555-7101-224

CallPilot

Installation and Configuration

Part 3: T1/SMDI and CallPilot Server Configuration

Product release 2.5 Standard 2.0 April 2004

NORTEL NETWORKS™

CallPilot

Installation and Configuration
T1/SMDI and CallPilot Server Configuration

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October 2003	Release 2.5, Standard 1.0 of the *CallPilot Installation and Configuration, Part 3: T1/SMDI and CallPilot Server Configuration*

Contents

Chapter 1

CallPilot and T1/SMDI connectivity overview

In this chapter

Introduction

The guide describes the steps in setting up a T1/SMDI switch or system and configuring a CallPilot server for the CallPilot installation:

- connecting the CallPilot system to the T1/SMDI switch or system and the customer LAN (CLAN)
- configuring the T1/SMDI switch or system for correct operation with CallPilot
- configuring the CallPilot server

For a high-level overview of CallPilot and switch or system connectivity, read the remainder of this chapter:

For a glossary and a list of related information products, refer to *Part 1 - Installation and maintenance*, 555-7101-210, in the *CallPilot Installation and Configuration* guides.

Before you begin

Before you proceed with configuring the T1/SMDI switch or system and CallPilot server:

- review the “Installing CallPilot” section in *Part 1 - Installation and maintenance*, 555-7101-210, in the *CallPilot Installation and Configuration* guides,
- complete the “Installation and configuration checklist,” on page 13.

Installation and configuration checklist

Complete the steps in each chapter before you continue to the next chapter.

Step	Description	Check
Stage 1: Install the hardware to connect the CallPilot server to the switch or system.		
1	Connect the CallPilot server to the T1/SMDI switch or system. For instructions, depending on the type of switch or system you have, see: ■ Chapter 2, "Connecting the CallPilot server to the SL-100 or DMS-100 switch," on page 31, or ■ Chapter 3, "Connecting the CallPilot server to the MCS 5100," on page 53 (which includes information on the Terminal Server and AudioCodes gateway).	❒
Stage 2: Configure the switch or system and CallPilot server.		
2	Configure the T1/SMDI switch or system. **Note:** Use the "Switch or system configuration worksheet" that you completed in *Part 1 - Installation and maintenance*, 555-7101-210, in the *CallPilot Installation and Configuration* guides. For configuration instructions, see: ■ Chapter 4, "Configuring the SL-100/DMS-100 switch," on page 89, or ■ Chapter 5, "Configuring the MCS 5100 switch," on page 135.	❒
3	Install the Intel (Dialogic) board software. For installation instructions, see Chapter 6, "Installing and configuring Intel software on the CallPilot server," on page 149	❒

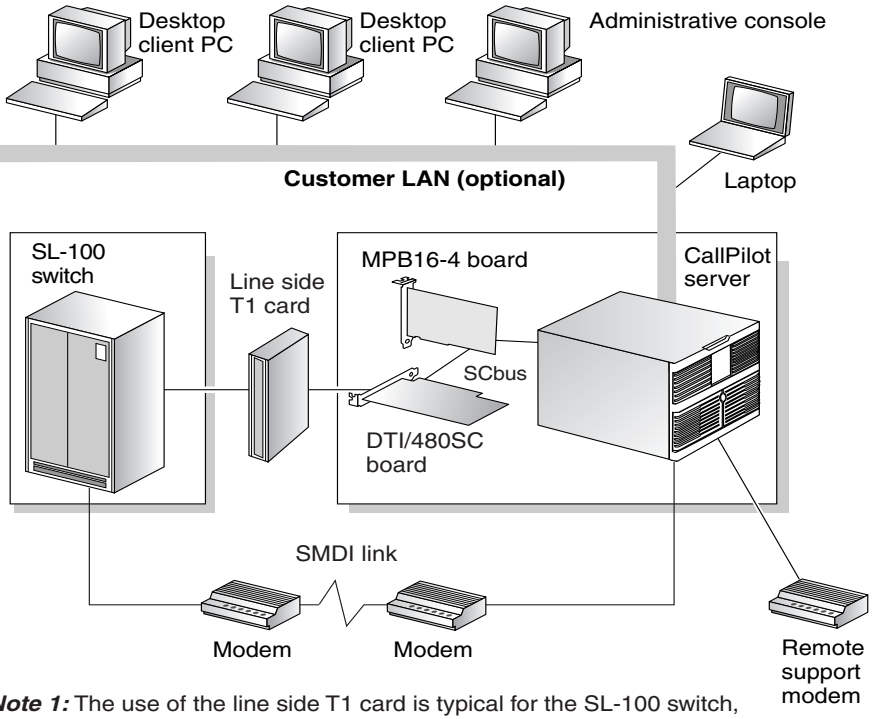
Step	Description	Check
4	Run the Configuration Wizard to configure the CallPilot server. Use the "Configuration Wizard worksheet" that you completed in *Part 1 - Installation and maintenance*, 555-7101-210, in the *CallPilot Installation and Configuration* guides. For configuration instructions, see Chapter 7, "Configuring the CallPilot server software," on page 159.	❒
5	Change the pcAnywhere passwords. For instructions, see "Changing pcAnywhere caller passwords" on page 171.	❒
Stage 3: Test CallPilot connectivity. **Note:** For instructions, see Chapter 8, "Testing the CallPilot installation," on page 173.		
6	Check CallPilot's system-ready indicators to see if CallPilot is ready to accept calls.	❒
7	Test the connection to the CLAN.	❒
8	Verify that CallPilot answers when you dial the Voice Messaging DN.	❒
Stage 4: Test the CallPilot services and channels. **Note:** For instructions, see Chapter 8, "Testing the CallPilot installation," on page 173.		
9	Check the system-ready indicators.	❒
10	Verify network connectivity to the CallPilot server over the CLAN.	❒
11	Verify that CallPilot can receive calls.	❒
12	Verify that you can leave a message.	❒
13	Verify that you can retrieve a message.	❒

Step	Description	Check
14	Verify that each call channel and multimedia channel is functioning correctly.	❒
Stage 5: Install CallPilot Manager on a stand-alone web server (optional).		
15	Perform this step only if you want to set up a separate web server for CallPilot administration. This is necessary if the customer wants to use the Reporter application, or if high administration traffic is expected. For instructions, refer to Part 4 of the *CallPilot Installation and Configuration* guides.	❒

CallPilot and T1/SMDI switch or system sample network diagrams

The following diagrams show examples of a CallPilot 1001rp or 1002rp rackmount server integrated with a T1/SMDI switch or system.

CallPilot and SL-100 switch connectivity



Note 1: The use of the line side T1 card is typical for the SL-100 switch, but in certain circumstances a channel bank can be used instead.

Note 2: The SMDI link modems are optional. These modems are used depending on the line length and grounding requirements.

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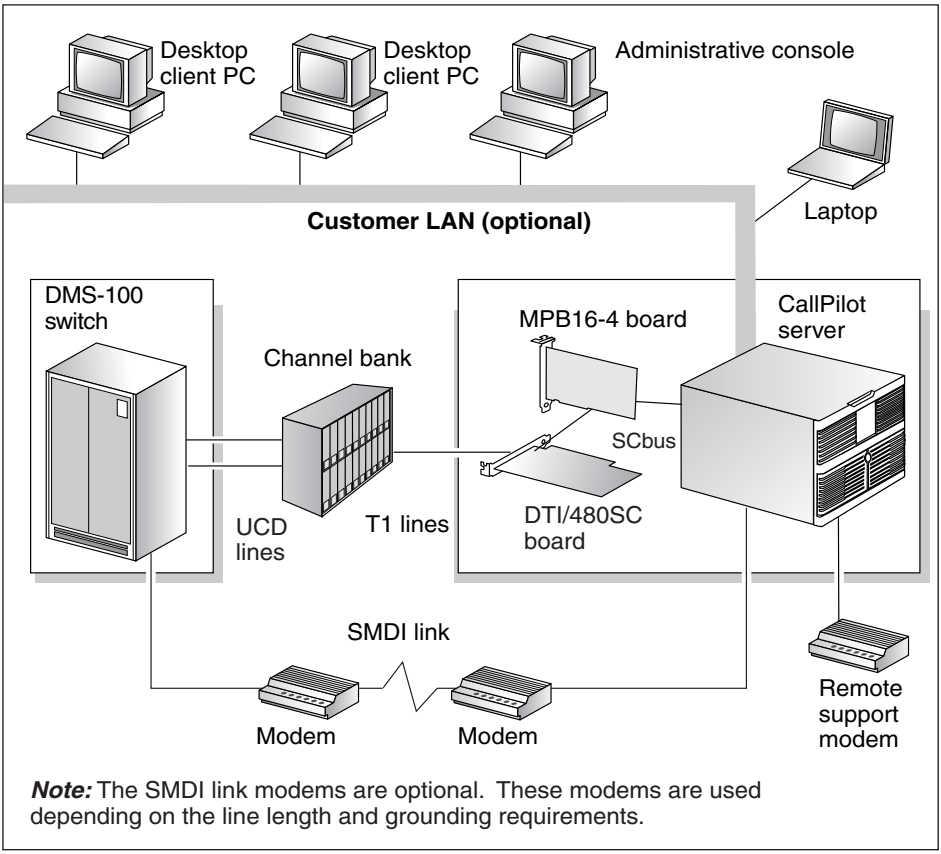
CallPilot and DMS-100 switch connectivity



Note: The SMDI link modems are optional. These modems are used depending on the line length and grounding requirements.

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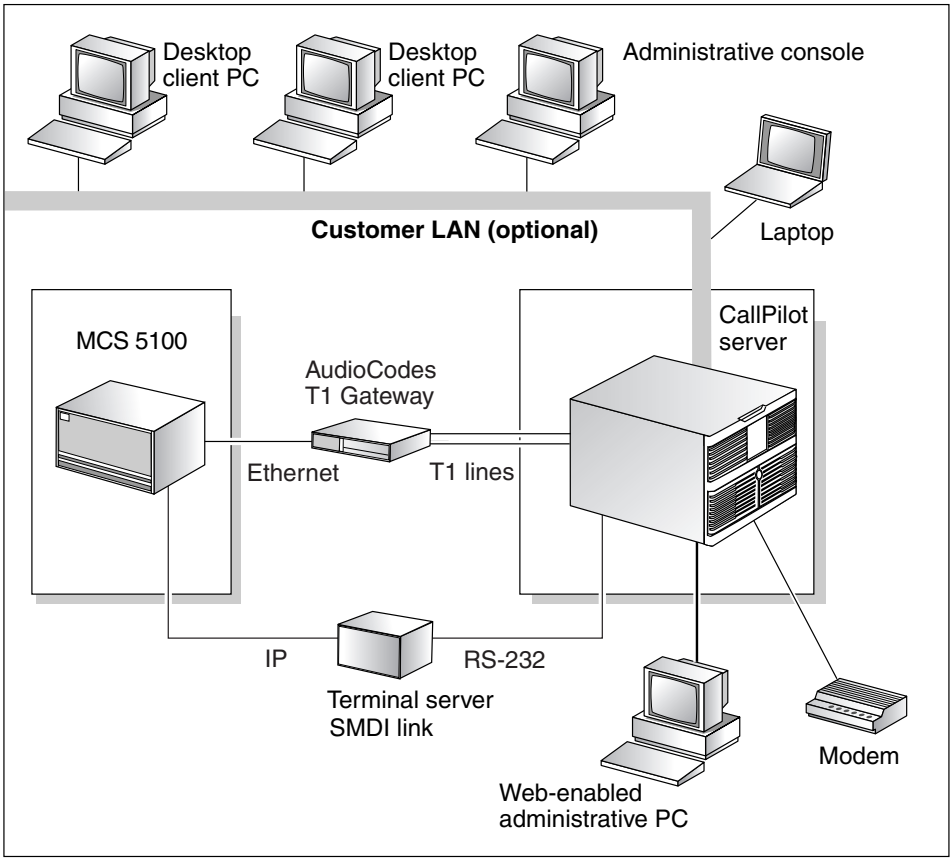
CallPilot and Nortel Networks Multimedia Communication Server (MCS) 5100 system connectivity



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CallPilot T1 and SMDI components

For more information on T1 and SMDI components, see

- Chapter 2, “Connecting the CallPilot server to the SL-100 or DMS-100 switch,” on page 31
- Chapter 3, “Connecting the CallPilot server to the MCS 5100,” on page 53

Components for connecting to the switch or system

The switch or system uses T1 channels and an SMDI link to exchange data with the CallPilot server.

T1 components

Line Side T1 cards	The SL-100 switch uses Line Side T1 cards to send the voice and data signals to the CallPilot server.
Channel bank	The DMS-100 switch requires an external channel bank to send the voice and data signals to the CallPilot server. The SL-100 can also use a channel bank for call lines.
AudioCodes Mediant 2000 T1-CAS gateway	The Nortel Networks Multimedia Communication Server 5100 (MCS 5100) system uses the Audio Codes Mediant 2000 T1-CAS gateway for T1 channel associated signalling for voice and data signals.

SMDI components

IOC shelf or IOM	The SL-100 and DMS-100 switches use either an IOC shelf with an NT1X89 card or an IOM (NTFX30) to provide SMDI connectivity to the CallPilot server.
In-reach iTouch terminal server	The MCS 5100 system uses a terminal server designed to provide SMDI connectivity to the CallPilot server.

The CallPilot server

The CallPilot server (rackmount model) connects to the switch or system, the administrative PC, and, where Desktop Messaging is enabled, the customer LAN (CLAN).

Dialogic DTI/480SC board

All T1 ports connect to the CallPilot server at the Dialogic DT1/480SC board. One or more DTI/480SC boards reside in the CallPilot server. Each DTI/480SC board supports up to two T1 links to the switch. Each T1 link supports up to 24 channels. Calls from the switch arrive at the DTI/480SC board and are passed on to the MPB16-4 boards for call processing.

MPB16-4 board

The MPC-8 cards that reside in the MPB16-4 board process the voice and data signals that pass through the DTI/480SC boards. An MPB16-4 board has two integrated MPC-8 cards and four bays for additional optional MPC-8 cards. Each CallPilot server ships with at least one MPB16-4 board.

SCbus

The SCbus connects the DTI/480SC board to the MPB16-4 board.

Administrative PC

CallPilot client software is installed on a PC that runs Windows 98, Windows NT Workstation, Windows 2000 Professional, and Windows XP Professional. The administrative PC provides

- administrative ability for the switch, server, and CallPilot software
- access to CallPilot operational measurement reports
- the ability to develop multimedia applications with both voice and fax functionality

You can connect an administrative PC directly to the server, remotely through a modem, or by means of a connection to the CLAN.

Modem

The server connects to a modem to allow remote access by a support PC for installation, maintenance, and diagnostics.

Desktop client PCs

You can install desktop client messaging software on client PCs to enable mailbox users to receive phone, fax, and voice mail on their PCs. For more information, refer to the *Desktop Messaging Installation Guide* (555-7101-505).

Any PC that has network access to the CallPilot server and has a web browser installed can be used to administer CallPilot. The CallPilot administration is web-based.

SL-100/DMS-100 call routing

Uniform call distribution

Uniform Call Distribution (UCD) is a feature on the SL-100/DMS-100 switch that enables a number of telephones connected to the switch, known as agents, to share equally in answering incoming calls.

UCD agent

Agents are programmed on the switch to serve a particular UCD group. Agents are programmed as phones on the switch.

UCD groups

UCD groups are queues that contain agents. CallPilot requires a UCD group for each media type on CallPilot. A UCD group handles calls for a particular media type. For example, the UCD group set up for Voice Messaging is associated with the Voice Messaging service in CallPilot. All calls handled by the Voice Messaging UCD group are routed to voice channels in CallPilot. In the CallPilot administration software, the service directory number (SDN) Table is used to associate the UCD DNs with CallPilot services.

Call queuing

Call queuing is supported for UCD groups. If a call arrives when all the ports in that UCD group are busy, it can wait in the queue until resources are available. When the call is queued, the switch provides ringback to the caller. The first caller in the queue is handled first.

Line DNs used as Service DNs

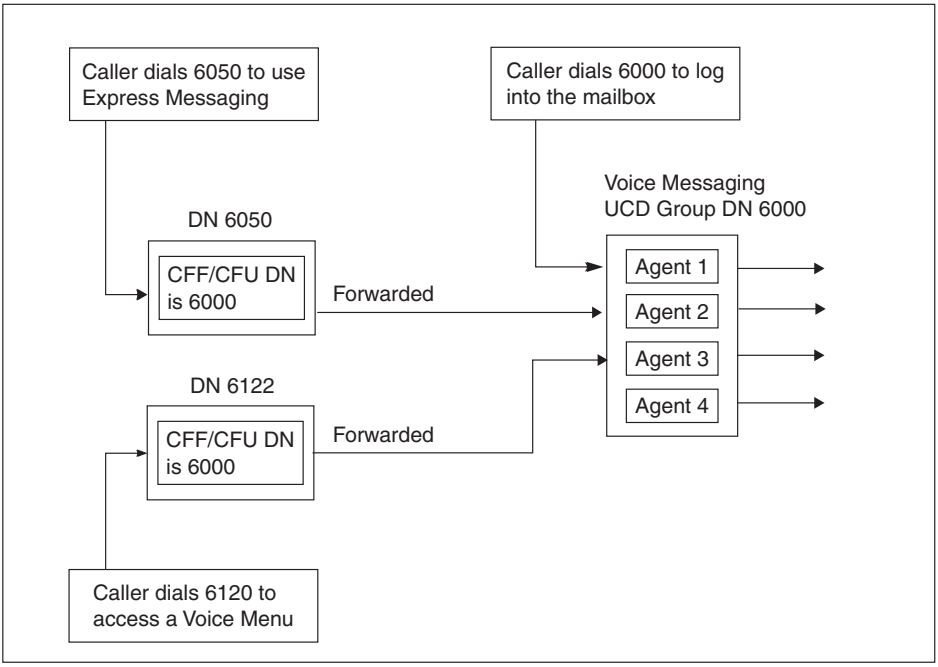
Line DNs can also accept calls. They do not directly route calls to services. Instead, they forward calls to a UCD group for call handling. However, the dialed DN is passed along to CallPilot and is used to determine which service is requested. A Call Forward Fixed (CFF) DN or a Call Forward Universal (CFU) DN must be defined for all line DNs. The CFF DN or CFU DN is set to the primary DN of the UCD group to which the line DN forwards calls for call handling.

Why use line DNs?

Many CallPilot services that you configure must be directly accessible. That is, you want callers to be able to dial a number to access the service. Each directly dialable service needs a unique number, or DN, so that when a caller dials the DN, the correct service starts and the appropriate prompts play.

Example use of line DNs and UCD groups

Two line DNs have been set up. One DN (6050) is for express messaging. The other DN (6122) is for a Voice Menu. They both forward to UCD DN 6000 (the Voice Messaging UCD group).



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Dedicating one or more ports to a particular service

In the scenarios described previously, several services share ports on the switch (and the matching ports on the CallPilot server) on a first-come, first-served basis. You might want to dedicate a port to a particular service, so that it is always available to the service when it wants a port. However, Nortel Networks advises that you do not dedicate ports unless it is deemed absolutely necessary, since it decreases overall efficiency in handling calls.

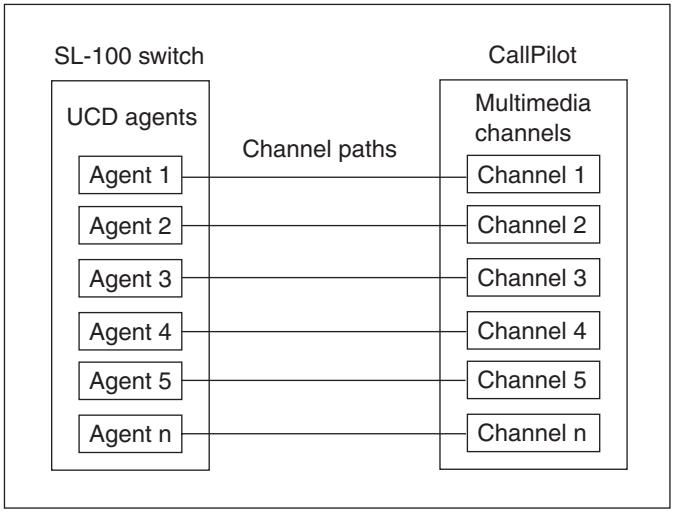
To dedicate a port to a particular service, create a UCD group and assign as many UCD agents to this UCD group as you want dedicated to this service. In the SDN Table, associate the service with the dedicated UCD group. Do not associate other services with this UCD group. Users who dial this UCD group DN receive that service.

How SL-100/DMS-100 calls are routed

Each agent in a UCD group on the SL-100/DMS-100 is associated with a specific T1 channel in CallPilot.

Example

This simplified diagram shows how agents on the switch connect to channels in CallPilot.



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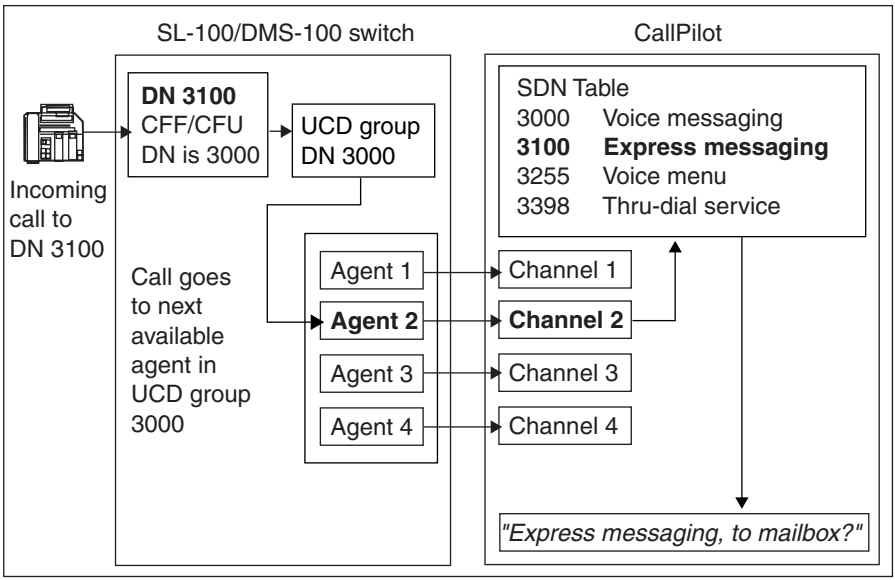
Directing calls to services

CallPilot uses UCD to perform its call handling functions. However, instead of being directed to agents or phonesets, incoming calls are directed to CallPilot services.

Call routing example

An incoming call to DN 3100 is forwarded to UCD group 3000. It is directed to the first available agent. It is then connected to a CallPilot channel of the proper media type and routed to the SDN Table.

In the SDN Table, CallPilot looks up the DN that was dialed to identify the requested service. CallPilot then starts the service and plays the appropriate prompts.



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MCS 5100 call routing

Channel associated signaling

The MCS 5100 system and SIP/CAS gateway provides the capability to route incoming calls to CallPilot services.

T1-CAS channels

The MCS 5100 system uses the AudioCodes T1 channel associated signaling (CAS) Gateway to serve a particular group. A T1-CAS channel on the T1 CAS Gateway is similar to a UCD agent as each channel can service a number of DNs.

T1 CAS channel groups

A group of T1 CAS channels on the T1 CAS gateway can be provisioned to serve a range of DNs. The grouping of T1 CAS channels is similar to a UCD group. Each group of channels can correspond to a specific CallPilot service for each media type.

In CallPilot administration software, the SDN table associates the Group DNs with CallPilot services.

For example, the following table shows SIP URI “3100@enterprise.com” routes by the entry “3*@enterprise.com → 25…40.” On CallPilot, channels 25…40 are provisioned with a Group DN that corresponds to the voice service.

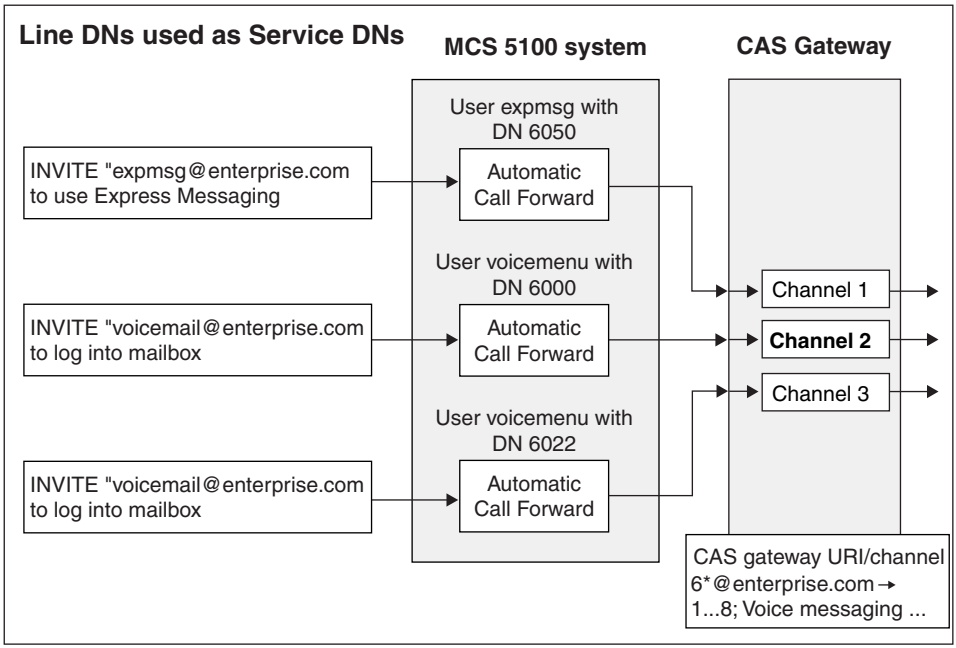
CAS gateway URI/Channel mapping table
9999@enterprise.com → 1…8; Main direct dial DN
5*@enterprise.com → 9…16; Line DN service
4*@enterprise.com → 17…24; FAX service
3*@enterprise.com → 25…40; Voice service
2*@enterprise.com → 41…48; Speech

MCS 5100 Call Queuing to CallPilot

MCS 5100 call queuing to CallPilot is not supported. If the CAS channels for the chosen range of DNs are busy, the SIP “486 Busy Here” reply is returned to the MCS 5100 server.

Line DNs used as Service DNs

The MCS 5100 system and the CAS gateway can be provisioned with line DN functionality. A call can be routed by means of a DN to the CAS gateway which then routes the call over a specific channel range to a CallPilot line service as shown in the following illustration.



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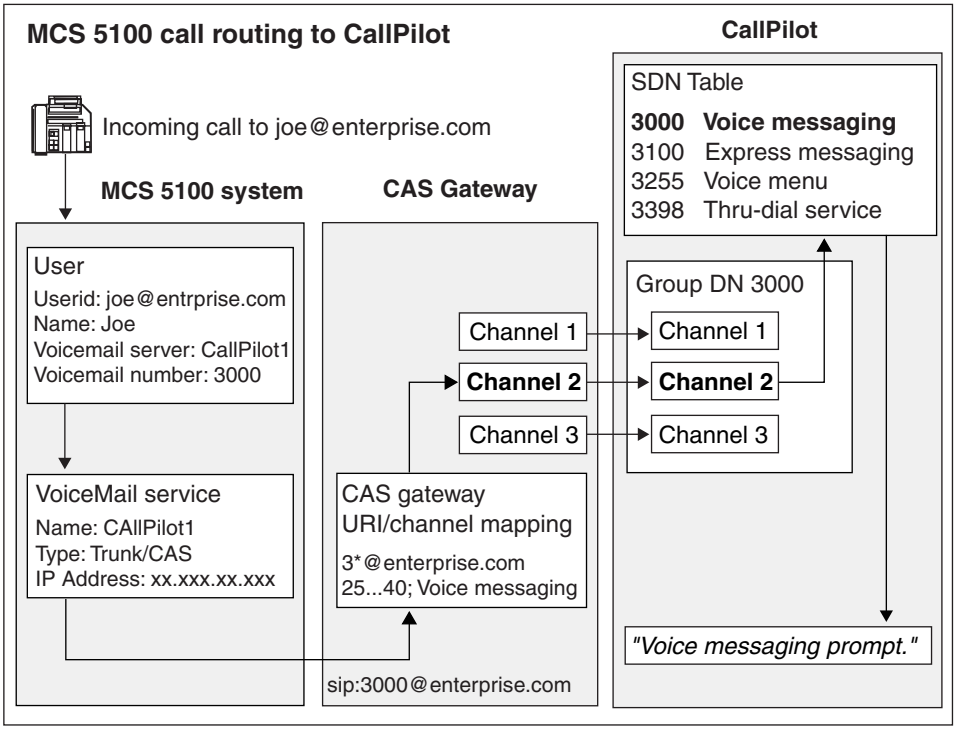
Call routing example

An incoming call to joe@enterprise.com activates the voice mail service which forwards the call to the CAS gateway with URI "3100@enterprise.com."

