555-7101-210

CallPilot

Installation and Configuration

Part 1: Installation and Maintenance Overview

Product release 2.5 Standard 2.0 April 2004

NORTEL NETWORKS™

CallPilot

Installation and Configuration
Part 1: Installation and Maintenance Overview

Publication number:	555-7101-210
Product release:	2.5
Document release:	Standard 2.0
Date:	April 2004

POWERQUEST is a trademark of PowerQuest Corporation.

PROMARK and RHOBOT are trademarks of DMI Promark, Inc.

QUICKTIME is a trademark of Apple Computer, In.

RADISYS is a trademark of Radisys Corporation.

ROLM is a trademark of Siemens ROLM Communications Inc.

SLR4, SLR5, and TANDBERG are trademarks of Tandberg Data ASA.

SONY is a trademark of Sony Corporation.

SYBASE is a trademark of Sybase, Inc.

TEAC is a trademark of TEAC Corporation.

UNIX is a trademark of X/Open Company Limited.

US ROBOTICS, the US ROBOTICS logo, and SPORTSTER are trademarks of US Robotics.

WINAMP is a trademark of Nullsoft, Inc.

WINRUNNER is a trademark of Mercury Interactive Corporation.

WINZIP is a trademark of Nico Mark Computing, Inc.

Publication history

April 2004	Release 2.5, Standard 2.0; MCS 5100 information added to checklists and worksheets
October 2003	Release 2.5, Standard 1.0 of *CallPilot Installation and Configuration, Part 1: Installation and Maintenance Overview*; overview procedures modified (addition of Intel board install step and single point grounding info); EMC warning for the 1002rp server in the Site inspection checklist and customer-supplied items checklist; settings for the DSE and SL-100/DMS-100 on worksheet
October 2002	Standard 1.0 of *CallPilot Installation and Configuration, Part 1: Installation and Maintenance Overview* is released for CallPilot 2.0 general availability.
November 2000	Standard 2.0 of *CallPilot Installation and Configuration, Part 1: Installation Flowchart and Worksheets* is released for CallPilot 1.07.
May 2000	Standard 1.0 of *CallPilot Installation and Configuration, Part 1: Installation Flowchart and Worksheets* is released for CallPilot 1.07.

Contents

Chapter 1

About the Installation and Configuration guides

In this chapter

Overview

Who should read the guides

The *CallPilot Installation and Configuration* guides are intended for Nortel Networks distributors, technicians, and engineers who are responsible for installing and setting up a CallPilot server.

How to use the *Installation and Configuration* guides

Before you start. review Part 1 (this guide).

To a install a new CallPilot system, use the procedures in Part 2 and 3 to install the server, and to connect and configure the server and switch.

To make changes to an existing CallPilot system, perform the procedures in Parts 4 and 5 or both to maintain server software and hardware.

Overview of the *Installation and Configuration* guides

The guides are arranged in five parts. Parts 1 and 4 are common to all supported switches and servers. Parts 2 and 5 are based on the type of server, and Part 3 describes connectivity to a specific switch.

Part	Title	Description
Part 1	Installation and maintenance overview (555-7101-210)	■ safety guidelines for installing and maintaining a CallPilot system ■ high-level overview of CallPilot installation procedures ■ checklists for: — site requirements — required tools, equipment, and materials ■ worksheets for preparing for CallPilot server and switch configuration
Part 2	Server hardware installation (The NTP number is based on your server model)	■ how to install the CallPilot server hardware. **Note:** If the CallPilot server is a 200i server, refer to *Part 2: 200i Server Hardware Installation* in the *CallPilot 1.07 Installation and Configuration* binder for hardware installation instructions.
Part 3	Switch and CallPilot server configuration (The NTP number is based on the type of switch connected to your server)	■ connect your CallPilot server to the switch ■ configure: — the switch for operation with CallPilot — CallPilot server software

Part	Title	Description
Part 4	Software installation and maintenance (555-7101-202)	■ procedures for maintaining CallPilot software, including installation and upgrades, Performance Enhancement Packages (PEP) installation, feature expansion, and platform migration ■ how to recover your CallPilot system from a software or hardware failure
Part 5	Server maintenance and diagnostics (The NTP number is based on your server model)	■ hardware diagnostic and replacement procedures **Note:** Diagnostics are performed by viewing hardware LEDs or by using the support tools that are provided with your CallPilot system

Skills required

Introduction

This section describes the skills and knowledge needed to install and maintain a CallPilot installation.

Switch technology knowledge

You need knowledge of the switch connected to the CallPilot server including:

- a basic understanding of how the switch routes and processes calls
- how to establish the switch cabling connections
- how to configure the switch

PC experience or knowledge

You require knowledge of the following before beginning the CallPilot installation:

- one or more of the following operating systems:
  - Microsoft Windows 95B
  - Windows 98 SE
  - Microsoft Windows 2000 Professional
  - Microsoft Windows XP
  - Microsoft Windows NT

  The CallPilot server uses the Windows NT operating system. The CallPilot Manager stand-alone web server can use Windows NT or Windows 2000 Server. The web browser used to administer the CallPilot server can run on systems using any of the above-listed operating systems.

- one or both of the following web browsers:
  - Internet Explorer 5 or later
  - Netscape Communicator 6.2 or later
- one or more of the following e-mail or Internet mail clients:
  - Microsoft Outlook
  - Microsoft Outlook Express
  - Lotus Notes
  - Novell Groupwise
  - Netscape Messenger
  - Qualcomm Eudora Pro
- TCP/IP protocols

  Note: If you do not have TCP/IP knowledge, consult with the customer's network administrator.
- client/server architecture
- web server setup and maintenance
- software installation and maintenance
- hardware installation and maintenance

Additional experience or knowledge

Experience or knowledge in the following related areas is recommended:

- networking
- troubleshooting
- database management

Symbols and conventions

Symbols description

You may encounter the following symbols in the *CallPilot Installation and Configuration* guides.

DANGER

Risk of electric shock

Warns you of an immediate electrical hazard which, if not avoided, will result in shock, serious injury, or death.

WARNING

Risk of personal injury

Warns you of a situation in which you can be injured if instructions are not followed exactly as stated.

CAUTION

Risk of equipment damage

Alerts you to situations where data can be lost or damaged, equipment can be damaged, actions can result in service interruption, and productive time can be lost.

ATTENTION

Provides information that is essential to the completion of a task.

Note: A note describes the secondary results of procedures or commands, or special conditions under which a procedure or command must be used.

Related information products

Introduction

The following CallPilot technical documents are stored on the CD-ROM that you receive with your system. The documents are also available from the following sources:

- CallPilot Manager
- My CallPilot
- the Nortel Networks Partner Information Center (PIC) at http://my.nortelnetworks.com

  You require a user ID and password to access the PIC. If you do not have a PIC account, click Register to request an account. It can take up to 72 hours to process your account request.

You can print part or all of a guide, as required.

To order the documents that are available in printed format, contact your Nortel Networks sales representative.

Note: This document as well as other Customer Documentation may be updated periodically as needed. It is recommended to frequently visit the Partner Information Center and Helmsman Express web sites for the latest information.

Planning and migration guides

Use the following guides before you install CallPilot to help plan your system, or to plan a migration of data from Meridian Mail to CallPilot:

Document titles	NTP number
Planning and Engineering Guide	555-7101-101
Installation and Configuration Planner	not applicable
Meridian Mail to CallPilot Migration Utility Guide	555-7101-801

Installation and configuration guides

The following guides describe how to install the following:

- CallPilot server hardware and software
- desktop messaging and My CallPilot software

Document titles	NTP number
Desktop Messaging and My CallPilot Installation Guide	555-7101-505
Installation and Configuration Guide for your server model: ■ *Part 1: Installation and Maintenance Overview* ■ *Part 2: <Server model> Server Hardware Installation* ■ *Part 3: <Switch name> and CallPilot Server Configuration* ■ *Part 4: Software Installation and Maintenance* ■ *Part 5: <Server model> Server Maintenance and Diagnostics*	Refer to the documents in the *CallPilot Installation and Configuration* for your server or switch model.

Administration guides

The following guides provide specialized information to help you configure CallPilot, administer and maintain it, and use its features:

Document titles	NTP number
Administrator's Guide	555-7101-301
Reporter Guide	555-7101-310
Application Builder Guide	555-7101-325
Desktop Messaging and My CallPilot Administration Guide	555-7101-503

Networking guides

The following guides describe how to plan, install, set up, and troubleshoot the CallPilot networking services:

Document titles	NTP number
Networking Enhancements Guide	555-7101-507
Networking Planning Guide	555-7101-100
NMS Implementation and Administration Guide	555-7101-302
AMIS Networking Implementation and Administration Guide	555-7101-303
Enterprise Networking Implementation and Administration Guide	555-7101-304
Integrated AMIS Networking Implementation and Administration Guide	555-7101-305
VPIM Implementation and Administration Guide	555-7101-306

End user guides

The following guides are intended for CallPilot end users, such as phoneset users and desktop messaging users:

Document titles
Unified Messaging What's New Card
Unified Messaging Quick Reference Card
Unified Messaging Wallet Card
Menu Interface Quick Reference Card
Alternate Command Interface Quick Reference Card
Command Comparison Cards
Multimedia Messaging User Guide
Speech Activated Messaging User Guide
Desktop Messaging User Guides
My CallPilot User Guide
E-mail Notification User Guide

Using online sources

CallPilot administration online Help

The CallPilot Manager and CallPilot Reporter software contain administration online Help areas that provide access to

- technical documentation in Adobe Acrobat PDF format
- online Help topics in HTML format

To access online information, use either of the following methods:

- Click the orange Help button at the top of any window to access the Administration Help area.
- Click the grey Help button on any window to display a topic that relates to the contents of the window.

For more information about using these Help systems, access the CallPilot Manager Help, open the Getting Started book, and click “Navigating CallPilot Manager help.”

The Application Builder software contains a Windows Help system, as well as context-sensitive Help (available by clicking the ? button, and then a field or label).

CallPilot end user online Help

The My CallPilot software contains a Useful Information area that provides access to the end-user guides in PDF format.

To access online Help for the currently selected My CallPilot tab, click the Help button on the upper-right corner of the My CallPilot window.

Desktop messaging provides product-specific Windows Help for groupware clients (Microsoft Outlook, Novell GroupWise, and Lotus Notes). The stand-alone version of CallPilot Player also provides addressing and troubleshooting information for Internet mail clients.

Contacting technical support

Contact your distributor’s technical support organization to get help with troubleshooting your system.

Chapter 2

Installing, configuring, and maintaining CallPilot

In this chapter

About the ELAN (Meridian 1 and Succession 1000 only)

Introduction

Note: The Embedded LAN (ELAN) is applicable only if the CallPilot server is connected to a Meridian 1 switch or Succession Communication Server for Enterprise 1000 (Succession 1000) system.

The ELAN runs between CallPilot, Symposium, Optivity Telephony Manager (OTM), and the Meridian 1 switch or Succession 1000 system. This private 10BaseT LAN is implemented using MAU to 10BaseT transceiver(s) (for connection to the call processor), category 5 cables, and a dedicated hub that can either be supplied by Nortel Networks or a third party. If CallPilot is being added to an existing system and an ELAN is already implemented, then only a category 5 cable is required to connect CallPilot to the ELAN hub.

CallPilot and the ELAN

In CallPilot context, the ELAN is a segregated network that carries IP traffic only between the following:

- the CallPilot server
- the Meridian 1 switch or Succession 1000 system
- a limited number of connected administration PCs

CallPilot performs real-time call control signaling to the Meridian 1 or Succession 1000 system over the ELAN using the proprietary AML protocol.

If the Meridian 1 switch or Succession 1000 system and CallPilot power are UPS-protected because the customer expects telephone and messaging service to continue through power disruptions, the ELAN hub must also be on UPS power. If the ELAN hub experiences a power disruption, CallPilot service stops because the AML signalling link to the Meridian 1 switch or Succession 1000 system is disrupted.

System performance and the ELAN

CAUTION

Risk of reduced system performance

- The ELAN is used for low delay, mission-critical signaling between the real-time services provided by CallPilot, Symposium, and the Meridian 1 switch or Succession 1000 system. To prevent severe performance degradation, the customer LAN (CLAN) must not be connected to the ELAN. This means that only Nortel Networks products should be connected to the ELAN hub.
- Direct connection of the ELAN to external networks (such as the CLAN), or improper router, bridge, or switch device selection or configuration, can adversely affect the call processing abilities of ELAN-based switches and the CallPilot server. A direct connection can also increase the risk for hacker traffic into the network.

  As a result, Nortel Networks does not recommend the implementation of router and switching technologies that are applied to the ELAN. If you require such connections, contact your Nortel Networks technical support representative.

System administration and the ELAN

You can connect administration PCs to the ELAN to administer CallPilot and the Meridian 1 switch or Succession 1000 system.

Note: CallPilot administration PCs are typically located on the CLAN, if a CLAN is available.

CAUTION

Risk of reduced system performance

Since the ELAN carries critical real-time traffic between the CallPilot server and Meridian 1 switch or Succession Succession 1000 system, high-traffic OA&M activities on the ELAN are prohibited while CallPilot call processing is in progress. These activities include: remote control, large file transfers, backup and restore operations, printing, and other traffic-intensive tasks.

Failure to adhere to this guideline adversely affects the call processing abilities of the Meridian 1 switch or Succession 1000 system and the CallPilot server.

Desktop client PCs and the ELAN

ATTENTION

The ELAN is a private LAN that is dedicated to the connectivity between the Meridian 1 or Succession Succession 1000 systems and their associated applications only.

The ELAN cannot support high volumes or intensive IP traffic originating within the local ELAN or from external interconnected networks. As a result, desktop client PCs are not supported on the ELAN.

See also

For more information about ELAN setup in relation to the CallPilot server, refer to the following documentation:

- the server description section in Part 2 of the *CallPilot Installation and Configuration* guides
- "Connecting the CallPilot server to the Meridian 1 switch" or "Connecting the CallPilot server to the Succession 1000 system" in Part 3 of the *CallPilot Installation and Configuration* guides

Upgrading the CallPilot server

Introduction

The process of upgrading the CallPilot software involves replacing the software with a higher numbered release. The upgrade may also require a hardware change.

You can upgrade your CallPilot system using one of the following scenarios:

- upgrade from a previous release
- upgrade from a previous release after performing a feature expansion
- upgrade from a previous release at the same time as performing a feature expansion

You cannot downgrade to a previous version of CallPilot software.

Documentation resources

For instructions on upgrading your CallPilot server, refer to the *CallPilot Upgrade Guide*.

Installing CallPilot

Introduction

The CallPilot server is prepared as a turn-key solution by Nortel Networks and then shipped to the customer site. At the customer site, the CallPilot server is customized for the customer specific requirements according to Nortel Networks design intent.

Documentation resources

Use the following items to help you complete the installation:

- the "New installations" section in the *CallPilot Installation and Configuration Planner*

  The *Installation and Configuration Planner* divides the installation process into the following task groups:

  - offsite pre-installation tasks
  - onsite installation preparation tasks
  - onsite installation tasks
  - desktop messaging and My CallPilot installation tasks

- the "Installation checklist" on page 29 provides a high-level overview of the steps you must follow to
  - install the server
  - connect the server to the switch
  - configure the server and switch
  - install the web-based administration server on a stand-alone web server

CAUTION

Risk of software malfunction

Do not install software that is not provided with CallPilot. Software that is not approved by Nortel Networks is not supported, and can cause CallPilot to malfunction.

To determine what non-CallPilot software is supported by Nortel Networks, refer to the *CallPilot General Release Bulletin*.

Related topics

ATTENTION

For important considerations about using the ELAN in your network, see "About the ELAN (Meridian 1 and Succession 1000 only)" on page 22.

For a high-level diagram of how CallPilot fits into your network, refer to the following documentation:

- the server description section in Part 2 of the *CallPilot Installation and Configuration* guides
- the section connecting the CallPilot server to the switch or system in Part 3 of the *CallPilot Installation and Configuration* guides

For an overview of switch programming and call routing, refer to Part 3 of the *CallPilot Installation and Configuration* guides.

Installation checklist

ATTENTION

This is not a system recovery procedure. If you need to perform a system recovery, see "Recovering from a system failure" on page 42.

Note: For more information about installing CallPilot, refer to Parts 2 and 3 of the *CallPilot Installation and Configuration* guides.

