
Nortel Symposium Network Manager's Guide

**Reference Guide for
Installing, Configuring, and Maintaining
the Symposium TAPI Driver for ICM**



Publication Number P0902559



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**A Reference Guide for installing, configuring, and maintaining
the Symposium TAPI Driver for ICM**

Publication number: P0902559

Document release: Standard
Issue 00 Stream 03

Date: February 1999

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Printed in the United States of America

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About this Guide

This *Network Manager's Guide* describes how to install and maintain the Symposium Telephony Application Programming Interface (TAPI) driver for the Intelligent Communications Module (ICM). The TAPI driver for ICM is also referred to as the TAPI driver for ICM in this document. Information in this document is intended for use by application developers who want to write TAPI 2.0/2.1 compliant applications for deployment on an MSL-100 switch or for deployment in a Centrex environment on a DMS / MSL-100 switch or for DMS / MSL-100 users who have bought or developed a TAPI 2.0/2.1 compliant application and need a TAPI driver for ICM Platform to support the deployment of their application.

This guide is divided into the following chapters and appendices:

Chapter 1, "Overview," provides an overview of the TAPI driver for ICM and summarizes features supported by the TAPI driver for ICM.

Chapter 2, "Installation," summarizes the installation process and describes in detail how to complete the TAPI driver for ICM installation.

Chapter 3, "Configuration" provides information on configuring the TAPI driver for ICM. This information includes the Configurator program, the Automatic Configuration process, and the Customized Configuration process.

Chapter 4, "Microsoft TAPI 2.1 Upgrade and TCMAPP Configuration," provides the steps to install and upgrade the TAPI 2.1 on the Windows NT server and client machines and to setup the TCMAPP.

Chapter 5 "Additional Tools," describes the *ACDProxy Service* provided with the TAPI driver for ICM.

Chapter 6, "Troubleshooting Tools," details the Troubleshooting applications provided with the TAPI driver for ICM.

Chapter 7, "Troubleshooting Tips," provides possible problems and the actions to take to resolve these problems.

The Appendices provide additional user information that may be useful when using the TAPI driver for ICM.

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 -- option is selected
11. **Note:** Identifies important User information and special instructions.

Note: Notes display in paragraphs separated from other text.

Online Documentation

The User documents for the TAPI driver for ICM are provided electronically as online documents. One or more of these documents are contained on the TAPI driver for ICM CD ROM in the **DOC** directory. The online documents are described in the following table:

 Document Name	File Name	Description
<i>Network Manager's Guide for the Symposium TAPI Driver for ICM</i>	ntmgrICM.pdf	This user's guide provides information on installing, configuring, and using the TAPI driver for ICM.
<i>Programmer's Guide for the Symposium TAPI Driver for ICM</i>	prmgrICM.pdf	This document contains information that is helpful to developers who are writing applications that may use the TAPI driver for ICM. This document may or may not be available on your CD ROM.

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 first release of the *Network Manager's Guide for the TAPI Driver for ICM*. Whenever the TAPI driver for ICM software is reissued or revised, updates of this guide will summarize the new capabilities.

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Chapter 1 Overview

This chapter provides general information about the TAPI driver for ICM to acquaint you with the TAPI driver for ICM environment, architecture, features, applications, and feature interactions.

TAPI Driver for ICM Environment

The Nortel Symposium TAPI driver for ICM (TAPI driver for ICM) 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 TAPI driver for ICM is a full function service provider for Microsoft's Telephony Application Programming Interface (TAPI) Release 2.1 for Windows NT and Windows 95. The TAPI driver for ICM provides comprehensive support of DMS and MSL-100, coordinated screen transfer (local and remote), open interface for integration with Interactive Voice Response (IVR) systems for caller entered information, and sophisticated applications-based call routing.

The Nortel Symposium TAPI driver for ICM consists of TAPI driver for ICM software that runs on a Windows NT Server running 4.0 or greater software that supports a Telephony Application Programming Interface (TAPI) on a Windows client. A PC application, acting on behalf of a user, can use the API to monitor and control calls at a telephone associated with the user. TAPI is a set of C-language routines that support telephony control capabilities for switches as well as the DMS Central Office switches.

TAPI Driver for ICM Overview

The TAPI driver for ICM utilizes a Pentium 200 and above-based server equipped with Windows NT 4.0 Server software and Service Pack 4, and Microsoft TAPI 2.1 plus Microsoft Remote TAPI SP 2.1 software for the telephone services administration on the server. Nortel adds the TAPI driver for ICM software to connect the DMS / MSL-100 via ICM link. The TAPI driver for ICM is connected via a TCP/IP connection. The Client PC is equipped with the Remote TAPI SP 2.1 software and a TAPI application such as Nortel Symposium Call Manager or Symposium Agent.

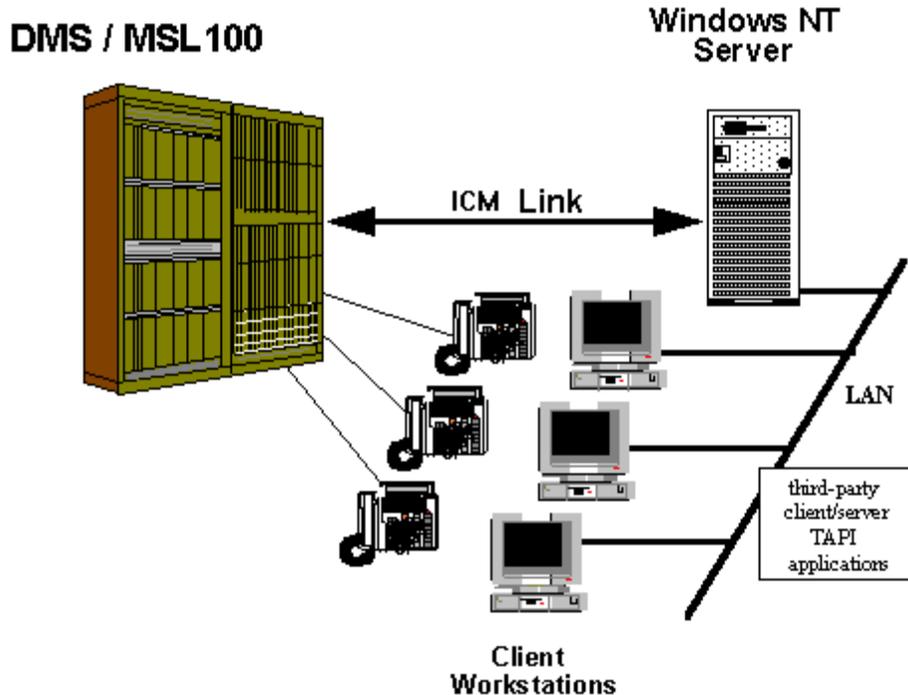


Figure 1 TAPI Driver for ICM Overview

The TAPI driver for ICM provides call control functions to a group of LAN connected desktops in a client-server relationship.

The TAPI driver for ICM provides the interface between the DMS / MSL-100 ICM link and TAPI. This enables third party applications, running on a Windows NT or Windows 95 platform, to control local telephone sets within the DMS / MSL-100 and to report the status of calls to the TAPI-compliant application.

ICM Overview

ICM provides a data communications channel, between the DMS / MSL100 switch and a Windows NT TAPI Server, that allows a telephone company to provide coordinated telephone services through DMS / MSL-100 Central Office to applications residing on the user's computer. ICM consists of a set of commands and status messages that allows an external TAPI application running in a client / server relationship to control individual telephony functions of a user's telephone set. ICM messages consist of Make Call, Answer Call, Hold, Unhold, and others, that provide user telephone call control, and the status messages of OnHook, OffHook, and others, that furnish the status of the user's telephone set. ICM uses the ANSI Switch Computer Applications Interface (SCAI) protocol across the link. In addition, ICM provides the capability for a user to simultaneously receive a telephone call and related information on a computer screen. Automatic Call Distribution (ACD) customers, Meridian Digital Centrex Customers, Residential (RES) customers, and MSL-100 Private Branch Exchange (PBX) customers are supported by ICM.

ICM Link Customer Information

When the ICM link is installed, the telephone company provides you with specific information regarding your ICM connection. This information is required when configuring the TAPI driver for ICM software. This information includes the following:

- Business Group ID
- Network Node ID
- Application ID
- Service ID
- Password
- Protocol

System Architecture for DMS / MSL-100

The TAPI driver for ICM is connected to the DMS / MSL-100 switch software via a TCP/IP connection and to client PCs via a TCP/IP LAN. Dual Processor Configurations are only supported by the TAPI driver for ICM using Microsoft's Service Pack 4.0 for Windows NT.

DMS / MSL-100 with TCP/IP Configuration

DMS / MSL-100 TAPI Server communicates over a TCP/IP to the DMS /MSL-100 using the ICM Messages. When a user's TAPI application starts, the ICM link is automatically established.

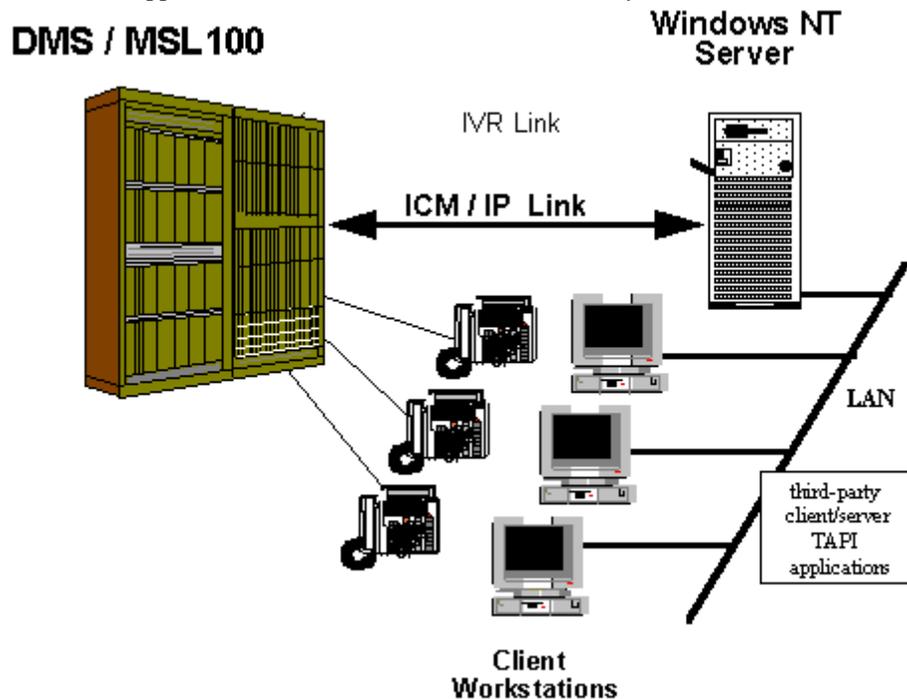


Figure 2 DMS / MSL-100 with TCP/IP Configuration

Note: Your configuration may also include the Open IVR system as demonstrated in Figure 3.

TAPI Driver for ICM Implementation

ICM provides the capability for the TAPI driver for ICM user to simultaneously receive a telephone call and related information in a TAPI-compliant application. TAPI applications communicate with the DMS / MSL100 using the ICM link, which is provided by the Ethernet Interface Unit (EIU) in a DMS-100.

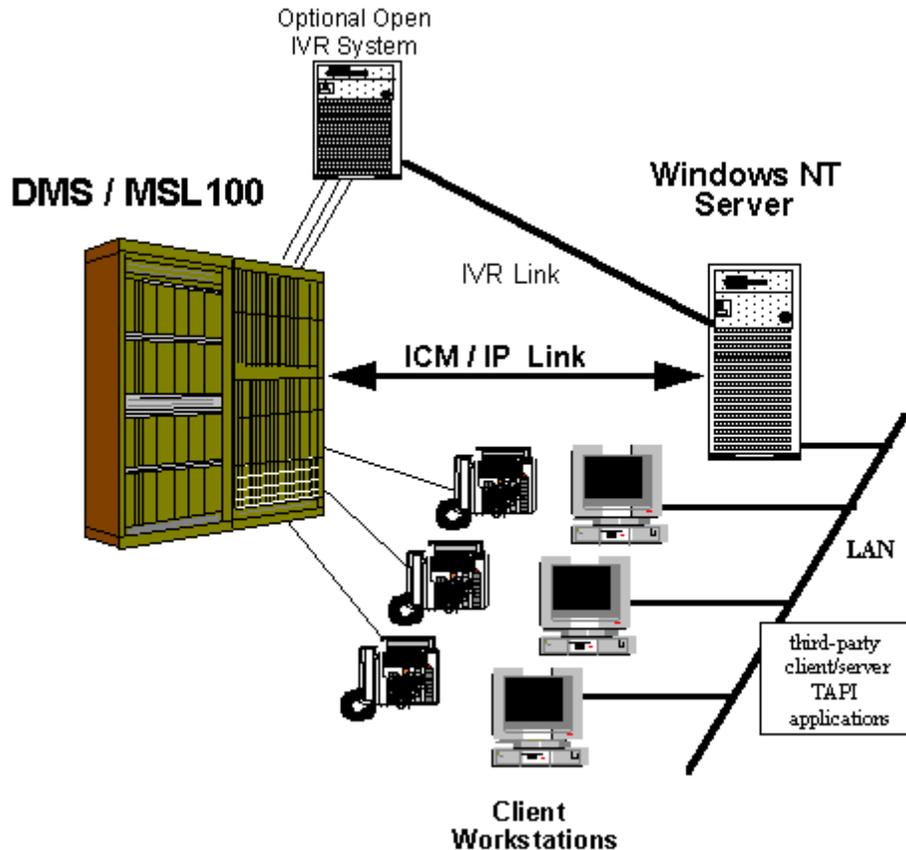


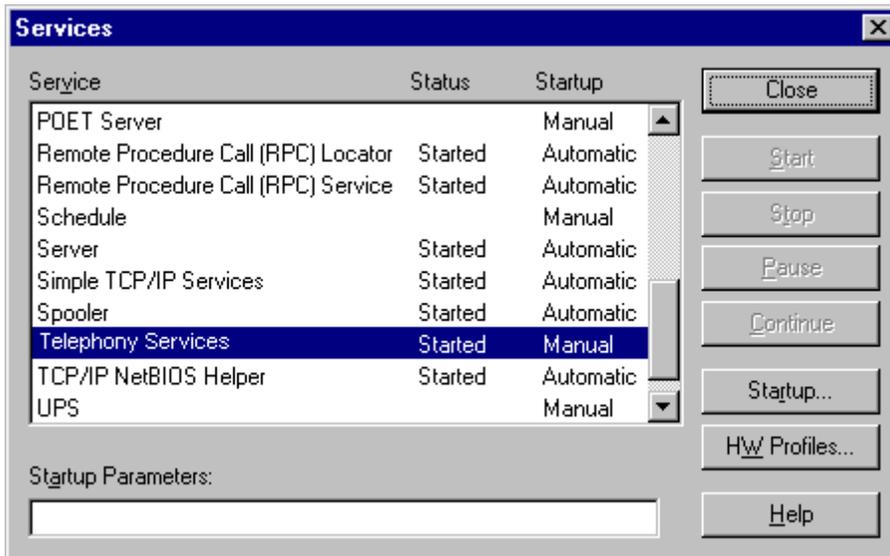
Figure 3 TAPI Driver for ICM Implementation

Note: The figure shown here displays the Open IVR system. The Open IVR is optional based upon application needs.

The client telephone lines are monitored by the DMS / MSL-100 ICM software. This software can ring the users phone and obtain the status of the phone to display whether a phone is on or off hook, or being dialed. The telephones are standard Nortel Centrex Meridian Business sets or can be standard 2500 POTS sets. The TAPI driver for ICM software runs on a Windows NT server and provides the interface between a client TAPI application and the DMS / MSL-100 switch. The TAPI driver for ICM software converts between client telephony commands such as clicking on an icon to answer a call and the ICM command that is sent to the switch that causes the ringing call to be answered.

Microsoft TAPI Server (TAPISRV) and the Client

The Microsoft TAPI Server (TAPISRV) is a Windows NT telephony service that provides the interface between the client and the ICM Link. 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 TAPI driver for ICM. The TAPI driver for ICM converts the TAPI messages to corresponding switch messages through the ICM Link. Likewise, the TAPI driver for ICM converts the switch messages to TAPI messages for routing to the client application via the TAPISRV.

Administration and Configuration

The TAPI driver for ICM Configurator application provides an updated and easy to use Graphical User Interface (GUI). The Configurator application provides for the entry of database information. The TAPI Service Provider also allows for Windows 95 and NT workstation remote Configurator administration.

The Administrator accesses the Configurator application and sets the Service Provider properties, Switch information, adds Customer(s) to the Switch, and line devices for the Customer(s). The Administrator has the capability to define System Configurations that provide additional flexibility and functionality. Configurations have a designated status, such as Active, Standby, and Inactive. The dynamic database in the TAPI Service Provider allows the Administrator to change Configurations without shutting down the system, thus avoiding interruptions in service.

Features of the TAPI Driver for ICM

The TAPI driver for ICM provides the following functionality in kits to meet the specific needs of the users.

Basic Call Control

Basic Call Control includes support for the following features:

- Make Call (The Quick Answer feature does not apply to analog phones. When using analog phones, the ring back from the switch must be manually answered before the outbound call is placed.)
- Answer Call
- Release Call
- Hold Call (If the Hold is manually pressed at the phone set, it is a “local” hold. The TAPI driver for ICM does not receive messaging information regarding local holds.)
- Unhold Call
- Conference Call
- Transfer Call (Blind and Supervised)

ICM Connectivity

The TAPI driver for ICM connects to the DMS / MSL-100 switch using a TCP/IP connection. The TAPI driver for ICM supports all NA006 to NA009 ICM messages.

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. The following ACD Features are supported:

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

Data Exchange API Interface

The TAPI driver for ICM can be used to pass private data to an application involved in bringing up a screen of data, commonly referred to as screen pops. The maximum size of private data is governed by the IVR system that is used. The TAPI driver for ICM obtains such caller entered data directly from an IVR system, Predictive Dialing, or other applications.

Dynamic Database

The dynamic database allows the removing or adding of lines without any of the applications having to shutdown the server. The dynamic database model also supports the modifications of a particular line (adding/changing features of the set) and adding and changing addresses associated with the lines.

Note: Although the lines and addresses can be changed dynamically, the Client machine will not see the changes until Microsoft's TCM Application is restarted.

Integration with IVR Units

The TAPI driver for ICM offers an open interface to IVR systems that allows IVR systems to pass call related data, such as caller entered digits, to the TAPI NT Server then on to TAPI-compliant applications. The IVR feature is enabled when configuring the Service Provider properties. Refer to the "Configuring the Settings for the TAPI driver for ICM" section located in Chapter 3.

Note: Whereas the TAPI driver for ICM 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.

Platforms

- Windows NT 4.0 with Service Pack 4 installed.
Service Pack 4 is required to support dual processor configurations.

Predictive Dialing

The TAPI driver for ICM supports outbound and predictive dialing application products that utilize the TAPI 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.

Switch Failure Recovery

The TAPI driver for ICM detects when the link is dropped and the switch does not respond. The TAPI driver for ICM reinitializes after three minutes. This auto recovery allows the applications to continue after the initialization is complete.

Note: Some applications may need to be restarted in order to control calls after the ICM TAPI server is restarted.

Troubleshooting Tools

The TAPI driver for ICM provides command tracing and debug capabilities to assist technical personnel in troubleshooting. When experiencing problems, technical personnel may request you to use the DBMON and ICM Trace tools to create a trace of the application activities. This information can be viewed by Nortel Technical personnel.

TAPI Driver for ICM Feature Interactions

Users of TAPI-compliant applications running in a TAPI driver for ICM environment must be aware of the results of some specific feature interactions:

ICM does not support Multiple Appearance Directory Numbers (MADN), Huntgroups, and Uniform Call Distribution (UCD) DNs. Also, when the user is involved in a 3-way conference, manual hold is not supported. You can complete a 3-way conference, but there is no message on the screen. ICM does not support forwarding of the phone.

The Quick Answer feature (Make Call) does not apply to analog phones. When using analog phones, the ring back from the switch must be manually answered before the outbound call is placed.

If the Hold is manually pressed at the phone set, it is a “local” hold. The TAPI driver for ICM does not receive messaging information regarding local holds.

TAPI Driver for ICM and Other Software Products

The TAPI driver for ICM is compatible with many other TAPI compliant software products. Some examples include two new Nortel products, which are to be released in 1998, the Nortel Symposium Call Manager and the Symposium Multimedia 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 TAPI driver for ICM. 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 TAPI driver for ICM. It includes the hardware and software requirements, an overview of the installation process, and the steps involved in the TAPI driver for ICM software installation.

Installation Summary

This section summarizes the baseline requirements and the steps to install the TAPI driver for ICM. It is important to follow the list of procedures in the order in which they appear.

Baseline Requirements

Required hardware and options include the following:

- DMS / MSL-100 with the required switch software.
- ACD functional groups require the DMS SuperNode Platform - BASE0001, TEL00001, and BAS00003.
- DMS/MSL100 EIU - see your distributor for further information

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

- Pentium 200 MHz CPU
- 3.5" Disk Drive
- CD ROM
- 32 Megabytes of RAM
- 12 Megabytes of free disk space for the TAPI driver for ICM
- 2 LAN cards (one for the connection to the switch and one for the connection to the client PC)
- Mouse
- VGA or SVGA Display (480 X 640 pixels)

Other server activity may affect the TAPI driver for ICM. While a dedicated TAPI NT server is not required, some large, time critical applications may warrant one.

Note: If you are using IVR, a separate LAN card is needed to interface with the IVR unit.

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 installed.
- Microsoft TAPI 2.1 files (TAPI 2.0 comes with Windows NT 4.0 and TAPI 2.1 is provided on Microsoft's Web page or with Service Pack 4).

Note: 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. Refer to Chapter 4 for additional information and be sure to read the Readme.txt file included with the upgrade for installation information

- TAPI driver for ICM software

Installation Process

It is important to follow the list of procedures in the order in which they appear. This is an overview. Detailed installation information is provided for specific steps in the following sections.

1. Verify that Windows NT 4.0 (with Service Pack 4 installed) or greater server is installed and running and that all user IDs and passwords are configured properly.
2. Verify that the DMS / MSL-100 includes all software packages needed to support ICM.
This completes installation of all hardware needed to support the TAPI driver for ICM.
3. Connect ICM link. Refer to your ICM Link documentation provided with the ICM Link.
4. Install the TAPI driver for ICM on the server. Add the TAPI driver for ICM in Windows NT. This procedure is outlined in the "Installing the TAPI driver for ICM" section located in this chapter.

Note: If you are upgrading from a previous version (pre-release version) of the TAPI driver for ICM, be sure to remove the previous version of software before installing the current software. Refer to the "Removing the TAPI driver for ICM Software" section located in Chapter 7 for detailed information on removing the TAPI driver for ICM software.

Also, before reinstalling the TAPI driver for ICM, ensure that the TAPISRV.exe is not running and that the Telephony Service has been stopped. Refer to the "Microsoft 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 opening the Control Panel and double-clicking on the **Services** icon to display the *Services* dialog box.

5. Configure the TAPI driver for ICM. This procedure is detailed in Chapter 3.
6. If not installed before, install Microsoft TAPI 2.1 (on the Windows 95 or the Windows NT client. Refer to the Readme.txt file provided with Microsoft TAPI 2.1 software for additional information. The client machines must be upgraded to Microsoft TAPI 2.1. Configure the TCMAPP. The TAPI driver for ICM must be running and the Microsoft TAPI SP must be upgraded before configuring the TCMAPP. Refer to Chapter 4 for additional information on configuring the TCMAPP.
7. Run the Microsoft TAPI Browser or Microsoft Dialer to verify the TAPI driver for ICM is working. Refer to Chapter 7 for additional information.
8. Install and configure TAPI-compliant application(s) on the server or on client machines. Refer to the application's user documentation.

The following figure shows a typical DMS / MSL-100 installation.

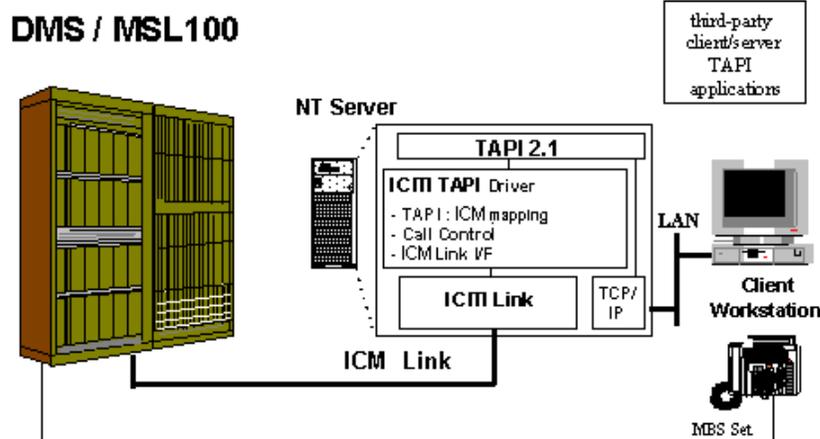


Figure 4 DMS / MSL-100 Installation Configuration

Ensure each step is completed successfully. This completes the installation and setup of the TAPI driver for ICM.

Installing the TAPI Driver for ICM

Ensure that the baseline requirements are met before installing the TAPI driver for ICM. You must have administrative rights to install this software and be familiar with the TAPISRV operation.

Note: Do not install the TAPI driver for ICM 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.

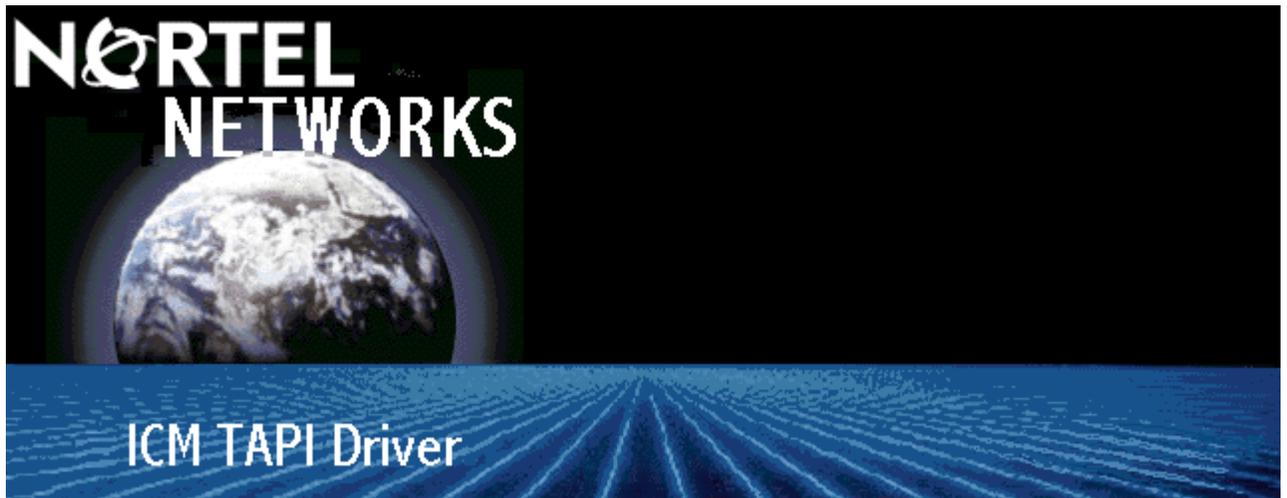
Special installation instructions may be required if, after installing the TAPI driver for ICM software, the need arises to upgrade or to install a patch for the installed software. These instructions are contained in the Release Notes provided with the new software. Before reinstalling TAPI driver for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

To Install the TAPI Driver for ICM Software:

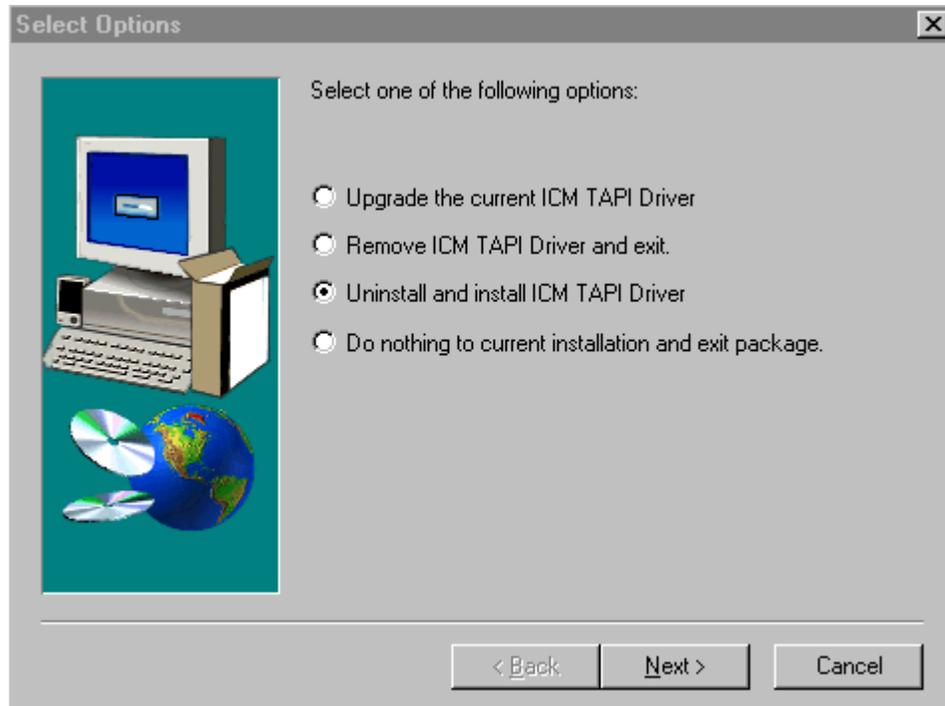
1. Access the *User Information* dialog box:
 - a. Log on to the Windows NT Server. You must log on as an Administrator with rights to the local machine to install this software.
 - b. Insert the TAPI driver for ICM CD ROM into the CD ROM driver.
The autolaunch starts the installation process.

Note: If the installation does not automatically start, run the **Setup.exe** program. Select **Run** from the **Start** menu to display the *Run* dialog box. Type the CD ROM drive\Installr.exe. For example, *E:\Setup.exe*
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 TAPI driver for ICM installation process begins.

