Registration Message is seen in overflow.log file capture after initialization of TAPI Server.

1. Verify that Symposium TAPI server machine and IVR unit are able to "ping" each other using the Ping utility. If not, stop and consult your Network Administrator in running utility. Otherwise continue to step 2.
2. Shutdown Symposium TAPI Service Provider.
3. Open the DOS Command prompt window on TAPI Server Machine and type "netstat –a >a.txt" and press<**Enter**>. Open a.txt file in notepad.exe application.
4. If port 5000 is listed as either 'LISTENING' or 'ESTABLISHED' it means there is a port conflict; and the port is already in use by any other application. Consult your network administrator to resolve this. If not listed follow step 4.
5. Clear the Overflow.log using Logger application and then start Symposium TAPI Service Provider. Redo step 3.
6. If port 5000 is listed as 'ISTENING and does not have an entry as 'ESTABLISHED' state, go to step 7. OR, if port 5000 is listed as 'LISTENING' and also has entry as 'ESTABLISHED', go to step 8. OR, if port 5000 is not listed as 'LISTENING', go to step 8.
7. Verify that the IVR unit module is configured for port 5000. To verify this in Nortel's Open IVR system, either do the following or use a third party IVR guide to check similar information:
   - Open shell window by right clicking the mouse in IVR unit UNIX system and selecting V shell.
   - Change the path to where the IVRmodule.cfg is located. (e.g.,cd /u/nortel/usr/TAPI0616/IVRM).
   - Open IVRmodule.cfg using vi editor.
   - Verify that the portnumber entry is set to 5000 and externhost is set to the IP address of the TAPI Server Machine. If any of these values need modification then you must stop, reconfigure the IVRmodule.cfg file, and then restart IvrModule.
8. This should never happen, so save the overflow.log file from the Logger application by appending any of the residual left in Logger window, and contact NORTEL Networks product support .

There is IVR Registration Message in overflow.log file during initialization of TAPI Server but no Call Data message is received by TAPI server when call is transferred from IVR port to an ACD queue.

The above behavior may be seen if an improper or forced shutdown of TAPI services (Tapisrv.exe) or Symposium TAPI Service Provider has occurred.
Do the following to resolve the situation

1. Shutdown Symposium TAPI Service Provider. (Verify this from Logger window. Stopping ACDProxy does not stop TAPI services in all circumstances).
2. Go to IVR unit machine and stop Nortel's IVR Module process. If a third party IVR is being used, stop its equivalent to the IvrModule process.
3. Verify that the IVR unit module is configured for monitor the DNs that are used by IVR ports:
   - Open shell window by right clicking the mouse in IVR unit unix system and selecting V shell.
   - Change the path to where the IVRmodule.cfg is located. (e.g.,cd /u/nortel/usr/TAPI0616/IVRM).
   - Open IVRmodule.cfg using vi editor.
   - Verify that there should monitordn (e.g., monitordn 5800) entry for each of the IVR ports configured with IVR unit to play voice prompt. If any of these values need modification then you must stop, reconfigure the IVRmodule.cfg file, and then restart IvrModule.
4. Clear the Overflow.log file using Logger application and then start Symposium TAPI Service Provider. Verify in the Logger window that services have successfully started.
5. Go to the IVR unit and start the IVR module.
6. Wait for the IVR Registration message to appear in the Logger window. Test this by calling IVR port DN and follow the voice prompts to enter call data.
7. When the IVR unit transfers a call from the IVR port to an ACD queue, a call appears on an agent line logged in to that queue. Verify this using any TAPI application by calling **lineGetCallInfo** to check call data. If no call data is verified, save the logs and contact Nortel Networks Product support.

There is Caller's Call Data in overflow.log file, but no Call Data is seen using lineGetCallInfo on call offered on agent's line.

This assumes that the call data appears in the Overflow.log file or Logger window of Logger application, but call data does not appear with a screen pop-up on an agent desk.

1. Verify that you are monitoring all IVR ports in Symposium TAPI Server that may be used by IVR unit to transfer calls on ACD queue. You may also examine the IVR Caller Data message in Overflow.log file to check which IVR port DN is being called. Verify this is included in Symposium TAPI Server database for monitoring purpose.
2. If the above step does not help, then save the Log files and contact Nortel Networks product support.

There is call data between the transferred or conferenced call inside the switch. No call data is seen when transferred or conferenced to another Meridian 1 switch.

1. Verify, all Meridian 1 switches participating in network must be connected using ISDN/PRI trunking and also must be configured to pass Network Call ID. Configure the network call trace feature to verify that Meridian1 passes Network Call ID between them. If this is not TRUE then stop and consult switch administrator.
2. Verify that MLINKSP.INI file contains an entry in IPADDRESS section for the IP Address of TAPI server to which the call is transferred.

There is call data when a call is transferred from the IVR port to an ACD queue on the same switch. When Network ACD overflowed to another Meridian 1 via network ACD overflow, call data does not appear when call is offered on Call Center agent's line.

3. Verify that Network ACD overflow is set properly. Use LD 23 to examine that a proper Network ACD queue is configured. For example,

```
LD 23
ACD000
MEM AVAIL: (U/P): 1941668    USED: 679771    TOT: 2621439
DISK SPACE NEEDED: 181 KBYTES
2MB BACKUP DISKETTE(S) NEEDED: 1  (PROJECTED)
ACD DNS  AVAIL: 23860    USED:   140    TOT: 24000
REQ  PRT
TYPE NACD
CUST 0
ACDN 7194
TABL D


ACD DN # :  7194
TABLE NAME: D
ENTRY NO    TARGET ID       TIMER VALUE   STATUS    REGISTERED

   1         3258                   4     ACTIVE    OK

MEM AVAIL: (U/P): 1941668    USED: 679771    TOT: 2621439
DISK SPACE NEEDED: 181 KBYTES
2MB BACKUP DISKETTE(S) NEEDED: 1  (PROJECTED)
ACD DNS  AVAIL: 23860    USED:   140    TOT: 24000
REQ
```

I

Chapter 6: Microsoft TAPI 2.1 and TCMAPP

Note: The information contained in this chapter has been compiled by Nortel for informational purposes only. This information is not a procedure, but a supplement to the Microsoft TAPI Readme.txt file that is provided by Microsoft. Be sure to read the Microsoft TAPI Readme.txt file and install according to those instructions.

Microsoft TAPI 2.1 Overview

The Microsoft Telephony Applications Programming Interface (TAPI) Release 1.4 (first party call control), currently included with Windows 95, allows application programs to control telephony functions such as establishing, answering, and terminating calls as well as controlling other functions such as hold, transfer, and conference. Microsoft TAPI 2.0, currently included with Windows NT Server, Workstation 4.0, and Windows 98 introduces sophisticated server based third-party call control functions for monitoring station set status, supporting predictive dialing applications, ACD queue events, call routing, and network security. It fully addresses client-server needs for call monitoring and control with built-in TAPI remote service provider from Microsoft.

Microsoft TAPI 2.1 (Microsoft's newest version of TAPI) provides the following features:

- A full 32-bit architecture along with backward compatibility with 16-bit TAPI applications
- Call center support
- Allows Windows NT to be a telephony client or server
- Allows Windows 95 to be a telephony client
- Optional Client-Server support that is LAN independent, for example, TCP / IP, SPX / IPX, NetBEUI, as well as others

Upgrading Microsoft TAPI 2.1

On Windows NT server and client machines (NT 4.0), Microsoft TAPI needs to be upgraded from TAPI 2.0 to TAPI 2.1. On Windows 95 systems, you must upgrade from Microsoft TAPI 1.4 to TAPI 2.1. This upgrade allows the client and the server to communicate. Microsoft TAPI 2.1 is available via Microsoft's Web page.

Note: Upgrading to Microsoft TAPI 2.1 is not necessary for the Windows NT Server and Windows NT clients if you have Microsoft Service Pack 4 or above installed. Although Service Pack 4 eliminates the need to upgrade Microsoft TAPI to 2.1, you must still set up the TCM application on the server and the and client as described in the following sections. Service Pack 4 or higher is required for the ACD Proxy Service to work.

Setting up the TCM Application

The Server and Client machines must have Service Pack 4 or above installed or upgrade the Microsoft TAPI to 2.1 and copy the TCMAPP.exe and TAPISRV.exe files to the Winnt\System32 directory before setting up the TCM application. Refer to the Microsoft TAPI Readme.txt file for information on upgrading to Microsoft TAPI 2.1. Also, refer to the "Upgrading Microsoft TAPI 2.1" section in this chapter for additional Nortel information.

The following steps provide an overview of setting up the TCM application. Detailed information is presented in the following sections.

1. Set up the server:

   a. As a primary Domain controller
   Or
   As a standalone server in a Domain

   b. Configure the TCMsetup on the server

   Assign the lines to be used by the clients
   Or
   Delete a line from a user

2. Set up the client:

   Ensure the client machines have Service Pack 4 or higher installed or have been upgraded to Microsoft TAPI 2.1 and the 2.1 fixes have been added to the Windows NT client machines.

   Run the TCMsetup.exe for the client

   Restart the client machine

3. Restart the server

Setting up the Server

The server can be configured as a primary Domain controller or as a standalone server in a Domain. After configuring the Server as a primary Domain controller or as a standalone server in a Domain, configure the TCMsetup, run the TCMsetup, and assign the lines to be used by the clients. Assigning the lines uses TCMAPP. The following sections provide detailed information for each of these tasks.

Setting up the Server as a Primary Domain Controller

Ensure the Windows NT server and Windows 95 client has the Microsoft TAPI 2.1 upgrade added and the 2.1 fixes have been added to the Window NT server before proceeding. Refer to the Microsoft TAPI Readme.txt file for information on upgrading to Microsoft TAPI 2.1. Also, refer to the "Upgrading Microsoft TAPI 2.1" section in this chapter for additional Nortel information.

A user is added to the server with domain user capabilities. This allows the TCM setup on the Server and on the Client. It also ensures that if there is a problem with any services, the Administrator of the server is able to access the computer. The ACDPROXY Service login and password must be set up to the same Login and password used by the Telephony Service. The User login and password are set in the User Manager.

To Setup the Server as a Primary Domain Controller:

1. Add a user to the server with domain user capabilities.

   a. Click on the **Start** button, select **Programs**, select **Administrative Tools**, **User Manager**.

   b. Set up the user with a domain user rights and with a distinctive name, for example tapi_admin. You can set the user up with or without a password. This ensures that the Administrator of the server is able to access the computer if there is a problem with any of the services.

   Once the tapi_admin user is setup, the Telephony Services starts automatically using this login. If this is not configured, the clients will not be able to start unless a TAPI application is started on the server. The service will start even if the server is not logged in.

2. Add the client machines to the Server Manager.

   a. Click on the **Start** button, select **Programs**, select **Administrative Tools**, **Server Manager**.

b. Click on the **Configurator** and select **Add to Domain**.
Note: The clients you are adding to this server can not be logged in to two domains at one time.

c. Add the Client computer name, as it appears on the Client.

d. Select **WINNT Workstation** or **server** and click **ADD**.

e. Repeat step c and d for each client being added to the server.

3. Proceed with configuring the TCMsetup. Refer to the "Configuring the TCMsetup" section.

Setting up the Server as a Standalone Server in a Domain

This section covers the information necessary to set up a server as a standalone server in the Domain.

Note: You should always log into your local machine as Administrator. You should never log in to the Domain at your standalone server.

To Setup the Server as a Standalone Server in a Domain:

1. Request that your standalone server be added to the domain by your Network Administrator.

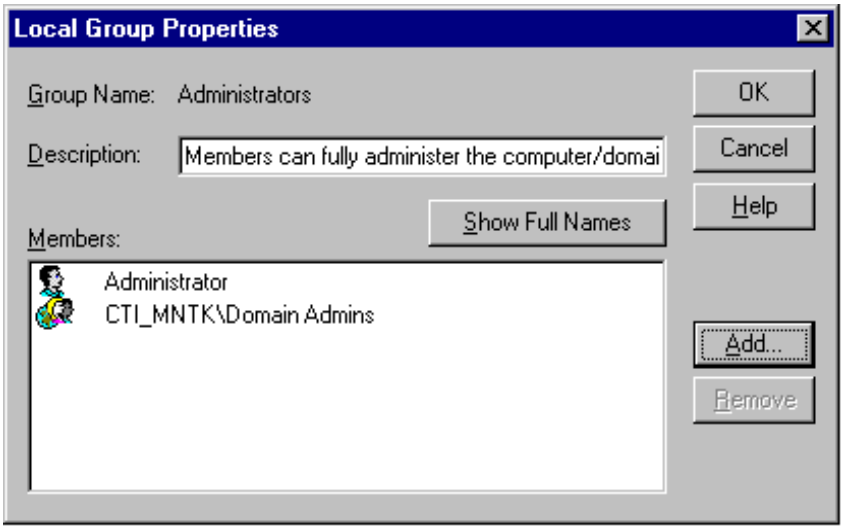
2. Request a user account on the Domain from your Network Administrator for your telephony service to start (TCMSETUP) on your local machine.

3. Have your Network Administrator verify that all TAPI users are already domain users or add any that are not present.

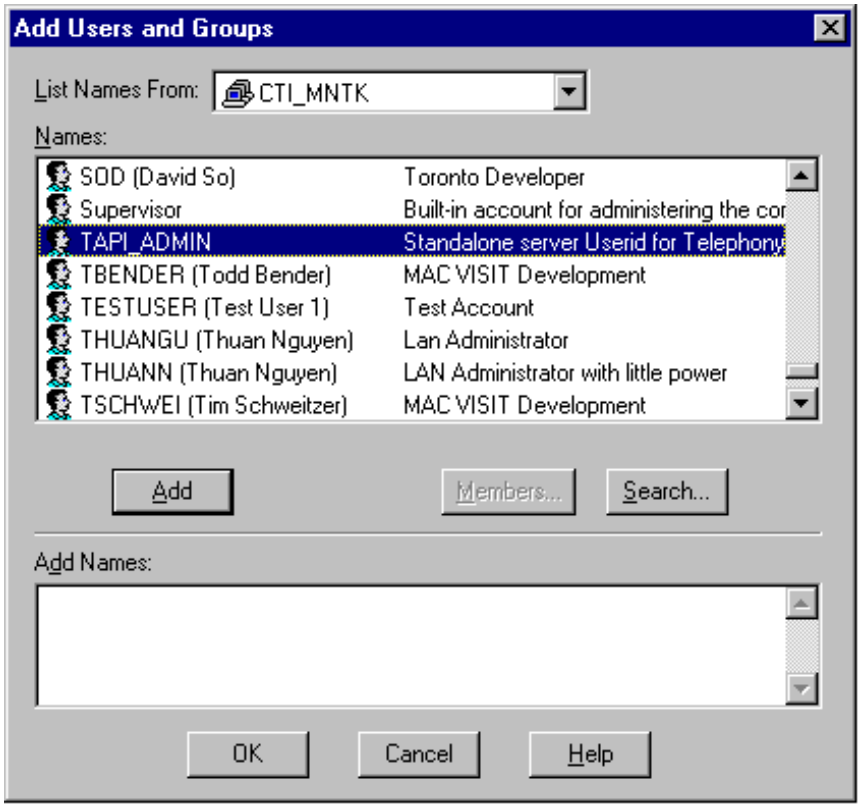
4. Complete the following steps to allow for setting up your TCMSETUP command:

   a. Access the User Manager on your local machine, and double-click on **Administrators** at the bottom of the screen.
   The *Local Group Properties* dialog box is displayed.

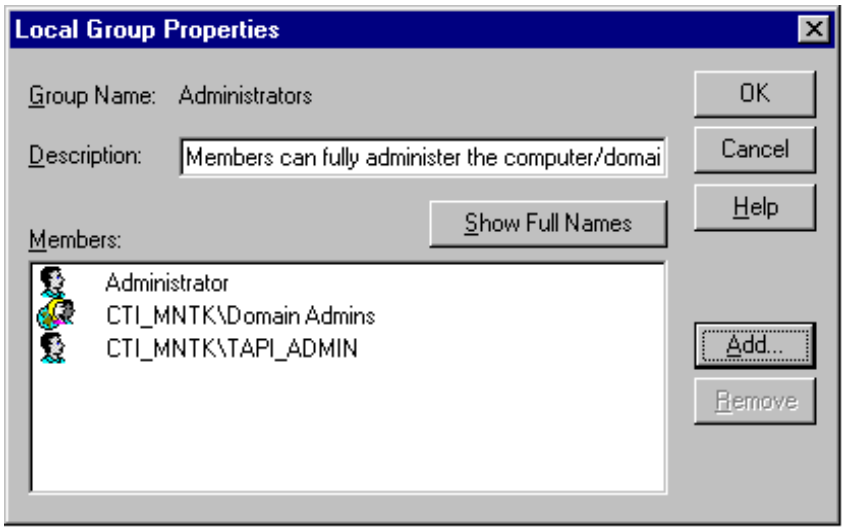
   b. Position on your domain user account (CTI_MNTK\Domain Admins) and then click on **Add** button.



   c. Find and highlight your user account given by your Network Administrator for your Telephony Service (TCMSETUP). Click on the **Add** button to add this user.



d. Your user account now displays on the *Local Group Properties* screen.



5. Proceed with configuring the TCMsetup. Refer to the “Configuring the TCMsetup” section.

Configuring the TCMsetup on the Server

The following list provides the steps in configuring the TCMsetup on the server. The following sections provide detailed information.

1. Launching the TCMsetup

2. Assigning the lines to be used by the client

3. Deleting a line from a user - if necessary

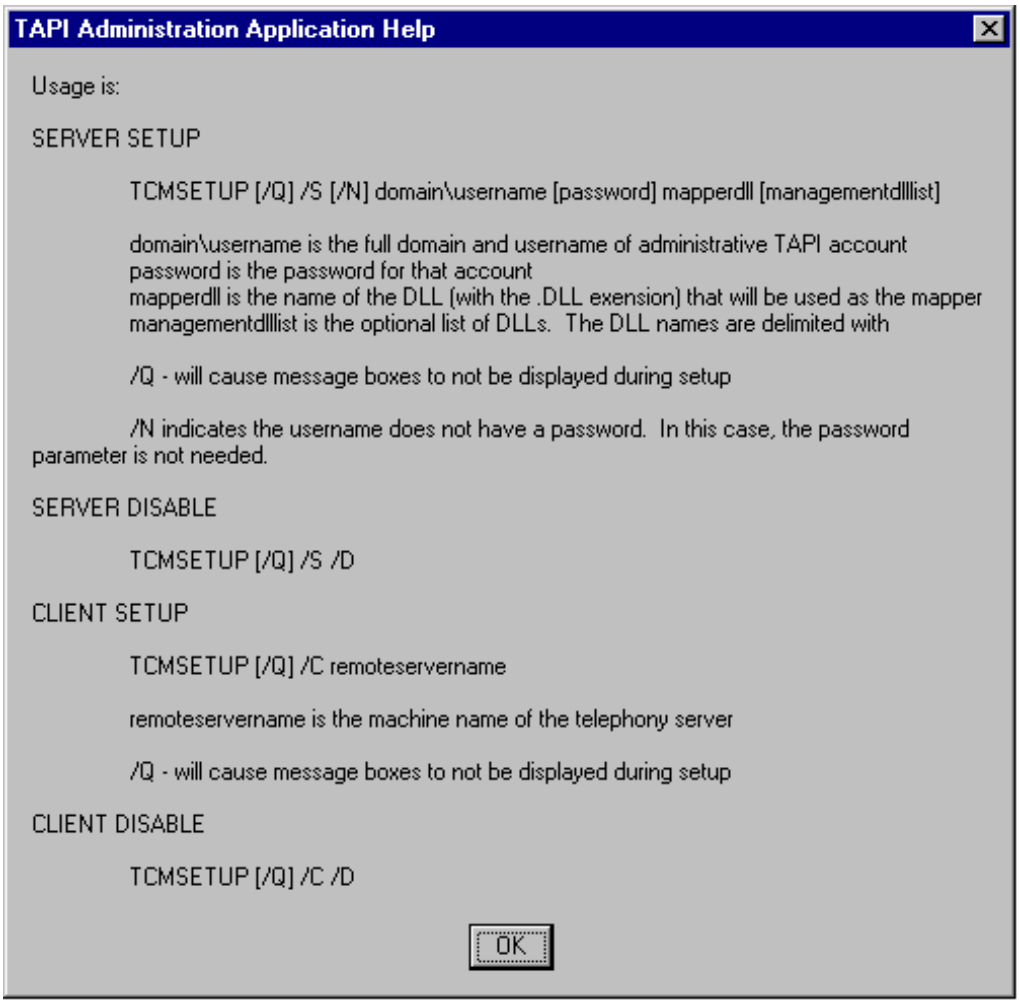
Note: If you setup the server as a standalone on a Domain, you should always log into your local machine as Administrator. You should never log in to the Domain at your standalone server.

Launching the TCMSetup

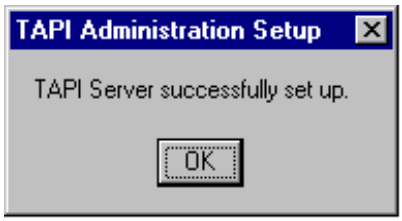
Enter the following using either the *RUN* box from the **Start** button or from a command prompt:

tcmsetup.exe /s domain \userid password (for example, tcmsetup.exe /s Iowa\tapi_admin admin)
or, if a password is not used: tcmsetup.exe /s /n Iowa\tapi_admin

Note: Definitions /s = Server, domain = the domain of the TAPI server, userid = the user setup with admin rights for use with the Telephony Service, password = the password used by that user.

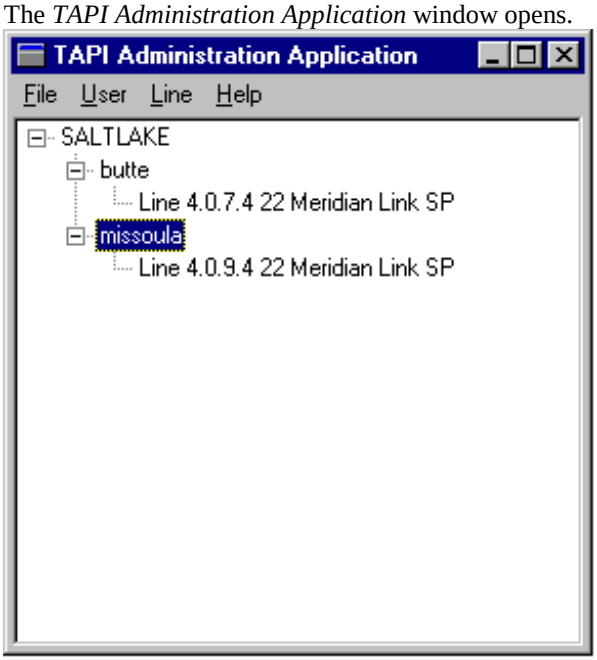


When TCMsetup is complete you will receive a confirmation box stating "**TAPI Service Provider** successfully set up".