Step	Description	Time required	Check
Stage 1: Complete the pre-installation requirements.			
1	Review and become familiar with the checklists, worksheets, and safety guidelines, in Chapters 3–5 of this guide. The information in this guide will help you successfully install your CallPilot server. **ATTENTION** Failure to comply with the safety guidelines described in this guide can result in personal injury or equipment damage.	30 minutes	❒
2	Complete the "Site inspection checklist" on page 44 of this guide.	5 minutes, if the site meets all of the requirements	❒
3	Gather the equipment, tools, and materials that you must supply yourself. Complete the following checklists: ■ "Required tools and materials" on page 49 ■ "Customer-supplied items checklist" on page 51	10 minutes, if you have all of the items you need	❒

Step	Description	Time required	Check
4	Unpack the server and supplied equipment, software, and documentation. Verify the items received against the Nortel Networks packing list, and ensure that the correct equipment arrived. Ensure also that the keycoded features are correct. Complete the following checklists to ensure that you have all the components you ordered: ■ "CallPilot server hardware checklist" on page 54 ■ "CallPilot software media and documentation checklist" on page 60	30 minutes	❒
5	Inspect and become familiar with the server. If you note any damage or missing components, contact your Nortel Networks distributor.	10–30 minutes (based on your server model)	❒
6	If your server is a tower or rackmount platform, review the slot and IRQ assignment information provided in Part 2 of the *CallPilot Installation and Configuration* guides. You need slot assignment information later in the installation. You may need the IRQ information for troubleshooting if you experience problems with your server.	10 minutes	❒

Step	Description	Time required	Check
7	Review the "Network connectivity" section in Part 2 of the *CallPilot Installation and Configuration* guides. This section provides an overview of how the CallPilot server is connected to the customer network.	5 minutes	❒
8	If this task has not already been completed, prepare for switch and CallPilot server configuration by completing the "Switch configuration" and "CallPilot configuration" worksheets provided in Chapter 4, "Configuration worksheets."	20 minutes, if you have all of the information you need	❒
Stage 2: Install the server hardware. For instructions, refer to Part 2 of the *CallPilot Installation and Configuration* guides.			
9	If your server is a rackmount server, install the power supply modules.	2 minutes	❒
10	If the 19-inch rack is not already installed, install it. For instructions, refer to the rack documentation. **ATTENTION** If applicable, ensure that the rack meets seismic bracing requirements. For more information, refer to the section on installing earthquake bracing in your switch or to the system installation documentation.	Based on rack, location, and connections: 1 to 4.5 hours	❒

Step	Description	Time required	Check
11	Place the server hardware and peripheral devices in the location chosen for the server.	5 minutes, if you unpacked the items in the chosen location	❒
12	Connect peripheral devices to the server. Peripheral devices include the following items, based on your server platform: ■ modem ■ ELAN hub (Meridian 1 or Succession Communication Server for Enterprise 1000 only) ■ CLAN hub (optional) ■ external tape and CD-ROM drives (201i server only) ■ monitor, keyboard, and mouse ■ software feature key adapter (tower and rackmount platforms only)	30 minutes	❒
13	Power up the server and ensure that it can start Windows NT.	Based on your server model	❒

Step	Description	Time required	Check
Stage 3: Install switch connectivity hardware (tower or rackmount server only).			
	For instructions, refer to "Connecting the CallPilot server to the switch or system in Part 3 of the *CallPilot Installation and Configuration* guides.		
14	For tower and rackmount platforms only: connect the CallPilot server to your switch. Depending on they type of switch, you may have to install connectivity equipment: ■ For Meridian 1 and Succession 1000, install the MGate card in the switch. ■ For T1/SMDI switches, install T1 and SMDI devices (such as T1 line side cards and an SMDI IOC shelf).	15 minutes	❒
15	Connect the CallPilot server to the switch as described in Part 3 of the *CallPilot Installation and Configuration* guides for your switch.	15 minutes	❒
Stage 4: Configure the switch and CallPilot server.			
16	Configure the switch. Use the "Switch or system configuration worksheet" that you completed in step 8 (see page 31). For configuration instructions, refer to the section on configuring the switch or system in Part 3 of the *CallPilot Installation and Configuration* guides.	30 minutes	❒

Step	Description	Time required	Check
17	If required for your switch and server (for example, in DSE and T1/SMDI installations), log on to the server to install and configure the Intel board software. For instructions, see the chapter on installing and configuring the Intel board software in Part 3 of the *CallPilot Installation and Configuration* guides.	10 minutes	❒
18	Log on to the server, if not already logged on, and run the Configuration Wizard to configure the CallPilot server and change the Windows NT passwords. Use the "Configuration Wizard worksheet" that you completed in step 8 (see page 31). For logon and configuration instructions, refer to the following: ■ "Configuring the CallPilot server software" in Part 3 of the *CallPilot Installation and Configuration* guides ■ the Configuration Wizard online Help	20 minutes, plus up to 1 hour to apply the changes	❒
19	Restart the server and ensure that it can start CallPilot.	Based on your server model; at least 10 minutes	❒
20	Change the CallPilotDist password for pcAnywhere. Acquire a pre-assigned password from your technical support representative.	5 minutes	❒

Step	Description	Time required	Check
Stage 5: Test CallPilot connectivity, services, and channels.			
Note: For instructions, refer to "Testing the CallPilot installation" in Part 3 of the *CallPilot Installation and Configuration* guides.			
21	Check CallPilot system ready indicators to see if CallPilot is ready to accept calls.	5 minutes	❒
22	Test the connection to the ELAN, if applicable.	1 minute, if the ping is successful	❒
23	Test the connection to the CLAN.	1 minute, if the ping is successful	❒
24	Verify that CallPilot answers when you dial the Voice Messaging DN.	5–10 minutes, if the test is successful	❒
25	Verify network connectivity to the CallPilot server by using a web browser to log on to the CallPilot server.	5 minutes	❒
26	Verify that you can leave a message. **Note:** This task includes the first-time configuration of a Voice Messaging DN and test mailbox.	25 minutes	❒
27	Verify that you can retrieve a message.	2 minutes	❒
28	Verify that each call channel and multimedia channel is functioning correctly.	2 hours	❒

Step	Description	Time required	Check
Stage 6: Other administrative tasks			
29	If your server is a tower or rackmount server, create or update the emergency repair disk. The emergency repair disk contains a backup of registry files so that you can restore damaged Windows NT system files or perform disaster recovery.	10 minutes	❒
	For instructions, refer to "Creating or updating the emergency repair disk" in Part 4 of the *CallPilot Installation and Configuration* guides. **ATTENTION** Nortel Networks recommends that you create and maintain more than one copy of the emergency repair disk. The disks should be stored in a safe location off-site.		
30	Create a full backup of the CallPilot system. For instructions on performing the backup, refer to "Backing up and restoring CallPilot information" in the *CallPilot Administrator's Guide* (555-7101-301). **ATTENTION** Nortel Networks recommends that the backup also be stored in a safe location off-site.	Based on server model; up to 3 hours	❒

Step	Description	Time required	Check
31	If you want to use CallPilot Reporter, or create a stand-alone web server for CallPilot administration, install CallPilot Manager on a separate web server. When you install CallPilot Manager on a stand-alone web server, CallPilot Reporter is automatically installed. For instructions, refer to "Installing CallPilot administrative software on a stand-alone web server" in Part 4 of the *CallPilot Installation and Configuration* guides.	10 minutes, if the web server meets the requirements for CallPilot Manager	❒

Expanding CallPilot server features

Introduction

Perform a CallPilot software expansion when you want to

- add one or more keycoded features, such as AppBuilderFax or Networking
- increase the number of channels
- install additional languages

Before you can perform a software expansion, you must acquire a new keycode from Nortel Networks.

Feature expansion checklist

Step	Description	Time required	Check
1	Compare the current CallPilot system configuration with the expansion keycode label, and ensure that ■ the serial number matches ■ the feature limits on the keycode label are equal to or greater than the limits on the CallPilot server If the information on the keycode does not match the system configuration, the expansion may not succeed.	5 minutes	❒

Step	Description	Time required	Check
2	Install additional hardware, if required. If your CallPilot expansion includes an increase in system capacity, you may need to ■ install more line cards on the switch (tower and rackmount platforms only) For instructions, refer to Part 3 of the *CallPilot Installation and Configuration* guides. ■ perform a platform migration For instructions, refer to Part 4 of the *CallPilot Installation and Configuration* guides. ■ install more voice processing boards (tower and rackmount platforms only) or MPC-8 cards For instructions, refer to Part 5 of the *CallPilot Installation and Configuration* guides.	30 minutes to 1 hour	❒
3	Log on to the server, and then run the Configuration Wizard. For logon and configuration instructions, refer to the following: ■ "Configuring the CallPilot server software" in Part 3 of the *CallPilot Installation and Configuration* guides ■ the Configuration Wizard online Help	20 minutes, plus up to 1 hour to apply the changes	❒

Step	Description	Time required	Check
4	Restart the server and ensure that CallPilot can start.	Based on your server model; at least 10 minutes	❒
5	Ensure that CallPilot can receive calls. For instructions, refer to "Verifying that CallPilot can receive calls" in Part 3 of the *CallPilot Installation and Configuration* guides.	5 minutes	❒
6	Ensure that all call and multimedia channels and features work as expected. This includes sending a fax, logging in to the mailbox using Speech Activated Messaging, using the phone set to read e-mail, verifying that desktop messaging works, and using Reporter to generate the relevant reports. For instructions, refer to "Testing the CallPilot software and channels" in Part 3 of the *CallPilot Installation and Configuration* guides.	2 hours	❒

Step	Description	Time required	Check
7	If your server is a tower or rackmount server, create or update the emergency repair disk. The emergency repair disk contains a backup of registry files so that you can restore damaged Windows NT system files or perform disaster recovery. For instructions, see "Creating or updating the emergency repair disk" in Part 4 of the *CallPilot Installation and Configuration* guides. **ATTENTION** Nortel Networks recommends that you create and maintain more than one copy of the emergency repair disk. The disks should be stored in a safe location off-site.	10 minutes	❒
8	Create a backup of the CallPilot system. For instructions on performing the backup, refer to "Backing up and restoring CallPilot information" in the *CallPilot Administrator's Guide* (555-7101-301). **ATTENTION** Nortel Networks recommends that the backup also be stored in a safe location off-site.	Based on server model; up to 3 hours	❒

Recovering from a system failure

Introduction

The Windows NT operating system and CallPilot server software are preinstalled at the factory. However, if your CallPilot system experiences a hard drive failure or your system does not work properly, you may be instructed by your support representative to replace the hard drive, rebuild the system, or both.

CAUTION

Risk of software malfunction

- Nortel Networks recommends that you open a support ticket with your technical support group before you proceed with a system rebuild.
- After the system recovery, do not install software that is not provided with CallPilot. Software that is not approved by Nortel Networks is not supported, and can cause CallPilot to malfunction.

More information

For more information, refer to “Recovering from system failures” in Part 4 of the *CallPilot Installation and Configuration* guides.

Chapter 3

Installation preparation checklists

In this chapter

Site inspection checklist

Before you perform the hardware installation, complete the following site inspection checklist:

Check	Description
❒	Perform a pre-installation site visit, and complete as many tasks as you can from this checklist. Doing so will help you prevent unnecessary delays and ensure a successful installation on the day that the installation occurs.
❒	Ensure that a water fire retardant system is not present in the chosen location. If this system is activated, this could severely impact the ability of the CallPilot system to operate.
❒	Ensure that there are no heat sources near the peripheral equipment. The CallPilot server environment must be properly cooled.
❒	Ensure that the area is isolated from strong electromagnetic fields and electrical noise sources such as air conditioners, large fans, motors, radio or TV transmitters, or high-frequency security devices.
❒	Ensure that the area is clean and clear of any debris.

Check	Description
❒	If the CallPilot server is a rackmount server, install the 19-in. rack. For instructions, refer to the rack documentation. **ATTENTION** If applicable, ensure that the rack meets seismic bracing requirements. For more information, refer to the section on installing earthquake bracing in your switch or to the system installation documentation.
❒	Ensure that there is adequate space for all equipment. ■ If your server is a tower or rackmount server, ensure that there is adequate space for access to the front, side, and rear panels of the server. ■ Ensure that there is adequate space for air flow around the peripheral equipment, for ventilation.
❒	Ensure that there is a desk, shelf, or table available for the monitor, keyboard, mouse, and modem.
❒	Ensure that an external analog phone line is available for the modem. **Note:** The line should not be connected to the customer's switch. If the switch goes down, the CallPilot server cannot be supported from a remote location.

Check	Description
❒	Ensure that a single-point ground reference is available for all the power outlets serving the CallPilot server and its peripherals. Before the CallPilot server installation, a qualified electrician must implement the single-point ground reference requirement between the power outlets of the CallPilot server and the power outlets of the switch. Refer to "Single-point grounding requirements," on page 101 for further details. Provide a sufficient number of properly grounded power outlets or power bars for all equipment. You need one outlet for each of the following items: ■ server (if your server is a tower or rackmount platform) ■ web-enabled administration PC that has network connectivity to CallPilot, or monitor, or both **Note:** If the server is a 200i or 201i server, the administrative PC and monitor are connected temporarily to the server. If the server is a tower or rackmount server, the monitor is connected permanently to the server. ■ modem (remote maintenance modem) ■ external CD-ROM drive (if your server is a 200i or 201i server) ■ external tape drive (if your server is a 200i or 201i server the drive is optional) ■ ELAN and CLAN hubs **ATTENTION** If the server is a 703t server, the Class B hub must be located 6 m (20 ft) away from the 703t server to comply with EMC requirements. A Class A hub must be located 10 m (33 ft) away from the 703t server to comply with EMC requirements.

Check	Description

ATTENTION
To comply with Class B EMC radiated requirements, a Class B hub must be located a minimum of 6 m (20 t) away from the 1002rp server. Shielded Ethernet cables must be used.

- Symposium Call Center server (if installed)
- customer-supplied network equipment (if required)
- uninterruptible power supply (UPS) [if installed]

  Note: Nortel Networks strongly recommends that you use a UPS to maintain power to the server and ELAN/CLAN hubs in the event of a power outage.

❒ Ensure that jacks and cables are ready for all required connections.

❒ Ensure that any changes that are necessary on the switch to make room for the IPE server or the MGate cards are performed before the installation date.

This includes

- ensuring that two consecutive IPE card slots are available (for the 201i server)
- ensuring there are enough card slots for the MGate cards
- moving lines and trunks
- consolidating TNs.

Check	Description
❒	If it has not been done already, obtain the following information ■ for all equipment on both the CLAN and the ELAN — unique computer names — IP addresses — subnet masks — default gateway (CLAN) ■ direct inward dial (DID) numbers on the switch Record this information on the following worksheets, as required: ■ “Switch or system configuration worksheet” on page 67 ■ “Configuration Wizard worksheet” on page 76
❒	Ensure that the items that are listed on the “Customer-supplied items checklist” on page 51 are provided.

Required tools and materials

Ensure that the tools and materials identified in the following checklist are available. You may need to use them to perform installation, upgrade, or maintenance tasks:

Check	Item
❒	Antistatic ESD wrist strap (recommended)
❒	Various sizes of Phillips cross-head and standard screwdrivers **Note:** If your server is a tower or rackmount server, magnetic screwdrivers are recommended to prevent you from losing the screws inside the server chassis. **ATTENTION** To prevent data loss, keep magnetic screwdrivers away from backup tapes, floppy disks, and hard drives.
❒	A set of hex nut drivers
❒	Side cutters
❒	Jumper removal tool or needle-nosed pliers
❒	Tweezers
❒	Tape measure for determining cable lengths
❒	A flashlight for examining the interior of a tower or rackmount server chassis
❒	Pen for writing notes, cable lengths, and cable identifications
❒	Cable tie wraps
❒	Cable identification labels

Check	Item
❒	Equipment log The equipment log is used to record the model and serial number of the system, all installed options, and other information.
❒	Null modem serial cable (it can be useful for troubleshooting)
❒	If the CallPilot server is a 201i server, an external tape drive for the 201i server The tape drive is required when performing backups or restoring data from backups.
❒	If the CallPilot server is a 201i server, an external CD-ROM drive The external CD-ROM drive is required when installing CallPilot or operating system software.
❒	For any server model, a monitor peripheral kit to access the CallPilot system for maintenance purposes
❒	A computer with a CD-ROM drive that is separate from the CallPilot server (such as a laptop computer). This is required for reading documentation on CD-ROM and for connecting to the CallPilot server network for troubleshooting.