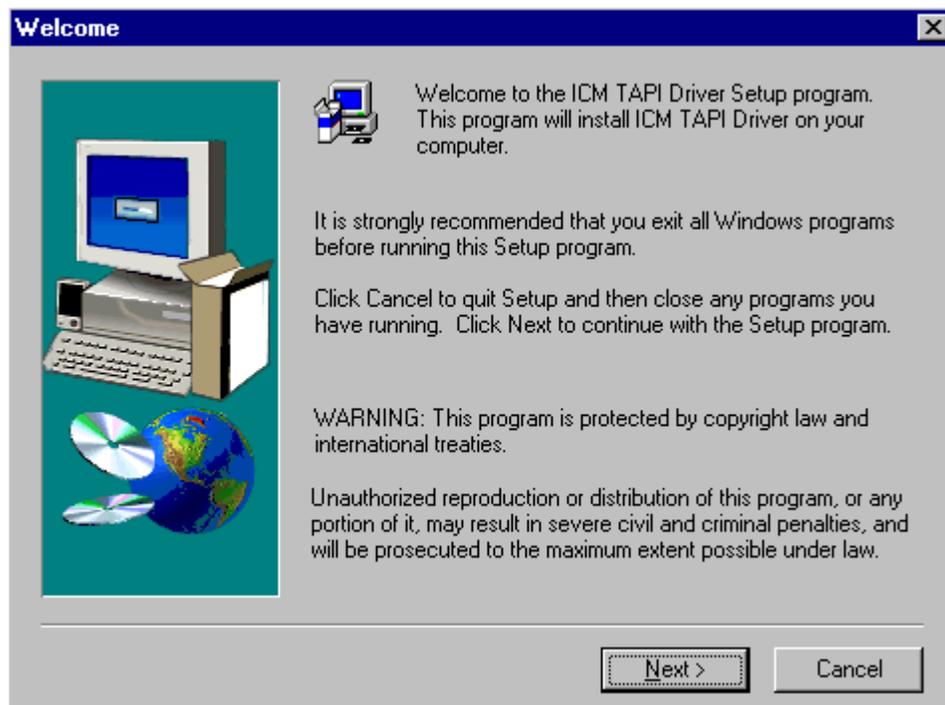


The *Select Options* dialog box is displayed.

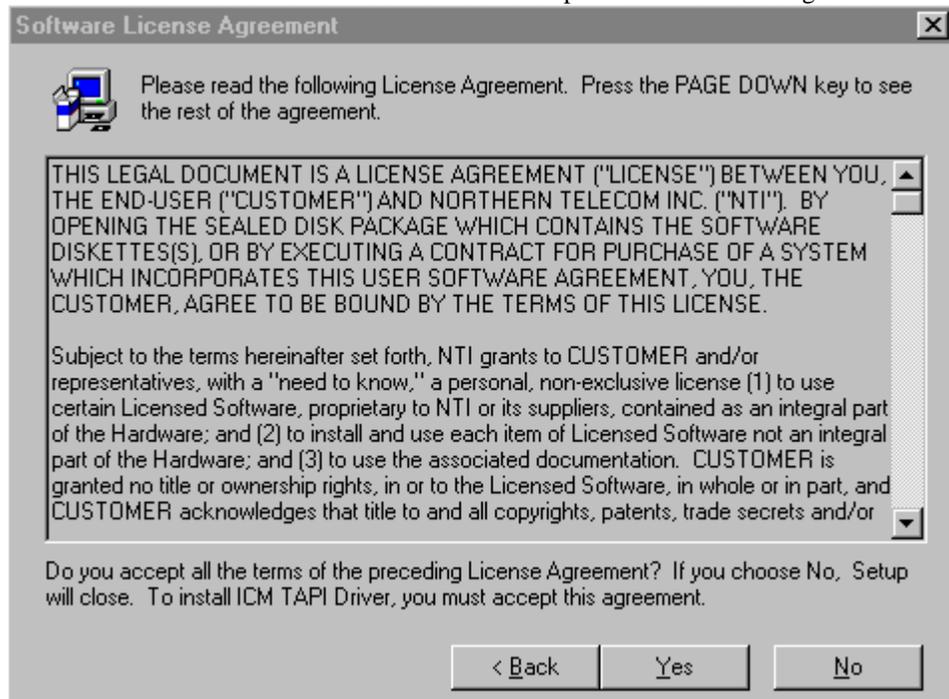


c. Select to **Install the TAPI driver for ICM** and click on the **Next** button to continue the installation.

The *Welcome* screen is displayed.

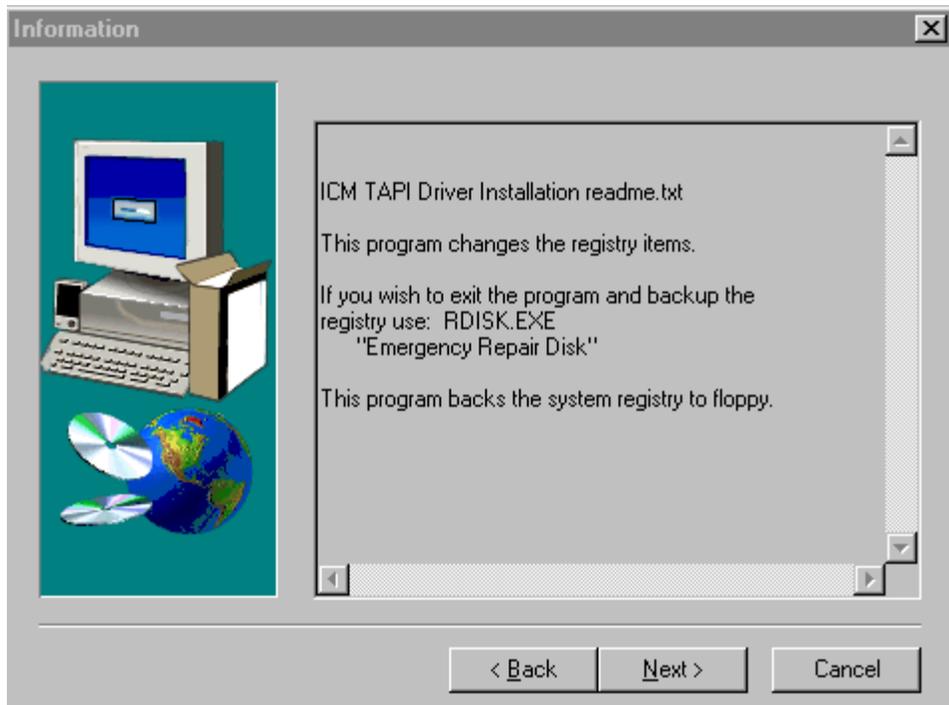


- d. Click on the **Next** button to continue the installation process. The license agreement is displayed.



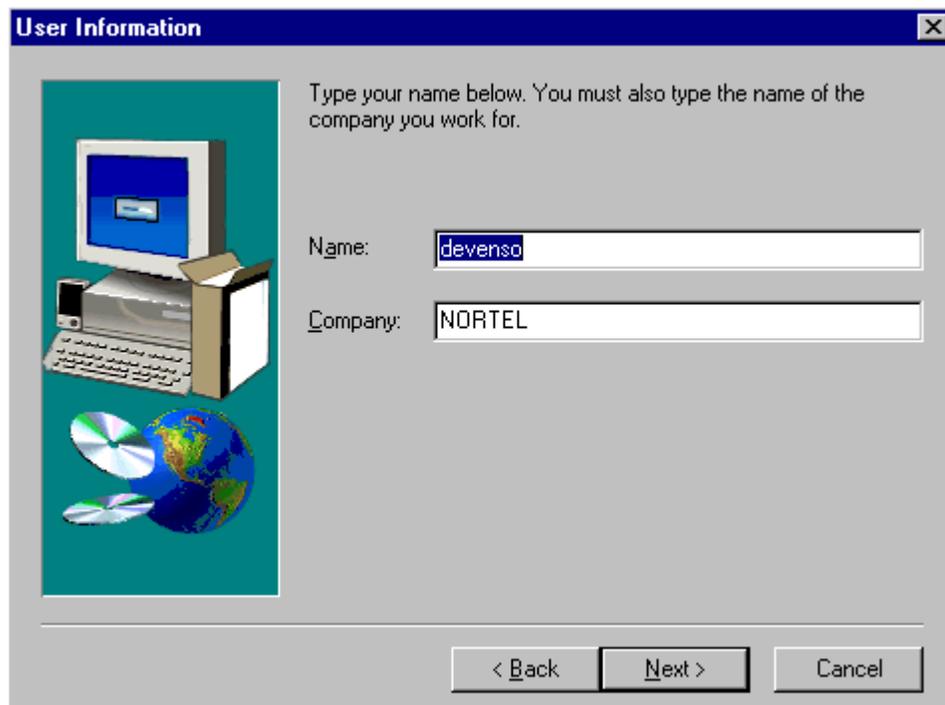
- e. Read the agreement and click on the **Yes** button to accept the terms and continue with the installation process.

The *Information* dialog box displays important information.

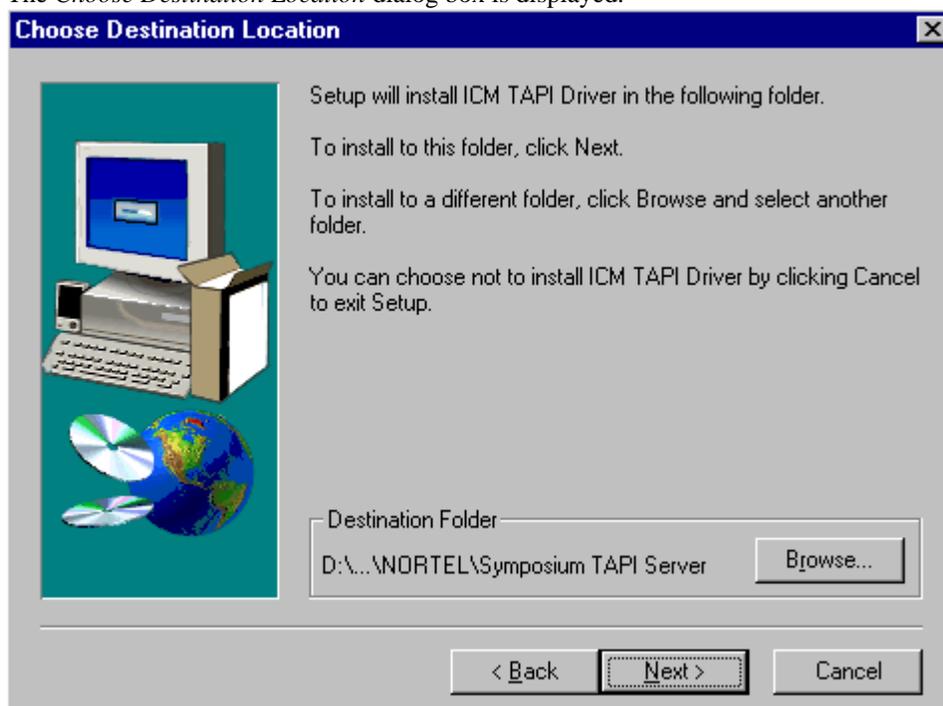


- f. Click on the **Next** button to continue the installation process.

The *User Information* dialog box is displayed.

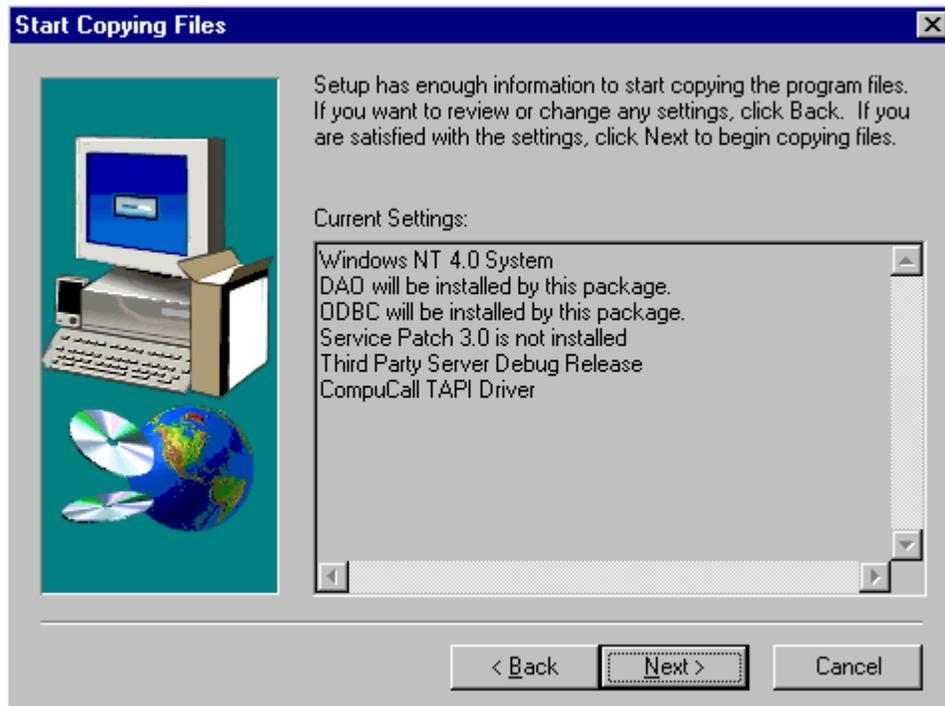


2. Click in the field and enter *your name* and your *company* name. Click on the **Next** button to continue the installation process.
The *Choose Destination Location* dialog box is displayed.



3. Click on the **Next** button to accept the default destination location.
Or
Click on the **Browse** button, select a new destination location, click on the **OK** button to display the

new location on the *Choose Destination Location* dialog box, and click on the **Next** button to continue. The *Start Copying Files* information box is displayed.



4. Click on the **Next** button to copy the files.

Or

Click on the **Back** button to change any information. After making changes, click on the **Next** button to continue the installation process.

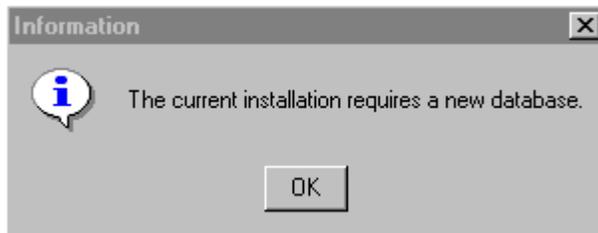
Or

Click on the **Cancel** button to cancel the installation. The installation process canceled.

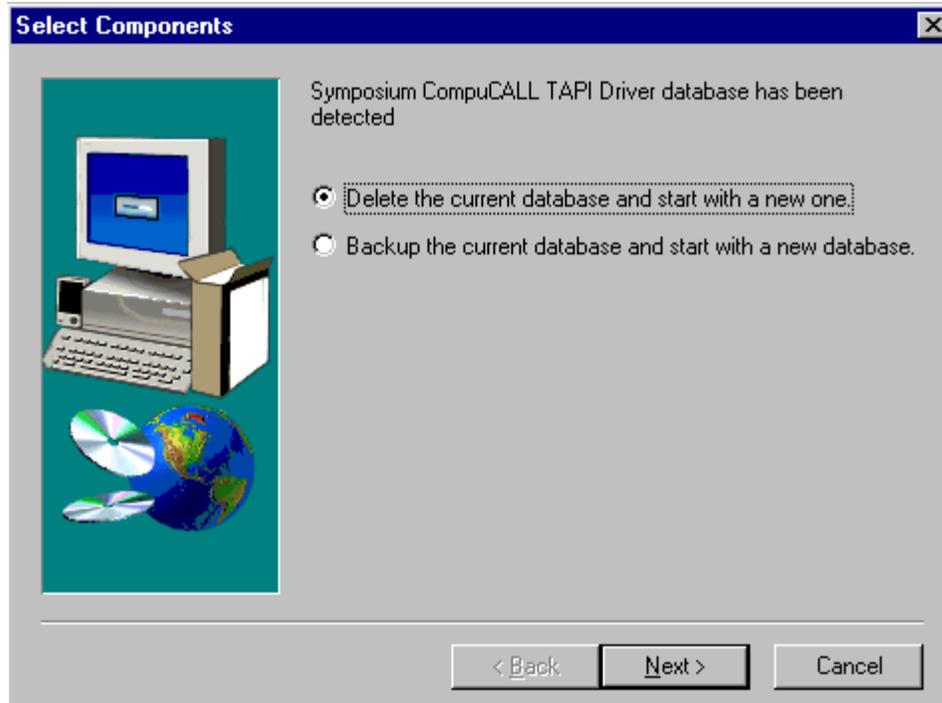
If you select to proceed with the installation, the installation files are copied.



Note: If a previous TAPI driver for ICM database is detected, the following dialog box notifies you that a new database is required.

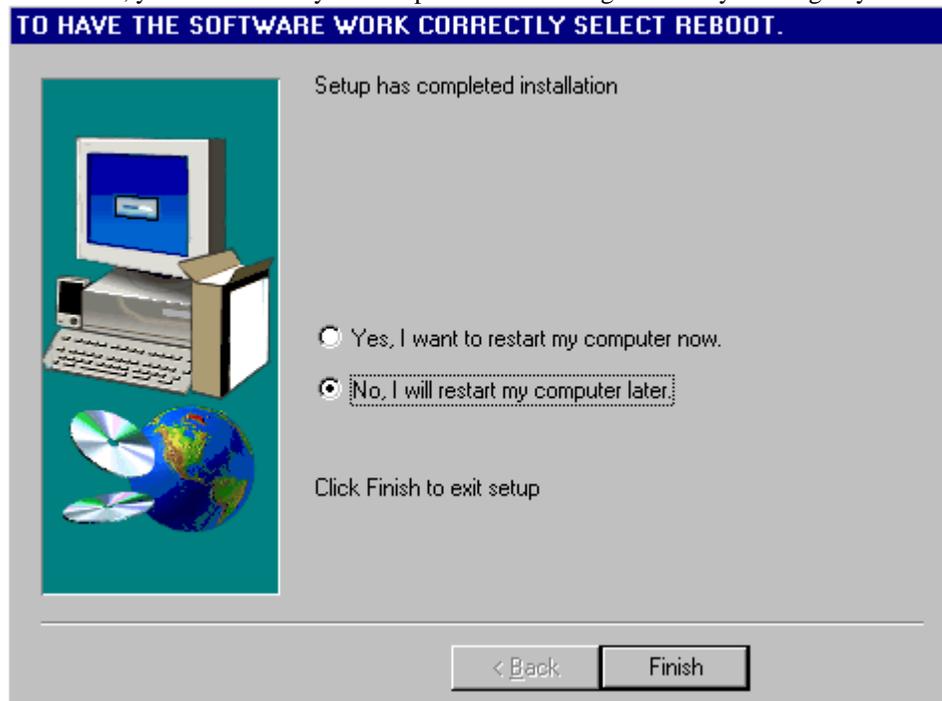


You are provided the option to save the old database.



Select to delete the current database or to backup the current database and click on the **Next** button to continue the installation.

When the installation is complete, You have the option to restart your computer now or at a later time. Remember, you must reboot your computer for the changes in the system registry to take place.



5. Click on the **Finish** button to close the installation process. If you selected to have your computer restarted, it restarts now.

Note: In Windows 95 clients, the Microsoft TAPI must be upgraded to 2.1 for the client and the server to communicate. After upgrading the client to Microsoft TAPI to 2.1, you must set up the TCMAPP for the client application to make calls. This information is provided in Chapter 4 of this document.

You are now ready to configure the TAPI driver for ICM. Refer to Chapter 3 for detailed information on configuring the TAPI driver for ICM.

Chapter 3 Configuration

This chapter provides an overview of the Configurator application and the tasks necessary to configure the TAPI driver for ICM. The Configurator application provides the interface for configuring the settings for the TAPI driver for ICM and the Switches and Customers associated with the Switches. It also allows you to set up one or more System Configurations and maintain the TAPI driver for ICM Database information.

The Configurator Application Overview

Configuring the TAPI driver for ICM is accomplished with the Configurator application. The Configurator application allows you to populate and maintain the TAPI driver for ICM 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.

Note: If you are using Windows 95, the Microsoft TAPI must be upgraded to 2.1 for the Windows NT client. After upgrading the Microsoft TAPI to 2.1, you must set up the TCM Application for the client application to make calls. This information is provided in Chapter 4 of this document. Configure the TAPI driver for ICM and ensure it is working **before** setting up the TCM Application.

Overview of the Steps for Configuring the TAPI Driver for ICM

Configuring the TAPI Driver for ICM consists of the following steps:

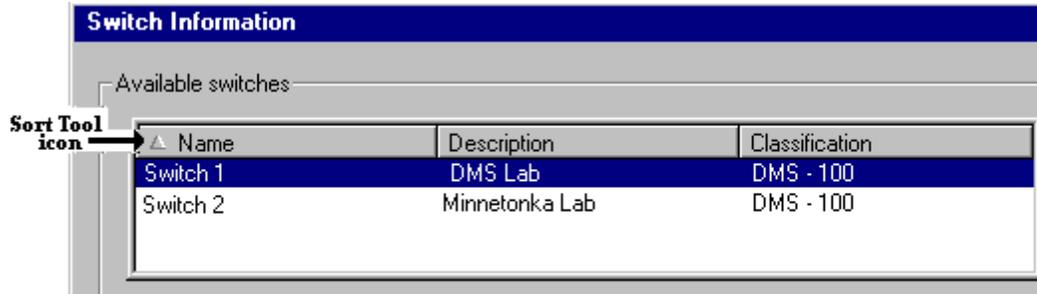
1. Running the Configurator application.
2. Configure the settings for your TAPI driver for ICM by adding the Service Provider information.
3. Configure the settings for your Switches and Customers by selecting available switches, adding customers to each switch, and defining devices (Lines and Addresses) for each customer.
4. Setting up one or more Configurations that include assigning a switch and customers to each Configuration, and giving the configuration a status of Active, Standby, or Inactive. Only one Configuration can have a status of Active.
5. Maintaining the TAPI driver for ICM database information. The TAPI driver for ICM allows you to maintain the TAPI driver for ICM database remotely.

Overview of the Configurator Windows and Dialog Boxes

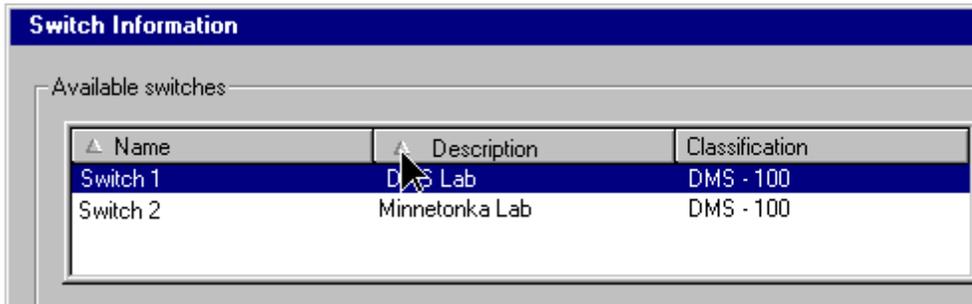
The Configurator application provides an easy to use Windows-based interface that is similar to other Windows-based applications. However, the Configurator application provides a sort tool to assist you in displaying and finding the information you desire. Pointing the mouse button cursor on certain items and clicking the right mouse button provides specific menu options.

Sort Tool

The Sort Tool icon  allows you to determine the order the column contents are displayed. The icon is located in the column title row, next to a column heading.



Clicking on a column heading moves the **Sort tool** icon to that column.



Clicking on the **Sort Tool** icon changes the direction of the sort. When the icon is pointing up , the column is sorted in Ascending order. When the **Sort Tool** icon is pointing down , the column is sorted in Descending order.

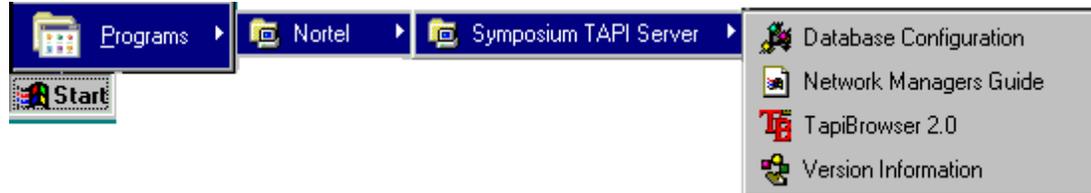
Right Mouse Click Tool

Placing the mouse button cursor over an entry and clicking the right mouse button displays the menu options that are available. For example, pointing the mouse button cursor on a Switch on the *Switch Information* dialog box and clicking the right mouse button displays the **Add**, **Remove**, and **Properties** options.

Running the Configurator Application

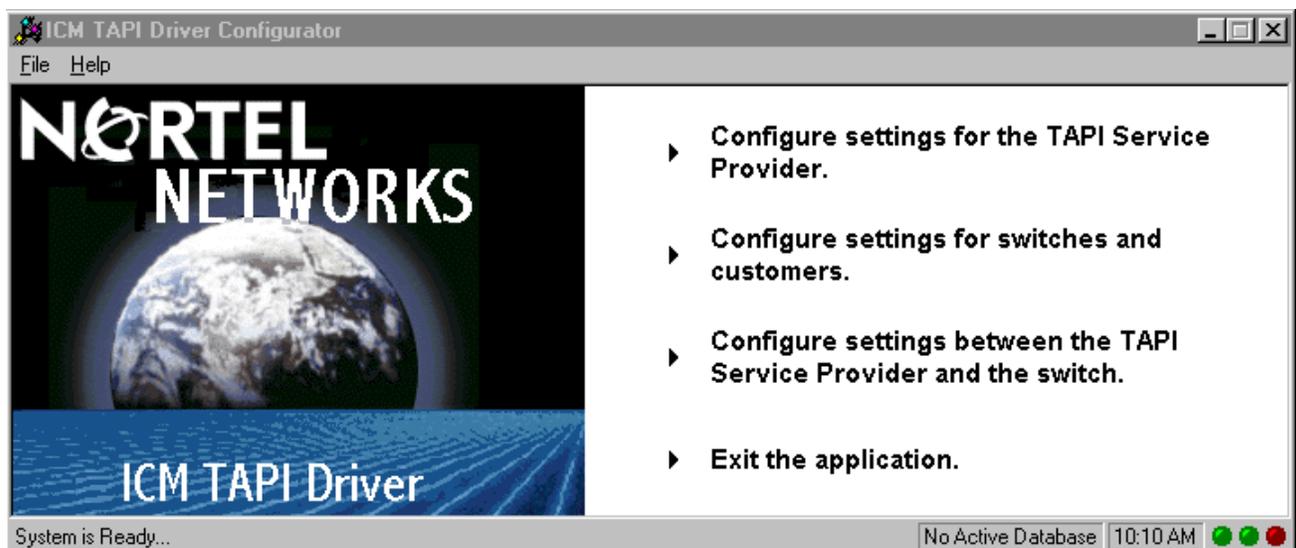
To Run the Configurator Application:

1. Click on **Start**, select the **Nortel / Symposium TAPI Server** program group to display the options.



2. Click on **Database Configuration**.

The *TAPI driver for ICM Configurator* dialog box is displayed.



Accessing the Configurator application opens the *TAPI driver for ICM Configurator* main window. This window provides access to the configuration tasks associated with the Configurator application.

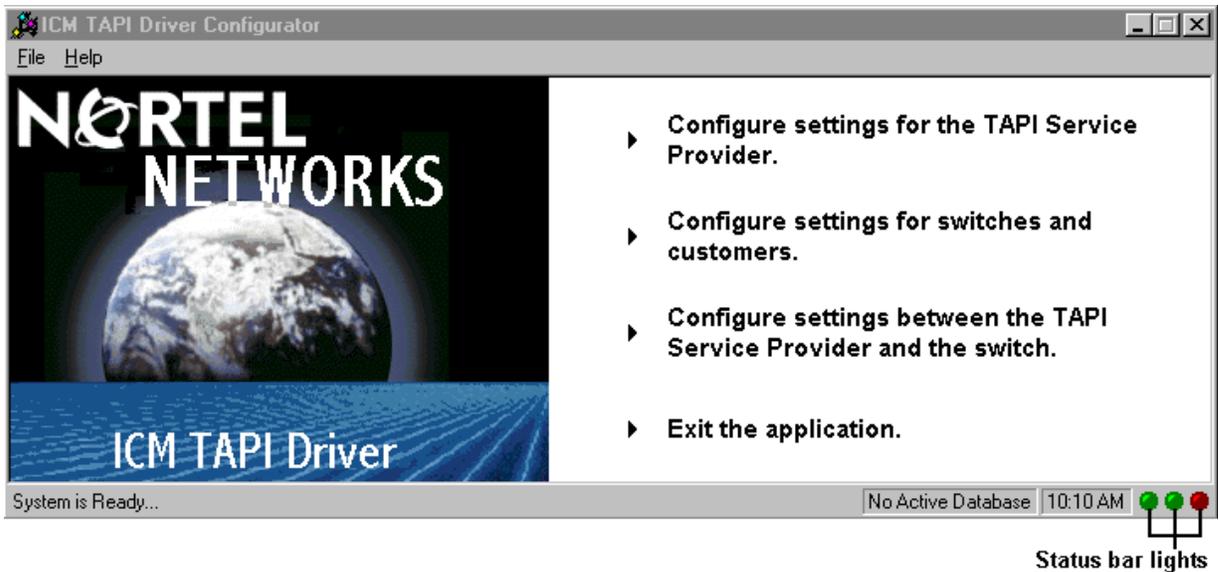
Selecting the **Configure the settings for the TAPI Service Provider** option displays the *Provider Properties* dialog box. This dialog box provides fields to set the Service Provider properties.

Selecting the **Configure settings for the switches and customers** option displays the *Switch Information* dialog box. This dialog box displays switch and customer information that has been configured. If you have not configured the switch and customer information, this dialog box is blank.

Selecting the **Configure the settings between the TAPI Service Provider and the switch** option displays the *System Configuration* dialog box. This dialog box displays system configuration information that has been configured. If you have not defined your system configurations, this dialog box is blank.

Selecting the **Exit the application** option closes the window.

The lights on the right side of the Status bar provide a visual indication of the system's readiness and problems. When all lights are green, the system is functioning properly and the TAPISRV.exe is running.



Status Bar Lights on the Configurator Window

The lights on the status bar provide a visual indication of the system's readiness and problems.

The first light will show red or green. A red light indicates the TAPI driver for ICM properties have not been configured.



This light is red upon initial access to the *Configurator* Window. Once the TAPI driver for ICM is configured, the light shows green.



Refer to the “Configuring the settings for the TAPI driver for ICM” section for information on configuring the TAPI driver for ICM.