The CAS gateway uses the DN to determine the first available CAS channel for the proper media type and forwards the call to CallPilot over the selected CAS channel.

CallPilot uses the group DN that is provisioned against the channel to identify the service, then starts the service which plays the appropriate prompts.


MCS 5100 call routing to CallPilot
CallPilot
SDN Table
3000 Voice messaging
3100 Express messaging
3255 Voice menu
3398 Thru-dial service
Incoming call to joe@enterprise.com
MCS 5100 system
CAS Gateway
User
Userid: joe@entrprise.com
Name: Joe
Voicemail server: CallPilot1
Voicemail number: 3000
Group DN 3000
Channel 1
Channel 2
Channel 3
Channel 1
Channel 2
Channel 3
VoiceMail service
Name: CAllPilot1
Type: Trunk/CAS
IP Address: xx.xxx.xx.xxx
CAS gateway
URI/channel mapping
3*@enterprise.com
25...40; Voice messaging
"Voice messaging prompt."
sip:3000@enterprise.com

g250082

Chapter 2

Connecting the CallPilot server to the SL-100 or DMS-100 switch

In this chapter

Introduction

The chapter describes:

- hardware that connects the CallPilot server to the SL-100/DMS-100 switch
- installing the hardware connections
- configuring the SL-100/DMS-100 switch to work with CallPilot

For information on installing the CallPilot server, see *Part 2 - <Server model> Server Hardware Installation* of the CallPilot installation guides.

For more information on the CallPilot SMDI and T1 interfaces, see Appendix A, "CallPilot T1/SMDI interfaces," on page 193.

CallPilot interface hardware reference for the SL-100/DMS-100 switch

CallPilot SMDI interface hardware

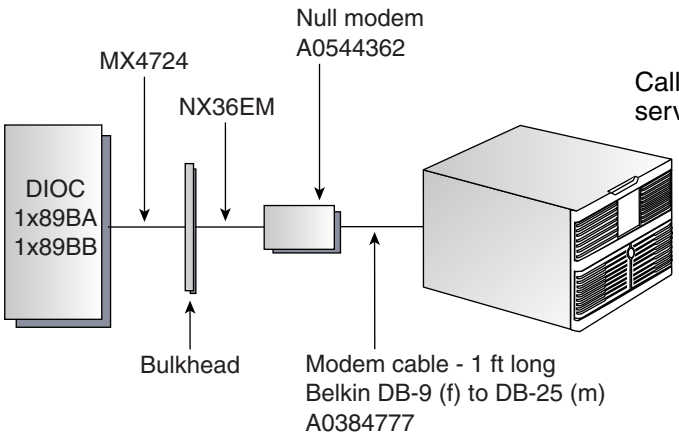
IOC shelf versus an IOM (NTFX30AA) — criteria for a direct cable connection

The criteria for direct cable connection depends on whether the switch has an IOC shelf or an Input Output Module (IOM).

With an IOC shelf, the CallPilot server must be within 15.25 m (50 ft) of the switch for a direct cable connection. For longer distances, a modem connection is required.

With an IOM, the CallPilot server must be within 230 m (750 ft) of the switch for a direct cable connection. For longer distances, a modem connection is required.

Dual IOC interface to a CallPilot system



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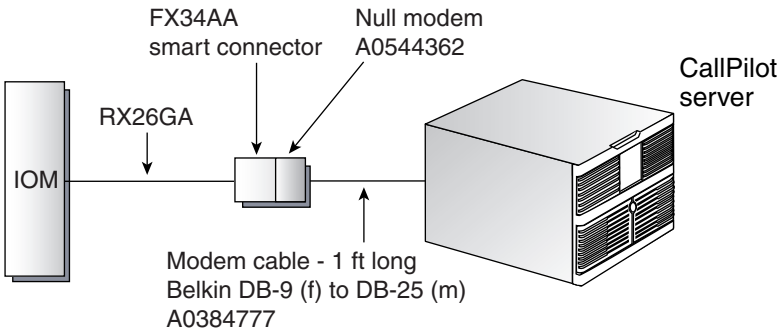
IOM interface to a CallPilot system



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CallPilot T1 interface hardware

Line Side T1 cards (SL-100 only)

The Line Side T1 card provides T1 connectivity for SL-100 CallPilot installations. The card multiplexes 24 channels into a T1 signal. It installs in the Intelligent Peripheral Equipment (IPE) shelf of an SL100 and appears to the switch as 24 analog line cards.The Line Side T1 Interface (LTI) card (NT5D11) is installed in the IPE module (NT8D37).

LT1 parameters must match those of the T1 Intel board. For proper operation of the system, ensure that the switch settings match.

Note: The SL-100 switch can use Line Side T1 cards or an external channel bank for call lines. The DMS-100 switch does not use Line Side T1 cards and requires an external channel bank for call lines.

If using line cards, you must have a sufficient number of Line Side T1 cards for the number of channels purchased. Refer to *Line Side T-1 Interface (LT1) for IPE Services Guide* (555-4001-022) for instructions on installing Line Side T1 cards.

ATTENTION

The Line Side T1 cards (and Channel Banks) must be configured for ground start. Loop start is not supported by CallPilot.

CAUTION

Risk of problems with Remote Notification feature

To avoid problems with outbound calls when using a channel bank, the total gain of the voice path (CallPilot, channel bank, and the switch) should be as close to 0 dB as possible. A variation of 3dB is acceptable. The Rx gain and Tx gain should each be adjusted to approach 0 dB (to minimize the signal attenuation received and generated by CallPilot).

Channel banks (DMS-100, or SL-100 not using Line Side T1 cards)

Channel Banks multiplex incoming signals into a higher rate output digital signal. For CallPilot, the Channel Banks convert 24 analog lines to 1 T1 link.

CallPilot supports the following tested channel banks for SL-100 and DMS-100:

- Nortel Networks DE-4E Smart
- Newbridge Mainstreet 3624
- Subscriber Carrier Module 2 integrated channel bank
- Adit 600 Customer Service Terminal

Note: For information on installing channel banks, see the instructions provided by the manufacturer of the device.

DSX-1 cross-connect

A DSX-1 is a digital cross connect that enables technicians to jumper together T1 cables from different pieces of equipment.

Overview of installing SL-100/DMS-100 SMDI links

SL-100/DMS-100 SMDI links

The SMDI link is a data link between the COM 2 port on the CallPilot server and the MPC port on the switch. The SMDI link transports incoming call information and MWI control messages.

If the CallPilot server is close to the switch (the criteria are listed in this section), the SMDI link can be a direct cable connection between the server and the switch. For longer distances, a modem connection is used.

What's next?

For a direct cable connection, see “Installing the SL-100/DMS-100 SMDI link—direct cable connection” on page 38.

For a modem connection, see “Installing the SL-100/DMS-100 SMDI link—modem connection” on page 40.

Installing the SL-100/DMS-100 SMDI link—direct cable connection

If the switch has an IOC shelf

The parts to install

- IOC cable (for a newer IOC shelf model, use NT0X96HJ; for an older IOC shelf model, use NT0X96EH)
- DB-9 (female) to DB-25 (female) modem cable (customer supplied). Ensure the connectors are of the proper gender, or use a gender changer. The DB-9 end connects to the COM 2 port on CallPilot, and the DB-25 end connects to the IOC cable.

To install the cabling

1. Create the DB-9 to DB-25 modem cable and obtain the proper IOC cables for the IOC shelf model on your switch.
2. Connect the modem cable to the COM 2 port on CallPilot and to the IOC cable.
3. Connect the other end of the IOC cable to the MPC port on the IOC shelf.

If the switch has an IOM (NTFX30AA)

The parts to install

- IOM cable (NT0X96LU)
- Smart Connector (NTFX34AA), which is an adapter and line driver that connects to the IOM cable
- DB-9 (female) to DB-25 (female) modem cable (customer supplied). Ensure the connectors are of the proper gender, or use a gender changer. The DB-9 end connects to the COM 2 port on CallPilot, and the DB-25 end connects to the Smart Connector.

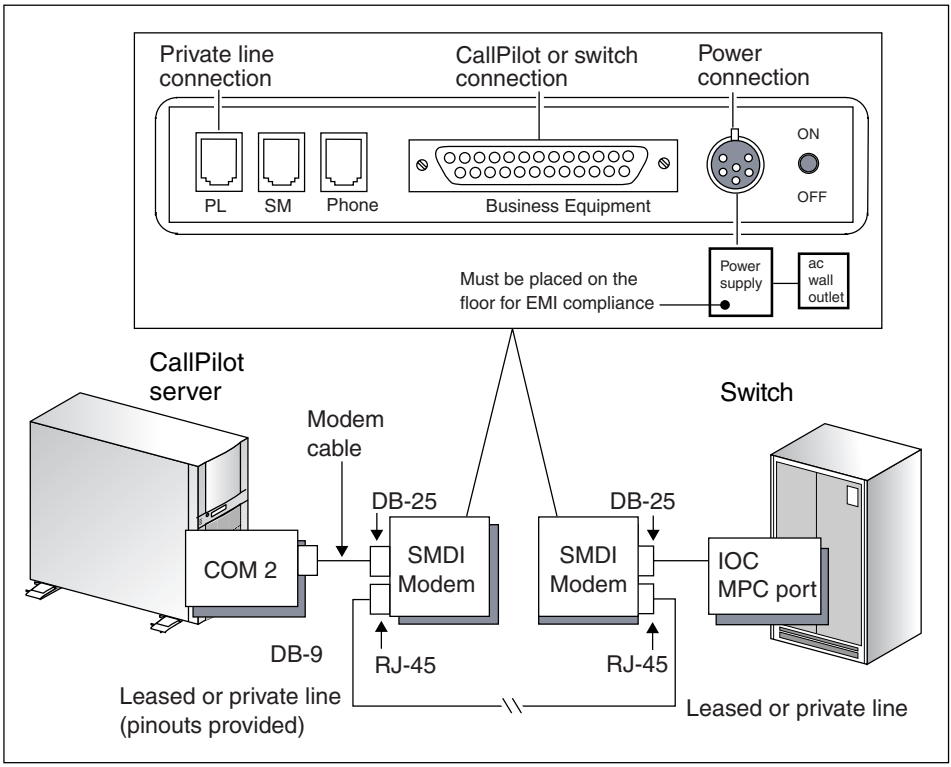
To install the cabling

1. Create the DB-9 to DB-25 modem cable and obtain the other parts to install.
2. Connect the modem cable to the COM 2 port on CallPilot and to the Smart Connector.
3. Connect the IOM cable to the Smart Connector and to the MPC port on the IOM.

Installing the SL-100/DMS-100 SMDI link—modem connection

SMDI link — modem connection

Note: If the switch has an IOM, then an IOM cable and a Smart Connector are used for the connection from the switch to the modem.



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The parts to install

If the switch has an IOC shelf

- two long-haul modems
- a leased or private-line connection between the two modems (this is a customer-supplied cable; pinouts are provided in this section)
- one modem cable (for connection between CallPilot COM 2 port and one modem)
- IOC cable (for a newer IOC shelf model, use NT0X96HJ; for an older IOC shelf model, use NT0X96EH)

If the switch has an IOM (NTFX30AA)

- two long-haul modems
- a leased or private-line connection between the two modems (this is a customer-supplied cable; pinouts are provided in this section)
- one modem cable (for connection between CallPilot COM 2 port and one modem)
- IOM cable (NT0X96LU)
- Smart Connector (NTFX34AA), which is an adapter and line driver that connects to the IOM cable

Cable pinouts for leased or private line

Pin Number	Lead designation
1	Transmit/Receive ring
2	Transmit/Receive tip
3	no connection
4	no connection
5	no connection
6	no connection
7	no connection
8	no connection

To install the SMDI link

Note: In this procedure, the modem that is local to the CallPilot server is referred to as the CallPilot modem. The modem that is local to the SL-100/DMS-100 is referred to as the SL-100/DMS-100 modem.

1 Create the leased or private line using the pin information in this section. Ensure you have all other cables listed in “The parts to install” on page 41".

2 Program the modems using the instructions in this section.

Note: Nortel Networks recommends that you program the modems before connecting the SMDI link to give you the convenience of programming the modems side-by-side at one time.

3 Connect a modem cable to the COM 2 port on the CallPilot server and to the CallPilot modem.

4 Connect the leased or private line to the PL jack (RJ-45 jack) on the CallPilot modem.

5 Complete the cabling of the leased or private line from the CallPilot modem to the PL jack on the SL-100/DMS-100 modem.

6 If the switch has an IOC shelf, then connect the IOC cable to the SL-100/ DMS-100 modem and to the MPC port on the IOC shelf.

Note: If the switch has an IOM, then connect the Smart Connector to the modem, connect the IOM cable to the Smart Connector and to the MPC port on the IOM.

7 Plug in the power cords for the modems and wait for the handshaking to complete.

Result: When the modem handshaking has completed, the displays on both modems show the following information:

```
VF R9600 S9600

PL 2W DTE 9600
```

Note: To program the modem, refer to the modem documentation.

Network Options (subgroup title)

Prompt	Response
Network Select	PL 2W
Sn Tx Level	Permissive
PL Tx Level	-11 dBm
AutoDial Rest	Disable
PL Look Back	10 Minutes
PL Down Time	1 Minute

Terminal Options (subgroup title)

Prompt	Response
Dte Speed	9600
Cpm Resp Speed	AutoBaud Speed
Char Length	10 7D Par
Parity	Auto
OverSpeed	Nominal
Dte Flow Ctl	Rts/Cts
Terminal Echo	Enable
Dcd Control	On After Link
Cts Control	Cmd On/Rts
Dtr Trans Ctl	On/Off Idle
Dsr Control	Normal
Dsr In Analoop	Off
Transmit Clock	Select Internal for one modem, and select External for the other modem. It does not matter which modem has each value. The response for this prompt does not have to correspond in any way with the response for the Answer Org Mode prompt that appeared earlier.
Rts/Cts Delay	0 MSec

Modem Options (subgroup title)	
Prompt	**Response**
Rings To Answer	1
Fall Fwd Bckwd	Disable
Trellis	Enable
Prompt Response	
Retrain Options	Forever
Long Space Disc	Enable
Speaker Control	Off in Data
Speaker Volume	Medium
Make Busy	Disable
Power Up As	User Profile 0
Rdl Options	Disable
Test Timer	Disable
Dte Test Ctl	Enable
Dcd Loss To Disc	01400 MSec
Delay Dtr	00005 Sec
Cd Resp Time	00600 MSec
Remote Config	Enable

Dialer Options (subgroup title)

Prompt	Response
Command Format	AT
Alpha Numeric	Alpha
Call Progress	Extd Full Cpm
Response Mode	Enable
Dtr Dial	Disable
Dial Type	DTMF
Pause Time, <	2 Sec
Wait DialTone	2 Sec

Protocol Options (subgroup title)

Prompt	Response
Async Protocol	Auto Rel Mode
Compression	Enable
Break Handling	Tmd Non Exp-Dst
Modem Flow Ctl	Disable
Ec Data In Hsk	FB w/FB Chr
Sync Protocol	Normal Sync
V13 Mode	BiDirectional

Protocol Options (subgroup title)

Prompt	Response
Conn & Link Msgs	Conn After Link

Modem Info (subgroup title)

Prompt	Response
Protocol Select	Auto Rel Mode
PL Card	Domestic
Dte Card	EIA232E
Modem Firmware	(press right-arrow button to accept the default)
Symbol Rate	(press right-arrow button to accept the default)
Receive Level	(press right-arrow button to accept the default)
Eqlr Quality	(press right-arrow button to accept the default)
Save Config	User Profile 0

8 Press Enter at the Save Config: User Profile 0 prompt. Then press Esc.

Result: The display on one modem shows

```
TRAINING
ANS PL 2W
```

The display on the other modem shows

```
TRAINING
ORG PL 2W
```

9 Repeat this procedure to program the second modem.

10 Continue with the remaining steps in “To install the SMDI link” on page 42".

Installing the SL-100/DMS-100 T1 links

Introduction

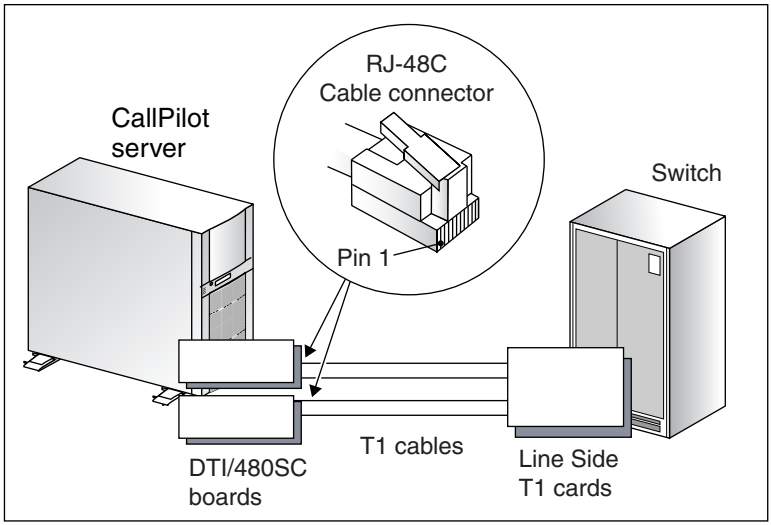
Each T1 link carries 24 channels. Each DTI/480SC board in the CallPilot server supports 2 T1 links (48 T1 channels). CallPilot supports a maximum of 96 channels or 4 T1 links.

SL-100 versus DMS-100 setup

The SL-100 switch uses Line Side T1 cards or an external channel bank. The DMS-100 switch requires an external channel bank. For channel bank installation, refer to the documentation that comes with the channel bank.

T1 link connection

Note: Each Line Side T1 card supports one T1 link. Each DTI/480SC board supports up to two T1 links. For DMS-100 switches, an external channel bank is required instead of Line Side T1 cards.



g250012

The parts to install

The cable must be a non-loaded, staggered-twist, paired cable with a characteristic impedance of 100 ohms at 772 kHz.

- T1 cable(s) (A0788107)
- cabling from the DSX-1 cross-connect to the switch (customer-supplied; T1 cable pinouts are provided in this section)

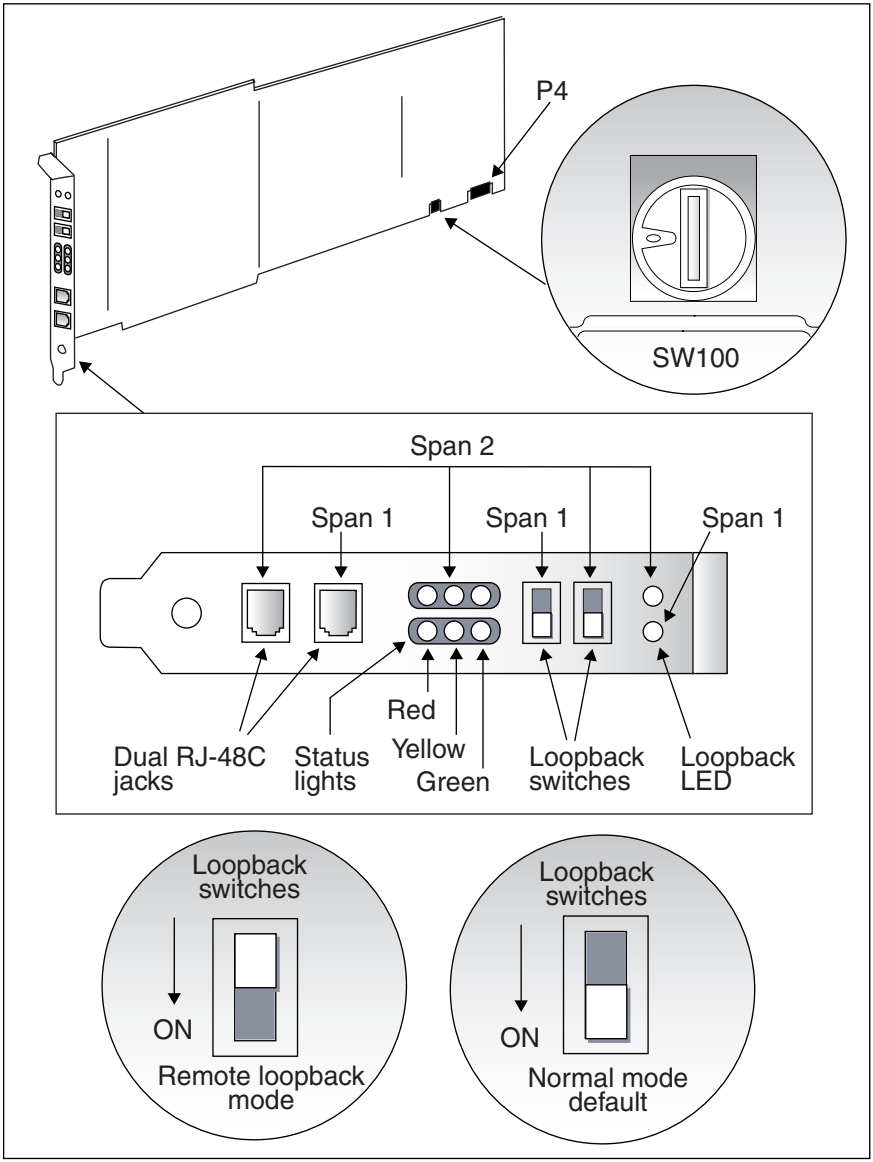
Note: All terminators and connectors in the circuit should also meet the impedance requirement.

T1 cable pinouts

Pin Number	Lead designation
1	Receive ring
2	Receive tip
3	No connect
4	Transmit ring
5	Transmit tip
6	No connect
7	No connect
8	No connect
RJ-45 Metallic Shield	To cable shield drain wire

Note: The cable shield drain wire at the switch end is not connected.

SL-100/DMS-100 connectivity board in the CallPilot server (Dialogic DTI/480SC board)



g250013

To install the T1 links

1 Connect the T1 cables (A0788107) from the RJ-48C connectors on the DTI/480SC boards to the DSX-1 cross-connect in the following order:

- first T1 cable to the Span 1 RJ-48C connector on the first DTI/480SC board

Note: The Span 1 connector is closest to the Status lights on the DTI/ 480SC backplate. The location of Span 1 is also shown in a diagram of the DTI/480SC board in Part 2 of the Installation guides.

Note: Refer to the slot assignment tables in Part 2 of the Installation guides to identify the first DTI/480SC board.

- second T1 cable to the Span 2 RJ-48C connector on the first DTI/ 480SC board
- follow the same order to connect T1 cables to any additional DTI/480SC boards

2 Complete the cabling from the DSX-1 cross-connect to the Line Side T1 card in the switch.

Note: The cabling from the DSX-1 cross-connect to the switch must be supplied by the customer. Also, for DMS-100 switches, an external channel bank is required instead of Line Side T1 cards.

What's next?

Continue with Chapter 4, "Configuring the SL-100/DMS-100 switch" on page 89.

Chapter 3

Connecting the CallPilot server to the MCS 5100

In this chapter

Introduction

About this chapter

The chapter describes:

- hardware that connects the CallPilot server to the Nortel Networks Multimedia Communications Server (MCS 5100) system.
- installing the hardware connections
- configuring the MCS 5100 system to work with CallPilot

For information on installing the CallPilot server, see *Part 2 - <Server model> Server Hardware Installation* of the CallPilot installation guides.

For more information on the CallPilot SMDI and T1 interfaces, see Appendix A, "CallPilot T1/SMDI interfaces," on page 193.

Installing the MCS 5100 SMDI links

iTouch Terminal Server

The In-reach iTouch terminal server provides for remote access to the Multimedia Communication Server 5100 (MCS 5100) system. The terminal server also serves as the data interface to CallPilot for SMDI information.

One available port on the terminal server is required to map a TCP Telnet port to the RS-232C serial connection to the CallPilot system SMDI interface. A specific cable (NTVW01IX) is required to connect the RS-232-C serial port on the CallPilot server to the RJ-45 port on the iTouch terminal server. A category 5 Ethernet cable connects the iTouch terminal server to the LAN.

Each port on this terminal server represents a serial connection. The port is accessed by means of an IP address of the terminal server combined with a TCP/IP part number (for example, 2100). The IP address of the terminal server and a defined posts association must also be configured on MCS 5100 so that it can forward call history data to the CallPilot system.

Note: The settings on the terminal server must match the settings in the CallPilot Configuration Wizard.

iTouch terminal server documentation

For detailed information and procedures for installing the iTouch terminal server, refer to the documentation provided with the terminal server.

To install the SMDI links

The terminal server must be configured on the network before installing the SMDI links.

Note: See the iTouch terminal server documentation for information on initial startup.

1 Assign one of the terminal server ports for SMDI access.

General configuration information:

- The installation access port is programed for 9600 N, 8, 1
- Review the documentation provided for general network configuration.

CallPilot server port information (port 12: logical 3200)
define port 12 access remote
define port 12 telnet echo mode character
define port 12 autobaud disabled
define port 12 speed 9600
define port 12 telnet newline filtering none *

2 Assign the parameters to the SMDI access port.

Voice mail setting	Value
VoiceMail server type	Trunk base server

SMDI connections settings	Value
Address	IP address of the terminal server
Port	3200 (This value is equal to physical port 12 of the iTouch terminal server)
SMDI version	2
User name	admin
Password	admin

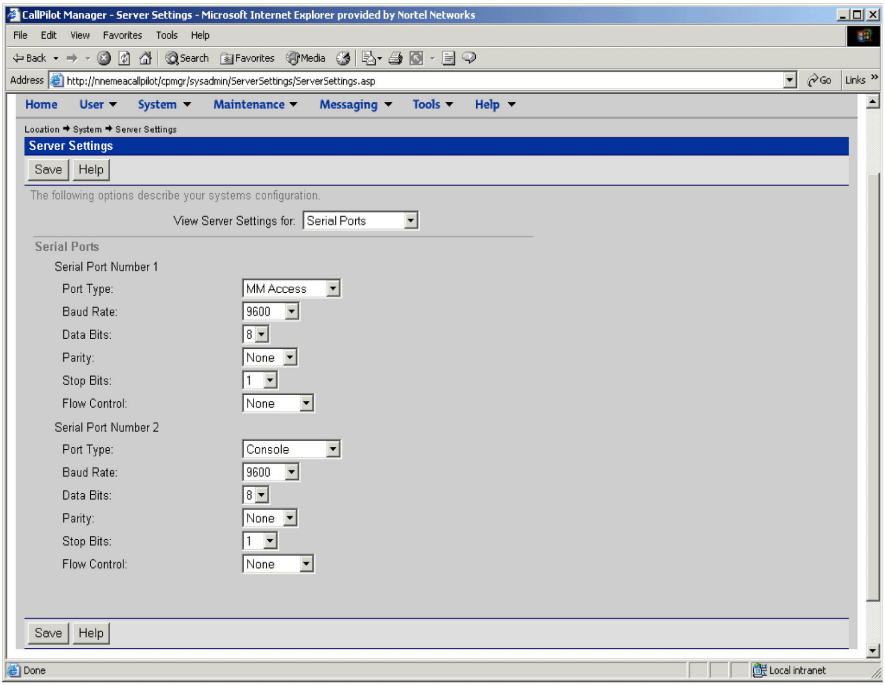
CallPilot settings	Value
Description	Call Pilot
URI to query to find gateway	sip:23100@bvw.com;maddr=(The IP address of AudioCodes T1-CAS Gateway)
Type of trunk	CAS_Trunk
Client contact	voicemail
Application server	IP address of application server of MCS 5100
Domains	MCS 5100 domain name = (bvw.com) **Note:** bvw.com Pilot DN = 23100 A user named callpilot/23100 must be defined in the MCS 5100.

3 Using the null modem cable, connect COM 2 of CallPilot to the specified terminal server port.

Examples of CallPilot configuration

Configuration for serial port 2 where the SMDI link is connected.

The following example is taken from the CallPilot Manager, Server Settings,



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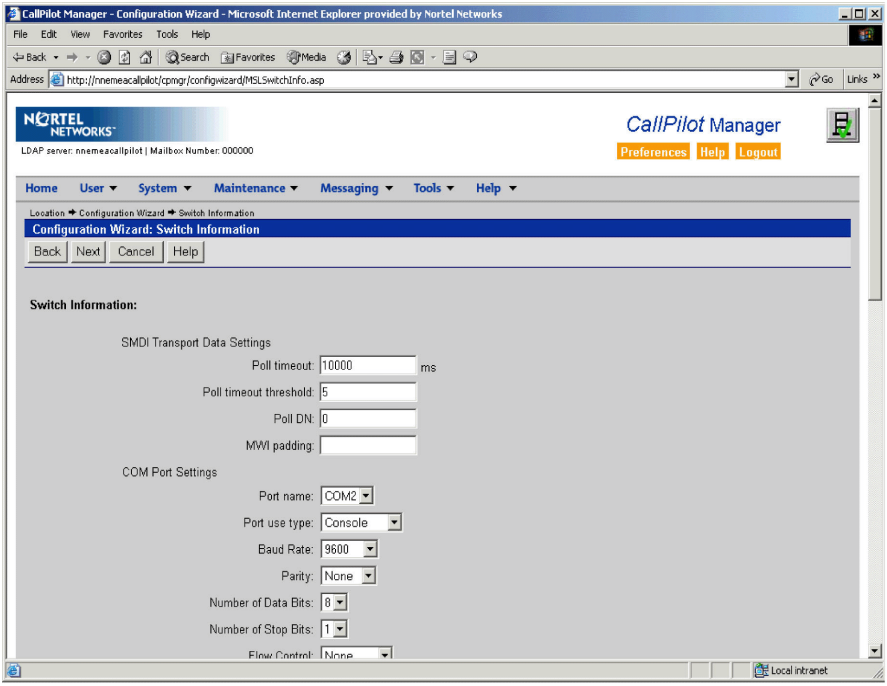
Switch information examples

The examples of switch information are from the CallPilot Manager, Configuration Wizard.



