

UC for Enterprise (UCE) Application Platform (UNIVERGE OW5000)

TAPI Link

Operations Guide

NEC NEC Corporation

March 2010
NDA-30110, Revision 11

Liability Disclaimer

NEC Corporation reserves the right to change the specifications, functions, or features, at any time, without notice.

NEC Corporation has prepared this document for the exclusive use of its employees and customers. The information contained herein is the property of NEC Corporation and shall not be reproduced without prior written approval from NEC Corporation.

NEAX and Dterm are registered trademarks of NEC Corporation.
OW5000 is a trademark of NEC Corporation.

NEC GRANTS NO WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, BY STATUE OR OTHERWISE REGARDING THESE RECOMMENDATIONS, THEIR QUALITY, THEIR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, INCLUDING (BUT NOT LIMITED TO) PREVENTION, DETECTION OR DETERRENCE OF TOLL FRAUD, COMPUTER VIRUSES OR OTHER UNAUTHORIZED OR IMPROPER USE OF THE SOFTWARE PRODUCTS. IN NO EVENT SHALL NEC OR ANY OF ITS SUBSIDIARIES OR ITS AUTHORIZED DEALERS BE HELD LIABLE FOR LOST PROFITS OR FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL OR INDIRECT DAMAGES CAUSED BY THE IMPLEMENTATION OF THESE RECOMMENDATIONS. THE SECURITY OF YOUR NEC APPLICATION IS ULTIMATELY YOUR RESPONSIBILITY. THIS DISCLAIMER IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED.

© 2010 NEC Corporation

Microsoft®, Windows®, SQL Server®, and MSDE® are registered trademarks of Microsoft Corporation.

All other brand or product names are or may be trademarks or registered trademarks of, and are used to identify products or services of, their respective owners.

Contents

Introduction	1-1
About OW5000 TAPI Link	1-1
How This Guide is Organized	1-1
Using This Guide	1-2
Document Conventions	1-2
Procedures	1-3
<hr/>	
Installing TAPI Link	2-1
Before Starting the Installation Procedure	2-1
OW5000 Server	2-1
Installing TAPI Link	2-2
<hr/>	
Configuring the TAPI Link Service Provider	3-1
Selecting the OW5000 TAPI Service Provider	3-1
Configuring PBX Data	3-3
Adding a PBX	3-3
Modifying a PBX	3-5
Deleting a PBX	3-7

Configuring Station Information	3-8
Adding a Station	3-8
Modifying Station Information	3-10
Deleting a Station	3-12

Supported Functions and Messages **4-1**

Figures

Figure	Title	Page
2-1	Welcome dialog box	2-2
2-2	Ready to Install dialog box.	2-3
2-3	Setup Complete dialog box	2-3
2-4	Phone and Modem Options dialog box	2-4
2-5	Phone and Modem Options dialog box—Advanced Tab.	2-5
2-6	Add Driver dialog box	2-5
2-7	Dialing Properties dialog box — Updated Drivers Displayed.	2-6
3-1	Phone and Modem Options dialog box — Advanced Tab.	3-2
3-2	OW5000 TAPI Link dialog box — Computer Displayed	3-2
3-3	PBX Properties dialog box.	3-3
3-4	Restriction Properties dialog box.	3-5
3-5	Modify PBX dialog box.	3-6
3-6	PBX Properties dialog box — Modify Properties	3-6
3-7	Delete PBX dialog box.	3-7
3-8	Configured PBX Station.	3-7
3-9	No Configured Station dialog box	3-8
3-10	Configured PBXs dialog box	3-8
3-11	Station Properties dialog box.	3-9
3-12	Add Subline dialog box	3-9
3-13	Station Added dialog box.	3-10
3-14	Modify Station dialog box.	3-11
3-15	Modify Station Properties dialog box	3-11
3-16	Delete Station dialog box.	3-12
3-17	Delete Station confirmation dialog box	3-12



Tables

Table	Title	Page
1-1	Document Conventions	1-2
3-1	PBX IP Address Locations.....	3-4
4-1	TAPI Link Supported Functions and Messages.....	4-1



1

Introduction

The Telephony Application Programming Interface (TAPI) is a platform for developing and using computer telephony applications. These applications bring the power of your telephone to your Microsoft Windows desktop. TAPI makes it easier for developers to create network and hardware-independent applications and enables users to run several telephony applications simultaneously.

The following topics are included in this chapter.

- Chapter Topics*
- [About OW5000 TAPI Link](#)
 - [How This Guide is Organized](#)
 - [Using This Guide](#)

About OW5000 TAPI Link

The OW5000 TAPI Link service provider enables third-party developers and users to create and run TAPI applications on their NEC PBX system.

How This Guide is Organized

- | | |
|---|---|
| <i>Chapter 1
Introduction</i> | This chapter outlines how to use the manual, including the organization, chapter layout, and conventions used in the <i>OW5000 TAPI Link Operations Guide</i> . |
| <i>Chapter 2
Installing TAPI Link</i> | This chapter provides step-by-step procedures for installing the TAPI Link software. |
| <i>Chapter 3
Configuring the TAPI Link Service Provider</i> | This chapter provides information for configuring the OW5000 TAPI Link service provider. This chapter also includes information on adding, modifying, and deleting PBX and telephone station information. |
| <i>Chapter 4
Supported Functions and Messages</i> | This chapter provides a list of TAPI functions and messages supported by OW5000 TAPI Link Service Provider. |



2

Installing TAPI Link

This chapter provides step-by-step procedures to install the TAPI Link software.

Chapter Topics

- [Before Starting the Installation Procedure](#)
- [OW5000 Server](#)
- [Installing TAPI Link](#)

Before Starting the Installation Procedure

This section describes the required components that must be in place before installing the OW5000 TAPI Link software.



NOTE

Each PBX must be configured for use with OAI before installing the application software.

OW5000 Server

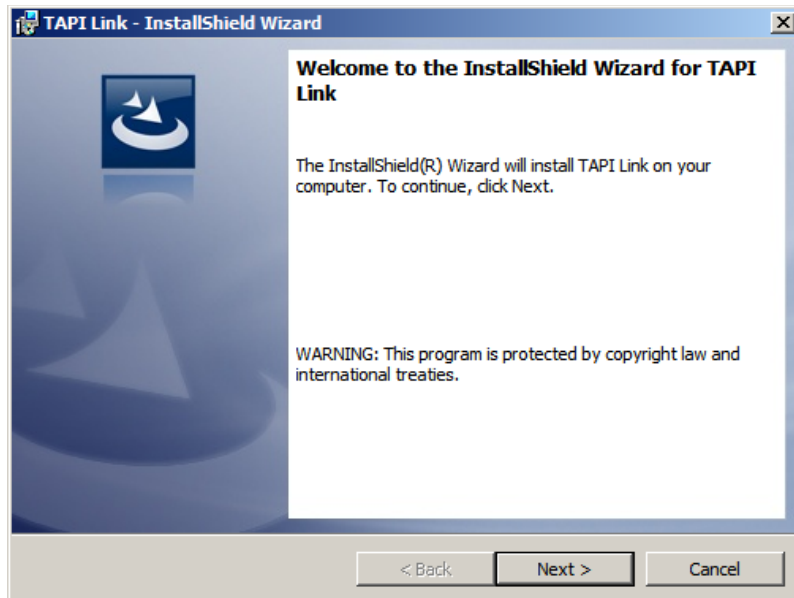
Prior to installing any OW5000 software or Microsoft database, please refer to the Requirements section in the *UC for Enterprise (UCE) Application Platform (UNIVERGE OW5000) Getting Started Guide* to verify that your system meets the requirements for the OW5000 Platform and specific OW5000 application software you purchased. The OW5000 Platform must be installed before you install OW5000 TAPI Link software. OW5000 TAPI Link must be installed on client machines. For instructions on how to install the OW5000 Platform, refer to the *UC for Enterprise (UCE) Application Platform (UNIVERGE OW5000) Installation Guide*.

Installing TAPI Link

Use the following steps to install the TAPI Link software.

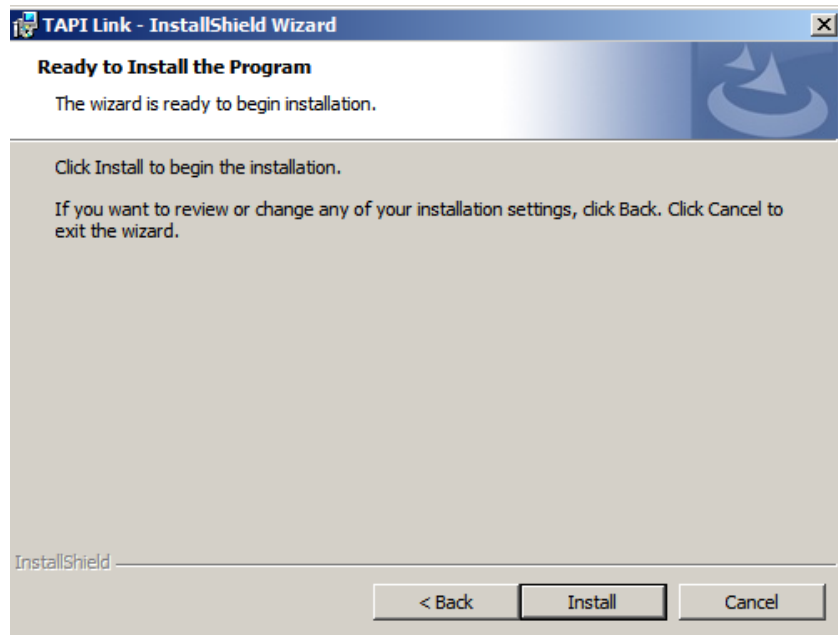
- Step 1** Place the UCE DVD into the computer's DVD-ROM drive. On most computers, setup will automatically start when the DVD is loaded. If Autorun is not enabled on the computer, then do the following:
- After placing the UCE DVD into the computer's DVD-ROM drive, open Windows Explorer and double-click the **DVD-ROM drive** icon.
 - Open the TAPI folder and double-click the **Setup.exe** file.
- A Welcome dialog box displays (Figure 2-1).

Figure 2-1 Welcome dialog box



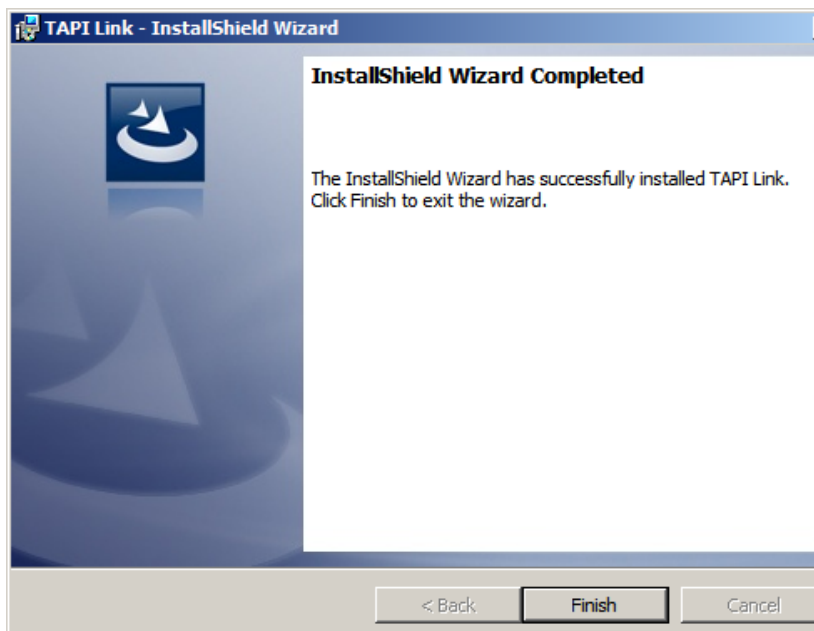
- Step 2** Click **Next**. A Ready to Install dialog box displays (Figure 2-2).

Figure 2-2 Ready to Install dialog box



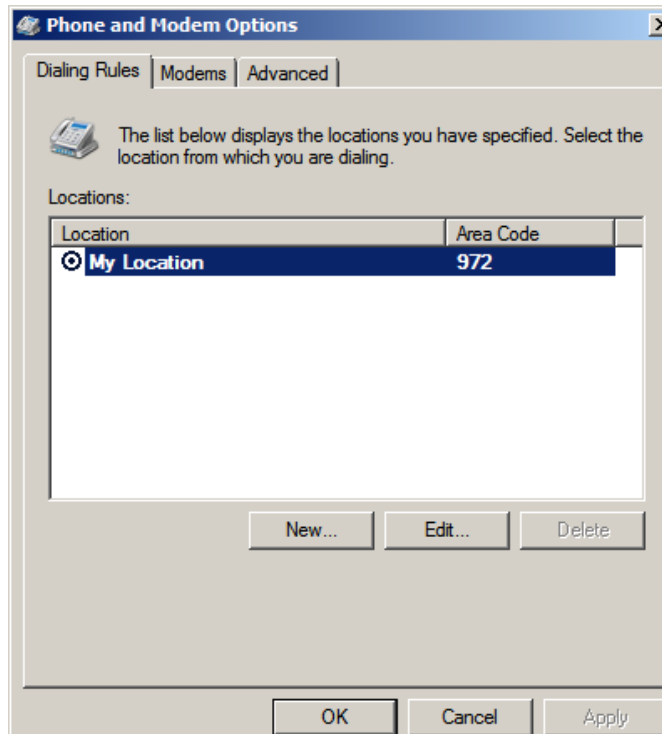
- Step 3** Click **Install** to start the installation process. A Completed dialog box displays (Figure 2-3).
- If you are prompted to reboot, a Setup Complete— Reboot dialog box displays.
 - If you are not prompted to reboot, a Setup Complete — Start Telephony Control Panel dialog box displays.

Figure 2-3 Setup Complete dialog box



- Step 4** Click **Finish** to complete the installation.
- Step 5** Select **Start Menu > Control Panel > Phone and Modem Options**. A Phone and Modem Options dialog box displays (Figure 2-4).

Figure 2-4 Phone and Modem Options dialog box

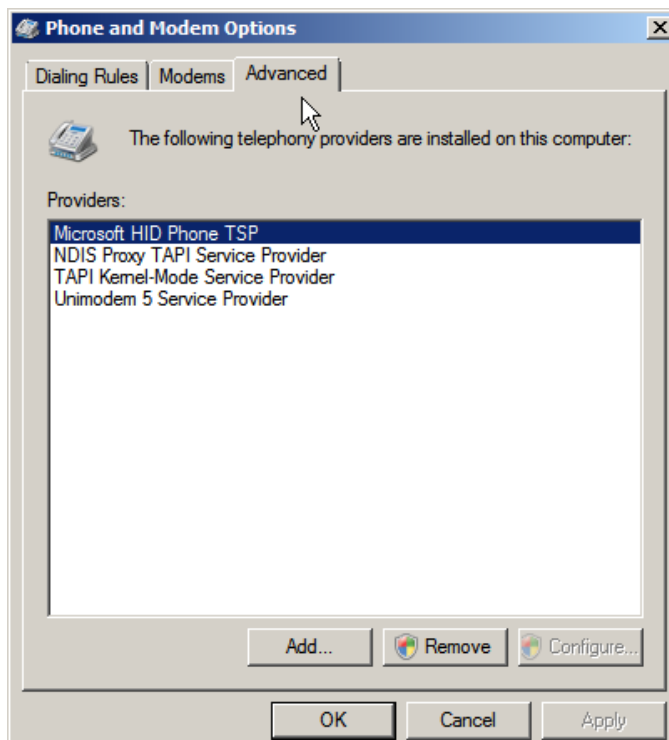


- Step 6** Click the **Advanced** tab to see a list of telephony providers that are installed on your system (Figure 2-5).



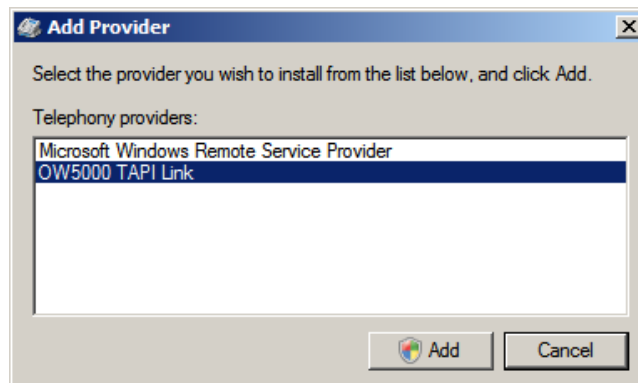
If you do not want to start the Telephony Control Panel at this time, you can do so later.

Figure 2-5 Phone and Modem Options dialog box—Advanced Tab



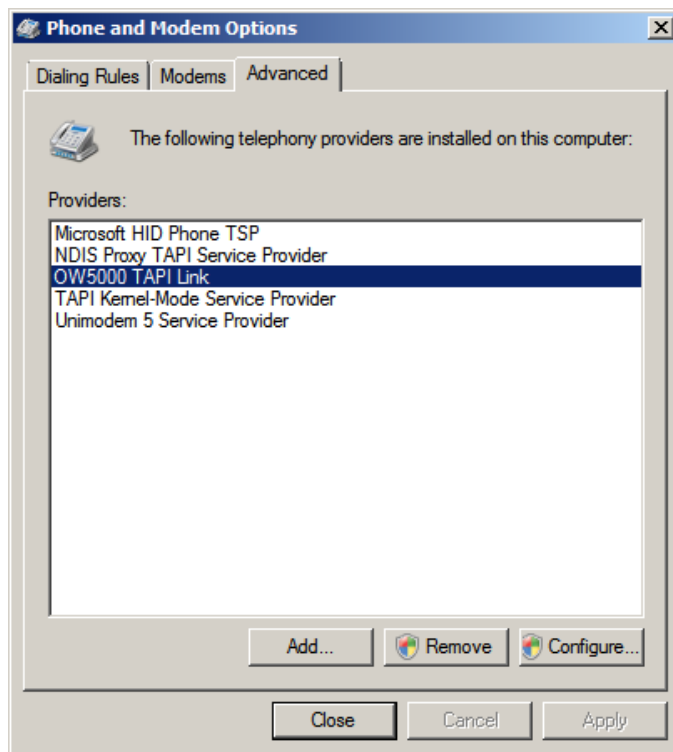
Step 7 Click **Add**. An Add Driver dialog box displays (Figure 2-6).

Figure 2-6 Add Driver dialog box



Step 8 Select the **OW5000 TAPI Link** service provider and click **Add**. The service provider is added to your system and the information on the Advanced tab (Windows 2003) is updated to include OW5000 TAPI Link as shown in Figure 2-7.

Figure 2-7 Dialing Properties dialog box — Updated Drivers Displayed



Step 9 Click **Close** to complete the installation process.

Step 10 To continue with the configuration process, see [Chapter 3 "Configuring the TAPI Link Service Provider"](#).

3

Configuring the TAPI Link Service Provider

This chapter provides descriptions and step-by-step procedures for configuring the TAPI Link Service Provider.

The following topics are included in this chapter.

Chapter Topics

- [Selecting the OW5000 TAPI Service Provider](#)
- [Configuring PBX Data](#)
- [Configuring Station Information](#)

Selecting the OW5000 TAPI Service Provider

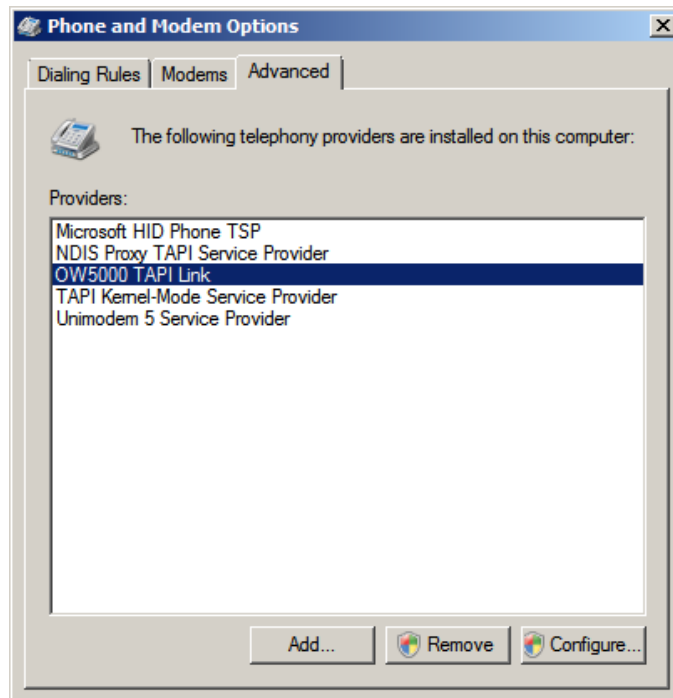
You must install the Microsoft TAPI 2.1 server and the OW5000 TAPI Link service provider on your computer before you can configure the service provider to work with your TAPI applications.

Once you install the OW5000 TAPI Link service provider, as described in Chapter 2, [“Installing TAPI Link” on page 2-2](#), you can configure the service provider to work with your PBX system. To configure the service provider, you must first select it from the Telephony Drivers/Providers list.

Use the following steps to select the OW5000 TAPI Link service provider.

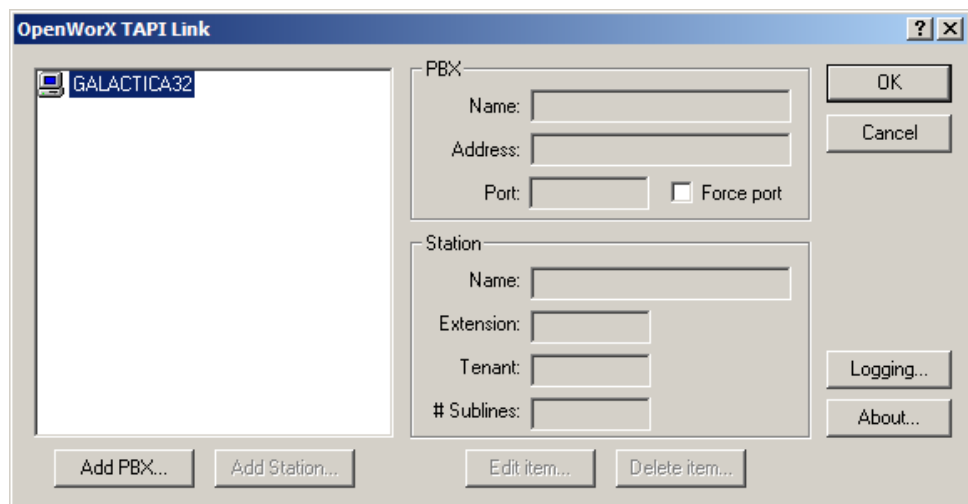
- Step 1** Select **Start Menu > Control Panel > Phone and Modem Options**. A Phone and Modem Options dialog box displays. Click the **Advanced** tab to see a list of telephony providers that are installed on your system. ([Figure 3-1](#)).

Figure 3-1 Phone and Modem Options dialog box — Advanced Tab



Step 2 Select the **OW5000 TAPI Link** service provider, and click **Configure**. An OW5000 TAPI Link dialog box displays with your computer in the list box (Figure 3-2).

Figure 3-2 OW5000 TAPI Link dialog box — Computer Displayed



Configuring PBX Data

Before you can set up the stations that you want the TAPI application to control, you have to configure the PBX information in your system. The following sections describe how to add a PBX, modify information about a PBX that has already been configured, and delete a PBX. After you have added and configured the necessary PBX information, you can configure the stations that will use your TAPI application. For instructions on how to work with the stations, see ["Configuring Station Information" on page 3-8](#).

Adding a PBX

Use the following steps to configure a PBX in the system that has not already been added.

- Step 1** Open the OW5000 TAPI Link dialog box, as described in ["Selecting the OW5000 TAPI Service Provider" on page 3-1](#).
- Step 2** Click **Add PBX** (Figure 3-2). A PBX Properties dialog box displays (Figure 3-3).

Figure 3-3 PBX Properties dialog box

The screenshot shows the 'PBX Properties' dialog box. It includes the following fields and controls:

- Name:** Text input field.
- Address:** Text input field.
- Port:** Text input field with '1024' entered.
- Force port:** Checked checkbox.
- Type:** Dropdown menu with 'ICS 2400' selected.
- Monitored number:** Text input field.
- Park orbit numbers:**
 - First:** Text input field.
 - Count:** Text input field with '0' entered.
- ACD Information:**
 - ACD Processor:** Text input field.
 - Port:** Text input field with '0' entered.
- Restriction classes:** A table with two columns: 'Name' and 'Prefix'. The table is currently empty.

Buttons: 'OK', 'Cancel', 'Add...', 'Change...', and 'Delete...'.

- Step 3** Enter a PBX Name for the PBX in the **Name** field. This is a label used to identify the PBX. It is viewable on various list boxes to identify the location of extensions, and therefore, should be made descriptive such as the site location, and so forth.
- Step 4** Enter the PBX IP address in the **Address** field. If you do not know the PBX IP Address, contact your local PBX system administrator. Determining the IP address of your PBX depends on the particular type of PBX, as shown in [Table 3-1](#).

Table 3-1 PBX IP Address Locations

PBX Type	Address Location	Select PBX Type
NEAX 2000 IPS	CM0B00	IVS 2000
NEAX 2400 IMS - Internal	ADTM Command	ICS 2400
NEAX 2400 IPX	ADTM Command	ICS 2400
SV7000	ADTM Command (TP server address)	ICS 2400
SV7000 MPS	ADTM Command	ICS 2400
UNIVERGE SV8300	CM0B00	IVS 2000
UNIVERGE SV8500	ADTM (Lan2:default)	ICS 2400

- Step 5** Enter the port number you want the PBX to use when making a TCP connection in the **Port** field. If you want the PBX to use only this port, select the **Force Port** checkbox.
- Step 6** Select the PBX Type from one of the selections in the **PBX Type** drop-down list.
- Step 7** Enter a unique monitored number in the **Monitored number** field. This is required for some TAPI SV functions to work correctly.
- Step 8** Enter the range of monitored numbers to be used as orbit numbers for parked calls by entering the starting number in the **First** field and the total number of monitored numbers in the **Count** field.



NOTE

The park function of TAPI will still work properly without orbit numbers, but orbit numbers allow any station to be connected with a parked caller.

- Step 9** Enter the IP address of the Automatic Call Distribution (ACD) processor in the **ACD Processor** field, if it is different than the IP address of the PBX.



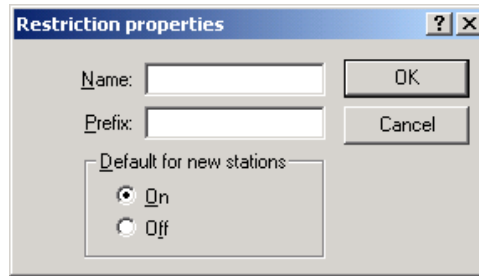
NOTE

The ACD must be NEC Release IV or higher.

- Step 10** Enter the port number you want the ACD processor to use when making a TCP connection in the **Port** field. If you do not want to specify a port number, enter **0**.

- Step 11** If you want to restrict stations from dialing certain numbers, you enter the restriction classes here. Click **Add** and the Restriction Properties dialog box displays (Figure 3-4) where you can enter a name and the prefix for the restriction. Restrictions can be applied to individual stations with the Station Properties dialog box. See “Configuring Station Information” on page 3-8.

Figure 3-4 Restriction Properties dialog box



- Step 12** Click **OK**. A PBX Properties dialog box displays with the added Restrictions.



This procedure may be repeated to add as many restrictions as needed.

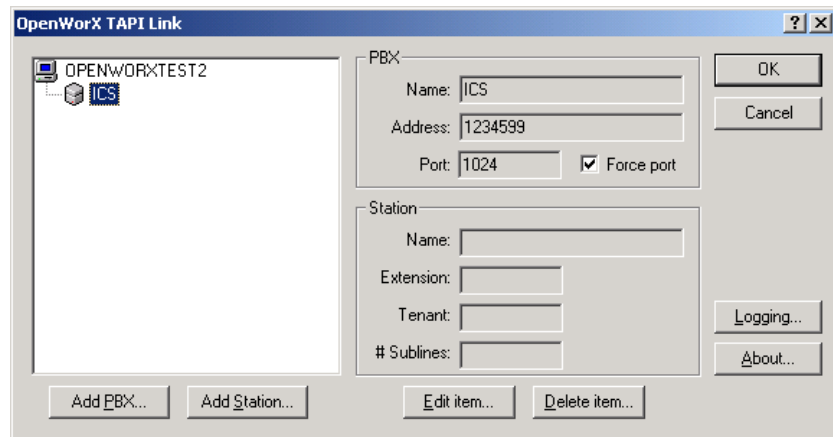
- Step 13** Click **OK** to save your changes and add the PBX. An OW5000 TAPI Link dialog box displays (Figure 3-5).
- Step 14** Click **OK** to save your changes.

Modifying a PBX

When you select a PBX from the list box in the OW5000 TAPI Link dialog box, information about that PBX displays in the PBX group box. To modify information for a selected PBX, use the following steps.

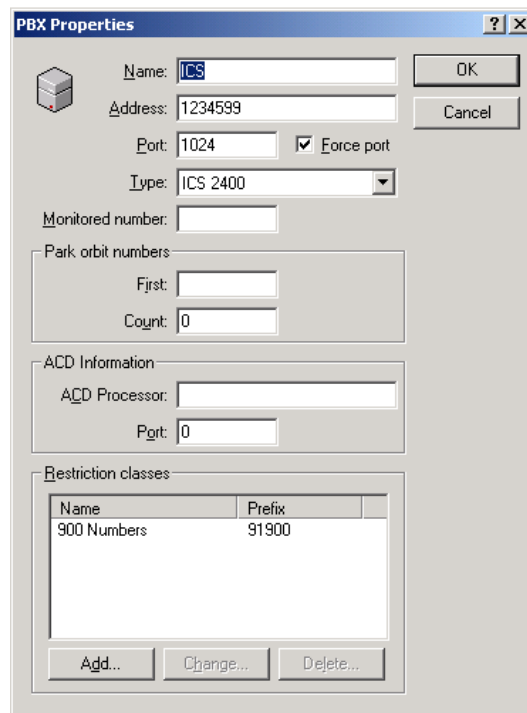
- Step 1** Open the OW5000 TAPI Link dialog box, as described in “Selecting the OW5000 TAPI Service Provider” on page 3-1. The configured PBXs appear under your computer icon (Figure 3-5).

Figure 3-5 Modify PBX dialog box



Step 2 Select the PBX that you want to modify, and click **Edit item**. A PBX Properties dialog box displays (Figure 3-6).

Figure 3-6 PBX Properties dialog box — Modify Properties



Step 3 Change the information in the fields that you want to modify and click **OK**. An OW5000 TAPI Link dialog box displays (Figure 3-5).

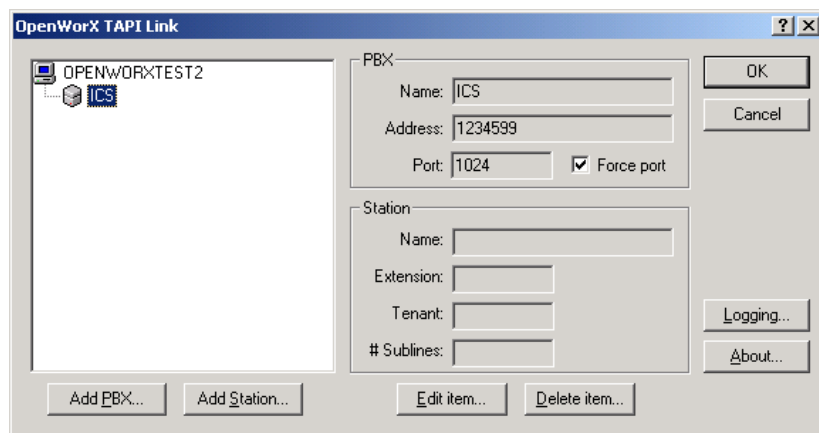
Step 4 Click **OK**.

Deleting a PBX

You can delete a PBX from the system if it does not have any stations defined under it. If stations are configured, you must delete the stations before you delete the PBX. For information on deleting stations, see [“Deleting a Station” on page 3-12](#). Use the following steps to delete a PBX that has no configured stations.

- Step 1** Open the OW5000 TAPI Link dialog box, as described in [“Selecting the OW5000 TAPI Service Provider” on page 3-1](#). The configured PBXs appear under your computer icon ([Figure 3-7](#)).

Figure 3-7 Delete PBX dialog box



- Step 2** Select the PBX that you want to delete, and click **Delete item**.



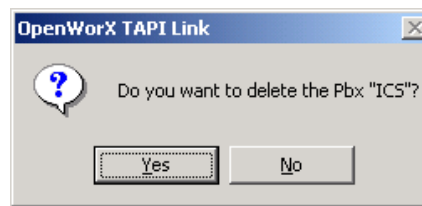
NOTE

If stations are configured under the PBX, an error message displays ([Figure 3-8](#)). Use the steps described in [“Deleting a Station” on page 3-12](#) to delete the stations, and continue deleting this PBX.

Figure 3-8 Configured PBX Station



—If no stations are configured under the PBX, the following dialog box displays ([Figure 3-9](#)).

Figure 3-9 No Configured Station dialog box

Step 3 Click **Yes** to delete the listed PBX. A Delete PBX dialog box displays with the deleted PBX removed from the list box (Figure 3-7).

Step 4 Click **OK** to save your changes.

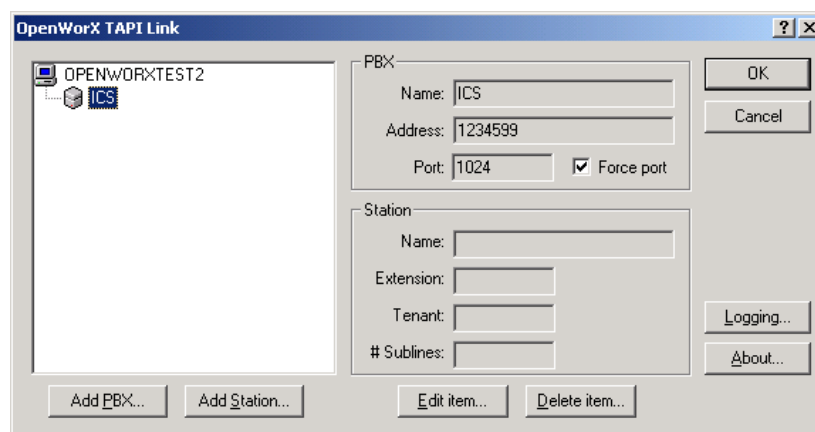
Configuring Station Information

Once you have set up the PBXs on your system, you must configure any station that you want a TAPI application to control. The following sections describe how to add, modify, and delete station information.

Adding a Station

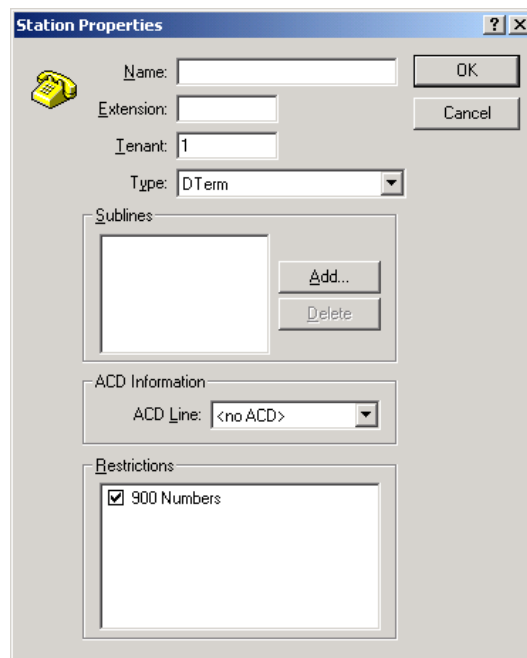
Use the following steps to add a station under a given PBX.

Step 1 Open the OW5000 TAPI Link dialog box, as described in “[Selecting the OW5000 TAPI Service Provider](#)” on page 3-1. The configured PBXs display under your computer icon (Figure 3-10).

Figure 3-10 Configured PBXs dialog box

Step 2 Select the PBX that you want to add an extension to, and click **Add Station**. A Station Properties dialog box displays (Figure 3-11).

Figure 3-11 Station Properties dialog box



Step 3 Enter the display name for this extension in the **Name** field.

Step 4 Enter the extension number of this station in the **Extension** field.

Step 5 Enter the tenant number of this station in the **Tenant** field.

Step 6 Select the type of phone used by this extension from the **Type** drop-down list. Available options are:

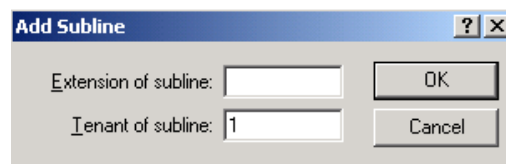
—**Dterm** - Display telephone with function keys.

—**Single line (Analog)** - Basic telephone without a display or function keys.

—**Call Queue** - Station used for line redirect. The application is notified when a call comes in to this number, and the call is redirected to the proper number.

Step 7 If the extension has sublines, click **Add** to display the Add Subline dialog box (Figure 3-12), where you can add all sublines.

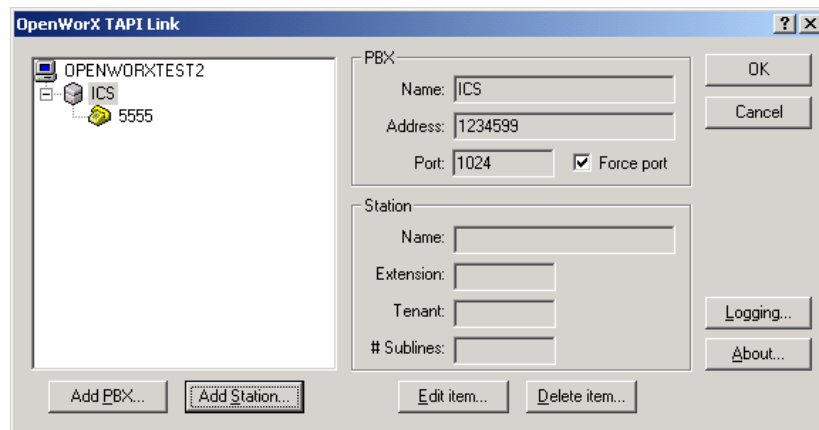
Figure 3-12 Add Subline dialog box



Step 8 To add a subline extension, enter the subline extension in the **Extension of subline** field.

- Step 9** Click **OK**. Continue this procedure until you have added all of the sublines for this station.
- Step 10** If this station is part of an ACD group, select the appropriate ACD extension from the **ACD Line** drop-down list.
- Step 11** If this station should be restricted from dialing the restricted numbers configured in the PBX properties, select the appropriate restricted call types in the **Restrictions** box.
- Step 12** Click **OK**. A Station Added dialog box displays (Figure 3-13).

Figure 3-13 Station Added dialog box



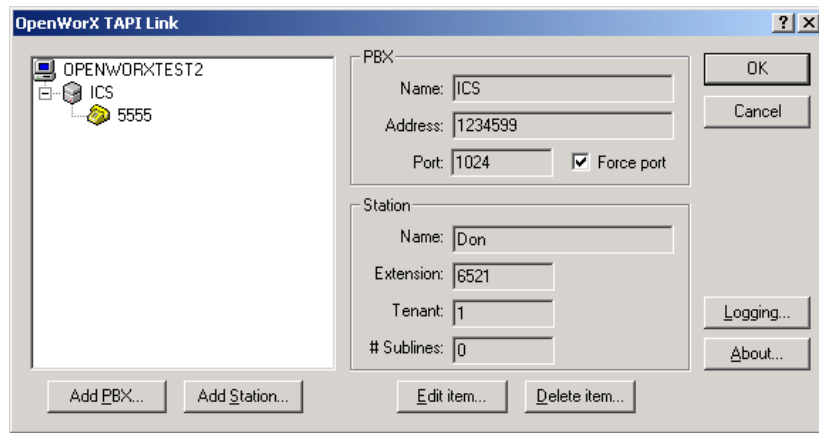
- Step 13** Click **OK** to save your changes.

Modifying Station Information

When you select a station from the list box in the OW5000 TAPI Link dialog box, information about that station displays in the Station group box. To modify information for a selected station, use the steps below.

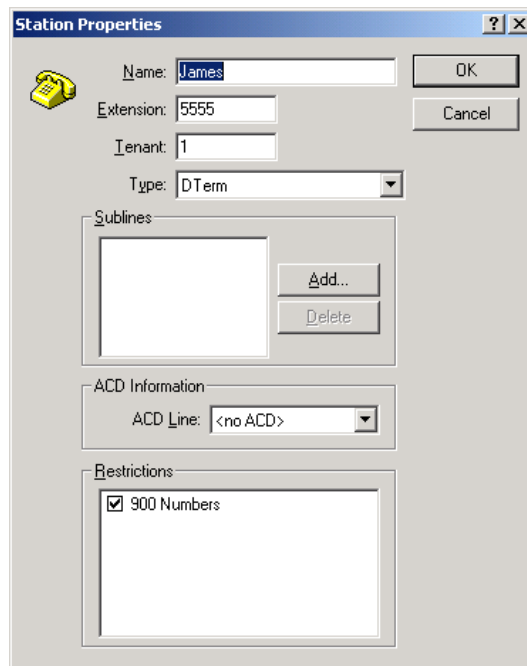
- Step 1** Open the Modify Station dialog box (Figure 3-14) as described in “[Selecting the OW5000 TAPI Service Provider](#)” on page 3-1. The configured PBXs display under your computer icon.

Figure 3-14 Modify Station dialog box



- Step 2** Click the plus sign next to a given PBX to display the configured stations. If no stations have been configured, the plus sign does not appear.
- Step 3** Select the station that you want to modify, and click **Edit item**. A Modify Station Properties dialog box displays (Figure 3-15).

Figure 3-15 Modify Station Properties dialog box



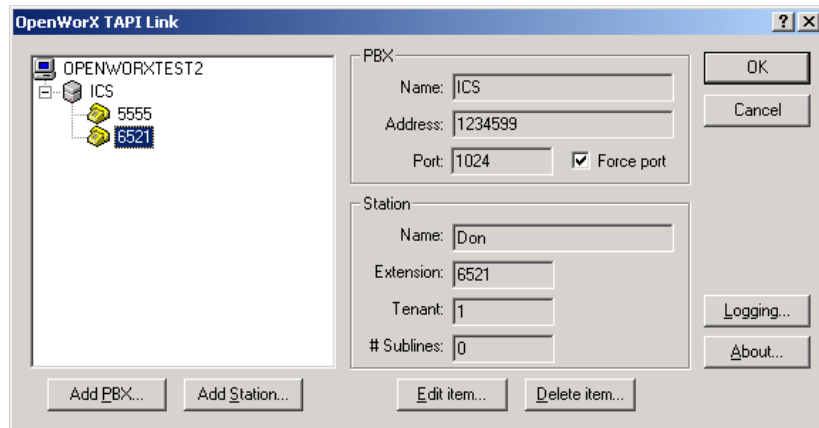
- Step 4** Change the information in the fields that you want to modify and click **OK**. A Modify Station dialog box displays (Figure 3-14).
- Step 5** Click **OK** to save your changes.

Deleting a Station

Use the following steps to delete a station.

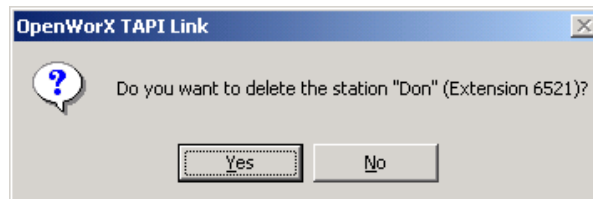
- Step 1** Open the OW5000 TAPI Link dialog box, as described in “[Selecting the OW5000 TAPI Service Provider](#)” on page 3-1. The configured stations display under your PBX icon (Figure 3-16).

Figure 3-16 Delete Station dialog box



- Step 2** Click the plus sign next to a given PBX to display the configured stations. If no stations have been configured, the plus sign does not appear.
- Step 3** Select the station that you want to delete, and click **Delete item**. A Delete Station confirmation dialog box displays (Figure 3-17).

Figure 3-17 Delete Station confirmation dialog box



- Step 4** Click **Yes** to delete the listed station. A Delete Station dialog box displays (Figure 3-16).
- Step 5** Click **OK** to save your changes.

4

Supported Functions and Messages

This chapter provides a list of TAPI functions and messages supported by the OW5000 TAPI Link Service Provider. The TAPI driver is compatible with the Microsoft Telephony Service Provider Interface (TSPI) version 2.0.

The following is the list of TAPI functions and messages. Those marked with an asterisk (*) are supported by the PBX Service Provider.

Table 4-1 TAPI Link Supported Functions and Messages

lineAccept		phoneInitialize	*
lineAddToConference	*	phoneGetDevCaps	*
lineAgentSpecific	*	phoneOpen	*
lineAnswer	*	phoneClose	*
lineBlindTransfer	*	phoneConfigDialog	
lineClose	*	phoneGetIcon	
lineCompleteCall	*	phoneSetStatusMessages	
lineCompleteTransfer	*	phoneGetID	*
lineConfigDialog	*	phoneGetIStatus	*
lineDeallocateCall	*	phoneGetButtonInfo	
lineDevSpecific	*	phoneSetButtonInfo	
lineDevSpecificFeature		phoneGetDisplay	
lineDial	*	phoneSetDisplay	
lineDrop	*	phoneGetVolume	
lineForward	*	phoneSetVolume	
lineGatherDigits		phoneGetGain	
lineGenerateDigits	*	phoneSetGain	
lineGenerateTone		phoneGetLamp	
lineGetAddressCaps	*	phoneSetLamp	*
lineGetAddressID	*	phoneGetHookSwitch	

lineGetAddressStatus	*	phoneSetHookSwitch	
lineGetAgentCaps	*	phoneGetRing	
lineGetAgentStatus	*	phoneSetRing	
lineGetAgentGroupList	*	phoneGetData	
lineGetCallInfo	*	phoneSetData	
lineGetCallStatus	*	phoneNegotiateExtVersion	*
lineGetConfRelatedCalls	*	phoneNegotiateAPIVersion	*
lineGetDevCaps	*	phoneDevSpecific	
lineGetDevConfig			
lineGetIcon		LINE_ADDRESSTATE	*
lineGetID	*	LINE_AGENTSTATUS	*
lineGetLineDevStatus	*	LINE_CALLDEVSPECIFIC	
lineGetNewCalls	*	LINE_CALLDEVSPECIFICFEATURE	
lineGetNumRings	*	LINE_CALLINFO	*
lineGetRequest	*	LINE_CALLSTATE	*
lineGetStatusMessage	*	LINE_CLOSE	*
lineGetTranslateCaps	*	LINE_CREATE	*
lineHold	*	LINE_DEVSPECIFIC	*
lineInitialize	*	LINE_DEVSPECIFICFEATURE	
lineMakeCall	*	LINE_GATHERDIGITS	
lineMonitorDigits		LINE_GENERATE	
lineMonitorMedia		LINE_LINEDEVSTATE	*
lineMonitorTones		LINE_MONITORDIGITS	
lineNegotiateExtVersion	*	LINE_MONITORMEDIA	
lineNegotiateAPIVersion	*	LINE_MONITORTONE	
lineOpen	*	LINE_NEWCALL	*
linePark	*	LINE_REMOVE	*
linePickup		LINE_REPLY	*
linePrepareAddToConference	*		
lineRedirect	*	PHONE_STATE	
lineRemoveFromConference	*	PHONE_BUTTON	
lineSecureCall		PHONE_CLOSE	*
lineSendUserUserInfo		PHONE_CREATE	*
lineSetAgentStatus	*	PHONE_DEVSPECIFIC	
lineSetAgentGroupList	*	PHONE_REMOVE	*

lineSetAppSpecific	*		
lineSetCallData	*		
lineSetCallParams			
lineSetCallPrivilege	*		
lineSetCallTreatment	*		
lineSetCurrentLocation	*		
lineSetDevConfig			
lineSetLineDevStatus	*		
lineSetMediaControl			
lineSetMediaMode			
lineSetNumRings	*		
lineSetStatusMessages	*		
lineSetTerminal			
lineSetTollList	*		
lineSetupConference	*		
lineSetupTransfer	*		
lineShutdown	*		
lineSwapHold	*		
lineTranslateAddress	*		
lineUncompleteCall			
lineUnhold	*		
lineUnpark	*		



For additional information or support on this NEC Corporation product, contact your NEC Corporation representative.

NEC NEC Corporation

**UC for Enterprise (UCE) Application Platform (UNIVERGE OW5000)
TAPI Link Operations Guide**

NDA-30110, Revision 11