The second light will show red or green. A red light indicates that there is no System Configuration with the assigned “Active” status.



When a Configuration is assigned the “Active” status, this light shows green.

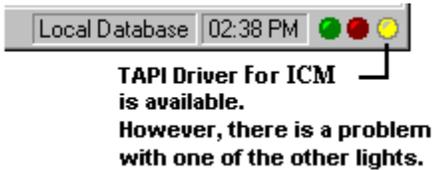


Refer to the “Defining the System Configuration” section for information on assigning the “Active” status to a System Configuration.

The third light will show red, yellow, or green. A red light indicates that the TAPI driver for ICM is not running.



When the TAPI driver for ICM is running, the light shows yellow or green. The yellow light indicates that the TAPI driver for ICM is running, however, one or both of the other lights are showing red.



A green light means the TAPI driver for ICM is running and the other two lights show green.



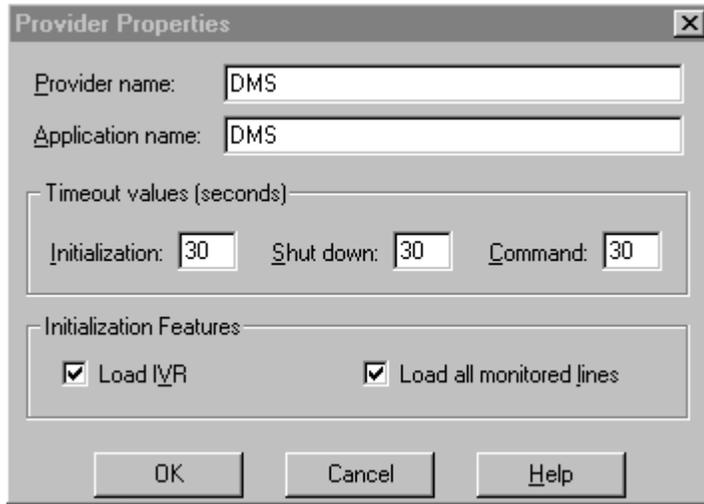
The TAPI driver for ICM must be running to be immediately notified of any changes made to the database.

Configuring the Settings for the TAPI Driver for ICM

Configure the settings for the TAPI driver for ICM by accessing the *Provider Properties* dialog box and entering the information.

To Access the *Provider Properties* dialog box from the *TAPI Driver for ICM Configurator* dialog box:

1. Click on the **Configure the settings for the TAPI Service Provider** option. The *Provider Properties* dialog box is displayed.



The *Provider Properties* dialog box fields, check boxes, and buttons:

Provider Data Fields	Description
Provider name	A user-defined name with a maximum of 20 ASCII characters.
Application Name	A maximum of 20 ASCII characters that uniquely identifies the originating application from other applications registered with the ICM link.
Timeout values (seconds)	Description
Initialization	A maximum of 3 numeric characters. The length of time the application will wait during the initialization process to establish communication before generating an error in seconds. The default is 16. This must be increased if you are initializing the TAPI driver for ICM with more than 50 lines.
Shutdown	A maximum of 3 numeric characters. The length of time the application will wait for shut down to be complete before generating an error in seconds.
Command	A maximum of 3 numeric characters. The length of time the service provider will wait for command responses before generating an error in seconds.
Provider Check boxes	Description
Load IVR	Select this option to initialize the IVR unit on startup.
Load all monitored lines	Select this option to initialize all monitored lines.

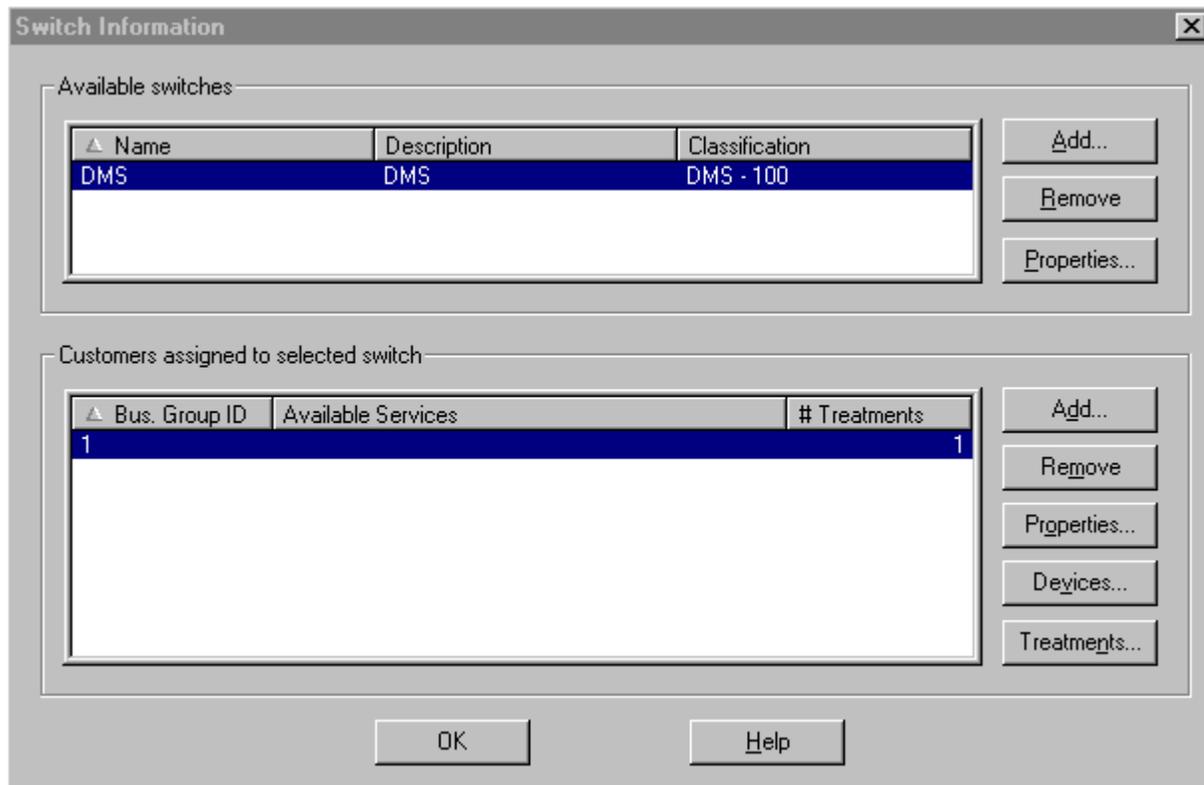
To Add or Modify the *Provider Properties* dialog box information:

1. Click in the field and enter or edit the information.
2. Click on the **OK** button to close the *Provider Properties* dialog box and save the information.
Or
Click on the **Cancel** button to close the *Provider* dialog box and cancel any changes.

The *TAPI driver for ICM Configurator* dialog box is displayed.

Configuring the Settings for Switches and Customers

Configure the settings for your Switches and Customers by selecting available switches, adding customers to each switch, and defining devices (Lines and Addresses) for each customer. The *Switch Information* dialog box displays information on the Switch and the Customer(s) associated with the Switch.



Initial access displays a blank *Switch Information* dialog box.

The following steps provide a brief overview of the configuration process for Switches and Customers.

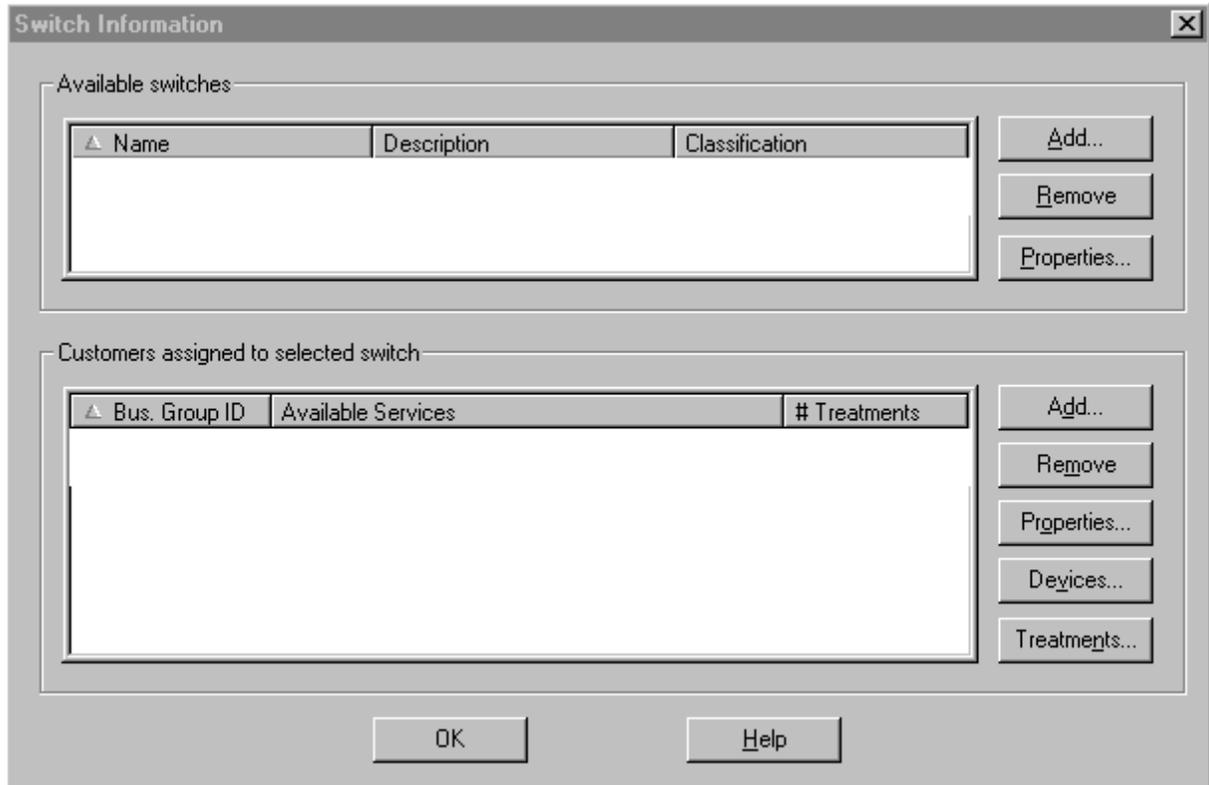
1. Access the *Switch Information* dialog box.
2. Add a Switch by accessing the *Add Switch* information dialog box and enter and select the appropriate information for the switch you are adding.
3. Add a customer to the Switch by the following steps:
 - a. Access the *Add Customer to switch* dialog box and enter information and select the available services.
 - b. Define the Devices (Lines and Addresses) for the customer on the *Device Properties* dialog box. The information is displayed on the *Switch Information* dialog box.
4. Add additional Switches as necessary by repeating steps 1 - 3.

Accessing the Switch Information dialog box

To Access the *Switch Information* dialog box from the *TAPI driver for ICM Configurator* dialog box:

Click on the **Configure the settings for your switches and customers** option.

The *Switch Information* dialog box is displayed. The fields are blank and the only active button is the **Add** button on the **Available switches** field.



Switch Data Fields	Description
Available switches	Displays information regarding the available switch(es)
Name	A maximum of 30 characters displayed from the user-entered information on the <i>Add Switch</i> dialog box.
Description	A maximum of 32 characters displayed from the user-entered information on the <i>Add Switch</i> dialog box.
Classification	Displays the selected switch classification from the <i>Add Switch</i> dialog box.
Customers assigned to a selected switch	Displays the information regarding the Customers assigned to the selected switch.
Customer #	Displays the Customers information from the User-entered information on the <i>Add Customer to Switch</i> dialog box.
Available services	Displays the Services information from the User-defined information on the <i>Add Customer to Switch</i> dialog box.
# Treatments	Displays the Services information from the User-defined information on the <i>Treatments</i> dialog box. This feature is not currently available for DMS/MSL-100.

Switch Information dialog box, cont.

Switch Buttons	Description
Add	Displays the dialog box for adding a switch (<i>Available switches</i> field) or for Adding a customer (<i>Customers...</i> field).
Remove	Removes a switch (<i>Available switches</i> field) or a customer (<i>Customers...</i> field).
Properties	Displays the dialog box that displays the selected switch information (<i>Available switches</i> field) or the selected customer information (<i>Customers...</i> field).
Devices	Displays the <i>Device Properties</i> dialog box for selected Switch.
Treatments	This feature is not currently available for DMS/MSL-100.

Adding a Switch

To add a Switch:

1. Access the *Switch Information* dialog box.
2. Click on the **Add** button located to the right of the *Available switches* field.
If you have more than one switch, the *Available Protocols* dialog box is displayed.
Click on the correct protocol and click on the **OK** button.

The *Add Switch* dialog box is displayed.

Add Switch

Name:

Description:

Classification:

Serial number:

OK

Cancel

Help

IVR Socket Information

Computer Name:

Broadcast Port:

IP Address:

Timeout (seconds):

Server Port:

WinSock Information

IVR Data Information

Duration (minutes):

Location Code:

Buffer Size (bytes):

Registration Association ID:

IVR Network Information

Computer Name	IP Address	Home Location Code

Add

Edit

Delete

3. Click in the *Name* field and enter the **switch name**, up to 30 characters.
4. Click in the *Description* field and enter the **description**, up to 32 characters.
5. Click on the down arrow to the right of the *Classification* field to display the available choices and select one choice.
6. Enter the **IP Address of the ICM TAPI Server**. Change the defaults, if applicable, in the other *IVR Socket Information* fields.
7. Change the defaults in the *IVR Data Information* fields, if applicable.

The information entered is displayed on the *Add Switch* dialog box, for example,

Add Switch

Name:

Description:

Classification:

Serial number:

IVR Socket Information

Computer Name: Broadcast Port:

IP Address: Timeout (seconds):

Server Port:

IVR Data Information

Duration (minutes): Location Code:

Buffer Size (bytes): Registration Association ID:

IVR Network Information

Computer Name	IP Address	Home Location Code

Note: This information in this dialog box is for demonstration purposes only. Your information may vary.

To view the WinSock Information, click on the **WinSock Information** button to display the *WinSock Information* dialog box:

WinSock Information

Version:

High Version:

Implementation:

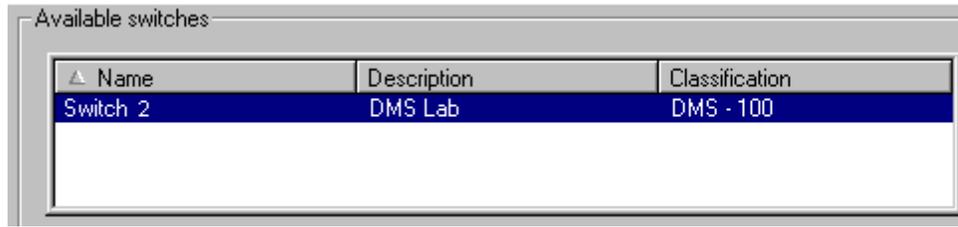
Maximum Sockets:

Maximum UDP Datagram Size:

Vendor Specific Information:

8. Click on the **OK** button to save the information.

The *Switch Information* dialog box now displays the switch information.



▲ Name	Description	Classification
Switch 2	DMS Lab	DMS - 100

Note: The information displayed is for demonstration purposes only. The information displayed on your screen is information you entered and selected on the *Add Switch* dialog box.

9. Add additional switches as necessary by repeating steps 2 - 8.

Adding a Customer to the Switch

Adding a customer to the Switch includes the following steps:

1. Enter **Customer information** on the *Add Customer to switch* dialog box and select the available services. The following information is necessary to add a customer and is provided by your telephone company when you get the ICM link:

Business Group ID
Network Node ID Service ID
Application ID Password

If you need help with this information, contact your telephone representative.

2. Define the Devices (Lines and Addresses) for the customer on the *Device Properties* dialog box. The *Device Properties* dialog box also provides a search feature that searches the Address list and displays the results in the Associated Addresses section.

Step 1: Entering Customer Information

To Add a Customer after Adding a Switch:

1. Select the Switch by clicking on it. If you have not added a switch, refer to the “Adding a Switch” section for information on adding a switch. The Switch is highlighted.
2. Click on the **Add** button located to the right of the *Customers assigned to selected switch* field. The *Add ICM Customer Properties* dialog box is displayed.

Switch name: TCP\IP

Switch description: DMS-100

Business Group ID:

Application ID:

Network Node ID:

Service ID:

Service Version ID: 8

Password:

Available Call Services

Quick Answer

Link Sets

Name

Add Delete Edit

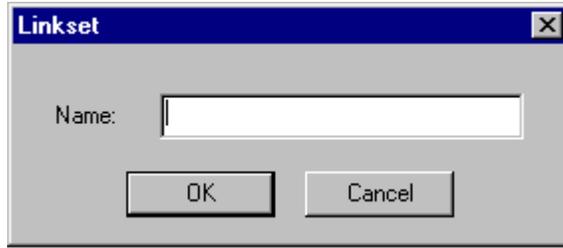
Links

Name	Type	IP Address	Port	Status

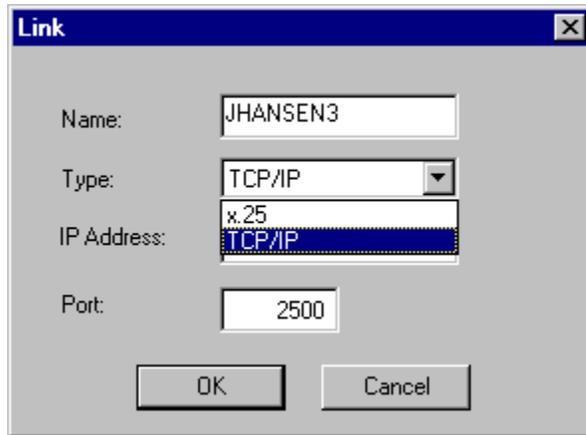
Add Delete Edit

3. Click in the *information* fields and enter the appropriate information. This information pertains to your specific switch. If you have questions regarding this information to enter, contact your telephone representative.
 - a. Enter the four character **Business Group ID name** provided by your telephone company.
 - b. Enter the four numeric characters for the **Network Node ID** provided by your telephone company.
 - c. Select the Service Version ID from the available choices.
 - d. Enter the four character **application ID** provided by your telephone company.
 - e. Enter the four character **Service ID** provided by your telephone company.
 - f. Enter the **ICM Link password** up to 15 characters
4. Click in the appropriate **Available Services** check boxes to select the services for this customer. Ensure the feature is available on your line before checking the service. If you are unsure which services are available on your line, contact your local telephone representative.
5. Add a Link Name.

- a. Click on the **Add** button located in the *Link Sets/Name* section to display the *Linkset* dialog box.



- b. Enter the *Name* in the *Name* field.
 - c. Click on the **OK** button to close the dialog box and save the information.
The information is displayed on the *Add Customer Properties* dialog box.
6. Enter the *Link Information*.
 - a. Click on the **Add** button located in the *Linksets/Information* section to display *Link* dialog box.
 - b. Enter the information.



The IP Address entered here is for the EIU.

- c. Click on the **OK** button to close the dialog box and save the information.
The information is displayed on the *Add Customer Properties* dialog box.

The following dialog box is for demonstration purposes only. Your information may vary.

Add Customer Properties

Switch name: TCP/IP

Switch description: DMS-100

Business Group ID: 2

Application ID: 5

Network Node ID: 25

Service ID: 1

Service Version ID: 8

Password: TESTER

Available Call Services

Quick Answer

Link Sets

Name
VERIF1

Add Delete Edit

Links

Name	Type	IP Address	Port	Status
VERIF1	TCP/IP	0.0.0.00	2500	Unknown

Add Delete Edit

- Click on the **OK** button to save the changes.
The *Switch Information* dialog box displays the customer information.

Customers assigned to selected switch

Customer #	Available Services	# Treatments
0	Inbound Call, Outbound Call, Enhanced Routing	0

Add...
Remove
Properties...
Devices...
Treatments...

Note: The information displayed is for demonstration purposes only. The information displayed on your screen is the information you entered and selected on the *Add Customer to Switch* dialog box.

- Add additional customers to the switch as necessary by repeating steps 2 - 7.

Step 2: Defining the Devices

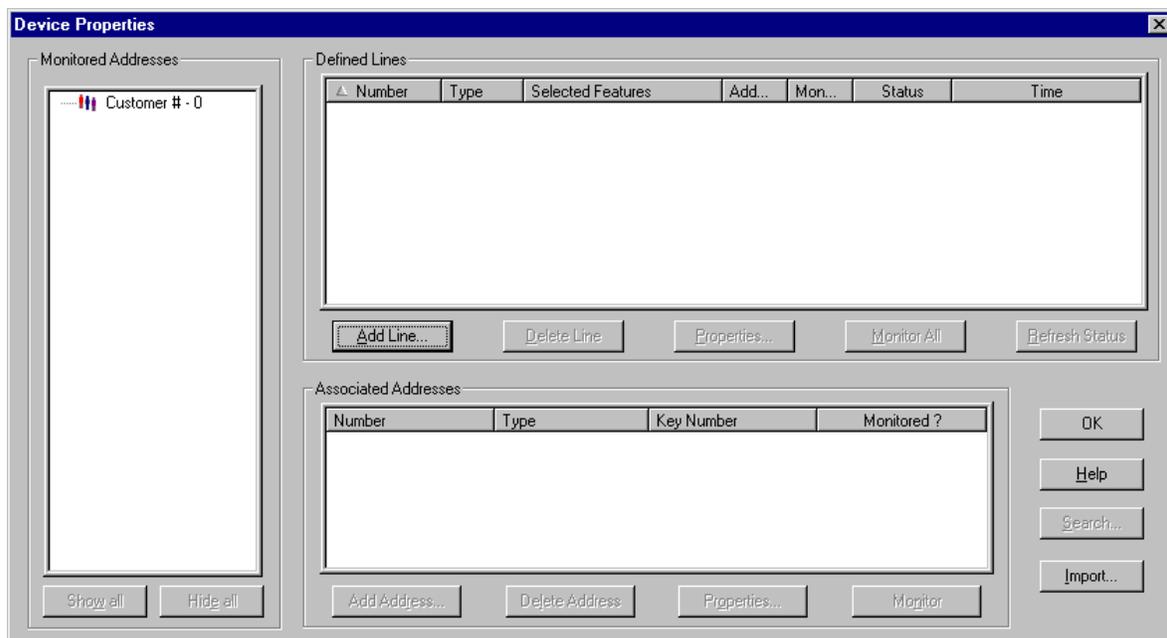
You can define the devices for the Customer by manually entering the information for the devices. Defining the Devices includes the following steps:

- A. Access the *Device Properties* dialog box
- B. Add a Line for a Customer
- C. Add a Line Address for the Line in step B
- D. Define Additional Lines as necessary by repeating steps B and C
- E. Click on the **OK** button to save the changes and close the *Device Properties* dialog box

The following instructions detail how to manually enter the device information.

A. To Access the Device Properties Dialog Box:

1. Select the customer by clicking on the customer in the *Customers assigned to selected* switch field of the *ICM Switch Information* dialog box.
The customer is highlighted.
2. Click on the **Devices** button.
The *Device Properties* dialog box is displayed.



The *Device Properties* dialog box sections and buttons:

Sections	Description
Monitored Addresses	Displays the monitored Addresses in a tree view.
Defined Lines	Displays the Defined Lines. This section is blank when the lines are not defined.
Associated Addresses	Displays the Addresses associated with the selected defined line.

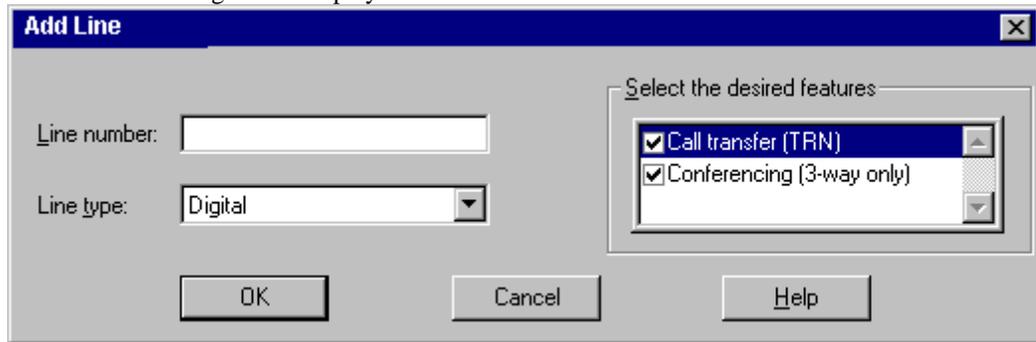
Device Properties dialog box, cont.

Buttons	Description
Search	Displays the <i>Address Search</i> dialog box to search for a specific address.
Import	This button is not currently available for the TAPI driver for ICM.
Monitored Address section:	
Show All	Expands to display the complete tree view for the monitored addresses.
Hide All	Display only the Business Group ID for the monitored addresses.
Sections	Description
Defined Lines section:	
Add Line	Displays the <i>Add a Line</i> dialog box that provides fields for defining lines for the customer.
Delete Line	Deletes the selected Line.
Properties	Displays the properties for the selected Line on the <i>Line Properties</i> dialog box.
Monitor All	Selects to monitor all defined Lines.
Refresh Status	Manually refreshes the Line Status and Time.
Associated Addresses section:	
Add Address	Displays the <i>Add a Line Address</i> dialog box that provides fields for adding an address associated with the selected Line.
Delete Address	Deletes the selected Address
Properties	Displays the properties for the selected Associated Address on the <i>Address Properties</i> dialog box.
Monitor	Selects the monitor option for the selected Associated Address without accessing the <i>Address Properties</i> dialog box and selecting the Monitored check box.

Additional Device Properties dialog box Information:	
The <i>Defined Lines Status</i> and <i>Time</i> columns indicate the current real-time condition of the line while the TAPI driver for ICM is running. The Time column displays the last time a status change occurred. The following Status Conditions are acknowledged:	
Service Provider is not running:	Status: TSP N/A
Line TAPI/Switch registered:	Status: Registered
Line TAPI/Switch Unregistered:	Status: Unregistered
Line Open (TAPI):	Status: Open
Line Closed (TAPI):	Status: Closed
Dynamic Line Add Failure:	Status: Add failure
Dynamic Line Update Failure:	Status: Update failure
Dynamic Line Delete Failure	Status: Delete failure
Dynamic Line Delete Success	Status: OK
Dynamic Line Delete Pending	Status: Delete Pending
Status Unknown:	Status: Unknown

B. Add a Line for the customer.

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



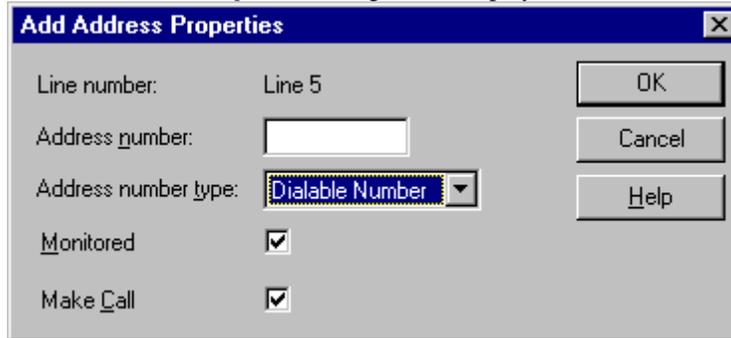
2. Enter the actual Line number in the *Line number* field.

Note: This field is used to identify the line. It can be a name or the DN. However, this is the string used in the TCMAPP to identify the line, so we recommend that you use the DN, for example, 909-941-1234. Entering the DN ensures that the TCMAPP is correct. The *Monitored Addresses* section on the *Device Property* dialog box will display the number twice when you enter the DN here as well as on the *Add Address Properties* dialog box.

3. Click on the down arrow located to the right of the *Line Type* field to display the available choices.
4. Click on the type to select it
5. Select the desired features by clicking in the check box next to the feature.
Note: The Call Forward option is not currently available for the TAPI driver for ICM. If you selected Conferencing, the **Choices** button becomes active.
 - a. Click on the **Choices** button to display the *ICM Conferencing* dialog box.
 - b. Click in the check box to select the 3 party conferencing (**Note:** 6 party conferencing is not currently supported).
 - c. Click on the **OK** button to save the changes and close the dialog box.
6. Click on the **OK** button to save the entry and display the information on the *Device Properties* dialog box.

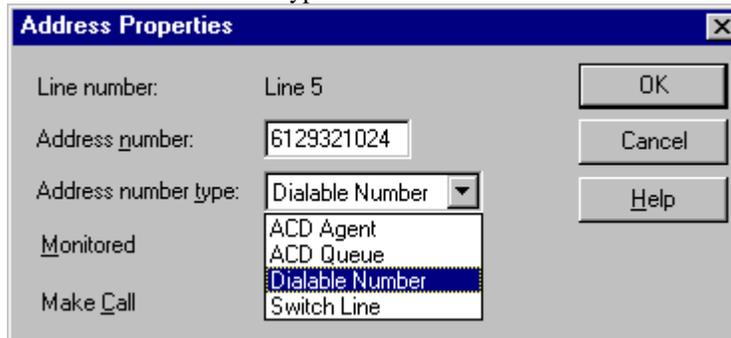
C. Add a Line Address for the Line in step B.

1. Click on the **Add Address...** button.
The *Add Address Properties* dialog box is displayed.



The screenshot shows the 'Add Address Properties' dialog box. It has a title bar with a close button. The fields are: 'Line number' (Line 5), 'Address number' (empty text box), 'Address number type' (Dialable Number dropdown), 'Monitored' (checked checkbox), and 'Make Call' (checked checkbox). On the right side, there are three buttons: 'OK', 'Cancel', and 'Help'.

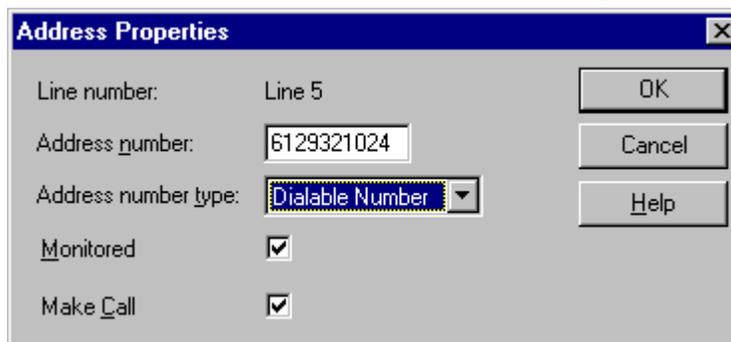
2. Click in the *Address number* field and enter the **10-digit address number**. This is the number used by the TAPI driver for ICM to identify the actual line.
3. Click on the down arrow located to the right of the *Address number type* field to display the available address number types.