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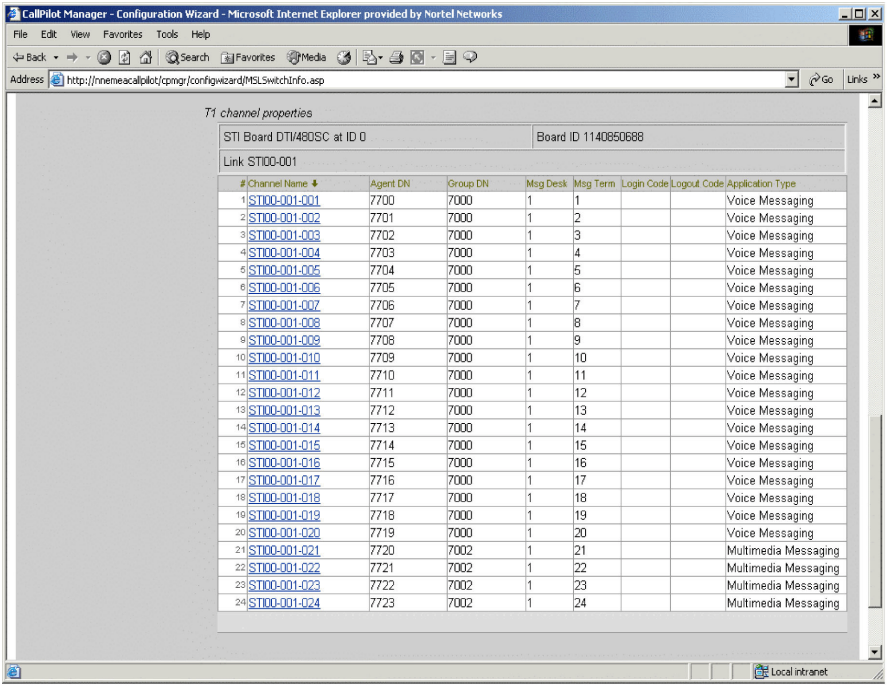
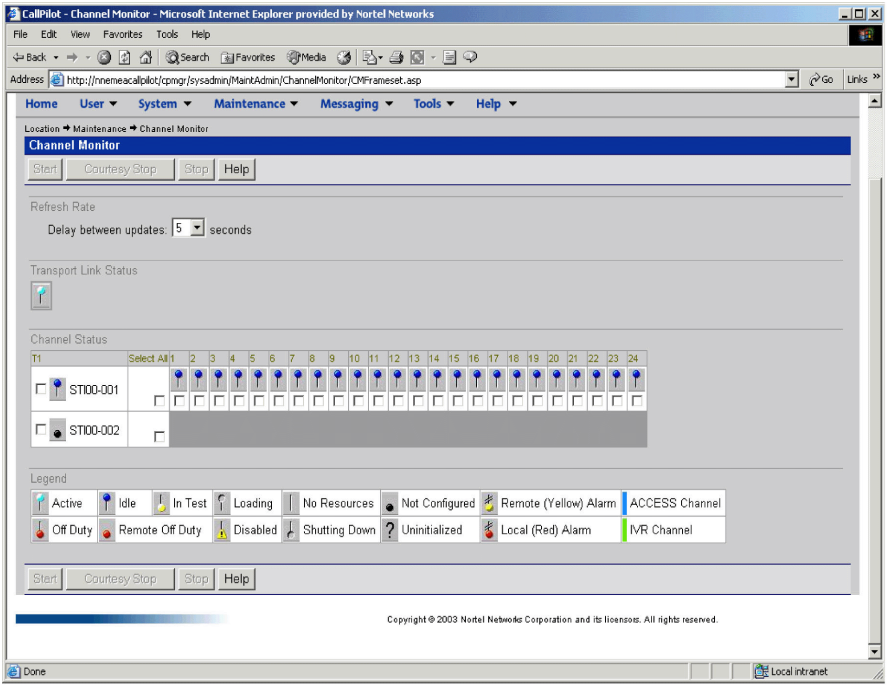
The following diagram shows how the channels are configured: 20 for Voice, and 4 for Multimedia.

Note: The configuration must match the Trunk Group settings on the AudioCodes gateway shown on page 74.


CallPilot Manager - Configuration Wizard - Microsoft Internet Explorer provided by Nortel Networks
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://nnemeacallpilot/cpmgr/configwizard/MSLSwitchInfo.asp
Go Links
T1 channel properties
STI Board DTI/480SC at ID 0
Board ID 1140850688
Link STI00-001
Channel Name Agent DN Group DN Msg Desk Msg Term Login Code Logout Code Application Type
1 STI00-001-001 7700 7000 1 1 Voice Messaging
2 STI00-001-002 7701 7000 1 2 Voice Messaging
3 STI00-001-003 7702 7000 1 3 Voice Messaging
4 STI00-001-004 7703 7000 1 4 Voice Messaging
5 STI00-001-005 7704 7000 1 5 Voice Messaging
6 STI00-001-006 7705 7000 1 6 Voice Messaging
7 STI00-001-007 7706 7000 1 7 Voice Messaging
8 STI00-001-008 7707 7000 1 8 Voice Messaging
9 STI00-001-009 7708 7000 1 9 Voice Messaging
10 STI00-001-010 7709 7000 1 10 Voice Messaging
11 STI00-001-011 7710 7000 1 11 Voice Messaging
12 STI00-001-012 7711 7000 1 12 Voice Messaging
13 STI00-001-013 7712 7000 1 13 Voice Messaging
14 STI00-001-014 7713 7000 1 14 Voice Messaging
15 STI00-001-015 7714 7000 1 15 Voice Messaging
16 STI00-001-016 7715 7000 1 16 Voice Messaging
17 STI00-001-017 7716 7000 1 17 Voice Messaging
18 STI00-001-018 7717 7000 1 18 Voice Messaging
19 STI00-001-019 7718 7000 1 19 Voice Messaging
20 STI00-001-020 7719 7000 1 20 Voice Messaging
21 STI00-001-021 7720 7002 1 21 Multimedia Messaging
22 STI00-001-022 7721 7002 1 22 Multimedia Messaging
23 STI00-001-023 7722 7002 1 23 Multimedia Messaging
24 STI00-001-024 7723 7002 1 24 Multimedia Messaging
Local intranet

g250086

SMDI Transport Link Status when functional



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Installing the MCS 5100 T1 links

AudioCodes T1-CAS links

The AudioCodes Mediant 2000 T1/CAS Gateway provides the bearer path for the speech connection between the MCS 5100 system and CallPilot. The gateway is available in single-span, dual-span and four-span configurations. CallPilot and MCS 5100 communication by in-band signalling for mailbox and auto-attendant navigation on the T1/CAS gateway.

The T1-CAS Gateway uses four data files stored on the Administrative PC of the MCS 5100 system. The administrator uses the BootP/TFTP service to download the firmware, initialization file, CAS data file, and tones table from the Administrative PC to the T1-CAS Gateway.

Three methods for provisioning the T1-CAS gateway include a Web interface, an Excel spreadsheet tool, and the initialization text file.

The AudioCodes initialization file enables you to:

- Enter board initialization parameters (e.g., protocol type, clock master, framing method, etc.)
- Provision routes via TrunkGroup and PstnPrefix
- Provision specified SIP initialization parameters (e.g., IP of application server, indication to use SIP information to deliver DTMF digits, etc.)

AudioCodes documentation

For detailed information and procedures for installing the AudioCodes Mediant 2000, refer to the documentation provided with the AudioCodes gateway.

Installing the AudioCodes T1-CAS gateway hardware

The Mediant 2000 is a single AudioCodes Compact PCI board and a 19-inch 1U chassis with 110/220 VAC power supply. It has two identical gateways: GW-1 and GW-2. The gateways are fully independent. Each gateway has its own MAC and IP addresses, LAN interface and LED indicators. Two 10/100 Base-T Ethernet connectors are provided on gateway rear panel.

- 120/96 Channels (4 E1 or 4 T1 spans) — GW-1 only
- 240/192 Channels (8 E1 or 8 T1 spans) — GW-1 only
- 480/384 Channels (16 E1 or 16 T1 spans) — GW-1 and GW-2

To install the AudioCodes Mediant 2000 Gateway

Note: Refer to the AudioCodes documentation for initial startup procedures.

1. Insert the AudioCodes Mediant 2000 CAS Gateway into the 19-inch rack on the MCS 5100 system.
2. Attach the certified 100/240 VAC power cable to the rear AC socket on the AudioCodes Mediant 2000 CAS Gateway.
3. Using RJ-48c connectors, connect the E1/T1 cables to the E1/T1 Trunk Interface connectors on the on the rear I/O panel of the AudioCodes Mediant 2000 CAS Gateway.

   Note: There can be up to 8 RJ-48c connectors on the Rear Transition Module I/O panel of the gateway depending on how the gateway is provisioned.
4. Connect the other end of the E1/T1 cables to the RJ-45c connectors on the Dialogic DTI480SC cards installed in the CallPilot server.
5. Connect Cat5 Ethernet LAN cables from the MCS 5100 system to the Ethernet 1 and Ethernet 2 connectors on the AudioCodes Mediant 2000 CAS Gateway.

   Note: The Ethernet 1 connection is the primary Ethernet SIP connection to the MCS 5100. The Ethernet 2 connection is the redundant standby SIP connection to the MCS 5100.

Installing the AudioCodes software

The installation requires a host server (window 98, NT or 2000), a standard Web Browser (Microsoft Explorer), and the network information (IP and subnet mask) for both the host and the Audiocodes.

AudioCodes is shipped with pre-installed software. Some parameters must be edited to match the CallPilot configuration.

The installation package includes the software:

- Mediant.cmp
- mediant.ini
- usa_tones.ini
- cas.dat and MIB library

The installation package also includes the utilities:

- ini file utility.xls
- TPDMUtil.exe and Bootp_install.exe

To install the software

1 Load the software from the CD to the host server

2 Configure the software using the BootP utility.

3 The client list appears on the left of the BootP Configuration Client window. Click on a client in the list. The following parameters for this client are displayed on the right of the window.

Client setting	Description
Client MAC	MAC address of the client. When editing the MAC, a new client is added with the same parameters as the previous client. ■ To disable the client, uncheck the check box on the right side of the Client MAC ■ To enable the client check the check box. **Note:** Click the Apply button each time the check box is checked or unchecked.
Client Name	Text field for client description
Template	To be used for this client. When a template is selected, its parameters override all of the previous parameters.
IP	MCS 5100 normal IP parameters
Subnet	MCS 5100 normal IP parameters
Gateway	MCS 5100 normal IP parameters
TFTP Server IP	IP of the TFTP server
Boot file	Files to request from the TFTP server (Boot File name with extension — FB for Flash Burn)
INI File	Files to request from the TFTP server (include telephony parameter matching CallPilot server)
Call Agent	IP of the host server.

4 Modify the INI file to correspond with MCS 5100 and CallPilot telephony parameters.

The INI file enables you to changes to telephony parameters on the Audiocodes. It holds the version of GW, max number of dialed digits, Coder used, Channel parameters, Sip Parameters, Trunk Group, Logger information, Prefix Routing Table, Board Parameters, Web Management Parameters and E1 / T1/ ISDN / CAS Parameters.

Note: The SIP parameters, phone of each end point, logger information, and prefix routing table have to be customized to match CallPilot telephony parameters.

AudioCodes Mediant 2000 initialization file

Board initialization parameters

Parameter	Description
ProtocolType = 2	PSTN protocol for trunk
ClockMaster = 0	Indicates in this case that the CAS GW is not master
FramingMethod = 1	Indicates D4
LineCode = 0	Indicates B8ZS
TDMBusClockSource = 4	Indicates the trunk used for clocking (0 Based)
SysLogServerIP = nn.nnn.nn.nnn	IP of the Syslog server

Route Provisioning by means of a TrunkGroup and PstnPrefix

Parameter	Description
TrunkGroup_1 = 0/1-8	Example trunk group 1 (trunk 0, channels 1-8) (zero-based)
PstnPrefix = 66245,1	PSTN prefix that routes to a TrunkGroup_1 for DN starting with
PstnPrefix = 10,1	To trunk group 1.

SIP initialization parameters

Parameter	Description
IsProxyUsed = 1	Indicates using application server/ proxy
ProxyIp = '47.104.12.150'	IP of application server
IsDTMFUsed = 1	Indicates using SIP INFO to deliver DTMF digits
ENABLE_FEATURES = 1	Turns on feature support
ENABLE_HOLD = 1	SIP HOLD support
ENABLE_TRANSFER = 1	SIP transfer support

AudioCodes operation and configuration

Trunk group settings (protocol management)

On a CallPilot server, all channels are divided into three groups: voice channels, fax channels and speech recognition channels. Each group is assigned a UCD group DN. One of the groups should be for multimedia.

Similarly, on an AudioCodes T1-CAS gateway, the channels are divided into three groups. Each channel on the AudioCodes is represented as telephone set/user in MCS 5100. Each channel is assigned a trunk group ID (1,2,3). A trunk group can span several trunks or several trunk groups can share the same trunk.

Note: While CallPilot needs three groups of services (voice, fax and speech recognition), more than three PSTN prefixes can be created on the Mediant AudioCodes gateway. The additional channels can be used for additional services.

- Like phantom DNs on Meridian 1 CallPilot:
  - all services that require voice resources can share the same voice group (for example, voice messaging, express voice messaging, voice menu)
  - all services that require fax resources can share the same fax group (for example, multimedia messaging, express fax messaging, fax maintenance service)
- Multiple prefixes can share the same trunk group, just as multiple phantom DNs can share the same CDN group and provide different services. Where channels need to be reserved for special services (such as the min/max feature on Meridian 1 CallPilot), more than three trunk groups can be created to ensure that the special calls are always serviced.

Example of four trunks

The following example shows a total of four trunks 0, 1, 2, and 3 (which could have up to 96 channels):

- 84 channels are assigned to trunk group 1
  - 24 channels on trunk 0
  - 24 channels on trunk 1
  - 24 channels on trunk 2
  - 12 channels on trunk 3
- 2 channels are assigned to trunk group 2 (on trunk 3)
- 2 channels are assigned to trunk group 3 (on trunk 3)

Tel to IP routing (protocol management)

The Tel To IP Routing and IP Security table defines the outbound call routing for AudioCodes. Configure the prefix to enable the destination number to be called from the AudioCodes gateway.

Note: To configure outcalling on a second trunk group, the proxy server information on the Tel to IP routing table must use the name of the proxy server, not the IP address of the proxy server (even though the title of the column in the table refers to “IP address”).

IP to trunk routing (protocol management)

The IP to Trunk Group Routing table defines the prefix (UCD Group DN) and the relevant trunk that the calls will be routed to when the calls are forwarded to CallPilot, this has to match the UCD Group DNs defined on CallPilot server, CallPilot Service Directory Number should be defined here as well, as mentioned in clause 1, we should have at least three groups DNs defined in this table for voice, fax and speech recognition service, for the other CallPilot Service Directory Numbers, they should be associate with the trunk group ID of the same media type. For ex. CallPilot express voice messaging service DN should be mapped to trunk group ID 1, CallPilot express fax messaging service DN should be mapped to trunk group ID 2, and CallPilot custom command should be mapped to trunk group ID 3.

Channel settings (advanced configuration)

Fax transport mode must be disabled (default is T.38 relay) for CallPilot fax service to work properly.

Nortel.ini

Most of the above screen capture settings are saved in this file, this file will be automatically loaded every time audiocodes is restarted.

To configure AudioCodes for operation with CallPilot

After the initial IP address is set on the board, complete the configuration using a Web browser such as Microsoft Internet Explorer or Netscape Navigator.

1 Open the Mediant 2000 login window in the browser.

The Enter Password screen appears.

2 Enter:

- User ID: admin
- Password: admin

3 Click the Quick Setup button in the main window and enter the following settings in the Quick Setup window.

Quick Setup window

IP Configuration

Setting	Value	Description
IP address	<customer network IP>	Matches the customer network IP address
NAT IP address		
Subnet mask	<customer network subnet mask>	Matches the customer network
Default gateway address		

E1/T1 Trunk Settings (all the settings have to match CallPilot)

Setting	Value	Description
Protocol type	T1 CAS	
Framing method	Super Frame	Must match on the gateway and CallPilot server

SIP parameters

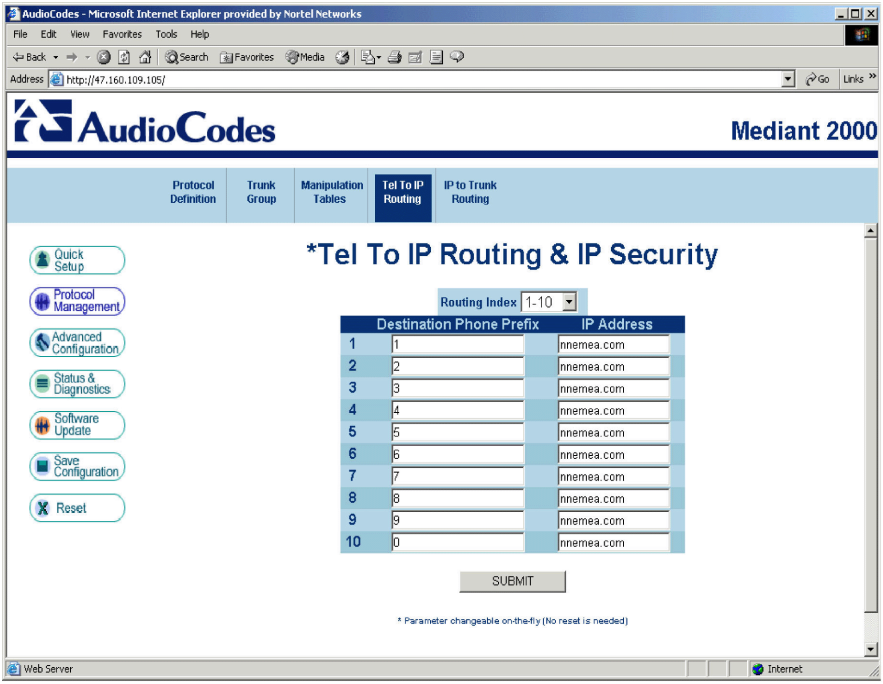
Setting	Value	Description
Gateway name		Optional
Working with proxy	Yes	
Proxy IP address		MCS 5100 IP
Proxy name		MCS 5100 system domain name
Enable registration	No	
Coder		Switch signalling for MuLaw Codex (the Codex must be the same as on CallPilot)
Channel(s)		Optional
Phone number		Optional

Tel to IP routing table

Note: The “IP address” column requires the name of the proxy server, not the IP address of the proxy server.

	Destination phone prefix (DN)	IP address
1		
2		
3		

Example: Tel to IP Routing information.



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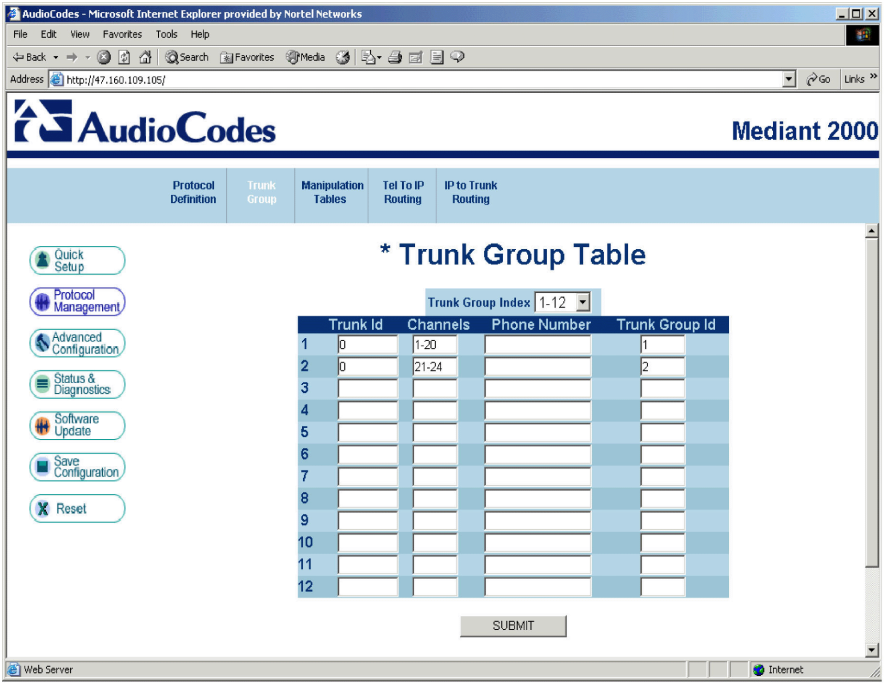
Trunk group table

	Trunk Id	Channels	Phone number	Trunk group Id
1				
2				
3				

Example: Trunk Groups ID's and channel configuration on the Audiocodes gateway, corresponding to the CallPilot channel configuration shown in the “Switch information examples,” on page 59.



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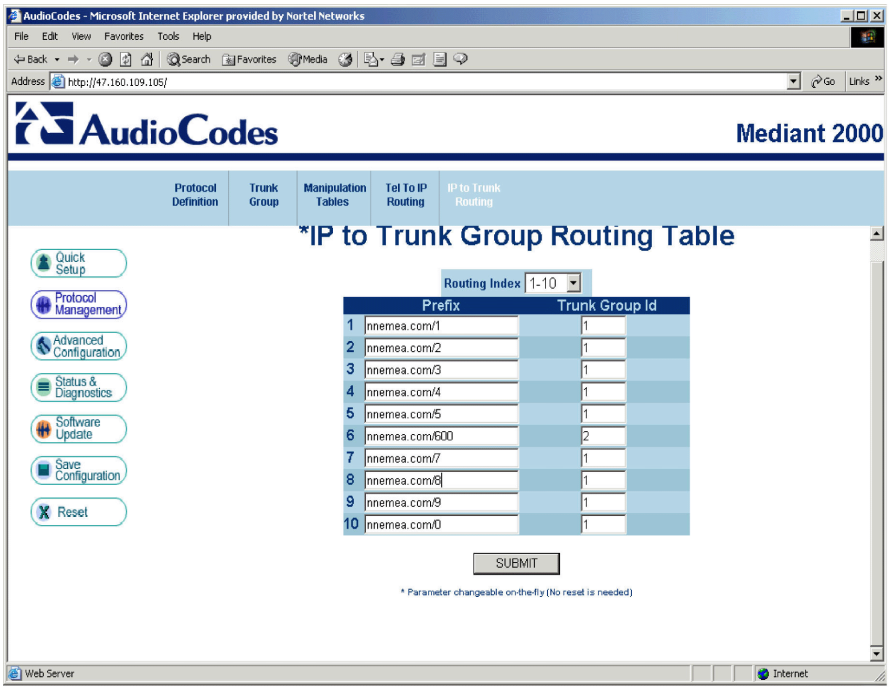
IP to trunk group routing table

	Prefix	Trunk group Id
1		
2		
3		

Example: Trunk routing table configuration — Trunk Group ID 2 is configured for voice mail in the example.



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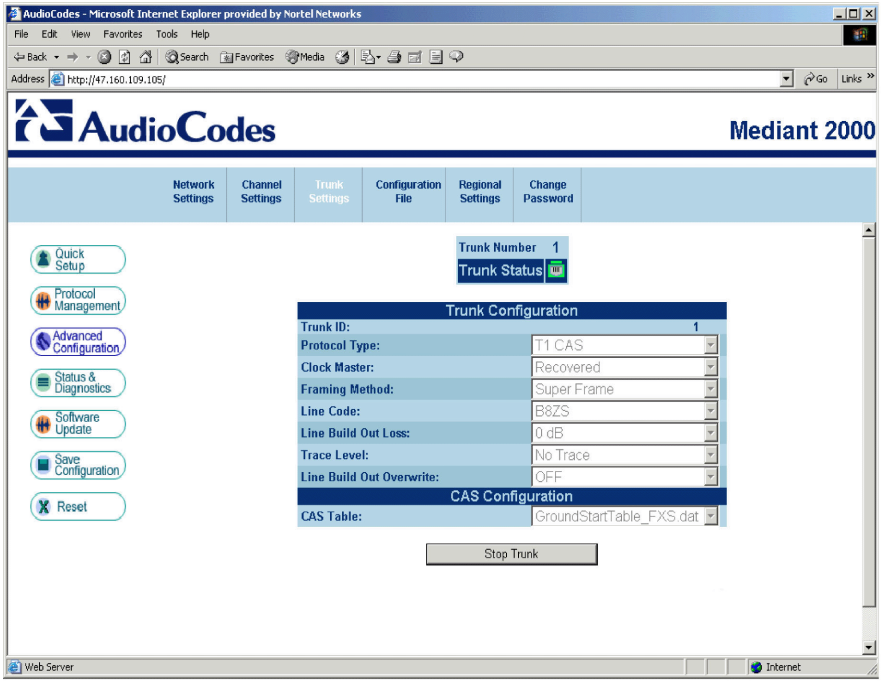
Example: Functional trunk status.



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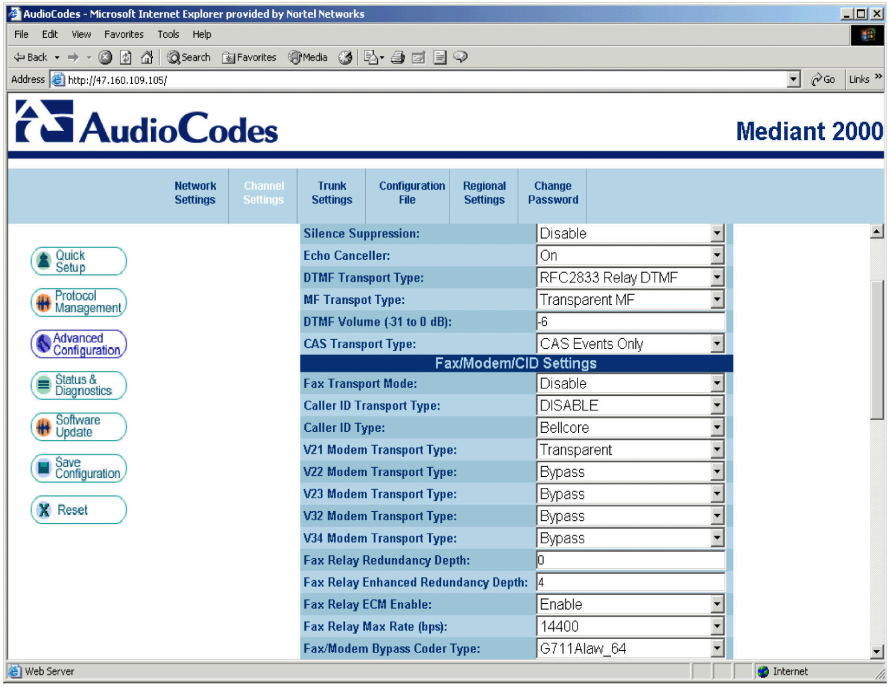
Example: Fax Transport Mode set to Disable.