Customer-supplied items checklist

Ensure that the customer has supplied the items identified in the following checklist:

Check	Item
❒	Secure location for the CallPilot server and peripheral equipment Windows and doors should be kept locked and provide access only to authorized personnel.
❒	External analog phone line for the modem. The line should not be connected to the switch. If the switch goes down, the CallPilot server cannot be supported from a remote location.
❒	Web-enabled administrative PC The web-enabled administrative PC should be in close proximity to the CallPilot server, and must have ■ network connectivity to the CallPilot server (it can be on the CLAN or ELAN) ■ one of the following web browsers installed: — Internet Explorer 5 or later — Netscape Communicator 6.2 or later ■ a CD-ROM drive so that CallPilot documentation can be accessed from CD-ROM ■ access to the Internet so that the installation technician can download software updates from Nortel Networks, if required
❒	TCP/IP-based ELAN that connects the switch and the server (Meridian 1 or Succession 1000 only)

Check	Item
❒	A hub for the ELAN (or an appropriate alternative), power cord, and, if required, back-up power supply The ELAN hub is optional if you use a cross-over network cable to make a direct point-to-point connection from the CallPilot server to the switch. If you want other devices to have connectivity to the ELAN, use a hub. **ATTENTION** If the server is a 703t server, the Class B hub must be located 6 m (20 ft) away from the 703t server to comply with EMC requirements. A Class A hub must be located 10 m (33 ft) away from the 703t server to comply with EMC requirements. **ATTENTION** To comply with Class B EMC radiated requirements, a Class B hub must be located a minimum of 6 m (20 ft) away from the 1002rp server. Shielded Ethernet cables must be used.
❒	Ethernet connections ready at the Meridian 1 or Succession 1000 system (cables and Ethernet transceivers or MAUs)
❒	Cable for connecting the ELAN to the customer WAN (optional) This allows you or Nortel Networks technical support to connect to the ELAN from a remote location.
❒	TCP/IP-based CLAN that can connect desktop or web messaging users to the server, if the desktop messaging feature has been purchased This includes any hardware or software to facilitate CLAN segmentation or multiple-LAN protocols.

Check	Item
❒	A hub for the CLAN or an appropriate alternative **ATTENTION** If the server is a 703t server, the Class B hub must be located 6 m (20 ft) away from the 703t server to comply with EMC requirements. A Class A hub must be located 10 m (33 ft) away from the 703t server to comply with EMC requirements.
❒	Jacks and a cable for connecting the CallPilot server to the CLAN (optional)
❒	Web server PC, if ■ CallPilot Manager and CallPilot Reporter will be installed on a stand-alone server CallPilot Manager is the web-based software that you use to administer the CallPilot server. CallPilot Manager must be installed on a stand-alone web server if you want to use CallPilot Reporter. You cannot install CallPilot Reporter on the CallPilot server. ■ My CallPilot will be used by mailbox owners My CallPilot is a web-based portal that provides access to CallPilot messages and mailbox configuration over the Internet. My CallPilot can be installed on the same web server as CallPilot Manager. For information about the web server PC requirements for CallPilot Manager and My CallPilot, refer to the following sections in Part 4 of the *CallPilot Installation and Configuration* guides: ■ "Installing CallPilot administrative software on a stand-alone web server" ■ Installing desktop messaging and My CallPilot

CallPilot server hardware checklist

The following checklist identifies the hardware that you need to put the CallPilot server into operation in your network. Use this checklist (as well as the packing list provided with the customer order) to ensure that you have all the components you need.

Check	Item
Tower or rackmount server and peripheral devices	
❒	Keycode printed on a label that lists the purchased features
❒	Tower or rackmount CallPilot server The server contains the following items, which are already installed: ■ CD-ROM drive ■ hard drive(s) ■ network interface card(s) ■ One or more MPB boards (MPB16-4, or MPB96) ■ SCbus cable (NTRH2011) (702t, 1001rp, and 1002rp servers)
❒	Keyboard and mouse
❒	SVGA 14-in. monitor
❒	Modem with cable and power cord (for remote access)
❒	Ethernet hub(s), if purchased from Nortel Networks

Check	Item
201i server and peripheral devices	
❒	Keycode printed on a label that lists the purchased features
❒	201i server
❒	Multi I/O cable (NTRH0912)
❒	EMC kit (NTRH3503) **Note:** The EMC kit is required for Option 11C Mini and Succession 1000 systems only.
❒	Backplane (tip and ring) cable (NTRH3501) **Note:** This cable is required for Meridian 1 Option 51C–Option 81C systems only.
❒	One of the following groups of SCSI cable(s): ❒ For Meridian 1 Option 51C–Option 81C: — NTRH1408 — NTRH1410 — NTRH3502 ❒ For Option 11C: — NTRH1407 — NTRH3502 ❒ For Option 11C Mini or Succession 1000: NTRH3502 (two cables are required) **Note:** An NTRH3502 cable is supplied with each external SCSI CD-ROM or tape drive.
❒	MPC-8 card(s) to provide the number of channels purchased for CallPilot

Check	Item
❒	SVGA 14-in. monitor
❒	Keyboard and mouse **Note:** If you are using a USB mouse, ensure that you also have a USB-to-PS/2 converter and a PS/2 extension cable (A0855616).
❒	Modem with cables and power cord (for remote access)
❒	Ethernet hub(s), if purchased from Nortel Networks
❒	External CD-ROM drive with NTRH3502 SCSI and power cables
❒	External tape drive with SCSI and power cables
Meridian 1 or Succession 1000 connectivity items—rackmount server only	
❒	MGate card(s) (NTRB18CA)
❒	The following MGate cables, as required: ■ Single DS30XV interconnect cable (NTRH2012) (for connection to MPB16-4 boards only) ■ Dual DS30XV connect cable (NTRH2013) (for connection to MPB16-4 boards only) ■ Triple DS30XV connect cable (NTRH2014) (for connection to MPB96 boards only) **Note:** For more details about the MGate card cabling requirements, refer to Part 3 of the *CallPilot Installation and Configuration* guides.

Check	Item
DSE connectivity items—703t server only	
❒	■ DSE PCI-16 card(s) ■ PCI-16 card cables (included in PCI-16 package) ■ 46 m (150 ft) Switchboard cable(s)
SL-100, DMS-100 connectivity items—rackmount platforms only	
❒	Dialogic DTI/480SC board(s)
❒	T1 cable(s)
❒	T1 card(s)
❒	SMDI link modem connection equipment (if the switch has an IOC shelf and is more than 15.2 m or 50 ft from the server) ❒ Long-haul modems (2 modems) ❒ Modem cable for connection to CallPilot ❒ IOC cable **Note:** A cable is also required to connect the two modems. Pinout information for this cable is provided in Part 3 of the *CallPilot Installation and Configuration* guides. This cable is created or supplied by the customer or installer.

Check	Item
❒	SMDI link modem connection equipment (if the switch has an IOM and is more than 229 m or 750 ft from the server) ❒ Long-haul modems (2 modems) ❒ Modem cable for connection to CallPilot ❒ IOM cable ❒ Smart connector **Note:** A cable is also required to connect the two modems. Pinout information for this cable is provided in Part 3 of the *CallPilot Installation and Configuration* guides. This cable is created or supplied by the customer or installer.
❒	SMDI Link Direct Connection equipment ❒ DB-9 (F) to DB-25 (F) Null Modem cable ❒ IOC cable
❒	SMDI Link Direct Connection equipment ❒ DB-9 (F) to DB-25 (M) Null Modem cable ❒ IOM cable ❒ Smart Connector
Nortel Networks Multimedia Communication Server 5100 (MCS 5100) connectivity items—rackmount platforms only	
❒	AudioCodes T1-CAS gateway
❒	iTouch terminal server
❒	MCP-MRV serial cable for iTouch terminal server

CallPilot hardware and documentation spares checklist

The following checklist identifies the hardware components that you should carry with you as spares when you visit a customer site. Ensure that you take the components that are relevant to the server model purchased by the customer.

Check	Item	Quantity
❒	MPB board	1
❒	MPC-8 cards (for the 201i server) or MPB16-4 boards	4
❒	201i server hard drive	1
❒	703t server hard drive	1
❒	1001rp server hard drive	1
❒	1002rp server hard drive	1
❒	SBC board for 1001rp server	1
❒	Network hub	1
❒	Network cable	1
❒	All CallPilot server software CD-ROMs For a complete list, see “CallPilot software media and documentation checklist” on page 60.	1 of each CD-ROM

CallPilot software media and documentation checklist

The following checklist identifies the software media and documentation that you need to put the CallPilot server into operation in your network. Use this checklist (as well as the packing list provided with your order) to ensure that you have all of the components you need.

Note: Store the software media in a safe place and use it when instructed in the documentation. CallPilot server software is preinstalled at the factory, so you may not be asked to use some of these CD-ROMs unless you are performing a recovery, reinstallation, expansion, or upgrade.

Check	Item
❒	CallPilot Server Software CD-ROM (NTUB40AD) This includes the following: ■ CallPilot server software ■ CallPilot Manager web-based administration software ■ My CallPilot web-based software (provides mailbox access for end-users)
❒	CallPilot Desktop Client Software and Updates CD-ROM (NTUB41AD)
❒	CallPilot My CallPilot CD-ROM (NTUB48AA)

Check	Item
❒	CallPilot PEP CD-ROM (NTUB43AD) **Note:** The PEP CD-ROM includes the following: ■ *Documentation Addendum* (if one has been issued) ■ updates for the Server Software CD-ROM (if any have been issued) ■ updates for the OS Recovery or OS Upgrade CD-ROMs (if any have been issued)
❒	CallPilot Language Prompts CD-ROM set (3) ■ Americas (NTUB44AD) ■ EMEA (NTUB44BD) ■ Asia Pacific (NTUB44CD)
❒	One of the following CD-ROMs: ■ If you purchased a new CallPilot system: OS Recovery CD-ROM (NTUB47AD) ■ If you purchased a CallPilot upgrade: OS Upgrade CD-ROM (NTUB47BD) **Notes:** ■ Use these CD-ROMs only in situations where the operating system must be reinstalled. ■ The hardware drivers are included on these CD-ROMs. (In CallPilot 1.07, the drivers were provided on the Application Driver CD-ROM.)

Check	Item
❒	CallPilot Documentation CD-ROM (NTRG19AF)
❒	The following printed CallPilot documentation: ❒ *CallPilot General Release Bulletin* **Note:** You can obtain other CallPilot documentation from the CallPilot Documentation CD-ROM, or from the Installation and Administration Help area in CallPilot Manager. See “Related information products” on page 16 for more details about the available documents.

Preinstalled software

What is installed at the factory

The following software is installed at the factory before the server ships:

- Windows NT 4.0 Server, Service Pack 6a, as well as other Windows components that are required by CallPilot
- Internet Explorer 5.5 with Service Pack 2
- software for the switch-connectivity hardware
- CallPilot server software
- CallPilot Manager (web-based administration server software)
- RAID software, if RAID is included with the tower or rackmount server
- SQL Anywhere database version 7.0.2
- pcAnywhere version 10.5
- Adobe Acrobat Reader 5.0 (for online viewing of the CallPilot documentation)
- other equipment manufacturers (OEM) right to use (RTU) software certificates

  Nortel Networks utilizes OEM software license RTUs, and each RTU is licensed for each CallPilot application. The manufacturer provides a certificate and serial number with the RTU.

  The OEM license and serial number must be kept with the CallPilot application for its entire service life. These RTU serial numbers are required for complete software re-installation in the event of disk failure. If the server is replaced or decommissioned, you must return all OEM RTUs to Nortel Networks with the server hardware.

  Nortel Networks recommends that you store all RTU certificates on site in a secure, dry, accessible place for future access. You can store the RTU certificates in an envelope that is taped to the CallPilot server.

Cautions

CAUTION

Risk of system interruption or malfunction

Do not download and install any IIS security patches from the Microsoft web site or antivirus software unless they have been approved for CallPilot by Nortel Networks. Installation of unapproved security patches or antivirus software may result in incorrect operation of your CallPilot system.

To determine which patches and antivirus software have been approved by Nortel Networks for CallPilot, refer to the latest issue of the *CallPilot General Release Bulletin*.

CAUTION

Risk of reduced system performance

Do not activate screen savers on the CallPilot server. Screen savers consume significant CPU resources and, therefore, impact CallPilot response time.

Note: CallPilot operation is not affected when you power off the monitor.

Chapter 4

Configuration worksheets

In this chapter

Overview

Introduction

You need the information that you collect in this section when you

- configure the switch or system
- run the Configuration Wizard on the CallPilot server

Note: Nortel Networks recommends that you configure the switch or system and prepare the cabling ahead of the CallPilot server installation date.

Where to get the information

Obtain the information from the switch or system administrator and network administrator.

When to use the worksheets

Use the configuration worksheets in these situations:

- when you install the server
- each time configuration changes are required as part of an upgrade, migration, or reinstallation

Switch or system configuration worksheet

Complete this worksheet as preparation for configuring the switch or system. For instructions on how to configure the switch or system, refer to Part 3 of the *CallPilot Installation and Configuration* guides.

switch or system type

❒ Meridian 1 ❒ large Meridian 1 ❒ Option 11 or Option 11C Mini	See “Meridian 1 or Succession 1000 information” on page 68
❒ Succession 1000	
❒ SL-100, DMS-100	See “SL-100/DMS-100 switch information” on page 71
❒ Nortel Networks Multimedia Communication Server 5100 (MCS 5100)	See “MCS 5100 system information” on page 73
❒ Digital Set Emulation (DSE) [Rolm]	See “Digital Set Emulation (DSE) switch information” on page 75

Meridian 1 or Succession 1000 information

Complete this section only if your CallPilot server is connected to a Meridian 1 or Succession 1000 system.

Customer number:

_____

Ethernet information (Overlay 117)

Primary IP address (ELAN): _____ . _____ . _____ . _____

Secondary IP address (ELAN): _____ . _____ . _____ . _____

Note: A secondary IP address for the ELAN is required only for large Meridian 1 systems (such as Option 51C).

Subnet mask (ELAN): _____ . _____ . _____ . _____

Default IP gateway: _____ . _____ . _____ . _____

Note: The default IP gateway is required only if the Meridian 1 or Succession 1000 system is also connected to the CLAN.

ACD queue and agents (Overlays 11 and 23)

ACD DN of CallPilot agents (Overlay 23): _____

Agent TNs (Overlay 11): _____

Position ID on Key0: _____

SCN on Key1: _____

Default ACD DN for CDN (Overlay 23): _____

CDN queues (Overlay 23)

Primary CDN (Voice Messaging): _____

Secondary CDN (Multimedia Messaging): _____

Phantom DNs, if used instead of dummy ACD DNs (Overlays 10 and 97)

CallPilot application name: _____

Superloop (Overlay 97): _____

Phantom DN (Overlay 10): _____

DCFW CDN: _____

CallPilot application name: _____

Superloop (Overlay 97): _____

Phantom DN (Overlay 10): _____

Phantom DNs, if used instead of dummy ACD DNs (Overlays 10 and 97) (continued)

DCFW CDN: _____

CallPilot application name: _____

Superloop (Overlay 97): _____

Phantom DN (Overlay 10): _____

DCFW CDN: _____

Dummy ACD DNs, if used instead of phantom DNs (Overlay 23)

CallPilot application name: _____

ACD DN: _____

NCFW CDN: _____

CallPilot application name: _____

ACD DN: _____

NCFW CDN: _____

CallPilot application name: _____

ACD DN: _____

NCFW CDN: _____

SL-100/DMS-100 switch information

Complete this section only if your CallPilot server is connected to an SL-100 or DMS-100 switch.

UCD DN for voice messaging	_____
UCD DN for multimedia messaging (if purchased)	_____
UCD DN for speech recognition (if purchased)	_____
Channel configuration	
UCD DN	_____
DN of agent	_____
Message Desk Number	_____
Terminal Number	_____
Login Code	_____
Logout Code	_____
Service DN	_____
Associated application	_____

SMDI Link	
Port Name (Default: COM 2)	_____
Port Use type (Default: MM Access)	_____
Baud Rate (Recommended default: 9600)	_____
Parity	_____
Number of Data Bits (Default: 7)	_____
Number of Stop Bits (Default: 1)	_____
Flow Control (Default: None)	_____

MCS 5100 system information

Complete this section only if your CallPilot server is connected to an MCS 5100 system.

DN for voice messaging	_____
DN for multimedia messaging (if purchased)	_____
DN for speech recognition (if purchased)	_____
Channel configuration	
DN	_____
DN of channel	_____
Message Desk Number	_____
Terminal Number	_____
Login Code (Default: Blank)	Not supported
Logout Code (Default: Blank)	Not supported
Service DN	_____
Associated application	_____

SMDI Link	
Port Name (Default: COM 2)	_____
Port Use type (Default: MM Access)	_____
Baud Rate (Recommended default: 9600)	_____
Parity	_____
Number of Data Bits (Default: 7)	_____
Number of Stop Bits (Default: 1)	_____
Flow Control (Default: None)	_____

T1 Link	
Frame Format	Only D4 is supported.
Coding Format	Only B8ZS is supported.
(T1) Cable Length (Default: None)	_____
Debounce Value (Default: 13)	_____
Hook Flash Time (Default: 50)	_____

Note: Debounce Value and Hook Flash Time units indicate 10X ms. Example: “13” indicates “130 ms.”