The screenshot shows the 'Address Properties' dialog box. The 'Line number' is 'Line 5'. The 'Address number' field contains '6129321024'. The 'Address number type' dropdown is open, showing a list of options: 'ACD Agent', 'ACD Queue', 'Dialable Number' (highlighted), and 'Switch Line'. The 'Monitored' and 'Make Call' checkboxes are checked. On the right side, there are three buttons: 'OK', 'Cancel', and 'Help'.

4. Click on the Address number type to select it.
5. Click in the **Monitored** check box if this specific Address is to be monitored. To monitor all Line Addresses, click on the **Monitor All** button located on the *Device Properties* dialog box.

When information has been added or selected, for example,



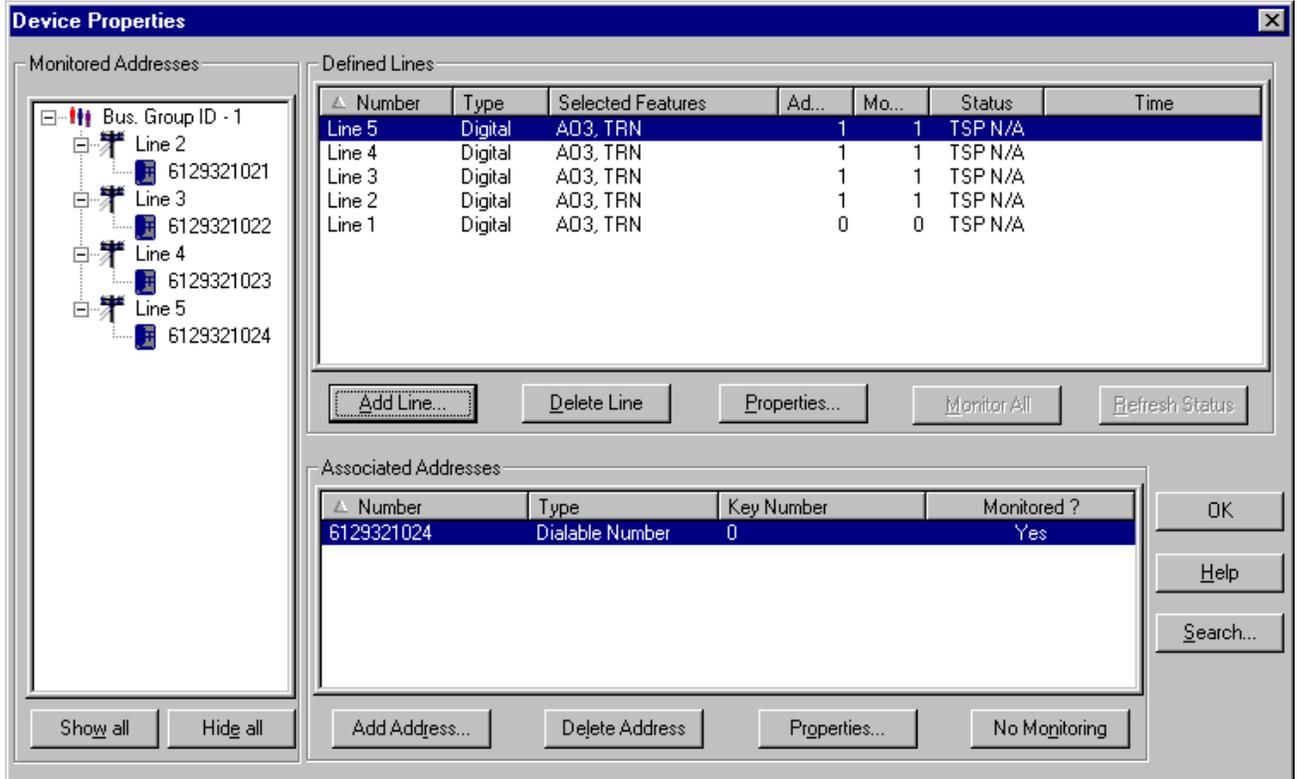
The screenshot shows the 'Address Properties' dialog box. The 'Line number' is 'Line 5'. The 'Address number' field contains '6129321024'. The 'Address number type' dropdown is set to 'Dialable Number'. The 'Monitored' and 'Make Call' checkboxes are checked. On the right side, there are three buttons: 'OK', 'Cancel', and 'Help'.

Note: This information is for demonstration purposes only. Your information may vary.

6. Click on the **OK** button to save the entry and display the information on the *Device Properties* dialog box
7. Add additional Addresses for the Line as necessary by repeating steps 1-6.

D. Define additional lines as necessary by repeating steps B and C.

The entered information is displayed on the *Device Properties* dialog box.



Note: This information is for demonstration purposes only. Your information will vary according to the information you enter.

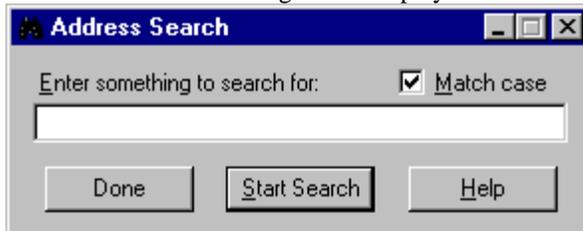
E. Click on the OK button to save the information and display the *Switch Information* dialog box.

Searching the Addresses List

The **Search** button located on the *Device Properties* dialog box provides a convenient method for searching for a particular Address.

To Search the Addresses List from the *Device Properties* Dialog Box:

1. Click on the Search button.
The *Address Search* dialog box is displayed.



2. Enter the *search criteria*. A check mark located in the check box next to the **Match case** option means this option is selected and the search will match the case as entered in the search field. Click on the check box to deselect this option.

3. Click on the **Start Search** button to start the search. The results that match the search criteria are displayed in the Addresses box on the *Device Properties* dialog box.
4. To search again, repeat steps 2 and 3.
5. When search is complete, click on the **Done** button to close the *Address Search* dialog box.

Setting up One or More System Configurations

The Configurator application provides flexibility in changing from one Configuration to another and includes a dynamic database that supports changes automatically without having to restart the TAPI driver for ICM.

The Configurations are assigned a status of “Active,” “Standby,” or “Inactive.” Only one Configuration can have an “Active” status.

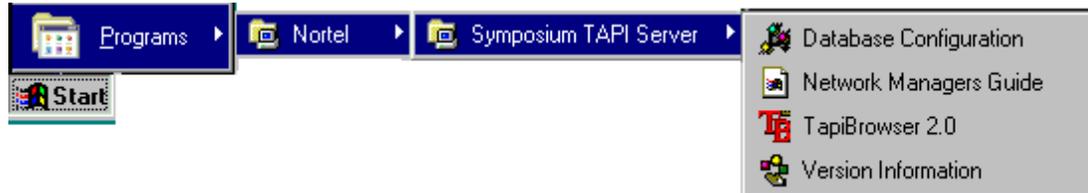
Setting up one or more switch configurations consists of the following steps:

1. Accessing the *System Configuration* dialog box.
2. Defining the Configuration.
 - a. Select the Protocol.
 - b. Add the ICM information
 - c. Select the Switch from the available options.
 - d. Define the Current status of this configuration.
 - e. Add Customers from the available customers as defined by the switch you selected.
3. Maintaining the Configuration information.

Accessing the System Configuration Dialog Box

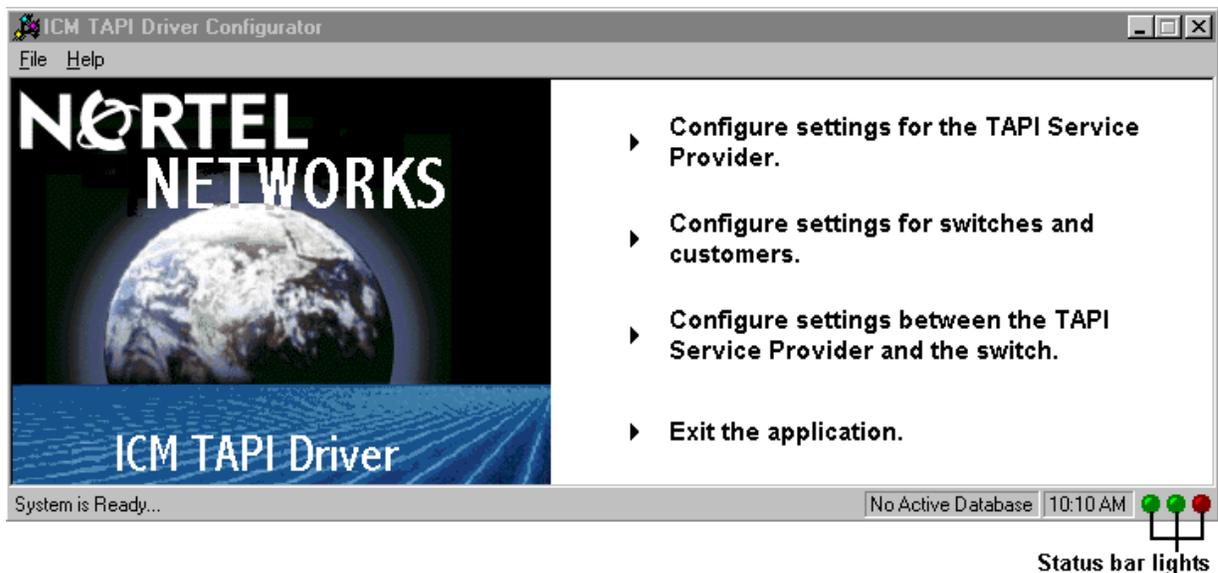
To Access the System Configuration Dialog Box:

1. Click on Start and select the **Nortel / Symposium TAPI SERVER** program group to display the options.



2. Select **Database Configuration**.

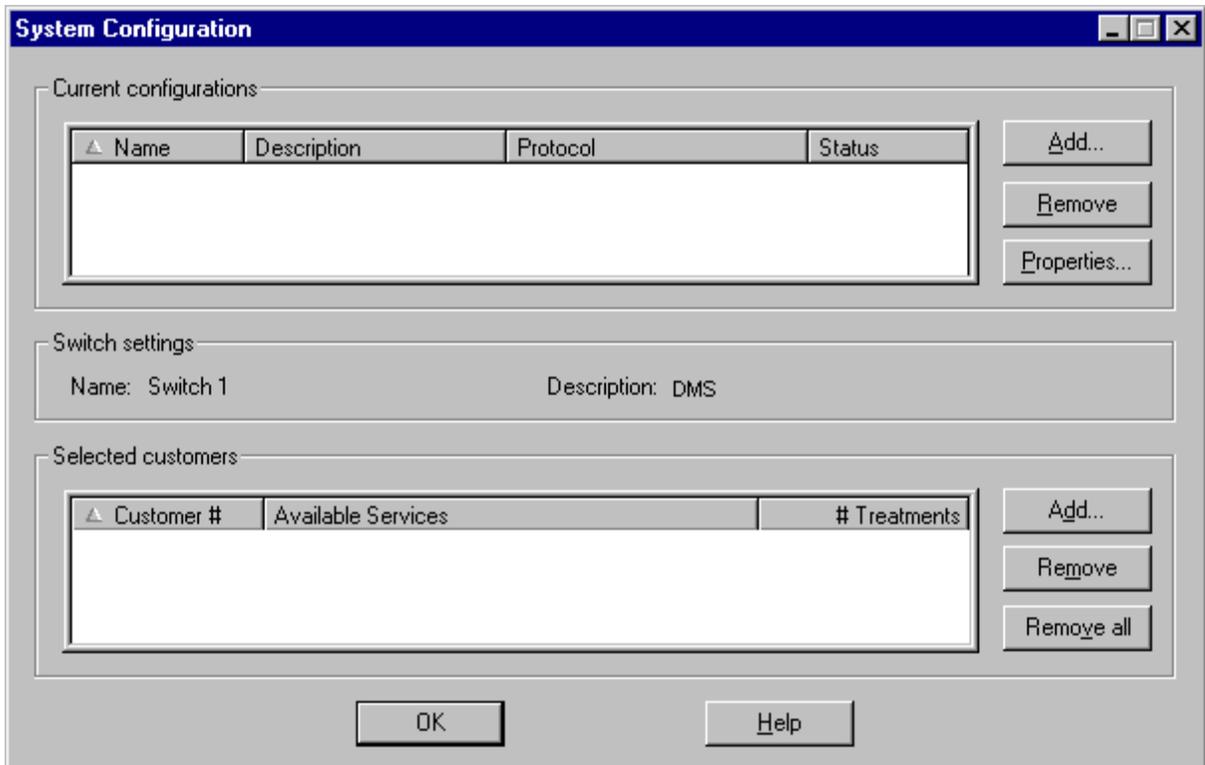
The *TAPI driver for ICM Configurator* dialog box is displayed.



Note: For immediate notification to the TAPI driver for ICM of the changes made to the database, ensure the TAPI driver for ICM light located on the status bar is green.



3. Click on the **Configure the settings between your TAPI driver for ICM and your switch** option. The *System Configuration* dialog box displays the current configurations, Switch Settings, and the Selected Customers. If there are no system configurations, the fields are blank.



Sections

Current Configuration

Description

Displays the system configurations that have been defined. If you have not set up a system configuration, this section is blank.

Switch Settings

Displays the Switch setting for the selected configuration. If you have not set up a system configuration, this section is blank.

Selected Customers

Displays the customers associated with the selected configuration. If you have not set up a system configuration, this section is blank.

Buttons

Current Configuration section

Add

If more than one switch, accesses the *Available Protocols* dialog box for selecting a protocol for this configuration. Clicking on the **OK** button displays the *Add Configuration* dialog box associated with the selected protocol.

Remove

Removes the selected Configuration and all associated information.

Properties

Displays the *Configuration* dialog box with the information associated with the selected configuration.

Selected Customers section

Add

Accesses the *Available Customers* dialog box. This dialog box provides a list of available customers to select for the configuration.

Remove

Removes the selected customer from the Configuration.

Remove All

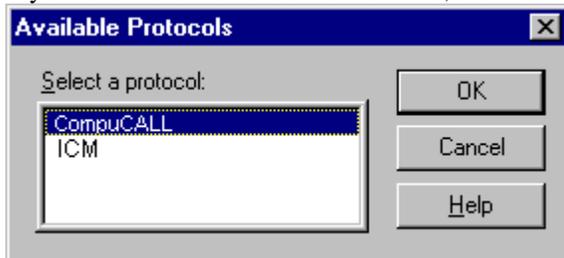
Removes all customers associated with the selected configuration.

Defining the System Configuration

You define the System Configuration by selecting the Protocol from the list of available protocols, adding the ICM information, selecting the Switch, and defining the current status of this configuration. Selecting the Switch automatically brings Customers associated with the Switch and Devices associated with the Customers. You have the flexibility to select Customers for the Configuration.

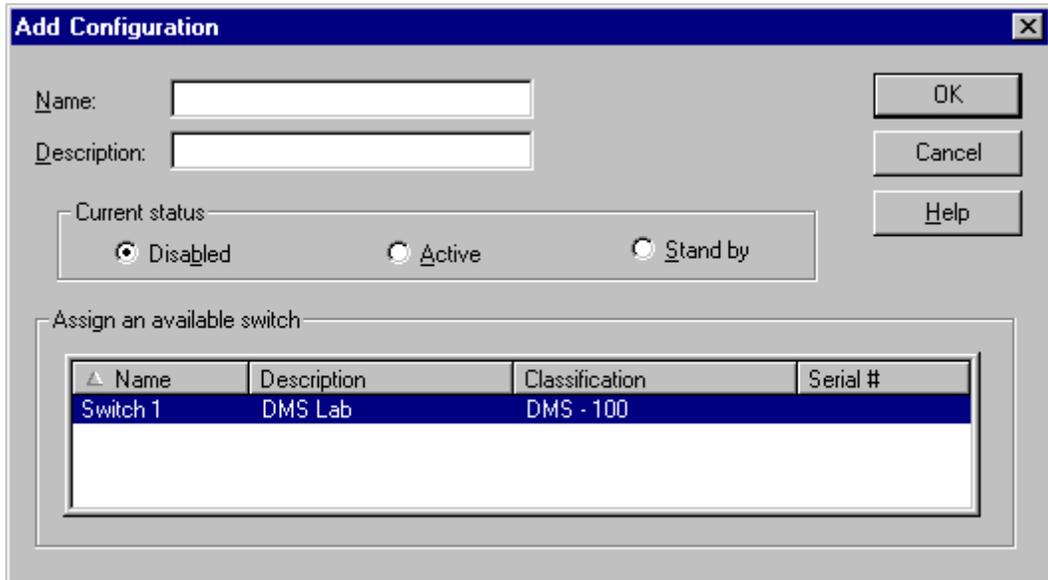
To Define the Configuration:

1. Access the *System Configuration* dialog box.
2. Click on the **Add** button located to the right of the *Current Configurations* field.
If you have more than one switch defined, the *Available Protocols* dialog box is displayed.



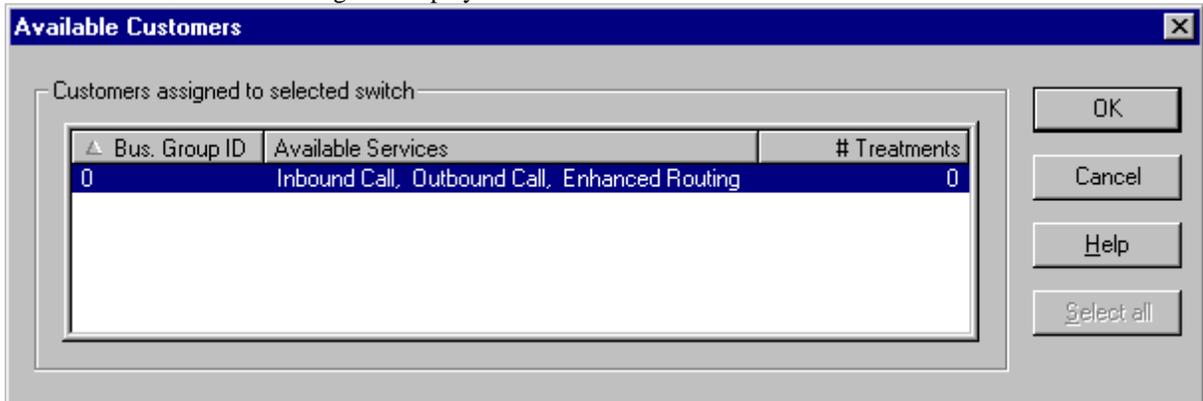
Select the appropriate protocol for this configuration from the available list. Click on the **OK** button. The *Add Configuration* dialog box is displayed. The type of dialog box that is displayed depends upon the protocol you selected in step 2.

Selecting the ICM protocol displays the *Add Configuration* dialog box.



Fields	Description of the Fields
Name	Allows you to add the Configuration name.
Description	Allows you to enter the description.
Current Status	Allows you to select a Configuration status by clicking in the appropriate radio button.
Assign an available switch	Provides a list of the available switches.

3. Enter the information in the edit fields. Click in the radio button next to the appropriate status to assign the current status of the configuration. You must assign the active status to one System Configuration. Click on a Switch to select it. The selected Switch is highlighted.
4. Click on the **OK** button to save the information.
The *System Configuration* dialog box reflects the entered and selected information.
5. Click on the **Add** button located to the right of the *Selected Customers* field.
The *Available Customers* dialog box displays the list of available customers for the selected switch.



6. Click on the customer to select it or click on the **Select All** button to select all customers.
The selected customers are highlighted.
7. Click on the **OK** button to select the highlighted customer(s).
The Configuration information is displayed on the *System Configuration* dialog box.
8. Add Additional Configurations as desired by repeating steps 2 -7.

Maintaining the System Configuration

The Configurator application allows you to remove and modify Configurations and to change the status of a Configuration. These changes are automatically sent to the TAPI driver for ICM without having to restart the TAPI Server.

To Remove a Configuration:

1. Access the *System Configuration* dialog box.
2. Click on the Configuration you wish to remove.
The Configuration is highlighted.
3. Click on the **Remove** button located to the right of the *Current Configurations* field.
A Warning screen requests confirmation of the removal.
4. Click on the **Yes** button to remove the Configuration.
The *System Configuration* dialog box reflects the changes.

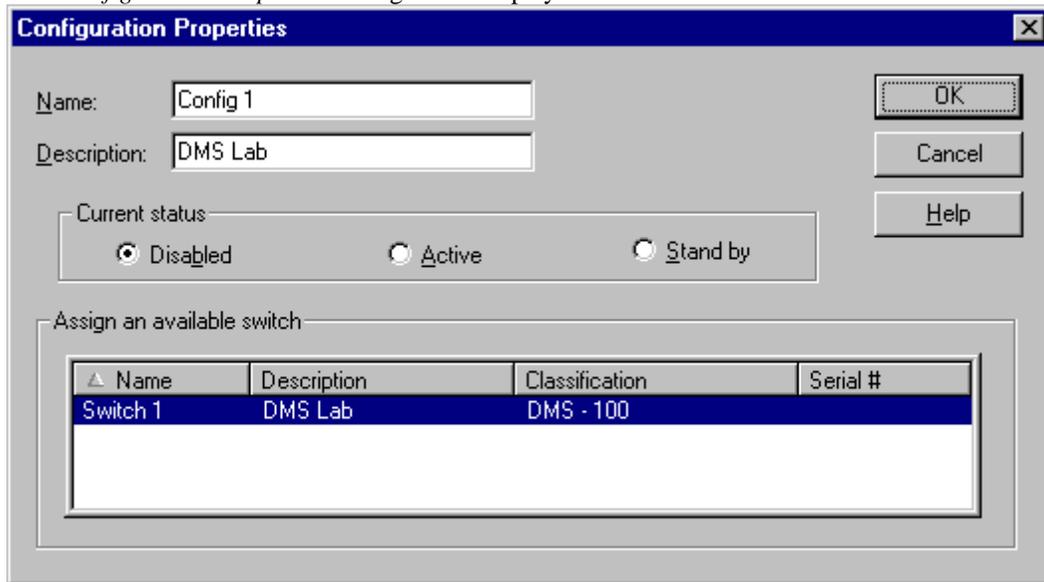
To Remove a Customer from a Configuration:

1. Access the *System Configuration* dialog box.
2. Click on the Configuration that contains the Customer you wish to remove.
The Configuration is highlighted.

3. Click on the Customer you wish to remove.
The Customer is highlighted.
4. Click on the **Remove** button located to the right of the *Selected Customers* field.
A Warning screen requests confirmation of the removal.
5. Click on the **Yes** button to remove the Customer.
The *System Configuration* dialog box reflects the changes.

To Edit a Configuration:

1. Access the *System Configuration* dialog box.
2. Click on the Configuration that contains the Customers you wish to edit.
The Configuration is highlighted.
3. Click on the **Properties...** button.
The *Configuration Properties* dialog box is displayed.



4. Make changes as necessary.
5. Click on the **OK** button to save the changes and display the *System Configuration* dialog box.

Maintaining the TAPI Driver for ICM Database Information

The Configurator application allows for updating the TAPI driver for ICM Database information. The **Remove** button on the *Switch Information* dialog box removes a Switch or Customers assigned to a switch from the dialog box. Selecting an item and clicking on the **Properties...** button displays a dialog box that contains the current information for the selected item. The information on the dialog boxes can be modified as necessary.

Maintaining the TAPI Driver for ICM Database Information consists of the following tasks:

1. Switch:
 - Removing a Switch
 - Modifying the Switch information

2. Customer:
Removing the Customer
Modifying the Customer information
3. Defined Line:
Removing a Defined Line
Modifying the Defined Line information
4. Associated Addresses:
Removing the Associated Addresses
Modifying the Associated Addresses information

Note: Adding, modifying, or deleting information from the Configurator application changes only the information contained in the **TAPI driver for ICM** database. This does not affect the switch or the set configuration.

Switch Maintenance

To Remove a Switch:

1. Click on **Start** and select the **Nortel / Symposium TAPI SERVER** program group to display the options.



2. Select the **Database Configuration** program
The *TAPI driver for ICM Configurator* dialog box is displayed.
3. Click on the **Configure the settings for your switches and customers** option.
4. The *Switch Information* dialog box is displayed.
5. Click on the Switch to select it.
The Switch is highlighted.
6. Click on the **Remove** button located to the right of the *Available Switches* field.
A Warning screen requests confirmation of the removal.
7. Click on the **Yes** button to removed the selected Switch.
The *Switch Information* dialog box reflects the changes.

To Modify the Switch Information:

1. Access the *Switch Information* dialog box.
2. Click on the Switch that you wish to change to select it.
The Switch is highlighted.

- Click on the **Properties...** button.
The *Switch Properties* dialog box associated with the selected switch is displayed.

Switch Properties

Name: OK

Description: Cancel

Classification: Help

Serial number:

IVR Socket Information

Computer Name: Broadcast Port:

IP Address: Timeout (seconds):

Server Port: WinSock Information

IVR Data Information

Duration (minutes): Location Code:

Buffer Size (bytes): Registration Association ID:

IVR Network Information

Computer Name	IP Address	Home Location Code

Add Edit Delete

- Edit information as necessary.
- Click on the **OK** button to save the changes.
The *Switch Information* dialog box reflects the changes.

Customer Maintenance

To Remove a Customer Associated with the Switch:

- Select the **Configuration Database** program from the *Nortel TAPI Server* program group.
The *TAPI driver for ICM Configurator* dialog box is displayed.
- Click on the **Configure the settings for your switches and customers** option.
The *Switch Information* dialog box is displayed.
- Click on the Switch and then on the Customer to select them.
The Switch and Customer are highlighted.
- Click on the **Remove** button located to the right of the *Customers assigned...* field.
A Warning screen requests confirmation of the removal.

- Click on the **Yes** button to removed the selected Customer.
The *Switch Information* dialog box reflects the changes.

To Modify the Customer Information:

- Access the *Switch Information* dialog box.
- Click on the Switch and then on the Customer to select them.
The Switch and Customer are highlighted.
- Click on the **Properties...** button.
The *Customer Properties* dialog box associated with the selected customer is displayed.

Add Customer Properties

Switch name: TCP/IP

Switch description: DMS-100

Business Group ID: 2

Application ID: 5

Network Node ID: 25

Service ID: 1

Service Version ID: 8

Password: TESTER

Available Call Services

Quick Answer

Link Sets

Name
VERIF1

Links

Name	Type	IP Address	Port	Status
VERIF1	TCP/IP	0.0.0.0	2500	Unknown

- Edit information as necessary.
- Click on the **OK** button to save the changes.
The *Switch Information* dialog box reflects the changes.

Defined Lines Maintenance

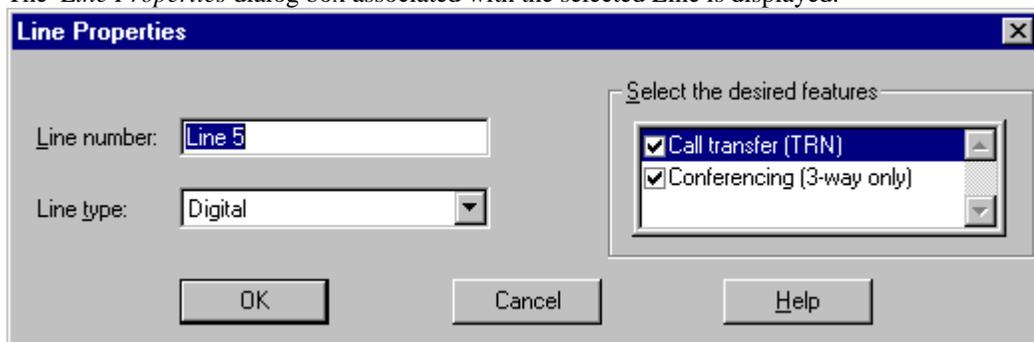
Note: The line or address must be unmonitored prior to making any changes.

To Remove a Defined Line:

1. Access the *Switch Information* dialog box.
2. Click on the Switch and then on the Customer to select them.
The Switch and Customer are highlighted.
3. Click on the **Devices...** button.
The *Device Properties* dialog box is displayed.
4. Click on the Line that you wish to remove to select it.
The Line is highlighted.
5. Click on the **Delete Line** button.
A Warning screen requests confirmation of the removal.
6. Click on the **Yes** button to remove the selected Line.
The *Device Properties* dialog box reflects the changes.

To Modify the Defined Lines Information:

1. Access the *Switch Information* dialog box.
2. Click on the Switch and then on the Customer to select them.
The Switch and Customer are highlighted.
3. Click on the **Devices...** button.
The *Device Properties* dialog box is displayed.
4. Click on the Line that you wish to modify to select it.
The Line is highlighted.
5. Click on the **Properties...** button.
The *Line Properties* dialog box associated with the selected Line is displayed.



6. Edit information as necessary.
7. Click on the **OK** button to save the changes.
The *Device Properties* dialog box reflects the changes.

Address Maintenance

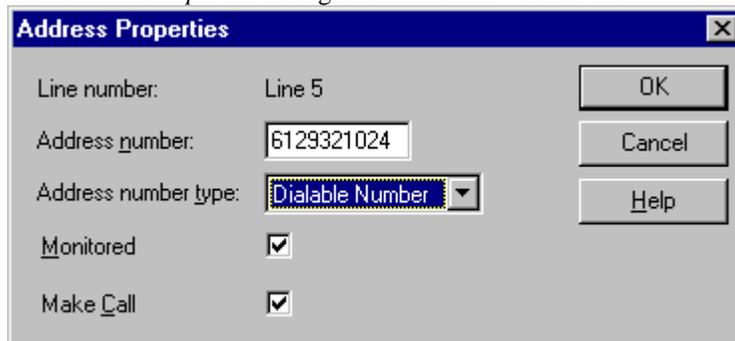
Note: The line or address must be unmonitored prior to making any changes.

To Remove an Associated Address:

1. Access the *Switch Information* dialog box.
2. Click on the Switch and then on the Customer to select them.
The Switch and Customer are highlighted.
3. Click on the **Devices...** button.
The *Device Properties* dialog box is displayed.
4. Click on the Line to select it.
The Line is highlighted.
5. Click on the Associated Address to select it.
The Address is highlighted.
6. Click on the **Delete Address** button.
A Warning screen requests confirmation of the removal.
7. Click on the **Yes** button to remove the selected Line.
The *Device Properties* dialog box reflects the changes.