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Example of the INI file — General parameters

```
;———————————————
; General parameters
;———————————————

; Version of GW
GatewayVersion = ‘1.1.0.0’

; max number of dialed digits
MaxDigits = 7

; which codec is used
CoderName = ‘g711Ulaw64k.20’

; second codec used
CoderName = ‘g729’

; third codec used
CoderName = ‘g7231’

; fourth codec used
CoderName = ‘g711Alaw64k.20’
```

Example of INI file — Channel parameters

```
;——————————————————
; Channel parameters
;——————————————————

; Is Silence Compression enabled (0 - no, 1 - yes)
[default 0] SCE = 0

; Is Echo Canceling enabled (0 - no, 1 - yes) [default
1] ECE = 1

; 0=User propriety FRF.11 syntax to send/receive fax
relay. 1=Use T.38 protocol to send/receive fax relay
[default1]
UseT38orFRF11 =1

; Sets the fax transport mode. 0=disable, 1=relay,
2=bypass [default1]
FaxTransportMode = 1

; [default 0] 0-2 (T38ProtectionMode = 0)
FaxRelayRedundancyDepth =2

; (0-4)Number of repetitions applied to control
packets when using T.38 standard [default=0]
FaxRelayEnahncedReduncayndyDepth = 4

; [default1] 0 = erase digit from voice stream do not
relayed to remote, 1 = erase digit from voice stream
relay to remote, 2 = digits remains in voice stream, 3
= for DTMF relay per RFC 2833.
DTMFDetectionPointType =3

; 0-1, When The DTMF is being detected (push Button or
Release) [default =1 = release]
DTMFDetectionPoint =0

; [default = 1 = 0 dB] -31-31 corresponding to -31 dB
in 1 dB steps. Voice gain control.
VoiceVolume =0

; [default 70] 0-15- msec Dynamic Jitter Buffer
Minimum Delay.
DjBufMinDelay =70
```

Example of INI file — SIP parameters

```
;——————————————
; Sip parameters
;——————————————

; If Proxy Server is used ?
IsProxyUsed = 1

; Proxy-server IP (if used)
Proxylp = '00.00.000.000'

; User Name for Basic/Digest Authentication.
UserName = 'AudioCodes'

; Cnonce Parameter for Authentication
Cnonce = '0a123bcf'

; Password Parameter for Authentication
Password = '787899'

; Is register used ?
IsRegisterNeeded = 0

; Proxy-server Host Name (if used)
ProxyName = 'abc.com'

; Is Out-Of-Band DTMF messages used ? (0-no, 1-yes)
[default 0]
IsDTMFUsed =1

; Added to support Hold/retrieve
ENABLEHOLD =1
ENABLETRANSFER = 1
```

Example of INI file — Phone at each end point

```
;——————————————————
; Phone of each end point
;——————————————————

TrunkGroup_1 = 0/1-15
;TrunkGroup_2 = 0/18-18
;TrunkGroup_3 = 0/19-19
;TrunkGroup_4 = 0/20-20
TrunkGroup_2 = 0/16-18
TrunkGroup_3 = 0/19-20
TrunkGroup_4 = 0/21-22
TrunkGroup_5 = 0/23-24



;PstnPrefix = 2,1
PstnPrefix = 3,1
PstnPrefix = 4,1
PstnPrefix = 22,1
;PstnPrefix = 23,1
PstnPrefix = 23100,1
PstnPrefix = 23101,2
PstnPrefix = 23102,3
PstnPrefix = 23103,4
PstnPrefix = 23105,5
;PstnPrefix = 23105,6
;PstnPrefix = 23106,7
;PstnPrefix = 23107,8
```

Example of INI file — Logger information

```
;———————————————
; Logger information
;———————————————

; When Syslog is enable port must 514 [Default 1]
Enable Syslog =1

; IP address of LogServer (when LogOutputType is
SYSLOG)
SysLogServerIP = '00.00.000.00'

; Port of LogServer (when LogOutputType is SYSLOG)
LogServerPort =415

; format of log messages (0-name, 1-time, 2-name &
time, 3-syslog) [Default 0]
LoggerFormat =3

; Disables RS232 [Default1]
DisableRS232 = 1

GWLoggerFlags = 'lgr_flow,D2'
GWLoggerFlags = 'lgr_psbrdif,D2'
GWLoggerFlags = 'lgr_stk_mngr,D2'
GWLoggerFlags = 'lgr_stk_ses,D2'
GWLoggerFlags = 'lgr_rtr_mod,D2'
GWLoggerFlags = 'lgr_call,D2'
; GWLoggerFlags = 'lgr_psbrdex,D2
```

Example of INI file — Prefix routing table

```
;——————————————
; Prefix Routing Table
;——————————————

Prefix = '2,00.00.000.000'
Prefix = '3,00.00.000.000'
Prefix = '4,00.00.000.000'
Prefix = '22,00.00.000.000'
Prefix = '23,00.00.000.000'
Prefix = '23100,00.00.000.000'
Prefix = '23101,00.00.000.0008'
Prefix = '23102,00.00.000.000'
Prefix = '23103,00.00.000.000'
;Prefix = '23104,00.00.000.000'
Prefix = '23105,00.00.000.000'
;Prefix = '23106,00.00.000.0008'
;Prefix = '23107,00.00.000.000'
```

Example of INI file — BoardParams

```
;————————————————
; BoardParams
;————————————————

; Set to 0 when working with 10 Base T Hubs. [Default
=4, Auto-negotiation]
EthernetPhyConfiguration = 4

; name of progress tone file name
CallProgressTonesFileName = 'usa_tones.dat'

; is progress tones file is burned ? [Default 1]
BurnCallProgressTonesFile = 1

; Name of file containing specific CAS protocol
definition
CASfileName = 'GroundStartTable_FXS_500.dat'
;CASfileName = 'groundstarttable_fxs.dat'
;CASfileName = 'GroundStartTable_FXS1021.dat'
;CASfileName = 'GroundStartTable_FXS1216.dat'
;CASfileName = 'groundstarttable_fxsBlock2.dat'
;CASfileName = 'GroundStartTable_FXO.dat'

; If Cas definition file should be burned set value to
1 [default=0] BurnCASfile =1

; The first RTP port of the Gateway. [Default port for
digital SIP GW is 5070]

; Changed to 6000 from 5070 to work around 1 way voice
path issue BaseUdpPort =6000
```

Example of INI file — Web management parameters

```
;————————————————————————
; Web Management Parameters
;————————————————————————

; Enables/Disables changing parameters by snmp
manager [Default 0] DisableSNMP =1
```

Example of INI file — E1/T1/ISDN/CAS parameters

```
;————————————————————————————
; E1 / T1 / ISDN / CAS parameters
;————————————————————————————

; Sets the PSTN protocol to be used for this trunk
ProtocolType =2

; A-law is usually used for E1 spans and u-Law for T1
spans
PCMLawSelect =3

; Selects the ISDN termination side. (NOT applicable
for CAS protocols [Default0]
TerminationSide =0

; Selects the source of the clock (internal or
Recovered clock from E1/T1 line) [Default 0]
ClockMaster = 0

; Selects the T1 Framing Method to be used for this
trunk (For E1 set it to 0) [Default 0]
FramingMethod = 1

; Selects the line code method to be used for this
trunk. [Default 0]
LineCode = 0

; Set VoIP protocol type
MGControlProtocolType = 8

TDMBusClockSource = 4

; Additional SysLogServerIP without apostrophes added
SysLogServerIP = 00.00.000.00

; set the time allowed between digits when collecting
digits
TIMEBETWEENDIGITS = 1
```

Sending the INI file from your PC to the gateway

1. Select a configuration option in the gateway software menu that enables you to send the INI file to the gateway.
2. Enter the location of the INI file to send.
3. Press Send File

What's next?

Continue with Chapter 5, "Configuring the MCS 5100 switch" on page 135.

Chapter 4

Configuring the SL-100/DMS-100 switch

In this chapter

Switch hardware and software requirements

Hardware components

The hardware components required depends on the switch type in your installation. For more information on hardware components and the T1/SMDI interface, see:

- Chapter 2, "Connecting the CallPilot server to the SL-100 or DMS-100 switch," on page 31 for CallPilot SMDI and T1 hardware components
- Appendix A, "CallPilot T1/SMDI interfaces," on page 193 for the CallPilot T1/SMDI interface

I/O port

The switch must have either an IOC shelf with an NT1X89 card or an IOM (NTFX30AA) to support the SMDI link to CallPilot.

Switch software version required for CallPilot

The SL-100 switch requires SL10 or higher.

The DMS-100 switch requires NA08 or higher.

Required Performance Enhancement Packages

If Performance Enhancement Packages (PEP) are required, this information is provided in the *General Release Bulletin* available at http://my.nortelnetworks.com (the Web site URL may vary by region). You require a username and password to access this site.

Overview of SL-100/DMS-100 switch programming

Introduction

You must be familiar with PBX or Centrex switch terminology, programming, and installation to perform the configuration procedures. The procedures described are for SL-100/DMS-100 installations.

Note: All input is done at the maintenance administration position (MAP) terminal.

Carry out the following procedures in the sequence indicated. Where input values are in uppercase text, enter the values indicated. Where input values are in lowercase text, substitute the values specified in your DMS Data Form.

Documentation references for switch data filling

SL-100 switch

- *Commercial Systems Service Order Reference Manual* (555-4031-808)
- *Simplified Message Desk Interface Description and Implementation* (297-2001-104)
- *Commercial Systems Office Parameters Reference Manual* (555-4031-855)
- *Customer Data Schema Reference Manual* (555-4031-851)

DMS-100 switch

- *Simplified Message Desk Interface Setup and Operation* (297-2051-104)
- *Customer Data Schema Reference Manual* (297-8001-351)

Datafill and servord programming sequence

The following tables are listed in the order in which they are datafilled:

Table/Step	Action
CUSTENG	Customer group identification
CUSTHEAD	Customer group parameters
IBNLINES	UCD line information (a result of SERVORD data input)
IBNFEAT	UCD line features (a result of SERVORD data input)
OFCENG	Checks the amount of memory available.
MPC	Assigns the MPC card.
MPCLINK	Installs the MPC link.
SLLNKDEV	Defines the data link characteristics.
OFRT	Defines the office route to the CallPilot Voice Messaging/Call Answering DN.
DIGCOL	Defines the basic digit collection plan for the customer group and any alternate digit collection plans.
UCDGRP	Defines the UCD group or groups.
DNROUTE	Assigns the primary directory number to a UCD group.
LNINV	Defines the line location.
Use servord to add agents.	Add agents to the UCD groups.

Table/Step	Action
Use servord to create line DNs.	Create line DNs for directly dialable services. These line DNs are forwarded to the appropriate UCD group for the service media type.
Use servord to move agents if necessary.	Move agents from UCD group to another if traffic analysis indicates this is necessary. Make corresponding changes on the CallPilot system.
IBNXLA	Enters the feature activation codes.

Login and Logout code restrictions

The UCD Agent Login (UCDA) and Logout (UCDD) codes are limited to a digit string from 0 to 9 only. The characters * and # are not supported.

You must expand the current translation datafill to support feature access from a rotary phone. Each customer group within the SL-100/DMS-100 must identify a unique digit sequence (for example, 11), and modify the pre-translation/ translation datafill such that the unique digit sequence points to the same translators as the * (or #) key. With this configuration, dialing 11xx translates into the same feature access as *xx. This approach is very similar to the use of 11 in the residential market to support feature access from rotary phones.

Checking the amount of memory available

Table OFCENG and the DYNAMIC_MEMORY_SIZE parameter

Refer to *Commercial Systems Office Parameters Reference Manual* (555-4031-855) for details on using the DYNAMIC_MEMORY_SIZE parameter to provision the amount of memory available. This parameter is part of table OFCENG.

Assigning terminal devices for the NT1X89 card or IOM (NTFX30AA)

Introduction

Datafill tables MPC and MPCLINK.

To datafill table MPC

1. Type table mpc and press Enter.
2. Type add and press Enter.
3. Enter values as shown in the following table:

Field	Subfield	Entry	Explanation and action
MPCNO		0-255	Enter the MPC number used for SMDI.
MPCIOC		0-12	MPC input/output controller shelf. Enter the number associated with the MPC (SMDI) card.
IOCCCT		0, 4. 8, 12, 16, 20, 24, 28, 32	IOC circuit number for the MPC (SMDI) card. Enter the slot position on the IOC shelf multiplied by 4, from 0–32.
EQ		1X89zz or FX30zz	Enter the NT product engineering code for the MPC card, where zz are the two letters at the end of the product code.
DLDFILE		MPCAxxyy	Enter the name of the 8-character download file for SMDI and MPCA.

To datafill table MPCLINK

1. Type table mpclink and press Enter.
2. Type add and press Enter.
3. Respond as shown in the following table:

Field	Subfield	Entry	Explanation and action
LINKKEY		See the explanation.	This key field is composed of subfields MPCNO and LINKNO.
	MPCNO	0-255	Enter the MPC number used for SMDI (the same number entered in table MPC).
	LINKNO	2, 3	Enter the MPC link number for SMDI application with ASYNC protocol.
LINKALM		Y or N	Enter Y to activate the MPCLINK alarm for system busy (SYSB) MPC links. Enter N if you do not want to activate the MPCLINK alarm for system busy (SYSB) MPC links. **Note:** If you enter N, the system does not generate MPC908 (MPC link state transition) logs.
PROTOCOL		ASYNC	Enter the Link protocol. ASYNC is the proper entry for CallPilot.
LINKNABL		0-32 765	For a link that is not fully active, this is the time-out in minutes before the system goes to system busy (SBSY) and then returns to service. Enter the number of minutes for this time-out (must be a multiple of 5).

Field	Subfield	Entry	Explanation and action
PARM		APLDEFN	Enter APLDEFN to specify the application definition.
ADEFN		SMDI	Application definition.
PARM		BAUDRATE	Enter BAUDRATE to specify the baud rate.
RATE		B9600	Baud rate. Must be B9600.
PARM		PARITY	Enter PARITY to specify the parity.
PRTY		EVEN	Parity. Must be EVEN.
PARM		See the explanation	The following are among the optional parameters: L1IDLY, L2IDLY, LNKDOWN. If you enter a parameter, you are then prompted to enter a value for it. L1IDLY and L2IDLY timers can be used in offices with heavy SMDI/VMS traffic to shorten the amount of time the MPC can delay sending an MWI to the switch. (The default is 3 seconds.) The LNKDOWN timer adjusts the length of time the switch takes to recognize LINK failure and sets the LINK to SYSB. (The default is 2 seconds.)
CHARBITS		BIT7	

Defining datalink characteristics

Introduction

Use the table SLLNKDEV to specify characteristics of datalinks used by the command interpreter LNKUTIL.

Note: Based on your switch software load, some fields might differ.

To datafill table SLLNKDEV

1 Type table sllnkdev and press Enter.

2 Type add and press Enter.

3 Respond as shown in the following table:

Field	Subfield	Entry	Explanation and action
DEVNAME		up to 16 characters	Enter a unique device name.
DEVICE		1X89	Device type used. Enter 1X89 if using an IOC shelf or an IOM.
MPCNO		0-255	The MPC number. Use the same value specified in table MPC.
LINKNO		2, 3	The MPC link number. Use the same value specified in table MPCLINK.
XLATION		NONE	No translation is used for outgoing and incoming datalinks.
PROTOCOL		NONE	No protocol is used by the datalink and the PBX/DMS for connecting and starting messages.

Field	Subfield	Entry	Explanation and action
DIRECTION		INOUTLK	Direction that the data travels through the datalink.
XFER		SMDIDATA	The report type currently allowed on the data link. SMDIDATA is for SMDI I/O communication.
OPTION		NUMOFDIGS	
NUMDIGS		7 or 10	The number of digits sent by the switch to CallPilot through the SMDI link. **Note:** The entry value chosen should match the dialing plan configured on the SL-100 switch.
OPTION		CGNADDRDN	
OPTION		$	

Datafilling table OFRT

Introduction

Table OFRT associates the customer route number of the SMDI link with its UCD DN.

Use table OFRT to set up a treatment for unanswered calls (calls that are unanswered because of overflow or because they have exceeded the maximum wait time in the queue). The route is later used in table UCDGRP. Either this table or table IBNRTE is used with table UCDGRP, based on how the customer wants unanswered calls to be routed. It might be more helpful to route the call to a treatment. The following example shows unanswered calls routing back to voice mail.

Only those fields in table OFRT that apply to the switch are described here. Refer to the Customer Data Schema Reference Manual (for SL-100, 555-4031-851; for DMS-100, 297-8001-351) for a description of the other fields.

To datafill table OFRT

The following table describes the relevant fields in table OFRT:

Field	Subfield	Entry	Explanation and action
RTE		1–1023, or blank	Route reference index. If the record is the first in the route list, enter the route reference number assigned to the route list. Otherwise, leave blank.
RTESEL			The route selector.
SNPA			Serving NPA (area code) of the DN.

Field	Subfield	Entry	Explanation and action
TYPCALL		DD, NP, or OA	Type of call.
ORIGSCRE		LCL or NLCL	LCL (Local) or NLCL (non-local).
REPLDIGS		up to 11 digits	Replace digits.
CANCNORC		Y/N	Cancel normal change.
BILLCODE		numeric or N	Billing code. If no billing number exists, enter N.

Datafilling table DIGCOL

Introduction

Only those fields in table DIGCOL that apply to the switch are described here. Refer to the Customer Data Schema Reference Manual (for SL-100, 555-4031-851; for DMS-100, 297-8001-51) for a description of the other fields.

Table DIGCOL contains data that indicates the action that the line module must take in accordance with the first digit dialed. Digit collection tables are assigned to the access codes for direct outward dial calls, electronic switching network (ESN) calls, outward wide-area telephone service calls, private network calls, and route and tandem tie trunk route calls.

To datafill table DIGCOL

The following table describes the relevant fields in table DIGCOL:

Field	Subfield	Entry	Explanation and action
DGKEY			Digit collection key. This field consists of subfields DATNAME and DIGIT.
	DATNAME	1–8 alphanumeric characters	Name of digit collection table. Enter the character assigned to the block of data in table DIGCOL.
	DIGIT	0–9, STAR, or OCT	Digit. Enter a numeric value from 0–9, STAR (star), or OCT (octothorpe) to specify the digit that is applicable to the record.
DGDATA			Digit collection data. This field consists of subfield DGCOLSEL and field COLDATA.

Field	Subfield	Entry	Explanation and action
	DGCOLSEL	COL	Digit collection selector. This subfield specifies the selector for regular digit translation. Enter COL for the collection of more digits.
COLDATA		.	Collect data. This field consists of subfields TMODE and NUMDIGS
	TMODE	S	Timing mode. Enter S for short timing mode or L for long timing mode. S is required for CallPilot.
	NUMDIGS	1–7	Number of digits. If TMODE is S, specify the number of digits for which short timing is required after the receipt of each digit. The number of digits specified, which does not include the initial digit, must be no greater than three for short timing.

Defining the UCD group

Introduction

Create a UCD group for each media type purchased for CallPilot. The possible media types are

- Voice Messaging, if this feature has been purchased
- Multimedia Messaging, if fax channels have been purchased
- Speech Recognition, if this feature has been purchased

Dedicating channels to specific services

If you are dedicating channels to specific services, you must create an additional UCD group for each service that you plan to have dedicated channels. Nortel Networks recommends that you do not dedicate channels because it reduces the overall efficiency of CallPilot.

To datafill table UCDGRP

1. Type table ucdgroup and press Enter.
2. Type add and press Enter.
3. Respond as shown in the following table:

ATTENTION

Each UCD group must have a unique primary DN.

Field	Subfield	Entry	Explanation and action
UCDNAME			This is the name of the UCD group. It can be up to 16 characters in length. The first eight characters must be unique.
ACD		N	Automatic call distribution is not supported.
CUSTGRP			Name of the customer group to which the UCD group belongs.
UCDRNGTH			Ringing threshold, in one-second intervals, after which an unanswered call to a UCD agent is forwarded to the route specified in the THROUT field. Range is 0–63.
TABNAME		OFRT	Table to which translations are routed. Table UCDGRP repeats the TABNAME and INDEX field prompts as shown here.
INDEX			Number assigned to the route list in table OFRT (1–1023).
TABNAME		OFRT	Table to which translations are routed.
INDEX			Number assigned to the route list in table OFRT (1–1023).
PRIOPRO			Maximum time, in seconds, a call can wait in a UCD group (0–255).

Field	Subfield	Entry	Explanation and action
MAXPOS			Maximum number of UCD agent positions that can be active at one time. This number corresponds to the number of channels allocated to the group on the CallPilot system (0–96).
DBG			Delayed billing. Set to Y if billing starts when the call is answered by a UCD agent. Set to N if billing starts when the caller receives a recorded announcement.
DEFPRIO		0	Default priority number applicable to local calls terminating on the primary UCD DN (0–3).
RLSCNT		0	Maximum number of calls that terminate on a UCD station but are not answered (0–31).
MAXWAIT			Maximum time, in seconds, that a call waits in the incoming call queue before being answered (0–1800).
MAXCQSIZ			Maximum number of calls that can be in the incoming queue waiting for an idle channel (0–511).
OPTION		UCD_SMDI	
SMDI_LINK			The terminal designation defined in table SLLNKDEV.

Field	Subfield	Entry	Explanation and action
SMDI_ DES K_NO			Message desk number (1–63). If you have more than one UCD group, one of them must be set to 63. For simplicity, Nortel Networks recommends that the first UCD group on a data link be set to 63. The second is set to 62, and descending through 61, 60, ...2, 1.

Note: If CRR (Call Request Retrieval) is used, all requests are made to the UCD group with SMDI_DSK_NO = 63.

Assigning a primary DN to a UCD group

ATTENTION Each UCD group must have a unique primary DN.

To datafill table DNROUTE

1. Type table dnroute and press Enter.
2. Type add and press Enter.
3. Respond as shown in the table.
4. Repeat this procedure for each UCD group.

Field	Subfield	Entry	Explanation and action
DNNM		See the explanation.	Consists of AREACODE, OFCCODE, and STNCODE subfields. This is the DN for the UCD group specified as the UCDGRP. **Note:** Ensure that the UCD DN is a dialable number from an agent on the SL-100/DMS-100. This ensures that dialing plans and translation tables do not conflict.
	AREACODE		See DNNM explanation.
	OFCCODE		See DNNM explanation.
	STNCODE		See DNNM explanation.
DN_SEL		FEAT	DN selector FEAT
FEATURE		UCD	

Field	Subfield	Entry	Explanation and action
UCDGRP			The UCDNAME that is defined in table UCDGROUP.
DNTYPE		PRIM	PRIM indicates the DN is the primary UCD DN for the UCD group.
TOLLPRIO		0	Priority of toll calls terminating on the Primary UCD DN. Zero is the highest priority.

Defining line location

Introduction

The Line Circuit Inventory table (table LNINV below) contains the assignment for each card slot on the line or remote line module.

To datafill table LNINV

1 Type table lninv and press Enter.

2 Type add and press Enter.

3 Respond as shown in the following table:

Field	Subfield	Entry	Explanation and action
LEN			Line equipment number of the card slot.
CARDCODE		5d11ae	Product engineering code for the line card. Enter 5d11ae for the Line Side T1 card.
PADGRP			Name of the appropriate pad group in the PADDATA table.
STATUS		WORKING	Line inventory availability status should be working.
GND		Y	Enter Y for Line Side T1 card.
BNV		NL	Balanced network value is non-loaded.
MNO		Y	Manual override is set to YES, so that onhook balance network tests do not update this field.
CARDTYPE		NIL	

Adding agents to a UCD group

Introduction

Once you have created a UCD group, you can add agents to it.

Before you begin

Have a list of the agent DNs you want to add to the UCD group.

If you have multiple UCD groups, identify the UCD group that each agent will service. CallPilot requires a separate UCD group for each media type (voice, fax, and speech recognition).

If the customer is dedicating some channels to a particular service, then there must be an additional UCD group for each service that will have dedicated channels.

Modifying the MAXPOS value

If you are adding additional agents to an existing UCD group, you might have to modify the MAXPOS value for the UCD group to which you are adding agents. The MAXPOS value determines the maximum number of agents that can be active at one time. If, by adding new agents, you exceed this value, you cannot add the additional agents unless you change the MAXPOS value.

The MAXPOS value is defined in table UCDGRP.

To add agents

Type servord and press Enter. Then respond to the prompts in the following table:

Prompt	Input	Description
SO:	NEW	
SONUMBER:	press	Enter to invoke service. Press Enter for the current date and time.
DN:		Directory Number of the line. Use ten-digit DNs.
LCC_ACC:	IBN	Line class code of service
GROUP:		Name of the IBN customer group to which the line belongs. For example, covm.
SUBGRP:		Subgroup number. For example, 0.
NCOS:		Network class of service. For example, 1.
SNPA:		Serving NPA (area code) of the DN
LEN_OR_LT D:		Line equipment number of the line. For example, 4 0 1 0 (separated by spaces).
OPTION:	COD	Cut-off on disconnect
OPTION:	UCD	Uniform call distribution
OPTION:	DGT	Digitone
OPTION:	3WC	Three-way calling
OPTION:	CXR	Call Transfer
CXFERTYP	CTALL	Call Transfer Type. CTALL = transfer all calls.
CXRRCL	N	Call Transfer Recall

Prompt	Input	Description
METHOD	STD	Method of Call Transfer: Std = Std Call Transfer method.
OPTION:	SMDI	Simplified message desk interface
LINENO:		The UCD terminal number. This is the line number associated with the SMDI channel. This parameter must be unique for each agent in the associated UCDGRP. It must also coincide with the MessageDesk and TerminalNumber configured on the CallPilot server.
UCDGRP:		The UCDNAME from the UCDGRP table. This is the UCD group to which you are adding the agent.
AUTO_LOG:	Y	Autologon capability required.
OPTION:	$	The data you have entered appears.
	Y	Enter Y to confirm the data

Creating a line DN

Introduction

A line DN does not have agents. Instead, it forwards to a UCD group. If the line DN is for a voice service, then it forwards to the voice UCD group. If the line DN is for a fax service, then it forwards to the fax UCD group. If the line DN is for a speech recognition service, then it forwards to the speech recognition UCD group.

When to use

Add a line DN for each CallPilot service that you want to make directly dialable by users and callers.

Examples

You want to provide users with Express Messaging capability. You create a line DN for Express Messaging so that it has a unique DN that can be dialed.

You want to create six Voice Menus that you must make available to callers. You create six line DNs so that each Voice Menu has a unique number that can be dialed.

CFF versus CFU

In the following procedure, choose either CFU (Call Forward Universal) or CFF (Call Forward Fixed) as the forwarding option. Note that CFU requires extra configuration.

To create a line DN

Type servord and press Enter. Then respond to the prompts in the following table:

Prompt	Input	Description
SO:	NEW	
SONUMBER:	press Enter	When to invoke service. Press Enter for the current date and time.
DN:		The directory number of the line. This is the DN you enter in the SDN table.
LCC:	IBN	Line class code of service
GROUP:		The name of the IBN customer group to which the line belongs.
SUBGRP:		The subgroup number
NCOS:		Network class of service
SNPA:		Serving NPA (area code) of the DN
LEN		Line equipment number of the line. For example, 4 0 1 0.
Note: The following three entries are optional.		
OPTION:	cfb	Call Forward Busy
CFBCNTL:	N	Normal assignment for CFB
CFBDN:		The primary UCD DN
Note: Configure CFF or CFU (not both).		
OPTION:	CFF	Call Forward Fixed

Prompt	Input	Description
CFFDN:		The Primary UCD DN
OPTION:	CFU	Call Forward Universal
OVRDACR	N	Override Automatic Callback
OPTION:	$	The data you entered appears.
	Y	Enter Y to confirm the data.

To finish configuring CFU

If you selected the CFU option in the previous procedure, follow either method to finish configuring the CFU. Nortel Networks recommends method 1 for the following reasons:

- Method 1 (at a telephone) provides a confirmation tone to the administrator to confirm that the proper programming was performed.
- Method 2 (at the MAP terminal) provides no confirmation feedback and can potentially overwrite other data in the same entry.

Method 1—To configure CFU at a telephone (recommended method)

1. Connect a phone to the line.
2. Go off-hook.
3. Dial the call forward activation code followed by the UCD DN.

   Example: *80 2326050

   Note: If you do not know this code, look it up in table IBNXLA. It is the CFWP entry.
4. Listen for the confirmation tone. The confirmation tone indicates that the line has been forwarded.

   Note: If the switch is restarted, you must repeat steps 1 to 4 for each line DN that CFUs to the UCD group.

Method 2—To configure CFU at the MAP terminal

1 Type table cfx and press Enter.

2 Respond as shown in the table below:

Field	Subfield	Entry	Explanation and action
		pos x x x x 0	xxxx is the line equipment number (LEN) you defined for the Line DN. Enter a 0 at the end of the LEN.
		cha	Indicates you want to change the CFU DN.
CFUIF			Enter the primary DN of the UCD group to which you want to forward the line DN.
CSTATE		A	CFU is active.

Moving an agent from one UCD group to another

Introduction

You might need to move an agent from one UCD group to another to reorganize the allocation of channels or increase system efficiency. Channels may have been dedicated to a particular service but traffic studies show that you need more channels. Or, you may want to reduce the number of channels dedicated to a service and move them to a UCD group where they can be shared among more services.

ATTENTION

Any changes made to the UCD groups must correspond to changes in CallPilot. The number of UCD agents that service a media type must match the number of those media channels in CallPilot. For example, five UCD agents in the fax UCD group and five fax channels in CallPilot.

To move an agent from one UCD group to another

1. Determine if moving agents to a new UCD group will cause the MAXPOS value of that UCD group to be exceeded.

   If yes, modify the MAXPOS value for the UCD group to which you are moving agents. This is done in table UCDGRP.