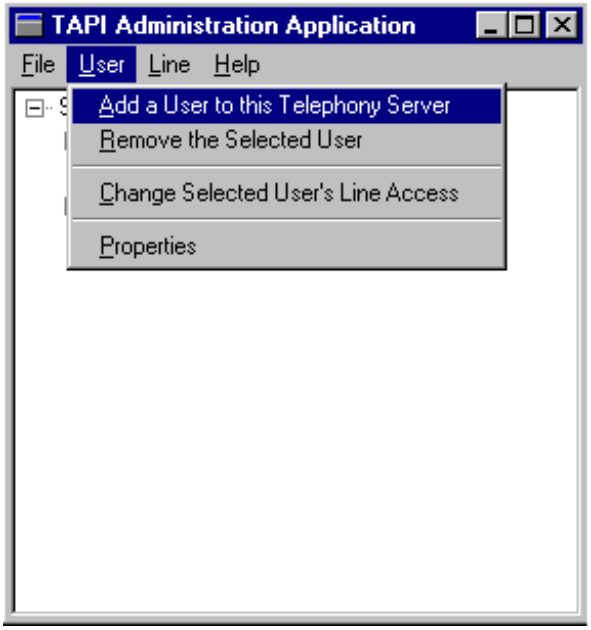

TAPI Administration Setup
TAPI Server successfully set up.
OK

Assigning the Lines Used by the Clients

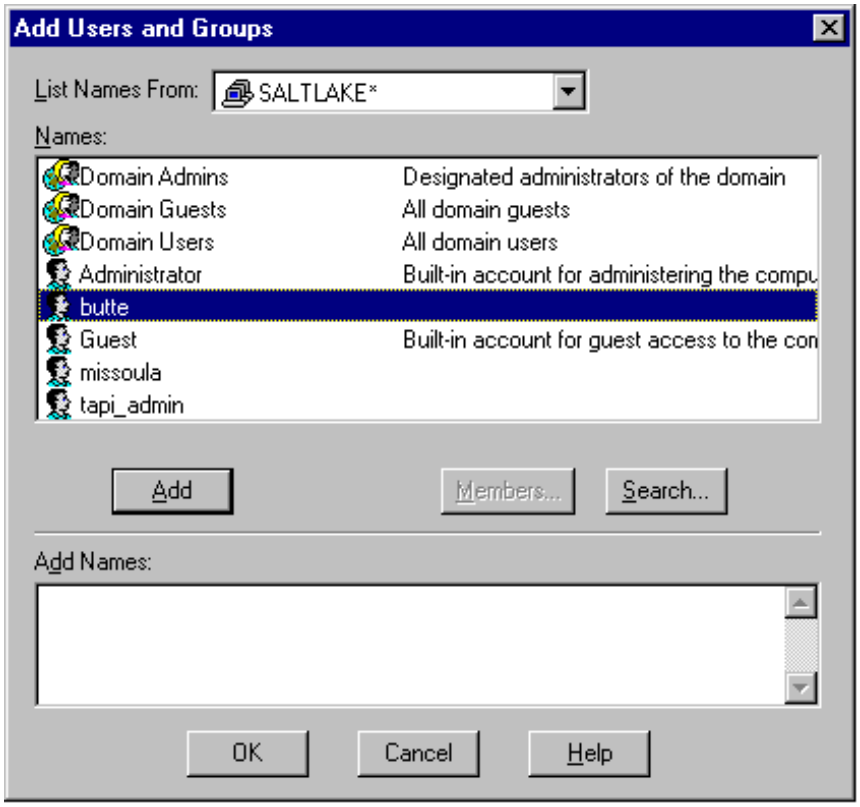
1. Run the TCMAPP.exe, located in the c:\Winnt\system32 directory.
   The *TAPI Administration Application* window opens.



2. Click on **User** located on the menu bar and select the **Add a User to this Telephony Server** option.

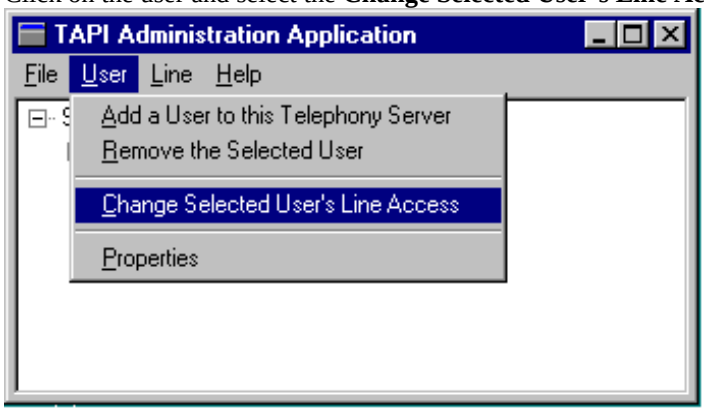


   The *Add Users and Groups* dialog box is displayed.

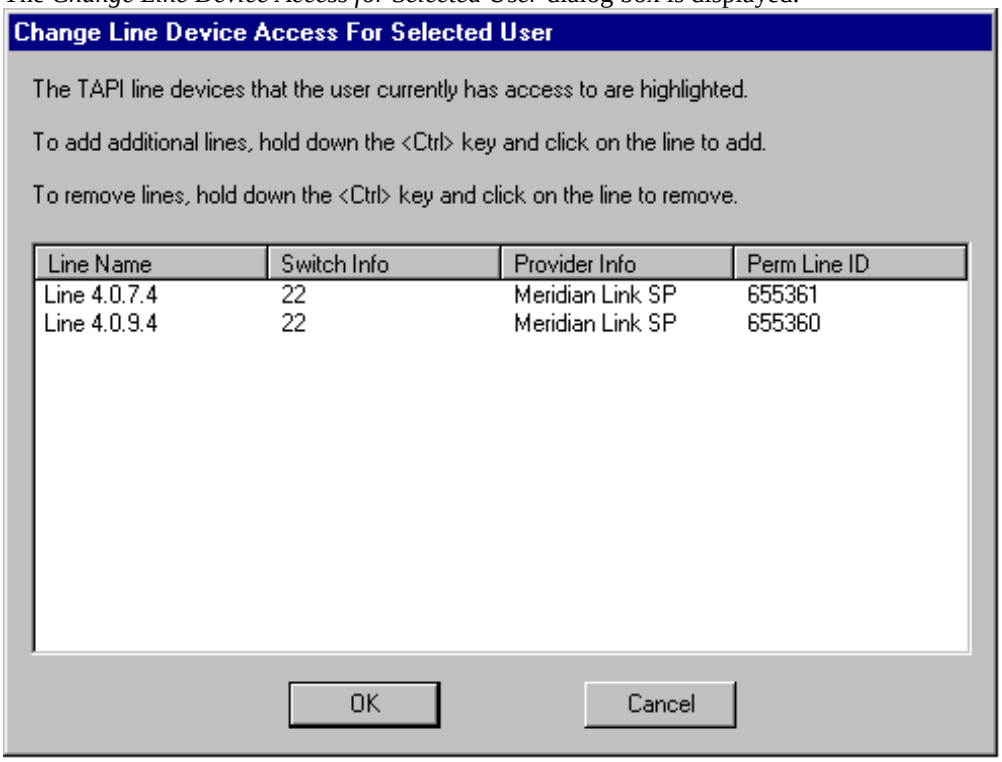


3. Add the Users and the lines for each client.

   a. Click on the user and select the **Change Selected User's Line Access**.



The *Change Line Device Access for Selected User* dialog box is displayed.



b. Click on the line you wish to add to the client to highlight it and click on the **OK** button.

The line you selected is displayed under the Client's name in the window.

c. Repeat steps 1 and 2 until all users have been added and lines assigned to all users.

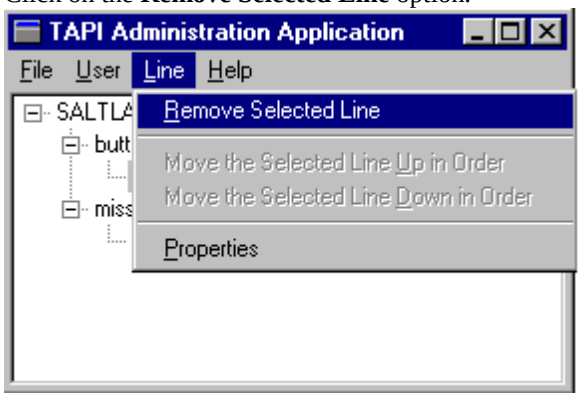
4. Exit the Application, be sure to click **Yes** to save the information.

Note: The first time you run the TCMAPP program, you must select ADD USER TO THIS Telephony Server before seeing any of the above.

Deleting a Line from a User

1. Run the TCMAPP.exe, located in the c:\Winnt\system32 directory.
2. Select the User.
3. Select the Line.
4. Click on **Line** located on the Menu bar.

5. Click on the **Remove Selected Line** option.



The line is removed.

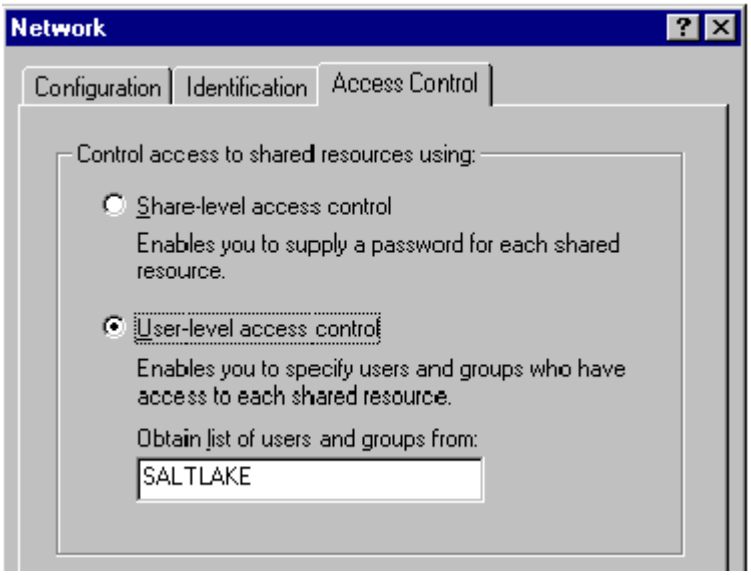
Setting Up the Client

Ensure the client machines have been upgraded to TAPI 2.1 and, if you have Windows NT client machines, the 2.1 fixes have been added to them.

Note: The client machines can only be logged in to one domain at any one time. Remove the machines from any prior domains before proceeding with setting up the client.

On Windows 95 client machines, you must ensure the File and Print Sharing are both selected.

1. From the Access control tab page, select the **User-level access control**.



In the Network setup you must make sure the **User Level Access** is set to the Domain Name. Please refer to the TAPI 2.1 Readme.txt file for any further information.

2. Click on the **OK** button.
   The *File and Print Sharing* dialog box is displayed.

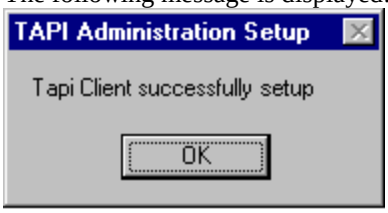
3. Select the **File and Print Sharing** options and click on the **OK** button.

To Set Up the Client:

1. Click on Start/Run and enter the following information:
   tcmsetup.exe /c servername (for example, tcmsetup.exe /c Desmoines)

   Be sure to use the server name and not the domain name.

   The following message is displayed:



2. Reboot the server after you have finished setting up the Server and the Client.

Additional NT 4.0 Client Information

You may experience problems on the TAPI Server client machine running the Microsoft TAPI 2.1 if the **Enable Security** check box (on the *Advanced IP Addressing* panel) is selected. Check to ensure this option is not selected.

To View the Enable Security Check Box:

1. Right click on the **Network Neighborhood** icon and select the **Properties** option.
   The *Network* panel opens.

2. Select the **Protocols** tab.

3. Select **TCP/IP Protocol** and click on the **Properties** button.

4. On the *Microsoft TCP/IP Properties* panel, click on the **Advanced** button.
   The *Advanced IP Addressing* panel is displayed.

5. Ensure that the **Enable Security** check box is not selected.

Reinstalling the Older Version of Microsoft TAPI

If you wish to uninstall TAPI 2.1 and return to Microsoft's TAPI 1.4 , on a ***Windows 95*** client only, follow the following steps:

1. Locate the remtapi.inf file.
2. Right click on the correct file and select the **Install** option.

If you wish to uninstall TAPI 2.1 and return to Microsoft's TAPI 2.0 on ***Window NT*** only, follow the following steps:

1. Locate the remtapin.inf file.
2. Right click on the correct file and select the **Install** option.

Note: If you use the remtapi files, you may have to copy the Telephony.cpl file back into the Windows\system directory.

Chapter 7: Additional Tools

This chapter provides information on other applications that work with the Symposium TAPI Service Provider. These tools include the ACDProxy Service, Interactive Voice Response (IVR) units, Microsoft Outlook 97, and pcAnywhere.

ACDProxy Service

Nortel provides a separate application call ACDProxy Service. This application allows the agents to log in, log out, and go ready or not ready. The setup procedures for the ACDProxy Service are provided in the following sections.

Ensure the Microsoft TAPI 2.1 upgrade is installed and the TCM Application is setup before configuring the ACDProxy Service.

Note: Microsoft Service Pack 4 or above is required for the ACD Proxy Service to work. Ensure the TCM Application is setup before configuring the ACDProxy Service.

The ACDPROXY Service login and password must be set up to the same Login and password used by the Telephony Service. The User login and password are set in the User Manager before attempting services startup. Refer to the "Setting up the Server" section located in Chapter 4 for information on setting up the user with domain user rights.

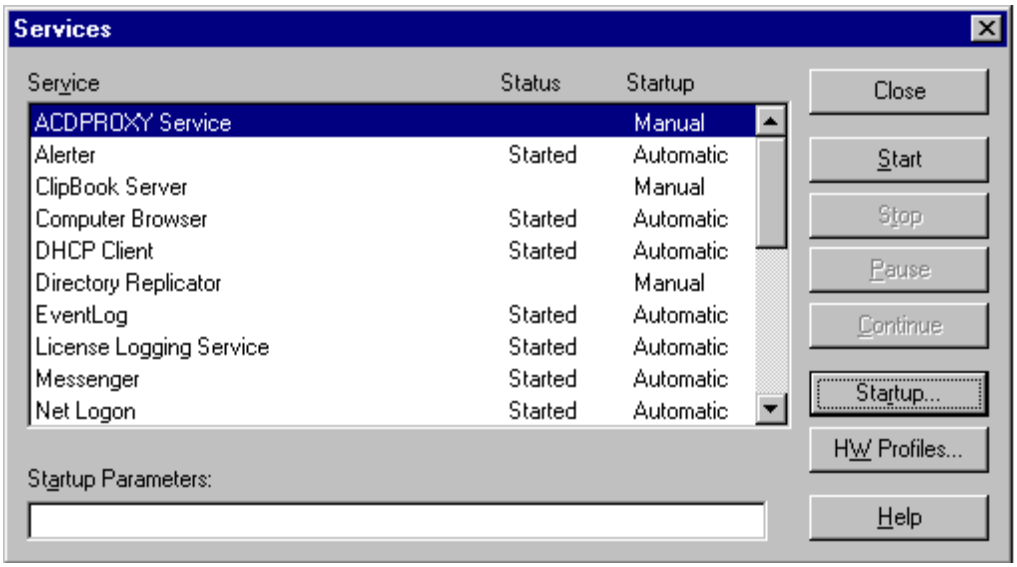
Configuring the ACDProxy Service

The ACDProxy Service can be setup to start at the time the server is booted. The *TN Table* dialog box allows you to select to Load ACDProxy at startup. Refer to the "Configuring the Host Table" section for additional information.

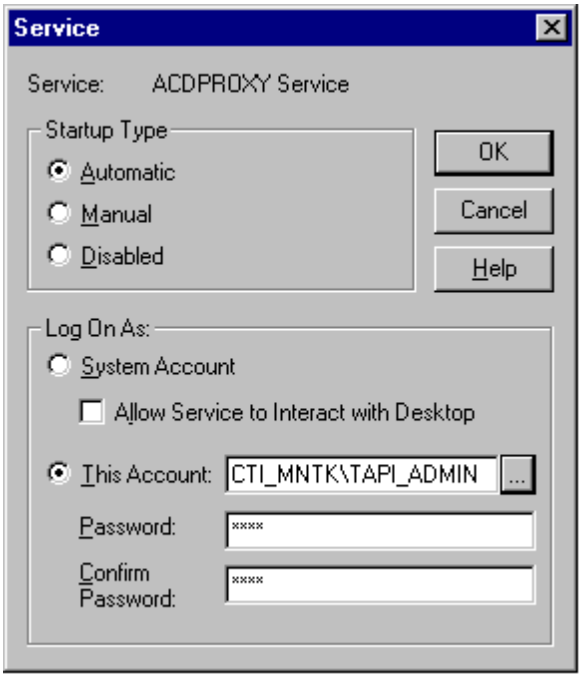
To Configure the ACDProxy Service:

1. Open the Control Panel.

2. Double-click on the **Services** icon.
   The *Services* dialog box is displayed.



3. If not highlighted, click on **ACDPROXY Service** and select the **Startup** button.
   The *Service* dialog box for ACDProxyis displayed.



4. In the *Startup Type* box, select the **Automatic** radio button.

5. In the *Log on as*: box,
   select **This Account** radio button.

6. Click on the drop down list button located to the right of the *This Account* field to display the list of accounts.

7. Browse for and select the admin account you have setup for TCMSETUP (TAPI_ADMIN). The selected account is displayed on the *This Account* field.

Note: The TCMAPP admin account must be configured prior to completing this step. Information on setting up the TCMAPP is provided in Chapter 4.

8. Enter the ***Password***.
9. Click on the **OK** button to save the changes and close the *Service* dialog box for ACDProxy.
10. Click on the **Close** button to close the *Services* dialog box.
11. Reboot the server.

Note: If you have not installed Microsoft TAPI 2.1, the ACDProxy Service will not start. Refer to Chapter 4 for information on installing the Microsoft TAPI 2.1.

Interactive Voice Response (IVR)

The IVR System collects data from a call and passes it to a TAPI application. There are two types of IVR Systems, Nortel Symposium Open IVR and third party.

Note: Whereas the Nortel Symposium TAPI Service Provider supports Predictive Dialing and other Call Data applications, the IVR information in this document is not necessarily IVR specific. The information applies to Predictive Dialing as well as other applications, except as noted.

If you are interested in developing an interface to the Symposium TAPI Service Provider from your IVR, contact Nortel CTI Developer's Support line at (800) NT4CTI0 for more details.

The IVR System registers with the host system that is running the Symposium TAPI Service Provider with IVR, answers incoming calls, sends collected data to the TAPI NT server, waits for an acknowledgment from the TAPI NT server, and transfers the call to an ACD queue or other device.

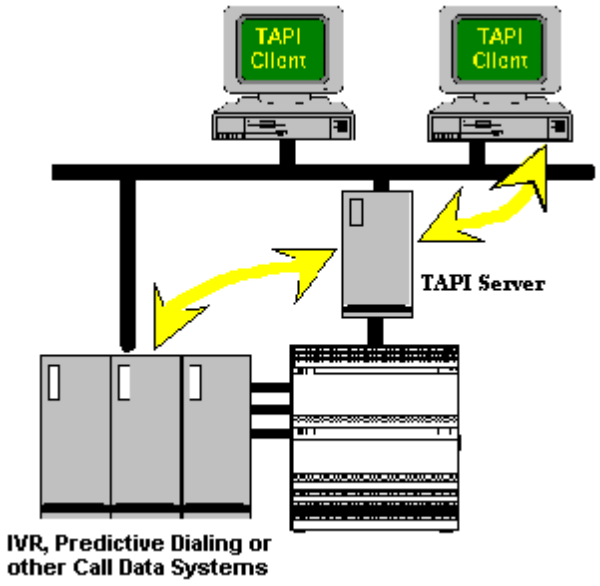


Figure 9 IVR overview

The IVR system collects data from a call and passes it to the Symposium TAPI Service Provider through the Meridian 1. When the Symposium TAPI Service Provider detects an incoming call (with assigned call ID) on a

monitored destination DN, the Symposium TAPI Service Provider collects the data based on Call ID. The Symposium TAPI Service Provider passes the data to a TAPI client monitoring that DN through Microsoft TAPI 2.1 Remote Service Provider. The IVR system requires a software module that uses the IVR Driver communication protocol. For example, Nortel's Open IVR uses the IVR Module.

IVR Module

The open and integrated IVR module is a standalone process designed to run on both Symposium IVR machines. It collects data sent from IVR call flows and then sends the data over an Ethernet connection to a TAPI Service Provider for further processing.

Tasks performed by the IVR Module include the following:

- opening and maintaining socket communications with a PC based TAPI Service Provider, which collects information from the IVR and distributes to multiple clients
- opening and maintaining message queues through which IVR call flows send gathered data to the IVR module via custom user function cells
- reading and distributing configuration parameters related to areas such as call monitoring and tracking

The IVR Module executable may reside and execute in any directory. However, a configuration file, which must be called IVRmodule.cfg must reside in the same directory.

Note: Only brief IVR Module information is provided in this document for references only. For complete IVR information, refer to your IVR User Documentation.