Digital Set Emulation (DSE) switch information

Complete this section only if your CallPilot server is connected to a DSE switch (Rolm).

CallPilot ports or DNs	_____
Primary service DN	_____
MWI Line DN	_____
Smallest extension DN and largest extension DN	_____
Number of channels	_____
Hunt Groups	
Primary Hunt Group DNs	_____
Secondary Hunt Group DNs	_____

Configuration Wizard worksheet

Complete the following worksheet as preparation for configuring the CallPilot server. For more information about the information on this worksheet, and the instructions on how to configure the CallPilot server, refer to "Configuring the server software" in Part 3 of the *CallPilot Installation and Configuration* guides.

Worksheet sections

The Configuration Wizard worksheet contains the following sections:

CallPilot information

Company name:	_____
Customer name:	_____
Keycode:	Get this from the CallPilot keycode label.
Serial number:	Get this from the CallPilot keycode label.
Computer name:	_____
Time zone:	_____
Country code (for the server location):	_____
Area code (for the server location):	_____

Administrator password

Current password:	The default password is **cpabc123**.
New password:	For security reasons, do not record the password here. **Note:** Do not use a password that has been used before, a password that is easy to hack, or the default password. Ensure that you consult with the Technical Assistance Center regarding the password.

NGenSys password

Current password:	Not disclosed for security reasons.
New password:	For security reasons, do not record the new password here. **Note:** Do not use a password that has been used before, a password that is easy to hack, or the default password. Ensure that you consult with the Technical Assistance Center regarding the password.

NGenDist password

Current password:	Not disclosed for security reasons.
New password:	For security reasons, do not record the new password here. **Note:** Do not use a password that has been used before, a password that is easy to hack, or the default password. Ensure that you consult with the Technical Assistance Center regarding the password.

NGenDesign password

Current password:	Not disclosed for security reasons.
New password:	For security reasons, do not record the new password here. **Note:** Do not use a password that has been used before, a password that is easy to hack, or the default password. Ensure that you consult with the Technical Assistance Center regarding the password.

Multimedia allocation

DSP Encoding:	❒ A-law (Europe or Caribbean) ❒ Mu-law (North America)

Application DN information

Voice Messaging (Primary CDN):	_____
Multimedia Messaging (Secondary CDN):	_____
Speech Activated Messaging:	_____
Express Voice Messaging:	_____
Voice Item Maintenance:	_____
Enterprise Networking:	_____
AMIS Networking:	_____
Fax Item Maintenance:	_____
Express Fax Messaging:	_____
Paced Speech Activated Messaging:	_____
Custom Commands:	_____
Interactive Voice Response:	_____
AUI CallPilot Menu Interface:	_____
AUI CallPilot Alternative Command Interface:	_____

Languages

Record the languages you need.	
Primary prompt language:	_____
Secondary prompt language:	_____
Automated Speech Recognition languages:	_____
	_____
	_____

CallPilot network information

Embedded LAN TCP/IP Information (Meridian 1 and Succession 100 only)	
MAC address of ELAN network card on the CallPilot server (tower or rackmount servers only):	_____
CallPilot server ELAN IP address:	_____ . _____ . _____ . _____
Subnet mask:	_____ . _____ . _____ . _____
Customer LAN TCP/IP information	
MAC address of CLAN network card on the CallPilot server (tower or rackmount servers only):	_____
CallPilot server CLAN IP address:	_____ . _____ . _____ . _____
Subnet mask:	_____ . _____ . _____ . _____
Gateway:	_____ . _____ . _____ . _____

Customer LAN access information

The following information is not requested by the Configuration Wizard. However, you may need it if you are connecting to the CallPilot server with a PC on the customer LAN (CLAN).

Obtain the following from the network administrator:	
Network user name:	_____
Domain name:	_____
Password:	_____

Meridian 1 or Succession 1000 information

Complete this section only if your CallPilot server is connected to a Meridian 1 or Succession 1000 system.

Switch information

Switch IP address: _____ . _____ . _____ . _____

Switch type:
- ❒ Meridian 1
- ❒ Option 11 or Option 11C Mini
- ❒ Succession 1000

Switch customer number: _____

Symposium Call Center Server CLAN IP Address: _____ . _____ . _____ . _____

Symposium Call Center Server voice application Class ID _____

Note: The Symposium Call Center Server server CLAN IP address and voice application class ID are required only if you will be using the Symposium Voice Services Support feature.

TN information

Note: Copy the relevant information from the "Switch or system configuration worksheet" on page 67.

Number of TNs: _____

Dedicated to:
- ❒ ACCESS ACD queue
- ❒ IVR ACD queue

Note: Check either one of these options if this group of TNs is dedicated to the Symposium Voice Services Support feature.

Start TN: _____

Start TN Key 0 (Position ID): _____

Start TN Key 1 (SCN): _____

TN information (complete this section if another TN group is required)

Note: Copy the relevant information from the "Switch or system configuration worksheet" on page 67.

Number of TNs: _____

Dedicated to:
- ❒ ACCESS ACD queue
- ❒ IVR ACD queue

Note: Check either one of these options if this group of TNs is dedicated to the Symposium Voice Services Support feature.

Start TN: _____

Start TN Key 0 (Position ID): _____

Start TN Key 1 (SCN): _____

TN information (complete this section if another TN group is required)

Note: Copy the relevant information from the "Switch or system configuration worksheet" on page 67.

Number of TNs: _____

Dedicated to:
- ❒ ACCESS ACD queue
- ❒ IVR ACD queue

Note: Check either one of these options if this group of TNs is dedicated to the Symposium Voice Services Support feature.

Start TN: _____

Start TN Key 0 (Position ID): _____

Start TN Key 1 (SCN): _____

T1/SMDI information

Complete this section only if your CallPilot server is connected to a T1/SMDI switch or system (for example, DMS-100/SL-100, or MCS 5100).

Switch information

SMDI Transport Data Settings	
Poll Timeout (Default: 10 000 ms)	_____
Poll Timeout Threshold (Default: 5)	_____
Poll DN (Default: 0)	_____
MWI Padding (Default: blank)	_____

COM Port Settings	
Port Name	COM 2
Port Use type (Default: MM Access)	_____
Baud Rate (Default: 9600)	_____
Parity (Default: Even)	_____
Number of Data Bits (Default: 7)	_____
Number of Stop Bits (Default: 1)	_____
Flow Control (Default: None)	_____

T1 Board Properties	
Line Interface Type (Default: Ground Start)	_____
Frame Format	Only D4 is supported.
Coding Format	Only B8ZS is supported.
(T1) Cable Length (Default: None)	_____
Debounce Value (Default: 13)	_____
Hook Flash Time (Default: 50)	_____

Note: Debounce Value and Hook Flash Time units indicate 10X ms. Example: “13” indicates “130 ms.”

Channel Detail Information

UCD group for Voice channels, if Voice channels were purchased	
Number of Channels (in this UCD group)	_____
Agent DN (starting)	_____
Hunt Group DN (UCD DN)	_____
Message Desk Number	_____
Message Terminal Number (starting)	_____
Login Code	_____
Logout Code	_____

UCD group for Fax channels, if Fax channels were purchased

Number of Channels (in this UCD group)	_____
Agent DN (starting)	_____
Hunt Group DN (UCD DN)	_____
Message Desk Number	_____
Message Terminal Number (starting)	_____
Login Code	_____
Logout Code	_____

UCD group for Speech Recognition channels, if Speech Recognition channels were purchased

Number of Channels (in this UCD group)	_____
Agent DN (starting)	_____
Hunt Group DN (UCD DN)	_____
Message Desk Number	_____
Message Terminal Number (starting)	_____
Login Code	_____
Logout Code	_____

Digital Set Emulation (DSE) information

Complete this section only if your CallPilot server is connected to a DSE (for example, Rolm) switch.

Switch information

Rolm Switch Information	
MWI activation method	❒ Phone button ❒ Feature code access
Set button	_____
Clear button	_____
MWI range	_____
Maximum internal extension length	_____
Voice bus type	❒ SC bus ❒ H.100 bus
Voice bus speed	❒ 2.048 MHz ❒ 4.096 MHz ❒ 8.192 MHz
Automatically select master for bus timing	❒

Channel detail information

Intel DSE board serial number	_____ _____ _____ _____
Hunt group for Voice channels, if voice channels have been purchased	
Number of lines to add (for this hunt group)	_____
First DN	_____
Hunt Group DN with application type	_____
Hunt group for Fax channels, if Fax channels have been purchased	
Number of lines to add (for this hunt group)	_____
First DN	_____
Hunt Group DN with application type	_____
Hunt group for Speech Recognition channels, if Speech Recognition channels have been purchased	
Number of lines to add (for this hunt group)	_____
First DN	_____
Hunt Group DN with application type	_____

MWI DN assignment

Number of lines to add _____

Note: Enter 1 (for 1 MWI DN).

Note: Nortel Networks recommends that this DN be associated with the last port on the first DSE card).

DN information to support optimal MWI service

First DN (in the range of DNs used by the switch) _____

Last DN (in the range of DNs used by the switch) _____

Chapter 5

Safety guidelines

In this chapter

General safety

Introduction

When installing, replacing, or upgrading any system parts, follow Nortel Networks safety guidelines to prevent personal injury and damage to the server or replacement parts.

WARNING

Risk of personal injury and equipment damage

Field maintenance must always be performed by fully qualified, trained personnel.

ATTENTION

The guidelines discussed in this guide are common to all server models. Ensure that you comply with any safety guidelines that are also discussed in Parts 2 and 5 of the *CallPilot Installation and Configuration* guides.

Precautionary messages

This guide provides warnings when risks related to hardware installation and handling are known. Do not ignore these warnings.

Note: For a description of the potential impact that the warnings in this guide may have if they are ignored, see “Symbols and conventions” on page 15.

General precautions

Nortel Networks recommends the following safety guidelines for performing installation and maintenance procedures:

- To prevent electric shock, *do not* plug computer and peripheral devices into power sources that are not properly grounded.
- Use a surge protector or uninterruptible power supply to protect your system from sudden increases and decreases in electrical power.
- If your server is a tower or rackmount server, you must shut down and power off the server and peripheral devices, and then unplug the server power cable before you remove the server cover.
- Ensure that nothing rests on the peripheral cables, and that you cannot trip over or step on the cables.
- Do not push any foreign objects into any server opening.
- When handling components, protect the server from electrostatic discharge by wearing an antistatic wrist strap that is attached to an unpainted metal surface, as described in the following table:

IF your server is a	THEN attach the antistatic wrist strap to
tower or rackmount server	any unpainted metal surface on the server chassis.
IPE server	any unpainted metal surface on the switch.

- To prevent data loss, keep magnetic screwdrivers away from backup tapes, floppy disks, and hard drives.

Avoiding electrostatic discharge

Introduction

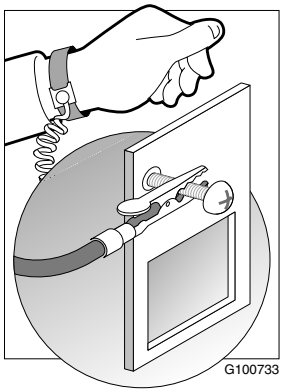
Electrostatic discharge (ESD) can seriously damage component parts, such as boards, disk drives, and other parts.

ATTENTION

Nortel Networks recommends performing all hardware installation and maintenance procedures at an ESD workstation whenever possible.

Antistatic wrist strap

If an ESD workstation is not available, provide some ESD protection by wearing an antistatic wrist strap. Ground the ESD wrist strap by attaching it to any unpainted metal surface on the chassis. The diagram shows the lead from the ESD wrist strap clipped to an exposed screw:



To discharge static

When working with server components, periodically touch a nearby unpainted metal surface to discharge any accumulated static.

Handling components

Introduction

Incorrect handling or installation of server components can cause damage to your server.

Cooling and airflow

For proper cooling and airflow, observe the following precautions:

- If you removed any system fans, ensure that you reinstall them so that air flows in the correct direction for system cooling. For more information, refer to Part 5 of the *CallPilot Installation and Configuration* binder.
- If you removed the upper fan holder foam in the 703t server to perform component maintenance, ensure that you replace it when you are done. The upper fan holder foam ensures that
  - fans are secure in their sockets
  - correct spacing between add-in boards is maintained
- Always install the tower or rackmount server cover before turning on the system. You risk damaging system parts if you operate the system without the cover in place.

Handling boards

Nortel Networks recommends the following precautions for any procedure that includes handling component boards:

- Store boards in their original antistatic shipping packages until you are ready to inspect or use them.
- After you remove a board from its protective wrapper or from the server, place the board component-side up on a conductive foam pad.

  If possible, use antistatic floor pads and workbench pads as well.
- Do not slide a board over any surface.

- Do not touch board components or gold-edge connectors on the board.
- Hold a board by the top edge or by the side edges.

Installing boards

When installing boards on the server, remember the following details:

- The backplane is flexible and supported with stand-offs.
- Board slots resist connector insertion.
- Firm, steady force seats a board in its slot properly.
- Boards seat with friction followed by a solid stop.
- External connector plates, attached to add-in boards, are seated in the rear panel and secured with a screw.

Handling hard drives

Introduction

Hard drives are extremely sensitive to vibration and physical shock. To protect equipment and prolong the useful life of hard drives, Nortel Networks recommends the following precautions.

Avoid vibration or physical shock

Hard drives are susceptible to even slight vibrations. A hard drive can be damaged if it is placed on a table that is accidently knocked or moved. Use caution when handling hard drives to prevent damage.

Handle hard drives with care

After removing a hard drive from its protective wrapper or from the server, place it on an antistatic padded workbench or workstation to avoid movement or jarring.

Check for shipping damage

If a replacement hard drive is shipped alone as an upgrade or replacement, determine if the item has been damaged during shipping. Note any dents or damage on the padded container and packaging. If the container and packaging are damaged, keep the container as proof that the part was damaged during shipping and handling.

Precautions when removing the hard drive

IF your system is	THEN
a tower or rackmount server without RAID	you must do the following *before* you remove a hard drive: 1 Power down the server as described in "Powering down the server" on page 115. Disconnect the server from the power source.
a tower server with RAID	you must do the following *before* you remove a hard drive: 1 Power down the server as described in "Powering down the server" on page 115. 2 Power off the server, and then disconnect it from the power source. **ATTENTION** RAID must be installed on the CallPilot tower server only by the Nortel Networks factory. If the CallPilot tower server is supposed to be equipped with RAID and it arrives at the customer site without it, do not install the CallPilot server. You must return and exchange the deficient tower server for one that is equipped with RAID.
rackmount server with RAID	the drives are hot-swappable and can be removed without a system shutdown.

IF your system is	THEN
an IPE server	you must shut down the server and then remove it from the switch before you can remove the hard drive. For more information, see “Powering down the server” on page 115.

Refer to Part 5 of the *CallPilot Installation and Configuration* guides for instructions on how to remove the hard drive.

Store hard drives carefully

Store hard drives in padded containers. Store the packaged drives away from places where they can be moved, jarred, or damaged by the environment.

Handling CD-ROMs

Introduction

When removing a CD-ROM from its protective case or loading it to a drive, hold it by its center hole and outer edge. Avoid touching the CD-ROM data surface of the CD-ROM (the non-labeled side).

To protect the CD-ROM against scratches and dirt when not in use, keep it in its protective case.

To load a CD-ROM

1. Press the eject button on the CD-ROM drive to eject the disk tray.
2. Place the CD-ROM on the tray with its labeled side facing up.
3. Press the eject button, or gently press the front of the disk tray to retract the tray back into the drive.

To eject a CD-ROM

1. Press the eject button on the CD-ROM drive to eject the disk tray.
2. Remove the CD-ROM from the tray and put it in its protective case.
3. Press the eject button or gently press the front of the disk tray to retract the tray back into the drive.

Single-point grounding requirements

Introduction

WARNING

Risk of personal injury, risk of hardware failure

Power outlets used by the CallPilot server and its peripheral devices must be connected to the same single-point ground reference used by the switch (such as the Meridian 1 switch or Succession 1000 system).

If this requirement is not met, power transients can cause personal injury and/or hardware failure.