2. Use the servord command DEO to delete those agents that are being moved. See "To delete an agent from a UCD group," on page 120.

   Note: If you do not delete extra agents that are no longer mapped to a CallPilot channel, these agents can cause endless ringing on the CallPilot system.

3. Use servord command ADO to move (add) the agents to the new UCD group. See "To move an agent to another UCD group," on page 120.

To delete an agent from a UCD group

Enter servord, then press Enter. Then respond to the prompts in the following table:

Prompt	Input	Description
SO:	DEO	
SONUMBER:	press Enter	When to invoke service. Press Enter for the current date and time.
DN_OR_LEN:		The DN or Line Equipment number of the UCD agent.
OPTION:	SMDI	
OPTION:	$	The data you entered appears.
	Y	Enter Y to confirm the data.

To move an agent to another UCD group

Enter servord, then respond to the prompts in the following table:

Prompt	Input	Description
SO:	ADO	
SONUMBER:	press Enter	When to invoke service. Press Enter for the current date and time.
DN_OR_LEN:		The DN or Line Equipment number of the UCD agent.
OPTION:	SMDI	
LINENO:		The line number position in the UCD SMDI group.

Prompt	Input	Description
UCDGRP:		The name of the new UCD group to which you want to move the agent (the UCDNAME from table UCDGROUP).
AUTO_LOG:	Y	Autologon capability is required.
OPTION:	$	The data you entered appears.
	Y	Enter Y to confirm the data.

Entering feature activation codes

Introduction

The feature activation codes required to set up and access message waiting are entered in table IBNXLA.

To datafill table IBNXLA

1 Type table ibnxla and press Enter.

2 Type add and press Enter.

3 Respond as shown in the following table:

Field	Subfield	Entry	Explanation and action
KEY			Consists of subfields XLANAME and DGLIDX
	XLANAME		Name of the translator, 1–8 characters, for the feature
	DGLIDX		Access code for the feature
RESULT			Consists of subfields TRSEL, ACR, SMDR, and FEATURE
	TRSEL	FEAT	The feature translation selector
	ACR	N	Account codes not required
	SMDR	N	Station Message Detail Recording off
Note: Not all the features below are required.			
	FEATURE	CRA	Call request activate
		CRR	Call request retrieve

Field	Subfield	Entry	Explanation and action
		CRDS	Call request delete specific
		CRDA	Call request delete all
		UCDD	Universal Call Distribution Deactivate **Note:** Only digits 0 to 9 are supported. The characters * or # are not supported. See "Login and Logout code restrictions," on page 94.
		UCDA	Universal Call Distribution Activate **Note:** Only digits 0 to 9 are supported. The characters * or # are not supported. See "Login and Logout code restrictions," on page 94.
		CFWP	Call Forward Program
		CFWC	Call Forward Clear

Checking OFCVAR values

Introduction

Make sure that the cutoff-on-disconnect (COD) time in table OFCVAR is set to one second (100).

To check OFCVAR values

1 Type table ofcvar and press Enter.

2 Respond as shown in the following table:

Field	Subfield	Entry	Explanation and action
		pos CUTOFF_ON_DISC_TIME	Check that the value is 100 (one second). If not, change the value to 100.
		cha	Enter cha to change the value.
PARMVAL		100	Specifies COD time for lines assigned the COD option.

Call routing options and features for user phonesets

Introduction

The following call routing options and features are available:

- Three-way Calling
- Digitone
- Call Forward Don't Answer — Specify the Voice Messaging DN as the forwarded DN, and Call Answer is activated for the user when the user is not available to answer the call.
- Call Forward Busy — Specify the Voice Messaging DN as the forwarded DN, and Call Answer is activated for the user when the user is on the phone.
- Call Forward Universal — If Call Forward Universal is activated (this is controlled by the user at the phoneset), the call can be rerouted to the Voice Messaging DN.
- Message Waiting — A user is notified of a new message by a lit message-waiting lamp or an audible indication (interrupted dial tone).

Note: The Key-Short-Hunt (KSH) option is not compatible with CallPilot.

To set call routing options for single line phonesets

Type servord and press Enter. Then respond to the prompts in the following table. Repeat this procedure for each user.

Prompt	Input	Comments
SO	NEW	If the DN already exists, the ADO command can be used to add options to the existing line.

Prompt	Input	Comments
SONUMBER	Press Enter	When to invoke service. Press Enter for the current date and time.
DN		User's DN
LCC_ACC	IBN	Line class code of service
GROUP		Name of the IBN customer group to which the line belongs
SUBGRP		Subgroup number
NCOS		Network class of service
SNPA		Serving NPA of the DN
LEN_OR_LTD		Line equipment number of the line. For example, 4 0 1 0 (separated by spaces).
OPTION	DGT	Digitone
OPTION	CFU or CFI	Call Forward Universal (CFU) or Call Forward Intergroup (CFI)
Note: If you select CFU, the prompt OVRDACR appears.		
OVRDACR	N	Override Automatic Callback
OPTION	CFB	Call Forward Busy
CFBCNTL	N	Normal assignment for CFB
CFBDN		Enter the Primary DN for the Voice Messaging UCD group.
OPTION	CFD	Call Forward Don't Answer
CFDCNTL	N	Normal assignment for CFD

Prompt	Input	Comments
CFDDN		Enter the primary DN for the Voice Messaging UCD group.
OPTION	MWT	Message Waiting
NOTICE	CMWI, MWL, PRN, STD, MWL_STD	Message waiting indication
CAR	N No call request feature	
CRX	N	Not call request exempt
OPTION	$	

To set call routing options for multi-line phonesets

Type servord and press Enter. Then respond to the prompts in the following table. Repeat this procedure for each user:

Prompt	Input	Comments
CI:		
>	SERVORD	Request service order utility
SO	NEW or ADO	User's DN
SONUMBER	press Enter	When to invoke service. Press Enter for the current date and time.
DN		User's directory number
LCC_ACC		Type of phoneset

Prompt	Input	Comments
GROUP		The name of the customer group to which a user belongs.
SUBGRP	0	N/A (normally used when stations are assigned to attendant consoles)
NCOS	0	N/A (normally used to restrict dialing out)
SNPA		Serving NPA of the DN
KEY	1	Primary key (1)
RINGING	Y	Y = yes, key 1 is ringing line
LEN_OR_LT D		Line equipment number of the line. For example, 4 0 1 0 (separated by spaces).
OPTKEY		Key number for assigning forwarding options to use with CallPilot.
OPTION	CFI or CFU	Allow Call Forward Intragroup (CFI) or Call Forward Universal (CFU).
Note: If you select CFU, the prompt OVRDACR appears.		
OVRDACR	N	Override Automatic Callback.
KEYLIST		DNs to which Call Forward will apply **Note:** If SO=NEW, you can define CF for Key 1 only at this time.
OPTKEY		Key number for assigning forwarding options to use with CallPilot. Same key as CFI.
OPTION	CFB	Allow Call Forward Busy
CFBCNTL	N	N = No

Prompt	Input	Comments
CFBDN		Enter the primary DN for the Voice Messaging UCD group.
OPTKEY		Key number for assigning forwarding options to use with CallPilot. Same key as CFI/CFB.
OPTION	CFD	Allow Call Forward Don't Answer
CFDCNTL	N	N = No
CFDDN		Enter the primary DN for the Voice Messaging UCD group.
OPTKEY		Key number for message waiting option
OPTION	MWT	Allow message waiting
CAR	N	N=No
CRX	N	N=No
OPTKEY	$	End of input

Starting up the link

Introduction

When you finish filling in the switch data tables, you can start up the link. Below are the procedures for a switch that has a 1X89 card in an IOC followed by the procedures for a switch that has an IOM (NTFX30xx).

To start up the link (for a 1X89 card)

1. Put the IOC card into service by entering the following commands:
   - **a.** MAPCI
   - **b.** MTC
   - **c.** IOD
   - **d.** IOC c (where c is the circuit number, for example, 0)
   - **e.** CARD n (where n is the card number, for example, 5)
   - **f.** RTS
2. Put the link into transferring state by entering the following commands:
   - **a.** MAPCI
   - **b.** MTC
   - **c.** IOD
   - **d.** IOC c (where c is the circuit number, for example, 0)
   - **e.** CARD n (where n is the card number, for example, 5)
   - **f.** RTS LINK p (where p is the link number)
3. Once the data link has been set up, the UCD lines (agents) must be put into service. Enter the following commands for each agent:
   - **a.** MAPCI
   - **b.** MTC
   - **c.** LNS

d. LTP

e. 2D dn (where dn is the UCD agent's DN)

f. RTS

To disable message transfer on the link (for 1X89 cards only)

To shut down message transfer on the link, enter the following commands:

1 MAPCI

2 MTC

3 IOD

4 IOC c (where c is the circuit number, for example, 0)

5 CARD n (where n is the card number, for example, 5)

6 BSY n [FORCE] (where n is the card number, for example, 5; and FORCE is an optional parameter that you can use if the link is currently in use and you need to immediately shut down the link)

To start up the link (for the 1X89 MPC port option on the IOM)

1 Put the port into service by entering the following commands:

a. MAPCI

b. MTC

c. IOD

d. IOC c (where c is the circuit number, for example, 0)

e. PORT n (where n is the port number, for example, 5)

f. RTS

2 Put the link into transferring state by entering the following commands:

a. MAPCI

b. MTC

c. IOD

d. IOC c (where c is the circuit number, for example, 0)

e. PORT n (where n is the port number, for example, 5)

f. RTS LINK p (where p is the link number; this is always 3)

3 Once the data link has been set up, the UCD lines (agents) must be put into service. Enter the following commands for each agent:

a. MAPCI

b. MTC

c. LNS

d. LTP

e. 2D dn (where dn is the UCD agent's DN)

f. RTS

To disable message transfer on the link (for the1X89 MPC port option on the IOM)

To shut down message transfer on the link, enter the following commands:

1 MAPCI

2 MTC

3 IOD

4 IOC c (where c is the circuit number, for example, 0)

5 PORT n (where n is the port number, for example, 5)

6 BSY n [FORCE] (where n is the card number, for example, 5; and FORCE is an optional parameter that you can use if the link is currently in use and you must immediately shut down the link)

Adjusting the volume level

Introduction

If the volume of recorded messages on the lines proves to be unacceptable, make modifications to the SL-100/DMS-100 Gain/Loss settings. Use the PADDATA program to make these changes. The following settings are affected:

- Gain/Loss from the line card to CallPilot
- Gain/Loss from CallPilot to the line card

The values given to these Gain/Loss settings depend on your specific operating requirements. These settings have the following appearance:

- STDLN customer_name x y

where customer_name is the customer name you have defined for your system in the Line Inventory table (LNINV)

For a loss, append L to the number. For example, 10L means a loss factor of 10.

Recommended settings

For more information on the PADDATA program, refer to one of the following NTPs:

- For an SL-100 switch, refer to the *Customer Data Schema Reference Manual* (555-4031-851).
- For a DMS-100 switch, refer to the *Customer Data Schema Reference Manual* (297-8001-351).

What's next?

Continue with Chapter 7, "Configuring the CallPilot server software," on page 159.

Chapter 5

Configuring the MCS 5100 switch

In this chapter

Overview of MCS 5100 system programming

Configuration of the Nortel Networks Multimedia Communication Server 5100 (MCS 5100) for CallPilot is done through MCS 5100 SIP Provisioning Web Client

Switch hardware and software requirements

Hardware

- CallPilot 1001rp rackmount server
- AudioCodes T1-CAS gateway
- Terminal server (SMDI)

For more information on hardware components and the T1/SMDI interface, see:

- Chapter 3, "Connecting the CallPilot server to the MCS 5100" on page 53 for CallPilot SMDI and T1 hardware components
- Appendix A, "CallPilot T1/SMDI interfaces," on page 193 for the CallPilot T1/SMDI interface

Switch software version required for CallPilot

The Nortel Networks Multimedia Communication Server 5100 (MCS 5100) requires MCS 5100 1.1.

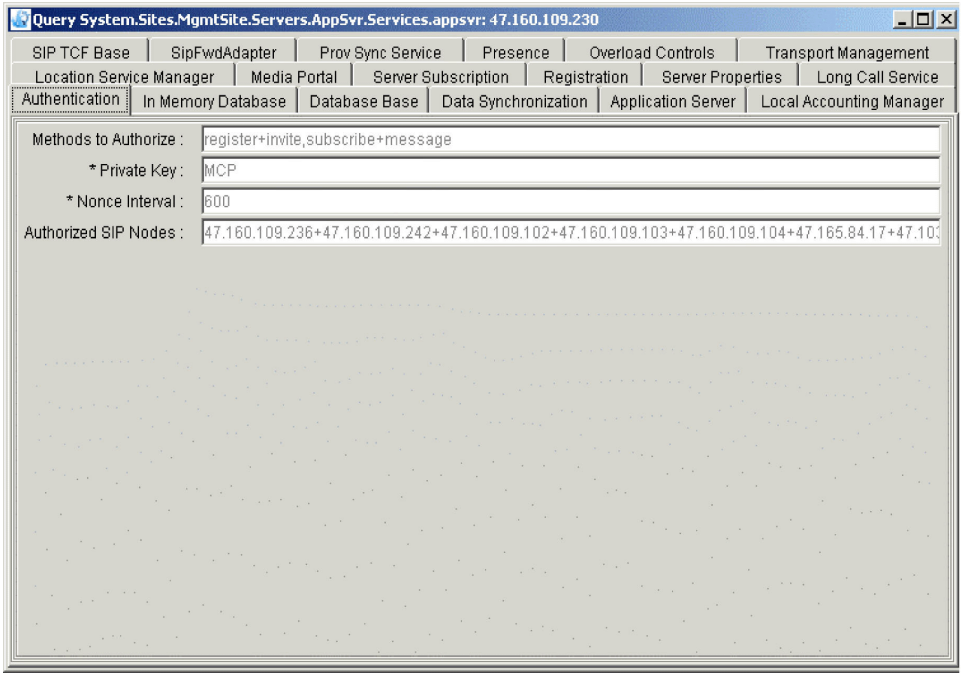
Documentation references for switch data filling

For information on programming the Multimedia Communication Server 5100 (MCS 5100) system, see the installation and commissioning documentation for your MCS 5100 system.

MCS 5100 configuration and provisioning

1. Provide user DNs to correspond with the AudioCodes T1-CAS channels.
2. Provide service and pilot DNs.
3. Configure the voice mail parameters
4. Assign SMDI parameters.
5. Assign AudioCodes IP to IMS authentication table.
6. Assign multimedia access server to the IMS authentication table.
7. Assign MediTrix IP to IMS authentication table.

Example: AudioCodes gateway added as an authorized SIP node.



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AddDomain

A root domain is the highest level domain. A service provider can create a root domain for each customer.

Parameter	Setting
Name	
Domain class of service by order	
Device access restriction	Full Access
i2004 locale	
Location	
Idle display	
WD phone timer	130
WD timer	120
Time FMT	12-hour
Date FMT	MonthFirst(MM/DD)
PSEIZ timer	15
PDIL timer	4
Alpha	True
Default proxy port	5060
Behind firewall	False
Allow all Codecs	True
Active proxy	True

Parameter	Setting
Default proxy host	
Time zone	
VocoderPacketTime	
Contrast	Contrast(8)
Server home	0.0.0.0
Realm for a domain	Realm
Always use media portal	False
Maximum number of presence subscriptions accepted	500

AddUsers

Once a domain or subdomain is provisioned, an administrator is responsible for managing the following user functions:

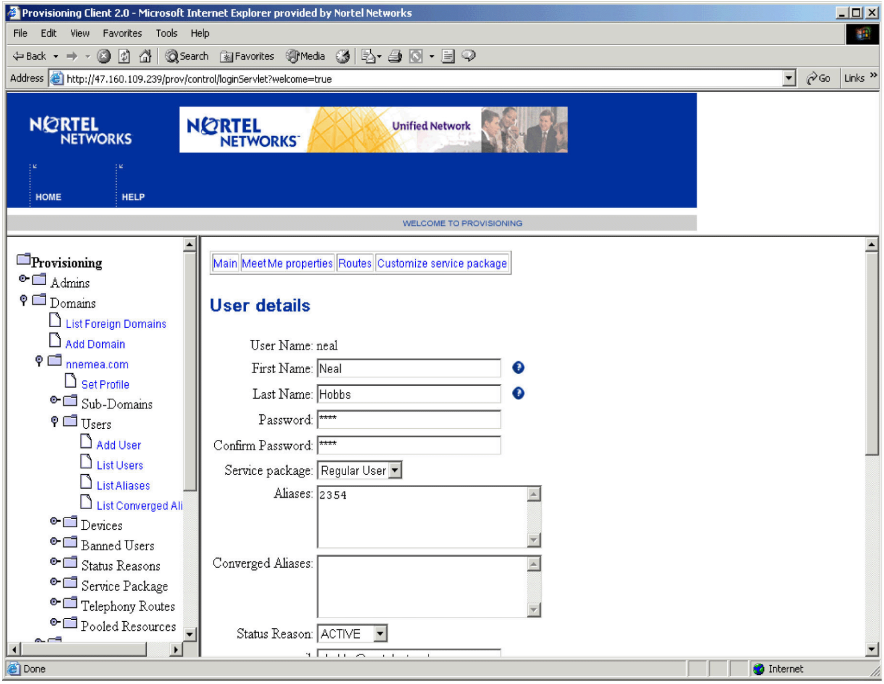
- adding, viewing, modifying, or deleting users (including blended users) from the domain or subdomain
- adding, viewing, modifying, or deleting i2004 Internet Telephone device properties
- assigning users to i2004 Internet Telephones
- customizing service packages (for example, to add a blended user if available as a service package option)
- viewing, modifying, or deleting aliases and/or blended aliases

Users added to MCS 5100 should match the users added on CallPilot server through CallPilot manager.

The UCD Group DN is a special user on MCS 5100. Do not assign an i2004 internet telephone to the UCD group DN. The UCD group DN must match the UCD Group DN configured on CallPilot server through the CallPilot manager Configuration Wizard and the Service Directory Number page.

Parameter	Setting
User Name	
Domain	
Name	
Phone	
Details	
Delete	

The following two examples show a typical user configuration for voice mail on the MCS 5100.



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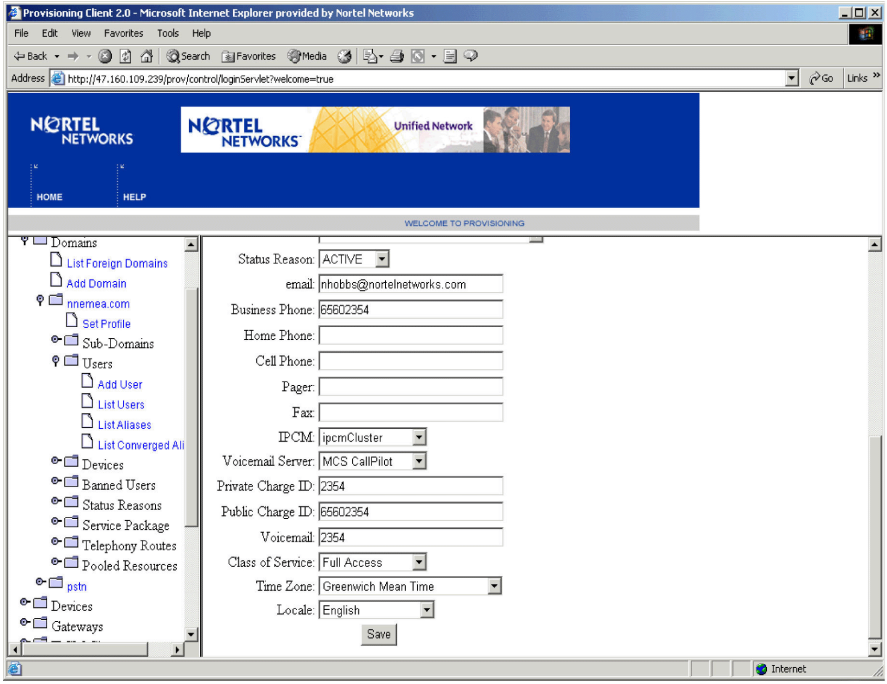

Provisioning Client 2.0 - Microsoft Internet Explorer provided by Nortel Networks
File Edit View Favorites Tools Help
Address http://47.160.109.239/prov/control/loginServlet?welcome=true
NORTEL NETWORKS
Unified Network
HOME
HELP
WELCOME TO PROVISIONING
Domains
List Foreign Domains
Add Domain
nnemea.com
Set Profile
Sub-Domains
Users
Add User
List Users
List Aliases
List Converged Ali
Devices
Banned Users
Status Reasons
Service Package
Telephony Routes
Pooled Resources
pstn
Devices
Gateways
Status Reason: ACTIVE
email: nhobbs@nortelnetworks.com
Business Phone: 65602354
Home Phone:
Cell Phone:
Pager:
Fax:
IPCM: ipcmCluster
Voicemail Server: MCS CallPilot
Private Charge ID: 2354
Public Charge ID: 65602354
Voicemail: 2354
Class of Service: Full Access
Time Zone: Greenwich Mean Time
Locale: English
Save
Internet

g250097

AddTelephonyRouteList

Route lists consist of specific telephony routes for a local domain, gateway, or another SIP domain. The following additional options can be applied to routes in the route list:

- allow all incoming sessions from other domains
- block all incoming sessions from other domains
- allow all incoming sessions from other subdomains
- block all incoming sessions from other subdomains

Parameter	Setting
Name	
Description	
Incoming Foreign Domain Call Routing	Allow
Incoming Local Domain Call Routing	Allow
Class of service	
Telephony route	

AddTelephonyRoute

The basic function of any communication equipment is routing. SIP-based systems add additional requirements to routing when compared to traditional circuit-switched network-based routing. Routing in the VoIP networks adds the complexity of integrating with the traditional circuit-switched networks and domain-based VoIP/SIP networks.

Parameter	Setting
Name	
Description	
From Digits	
To Digits	
Min Number of Digits	
Max Number of Digits	
Route Type	SIP
Remove	0
Prefix	
Recursive	No
Route List	

AddGateway

A gateway is a server that connects the SIP network with the PSTN. The gateway handles the negotiations for calls between PRI signaling and SIP signalling. The Gateways menu option is used by an administrator to provision a PRI gateway or the gateway's translations. The data submitted is validated by the provisioning system before being stored in the database.

The data entered in the SIP Provisioning Client should match the data entered of the gateway itself done in the System Management Console. For the PRI Gateway, the following items need to match:

- IP address of the gateway
- trunk group on the gateway
- domain assigned to the trunk group

Parameter	Setting
Gateway Host	
Gateway Type	
Trunk Group Name	
Gateway	
Gateway Route	
Delete	

AddVoiceMailServer

The SIP Provisioning Client enables you to provision third-party voice mail server information to:

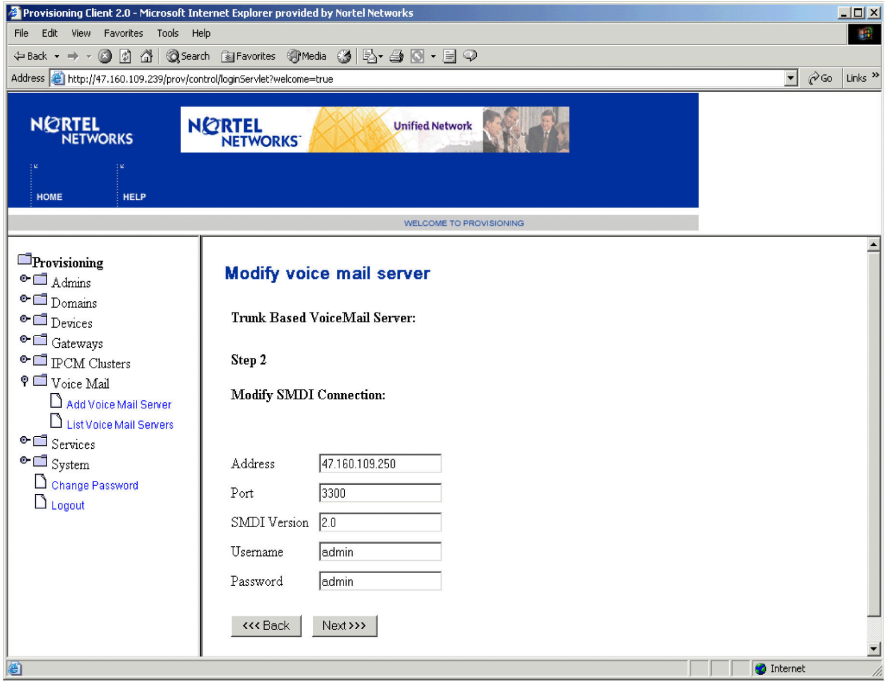
- set up and route calls to voice mail
- associate users to a voice mail server
- set up a voice mail server to receive message waiting indication (MWI) notifications

There are three types of voice mail server: SIP-based, line-based and trunk-based. For MCS 5100 to work with CallPilot, create trunk-based voice mail server. Provisioning a trunk-based voice mail server enables the administrator to configure the SIP Application Module so that it can communicate with a voice mail server using a PRI or CAS gateway.

The SIP Application Module is given information on what to query to find the correct gateway to send SIP calls to the voice mail server when calls are routed to voice mail. An SMDI TELNET session is configured to allow the SIP Application Module to send call setup information using a SMDI Call Detail Message to receive SMDI MWI messages.

Parameter	**Setting**
Description	
Client contact	
Host	
Type	
Delete	

The following two examples show the voice mail configuration in the MCS 5100.



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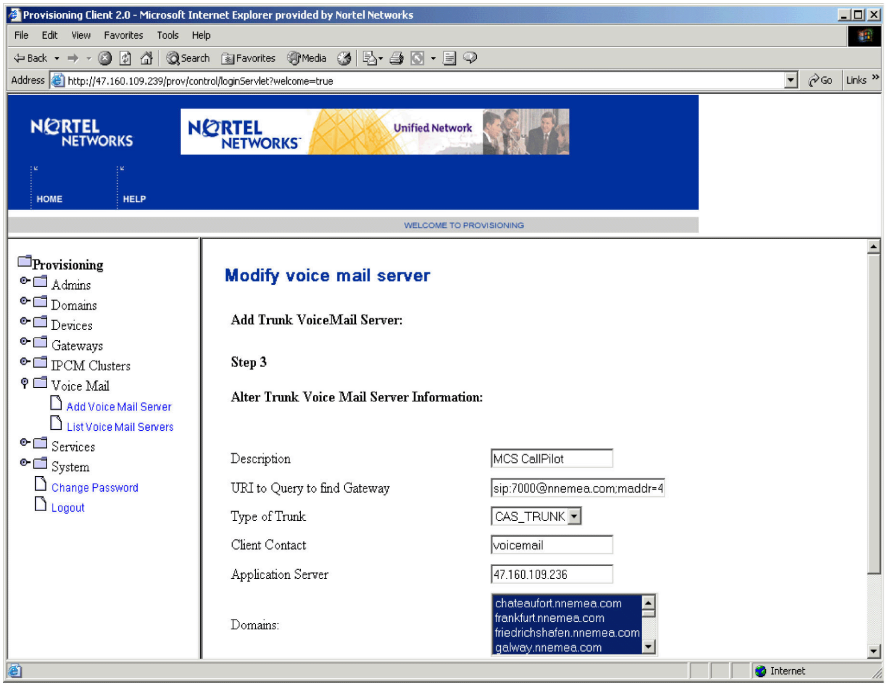

Provisioning Client 2.0 - Microsoft Internet Explorer provided by Nortel Networks
File Edit View Favorites Tools Help
Address http://47.160.109.239/prov/control/loginServlet?welcome=true
NORTEL NETWORKS
Unified Network
HOME
HELP
WELCOME TO PROVISIONING
Provisioning
Admins
Domains
Devices
Gateways
IPCM Clusters
Voice Mail
Add Voice Mail Server
List Voice Mail Servers
Services
System
Change Password
Logout
Modify voice mail server
Add Trunk VoiceMail Server:
Step 3
Alter Trunk Voice Mail Server Information:
Description
MCS CallPilot
URI to Query to find Gateway
sip:7000@nnemea.com;maddr=4
Type of Trunk
CAS_TRUNK
Client Contact
voicemail
Application Server
47.160.109.236
Domains:
chateaufort.nnemea.com
frankfurt.nnemea.com
friedrichshafen.nnemea.com
galway.nnemea.com
Internet

g250095

Chapter 6

Installing and configuring Intel software on the CallPilot server

In this chapter

Installing T1/SMDI Intel board software

The Intel (Dialogic) software is installed manually. The software can be installed before or after the CallPilot Server software has been installed on the server but must be installed before the Configuration Wizard is run.

