



# **Avaya CallPilot 202i Server Maintenance and Diagnostics**

5.0  
NN44200-708, 01.04  
December 2010

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The following applies to server models 1006r, 1005r, 703t, 201i, and 1002rp:

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# Contents

<b>Chapter 1: Customer service</b> .....	<b>7</b>
Getting technical documentation.....	7
Getting product training.....	7
Getting help from a distributor or reseller.....	7
Getting technical support from the Avaya Web site.....	8
<b>Chapter 2: About this guide</b> .....	<b>9</b>
In this chapter.....	9
Maintenance and diagnostics overview.....	9
Who should read this guide.....	9
Resolving system problems.....	10
Preparing for hardware or software maintenance.....	10
Performing hardware maintenance.....	10
Rebuilding the CallPilot system.....	10
Resolving system problems.....	11
Using this guide.....	11
Using the CallPilot Administrator's Guide.....	12
Using the CallPilot Troubleshooting Guide.....	12
Replacing hardware components.....	12
Approved replacement parts.....	13
Preparing for maintenance activities.....	13
Reference documents.....	13
<b>Chapter 3: Troubleshooting your Avaya CallPilot® system</b> .....	<b>17</b>
In this chapter.....	17
Overview.....	17
LEDs and HEX display on the 202i server faceplate.....	18
Startup sequence and diagnostic codes.....	18
Section A: LED and HEX displays.....	18
In this section.....	18
Status LEDs and HEX display location.....	19
Interpreting the power status LED.....	19
Power status LED functions.....	20
Power status LED indications.....	20
Interpreting the network and drive activity LEDs.....	21
Network LED states.....	21
Hard drive LED states.....	22
Interpreting the HEX display.....	22
HEX display codes.....	23
Section B: Startup diagnostics.....	24
In this section.....	24
Startup diagnostic codes.....	25
Critical startup diagnostic codes.....	25
Non critical operating system and switch diagnostic codes.....	26
P:XX failure codes.....	27
Startup sequence description.....	27
Troubleshooting startup problems.....	29

<b>Chapter 4: Using the operating system online diagnostic tools.....</b>	<b>31</b>
In this chapter.....	31
Overview.....	31
Operating system Event Viewer.....	31
Operating system Diagnostics.....	32
TCP/IP diagnostics.....	32
Viewing event logs.....	32
Types of event logs.....	33
Where to seek more information.....	33
Using TCP/IP diagnostic tools.....	36
The ipconfig command.....	36
Ipconfig default.....	36
Ipconfig command syntax.....	36
The ping command.....	37
Ping command syntax.....	37
The tracert command.....	38
How tracert works.....	38
Tracert syntax.....	39
Tracert parameters.....	39
The arp command.....	40
Arp command syntax.....	40
The nbtstat command.....	41
Nbtstat command syntax.....	41
The netstat command.....	42
Netstat command syntax.....	42
<b>Chapter 5: Using CallPilot Manager to monitor hardware.....</b>	<b>45</b>
In this chapter.....	45
Understanding fault management.....	45
Event processing.....	46
Alarm notification.....	46
Section A: Tools for isolating and fixing hardware problems.....	46
In this section.....	46
Overview.....	47
Component dependencies.....	47
Detecting hardware problems.....	47
Alarm Monitor.....	48
About alarms.....	48
Event Browser.....	49
About events.....	49
Maintenance page.....	49
More information.....	50
Channel and Multimedia Monitors.....	50
Disabling call channels.....	50
Running diagnostics on call channels.....	50
Section B: Working with the Maintenance page.....	51
In this section.....	51
Introducing the Maintenance page.....	51
What the Maintenance page provides.....	51
Maintenance activities for each component.....	52
Viewing component states.....	53

Component states.....	53
Alert icons.....	54
Starting and stopping components.....	55
Stop versus courtesy stop.....	55
Courtesy stop.....	55
Stop.....	56
Components that can be started and stopped.....	56
Running integrated diagnostics.....	57
Before you begin.....	58
Components that have diagnostic tests available.....	58
Diagnostic tests available for each component.....	58
If a diagnostic test fails or cannot be run.....	58
Viewing the last diagnostic results.....	60
Last diagnostic results.....	62
Section C: Working with the Multimedia and Channel Monitors.....	63
In this section.....	63
Working with the Multimedia Monitor.....	63
Working with the Channel Monitor.....	64
<b>Chapter 6: Using Avaya CallPilot® system utilities.....</b>	<b>65</b>
In this chapter.....	65
Overview.....	65
Accessing the system utilities.....	66
Diagnostics Tool.....	66
To access the Diagnostics Tool.....	66
To enable startup diagnostics.....	67
To disable startup diagnostics.....	67
PEP Maintenance utility.....	68
To access the PEP Maintenance utility.....	68
Session Trace.....	68
To access the session trace tool.....	69
To find a session.....	70
Session type information.....	72
System Monitor.....	73
To access the System Monitor.....	74
About the Channel Monitor tab.....	74
CallPilot services.....	74
DSPs.....	75
DS30X links.....	76
About the System Info tab.....	76
About the Legend/Help tab.....	77
<b>Chapter 7: Performing hardware maintenance and mechanical assembly.....</b>	<b>79</b>
In this chapter.....	79
Overview.....	79
Equipment required.....	79
Before you begin.....	80
Removing the server from the switch.....	80
Equipment required.....	80
What is next?.....	81
Replacing the server.....	81
202i server component diagram.....	81

Replacing the hard drive.....	82
Equipment required.....	82
Before you begin.....	83
Hard drive assembly diagram.....	83
What is next?.....	86
Replacing the software feature key.....	86
Equipment required.....	86
Before you begin.....	86
<b>Index.....</b>	<b>89</b>

# Chapter 1: Customer service

Visit the Avaya Web site to access the complete range of services and support that Avaya provides. Go to [www.avaya.com](http://www.avaya.com) or go to one of the pages listed in the following sections.

## Navigation

- [Getting technical documentation](#) on page 7
- [Getting product training](#) on page 7
- [Getting help from a distributor or reseller](#) on page 7
- [Getting technical support from the Avaya Web site](#) on page 8

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## Getting technical documentation

To download and print selected technical publications and release notes directly from the Internet, go to [www.avaya.com/support](http://www.avaya.com/support).

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## Getting product training

Ongoing product training is available. For more information or to register, you can access the Web site at [www.avaya.com/support](http://www.avaya.com/support). From this Web site, you can locate the Training contacts link on the left-hand navigation pane.

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## Getting help from a distributor or reseller

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## Getting technical support from the Avaya Web site

The easiest and most effective way to get technical support for Avaya products is from the Avaya Technical Support Web site at [www.avaya.com/support](http://www.avaya.com/support).

# Chapter 2: About this guide

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## In this chapter

[Maintenance and diagnostics overview](#) on page 9

[Resolving system problems](#) on page 11

[Replacing hardware components](#) on page 12

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## Maintenance and diagnostics overview

The maintenance and diagnostic activities discussed in this guide are divided into two groups of activities:

- troubleshooting and diagnostics (identifying the cause of and resolving system problems)
- performing hardware maintenance

For a list of Avaya CallPilot® documentation, see the document map on page [Reference documents](#) on page 13.

---

## Who should read this guide

This guide is for administrators, technicians, and engineers who maintain an Avaya CallPilot server. It is intended to be a guide for the following purposes:

- using system tools to identify the cause of system problems
- installing, replacing, or upgrading hardware components

This guide is based on the assumption that you have basic computing skills and are familiar with necessary safety procedures. For more information about safety, see CallPilot Fundamentals NN44200-100.

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## Resolving system problems

This guide describes how to use a variety of CallPilot resources to resolve system problems.

If you cannot resolve your problem with the resources described in this guide, see the following documents:

- CallPilot Administrator's Guide NN44200-601
- CallPilot Troubleshooting Guide NN44200-700



**Note:**

For more details, see [Resolving system problems](#) on page 11.

---

## Preparing for hardware or software maintenance

The CallPilot Installation and Configuration Task List NN44200-306 explains how to restart, shut down, and power up the CallPilot server. You may be asked to perform one or more of these tasks while maintaining your server.

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## Performing hardware maintenance

[Performing hardware maintenance and mechanical assembly](#) on page 79 explains how to replace hardware components. For more details, see [Replacing hardware components](#) on page 12.

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## Rebuilding the CallPilot system

When you purchase your CallPilot server, it is preinstalled with the operating system and CallPilot server software. If your CallPilot server no longer functions because of a software problem, you may need to reinstall the CallPilot software or rebuild the system.

To locate instructions for these tasks, see the CallPilot Software Administration and Maintenance Guide .NN44200-600.

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## Resolving system problems

Chapters 2 to 5 in this guide describe how to use a variety of CallPilot resources to resolve system problems.

If you cannot resolve your problem with the resources described in this guide, see the following documents:

- CallPilot Administrator's Guide NN44200-601
- CallPilot Troubleshooting Guide NN44200-700

---

## Using this guide

This guide provides instructions to use the resources provided by your 202i server, as follows.

To	See
Interpret the LEDs on the 202i server	<a href="#">Troubleshooting your Avaya CallPilot® system</a> on page 17
Interpret startup sequence and diagnostic codes	<a href="#">Troubleshooting your Avaya CallPilot® system</a> on page 17
Use the operating system diagnostic tools, including Event Viewer and TCP/IP diagnostic tools	<a href="#">Using the operating system online diagnostic tools</a> on page 31
Use the Event Browser, Alarm Monitor, and Maintenance page in CallPilot Manager	<a href="#">Using CallPilot Manager to monitor hardware</a> on page 45
Use the following CallPilot system utilities: <ul style="list-style-type: none"> <li>• Diagnostics Tool</li> <li>• System Monitor</li> </ul>	<a href="#">Using Avaya CallPilot® system utilities</a> on page 65

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## Using the CallPilot Administrator's Guide

The CallPilot Administrator's Guide NTP NN44200-601 provides valuable information for monitoring system performance. The CallPilot Administrator's Guide describes how to

- view and filter server events
- monitor the CallPilot server performance, disk space, and database
- monitor and manage CallPilot channels
- troubleshoot CallPilot call service and system operation problems

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## Using the CallPilot Troubleshooting Guide

The CallPilot Troubleshooting Guide NN44200-700 describes symptoms that can appear on all CallPilot server platforms, and how to resolve them.

Use the CallPilot Troubleshooting Guide to resolve the following types of problems:

- server boot cycle failures
- peripheral device problems
- monitor display problems
- server-to-network connection problems
- remote access connection problems
- CallPilot application problems

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## Replacing hardware components

This guide describes how to replace or install hardware components as follows.

To replace or install	See
The 202i server (in the event of a complete system failure)	<a href="#">Replacing the server</a> on page 81
The hard drive	<a href="#">Replacing the hard drive</a> on page 82
The software feature key (dongle)	<a href="#">Replacing the software feature key</a> on page 86

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## Approved replacement parts

Before you replace any parts on your server, see the Avaya product catalog for the part codes.

 **Caution:**

Risk of system damage

The use of parts that are not approved by Avaya can cause serious system problems or void your Avaya warranty.

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## Preparing for maintenance activities

Before you proceed with hardware maintenance activities, review the CallPilot Installation and Configuration Task List NN44200-306 for the following information:

- required tools and equipment
- recommended safety precautions for electrostatic discharge, handling cards, and handling your server
- instructions to shut down your 202i server or for take it out of service

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## Reference documents

For a list of all CallPilot documents see the following Customer Documentation Map.

**Table 1: Call Pilot Customer Documentation Map**

Fundamentals
Fundamentals Guide (NN44200-100)
Library Listing (NN44200-117)
Planning and Engineering
Planning and Engineering Guide (NN44200-200)
Network Planning Guide (NN44200-201)
Converging the Data Network with VoIP Guide (NN43001-260)
Solution Integration Guide for Communication Server 1000/Call Pilot/Contact Center/Telephony Manager (NN49000-300)

## Installation and Configuration

Upgrade and Platform Migration Guide (NN44200-400)

High Availability: Installation and Configuration (NN44200-311)

Geographic Redundancy Application Guide (NN44200-322)

Installation and Configuration Task List Guide (NN44200-306)

Quickstart Guide (NN44200-313)

Installer Roadmap (NN44200-314)

### Server Installation Guides

201i Server Hardware Installation Guide (NN44200-301)

202i Server Hardware Installation Guide (NN44200-317)

202i Installer Roadmap (NN44200-319)

703t Server Hardware Installation Guide (NN44200-304)

1002rp Server Hardware Installation Guide (NN44200-300)

1002rp System Evaluation (NN44200-318)

1005r Server Hardware Installation Guide (NN44200-308)

1005r System Evaluation (NN44200-316)

1006r Server Hardware Installation Guide (NN44200-320)

600r Server Hardware Installation Guide (NN44200-307)

600r System Evaluation (NN44200-315)

### Configuration and Testing Guides

Meridian 1 and CallPilot Server Configuration Guide (NN44200-302)

T1/SMDI and CallPilot Server Configuration Guide (NN44200-303)

Communication Server 1000 System and CallPilot Server Configuration Guide (NN44200-312)

### Unified Messaging Software Installation

Desktop Messaging and My CallPilot Installation and Administration Guide (NN44200-305)

## Administration

Administrator Guide (NN44200-601)

Software Administration and Maintenance Guide (NN44200-600)

Meridian Mail to CallPilot Migration Utility Guide (NN44200-502)

Application Builder Guide (NN44200-102)

Reporter Guide (NN44200-603)

## Maintenance

Troubleshooting Reference Guide (NN44200-700)

Preventative Maintenance Guide (NN44200-505)

### Server Maintenance and Diagnostics

201i Server Maintenance and Diagnostics Guide (NN44200-705)

202i Server Maintenance and Diagnostics Guide (NN44200-708)

703t Server Maintenance and Diagnostics Guide (NN44200-702)

1002rp Server Maintenance and Diagnostics Guide (NN44200-701)

1005r Server Maintenance and Diagnostics Guide (NN44200-704)

1006r Server Maintenance and Diagnostics Guide (NN44200-709)

600r Server Maintenance and Diagnostics Guide (NN44200-703)

Contact Center Manager Communication Server 1000/Meridian 1 & Voice Processing Guide (297-2183-931)

## End User Information

### End User Cards

Unified Messaging Quick Reference Card (NN44200-111)

Unified Messaging Wallet Card (NN44200-112)

A-Style Command Comparison Card (NN44200-113)

S-Style Command Comparison Card (NN44200-114)

Menu Interface Quick Reference Card (NN44200-115)

Alternate Command Interface Quick Reference Card (NN44200-116)

Multimedia Messaging User Guide (NN44200-106)

Speech Activated Messaging User Guide (NN44200-107)

Desktop Messaging User Guide for Microsoft Outlook (NN44200-103)

Desktop Messaging User Guide for Lotus Notes (NN44200-104)

Desktop Messaging User Guide for Novell Groupwise (NN44200-105)

Desktop Messaging User Guide for Internet Clients (NN44200-108)

Desktop Messaging User Guide for My CallPilot (NN44200-109)

Voice Forms Transcriber User Guide (NN44200-110)

About this guide

# Chapter 3: Troubleshooting your Avaya CallPilot® system

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## In this chapter

[Overview](#) on page 17

[Section A: LED and HEX displays](#) on page 18

[Status LEDs and HEX display location](#) on page 19

[Interpreting the power status LED](#) on page 19

[Interpreting the network and drive activity LEDs](#) on page 21

[Interpreting the HEX display](#) on page 22

[Section B: Startup diagnostics](#) on page 24

[Startup diagnostic codes](#) on page 25

[Startup sequence description](#) on page 27

[Troubleshooting startup problems](#) on page 29

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## Overview

This guide provides instructions to use the resources provided by your 202i system. Use these resources to determine the cause of system problems, and then resolve them.

---

## LEDs and HEX display on the 202i server faceplate

The LEDs indicate when

- the 202i server is in use
- it is safe to remove the server from the switch
- network activity is occurring

The HEX display displays messages that appear during startup or normal 202i server operation.

For more information, see [Section A: LED and HEX displays](#) on page 18.

---

## Startup sequence and diagnostic codes

To help you determine if the 202i server started successfully (or if it failed), watch the startup sequence and the diagnostic codes that appear. The entire sequence occurs when you perform of the following:

- Lock the 202i server against the switch backplane. When locked against the backplane, the 202i server begins receiving power.
- Restart the operating system.
- Press Reset on the 202i server faceplate to restart the hardware.

For more information, see [Section B: Startup diagnostics](#) on page 24.

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## Section A: LED and HEX displays

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### In this section

[Status LEDs and HEX display location](#) on page 19

[Interpreting the power status LED](#) on page 19

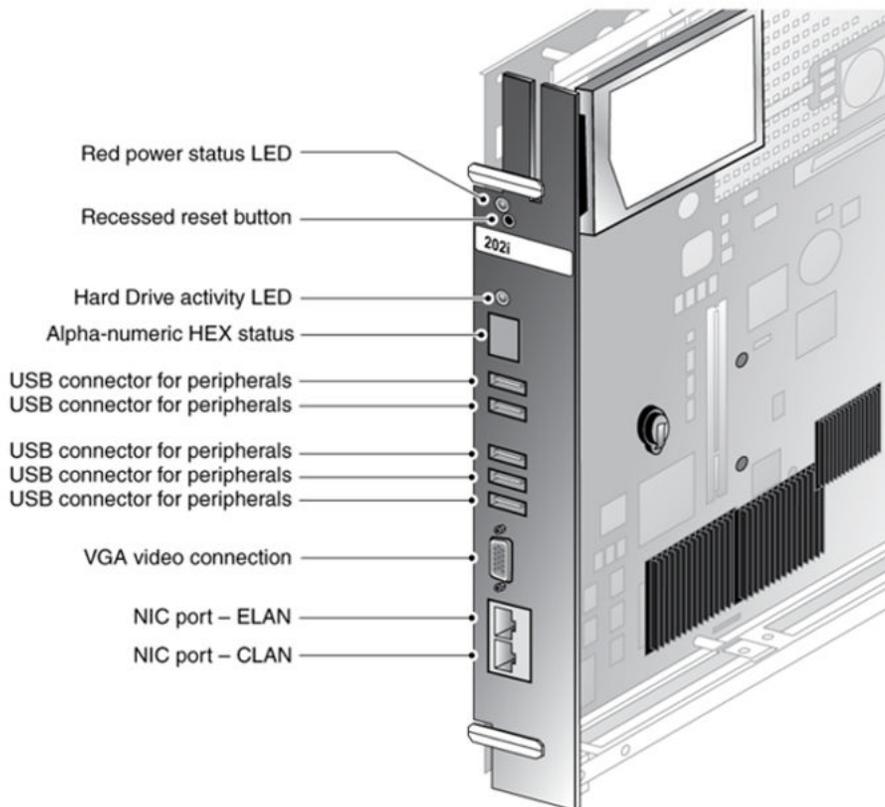
[Interpreting the network and drive activity LEDs](#) on page 21

[Interpreting the HEX display](#) on page 22

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## Status LEDs and HEX display location

The following diagram shows the location of the status LEDs and HEX display on the 202i server faceplate.




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## Interpreting the power status LED

The power status LED is the upper LED on the 202i server faceplate, directly below the lock latch. The LED indicates whether it is safe to remove the server from the switch (which results in a server power down).

**⚠ Caution:**

Risk of equipment damage or data loss

Do not remove the 202i server during normal operation or certain phases of the startup sequence, as this can damage the operating system files on the hard disk.

To determine if it is safe to remove the 202i server from the switch, see [Power status LED indications](#) on page 20.

---

## Power status LED functions

The LED indicates two server states:

- The 202i server is in use.
- It is safe to remove the 202i server from the switch.

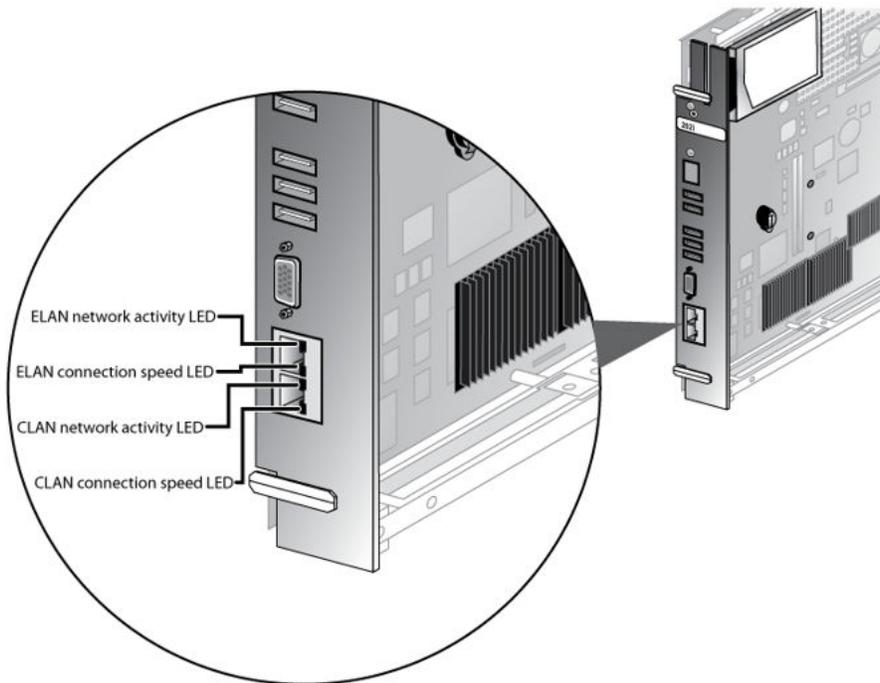
---

## Power status LED indications

IF the power status LED is	THEN
On	<p>the server is receiving power from the shelf. It is safe to remove it from the switch.</p> <p> <b>Note:</b> When the LED is lit, the HEX display may display one of the following: T:XX, F:XX, HOST, or DOWN.</p>
Off	<p> <b>Caution:</b> Risk of equipment damage or data loss It is not safe to remove the server from the switch. The server is in one of the following states:</p> <ul style="list-style-type: none"><li>• The server is in the operating system startup sequence.</li><li>• The server has completed the startup sequence and is running.</li></ul> <p> <b>Note:</b> You must courtesy down Avaya CallPilot, and then shut down the operating system before you can remove the 202i server from the switch. For instructions, see "Powering down the server" in the Avaya CallPilot Installation and Configuration Task List. NN44200-306.</p>

## Interpreting the network and drive activity LEDs

The 202i server provides two LEDs for each RJ45 Ethernet connector to indicate ELAN Subnet, and Avaya server subnet CLAN activity. The following diagram shows a close up view of the two RJ45 Ethernet connectors and the two LEDs for each connector.



## Network LED states

IF the ELAN or CLAN network activity LEDs are	THEN
Off	a valid hardware connection with the network is not established. Ensure that the cable is connected to the respective network switch or hub. If the cable is connected, ensure that the cable is not damaged.
On or blinking rapidly	a valid hardware connection with the network is established and network activity is occurring.

IF the ELAN or CLAN network activity LEDs are	THEN
---	------



**Note:**

Before the 202i server can receive or transmit data, you must configure valid IP settings on the 202i server by running the Configuration Wizard. For instructions, see the CallPilot Manager online Help.

IF the ELAN or CLAN connection speed LEDs are	THEN
Off	a valid hardware connection with the network is not established, or if the upper network activity LED is on, there is 10Mb network activity. Ensure that the cable is connected to the respective network switch or hub. If the cable is connected, ensure that the cable is not damaged.
On	a valid hardware connection with the network is established and 100Mb network activity is occurring.

---

## Hard drive LED states

IF the I LED is	THEN
Off	the hard drive is idle.
On	the hard drive is being accessed.

---

## Interpreting the HEX display

This section describes the codes that can appear on the HEX display during startup or normal 202i server operation.



**Note:**

For a description of the codes that appear during startup diagnostics, see [Startup diagnostic codes](#) on page 25. For a description of the startup sequence, see [Startup sequence description](#) on page 27.

## HEX display codes

During startup and normal 202i server operation, the HEX display on the server faceplate displays one of the codes in the following table.

HEX display output	Description
<b>Startup codes</b>	
T:XX	The 8051 controller is starting and running diagnostics. These diagnostics occur during a cold restart (when the server is powered up, or if you press Reset on the 202i server faceplate). For more details, see <a href="#">Startup diagnostic codes</a> on page 25.
F:XX	At least one diagnostic failed. The displayed error code represents the first failed diagnostic. For more details, see <a href="#">Startup diagnostic codes</a> on page 25.
P:XX	An Extended POST error occurred, where XX represents a two-character code. If the error is a critical error, the start cycle may halt. If the error is a non critical error, the error code is logged in the operating system event log after the operating system starts and the CallPilot 8051 device driver starts.  <div style="display: flex; align-items: center;">  <div> <p><b>Important:</b></p> <p>POST Terminal errors that result in a system halt do not appear on the HEX display. If you cannot use the HEX display to determine the cause of a system halt, contact your Avaya technical support representative.</p> </div> </div>
HOST	This code appears during the startup sequence and means that BIOS diagnostics started.
NT	The operating system start sequence has started.
OK	The operating system start sequence was successful and the 8051 controller is operating normally.
<b>CallPilot and 202i server operation codes</b>	
BOOT	CallPilot is starting and is not yet fully operational.
PASS	CallPilot is fully operational and ready to accept calls.
WARN	CallPilot is ready to accept calls. However, some services failed the start sequence. Review the event log for further information.

HEX display output	Description
<b>Startup codes</b>	
FAIL	CallPilot failed the start sequence and cannot accept calls. Review the event log for further information.
MIN	A minor alarm occurred. Review the event log for further information.
MAJ	A major alarm occurred. Review the event log for further information.
CRI	A critical alarm occurred. Review the event log for further information.
???	An alarm of unknown severity occurred. This error should not occur on a properly installed system. The severity of this event is treated as higher-than-critical, contact your Avaya technical support representative.
DOWN	<p>The operating system shut down. When the power status LED is on, it is safe to remove the 202i server from the switch.</p> <p>If you perform a cold restart by pressing Reset on the 202i server faceplate, or by removing and then reinserting the 202i server in the switch, the start sequence starts at stage 1, described in <a href="#">Startup sequence description</a> on page 27.</p> <p>If you perform a warm restart by selecting Restart on the operating system shutdown menu, the start sequence begins at stage 9, described in <a href="#">Startup sequence description</a> on page 27. However, the HEX display behaves as follows:</p> <ul style="list-style-type: none"> <li>• The DOWN message remains displayed until the operating system start sequence begins.</li> <li>• The DOWN message does not scroll.</li> </ul>

---

## Section B: Startup diagnostics

---

### In this section

[Startup diagnostic codes](#) on page 25

[Startup sequence description](#) on page 27

[Troubleshooting startup problems](#) on page 29

---

## Startup diagnostic codes

HEX display diagnostic codes are divided into the following two categories:

- critical startup diagnostics
- non critical operating system and switch diagnostics

---

## Critical startup diagnostic codes

All critical startup diagnostics must pass before the 202i can proceed with the start sequence. If a critical diagnostic fails, the start sequence indefinitely halts, an error code displays, and you here a continuous beep.

The following table shows the critical startup diagnostic codes with their corresponding failure codes. Failure of these diagnostics means that there has been a server failure. The start cycle halts.

 **Note:**

When a test succeeds, the next test code appears.

Test code	Test description	Failure code
T:01	Internal RAM self-test	F:01
T:02	ALU self-test	F:02
T:03	Address mode self-test	F:03
T:04	Boot ROM self-test	F:04
T:05	Timer self-test	F:05
T:06	Watchdog self-test	F:06
T:07	EEPROM self-test	F:07
T:08	End of system controller self-tests The power status LED blinks three times.	not applicable
HOST	Start of BIOS diagnostics The monitor displays the BIOS start screen. If a critical error occurs, the start cycle halts. Examples of critical errors are memory	HOST continues to scroll across the HEX display

---

Test code	Test description	Failure code
	failure or another type of error resulting in no display on the monitor.	

## Non critical operating system and switch diagnostic codes

If a noncritical operating and switch diagnostic test fails, the HEX display stops at the failed test. The remaining diagnostics are not performed. The start sequence continues, but server functionality can be compromised.

The following table shows the noncritical operating system and switch diagnostic codes with the corresponding failure codes.

 **Note:**

While the test is in progress, the following codes may appear for a short period. If these messages display temporarily (that is, no longer than 1 second), a problem does not exist.

Status code	Operation description	Failure code
HOST	Continuation of BIOS diagnostics. The monitor displays the BIOS start screen. If a noncritical error occurs, the server continues the start sequence.	P:XX
NT	The operating system start sequence started.   <b>Note:</b> If the CallPilot server software is not installed, the HEX display remains at NT. (This can occur if you are rebuilding a system.) During CallPilot software installation, the 8051 device driver is copied to the operating system, at which point the HEX display shows CDLN.	P:XX   <b>Note:</b> For a description, see <a href="#">P:XX failure codes</a> on page 27.
CDLN	8051 device driver on the operating system has started; beginning of Cardlan interface communication (DS30x interface initialization) The system controller communicates with the switch, indicating that two cards are installed, and waits for switch acknowledgement.	CDLN Neither DS30x interface was initialized (both failed).
C:01	Initialization of the first DS30x interface	C:01 Initialization of the first DS30x interface failed.

Status code	Operation description	Failure code
OK	Switch acknowledgement complete The operating system startup is complete, and CallPilot Fault Management takes over.	CRI, FAIL, MAJ, MIN, or WARN

---

## P:XX failure codes

P:XX indicates a BIOS diagnostic error, where XX represents a two-character code. If the error is a critical error, the start cycle may halt. If the error is a noncritical error, the error code is reported in the operating system system event log after the operating system start sequence completes and the CallPilot 8051 device driver starts.

 **Note:**

If CallPilot is not installed, no event is logged.

 **Important:**

POST Terminal errors that result in a system halt do not appear on the HEX display. If you cannot use the HEX display to determine the cause of a system halt, contact your Avaya technical support representative.

---

## Startup sequence description

The following table describes the startup sequence and the diagnostic stages that occur. The entire sequence occurs when you perform one of the following activities:

- You lock the 202i against the switch backplane, and the 202i powers up.
- You press Reset on the 202i server faceplate to perform a hardware restart.

 **Note:**

If you restart the operating system by clicking the Shut Down and Restart options, the start sequence starts at stage 9. However, the HEX displayed in the status LED behaves as follows:

- The DOWN message remains displayed until the operating system start sequence begins.
- The DOWN message does not scroll.

Stage	Description	Status LED HEX display	Status LED state
1	Internal RAM self-test This is the start of critical startup diagnostics for the 8051 system controller. If any test fails, the startup cycle halts. Approximate duration: less than 1 second	T:01	ON
2	ALU self-test Approximate duration: less than 1 second	T:02	ON
3	Address mode self-test Approximate duration: less than 1 second	T:03	ON
4	Boot ROM self-test Approximate duration: less than 1 second	T:04	ON
5	Timer self-test Approximate duration: less than 1 second	T:05	ON
6	Watchdog self-test Approximate duration: less than 1 second	T:06	ON
7	EEPROM self-test This is a noncritical diagnostic. If it fails, this is a noncritical error, and the start cycle continues. Approximate duration: less than 1 second	T:07	ON
8	End of system controller self-tests. No errors were found. Approximate duration: less than 3 seconds	T:08	blinks three times
9	Beginning of BIOS diagnostics   <b>Note:</b> The BIOS splash screen appears, and HOST scrolls across the HEX display. Approximate duration: 7 seconds	HOST	ON
10	Beginning of the operating system start sequence The monitor displays the operating system logon prompt. You are prompted for an operating system user name and password. If the system needs to be configured, a pop-up box for Maintenance Configuration Detection Information may appear to remind you. If the Maintenance Configuration Detection Information box appears, click OK unless you want a reminder to configure the server.	NT	OFF
11	Completion of operating system start sequence. The 8051 system controller is running normally.	OK	OFF

Stage	Description	Status LED HEX display	Status LED state
12	The 202i CallPilot software loads. OK means that CallPilot loaded. CallPilot Fault Management takes over. If FAIL, WARN, CRI, MAJ, or MIN appears instead of OK, a fault occurred. Use the system and CallPilot Manager event logs and Alarm Monitor to determine what happened. Approximate duration: 5 minutes	One of the following, as applicable: <ul style="list-style-type: none"> <li>• BOOT</li> <li>• PASS</li> <li>• FAIL</li> <li>• WARN</li> <li>• CRI</li> <li>• MAJ</li> <li>• MIN</li> </ul>	OFF

## Troubleshooting startup problems

This section suggests tasks you can perform to determine why the 202i server fails the startup cycle.

### To determine why the 202i server failed the 8051 startup

1. Note any diagnostic codes.
2. Try restarting the server by pressing Reset on the 202i server faceplate.
3. During the restart sequence, view the diagnostic codes on the HEX display for failures.

For a description, see [Startup sequence description](#) on page 27.

 **Note:**

Allow 5 minutes for the start cycle to complete.

4. For other suggestions, see the CallPilot Troubleshooting Guide.
5. If you still cannot find the cause of the failure, call your Avaya technical support representative.

### To determine why the 202i server failed to start CallPilot

1. Note any diagnostic codes.
2. Try restarting the server by pressing Reset on the 202i server faceplate.
3. During the start sequence, view the diagnostic codes on the HEX display for failures.

For a description, see [Startup sequence description](#) on page 27.

 **Note:**

Allow 5 minutes for the start cycle to complete.

4. View the event logs.

For instructions, see [Viewing event logs](#) on page 32.

5. For other suggestions, see the CallPilot Troubleshooting Guide for other suggestions.
6. If you still cannot find the cause of the failure, call your Avaya technical support representative.

# Chapter 4: Using the operating system online diagnostic tools

---

## In this chapter

[Overview](#) on page 31

[Viewing event logs](#) on page 32

[Using TCP/IP diagnostic tools](#) on page 36

---

## Overview

This section describes how to access the run-time online diagnostic tools provided by the operating system server software. Use these tools when a serious problem prevents the use of the Avaya CallPilot® diagnostic tools that are available in Avaya CallPilot Manager.



**Caution:**

Risk of software corruption

Do not run utilities that are not documented in this guide.

---

## Operating system Event Viewer

The operating system Event Viewer provides event logs to help you diagnose and debug system problems.

---

## Operating system Diagnostics

The operating system Diagnostics window allows you to view details about the system and network components.

---

## TCP/IP diagnostics

This chapter describes the following TCP/IP diagnostic tools:

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

These utilities help you to verify network connectivity. They help you to thoroughly test the network interface and isolate any configuration problems. Network connectivity is essential to CallPilot operation.

---

## Viewing event logs

When the server startup cycle is complete, and if you configured the CallPilot server (see the CallPilot <switch model> and CallPilot Server Configuration guide for your switch and server), the HEX display should show Pass, and messages in dialog boxes on the monitor indicate that CallPilot is ready to accept calls.

If the HEX display shows FAIL, CRI, MAJ, MIN, or FAIL or one or more error messages appears on the monitor, an event (such as a warning, error, or information display) occurred. To determine what happened, you can use the following tools:

- operating system Event Viewer on the 202i server (see [To use the operating system Event Viewer](#) on page 33)
- CallPilot Event Browser or Alarm Monitor in CallPilot Manager

For more information, perform one of the following:

- See [Alarm Monitor](#) on page 48.

- See the CallPilot Administrator's Guide NN44200-601.

 **Note:**

The Event Browser and Alarm Monitor include online Help for events, which may help you to resolve the problem. If you cannot log on to the CallPilot system using a Web browser due to server problems, then use the operating system Event Viewer.

---

## Types of event logs

Three types of event logs are available from the operating system Event Viewer, as follows.

Log type	Description
System	Logs events by the operating system components, including Routing and Remote Access Server (RRAS) or other operating system services.
Security	Logs security events, such as logons, logoffs, illegal access. This option is available only to users with Administrative access.
Applications	Logs events by application, such as database file errors.

---

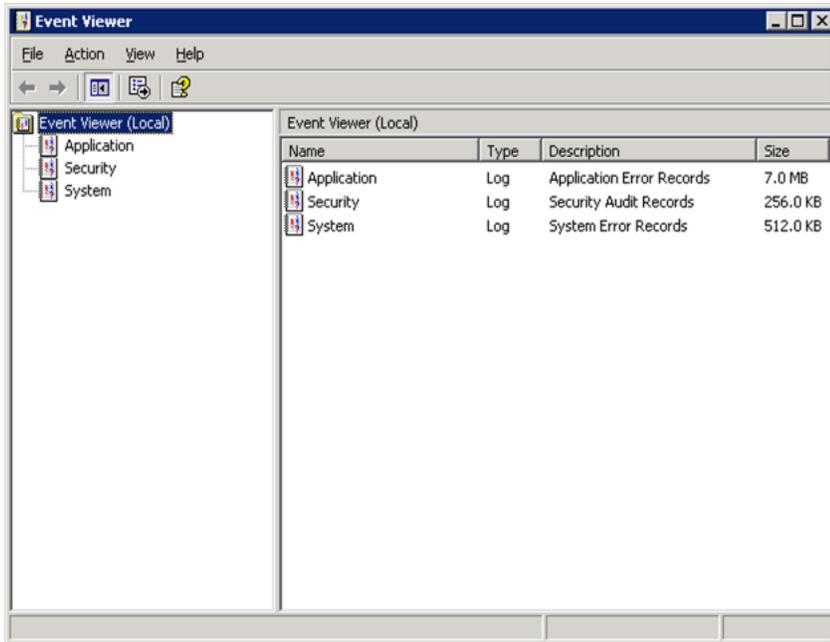
## Where to seek more information

For more information about using the operating system Event Viewer, click Help, Contents in the Event Viewer window. See also [To use the operating system Event Viewer](#) on page 33.

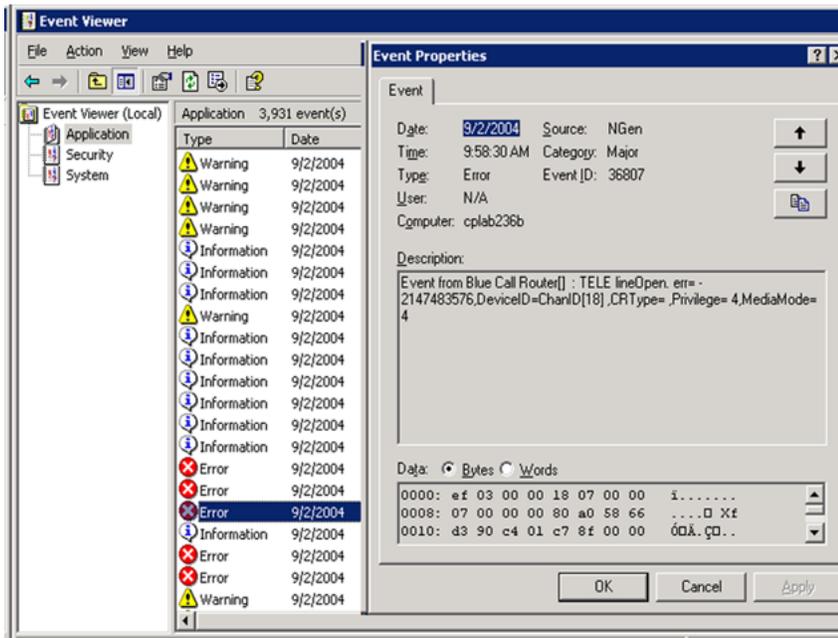
### To use the operating system Event Viewer

1. Click Start, Programs, Administrative Tools, Event Viewer.  
The Event Viewer window appears.

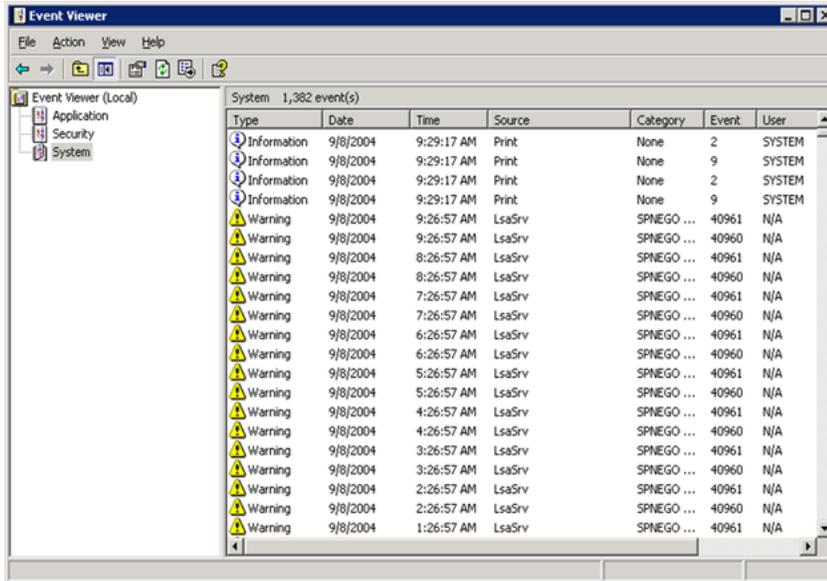
## Using the operating system online diagnostic tools



2. To view a log, click the name of the log in the left pane.  
The illustration shows an example of the Application log.



An example of a System log appears in the following illustration.

**Note:**

The Security log available only to administrators is not shown.

3. Look for error codes flagged that occurred since the last startup. Each error is date and time stamped.



major or critical errors



warnings



information

4. To determine the cause of the error, select and double-click the error.

A description of the error appears in an Event Detail dialog box. An example of an error description is shown in the Event Detail dialog box in the Application log illustration on [2](#) on page 34.

5. Use the error description to help determine how to resolve errors.

**Note:**

If the error persists or does not suggest a solution, contact your Avaya support representative.

6. Click Close.

The event log reappears.

7. Click Log, Exit.

The Event Viewer closes.

---

## Using TCP/IP diagnostic tools

This section describes the following TCP/IP diagnostic tools available for the network adapter. These tools are useful to diagnose LAN communication problems. The first three tools are the most useful:

- ipconfig ([The ipconfig command](#) on page 36)
- ping ([The ping command](#) on page 37)
- tracert ([The tracert command](#) on page 38)
- arp ([The arp command](#) on page 40)
- nbtstat ([The nbtstat command](#) on page 41)
- netstat ([The netstat command](#) on page 42)

These utilities help you to verify network connectivity. Network connectivity is essential to CallPilot operation. These utilities help you to thoroughly test the network interface and isolate configuration problems.

---

## The ipconfig command

The ipconfig command displays IP configuration information.

---

## Ipconfig default

If you run the command without flags, it displays the IP address, subnet mask, and default gateway for each adapter bound to TCP/IP.

---

## Ipconfig command syntax

```
ipconfig [/ ]
```

The following flags are available for the ipconfig command.

Flag	Description
/?	Displays Help information.

---

Flag	Description
/all	Displays full configuration information.
/release	Releases the IP address for the specified adapter.
/renew	Renews the IP address for the specified adapter.

### To run the ipconfig command from the operating system

1. Click Start, Programs, Accessories, Command Prompt to display the command prompt window.

The Command Prompt window appears.

2. At the prompt, type ipconfig <with appropriate parameters>.

Example: ipconfig /all

3. Press Enter.

The system runs the ipconfig utility.

4. Type Exit to close the Command Prompt window.

---

## The ping command

The ping command sends an echo request to a specified host. Use this command to verify network connectivity to the remote device.

---

## Ping command syntax

The ping command uses the following syntax:

```
ping [-t] [-a] [-n count] [-l size] [-f] [-i TTL] [-v TOS] [-r count]
[-s count] [[-j host-list] | [-k host-list]] [-w timeout]
destination-list
```

Parameter	Description
-t	Pings the specified host until interrupted.
-a	Resolves addresses to host names.
-n count	Specifies the number of echo requests to send.
-l size	Sends buffer size.
-f	Set Don't Fragment flag in packet.

Parameter	Description
-i TTL	Time To Live
-v TOS	Type Of Service
-r count	Record route for count hops
-s count	Time stamp for count hops
-j host-list	Loose source route along host list
-k host-list	Strict source route along host list
-w timeout	Time-out in milliseconds to wait for each reply

### To run the ping command from the operating system

1. Click Start, Programs, Accessories, Command Prompt to display the command prompt window.  
The Command Prompt window appears.
2. At the prompt, type ping <destination IP address> (for example, ping 200.286.32.0), or ping <computer name>.
3. Press Enter.  
The system displays the ping results.
4. Type Exit to exit the Command Prompt window.

---

## The tracert command

This utility determines the route to a destination.

---

## How tracert works

The tracert utility follows several steps:

- Tracert sends Internet Control Message Protocol (ICMP) echo packets with varying Time-To-Live (TTL) values to the destination.
- Each router along the path must decrement the TTL on a packet by at least 1 before forwarding it, so the TTL is effectively a hop count.
- When the TTL on a packet reaches 0, the router sends back an ICMP Time Exceeded message to the source system.

- Tracert determines the route by sending the first echo packet with a TTL of 1 and incrementing the TTL by 1 on each subsequent transmission until the target responds, or the maximum TTL is reached.
- Tracert then examines the ICMP Time Exceeded messages sent back by intermediate routers.

---

## Tracert syntax

```
tracert [-d] [-h maximum_hops] [-j host_list] [-w timeout]
[target_name]
```

---

## Tracert parameters

The tracert command uses the following parameters.

Parameter	Description
-d	Specifies not to resolve addresses to hostnames.
-h maximum_hops	Specifies the maximum number of hops to search for the target.
-j host-list	Specifies a loose source route along the host list.
-w timeout	Waits the number of milliseconds specified by the timeout for each reply.
target_name	The name of the target host.

### To run the tracert command from the operating system

1. Click Start, Programs, Accessories, Command Prompt to display the command prompt window.

The Command Prompt window appears.

2. At the prompt, type the following command:

```
tracert [-d] [-h maximum_hops] [-j host_list] [-w timeout]
[target name]
```

Example: tracert 200.286.0.32 210 200.236.0.04

3. Press Enter.

The system runs the tracert utility.

4. Type Exit to exit the Command Prompt window.

---

## The arp command

The arp command displays and modifies the IP-to-physical address translation tables used by Address Resolution Protocol (arp).

---

### Arp command syntax

The arp command uses the following syntax:

```
arp -s inet_addr eth_addr [if_addr]
```

```
arp -d inet_addr [if_addr]
```

```
arp -a [inet_addr] [-N if_addr]
```

Parameter	Description
-a	Displays current arp entries by interrogating the current protocol data. If <code>inet_addr</code> is specified, the IP and physical addresses for only the specified computer appear. If more than one network interface uses arp, entries for each arp table appear.
-g	Same as -a.
inet_addr	Specifies an Internet address.
if_addr	Specifies the Internet address of the interface whose address translation table you need to modify. If not present, the first applicable interface is used.
eth_addr	Specifies a physical address.
-N if_addr	Displays the arp entries for the network interface specified by <code>if_addr</code> .
-d	Deletes the host specified by <code>inet_addr</code> .
-s	Adds the host and associates the Internet address <code>inet_addr</code> with the physical address <code>eth_addr</code> . The physical address is given as six hexadecimal bytes separated by hyphens. The entry is permanent.

### To run the arp command from the operating system

1. Click Start, Programs, Accessories, Command Prompt to display the command prompt window.  
The Command Prompt window appears.
2. At the prompt, type arp with the required parameters (for example, arp -g 200.286.0.32).

3. Press Enter.  
The system runs the arp command.
4. Type Exit to exit the Command Prompt window.

---

## The nbtstat command

The nbtstat command displays protocol statistics and current TCP/IP connections using NBT.

---

### Nbtstat command syntax

The nbtstat command uses the following syntax:

```
nbtstat [-a remotename] [-A IP address] [-c] [-n] [-R] [-r] [-S] [-s]
[interval]
```

Parameter	Description
-a remotename	Lists the remote computer name table using its name.
-A IP address	Lists the remote computer name table using its IP address.
-c	Lists the contents of the NetBIOS name cache giving the IP address of each name.
-n	Lists local NetBIOS names. Registered indicates that the name is registered by broadcast (Bnode) or WINS (other node types).
-R	Reloads the LMHOSTS file after purging all names from the NetBIOS name cache.
-r	Lists name resolution statistics for Windows networking name resolution. On a computer configured to use WINS, this option returns the number of names resolved and registered through broadcast or through WINS.
-S	Displays both client and server sessions, listing the remote hosts by IP address only.
-s	Displays both client and server sessions, and attempts to convert the remote host IP address to a name using the HOSTS file.
interval	Displays selected statistics, pausing interval seconds between each display. Press Ctrl+C to stop displaying statistics. Without this parameter, nbtstat prints the current configuration information once.

### To run the nbtstat command from the operating system

1. Click Start, Programs, Accessories, Command Prompt to display the command prompt window.  
The Command Prompt window appears.
2. At the prompt, type nbtstat with the required parameters.
3. Press Enter.  
The system runs the nbtstat utility.
4. Type Exit to exit the Command Prompt window.

---

## The netstat command

The netstat command displays current TCP/IP network connections and protocol statistics.

---

## Netstat command syntax

The netstat command uses the following syntax:

```
netstat [-a] [-e] [-n] [-s] [-p proto] [-r] [interval]
```

Parameter	Description
-a	Displays all connections and listening ports.
-e	Displays Ethernet statistics. This can be combined with the -s option.
-n	Displays addresses and port numbers in numerical form.
-s	Displays the statistics for each protocol.
-p proto	Shows connections for the protocol specified by proto. Proto can be tcp or udp. If used with the -s option, proto can be tcp, udp, or ip.
-r	Displays the contents of the routing table.
interval	Redisplays selected statistics, pausing between each display. Press Ctrl+C to stop redisplaying statistics.

### To run the netstat command from the operating system

1. Click Start, Programs, Accessories, Command Prompt to display the command prompt window.

The Command Prompt window appears.

2. At the prompt, type netstat with the required parameters.
3. Press Enter.

The system runs the netstat utility.

4. Type Exit to close the Command Prompt window.

Using the operating system online diagnostic tools

# Chapter 5: Using CallPilot Manager to monitor hardware

---

## In this chapter

[Understanding fault management](#) on page 45

[Section A: Tools for isolating and fixing hardware problems](#) on page 46

[Overview](#) on page 47

[Alarm Monitor](#) on page 48

[Event Browser](#) on page 49

[Maintenance page](#) on page 49

[Channel and Multimedia Monitors](#) on page 50

[Section B: Working with the Maintenance page](#) on page 51

[Introducing the Maintenance page](#) on page 51

[Viewing component states](#) on page 53

[Starting and stopping components](#) on page 55

[Running integrated diagnostics](#) on page 57

[Viewing the last diagnostic results](#) on page 60

[Section C: Working with the Multimedia and Channel Monitors](#) on page 63

[Working with the Multimedia Monitor](#) on page 63

[Working with the Channel Monitor](#) on page 64

---

## Understanding fault management

Fault management describes how the Avaya CallPilot<sup>®</sup> server detects and notifies you of potential or real hardware problems (faults).

The server processes events to detect hardware problems and raises alarms to notify you when these problems occur.

---

## Event processing

An event is any change in system configuration or operational state. An event is also any action the system takes that requires user notification. Events can be as insignificant as a user logon attempt or as serious as a faulty DSP switching to disabled status.

All events are reported to the fault management server, a subsystem within the Avaya CallPilot server. The fault management server enables the server to listen and respond to clients. The interaction is called event processing and is the means by which the server detects hardware faults.

---

## Alarm notification

Alarms are warnings generated by events. Alarms communicate the same information as events. However, alarms are reported in the Alarm Monitor instead of the Event Browser and are managed differently than events.

When an alarm appears in the Alarm Monitor, Avaya recommends that you investigate the problem, isolate it, and then fix the problem. When you fix the problem, you can then clear the alarm from the Alarm Monitor.

---

## Section A: Tools for isolating and fixing hardware problems

---

### In this section

[Overview](#) on page 47

[Alarm Monitor](#) on page 48

[Event Browser](#) on page 49

[Maintenance page](#) on page 49

[Channel and Multimedia Monitors](#) on page 50

---

## Overview

This section describes how to use the CallPilot Manager tools to detect, isolate, and fix potential or real hardware problems.

---

## Component dependencies

The status of some components depend on the operational status of other components. If a component fails or stops, the dependent components go out of service.

 **Note:**

Based on the CallPilot server type, and the type of switch connected to CallPilot, some of these components may not appear on your system.

Component	Dependent components
Motherboard (IPE server)	All DSPs, and all multimedia and call channels associated with the IPE server.
Time Switch	All multimedia and call channels associated with the same MPB as the time switch.
DS30X	All DS30X channels associated with the DS30X link.

---

## Detecting hardware problems

Typically, you first become aware of a hardware problem when an alarm is raised. All hardware faults produce an alarm (or series of alarms, depending on the problem) in the Alarm Monitor.

Other indications of a hardware problem include the following:

- user complaints
- call processing difficulties, such as busy signals, static, dropped calls, connection problems, and cross talk (hearing other conversations)
- system administrator logon difficulties
- alert icons on the Maintenance page

---

## Alarm Monitor

Use the Alarm Monitor to investigate one or more raised alarms.

---

## About alarms

Alarms are warnings generated by events. Alarms communicate the same information as events. However, alarms are reported in the Alarm Monitor instead of the Event Browser, and are managed differently than events:

- Alarms appear in the Alarm Monitor only for Minor, Major, and Critical events (not Information events). All events can be reported in the Event Browser (depending on filtering criteria defined in the Event Browser).
- The first time an event occurs, it generates an alarm that appears in the Alarm Monitor. If the same event continues to occur, a new alarm is not generated. Instead, the time and date assigned to the original generated alarm is updated.
- Alarms can be cleared from the Alarm Monitor, but the event that generated the alarm is not cleared from the event log or the Event Browser.

Each alarm in the Alarm Monitor has Help text that often provides a solution to the problem. If the solution is not apparent, use the Event Browser or the Maintenance page to further investigate the problem.

For detailed information about how to use the Alarm Monitor, see the CallPilot Administrator's Guide NN44200-601, or the CallPilot Manager online Help.

### To investigate using the Alarm Monitor

1. Run CallPilot Manager and log on.
2. In CallPilot Manager, click System, Alarm Monitor.  
The Alarm Monitor page appears.
3. Click the Event Code for the first critical or major alarm.  
A description of the event appears in a new Web browser window.
4. Review the description and recovery action.
5. Repeat steps [3](#) on page 48 and [4](#) on page 48 to view more alarms, if necessary.
6. If the solution to the problem is not apparent, obtain the return code of the first event and continue the investigation by using the Event Browser (see [Event Browser](#) on page 49).

---

## Event Browser

Use the Event Browser to investigate a series of events that occurred approximately when an alarm was raised. The event listing can help you determine the cause of a problem.

---

## About events

The Event Browser displays events recorded in the server log. Each event identifies the time the event occurred, the object that generated the event, and the cause of the event.

Events are classified as Information, Minor, Major, or Critical. By default, the Event Browser displays only the most recent 100 critical events.

For detailed information about how to use the Event Browser (for example, how to configure preferences), see the CallPilot Administrator's Guide NN44200-601 or the CallPilot Manager online Help.

### To investigate using the Event Browser

1. Run CallPilot Manager and log on.
2. In CallPilot Manager, click System, Event Browser.  
The Event Browser page appears.
3. Click an event that appears to be related to the problem, or an event that occurred near the time the alarm was raised.  
A description of the event appears in a new Web browser window.
4. View the description and recovery action.
5. Repeat steps [3](#) on page 49 and [4](#) on page 49 to view more events, if necessary.
6. If the solution to the problem is not apparent, contact your Avaya technical support representative.

---

## Maintenance page

Use the Maintenance page to obtain status information for suspect components.

If you suspect or discover a problem with hardware such as the DS30X link, you can use the Diagnostic section on the Maintenance page. You can run a new diagnostic for the component, or review the results of the last diagnostic that was run.

## More information

For information about all aspects of the Maintenance page, see [Section B: Working with the Maintenance page](#) on page 51 or the CallPilot Manager online Help.

---

## Channel and Multimedia Monitors

The Channel Monitor shows the status of call channels. The call channels are the connections between the server and the switch that carry the call signals to CallPilot.

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

---

## Disabling call channels

If you must take the CallPilot system out of service to perform software or hardware maintenance, Avaya recommends that you disable all call channels first. Two ways are available to disable the call channels:

- Courtesy stop the channels (preferred method).

When you courtesy stop call channels, CallPilot waits until the channels are no longer active before disabling them, instead of instantly terminating active calls.

- Stop the channels.

When you stop channels, you instantly disable them and terminate all active calls.

For information about using the Channel and Multimedia Monitors, see [Section C: Working with the Multimedia and Channel Monitors](#) on page 63.

---

## Running diagnostics on call channels

If you must run diagnostics for one or more channels, use the Diagnostics section on the Maintenance page. For more information, see [Section B: Working with the Maintenance page](#) on page 51.

---

## Section B: Working with the Maintenance page

---

### In this section

[Introducing the Maintenance page](#) on page 51

[Viewing component states](#) on page 53

[Starting and stopping components](#) on page 55

[Running integrated diagnostics](#) on page 57

[Viewing the last diagnostic results](#) on page 60

---

### Introducing the Maintenance page

Use the Maintenance page in CallPilot Manager to perform the following tasks:

- Obtain general information about components.
- View component states.
- Start and stop components.
- Run integrated diagnostic tests.
- View the results of the last diagnostic test run against a component.

---

### What the Maintenance page provides

The Maintenance page identifies the server platform and switch connectivity type. It also provides a tree that, when expanded, lists the physical and logical hardware components on the left side of the page. To list the server hardware components, click the plus sign (+) at the top of the tree. To list the subcomponents for each component, click the plus sign (+) beside the component.

 **Note:**

The components listed on the Maintenance page are based on the CallPilot server type and the switch that is connected to CallPilot. The examples in this chapter are for illustration only and may not appear exactly the same on your system.

When you click a component, the page refreshes to show the details about that component. Details are divided into the sections described in the following table.

Section	Description
General	<p>This section shows general technical information about the selected component. This information typically includes the following details:</p> <ul style="list-style-type: none"> <li>• the name, class, type, series, or version of a component</li> <li>• various capabilities of a component (for example, whether a component is removable)</li> </ul> <p> <b>Note:</b> This section does not appear for all components.</p>
Maintenance	<p>This section shows the state of the selected component. Use this section to start and stop a component before running a diagnostic test.</p> <p>This section appears only for components on which you can perform maintenance administration.</p> <p>For more information about working with component states, see the following sections:</p> <ul style="list-style-type: none"> <li>• <a href="#">Viewing component states</a> on page 53</li> <li>• <a href="#">Starting and stopping components</a> on page 55</li> </ul>
Diagnostics	<p>Use the Diagnostics section to run one or more diagnostic tests or to view the results of the last diagnostic tests that ran on the selected component.</p> <p>This section appears only for components on which you can run diagnostics.</p> <p>For more information about running diagnostics, see the following sections:</p> <ul style="list-style-type: none"> <li>• <a href="#">Running integrated diagnostics</a> on page 57</li> <li>• <a href="#">Viewing the last diagnostic results</a> on page 60</li> </ul>

---

## Maintenance activities for each component

The following table identifies the maintenance activities you can perform for each component in the component tree.

Component	Start, stop?	Courtesy stop?	Diagnostics available?	Replaceable?
Motherboard	Yes	No	Yes	Yes (IPE server)
Media Bus	Yes	No	Yes	No
Time Switch	No	No	No	No
DSPs	Yes	No	Yes	No
Multimedia channels	Yes	Yes	Yes	No
Call channels	Yes	Yes	No	No
DS30X link	Yes	No	No	No

---

## Viewing component states

View the state of a component to determine the general condition of the component, including whether the component is disabled or off duty. The state of a component appears in the Maintenance section of the Maintenance page.

---

## Component states

You can determine the state of a component by looking at the State box in the Maintenance section.

State	Description
Active	The component is working and currently involved in processing a call.
Disabled	The diagnostic failed.
Idle	The component is working but not currently involved in processing a call.
InTest	A diagnostic is running on the resource or device.
Loading	The component started, which takes it out of the Off Duty state. This state occurs quickly and is immediately followed by Idle.
No resources	The hardware required for the component to operate is not installed or is not operating properly.
Not Configured	The device is not configured in CallPilot.

State	Description
	For example, a DSP is not being used because it was not allocated in the Configuration Wizard.
Off Duty	The component stopped.
Remote Off Duty	The component was taken out of service at the switch.
Shutting Down	The component is stopping. This state occurs quickly and is immediately followed by Off Duty.
Uninitiated	The call processing component has not initialized the resource.

## Alert icons

If one of the following icons appears next to a component in the tree, then the component or one of the subcomponents is experiencing a problem.

Icon	Description
	A problem exists with a subcomponent of the selected component. Expand the tree to locate the subcomponent with the problem.
	A problem exists with the selected component.

### To view the state of a hardware component

1. Run CallPilot Manager and log on.
2. In CallPilot Manager, click Maintenance, Maintenance Admin.  
The Maintenance page appears.
3. Click the plus sign (+) beside the CallPilot server to expand the component tree.
4. Continue clicking the plus sign (+) until the component with which you want to work is visible.
5. Click the hardware component with which you want to work.  
The Maintenance page refreshes to show details about the component.
6. Scroll down to the Maintenance section.
7. View the state of the selected component in the State box.

---

## Starting and stopping components

When you stop a component, you take it out of service and prevent it from operating. You must stop a component before you can replace it (if the component is replaceable) or run a diagnostic test on it.

To bring an out-of-service component back into service, you must start it.

Start and stop components from the Maintenance section on the Maintenance page.



### Important:

Avaya recommends that, if possible, you courtesy stop a component. Courtesy stop is available only at the individual channel level.

To courtesy down CallPilot, use the following tools:

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

For instructions, see [Section C: Working with the Multimedia and Channel Monitors](#) on page 63.

---

## