

Messenger

MITEL

# OnePoint Messenger™



## SX-2000 Integration Guide

## NOTICE

The information contained in this document is believed to be accurate in all respects but is not warranted by Mitel Corporation (MITEL). The information is subject to change without notice and should not be construed in any way as a commitment by MITEL or any of its affiliates or subsidiaries. MITEL and its affiliates and subsidiaries assume no responsibility for any error or omissions in this document. Revisions of this document or new editions of it may be issued to incorporate any such changes.

Nothing in this document may be reproduced in any manner, either wholly or in part for any use whatsoever, without written permission from Mitel Corporation.

Host Command Interface, HCI, MITEL, MiTAI, Nupoint Messenger, Nupoint Voice, Nupoint Fax, Nupoint Agent, OnePoint Messenger, SUPERSET, SX-200 and SX-2000 are trademarks of Mitel Corporation. Windows 95 and Windows NT are trademarks of Microsoft Corporation. INTEL and Pentium are trademarks of Intel Corporation. All other product names specified in this document are trademarks of their corresponding owners.

OnePoint Messenger/SX-2000 Integration Guide  
OnePoint Messenger Release 2.0  
Part Number 9164-120-116-NA, Issue 2

December 14, 2000

® ,™, Trademark of MITEL Corporation.

© Copyright 2000, MITEL Corporation.

All rights reserved.  
Printed in Canada.

# Table of Contents

<b>List of Tables.....</b>	<b>viii</b>
<b>1. OnePoint Messenger/SX-2000 Integration Overview .....</b>	<b>9</b>
<b>What Is OnePoint Messenger and Unified Messaging? .....</b>	<b>9</b>
<b>Telephony Server.....</b>	<b>11</b>
Telephony Server Peripherals .....	11
<b>What is PBX Integration? .....</b>	<b>12</b>
<b>Integration Benefits.....</b>	<b>13</b>
<b>Call Processing Overview.....</b>	<b>14</b>
<b>Task Overview.....</b>	<b>15</b>
<b>Message Waiting.....</b>	<b>16</b>
<b>Integration Strategy .....</b>	<b>16</b>
<b>Required Skills .....</b>	<b>19</b>
<b>How to Use This Guide.....</b>	<b>19</b>
<b>Organization of this Manual.....</b>	<b>20</b>
<b>Other Documentation .....</b>	<b>21</b>
<b>Using Electronic and Printed Versions.....</b>	<b>21</b>
<b>Conventions Used in This Guide.....</b>	<b>22</b>
Terms Used for Keys, Commands, and Buttons.....	22
Images and Tables .....	22
Type Used in Commands and Screen Output.....	23
List Styles .....	23
Note and Caution Styles .....	23
Other Text Styles .....	23
<b>Contacting Technical Publications.....</b>	<b>24</b>
<b>2. Configuring the SX-2000 LIGHT .....</b>	<b>25</b>
<b>OnePoint Messenger Requirements of the PBX .....</b>	<b>25</b>
<b>Dialed Services.....</b>	<b>26</b>
<b>User Services.....</b>	<b>26</b>
<b>PBX Programming Overview and Assumptions.....</b>	<b>27</b>

Directory Number 7999.....	29
Forms Checklist .....	29
<b>Class of Service Options .....</b>	<b>31</b>
Class of Service for Stations .....	31
Class of Service for Trunks.....	31
<b>System Options Assignment.....</b>	<b>32</b>
<b>Setting Up the AFC Card Connection .....</b>	<b>32</b>
Dimension and Feature Selection.....	32
Cabinet Assignment.....	33
System Configuration.....	33
Digital Link Descriptor Assignment .....	34
Digital Link Assignment .....	36
<b>Trunk Programming .....</b>	<b>36</b>
MSDN/DPNSS/DASSII Trunk Circuit Descriptor Assignment.....	36
Trunk Service Assignment.....	37
Trunk Assignment .....	37
Assigning Trunk Groups to the Message Center.....	38
Creating Directory Number 7999 .....	39
<b>Programming Voice Mail Ports.....</b>	<b>39</b>
Assigning a Hunt Group to the Message Center .....	39
System Speed Call Assignment.....	40
Call Reroute Assignment .....	41
Call Reroute Always Alternative Assignment.....	41
Automatic Route Selection (ARS) Assignment .....	42
Route Assignment.....	42
Class of Restriction (COR) Group Assignment .....	43
<b>Programming the Automated Attendant (Receptionist).....</b>	<b>43</b>
<b>Programming Fax on Demand .....</b>	<b>44</b>
<b>3. Installing Line Cards in the Telephony Server.....</b>	<b>45</b>
<b>What Hardware Do You Need on the Telephony Server? .....</b>	<b>45</b>
Fiber Optic Cable Specifications.....	46
<b>Preparing the Installation Site.....</b>	<b>47</b>
Accommodating the TS-800 Telephony Server Tower .....	47
<b>Setting Up MVIP Arrays.....</b>	<b>48</b>

Setting MVIP Termination .....	48
Connecting Cards through an MVIP Cable .....	49
Setting Interrupts and Base Addresses .....	49
Installing Brooktrout Fax Cards .....	51
Installing and Configuring an NMS Card .....	52
Creating the AG Configuration File .....	53
Running the NMS AG Configurator Program .....	53
Using Notepad to Edit AG.cfg .....	56
Enabling the Mitel AFC Card with MiTAI.....	57
Installing the AFC Card .....	57
Configuring the NMS and CTI Software .....	58
Making and Verifying Connections .....	59
Verifying Fiber Link Synchronization between the AFC and PBX .....	59
<b>4. Installing Mitel Telephony Application Interface (MiTAI) ....</b>	<b>61</b>
What You Need to Complete this Chapter .....	61
MiTAI Installation .....	61
Installing MiTAI on the Telephony Server .....	61
Editing the Server Hosts File.....	65
Checking the Operation of the MiTAI Link to the PBX.....	65
Where Now? .....	66
<b>5. Configuring OnePoint Messenger PBX Integration Software .</b>	<b>67</b>
Integrating the Telephony Server with the SX-2000 PBX .....	67
Show N Tel Setup Procedures .....	68
Configuring Show N Tel with a PBX .....	68
Editing the SNT Parameters Tab .....	71
Assigning Programs to Lines .....	72
Configuring and Testing the Notification Server .....	74
Using the SNT Manager Runtime Tab to Assign Telephony Applications.....	76
Setting Telephone User Interface Parameters .....	78
Editing the Telsrvr.ini File.....	80
Testing Telephony Server Start and Stop.....	80
Configuring OnePoint Messenger to Auto-start .....	81
Running the Telephony Applications.....	81

Reassigning Lines to Other Applications .....	82
<b>6. Troubleshooting the Integration .....</b>	<b>85</b>
System Validation Tests .....	85
Running Validation Tests .....	85
Testing the Network Connection.....	86
<b>A. PBX Integration Worksheet .....</b>	<b>87</b>
Workflow Overview.....	87
PBX Integration Worksheet Fields .....	88
Numbering Ports.....	89
Creating Hunt Groups .....	89
PBX Integration Worksheet (Sample of a completed worksheet) .....	90
PBX Integration Worksheet .....	91
<b>Index .....</b>	<b>93</b>

# List of Figures

Figure 1-1	Network Diagram .....	10
Figure 1-2	Hunt Group Mapping to Telephony Server Ports .....	18
Figure 2-1	Trunk and Extension Topology .....	28
Figure 3-1	Windows NT Diagnostics, Resources Tab, IRQ List .....	50
Figure 3-2	NMS AG Configurator Main Screen .....	54
Figure 3-3	NMS Board Configuration Screen .....	55
Figure 3-4	AFC Card .....	58
Figure 4-1	MiTAI Settings Dialog, Hardware Tab .....	63
Figure 4-2	MiTAI Settings Dialog, Software Tab .....	64
Figure 5-1	Show N Tel Manager, Switch/CTI Tab .....	69
Figure 5-2	Show N Tel Manager, Configure CTI, Device Map Tab .....	70
Figure 5-3	Show N Tel Manager, Parameters Tab .....	71
Figure 5-4	Show N Tel Manager, Runtime Tab .....	77
Figure 5-5	Show N Tel Runtime Tab, Assign Phone System .....	78
Figure 5-6	Show N Tel Mgr, Operate and Monitor Show N Tel Window .....	83

# List of Tables

Table 2-1	PBX Trunks Mapped to SNT Lines and Applications.....	28
Table 2-2	SX-2000 Forms Checklist .....	30
Table 2-3	Class of Service Options Assignment, COS 10 .....	31
Table 2-4	Class of Service Options Assignment, COS 21 .....	31
Table 2-5	System Options Assignment .....	32
Table 2-6	Dimension and Feature Selection .....	32
Table 2-7	Cabinet Assignment .....	33
Table 2-8	System Configuration .....	34
Table 2-9	Link Descriptor Assignment .....	35
Table 2-10	Digital Link Assignment.....	36
Table 2-11	MSDN-DPNSS-DASSII Trunk Circuit Descriptor Assignment .....	36
Table 2-12	Trunk Service Assignment .....	37
Table 2-13	Trunk Assignment .....	38
Table 2-14	Trunk Group Assignment .....	39
Table 2-16	System Speed Call Assignment.....	40
Table 2-15	Hunt Group Assignment.....	40
Table 2-17	Call Rerouting Assignment.....	41
Table 2-18	Call Rerouting Always Alternative Assignment .....	41
Table 2-19	Automatic Route Selection Assignment .....	42
Table 2-20	Route Assignment.....	42
Table 2-21	Class of Restriction Group Assignment .....	43
Table 2-22	Trunk Group Assignment for Automated Attendant .....	43
Table 2-23	Trunk Group Assignment for Fax on Demand .....	44
Table 5-1	Telephony Applications .....	75

# 1. OnePoint Messenger/SX-2000 Integration Overview

This chapter provides an overview of the components, tasks, and benefits of the integration between the Mitel SX-2000™ PBX and the OnePoint Messenger™ Telephony Server to create a unified messaging environment. It includes details on configuring the PBX to support Telephony Server functions, installing the line cards in the Telephony Server, and configuring integration software on the Telephony Server, including setting up telephony applications.

This chapter also provides information about the organization and styles used in this book, and about other related documentation. This chapter contains the following sections:

Section	Page
<b>What Is OnePoint Messenger and Unified Messaging?</b>	<b>9</b>
<b>What is PBX Integration?</b>	<b>12</b>
<b>Call Processing Overview</b>	<b>14</b>
<b>Task Overview</b>	<b>15</b>
<b>Required Skills</b>	<b>19</b>
<b>How to Use This Guide</b>	<b>19</b>
<b>Other Documentation</b>	<b>21</b>
<b>Contacting Technical Publications</b>	<b>24</b>

## What Is OnePoint Messenger and Unified Messaging?

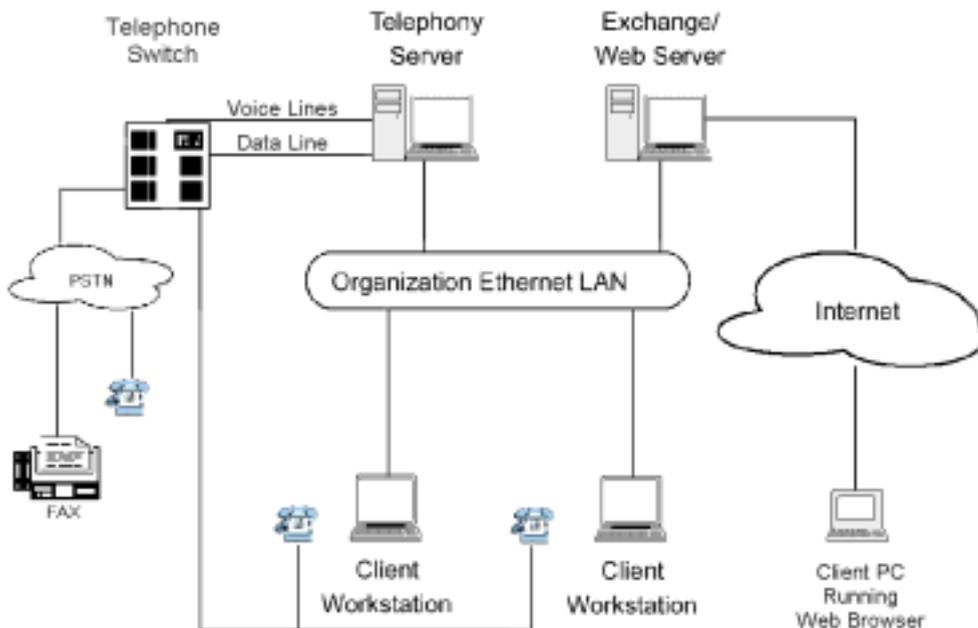
OnePoint Messenger is a software suite that, when combined with other hardware and software products, provides a unified messaging environment. Unified messaging is the combination of telephone messages, fax, and e-mail on one mail server. The OnePoint

Messenger server software is installed on two Microsoft Windows NT Server 4.0® systems:

- The OnePoint Messenger Exchange Extension is installed on the computer running Microsoft Exchange® (“the Exchange Server”) to support unified messaging on Exchange.
- A large suite of software components providing messaging and maintenance services are installed on the Telephony Server, which handles communication between the telephony network and Microsoft Exchange.

The network diagram in Figure 1-1 shows the major components that provide the unified messaging service, examples of the clients, and the relationship between the components.

**Figure 1-1 Network Diagram**



See Chapter 1 in the *OnePoint Messenger Administrator Guide* for a detailed system overview, a summary of each of the hardware and software components, and an overview list of tasks. Chapter 1 in the *OnePoint Messenger User Guide* also has a basic system overview and a summary of what you can do with OnePoint Messenger.

## Telephony Server

In these guides, “Telephony Server” is used to refer to the collection of OnePoint Messenger telephony applications that reside on “the Telephony Server” (the computer), while “the Telephony Server” refers to the computer running the Windows NT Server 4.0 operating system. The backplane of the Telephony Server contains the telephony “line cards” that provide the connection to the PBX. To provide the ability to edit system greetings and the Text-to-Speech dictionary, you can add a multimedia setup to the Telephony Server, but, administrators typically use a separate system on the LAN for multimedia editing.

The OnePoint Messenger software on the Telephony Server is comprised of a group of Windows NT Server applications that, among other tasks, provide the information conduit between the PBX and Microsoft Exchange. Those telephone call routing and messaging services include:

- Controlling what happens to calls that are not answered and providing the caller the ability to leave and retrieve voice messages
- Providing digitization and compression of telephone messages for storage on Exchange or forwarding to VPIM accounts, and also reverse transcoding of messages saved on Exchange back to callers and VPIM accounts
- Enabling OnePoint Messenger subscribers (“users”) to retrieve and reply to e-mail messages that are read to them using the text-to-speech (TTS) capabilities of Telephony Server
- Providing advanced fax handling features, including routing e-mail to fax machines and a Fax on Demand service; see Chapter 4 of the *OnePoint Messenger Administrator Guide* for a discussion of OnePoint Messenger fax features.

Also included on the Telephony Server is a group of OnePoint Messenger support programs. For an overview on them and related tasks, see Chapter 1 in the *OnePoint Messenger Administrator Guide*. Then see Chapter 5 in that guide for operational details.

### Telephony Server Peripherals

**Cards:** The Telephony Server requires a network interface card to communicate with the Exchange Server and with user computers that request Call-Me sessions. To provide the PBX interface, the Telephony Server requires at least one line card that provides call control

and voice processing resources. Those services can be provided by several possible combinations of analog line cards from Mitel and Natural MicroSystems (NMS) connecting to a FIM card on the SX-2000. Use an ISA-bus Brooktrout fax card connected to the other line cards through an MVIP cable to provide fax resources. Details on the supported cards appear in Chapter 3 (page 45). Appendix B in the *OnePoint Messenger Installation Guide* also provides line card installation notes. See also the manufacturers' documentation.

**Modem:** To provide remote technical support, connect a modem to the Telephony Server and to an outside telephone line, then configure the program pcAnywhere, which is included on the OnePoint Messenger CD-ROM, to communicate over that modem.

## What is PBX Integration?

Providing complete PBX integration to the Telephony Server means that you dedicate at least one extension in a hunt group on the PBX to the Telephony Server Message Center, another for the Automated Attendant, and another for the Fax on Demand service, route OnePoint Messenger subscriber extensions to the OnePoint Messenger Telephony Server for voice mail with Message Waiting services enabled, set up software on the Telephony Server that can interpret calling line information (CLI) sent by the PBX, and set up the Message Center to use that CLI to respond appropriately to the caller. Typically, CLI includes the caller's phone number (and name if Caller ID is set up), the called party's (OnePoint Messenger user/subscriber) extension, and the reason why the caller has been routed to the Message Center. Those reasons include:

- The OnePoint Messenger user (subscriber) does not answer his or her phone.
- The OnePoint Messenger user's phone is already in use when the call arrives.
- The OnePoint Messenger user sets up a request to the PBX that incoming calls be automatically routed to voice mail.
- The OnePoint Messenger user receives the call and transfers it to voice mail, for example, so the caller can leave a fax in the user's mailbox.
- A OnePoint Messenger user calls the Message Center directly to retrieve messages.

The Message Center uses CLI to associate the called telephone number with a particular mailbox, retrieve the appropriate user's greeting from that mailbox, play it to the caller, then either commence a mailbox login sequence or a message recording sequence.

For example, the most common kind of call routed to the Message Center is typically from a caller routed to a mailbox when the associated telephone is not answered. The Message Center would play the user's greeting created for that condition. Consider Joe User. He has recorded a general greeting for that condition:

"This is the mailbox of Joe User. I'm sorry he was too lazy to pick up the phone, but, if you wait for the beep after this long-winded greeting finishes, you can record a message for him that I'll be happy to play when he calls in to retrieve his messages."

If the integration software fails to detect the CLI, the Message Center does not know why the caller has been routed there or for what mailbox the call is intended, so the Message Center answers generically:

"Welcome to the Message Center. Please enter a mailbox number."

## Integration Benefits

The integration between the PBX and the Telephony Server provides these benefits:

- **Forward to Personal Greeting:** Provides the ability to play a user's personal greeting to a caller who has been forwarded to voice mail.
- **Auto Logon:** The Telephony Server can recognize a caller as a OnePoint Messenger subscriber ("user"), rather than as an outside caller, when calling directly from the user's phone. The Telephony Server greets users by name and asks for their passcodes.
- **Multiple Use Ports:** Allows use of the same port for dynamic allocation of ports for the Automated Attendant, the Message Center, including Text-to-Speech e-mail access, or fax services.
- **Direct Answer to Internal Message:** Allows a message recipient to record an answer to a message from another user without having to first dial the user's extension.
- **Message Notification:** Allows the Telephony Server to send a message waiting notification to a user through the PBX. The

PBX then activates the message waiting indicator, such as a light or a stutter dial tone, on the user's extension.

## Call Processing Overview

This is a basic overview of the processing sequence of calls routed from the SX-2000 PBX to the Telephony Server:

1. The PBX receives a call intended for an extension managed by the PBX.
2. If the call is to a OnePoint Messenger user whose phone is busy or is not answered, the PBX redirects the call to the Telephony Server. The PBX also routes calls to the Telephony Server that are forwarded by users to their voice mail accounts, or users who make a direct call to the *Message Center* (the mailbox access pilot number) on the Telephony Server.
3. Other Telephony Server services can be associated with particular phone numbers, such as the Automated Attendant and the Fax on Demand service. For details on those services, see Chapter 3 in the *OnePoint Messenger Administrator Guide*.
4. The call arrives at the Telephony Server in two streams of data—the voice from the call itself and information about the call, including the caller's phone number, the called party's phone number, and the reason code why the call was sent to the Telephony Server; this calling information is known as *CLI*—calling line identification.

The two streams go to a port on a line card. Then, if you install a Mitel AFC card, the AFC routes the call stream to a DSP resource card (NMS AG-0 or AG-24 for voice; Brooktrout fax card for fax) while processing the CLI and managing the call. If you only install one or more NMS AG-8s, both streams stay on the AG-8.

5. The line card detects the call and passes the CLI data to Telephony Server software that uses the called number to determine whether to play a system greeting or a user's greeting.
6. Telephony Server plays the appropriate greeting. The NMS card converts it to analog and the AFC card plays it to the caller.
7. The Telephone User Interface (TUI) on the Telephony Server sends the appropriate digitized prompts to the NMS card for conversion and playing to the caller. For example, if the call is for a user, the TUI prompts the caller with the messaging options

available, such as to record or re-record a voice message, or to leave a fax.

8. The caller responds with a voice message or keypad input.
9. The NMS card converts the analog input from the caller (the voice message and keyed responses to prompts) into digital strings for Telephony Server.
10. Telephony Server packages the caller's message into a digital file and routes it to the recipient's mailbox on the Exchange Server and sends an MWI to the user through the PBX.

Reciprocally, when users retrieve voice messages from a telephone, the NMS card converts the stored digitized voice messages back into analog voice for delivery to the user.

## Task Overview

The following is a brief sequence of the groups of tasks required to integrate OnePoint Messenger and the Mitel SX-2000.

1. Complete the PBX Integration Worksheet that appears at the end of Appendix A (see "PBX Integration Worksheet" on page 91).
2. Install Fiber Interface Module (FIM) carrier and daughter digital line cards in the SX-2000 PBX, then configure the PBX to support the Telephony Server functions. See Chapter 2 (page 25).
3. Install the line card(s) on the Telephony Server. Use NMS AG-8 DSP (AG-0) cards and/or AG-24 cards with the Mitel AFC card, and (optionally) a Brooktrout fax card. See Chapter 3 (page 45).
4. Install Microsoft software on the Telephony Server. See Chapter 4 in the *OnePoint Messenger Installation Guide*.
5. Install and configure the Mitel MiTAI 7.5.3 software on the Telephony Server. See Chapter 4 (page 61).
6. Install OnePoint Messenger on the Telephony Server. Microsoft, Show N Tel, Brooktrout fax, NMS and other vendors' software is installed with OnePoint Messenger. See Chapters 1 through 3 in the *OnePoint Messenger Installation Guide*.
7. Configure the line card(s) on the Telephony Server. See Chapter 3 (page 45).
8. Configure Show N Tel and the other telephony settings in OnePoint Messenger. See Chapter 5 (page 67).

## Message Waiting

The procedures in Chapter 5 for step 7 above include setting up the Notifications application in Show N Tel to provide message waiting indications. The *OnePoint Messenger Administrator Guide* has a procedure in Chapter 2 for enabling message notification by paging for individual users and a general section in Chapter 3 on message waiting notification.

## Integration Strategy

OnePoint Messenger provides three services that callers can access directly by dialing unique pilot numbers. They are *Automated Attendant* (automated receptionist), *Message Center* (subscriber access to their own mailboxes), and *Fax on Demand* (faxback). It is also possible to access the Automated Attendant from the Message Center, and Fax on Demand from the Automated Attendant, so, if resources are limited, you do not need to dedicate pilot numbers to them.

There are several ways to allocate resources to each service:

- On the PBX:
  - Create an extension that callers can dial to reach the service.
  - Create a hunt group for the service. A larger hunt group provides more access to the service. You can also overlap hunt groups. What hunt groups are overlapped influences how available those double-duty lines are.
- In OnePoint Messenger:
  - You can assign the general purpose *Telephony Server* telephony application to a line, which will support each of the three services, and provide the desired service based upon the dialed extension.

Or

- To provide dedicated access to Automated Attendant, you can assign the AutoRecep telephony application to one or more lines. To provide dedicated access to Fax on Demand, you can assign the FaxonDemand telephony application to one or more lines.

Or

- If there is no pilot (extension) dedicated to Automated Attendant, you would not assign the AutoRecep telephony applica-

tion. If there is no pilot (extension) dedicated to Fax on Demand, you would not assign the Fax on Demand.

For example, to ensure connectivity for messaging while still providing some direct dial access to Automated Receptionist and Fax on Demand, you could create one hunt group, with its pilot assigned to the Message Center, then assign single published phone extensions within the hunt group to Automated Receptionist and/or Fax on Demand, each set up with all calls forwarded to voice mail.

If you do set up hunt groups for all three services, of course the number of lines in those hunt groups affects availability. How the hunt groups are mapped to Telephony Server lines also influences how available services are. Hunt groups can overlap, so a line that appears in two or more hunt groups is more likely to be busy than a line appearing in only one of those groups.

For example, consider the Fax on Demand service. If the Fax on Demand hunt group is simply a subset of the Messaging hunt group, someone calling the Fax on Demand service may not get through immediately if all lines are in use servicing callers accessing mailboxes. To ensure that callers to the Fax on Demand service get better access to it, you can create a hunt group for the service that does not use lines included in other hunt groups.

The other half of the provisioning decision process is the assignment of telephony applications to the available Telephony Server ports. A port that is assigned to a dedicated application, such as Fax on Demand, is not available to callers seeking a different application. If the line from the PBX that is mapped to that port is only in a hunt group for a different application, a caller routed to that line through the hunt group will not get the desired service.

One way to avoid such conflicts is to assign the “Telephony Server” application to all inbound ports, because it is a general purpose application that provides the three dialed services (Automated Attendant, Message Center/mailboxes, Fax on Demand). However, using that simplistic strategy might result in events such as important sales literature on your Fax on Demand service not being accessible if all ports are busy with users’ calls to their mailboxes.

The diagram in Figure 1-2 shows an example of PBX hunt groups mapped to Telephony Server ports and their associated telephony applications. The assignment of applications is not the recommended allocation of applications. It is a simplified assignment whose purpose is to illustrate the association of applications with hunt groups.

**Figure 1-2 Hunt Group Mapping to Telephony Server Ports**

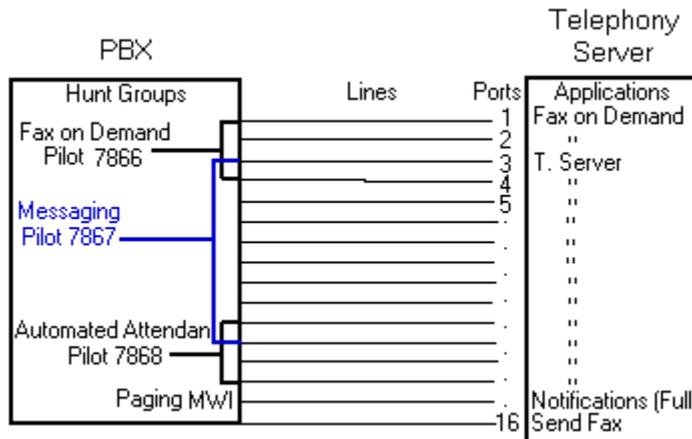


Figure 1-2 shows three overlapping hunt groups. Ports 3 and 4 take calls from both the Fax on Demand hunt group and the Messaging hunt group. Ports 11 and 12 take calls from both the Messaging hunt group and the Automated Attendant hunt group.

The Fax on Demand hunt group has four lines. Two of those lines connect to ports 1 and 2, which are assigned the Fax on Demand application. Any caller reaching those two ports is greeted by the Fax on Demand service greeting. On the other hand, because ports 3 and 4 are connected to lines that are in two hunt groups, Telephony Server must interpret the CLI data to determine which hunt group has called to determine which greeting to play. If Telephony Server determines that the called number is the Fax on Demand pilot, it runs the Fax on Demand application, and so forth.

In the example, Automated Attendant operation is similar to Fax on Demand, with its hunt group overlapping the numbers in the Messaging hunt group.

Notifications and SendFax are outbound applications that require outdial ports on the PBX. Their lines are not included in the lines monitored by the call pickup box.

The discussion on programming the PBX in Chapter 2 contains an example of creating trunk groups to support dedicated access to the Automated Attendant and Fax on Demand, in addition to supporting those services through trunks that provide access to the Message Center. Table 2-1 (page 28) shows a sample assignment of telephony applications on the Telephony Server. Table 2-12 (page 37) shows a trunk group set up to provide trunks for the first five lines and the associated Telephony Server telephony application in Table 2-1.

Table 2-22 (page 43) shows an alternative setup with Trunk 103 dedicated to the Automated Attendant, while Table 2-23 (page 44) shows Trunk 104 dedicated to Fax on Demand. Both of those services can also be provided by the Telephony Server application, depending on how OnePoint Messenger is set up, so your PBX technician needs to coordinate with the OnePoint Messenger installer to assure that the trunk allocations on the PBX match the Telephony Server setup and the preferences of your organization.

## Required Skills

While OnePoint Messenger is designed to be relatively simple to implement and use, and the OnePoint Messenger guides detail the Windows NT and Exchange tasks needed to configure and manage a OnePoint Messenger environment, installers and administrators should not rely solely on this documentation. Integrating the OnePoint Messenger Telephony Server with a Mitel PBX requires the skills of a Mitel-certified PBX technician and certification in the installation of OnePoint Messenger. Before entering training, OnePoint Messenger installers are expected to have Microsoft Certified Systems Engineer (MCSE) certification in Windows NT Server 4.0 and Microsoft Exchange.

If you wish to provide user access to mailboxes using a Web browser, you must install and manage Microsoft's Internet Information Server (IIS), which requires training equivalent to completion of the IIS course in the MCSE course series.

When installing and managing Windows NT and Exchange, you are required to perform NT administrator functions—setting up domains, creating administrator accounts, and performing software maintenance and backups. OnePoint Messenger applications use standard Windows interfaces and interoperate with NT system utilities.

## How to Use This Guide

This guide contains tasks for integrating a Mitel SX-2000 PBX with the OnePoint Messenger Telephony Server, including setting up hardware and software on the Telephony Server and configuring the PBX to communicate with the Telephony Server. Use this guide in conjunction with the *OnePoint Messenger Installation Guide* (for OnePoint Messenger version 2), using this guide to replace Chapter 4 in that guide. The section “Task Overview” above lists the sequence of installation and integration tasks with the associated chapters.

This manual lists the critical PBX features that must be enabled, but it does not detail the use of the PBX user interface. Also, this manual does not discuss the complete array of monitoring, programming, and troubleshooting options available to the installers and administrators of the Mitel PBX and of OnePoint Messenger. Becoming familiar with those options requires classroom training offered for both of those products.

For installing cards in the Telephony Server, refer to Chapter 3 as a summary, but to be sure you have all current information and details on options, see the manufacturers' documentation, as listed in Appendix A of the *OnePoint Messenger Installation Guide*.

Sources of information on other supporting hardware and software are listed below in "Other Documentation".

## Organization of this Manual

This manual contains six chapters, an appendix, and an index:

- Chapter 1 introduces you to OnePoint Messenger and its documentation.
- Chapter 2 (page 25) explains how to configure the SX-2000® LIGHT PBX to recognize the OnePoint Messenger Telephony Server.
- Chapter 3 (page 45) lists the hardware necessary to install on the Telephony Server to integrate with the SX-2000, and it summarizes the installation process.
- Chapter 4 (page 61) covers the installation of Mitel's MiTAI 7.5.3 software on the Telephony Server.
- Chapter 5 (page 67) explains how to configure the OnePoint Messenger software on the Telephony Server that supports the PBX integration and telephony applications, such as Message Waiting, paging notification, and fax services.
- Chapter 6 (page 85) provides troubleshooting advice, including system validation tests. For more, see the *OnePoint Messenger Installation Guide* and the *OnePoint Messenger Administrator Guide*.
- Appendix A (page 87) provides a PBX Integration Worksheet, with explanation, for planning and recording pilot numbers, associated hunt groups, and telephony application line assignments.

## Other Documentation

The OnePoint Messenger documentation set includes:

- *OnePoint Messenger Administrator Guide*
- *OnePoint Messenger Getting Started Guide*
- *OnePoint Messenger Installation Guide*
- *OnePoint Messenger User Guide*
- *OnePoint Messenger Quick Reference Card* for the telephone
- Integration guides for PBXs: Fujitsu 9600, Lucent Definity, Mitel SX-200 and SX-2000, NEC 2400, and Nortel Meridian

The *OnePoint Messenger Administrator Guide* contains a system overview and administration details that can help you, the installer, understand the purposes and use of the components. It contains procedures for creating user mailboxes (Chapter 2), configuring the Telephony User Interface (Chapter 3), managing fax services (Chapter 4), and operating and maintaining the Telephony Server (Chapter 5), as well as details on each OnePoint Messenger utility.

The *OnePoint Messenger User Guide* describes the use of OnePoint Messenger features—on Outlook, a Web browser, and the telephone—including the many fax features.

Other useful documentation includes Windows NT and Exchange manuals, as well as manuals covering the other Microsoft software that supports OnePoint Messenger. Contact information for Microsoft and for other vendors whose products complete your OnePoint Messenger unified messaging environment appears in Appendix B of the *OnePoint Messenger Administrator Guide*.

### Using Electronic and Printed Versions

This guide uses a format that accommodates both on-screen viewing and printing. The text is aligned to 7" by 9" borders, so that, when printed on normal letter stock, there is a lot of room for you to make notes. Use Acrobat Reader version 3.0 or better to view and print PDF versions of the document.

**Electronic links:** Blue text indicates hyperlinks, as exemplified by the blue links in this chapter, including the table at the beginning of each chapter containing electronic links to the major topic headings. Other links that appear in the electronic Acrobat version are the bookmark list and thumbnail page image views displayed by Acrobat.

## Conventions Used in This Guide

Formatting conventions used in OnePoint Messenger guides give you extra cues about the action that you are to take.

### Terms Used for Keys, Commands, and Buttons

The commands “select”, “clear”, “click”, and “choose” all mean basically the same thing—to make a choice—but the terms are used in specific situations:

- “Choose” is used in menus, such as the Windows Start menu and program menus, to indicate menu items.
- “Click” is used for obvious buttons, up and down arrows, in edit boxes, spin controls, and for the Windows Start button.
- “Double-click” is used in any situation where pressing the mouse button twice is the most appropriate action, although other options may be available.
- “Press” is used when indicating a computer keyboard or telephone keypad key. There are brackets around the keyboard key, as in “Press [Tab].”
- “Select” is used on property pages (tabs) and dialogs, such as to indicate items in a field or group of options. “Clear” is used to deselect a check in a check box or an entry in a field.

This guide generally does not include the keyboard shortcuts for menus and commands. To use the keyboard shortcuts, you should:

- Display menus by pressing [Alt] and the underlined character displayed on the screen (for example, press [Alt+F] for the **F**ile menu).
- Choose commands by typing the underlined character displayed on the screen (for example, press [**S**] for the Save command).

An instruction that involves making a choice from a menu is structured: “From the **XXX** menu, choose **YYY**”. This style is also used for dialog boxes. As you become familiar with the style, you can focus on the words in bold as the critical operative phrases.

### Images and Tables

Tables and inline graphics in this guide contain captions with numbers based on the chapter number. References to a figure or table are linked and highlighted in blue to indicate the link. In the PDF file, you can also find and access them from the Acrobat bookmark list.



When presenting information about buttons, such as “Click the **XXX** button to open the **YYY** dialog box,” this guide might present the button to the left of the instruction, as shown here. In that case, the graphic is not labelled.

### **Type Used in Commands and Screen Output**

For statements in command syntax format, `small mono-spaced type like this` indicates the characters you should type. Brackets like these `< >` designate the variables that you are to replace with other information. For example, in the following command, you type the word `INSTALL` but replace “drive” and “directory” with the names of the drive and directory you are using:

```
<drive>\<directory>\INSTALL
```

The same font is used for presenting screen output.

### **List Styles**

**Numbered** lists present the steps of procedures that you must follow in the order given.

**Bulleted** lists present options for which the order is not important.

### **Note and Caution Styles**

A “**NOTE:**” presents information that is of special importance or is relevant only to some users or in some situations.

A “**CAUTION!**” alerts you to choices with potentially problematic results.

A “**WARNING!**” is more serious than a caution, alerting you to a choice that could cause a failure of the system.

### **Other Text Styles**

*Italic* type is used to introduce terms and for the titles of publications.

In this guide, **boldface** type is used to emphasize tasks and key words, such as buttons, tab, and menu items, to make them easier for you to spot. For example, a task is presented with the purpose in a separate bold line, followed by the steps, with key words in bold.

## Contacting Technical Publications

The Mitel Technical Publications and Media Development Group maintains this document. We welcome your questions and suggestions—notes on spelling and grammatical errors, comments on readability, and suggestions for improvements. Please reference the document number that appears on the back of the cover page.

Address your comments to:

techpubs@mitel.com

### To check for the most current documentation:

1. Access the Mitel website:  
**<http://www.mitel.com>**
2. Log on to Mitel Online.
3. Click **Tech Support** (in the top navigation bar).
4. Click **Technical Practices**.

## 2. Configuring the SX-2000 LIGHT

This chapter explains how to configure the SX-2000 LIGHT PBX to support the features of the OnePoint Messenger Telephony Server. It is divided into the following sections:

Section	Page
<b>OnePoint Messenger Requirements of the PBX</b>	<b>25</b>
<b>PBX Programming Overview and Assumptions</b>	<b>27</b>
<b>Class of Service Options</b>	<b>31</b>
<b>System Options Assignment</b>	<b>32</b>
<b>Setting Up the AFC Card Connection</b>	<b>32</b>
<b>Trunk Programming</b>	<b>36</b>
<b>Programming Voice Mail Ports</b>	<b>39</b>
<b>Programming the Automated Attendant (Receptionist)</b>	<b>43</b>
<b>Programming Fax on Demand</b>	<b>44</b>

See also “Forms Checklist” on page 29, which provides links to most of the sections in the chapter.

**NOTE:** For configuring OnePoint Messenger with a Mitel SX-200, see the *OnePoint Messenger/SX-200 Integration Guide*.

### OnePoint Messenger Requirements of the PBX

The OnePoint Messenger unified messaging system provides two general categories of features that need PBX support:

- **Dialed services:** Message Center, Automated Attendant, and Fax on Demand
- **User services:** call forwarding to voice mail, CLI, Call-Me/Meet-Me, DID fax, fax forwarding, and message notifications

## Dialed Services

The **Message Center, Automated Attendant, and Fax on Demand** can use the same or separate incoming lines and trunks. While the Message Center and Automated Attendant menus can route the caller to the other two dialed services, ideally, each should have its own pilot number and hunt group. You can also program dedicated extensions for the Automated Attendant and Fax on Demand that are permanently routed to the Message Center pilot.

**NOTE:** The SX-2000 also provides an Automated Attendant as an optional feature.

## User Services

**Call Forwarding:** Set up OnePoint Messenger user extensions to redirect calls to the Telephony Server that were intended for a OnePoint Messenger user station, but encountered one of these conditions: forward busy (user is already using the telephone), forward no answer (user does not answer the telephone), and forward all calls (user has forwarded an incoming call to voice mail, or has set the telephone to automatically forward all calls to voice mail).

**Calling Line Information (CLI):** The PBX must have a digital port set up and connected to the Telephony Server to carry the call information associated with the forwarded call. This enables the Telephony Server to invoke the appropriate call interface.

**Call-Me/Meet-Me** is a service that enables users to control message recording and playback from their desktops, while using their telephone as the microphone and speaker. To provide long distance Call-Me/Meet-Me, the line assigned to the Telephony Server port that supports Call-Me/Meet-Me must have long distance outdialing privileges. That line can be shared by the line that supports paging.

### **Fax support:**

- **Incoming faxes:** OnePoint Messenger enables a user to receive faxes in his or her mailbox in two ways:
  - The standard method is that fax senders simply call the user's extension, then press 5 to deposit the fax in the mailbox.
  - **DID fax:** You can give a user a second extension not connected to a physical set. The user would advertise the line as a dedicated fax line that callers could dial to send a fax to the user without the risk of having the user answer the fax call.
- **Outgoing faxes:** At least one line that provides long distance outdialing must be dedicated to outgoing faxes.

**Message notifications:** Notifications of incoming messages can be provided by Message Waiting Indicators (MWI) on users' sets and by paging users' pagers and offsite telephones. MWI lets users know when they have unplayed messages usually with a light, stutter tone, or display on the user's phone.

To support MWI indicators, those user extensions must be enabled to receive MWI, including turning off MWI after the user plays the message. To support paging, an outdial line is required to the Telephony Server that allows long distance outdialing.

For the OnePoint Messenger installer, make a written record of the line numbers that you enable for OnePoint Messenger, their functions (Message Center, Message Waiting Indicator, etc.) and pilot numbers.

## **PBX Programming Overview and Assumptions**

The examples shown in this chapter are intended to show the programming of each stage individually. For example, voice mail programming is shown, followed by programming for the Automated Attendant, and so on. In reality, the Digit Modification and Class of Restriction (COR) groups, for example, could be the same. The trunk group used for voice mail, the Automated Attendant, and Fax on Demand could be the same if you do not want to separate the traffic. It is important to note, however, that, if the system is configured in this way, the link may be taken up with Fax on Demand, leaving no resources for voice mail, etc.

Not all of the values in the tables in this chapter are required exactly as shown to enable OnePoint Messenger. For example, as shown below in Table 2-1 where the Trunk Group number matches its Trunk Service number to show the association between the two, which is not required.

Each of the digital trunks will be associated with a DSP resource on the NMS card. In our simple 8-port example, trunks T101 to T108 will be associated with Line 1 to Line 8 in the Show N Tel Setup program. Each Show N Tel line is a DSP resource that can be configured to perform a set task, such as Telephony Server, Send Fax, or Notification (the Full, MWI, CM, or Paging versions—see page 74). For our 8-port example, we show the programming sequence to create three pilot numbers—for the Message Center, Automated Attendant, and Fax on Demand. All three pilot numbers access the same hunt group, so we rely on the integration data to tell OnePoint Messenger

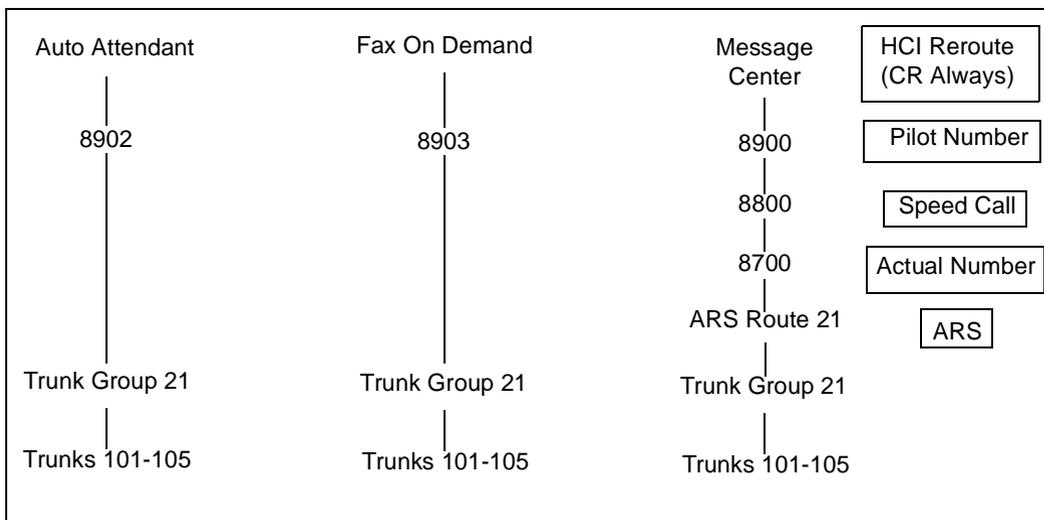
how to answer the call. The following table shows how Show N Tel lines and assigned applications map to their attached PBX trunks:

**Table 2-1 PBX Trunks Mapped to SNT Lines and Applications**

Trunk Service	Trunk Group	Trunk	SNT Line	SNT Application
21	21	101	1	Telephony Server
21	21	102	2	Telephony Server
21	21	103	3	Telephony Server
21	21	104	4	Telephony Server
21	21	105	5	Telephony Server
22	22	106	6	Notification (Full)
22	22	107	7	Notification (Full)
23	23	108	8	Send Fax

Using Table 2-1, Show N Tel Line 1 through Line 5 (Trunks 101 through 105) will be accessed by calls to voice mail (the Message Center), the Automated Attendant, or Fax on Demand. Show N Tel Lines 6 and 7 will be used to send paging notifications, Call-Me sessions, and MWI. Show N Tel Line 8 will be used only for sending fax information to a line connected to the PSTN. For more on setup alternatives, see “Integration Strategy” on page 16 in Chapter 1.

**Figure 2-1 Trunk and Extension Topology**



\**CR Always*: call rerouted always

Figure 2-1 shows how calls to the three pilot numbers are routed:

- The **Message Center** pilot is set up as an *HCI Reroute*—an automatic routing of the call through a speed dial number to an *Automatic Route Selection* (ARS) Route number and then to the trunk group (Trunk Group 21 in this example) set up to connect the Message Center lines to the Telephony Server.
- In this example, the **Automated Attendant** and **Fax on Demand** pilots are in the Message Center hunt group and use the same trunk group. They access the trunk group directly, and do not use the HCI Reroute facility.

This chapter details the entries you must make on the forms to enable the topology shown above, using the setup sequence shown in “Forms Checklist” on page 29.

An alternative topology, as described in “Integration Strategy” on page 16 in Chapter 1, is to dedicate lines to Automated Attendant and/or Fax on Demand. In that case, you would create separate trunk groups for those services. See “Programming the Automated Attendant (Receptionist)” on page 43 and “Programming Fax on Demand” on page 44. You might do this when you have more lines connected to the Telephony Server, or when you want to provide more assured access to one of those services.

You must also create trunk groups to provide outdial functionality, such as **new-message notifications by paging** and **fax**.

## Directory Number 7999

Directory Number 7999 (DN 7999) provides a backup route for MWI, because the default timer turns off MWI lights after eight hours. You will create Class of Service 64 to be assigned to DN 7999 (see “Class of Service for Stations” on page 31), allocate DN 7999 in the Single Line Assignment Form (see “Creating Directory Number 7999” on page 39), then assign DN 7999 to the Message Center hunt group (see “Assigning a Hunt Group to the Message Center” on page 39). DN 7999 appears automatically on the Call Rerouting Assignment form.

## Forms Checklist

The following checklist details the PBX forms that you must use (unless labelled “Optional”) to enable the integration with the

OnePoint Messenger Telephony Server. The table sequence represents a typical sequence in which you would edit the forms. This chapter follows that sequence, with a few exceptions, such as presenting the Class of Service setup first.

**Table 2-2 SX-2000 Forms Checklist**

	Forms	See Page
	<u>PBX System Level Programming</u> <ul style="list-style-type: none"> <li>• Dimension and Feature Selection</li> <li>• Systems Options Assignment</li> <li>• Cabinet Assignment</li> <li>• System Configuration</li> </ul>	32 32 33 33
	<u>Digital Link Programming</u> <ul style="list-style-type: none"> <li>• Digital Link Descriptor Assignment</li> <li>• Digital Link Assignment</li> </ul>	34 36
	<u>Trunk Programming</u> <ul style="list-style-type: none"> <li>• MSDN-DPNN-DASS-II Trunk Circuit Descriptor Assignment</li> <li>• Trunk Service Assignment</li> <li>• Trunk Assignment</li> <li>• Trunk Group Assignment</li> <li>• Class of Service Assignment</li> </ul>	36 37 37 38 31
	<u>Hunt Group Programming</u> <ul style="list-style-type: none"> <li>• Hunt Group Assignment</li> </ul>	39
	<u>HCI Reroute Programming</u> <ul style="list-style-type: none"> <li>• System Speed Call Assignment</li> <li>• Call Reroute Assignment</li> <li>• Call Reroute Always Alternative</li> <li>• Route Assignment</li> <li>• Automatic Route Selection Assignment</li> <li>• Digit Modification Assignment (Optional)</li> <li>• Class of Restriction Assignment (Optional)</li> </ul>	40 41 41 42 42 not shown 43
	<u>Station Programming</u> <ul style="list-style-type: none"> <li>• DNI Assignment</li> <li>• Single Line Assignment</li> <li>• Class of Service Assignment</li> <li>• Call Rerouting First Alternative</li> <li>• Call Rerouting Second Alternative (Optional)</li> </ul>	not shown not shown not shown 31 not shown not shown

## Class of Service Options

### Class of Service for Stations

Program the following Class of Service to be used for any client station using OnePoint Messenger.

**Table 2-3 Class of Service Options Assignment, COS 10**

Class of Service Options Assignment	
Class of Service number: 10	
Option	Select
HCI/CTI/TAPI Call Control Allowed	Yes
HCI/CTI/TAPI Monitor Allowed	Yes
Public Network Access via DPNSS	Yes

**Directory Number 7999:** Create COS 64 with COV/ONS/E&M Voice Mail Port = Yes. You will later assign COS 64 to the Directory Number 7999.

### Class of Service for Trunks

Program the Class of Service options shown in Table 2-4 for the digital trunks on the CEPT card used to link the PBX with the Telephony Server.

**Table 2-4 Class of Service Options Assignment, COS 21**

Class of Service Options Assignment	
Class of Service number: 21	
Option	Select
* ANI/DNIS/ISDN Number Delivery Trunk	Yes
HCI/CTI/TAPI Call Control Allowed	Yes
HCI/CTI/TAPI Monitor Allowed	Yes
Public Network To Public Network Connection Allowed	Yes

\* ANI/DNIS/ISDN Number Delivery Trunk can only be set to "Yes" if the option was purchased. If Dim and Feature are set to "No", the COS option cannot be "Yes" in the Trunks COS.

## System Options Assignment

On the System Options Assignment form, set the values shown here.

**Table 2-5 System Options Assignment**

Option	Value
DTRX Herald Message	(Enter Line Below, 0-77 chars.)
Maximum Parties In A Conference	(3-8, max. 5 on the MCS)
Maximum Trunks In A Conference (0-8)	8
Music On Hold (Yes/No)	Yes
SUPERSET Callback Message Cancel Timer (1-255 hrs) (see next)	Blank recommended *see note

For **SUPERSET Callback Message Cancel Timer**, enter a number in the range of “1” to “255” hours, in increments of 1 hour. This value defines the length of time for which a callback message will be displayed on a telephone's LCD display. If this field is left blank the message will not be cancelled.

**NOTE:** If the “SUPERSET” option has any value, it cancels all call-back messages on the system that were set by the Telephony Server.

## Setting Up the AFC Card Connection

### Dimension and Feature Selection

Set the optional features as shown in Table 2-6. Ensure that the Manufacturer's Feature Resource Dimension (MFRD) is large enough to support the extra 60 digital trunks and two digital links that will be needed for AFC card support (i.e., the addition of a CEPT card).

**Table 2-6 Dimension and Feature Selection**

Optional Features	Settings
HCI/CTI Advanced Telephony Control	Yes
HCI/CTI Basic Telephony Control	Yes
MSDN/DPNSS Public Network Access	Yes
MSDN/DPNSS Voice I	Yes
*MSDN/DPNSS Voice III	Yes
*MSDN/DPNSS Voice V	Yes
<b>System Configuration Selection</b>	
*HCI/CTI/TAPI Large Traffic Level	1

\* Voice III and V are optional ONLY if using networked voice mail. The HCI Large Traffic Level must be a minimum of 1 (100 monitors). This field determines the HCI monitors allowed in the PBX.

## Cabinet Assignment

**WARNING!** Adding a cabinet to an operating PBX will cause peripherals to reset.

The Cabinet Assignment form applies to fiber distributed systems. It tells the main control cabinet what types of cabinets are at the ends of the fiber links. The form identifies each fiber link by the FIM to which it connects at each end. It specifies each FIM by cabinet, shelf, and slot (PLID).

The OnePoint Messenger Telephony Server registers as a fiber distributed digital service unit (FD\_DSU) cabinet type. Add the Telephony Server in cabinet "X", shelf 1, slot 1 (where "X" is a free cabinet number within your PBX). In this sample table, fiber going to the Telephony Server connects to the FIM in cabinet 1, shelf 2, slot 3 (1/2/3) in the control cabinet, and to the AFC Card in the Telephony Server in cabinet 4, shelf 1, slot 1 (4/1/1).

**Table 2-7 Cabinet Assignment**

Cabinet Assignment							
Main Control Fiber Interface			Peripheral/DSU Fiber Interface				
Cabinet	Shelf	Slot	Type	Cabinet	Shelf	Slot	Comments
1	2	1	FD_Per	2	1	17	Internal Per
1	2	2	FD_DSU	3	1	1	Internal DSU
1	2	3	FD_DSU	4	1	1	Telephony Server
1	2	4					

## System Configuration

The System Configuration form records the position of all printed circuit cards in the system. The Cabinet, Shelf, Slot, and Installed Card Type fields are read-only. Refer to Table 2-8.

1. Verify that the FIM card is programmed and installed in the PBX system. If the FIM is not installed, refer to SX-2000 LIGHT PBX documentation for instructions on how to install it.

2. Enter “CEPT Formatter” in the **Programmed Card Type** field in Shelf 1 in slot 2 or 3.

**NOTE:** The card location in the table is an example only. Actual locations in the customer installation may vary.

The CEPT Formatter will not show as installed until the AFC card in the Telephony Server is loaded.

**Table 2-8 System Configuration**

<b>System Configuration</b>				
Cabinet	Shelf	Slot	Programmed Card Type	Installed Card Type
4	1	1	Fiber Interface	Fiber Interface
4	1	2	CEPT Formatter	CEPT Formatter
4	1	3	No Card Present	No Card Present
4	1	4	No Card Present	No Card Present
4	1	5	No Card Present	No Card Present
4	1	6	No Card Present	No Card Present
4	2	1	Peripheral Resource	Peripheral Resource
4	2	2	No Card Present	No Card Present
4	2	3	No Card Present	No Card Present
4	2	4	No Card Present	No Card Present
4	2	5	No Card Present	No Card Present
4	2	6	Peripheral Resource	Peripheral Resource

### **Digital Link Descriptor Assignment**

Link descriptor programming is required for digital link emulation for the AFC B-channels. As shown in Table 2-9, use default parameters for all fields except:

- Address for Message Control (A/B) = **A**
- Integrated Digital Access = **CTI Server**

**Table 2-9 Link Descriptor Assignment**

<b>Link Descriptor Assignment</b>	
Digital Link Descriptor Number: 11	
<b>Description</b>	<b>Value</b>
Address for Message Control (A/B)	A
BER - Maintenance Limit, 10**-*n, n=(3,4,5,6)	4
BER - Service Limit, 10**-*n, n=(3,4,5,6)	3
Data Call Alternate Digit Inversion (Yes/No)	Yes
Framing Losses in 24 hrs - Maintenance Limit (0-9000)	255
Framing Losses in 24 hrs - Service Limit (0-9000)	9000
Integrated Digital Access	<b>CTI Server</b>
Satellite Link relay (Yes/No)	No
Slip Rate - Maintenance limit (0-9000)	255
Slip Rate - Service Limit (0-9000)	7000
<b>DS1 Parameters</b>	
Alarm Debounce Timer - Service Limit (300-3200)	500
B8ZS Zero Code Suppression (Yes/No)	Yes
<b>Enhanced Dual T1 Card only:</b>	
Operation Mode (CSU/DSX-1)	DSX-1
CSU Tx Line Build-Out ( ), 7.5, 15, 22.5 db)	
DSX-1 line Length (0-133, 134-266, 267-399, 400-533, 534-655 ft.)	0-133
Inverted D-channel (DPNSS only) (Yes/No)	No
<b>E1 Parameters (Enhanced Dual E1 Card only):</b>	
CRC-4 enabled (Yes/No)	No
E1 Line Length (0-133, 134-266, 267-399, 400-533, 534-655 ft.)	0-133
<b>Italian Parameters</b>	
Digital Link Fault Delay Timer (0-360 sec)	240

## Digital Link Assignment

Use the Digital Link Assignment form to identify the digital link descriptor that is associated with the CEPT card programmed in the previous section.

**Table 2-10 Digital Link Assignment**

Digital Link Assignment						
Cab	Shelf	Slot	Link	Card Type	Digital Link Description Number	Text
4	1	2	1	CEPT Formatter	11	Telephony Serv
4	1	2	2	CEPT Formatter	11	Telephony Serv

## Trunk Programming

### MSDN/DPNSS/DASSII Trunk Circuit Descriptor Assignment

With a CEPT card programmed in the PBX, 60 digital trunks will be available in the Trunk Assignment form. A circuit descriptor must now be programmed for the digital trunks before the Trunk Assignment form can be completed. Choose a free circuit descriptor. Leave the default settings, except for changing Far End Connection (Main PBX/Satellite PBX/Toll/Local) to **Local Office**.

**Table 2-11 MSDN-DPNSS-DASSII Trunk Circuit Descriptor Assignment**

MSDN/DPNSS/DASSII Trunk Circuit Descriptor Assignment	
Trunk Circuit Descriptor Number: 11	
Description	Value
Signalling Protocol f(MSDN-DPNSS/DASSII)	MSDN-DPNSS
Card Type (CEPT/DS1/PRI/E1/PRI T1)	CEPT
Dual Seizure Priority (Incoming/Outgoing)	Incoming
ISDN BRI Mode (blank/NT/LT)	
<b>Transmission Parameters</b>	
Far End Connection (Main PBX/Satellite PBX/Toll/Local)	<b>Local Office</b>

## Trunk Service Assignment

In the Trunk Service Assignment form, create Trunk Service Assignment entries for the digital trunks connecting the Telephony Server to the PBX—"Tel Serv" (serves Message Center, Automated Attendant, and Fax on Demand), MWI (serves both notifications and Call-Me), and Fax Send. Enter the trunk Class of Service (COS) (see "Class of Service for Trunks" on page 31) and Class of Restriction (COR). Absorb "0" digits.

**Table 2-12 Trunk Service Assignment**

Trunk Service Assignment											
Trunk Service No	RLT	COS	COR	Baud Rate	Intercept No	Non Dial In Trunks Answer Points			Dial In Trunks Incoming Digit Modification		Trunk Label
						Day	Night1	Night2	Absorb	Insert	
1	No	1	1	300	1						
2	No	1	1	300	1						
3	No	1	1	300	1						
4	No	1	1	300	1						
21	No	21	1	300	1				0		Tel Serv
22	No	21	1	300	1				0		MWI
23	No	21	1	300	1				0		Fax Send

## Trunk Assignment

The Trunk Assignment form assigns trunk numbers to the trunk circuits of the AFC's digital links. Enter the Trunk Circuit Descriptor number and the Trunk Service number obtained from the Trunk Service Assignment form. Leave the DTS Service Number field blank. The Circuit Descriptor Number is obtained from the MSDN-DPNSS-DASSII Trunk Circuit Descriptor Assignment form (Table 2-11).

**Table 2-13 Trunk Assignment**

Trunk Assignment									
Cab	Shlf	Slot	Circ	Card Type	Trunk Number	Trunk Service Number	DTS Service Number	Circuit Desc Number	Inter-Connect Number
4	1	2	1	CEPT Formatter	101	21		11	1
4	1	2	2	CEPT Formatter	102	21		11	1
4	1	2	3	CEPT Formatter	103	21		11	1
4	1	2	4	CEPT Formatter	104	21		11	1
4	1	2	5	CEPT Formatter	105	21		11	1
4	1	2	61	CEPT Formatter	106	22		11	1
4	1	2	7	CEPT Formatter	107	22		11	1
4	1	2	8	CEPT Formatter	108	23		11	1

**NOTE:** This example shows only eight trunks. The HCI link supports up to 60 such trunks, but the number of trunks required depends on the number of channels available on the NMS cards on the OnePoint Messenger Telephony Server. For example, if an 8-port NMS card is used on the Telephony Server, eight trunks must be programmed on the PBX. These eight trunks will be allocated to a DSP on the NMS Card. For 16 ports, 16 trunks are required, and so on.

Give the trunk numbers to the OnePoint Messenger installer. They must be entered in the Device Map tab of Show N Tel, as described in “Configuring Show N Tel with a PBX” on page 68 in Chapter 5.

### Assigning Trunk Groups to the Message Center

As shown in Table 2-14, set up a trunk group containing the trunks that will be allocated to the OnePoint Messenger Telephony Server application, used primarily for the Message Center, but also, in this example, Automated Attendant and Fax on Demand. See also “Programming the Automated Attendant (Receptionist)” on page 43 and “Programming Fax on Demand” on page 44. For details, see “PBX Programming Overview and Assumptions” on page 27.

**NOTE:** Hunt mode can be set up as Terminal (always take the first trunk unless it is busy), or Circular (use the first trunk, then the sec-

ond, and so on); Circular is best, but not necessary, for OnePoint Messenger.

**Table 2-14 Trunk Group Assignment**

Trunk Group Assignment	
Trunk Group Number: 21 Hunt Mode (Circular or Terminal): Circular Trunk Group Busy RAD: Maximum Network Hops:	
Number	Trunk Number
1	101
2	102
3	103
4	104
5	105

### Creating Directory Number 7999

Using the same Circuit Descriptor (11 in this example) that you use to provide the trunks for OnePoint Messenger, create another line item in the **Single Line Assignment Form** to create Directory Number 7999 (enter 7999 in the Directory Number column).

In the **Station Service Assignment Form**, for 7999, enter 64 in the three COS fields, Day, Night 1, and Night 2.

## Programming Voice Mail Ports

### Assigning a Hunt Group to the Message Center

Set up a hunt group with a pilot number for the Message Center. Select the group type as **HCI Reroute**. This hunt group contains no members and will be rerouted to a speed call and then to an ARS route. This is necessary, because it is not possible to route unanswered calls directly to the pilot number of the OnePoint Messenger Message Center.

The OnePoint Messenger installer must enter this pilot number in:

- The **MWIPilotNumber** field in **TelSrvr.ini**, located in the **c:\SNT\TelSrvr** directory (see “Editing the Telsrvr.ini File” on page 80 in Chapter 5).

- The **Pilot Number** field of the Message Center page in the Unified Messaging Snap-in to Microsoft Management Console (see “Setting Telephone User Interface Parameters” on page 78 in Chapter 5; for details, see Chapter 3 in the *OnePoint Messenger Administrator Guide*.)

**Table 2-15 Hunt Group Assignment**

Hunt Group Assignment		
Pilot Number: 8900 Hunt Mode: Terminal Group Type: HCIReroute RAD1: RAD2: NIGHT RAD:		Name: ONEPOINT PILOT Priority: 64 1st Threshold (%): 2nd Threshold (%): Alert Device: Phase Timer:
Member	Directory Number	Name
	7999	

### System Speed Call Assignment

Configure a System Speed Call, as shown on Table 2-16, that will dial the external ARS route that you have just set up to the Telephony Server. The Speed Call will be referenced as the answer point for a Call Reroute Always from the HCI Reroute Number.

OnePoint Messenger users will call-forward their phones to this number so that callers will access those users’ mailboxes.

- Overrides Toll Control = **Yes**
- Type = **Int**

**Table 2-16 System Speed Call Assignment**

System Speed Call Assignment			
Speed Call Number	Actual Number	Overrides Toll Control	Type
8800	8700	<b>Yes</b>	<b>Int</b>

## Call Reroute Assignment

Configure the entry for the HCI Reroute Hunt Group number to an Always Alternative number that is not being used.

In this form we are telling the PBX to always reroute any call that goes to the Directory Number 8900 (Message Center pilot) to an Always Alternative Number (an index number).

**NOTE:** Do not use Reroute 1.

**Table 2-17 Call Rerouting Assignment**

Call Rerouting Assignment						
	Always Alternative Number					
Number	Day	Number Night 1	Number Night 2	Do Not Disturb Type	First Alternative Number	Second Alternative Number
8900	21	21	21	All	1	1

## Call Reroute Always Alternative Assignment

Using the Always Alternative number configured for the HCI Route Hunt Group, reroute calls from every type of originating device to the Speed Call number that you have set up.

**Table 2-18 Call Rerouting Always Alternative Assignment**

Call Rerouting Always Alternative Assignment					
		Always Originating Device			
Always Alternative Number	DID	TIE	CO	Internal	Directory Number Routed To
21	Reroute	Reroute	Reroute	Reroute	8800

## Automatic Route Selection (ARS) Assignment

Set up an ARS route with the following values (as per the example):

- Leading Digits = **8**
- Digits Dialed = **700**
- Number of Digits to Follow = **0**
- Type = **Route**
- Number = **<X>** (where X is the Route number set up in the previous step).

This sets up an ARS route to the Telephony Server via the digital trunks. The route is referenced in a System Speed Call Assignment.

**Table 2-19 Automatic Route Selection Assignment**

Automatic Route Selection Assignment			
Leading Digits: 8		COR Group Number:	
Second Dial Tone (Yes/No/Alternate): No		Termination	
Digits Dialed	Number of Digits to Follow	Type	Number
<b>700</b>	<b>0</b>	<b>Route</b>	<b>21</b>

## Route Assignment

Set up a route that references the trunk group containing the trunks that will be allocated to voice mail resources on the NMS card. Reference the default COR Group and Digit Modification number.

**Table 2-20 Route Assignment**

Route Assignment				
Route Number	Trunk Group Number	COR Group	Digit Modification Number	Digits Before Outpulsing
21	21	1	1	

## Class of Restriction (COR) Group Assignment

Set up a COR group that contains no CORs.

**Table 2-21 Class of Restriction Group Assignment**

Class of Restriction Group Assignment	
COR Group Number	Classes of Restriction for Group
1	

## Programming the Automated Attendant (Receptionist)

In the example topology detailed above, Automated Attendant has its own pilot number, 8902, which uses the same trunk group as the Message Center, Trunk Group 21. If you want to dedicate one or more lines to Automated Attendant, you would follow the same sequence as used above to provision the trunk group and hunt group. Do not create and HCI Reroute. In the example in Table 2-22, a new Trunk Group 24 has one member, Trunk 103, which you would remove from Trunk Group 21.

**Table 2-22 Trunk Group Assignment for Automated Attendant**

Trunk Group Assignment	
Trunk Group Number: 24	
Hunt Mode (Circular or Terminal): Circular	
Trunk Group Busy RAD:	
Maximum Network Hops:	
Member	Trunk Number
1	103

## Programming Fax on Demand

In our original example, Fax on Demand has its own pilot number, 8903, but it uses the same Trunk Group 21 as the Message Center and the Automated Attendant. To associate that pilot its own hunt group and trunk group, you would follow the same sequence as described above for the dedicated Automated Attendant line. In the example in Table 2-23, a new Trunk Group 25 has one member, Trunk 104, which you would remove from Trunk Group 21.

**Table 2-23 Trunk Group Assignment for Fax on Demand**

Trunk Group Assignment	
Trunk Group Number: 25 Hunt Mode (Circular or Terminal): Circular Trunk Group Busy RAD: Maximum Network Hops:	
Member	Trunk Number
1	104

### 3. Installing Line Cards in the Telephony Server

This chapter discusses the Telephony Server line cards necessary to integrate OnePoint Messenger with the Mitel SX-2000, and it summarizes the installation process. For the turnkey TS800, the cards should have all been installed at the factory, but you can refer to this chapter if you need to change the configuration, such as when you add a card or upgrade to a new server. This chapter contains installation summaries; for details, see Appendix B in the *OnePoint Messenger Installation Guide*, then see the manufacturers' documentation. This chapter contains these sections:

Section	Page
<b>What Hardware Do You Need on the Telephony Server?</b>	<b>45</b>
<b>Preparing the Installation Site</b>	<b>47</b>
<b>Setting Up MVIP Arrays</b>	<b>48</b>
<b>Setting Interrupts and Base Addresses</b>	<b>49</b>
<b>Installing Brooktrout Fax Cards</b>	<b>51</b>
<b>Installing and Configuring an NMS Card</b>	<b>52</b>
<b>Enabling the Mitel AFC Card with MiTAI</b>	<b>57</b>
<b>Making and Verifying Connections</b>	<b>59</b>

#### What Hardware Do You Need on the Telephony Server?

The cards that have been validated for the SX-2000 integration are:

- **Mitel:** Application Fiber Controller (AFC) TAPI card: The AFC provides call processing through a fiber connection to the Fiber Interface Module (FIM) on the SX-2000. Use an MVIP cable to connect the AFC with either NMS AG-0 or AG-24 cards to

provide DSP resources. You can also connect one or more Brooktrout fax cards through the MVIP cable.

- **Natural MicroSystem (NMS) Alliance Generation (AG) ISA AG-0** (8 ports) and **AG-24** (24 ports) DSP resource cards: Use these cards as DSP voice processing resources for the Mitel AFC card. The AG-0 is an AG-8 with the SIPPs removed (used for line control).
- **Brooktrout:** The following Brooktrout Technology fax boards:
  - TR114+ I4V/I8V (4- and 8-port MVIP)
  - TR114+ I4L (4-port)

Connect one or more of these boards with the line cards through an MVIP cable, as described below.

## Fiber Optic Cable Specifications

If you use a Mitel AFC card in the Telephony Server, you will need fiber link cables for the link between the Telephony Server and the SX-2000. Two cables are required for a link, one for transmitting (connect to the TX connection on the PBX and the RX connection on the AFC card) and the other for receiving (lights on the AFC card will flash if you have the wires crossed.)

- Fiber Cable Type: **Glass Multi-mode**
- Fiber Diameter: **62.5/125 mm**
- Connector Type: **ST**
- Maximum Distance (Cable Length): **1 km**
- Maximum Optical Loss: **6 dB** (including splices and connections)
- The grade or type of cable used must be suitable for the installation (i.e., light or heavy duty, plenum, outdoor). Consult local building codes and your fiber cable supplier.

**NOTE:** Optical repeaters cannot be used to increase the maximum distance.

## Preparing the Installation Site

The Telephony Server must be situated where it can connect to a power source, your SX-2000 PBX (via fiber optic cables if using the AFC card), and to your LAN—to the Exchange Server at a minimum, and to client PCs to provide Call-Me service, if desired. To manage the Telephony Server from another computer, you will need to accommodate the connection to that other computer, through the LAN, a modem, or otherwise. Similarly, you may want to be able to use another computer for multimedia support, such as for recording greetings and editing the TTS dictionary. You also need to consider providing access to the Telephony Server for remote support.

PcAnywhere is bundled with OnePoint Messenger so that remote support and management can be provided through a modem attached to the Telephony Server. There is no access to the Exchange Server through pcAnywhere, so, to provide complete remote support for the unified messaging environment, you must deal separately with the Exchange Server.

### Accommodating the TS-800 Telephony Server Tower

The TS-800 Telephony Server is housed in a PC-type tower cabinet that requires a horizontal footprint of 23 cm. wide by 49 cm. deep (9" X 19.5"). The cabinet height is 48 cm. (19"). Access to the front, rear, and sides of the cabinet is required for maintenance.

Access to a grounded three-prong power outlet is required (NEMA 5-15R for 115 Vac, NEMA 6-15R outlet for 230 Vac, or other approved outlet).

The Telephony Server should only be situated in a clean and dry environment in accordance with the following environmental requirements:

- 10° to 35° C (50° to 95° F) Ambient temperature
- 30% to 80% relative humidity non-condensing
- maximum altitude 3048 m (10,000')
- Isolation from strong electromagnetic fields
- **UPS recommended**

**NOTE:** The Telephony Server must be acclimatized to the local environment for at least 12 hours before installation.

## Setting Up MVIP Arrays

All of the line cards that support OnePoint Messenger 2.0 use the Multi-Vendor Integration Protocol (MVIP) to provide a high speed bus across an MVIP cable connected between the cards.

MVIP requires a clock to synchronize data movement. The clock signal can come from a board or from the PBX. Among the supported cards—AG-8 DSP (AG-0), AG-24, AFC, and Brooktrout fax cards—only the AG-0 has an oscillator that can generate the clock signal. However, when you use the AFC card, you pull the clock signal through the AFC from the PBX, so you do not need to designate any of the cards as the clock master.

Also, when you use multiple MVIP cards, you generally set up the clock master card in the middle of the MVIP array to minimize signal propagation errors. However, with the PBX providing the clock, you do not need to be concerned with that issue.

### Setting MVIP Termination

The one remaining concern is setting MVIP termination on the end cards in the MVIP array.

- **AFC:** The MVIP termination block is at the top of the card next to the end bracket. Put the jumper across 8 and 7, as shown in Figure 3-4.
- **AG-0:** You can set MVIP termination on an AG-0 card. To set MVIP termination, set the J9 and J10 jumpers. The jumpers are below the I/O DIP switches. A diagram of the card appears in Appendix B of the *OnePoint Messenger Installation Guide*.
- **AG-24:** Since some AG-24 cards do not have MVIP termination blocks, they should not be placed at the end of the MVIP array.
- **Brooktrout fax cards:** The MVIP termination switch is a two-position DIP switch next to the MVIP connector. To terminate MVIP, set both switches to **On**.

**CAUTION!** Do not set termination on cards that are not at the ends of the array. If you add or rearrange cards, be sure to revise the termination so that only the end cards are terminated.

## Connecting Cards through an MVIP Cable

Before connecting the MVIP cards with the MVIP cable, set MVIP termination on the end cards in the MVIP array, as described above, and set physical I/O base addresses and IRQs where necessary, as described below.

The MVIP cable is a 40-line ribbon with card connectors arrayed along it. The connectors on the cable attach to connectors on the top edge of each card, near to the rear panel bracket. The cable has one colored wire that you use to orient the cable to Pin 1 on each connector. Cables have from four to 13 connectors. Each telephony card in the bus with an MVIP connector must be attached to the cable.

The goal when connecting MVIP cards and cables is to prevent signal synchronization errors by minimizing propagation delay. To do that optimally, use a cable with the exact length and number of connectors that you need to connect the installed MVIP cards. If you use a cable with more connectors than you need, put the same number of empty connectors at each end of the cable. Avoid putting empty connectors between cards. Try to put the telephony cards in adjacent slots. To minimize signal propagation errors, put the card acting as the clock master in the middle of the MVIP card array.

## Setting Interrupts and Base Addresses

All of the ISA-bus line cards—AFC, Brooktrout, and NMS—used in the Telephony Server use interrupts (IRQs) and base memory addresses (I/O addresses). The Mitel AFC card and the Brooktrout fax cards have IRQ switches and I/O jumper blocks whose settings must be matched in software (the MiTAI software handles the AFC card). The NMS cards have physical settings to set the board number to differentiate multiple installed NMS cards.

If you must edit the settings, for example to add another card, use Windows NT Diagnostics to view currently assigned IRQ and I/O values. Record what values are available for each of the cards.

### **To check what IRQs and I/O addresses are available on the Telephony Server:**

- 1 From the Windows **Start** button, choose **Programs**, then **Administrative Tools, Windows NT Diagnostics**, and **Resources**, then click the **IRQ** button.

Figure 3-1 shows the **Resources** tab appears as it appears on a TS800 when shipped from the factory.

**Figure 3-1 Windows NT Diagnostics, Resources Tab, IRQ List**



Note the available IRQs. When shipped from the factory, cards in the turnkey TS-800 are set to their default IRQ values:

- AG-0 or AG-24: IRQ 5 (shown above as "Aghw")
- Fax: IRQ 10 (shown above as "bfax")
- AFC: IRQ 11

**NOTE:** Windows NT Diagnostics occasionally does not display all of the used resources. In Figure 3-1, the AFC card does not appear.

For recommended IRQ usage, see Appendix A in the *OnePoint Messenger Getting Started Guide*. However, the most important thing is to not have IRQ conflicts. Multiple NMS cards can share an IRQ. Multiple Brooktrout cards can share an IRQ.

- 2 On the **Resources** tab, click **I/O Port**. Inspect the available I/O addresses. For the first NMS line card, look for **02C0** and **A300** for the AFC card. For Brooktrout fax cards, compare values with those listed on page 3-4 in the Brooktrout *TR114 Digital Hardware Guide*. Look for **260**, which is the default base I/O address.

## Installing Brooktrout Fax Cards

Several Brooktrout Technology TR-114 fax cards are approved for use with OnePoint Messenger:

- **TR114 I4L (4-port):** Use this card with loop-start line cards, using a T-connector to connect a phone number to a voice channel or fax channel and allow in-bound and out-bound fax calls. As loop start is the most common connection mode from the CO, you can generally connect the T-connector directly to an RJ-11 telephone wall plug.
- **TR114 I2V, I4V/I8V (2-, 4-, and 8-port):** Use these MVIP fax cards with NMS MVIP line cards.

See Brooktrout's *Show N Tel Reference Manual*, Appendix F, and Brooktrout's *TR114 Hardware Guide* for details. These cards can all work in either an 8-bit ISA or 16-bit EISA slot. 16-bit slots yield more interrupt and base address options. See Brooktrout's website:

[http://www.brooktrout.com/p\\_info/product\\_med.html](http://www.brooktrout.com/p_info/product_med.html)

Setting up the Brooktrout ISA-type fax cards includes setting three switches on the card, setting the IRQ and I/O address in Windows NT Diagnostics, and, on the MVIP cards, connecting the MVIP bus cable to the line cards.

### To install the fax card:

See page 3-3 in Brooktrout's *TR114 Digital Hardware Guide* for the list of I/O addresses, page 3-5 for IRQ jumpers, and page 3-7 for the MVIP clock termination. Do not set the DMA channel.

- 1 Set the base I/O address switch to the selected available base address. The default is 260. The I/O selector is the red 8-position DIP switch between the MVIP connector and the mounting bracket.
- 2 If this card is at either end of the MVIP bus, set the MVIP termination; otherwise do not. The MVP termination switch is a two-position DIP switch next to the MVIP connector. To terminate MVIP, set both switches to **On**.
- 3 Set the IRQ jumper. The default is **5**. The IRQ jumper block is next to the MVIP termination block and contains 11 sets of pins.
- 4 Insert the card in an ISA slot. If MVIP termination is set on the card, put it in an end slot in the MVIP sequence.
- 5 Connect the MVIP ribbon connector between all MVIP cards.

- 6 Turn on the computer.
- 7 Enter the IRQ and I/O address for the Brooktrout card in the Brooktrout configuration dialog, provided in the OnePoint Messenger installation sequence, as detailed page 49. For recommended slot, IRQ, and I/O address assignments, see Appendix A in the *Getting Started Guide*.

## Installing and Configuring an NMS Card

You can install an NMS card before or after you install OnePoint Messenger. To install NMS before installing OnePoint Messenger, use the NMS installation CD-ROM. Alternatively, the OnePoint Messenger installation includes all necessary NMS software.

Here is a summary of the NMS line card installation and configuration sequence, using the software included with OnePoint Messenger:

- 1 As described above (“Setting Interrupts and Base Addresses” on page 49), check what IRQs and I/O addresses are available.
  - a. From the Windows **Start** button, choose **Programs**, then **Administrative Tools, Windows NT Diagnostics, Resources**, and **IRQ**.
  - b. Note unused IRQs. See the **Resources** tab in Figure 3-1. NMS cards can share the same IRQ for multiple cards.
  - c. While you are in the Windows NT Diagnostics program and **Resources** tab, click **I/O Port**.
  - d. Note available I/O addresses. A convenient address for the AG-0 is 02C0, because all DIP switches are up.
- 2 Use the AG Config GUI utility or Notepad to create the ag.cfg file. In Notepad, open the appropriate ag.cfg sample file for the line card that you have. For example, for the AG-0 card, open ag8.cfg. Save the file as ag.cfg.
- 3 Set the card number ID for the computer on the line card using the DIP switches. For example, if there is only one NMS line card in the computer, all the DIP switches are on. Refer to the NMS documentation to set the switches.
- 4 Set the jumper.
- 5 Insert the card in an ISA slot.
- 6 Start the computer.

**NOTE:** NMS has a default IRQ and I/O address. However, some computers, such as Dell, preempt those settings, so you may need to check and set new ones.

**NOTE:** Until Release 2.0 of OnePoint Messenger, it had been necessary to edit the Ag8dspmask.txt file. According to the NMS installation notes in *Getting Started with Show N Tel*, that file can now be deleted. Its function, to tell the system about installed AG-0 and AG-8 boards, is replaced by the AG\_DSP\_BOARDS setting in the Parameters tab of Show N Tel Manager (see “Editing the SNT Parameters Tab” on page 71 in Chapter 5.)

## Creating the AG Configuration File

For NMS line cards, you must edit the ag.cfg file. You can do so directly using Notepad, or you can use the NMS AG Configurator (AG Config) configuration utility, included with OnePoint Messenger and available from the OnePoint Messenger program group. First:

- 1 Use Windows Explorer to locate the ag.cfg file and sample files for various kinds of AG cards in the **NMS\AG\CFG** folder on your server’s hard disk.
3. Copy, or rename, the appropriate AG template file to **AG.cfg**. For example, if you are installing an AG-24, copy AG24.cfg to AG.cfg. If you are installing an AG-0, copy AG8.cfg to AG.cfg.
4. Edit **AG.cfg** in Notepad, following the directions in “Using Notepad to Edit AG.cfg” on page 56.

or

Use AG Configurator (AG Config) to edit it, as described next.

## Running the NMS AG Configurator Program

As described above, you can use NMS AG Configurator (AG Config) to edit ag.cfg file when you are using the NMS AG-0, 24, and 30-port ISA cards. When using AG-8 cards as **AG-0** cards (SIPPs removed), edit the ag.cfg file manually to set the **ClockRef = MVIP**.

Before running AG Config for the first time, copy the appropriate template file in the NMS directory. For example, for a system with an AG-24 card, copy AG24.cfg. Save the copy in the same directory. Rename the copy as ag.cfg.



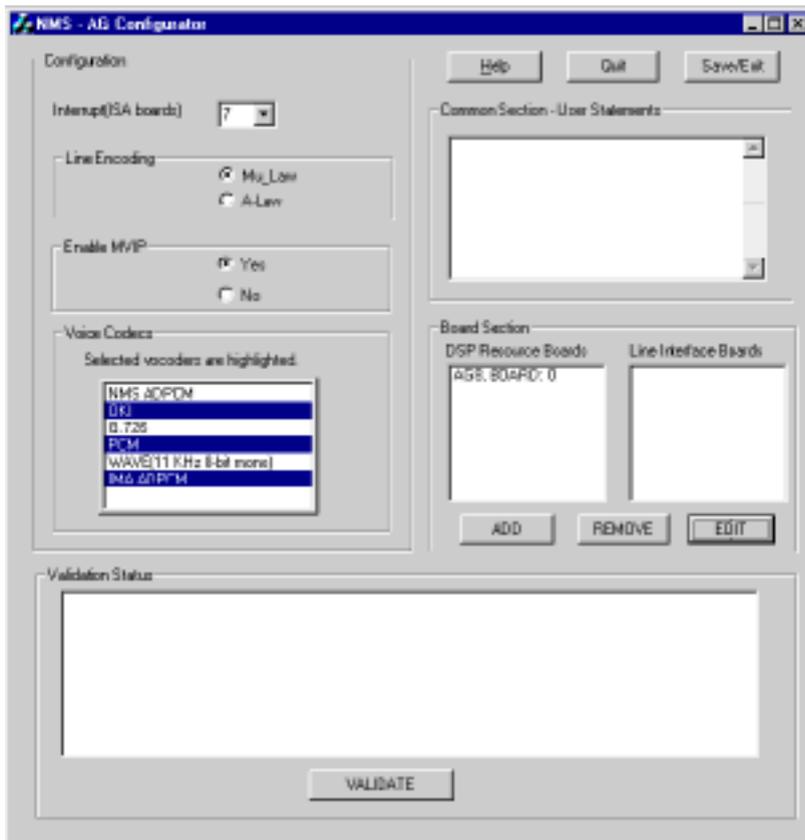
## To edit AG.cfg in the AG Config utility:

- 1 Double-click **AG Config** in the OnePoint Messenger desktop program group.

Alternatively, to start the utility from the Windows Start menu:

From the **Start** menu, choose **Programs**, then **OnePoint Messenger**, and **AG Config**. The main screen appears, as shown in Figure 3-2, which shows the setup for an AG-8 card.

Figure 3-2 NMS AG Configurator Main Screen

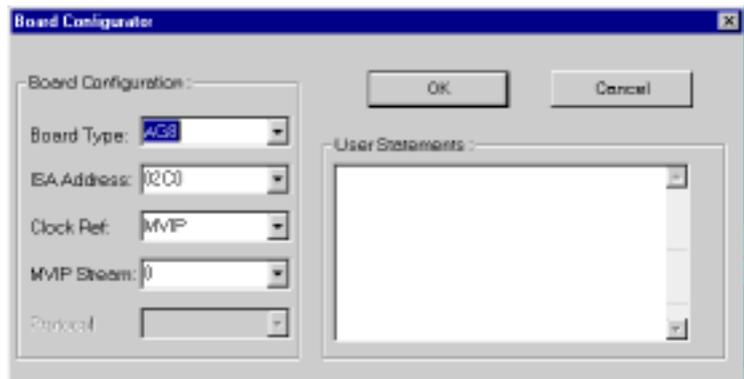


**NOTE:** The AG Configurator interface has changed from that used for OnePoint Messenger 1.1, primarily in that the "Board Section" window has now been split into two windows, one for DSP-only boards and one for call-management line cards. The other change is that the codec list appears in a window rather than as a checklist.

As shown in Figure 3-2, AG Config displays a window containing a number of user configurable options:

- **Interrupt (ISA Boards):** This is the IRQ. Figure 3-2 shows **5**, the NMS default. Click the down arrow by Interrupt (ISA boards) and select the open IRQ that you found in Windows NT Diagnostics (see “Installing and Configuring an NMS Card” on page 52 above). All AG-8 boards can use the same IRQ.
  - **Line Encoding:** **Mu\_Law** in the U.S. or Canada, **A-Law** elsewhere
  - **Enable MVIP:** **Yes** (unless you have no other line cards in the system)
  - **Voice Codecs:** Select **OKI, PCM, and IMA ADPCM.**
- 2 Click **Add** to open the Board Configuration screen, as shown in Figure 3-3.

**Figure 3-3 NMS Board Configuration Screen**



- On the Board Configuration screen, these fields appear:
  - **Board Type:** Click the down arrow and select **AG8** for an AG-0 or select **AG24** for AG-24.
  - **ISA Address:** **02C0** is selected in Figure 3-3, the default. Click the down arrow and select the unused address you found in Windows NT Diagnostics
  - **MVIP Stream:** "Stream" is equivalent to "channel". **0** is shown in Figure 3-3, but you can select any value as long as you select the same for all the NMS cards.
  - **Clock Ref:** Select **MVIP** for cards that are part of an MVIP array but are not the clock source.

- Under **User Statements**, enter notes, such as type and slot. The example in Figure 3-3 notes simply that the board is the second of two AG-8 boards in the Telephony Server.
- 3 Click **OK**.
  - 4 On the AG Config main screen, click **Add** and repeat the sequence to add a second board. Use a different ISA address for the second board, matched to the DIP switch settings you make on the board.
  - 5 On the main AG Config screen, select a board listing in the **Boards Section**, then click **Validate** to test its memory settings. The Validation Status box reports “download successful” for a good configuration.
  - 6 If the test indicates a memory conflict, select the board in the **Boards Section**, then click **Edit**.
  5. Click **Save and Exit**. A warning will appear stating that you will be overwriting the existing **AG.cfg** file.
  6. Click **Yes** to overwrite the file.

## Using Notepad to Edit AG.cfg

If you prefer to use Notepad rather than the AG Config utility to edit AG.cfg, described in “Running the NMS AG Configurator Program” on page 53, follow the directions in the NMS installation instructions. Here are some typical edits:

- 1 Modify “Interrupt =” in the COMMON section with the IRQ that you have chosen for the NMS boards (see “Installing and Configuring an NMS Card” on page 52.)
7. Modify “Address = ” in the BOARDS section with the I/O from step 2 above.
8. Set “ClockRef = MVIP” if you have multiple cards (including a Brooktrout fax card).
9. Uncomment `DspFile = rvoice.dsp`. This enables raw PCM.
10. Uncomment `DspFile = okiply.dsp` and `DspFile = oki-rec.dsp`. This enables the OKI sound file format.

## Enabling the Mitel AFC Card with MiTAI

When using a Mitel Application Fiber Controller (AFC) as the interface to the PBX to do the call processing, use the NMS line card only as a digital signal processor (DSP) to convert voice from analog to digital signals (use the AG-0 card and/or the AG-24 card). Connect the cards with an MVIP cable.

The general installation sequence of hardware and software, starting with a bare computer, to enable the AFC cards is as follows:

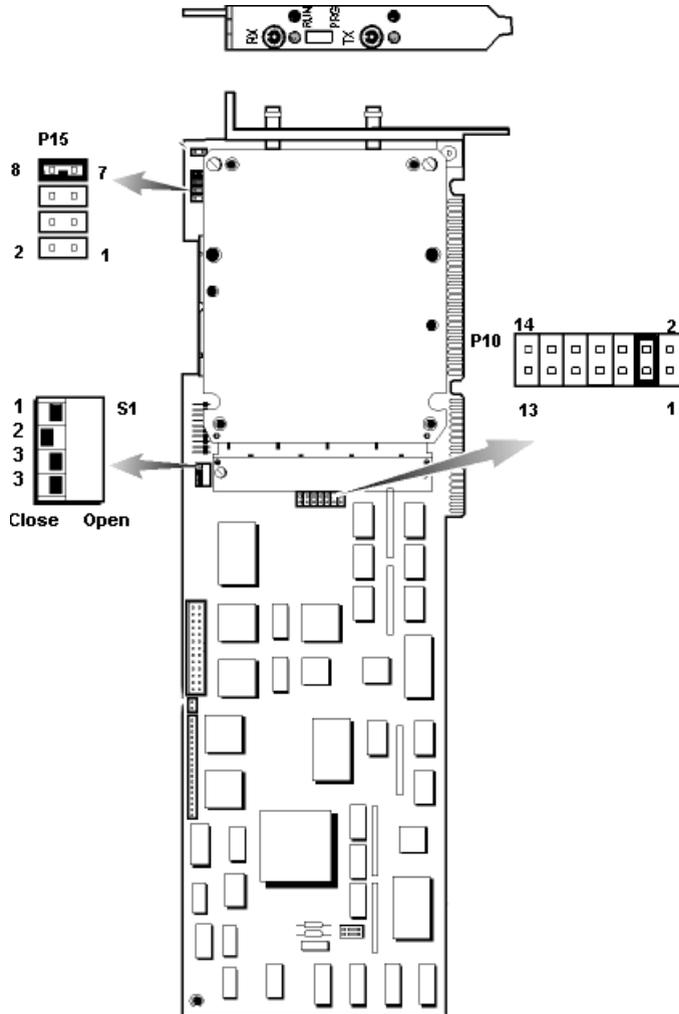
- 1 Set up the PBX. See Chapter 2 here (page 25).
- 2 Install the line cards on the Telephony Server. See “Installing and Configuring an NMS Card” on page 52 and “Installing the AFC Card” below. Make the connection to the PBX. The connection must be made for the Mitel Telephony Application Interface (MiTAI) configuration to work.
- 3 Install Windows NT 4.0 Server and NT Service Pack 5 or 6a.
- 4 Install and configure MiTAI 7.5.3 (see Chapter 4, page 61). The MiTAI CD-ROM now includes the AFC drivers (they previously were on the AFC B-Channel diskette). Please refer to Field Change Instructions (FCI) for OnePoint Messenger and the SX-2000, as a newer driver could be required. See also Mitel Online:  
**<http://www.mitel.com>**
- 5 Install OnePoint Messenger. Show N Tel, Brooktrout fax card, and NMS line card software install at the same time.
- 6 Configure the NMS line cards, and edit the NMS ag.cfg file, as described in “Installing and Configuring an NMS Card” on page 52.
- 7 Configure Show N Tel and the other telephony settings in OnePoint Messenger. See Chapter 5 here (page 67).

### Installing the AFC Card

Adjust the switches to set the IRQ and I/O Address on the AFC card prior to installation. Refer to Mitel’s AFC documentation for details on setting the switches. You will need the appropriate fiber link cable to attach the AFC card to the Mitel PBX.

The default settings and locations of the interrupt (IRQ) jumper block, MVIP termination block, and the I/O Address block are shown in Figure 3-4:

Figure 3-4 AFC Card



S1: I/O Address, default = A300  
P10: IRQ, default = 11  
P15: MVIP Termination

## Configuring the NMS and CTI Software

Software must be configured for the NMS card. CT Access and AG Access software are installed as part of the Show N Tel installation within the OnePoint Messenger installation, as detailed in Chapter 3 of the *OnePoint Messenger Installation Guide*.

## Making and Verifying Connections

Before closing the case, verify that all cards and the MVIP cable are seated tightly. After closing the case, and before starting the computer, attach an external ground strap to the computer and to a ground connection, as described in "Important Safety Information—Grounding" in either Appendix B of the *OnePoint Messenger Installation Guide* or Chapter 4 of the *OnePoint Messenger Getting Started Guide*.

### Verifying Fiber Link Synchronization between the AFC and PBX

The fiber link has two connections, one for transmitting and another for receiving. The AFC card has a green LED associated with each fiber optic port (visible from the rear of the Telephony Server). When the Telephony Server is running, these LEDs indicate the status of the fiber connection. When the connection is faulty, or transmit/receive is reversed, the LEDs flash. When the fiber link is correctly installed and functional, the LEDs stay solid (lit). After powering up the server, check the LEDs and reverse them if necessary. Accidentally reversing transmit and receive will not damage the AFC or the PBX. Retain the dust covers until ready to use again.



# 4. Installing Mitel Telephony Application Interface (MiTAI)

This chapter covers the installation of Mitel Telephony Application Interface 7.5.3 (MiTAI 7.5.3) software on the OnePoint Messenger Telephony Server and the use of MTAIX. MiTAI helps establish communications between the Telephony Server and the SX-2000 through an Application Fiber Controller (AFC) card.

Section	Page
<b>What You Need to Complete this Chapter</b>	<b>61</b>
<b>MiTAI Installation</b>	<b>61</b>
<b>Checking the Operation of the MiTAI Link to the PBX</b>	<b>65</b>
<b>Where Now?</b>	<b>66</b>

## What You Need to Complete this Chapter

To complete the installation detailed in this chapter, you will need the following:

- The Mitel AFC card installed in the Telephony Server
- The PBX running and configured for OnePoint Messenger, including running MiTAI 7.5.3
- The fiber connection between the AFC card and the PBX
- Mitel MiTAI 7.5.3 CD-ROM

## MiTAI Installation

### Installing MiTAI on the Telephony Server

1. If you are installing MiTAI 7.5.3 in a system that has a version of MiTAI installed, first uninstall that existing version. Use the **Uninstall MiTAI** program if there is one in the MiTAI program

group. If **Uninstall MiTAI** is not available, use the **Add/Remove Programs** applet in the Windows Control Panel.

2. Insert the Mitel MiTAI Toolkit CD-ROM into the CD-ROM drive of the Telephony Server (alternatively, download the software to your hard drive from the Mitel website.) If the CD-ROM auto-run is enabled on your Telephony Server, the software installation routine will start when you insert the CD-ROM.

If auto-run is not enabled, use the **Run** dialog in your Windows **Start** menu or use **Windows Explorer** to locate the `\runlocal\Windows NT` directory on the CD-ROM. In this directory, invoke **Setup.exe**.

3. On the **Select the MiTAI Runtime required for your PC** dialog, click **OK** to accept the **MiTAI Local Runtime** default.

If you used Windows Explorer to launch Setup, you do not see this screen.

4. Read and accept the defaults for the next three screens:

- **Welcome**
- **MiTAI Runtime Software License Agreement**
- **System Information** (The screen should note that Windows NT 4.0 with Service Pack 5 or 6a is installed.)

5. On the **Initialize the MiTAI Settings** screen, click the **Default Settings** radio button, then click **Next**.
6. On the **Destination Location** screen, click **Next** to accept the default of Program Files/Mitel/MiTAI)
7. On the **Initialize Settings** screen, select **Application Fiber Controller**, then click **Next**.
8. On the **Program Folder** screen, click **Next** to accept the default program group name of Mitel Telephony Application Interface.
9. On the **Start Copying Files** screen, click **Next**. Progress bars appear to monitor the status of the installation as the software loads.
10. If you selected Application Fiber Controller on the Initialize Settings screen, the **Mitel Application Fiber Controller (AFC) Settings** dialog appears, as shown in Figure 4-1.

The Versions tab is read-only.

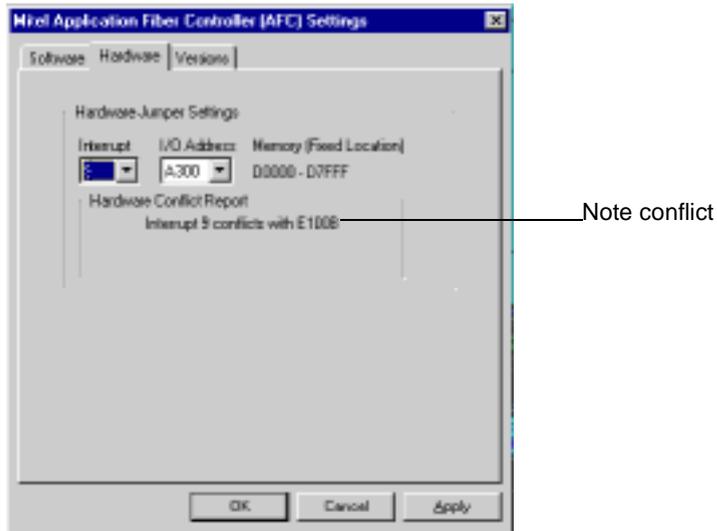
11. On the **Hardware** tab:

- Click the **Interrupt** drop-down arrow to select the IRQ that you set on the AFC card.

In the example in Figure 4-1, the default of 9 appears, along with a note in the Hardware Conflict Report area that 9 is used by another card. When you set the value, check that no conflict is reported.

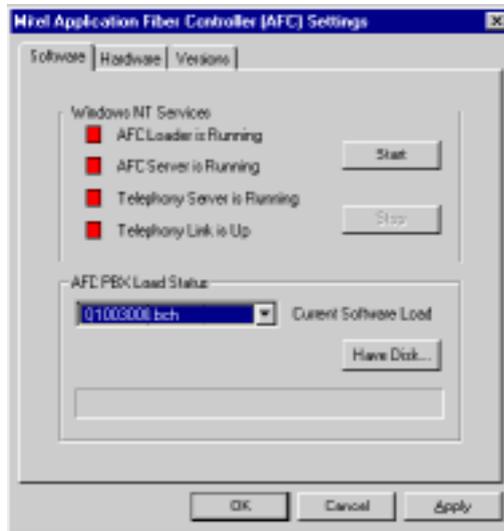
- Click the **I/O Address** drop-down arrow to select the I/O base memory address that you set on the AFC card. The default of A300 appears in Figure 4-1.
- For information on setting the IRQ and I/O address on the AFC card, see “Enabling the Mitel AFC Card with MiTAI” on page 57 in Chapter 3 and Figure 3-4.
- Click **Apply**.

**Figure 4-1 MiTAI Settings Dialog, Hardware Tab**



12. Click the **Software** tab. The tab shown in Figure 4-2 appears.

Figure 4-2 MiTAI Settings Dialog, Software Tab



13. On the **Software** tab:

- a. Click the **AFCPBX Load Status** drop-down arrow and select **Q1003000.bch** (bch = B-Channel, nob = No B-Channel).

**NOTE:** You must run the same AFC driver on both the PBX and Telephony Server. You can acquire the correct driver online at Mitel Online through:

**[www.mitel.com](http://www.mitel.com)**

- b. Click **Apply**, then **Start**. A progress bar activates at the bottom of the screen, and the red indicators begin to change to green, starting from the top.
  - c. The bottom "Telephony Link is Up" indicator can take several minutes to turn green. When it turns green, click **OK**.
14. If the progress bar repeats, make sure the fiber link between the AFC card and the PBX is connected. If the installation sequence does not complete, click **Cancel**, remove the software, and make sure that the connection to the PBX is secure, and that the IRQ and I/O base memory address set in software are the same as set on the board and are available. Then reboot and reinstall the MiTAI software.

## Editing the Server Hosts File

MiTAI runtime, which is used to establish the link between the Telephony Server and the PBX, requires an entry in the Telephony Server's Hosts file.

1. Open a text editor such as Windows Notepad.
2. Use the editor to edit the Hosts file, which is contained in `\WINNT\system32\drivers\etc`.
3. Read the instructions in the file header, then add an entry for the MiTAI runtime which is similar to the following:

```
<IP address> <HostName> MiTAI
```

where <IP address> is to your server's IP address, and <HostName> is your server's name.

4. Save the file.

## Checking the Operation of the MiTAI Link to the PBX

As described above, the MiTAI Settings dialog reports the status of the MiTAI link. The link is set to be established automatically when the Telephony Server boots.

### To monitor the link setup process and status:



1. Double click the MiTAI icon in the Windows Control Panel to launch the MiTAI Settings dialog. You can also put a shortcut icon on the desktop.
2. Click the Software tab of the MiTAI Settings dialog, as shown in Figure 4-2.
3. The progress bar at the bottom of the tab shows the progress of the link as it loads. When the link is up, the box next to **The Telephony Link Is Up** turns to green.

You can also use MTAIX:

1. From the Windows **Start** menu, choose **Programs\MITAI Runtime\MTAIX program**. A MTAIX program is displayed in a DOS window.
2. For the "phoneset to monitor" prompt, enter the extension of any valid phone in the system that has Class of Service options set for HCI monitor (see "Class of Service Options" on page 31). Press **Return**.

3. A “connect:” prompt is displayed if the phone is valid. Type the following:

```
makecall <extension number>
```

Press **Return**.

4. If the phone at the selected extension rings, the MITAI link to the PBX is working properly.

## Where Now?

This guide presumes that you have followed Chapters 1–3 in the *OnePoint Messenger Installation Guide*, installing Exchange and OnePoint Messenger. In this guide, you have followed Chapters 1–4 to set up your PBX, to install and configure the line cards on the Telephony Server, and to install and configure MiTAI 7.5.3.

You are now ready to configure the PBX integration settings on the Telephony Server, following Chapter 5 in this guide.

# 5. Configuring OnePoint Messenger PBX Integration Software

This chapter introduces you to the configuration of OnePoint Messenger with a sample PBX. This enables you to use telephones to communicate with Exchange through the Telephony Server. Before you perform the procedures in this chapter, you must have installed and configured your line and fax cards on the Telephony Server. You can defer the installation of Microsoft Exchange.

<b>Section</b>	<b>Page</b>
<b>Integrating the Telephony Server with the SX-2000 PBX</b>	<b>67</b>
<b>Configuring Show N Tel with a PBX</b>	<b>68</b>
<b>Editing the SNT Parameters Tab</b>	<b>71</b>
<b>Assigning Programs to Lines</b>	<b>72</b>
<b>Setting Telephone User Interface Parameters</b>	<b>78</b>
<b>Testing Telephony Server Start and Stop</b>	<b>80</b>
<b>Configuring OnePoint Messenger to Auto-start</b>	<b>81</b>
<b>Running the Telephony Applications</b>	<b>81</b>

## Integrating the Telephony Server with the SX-2000 PBX

The PBX integration process with the Telephony Server uses the Show N Tel Manager program, which is installed during the installation of OnePoint Messenger in the Show N Tel program group on the Telephony Server. Show N Tel Manager interfaces the telephony services of the Telephony Server with the PBX by configuring each port on the Telephony Server line card(s) with PBX lines and protocols.

To accomplish this integration, perform the procedures detailed in this chapter. For more details on Show N Tel Manager, see the *Show N Tel Manager System Administrator Guide*, included on the OnePoint Messenger CD-ROM as *sntmgrguide.pdf*.

Telephony Server Administrator is the configuration interface for the Telephony Server Telephone User Interface (TUI). During installation, it is installed with a set of defaults that allow the Telephony Server to provide basic services to telephone callers after you have completed the application assignment procedures. When you have successfully established communication from telephones to Exchange and communication between Exchange and desktop clients, you can tune the Telephony Server configuration using the Telephony Server Administrator program. See the *OnePoint Messenger Administrator Guide* for more details.

## Show N Tel Setup Procedures

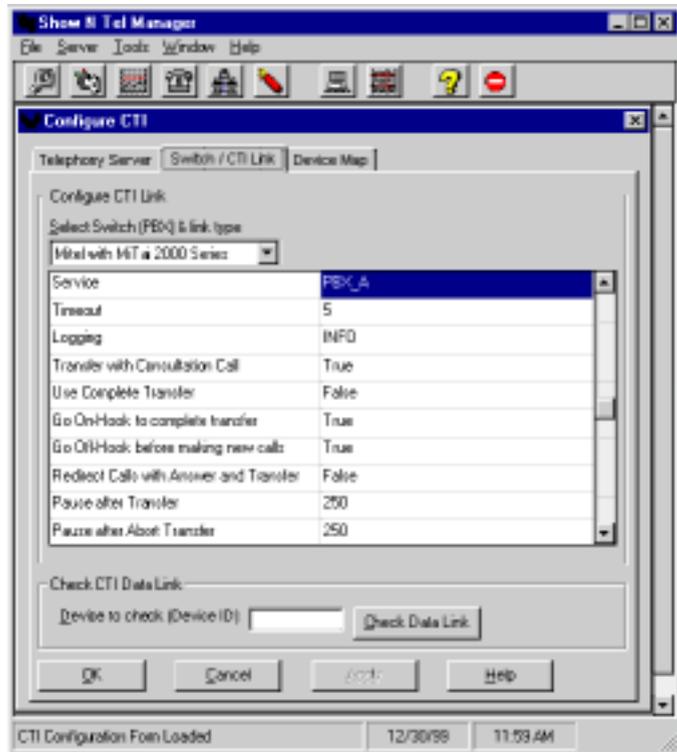
OnePoint Messenger Telephony Server provides telephony applications that run through Show N Tel Manager to provide line card services. Among the applications are:

- Automated Receptionist
- Fax on Demand
- SendFax—Used by both Fax on Demand and by users downloading e-mail to fax machines
- Telephony Server—Mailbox access
- Notification Server—Used for paging notification of urgent e-mail and for the message waiting indicator (MWI) on the telephone.

## Configuring Show N Tel with a PBX

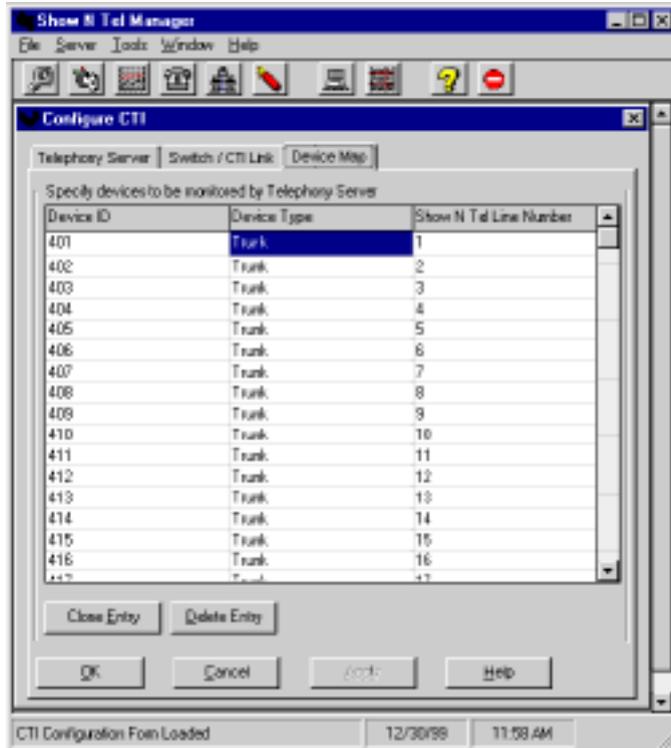
1. Start **Show N Tel Manager** from the **Show N Tel** program group.
2. From the **Tools** menu, choose **Configure CTI**.
3. Select the **Switch/CTI Link** tab, shown in Figure 5-1.

Figure 5-1 Show N Tel Manager, Switch/CTI Tab



4. From the “Select Switch (PBX) & link type” list, select **Mitel with MiTAI 2000 Series**.
  - Service: **PBX\_A**
  - Timeout: **5**
  - Logging: **INFO**
  - Transfer with Consultation Call: **TRUE**
  - Use Complete Transfer: **FALSE**
  - Go Onhook to Complete Transfer: **TRUE**
  - Go Offhook before Making New Calls: **TRUE**
  - Redirect Calls with Answer Transfer: **FALSE**
  - Set the **Pause after Transfer** field to **250**.
  - Set the **Pause after Abort Transfer** field to **250**.
5. Obtain a list of the trunks and lines that are configured in your PBX.
6. Select the **Device Map** tab, as shown in Figure 5-2.

Figure 5-2 Show N Tel Manager, Configure CTI, Device Map Tab



7. For each line you plan to run:
  - a. In the **Device ID** column, select an empty row and enter the Device ID of the line or trunk from your PBX to the Telephony Server. Now, in Show N Tel version 4.4, you enter a trunk number only as a number in the form “xxx”, where “xxx” stands for the B-Channel trunk number you set up in the switch (e.g., where previously you entered “T501”, it now becomes simply “501”).
  - b. Click the **Device Type** column, then select **trunk** from the drop-down list.
  - c. In the **Show N Tel Line Number** column, enter the line number to which you want to map.
  - d. Click **Apply** to accept your changes and close the Configure CTI window.

**NOTE:** The **Clone Entry** button lets you quickly and easily program a range of devices. To use the **Clone Entry** button, place the cursor

in a blank Device ID cell and click **Clone Entry**. When prompted, enter the beginning and ending Device ID number.

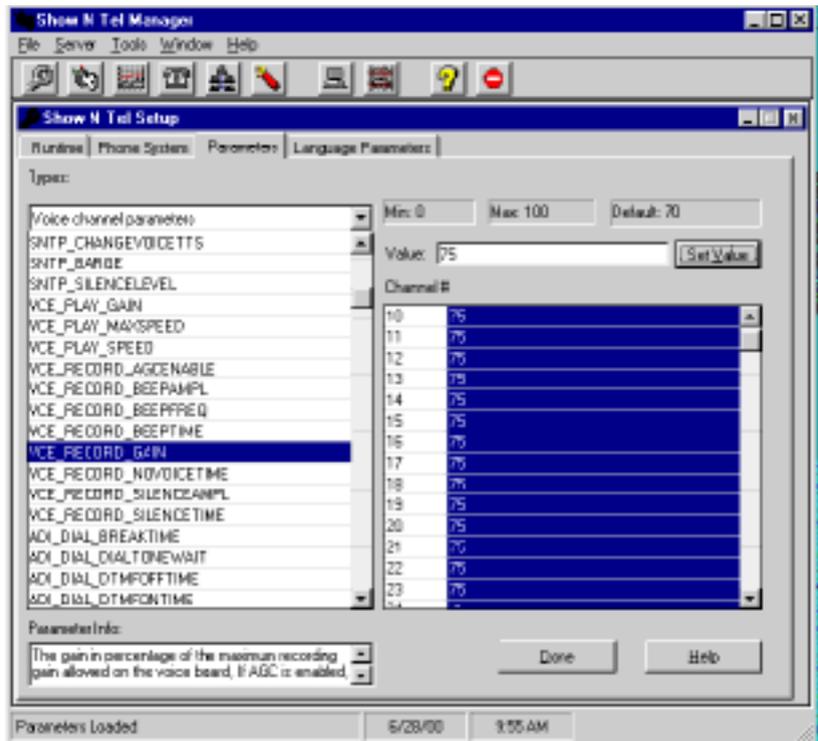
8. To verify a trunk, enter a trunk device ID in the **Device to check** (Device ID\*) edit box, then click **Check Data Link**. A message box should appear verifying the link. For example, a trunk is identified in your PBX as T100. Type T100 in **Device to check**, then click **Check Data Link**. If the test passes, the PBX link and both the AFC and MiTAI runtime software are all working.

**NOTE:** You do not need to edit the **Telephony Server** tab.

## Editing the SNT Parameters Tab

1. From the **Tools** menu of Show N Tel Manager, choose **ShowN-Tel Setup**. The **Show N Tel Setup** dialog appears.
2. Select the **Parameters** tab, shown in Figure 5-3.

**Figure 5-3 Show N Tel Manager, Parameters Tab**



3. In the **Types** drop-down list, select **Voice channel parameters**.
4. Set the value for **VCE\_Record\_Gain** to **75** for all voice ports.

You also need to edit the Parameters tab if you use the NMS AG-0 card (AG-8 DSP—no SIPPs; see Chapter 3 in this guide).

**To edit the Parameters tab to note the presence of an AG-0 card:**

- 1 In the **Types** drop-down list, select **Voice Board parameters**. The **System** window displays a list of SNT line numbers.
- 2 In the **System** window, select the top line supported by voice ports on your line card(s), then, with the left mouse button down, drag the mouse to highlight all lines supported by voice ports on your line card(s). For example, if you have two AG-0 cards, a total of 16 lines, highlight 1 through 16.
- 3 In the **Value** field, set the value to **1**, then click **Set Value**. All of the values for the highlighted lines change to 1.
- 4 Click **Done**.

**NOTE:** Do not use the **Languages** tab to choose languages (U.S. English, U.K. English, or Spanish) for phone prompts. OnePoint Messenger gets that information from the **System Information** and **Mailbox Defaults** pages of the Unified Messaging Snap-in to MMC. See Chapter 3 in the *OnePoint Messenger Administrator Guide*.

## Assigning Programs to Lines

OnePoint Messenger provides telephony applications that run through Show N Tel Manager to provide line card services. They are:

- **Active Call Handler:** Supports the Active Call CTI system, which detects port hang-ups
- **AutoRecep** (Automated Attendant, also called Automated Receptionist): The general purpose “Telephony Server” application will route calls to the Automated Attendant, but you can dedicate a line to AutoRecep if you want to be more sure that calls to the Automated Attendant do not need to wait for a port.
- **Fax on Demand:** As with AutoRecep, the “Telephony Server” application handles Fax on Demand calls, but you can assign the Fax on Demand application to a port to provide more dedicated service to those callers. Faxes sent to those callers who are not receiving the requested fax at the online number must be delivered from a port running the SendFax application.
- **Message Delivery:** To support Quickfax, assign this to Line 50 in Show N Tel Setup. Assigning Message Delivery to a line other

than Line 50 will work, but Line 50 is recommended for consistency in providing remote technical support. In fact, some turnkey systems have been shipped with Message Delivery assigned to Line 512. Please move Message Delivery to Line 50.

**NOTE:** Message Delivery is also intended to support messaging fault-tolerance ("Post Office Resiliency") in a future release.

- **Notification Server:** There are four versions of Notification Server, detailed below, supporting the Call-Me service or some form of notification of incoming unified messages.
- **SendFax:** Sends faxes to Fax on Demand recipients and to a user who downloads e-mail to a fax machine that is not "online", i.e., not at the number from which the caller is requesting the fax.
- **Telephony Server:** General purpose application that supports messaging into and from mailboxes, Automated Attendant, Fax on Demand, Meet-Me, TTS, and sending faxes.

Functions supported by the "Telephony Server" application request and release ports dynamically. For example, when a fax arrives, the Receive Fax function within Telephony Server uses a port from those assigned the Telephony Server application and then releases the port when the fax operation is done. TTS and Meet-Me sessions also work this way.

You do not need to assign an application to a port to receive faxes, to support Automated Attendant, TTS, or Fax on Demand. The "Telephony Server" telephony application handles those functions, but you can dedicate a port to one of those functions by assigning an application dedicated to the function to a port.

If you encounter strained resources using the port and line assignment that you configure, you can easily reassign applications (see "Reassigning Lines to Other Applications" on page 82) and revise the port and hunt group setup on the PBX.

## Configuring and Testing the Notification Server

Notification Server, as noted above, is a telephony application that provides the following three services through four variations in its implementation. The three services are:

- **Message Waiting Indicators (MWI):** If your PBX is set up to send MWI to the telephones that it manages, the Notification Server telephony application can send MWI requests to the user for whom a telephone message arrives. It can also turn off the MWI when the user has retrieved the message.
- **Paging:** If you set up some or all users to be notified, on their pagers or remote telephones, of the arrival of all or urgent unified messages (which are telephone calls or e-mail created in a Unified Message form), Notification Server processes those alerts.
- **Call-Me:** Users creating a combined telephone-computer mailbox session using Call-Me require a Notification Server port.

The four versions of Notification Server are:

- **Notification Server (Full):** Provides the three services above
- **Notification Server (CM):** Dedicates a port to Call-Me
- **Notification Server (Paging):** Dedicates a port to paging users when they receive unified messages
- **Notification Server (MWI):** Dedicates a port to MWI

### In summary, to invoke Notification Server:

1. In the **Runtime** tab of Show N Tel Manager, as described in “Using the SNT Manager Runtime Tab to Assign Telephony Applications” on page 76, if you are using **Notification Server (Full)**, **Notification Server (CM)**, or **Notification Server (Paging)**, assign them to Show N Tel lines that are associated with physical ports on your line card. The lines must have a service level that allows turning MWI on and off. If you are using **Notification Server (MWI)**, assign it to “virtual” Show N Tel lines, in other words, lines not associated with physical line card ports.
2. On the PBX, assign a line that has a service level allowing long distance pager dialing and message delivery connected to the port to which you assign Notification Server.
3. On the PBX, assign a hunt group number with a group type of HCI Reroute to the line supporting the Message Center, then enter that number in the **TelSrvr.ini** file under **MWIPilotNumber**. See “Editing the Telsrvr.ini File” on page 80.

4. Reboot the system.
5. Finally, to support unified message notification through pagers, the Telephony Server administrator must configure, in TSAdmin (the Unified Messaging Snap-in to Microsoft Management Console) the **Pager Settings** page, and set paging permissions in each **Class of Service** on the Class of Service node. The Exchange administrator must assign paging permissions to individual users by selecting for the user one of the 10 Classes of Service, and by setting pager settings. For details on those permissions, see Chapters 2 and 3 of the *OnePoint Messenger Administrator Guide*.

Notification Server has a testing utility called *cvNotify* that tests whether Notification Server generates pages to a particular user when a message arrives for that user and tests whether a Message Waiting signal is sent to a user's telephone when a message arrives. See "Testing the Operation of Notification Server" in Chapter 6 of the *OnePoint Messenger Administrator Guide*.

As described above, some applications require assignment to physical (real) ports, while others can be assigned to virtual ports (SNT line numbers above those linked to physical ports). Table 5-1 shows those options. Also, the functions that can only be done by an application dedicated to that function are noted under **Dedicated**, while other functions, noted under **Optional**, can be supported either by a dedicated application or a more general purpose application.

**Table 5-1 Telephony Applications**

Application	Real Port	Virtual Port	Dedicated	Optional
<b>Telephony Server</b> (Message Center, Fax on Demand, Text to Speech, Automated Attendant, Receive Fax)	X		X	
<b>SendFax:</b> Send faxes to Fax on Demand recipients and to users downloading e-mail to remote fax machines	X		X	
<b>Fax on Demand:</b> Receive calls from Fax on Demand callers	X			X
<b>Message Delivery:</b> Supports QuickFax (will also ultimately caches telephone messages when Exchange is down)		X	X	
<b>Notification Server (CM):</b> Connection for Call-Me sessions (see Chapter 3 in the <i>User Guide</i> )	X			X
<b>Notification Server (MWD):</b> Send message waiting indications to users' extensions		X		X
<b>Notification Server (Page):</b> Send MWI to pagers	X			X
<b>Notification Server (Full):</b> Includes CM, MWI, and Page	X		X	

**Table 5-1 Telephony Applications**

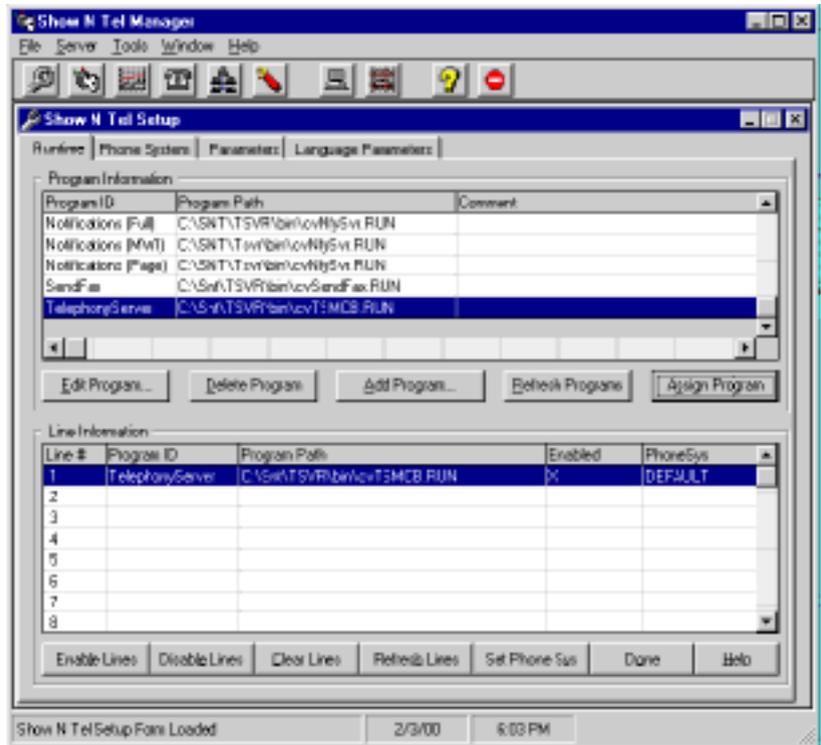
<b>Application</b>	<b>Real Port</b>	<b>Virtual Port</b>	<b>Dedicated</b>	<b>Optional</b>
<b>Active Call Handler:</b> notes call hang-ups		X		

## **Using the SNT Manager Runtime Tab to Assign Telephony Applications**

In this procedure, you use the **Runtime** tab, shown in Figure 5-5, of Show N Tel Manager (SNT) to assign OnePoint Messenger telephony applications to individual lines. All of the existing OnePoint Messenger telephony applications are automatically installed and added to the **Program Information** area of the tab.

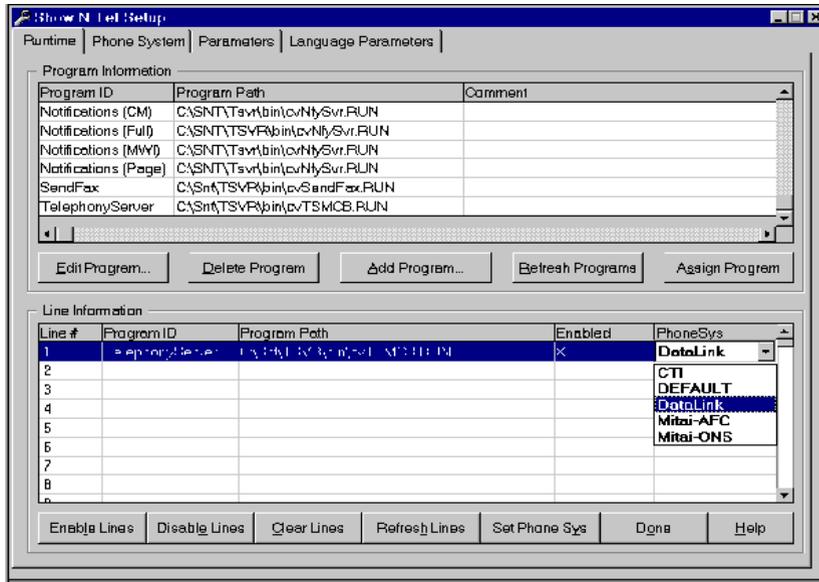
1. Run **Show N Tel Manager** from the **Show N Tel** program group.
2. From the **Tools** menu, choose **ShowNTel Setup**.
3. Select the **Runtime** tab, as shown in Figure 5-4, which shows how the Runtime tab appears after OnePoint Messenger is installed, with all of the OnePoint Messenger telephony applications appearing in the Program Information list, and the general purpose “Telephony Server” application assigned to SNT Line 1.

Figure 5-4 Show N Tel Manager, Runtime Tab



4. In the **Program Information** area, select an application that you want to assign (in Figure 5-4, Telephony Server is selected.)
5. In the **Lines Information** area, select the line(s) to which you want to assign that application. For example, Line # 1 is selected in Figure 5-4. You can select only contiguous lines.
6. Repeat the steps to assign an application to each line supported by a physical port.
7. Assign **Active Call Handler** to a line not associated with a physical port.
8. Assign **Message Delivery** to Show N Tel Line 50. On some turn-key systems, it is assigned to Line 512 or another line. Please move it to Line 50.
9. Select all of the assigned lines in the **Lines Information** area, click **Set Phone Sys**, then select **MiTAI AFC**, as shown in Figure 5-5.

**Figure 5-5 Show N Tel Runtime Tab, Assign Phone System**



A line is enabled as soon as you assign an application to it. An enabled line is identified by an “X” in its **Enabled** field in the **Lines Information** area.

**To deactivate one or more lines:**

Select the line(s) in the **Lines Information** area, then click **Disable Lines**. Make sure that the “X” is gone from the **Enabled** field.

**To reactivate one or more lines:**

Select the line(s) in the **Lines Information** area. Click **Enable Lines**.

**To remove an application assignment from one or more lines:**

Select the line(s) in the **Lines Information** area. Click **Clear Lines**.

## Setting Telephone User Interface Parameters

OnePoint Messenger is installed with a set of default telephone interface settings that minimize your need to amend them for the system to be operational. Read Chapter 1 in the *OnePoint Messenger Administrator Guide* for an overview of tasks and applications and Chapter 3 in that guide for details on using the Unified Messaging Snap-in to Microsoft Management Console (MMC) to edit the settings.

## To access the Unified Messaging Snap-in to MMC:

1. On the Telephony Server, double-click the **TSAdmin** icon on the desktop, or start Microsoft Management Console from the Windows **Start** menu.
2. Select the appropriate page or node, as listed below with the affected setting.

The following settings are those which you need to set or are most likely to want to revise:

- **Messaging Pilot Number**—This is the Message Center extension which users dial to access voice mail. Use the **Message Center** page of the **Applications** node.
- **Default Fax Number**—This is the phone number of a fax machine that acts as the default destination of faxes and e-mail that users download to a "Personal Fax Number" when they retrieve messages. Use the **System Information** property page in the **System Configuration** node to set the number.

The Exchange Administrator can change the phone number on a per-user basis in each user's Exchange profile. Each user can do so via the TUI.

- **Enable Operator**—Enter your operator's extension number in the **Attendant Extension** field on the **Attendant Configuration** page. Users will dial 0 and be routed to this extension.
- **Automated Attendant**—Enter the Automated Attendant extension number in the associated **Pilot Number** field that you assigned in "Programming the Automated Attendant (Receptionist)" on page 43 in Chapter 3 here. Use the **Automated Attendant** page of the **Applications** node. On that page you can specify whether to invoke a menu or invoke the Simple Attendant, and you can set Automated Attendant greetings.
- **Attendant Mailbox** number—Use the **System Information** property page in the **System Configuration** node to assign a mailbox that collects voice messages from callers who do not enter a specific contact extension when prompted. You can use the mailbox number of the Telephony Server administrator or another mailbox. If you enter another mailbox number, you must also create the mailbox in Exchange. See Chapter 2 in the *OnePoint Messenger Administrator Guide* for details

- **Fax on Demand**—Enter the Fax on Demand pilot number in the **Fax on Demand** page of the **Applications** node.
- **TUI prompt language**—To change the default prompt language (U.S. English) used by the Telephone User Interface outside of mailboxes, use the **System Information** page. To change the default prompt language (U.S. English) used by the Telephone User Interface inside of mailboxes, use the **Mailbox Defaults** page under the **System Configuration** node.

## Editing the Telsrvr.ini File

To enable Message Waiting signals to be sent from OnePoint Messenger to users' extensions and pagers, the **MWIPilotNumber** entry in the **telsrvr.ini** file must be associated with the Message Center pilot number of OnePoint Messenger, as created on the PBX.

**To enter the Message Center pilot number in the telsrvr.ini file:**

1. Open a text editor such as Windows Notepad.
2. Use the editor to edit the **telsrvr.ini** file that is in the directory **C:\SNT\Telsrvr**.
3. Scroll through the file until you find the following entry:
 

```
MWIPilotNumber =
```
4. To the right of the equals sign, enter the pilot number of the Telephony Server Message Center, as programmed on the PBX.
 

This is the number of the **HCI Reroute** that you entered in **Hunt Group Assignment** (see “Assigning a Hunt Group to the Message Center” on page 39 in Chapter 2 for more information.)
5. Click **Save**, then exit.

## Testing Telephony Server Start and Stop

1. Reboot the Telephony Server.
2. Click the Windows **Start** button, then choose **Programs**, then **OnePoint Messenger**, then **Telephony Server Monitor** (TSMon). For details on TSMon, see the online help or Chapter 5 in the *OnePoint Messenger Administrator Guide*.
3. In Telephony Server Monitor (TSMon), click the **Start** button. Alternatively, choose **Start** from the **File** menu (or Ctrl+F7).

4. Observe that the Telephony Server services are listed in the task monitor window, and their operational mode changes from **Stopped** to **Running**.
5. To stop services, click either **Stop** or **Stop Immediately**. Observe that the Telephony Server services change to **Stopped**.

## Configuring OnePoint Messenger to Auto-start

OnePoint Messenger installs with Telephony Server configured for manual starting and stopping. After you have tested operation in a manual mode, you can set services to start automatically on a reboot.

**NOTE:** If your AFC card has the synchronization daughterboard, the Telephony Server can continue running through an SX-2000 redundancy switchover. However, if the SX-2000 is shut down and restarted, you must reboot the Telephony Server.

1. Double-click the **OnePoint Messenger** folder located on the desktop of the Telephony Server.
2. Double-click the **Telephony Server Monitor** icon.
3. From the **File** menu of Telephony Server Monitor, choose **Set the Tserver to Start Mode Automatic**.
4. From the **File** menu, choose **Exit**.
5. Click the Windows **Start** button, then choose **Run**, then enter:

```
C:\NMS\AG\Demos\AGMSVC\AGCFG.EXE -install
```

6. From **Windows NT Explorer**, delete **NMS Start** from the startup folder. The path is typically:

```
C:\WINNT\Profiles\All Users\Start Menu\Programs\Startup\NMS Start
```

7. Restart your Telephony Server.

**NOTE:** You should run NMS Start once for each new hardware configuration before setting the system to auto-start.

## Running the Telephony Applications

If, in Telephony Server Monitor, you have set Telephony Server services to start automatically when the computer boots, services will

start without requiring you to log in. If you have not set services to auto-start, use Telephony Server Monitor to start them manually.

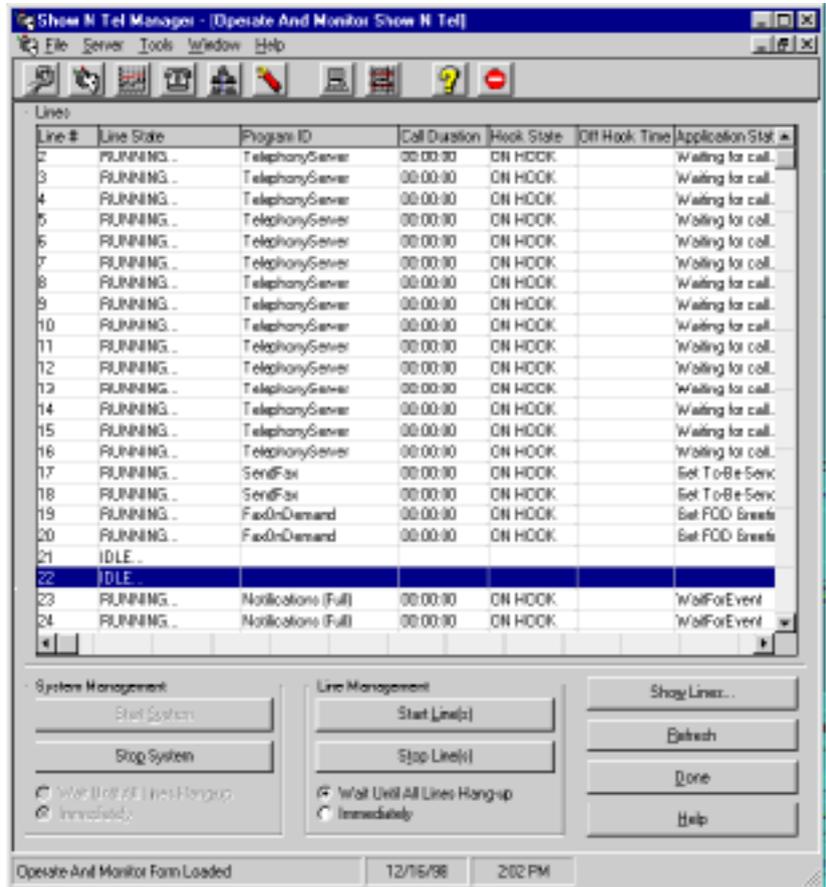
If services are already started, you can stop and start individual telephony applications by selecting the line in the **Operate and Monitor** window of Show N Tel Manager, then using the **Start** and **Stop** commands, for tasks such as reallocating resources. Do not stop Show N Tel through Operate and Monitor, because Operate and Monitor does not control all Telephony Server services.

## Reassigning Lines to Other Applications

You can quickly reallocate telephony application resources. For example, if you are running a faxback system and temporarily need more lines for Fax on Demand, you can replace some Telephony Server line assignments with Fax on Demand. If you add another line card, you can easily append the new line assignments to the current assignments.

1. Start Show N Tel Manager.
2. From the **Tools** menu, choose **Operate and Monitor**. The Operate and Monitor Show N Tel window appears, as in Figure 5-6.

Figure 5-6 Show N Tel Mgr, Operate and Monitor Show N Tel Window



**CAUTION!** Use the **Start System** and **Stop System** buttons in the **Operate and Monitor** dialog of Show N Tel only in testing mode and under direction from Product Technical Support. Other OnePoint Messenger services are not controlled by those buttons. Instead, use TSMon, as described on page 80.