Before the CallPilot server installation, a qualified electrician must implement the single-point ground reference as required between the power outlets of the CallPilot server and the power outlets of the switch.

Switches used with CallPilot (such as Meridian 1 or Succession 1000) require a single-point ground (SPG) topology to which the CallPilot server and its peripherals (such as the monitor, modem, external CD-ROM drive or tape drive, ELAN/CLAN hubs and UPS) must also be grounded. Typically, this involves the following:

- In AC systems, a Logic Return (LR or LRTN) and a green wire frame ground (called the AC Equipment Ground - ACEG) that is usually part of the input power cord
- In DC systems, a Logical Return (LR or LRTN) and a battery return (RTN), as well as an AC Equipment Ground (ACEG) green wire on the input to the rectifiers
- External hard-wired frame ground (also called the personal hazard safety ground) connected internally to the ACEG green wire. As the frame ground is ‘hard wired’, it ensures that the equipment has a ground connection even if it is unplugged from the AC power supply

- External Communication wiring that meets the requirements of NEC Article 800-30 FPN 4 requires the use of lightning protection. The cable sheaths and protection grounds must be installed according to NEC Article 800-33 and Article 800-40 (b).

For an SPG topology, each of the preceding grounds (from each equipment bay) must terminate at a single connection point before attaching to the actual ground reference at the service panel or transformer. The SPG is typically a copper bar or plate (a bus). In its simplest form, the SPG can be an isolated ground bus or an ACEG bus in the service panel or transformer.

Requirements for the SPG

Follow these requirements for the SPG:

- All ground conductors must be identified according to local codes and terminated permanently.
- Terminations must be accessible for inspection and maintenance during the life of the installation.
- All grounding conductors must be continuous, with no splices or junctions, tagged “Do not remove or disconnect”, and insulated against contact with foreign grounds.
- Grounding conductors must be no load, non-current carrying cables, under normal operating conditions.
- The ground interface in a steel-framed building must have a single connecting reference, located at the service panel, to the building steel on the same floor as the switch (or within one floor from the switch).

  Note: Nortel Networks does not recommend the use of building steel as an integral part of the switch ground system. The building steel is a reference point only.

For more information on the SPG requirements, refer to the grounding and power requirements section in the *Call Pilot Planning and Engineering Guide*.

Additionally, refer to the documentation associated with the PBX/switch configured with CallPilot for further information on grounding requirements; for example, refer to the following NTPs:

553-3001-120	*Meridian 1 Installation Planning*
553-3001-152	*Meridian 1 Power Engineering*
553-3001-210	*Meridian 1 System Installation Procedures*
553-3021-209	*Planning and Installation Guide for Option 11C Mini*
553-3021-210	*Planning and Installation Guide for Option 11C*
553-3023-102	*Planning and Engineering Guidelines - Succession 1000*
553-3023-210	*Installation and Configuration - Succession 1000*

Also refer to the ANSI-J-STD-607-A-2002 standard *Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications*.

Chapter 6

Starting up and shutting down the CallPilot server

In this chapter

Stopping and starting channels

Introduction

If you must take the CallPilot system out of service to perform software or hardware maintenance, you should first take all channels off duty.

If you take channels off duty, you must manually start them to put them back on duty. Channels that have been manually taken off duty do not automatically start when the CallPilot server is restarted or powered up.

Methods for taking channels off duty

There are two ways to take channels off duty:

- Courtesy stop channels (preferred method).

  When you courtesy stop channels, CallPilot waits until the channels are no longer active before taking them off duty, instead of suddenly terminating active calls.
- Stop channels.

  When you stop channels, you suddenly take them off duty and terminate all active calls.

ATTENTION

Nortel Networks recommends that, if possible, you courtesy stop channels. Courtesy stop is available only at the individual channel level.

To courtesy down CallPilot, use the following:

- Multimedia Monitor: to courtesy stop a range of multimedia (DSP) channels
- Channel Monitor: to courtesy stop a range of call (DS30X, also known as DS0) channels

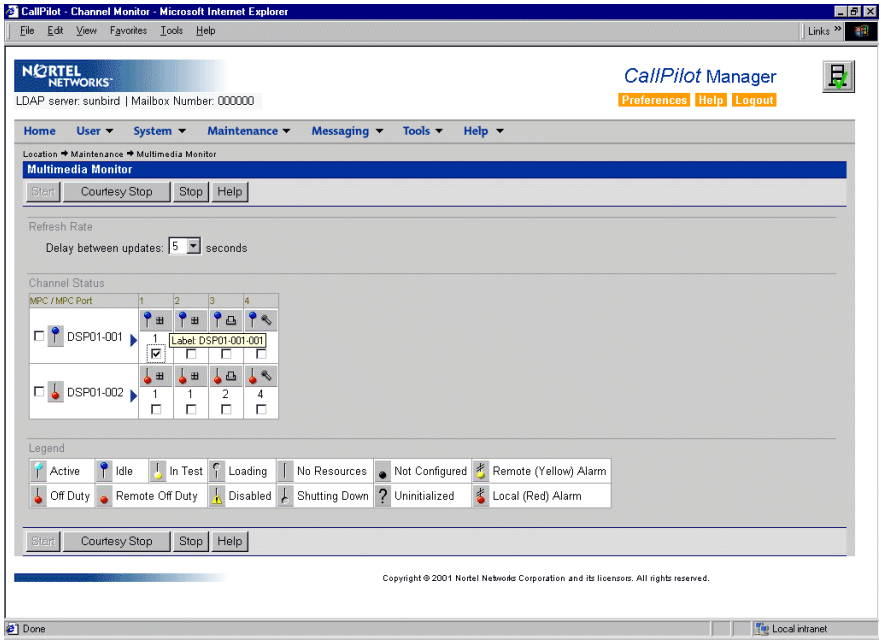
To stop or start channels

1 Log on to the CallPilot server with CallPilot Manager.

For instructions, see “Logging on to the CallPilot server with CallPilot Manager” on page 123.

2 In CallPilot Manager, click Maintenance → Multimedia Monitor.

Result: The Multimedia Monitor screen appears, showing the channels associated with each DSP.



ATTENTION

Courtesy stop is available only at the individual channel level. Therefore, to take the CallPilot system out of service, you must select each channel before clicking Courtesy Stop.

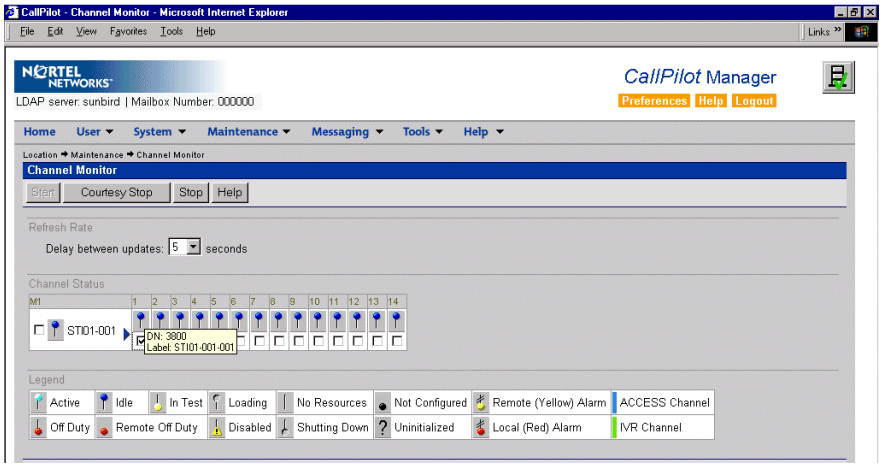
3 Check the check box for each DSP channel.

4 Do one of the following:

IF you want to	THEN
take the selected channels off duty	do the following: **a.** Click Courtesy Stop. **Note:** If the Courtesy Stop button is not available, wait a few seconds for the screen to refresh. **Result:** You are asked to confirm the Courtesy Stop. **b.** Click OK. **Result:** The selected DSP channels change to off-duty status.
put the selected channels on duty	click Start. **Result:** The selected DSP channels change to on duty status.

5 Click Maintenance → Channel Monitor.

Result: The Channel Monitor screen appears, showing the DS0 channels associated with each DS30X link.



ATTENTION

Courtesy stop is available only at the individual channel level. Therefore, to take the CallPilot system out of service, you must select each channel before clicking Courtesy Stop.

6 Check the check box for each DS0 channel.

7 Do one of the following:

IF you want to	THEN
take the selected channels off duty	do the following: **a.** Click Courtesy Stop. **Note:** If the Courtesy Stop button is not available, wait a few seconds for the screen to refresh. **Result:** You are asked to confirm the Courtesy Stop. **b.** Click OK. **Result:** The selected DS0 channels change to off-duty status. **c.** After all channels are off duty, dial the CallPilot messaging DN to verify that all DSP and DS0 channels are off duty. **Result:** If all channels are off duty, you should receive a busy signal.
put the selected channels on duty	click Start. **Result:** The selected DS0 channels change to on duty status.

Restarting the server

Introduction

You must restart the server as described in this section when you

- want to put software changes into effect
- are attempting to resolve operational problems
- have been instructed to do so

Correct method for restarting the server

To restart the server, you must simultaneously press the Ctrl+Alt+Delete keys, then choose Shut Down from the Windows NT Security dialog box. This method closes database files properly and reduces the time it takes to restart the server.

To restart the server, you must be physically located with the CallPilot server, or be connected to the server through pcAnywhere.

ATTENTION

Nortel Networks recommends that, if the CallPilot server is in service, you courtesy stop all channels before you restart the server. When you courtesy stop the channels, CallPilot waits until the channels are no longer active before disabling them, instead of suddenly disconnecting active calls.

For instructions, see “Stopping and starting channels” on page 106.

Before you begin

If your server is an IPE server (that is, a 200i or 201i server), and you are working in the same location as the server, connect a keyboard, monitor, and mouse to the server.

To restart the server

ATTENTION

To minimize the amount of time you may be required to wait for channels to become inactive, consider one or both of the following options:

- Perform the server restart during off-hours only.
- Inform mailbox users and other administrators in advance when you will be restarting the server. This allows them to ensure their desktop messaging, web messaging, and administration sessions are logged off.

1 Log on to the server with CallPilot Manager.

For instructions, see “Logging on to the CallPilot server with CallPilot Manager” on page 123.

2 Courtesy stop all call channels.

For instructions, see “Stopping and starting channels” on page 106.

3 Do one of the following:

IF you are working in	THEN
the same location as the server	continue with step 4.
a different location from the server (that is you are working remotely)	do the following: **a.** Use pcAnywhere to connect to and log on to the CallPilot server. **b.** Continue with step 4.

4 Close all applications on the server.

Note: Applications that you do not close are automatically closed when you perform the Windows NT shutdown.

5 Press Ctrl+Alt+Delete.

Result: The Windows NT Security dialog box appears.

6 Click Shut Down.

Result: The Shutdown Computer dialog box appears.

7 Choose Shutdown and Restart.

8 Click OK.

Result: The server shuts down and then restarts.

Note: To interpret the diagnostic results that appear during the restart, refer to Part 5 of the *CallPilot Installation and Configuration* guides.

9 When the Windows NT logon prompt appears, press Ctrl+Alt+Delete to log on to Windows NT.

Result: You are prompted for a Windows NT user name and password.

10 Type **Administrator** as the user name.

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

11 Type the password, and then click OK.

Result: The CallPilot server software starts.

ATTENTION

Wait 10 minutes before proceeding with step 12.

12 Log on to the server with CallPilot Manager.

For instructions, see “Logging on to the CallPilot server with CallPilot Manager” on page 123.

13 Start the DSP and DS0 channels on the Multimedia Monitor and Channel Monitor screens in CallPilot Manager.

For instructions, see “Stopping and starting channels” on page 106.

14 Ensure that CallPilot is ready to accept calls.

For instructions, refer to “Checking that CallPilot is ready to accept calls” in Part 3 of the *CallPilot Installation and Configuration* guides.

Powering down the server

Introduction

IF your server is	THEN
a tower or rackmount server	you must power down the server when you want to ■ remove the server cover (for example, to access the interior components of the server) ■ move the server to another location ■ replace, remove, add, or upgrade server hardware that is not hot-swappable
an IPE server	you must remove the server from the switch when you need to replace, remove, add, or upgrade server hardware. **Note:** The IPE server is powered automatically by the switch when it is locked into position in the switch. The server, therefore, powers off when it is removed from the switch.

ATTENTION

When power is lost at the IPE or SL-100, the CallPilot server must be shut down gracefully. After power is restored to the IPE or SL-100 and the T1 trunks are operational, reboot the CallPilot server.

Correct method for powering down the server

Before you can power down the server, you must shut down the server software. To shut down the server software, simultaneously press the Ctrl+Alt+Delete keys and then choose Shut Down from the Windows NT Security dialog box. This method closes database files properly and reduces the time it takes to restart the server.

To power down the server, you must be physically located with the CallPilot server, or be connected to the server through pcAnywhere.

ATTENTION

Nortel Networks recommends that, if CallPilot is in service, you courtesy stop all channels before you power down the server. When you courtesy stop the channels, CallPilot waits until the channels are no longer active before disabling them, instead of suddenly disconnecting active calls.

For instructions, see “Stopping and starting channels” on page 106.

Before you begin

If your server is an IPE server (that is, 200i or 201i server), and you are working in the same location as the server, connect a keyboard, monitor, and mouse to the server.

To power down the server

ATTENTION

To minimize the amount of time you may be required to wait for channels to become inactive, consider one or both of the following options:

- Power down the server during off-hours only.
- Inform mailbox users and other administrators in advance when you will be powering down the server. This allows them to ensure their desktop messaging, web messaging, and administration sessions are logged off.

1 Log on to the server with CallPilot Manager.

For instructions, see "Logging on to the CallPilot server with CallPilot Manager" on page 123.

2 Courtesy stop all call channels.

For instructions, see "Stopping and starting channels" on page 106.

3 Do one of the following:

IF you are working in	THEN
the same location as the server	continue with step 4.
a different location from the server (that is you are working remotely)	do the following: **a.** Use pcAnywhere to connect to and log on to the CallPilot server. **b.** Continue with step 4.

4 Close all applications on the server.

Note: Applications that you do not close are automatically closed when you perform the Windows NT shutdown.

5 Press Ctrl+Alt+Delete.

Result: The Windows NT Security dialog box appears.

6 Choose Shut Down.

Result: The Shutdown Computer dialog box appears.

7 Choose Shut Down, and then click OK.

Result: Server shutdown begins.

8 Wait for the following message to appear:

```
It is now safe to turn off your computer.
```

9 Do one of the following:

IF your server is	THEN
a tower or rackmount server	press the server power switch.
an IPE server	do the following: **a.** Ensure that DOWN appears on the server hex display. **Note:** The red LED power status indicator remains lit during the shutdown until the system is restarted. **b.** Remove the server from the switch.

Powering up the server

Introduction

If you had to power down the server to perform hardware maintenance, use the procedure described in this section to start the server.

To power up the server

1 Ensure that all peripheral devices are powered up.

Notes: If your server is a IPE server, do the following:

- Ensure that the switch shelf is also powered up.
- Ensure that a monitor is connected during the power-up sequence. **Note:** The monitor is connected only when you need it. The IPE server is not intended to operate with a permanent monitor connection.

2 Do the following:

IF your server is	THEN
a tower or rackmount server	press the server power switch to start the server.
an IPE server	do the following: **a.** Push the server gently but firmly until it is flush with the switch backplane. **Result:** The server beeps for 3 seconds to indicate that power is being received. **b.** Close the lock latches to secure the server to the backplane. **c.** Ensure that the power status LED is lit.

3 Watch the startup sequence as follows:

IF your server is a	THEN
tower or rackmount server	observe the Power-On Self-Test (POST) and initialization messages on the monitor.
200i server	watch the HEX display on the server. The HEX display shows T:01 through T:18 **Note:** Some of the codes appear and disappear quickly, so you may not see them.
201i server	watch the HEX display on the server. The HEX display shows T:01 through T:08, and then HOST.