To Modify the Associated Addresses Information:

1. Access the *Switch Information* dialog box.
2. Click on the Switch and then on the Customer to select them.
The Switch and Customer are highlighted.
3. Click on the **Devices...** button.
The *Device Properties* dialog box is displayed.
4. Click on the Line and the Associated Address that you wish to modify.
The Line and Associated Address are highlighted.
5. Click on the **Properties...** button.
The *Address Properties* dialog box associated with the selected Address is displayed.



6. Edit information as necessary.
7. Click on the **OK** button to save the changes.
The changes are displayed on the *Device Properties* dialog box.

Using Multiple Databases

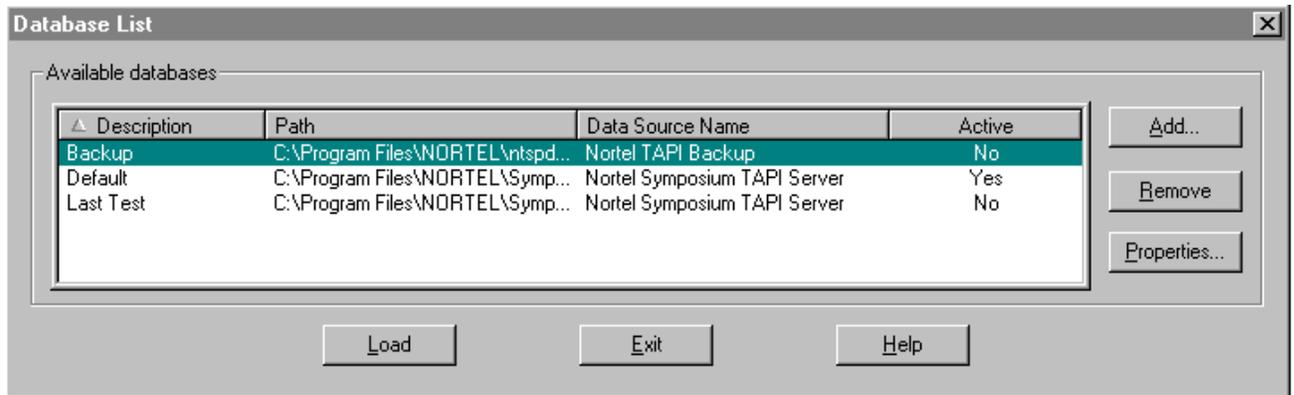
The TAPI driver for ICM allows you to configure and use more than one database. After accessing the *TAPI driver for ICM Configurator* window, the last selected database displays on the status bar.

The *Database List* dialog box and the *Add a Database* dialog box provide the capability to add, load, and remove databases. The *Database Properties* dialog box displays information on the database selected on the *Database List* dialog box.

Overview of the Multiple Database Dialog Boxes

The *Database List* dialog box allows you to view, add, remove, and load a database. Selecting the **Add** button on the *Database List* dialog box displays the *Add a Database* dialog box. This dialog box provides fields for naming the new database and selecting the database (.MDB) file. Selecting a database listed on the *Database List* dialog box and clicking on the **Properties** button displays the database information on the *Database Properties* dialog box. The *Database List* dialog box allows you to view, add, remove, and load a database.

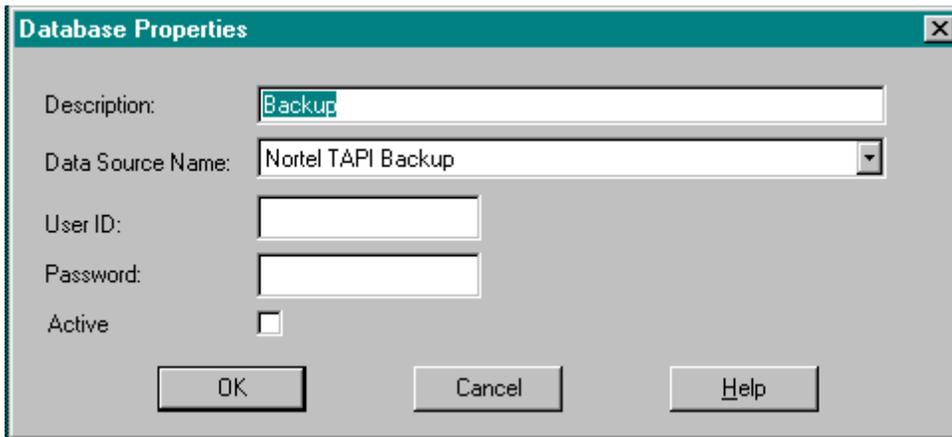
Description of the Database List dialog box



The *Database List* dialog box provides the following fields and buttons:

Fields	Description
Available databases	Lists the available databases, description, path, and Active status
Buttons	Description
Add...	Displays the <i>Add a Database</i> dialog box for adding a new database
Remove	Removes the selected database
Properties...	Displays the <i>Database Properties</i> dialog box
Load	Loads the selected database

Description of the Database Properties Dialog Box

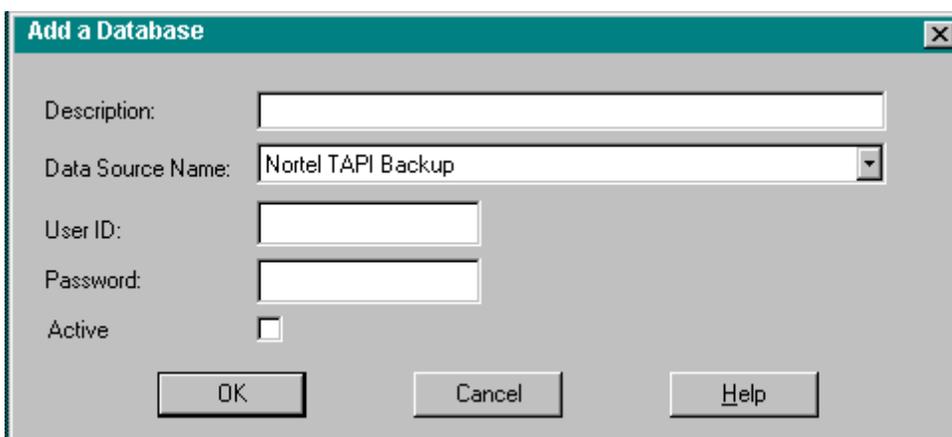


Accessing the *Database List* dialog box, selecting a database, and clicking on the **Properties** button displays the *Database Properties* dialog box. This dialog box displays the name and path for the selected database. You have the option to change the name and path for this database.

The *Database Properties* dialog box provides the following fields and check box:

Fields	Description
Database name	Displays the name of the selected database or allows you to add the database name up to 50 characters.
Data Source Name	Provides a list of the ODBC data source names registered with the ODBC Data Source Administrator and allows you to select one of the available ODBC data sources. The ODBC Data Source Administrator is located in the Control Panel.
User ID	Displays the User identification for the data source or allows you to enter the User ID. This is usually left blank.
Password	Allows you to enter the password for the data source. This is usually left blank.
Active check box	Click in the check box to make the displayed database the active database.

Description of the Add a Database Dialog Box



Accessing the *Database List* dialog box and clicking on the **Add** button displays the *Add a Database* dialog box. This dialog box allows you to add a new database to the Database list. Once the database is added to the

database list, you have the capability of loading this database to use with the TAPI driver for ICM. Refer to the “Description of the Database Properties Dialog Box “ section for additional information on the field descriptions for this dialog box.

Adding a Database

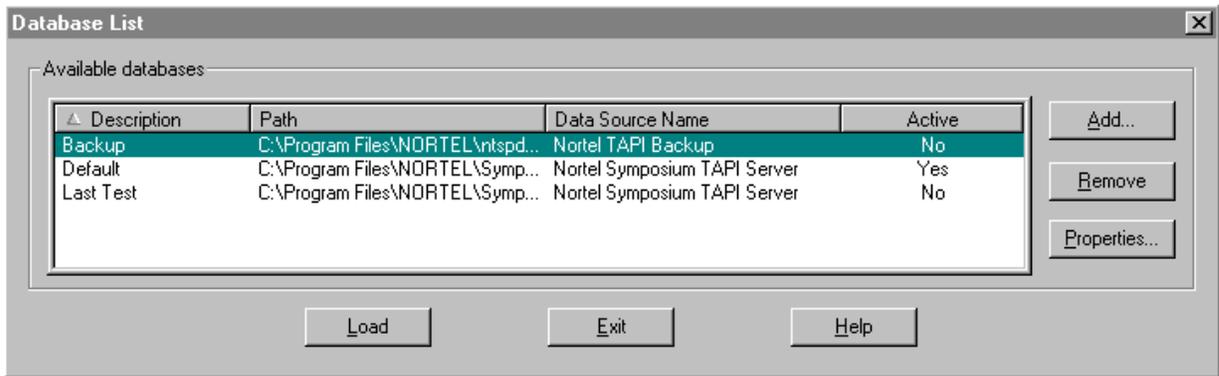
After configuring another database in the ODBC Data Source Administrator, it must be added to the Database list on the *Database List* dialog box to load it for use with the TAPI driver for ICM.

To Add the Database to the Database List:

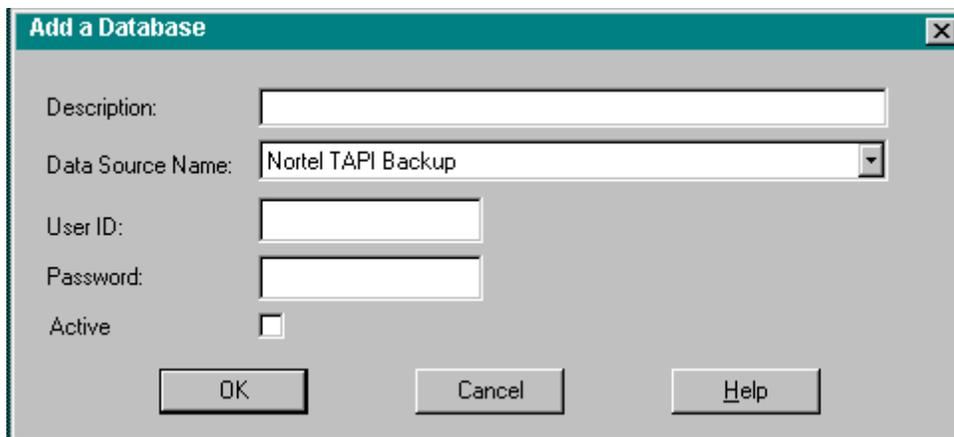
1. Access the *TAPI driver for ICM Configurator* window.
2. Click on the **File** menu to display the menu options.



3. Click on the **Open a Different database...** option.
The *Database List* dialog box is displayed.



4. Click on the **Add** button.
The *Add a Database* dialog box is displayed.



5. Enter the *Database description*.

6. Select the Data Source Name by clicking on the down arrow to display the drop down list and clicking on the desired data source.
7. If the data source requires it, enter the *User ID* and *Password* in the fields provided.
8. Click in the **Active** check box to assign a status of “Active.”
9. Click on the **OK** button to close the *Add a Database* dialog box and save the changes.

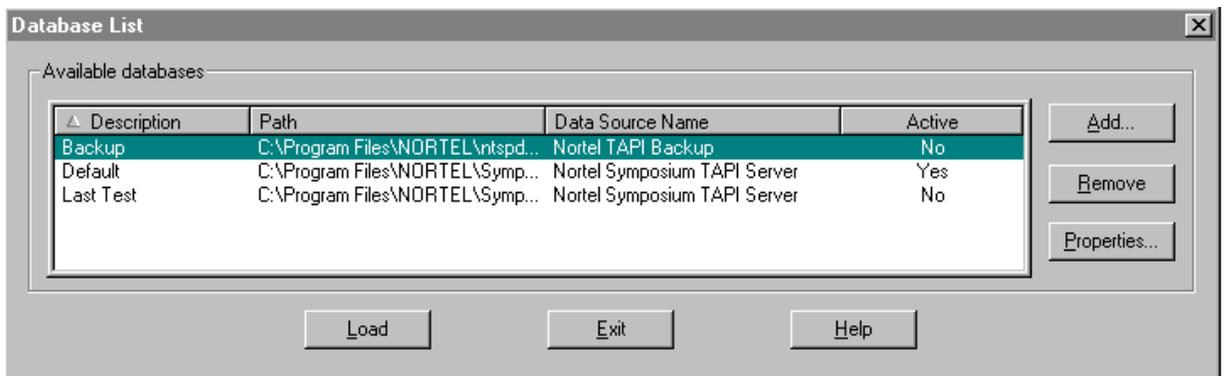
The *Database List* dialog box now displays the new database.

Activating or Deactivating the Database

Accessing the *TAPI driver for ICM Configurator* window displays the last selected database on the status bar.

To Change the Active Database:

1. Access the *TAPI driver for ICM Configurator* window.
2. Click on the **File** menu to display the **File** menu options.
3. Click on the **Open a different database...** option.
The *Database List* dialog box displays the Status of the Data source.



4. Click on the database that you wish to change to highlight it.
5. Click on the **Properties** button.
The *Database Properties* dialog box is displayed.
6. Click in the **Active** check box to activate or deactivate it. A check mark in the check box indicates the Active status.
7. Click on the **OK** button to save the changes and close the *Database Properties* dialog box.
The changed status is displayed on the *Database List* dialog box.

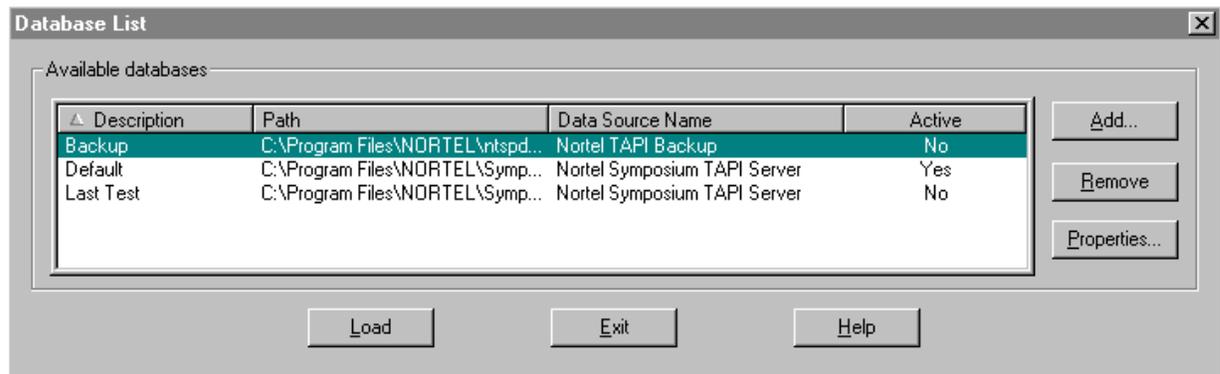
Loading a New Database

Accessing the *TAPI driver for ICM Configurator* window displays the last selected database on the status bar.

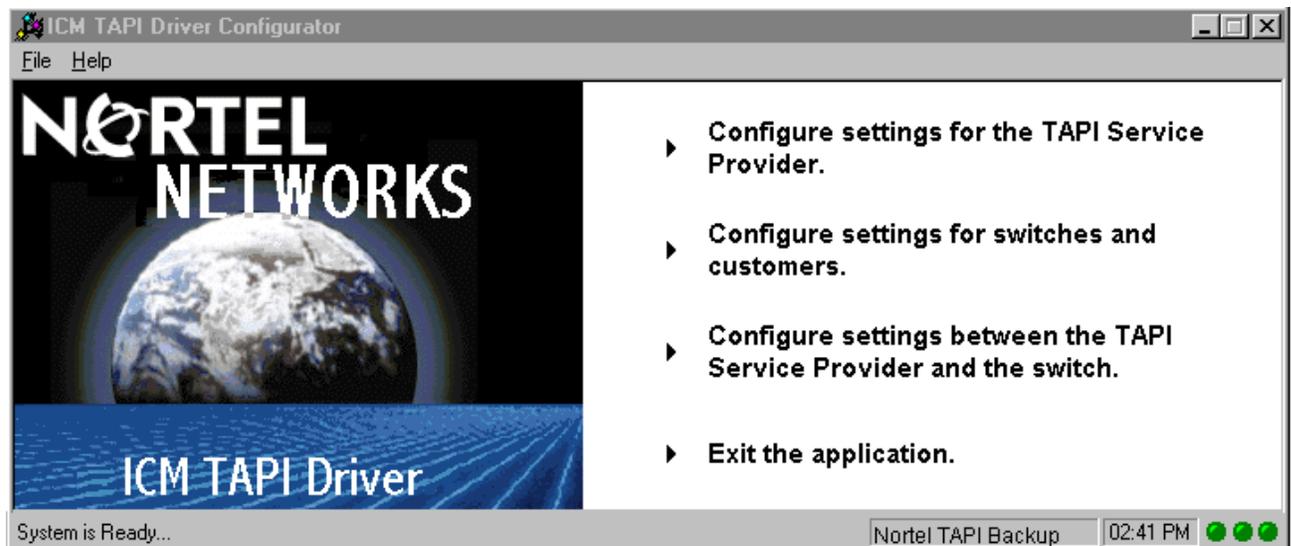
To Change the Selected Database:

1. Access the *TAPI driver for ICM Configurator* window.

2. Click on the **File** menu to display the menu options.
3. Click on the **Open a different database...** option.
The *Database List* dialog box is displayed.



4. Click on the desired database to highlight it.
5. Click on the **Load** button.
The selected database is loaded and displays on the status bar of the *TAPI driver for ICM Configurator* window.



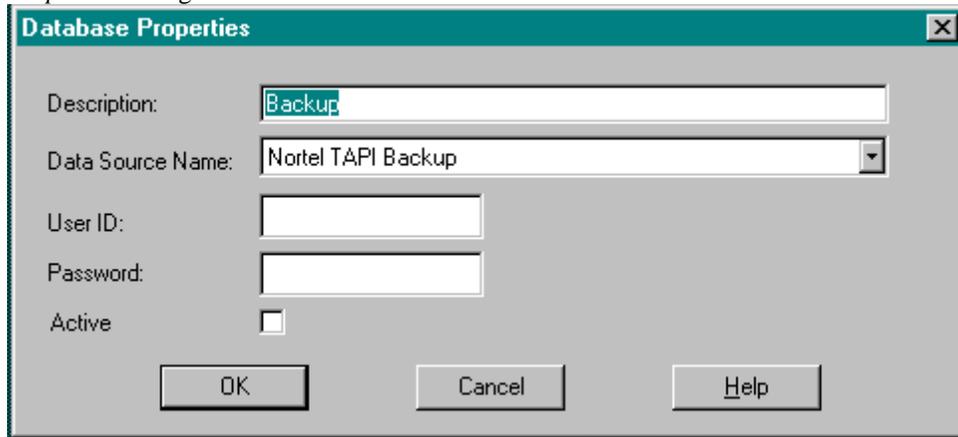
Modifying the Database Properties

Accessing the *TAPI driver for ICM Configurator* window displays the last selected database on the status bar.

To Modify the Database Properties:

1. Access the *TAPI driver for ICM Configurator* window.
2. Click on the **File** menu to display the menu options.
3. Click on the **Open a different database...** option.
The *Database List* dialog box is displayed.

4. Click on the desired database to highlight it.
5. Click on the **Properties** button.
The description and data source name for the selected database are displayed on the *Database Properties* dialog box.



6. Make changes as necessary.
7. Click on the **OK** button to save the changes and close the *Database Properties* dialog box.

Removing a Database

Accessing the *TAPI driver for ICM Configurator* window displays the last selected database on the status bar.

To Remove a Database from the Database List:

1. Access the *TAPI driver for ICM Configurator* window.
2. Click on the **File** menu to display the menu options.
3. Click on the **Open a different database...** option.
The *Database List* dialog box is displayed.
4. Click on the desired database to highlight it.
5. Click on the **Remove** button.
The Database is removed from the Database list.

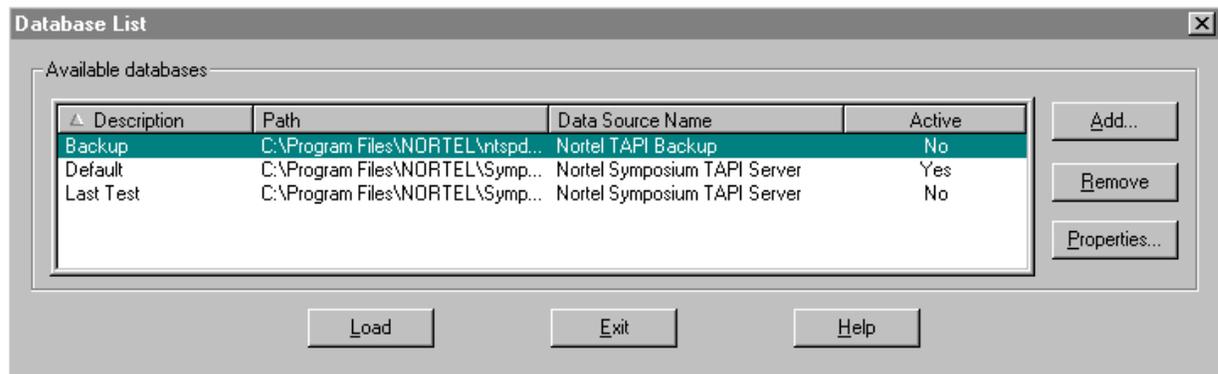
Remote Access to the TAPI Driver for ICM Database

The TAPI driver for ICM Database information can be administered remotely. Ensure the TAPI driver for ICM software is loaded on your client machine. Accessing the *TAPI driver for ICM Configurator* window and selecting to **Open a Different** database allows you to access the selected database remotely.

To Access the Database Remotely:

1. From your client machine, log on to the Nortel NT TAPI server.
2. Access the *TAPI driver for ICM Configurator* window.
3. Click on the **File** menu to display the menu options.

4. Click on the **Open a Different database...** option.
The *Database List* dialog box is displayed.



5. Select the desired database by clicking on it. The selected database is highlighted.
Or
Add a database to the list of available databases.
 - a. Click on the **Add** button to display the *Add a Database* dialog box
 - b. Enter the **Database** name.
 - c. Find the database file (.MDB) you wish to administer and click on it to highlight it.
6. Click on the **OK** button
The *Database List* dialog box now displays the new database.
7. Click on the database name to highlight it.
8. Click on the **Load** button.
The selected database is loaded and displays on the status bar of the *TAPI driver for ICM Configurator* window.

Chapter 4 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 with the Microsoft TAPI 2.1 Upgrade. 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 and Workstation 4.0 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. Be sure to read the Readme.txt file included with the upgrade for installation information.

Note: Microsoft Service Pack 4.0 provides the Microsoft 2.1 upgrade. If you have Service Pack 4.0 loaded (on your Windows NT server or client), it is not necessary to upgrade the server or client.

Setting up the TCM Application

You must upgrade to Microsoft TAPI 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.

Note: The TAPI driver for ICM must be installed, configured, and running before setting up the TCP Application. Ensure that the ICM link is up as the TCMAPP will not show any lines to be assigned if the ICM link is not up.

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 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.

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 is to ensure that if there is a problem with any of the services, the Administrator of the server will be able to access the computer.

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 on the Server” section.

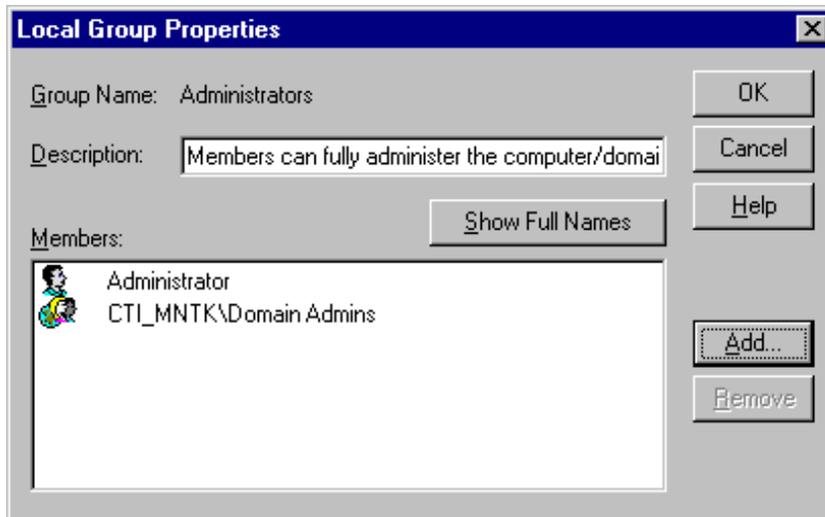
Setting up the Server as a Standalone Server in a Domain

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

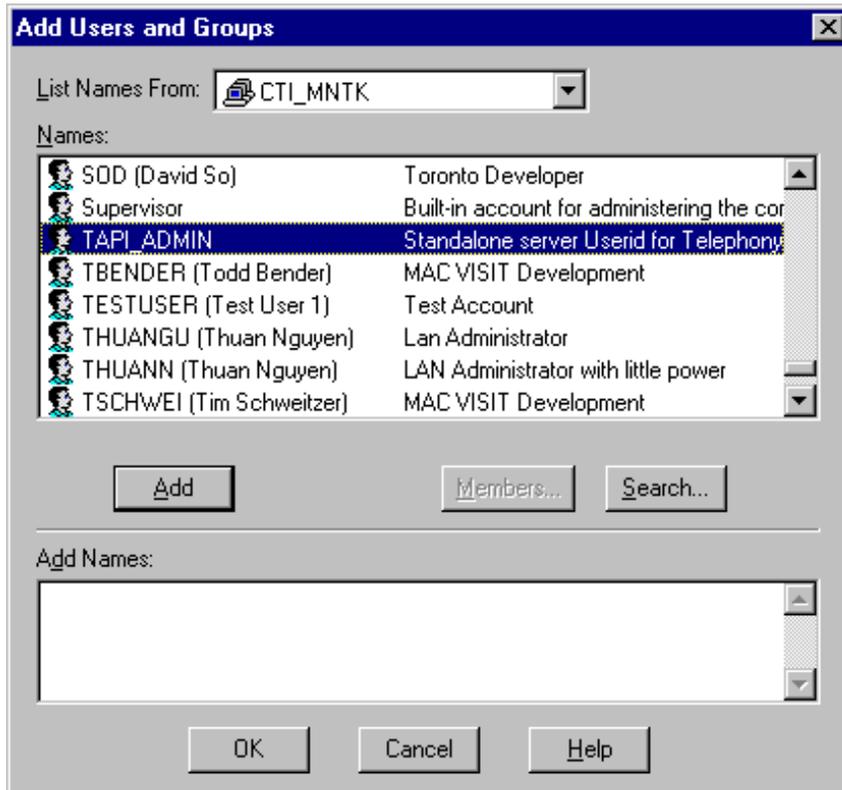
Note: You should always log into your local machine as Administrator. You should never log in to the Domain at your standalone server.

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

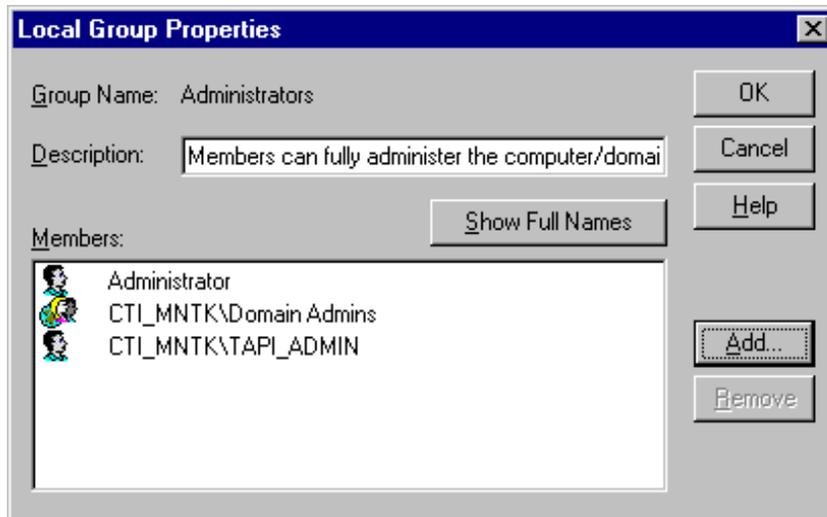
1. Request that your standalone server be added to the domain by your Network Administrator.
2. Request a user account on the Domain from your Network Administrator for your telephony service to start (TCMSETUP) on your local machine.
3. Have your Network Administrator verify that all TAPI users are 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_MNTHK\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. You should now show your user account in the *Local Group Properties* screen.