IVR Configuration File

The IVR configuration file (IVRmodule.cfg) contains various configuration parameters. These parameters are listed one per line in any order and identified by a keyword beginning on the first column of each line and followed by a space and the actual parameter value. The keywords include the following:

Keyword	Description	Operand
homehost name	Defines the name of the machine on which the IVR module resides and executes	Name is an alphanumeric string designated as the host name on your machine
externhost name	Defines the name of the machine on which the IVR driver resides and executes	Name is an alphanumeric string designated as the host name on your machine
portnumber n	Defines the port number on the externhost machine through which between the IVR driver and IVR module will be channeled	n is a numeric value usually in the range 1 - 10000. ***Note***: 5000 is the number that the TAPI Service Provider uses to communicate.
timeoutval n	Defines the maximum time in seconds that the IVR module will wait for response from the IVR driver indicating data transfer is complete and the call should be transferred. After this time period elapses, the IVR module will automatically transfer the call. This value will default to 20 if not specified	n is a decimal value within the range 1 - 100
homeloccode n	Defines the Home Location Code of the M1 switch to which the IVR module is attached	n is a decimal value within the range 3 - 100
nwcallid YES | NO	Specifies whether or not the network call ID is available with call information	The strings YES or NO are the only acceptable values
monitordn nnnn	This parameter is only valid if NO has been specified for the nwcallid parameter. This specifies a four digit extension of an incoming line to be monitored for call information. One may specify any number of these extensions, listing one per line always using the monitordn keyword. Although the configuration options may be listed in any order, the monitordn listings must appear in numeric order by the channels to which they are assigned. In other words, the DN of the first channel assigned to this application must be listed first. The DN of the second	nnnn is a four digit extension of an operator/agent's telephone

	channel assigned to this application must be listed second, and so on	
logduration n	Defines the number of days IVR log files will remain in the directory with the IVR module executable before being deleted. This value will default to 1	n is a decimal value indicating number of days within the range 1 - 100.

If a required configuration option is missing or contains syntax errors, the IVR module will issue error messages in the current logfile and fail to startup. Refer to the "IVR Messages"section located in Chapter 7 for additional information on the error messages.

Note: The TCP/IP port number on the host that TAPI Service Provider uses to communicate is 5000. This number is not configurable.

IVR Module System Architecture

The following figure details the Meridian 1 system as it relates to the Host environment for digit collection and the call-transfer process.

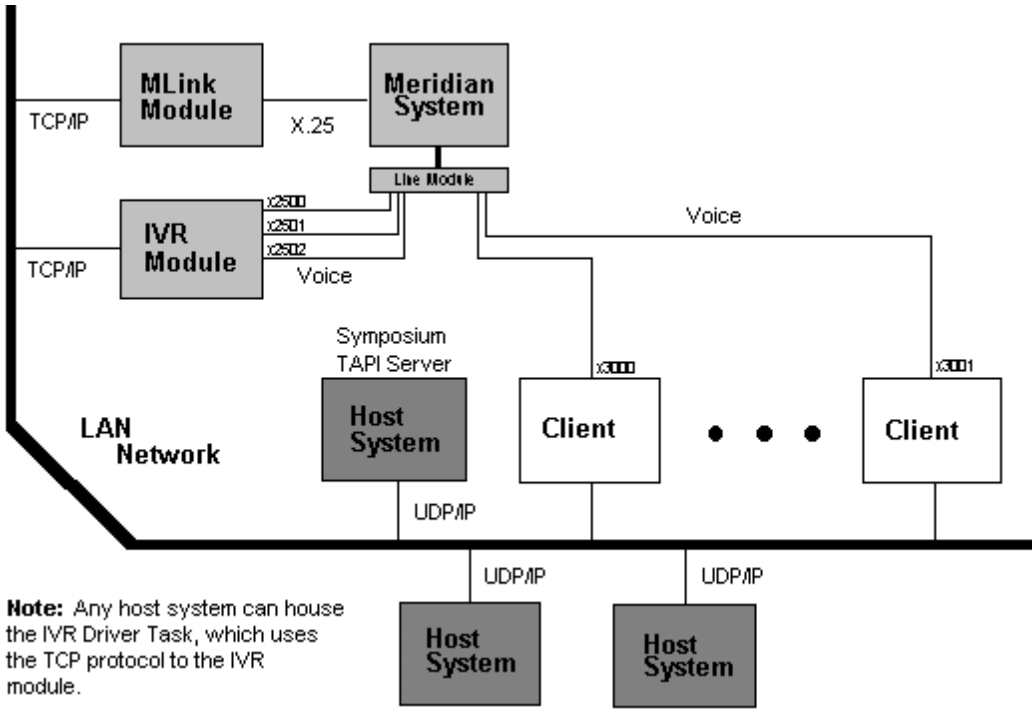


Figure 10 IVR Module System Architecture

IVR communication to the Symposium TAPI Service Provider should be on a dedicated LAN and not on the customer LAN. It can share the same LAN as the Meridian Link module.

Meridian 1 and IVR Environment

The Meridian 1 PBX platform provides the telephony switching needs for this system configuration, while the Meridian Link module provides the call progress details needed to track the call and to gather call information. As shown in Figure 7, the IVR Module is connected to the Meridian PBX providing caller input services. Also, this unit is connected to the LAN Network, which allows packet data transfer.

The IVR unit prompts the user for caller input and gathers the data that has been entered. This process is configured and controlled by a call flow running under the Generations IVR call management software on the Nortel open IVR. Call flows consist of individual cells in a flowchart each of which handles a task such as

answering a call, playing a voice prompt, and collecting data. This software also includes special user cells, which allow for user specific processing of caller data. In the Nortel environment this type of cell is used as part of the call processing. This user cell connects to the main IVR module task via message queues and routes call information from the call flow to the IVR module. This data is transferred to the IVR Driver Task running on a host on the Network.

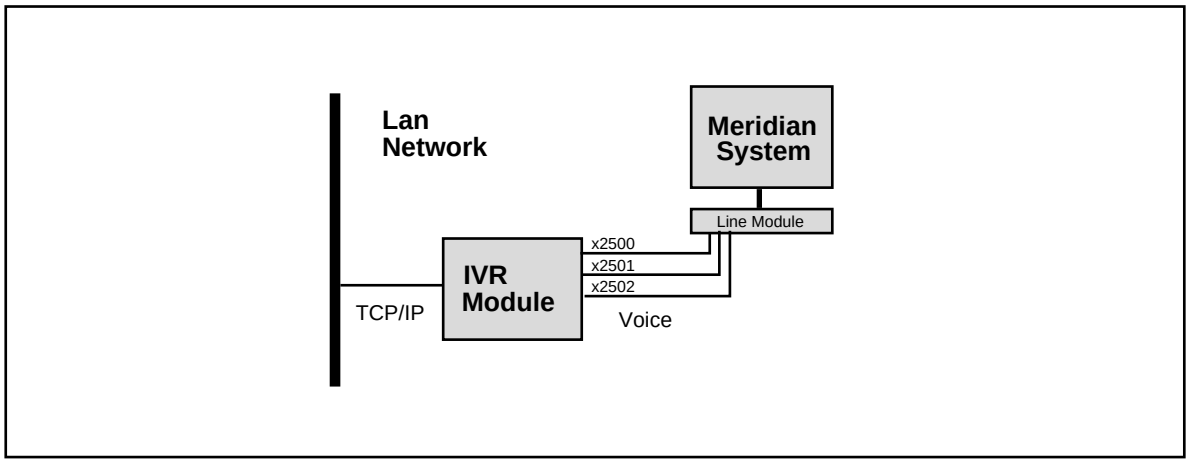


Figure 11 Meridian 1 and IVR Environment

IVR Driver

The IVR Driver Task on the Symposium TAPI Service Provider provides two types of connectivity. It connects to the IVR module and to the Data Transfer Task on the network. The TCP Internet Protocol is used between the IVR unit and the IVR Driver Task, while UDP is used to broadcast IVR data to a Data Transfer Task. One or more IVR Modules may register with a single IVR Driver Task on a server. IVR Modules may also exist at separate sites and are associated with separate IVR Driver Tasks on separate servers.

Each IVR Driver Task is associated with a designated Data Transfer Task for handing off data to be broadcast to all Data Transfer Tasks on the network. This association is defined in a configuration file, which specifies the IP address and the port of the associated Data Transfer Task.

The functionality of the IVR Driver Task depends on whether the Network Call Id can be delivered with the Collected Digit Data in the Caller Data message from the IVR. If the Network Call Id can be delivered then the Collected Digit Data will be broadcast in a IVRCallerData message to a designated Data Transfer Task. However, if Network Call Id cannot be sent from the IVR with the collected digit data (as is the case with 3rd Party IVR systems), then the IVR Driver Task monitors the Mlink for calls coming into the IVR system. When a call is seen, the Network Call Id for that call is stored and put into IVRCallerData message structure that will be broadcast to a designated Data Transfer Task. The IVRCallerData message with the Network Call ID IE included is broadcasted to a designated Data Transfer Task.

IVR Module Scenarios

IVR Module to IVR Driver Task Communication

The following scenarios describe TCP/IP connection based communications between the IVR Module and the IVR Driver Task.

IVR Module originated messages flow to the IVR Driver Task are shown in the following event flow 1. The IVR registration takes place once until a disconnect occurs between the IVR Module and the IVR Driver Task at which point the IVR module must re-register. As long as the IVR Module is registered with the IVR Driver Task, IVR Caller Data messages can be sent from the IVR Module to the IVR Driver task repeatedly until a disconnect takes

place. For a 3rd party IVR, if any of the ports specified in the registration message could not be monitored, then an unsolicited status message is sent to the IVR to indicate that the port registration request failed.

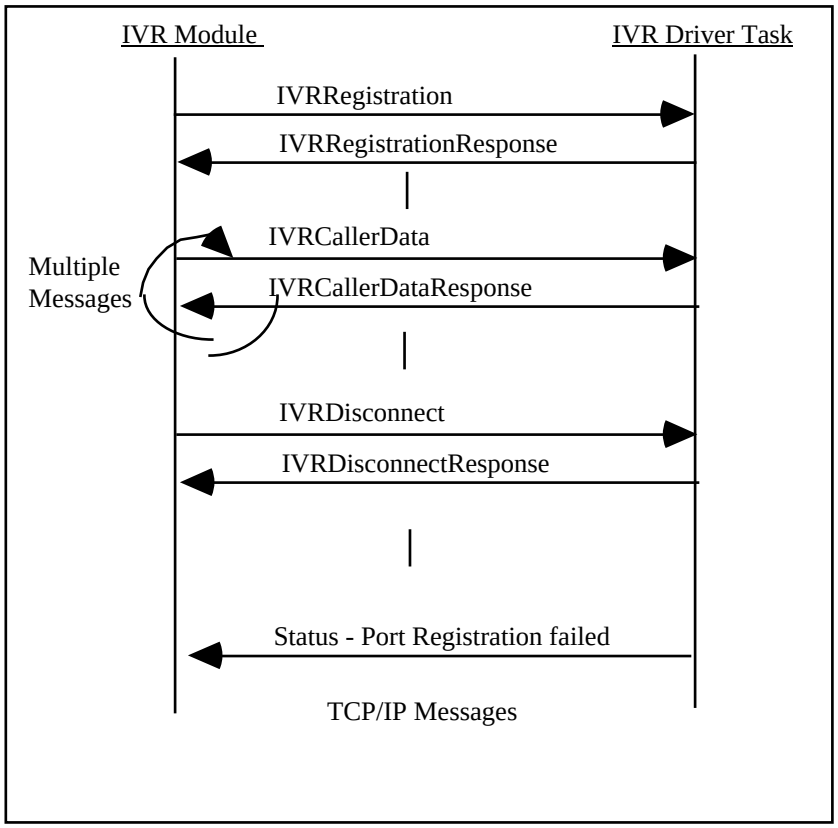


Figure 12 IVR Scenario Event Flow 1

The following event flow 2 shows a normal message flow of the IVR module registering with the IVR Driver Task and sending IVR Caller Data messages followed by a Host Disconnect message originating at the IVR Driver Task. The Host Disconnect message is the only message originating at the IVR Driver Task with a destination of the IVR Module (except for the unsolicited Status message).

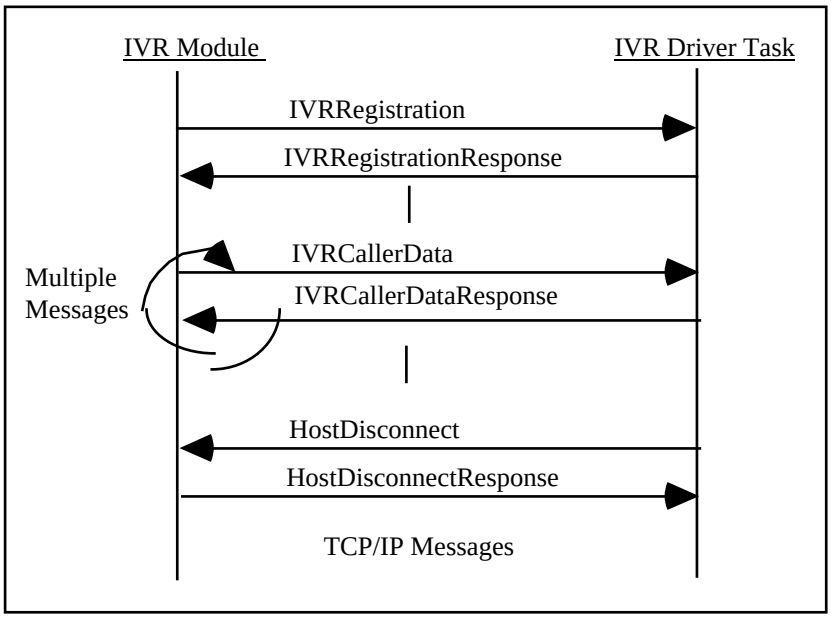


Figure 13 IVR Scenario Event Flow 2

IVR Driver Task to Data Transfer Task Communication

The following scenario describes UDP connectionless based communications between the IVR Driver Task and the Data Transfer Task.

The following event flow 3 shows a message flow of the IVR Driver Task sending Caller Info Data messages to the Data Transfer Task. The CallerInfoData message is the only message originating at the IVR Driver Task with a destination of the Data Transfer Task.

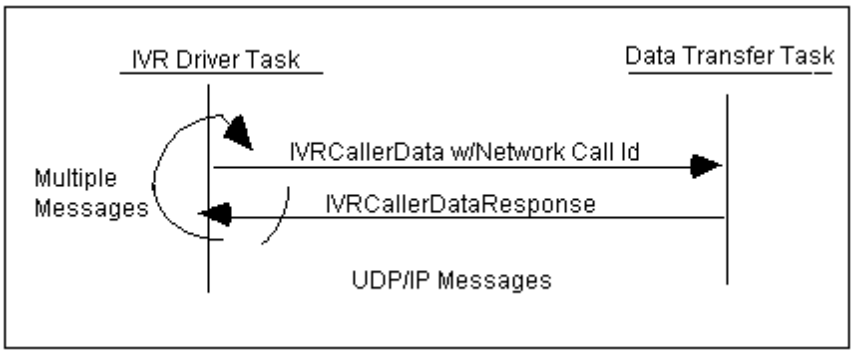


Figure 14 IVR Scenario Event flow 3

There are no messages (not including responses) which originate at the Data Transfer Task with a destination of the IVR Driver Task.

Data Transfer Task to Data Transfer Task Communication (inter-server)

The following scenario describes UDP connectionless based inter-server communications between Data Transfer Tasks.

The following event flow 4 shows a inter-server message flow between Data Transfer Tasks. CallerInfoData is broadcast to all other associated Data Transfer Tasks residing on other host servers. A CallerInfoDataResponse message is expected to verify the data was received. If no response message is received after 2 retries then an error is logged that the server is out of service.

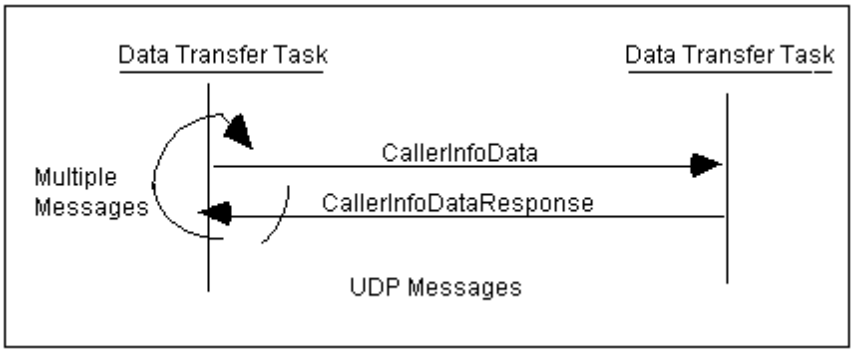


Figure 15 IVR Scenarios Event Flow 4

Administering the IVR Module

IVR Module Functionality

Administration:

- Configure the destination address and port of a IVR Driver Task.
- Configure the Home Location Code of the M1 switch to which the IVR module is attached.
- Configure the maximum time value (in seconds) that the IVR module will wait for a response from data sent to the IVR driver after which it will timeout and automatically transfer the call.
- Specify whether or not the Network Call Id is available with the call information; if it is not available, configure a list of DNs (extensions of customer service agents) to be monitored.

Responsibilities:

All messages sent or received to/from the IVR are via TCP/IP messages.

- Send IVRCallerData to IVR Driver Task w/ Network Call ID IE or Port/DN IE.
- Send IVRRegistration to IVR Driver Task including either indication that Network Call Id will be sent from the IVR or a list of all ports/DNs of incoming IVR lines will be sent.
- Send IVRDisconnect to IVR Driver Task, which severs the socket between the IVR Module and the IVR Driver Task.
- Receive HostDisconnect from IVR Driver Task, which severs the socket between the IVR Module and the IVR Driver Task.

IVR Driver Task Functionality

Administration:

- Configure the destination address and port of a Data Transfer Task

- Configure the Home Location Code of the M1 switch that the IVR module is attached to

Responsibilities:

- Monitor IVR DNs and record associated Network Call Ids only if the IVR does not sent Network Call Ids
- Receive IVRRegistration msg. Indication of whether Network Call Id can be sent will be included in the message. If Network Call Id cannot be sent then the Port List will be stored. The Source IP & socket port of the IVR will be stored in case a HostDisconnect message needs to be sent to the IVR.
- Receive IVRDisconnect message and remove items from port monitor list associated with the source ip & socket port
- Send IVR Module a HostDisconnect message, close the socket, and perform the cleanup duties described in the IVRDisconnect case
- Receive IVRCallerData from the IVR Module; If received from an IVR and the Network Call Id is not included then lookup and include the associated Network Call Id
- Send the IVRCallerData with Network Call ID message to the Data Transfer task via UDP/IP communication
- Send an unsolicited Status message indicating that a port registration request failed if a port specified in a 3rd party IVR registration message cannot be registered.

Data Transfer Task Functionality

Administration:

- Configure host destination list for broadcasts

Responsibilities:

- Receive Caller Data from a data source (IVR Driver Task or user data from a client) to be broadcast to other Data Transfer Tasks
- Receive CallerInfoData from the broadcasting Data Transfer Task and store in the cache
- Monitor clients, attaches CallerInfoData to the call data passing from MLink to the client, and deletes the CallerInfoData from the cache
- Broadcast CallerInfoData to the IP list
- Alert administrator if a response is not received from a Data Transfer Task after 3 retries of sending a CallerInfoData message

Microsoft Outlook 97

If you have Microsoft Outlook 97, version 8.02.4212 or higher, loaded on your machine, you can use it with the Symposium TAPI Service Provider.

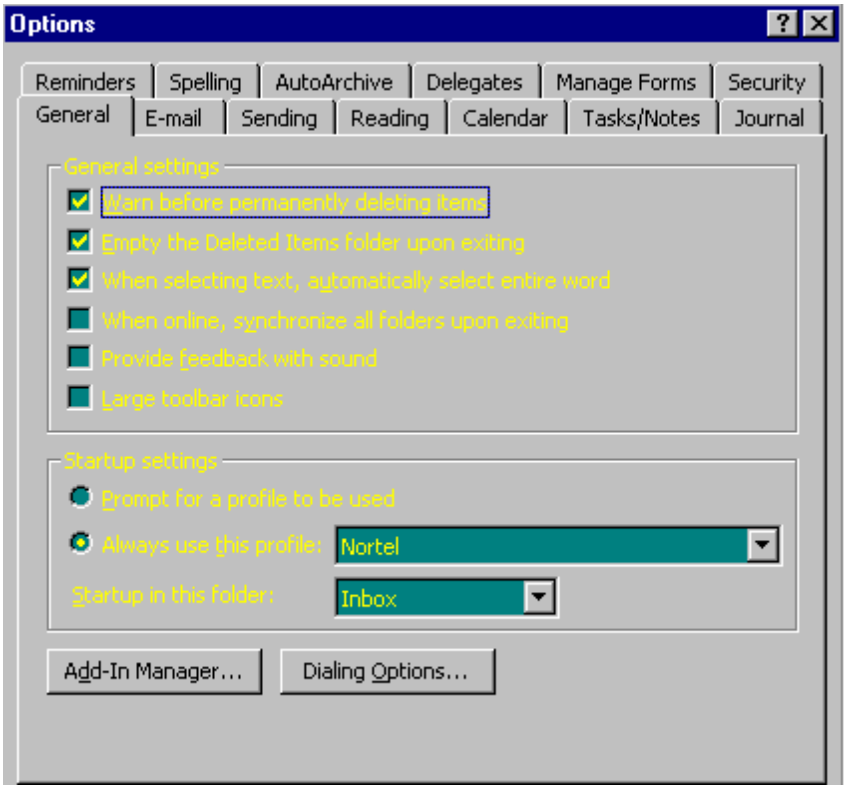
Note: Although Microsoft Outlook 97 works with the Symposium TAPI Service Provider, Nortel does not support Microsoft Outlook 97. This means that problems with Microsoft Outlook 97must be addressed with Microsoft. Also,, Nortel does not provide the Microsoft Outlook 97 software on the Symposium TAPI Service Provider CD ROM. This software is located on Microsoft's Web page.

The information presented here is for general purposes only and intended only as a guide in using Microsoft Outlook 97 with the Symposium TAPI Service Provider. For specific Microsoft Outlook 97 information, refer to the Microsoft Outlook 97 user documentation.