4 When the following menu appears on the monitor, choose the first option to start Windows NT:

```
OS Loader V4.00

Please select the operating system to start:

     Windows NT Server Version 4.00
     Windows NT Server Version 4.00 [VGA mode]


Use <arrow up> and <arrow down> to move the highlight
to your choice
Press Enter to choose

Seconds until highlighted choice will be started
automatically   5
```

IF your server is a	THEN
tower or rackmount server	the Windows NT start sequence begins. When the start sequence is completed, the Windows NT logon prompt appears on the monitor. If the Windows NT logon prompt does not appear, see “Troubleshooting startup problems” in Part 5 of the *CallPilot Installation and Configuration* guides.
200i server	the Windows NT start sequence begins, and communication with the switch occurs. The HEX display shows T:18 through T:22, followed by OK. The Windows NT logon prompt appears on the monitor. **Note:** All of the HEX codes appear and disappear quickly, so you may not see them. If OK, or the Windows NT logon prompt, or both, do not appear, see “Troubleshooting startup problems” in Part 5 of the *CallPilot Installation and Configuration* guides.
201i server	the Windows NT start sequence begins, and communication with the switch occurs. The HEX display shows NT (for about 30 seconds), followed by OK. The Windows NT logon prompt appears on the monitor. **Note:** Before OK appears, one of the following messages may appear, but not for more than one second: `CDLN`, `C:01`, or `C:02`. This is normal operation. If OK, or the Windows NT logon prompt, or both, do not appear, see “Troubleshooting startup problems” in Part 5 of the *CallPilot Installation and Configuration* guides.

5 Press Ctrl+Alt+Delete to log on to Windows NT.

Result: You are prompted for a Windows NT user name and password.

6 Enter Administrator as the user name.

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

7 Type the password, and then click OK.

Result: The CallPilot server software starts.

ATTENTION

Wait 10 minutes before proceeding with step 8.

8 Log on to the server with CallPilot Manager.

For instructions, see “Logging on to the CallPilot server with CallPilot Manager” on page 123.

9 Start the DSP and DS0 channels on the Multimedia Monitor and Channel Monitor windows in CallPilot Manager.

For instructions, see “Stopping and starting channels” on page 106.

10 Ensure that CallPilot is ready to accept calls.

For instructions, refer to “Checking that CallPilot is ready to accept calls” in Part 3 of the *CallPilot Installation and Configuration* guides.

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.

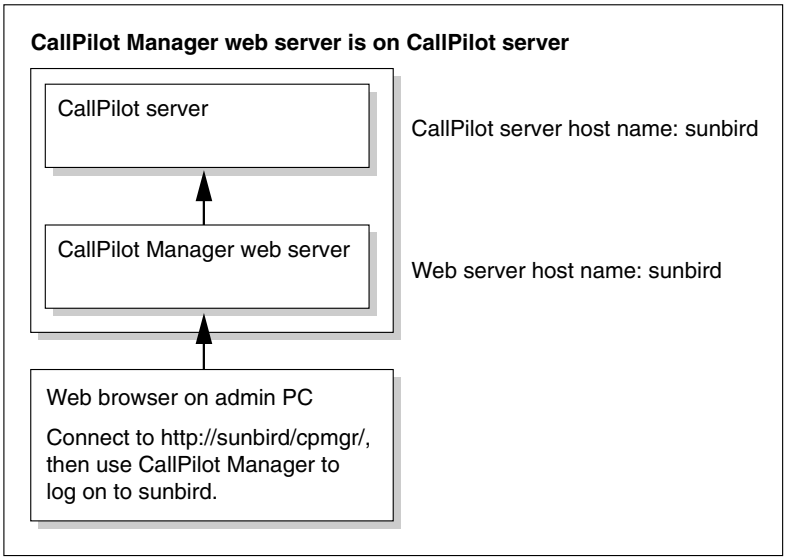
   The URL syntax is http://<web server host name or IP address>/cpmgr/.

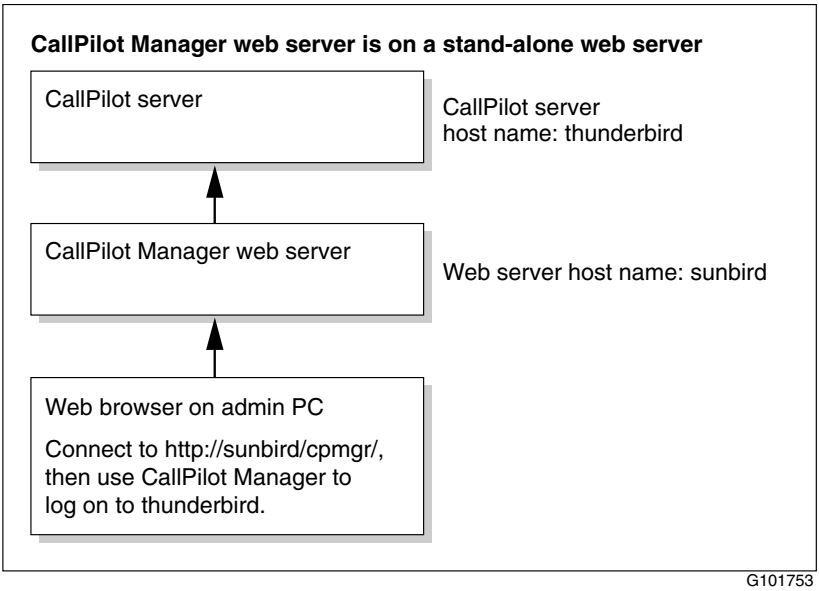
2. Log on to the CallPilot server with an administrator mailbox number and password.

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 host name or IP address as well as the CallPilot server 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

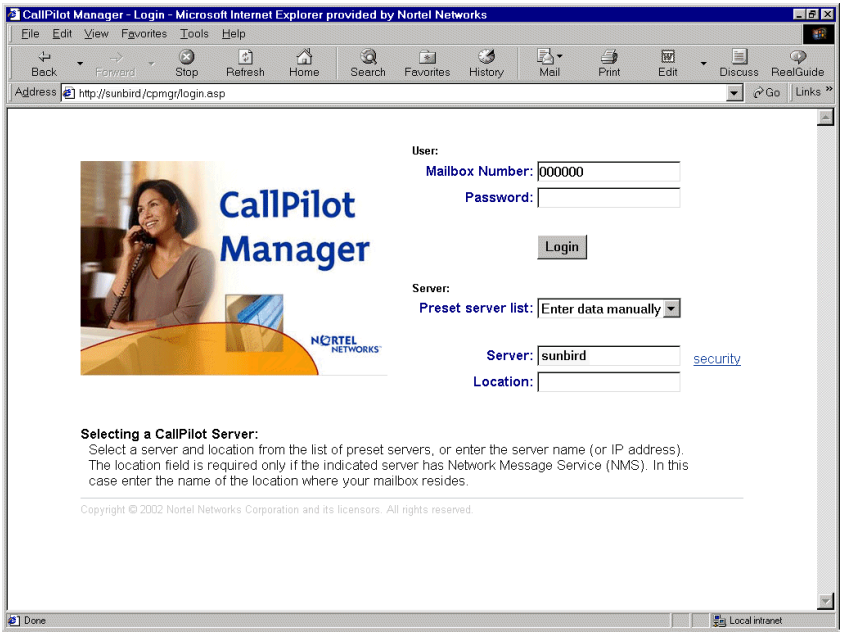

CallPilot Manager web server is on a stand-alone web server
CallPilot server
CallPilot server host name: thunderbird
CallPilot Manager web server
Web server host name: sunbird
Web browser on admin PC
Connect to http://sunbird/cpmgr/, then use CallPilot Manager to log on to thunderbird.
G101753

To log on to the CallPilot server

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

IF you are launching the web browser on	THEN
the CallPilot server	the CallPilot Manager login window appears automatically. Continue with step 2.
your PC	type the CallPilot Manager web server 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 window appears. Continue with step 2.

.



Note: The URL automatically appears as http://<host name or IP address>/cpmgr/login.asp. On the CallPilot server, the URL is http://localhost/cpmgr/login.asp.

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 pre-configured servers or locations in the Preset server list box. Or, choose the Last Server Accessed item.
- Type the CallPilot server host name or IP address in the Server box.
- If the CallPilot server to which you are connecting has Network Message Service (NMS) installed, type the CallPilot server 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 window appears.

Chapter 7

Troubleshooting system problems

In this chapter

Overview

Introduction

This section provides an overview of the resources and tools you can use to determine the cause of system problems, and then resolve them.

Resources

Three sources of documentation are available for resolving system problems:

- Part 5 of the *CallPilot Installation and Configuration* guides
- *CallPilot Administrator's Guide* (555-7101-301)

Tools

The following tools are provided with your CallPilot system, and are briefly described in this chapter:

Type	Tools	
Generic tools	■ TCP/IP diagnostics	
Windows NT tools	■ Windows NT 4.0 diagnostics ■ Event Viewer	
CallPilot tools	■ LEDs and HEX display (IPE servers only) ■ startup sequence and diagnostic codes	■ System Event Log (703t server only) ■ installation and configuration log files

Type	Tools	
CallPilot tools (continued)	■ CallPilot System Configuration (to display switch and server settings) ■ Disk Usage window ■ Server Performance Monitor	■ Event Browser ■ Alarm Monitor ■ Maintenance window ■ Reporter ■ Channel Monitor ■ Multimedia Monitor
CallPilot system utilities	■ Diagnostics utility ■ PEP Maintenance utility ■ System Monitor	

Using the *Installation and Configuration* guides

Introduction

The guides provide instructions for using the resources provided by your CallPilot system.

LEDs

Server type	Description
tower or rackmount server	The tower and rackmount servers provide LEDs on their front panel, on CD-ROM and tape drives, and on network interface cards. These LEDs indicate the operating status of the server or drive. On the network interface card, the LEDs also indicate if network activity is present.
IPE server	The LEDs on the 200i or 201i server faceplate indicate when ■ the server and MPC-8 cards are in use ■ the network interfaces, hard drive, and SCSI device are in use (201i server only) ■ it is safe to remove the server from the switch, or the MPC-8 card from the server The HEX display on the 200i or 201i server faceplate displays messages that appear during startup or normal server operation. For more information, refer to “LED and HEX displays” in Part 5 of the *CallPilot Installation and Configuration* guides.

Startup sequence and diagnostic codes

To help you determine if the server started successfully (or if it failed), watch the startup sequence and the diagnostic codes that appear on the monitor. If your server is a 200i or 201i server, also observe the HEX display on the server faceplate.

If a hardware problem on the 703t server prevents Windows NT from starting or a hardware problem is indicated by the status LED on the front panel, you can use the server System Event Log to investigate the problem. The System Event Log is a utility on the 703t server that reports hardware-related errors. You access the System Event Log by using the System Setup Utility.

For more information, refer to Part 5 of the *CallPilot Installation and Configuration* guides.

Log files

The installation event log tracks events associated with any install, reinstall, upgrade, or uninstallation operation. The log also tracks any fatal errors that interrupt these operations.

The Configuration Wizard log file is a record of the information entered through the CallPilot Configuration Wizard.

For more information, refer to “Viewing installation and configuration log files” in Part 4 of the *CallPilot Installation and Configuration* guides.

Windows NT 4.0 Diagnostics and Event Viewer

The Windows NT 4.0 Diagnostics window allows you to view details concerning the system and network components.

The Event Viewer provides access to three logs (system, security, and application), which you can use to diagnose and debug system problems.

For more information, refer to “Performing Windows NT online diagnostics” in Part 5 of the *CallPilot Installation and Configuration* guides.

TCP/IP diagnostics

The following diagnostic tools help you to verify network connectivity and routing:

- ipconfig
- ping
- tracert
- arp
- nbtstat
- netstat

For more information, refer to “Invoking and interpreting TCP/IP diagnostics” in Part 5 of the *CallPilot Installation and Configuration* guides.

CallPilot Manager

Use the following screens in CallPilot Manager to monitor hardware status:

- Event Browser

  The Event Browser lets you view events that have been recorded in the server log. The event description can help you determine the root cause of an event or problem.

- Alarm Monitor

  An alarm is a warning that is generated by an event. The alarm notifies you of a potential or real problem. Use the Alarm Monitor in CallPilot Manager to investigate one or more raised alarms.

- Maintenance

  Use the Maintenance screen to get status information for server hardware components, or to run diagnostics for a particular component.

- Channel and Multimedia Monitors

  The Channel Monitor shows the status of DS0 channels, which are the connections that carry the call signals from the switch to CallPilot.

  The Multimedia Monitor shows the status of multimedia channels, which are the DSP ports that process the calls. They are the voice, fax, and speech recognition channels.

For more information about using CallPilot Manager, refer to the following:

- "Logging on to the CallPilot server with CallPilot Manager" in Part 4 of the *CallPilot Installation and Configuration* guides
- the CallPilot Manager online Help
- "Using CallPilot Manager to monitor hardware status" in Part 5 of the *CallPilot Installation and Configuration* guides

CallPilot system utilities

The Diagnostics utility allows you to enable and disable CallPilot startup diagnostics that run when the system starts. When diagnostics are disabled, this saves time during system maintenance operations where restarts or Call Processing services restarts are required.

The PEP Maintenance utility displays a list of all installed PEPs on the server, and enables you to uninstall PEPs.

The Services Monitor can help you determine whether the CallPilot server is fully operational. It displays true states of the CallPilot services according to Windows NT definition, including the states that are not available through the control panel.

The Session Trace tool provides detailed information about the activity in a user's mailbox and the state of the message waiting indicator (MWI).

The System Monitor provides the following information:

- the status of all CallPilot services, multimedia channels, and call channels

- details about the CallPilot system, such as the features purchased, keycode, serial number, and IP addresses

For more information about these utilities, refer to the “Using CallPilot system utilities” chapter in Part 5 of the *CallPilot Installation and Configuration* guides.

Using the *CallPilot Administrator's Guide*

Introduction

The CallPilot Manager online Help and the *CallPilot Administrator's Guide* (555-7101-301) provide valuable information for monitoring system performance.

The CallPilot Manager online Help and the *CallPilot Administrator's Guide* (555-7101-301) both describe how to

- view and filter server events
- monitor the CallPilot server
- manage CallPilot channels
- troubleshoot CallPilot call service and system operation problems

Accessing the *CallPilot Administrator's Guide*

The *CallPilot Administrator's Guide* is provided in the following locations:

- on the CallPilot Documentation CD-ROM
- in the "Installation and Administration" area of CallPilot Manager

  To access the "Installation and Administration" area, click the orange Help button in CallPilot Manager.

Viewing and filtering server events

If you want to reduce the number of events shown in the Event Browser at one time, you can screen the event log to view a specific number of the most recently filtered events. By default, the Event Browser displays the latest 100 critical events.

You can set the filter to display

- a specific number of latest events, or all events that are retrieved from the server
- events of a certain severity (critical, major, minor, information)
- a specific event code range, or all event codes
- a specific type of alarm status (alarm set, alarm cleared, or message)
- events that occurred during a specific date and time interval

Note: The filter combines the filter settings from each category.

Monitoring the CallPilot server

Monitoring activities include the following:

- viewing switch configuration and server settings

  You may need this information when you communicate with product support personnel.

- monitoring disk space

  The performance of your CallPilot system depends, to some degree, on the amount of available disk space. Without enough disk space, the server cannot perform adequately. In some circumstances, the server can stop functioning.

  Nortel Networks systems are engineered to provide adequate space to meet your data storage and system operation requirements. You must, however, monitor disk space occasionally to ensure that space does not become too limited.

- monitoring the database

  The database stores user information, system configuration information, and various statistics that are collected by the system. You cannot monitor the database disk space directly. However, an informational alarm is generated if the database reaches 95 percent capacity. A major alarm is generated if the database reaches 98 percent or 100 percent capacity.

Possible reasons for database problems include the following:

- Operational measurement statistics are too detailed or stored for too long.
- The system is under-engineered.

  If your estimated usage patterns change or if your number of users grow, you may need to purchase additional disk space. Contact your Nortel Networks distributor for details.

- monitoring server performance

  The Performance Monitor lets you keep track of the day-to-day hardware and software operations of your system. The window includes information about processor usage, available memory, and available storage space. You may want to view server performance daily to ensure that the server is working properly. You may also want to view data if your performance of your server has deteriorated.

Managing CallPilot channels

Call channels carry digital voice, fax, and speech recognition data from the switch to the server. When the data reaches the server, the multimedia channels process the data according to the type of transmission.

You can monitor individual call channels through the Channel Monitor screen, and multimedia channels or MPC-8 cards through the Multimedia Monitor screen in CallPilot Manager.

As required, you can also remove the call and multimedia channels from service so that you can perform diagnostics, upgrades, or installations. When the maintenance or diagnostics are complete, restart the call and multimedia channels and put them back into service.

Troubleshooting call service problems

Call service problems may occur in the Remote Notification, Delivery to Telephone (DTT), and Delivery to Fax (DTF) services, if they have been put into service.

The types of problems that can occur when using Outcalling services include

- being unable to use the Outcalling service because channels are not available

  This can occur if the channel allocation is not spread evenly, or channels are out of service or faulty.