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

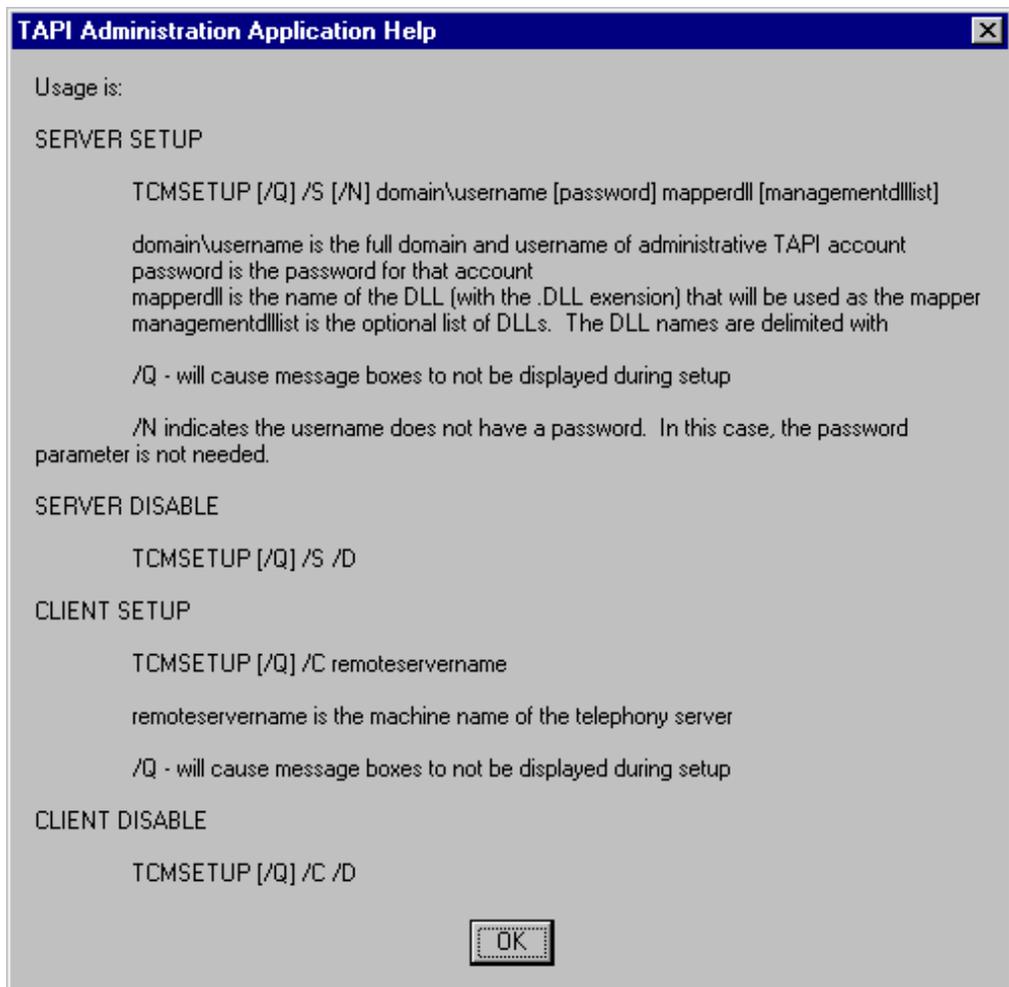
Launching the TCMSetup

To Launch the TCMsetup on the server:

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

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

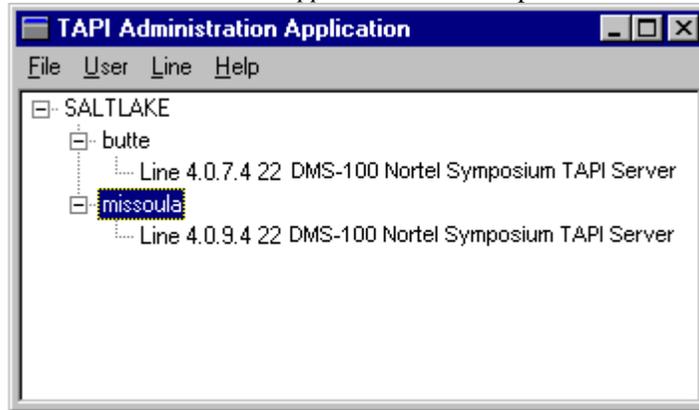


When TCMsetup is complete you will receive a confirmation box stating “TAPI driver for ICM successfully set up”.

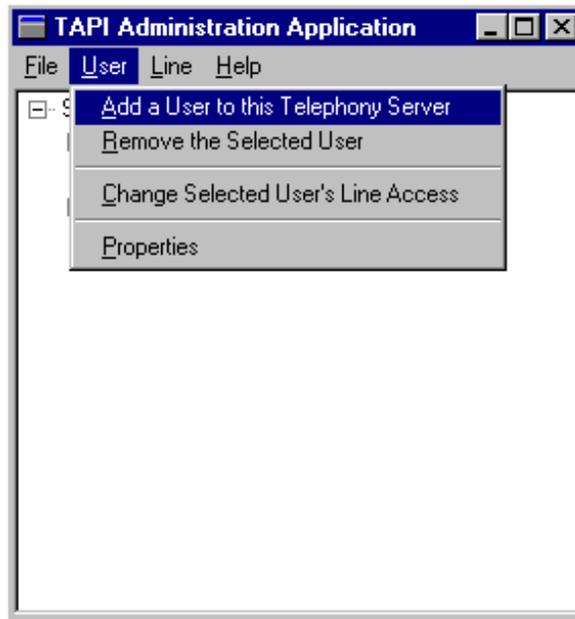
Assigning the Lines Used by the Clients

To Assign the Lines to be used by the Clients:

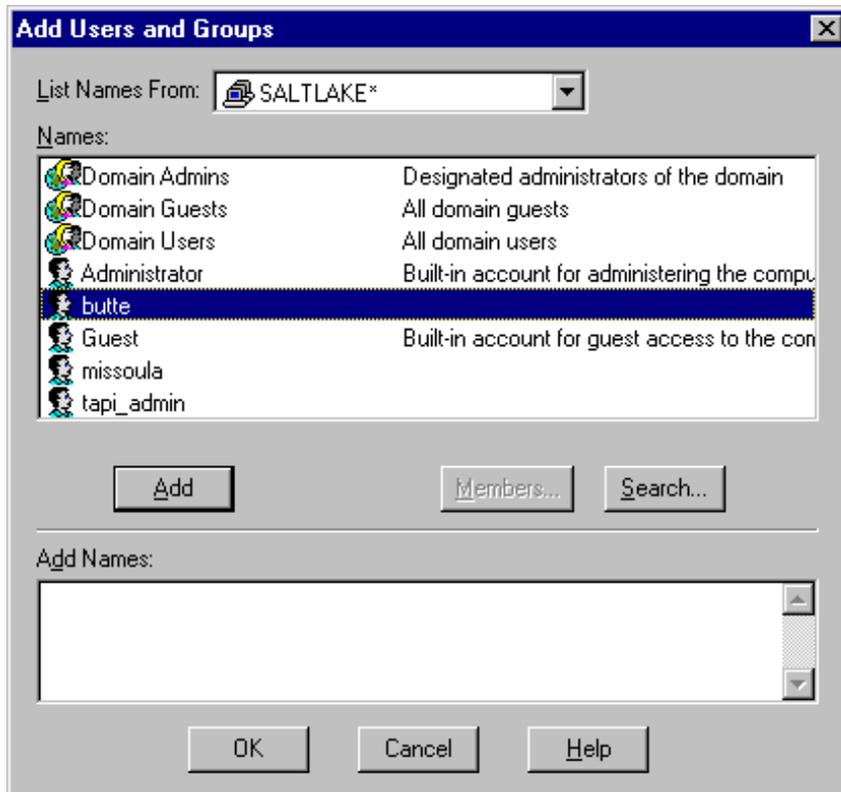
1. Run the TCMAPP.exe, located in the c:\Winnt\system32 directory. The *TAPI Administration Application* window opens.



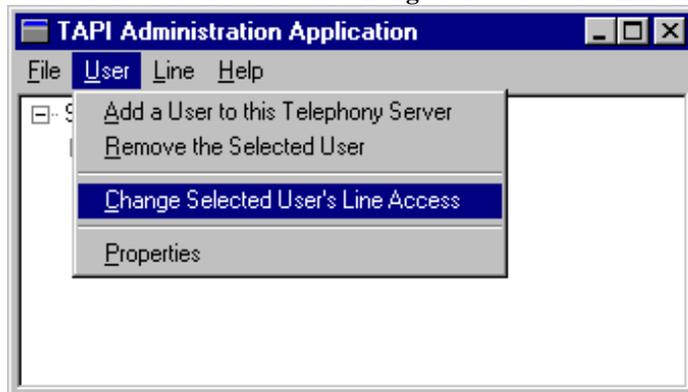
2. Click on **User** located on the menu bar and select the **Add a User to this Telephony Server** option.



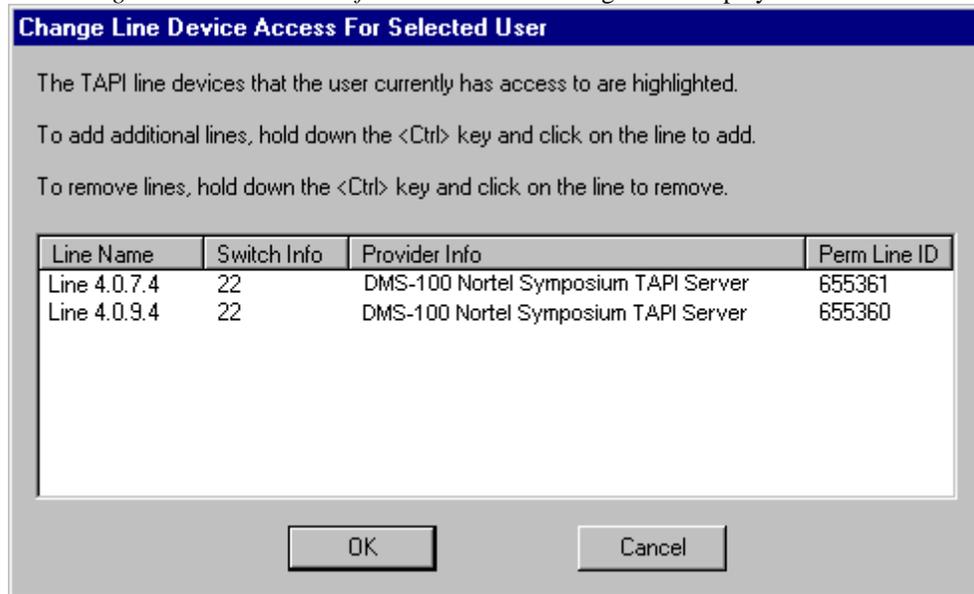
The *Add Users and Groups* dialog box is displayed.



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.



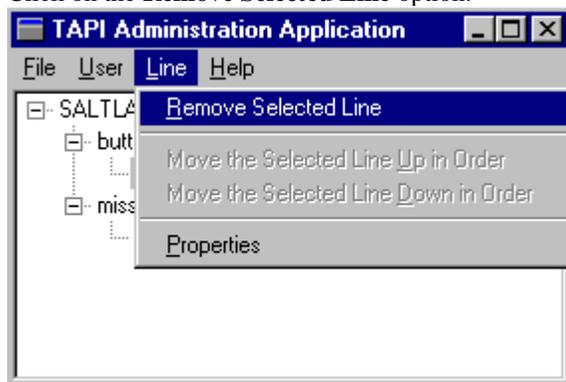
- b. Click on the line you wish to add to the client to highlight it and click on the **OK** button. The line you selected is displayed under the Client's name in the window.
 - c. Repeat steps 1 and 2 until all users have been added and lines assigned to all users.
4. Exit the Application, be sure to click **Yes** to save the information.

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

Deleting a Line from a User

To Delete 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.

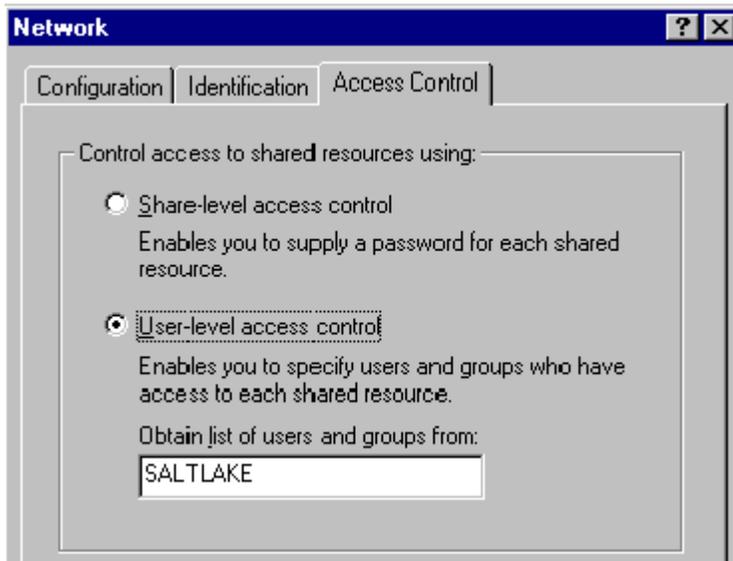
Setting Up the Client

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.



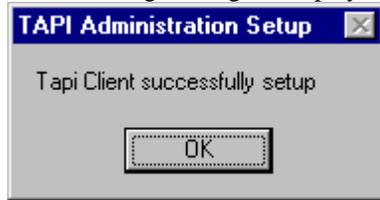
3. Select the **File and Print Sharing** options and click on the **OK** button.

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.

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 5 Additional Tools

This chapter provides information on other applications that work with the TAPI driver for ICM. 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.

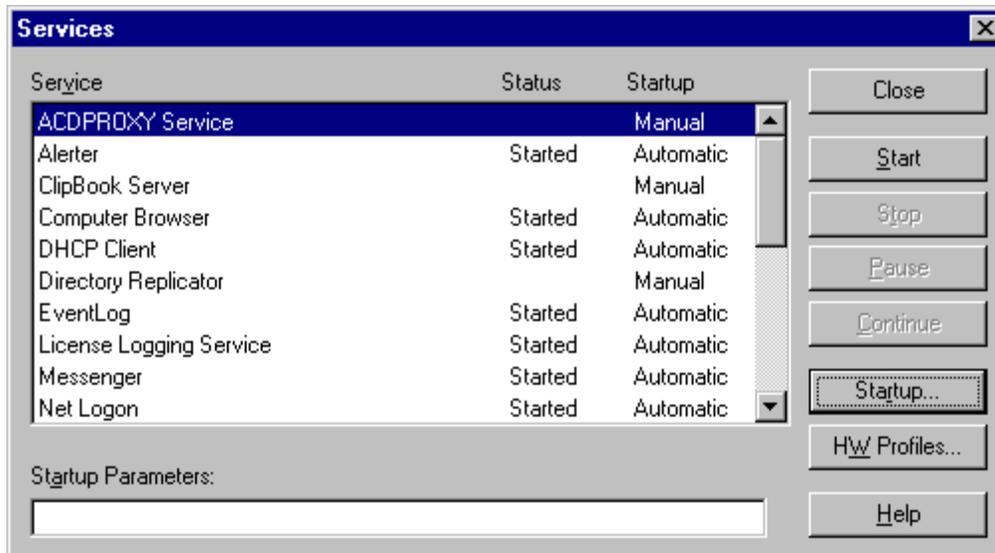
Ensure the Microsoft TAPI 2.1 upgrade is installed and the TCM Application is setup before configuring the ACDProxy Service.

Configuring the ACDProxy Service

The ACDProxy Service can be setup to start at the time the server is booted. The *Provider Properties* dialog box allows you to select to Load ACDProxy at startup. Refer to the “Configuring the Settings for the TAPI driver for ICM” section located in Chapter 3 for additional information.

To Configure the ACDProxy Service:

1. Open the Control Panel.
2. Double-click on the **Services** icon.
The *Service* dialog box is displayed.



3. If not highlighted, click on **ACDPROXY Service** and select the **Startup** button. The *Service* dialog box for ACDProxy is 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 *Service* 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's Open IVR and third party.

Note: Whereas the TAPI driver for ICM 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 TAPI driver for ICM 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 TAPI driver for ICM 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.

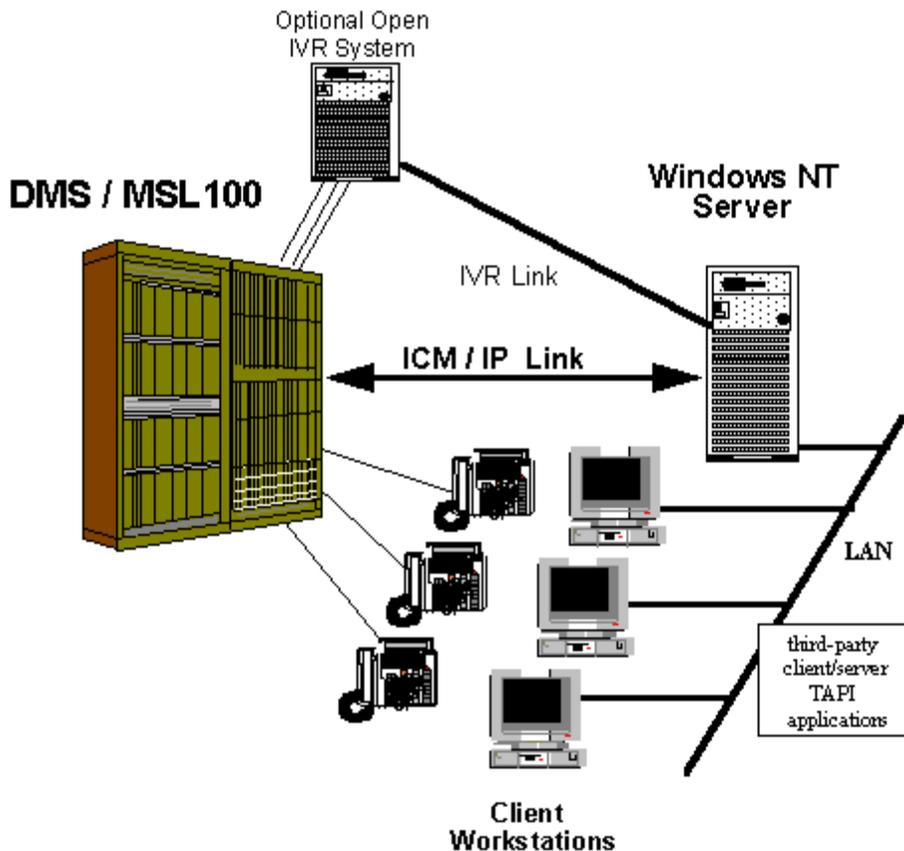


Figure 5 IVR Overview.

The IVR system collects data from a call and passes it to the TAPI driver for ICM through the DMS / MSL-100. When the TAPI driver for ICM detects an incoming call (with assigned call ID) on a monitored destination DN, the TAPI driver for ICM collects the data based on Call ID. The TAPI driver for ICM 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 (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 NT server for further processing.

Tasks performed by the IVR Module include the following:

- opening and maintaining socket communications with a PC based TAPI driver for ICM, 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
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 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 7 for additional information on the error messages.

DMS / MSL-100 and IVR Environment

The DMS / MSL-100 SYSTEM platform provides the telephony switching needs for this system configuration, while the ICM link module provides the call progress details needed to track the call and to gather call information. The IVR Module is connected to the SYSTEM providing caller input services. 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.

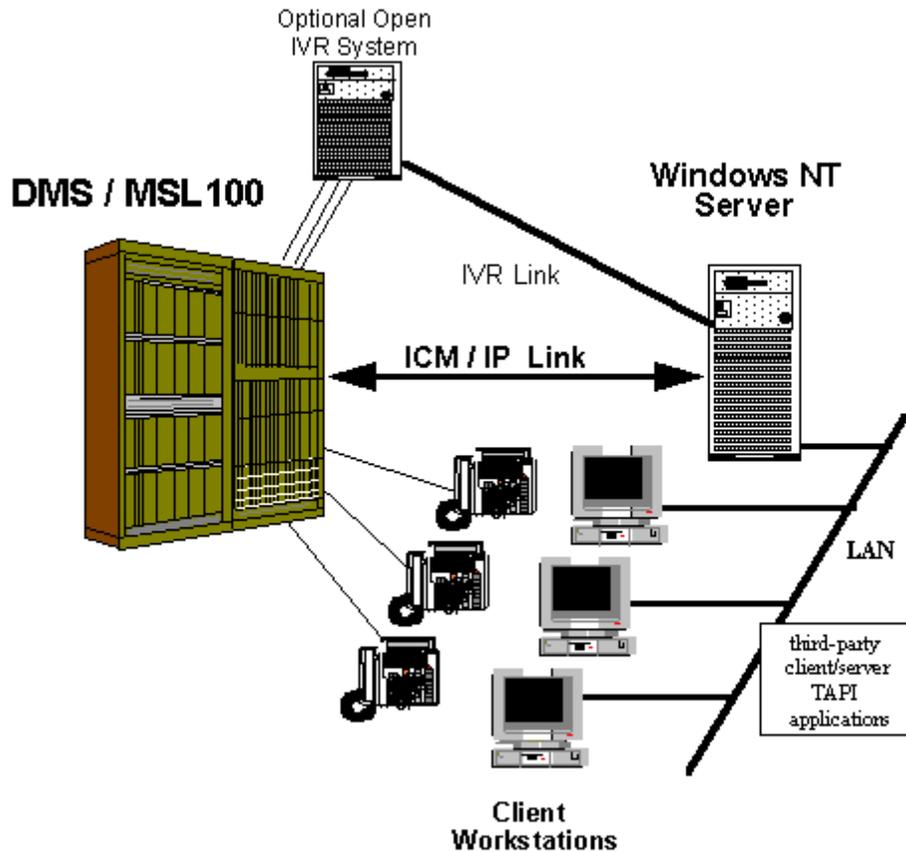


Figure 6 DMS/MSL-100 and IVR Environment

IVR Driver

The IVR Driver Task on the TAPI driver for ICM 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 ICM 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. 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.

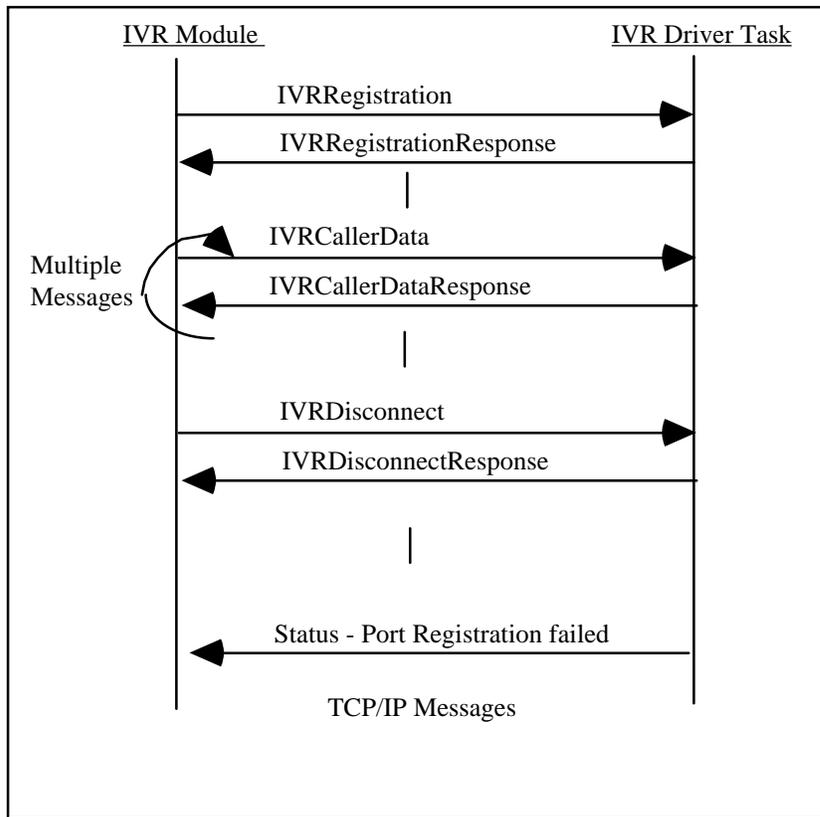


Figure 7 IVR Scenario Event Flow 1

The following event flow 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).

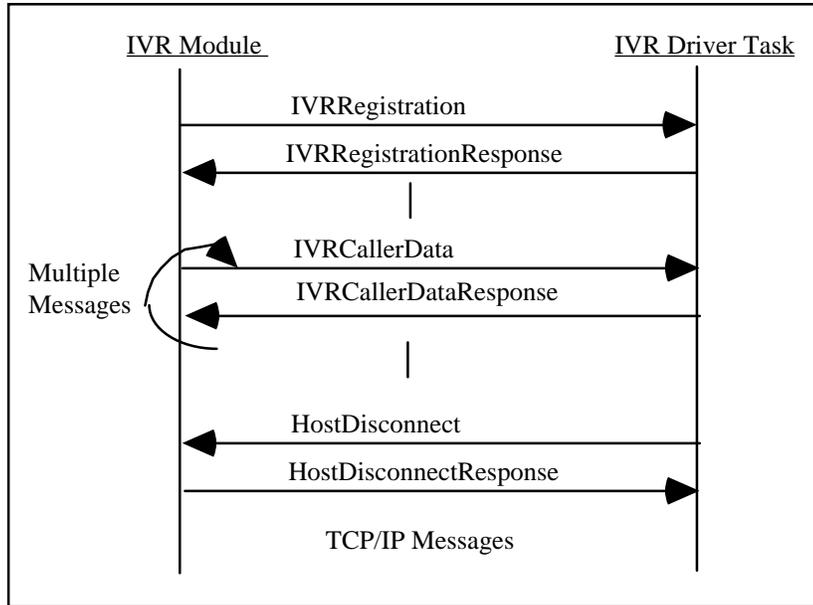


Figure 8 IVR Scenario Event Flow 2

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 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.

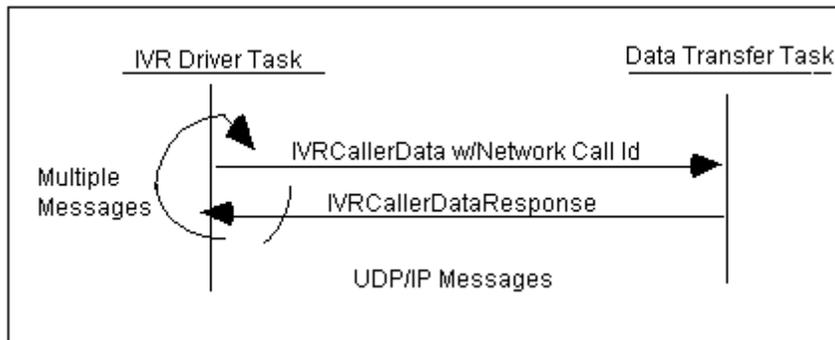


Figure 9 IVR Scenario Event flow 3

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 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.

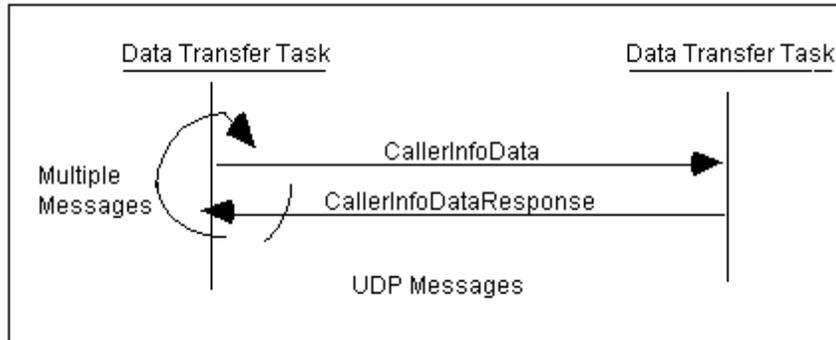


Figure 10 IVR Scenarios Event Flow 4

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 where the IVR module is attached

Responsibilities:

- Monitor IVR DNs and record associated Network Call Ids only if the IVR does not send 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 ICM link 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

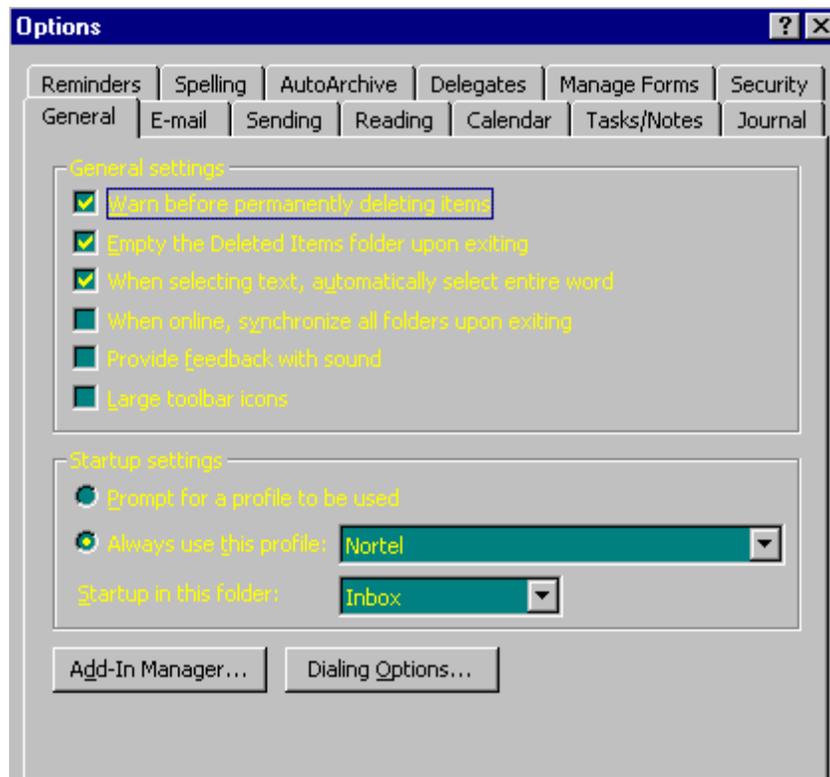
If you have Microsoft Outlook 97, version 8.02.4212 or higher, loaded on your machine, you can use it with the TAPI driver for ICM.

Note: Although Microsoft Outlook 97 works with the TAPI driver for ICM, Nortel does not support Microsoft Outlook 97. This means that problems with Microsoft Outlook 97 must be addressed with Microsoft. Nortel does not provide the Microsoft Outlook 97 software on the TAPI driver for ICM CD ROM. This software is located on Microsoft's Web page.

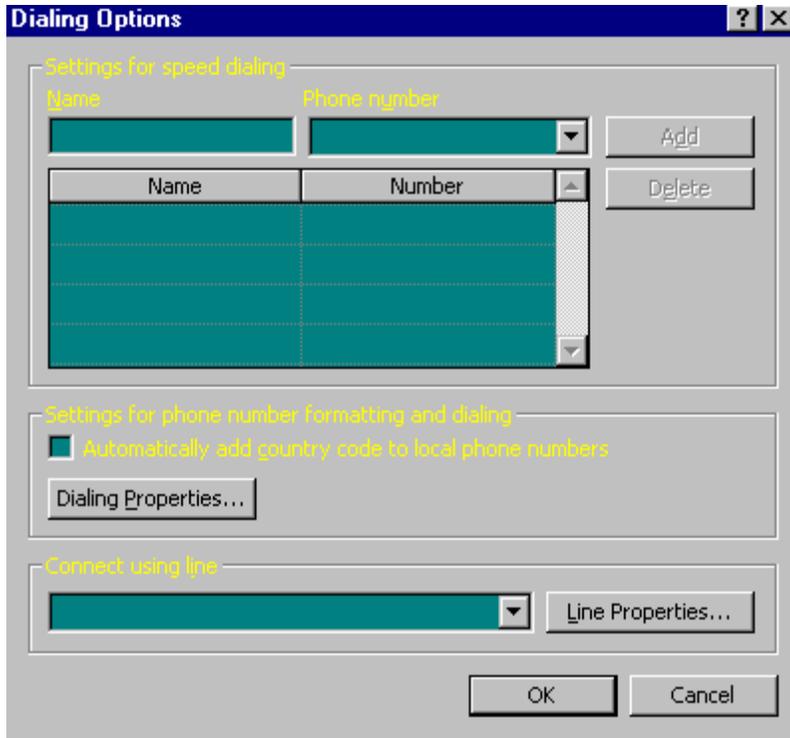
The information presented here is for general purposes only and intended only as a guide in using Microsoft Outlook 97 with the TAPI driver for ICM. For specific Microsoft Outlook 97 information, refer to Microsoft Outlook 97 user documentation.