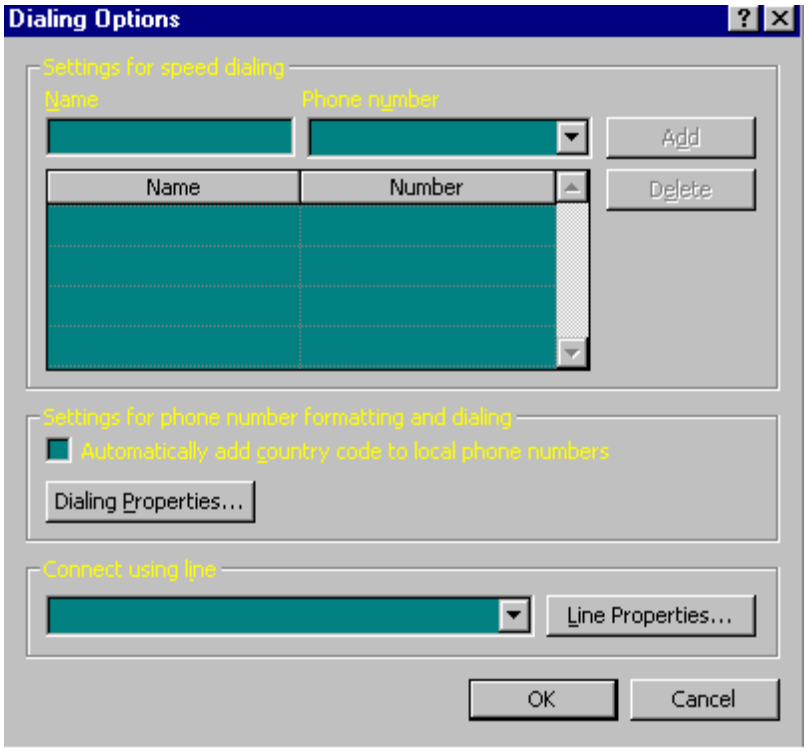
To Configure Microsoft Outlook 97:

1. Ensure the Symposium TAPI Service Provider software in installed, configured, and working (refer to the "Verifying the Symposium TAPI Service Provider is Working" section located in Chapter 7) and that Microsoft Outlook 97 is loaded on your machine.

2. From the Contact folder, go to the **Tools** menu and select **Option**.
   The *Options* dialog box is displayed.



3. Click on the **Dialing Option…** button.
   The *Dialing Options* dialog box is displayed.



4. Click on the arrow located to the right of the Connect using line drop down listbox to display the options.
5. Select your line instead of the modem.
6. Make any additional changes to the Dialing Properties as desired.
7. Click on the **OK** button to save the changes and close the *Dialing Options* dialog box.

Note: When placing a call using the Microsoft Outlook 97 software, use the Contact Manager in Microsoft Outlook 97, not the Contact Manager in Scheduler.

pcAnywhere

We recommend the use of pcAnywhere as the application used for remote support. Use of this application requires some changes be made to the TAPI Service Provider. The registry must be modified to allow both the mlinksp.tsp and the unimdm.tsp to work at the same time.

Note: If you are installing pcAnywhere after installing the Symposium TAPI Service Provider software, you may have to go to the Telephony Control Panel and remove mlinksp.tsp temporarily. Then install pcAnywhere and modem, then add mlinksp.tsp again.

Follow the following steps to set up the registry for pcAnywhere use:

1. Locate the file regedit.exe in the WINNT directory, and double-click on it.
2. Click on the + sign in front of the word HKEY_LOCAL_MACHINE.

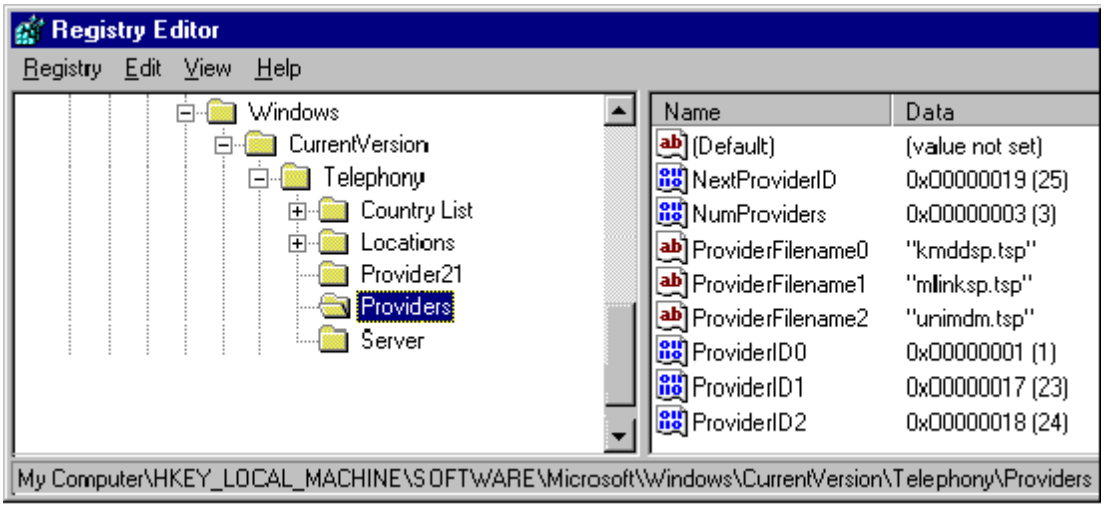
3. Click on the + sign in front of the word SOFTWARE.

4. Click on the + sign in front of the word MICROSOFT.

5. Click on the + sign in front of the words Current Version.

6. Click on the + sign in front of the word Telephony.

7. Click on the + sign in front of the word Providers. (It should look similar to the picture below **after** the change is made)



8. Switch the mlinksp.tsp and unimdm.tsp around in this registry.

9. Double-click on the ProviderFilename1 entry and enter ***mlinksp.tsp*** in the Value Data field, and click **OK**.

10. Double-click on the ProviderFilename2 entry and enter ***unimdm.tsp*** in the Value Data field, and click **OK**.

11. Double-click on the ProviderID1 entry and enter the ***number*** in the Value Data field that appears in the ProviderID2 data.

12. Double-click on the ProviderID2 entry and enter the ***number*** in the Value Data field that used to appear in the ProviderID1 data.

13. Exit the Regedit application.

14. Install your modem in software the same as in a normal use.

15. In pcAnywhere, you must select the COM port that the modem is installed on.

To get pcAnywhere to connect correctly, set the baud rates the same on Host and Remote ends.

This procedure is to ensure that mlinksp.tsp is the first Service Provider to launch. The reason for this, is that some applications will fail after seeing the first Service Provider failure, and that could be unimdm.tsp. Thus it would never try to start mlinksp.tsp.

Note: If you are installing pcAnywhere after installing the Symposium TAPI Service Provider software, you may have to go to the Telephony Control Panel and remove mlinksp.tsp temporarily. Then install pcAnywhere and modem, then add mlinksp.tsp again.

Chapter 8: Troubleshooting Tools

This chapter provides information on the Logger troubleshooting tool. This troubleshooting tool provides valuable information for Customer Support personnel to assist you when you are having problems.

Logger Troubleshooting Tool

During installation or while running an application, problems might occur that can not easily be found through normal running of the application. When requested to by customer support personnel, creating a log file provides information that assists in troubleshooting problems. Before creating a log file, access the configuration dialog boxes and ensure that the desired log style is selected. Refer to the "Configuring the Log Styles Table" section located in Chapter 3 for detailed information on selecting the data items to display on the Logger window. The default style that allows for all data items to be logged is "1." Do not change this default style unless instructed to by technical personnel.

The Logger application presents information in the *Logger* window that can be stored in the overflow file for review by technical personnel. When a troubleshooting session is started you should always clear the overflow file. This will ensure that no old information from a previous session is being saved.

When the troubleshooting session is completed you should append the information to the overflow file. This ensures all information from the current session is saved.

Running the Logger Application

Note: Run this application only when requested to by Symposium TAPI Service Provider for Meridian 1 customer support personnel.

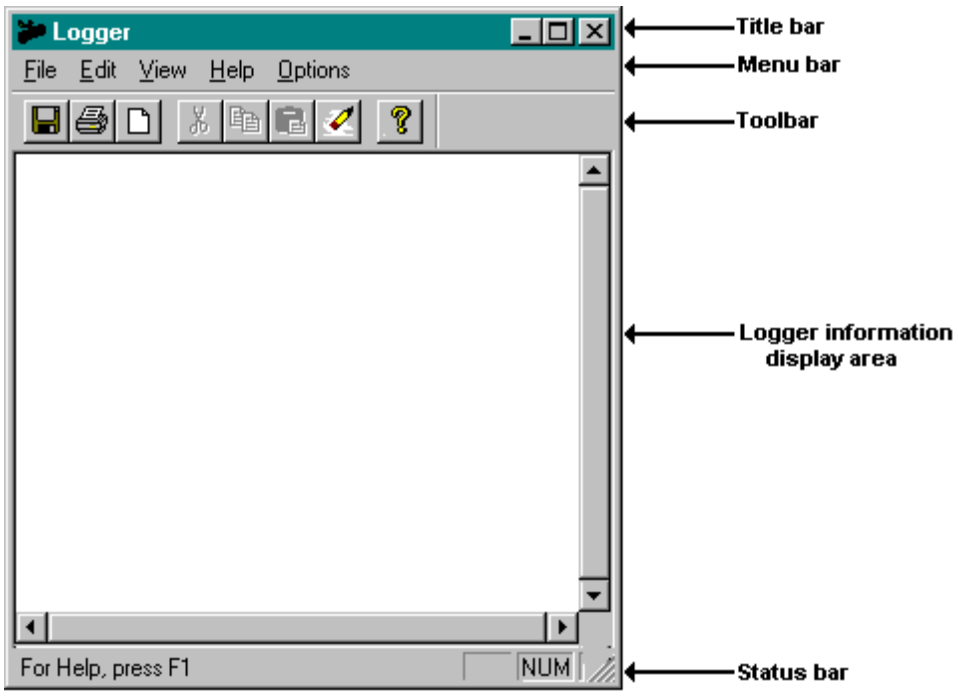
The Logger application is accessed by running the Logger.exe **program located in the** M1SERVER **directory.**

To Access the Logger.exe program:

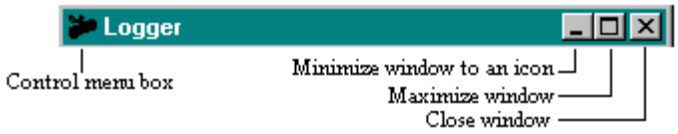
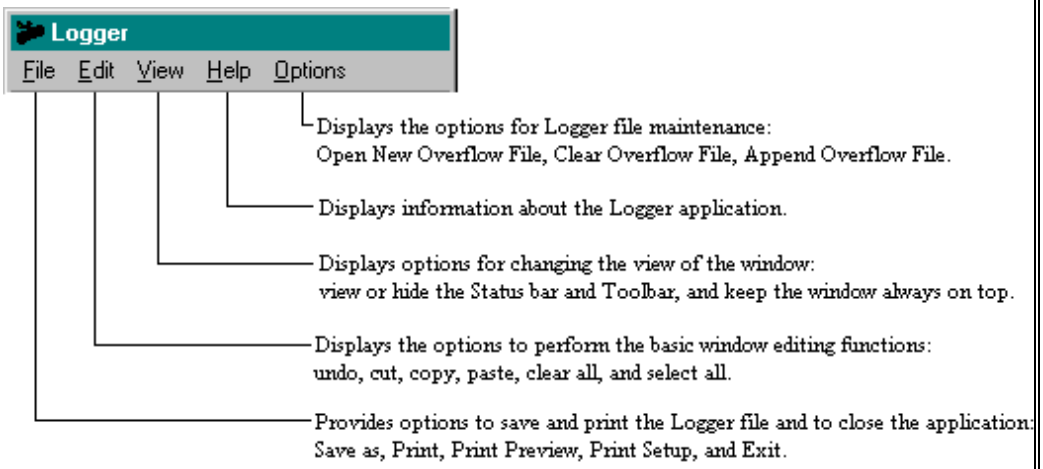
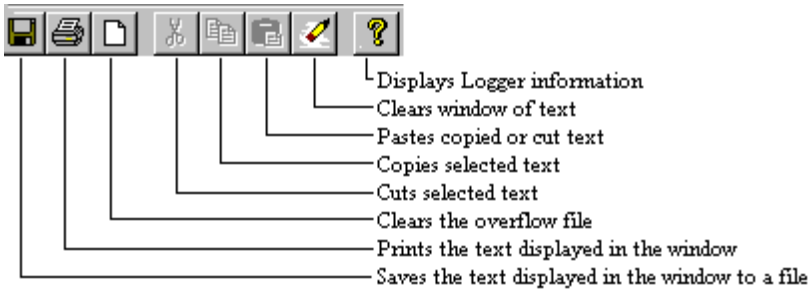
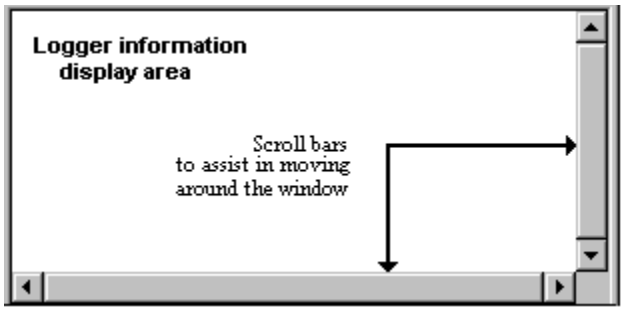
1. Click on **Start** and select **Windows NT Explorer** from the **Programs** list.
2. If you accepted the default drive, click on the C drive to display the folders. Otherwise, click on the Drive where the Symposium TAPI Service Provider for Meridian 1 software was installed.
3. Click on the **M1SERVER** directory to display the installed files.
4. Double-click on **Logger.exe**.
5. The *Logger* window opens.

Logger Application Window

The Logger application provides a window-based user interface that allows you to view, edit, and print the text displayed in the Logger information display area. Logger provides menu options for using the Logger application. The window toolbar provides access to certain options without accessing the menus and selecting the option. The *Logger* window contains the following window elements.


Logger
File Edit View Help Options
For Help, press F1
NUM
Title bar
Menu bar
Toolbar
Logger information display area
Status bar

The following table provides a description of the window elements contained on the *Logger* window.

Elements	Description
Title bar	Contains the name of the window and the means to minimize, maximize, move, and close the window using the window icons or the Control menu box. 
Menu bar	Contains the menu option for the Logger application. Clicking on a menu provides the list of options for that menu. 
Toolbar	Contains icons that provide quick access to certain menu options. 
Display area	Presents information that assists in troubleshooting problems. This information can be saved to a file. 
Status bar	Provides user information, information on the area of the window that the mouse button cursor is pointing to, or on your current action. 

Using the Logger Application

To Display the Logged Information in the *Logger* Window:

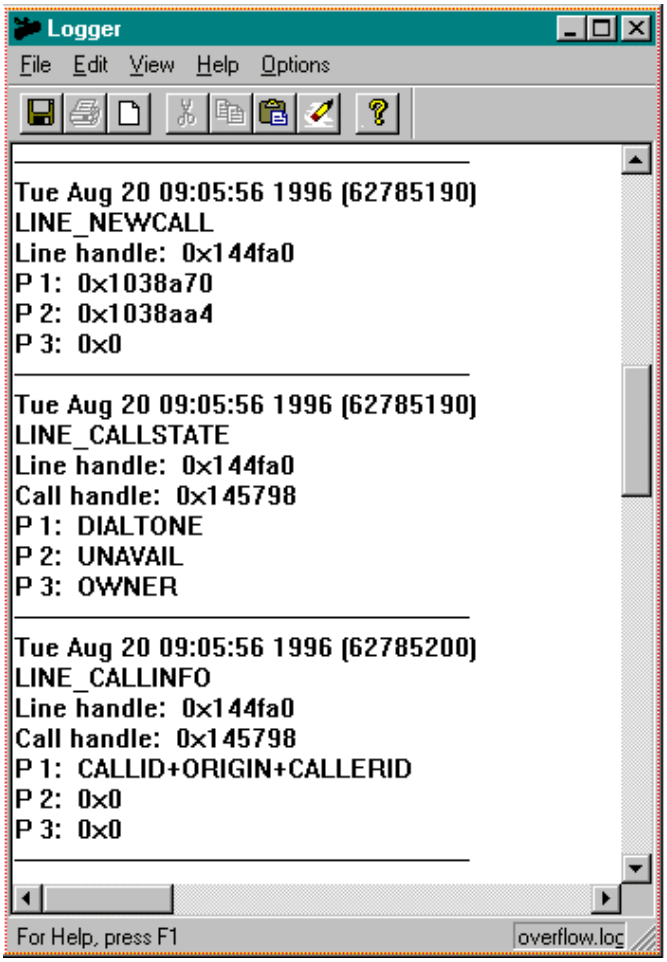
1. Run the Logger application. Refer to the "Running the Logger Application" section.
   The *Logger* window opens.

2. Clear the Overflow file. The overflow.log file is located in the **c:\M1Server** directory if you accepted the default directory destination during installation or in the **M1SERVER** folder located in the directory you selected during installation.

   a. Click on **Options** located on the Menu bar of the *Logger* window.
   The **Options** menu is displayed.

   b. Click on the **Clear Overflow File** option.

3. Start the Application.
   The Event and Error messages are displayed on the *Logger* window.



The information is logged according to the Log Styles Number selected on the configuration dialog boxes. Refer to the "Configuring the Log Styles Table" section located in Chapter 3 for detailed information on selecting the data items to display on the Logger window.

Note: If the Log Style number selected on the configuration dialog boxes is 0, the Logger application will not display any logged information.

To save the specific information during the troubleshooting session, you must save it to a .log file.

To Save the Information to a File:

When the troubleshooting session is over, append the Overflow file.

1. Click on **Options** located on the Menu bar of the *Logger* window.
   The Options menu is displayed.
2. Click on the **Append Overflow File** option.

Or

Use the **Save As** option to save the information to a file.

1. Select the **Save As** option on the **File** menu.
   Or
   Click on the **Save** icon located on the Toolbar.
   The *Save As* dialog box is displayed.
2. Enter the ***file name*** and ***directory path***.
3. Click on the **OK** button or press <Enter> save the file and close the *Save As* dialog box.

The Troubleshooting log is saved to the file.

To Print the Information on the Window:

To print the complete window text:

Select the **Print** option on the **File** menu.
Or
Click on the **Print** icon located on the Toolbar.

The complete window text is printed.

To print only selected window text:

1. Select the text that is to be printed.
   The selected text is highlighted.
2. Select the **Print** option on the **File** menu.
   Or
   Click on the **Print** icon located on the Toolbar.

The selected text is printed.

Troubleshooting Tips

This chapter provides information on how to verify the Symposium TAPI Service Provider is working, specific problems and possible solutions. It also includes the instructions on removing the Symposium TAPI Service Provider software from your system.

Verifying the Symposium TAPI Service Provider is Working

The Microsoft TAPI Browser tool is provided to assist you in verifying that the Symposium TAPI Service Provider is properly installed and configured. Alternately, Microsoft's Dialer, provided with Windows NT, can also be used to dial a call and verify that the Symposium TAPI Service Provider is up and running.

Using the Microsoft TAPI Browser Tool

To Use the Browser Tool:

1. **Run the Logger program** located in the c:**M1Server** directory. Detailed information is provided in the "Logger Troubleshooting Tool" section located in this chapter.
   The *Logger* window opens.
2. **Run the TB20w.exe program** located in the c:**M1Server** directory.

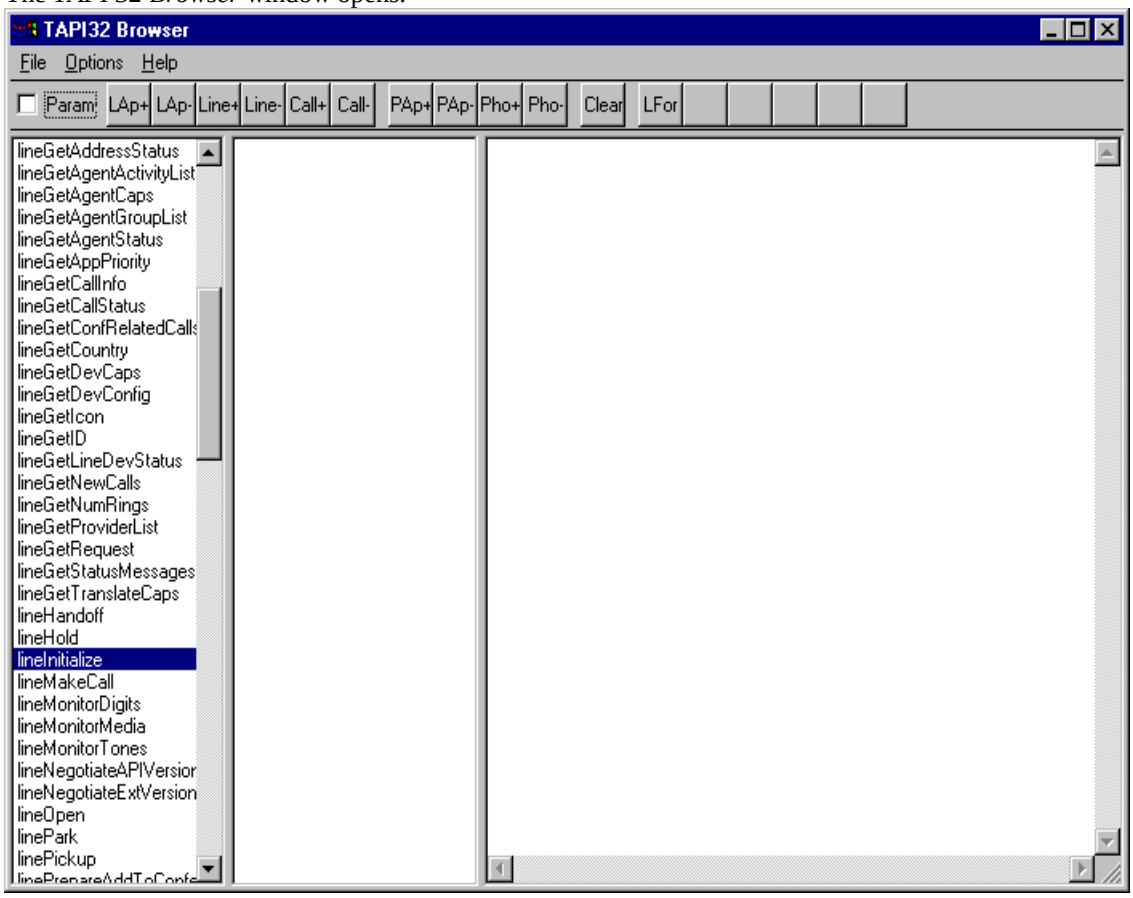
   a. Click on **Start** and select **Windows NT Explorer** from the **Programs** list.

   b. If you accepted the default drive, click on the C drive to display the folders. Otherwise, click on the Drive where the Symposium TAPI Service Provider software was installed.

   c. Click on the c:**M1Server** directory to display the installed files.

   d. Double-click on **TB20w.exe**.

The *TAPI 32 Browser* window opens.



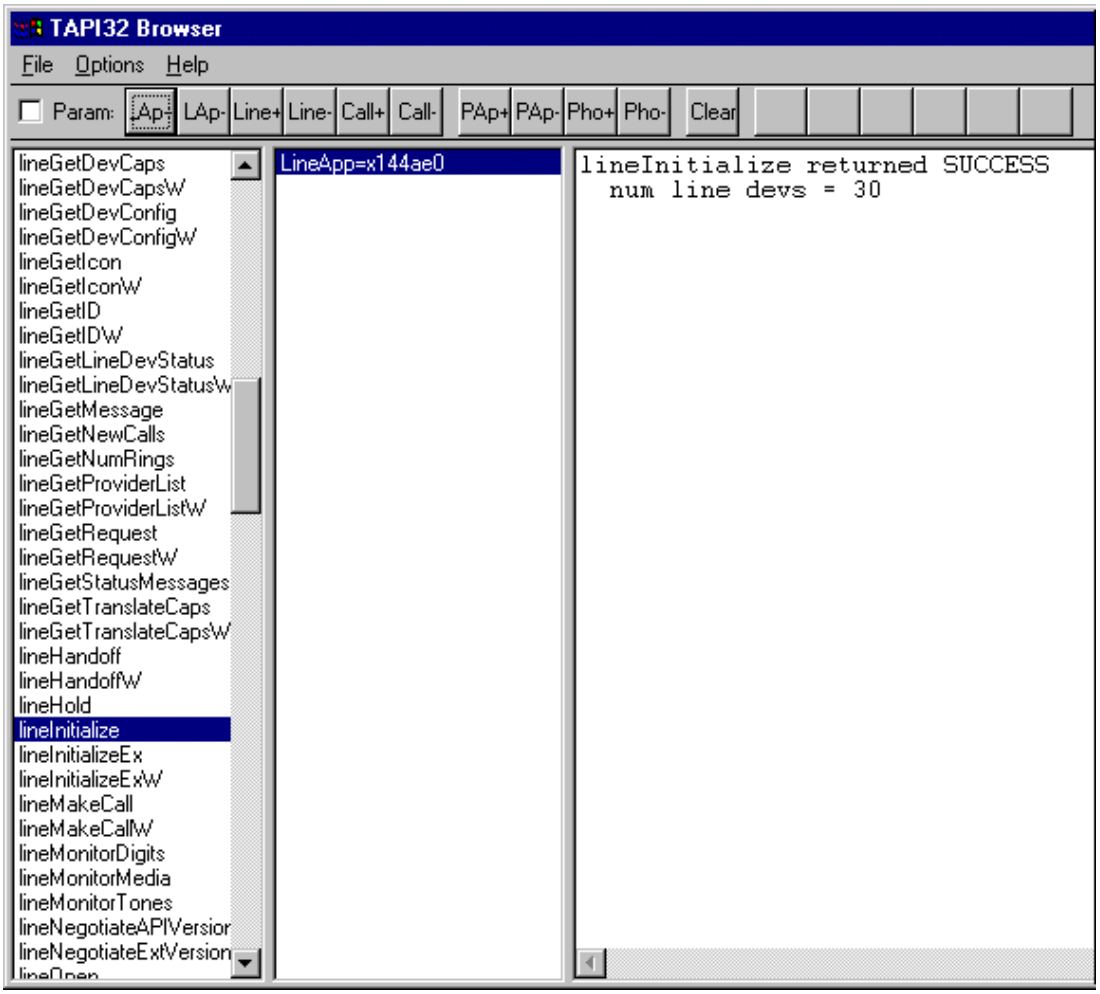
Note: Ensure the default values for the Line DW Privileges are Monitor and Owner and the DW Media Mode is Interactive Voice.

To check these values:

Click on the Options menu and select the Default Values option.
Click on the line dwPrivileges and set to Monitor and Owner.
Click on the line dwMediaMode and set to Interactive Voice.
Ensure that both Autodellocate choices are checked on the Options menu.

3. **Load the Service Provider** by clicking on the **LAp+** button located on the Button bar.

   The Center box lists the handles. A message is displayed on the right side of the screen informing you of the number of devices. This message confirms that the Symposium **TAPI Service Provider** is talking to the Meridian Link module and the Link module is talking to the Meridian 1 switch.

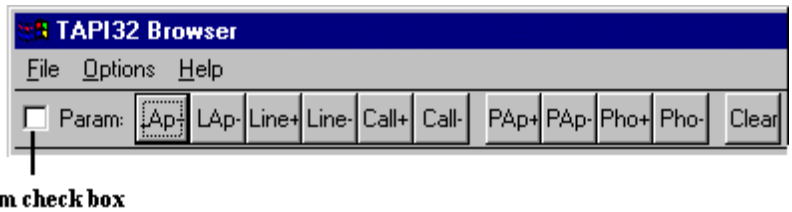


4. **Verify that a phone is configured correctly**.

   a. Identify the telephone device associated with line 0. (This is generally the first one presented in the list of TNs on the TN table in the Configurator program.)

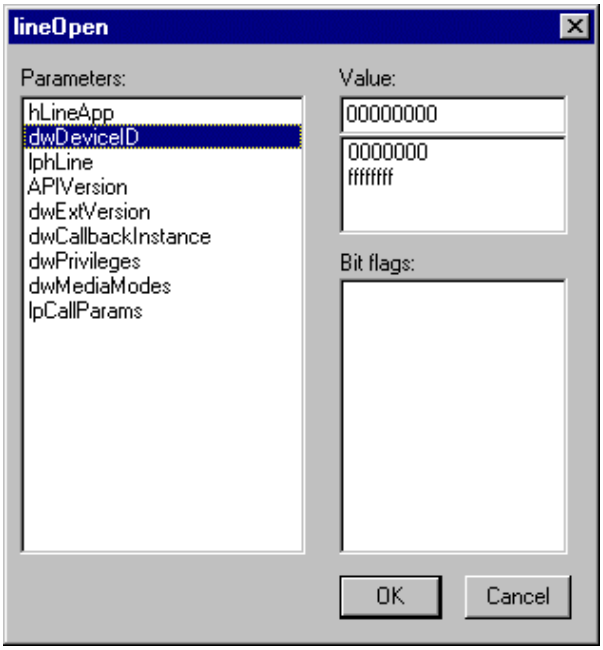
   b. Open line 0 on the Browser.

      1. Click on the **Param** check box located on the Button bar.



Param check box

      2. Click on the **Line+** button.
         The *lineOpen* dialog box is displayed.
      3. Click on the **dwDeviceID** parameter.



4. Click on the **OK** button.
The Line 0 is displayed in the center box.

c. Perform some action with the telephone, for example, take receiver off hook or call it manually.

A message on the right side of the *TAPI 32 Browser* window informs you of the action. This verifies that the telephone is configured correctly. You may wish to identify additional telephones for random checking.

If you do not receive a successful message on the *TAPI 32 Browser* window, save the information to a file for viewing by support personnel. Refer to the "Logger Troubleshooting Tool" section for detailed information on using the Logger tool for troubleshooting purposes.

If you are trying to start **TAPI Service Provider** with a large number of lines and the TAPI does not initialize, the "initialization timeout" parameter may be set too low. The default is 16, but must be set higher for more than 50 lines. Refer to the "Configuring TAPI Service Provider Database Information" section located in Chapter 3 for details on configuring the "initialize timeout.

Note: If the Browser application crashes for any reason, you must re-start Windows NT. Microsoft has no error recovery and does not allow you to shut down tapisrv.exe. Restarting Windows NT closes tapisrv.exe.

Using the Browser for Additional Acceptance Testing

The following tasks are provided for users who require additional methods to ensure the Symposium TAPI Service Provider is properly installed and working.

1. Run the **TB20w.exe** program and load the Service Provider. Refer to the "Using the Browser Tool" section.
2. Open all lines.
   a. Double-click on the **Open All Lines** command (use the left scroll bar to view this command).
   b. Click **OK** for each line if the Params box is checked.

3. Perform the following as necessary:

a. To answer an incoming call:

1. From another phone set, call the DN of a monitored set.
2. Position on the *Offering call* in the Browser window.
3. Double-click on the **lineAnswe**r command.
4. Click **OK.**

b. To do a blind transfer (*Note*: a blind transfer to CDN only works if you have installed the patch. Call Customer support for more information):

1. Position on the *connected line* and double-click on **LineSetupTransfer**.
2. Click **OK**.
3. Position on *Dialtone line* and double-click on **LineDial**.
4. Click on **IpszDestAddress** and enter a valid **DN** to transfer to.
5. Click **OK**.

c. To create a 3 Party Conference:

1. Answer an incoming call.
2. Double-click on **LineSetupConference**.
3. Position on *Dialtone line* and double-click on **LineDial**.
4. Click on **IpszDestAddress** and enter a valid **DN** to conference on.
5. Position on *OnHoldPendingConference line* and double-click on **LineCompleteConference**.

c. To add 4-6 Parties to Conference:

1. Position on the *connected line*.
2. Double-click on **LinePrepareAddToConference**.
3. Click on **OK**.
4. Position on *Dialtone line* and double-click on **LineDial**.
5. Click on **IpszDestAddress** and enter a valid **DN** to conference on.
6. Click on **OK**.
7. Position on ***OnHoldPendingConference*** line and double-click on **LineAddToConference**.

Note: Be sure to set the right Call= information for the Consult call.

8. Repeat these steps to add parties.

d. To make a call on digital sets for regular DN and for ACD Sets:

1. Position on a *Line that you want to make a call from* and double-click on the **lineMakeCall line**.
2. Click on **IpszDestAddress** and enter a valid **DN** to call.
3. Click on **OK**.

Note: If the first key is an ACD key and you want to make a call out on another ASTd key perform the following:

Before you enter the DN to dial, set the Callparams \ Address ID = 1 (for second key or another number that associates with the key the DN is on.

e. To put a call on hold and unhold:

1. Position on a *connected call* and double-click on **lineHold**.
2. Position on the *onhold call* and double-click on **lineUnHold**.

Using the Windows Dialer

1. Run the **Dialer.exe** program located in the Windows NT directory.

2. Select a line number to control from the drop-down list.
   The keypad is displayed.

3. Dial a known working number that can be answered. A completed call verifies that the Meridian 1 TAPI is working correctly.

Troubleshooting Problems

The following sections provide information to assist you in troubleshooting problems. The online help also provides troubleshooting tips.

First Call Attempt Fails

If you have completed installation and configuration of the various hardware and software components, and your first attempt to make a call fails, perform the following steps:

1. Ensure the hardware connections are properly attached.

2. Confirm the Direct Connect and VAS ID setup.

3. Confirm the DCE/DTE jumper settings.

4. Confirm the Direct Connect (Link 0) parameters. Refer to Procedure 13 in the *Meridian Link/ Customer Controlled Routing Installation and Upgrade Guide* (553-3202-210).

5. Confirm the Meridian Link (Link 1) parameters. Refer to Procedure 14 in the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (553-3202-210).

6. Confirm the TAPI Service Provider /TCP/IP parameters. Refer to the Microsoft NT *TCP/IP Reference*.

7. Confirm the M1 cfg parameters. Run the Configurator application and verify the parameters for your switch and telephones. Refer to the "Configuration" chapter of this guide (Chapter 3).

8. Ensure the client application is configured properly.

Note: If you are trying to start TAPI Service Provider with a large number of lines and the TAPI does not initialize, the "initialization timeout" parameter may be set too low. The default is 16, but must be set higher for more than 50 lines. Refer to the "Configuring TAPI Service Provider Database Information" section located in Chapter 3 for details on configuring the "initialize timeout.

Dual Processor Configurations are not supported by the Symposium TAPI Service Provider unless equipped with Service Pack 4 or higher.

Downloading the Switch Configuration Information Failed

When downloading the Switch configuration information and no lines appear in the database or the download shows that a load failed, ensure that the words "LD 20" appear in the download.txt file.

Testing the Connectivity

The *Application Module and Intelligent Peripheral Equipment Module Diagnostic and Maintenance Guide* (553-3211-510) describes methods to test the Direct Connect and the Meridian Link (host link). For example, you can

test the hardware in the Application Module or IPE Module with the loopback test. You can also use the tracing facilities to record the messages being exchanged across the links. These messages are recorded to aid Northern Telecom support personnel in diagnosing the problem.

Verify that the Direct Connect link is up by performing "Procedure 12: Verifying the link status," located in *the Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (553-3202-210).

Testing the TCP/IP Connection

You can use the ping command to test the TCP/IP connection from the TAPI Service Provider to the IPE Module or Application Module.

1. Open a DOS window
2. Type ***ping [IPE TCP/IP Address]***
   If successful, a message is displayed saying the Host was contacted.
   If not successful, a message is displayed saying the Host was not contacted. Proceed to the Troubleshooting section.
3. To close the ping window, press Esc.

Idle Message with Remote Party Disconnects

When the remote party disconnects a call, the Symposium TAPI Service Provider sends a LINE CALLSTATE message with the call state of idle.

To terminate a call or a call attempt, TAPI32.DLL uses the **TSPI lineDrop** on the call. This has the effect of hanging up on that call and making it possible to make another call. This function disconnects a call, or abandons a call attempt in progress.

If the remote party disconnects a call, the service provider sends a **LINE CALLSTATE** message with a call state of disconnected. To clear the call, TAPI32.DLL must also drop the call by invoking **TSPI lineDrop** on the call. This causes the service provider to transition the call to the idle state.

A call handle remains valid after a call has been dropped. This enables TAPI32.DLL to call operations such as **TSPI lineGetCallInfo** to retrieve information about a call (for example, for logging purposes). The call handle is eventually deallocated by **TSPI lineCloseCall**, which shuts down operations for a call and deallocates (invalidates) the call handle.

Problem Descriptions

When using telephony services, you may encounter problems with the Symposium TAPI Service Provider, the Meridian 1, and the Meridian Link. The following is a summary of known problems and recommended solutions.

Table 1 Problem Descriptions

Problem	Explanation	Solution
The TAPI Service Provider will not load. Error message: *Connect error, host %s %d*	Connection to the Meridian Link IPE Module or Application Module cannot be made.	Use the Ping command to check the connection, the host name, and the module address of the Meridian Link IPE Module or Application Module.
The connection to the Meridian 1 cannot be established.	The Meridian 1 tries to connect but does not give a registration association identifier.	Use mlusr commands to check the Meridian Link and the Meridian 1. (For information on mlusr commands, refer to the *Intelligent Peripheral Equipment Module and Application Module Diagnostic and Maintenance Guide*, 553-3211-510.) Also check the Symposium TAPI Service Provider configuration file to ensure that all values are correct.
The client application cannot access the TAPI Service Provider.		Verify that a Symposium TAPI Service Provider is registered and operational. Access the Task Manager and verify the TAPI SRV program is running. The Task Manager is accessed by clicking the right mouse button on the windows Menu bar.
Client applications do not connect (lineInitialize) to the TAPI Service Provider.		Use mlusr commands to check the Meridian Link and the Meridian 1. (For information on mlusr commands, refer to the *Intelligent Peripheral Equipment Module and Application Module Diagnostic and Maintenance Guide*, 553-3211-510.) Also check the Symposium TAPI Service Provider configuration file to ensure that all values are correct. **Or** Verify that a Symposium TAPI Service Provider is registered and operational. Access the Task Manager and verify the TAPI SRV program is running. The Task Manager is accessed by clicking the right mouse button on the windows Menu bar.
Switch connection drops and terminates calls. Error message: *Failed to allocate call info memory* Error log message: *Resource_limitation _rejection*		All existing calls are aborted. While the connection is down, no new requests are allowed; however, the Symposium TAPI Service Provider continues to advertise services.
The TAPI Service Provider runs out of memory.		Add more memory to the server.
The Symposium TAPI Service Provider stops responding.		If the Meridian 1 is failing, use Meridian 1 procedures to identify and correct the problem. Verify that a Symposium TAPI Service Provider is registered and operational. Access the Task Manager and verify the TAPI SRV program is running. The Task Manager is accessed by clicking the right mouse button on the windows Menu bar. If the TAPI Service Provider is not responding, shut down and re-start your machine to close the TAPISRV.exe file, unload and reload the Symposium TAPI Service Provider for Meridian 1.
An incoming call over an Inbound ANI (IANI) trunk carrying a 10-digit ANI terminates at an ACD agent's In-Calls key. However, if the call appears in an TAPI Service Provider application and the incoming caller hangs up (abandons the call), all subsequent calls to the In-Calls key are not recognized.		The agent should answer the next call by pressing the In-Calls key on the set manually.

Microsoft TAPI-based Issues- No Error Recovery

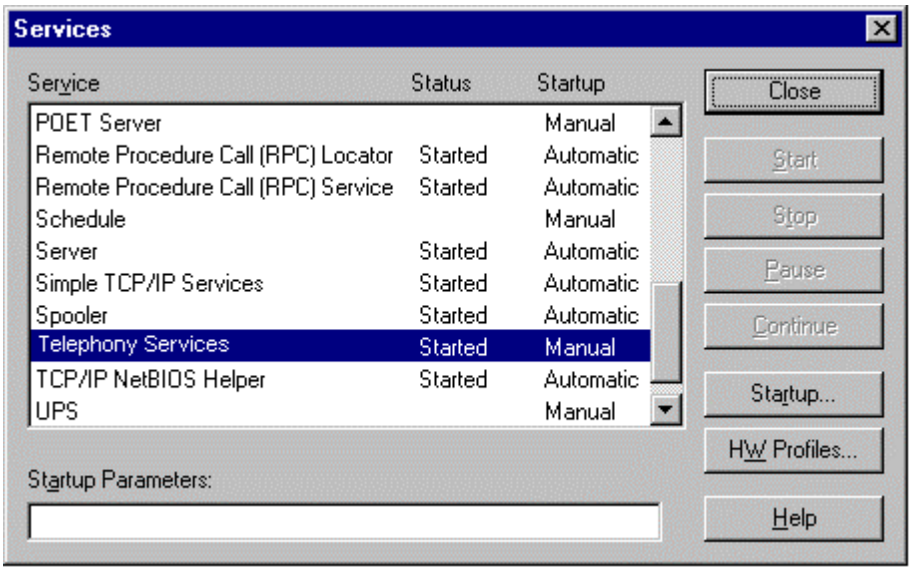
When running an application and it crashes, closing the application and restarting it does not unload Microsoft TAPI until you shut down and re-start your machine. Re-starting you machine closes TAPISRV.exe.

Microsoft TAPI-based Issues - Closing the TAPISRV.exe

Users are not allowed to shut down TAPISRV.exe, so Microsoft TAPI currently has no way of unloading. You must shut down and re-start your machine before the TAPISRV.exe file will close. You can verify the status of the TAPISRV (Telephony Services) by the following steps:

1. Open the Control Panel.

2. Double-click on the **Services** icon.
   The *Services* dialog box is displayed.



Microsoft TAPI-based Issue - TAPISRV.exe unable to locate DLL

If you receive this message, “tapisrv.exe unable to locate DLL,” you must reboot your machine for the system to see the DLL.

Microsoft TAPI-based Issues - RegisterProcessService Not Found

Receiving the following message:
RegisterProcessService not found in kernel32.dll
indicates a bad build on the CDROM NT4.0 releases of tapiserv.exe. This bad build results in a call to a routine (RegisterProcessService) that no longer exists in the kernel32.dll.

The bad build date and size of the file is as follows:
111,616 bytes
date:06/17/97 5:48pm
This build appears on some Microsoft developers CD ROMs.

To resolve this problem:
Reinstall the operating system with a known good CD ROM.
Or

Upgrade the TAPI 2.0 to TAPI 2.1. This will repair the tapiserv.exe.

Microsoft TAPI-based Issues - LINEERR_NODRIVER

You will receive the following message:

LINERR_NODRIVER

when TAPI assigns the first line to the unimodem.

If you have a unimodem configured and initialize all lines, the TAPI sees it and assigns the first line to the unimodem.

Ensure that the unimodem is not the first on the list.
Access the Control Panel from the Start\Settings menu. Double-click on the **Telephony** icon to display the *Telephony Properties* dialog box. Click on the **Unimodem Service Provider** to highlight it and click on the **Remove** button. After you have installed the TAPI Service Provider, you can add the Unimodem back.

Microsoft TAPI-based Issues - Receive Success when Service is Stopped

LineInitializeEx will return SUCCESS even though the service is stopped. Microsoft TAPI does not pass the failed state, but continues to load any other providers and returns success with the number of devices to the application. However, the number of devices is returned as 0 when the service is stopped.

Meridian Link-based TAPI Service Provider Issues

This section contains known issues that occur with the Meridian Link based TAPI service provider. These problems exist when Meridian Link (or the switch) does not present the complete information.

Meridian Link Presents No Information

Incoming calls do not appear when the original call is not answered and forwarded to a controlled DN. Meridian Link presents no information on “Call forward -no answer” incoming calls to a controlled DN. However, if the call is answered manually, a StatusChange of ACTIVE, then CONNECTED is seen.

Call Progress Messages not Delivered

1. If a non-AST controlled telephone is called as the consultation leg of a manually initiated (from the telephone and not a TAPI application) conference call, certain call progress messages are not delivered to the application.

   For example, consider three phones A, B and C. Both A and B are AST controlled while C is not. A is on an established call to B. From the conference key and the key pad of A, a consultation call is placed to C. No Meridian Link messages are sent when C answers, therefore there is no way for the Symposium TAPI Service Provider to determine when C has answered the call.

From a TAPI point of view, this is what occurs on the TAPI application controlling A.

A has a call to B. CallHandle1 = CONNECTED.

A places consultation call to C. CallHandle1 = CONFERENCED, CallHandle2 = DIALTONE, CallHandle3 = ONHOLDPENDINGCONF.

Note: CallHandle2 is the consultation leg of the call and CallHandle3 is the conference call.

C answers consultation call. All call handles remain as above.

CallHandle2 remains in dialtone state.

A completes the conference call. CallHandle1 = CONFERENCED, CallHandle2 = CONFERENCED, CallHandle3 = CONNECTED. This is as any TAPI application would expect.

If C disconnects prior to the completion of the conference call, Meridian Link does not send any message indicating that C has disconnected thereby causing the Symposium TAPI Service Provider for Meridian 1, and subsequently the TAPI application, to lose track of the true state of the call.

From a TAPI point of view, this is what occurs on the TAPI application controlling A.

A has a call to B. CallHandle1 = CONNECTED.

A places consultation call to C. CallHandle1 = CONFERENCED, CallHandle2 = DIALTONE, CallHandle3 = ONHOLDPENDCONF.

Note: CallHandle2 is the consultation leg of the call and CallHandle3 is the conference call.

C answers consultation call. All call handles remain as above.

CallHandle2 remains in dialtone state.

C disconnects prior to A completing the conference call. All call handles remain as above. This is not as a TAPI application would expect. CallHandle2 and CallHandle3 should transition to IDLE while CallHandle1 should transition to ONHOLD.

2. The above problem exists for supervised transfer as well. Given the same three phones as above, no messages are sent when C answers the consultation call, or when C drops prior to completion of the supervised transfer.

Status Change Messages not Delivered

1. When a transfer consultation call is dropped after it is answered but before its completion, the Symposium TAPI Service Provider fails.

   No StatusChange messages are presented indicating a change in call state unless the third party never answers or unless the consultation call is to an AST monitored phone. In this instance, the internal status is fed back to the other end of the call and proper recovery is performed.

2. When a three-party conference is manually created and put on hold, Meridian Link does not send a status change to the Symposium TAPI Service Provider for Meridian 1. Thus, the Symposium TAPI Service Provider does not know the call is on hold.

Dropping the Original Call during Consult Transfer

When the original call is dropped while the consultation call is ringing, the Symposium TAPI Service Provider fails.

Transferring Number not Displayed

On calls that are transferred, Meridian Link only presents the DN of the party performing the transfer when the transfer DN is also AST controlled by using internal feedback. If the transfer DN is not AST controlled, then Meridian Link does not present the DN of the party performing the transfer as the DN type field is *transfer/conference* and the DN is *NULL*.

Blind Transfer Fails

A blind transfer to CDN only works if a patch is applied. Call Customer Support for additional information.

Caller ID not Reported

When controlling a DN that is attempting to bring in a conference, *Unknown* is displayed instead of the person initiating the conference. Meridian Link does not report the caller ID to the called party of a conference (or transfer, refer to the "Transferring Number not Displayed" section). The Other device DN type is reported as *transfer/conference* and the conference DN is *NULL*. However, when the conference is complete, the correct calling information is received.

Call Status Messages sent by Meridian Link

When selecting only the "Outbound Call Processing" on the *Host* dialog box and, consequently, disabling inbound call processing, the Meridian Link still sends call status. However, generally, the "Inbound Call Processing" option is selected.

Called Number not Displayed when Routed to CDN

Meridian Link presents the calling number, but not the called number when the incoming call is transferred or forwarded to the CDN. For example, 2495 calls 2491. 2491 forwards to a CDN (2121). The RouteRequest message shows the calling number (2495) but not the called number (2491).

Park Not Supported

Meridian Link does not support Park. There are no park or unpark StatusChange messages. When a park is performed manually at the set, the call is reported as ONHOLD and never goes off hold. If the call is not picked up, a new call is presented in addition to the onhold call. The call ID is the same as the ID of the held call.

Enhanced ISDN Progress Messages for Outbound Calls

Meridian Link provides additional network call progress information for outbound calls provided in X11 Release 22. Meridian Link 5 forwards all of the following ISDN- provided cause IE values where calls are not completed:

1 - Unallocated (unassigned) number	3 - No route to destination
17 - User busy	18 - no user responding
22- number changed	27 - destination out of order
28 - Invalid number format (address incomplete)	34 - no circuit/channel available
38 - Network out of order	41 - Temporary failure
42 - Switch equipment congestion	127 - Interworking, unspecified with inband information available

Meridian 1 based predictive dialer or outdialing applications of all kinds are able to process more calls in less time, by interpreting the called party status. Invalid numbers can also be compiled and manually updated by agents, in order to increase the accuracy of the customer's database.

IVR Messages

The following sections include the IVR normal messages and the IVR error messages.
Normal Messages

Note: The information presented here is for reference purposes only. Refer to your IVR User Documentation for complete message information.

The following table describes informative messages displayed during normal operation:

Table 2 Normal lVR Messages

num	*Message Text*	*Description*
M01	Operating in off-line auto transfer mode	IVR module could not register with the TAPI Service Provider so all incoming requests from user cells will immediately return without transferring data.
M02	IVR module registered successfully and Assoc: <value>	IVR module has established a connection to the TAPI Service Provider and stands ready to transfer data. The Association ID is a unique number generated by the TAPI Service Provider to represent this connection.
M03	Read queue opened successfully	IVR module opened the message queue through which it will receive data from the user cells.
M04	Write queue opened successfully	IVR module opened the message queue through which it will send data to the user cells.
M05	IVR module is not registered - transferring call with data: <data>	IVR module received a request from a user cell and is in off-line auto transfer mode (see above). It will immediately return control to the user cell.
M06	Automatically transferring the call	Due to an unexpected problem in communicating with the TAPI Service Provider, control returns to user cell.
M07	Sent data: <string> with MsgRefId: <value>	Data incoming from a user cell has been successfully sent to the TAPI Service Provider.
M08	Retry successful - IVR module is now registered with IVR driver	Previous attempts to establish communication with the TAPI Service Provider had failed, the IVR module was finally able to establish communication.

Normal Messages, cont.

num	*Message Text*	*Description*
M09	Socket successfully closed	Termination procedures for the IVR module involve closing the socket connection to the TAPI Service Provider. This was completed successfully.
M10	Closing connection and entering off-line auto transfer mode	Unexpected socket problems interrupted data transfer to the TAPI Service Provider. IVR module will attempt to re-establish communications.
M11	Read queue successfully closed	The IVR module was successful in its attempt to close the message queue from which it receives data from the user cells.
M12	Write queue successfully closed	The IVR module was successful in its attempt to close the message queue through which it sends data to the user cells.
M13	Processing Response of MsgRefId: <value>	The TAPI Service Provider had received data from the IVR module and is now sending a message back indicating that it successfully processed the data. The IVR module will return control to the user cell from which the data originated.
M14	with the following wait time: <value>	This message follows the above message #M13. The wait time is the number of seconds elapsed from the point at which the IVR module sent the data to the TAPI Service Provider until the point when it received a response message from TAPI Service Provider.
M15	Successfully sent response to user cell	The IVR module properly returned control to the user cell that originally sent the current data.
M16	Timed out call with MsgRefId <value> - sent transfer message	The number seconds elapsed since the IVR module sent data to the TAPI Service Provider is greater than the timeout value specified in the config file. The IVR module will return control to the user cell without waiting for response from the driver.
M17	Recycling message queues	The IVR module detected a problem with the message queue communications. It will attempt to close and reopen both message queues.
M18	Recycling - Read queue successfully closed	While recycling the message queues, IVR module successfully closed the read queue.
M19	Recycling - Write queue successfully closed	While recycling the message queues, IVR module successfully closed the write queue.
M20	Recycling - Read queue opened successfully	While recycling the message queues, IVR module successfully opened the read queue.
M21	Recycling - Write queue opened successfully	While recycling the message queues, IVR module successfully opened the write queue.
M22	Retrying message send	IVR module detected problems in message queue communications and successfully recycled the message queues. It will now attempt to resend the message that originally caused the recycle.
M23	Successfully read the following configuration parameters:	IVR module is moving through its startup phase during which it read configuration options.
M24	Timeout is: <value>	Timeout value read during startup phase.
M25	HomeHost is: <string>	Local host name read during startup phase.

Normal Messages, cont.

num	*Message Text*	*Description*
M26	ExternHost is: <string>	TAPI Service Provider host name read during startup phase
M27	Port is: <value>	Port number on TAPI Service Provider host through which IVR module will establish socket communication
M28	NWCallIDFlag is: <value>	Network Call ID status read during startup phase. 1 indicates yes and 0 indicates no.
M29	LogDuration is: <value>	Number of days log files will remain on the system read during the startup phase.
M30	DN count is: <value>	Number of DNs to be monitored read during the startup phase.
M31	DN to be monitored: <value>	One DN to be monitored in the list read during the startup phase.

Error Messages

Note: The information presented here is for reference purposes only. Refer to your IVR User Documentation for complete error message information.

The following table describes messages encountered during error conditions of varying severity:

Table 3 IVR Error Messages

msg	***Error Message***	***Description***
E01	Configuration Error -- Could n open configuration file	IVR module either could not find or does not have the read permission to open the configuration file named IVRmodule.cfg.
E02	Problems in reading configuration information - exiting	The IVR module encountered problems while reading the config IVRmodule.cfg. These may be problems with syntax. Refer to th section on configuration for more information.
E03	Problem in initializing control block.	Initialization failed and the IVR module will quit. See associated error messages for more details.
E04	Problem in opening socket -- Retrying	The IVR module could not establish socket communications with the TAPI Service Provider and will make another attempt.
E05	Unable to open socket connection	The IVR module could not establish socket communications with the TAPI Service Provider despite repeated attempts. Contact support personnel for the IVR driver to be sure the software is running and there are no system problems on the TAPI Service Provider that would impede socket communication.
E06	Unable to register with IVR driver over socket -- Retrying	The IVR module successfully connected to the designated socket the TAPI Service Provider but could not register with the IVR driver software, which manages the data transfer. It will make additional attempts to register until it reaches the maximum numb of retries.

Error Messages, cont.

msg	*Error Message*	*Description*
E07	Unable to register with IVR driver over socket	Repeated attempts to register (see above) were not successful and have exceeded max retries. Contact support personnel for the IVR driver to be sure it is functioning properly on the TAPI Service Provider.
E08	Unable to open read queue	The IVR module was unable to open the message queue through which it would send data to the user cells. Contact your system administrator.
E09	Unable to open write queue	The IVR module was unable to open the message queue through which it would receive data from the user cells. Contact your system administrator
E10	Problem in transferring call	The IVR module was unable to send a response to the user cell. This is typically due to message queue problems. Contact system administrator.
E11	Problem in sending data with MsgRefId:	The IVR module was unable to send data over the socket to the TAPI Service Provider. Contact your system administrator or support personnel.
E12	System Error	The IVR module encountered a system related error in processing. Refer to accompanying text for more information.
E13	EINVAL error in message queue read	This error indicates that the read queue was invalid when the IVR module attempted to read data. Contact system administrator or support staff.
E14	EACCES error in message queue read	This error indicates that the IVR module process does not have the proper access permission to read from the read queue. Contact your system administrator or IVR module support personnel.
E15	EIDRM error in message queue read	This error indicates that the read queue identifier has been removed from the system. Contact system administrator or support personnel.
E16	E2BIG error in message queue read	The IVR module attempted to read a message that was too big for the message queue. Contact system administrator or support personnel.
E17	Unable to recycle message queues - quitting	Following message queue problems the IVR module attempted to close and reopen the message queues. These attempts were unsuccessful and the IVR module is terminating itself. Contact your system administrator.
E18	Retry failed - IVR module could not register with IVR driver	The IVR module was not registered with the IVR driver and attempted to register. This attempt was unsuccessful, which indicates that the condition that initially prevented or terminated registration is still present. Contact support personnel for the IVR driver to be sure it is functioning properly on the TAPI Service Provider.
E19	Problem in reading received socket message - retrying	IVR module detected that a message was received over the socket from the TAPI Service Provider but could not read the information from the socket. It will make another attempt to read the socket message.

Error Messages, cont.

msg	*Error Message*	*Description*
E20	Unable to read received socket message	IVR module detected but could not read a socket message (see above) despite repeated attempts. Typically this will be followed by errors indicating that the socket is bad and the IVR module will attempt to recycle the socket. Should this recycle attempt not succeed or this error reoccurs contact your system administrator.
E21	Problem in decoding socket message header	The IVR module successfully read a socket message but could not interpret it properly. Contact IVR driver support personnel to be sure the IVR driver is functioning properly or contact your system administrator to be sure that the message queues are working correctly.
E22	IVR driver has terminated the socket connection.	The IVR module successfully received a message from the IVR driver indicating that it is terminating the registration between the IVR driver and the IVR module. The IVR module sent an acknowledgment message and will enter off-line auto transfer mode.
E23	Unable to send host disconnect response message.	The IVR module received a host disconnect message (see above) and attempted to send an acknowledgment message. This attempt failed.
E24	Problem in closing socket after host disconnected	The IVR module received a host disconnect message (see above) and encountered problems afterward while attempting to close the socket. Contact your system administrator.
E25	Received socket message has an unknown type	The IVR module successfully read a socket message and decoded the message header. It did not recognize the type field in the socket message. Contact IVR driver support personnel.
E26	Problem in accessing socket	The IVR module encountered an error while trying to access the socket connection to the IVR driver. It will close the socket, enter off-line auto transfer mode and attempt to re-register with the IVR driver following a short delay.
E27	Problem in closing socket following failed socket read	The IVR module encountered socket problems (see above) and attempted to close the socket resulting in an error. Contact system admin.
E28	Problem in closing socket during exit routine	While attempting to clean up resources during the termination procedure, the IVR module encountered problems closing the socket. Contact your system administrator.
E29	Problem in closing read queue during exit routine	While attempting to clean up resources during the termination procedure, the IVR module encountered problems in closing the read queue. Contact your system administrator.
E30	Problem in closing write queue during exit routine	While attempting to clean up resources during the termination procedure, the IVR module encountered problems in closing the write queue. Contact your system administrator.

Error Messages, cont.

msg	*Error Message*	*Description*
E31	Initialize routine failed while initializing control block	The IVR module encountered problems while establishing values for the data block, which maintains information pertaining to the socket connection to the TAPI Service Provider. Contact a system administrator or programmer for assistance.
E32	Initialize routine failed while initializing far end connection	The IVR module encountered problems while establishing preliminary connection to the TAPI Service Provider. Check the IVRmodule.cfg file to be sure the externhost name is correct. Also check the /etc/hosts file to be sure the externhost name is associated with the correct IP address. If problems persist, contact support personnel.
E33	Problem in creating list of DNs to be monitored	The IVR module previously read in the list of DNs to be monitored and was attempting to encode the list into a format compatible with the IVR registration message. This process failed. Contact IVR module support personnel.
E34	Problem in creating IVR registration message	The IVR module failed while encoding registration information into the proper format required by the TAPI Service Provider. Contact IVR module support personnel.
E35	Problem in sending registration message	The IVR module failed while attempting to send the registration message to the TAPI Service Provider. Contact your system administrator or IVR module support personnel.
E36	Received no response to registration message from IVR driver	The IVR module successfully sent its registration message to the TAPI Service Provider but received no response. Check with TAPI Service Provider support personnel to be sure the IVR driver is running and the TAPI Service Provider is configured properly.
E37	Problem in receiving registration response	The IVR module successfully sent its registration message, detected a response but encountered errors while trying to read the response. Contact your system administrator or IVR module support personnel.
E38	Problem in creating caller data message	The IVR module received caller data from a user cell and was attempting to encode this data into a format required by the TAPI Service Provider. This process failed. Contact IVR module support.
E39	Problem in sending user data message	The IVR received caller data from a user cell and successfully encoded it into a message intended for the TAPI Service Provider. It encountered problems while attempting to send this message to the TAPI Service Provider. Contact your system administrator or IVR module support personnel.
E40	Problem in enquing user message	The IVR module successfully sent data to the TAPI Service Provider and encountered problems while attempting to store this data internally. Contact IVR module support personnel.

Error Messages, cont.

msg	*Error Message*	*Description*
E41	Problem in allocating linked list structure	The IVR module successfully sent data to the TAPI Service Provider and encountered problems while attempting to store this data internally. Contact IVR module support personnel.
E42	Unable to generate time value in call tracking queue	The IVR module successfully sent data to the TAPI Service Provider and encountered problems while attempting to store this data internally. Contact IVR module support personnel.
E43	Problem in creating IVR Disconnect message	The IVR module failed while encoding disconnect information into the proper format required by the TAPI Service Provider. Contact IVR module support personnel.
E44	Problem in sending disconnect message - Retrying	The IVR module failed while attempting to send the disconnect message to the TAPI Service Provider. Contact your system administrator or IVR module support personnel.
E45	Problem in receiving disconnect response - Retrying	The IVR module failed to receive the expected response to the disconnect message sent to the TAPI Service Provider. It will make additional attempts until it reaches the maximum number of retries.
E46	Incorrect disconnect response received - Retrying	The IVR module received an erroneous response to the disconnect message sent to the TAPI Service Provider. It will make additional attempts until it reaches the maximum number of retries.
E47	Unable to transmit and receive disconnect messages - closing socket	Repeated problems with socket communications have caused the IVR module to discontinue its attempts to communicate with the TAPI Service Provider. This is most likely caused by shutdown procedures on the TAPI Service Provider in response to the disconnect request. If socket problems persist, contact your system administrator.
E48	Problem in closing socket following disconnect message problem	While attempting to clean up resources during the disconnect procedure the IVR module encountered problems closing the socket. Contact your system administrator.
E49	Unable to locate user data in the queue - this call may have timed out	While processing a response from the TAPI Service Provider regarding a specific call, the IVR module could not locate the associated data in its internal storage queue. This condition is usually caused by excessive delays in processing on the TAPI Service Provider. If the wait time for a specific call exceeds the number of seconds specified in the timeout parameter of the configuration file, the IVR module will automatically return control to the user cell instance that sent the data and remove the call from its internal storage queue.
E50	Error-Unable to generate time value in processing response	The IVR module was attempting to use the time function on the system to compute the wait time and it encountered problems. Contact your system administrator for assistance.

Error Messages, cont.

msg	*Error Message*	*Description*
E51	Problem in sending response back to user cell	The IVR module received a response from the TAPI Service Provider for a specific call and encountered problems while sending the necessary response to the user cell over the write queue. Contact your system administrator for assistance.
E52	Could not locate call with MsgRefId: <value> - queue is empty	The IVR module received a response from the TAPI Service Provider for a call for which it had no record stored internally. See description for E49 above.
E53	Could not find call with MsgRefId: <value> in the queue	See descriptions for E52 and E49 above.
E54	Problem in creating message queue	The IVR module encountered problems in creating a message queue. Contact system administrator
E55	Problem in setting message queue permissions	The IVR module successfully created a message queue but encountered problems in modifying its permission parameters. Contact system admin.
E56	Problem in cleaning up old log files before opening a new one	The IVR module encountered problems in logfile maintenance. Contact IVR module support staff.
E57	Problem in sending timeout message with MsgRefId: <value>	The IVR module encountered problems while sending a response over the write message queue to the user cell after a call exceeded the maximum wait time and timed out. Contact system admin.
E58	Problem in locating cause IE in processing status message	The IVR module expected to receive status info from the TAPI Service Provider and encountered problems in decoding the message. Contact TAPI Service Provider or IVR module support personnel.
E59	Cause value in status message unknown	The IVR module expected to receive status info from the TAPI Service Provider and encountered problems in decoding the message. Contact TAPI Service Provider or IVR module support personnel.
E60	Cause: message length is incorrect	The TAPI Service Provider returned a message from the IVR module unprocessed due to errors in message construction. Contact IVR module support personnel for assistance.
E61	Cause: mandatory IE is missing in message type	The TAPI Service Provider returned a message from the IVR module unprocessed due to errors in message construction. Contact IVR module support personnel for assistance.
E62	Cause: IVR name is already registered	The IVR module attempted to register with the TAPI Service Provider using a host name that is already associated with a prior registration. Check for multiple instances of IvrModule running on your host or for multiple hosts using duplicate names. If problem persists contact IVR module support.
E63	Cause: no associations available - try later	The IVR module attempted to register with the TAPI Service Provider that is already serving its maximum number of client machines. The IVR module will function in off-line auto transfer mode and attempt to register periodically.

Error Messages, cont.

	Error Message	***Description***
E64	Cause: IVR not registered so no messages may be sent	The IVR module attempted to send messages to the TAP Service Provider prior to successfully registering. If this problem persists, contact IVR module support personnel for assistance.
E65	Cause: This DN/port is already registered	The IVR module successfully sent registration informati which included a duplicate DN entered in the monitordn section of the IVRmodule.cfg file. Check your configuration file for errors. If problem persists, contact IVR module and TAPI Service Provider support personn
E66	Cause: Registration of this DN/port failed	The TAPI Service Provider received a DN in configurati options but could not access it for monitoring. Check th IVRmodule.cfg file for errors and check your switch for possible problems with the specific DN. If problem persists, contact IVR module or TAPI Service Provider support personnel.
E67	Cause: This DN/port has a bad format	The TAPI Service Provider received a DN in configurati options but encountered errors with its setup. Check the IVRmodule.cfg file for syntax errors and check the switc for possible problems with the specific DN. If problem persists, contact IVR module, TAPI Service Provider or switch support.
E68	Cause: This DN/port is not registered	The IVR module sent a user data message to the TAPI Service Provider referencing a DN that had not been previously registered with the TAPI Service Provider up startup. Check the IVRmodule.cfg file for syntax errors. problem persists, contact IVR module, TAPI Service Provider or switch support.
E69	Cause: Data transfer task is not responding to the IVR driver	The IVR driver is experiencing problems while attempti to transfer user data. Contact IVR driver support.
E70	Unknown cause value in cause IE	The IVR module expected to receive status info from the TAPI Service Provider and encountered problems in decoding the message. Contact TAPI Service Provider o IVR module support personnel.
E71	Problem in opening temp filename <string> in cleaning up log files	The IVR module encountered problems in logfile maintenance. Contact IVR module support staff.
E72	Problem in reading input file <string> in cleaning up log files	The IVR module encountered problems in logfile maintenance. Contact IVR module support staff.
E73	Recycling - Problem in closing read queue	While attempting to recycle the message queues, the IVF module encountered problems while closing the read queue. Contact your system administrator.
E74	Recycling - Problem in closing write queue	While attempting to recycle the message queues, the IVF module encountered problems while closing the write queue. Contact your system administrator.
E75	Recycling - Unable to open read queue	While attempting to recycle the message queues, the IVF module was unable to open the message queue through which it would send data to the user cells. Contact your system administrator.

Error Messages, cont.

msg	*Error Message*	*Description*
E76	Recycling - Unable to open write queue	While attempting to recycle the message queues, the IVR module was unable to open the message queue through which it would receive data from the user cells. Contact your system administrator.
E77	EINVAL error in message queue write	This error indicates that the write queue was invalid when the IVR module attempted to write data. Contact system administrator or support staff.
E78	EACCES error in message queue write	This error indicates that the IVR module process does not have the proper access permission to write to the write queue. Contact your system administrator or IVR module support personnel.
E79	EIDRM error in message queue write	This error indicates that the write queue identifier has been removed from the system. Contact system administrator or support personnel.
E80	E2BIG error in message queue write	The IVR module attempted to send a message that was too big for the message queue. Contact system administrator or support personnel.
E81	Configuration Error -- No command found	The IVR module encountered a missing command while processing configuration information in the IVRmodule.cfg file. Check the file for syntax errors. Refer to the section on IVR module setup and configuration for more information.
E82	Error in configuration	The IVR module encountered errors while processing configuration information in the IVRmodule.cfg file. Check file for syntax errors. Refer to the section on IVR module setup and configuration for more information.
E83	Configuration Error -- No Port Value specified	The IVR module found no port value while processing configuration information in the IVRmodule.cfg file. Check the file for syntax errors. Refer to the section on IVR module setup and configuration for more information.
E84	Configuration Error -- No Home Host specified	The IVR module found no local host name while processing configuration information in the IVRmodule.cfg file. Check the file for syntax errors. Refer to the section on IVR module setup and configuration for more information.
E85	Configuration Error -- No External Host specified	The IVR module found no external host name while processing configuration information in the IVRmodule.cfg file. Check the file for syntax errors. Refer to the section on IVR module setup and configuration for more information.
E86	IVR module encountered configuration errors	The IVR module encountered errors while processing configuration information in the IVRmodule.cfg file. Check file for syntax errors. Refer to the section on IVR module setup and configuration for more information.