- experiencing a high rate of failures because of incorrect configuration or because the retry limits are exceeded

  DTT or DTF failures can occur because of the following conditions:

  - busy
  - no answer
  - answered, but no DTMF confirmation was provided, or the call was terminated before delivery could take place

  Remote Notification failures can occur because of the following:

  - The users' Remote Notification target DNs are restricted.
  - Pager setups may not be correctly configured for users.
  - Retry limits were exceeded.

You can monitor these types of problems by using the Event Browser or Reporter.

Troubleshooting system operation problems

The following types of system operation problems can occur:

- Alarms are generated despite no apparent system problem.

  If the system shows no apparent system problem but alarms are occurring, check if someone has recently run diagnostics on the system. A diagnostic test can generate an alarm as part of its test, even if the system is fine.

- Calls are not answered.

  Possible causes include the following:

  - CallPilot is improperly configured.
  - The Service DN table is not configured correctly.

- Call flow from the switch is impaired due to an incorrect switch configuration.
- Calls are answered, but no prompts are heard.

  Possible causes include the following:

  - There is a possible error in the application that supports the requested service.
  - There is a problem with the DS0 channel or the DS30X link.

- The system is not working after an IP address change.

  If the IP address of a CallPilot server is changed while the system is up and running, the system will not work until you restart the switch.

- The monitor shows a blue screen.

  If the monitor suddenly shows a blue screen with only white text on it, a system error has occurred. Record all the events that took place prior to the appearance of the blue screen. Then record any text that appears on the blue screen, and contact customer support for assistance.

Glossary

A

AC
See alternating current.

ACD
See Automatic Call Distribution.

ACD call
An automatic call distribution (ACD) call enters the system through one or more central lines, and then is presented to an agent within the ACD queue according to the service required by the caller.

ACD queue
A queue of callers to an ACD-DN who are waiting for service.

adapter
Hardware required to support a particular device. For example, network adapters provide a port for the network wire. Adapters can be expansion boards or part of the main circuitry of the computer.

administrator
A user who is responsible for maintaining the CallPilot server.

alternating current
AC electrical power, the raw power supplied by all utility companies, must be converted to direct current (DC) for use in computer systems.

AML
See Application Module Link.

analog

The type of signal used by most telephone connections. A modem converts a digital (computer) signal to analog (and vice versa) so that the signal can travel through telephone lines.

API

See application program interface.

APIC

Advanced Peripheral Interrupt Controller

application

This term is generally used to refer to a program that is run to do various types of work on a computer. Although applications carry out many functions, the user can see (and use) only the graphical user interface. Common applications include word processors, databases, and multimedia software.

In CallPilot, this term is reserved for an entity (typically a voice menu or service) built by Application Builder. Some of these applications are put into service when they appear in the SDN table.

Application Builder

A graphical program that you use to create CallPilot applications. With Application Builder, you can drag and drop functions (such as menus, announcements, and transfers) into your application and create the call flow (that is, the path that calls follow through your system).

Application Module Link

The signaling protocol (call control) between the CallPilot and the Meridian 1 switch or Succession 1000 system. The AML runs over an Ethernet connection (part of the ELAN).

application program interface

A set of routines, protocols, and tools that programmers use to develop software applications. APIs simplify the development process by providing commonly used programming procedures.

Automatic Call Distribution

A feature on the Meridian 1 or Succession 1000 system that allows a number of programmed phone sets, known as ACD agents, to share equally in answering incoming calls. In the case of CallPilot, the call-queuing capability of ACD is not used, but the call-handling capability of ACD agents is used.

average required bandwidth

The amount of bandwidth that the Capacity Assessment Tool analysis determines is required for the CallPilot server recommended configuration. *See also* bandwidth.

B

bandwidth

The amount of data that the network can transmit, usually expressed in Mbytes per second. *See also* average required bandwidth.

baseboard

See motherboard.

Basic Input/Output System

Flash ROM-based code that runs the Power-On Self-Test (POST) and bootstrap loader. BIOS contains low-level access routines for hardware that may be called from DOS.

baud rate

Refers to signaling rate. The baud rate indicates the number of bits per second (bps) that are transmitted. For example, a baud rate of 300 means that 300 bits are transmitted each second (300 bps).

BIOS

See Basic Input/Output System.

bits

Short for binary digit, the smallest unit of information on a computer. A single bit can hold only one of two values: 0 or 1. A byte is composed of eight consecutive bits.

bits per second

The standard measure of data transmission speeds. For asynchronous communication (which requires 10 bits per character), a baud rate of 300 bits per second (bps) translates to 30 characters per second (cps).

Blue Call Router

An internal software component that routes calls from the control DN (CDN) on the switch to the multimedia application or service. The Blue Call Router (BCR) applies the rules set up for the service in the SDN table, and, thus, determines how and to what service/application the call is offered.

bps

See bits per second.

bridge

A protocol-independent device that connects two LANs or two segments of the same LAN. Bridges are faster (and less versatile) than routers because they forward packets without analyzing and rerouting messages.

bus

A collection of wires that connects the microprocessor and main memory to internal computer components. All buses consist of an address bus that transfers data and a data bus that transfers information about where the data should go.

In a network, a bus (also called the backbone) is a main cable that connects all devices on a LAN.

byte

Abbreviation for binary term, a unit of storage capable of holding a single character. On almost all modern computers, a byte is equal to eight bits. Large amounts of memory are indicated in terms of kbytes (1024 bytes), Mbytes (1 048 576 bytes), and Gbytes (1 073 741 824 bytes).

C

cache

A read cache attempts to anticipate and store required data in memory so that it can be retrieved quickly (electronically, rather than mechanically). A write cache electronically holds the data you want to write to disk and slowly writes it to the disk (mechanically).

call channel

A channel on the CallPilot server that carries digital voice, fax, and speech recognition data from the switch to the server. When the data reaches the server, multimedia channels provide various services to the data. Call channels run on links between the switch and the server.

card

A thin, rectangular plate on which chips and other electronic components are placed. Examples of cards include motherboards, expansion boards, daughterboards, controller boards, Network Interface cards, and video adapters.

CAS

Channel associated signalling for T1 links.

CDN

See Controlled Directory Number.

CD-ROM

A type of optical disk capable of storing large amounts of data (up to 1 Gbyte), although the most common size is 630 Mbytes. A single CD-ROM has the storage capacity of 700 floppy disks and is particularly well-suited to information that requires large storage capacity.

central processing unit

Sometimes referred to as the microprocessor, the central processing unit (CPU) more often describes the system unit, which is the box that holds the essential components of a PC (except the keyboard and monitor).

chip

Typically, a chip refers to the small flake of silicon crystal that makes up the microprocessor or some other type of controller.

CLAN

Customer local area network—a network set up by a customer for its data network. CLAN is used by CallPilot for desktop messaging and potentially for system administration. Typically, a CLAN already exists before CallPilot is installed at a customer site. *See also* ELAN.

client

The client part of a client-server architecture. Typically, a client is an application that runs on a personal computer or workstation and relies on a server to perform some operations. For example, an e-mail client is an application that enables you to send and receive e-mail.

CMOS

See Complementary Metal-Oxide Semiconductor.

COM or COMM

Communications port. Usually refers to the Logical Device name of PC serial ports as defined by DOS.

Complementary Metal-Oxide Semiconductor

A commonly used type of semiconductor that is well-suited for use in battery-powered devices, such as portable computers, because they require less power than NMOS.

computer name

The name that identifies the CallPilot server on the customer's network.

Controlled Directory Number

Directory number controlled by the BCR subsystem of CallPilot to route callers to available channel resources. A typical configuration for CallPilot requires two CDNs to be set up: one for voice call answering, and one for fax call answering. All other services can use a phantom DN, which maps to one of the two CDNs.

controller board

A special type of expansion board that contains a controller for a peripheral device. When you attach new devices to a computer, such as a disk drive, often you must add a controller board.

Courtesy Stop

An action that takes a channel or component out of service only after the channel or component has finished processing the active call. Courtesy Stop is preferred over a regular Stop. *See also* Stop.

CPU

See central processing unit.

crash

A serious computer failure during which the computer stops working or a program closes unexpectedly. A crash indicates a hardware malfunction or a serious software bug.

D

DAT

See digital audio tape.

data bits

The bits in a byte of data that contain information, as opposed to bits used for starting, stopping, or error checking.

data types

The types of data that you can use to create variables.

daughterboard
Usually used as a synonym for an expansion board, a daughterboard is any printed circuit board that directly or indirectly attaches to a motherboard.

DBMS
Database Management System

DC
See direct current.

DDS
See digital data storage.

desktop messaging
A CallPilot feature that permits mailbox owners to use a computer to access CallPilot messages in the same way that they access e-mail messages. The desktop messaging license also permits the mailbox owner to view and manage the mailbox on the Web.

desktop users
Mailbox owners who have been granted the ability to access their CallPilot voice mailbox, and then send, receive, and process messages with their desktop computer.

DHCP
See dynamic host configuration protocol.

digital audio tape
A type of magnetic tape that uses a helical scan scheme to record data. Digital data storage (DDS) is the most common format for digital audio tape (DAT) cartridges.

digital data storage
DDS is the industry standard for 4 mm helical scan digital audio tape (DAT) cartridges. *See also* DAT.

digital linear tape

A high-capacity 1/2-inch streaming tape cartridge format.

digital signal processor

A special type of coprocessor that manipulates analog data, such as sound, that has been converted to digital form. In CallPilot, digital signal processors (DSPs) are provided in one of the following forms:

- embedded in an MPC section on an MPB16-4 board
- embedded in an MPC section on the motherboard of an IPE (200i or 201i) server
- embedded in a removable MPC-8 card that is inserted into an MPB board or IPE (200i or 201i) server

Each embedded DSP or MPC-8 card provides eight multimedia processing units (MPUs).

DIMM

The protective packaging for microprocessor chips that provides a safe and convenient means of installing and removing the chip.

DIP

A type of protective packaging for silicon memory chips that provides a safe and convenient means of installing and removing the chip.

DIP switch

A series of tiny switches built into circuit boards that enable you to configure a circuit board for a particular type of computer or application. DIP switches are always toggle switches, which means they have two possible positions—on or off (or 1 or 0).

direct current

DC, the electrical power used by computers, comes from a single source (such as a battery) that provides a single voltage that stays at a constant level. AC, the power provided by utility companies, must be converted to DC before it can be used in computer systems.

direct memory access

DMA speeds up system performance by moving blocks of memory around inside the computer (typically, between I/O devices and memory). This process enables the microprocessor to spend its time performing other functions.

directory number

The number that identifies a telephone set on a PBX or in the public network. The directory number can be a local PBX extension (local DN), a public network telephone number, or an automatic call distribution directory number (ACD-DN) (the pilot or group number for an ACD queue).

Disk Operating System

Originally developed by Microsoft, Disk Operating System (DOS) is the standard, IBM-compatible, 16-bit operating system. New operating systems (including Windows 95) do not rely on DOS.

display

The device you look at when you work with a computer (for example, a CRT monitor in desktop systems or a liquid crystal display in notebooks).

DLL

See dynamic link library.

DLT

See digital linear tape.

DMA

See direct memory access.

DN

See directory number.

DOS

See Disk Operating System.

driver
A program that controls a device. Every device, whether it is a printer, disk drive, or keyboard, must have a driver program. A driver acts like a translator between the device and programs that use the device.

DS0
An industry standard term for a single 64 kbs PCM-encoded voice path or channel.

DS30X
A Meridian 1 or Succession 1000 proprietary TDM bus with 32 DS0 bearer channels.

DSP
See digital signal processor.

dual in-line memory module
The protective packaging for microprocessor chips that provides a safe and convenient means of installing and removing the chip.

dual in-line pin
A type of protective packaging for silicon memory chips that provides a safe and convenient means of installing and removing the chip.

dynamic host configuration protocol
A protocol for assigning dynamic IP addresses to devices on a network.

dynamic link library
A library of executable functions or data that can be used by a Windows application. Typically, a dynamic link library (DLL) provides one or more particular functions, and a program accesses the functions by creating either a static or dynamic link to the DLL. Several applications can use a DLL at the same time.

E

ECC
See error correction code.

ECP
See extended capabilities port.

EEPROM
See electronically erasable programmable read-only media.

EIDE
See enhanced IDE.

EISA
See extended industry standard architecture bus.

ELAN
Embedded local area network. A network connection from the switch to the CallPilot server. The ELAN is an Ethernet LAN that is segmented from the customer LAN (CLAN), and enables signaling and administration access to applications related to the Meridian 1 switch or Succession 1000 system. A number of configurations are available to the customer, depending on whether the switch has an address on the CLAN. *See also* CLAN.

electronically erasable programmable read-only media
A memory chip that needs only a higher-than-normal voltage and current to erase its contents. Electronically erasable programmable read-only media (EEPROM) can be erased and reprogrammed without taking it out of its socket. EEPROM gives computers and their peripherals a means of storing data without the need for a constant supply of electricity.

EMI
Electromagnetic interference

enhanced IDE
An IDE hard disk interface enhanced with hardware and firmware changes to support disks larger than 540 Mbytes, four disks instead of two, and faster transfer rates. *See also* IDE.

enhanced parallel port
A parallel port standard for PCs that supports bidirectional communication between the PC and attached devices (such as a printer).

EPP
See enhanced parallel port.

error correction code
A scheme that can detect and fix single-bit memory errors without crashing the system. Also known as Error Detection and Correction (EDAC).

Ethernet
A widely used LAN protocol that uses a bus topology and supports data transfer rates of 10 Mbps.

expansion board
Any board that plugs into one of the computer expansion slots. Expansion boards include controller boards, LAN cards, and video adapters.

expansion bus
Enables expansion boards to access the microprocessor and memory. *See also* bus.

extended capabilities port
A parallel-port standard for PCs that supports bidirectional communication between the PC and attached devices (such as a printer).

extended industry standard architecture bus
A 32-bit bus that accommodates ISA PC boards.

F

FAT
See file allocation table.

FIFO
First in, first out

file allocation table
A table that the operating system uses to locate files on a disk.

FITS
Failures in ten to the ninth hours. The number of failures expected in one million hours.

FQDN
See fully qualified domain name.

full system backup
A complete server backup that consists of a single backup for each logical disk drive installed on the CallPilot server.

fully qualified domain name
The full site name of a system. The full site name consists of a host name and a domain name, including the top-level domain. For example, callpilot.yourcompany.com is a fully qualified domain name (FQDN). “Callpilot” is the host name, “yourcompany” is the second-level domain name, and “com” is the top-level domain name.

G

gateway
Software or a computer running software that enables two different networks to communicate.

Gbyte
Two to the 30th power (1 073 741 824) bytes. One Gbyte is equal to 1024 megabytes.

general protection fault
A computer condition that causes a Windows application to crash. General protection faults (GPFs) are commonly caused when one application attempts to use memory assigned to another application.

gigabyte
See Gbyte.

GPCP
General purpose computing platform

GPF
See general protection fault.

graphical user interface
What is seen on the monitor when a Windows application (or another noncommand-based application) runs. A graphical user interface uses features such as pointers, icons, I-beams, and menus to make the program easier to use.

GUI
See graphical user interface.

H

HAL
See hardware abstraction layer.

handshaking
A process involved in establishing a valid connection or signal between two pieces of hardware or communications software.

hardware abstraction layer
The software layer between the operating system and the hardware.

hub

A common connection point for all 10Base-T or 100Base-T cables connected to a small network. A hub enables data to go from one device to another.

icon

A small picture that represents an object or program in a graphical user interface.

IDE

Commonly used to describe the AT attachment design, the dominant hard disk interface. IDE is a cost-effective interface technology for mass storage devices in which the controller is integrated into the disk or CD-ROM drive.

IMAP

See Internet Message Access Protocol.

Industry Standard Architecture

A 16-bit standard interface for add-in cards.

input/output

Refers to any operation, program, or device that enters data into a computer or extracts data from a computer.

integrated client

An e-mail client that desktop messaging supports, which provides access to desktop messaging commands, configuration options, and online Help directly from the e-mail client interface. During desktop messaging installation, integrated clients are automatically configured with CallPilot mailbox information, and customized to include desktop messaging features. Integrated clients include Microsoft Outlook, Novell GroupWise, and Lotus Notes.

interactive voice response

An application that allows telephone callers to interact with a host computer via prerecorded messages and prompts.

Internet client

An e-mail client that desktop messaging supports, which does not provide access to desktop messaging commands, configuration options, and online Help directly from the e-mail client interface. You must manually configure this type of e-mail client to work with desktop messaging. *See also* integrated client.