1. Insert the CallPilot PEP CD-ROM into the CD-ROM drive.
2. Launch Windows NT Explorer.
3. Click the CD-ROM drive.
4. Open the folder:

   `\\PEP\Dialogic\dna`

5. To start the Dialogic software installation, double-click the file:

   `\\PEP\Dialogic\dna\setup.exe`

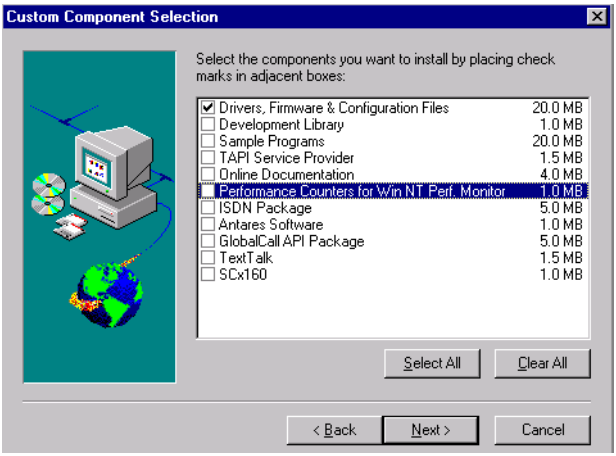
   Result: Dialogic setup initializes the system to install the Dialogic software.

6. The system displays the Welcome to Dialogic Setup window. Click Next to display the Registration Window.
7. In the Registration Window, enter the User name and Company name, then click Next.

   Note: Use the User name and Company name you entered during the installation of Windows NT.

8. In the Setup Options window, select the Custom option then click Next.

9 In the Custom Component Selection window, select the check box for Drivers, Firmware and Configuration Files, then click Next.



10 In the Destination Location window, click Browse to create a directory where the setup process will copy files.

Result: The Choose Directory dialog box appears.

11 In the Path field, enter d:\Program Files\Dialogic, then click OK.

12 In the pop up window that asks if you want to create the directory click Yes.

Result: The Destination Location window redisplays, showing the new directory.

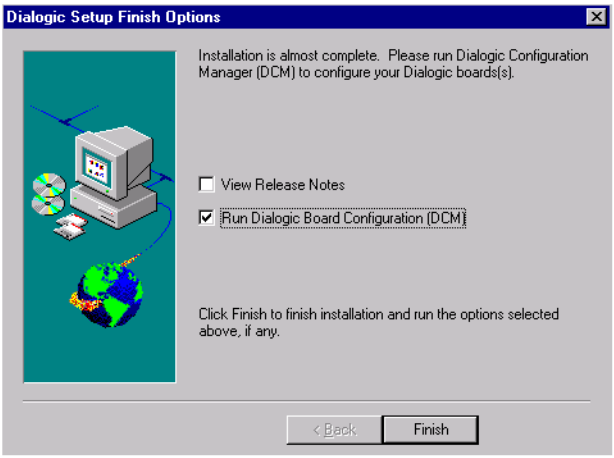
13 Click Next in the Destination Location window.

14 In the Program Group Folder, click Next to accept the default values.

15 In the Setup Options Summary, click Next to accept the Current Settings and begin the installation

Result: The copying files status window appears. When the files are copied, the Dialogic Setup Finish Options window appears.

16 In the Dialogic Setup Finish Options window deselect the View Release Notes check box. Select the Run Dialogic Board Configuration (DCM) check box and click Finish.



17 Click No to skip the GammaLink Fax software installation.

Result: The Reboot Windows dialog box appears

18 In the Reboot Windows dialog box, click No, I will restart my computer later.

Result: An information window appears showing setup is complete

19 Click OK to continue with “Configuring T1/SMDI Intel board software” on page 153.

Configuring T1/SMDI Intel board software

Starting the Dialogic configuration manager

The Dialogic configuration manager can be started in two ways:

- by selecting OK in step 19 on page 152 to continue from the previous procedure for configuring Dialogic software
- manually from the start menu: Start > Programs > Dialogic Systems Software > Dialogic Configuration Manager

Clock synchronization

Two clock synchronizations are configured, one for the internal voice bus (SCBus) and other for the T1 mastership.

In a system with one or two Intel Dialogic boards (DTI/480SC, id 0 and id 1), the SCbusClockMaster and SCbusClockMasterSource parameters must be set in the Dialogic Configuration Manager. The parameters affect all Dialogic cards in the system and only need to be set once.

- CallPilot as the T1-Slave configuration

  For configurations with CallPilot as the T1-Slave, SCbusClockMaster is set to Automatic and SCbusClockMasterSource is set to Loop in the Dialogic Configuration Manager.

  With these settings, by default, the clock signal (SCBus synchronization clock) is taken from the first T1 span on board-0 (the DTI/480SC with rotary id 0). If that T1 fails, the system reverts automatically to internal clocking, that is, Independent Mode where the clock signal comes from the Dialogic board itself. The system may run for a while in this mode but eventually frame slips cause the spans to go down.

- CallPilot as the T1-Master configuration

  For configurations with CallPilot as the T1-Master, SCbusClockMaster is set to Automatic and SCbusClockMasterSource is set to Independent in the Dialogic Configuration Manager:

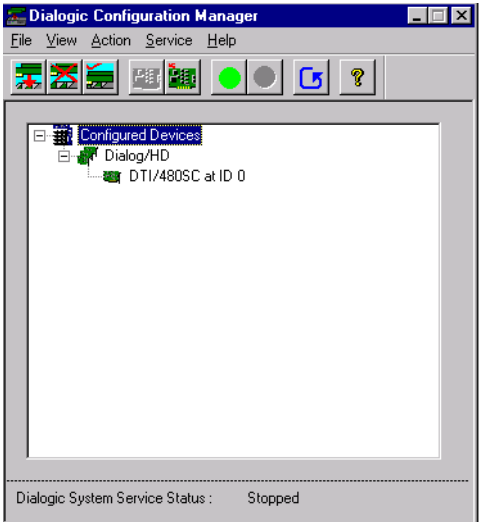
With these settings, by default, the clock signal (SCBus synchronization clock) is taken from the internal clock on board-0 (the DTI/480SC with rotary id 0). If the internal clock on board-0 fails, the system reverts automatically to the internal clock of the second board (that is, board-1).

Optionally, you can specify a specific T1 board to be SCbusClockMaster. The board ID selected must correspond to the rotary-switch setting of the board that is to serve as the SCBus clock master.

In both configurations, the Dialogic cards are always configured to take Scbus Clock Mastership since the MPB16-4 cards are defaulted to be slaves.

Running the Dialog configuration manager

1 In the Dialog configuration manager window, select the board you want to configure.



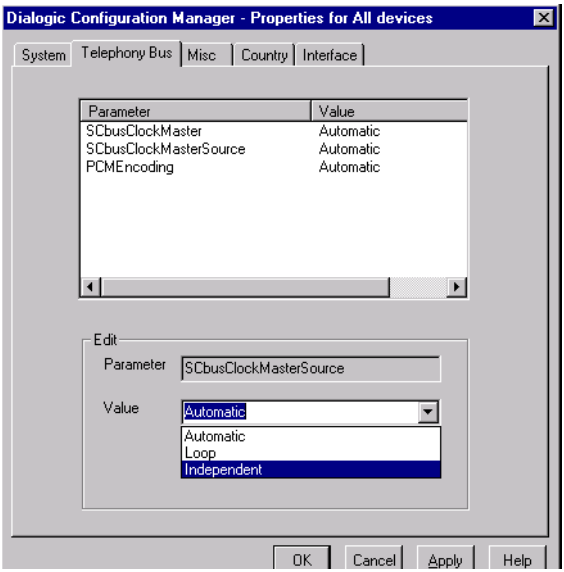
2 From the Dialog configuration manager menu, select Action > Configure Device to configure the Dialogic board.

Result: The Dialogic Configuration Manager—Properties for All devices window appears.

3 Select the Telephony Bus tab. Highlight the parameter SCbusClockMasterSource, and select a Value appropriate to your switch type:

Switch	Value
SL-100	Loop
DMS-100	Independent
5ESS	Independent
Nortel Networks Multimedia Communication Server (MCS) 5100	Independent

Note: The ScbusClockMaster is configured as Automatic so that the Dialogic card will take SCbus Clock Mastership since the MPB16-4 cards are defaulted to be slaves. For more information, see “Clock synchronization,” on page 153.



4 Select the Misc tab. Highlight ParameterFile and enter spandti.prm in the value field.

5 Click OK to apply these changes and close the window.

Or, to exit the window without applying the changes, click Cancel.

Or, to apply the changes without closing the window, click Apply. You might select another tab to make changes.

Result: You are returned to the Dialogic Configuration Manager window.

6 From the Service menu in the Dialogic Configuration Manager window, select Startup Mode > Automatic.

7 From the Service menu again, select Start Service.

Result: The Dialogic System Service pop-up window appears.

8 Click OK to close the pop-up window.

9 Click File > Exit to exit the Dialogic Configuration Manager.

10 Open the folder:

```
\\PEP\Dialogic
```

11 Click on the file to execute:

```
dialogic_service_7.06.reg
```

12 Remove the PEP CD-ROM from the CD-ROM drive.

What's next

Continue with Chapter 7, "Configuring the CallPilot server software".

Uninstalling T1/SMDI Intel board software

1. To uninstall the exiting Dialogic software, select:
   Start → Programs → Dialogic System Software → Uninstall
2. The Confirm File Deletion window opens. Click OK to confirm the deletion of the Dialogic software.
3. As each Shared File Detected window opens, click Yes to delete the file.

   After the shared files are deleted, the Setup Status window displays the progress.
4. Reboot the system by clicking OK when the Uninstall Status window recommends a reboot.

Chapter 7

Configuring the CallPilot server software

In this chapter

Overview

Introduction

The Configuration Wizard enables you to configure the CallPilot server software. You can rerun the Configuration Wizard to update or review the server configuration.

The Configuration Wizard is accessible from CallPilot Manager (a web-based user interface). This chapter describes how to

- log on to Windows NT on the CallPilot server
- log on to the CallPilot server with CallPilot Manager
- run the Configuration Wizard
- change the pcAnywhere caller passwords

CAUTION

Risk of improper configuration

You must use the Configuration Wizard to change the computer name. If you use the Windows NT method to change the computer name, it is not properly updated in the CallPilot software.

Plan your responses to the Configuration Wizard

Ensure you have planned your responses to the Configuration Wizard by completing the "Configuration Wizard worksheet" in Part 1 of the *CallPilot Installation and Configuration* guides.

Online Help for the Configuration Wizard

Each screen in the Configuration Wizard contains a Help button and provides detailed instructions regarding the selection or data entry required. Click Help at any time to get additional instructions.

Running the Configuration Wizard to detect replacement boards

When you replace boards, you must rerun the Configuration Wizard to detect and initialize the hardware. You do not need to change any data in the Configuration Wizard to perform this operation, but you do need to apply the configuration changes as instructed on the last screen of the Configuration Wizard.

Logging on to Windows NT on the CallPilot server

Introduction

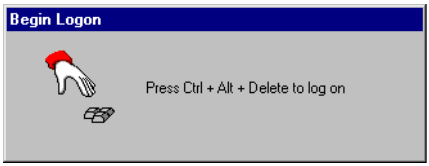
If you want to access CallPilot Manager from the web browser embedded on the CallPilot server, you must first log on to Windows NT on the CallPilot server. Alternatively, you can access CallPilot Manager from any PC that has network access to the CallPilot server.

ATTENTION

When logging on, ensure that the Caps Lock key is not on. The password is case sensitive.

To log on to Windows NT on the CallPilot server

1 Ensure that the CallPilot server has started and the Windows NT logon prompt appears.



2 Press Ctrl+Alt+Delete.

Result: The Logon Information dialog box appears.

g250015

3 Type **Administrator** as the user ID.

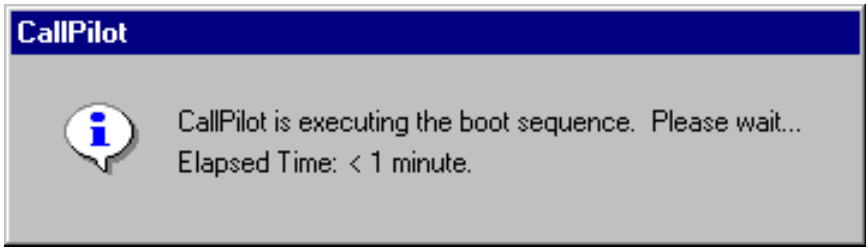
Note: You can choose to log on with a different user ID that has local administrative privileges.

4 Type the default password **cpabc123** (or the current administrator password if it has been changed already).

Note: All passwords to Windows NT accounts should be changed from their default values to strong values known only to the customer. This includes the “gamroot” account used for the AR352 RAID card. CallPilot security is ultimately only as good as the passwords used.

5 Click OK.

Note: If the Configuration Wizard has previously been run on the CallPilot server, the following dialog box may appear:



Other dialog boxes may also appear that state if CallPilot is ready to accept calls. These dialog boxes are part of the CallPilot system ready indicator feature and are not applicable until you have run the Configuration Wizard.

Ignore these dialog boxes and continue with “Running the Configuration Wizard” on page 169. See “Checking that CallPilot is ready to accept calls” on page 174 for more information about the system-ready indicator dialog boxes.

Logging on to the CallPilot server with CallPilot Manager

Introduction

You must use a web browser to log on to and administer the CallPilot server.

The logon process is completed in two stages:

1. Launch the web browser (on the CallPilot server, or on any PC that has network access to the CallPilot server).

   The web browser on the CallPilot server is configured to automatically connect to the CallPilot Manager web server. If you launch the web browser on a PC, you must specify the URL for the CallPilot Manager web server.

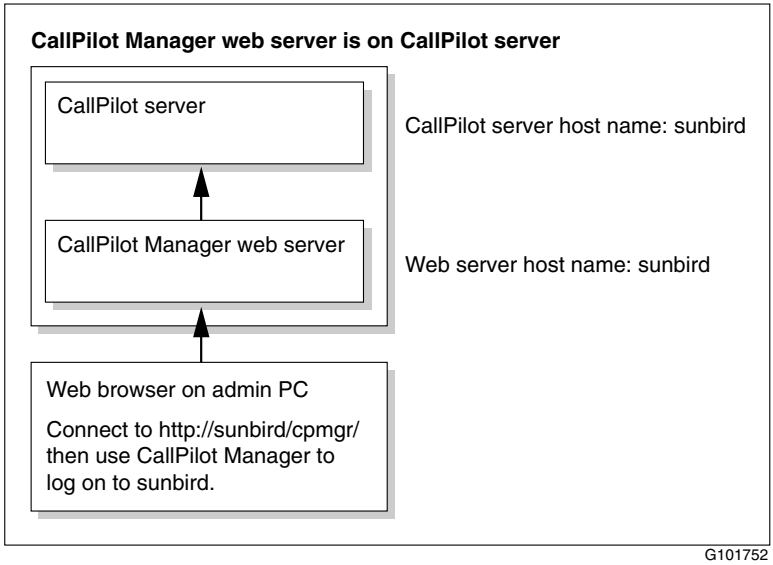
   The URL syntax is http://<web server host name or IP address>/cpmgr/.

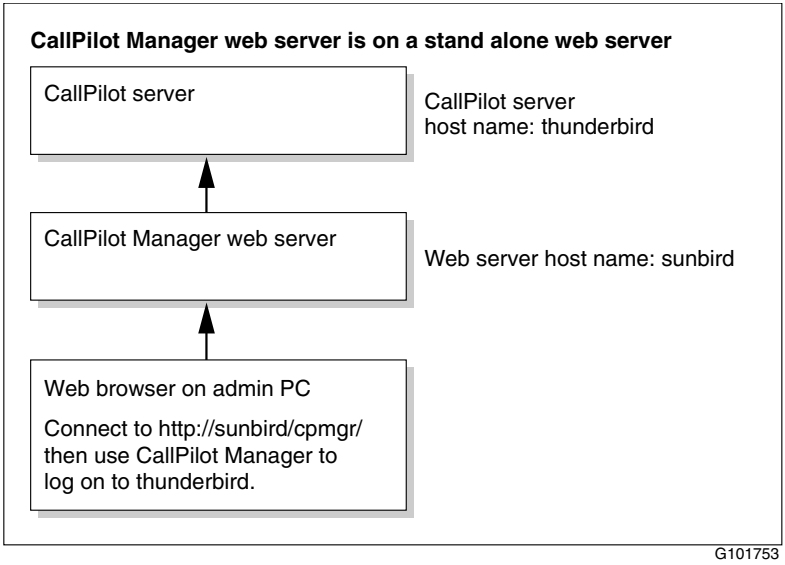
2. Log on to the CallPilot server with an administrator's mailbox number and password.

Relationship of the CallPilot Manager web server to the CallPilot server

The CallPilot Manager web server software can be installed on the CallPilot server, or on a stand-alone server. If the CallPilot Manager web server software is installed on a stand-alone server, you must know the CallPilot Manager server's host name or IP address, as well as the CallPilot server's host name or IP address.

See the following diagrams:


CallPilot Manager web server is on CallPilot server
CallPilot server
CallPilot server host name: sunbird
CallPilot Manager web server
Web server host name: sunbird
Web browser on admin PC
Connect to http://sunbird/cpmgr/ then use CallPilot Manager to log on to sunbird.
G101752

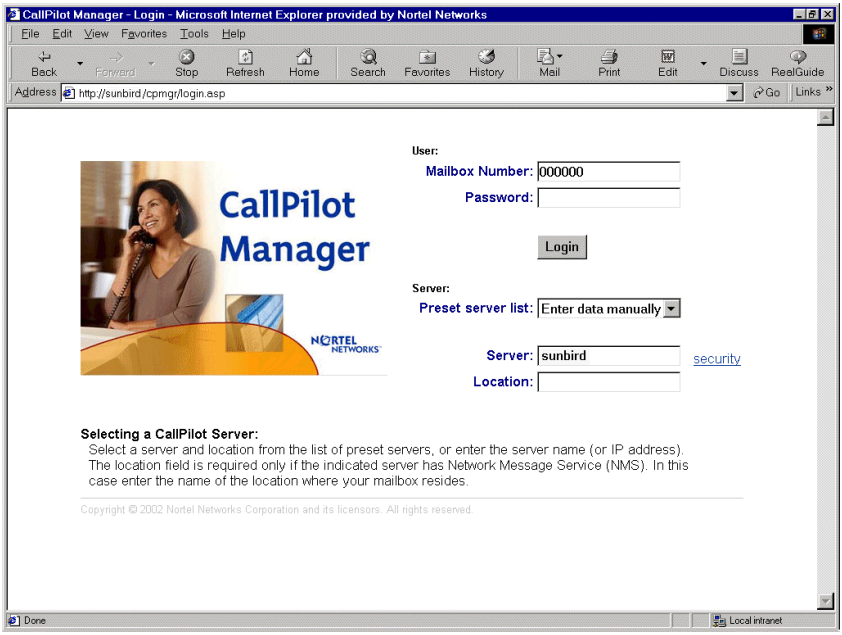

CallPilot Manager web server is on a stand alone web server
CallPilot server
CallPilot server host name: thunderbird
CallPilot Manager web server
Web server host name: sunbird
Web browser on admin PC
Connect to http://sunbird/cpmgr/ then use CallPilot Manager to log on to thunderbird.
G101753

To log on to the CallPilot server

1 Launch the web browser on a PC or on the CallPilot server.

IF you are launching the web browser on	THEN
the CallPilot server	the CallPilot Manager login screen appears automatically. Continue with step 2.
your PC	type the CallPilot Manager web server's URL in the Address or Location box of your web browser, and then press Enter. **Example:** http://sunbird/cpmgr/ When the connection is established, the CallPilot Manager—Login screen appears. Continue with step .2.

.



2 Type the administrator mailbox number and password.

The administrator mailbox number is **000000**. The default password is **124578**.

3 Do one of the following:

- Choose a server or location from the list of preconfigured servers or locations in the Preset server list box. Or, choose the Last Server Accessed item.
- Type the CallPilot server's host name or IP address in the Server box.

  Note: If you are logging on to the CallPilot server from a PC, type the actual CallPilot server name or IP address in the Server box. If you type *local host* instead of the CallPilot server name or IP address, you cannot establish an Application Builder connection to the CallPilot server from CallPilot Manager or make calls to the phoneset to play or record greetings.
- If the CallPilot server that you are connecting to has Network Message Service (NMS) installed, type the CallPilot server's host name or IP address in the Server box, and then type the name of the switch location on which the administration mailbox resides in the Location box.

4 Click Login.

Result: The main CallPilot Manager screen appears.

5 Continue with “Running the Configuration Wizard” on page 169.

Running the Configuration Wizard

Introduction

This section describes how to access and run the Configuration Wizard.

Requirements

- CallPilot language CD, if you are installing, adding, or upgrading languages
- completed "Configuration Wizard worksheet" from Part 1 of the *CallPilot Installation and Configuration* guides
- CallPilot keycode and serial number

To run the Configuration Wizard

ATTENTION

For each screen in the Configuration Wizard, follow the instructions on the screen. Use the information you recorded in the "Configuration Wizard worksheet" in Part 1 of the *CallPilot Installation and Configuration* guides. If you need additional instructions, click Help.

If you are rerunning the Configuration Wizard, some screens may be prefilled. Some screens also contain default values. If the prefilled information does not match the information planned for this server, then update any prefilled values as required.

1. Log on to CallPilot Manager. See "Logging on to the CallPilot server with CallPilot Manager" on page 164.
2. Click the Configuration Wizard shortcut on the main CallPilot Manager screen, or select Tools → Configuration Wizard.

   Result: The Welcome screen of the Configuration Wizard appears.

3 Click Next to go to the next screen.

4 Read the instructions carefully on each screen. Click Help on the Configuration Wizard screen if you need additional instructions. When you are finished with a screen, click Next to continue.

5 When you reach the end of the Configuration Wizard, click Finish to save the Configuration Wizard changes, or click Cancel to discard any changes. No changes are implemented unless you click Finish.

Result: The Configuration Wizard requires up to an hour to apply changes, depending on the number of languages you are installing or updating, and the size of the system. When CallPilot completes the configuration changes, you are prompted to restart the server.

6 Restart the server.

Note: Ensure you use the restart procedure documented in Part 1 of the *CallPilot Installation and Configuration* guides.

Result: The server restarts and the configuration changes are in effect.

What's next?

Continue with "Changing pcAnywhere caller passwords" on page 171.

Changing pcAnywhere caller passwords

Introduction

With pcAnywhere, you can perform advanced administrative tasks on the server from a remote PC. You can control the server as though you were directly connected to the server.

One licensed copy of pcAnywhere is provided for the server on the CP 2.0 OS Recovery CD (or Upgrade CD). pcAnywhere is installed and configured on the server at the factory.

To install pcAnywhere on another PC, you must purchase a separate license. For instructions on how to install and configure pcAnywhere on another PC, refer to the *Administrator's Guide*.

To simplify the remote logon process, Nortel Networks recommends that you match the pcAnywhere caller password for CallPilotDist with the Nortel Networks user account password for NGenDist. Therefore, Nortel Networks recommends that you change the pcAnywhere caller CallPilotDist password and the Windows NT NGenDist account password at the same time.

To change pcAnywhere caller passwords

1. Stop the pcAnywhere session, if one is running.
2. Click Start → Programs → Symantec pcAnywhere.

   Result: The pcAnywhere Manager opens.
3. Right-click the CallPilot icon, and then select Properties from the pop-up menu.

   Result: The pcAnywhere Host Properties: CallPilot dialog box appears.
4. Click the Callers tab.
5. Right-click the CallPilotDist icon, and then select Properties from the pop-up menu.

6 In the Password box, type a new CallPilotDist password.

7 In the Confirm Password box, type the CallPilotDist password again.

8 Click Apply.

9 Click OK.

10 Click OK to return to the main pcAnywhere Manager screen.

11 Double-click the CallPilot icon to restart the pcAnywhere session.

What's next?

Continue with Chapter 8, "Testing the CallPilot installation," on page 173.

Chapter 8

Testing the CallPilot installation

In this chapter

Checking that CallPilot is ready to accept calls

ATTENTION

CallPilot is not ready to accept calls until the CallPilot services are fully operational. CallPilot services require approximately 10 minutes after starting up the CallPilot server to become fully operational.

Introduction

CallPilot uses various system-ready indicators to indicate when it is ready to accept calls, including

- displaying messages in dialog boxes on the CallPilot server monitor after logon, as well as displaying a status icon in the top right corner of the CallPilot Manager window
- generating events that can be viewed in the Event Browser or Alarm Monitor in CallPilot Manager

The system-ready indicators described in this section appear when you restart the server, and when a change in system readiness status occurs CallPilot is running.

The system-ready indicators appear only if the Configuration Wizard has previously been run on the server. The CallPilot server is not ready to accept calls if the Configuration Wizard has not been run.

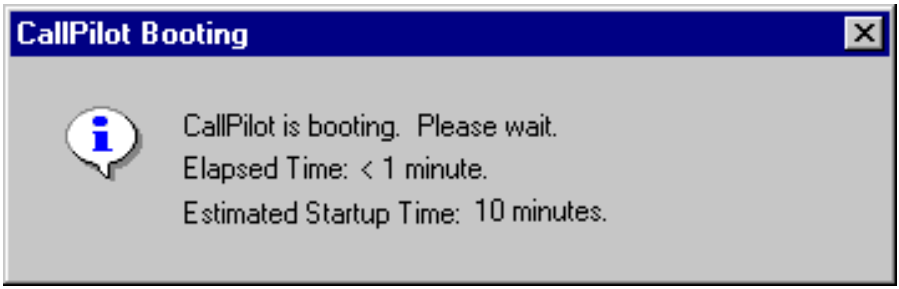
Note: The Configuration Wizard may have been run at the factory or distributor's site prior to shipment to the customer site. If so, then system-ready indicators are visible even the first time you start up CallPilot at the customer site.

Checking system readiness by observing the dialog box messages

A system-ready indicator dialog box appears on the screen any time there is a change in system readiness status. You can close these dialog boxes at any time. If the status changes, a dialog box appears again.

At all times, a system-ready indicator icon appears in the task bar in the bottom right corner of the screen. To view the system-ready indicator dialog box after you close it, double-click the system-ready indicator icon. To view the current status (boot, pass, warn, or fail), place the mouse pointer over the system-ready indicator icon. Help text (roll-over text) appears after a few seconds that states the current status.

Immediately after you log on to the server, the following dialog box appears on the screen if CallPilot services are not yet fully operational. It can take approximately 1 minute after logon for this dialog box to appear:



The Elapsed Time indicates how much time has passed since the CallPilot application began its boot sequence.

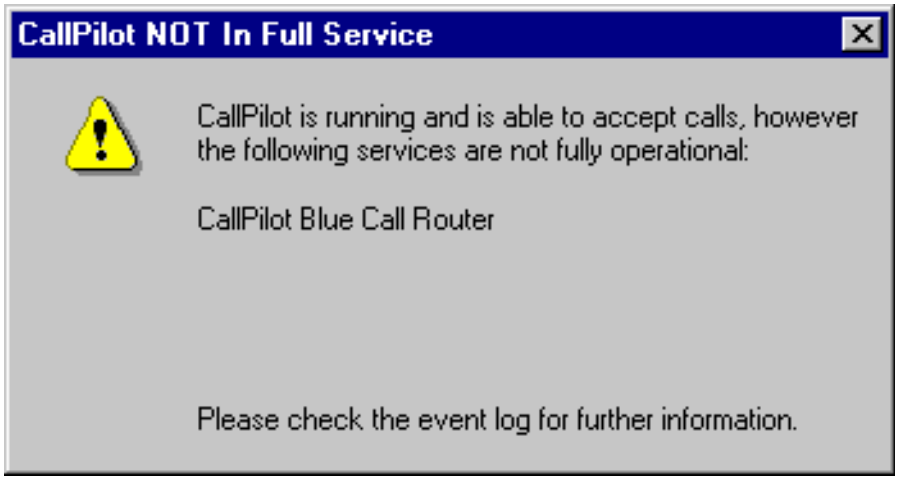
Note: This dialog box may not appear if enough time has passed between starting up the CallPilot server and logging on for CallPilot services to become fully operational. It takes approximately 10 minutes after starting up the CallPilot server for CallPilot services to become fully operational.

If the CallPilot start sequence is passed successfully (that is, CallPilot services are fully operational), the following dialog box appears:

Click OK to close the dialog box.

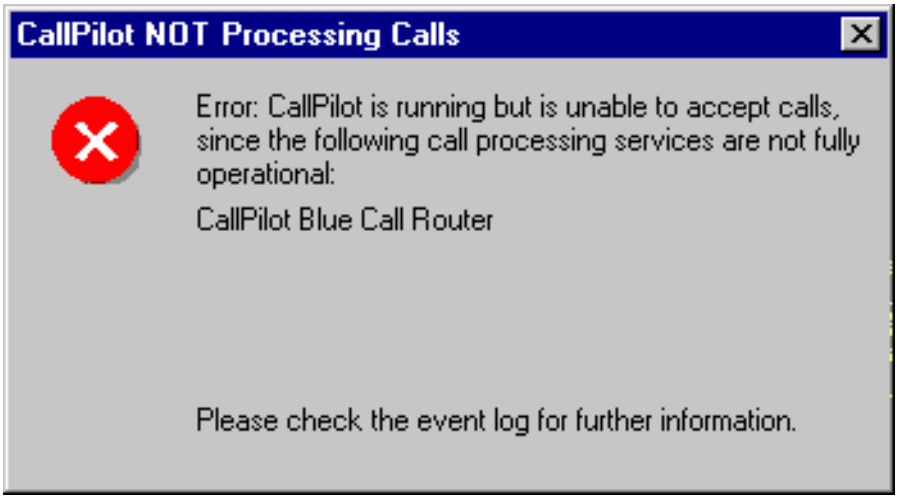
If there are errors, one of the following two dialog boxes appears (depending on the severity of the problem):

Warning message



Close the dialog box by clicking the X in the upper right corner. Check the Event Browser or Alarm Monitor in CallPilot Manager for more details. For instructions, refer to the online Help in CallPilot Manager.

Error message



Close the dialog box by clicking the X in the upper right corner. Check the Event Browser or Alarm Monitor in CallPilot Manager for more details. For instructions, refer to the online Help in CallPilot Manager.

Alternative methods for verifying that CallPilot is ready to accept calls

View events in CallPilot Manager or in the Windows NT Event Viewer on the server

The Pass, Warning, and Error system-ready indicator messages appear as events in the Event Browser and Alarm Monitor in CallPilot Manager, and in the Windows NT Event Viewer on the server.

The Event Browser and Alarm Monitor show only the latest 100 events by default (this default can be adjusted), so it is possible for the system-ready indicator events to be removed from the Event Browser and Alarm Monitor windows.

For detailed instructions on viewing events, refer to the online Help in CallPilot Manager.

Testing the connection to the CLAN

Introduction

This procedure tests the network connection between the server and the customer LAN (CLAN). This applies only if CallPilot has a CLAN card and is connected to a CLAN.

To test the connection to the CLAN

1. Click Start → Programs → Command Prompt.

   Result: The Command Prompt window appears.

2. Type **ping** followed by the CLAN IP address of another PC on the CLAN, and then press Enter.

   Example: ping 255.255.255.255

   Result: The display should indicate a successful ping.

3. Type **exit**, and then press Enter to close the Command Prompt window.

Verifying that CallPilot can receive calls

Introduction

The following procedure is a basic test to verify that CallPilot is able to receive calls from the switch and answer those calls. A more thorough test that requires the use of CallPilot Manager is described in “Testing the CallPilot software and channels” on page 180.

To verify that CallPilot can receive calls

1. Ensure that CallPilot services are fully operational before you begin. See “Checking that CallPilot is ready to accept calls” on page 174.
2. Dial the main Voice Messaging DN that you defined in the Configuration Wizard.
3. Listen for a response from CallPilot (for example, “CallPilot from Nortel Networks ...”), and then hang up.

   If you do not get a response, then do the following:

   a. Check the cabling between the server and the switch.

   b. Verify that the switch is processing calls to other extensions.

   c. Refer to Part 5 of the *CallPilot Installation and Configuration* guides for troubleshooting instructions.

What’s next?

Continue with “Testing the CallPilot software and channels” on page 180.

Testing the CallPilot software and channels

Introduction

This section includes a series of tests of the CallPilot installation including verifying that

- you can leave a message
- you can retrieve a message
- each call channel and multimedia (DSP) channel is functioning properly

Before you begin

- Ensure that you have configured the switch and CallPilot server, as described in this guide.
- Obtain the UCD group DNs (primary DNs)
- Identify a phoneset DN that exists on the switch that you can use for testing.
- Have a pencil and paper ready to record the results of the tests.

To verify that you can leave a message

Complete the following procedures to perform this test:

- "To add a user for testing purposes" on page 181
- "To configure the Voice Messaging DN" on page 182
- "To leave a message" on page 182

To add a user for testing purposes

1 Log on to Windows NT on the CallPilot server. See “Logging on to Windows NT on the CallPilot server” on page 162.

Note: Although you can access CallPilot Manager from any PC that has network access to the CallPilot server, later tests require that you be logged on to the CallPilot server.

2 Log on to CallPilot Manager. See “Logging on to the CallPilot server with CallPilot Manager” on page 164.

3 Click Users → Add User.

Result: The Express Add window appears.

4 Type the required information. Each required field is marked with an asterisk (*). Accept the default values for other fields.

For example, create a user named TEST USER.

ATTENTION

The tests in this section use the mailbox number 8050 as an example. Ensure that you specify a DN that is defined on the switch.

5 Click Advanced User Add.

Result: The Advanced User Add window appears, and the information you have already entered appears.

6 Scroll down to the Security section of the window and specify a mailbox password. Write down the password. Leave all other fields at their default values.

7 Click Express Add.

Result: The Express Add window appears.

8 Click Add.

Result: CallPilot Manager displays a summary of the user just added.

To configure the Voice Messaging DN

Note: If you have already configured a Voice Messaging CDN in the Configuration Wizard, then you can skip this procedure. If you are not sure, continue with this procedure to verify that a Voice Messaging CDN is present, or to configure one if necessary.

1 Click System → Service Directory Number.

Result: The Service Directory Number window appears.

2 Click New.

Result: The SDN Detail window appears.

3 In the Service DN box, type the primary Voice Messaging DN for CallPilot.

Note: If there are no voice channels installed on CallPilot, then use the fax or speech recognition primary DN as the Voice Messaging DN for these tests. You can still use the Voice Messaging application as described in this procedure.

4 In the Application Name box, select Voice Messaging.

5 In the Media Type box, select Voice.

Note: If there are no voice channels installed on CallPilot, then select Fax or Speech Recognition based on the DN that you specified in step 3.

6 Click Save.

To leave a message

1 From any active phoneset that is connected to the switch, dial the Voice Messaging Service DN that you have just created.

Result: CallPilot plays the following prompt: “Nortel CallPilot. Mailbox?”

Note: If CallPilot does not answer the call or you do not hear a prompt, then check that the call channels and multimedia channels are in Idle state, as described in “Verifying that each call channel and multimedia channel is functioning properly” on page 185.

2 Enter the mailbox number followed by number sign (#), for example, 8050#.

Result: CallPilot plays the following prompt: *Password?*

3 Enter the mailbox password **135246#**.

Result: CallPilot plays the following prompt: *The temporary password assigned by your administrator must be changed. To access your mailbox, please press 84 and change your password.*

4 Press **84**.

Result: CallPilot plays the following prompt: *Password change. To authorize the change, please enter your old password followed by number sign.*

5 Enter **135246#**.

Result: CallPilot plays the following prompt: *Please enter your new password followed by number sign.*

6 Enter a new mailbox password followed by number sign (#), for example, 805011#.

Result: CallPilot plays the following prompt: *Please enter your new password again followed by number sign.*

7 Enter the new mailbox password again to confirm, for example, 805011#.

Result: CallPilot plays the following prompt: *Your password has been changed. Your mailbox is empty.*

8 Press **75** to compose a message.

Result: CallPilot plays the following prompt: *Compose…*

9 Enter the mailbox number, followed by number sign (#) twice, for example, 8050##.

Result: CallPilot plays the following prompt: *To begin recording, Press 5. To end recording, press number sign.*

10 Press **5** to record a message. Record a message, and then press number sign (#) to stop.

Result: CallPilot plays the following prompt: *Recording Stopped*. There is a brief pause, followed by the prompt: *To review the message, press 2, to send it, press 79…*

11 Press **79** to send the message.

Result: CallPilot plays the following prompt: *Message sent and deleted.*

12 Press **83**, and then hang up the phone.

13 Verify that the Message Waiting Indicator (MWI) is on.

To verify that you can retrieve a message

1 Pick up the telephone handset and dial the same Voice Messaging Service DN again.

2 When prompted, enter the mailbox number where the message was left, for example, 8050#.

Result: CallPilot plays the following prompt: *Password?*

3 Enter the mailbox password, for example, 805011#.

Result: CallPilot plays the following prompt: *You have one new message. Message one. New. From…* .

ATTENTION

If you do not hear the exact message, *You have one new message…*, this indicates that the wrong prompts have been installed or that CallPilot did not install properly.

If you did not hear the correct message, contact your Nortel Networks customer support representative.

4 Press **2** to play the message, and then listen to it.

5 Press **76** to delete the message.

Result: CallPilot plays the following prompt: *Message 1 deleted.*

ATTENTION

If you do not hear the exact message, *Message 1 deleted*, this indicates that the wrong prompts have been installed or that CallPilot did not install properly.

If you do not hear the correct message, contact your Nortel Networks customer support representative.

6 Press **83** and then hang up the phone.

Verifying that each call channel and multimedia channel is functioning properly

These tests verify that the call channels and multimedia (DSP) channels are functioning properly.

The call channel is the channel that carries the call signal from the switch to CallPilot. The multimedia channel is the channel in CallPilot that processes the call and provides voice, fax, or speech recognition capability.

These tests consist of the following procedures:

- "To test call channels and voice channels" on page 186 (Skip this procedure if you do not have voice channels installed.)
- "To test call channels and fax channels" on page 188 (Skip this procedure if you do not have fax channels installed.)
- "To test call channels and speech recognition channels" on page 189 (Skip this procedure if you do not have speech recognition channels installed.)
- "To restore the SDN Table and put all channels back in service" on page 191

Note: These tests require that you access the Channel Monitor, Multimedia Monitor, and Service Directory Number applications in CallPilot Manager. If you need additional instructions for these programs, refer to the online Help in CallPilot Manager, or to the *CallPilot Administrator's Guide* (555-7101-301). You also are required to access the System Monitor utility. The System Monitor utility is described in the chapter "Using CallPilot system utilities" in Part 5 of the *CallPilot Installation and Configuration* guides.

To test call channels and voice channels

Note: If CallPilot has no voice channels, go to "To test call channels and fax channels" on page 188. If CallPilot also has no fax channels, go to "To test call channels and speech recognition channels" on page 189.

1 In CallPilot Manager, click System → Service Directory Number.

Result: The Service Directory Number window appears.

2 In the earlier tests, you created a Voice Messaging Service DN. Ensure that the Voice Messaging Service DN is set to the Primary DN for the Voice UCD group.

Note: If the Voice Messaging Service DN is not set properly, select the defined Service DN and click File → Properties. Make the required changes, and then click Save.

3 In the Application Name box, ensure that Voice Messaging is selected.

4 In the Media Type box, ensure that Voice is selected.

5 Click Maintenance → Multimedia Monitor.

Result: The Multimedia Monitor appears.

6 Select and start a maximum of 8 voice channels for testing.

Note: Nortel Networks recommends that you test a maximum of 8 voice channels at one time. For example, if you have a 96-channel system, start only 8 voice channels. When those 8 voice channels are tested, stop them and start another set of voice channels.

7 Stop all fax and speech recognition channels, if these channels are present.

8 Verify that all voice channels are in Idle state.

9 In CallPilot Manager, click Maintenance → Channel Monitor.

Result: The Channel Monitor appears.

10 Select the whole system and stop all channels.

11 Select and start the same number of call channels as voice channels that you have started. For example, if you have started 8 voice channels, then start 8 call channels.

12 On the CallPilot server desktop, click Start → Programs → CallPilot → System Utilities → System Monitor.

Result: The CallPilot System Monitor window appears. By default, the Channel Monitor tab appears on top.

13 Observe the System Monitor window and verify that all the required multimedia (DSP) and call channels are in Idle state, and that all other channels are Off Duty (out of service).

14 Use a telephone to dial the service DN that you entered in the SDN table for Voice Messaging.

15 Verify that CallPilot answers the call and that the CallPilot greeting plays.

16 Observe the System Monitor and record which call channel and which voice channel changes to Active state.

17 Hang up the telephone.

18 Repeat steps 14 to 17 until all the selected voice and call channels are tested.

Note: If the calls are not cycling through all voice and call channels, then stop the tested voice and call channels. This forces the next call to go to the untested voice and call channels. When you stop the channels, there may be a short delay before the channels go to Off Duty state. This is because stopped channels go to a 1 minute standby mode so they are ready for the next call.

19 Stop the voice and call channels that have been tested. Then repeat steps 5 to 18 until all voice channels and the same number of call channels are tested.

To test call channels and fax channels

Note: If CallPilot has no fax channels, go to "To test call channels and speech recognition channels" on page 189.

1 In CallPilot Manager, click System → Service Directory Number.

Result: The Service Directory Number window appears.

2 In the Service DN box, enter the primary DN for the fax UCD group.

3 In the Media Type box, select Fax.

Note: You can leave the Application Name as Voice Messaging.

4 Click Save.

5 Click Maintenance → Multimedia Monitor.

Result: The Multimedia Monitor appears.

6 In the Multimedia Monitor window, select and start a maximum of 8 fax channels for testing.

Note: Nortel Networks recommends that you test a maximum of 8 fax channels at one time. For example, if you have a 96-channel system, start only 8 fax channels. When those 8 fax channels are tested, stop them and start another set of fax channels.

7 Stop all voice and speech recognition channels, if these channels are present.

8 Verify that all fax channels are in Idle state, and leave the Multimedia Monitor window open so that you can observe when channels change to the Active state.

9 In CallPilot Manager, click Maintenance → Channel Monitor.

Result: The Channel Monitor appears.

10 Select the whole system and stop all channels.

11 Select and start the same number of call channels as fax channels that you have started. For example, if you have started 8 fax channels, then start 8 call channels.

Note: Ensure you select and start call channels that have not already been tested (for example, as part of the voice channel test).

12 On the CallPilot server desktop, click Start → Programs → CallPilot → System Utilities → System Monitor.

Result: The CallPilot System Monitor window appears. By default, the Channel Monitor tab appears on top.

13 Observe the System Monitor window and verify that all the required multimedia (DSP) and call channels are in Idle state, and that all other channels are Off Duty (out of service).

14 Use a telephone to dial the service DN that you entered in the SDN table.

15 Verify that CallPilot answers the call and that the CallPilot greeting plays.

16 Observe the System Monitor and record which call channel and which fax channel changes to the Active state.

17 Hang up the phone.

18 Repeat steps 14 to 17 until all the selected fax and call channels are tested.

Note: If the calls are not cycling through all fax and call channels, then stop the tested fax and call channels. This forces the next call to go to the untested fax and call channels. When you stop the channels, there may be a short delay before the channels go to Off Duty state. This is because stopped channels go to a 1 minute standby mode so they are ready for the next call.

19 Stop the fax and call channels that have been tested. Then repeat steps 5 to 18 until all fax channels and the same number of call channels are tested.

To test call channels and speech recognition channels

1 In CallPilot Manager, click System → Service Directory Number.

Result: The Service Directory Number window appears.

2 In the Service DN box, enter the primary DN for the speech recognition UCD group.

3 In the Media Type box, select Speech Recognition.

Note: You can leave the Application Name as Voice Messaging.

4 Click Save.

5 Click Maintenance → Multimedia Monitor.

Result: The Multimedia Monitor appears.

6 In the Multimedia Monitor window, select and start a maximum of 8 speech recognition channels for testing.

Note: Nortel Networks recommends that you test a maximum of 8 speech recognition channels at one time. For example, if you have a 96-channel system, start only 8 speech recognition channels. When those 8 speech recognition channels are tested, stop them and start another set of speech recognition channels.

7 Stop all fax and voice channels, if these channels are present.

8 Verify that all speech recognition channels are in Idle state, and leave the Multimedia Monitor window open so that you can observe when channels change to Active state.

9 In CallPilot Manager, click Maintenance → Channel Monitor.

Result: The Channel Monitor appears.

10 Select the whole system and stop all channels.

11 Select and start the same number of call channels as speech recognition channels that you have started. For example, if you have started 8 speech recognition channels, then start 8 call channels.

Note: Ensure you select and start call channels that have not already been tested (for example, as part of the voice or fax channel test).

12 On the CallPilot server desktop, click Start → Programs → CallPilot → System Utilities → System Monitor.

Result: The CallPilot System Monitor window appears. By default, the Channel Monitor tab appears on top.

13 Observe the System Monitor window and verify that all the required multimedia (DSP) and call channels are in Idle state, and that all other channels are Off Duty (out of service).

14 Use a telephone to dial the service DN that you entered in the SDN table.

15 Verify that CallPilot answers the call and that the CallPilot greeting plays.

16 Observe the System Monitor and record which call channel (on the Channel Monitor window) and which speech recognition channel (on the Multimedia Monitor window) changes to Active state.

17 Hang up the phone.

18 Repeat steps 14 to 17 until all the selected speech recognition and call channels are tested.

Note: If the calls are not cycling through all speech recognition and call channels, then stop the tested speech recognition and call channels. This forces the next call to go to the untested speech recognition and call channels. When you stop the channels, there may be a short delay before the channels go to Off Duty state. This is because stopped channels go to a 1 minute standby mode so they are ready for the next call.

19 Stop the speech recognition and call channels that have been tested. Then repeat steps 5 to 18 until all speech recognition channels and the same number of call channels are tested.

To restore the SDN Table and put all channels back in service

1 In CallPilot Manager, click System → Service Directory Number.

Result: The Service Directory Number window appears.

2 In the Service Directory Number window, select the check box for the Voice Messaging Service DN that you have been using for testing.

3 Click Delete Selected.

Result: The Service DN is deleted.

Note: If you are ready to begin CallPilot administration, you can choose to keep this Service DN. However, ensure that the Service DN is configured as required for normal operation. For example, do not leave the Service DN set to the Primary DN for the voice UCD group.

4 In CallPilot Manager, click Maintenance → Channel Monitor.

Result: The Channel Monitor appears.

5 In the Channel Monitor window, select the whole system and start all channels.

6 Verify that all call channels are in Idle state.

7 Click Maintenance → Multimedia Monitor.

Result: The Multimedia Monitor appears.

8 In the Multimedia Monitor window, select the whole system and start all channels.

9 Verify that all multimedia channels are in Idle state.

Result: The CallPilot tests are completed.

What's next

Once your testing indicates that the server upgrade, new installation/ configuration, platform migration, or system rebuild is successful, perform a full system backup. Refer to Chapter 8, "Backing up and restoring CallPilot information" of the *Administration Guide* for more information.

Appendix A

CallPilot T1/SMDI interfaces

In this appendix

CallPilot T1 interface

CallPilot provides a T1 interface to connect to external switching equipment using one or more T1 links. Customers can connect to a channel bank or other equipment that meets the Nortel Networks T1 interface specifications.

For more information on supported equipment, see:

- Chapter 2, “Connecting the CallPilot server to the SL-100 or DMS-100 switch,” on page 31
- Chapter 3, “Connecting the CallPilot server to the MCS 5100,” on page 53.

WARNING

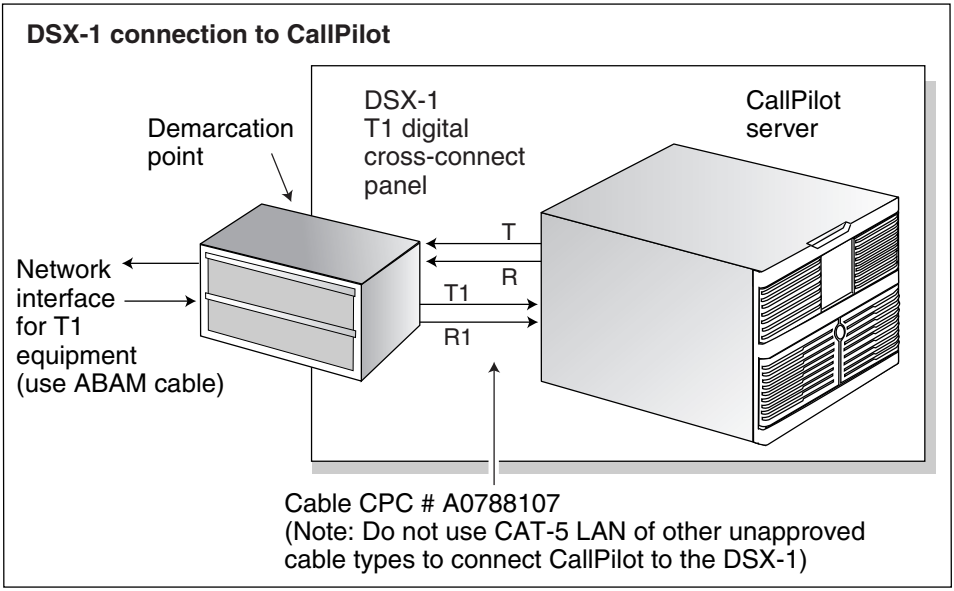
Risk of personal injury and risk of hardware failure

Switches used with CallPilot require a single-point ground topology to which the CallPilot Server must also be grounded. For more information, see the “Site inspection checklist” and “Single-point grounding requirements in *Part 1, Installation and Maintenance Overview.*

CallPilot T1 electrical interface requirements

The illustration shows specific electrical requirements for the T1 equipment interface to CallPilot.

CallPilot must always connect to a DSX-1 digital cross-connect panel. The cross-connect is the demarcation point between CallPilot and the external network.



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Note: Electrical Characteristics are defined for the DSX-1interface only.

Note: Electrical Characteristics at the network interface are defined in ANSI T1.403-1999, Network and Customer Installation Interfaces — DS1 Electrical Interface

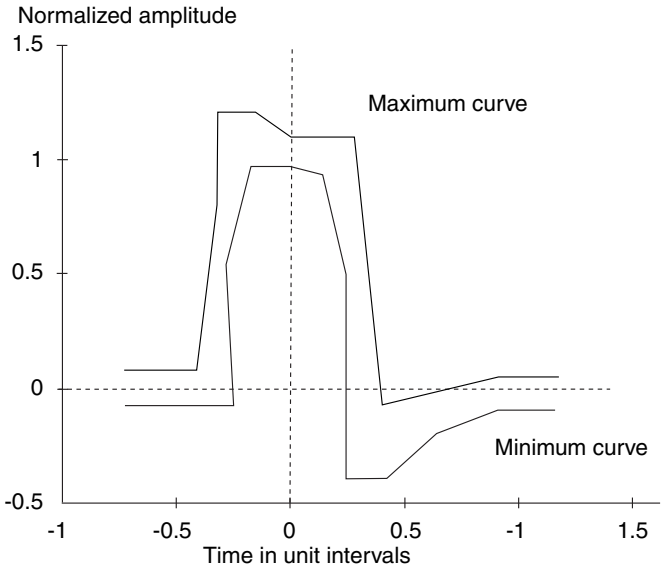
CallPilot T1 electrical requirements

Digital network interface	DSX-1 interface only
Line rate	1.544 Mb/s ±32 ppm During synchronized operation, the line-rate accuracy must be as specified in ANSI T1.101 (Ref 13) for the appropriate stratum level.
Level	3.0V (nominal peak to peak) The amplitude of an isolated pulse must be between 1.2 V and 1.8 V. If the carrier puts DC voltage on the trunk to control a customer premises CSU or Smart Jack, then a CSU or Smart Jack is required.
Pulse width	323.85 ns (nominal)
Pulse shape	ANSI T1.403b-2002 (see the illustration DSX-1 signal isolated pulse template page 197)
Line impedance	100 Ω resistive ±5%
Impedance matching	The characteristic impedance of exchange cables used to provide DS-1 service is nominally 100 Ω at 772 kHz. To assure that performance objectives are met, this impedance should be matched by the PBX at the DSX-1 interface.
Line Build Out (LBO)	0 to 655 ft
Connectors	RJ-48C
Other Electrical characteristics	Complies with AT&T TR62411, ANSI T1.401b-2002, ANSI T1.403b-2002

CallPilot T1 signal isolated pulse characteristics

The exact electrical characteristics of T1 signals are specified in the table for both DSX-1 interface.

DSX-1 signal isolated pulse template



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DSX-1 isolated pulse template corner points

Minimum curve		Maximum curve	
Time (unit intervals)	**Normalized amplitude**	**Time (unit intervals)**	**Normalized amplitude**
-0.77	-0.05	-0.77	0.05
-0.23	-0.05	-0.39	0.05
-0.23	0.50	-0.27	0.80
-0.15	0.95	-0.27	1.15
0.00	0.95	-0.12	1.15
0.15	0.90	0.00	1.05
0.23	0.50	0.27	1.05
0.23	-0.45	0.35	-0.07
0.46	-0.45	0.93	0.05
0.66	-0.20	1.16	0.05
0.93	-0.05		
1.16	-0.05		

CallPilot T1 cabling requirements

The T1 cable must:

- be non-loaded, staggered-twist, shielded paired cable with a characteristic impedance of 100 ohms at 772 kHz.
- terminate on the DSX-1 regardless of external end equipment at the far end

Notes:

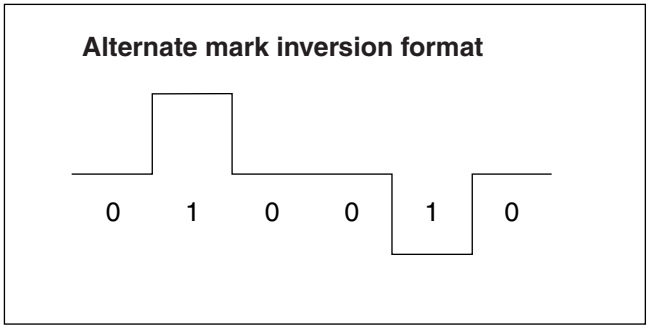
- All terminators and connectors in the circuit must also meet the impedance requirement.
- A cable type that meets the T1 specification is called ABAM.
- Cat 5 LAN cable does **not** meet the T1 specification and shall not be used.

T1 cable pinouts

Pin Number	Lead designation
1	Transmit/Receive ring
2	Transmit/Receive tip
3	no connection
4	no connection
5	no connection
6	no connection
7	no connection
8	no connection
RJ-45 metallic shield	to cable's shield drain wire

CallPilot T1 encoding requirements

A T1 signal uses bipolar electrical code format. CallPilot uses the B8ZS bipolar code format for T1 signals.



Voice signals on each channel in both directions must be digitally encoded to be multiplexed into the T1 stream. T1 uses pulse code modulation (PCM). Two PCM formats used in T1 are:

- Mu-Law (m-law) is used in Japan and North America
- A-Law is used in the rest of the world

Set CallPilot to the same format as the T1 source regardless of the location of the equipment.

Example: If channel banks are set to Mu-Law, set CallPilot to Mu-Law.

Encoding	Description
Speech encoding	A-law or μ-law encoding/decoding, defined in ITU-T Recommendation G.711 as in accordance with ANSI T1.403b-2002
Line coding	Alternate mark inversion (AMI) with zero code suppression (ZCS) and B8ZS in accordance with ANSI T1.403b-2002

CallPilot T1 clocking requirements

Timing	Description
Timing Synchronization	CallPilot Configuration: ■ slave timed when interconnecting to synchronous digital hierarchy equipment ■ master timed when interconnecting to other equipment (for example, analog channel banks).
Clock and data recovery	Complies with AT&T TR62411 and Bellcore TA-TSY-000170
Jitter tolerance	Complies with AT&T TR62411 and ANSI T1.403b-2002.

CallPilot T1 clocking synchronization

CallPilot T1 links must be configured to establish the correct timing synchronization mode. In T1 systems, one end of each link must be configured as a timing master to provide a timing reference to the far end. The other end must be configured as a timing slave that uses T1 timing derived from the loop to time outgoing data. If both ends of a T1 link are configured as master timed, T1 slips will cause periodic signal distortion. The following table shows the correct timing configuration for CallPilot timing synchronization.

Connecting equipment timing mode	CallPilot timing mode (first T1 Link)	CallPilot timing mode (all additional T1 links)
Line Side T-1 (always master timed)	Slave (mandatory)	Slave (mandatory)
Channel Bank (slave mode suggested)	Master (suggested)	Master (suggested)

For additional information on clock synchronization, see "Clock synchronization," on page 153.

CallPilot T1 signalling requirements

T1 uses in-band signaling to indicate the status of each T1 channel. Control signals are transmitted in the same channel as the message (that is, voice data).

- Signaling indicates the state of both terminals: the switch line card and the CallPilot agent. (e.g. on-hook)
- T1 uses robbed bit signaling. This means that specific bits in the data stream are replaced with control information.
- The signaling mechanism is specified as part of the frame format.
- CallPilot supports only SuperFrame (SF) format framing. In SF, the eighth (least significant) bit of each time slot in the sixth and twelfth frames are robbed to provide per channel signaling. The bit from the sixth frame is called the A bit. The bit from the twelfth frame is called the B bit.
- This provides, at most, 4 signaling states for each terminal.

The following table displays the meaning of the different signaling states that CallPilot uses to indicate the status of an agent to the switch.

Generic CallPilot to switch AB bit signaling

CallPilot uses different signaling states to indicate the status of an agent to the switch.

State	A bit	B bit
Loop Open (On Hook)	0	1
Loop Closed (Off Hook)	1	1
Ring Ground (Service Request) **Note:** The far end responds to a service request with LCF (A/B=0/1).	0	0

Generic switch to CallPilot AB bit signaling

The switch uses different signaling states to indicate the status of a line to the CallPilot server.

State	A bit	B bit
Loop Current Feed (Off Hook)	0	1
LCF Open (On Hook)	1	1
Ringing **Note:** The B-bit toggles during ringing (that is, for ringing, A/B=0/0→0/1→0/0.	0	0/1

SL-100 switch to CallPilot A/B bit signaling

The table displays the different signaling states that CallPilot uses to indicate the status of an agent to/from the SL-100 switch.

State	Transmit A/B	Receive A/B
Idle	0 / 1	1 / 1
Incoming Call		
Idle	0 / 1	1 / 1
Ringing from SL-100	0 / 1	0/0<->0/1
CallPilot Response (Answer)	1 / 1	0/0<->0/1
SL-100 Acknowledgement	1 / 1	0 / 1
Outcalling		
Idle	0 / 1	1 / 1
Channel Seizure by CallPilot (Service Request)	0 / 0	1 / 1
SL-100 Acknowledgement	0 / 0	0 / 1
CallPilot Response	1 / 1	0 / 1
Call Disconnect from Switch		
Talking (call in progress)	1 / 1	0 / 1
SL-100 disconnects	1 / 1	1 / 1
CallPilot goes On Hook (that is, Idle)	0 / 1	1 / 1
CallPilot Disconnect		
Talking (call in progress)	1 / 1	0 / 1

State	Transmit A/B	Receive A/B
CallPilot goes On Hook	0 / 1	0 / 1
SL-100 goes On Hook (that is, Idle)	0 / 1	1 / 1

CallPilot T1 signaling specifications

Signaling	Description
Framing	SF (D3/D4) (Specified in ANSI T1.107-1995, Digital Hierarchy — Formats Specification and ANSI T1.403b-2002) **Note:** ESF is not supported on CallPilot.
Trunk signaling	A/B Robbed bit in SF format with ground start line timing and signaling (ANSI T1.403b-2002)
FXO/FXS signaling	CallPilot always emulates type FXO
Minimum flash hook interval	300 mS (ANSI T1.403b-2002)
Maximum flash hook interval	1 second (ANSI T1.403b-2002)
Disconnect interval	1.5 seconds minimum (ANSI T1.403b-2002)

CallPilot T1 alarms

CallPilot uses only red and yellow T1 alarms.

Alarm	Color	Description
Carrier Group	Red	Local equipment cannot detect T1 signal from the remote equipment; the local equipment transmits the remote alarm indication (RAI) signal to the remote equipment on the T1 link. (In accordance with ANSI T1.403b-2002)
Remote	Yellow	Local equipment detects RAI from the remote equipment. that is, the remote equipment cannot detect the T1 signal from the local equipment) (In accordance with ANSI T1.403b-2002)
AIS	Blue	Not supported on CallPilot
Other	—	Not supported on CallPilot

CallPilot T1 DTMF requirements

DTMF Tone detection	Values
DTMF digits	0 to 9, *, #, A, B, C, D in accordance with Bellcore LSSGR Sec. 6 and ANSI T1.403b-2002
Dynamic range	-36 dBm to +3 dBm for each tone
Minimum tone duration	50 milliseconds (ANSI T1.403b-2002)
Minimum interdigit timing	45 milliseconds (ANSI T1.403b-2002)
Maximum interdigit timing	3 seconds (ANSI T1.403b-2002)
Acceptable twist and frequency variation	Meets Bellcore LSSGR Sec. 6 and EIA 464 requirements
Noise tolerance	Meets Bellcore LSSGR Sec. 6 and EIA 464 requirements for Gaussian, impulse, and power line noise tolerance
Cut through	Local echo cancellation in permits 100% detection with a >4.5 dB return loss line
Talk off	Detects less than 20 digits while monitoring Bellcore TR-TSY-000763 standard speech tapes (LSSGR requirements specify detecting no more than 470 total digits). Detects 0 digits while monitoring Mitel speech tape #CM 7291.

DTMF tone dialing	Values
DTMF digits	0 to 9, *, #, A, B, C, D in accordance with Bellcore LSSGR Sec 6, TR-NWT-000506
Frequency variation	Less than ±1 Hz
Rate	10 digits/s
Level	-4.0 dBm for each tone (nominal)

CallPilot T1 pulse dialing requirements

Pulse dialing	Values
10 digits	0 to 9
Nominal pulsing rate	10 pulses per second (PPS)
Maximum pulsing rate	20 pulses per second (PPS)
Break ratio	60% (nominal)

CallPilot T1 troubleshooting

Begin CallPilot T1 troubleshooting at the demarcation point (that is, at the DSX-1 cross-connect). The DSX-1 provides the facility for passive monitoring of T1 signals in both directions by means of monitor jacks. The DSX-1 allows bantam (mini-310) cross-connect cables to be used to establish loopbacks in either or both directions. This meets the required objective of a capability for T1 loopback as demanded by GNTS. The DSX-1 also facilitates the insertion of test equipment again with bantam cross-connect cables.

CallPilot SMDI interface

CallPilot servers connect to external switching equipment by means of an RS-232 physical link. The servers receive and transmit call control information using the Simple Message Desk Interface (SMDI) protocol. The connection is generally referred to as the SMDI link but SMDI is a data link layer protocol (layer 2) which by definition must ride on top of a physical layer protocol (layer 1) physical connection.

For more information on supported equipment, see:

- Chapter 2, “Connecting the CallPilot server to the SL-100 or DMS-100 switch,” on page 31
- Chapter 3, “Connecting the CallPilot server to the MCS 5100,” on page 53.

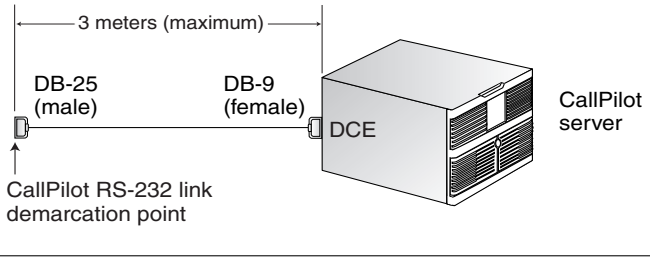
CallPilot SMDI Link interface requirements

CallPilot SMDI link RS-232 demarcation point

The demarcation point of the CallPilot SMDI Link is the point at which the RS-232 interface of the CallPilot server terminates in an RS-232 connector for external equipment attachment.

The CallPilot SMDI Link external equipment requirements are specified with two industry standards for all CallPilot applications and configurations. An installation may employ whatever modem type (or no modem) which best meets their particular application criteria (for example, modulation scheme, interoperability, familiarity, reliability, product longevity and cost).

CallPilot RS-232 link demarcation point



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DB-9 to DB-25 connector signal translation

When converting from DB-9 to DB-25 (for example, CallPilot serial COM port to DB-25 connector at the demarcation point), use the signal translation shown in the following table.

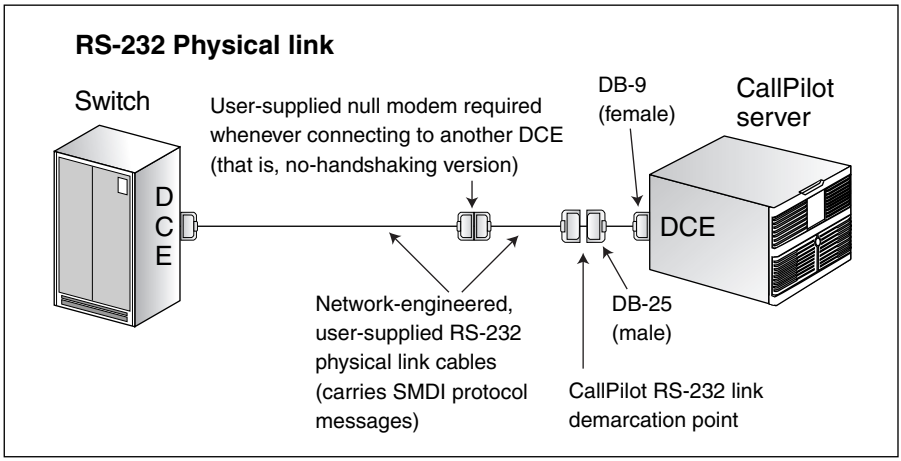
Straight conversion DB-9 to DB-25

DB-9 connector				DB-25 connector		
Pin	**RS-232 signal names**		↔	**Pin**	**RS-232 signal names**	
1	Data carrier detect	CD	↔	8	Received line signal detector	CD
2	Received data (Rx)	RD	↔	3	Received data	RD
3	Transmitted data (Tx)	TD	↔	2	Transmitted data	TD
4	Data terminal ready	DTR	↔	20	Data terminal ready	DTR
5	Signal ground (SG)	GND	↔	7	Signal ground/ Common return	GND
6	Data set ready	DSR	↔	6	Data set ready	DSR
7	Request to send	RTS	↔	4	Request to send	RTS
8	Clear to send	CTS	↔	5	Clear to send	CTS
9	Ring indicator	RI	↔	22	Ring indicator	RI
Soldered to DB-9 metal - shield		FGND	↔	1	Protective ground	FGND

CallPilot SMDI link RS-232 physical link

In its simplest form, the CallPilot SMDI link connects directly to external terminating equipment using an RS-232 physical link for the entire transmission medium.

The following illustration shows the inclusion of a null modem in the RS-232 path. This is required whenever (usually) the RS-232 interface on the terminating switch equipment is of type DCE so that RS-232 equipment at each end do not attempt to transmit on the same signals of the RS-232 link. If on the other hand, the terminating RS-232 equipment is of type DTE, the null modem must not be used.



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As indicated in reference 1 referred to on page 227, the SMDI protocol can be carried on an RS-232 physical link. SMDI formatted messages are composed simply of strings of ASCII characters which are conveyed from one end of the RS-232 link to the other in serial data transmission format.

The RS-232 protocol is defined in refer to reference 2 on page 227 but note that it does not in itself include any definition of or reference to the SMDI protocol.

The ASCII character set is not specifically covered by the RS-232 specification, but that the requirements for serial ASCII character transmission (and therefore SMDI protocol) fall within the definitions of the RS-232 standard as defined in reference 2 on page 227.

SMDI Link RS-232 connections at the CallPilot demarcation point

If external SMDI link RS-232 terminating equipment is in close proximity (for example, less than or equal to 15 meters using low capacitance shielded RS-232 cable), a sufficient condition for the SMDI link RS-232 connection medium would be a direct connect RS-232 cable conforming to all of the requirements of this document, (for example, the case of a co-resident PBX), including a crossover cable (that is, null modem) if the terminating equipment is also of type DCE.

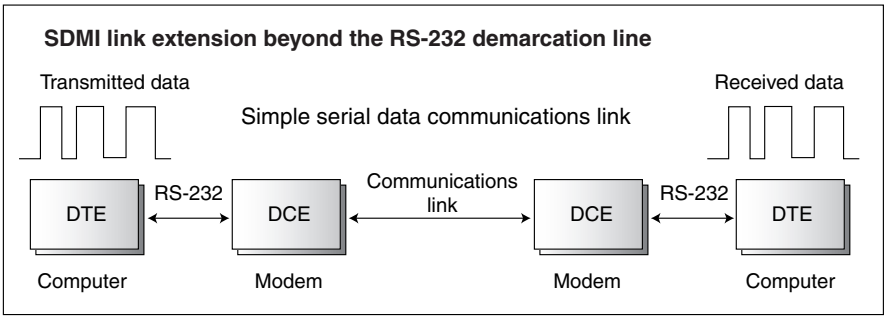
The null modem should be of the no-handshaking type. This ensures that far end SMDI link RS-232 terminating equipment is not dependent on handshaking signals from CallPilot. If a null modem with handshaking is employed, downstream modem equipment may be unable to communicate with CallPilot since CallPilot does not support hardware handshaking.

SMDI link transmission equipment for distant connections

If the SMDI link terminating equipment cannot be directly connected by means of an RS-232 cable conforming to this document (for example, terminating equipment proximity exceeds 15 meters) an external modem or other equipment as described in reference 1 on page 227 may be used to extend the connection range further than that allowed by this document for the RS-232 physical link at the demarcation point.

If a modem or other equipment is necessary to connect CallPilot to the switch (for example, RS-232 physical link of the SMDI protocol link distance would exceed 15 meters) select a modem or other equipment that meets the particular application requirements, contingent on the physical link interface characteristics at the CallPilot RS-232 demarcation point conforming to this document (for example, you can use the same modem at each end of the analog line, thus ensuring compatibility).

One of the stipulations of the RS-232 standard is that the maximum RS-232 cable length is constrained such that the cable interchange capacitance of the entire link does not exceed 2500 pF. In applications where this proves to be an insurmountable challenge, there must be a network engineered solution which respects the RS-232 standard yet allows the range of the entire SMDI connection to be extended. This is typically achieved by the use of either short haul or long haul modems and a network communication link (depending on application requirements) as shown in the following conceptual diagram:



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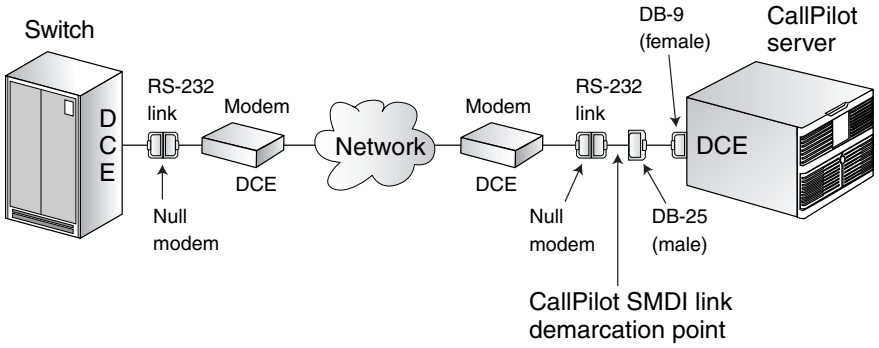
SMDI link CallPilot SMDI link by modem

The CallPilot RS-232 link which carries SMDI protocol messages may be range extended over any communication facility (for example, leased line telephony loop) using any modem which is:

- Compliant with all of the requirements of the CallPilot RS-232 link as specified in "CallPilot SMDI link RS-232 demarcation point," on page 210
- Compatible with the far end modem

See the following illustration for a generic scheme for SMDI link modem range extension.

CallPilot SMDI link extension



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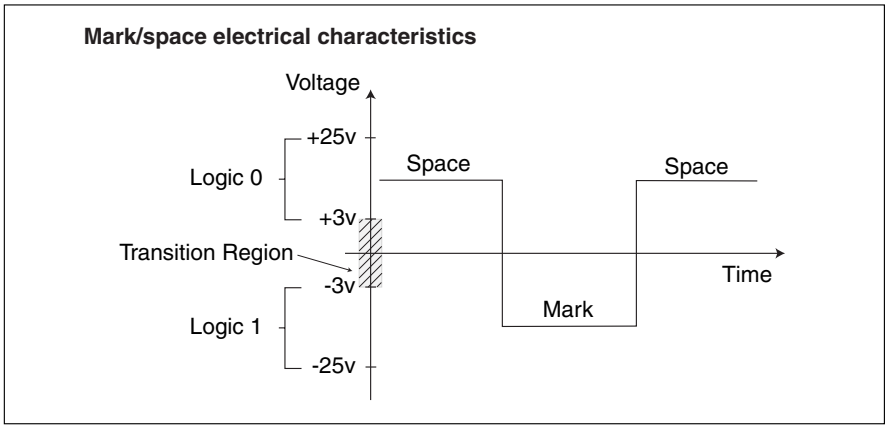
To minimize the probability of interworking issues, the same modem type should be used at both near and far end.

CallPilot SMDI link RS-232 characteristics

All specifications for the RS-232 interface are included in the EIA/TIA-232-F specification. Some of the salient characteristics are shown here for convenience. For more information, refer to reference 1 listed on page 227.

CallPilot SMDI link RS-232 mark/space electrical characteristics

RS-232 has specific requirements for both the transmitted and received voltage levels used to represent mark and space logical bits.



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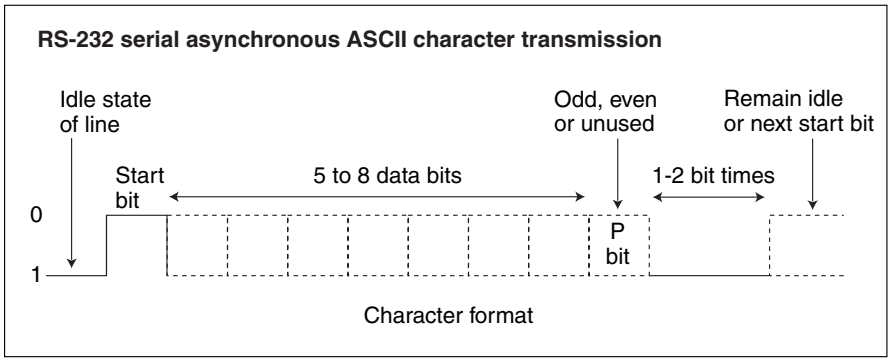
CallPilot SMDI link RS-232 serial data transmission characteristics

RS-232 can be used to convey ASCII characters in asynchronous serial format as the data payload.



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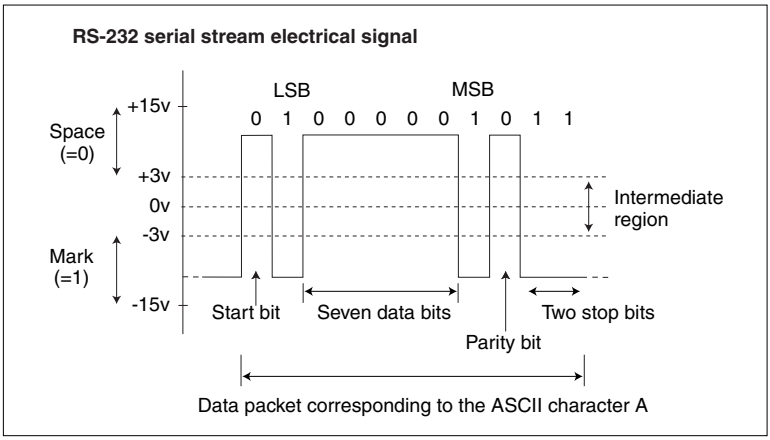

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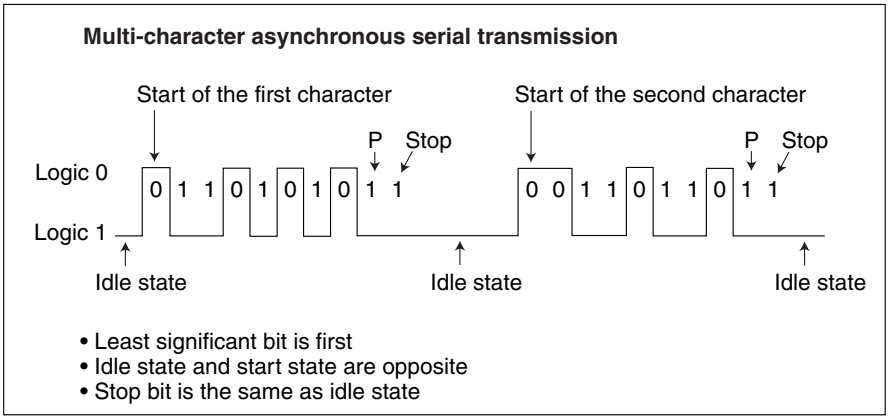
CallPilot SMDI link RS-232 multi-character serial data transmission characteristics

RS-232 can be used to convey indefinitely long strings of ASCII characters asynchronously when idle state gaps are used as character delimiters as shown in the following illustration.



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CallPilot SMDI link RS-232 connector pinouts

The EIA/TIA-232-F RS-232 standard provides details of RS-232 compatible connectors for interconnections, however, the frequently used DB-25 and DB-9 connector pinouts are provided in below for convenience.

9-pin AT style connector

Pin number	RS-232 signal names
1	Data carrier detect
2	Received data
3	Transmitted data
4	Data terminal ready

9-pin AT style connector

Pin number	RS-232 signal names
5	Signal ground
6	Data set ready
7	Request to send
8	Clear to send
9	Ring indicator

25-pin AT style connector

Pin number	RS-232 signal names
1	Protective ground
2	Transmitted data
3	Received data
4	Request to send
5	Clear to send
6	Data set ready
7	Signal ground/Common return
8	Received line signal detector
9	+ voltage
10	- voltage
11	

25-pin AT style connector

Pin number	RS-232 signal names
12	Secondary received line signal detector
13	Secondary clear to send
14	Secondary transmitted data
15	DCE transmitter signal element timing
16	Secondary received data
17	Receiver signal element timing
18	
19	Secondary request to send
20	Data terminal ready
21	Signal quality detector
22	Ring indicator
23	Data signal rate selector
24	DTE transmitter signal element timing
25	

CallPilot SMDI link RS-232 cable requirements

The following table describes the CallPilot SMDI Link RS-232 physical link cable characteristics for the entire RS-232 link

Characteristic	Description
SMDI Link Demarcation point	At the RS-232 DB-25 male connector for the RS-232 link segment which terminates on the CallPilot server SMDI RS-232 DB-9 connector. This connector and thus the demarcation point must be within 3 meters of the CallPilot server SMDI link RS-232 DB-9 connector.
Shielded RS-232 cable	Required for all sections
Shield ground connection	At DCE end only, not at DTE end and not on both ends of any null modem.
Conductor resistance including intermediate connectors	25 ohms maximum per conductor (end to end, not per section)
Characteristic Impedance	110 ohms (nominal)
Interchange circuit capacitance	2500 pF maximum (See reference 2 on page 227)
Maximum total RS-232 Link Length	7.5 meters (based on medium capacitance RS-232 shielded cable with a maximum mutual conductor to conductor capacitance of 100 pF/meter). 15 meters (based on low capacitance RS-232 shielded cable with a maximum mutual conductor to conductor capacitance of 50 pF/meter).
RS-232 Specification Revision #	EIA/TIA-232-F

CallPilot SMDI link RS-232 connector requirements

Connector	Description
SMDI Link Demarcation point	At the RS-232 DB-25 male connector for the RS-232 link segment which terminates on the CallPilot server SMDI RS-232 DB-9 connector. This connector and thus the demarcation point must be within 3 meters of the CallPilot server SMDI link RS-232 DB-9 connector.
Shielded RS-232 connectors	Required for all
Terminal type at the CallPilot RS-232 connector	DCE
RS-232 Specification Revision #	EIA/TIA-232-F

CallPilot SMDI interface requirements of the RS-232 link

The SMDI link interface requirements of the RS-232 are fully defined by the EIA/TIA-232-F specification. Specific configuration settings for proper operation of the SMDI link are as shown in the following table.

Parameter	Description
Data rate	9600 baud
Mode	Asynchronous, full duplex
Data bits	7
Parity	Enabled, Even
Stop bits	1
H/W Flow Control	None
S/W Flow Control	None
RS-232 Specification Revision #	EIA/TIA-232-F

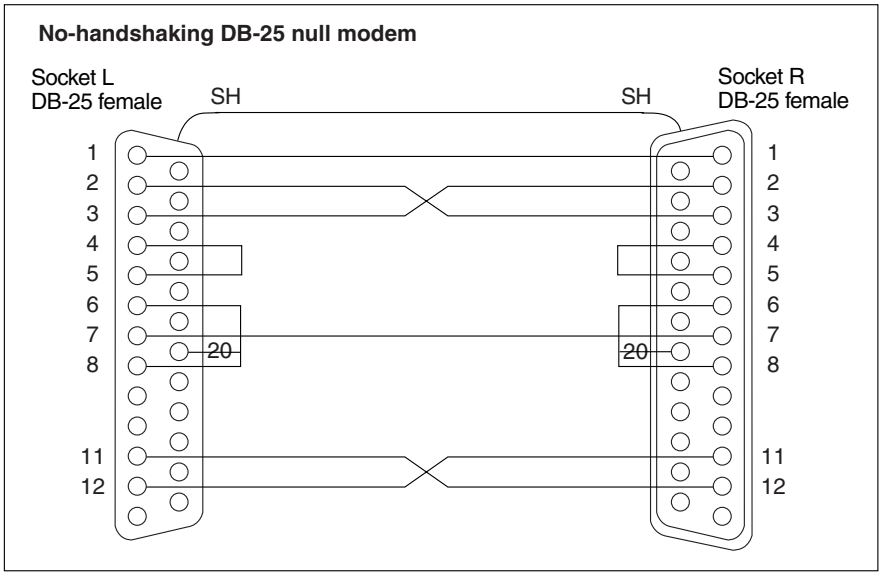
CallPilot SMDI link RS-232 interface external equipment

Null modem examples (DCE to DTE converter)

A no-handshaking DB-25 null modem is required when connecting two DCE type RS-232 terminating equipment together by means of a standard RS-232 cable.

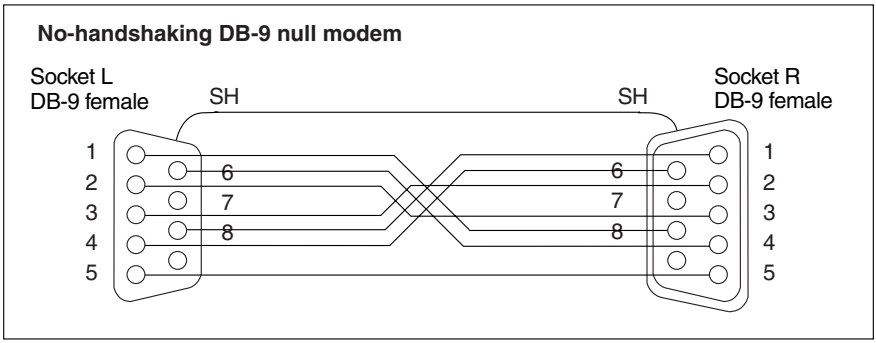
Note: If a null modem with hardware handshaking is employed, downstream modem equipment may be unable to communicate with CallPilot since CallPilot does not support hardware handshaking.

The following illustration shows how to implement a no-handshaking DB-25 null modem.



A no-handshaking DB-9 null modem can be used instead of a DB-25 connectorized null modem if convenient.

The following illustration shows how to implement a



Modem standards

ITU-T modem standards (formerly CCITT)

ITU-T defines several prominent specifications for defining modem standards in the V-series (formerly CCITT documents). The foundation standards for modems define the physical interface, modulation technique, and basic operations. These basis standards are identified by the speed of data transmission (modulation technique), and include:

- V.22bis ITU-T Standard for 2-wire communications at 2400 bps and below.

  Note: This type of modem is inadequate for the 9600 baud rate of the CallPilot SMDI link.
- V.32 ITU-T Standard for 2-wire communications at 9600 bps and below.
- V.32bis ITU-T Standard for 2-wire communications at 14.4K bps and below.
- V.34 ITU-T Standard for 2-wire communications at 28.8K bps and below.
- V.34bis ITU-T Standard for 2-wire communications at 33.3K bps and below.
- V.90 ITU-T Standard for 2-wire communications at 56K bps and below.

- V.92 ITU-T Standard for 2-wire communications at 56K bps and below.

An additional standard exists to define error detection and correction methods between modems:

- V.42 ITU-T Standard for modem error detection and correction. The target standard for SMDI data links using these flow control guidelines will use either a V.22, V.42bis or V.32 modem with V.42 error-detection and correction capability.

Nortel Networks proprietary modem standards

The Input Output Module (IOM) is a peripheral of DMS-100 that supports various modem types over proprietary DS-30 links. For more information about the DS-30 standard, refer to DMS-100 IOM documentation.

CallPilot SMDI link interface compliant equipment examples

General Datacomm GDC V.F. 28.8K modem (obsolete)

The General Datacomm GDC V.F. 28.8K Modem (Nortel Networks CPC A0620530) meets CallPilot SMDI link requirements. Other types of ITU-T compliant modems have not been officially tested.

SMDI V.3600 33.6K modem

The SMDI V.3600 33.6K standalone SMDI modem kit (NTRH9098) replaces, and is fully compatible with, the General Datacomm 28.8K modem.

DMS-100 IOM NTFX34AA RS-232 smart connector

The DMS-100 Input Output Module (IOM) supports a form of proprietary modem called a Smart Connector which uses a 4-wire DS-30 link for the connection between the Smart Connector and the IOM shelf. The NTFX34AA version of Smart Connector supports a 28.8K bps RS-232 interface which may be located up to 225 meters distant from the IOM.

Standards documents for CallPilot SMDI link requirements

Reference Number	Document Number	Title
1	Bellcore TR-NWT-000283	Simplified Message Desk Interface (SMDI) Generic Requirements
2	EIA EIA/TIA-232-F	Interface between Data Terminal Equipment and Data Circuit Terminating Equipment Employing Serial Binary Data Interchange

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CallPilot

Installation and Configuration
Part 3: T1/SMDI and CallPilot Server Configuration

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