To Configure Microsoft Outlook 97:

1. Ensure the TAPI driver for ICM software is installed, configured, and working (refer to the "Verifying the TAPI driver for ICM 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: Use the Contact Manager in Microsoft Outlook 97, not the Contact Manager in Scheduler.

pcAnywhere

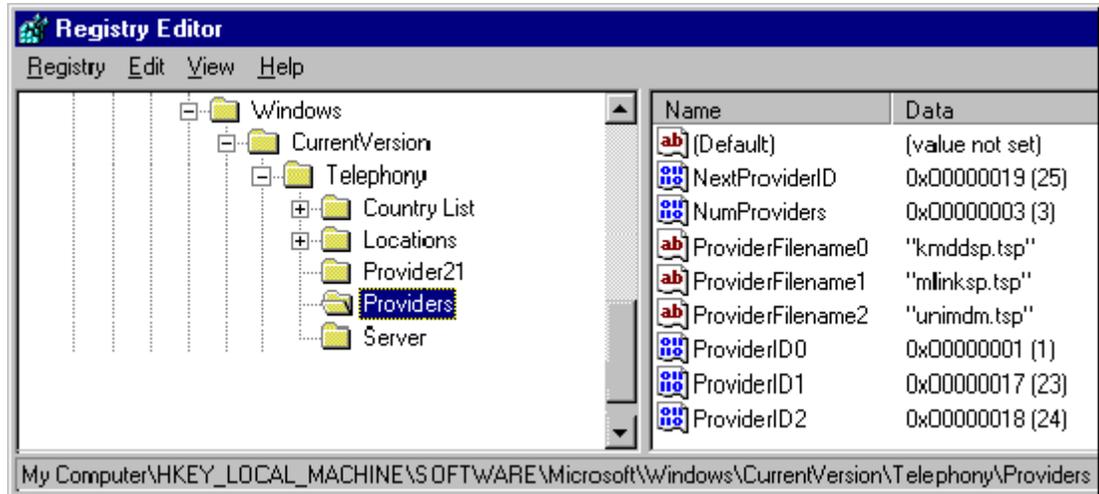
We recommend the use of pcAnywhere as the application used for remote support. Use of this application requires some changes be made to the TAPI Server. The registry must be modified to allow both the mlinksp.tsp and the unimdm.tsp to work at the same time.

Note: If you are installing pcAnywhere after installing the TAPI driver for ICM 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.
8. Switch the mlinksp.tsp and unimdm.tsp around in this registry. (It should look similar to the picture below **after** the change is made.)



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 TAPI driver for ICM 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 6 Troubleshooting Tools

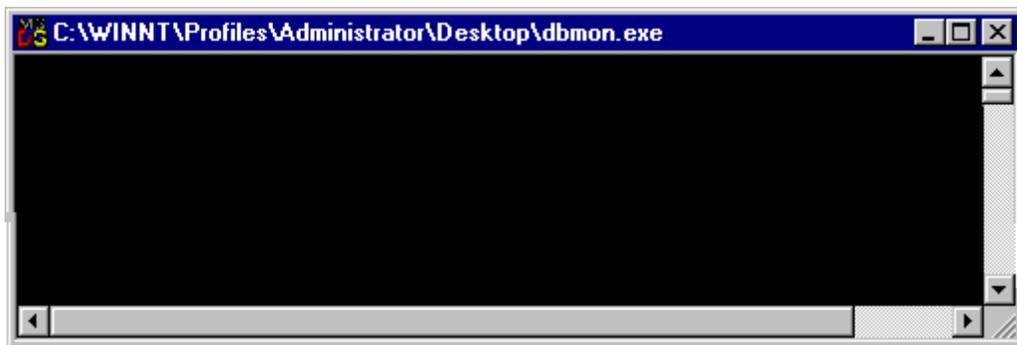
This chapter provides information on the Troubleshooting tools provided with the TAPI driver for ICM. These troubleshooting tools are to assist you when you are having problems and should only be used when requested to by Nortel Customer Support personnel.

DBMON Troubleshooting Tool

During installation or while running an application, problems may occur that cannot be easily found through normal running of the application. The DBMON troubleshooting tool enables technical support personnel to troubleshoot the ICM TAPI.

To Run the DBMON Troubleshooting Tool:

1. Click on **Start/Run** to display the *Run* dialog box.
2. Enter *dbmon* in the *Open* field.
3. Click on the **OK** button.
The following window opens.



As the DBMON troubleshooting tool gathers information, it is displayed on the window. The following is an example of the information. This information is for demonstration purposes only and the information you see will vary.

```

C:\WINNT\Profiles\Administrator\Desktop\dbmon.exe
162: DMSInterpreter::DNQuery
162: InterpretDMS - Response to Message from Switch
162: RequestKey - 31
162: CWork::DoParseResults - Entered
162: CWork::DoParseResults - LINECALLFEATURE_QUERY - DN Query
162: CWork::DNQueryUpdateAddress: MWI off
162: CWork::DNQueryUpdateAddress: will not propagate from idle state
162: CWork::DoParseResults - Exiting
162: NTData::Free() - free delayed. References outstanding.
162: CTSPiAddress::SetAvailable: is true
162: CWork::DoParseMsgEx exited
162: CWork::Perform exited

```

Technical Customer Service personnel uses the displayed information for troubleshooting purposes.

Version Utility Tool

The version utility displays the installed components of the TAPI driver for ICM software on the *Nortel Symposium Version Information* window.

Product Name	Internal Name	Version	Create Date
NORTEL Symposium TAPI Server Capture Utility	Capture Utility	1, 0, 0, 1	12/02/1997 17:15
NORTEL Symposium TAPI Server DB Configurator	DB Configurator	1, 0, 0, 1	12/11/1997 16:55
NORTEL Symposium TAPI Server Message Viewer	Message Viewer	1, 0, 0, 0	12/03/1997 13:55
NORTEL Symposium TAPI Server NTCommon	NTCommon	1, 0, 0, 1	12/11/1997 14:28
NORTEL Symposium TAPI Server Version Information	Version Information	2, 0, 0, 0	12/12/1997 11:09

Buttons: Done, Help, Advanced

This information is helpful to ensure the correct version of software is installed.

Overview of the Version Information Window

The Version utility provides the *Nortel Symposium Version Information* window for displaying the Product name, Internal Name, Version, and date. The **Advanced** button displays additional version information.

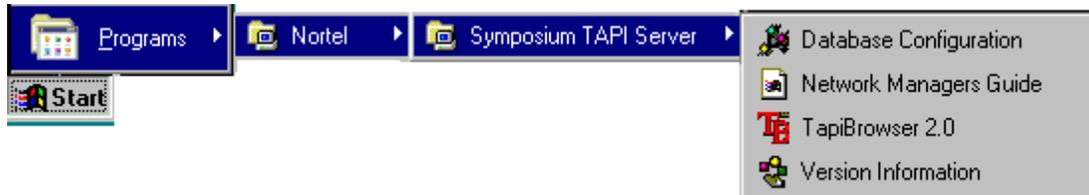
Fields	Descriptions
Product Information	Displays the Name, version, and date of all installed components.
Buttons	Descriptions
Done	Closes the Nortel Symposium Version Information window.
Help	Accesses the online Help.
Advanced	Displays additional version information.

Using the Version Utility

Accessing the *Nortel Symposium Version Information* window displays information regarding the installed components for the TAPI driver for ICM.

To Use the Version Utility:

1. Access the *Nortel Symposium Version Information* window:
Click on **Start**, select the **Nortel / Symposium TAPI Server** program group to display the options.



Click on **Version Information**.

The *Version Information* dialog box is displayed.

2. Click on the **Advanced** button to display additional version information, if desired.
3. Click on the **Done** button to close the *Nortel Symposium Version Information* window.

Chapter 7 Troubleshooting Tips

This chapter provides information on how to verify the TAPI driver for ICM is working, specific problems and possible solutions. It also includes the instructions on removing the TAPI driver for ICM software from your system.

Verifying the TAPI Driver for ICM is Working

The Microsoft TAPI Browser tool is provided to assist you in verifying that the TAPI driver for ICM 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 TAPI driver for ICM is up and running.

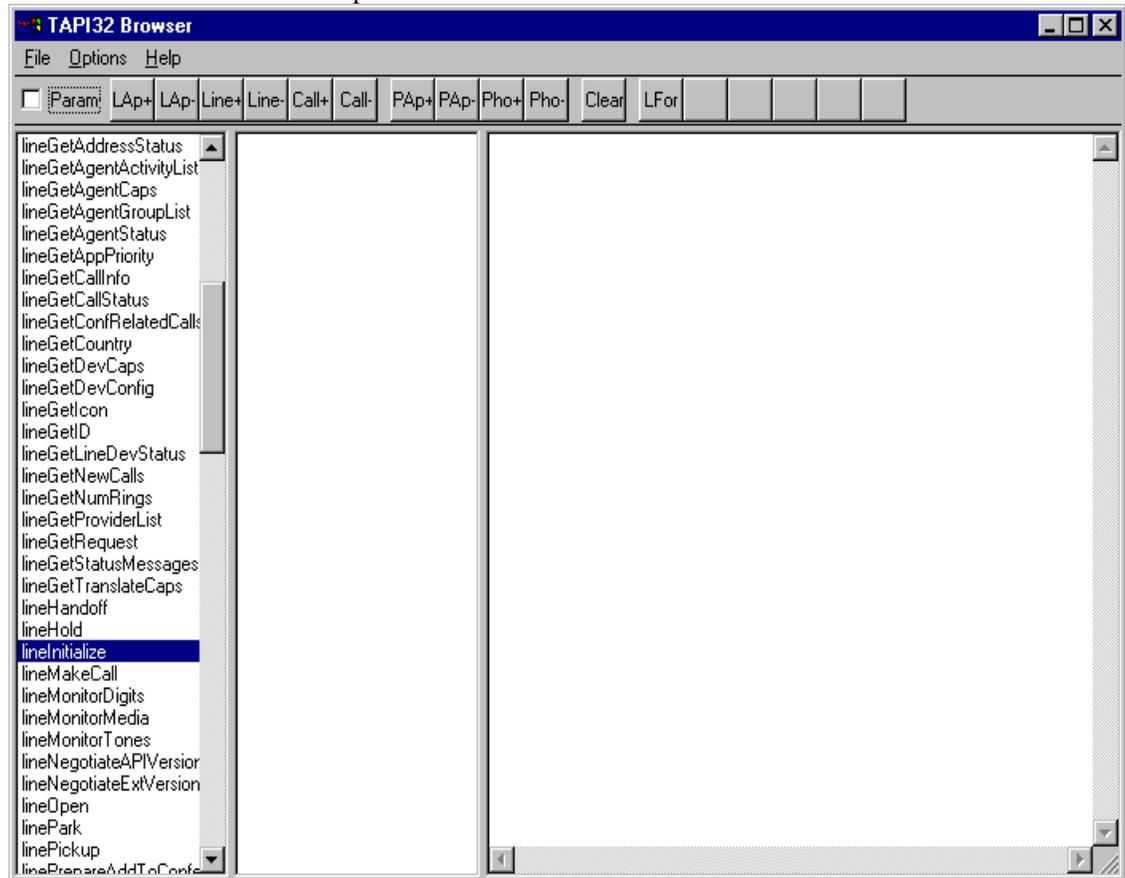
Note: The Microsoft TAPI Browser tool is provided on the TAPI driver for ICM CD ROM. If your installation does not include the Microsoft TAPI Browser tool, it is available from the Microsoft Web site. Microsoft TAPI Browser is a Microsoft product, so customer support for this product is available from Microsoft.

Using the Microsoft TAPI Browser Tool

To Use the Browser Tool:

1. **Run the DBMON program.** Detailed information is provided in the "DBMON Troubleshooting Tool" section located in this chapter.
2. **Run the TB20w.exe program** located in the *Program Files\Nortel\TAPI Server* 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 TAPI driver for ICM software was installed.
 - c. Click on the *Program Files\Nortel\TAPI Server* directory to display the installed files.
 - d. Double-click on **TB20w.exe**.

The *TAPI 32 Browser* window opens.



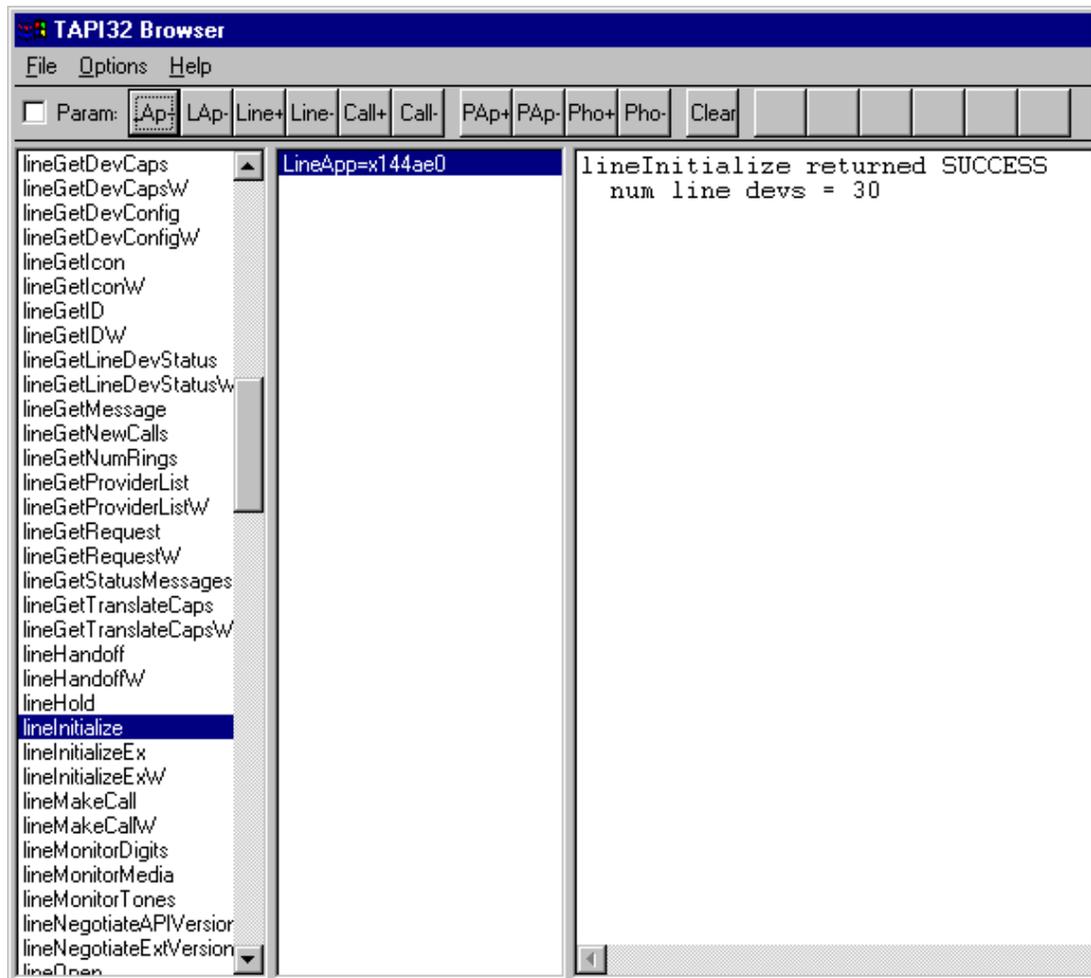
Note: Ensure the default values for the **Line DW Privileges** are Monitor and Owner and the **DW Media Mode** is Interactive Voice.

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.

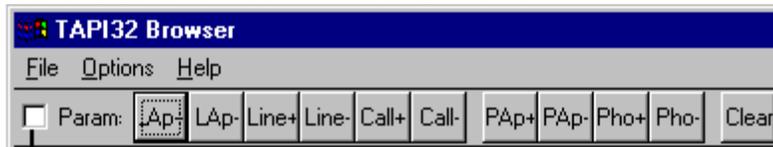
3. Load the Service Provider by clicking on the **LAp+** button located on the Button bar.

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 TAPI driver for ICM is talking to the ICM link module and the Link module is talking to the DMS / MSL-100 switch.



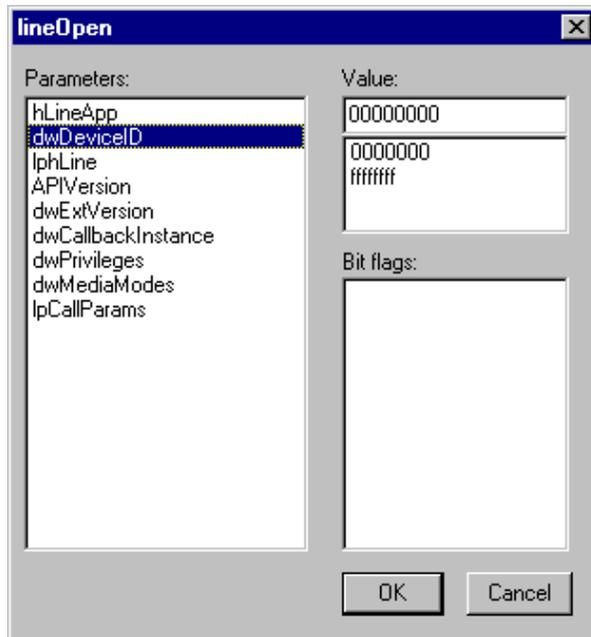
4. Verify that a phone is configured correctly.

- a. Identify the telephone device associated with line 0.
- 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 DBMON information to a file for viewing by support personnel. Refer to the “DBMON Troubleshooting Tool” section located in Chapter 6 for detailed information on using the DBMON tool for troubleshooting purposes.

If you are trying to start the TAPI driver for ICM 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 the Settings for the TAPI driver for ICM” 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. 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 TAPI driver for ICM is properly installed and working.

1. Run the **TB20w.exe** program and load the Service Provider. Refer to the “Using the Microsoft TAPI 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 **lineAnswer** command.
 4. Click **OK**.
 - b. **To do a blind transfer:**
 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**.
 - d. **To make a call on digital sets 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

To Use the 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 DMS / MSL-100 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. Ensure the TCP/IP connection is up and running and that the TAPI driver for ICM is initialized.
3. Ensure the client application is configured properly.

Note: If you are trying to start the TAPI driver for ICM 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 the Settings for the TAPI Driver for ICM” section located in Chapter 3 for details on configuring the “initialize timeout.”

Dual Processor Configurations are not supported by the TAPI driver for ICM unless equipped with Service Pack 4.

Analog Set on DMS / MSL-100 with ICM Capabilities

The following is an example of an analog set on DMS / MSL-100 with ICM capabilities:

```
-----
LEN:      00 0 00 02
TYPE: SINGLE PARTY LINE
SNPA: 612
DIRECTORY NUMBER:  9321111
LINE CLASS CODE: IBN
IBN TYPE: STATION
CUSTGRP:   VERIF1  SUBGRP: 0  NCOS: 0
SIGNALLING TYPE: DIGITONE
CARDCODE: 6X17AC  GND: N  PADGRP: STDLN  BNV: NL  MNO: N
PM NODE NUMBER   : 20
PM TERMINAL NUMBER : 3
DNGRPS OPTIONS:
NETNAME:PUBLIC
NONUNIQUE
OPTIONS:
DGT CND NOAMA CNAMD NOAMA NAME PUBLIC VERIF1 ANALOG ECM Y Y Y Y Y
-----
```

Note: ECM or ACD must be selected for the TAPI driver for ICM to receive information of calls to the ACD queue. If ACD is selected, the regular call information is not displayed.

ICM-based Issue - ACD Agent Phone Fails to Register Number with Switch

If a single line phone, that is configured as an ACD agent and entered in the database, fails to register the number with the switch when you open the line, then check to see if you have the option ECM assigned to that phone. Also check to see if that phone is setup as an ACD agent. A single line phone can not be configured as an ACD agent and have the ECM option assigned. It can have one or the other, but not both.

ICM-based Issue - Agent Fails to Register Properly

If an agent login causes an A3 error message, check to be sure the login ID does not begin with zero (0). For example, if the agent login id is 0123, when the TAPI Server sends this number to the switch, it appears as 123. This generates the A3 error message. To avoid this issue, do not use agent logins with a leading zero (0).

ICM-based Issue - Receive a Resource Failure during Logon

Doing a DV_APP_LOGON under ICM, during an image backup, you will receive a resource failure. Do not try to log on to the switch during an image backup.

ICM-based Issue - Receiving a Connected Call Handle when Number Busy

ICM does not support a return of BUSY if you have called a busy extension or number. Therefore, when calling a busy number, ICM gives you a connected call handle.

DMS-based Issue - Image Back-up affects ICM Link Performance

When the DMS does an image backup, it drastically affects the performance of the ICM Link. We recommend that you do not do the image backup during the important times when the ICM Link performance is critical.

DMS-based Issue - Screen Pops not Working Correctly

In some cases, during a blind transfer, the caller and called id are not maintained correctly, thus the screen pops may not work correctly on blind transfers in all cases. To avoid this issue, use consultative transfer.

DMS-based Issue - Unable to do Back-to-back Consultative Transfers

Back-to-back consultative transfers will fail unless the first conference is completed before the second conference is started. For example: A calls B, who consults to C. Before B completes the conference, C starts

another conference. This results in two transfers going on at the same time. This presents a problem for the CallID.

To avoid this issue, be sure B completes the transfer before A or C start a new transfer.

DMS-based Issue - Unable to do Chained Conferences

DMS does not support chained conferencing. For example, A calls B, who conferences C, who conferences D, who conferences E. Only one conference is allowed within a group of three members.

DMS-based Issue - Dialed Digits not Available in the Offer Message

Information, about what the caller dialed to get a called number, is put in the offered message. To fill the displayable field on the offered (called) and caller as monitored lines indicate, enable the CTXEVENT10\$ data fill.

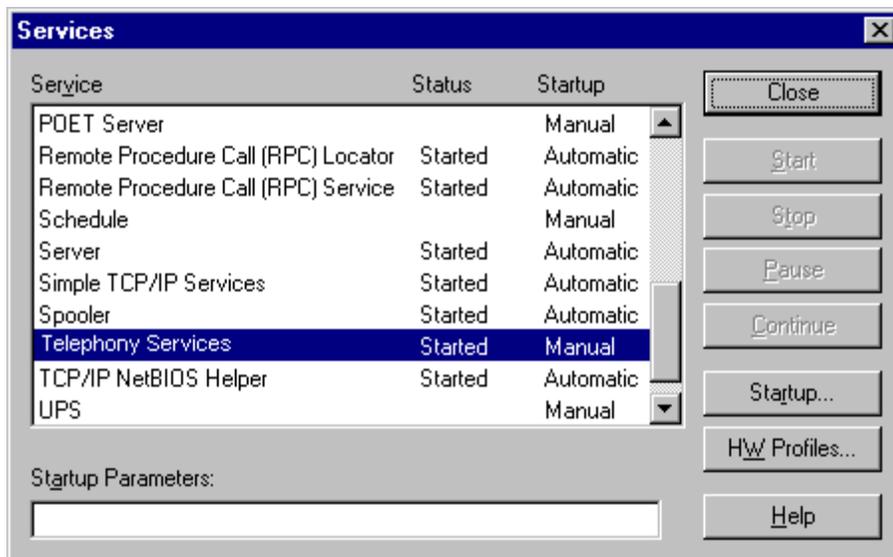
Microsoft TAPI-based Issue - No Error Recovery

When an application crashes, closing the application and restarting it does not unload Microsoft TAPI until you shut down and re-start your machine. Re-starting your machine closes TAPISRV.exe.

Microsoft TAPI-based Issue - Closing the TAPISRV.exe

Administrators are allowed to stop and start the TAPISRV.exe. By shutting down the TAPISRV.exe, all Telephony Services (TAPI drivers) are shut down. No messages are sent from the monitored lines. The TAPISRV.exe must be restarted for the Telephony Services or ACDProxy to regain control. 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 tapisrv.exe. This bad build results in a call to a routine (RegisterProcessService) that no longer exists in the kernel32.dll.

The build date and size of the file are as follows:

111,616 bytes

date:06/17/97 5:48pm

This bad build appears on some Microsoft developers CD ROMs.

To fix 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 tapisrv.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 driver for ICM, you can add the Unimodem back.

Microsoft TAPI-based Issues - Receive SUCCESS when ICM Stopped

LineInitializeEx will return SUCCESS even though the ICM 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 ICM service is stopped.

IVR Messages

This section is divided into IVR Normal and IVR Error messages. However, this information is for reference purposes only and may not contain a complete list. Refer to your IVR User Documentation for complete message information.

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 1 Normal IVR Messages

<i>msg</i>	<i>Message Text</i>	<i>Description</i>
M01	Operating in off-line auto transfer mode	IVR module could not register with the TAPI driver for ICM 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 driver for ICM and stands ready to transfer data. The Association ID is a unique number generated by the TAPI driver for ICM 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 driver for ICM, 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 driver for ICM.
M08	Retry successful - IVR module is now registered with IVR driver	Previous attempts to establish communication with the TAPI driver for ICM had failed, the IVR module was finally able to establish communication.
M09	Socket successfully closed	Termination procedures for the IVR module involve closing the socket connection to the TAPI driver for ICM. This was completed successfully.
M10	Closing connection and entering off-line auto transfer mode	Unexpected socket problems interrupted data transfer to the TAPI driver for ICM. 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.

Normal Messages, cont.

<i>msg</i>	<i>Message Text</i>	<i>Description</i>
M13	Processing Response of MsgRefId: <value>	The TAPI driver for ICM 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 driver for ICM until the point when it received a response message from the TAPI driver for ICM.
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 driver for ICM 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.
M26	ExternHost is: <string>	The TAPI driver for ICM host name read during startup phase
M27	Port is: <value>	Port number on TAPI driver for ICM 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 2 IVR Error Messages

<i>msg</i>	<i>Error Message</i>	<i>Description</i>
E01	Configuration Error -- Could not 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 file IVRmodule.cfg. These may be problems with syntax. Refer to the 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 driver for ICM and will make another attempt.
E05	Unable to open socket connection	The IVR module could not establish socket communications with the TAPI driver for ICM 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 driver for ICM that would impede socket communication.
E06	Unable to register with IVR driver over socket -- Retrying	The IVR module successfully connected to the designated socket on the TAPI driver for ICM 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 number of retries.
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 driver for ICM.
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 driver for ICM. 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.

Error Messages, cont.

<i>Msg</i>	<i>Error Message</i>	<i>Description</i>
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 driver for ICM.
E19	Problem in reading received socket message - retrying	IVR module detected that a message was received over the socket from the TAPI driver for ICM but could not read the information from the socket. It will make another attempt to read the socket message.
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.

Error Messages, cont.

<i>msg</i>	<i>Error Message</i>	<i>Description</i>
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.
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 driver for ICM. 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 driver for ICM. 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 driver for ICM. Contact IVR module support personnel.

Error Messages, cont.

<i>msg</i>	<i>Error Message</i>	<i>Description</i>
E35	Problem in sending registration message	The IVR module failed while attempting to send the registration message to the TAPI driver for ICM. 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 driver for ICM but received no response. Check with TAPI driver for ICM support personnel to be sure the IVR driver is running and the TAPI driver for ICM 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 driver for ICM. 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 driver for ICM. It encountered problems while attempting to send this message to the TAPI driver for ICM. Contact your system administrator or IVR module support personnel.
E40	Problem in enqueuing user message	The IVR module successfully sent data to the TAPI driver for ICM and encountered problems while attempting to store this data internally. Contact IVR module support personnel.
E41	Problem in allocating linked list structure	The IVR module successfully sent data to the TAPI driver for ICM 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 driver for ICM 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 driver for ICM. 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 driver for ICM. 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 driver for ICM. It will make additional attempts until it reaches the maximum number of retries.

Error Messages, cont.

<i>msg</i>	<i>Error Message</i>	<i>Description</i>
E46	Incorrect disconnect response received - Retrying	The IVR module received an erroneous response to the disconnect message sent to the TAPI driver for ICM. 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 driver for ICM. This is most likely caused by shutdown procedures on the TAPI driver for ICM 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 driver for ICM 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 driver for ICM. 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.
E51	Problem in sending response back to user cell	The IVR module received a response from the TAPI driver for ICM 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 driver for ICM 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.

Error Messages, cont.

<i>msg</i>	<i>Error Message</i>	<i>Description</i>
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 driver for ICM and encountered problems in decoding the message. Contact the TAPI driver for ICM or IVR module support personnel.
E59	Cause value in status message unknown	The IVR module expected to receive status info from the TAPI driver for ICM and encountered problems in decoding the message. Contact the TAPI driver for ICM or IVR module support personnel.
E60	Cause: message length is incorrect	The TAPI driver for ICM 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 driver for ICM 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 driver for ICM using a host name that is already associated with a prior registration. Check for multiple instances of IvModule 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 driver for ICM 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.
E64	Cause: IVR not registered so no messages may be sent	The IVR module attempted to send messages to the TAPI driver for ICM 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 information, 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 driver for ICM support personnel.
E66	Cause: Registration of this DN/port failed	The TAPI driver for ICM received a DN in configuration options but could not access it for monitoring. Check the IVRmodule.cfg file for errors and check your switch for possible problems with the specific DN. If problem persists, contact IVR module or TAPI driver for ICM support personnel.

Error Messages, cont.

<i>msg</i>	<i>Error Message</i>	<i>Description</i>
E67	Cause: This DN/port has a bad format	The TAPI driver for ICM received a DN in configuration options but encountered errors with its setup. Check the IVRmodule.cfg file for syntax errors and check the switch for possible problems with the specific DN. If problem persists, contact IVR module, TAPI driver for ICM, or switch support.
E68	Cause: This DN/port is not registered	The IVR module sent a user data message to the TAPI driver for ICM referencing a DN that had not been previously registered with the TAPI driver for ICM upon startup. Check the IVRmodule.cfg file for syntax errors. If problem persists, contact IVR module, TAPI driver for ICM, or switch support.
E69	Cause: Data transfer task is not responding to the IVR driver	The IVR driver is experiencing problems while attempting 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 driver for ICM and encountered problems in decoding the message. Contact the TAPI driver for ICM or 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 IVR 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 IVR 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 IVR module was unable to open the message queue through which it would send data to the user cells. Contact your system administrator.
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.

Error Messages, cont.