Internet Message Access Protocol

A protocol for retrieving e-mail messages from a server. Internet Message Access Protocol (IMAP) enables mailbox owners to retrieve CallPilot messages from the CallPilot server.

inter-process communication

IPC enables one process to communicate with another process. It allows one application to control the other, and permits several applications to share the same data without interfering with one another.

Also, a generic term for the communication of commands, events, or data between software processes.

interrupt request

Hardware lines used by devices to send interrupt signals to the microprocessor, temporarily shifting program execution to another section of code. When a new device is added to a PC, often the IRQ number must be set to specify which interrupt line the device may use.

I/O

See input/output.

IP address

An identifier for a computer or device on a TCP/IP network. Networks use the TCP/IP protocol to route messages based on the IP address of the destination. The format of an IP address is a 32-bit numeric address written as four numbers separated by periods. Each number can be 0–255. For example, 1.160.10.240 can be an IP address.

IPE

Intelligent peripheral equipment.

IPC

See inter-process communication.

IRQ

See interrupt request.

ISA

See Industry Standard Architecture.

IVR

See interactive voice response.

IVR ACD-DN

A directory number that routes a caller to a specific IVR application. An IVR ACD-DN must be acquired for non-integrated IVR systems.

J

jumper

A metal bridge that closes an electrical circuit. Typically, a jumper consists of a plastic plug that fits over a pair of protruding pins. Jumpers are sometimes used to configure expansion boards. By placing a jumper plug over a different set of pins, you can change the parameters of a board.

K

kbyte

When used to describe data storage, a kbyte represents 1024 bytes. When used to describe data transfer rates, a kbyte represents 1000 bytes.

keycoded features

Features that are packaged and priced in a license agreement between Nortel Networks and the customer. The terms of the agreement are specified in a keycode calculation. The keycode calculation specifies parameters such as

- feature enablement
- the maximum number of feature-capable ports
- the maximum number of mailbox owners

kilobyte

See kbyte.

L

LAN

See local area network.

LCD

Liquid crystal display

LDAP

See Lightweight Directory Access Protocol.

LED

Light-emitting diode

Lightweight Directory Access Protocol

A set of protocols that enables e-mail clients to access a directory. In CallPilot, LDAP settings control access to the CallPilot address book.

local area network

A computer network that spans a relatively small area. Most LANs connect workstations and personal computers, and are confined to a single building or group of buildings. LANs can transmit data at very fast rates, but the distances are limited.

M

M1

Meridian 1 switch

Mbyte

When used to describe data storage, a megabyte represents 1 048 576 (2 to the 20th power) bytes. When used to describe data transfer rates, as in Mbps, a megabyte represents one million bytes.

media bus

The signal pathway used to route voice or fax between DSPs (that is, MPCs) and telephony interfaces (for example, a DS30x link).

megabyte

See Mbyte.

megahertz

One megahertz (MHz) represents one million cycles per second.

Meridian Mail

A Nortel Networks product that provides voice messaging and other voice and fax services.

Message Waiting Indication

An indicator that is activated whenever the mailbox receives a message that meets the criteria specified in the mailbox owner's message waiting indication options. On the phoneset, the message waiting indicator is a red light that lights up. On the desktop, the message waiting indicator is an icon in the form of a red phone.

MHz
See megahertz.

MMFS
See Multi-Media File System.

motherboard
The principal board that has connectors for attaching devices to the bus. Typically, the motherboard contains the CPU, memory, and basic controllers for the system. On PCs, the motherboard is often called the system board.

MPB board
A Nortel Networks proprietary voice processing board that is installed inside the CallPilot tower or rackmount server. For Meridian 1 and Succession 1000 systems, it also provides the hardware connection between the CallPilot server and the MGate card on the switch.

MPC
See multimedia processing card.

MPU
See Multimedia Processing Unit.

MTBF
Mean time between failures

Multi-Media File System
A proprietary file system used by CallPilot to store user mailboxes, voice messages, fax messages, and other application data. The Multi-Media File System (MMFS) data resides in several large files (VS1T, VS1V, and so on) stored within the file system provided by the Windows NT operating system.

multimedia channel
A channel on the CallPilot server that processes the call data according to the transmission type of a call (voice, fax, or speech recognition).

Multimedia channels are provided in two forms:

- in embedded multimedia processing card (MPC) sections on an MPB16-4 board or IPE (200i or 201i) server
- in removable MPC-8 cards, which are inserted into an MPB16-4 board

Each MPC or MPC-8 card supports up to eight multimedia channels.

multimedia processing card

Nortel Networks proprietary hardware that processes the voice and data signals that arrive from the switch. A multimedia processing card (MPC) can be in one of the following forms:

- embedded on an MPB16-4 board
- embedded on the motherboard of an IPE (200i or 201i) server
- a removable MPC-8 card that is inserted into an MPB board or IPE (200i or 201i) server

Each MPC contains one embedded DSP and provides eight multimedia processing units (MPUs).

Multimedia Processing Unit

A measure of DSP processing power. A Multimedia Processing Unit (MPU) supports a session or connection of different media types (for example, voice, fax, and automated speech recognition). The number of MPUs required on the CallPilot server is based on the types of channels used by CallPilot.

MWI

See Message Waiting Indication.

MWI DN

The directory number to which the message waiting indicator is directed.

My CallPilot

A suite of web-based applications for CallPilot mailbox owners. It provides a central graphical interface for managing messages, mailbox and messaging options, and audio conferences. It includes the following tools:

- Web Messaging
- Mailbox Manager

The applications and features in My CallPilot that are available to mailbox owners are determined by the software installed on the system and privileges assigned by the CallPilot administrator.

N

NetBEUI

See NetBIOS enhanced user interface.

NetBIOS

See Network Basic Input Output System.

NetBIOS enhanced user interface

An enhanced version of the NetBIOS protocol used by network operating systems, such as LAN Manager, LAN Server, Windows for Workgroups, Windows 95, and Windows NT.

Network Basic Input Output System

An application programming interface (API) that augments the DOS BIOS by adding special functions for local area networks (LANs). Almost all LANs for PCs are based on the NetBIOS. Some LAN manufacturers have even extended it, adding additional network capabilities.

network interface card

An expansion board that enables a PC to be connected to a local area network (LAN).

New Technology File System

The file system introduced as part of the Windows NT operating system.

NIC
See network interface card.

NTFS
See New Technology File System.

NTLDR
Windows NT bootstrap loader program.

NVRAM
Non-Volatile Random Access Memory

O

OA&M
Operations, administration, and maintenance

object linking and embedding
A compound document standard that enables you to create objects with one application, and then link or embed them in a second application.

ODBC
See Open Database Connectivity.

OEM
Original equipment manufacturer

OLE
See object linking and embedding.

Open Database Connectivity
A Microsoft-defined database API standard.

Open System Interconnection
A worldwide communications standard that defines a framework for implementing protocols in seven layers.

operational measurements
Data is used for reporting system activity and usage. Many activities within a CallPilot system generate operational measurements ()Ms). Reports generated using OM data allow the administrator to monitor traffic and billing on the system.

OS
Operating System

OSA
Operating System Abstraction Layer

OSI
See Open System Interconnection.

P

parallel port
A parallel interface for connecting an external device, such as a printer. Most personal computers have both a parallel port and at least one serial port.

parity
The type of bit used to evaluate the accuracy of data transmission. A parity bit is a unit of data and is used to verify whether the data was transmitted accurately. This verification technique is called parity checking. The sending and receiving device must use the same parity for data transmission.

PBX
See private branch exchange.

PC
See personal computer.

PCEB
PCI to EISA Bus Controller

PCI
See Peripheral Component Interconnect Bus.

PCMCIA
See Personal Computer Memory Card International Association.

Peripheral Component Interconnect Bus
A new 32- or 64-bit local bus standard for PCs.

personal computer
A computer having an architecture that is compatible with the IBM PC.

Personal Computer Memory Card International Association
An industry group dedicated to promoting the new PCMCIA/PC Card Standard (credit-card-sized peripherals for PCs).

phantom TN
Terminal numbers that have no associated physical hardware. They enable the definition of directory numbers without the need for line cards. They are typically used with services and applications on CallPilot. *See also* terminal number.

PMC
PCI and Memory Controller

POST
See Power-on self-test.

Power-on self-test
Initializes and performs rudimentary tests on baseboard hardware, including CPU, floating point unit, interrupts, memory, real-time clock, video, and auto-initializing PCI and EISA bus.

private branch exchange

A telephone switch typically used by a business to service its internal telephone needs. A private branch exchange (PBX) usually offers more advanced features than are generally available on the public network. A PBX interfaces with the public network central office using circuits known as trunks.

protocol

An agreed-upon format for transmitting data between two devices. The protocol determines the type of error checking to be used, the data compression method (if any), how the sending device indicates that it has finished sending a message, and how the receiving device indicates that it has received a message.

R

RAID

See Redundant Array of Inexpensive Disks.

RAM

See random access memory.

random access memory

The most common type of memory found in computers and other devices, such as printers. The term random access memory (RAM) is usually synonymous with main memory, the memory available to programs. For example, a computer with 8 Mbytes RAM has approximately 8 million bytes of memory that programs can use.

RAS

See Remote Access Services.

read-only memory

Computer memory on which data has been prerecorded and cannot be removed.

real-time clock

A clock that keeps track of the time even when the computer is turned off. Do not confuse a computer's real-time clock with its CPU clock. The CPU clock regulates the execution of instructions.

Redundant Array of Inexpensive Disks

A system of redundant hard drives organized as a pack, which is defined as a logical drive that allows continuous functionality and data to be fully recovered in the event of a crash of any of the hard drives within that pack.

registry

Windows NT central database for storing services, defaults, and so on.

Remote Access Services

A feature built into Windows NT that enables users to log on to an NT-based LAN using a modem, X.25 connection, or WAN link.

Reporter

A CallPilot web-based application that helps you analyze and manage your CallPilot system. Reporter converts raw statistics from your server into easy-to-read reports and alerts, which you can then

- view on screen
- print on a daily, weekly, or monthly basis
- export to a variety of file formats
- customize for easier reading

ROM

See read-only memory.

route

Defines a group of trunks. Each trunk carries either incoming or outgoing calls to the switch.

router

A device that connects two LANs. Routers are similar to bridges but provide additional functionality, such as the ability to filter messages and forward them to different places based on various criteria.

RPM

Revolutions per minute

RTC

See real-time clock.

S

SCA

See single connector architecture.

SCM

See Service Control Manager.

SCSI

See Small Computer System Interface.

SCU

See Software Configuration Utility.

SDN table

The CallPilot equivalent of the Meridian Mail VSDN table. This is where the administrator

- associates dialable numbers (DNs) with applications and services
- specifies the channel media type
- configures the minimum and maximum number of channels associated with a service

See also Service Directory Number.

serial port

A general-purpose interface that can be used for almost any type of device, including modems, mice, and printers (although most printers are connected to a parallel port). Most serial ports on personal computers conform to the RS-232C or RS-422 standards.

server

A computer or device on a network that manages network resources. Examples of servers include file servers, print servers, network servers, and database servers.

service

Process that adheres to a Windows NT structure and requirements. It provides system functionality.

In CallPilot, a service is functionality that is made available to mailbox callers via a Service Directory Number (SDN).

Service Control Manager

A Windows NT process that manages the different services on the computer.

Service Directory Number

The number that callers dial to access a CallPilot service. Each SDN must be unique so that when a caller dials a number, the system can identify which service is being requested. SDNs are defined on the server and stored in the SDN table. When a caller dials a number to access a service, the system looks up the number in the SDN table and activates the appropriate service.

SIMM

Single In-line Memory Module

Simple Network Management Protocol

A set of protocols for managing complex networks. SNMP works by sending messages, called protocol data units (PDUs), to different parts of a network, and then analyzing the responses.

single connector architecture

A method for supplying power and data lines in one connector on hard disks. It provides hot-swap capability.

Small Computer System Interface

A standard for connecting and controlling mass storage devices, such as CD-ROMS, tape drives, and hard disks.

Small System Controller

The Small System Controller pack consists of the CPU, memory, network conference, and Ethernet controller.

SMDI

Station message desktop interface.

SMI

System Management Interrupt

SNMP

See Simple Network Management Protocol.

Software Configuration Utility

A utility used to configure PCI and EISA cards. It can also set BIOS parameters.

Speech Activated Messaging

A CallPilot feature that substitutes DTMF commands (generated when the phoneset keys are pressed) with speech recognition technology. Speech Activated Messaging allows mailbox owners to speak commands for mailbox navigation, playback of messages, recording, composing, and sending of messages. It is particularly useful for areas with low DTMF penetration, and when performing tasks that require undivided attention (for example, driving).

Note: Speech Activated Messaging requires four times the resources required by voice messaging.

SRAM
Static Random Access Memory

Stop
An action that takes a channel or component out of service immediately, regardless of whether the channel or component is currently processing calls. All active calls are dropped immediately. *See also* Courtesy Stop.

stop bit
In asynchronous communications, a bit that indicates that a byte has just been transmitted. Every byte of data is preceded by a start bit and followed by a stop bit.

Succession 1000
An IP PBX that provides telephony and data capabilities over an IP network. The Succession 1000 system consists of the following major components:

- Call Server
- Media Gateway
- Media Gateway Expansion

SVGA
Super Video Graphics Adapter

switch
In data networks, a device that filters and forwards frames, or packets of information. In telephone networks, a switch is the device that processes and routes telephone calls.

switch resource
Devices that are configured on the switch through overlays.

system pack
A logical drive created from two or more physical hard disks using the RAID software configuration utility.

T

TCP/IP

See Transmission Control Protocol/Internet Protocol.

telephony

The science of translating sound into electrical signals, transmitting them, and then converting them back to sound. The term is used frequently to refer to computer hardware and software that performs functions traditionally performed by telephone equipment.

terminal number

A configuration value on the Meridian 1 or Succession 1000 system that defines the location of a phoneset (or ACD agent) or trunk. The terminal number refers to a specific unit on a card that is installed in the switch.

time switch

An application-controlled hardware entity that is responsible for routing voice and fax traffic to and from the media bus.

TN

See terminal number.

Transmission Control Protocol/Internet Protocol

The suite of communications protocols used to connect hosts on the Internet. TCP/IP is the standard for transmitting data over networks.

trunk

A communications link between a PBX and the public central office, or between PBXs. There are various trunk types that provide services, such as Direct Inward Dialing (DID trunks), ISDN, and Central Office connectivity.

U

unicode
A worldwide 16-bit character-encoding standard that allows text to be displayed in a wide choice of international languages.

uninterruptible power supply
A power supply that includes a battery to maintain power in the event of a power outage. Typically, an uninterruptible power supply (UPS) keeps a computer running for several minutes after a power outage, enabling you to save data that is in RAM and shut down the computer safely.

UPS
See uninterruptible power supply.

utility
A program that performs a very specific task, usually related to managing system resources. Operating systems contain a number of utilities for managing disk drives, printers, and other devices.

V

VGA
See video graphics adapter.

video adapter
An expansion board that contains a controller for a graphics monitor.

video graphics adapter
A standard video interface for computers.

Voice Messaging
The basic component of any messaging system, including the CallPilot unified messaging system.

voice port
A channel within an IVR system. A voice port is defined as a 2500 phoneset for third-party IVR systems, or as an RCS (517 or 2009) phoneset for Meridian Mail.

W

WAN

See wide area network.

Web Messaging

A CallPilot web-based tool for managing CallPilot and e-mail messages. It enables mailbox owners to

- access their CallPilot mailbox anywhere Internet access is available
- view and play messages
- send text, voice, and fax messages
- view e-mail messages from external IMAP e-mail accounts

Web Messaging is a part of the My CallPilot suite of applications.

wide area network

A computer network that spans a relatively large geographical area. Typically, a wide area network (WAN) consists of two or more local area networks (LANs). The largest WAN in existence is the Internet.

workload scenarios

The workload scenarios define typical patterns of system operations, and are not directly related to the various hardware configurations of the system. There are five typical workload scenarios (entry, small, medium, large, and upper end) that are used in performance evaluation for CallPilot.

X

XBUS

Two parallel bus structures, one for DMA-compatible devices, and one for memory devices that do not support DMA cycles. XBUS connects the real-time clock, flash memory, NVRAM, and keyboard/mouse controller.

Z

zero insertion force

A type of socket.

ZIF

See zero insertion force.

Index

E

F

H

I

L

M

N

O

P

R

S

T

U

V

W

CallPilot

Installation and Configuration
Part 1: Installation and Maintenance Overview

Publication number:	555-7101-210
Product release:	2.5
Document release:	Standard 2.0
Date:	April 2004

NORTEL NETWORKS™