Error Messages, cont.

msg	*Error Message*	*Description*
E87	Configuration Error -- Input line too long in configuration file	The IVR module encountered errors while processing configuration information in the IVRmodule.cfg file. Check file for syntax errors. Refer to the section on IVR module setup and configuration for more information.
E88	Configuration Error -- Too few words on input line in configuration file	The IVR module encountered errors while processing configuration information in the IVRmodule.cfg file. Check file for syntax errors. Refer to the section on IVR module setup and configuration for more information.
E89	Configuration Error -- Too many words on input line in configuration file	The IVR module encountered errors while processing configuration information in the IVRmodule.cfg file. Check file for syntax errors. Refer to the section on IVR module setup and configuration for more information.
E90	Configuration Error -- Expected digit and got character in configuration file	The IVR module encountered errors while processing configuration information in the IVRmodule.cfg file. Check file for syntax errors. Refer to the section on IVR module setup and configuration for more information.
E91	Configuration Error -- value exceeds maximum in configuration file	The IVR module encountered errors while processing configuration information in the IVRmodule.cfg file. Check file for syntax errors. Refer to the section on IVR module setup and configuration for more information.
E92	Configuration Error -- value too small in configuration file	The IVR module encountered errors while processing configuration information in the IVRmodule.cfg file. Check file for syntax errors. Refer to the section on IVR module setup and configuration for more information.

Removing the Symposium TAPI Service Provider Software

If it becomes necessary to remove the Symposium TAPI Service Provider software, an Un-Install program is provided. Running the ***Un-Install*** program deletes the database files.

Note: Do not remove the Symposium TAPI Service Provider software using the Add/Remove program on the Control Panel.

To Remove the Symposium TAPI Service Provider Software:

1. Access the *Select Installation* Dialog Box:

   a. Log on to the Windows NT Server.

   b. Insert the Symposium TAPI Service Provider CD ROM into the CD ROM driver.

   c. Run the **Setup.exe** program.
   Select **Run** from the Start menu to display the *Run* dialog box.
   Type the CD ROM drive\setup.exe
   For example, ***E:\setup.exe***

Note: We do not recommend that you install the Symposium TAPI Service Provider software using the Add/Remove program on the Control Panel. Using the Add/Remove program displays a warning to close all open windows (including the Control Panel) before continuing with the installation.

Or

From the *Windows NT Explorer* window, click on the CD ROM drive to display the folders and files.
Double-click on the **Setup.exe** file.

The Meridian TAPI Service Provider installation process begins.

The *Select Components* dialog box is displayed.

2. Click on the **Uninstall** option. The Symposium **TAPI Service Provider** software files are removed. The *Remove Programs from Your Computer* information box displays the files as they are deleted.

3. Click on the **OK** button.

Appendix A Additional User Information

Customer Support for the Symposium TAPI Service Provider

If you have difficulty when using the Nortel Symposium TAPI Service Provider for Meridian 1 Release 2, help is available in different formats. This document provides troubleshooting tips in Chapter 7. For telephone support in the United States and Canada, contact your Nortel support personnel listed below:

For Customer Support
United States and Canada:
(800) 527-0797

For Developer Support
United States and Canada:
(800) NT4CTI0

For New Product Information:
(800) 4-NORTEL
8:00 a.m. - 6:00 p.m.
Monday -Friday

For support outside the United States and Canada, contact your CTS Representative.

To resolve a problem properly, Nortel field support personnel may require the following information:

1. A description of the problem, sufficiently detailed to help Nortel reproduce the problem. Include information such as, all error messages displayed on the screen and telephone, what was happening before and after the problem, and what worked or stopped working after the problem.
2. The software version number on the Symposium TAPI Service Provider for Meridian 1 Release 2.
3. Printouts of certain switch datafill. On Meridian 1, use LD 20 to print the TNB of the set. Ask your switch administrator for these.
4. The switch software release number. For the Meridian 1, indicate the X11 Rel. 19, 20, and so forth.
5. The Meridian Link software number.
6. Run the Logger Troubleshooting tool to capture a log file of the problem, if requested to by support personnel.
7. Know if your site has Symposium Call Center Server (SCCS).
8. Know if your site has IVR.
9. Know if you are using Remote TAPI Service Provider.

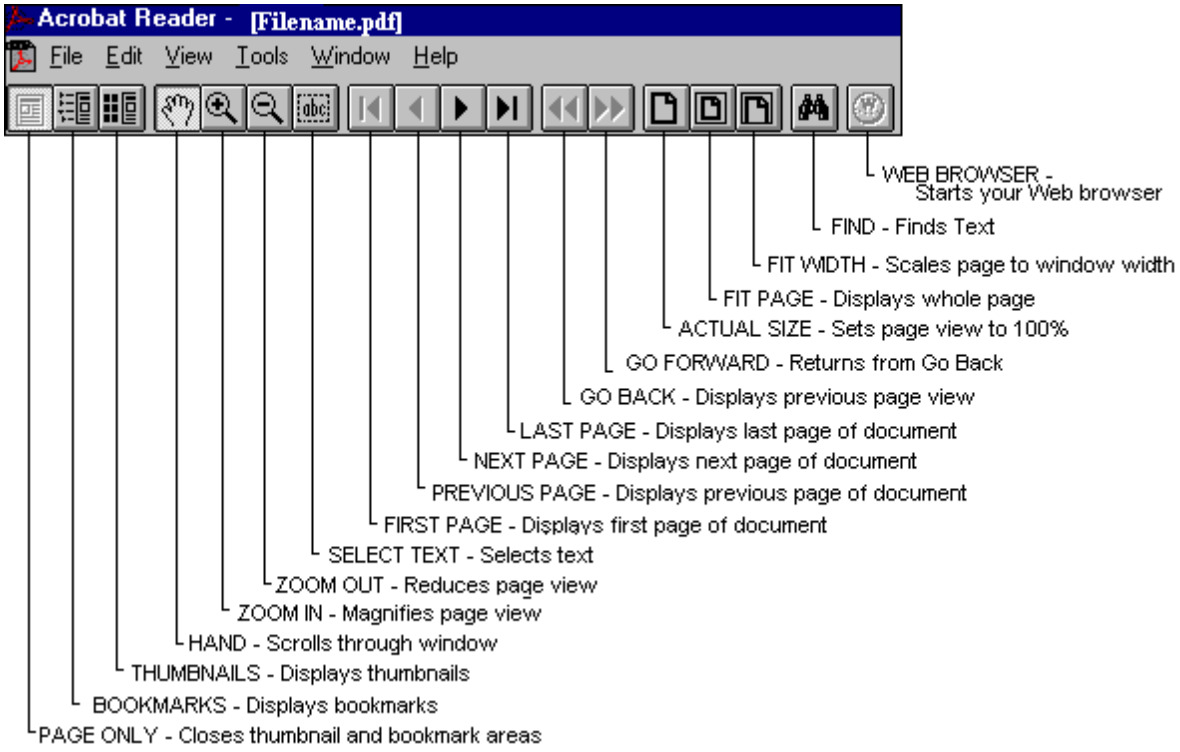
Overview of the Adobe Acrobat Reader

The User documents for Symposium TAPI Service Provider are provided electronically as online documents. These documents are contained on the CD ROM in the **Docs** directory.

The Adobe Acrobat Reader must be installed to access the online documentation. After installing the Adobe Acrobat Reader, double-clicking on the .PDF file opens the online document in the *Acrobat Reader* window. The Adobe Acrobat Reader allows you to view, search, and print this document.

Adobe Acrobat Reader Window

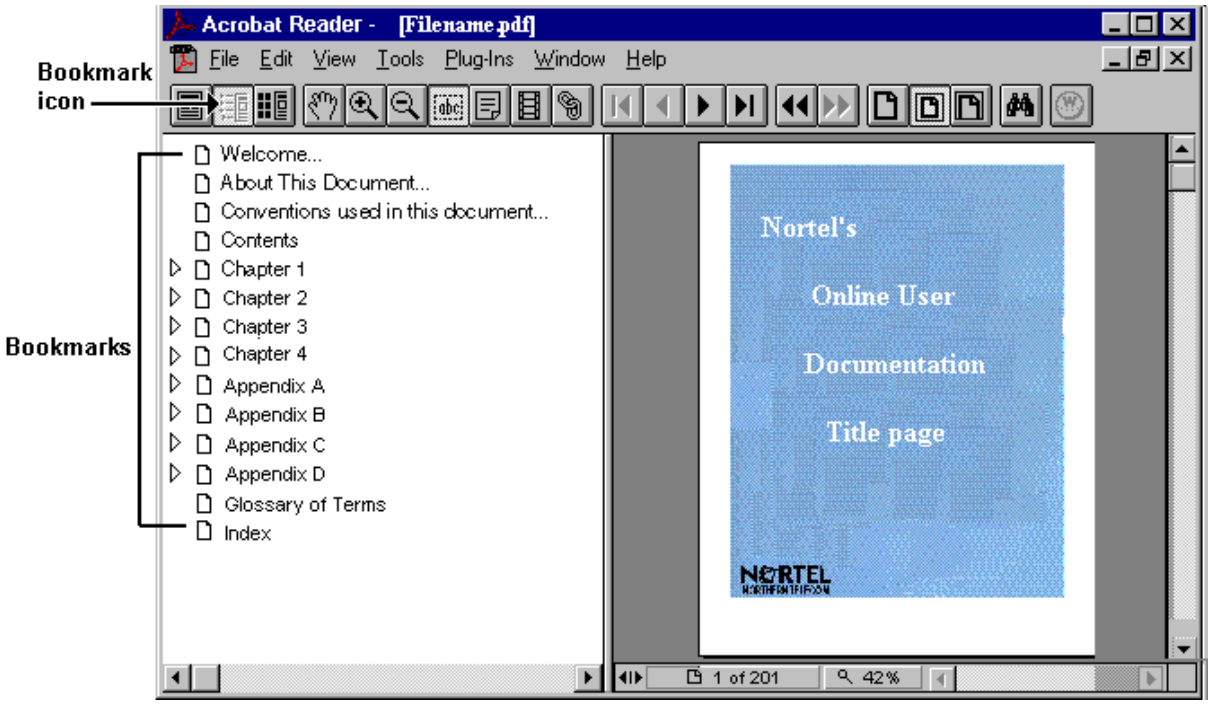
The *Acrobat Reader* window contains menus, tools, and buttons. The Menu bar of the *Acrobat Reader* window displays the **Help** menu. The **Help** menu contains important information on how to view and print the document. The Toolbar on the *Acrobat Reader* window provides tools for working with the documents. Select a tool by clicking the icon.



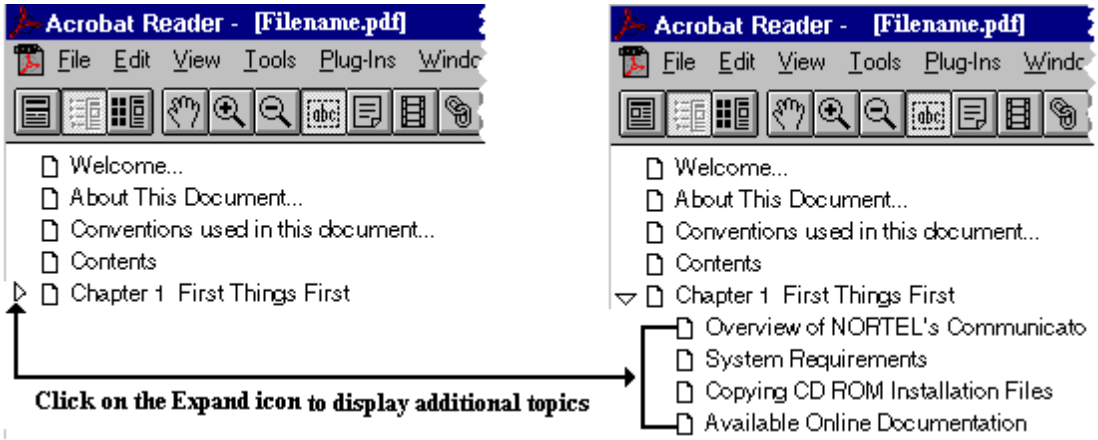
Using Bookmarks on the Acrobat Reader Window

The online documents contain bookmarks to assist you in finding information. Selecting the Bookmark button  provides an automated table of contents.

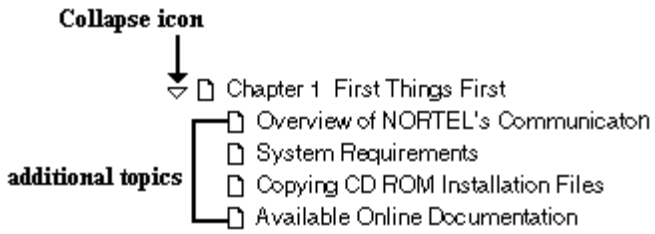
The Bookmarks are displayed on the left of the window.



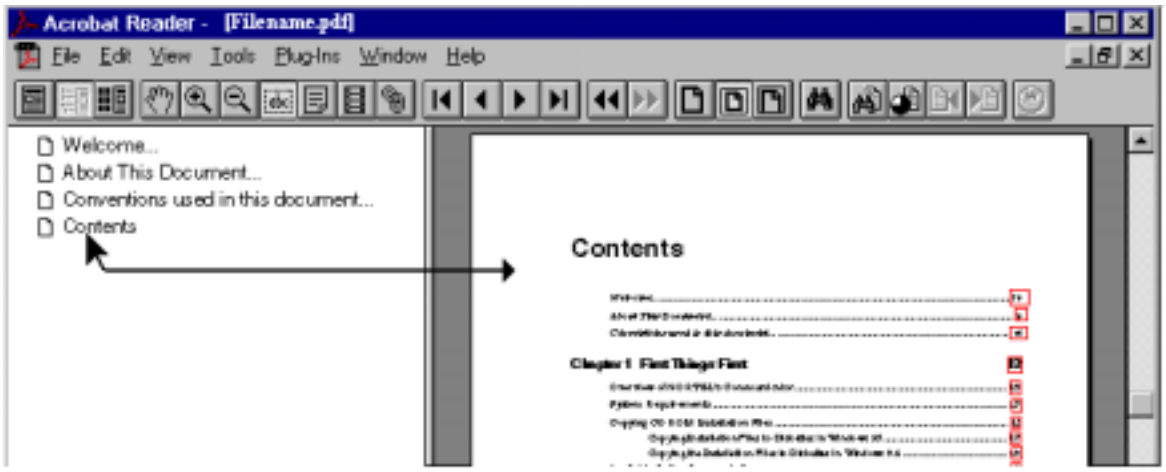
Clicking on the **Expand** icon ▷ located to the left of the bookmark displays additional topics in a tree-view.



When the additional topics are displayed, the **Expand** icon changes to the **Collapse** icon.

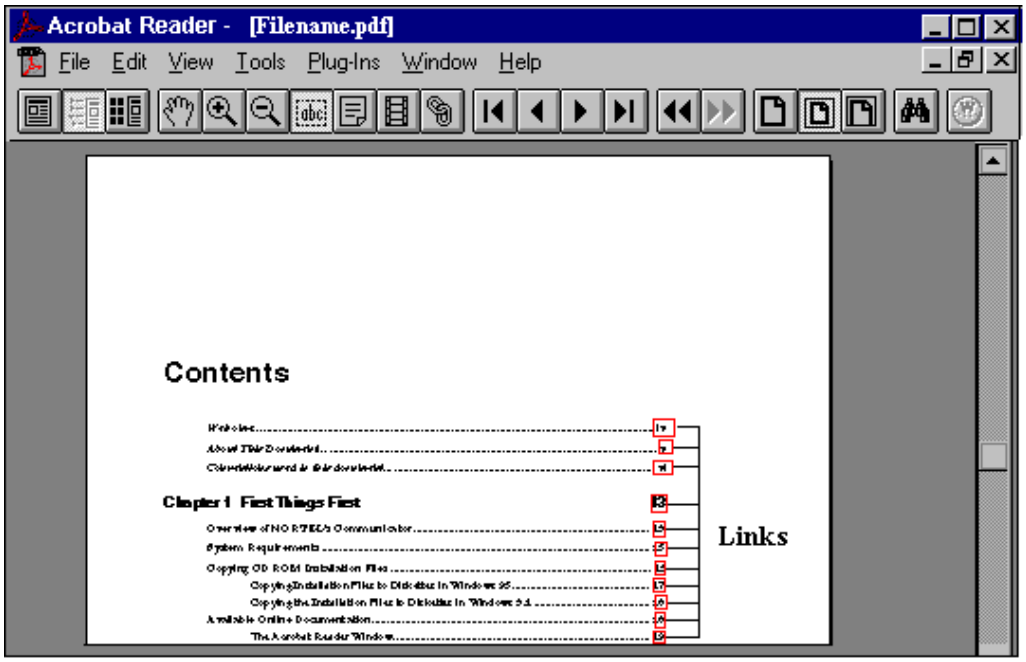


Clicking on the **Collapse** icon ▽ removes the additional topics.
Clicking on a Bookmark takes you directly to the page containing the information.



Using Links on the Adobe Acrobat Window

The Table of Contents, Index, and certain words or phrases provide direct links to the page associated with the entries. Links are **red** boxes that enclose a page number or word. Clicking on the red box displays the page that contains the information.



Also,, certain pages reference additional information. When these references are enclosed in a **red** box, clicking in the box displays the referenced page or document.

Clicking on the **Back** button  displays the previous page.

Appendix B: Configuration Files

This Appendix provides sample printouts of a Meridian 1 Option 61 PBX equipped with X11 Release 20 software. The following examples show how the system parameters should look when configuration is complete. You may choose to reference these printouts when configuring Meridian 1 to support the Symposium TAPI Service Provider for Meridian 1.

Defining the ESDI/MSDL

After defining the MSDL (Direct Connect Link) and VAS ID as specified in the "Meridian 1 configuration for Meridian Link/CCR" section of the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (553-3202-210), your configuration record and Customer Data Block should look similar to the example below.

The example below shows a sample printout of a Meridian 1 Option 61 Configuration record (LD 17). LD 22 is used to print out the configuration record.
Pay particular attention to the following prompts: AML 7 and VSID 7.

```
>LD 22
PLEASE WAIT - LOADING FROM DISK
PT2000
REQ  PRT
TYPE CFN
ADAN     HDK 0
  NUMD   2
  FTYP   3.5S
ADAN     TTY 0
  CTYP XSDI
  DNUM 0
  DES
  USER MTC
  XSM  YES
  TTYLOG       0
ADAN     TTY 1
  CTYP XSDI
  DNUM 1
  DES
  USER MTC SCH
  XSM  NO
  TTYLOG       0
ADAN     TTY 2
  CTYP XSDI
  DNUM 2
  DES
  USER MTC TRF SCH
  XSM  NO
  TTYLOG       0
ADAN     TTY 3
  CTYP XSDI
  DNUM 3
  DES
  USER MTC TRF SCH
  XSM  NO
  TTYLOG       0
ADAN     TTY 8
  CTYP XSDI
  DNUM 8
```

```
  DES  HSL
  USER HSL
  XSM  NO
ADAN     TTY 9
  CTYP XSDI
  DNUM 9
  DES  ACD
  USER ACD
  CUST 00
  SSUP NO
  APRT NO
  XSM  NO
ADAN     AML 4
  CTYP MSDL
  DNUM 4
  PORT 2
  DES  MERMAIL
  BPS  9600
  PARM RS232  DCE
  IADR 003
  RADR 001
  T1   10
  T2   010
  N1   128
  N2   08
  K    7
PAGE 001
ADAN     AML 7  ←
  CTYP ESDI
  DNUM 7
  DES  MERIDIAN_LINK
  BPS  19200
  CLOK INT
  IADR 003
  RADR 001
  T1   04
  T2   010
 T3   010
  N1   128
  N2   08
  K    7
  RXMT 05
  CRC  10
  ORUR 005
  ABOR 005
ADAN     DCH 18
  CTYP MSDL
  DNUM 4
  PORT 0
  DES  ATT
  USR  PRI
  DCHL 18
  OTBF 32
  PARM RS422  DTE
  DRAT 64KC
  CLOK EXT
  IFC  ESS5
  SIDE USR
  CNEG 1
  RLS  ID  1
  RCAP
  MBGA NO
  T200 3
  T203 10
  N200 3
  N201 260
  K    7
```

```
ADAN     DCH 23
  CTYP MSDL
  DNUM 4
PAGE 002
  PORT 1
  DES  DCHISDN
  USR  PRI
  DCHL 23
  OTBF 32
  PARM RS422  DTE
  DRAT 64KC
  CLOK EXT
  IFC  SL1
  SIDE USR
  CNEG 1
  RLS  ID  19
  RCAP ND2 NCT
  MBGA NO
  T200 3
  T203 10
  N200 3
  N201 260
  K    7
PARM
  LPIB 96
  HPIB 100
  500B 500
  SL1B 160
  NCR  500
  MGCR NULL
  CSQI 020
  CSQO 020
  NCPU 2
  CFWS NO
  PCML MU
  ALRM YES
  ERRM ERR XBUG AUD
  DTRB 100
  TMRK 128
  FCDR OLD
  PCDR YES
  CLID YES
  DUR5 NO
  MLDN YES
  MARP YES
  FRPT NEFR
  DCUS 1
  MSCL 10
  PMSI
    MANU PMS1
    PMCR 60
    PORT NONE
  NDIS 20
  OCAC NO
  MTRO MR
CEQU
  MPED 8D
  TERM
  REMO
  TERD  024  025
  REMD
  TERQ  002  003
  REMQ
  SUPL  004 N032
  XCT   000  016
PAGE 003
  TDS  * 000 * 016
```

```
  CONF * 001 * 017
  MFSD * 000 * 016
  DLOP  NUM DCH FRM LCMT YALM TRSH
   TRK  008 24  D3  AMI  DG2  00
        009 24  D3  AMI  DG2  00
        020 24  D3  AMI  DG2  00
        021 24  D3  AMI  DG2  00
   PRI  018 23  ESF B8S  FDL  00
        023 23  ESF B8S  FDL  00
  MISP  010
  EXT0 0 NIL 3PE
  EXT0 1 NIL NIL
  EXT0 2 NIL NIL
  EXT0 3 NIL NIL
  EXT0 4 NIL NIL
  EXT1 0 NIL 3PE
  EXT1 1 NIL NIL
  EXT1 2 NIL NIL
  EXT1 3 NIL NIL
  EXT1 4 NIL NIL
  MTYP 4M
  SMEM NO
OVLY
  SID  350
  BKGD
  PBXH X
  TODR 00
  DROL 035 044
  CACH 10
  PRTY
  MULTI_USER ON
VAS
  VSID   04
    DLOP
    AML  04
      SECU NO
      INTL 0001
      MCNT 9999
      CONF DIR
  VSID   06
    DLOP
  VSID   07  <--
    DLOP
    AML  07
      SECU YES
      INTL 0004
      MCNT 0400
      CONF DIR
  VSID   11
    DLOP
    AML  11
      SECU NO
      INTL 0001
      MCNT 9999
      CONF DIR
ATRN
  CODE 0
  SOLR 12
  ROLR +45.00
PAGE 004
  TOLR -45.00
  AGCD NO
  VOLR NO
  HRLR +42.00
  HTLR -44.00
ALARM
  FMT_OUTPUT : OFF
```

```
AF_STATUS  : OFF
FILTER  ENTRIES SUMMARY
TRIGGER   SEVERITY  SUPPRESS  ESCALATE
NO ENTRIES.
EXCEPTION  ENTRIES SUMMARY
TRIGGER
NO ENTRIES.
```

Identifying VAS ID and defining status message groups

The example below shows a sample printout of a Customer Data Block (LD 15) after you have configured the VAS ID and defined the status Message Groups.