<i>msg</i>	<i>Error Message</i>	<i>Description</i>
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.
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.

Error Messages, cont.

<i>msg</i>	<i>Error Message</i>	<i>Description</i>
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 TAPI Driver for ICM Software

If it becomes necessary to remove the TAPI driver for ICM software, an uninstall program is provided. Running the *Un-Install* program deletes the database file. To save the database information for future use, save the **NTSBDB.MDS** file to another directory before uninstalling the TAPI driver for ICM software.

Note: Do not remove the TAPI driver for ICM software using the **Add/Remove** program on the Control Panel.

To Remove the TAPI Driver for ICM Software:

1. Access the *Select Installation* dialog box:
 - a. Log on to the Windows NT Server.
 - b. Insert the TAPI Driver for ICM 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: Do not remove the TAPI driver for ICM 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 **Installr.exe** file.
The *Select Components* dialog box is displayed.
2. Click on the **Remove TAPI Driver for ICM software and exit** radio button.
The TAPI Driver for ICM 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

Technical Support for the TAPI Driver for ICM

If you have difficulty when using the TAPI driver for ICM, help is available in different formats. This product provides online help. This document provides troubleshooting tips in Chapter 7. For telephone support in the United States and Canada, contact your Nortel Customer Support Personnel.

For Customer Support

United States and Canada:
(800) 473-0017

For Developer Support

United States and Canada:
(800) 700-9712

For New Product Information:

(800) 4-NORTEL
8:00 a.m. - 6:00 p.m.
Monday -Friday

For outside the United States and Canada, contact your Nortel Support or Sales representative.

To resolve a problem properly, Nortel Customer 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 TAPI driver for ICM.
3. The switch software release number.
4. The ICM release number.
5. The DBMON Troubleshooting log file of the problem. Run the DBMON Troubleshooting tool only if requested to by Nortel Support Personnel.

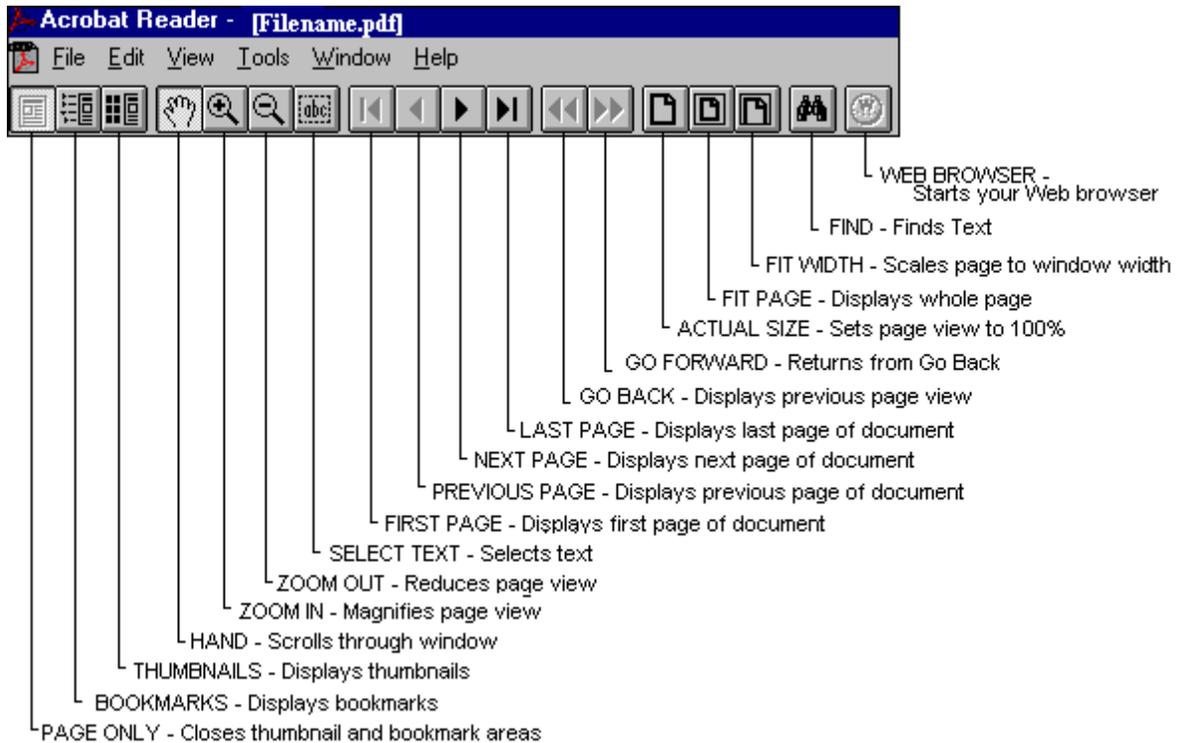
Overview of the Adobe Acrobat Reader

The User documents for the TAPI driver for ICM are provided electronically as online documents. These documents are contained on the CD ROM and after installation, are accessed from the Start\Programs\Nortel 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

The Acrobat Reader Window

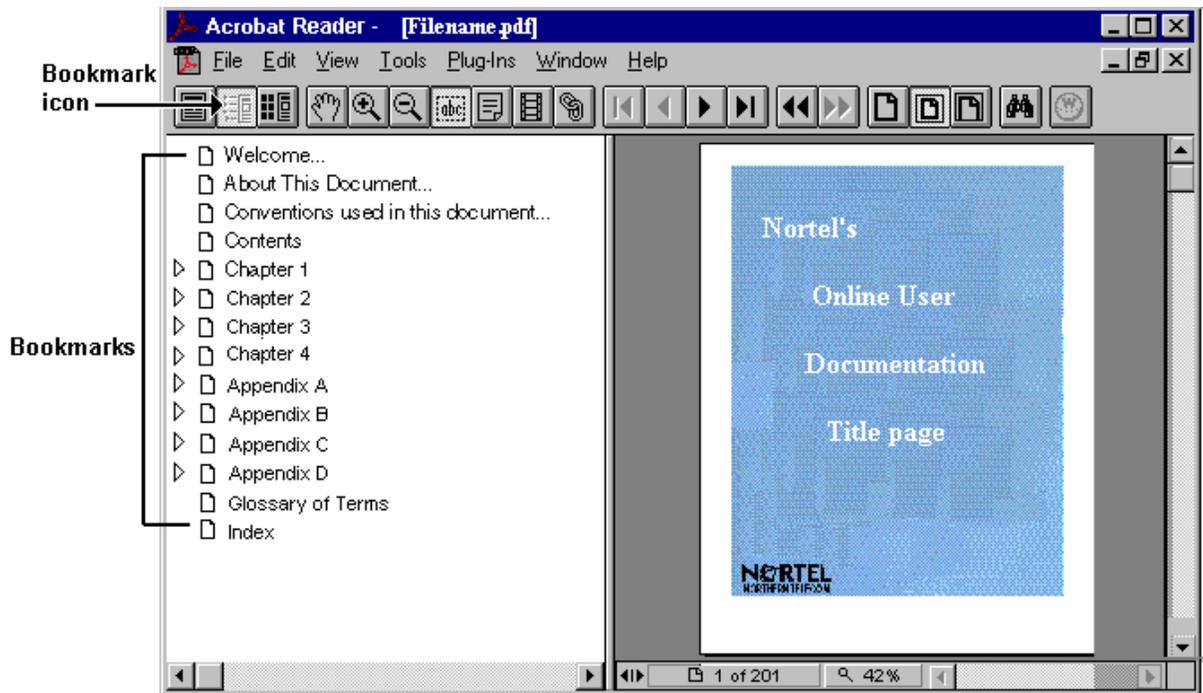
The *Acrobat Reader* window contains menus, tools, and buttons. The Menu bar of the *Acrobat Reader* window displays the **H**elp menu. The **H**elp menu contains important information on how to view and print the document. The Toolbar on the *Acrobat Reader* window provides tools for working with the documents. Select a tool by clicking the icon.



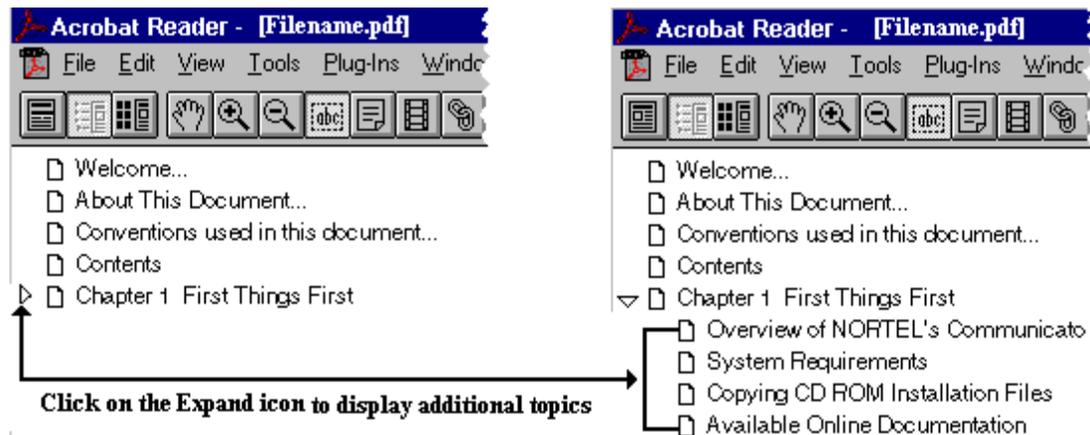
Using Bookmarks on the Acrobat Reader Window

The online documents contain bookmarks to assist you in finding information. Selecting the Bookmark button  provides an automated table of contents.

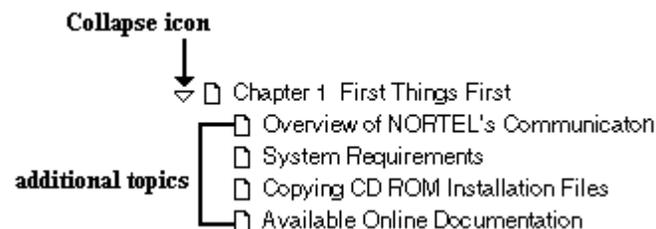
The Bookmarks are displayed on the left of the window.



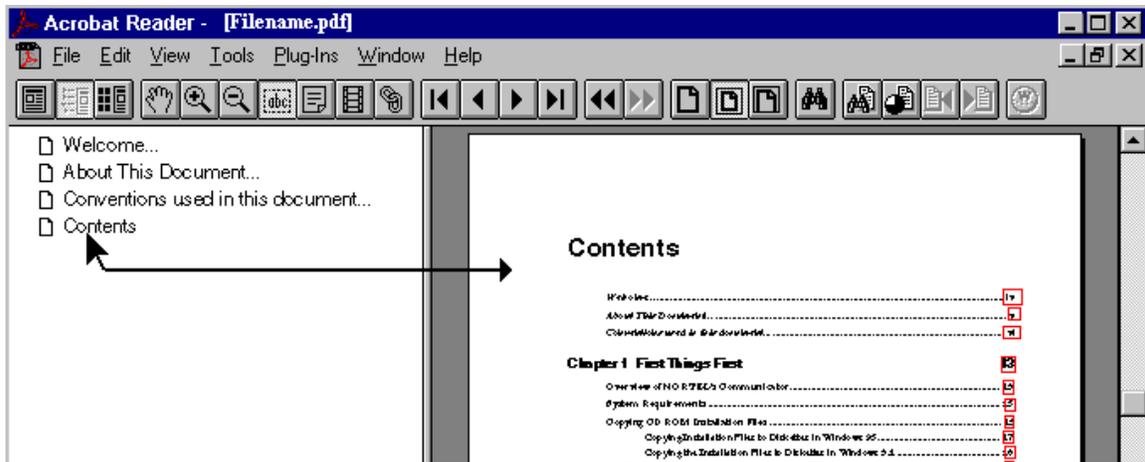
Clicking on the **Expand** icon  located to the left of the bookmark displays additional topics in a tree-view.



When the additional topics are displayed, the **Expand** icon changes to the **Collapse** icon.

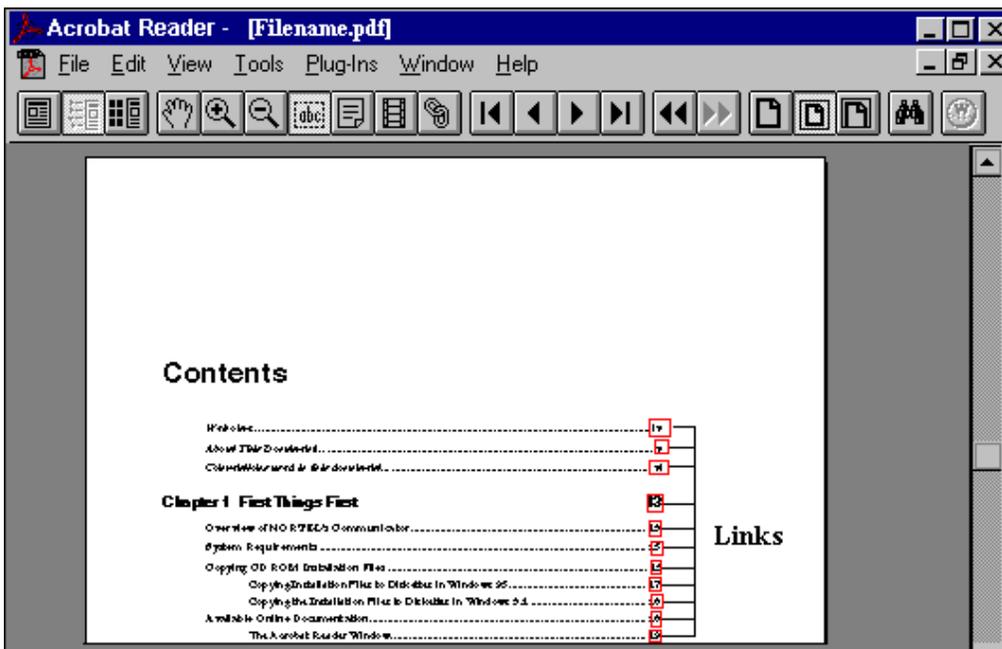


Clicking on the **Collapse** icon  removes the additional topics.
Clicking on a Bookmark takes you directly to the page containing the information.



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.



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.

TABLE: SCAISSRV

SUBSERV

SPROFILE

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CTXEVENT34$
CTXEVENT (CALLOFFR Y Y N N Y Y Y N N Y Y Y Y)
(CALLANSWR Y Y Y N N Y Y Y N N Y Y Y) (CALLREL Y Y Y) $
  ACDEVENT34$
ACDEVENT (CALLQUED Y Y Y Y Y Y Y Y N) (CALLOFFR Y Y Y Y Y Y Y Y Y N)
(CALLANSWR Y Y Y Y Y Y Y Y Y N) (CALLREL Y Y Y Y Y) $
  ROUTING34$
  ROUTING      (CALLREDCD Y Y Y Y Y Y Y Y N) (CALLREDIR Y Y Y)$
    TPCC34$
TPCC (ADDPTY Y Y Y N) (CONFPTY Y) (DROPPTY Y Y) (TRANPTY Y) (MAKECALL Y Y) $
  CTXEVENT35$
CTXEVENT (CALLOFFR Y Y N N Y Y Y N N Y Y Y Y)
(CALLANSWR Y Y Y N N Y Y Y N N Y Y Y) (CALLREL Y Y Y) $
  ACDEVENT35$
ACDEVENT (CALLQUED Y Y Y Y Y Y Y Y Y) (CALLOFFR Y Y Y Y Y Y Y Y Y Y)
(CALLANSWR Y Y Y Y Y Y Y Y Y Y) (CALLREL Y Y Y Y Y) $
  ROUTING35$
  ROUTING      (CALLREDCD Y Y Y Y Y Y Y Y Y) (CALLREDIR Y Y Y)$
    TPCC35$
TPCC (ADDPTY Y Y Y N) (CONFPTY Y) (DROPPTY Y Y) (TRANPTY Y) (MAKECALL Y Y) $
  RESOURCE35$
    RESOURCE      (ACDQUERY )$
  ACDEVENT36$
ACDEVENT (CALLQUED Y Y Y Y Y Y Y Y Y) (CALLOFFR Y Y Y Y Y Y Y Y Y Y)
(CALLANSWR Y Y Y Y Y Y Y Y Y Y) (CALLREL Y Y Y Y Y) (AGTLGDIN Y Y Y)
(AGTLGDOUT Y Y) (AGTREADY Y Y) (AGTNREADY Y Y N) $
  TPAC36$
TPAC (LOGINAGT Y Y N) (LOGOUTAGT Y) (READYAGT Y) (NREADYAGT Y N) $
  CTXEVENT07$
CTXEVENT (SETOFFHK Y Y) (CALLOFFR Y Y Y Y Y Y Y Y Y Y Y Y Y Y)
(CALLANSWR Y Y Y Y Y Y Y Y Y Y Y Y Y Y) (CALLREL Y Y Y) $
  RESEVENT07$
RESEVENT (SETOFFHK Y Y) (CALLOFFR Y Y Y Y Y Y Y Y Y Y Y Y Y Y)
(CALLANSWR Y Y Y Y Y Y Y Y Y Y Y Y Y Y) (CALLREL Y Y Y) $
  CALLINIT07$
    CALLINIT (MAKECALL Y Y)$ CALLINIT (MAKECALL Y Y)$
  SCAI3WC07$
SCAI3WC (ADDPTY Y Y Y) (CONFPTY Y) (DROPPTY Y Y) (TRANPTY Y) $
  SCAIMWTI07$
    SCAIMWTI (MSGWAIT Y Y Y)$
  DNQUERY07$
    DNQUERY (DNQUERY Y Y)$
  SCAICC08$
SCAICC (ANSWCALL ) (RELSCALL Y) (HOLDCALL ) (UNHOLDCALL ) (CALLUNHELD Y) $
  TPCC08$
TPCC (ANSWCALL ) (RELSCALL Y) (HOLDCALL ) (UNHOLDCALL ) (CALLUNHELD Y)
(ADDPTY Y Y Y N) (CONFPTY Y) (DROPPTY Y Y) (TRANPTY Y) (MAKECALL Y Y) $
  TPCC09$

```

TPCC (CONSULTEV Y) (CONFEVNT Y) (TRANSFEREV Y) (ANSWCALL) (RELSCALL Y)
 (HOLDCALL) (UNHOLDCALL) (CALLUNHELD Y) (ADDPTY Y Y Y N) (CONFPTY Y)
 (DROPPTY Y Y) (TRANPTY Y) (MAKECALL Y Y) \$
 SCAI3WC09\$
 SCAI3WC (CONSULTEV Y) (CONFEVNT Y) (TRANSFEREV Y) (ADDPTY Y Y Y) (CONFPTY Y)
 (DROPPTY Y Y) (TRANPTY Y) \$
 TPQC10\$
 TPQC (ROUTECALL) (GIVETRMT) (TRMTCOMP)\$
 ICCM10\$
 ICCM (SETCDNST)\$
 CTXEVENT10\$
 CTXEVENT (SETOFFHK Y Y) (CALLOFFR Y Y Y Y Y Y Y Y Y Y Y Y)
 (CALLANSWR Y Y Y Y Y Y Y Y Y Y Y Y) (CALLREL Y Y Y) (CALLNAME Y Y Y Y Y) \$
 RESEVENT10\$
 RESEVENT (SETOFFHK Y Y) (CALLOFFR Y Y Y Y Y Y Y Y Y Y Y Y)
 (CALLANSWR Y Y Y Y Y Y Y Y Y Y Y Y) (CALLREL Y Y Y) (CALLNAME Y Y Y Y Y) \$
 ACDEVENT11\$
 ACDEVENT (CALLQUED Y Y Y Y Y Y Y Y Y Y) (CALLOFFR Y Y Y Y Y Y Y Y Y Y)
 (CALLANSWR Y Y Y Y Y Y Y Y Y Y) (CALLREL Y Y Y Y Y) (AGTLGDIN Y Y Y)
 (AGTLGDOUT Y Y) (AGTREADY Y Y) (AGTNREADY Y Y N) (LOBEVENT Y Y Y)
 (EMKEVENT Y Y Y Y Y Y) \$
 TPCC11\$
 TPCC (CONSULTEV Y) (CONFEVNT Y) (TRANSFEREV Y) (ANSWCALL) (RELSCALL Y)
 (HOLDCALL) (UNHOLDCALL) (CALLUNHELD Y) (ADDPTY Y Y Y Y) (CONFPTY Y)
 (DROPPTY Y Y) (TRANPTY Y) (MAKECALL Y Y) \$

TABLE: SCAIPROF

PROFKEY

PROFILE

VERIF1 1
 (CTXEVENT10\$) (ACDEVENT11\$) (ROUTING35\$) (TPCC08\$) (RESOURCE35\$) (TPAC36\$)
 (CALLINIT07\$) (SCAI3WC07\$) (SCAIMWTI07\$) (DNQUERY07\$) (SCAICC08\$) \$

VERIF2 1
 (CTXEVENT10\$) (ACDEVENT11\$) (ROUTING35\$) (TPCC08\$) (RESOURCE35\$) (TPAC36\$)
 (CALLINIT07\$) (SCAI3WC07\$) (SCAIMWTI07\$) (DNQUERY07\$) (SCAICC08\$) \$

VERIF3 1
 (CTXEVENT10\$) (ACDEVENT11\$) (ROUTING35\$) (TPCC08\$) (RESOURCE35\$) (TPAC36\$)
 (CALLINIT07\$) (SCAI3WC07\$) (SCAIMWTI07\$) (DNQUERY07\$) (SCAICC08\$) \$

TABLE: CUSTNTWK

CUSTNAME	NETNAME	NETCGID	DNREVVLA
VERIF1	PUBLIC	3	\$
			(CLID OFFNET)(ECM)\$

TABLE: CUSTENG

CUSTNAME	ADNUM	NONCOS	NOIBNTMT	CONSOLES	MASCON	DOMAIN
VERIF1	3	35	63	Y	N	PRIVATE
						0
						(CONF6C 20)(ACDCQLMT 80)\$

TABLE: CUSTNAME

VALUE	SYMBOL
0	ASRDFLT
1	PRAEFAULT
2	PFEFAULT
3	POTSDATA
4	NORTEL
5	HANSEN1
6	VERIF1
256	CTEXPO

TABLE: CUSTHEAD

```

CUSTNAME CUSTXLA DGCOLNM IDIGCOL
          OPTIONS
-----
ASRDFLT ASRDXLA NDGT  NIL
          ( VACTRMT 0)( EXTNCOS 0)$
PRAEFAULT PRAXLA NDGT  NIL
          ( VACTRMT 0)( EXTNCOS 0)$
POTSDATA POT SXLA POTS  NIL
          ( VACTRMT 0)( EXTNCOS 0)$
NORTEL  CXNORTEL DCCTI  NIL
(VACTRMT 0)(EXTNCOS 0)(FETXLA CXNORTEL)(CUTPAUSE 3)(CUTIMOUT 9) $
HANSEN1  CXNORTEL NDGT  NIL
          ( VACTRMT 0)( EXTNCOS 0)( FETXLA CXNORTEL)$
VERIF1  CXNORTEL NDGT  NIL
          ( VACTRMT 0)( EXTNCOS 0)( FETXLA CXNORTEL)$
CTEXPO  CXNORTEL NDGT  NIL
          ( VACTRMT 0)( EXTNCOS 0)( FETXLA CXNORTEL)$

```

TABLE: NCOS

```

TOP
CUSTGRP NCOS  NCOSNAME LSC TRAFSNO          OPTIONS
-----
PRAEFAULT  0  PRAD  0  0          $
POTSDATA  0  PDATA 0  0          $
NORTEL  0  NORT  0  0  (XLAS CXNORTEL NXLA
NDGT) (CRL 1 BLOCKED)
$
HANSEN1  0  NORT  0  0  (XLAS CXNORTEL NXLA
NDGT) (CRL 1 BLOCKED)
$
VERIF1  0  NORT  0  0  (XLAS CXNORTEL NXLA
NDGT) (CRL 1 BLOCKED)
$
CTEXPO  0  NORT  0  0  (XLAS CXNORTEL NXLA
NDGT) (CRL 1 BLOCKED)
$

```

TABLE: OFCOPT

MAX_NUM_CTX_ASSOC	32767
MAX_NUM_ECM_ACDEVENT	1000
MAX_NUM_ECM_CALLINIT	1000
MAX_NUM_ECM_CTXEVENT	1000
MAX_NUM_ECM_DNQUERY	1000
MAX_NUM_ECM_LINE_MAKECALL	1000
MAX_NUM_ECM_LINE_SCAI3WC	1000
MAX_NUM_ECM_LINE_SCAICC	1000
MAX_NUM_ECM_LINE_SCAIMWT	1000
MAX_NUM_ECM_RESEVENT	1000
MAX_NUM_ECM_RESOURCE	1000
MAX_NUM_ECM_ROUTING	1000
MAX_NUM_ECM_SCAI3WC	1000
MAX_NUM_ECM_SCAICC	1000
MAX_NUM_ECM_SCAIMWTI	1000
MAX_NUM_ECM_SVC	1000
MAX_NUM_ECM_TPAC	1000
MAX_NUM_ECM_TPCC	1000
MAX_NUM_RES_ASSOC	1000

TABLE: IPNETWRK

KEYREF	CMIPADDR	SUBNET	PARMAREA	OPTION
0	47 105 193 70	12		\$
(EIU_INTERFACE EIU 0) (DFLT_GTWY_IPADDR 47 105 192 1) (DFLT_INTERFACE Y)				
(SCRNFLAG N) \$				
1	47 105 193 71	12		\$
(EIU_INTERFACE EIU 1) (DFLT_GTWY_IPADDR 47 105 192 1) (SCRNFLAG N)				
(DFLT_INTERFACE N) \$				

TABLE: IPHOST

INDEX	NODENAME	NODEINFO
0	CM 0	32 8 8
1	EIU 0 47 195 145 2	47 195 147 1 1 16 4 4

TABLE: IPROUTER

RKEY	ROUTER	SNIPADR	ETHIPADR	ETHARP	ETHAPARP
1	EIU	0 47 195 145 2	47 195 147 1	1	YES YES

TABLE: IPTHRON

```
LMSNODE TXCAPCT RXCAPCT
                                OPTION
-----
EIU 0 32767 32767
                                ( CM 32000)$
EIU 1  0  0
                                $
```

ACD Customer on DMS / MSL-100

This is an example of the line datafill files for an ACD Customer on DMS / MSL-100. ECM is the option that must be assigned for ICM to work.

>QLEN 0 0 1 19

```
-----
LEN:      00 0 01 19
TYPE: SINGLE PARTY LINE
SNPA: 612
DIRECTORY NUMBER: 9329006 (NON-UNIQUE)
LINE CLASS CODE: M5316 SET
CUSTGRP:   VERIF1 SUBGRP: 0 NCOS: 0 RING: Y
ACDKEY: INCALLS VERIFICATION 1 Y 9006
CARDCODE: 6X21AC GND: N PADGRP: NPDGP BNV: NL MNO: Y
PM NODE NUMBER : 20
PM TERMINAL NUMBER : 52
DNGRPS OPTIONS:
NETNAME: PUBLIC
NONUNIQUE
OPTIONS:
MSB
3WC ACDNR NAME PUBLIC VERIF LEON
CLI CNF C06 INSPECT
```

```
KEY  DN
---  --
 1  ACD      9329006 INCALLS VERIFICATION 1 Y 9006
 2  DN       9321152
```

```
KEY  FEATURE
---  -
 1     CLI
 2     CLI
 2     ECM Y Y Y Y Y
 3     3WC
 4     CNF C06
```

```
5  INSPECT
6   MSB $
7  ACDNR
```

Note: This is adding the ECM option to a line.

```
>SERVORD
SO:
>ADO
SONUMBER:  NOW 97 10 21 PM
>
DN_OR_LEN:
>9321187
OPTKEY:
>1
OPTION:
>ECM
CALL_EVENTS:
>Y
MAKECALL:
>Y
CONF_XFER:
>Y
MSG_WAIT:
>Y
SCAICC:
>Y
OPTKEY:
>$
COMMAND AS ENTERED:
ADO NOW 97 10 21 PM 9321187 ( 1 ECM Y Y Y Y Y ) $
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>Y
```

ACDGRP Table for ACD ICM

Example of table ACDGRP table for ACD ICM.

TABLE: ACDGRP

```
ACDNAME      CUSTGRP  ACDRNGTH      THROUTE
             NSROUTE  PRIOPRO  DBG  MAXCQSIZ  MAXWAIT
             ACDMIS
             MSQS  DISTRING  OBSWTONE
             FRCNGTSV
             OPTIONS
```

```

-----
CTI    NORTEL    30    IBNRTE  1
      IBNRTE  1    0 N    10 1800
                N
      Y  1  2  3 CALLQ N Y 30 Y 20  NONE    N
      Y N
                ( ACDDISP 7) ( ACDXFER 10 Y 45)$

```

```

ICM1   VERIF1   30    IBNRTE  1
      IBNRTE  1    0 N    10 1800
                N
      Y  1  2  3 CALLQ N Y 30 Y 20  BOTH    N
      Y N
                ( ACDDISP 7) ( ACDXFER 10 Y 45) (SCAIREDIR 2 0 9329000)$

```

DNROUTE Table where the ACD Queue is Datafilled

This is an example of DNROUTE table where the ACD Queue is datafilled. This lists the DN of the ACD Queue so it can be setup in the TAPI driver for ICM Configuration.

TABLE: DNROUTE

AREACODE	OFCCODE	STNCODE	DNRESULT
612	932	1900	FEAT ACD ICM1 PRIM 0 0
612	932	9000	FEAT ACD CTI PRIM 0 0
612	932	9100	FEAT ACD CTI SUPP 2

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 switching system 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.

Directory Number

Referred to as DN. A number that is the number assigned to a specific address.

DMS / MSL-100

An abbreviation for Nortel Central Office DMS switch or MSL-100 premise-based PBX. The CTI interface is the same for both.

DN

See Directory Number.

DNIS

See Dialed Number Identification Service.

DNs

Directory Numbers. See DN.

DTEV

Desktop Evolution

ICM

Intelligent Communication Module

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.

NGEN

Next Generation Call Center

NORTEL Customer Hotline

For additional information or help, call (800) 4 NORTEL.

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.

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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Nortel Symposium Network Manager's Guide
**A Reference Guide for installing, configuring, and maintaining
the Symposium TAPI Driver for ICM**

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Publication number: P0902559

Document release: Standard
Issue 00 Stream 03

Date: February 1999

Printed in the United States of America