3. Select the lines that you want to reassign, then click **Stop Line(s)**.
4. From the **Tools** menu, choose **ShowNTel Setup**.
5. Select the **Runtime** tab, as shown in Figure 5-4.
6. Select the line(s) to reassign in the **Lines Information** area, select the application to assign in the **Program Information** area, then click **Assign Program**.

7. If your new application requires a change in the setup on the PBX of the line connecting to the associated port, make the change on PBX before restarting the line.
8. Switch to the **Operate and Monitor Show N Tel** window, as shown in Figure 5-6.
9. Select the lines that you reassigned, then click **Start Lines**.

# 6. Troubleshooting the Integration

This chapter covers system validation tests and troubleshooting. It contains these sections]

Section	Page
System Validation Tests	85
Testing the Network Connection	86

## System Validation Tests

The rigorous way to ensure a successful installation is to continually validate as you install components. Validation is the process of inspecting and testing to make sure that components are installed and operating correctly when there is no evidence of a problem. Performing timely validation reduces the set of possible problems that must be considered when a problem occurs.

For that reason, the *OnePoint Messenger Installation Guide* and this integration guide contain validation tests in each chapter that validate the successful installation of the components covered in that chapter. In addition, the OnePoint Messenger software suite includes the Version Reader validation utility for checking build levels, and the OnePoint Messenger components fully utilize native Windows NT diagnostic capabilities, augmented by MiTAI logs, NMS logs, the Operate and Monitor window in Show N Tel, and SNT Trace and OnePoint Messenger Trace Manager. See Chapter 5 in the *OnePoint Messenger Administrator Guide* for a survey of those utilities and logs.

## Running Validation Tests

The Event Viewer of both the Exchange and Telephony Server computers can be checked to see what messages were generated by the installation process. On startup, the Show N Tel Error Log is also a

useful place to check to see that hardware is communicating. Error messages in that log suggest hardware configuration conflicts. Errors in the NT Event Log on installation indicate that you should consider reinstalling or at least getting outside help.

## Testing the Network Connection

The following sequence presents a basic network “ping” test.

1. Log on to the Telephony Server as TSAdmin.
2. Select your domain name from the Domain drop-down list, then click **OK**.
3. From the Windows **Start** menu, choose **Programs**, then **Command Prompt**.
4. In the **Command Prompt** window type:

```
ping <IP address>
```

<IP address> is the IP address of the Telephony Server

5. The screen should display:

```
C:\>ping <server name>
```

```
Pinging <servername>.<domain Name> [IP Address] with  
32 bytes of data:
```

```
Reply from <IP Address>: bytes=32 time=20ms TTL=128  
Reply from <IP Address>: bytes=32 time=1ms TTL=128  
Reply from <IP Address>: bytes=32 time=44ms TTL=128  
Reply from <IP Address>: bytes=32 time=2ms TTL=128
```

6. Carry out the same test, pinging the Network Gateway and the Exchange Server by name.

# A. PBX Integration Worksheet

This appendix provides a worksheet for mapping PBX lines to Telephony Server lines. It contains these sections:

Section	Page
<b>Workflow Overview</b>	<b>87</b>
<b>PBX Integration Worksheet (Sample of a completed worksheet)</b>	<b>87</b>
• Numbering Ports	89
• Creating Hunt Groups	89
<b>PBX Integration Worksheet</b>	<b>91</b>

## Workflow Overview

Use the PBX Integration Worksheet provided at the end of this appendix to list the PBX trunks that are to be connected to the Telephony Server and their associated Show N Tel lines and telephony applications. The worksheet can be used to plan the line assignments, edited to note changes from the plan, and archived to maintain a record of those mappings and the installed cards.

Edit the worksheet in this sequence:

- 1 Enter the computer name and IP of the Telephony Server.
- 2 Complete the last four columns—**Line Card Type and Slot**, **Line Card Port**, **SNT Line**, and **Telephony Applications**—while making notes by the pilot numbers on which to create and how to provide their hunt groups, whether discrete or overlapping.
- 3 The PBX technician completes these parts of the worksheet:
  - The pilot numbers and hunt groups
  - The first column—**Ext./Trunk**
- 4 The OnePoint Messenger installer uses the completed worksheet to install the cards in their assigned slots, configure the software, and validate the correct operation of each port, then note on the

worksheet any changes from the plan. For details on mapping Show N Tel lines to trunks and assigning telephony applications, see “Show N Tel Setup Procedures” on page 68 in Chapter 5.

- 5 After checking the work, the project manager should enter the completion date, then copy the worksheet for the use of the Telephony Server administrator before archiving it in the project file.

A sample of a completed worksheet on page 90 shows a Telephony Server with three AG-8 cards and a fax card. The three dialed services have been given pilot numbers and overlapping hunt groups. Typically, an SX-2000 integration uses a Mitel AFC card, which has a fiber connection, to handle all calls, so there is no need to fill in the Slot and Line Card Type Column, other than noting

## PBX Integration Worksheet Fields

The fields in the worksheet are:

- **Configuration Completion Date:** The date when the full configuration was complete and validated
- **Telephony Server Name and IP:** The Windows NT domain computer name and TCP/IP address; the IP can correlate the archived worksheet with the Telephony Server if the server is renamed after the worksheet is archived.
- **Pilot Number:** The phone numbers to dial to access each service. Enter these numbers in the Messaging, Automated Attendant, and Fax on Demand pages of TS Admin. See “Setting Telephone User Interface Parameters” on page 78 in Chapter 5 for details.
- **Hunt Group:** The extensions accessed by the associated pilot
- **Ext./Trunk#:** The telephone extension numbers or trunk numbers assigned on the PBX. The service level of a line must support the associated Telephony Server function.
- **Slot and Line Card Type:** The line card model and the Telephony Server slot in which it is inserted, counted from the left edge of the backplane, as viewed from the back of the Telephony Server
- **Line Card Port:** The number of the Telephony Server line card port to which the associated PBX line is attached. In the case of the AG-8, each connector on the card hosts two ports. The connector closest to the LED on the bracket of the line card hosts Port 1A and 1B, the next hosts 2A and 2B, and so forth.

- **SNT Line:** The Show N Tel line associated with the line card port. Enter these lines on the Device Map tab of Show N Tel. See Chapter 5 (“Configuring Show N Tel with a PBX” on page 68) for details.
- **Telephony Application:** The application that runs on the associated line. Assign these applications in Show N Tel Manager Runtime. See “Assigning Programs to Lines” on page 72 in Chapter 5 for details.

**NOTE:** Use this worksheet with the directions in Chapter 2 (see page 25) to program the PBX, Chapter 3 (see page 45) to connect the lines between the PBX and the Telephony Server, and Chapter 5 (page 67) to configure Telephony Server software.

## Numbering Ports

For the SX-2000 integration using an AFC card, the job of physically matching lines to ports is obviated, because the AFC card gangs the ports into a single fiber connection, simplifying setup. In the sample of a completed worksheet on page 90, the **Slot and Line Card Type** column shows only the AFC card. The next page of the worksheet would show the other three ports supported by the AFC card, and the slots that the DSP card(s) and fax card(s) occupy.

The **Line Card Port** column does not contain entries in this case, because the AFC card has only one connection. Actually, it has two connections—a TX (send) and an RX (receive).

## Creating Hunt Groups

In the example, the Message Center hunt group is comprised of extensions using two number sequences. This can occur when there is not a large enough group of sequential extensions available to provide the desired hunt group size.

In the example, the Automated Attendant has a pilot number that calls the same hunt group as that assigned to the Message Center, giving callers to each service the same priority for accessing connections to the two services. The Fax on Demand pilot number, in addition to having access to the Message Center hunt group, has access to two lines dedicated to it, giving it the highest priority of the three services. For a discussion of options in setting up pilot numbers and hunt groups, see “Integration Strategy” on page 16 in Chapter 1.

## PBX Integration Worksheet (Sample of a completed worksheet)

Configuration Completion Date: 6/1/00

Telephony Server Name: *AlwaysUp* IP: 128.52.12.1

Service	Pilot Number	Hunt Group
Automated Attendant	5001	<i>use Message Center hunt group</i>
Fax on Demand	5002	<i>Extensions 5102, 5103 + Message Center hunt group</i>
Message Center	5000	<i>Extensions 5103–5108, 5201–5210</i>

Ext./Trunk#	Slot and Line Card Type	Line Card Port	SNT Line	Telephony Application
<i>Trunk 100</i>	<i>Slot 1: AFC</i>		<i>1</i>	<i>Telephony Server</i>
<i>Trunk 101</i>	“		<i>2</i>	“
<i>Trunk 102</i>	“		<i>3</i>	“
<i>Trunk 103</i>	“		<i>4</i>	“
<i>Trunk 104</i>	“		<i>5</i>	“
<i>Trunk 105</i>	“		<i>6</i>	“
<i>Trunk 106</i>	“		<i>7</i>	“
<i>Trunk 107</i>	“		<i>8</i>	“
<i>Trunk 108</i>	”	<i>1A</i>	<i>9</i>	“
<i>Trunk 109</i>	“	<i>1B</i>	<i>10</i>	“
<i>Trunk 110</i>	“	<i>2A</i>	<i>11</i>	“
<i>Trunk 111</i>	“	<i>2B</i>	<i>12</i>	“
<i>Trunk 112</i>	“	<i>3A</i>	<i>13</i>	“
<i>Trunk 113</i>	“	<i>3B</i>	<i>14</i>	“
<i>Trunk 114</i>	“	<i>4A</i>	<i>15</i>	<i>Notification (Full)</i>
<i>Trunk 115</i>	“	<i>4B</i>	<i>16</i>	“
<i>Trunk 116</i>	”	<i>1A</i>	<i>17</i>	<i>SendFax</i>
<i>Trunk 117</i>	“	<i>1B</i>	<i>18</i>	“
<i>Trunk 118</i>	“	<i>2A</i>	<i>19</i>	“
<i>Trunk 119</i>	“	<i>2B</i>	<i>20</i>	“
<i>Trunk 120</i>	“	<i>3A</i>	<i>21</i>	<i>Fax on Demand</i>





# Index

## A

- Active Call CTI 72
- Active Call Handler telephony application 72
- Address for Message Control 34
- AFC 45, 57
- AFC card
  - installing 57
  - synchronization daughterboard 81
- AFC driver 64
- AFC drivers 57
- AG-0 46, 57, 72
- AG-24 46, 57
- AG-8 46
- Alarm Debounce Timer 35
- Alert Device 40
- Always Alternative number 41
- Applications node of TS Admin 80
- ARS 39
- Assigning Programs to Lines 72
- Attendant Configuration page of TS Admin 79
- Attendant Mailbox number 79
- Auto Logon 13
- Automated Attendant 16, 26, 27, 79
  - hunt group and pilot 89
  - Programming the 43
  - setting greeting for 79
- Automated Receptionist (see Automated Attendant) 27
- Automatic Route Selection (ARS) 29
- AutoRecep telephony application 72

## B

- B8ZS Zero Code Suppression 35
- BER 35
- Board Type 55
- British English 72
- Brooktrout fax card 12
- Brooktrout Technology TR-114 fax cards 51

## C

- Cabinet Assignment form 33
- Call flow overview 14
- Calling Line Information (CLI) 26
- Call-Me 28
- Call-Me/Meet-Me 26
- CEPT card 31, 36
- Circular hunt group 38
- Circular hunt mode 39
- Class of Restriction 27, 43
- Class of Restriction (COR) 37
- Class of Service 31, 37
- Class of Service node of MMC 75
- Clock Ref 55
- COS 64 39
- CR Always 29
- CRC 35
- CSU 35
- CTI 31
- CTI Server 34
- CvNotify (Notifications validation tool) 75

## D

- DASSII 36
- Data Call Alternate Digit Inversion 35
- Default Fax Number 79
- Dialed services 25
- DID fax 26
- Digital Link Assignment 36, 41
- Digital Link Assignment form 36
- Digital link descriptor 35, 36
- Digital Link Fault Delay Timer 35
- Digital Trunks 27
- Direct Answer to Internal Message 13
- Directory Number 41
- Directory Number 7999 29, 39
- Documentation 16, 21
  - OnePoint Messenger 19–24
  - PDF versions of 21

- text conventions used in 22–23
- other 21
- third party 19
- DPNSS 31, 36
- Driver, AFC 64
- DSP 57
- DSX 35
- DTRX Herald Message 32
- Dual Seizure Priority 36

**E**

- E1 Line 35
- Enable MVIP 55
- Exchange
  - Extension defined 10

**F**

- Fax card
  - installing on Telephony Server
    - compatible Brooktrout products 51
  - products supported by OnePoint Messenger 46
- Fax DID 26
- Fax on Demand 11, 16, 27
  - hunt group and pilot 89
- Fax on Demand page of TS Admin 80
- Fax on Demand telephony application 72
- Fax services, managing 21
- Fiber distributed digital service unit 33
- Fiber distributed systems 33
- Fiber Link Synchronization 59
- Fiber links 33
- Field Change Instructions (FCI) 57
- Forms checklist 29
- Forms, SX-2000 33
- Forward to Personal Greeting 13
- Framing Losses 35

**G**

- Go Offhook before Making New Calls field 69
- Go Onhook to Complete Transfer field 69
- Greetings, edit 11
- Grounding strap (Earth) 59

**H**

- Hardware, switch integration 68–72
- HCI link 38
- HCI Reroute 29, 41
- HCI Traffic Level 33
- HCIReroute 40
- Hosts file, editing 65
- Hunt group 41
  - assignment 39
  - Message Center 39
- Hunt groups 89
- Hunt Mode 38, 40
  - circular 39
  - Fax on Demand 44

**I**

- I/O Base Address 49, 55
- Installation
  - OnePoint Messenger sources of instruction 9
  - requisite skills of installer 19
- Installation Guide, organization of 20
- Integrated Digital Access 34
- Integration benefits 12
- Interrupt (IRQ), setting the 55
- ISDN BRI Mode 36

**L**

- Languages tab 72
- Latin American Spanish 72
- Line cards
  - installing on Telephony Server computer
    - compatible NMS products 53
    - enabling Mitai/AFC 57–59
    - setting up and configuring NMS products 53–56
- Line Encoding 55
- Link Descriptor Assignment 34

**M**

- Mailbox Defaults page of TS Admin 80
- Mailboxes, creating 16, 21
- Manuals
  - OnePoint Messenger 20–24

- PDF versions of 21
- text conventions used in 22–23
- third party 19
- Manufacturer's Feature Resource Dimension 32
- Maximum Network Hops, Fax on Demand 44
- Message Center 14, 26
  - defined 16
  - hunt group and pilot number 89
- Message Center hunt group 39
- Message Delivery telephony application 72
- Message Notification 13
- message URL
  - http
    - //www.mitel.com 24
- Message Waiting 16, 75
- Message Waiting Indicator 27
- Messaging fault-tolerance 73
- Messaging Pilot Number 79
- Microsoft Certified Systems Engineer technician certification 19
- Microsoft Management Console 75
- MiTAI 57
  - checking the PBX link 65
  - installation 61
  - installing Telephony Server to enable 57
- MiTAI 7.5.3 57
- MiTAI CD-ROM 57
- Mitel Application Fiber Controller (AFC) 45, 57
- Mitel SX-200 25
- Mitel SX-2000 25
- Mitel Telephony Application Interface (MiTAI) 57
- MSDN-DPNSS-DASSII Trunk Circuit Descriptor 36
- MTAIX 65
- Multiple Use Ports 13
- Multi-Vendor Integration Protocol (MVIP) 48
- Music On Hold 32
- MVIP Stream 55
- MWI 28
- MWIPilotNumber 39

## N

- Natural MicroSystems (NMS) line cards 12

- NIGHT RAD 40
- NMS 46
- NMS card 38
- NMS Configuration 53
- NMS line cards 57
- Notification Server 27, 74
  - modifying phone system definition for 75
- Notification Server telephony application 73
- NT (See Windows NT Server)

## O

- OnePoint Messenger 9
  - Administrator Guide 16, 21
  - configuring auto-start 81
  - described 9–10
  - documentation for 20–21
  - requisite skills for installation of 19
  - User Guide 21
  - utilities 21
- OnePoint Messenger/SX-200 Integration Guide, conventions 22
- Operator, Enable 79
- Other documentation 21
- Outdial lines 27
- Outdial ports 27, 28
- Outgoing faxes 26

## P

- Pager Settings page of MMC 75
- Paging 27, 28
  - assigning permissions for 75
- Pause after Abort Transfer 69
- Pause after Transfer 69
- PBX forms checklist 29
- PBX Integration Worksheet 87–91
- PDF versions of manuals 21
- Phase Timer 40
- Pilot numbers 89
- Ping 86
- Port Numbering 89
- Post Office Resiliency 73
- Programming the SX-2000 LIGHT 25
- Public Network Access via DPNSS 31

## Q

QuickFax 72, 75

## R

RAD1, RAD2 40

Redirect Calls with Answer Transfer field 69

Route Assignment 41, 42

## S

Satellite Link 35

Satellite PBX 36

Send Fax 28

SendFax telephony application 73

Server Hosts file

editing 65

Show N Tel

setup 28

Show N Tel Runtime

Show N Tel Manager

tab illustrations 69

using to integrate PBX 67–72

Single Line Assignment Form 39

Slip Rate 35

Spanish, Latin American 72

Speed Call Assignment form 40

Station Service Assignment Form 39

Stations, client 31

SUPERSET Callback Message Cancel Timer  
32

Supporting paging 27

Switch integration 67–72

SX-000 forms checklist 29

SX-200 25

SX-2000 25

programming 25

redundancy switchover 81

System Configuration Form 33

System Configuration node of TS Admin 79,  
80

System Information property page of TS Admin  
79

System Options Assignment form 32

System Speed Call Assignment form 40

System validation tests 85

## T

TAPI 45

Call Control 31

Monitor Allowed 31

Technical Publications, Contacting Mitel 24

Telephony Applications 72

Telephony Server

application in Show N Tel Manager 73  
described 11

editing the Telsrvr file 80

integration with a switch (PBX) 67

operating and maintaining 21

telephony applications provided by 72

Telephony Server computer

defined 10

Telephony Server telephony application 73

Telephony User Interface, configuring 21

Telsrvr.ini 39, 80

Terminal hunt group 38

Text-to-Speech (TTS) dictionary, editing 11

Threshold 40

TR114 fax card 51

Transfer with Consultation Call field 69

Troubleshooting 85

Trunk Assignment 38

Trunk Assignment form 37

Trunk circuit descriptor 37

Trunk Circuit Descriptor Number 36

Trunk Group Assignment 38

Trunk Group Busy, Fax on Demand 44

Trunk Service Assignment 37

Trunk Service Assignment form 37

Trunks 28, 31

TS Admin (Unified Messaging Snap-in) 75

TUI prompt language 80

Tx Line 35

## U

U.K. English 72

U.S. English 72

Unified Messaging 9

Unified Messaging Snap-in 75

Use Complete Transfer field 69

User mailboxes, creating 16, 21

Utilities, OnePoint Messenger 21

## V

Voice Board parameters, Show N Tel 72  
Voice Codecs 55

## W

Windows NT  
    service pack 57  
Windows NT 4.0 Server 57  
Windows NT Server  
    applications used in Telephony Server 11  
Worksheet, PBX Integration 87–91