Note: Status Message Group 1 must be used for the TAPI Service Provider. LD 21 is used to print out the Customer Data Block. Pay particular attention to the prompt (VSID 7).

The TAPI Service Provider uses status message group 1 only (which is not defined in LD 15). Status message groups 2-15 (GRP2 to GRP15) are not used with the TAPI Service Provider.

```
>LD 21
PLEASE WAIT - LOADING FROM DISK
PT1000
REQ  PRT
TYPE CDB
CUST 0
TYPE CDB
CUST 00
DLDN NO
LDN0 2345
LDA0
LDA1
LDA2
LDA3
LDA4
LDA5
DGRP 0
IRNG NO
PKND 1
NIT1
TIM1
NIT2
TIM2
NIT3
TIM3
NIT4
TIM4
SPRE 4
ATDN 0
NCOS 0
OPT  LOA CTD IC1 SYD
     XTG XDP XLF CFO
     MCI MWUD ROX CPA IHD
     DSX LRA HTU DNX
     COP XBL SBD DBA
     RTR RTD HVD CFRD AHD REA
     BLA RND BIXA BIND
     FKA
     PVCD TTAD XLDN
     VOBD
ACCD OVF OVF OVF ATN
CTVN OVF OVF OVF ATN
MBNR OVF OVF OVF ATN
CTRC OVF NAP OVF NAP
CLDN NAP OVF NAP NAP
NINV OVF OVF OVF ATN
NITR OVF OVF OVF ATN
```

```
NRES OVF OVF OVF ATN
NBLK OVF OVF OVF ATN
UBRI OVF NAP NAP NAP
RCLE ATN OVF ATN ATN
ANAT 444
ANLD 3400
RTIM 30 30 30
ATIM 0
ICI  00
ICI  01
ICI  02
ICI  03
ICI  04
ICI  05
ICI  06
ICI  07
ICI  08
ICI  09
IMS  YES
IMA  YES
 APL NONE
PAGE 002
UST  NO
 APL NONE
UMG  NO
 APL NONE
FLSH 45
RALL NO
CDTO 14
IFLS NO
MHLD NO
CNFD 1
TGLD 2
DISD 3
CCDO NO
RGNA STD STD
AOCS DIS ATN
RCY1 06
RCY2 04
ACNS NO
AFCO NO
CHLN 0
PREO 0
FCAF NO
FNAD FDN
FNAT FDN
FNAL FDN
CFN0 4
CFN1 4
CFN2 1
CFTA YES
DFN0 4
DFN1 4
DFN2 4
TRCL 0
PHDT 30
SRCD NONE
ATAC NONE
RTSA RSAD
IRFR NO
XRFR NO
CWUP NO
CWCL 0 0
CWTM 0 0
CWBZ NO  NO
DNDL NO
DNDT ATT
```

```
DNDH NO
CCRS UNR
ECC1 UNR
ECC2 UNR
MDID YES
NDID YES
MWFB NO
MATT NO
SPVC 00
MUS  NO
CONG OVFL
LLT  OVF
DLT  OVF
ODN0
ODN1
ODN2
ODN3
PAGE 003
ODN4
ODN5
ODN6
ODN7
ODN8
ODN9
ASTM 30
DIND 30
DIDT 14
LDTT 6
ADLD 0
BOTO 14
DBRC 60
NFCR YES
MAXT 30
IDCA YES
DCMX 30
EEST NO
STRL 1
STRG #
VSID 7
GP02
GP03
GP04
GP05
GP06
GP07
GP08
GP09
GP10
GP11
GP12
GP13
GP14
GP15
AC2  NXX LOC
ISDN YES
PNI  1
MBG  0
BSGC 65535
HNPA 612
HNXX 932
HLOC 660
LSC
CNTP PDN
RCNT 5
ATRC NO
RANF
RAN1
```

```
RAN2
LA11
LA12
LA21
LA22
LA31
LA32
LA41
LA42
LA51
LA52
R2BN 00 00
PAGE 004
R2ED 00 00
NRWU 5
TAWU 0
TTBL 0
SCPL 0
ENS  NO
ALDN
RECD NO
HWTT 0
VNR  NO
NIT  8
PORT 0
STCB  NO
MCDC NO
FOPT 14
```

Defining ACD groups in Automatic Call Distribution (LD 23) if required

After defining ACD groups as specified in the "Meridian 1 configuration for Meridian Link/CCR" chapter of the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (553-3202-210), your ACD DN printouts should look similar to the example below.

The example shows a sample printout of an ACD DN. LD 23 is used to print out the ACD DN. Pay particular attention to the following prompts: ISAP YES, VSID 7 (which match LD 17 and LD 15 VSID).

Note: Earlier Meridian 1 Software releases may show a prompt AST YES.

```
>LD 23
REQ  PRT
TYPE ACD
CUST 0
ACDN 3800
TYPE ACD
CUST 0
ACDN 3800
MWC  NO
DSAC NO
MAXP 5
SDNB NO
BSCW NO
ISAP YES   ←
VSID 7  ←
RGAI NO
ACAA YES
FRRT
SRRT
NRRT
FROA NO
NCFW 7400
```

```
FNCF NO
FORC NO
SPCP NO
OBTN NO
CWTH 1
NCWL NO
BYTH 2
OVTH 2
TOFT NONE
HPQ  NO
OCN  NO
OVDN 7100
IFDN
OVBU LNK LNK LNK LNK
EMRT
MURT
RTPC NO
HOML YES
RDNA NO
ACNT
DAL  NO
RPRT YES
RAGT 4
DURT 30
RSND 4
FCTH 20
CRQS 100
IVR  NO
CWNT NONE
```

Configuring single-line telephones with associated set (AST) and Unsolicited Status Messages (USM) features

After defining single-line sets as specified in the "Meridian 1 configuration for Meridian Link/CCR" chapter of the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (553-3202-210), your printouts should look similar to the example below.

The example shows a sample printout of an analog ACD set configured using LD 10. LD 20 is used to print out the TNB. Pay particular attention to the following prompts: DN ____, AST YES, CLS C6A THFA and XHA, and IAPG 1.

If the analog telephone is an ACD set, the following additional prompts will appear in the printout: AACD YES, CLS AGTA and FTR ACD 3800 3812 AGN.

```
REQ: PRT
TYPE: TNB
TN   4 0 2 13
DATE
PAGE
DES
DES  ACDALG
TN   004 0 02 13
TYPE 500
CDEN 4D
CUST 0
DN   1415    MARP  ←
     CPND
       NAME Jenny Jacobs
       XPLN 13
       DISPLAY_FMT FIRST,LAST
AST  YES  ←
IAPG 1  ←
HUNT 7400
TGAR 0
LDN  NO
NCOS 0
SGRP 0
RNPG 1
LNRS 16
XLST
SCI  0
CLS  UNR DTN FBD XFA WTA THFA FNA HTD ONS  ←
     LPR XRD CWD SWD PUA MWD LPD XHA CCSD LNA TVD  ←
     CFTD SFD MRD C6A PDN CNID AUTU  ←
     ICDD CDMD EHTD MCTD
     GPUD DPUD CFXA ARHD OVDD AGTA CLTA LDTD ASCD
     CPFA CPTA
     SHL ABDD CFHD
     CWND USMD USRD
RCO  0
PLEV 02
SPID NONE
PRI  01
AACD YES
MLWU_LANG 0
FTR  ACD 3800 3812
         AGN
DATE 22-Apr-96
```

Configuring Multi-line telephones with associated set (AST) and Unsolicited Status Messages (USM) features

After defining multi-line sets as specified in the Meridian 1 configuration for Meridian Link/CCR" chapter of the *Meridian Link/Customer Controlled Routing Installation and Upgrade Guide* (553-3202-210), your printouts should look similar to the example below.

The example shows a sample printout of an M2616 ACD set configured using LD 11. LD 20 is used to print out the TNB. Pay particular attention to the following prompts: AST 00 01 (this allows TAPI Service Provider compliant applications to use Key 0 and Key 1 of the set to make and receive calls) and IAPG 1.

Note: The keys must be defined as either an In-Calls key or a Single Call Ringing DN (MADNs are not allowed). Each set must also be equipped with a transfer key and a Six Party Conference key.

If the M2616 telephone is an ACD set, the following additional prompts will appear in the printout: CLS AGN or SPV.

```
REQ: PRT
TYPE: TNB
TN   4 0 4 5
DATE
PAGE
DES
DES  L4JI
TN   004 0 04 05
TYPE 2616
CDEN 8D
CUST 0
AOM  1
FDN
TGAR 0
LDN  NO
NCOS 0
SGRP 0
RNPG 1
SCI  0
SSU  0000
LNRS 16
XLST
CLS  UNR FBD WTA LPR PUA MTA FND HTD ADD HFA
     MWD AAD IMD XHD IRD NID OLD VCE DRG1
     POD DSX VMD CMSD CCSD SWD LNA CNDA
     CFTA SFD MRD PDN DDV CNID
     ICDD CDMD MCTD AUTU
     GPUD DPUD DNDA CFXD ARHD FITA CNTD CLTA ASCD CPFA CPTA CFHD
     USMD USRD
ENG
EFD
HUNT 000
EHT
LHK  0
PLEV 02
SPID 7108
AST  00 01  ←
IAPG 1   ←
ITNA NO
DGRP
PRI  01
MLWU_LANG 0
KEY  00 ACD 7100 7109
         SUPY ACID 7108 KEY 13
     01 SCR 1324    MARP
```

```
      02 SCR 3095    MARP
      03 TRN
      04 CFW 16  612144443456
      05 AO6
      06 MSB
      07
      08
      09 EMR
      10 DSP
      11
      12 ASP
      13 ASP
      14 NRD
      15
      16 SCR 3600    MARP
      17 SCR 3601    MARP
      18 SCR 3602    MARP
      19 SCR 3603    MARP
      20 SCR 3604    MARP
      21 SCR 3605    MARP
      22 SCR 36551    MARP
      23 SCR 365612    MARP
      24 SCR 3657890    MARP
      25
      26
      27 SCN 3476    MARP
      28
      29
      30
      31
      32
      33
      34
      35
      36
      37
DATE 22-Apr-98
```

Appendix C LD Configuration Files

This appendix provides an example of a configuration file, stored in ASCII text file after executing the overlay program. (Examples of the LD 20, LD 21 and LD 23 programs are included.) Errors may occur during the execution of an overlay program and end up in the text file. However, the configuration program ignores these errors and continues to the next line of the text. An error starts with the three letters "SCH" followed by a series of numbers specifying the error.

```
>LD 20
PT0000
REQ: PRT
TYPE: TNB
TN
CDEN
CUST
DATE
PAGE
DES

TN   000 0 00 00
TYPE DTR
CDEN 8D
DATE  3 APR 1993

TN   000 0 00 01
TYPE DTR
CDEN 8D
DATE  3 APR 1993
⋮
DES  9THFL
TN   004 0 00 06
TYPE 2616
CDEN 8D
CUST 0
AOM  0
FDN
TGAR 0
LDN  NO
NCOS 0
SGRP 0
RNPG 0
SCI  0
SSU
LNRS 16
XLST
CLS  UNR FBD WTA LPR MTD FND HTA ADD HFA
    MWD AAD IMD XHD IRD NID OLD VCE DRG1
    POD DSX VMD CMSD CCSD SWD LNA CNDA
    CFTD SFD MRD PDN DDV CNID
    ICDD CDMD LLCN MCTD AUTU
    GPUD DPUD DNDD CFXA ARHD CLTD ASCD
    CPFA CPTA ABDD CFHD FICD NAID
    USMD USRD ULAD OCBD
CPND_LANG ENG
```

```
HUNT 000
LHK  1
PLEV 02
AST  00 01
IAPG 1
ITNA NO
DGRP
MLWU_LANG 0
DNDR 0
KEY  00 SCR 4006    MARP
       CPND
         NAME Ron Young
         XPLN 10
         DISPLAY_FMT FIRST,LAST
    01 SCR 4106    MARP
       CPND
         NAME Ron Young
         XPLN 10
         DISPLAY_FMT FIRST,LAST
    02 TRN
    03 ADL 16
    04 CFW 16
    05 RGA
    06 AO6
    07
    08
    09
    10 PRK
    11
    12
    13
    14
    15
DATE 21 FEB 1996
⋮
DES  MMAGT6
TN   010 0 00 10
TYPE 2008
CDEN 8D
CUST 0
KLS  1
FDN
TGAR 0
LDN  NO
NCOS 0
SGRP 0
RNPG 0
SCI  0
SSU
XLST
CLS  UNR FBD WTA LPR MTD FND HTD ADD
    MWD AAD IMA XHD IRD NID OLD VCE
    POD DSX VMA CMSD CCSD SWD LND CNDD
    CFTD SFD MRD PDN DDV CNID
    ICDD CDMD LLCN MCTD AUTU
    GPUD DPUD DNDD CFXA ARHD CNTD CLTD ASCD
    CPFA CPTA ABDD CFHD FICD NAID
    USMD USRD ULAD OCBD
HUNT
PLEV 02
```

```
SPID NONE
AST
IAPG 0
ITNA NO
DGRP
PRI  01
MLWU_LANG 0
DNDR 0
KEY  00 ACD 8888 7835
       AGN
    01 SCN 7805    MARP
    02 MSB
    03 NRD
    04 RLS
    05
    06 TRN
    07 AO3
DATE  6 NOV 1995


NACT
REQ: END
```

```
>LD 21
PT1000

REQ: RDB
SCH0099 RDB?
REQ: PRT
TYPE: RDB
CUST
SCH0274

CUST 0
ROUT
ACOD
TYPE RDB
CUST 00
DMOD
ROUT 0
TKTP TIE
ESN  NO
CNVT NO
SAT  NO
RCLS EXT
DTRK YES
DGTP DTI
ISDN YES
   MODE NULL
   IFC  SL1
   PNI  00000
   NCNA YES
   NCRD YES
   TRO  NO
   CHTY ABCH
   CTYP UKWN
   INAC NO
   ISAR NO
   TGAR 0
```

```
DSEL VOD
PTYP DTT
AUTO NO
DNIS NO
DCDR NO
ICOG IAO
SRCH LIN
TRMB YES
STEP
ACOD 7920
TARG
BILN NO
OABS
INST
ANTK
SIGO STD
STYP SDAT
TIMR ICF 512
    OGF 512
    EOD 13952
    DSI 34944
    NRD 10112
    DDL 70
    ODT 4096
    RGV 640
    GRD 896
    SFB 3
   NRAG 30
    TFD 0
SST  5 0
NEDC ORG
FEDC ORG
CPDC NO
DLTN NO
HOLD 02 02 40
SEIZ 02 02
SVFL 02 02
DRNG NO
CDR  NO

PAGE 002

MUS  NO
MANO NO
FRL  0 0
FRL  1 0
FRL  2 0
FRL  3 0
FRL  4 0
FRL  5 0
FRL  6 0
FRL  7 0
OHQ  NO
OHQT 00
CBQ  NO
AUTH NO
TTBL 0
OHTD NO
PLEV 2
ALRM NO
ART  0
```

```
SGRP 0
⋮
TYPE RDB
CUST 00
DMOD
ROUT 52
TKTP FEX
SAT  NO

PAGE 014

RCLS EXT
DTRK NO
ISDN NO
PTYP ACO
AUTO NO
DNIS NO
ICOG OGT
SRCH LIN
STEP
ACOD 7152
TARG
OABS
TIMR ICF 512
    OGF 512
    EOD 13952
    DSI 34944
    NRD 10112
    DDL 70
    ODT 4096
    RGV 640
    FLH 510
    GRD 896
    SFB 3
    TFD 0
    LEXT 100
SST  3 0
NEDC ETH
FEDC ETH
CPDC NO
SPCT IMM
HOLD 02 02 40
SEIZ 02 02
RGFL 02 02
RVSD 08 31
ILLR 02 02
CDR  NO
MUS  NO
MANO NO
EQAR NO
FRL  0 0
FRL  1 0
FRL  2 0
FRL  3 0
FRL  4 0
FRL  5 0
FRL  6 0
FRL  7 0
OHQ  NO
OHQT 00
```

```
TTBL 0
OHTD NO
PLEV 2
ALRM NO
ART  0
SGRP 0

TYPE RDB
CUST 00
DMOD
ROUT 54
TKTP TIE
ESN  NO

PAGE 015

CNVT NO
SAT  NO
RCLS EXT
DTRK YES
DGTP PRI
ISDN YES
   MODE PRA
   IFC  SL1
   PNI  03068
   NCNA YES
   NCRD NO
   CHTY BCH
   CTYP UKWN
   INAC NO
   ISAR NO
   TGAR 0
PTYP PRI
AUTO NO
DNIS NO
DCDR NO
ICOG IAO
SRCH LIN
TRMB YES
STEP
ACOD 8500
TARG
BILN NO
OABS
INST
ANTK
SIGO STD
TIMR ICF 512
    OGF 512
    EOD 13952
    NRD 10112
    DDL 70
    ODT 4096
    RGV 640
    GRD 896
    SFB 3
    NBS 2048
    NBL 4096
   NRAG 30
    TFD 0
DRNG NO
```

```
CDR  NO
MUS  NO
EQAR NO
FRL  0 0
FRL  1 0
FRL  2 0
FRL  3 0
FRL  4 0
FRL  5 0
FRL  6 0
FRL  7 0
OHQ  NO
OHQT 00
CBQ  NO
AUTH NO
TTBL 0
PLEV 2

ALRM NO
ART  0
SGRP 0

REQ: END
```

>LD 23
ACD000
UDATA: 195675 0 PDATA: 189871 2
SCH5066

ACD DNS AVAIL: 75 USED: 25 TOT: 100
REQ PRT
TYPE CDN
CUST
SCH€0274
CUST 0
CDN
TYPE CDN
CUST 0
CDN 7600
FRRT
SRRT
FROA NO €
MURT
DFDN 7650
CEIL 2047
OVFL NO
TDNS NO
CNTL YES
VSID 5
HSID 5
CWTH 1
BYTH 30
OVTH 35

UDATA: 195675 0 PDATA: 189871 2
SCH5066

ACD DNS AVAIL: 75 USED: 25 TOT: 100
REQ END

>

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Glossary of Terms

ACD See Automatic Call Distribution.

ANI
See Automatic Number Identification.

Automatic Call Distribution
Referred to as ACD. A telephone system feature that automatically routes call to agents.

Automatic Number Identification
Referred to as ANI. Provides the capability that allows applications to identify the parties involved in a call and automatically transmit this information. ANI is typically a 10-digit number that is delivered by the network to identify the incoming caller.

Calling Line Identification
Referred to as CLID. Sends a telephone's designated number through the ISDN PRI network to the digit display on a receiving device.

CDN
See Control DN.

CLID
See Calling Line Identification.

Computer Telephony Integration Link
Referred to as CTI Link. A physical and logical connection between a PBX and computing system.

Control DN
Referred to as CDN. Similar to an ACD queue with no agents. In essence, it is a "holding place" for calls and used by host enhanced routing applications.

CTI
Computer Telephony Integration.

Dialed Number Identification Service
Referred to as DNIS. A telephone system feature that identifies a number that is dialed.

Direct Connect
A communication link between the Meridian 1 PBX and the Application Module (either the Meridian Link Module or the Customer Controlled Routing [CCR] Module). The Meridian Link IPE Module or Application Module software includes OA&M used to configure the Meridian Link connection.

Directory Number
Referred to as DN. A number that is the number assigned to a specific address.

DN
See Directory Number.

DNIS
See Dialed Number Identification Service.

DNs
Directory Numbers. See DN.

DTEV
Desktop Evolution

Integrated Services Digital Network
Referred to as ISDN. A specific type of switch-based telecommunication service. An international standard defined by the ITU (International Telecommunication Union) for an all-digital network providing end-to-end digital connectivity to support a wide range of voice and non-voice (data and video) services. An extension of the telephone system from analog to digital transmissions.

ISDN
See Integrated Services Digital Network.

IVR
Interactive Voice Response

MADN
Multiple Appearance Directory Number.

Meridian 1
The PBX telephone switch that controls the station sets associated with the TAPI client.

Meridian Link
Meridian Link commands and status messages use TCP/IP over a standard 10 Mbit Ethernet connection.

NORTEL Support Hotline
For additional information or help, call (800) 4 NORTEL.

PAPI
Pangea Application Programming Interface

SCCS
Symposium Call Center Server

Service Providers
Referred to as SP. Software files needed to enable TAPI applications to communicate with the physical telephony device.

SP
See Service Providers.

Symposium Call Center Server

TAPI
See Telephony Application Programming Interface.

TAPI Service Provider
Files needed to enable TAPI-compliant applications to communicate with the telephone device.

TCP/IP
Transport control protocol (Internet protocol, a standard Ethernet networking protocol).

Telephony Application Programming Interface
Referred to as TAPI. The Microsoft/Intel created standard for Windows telephony.

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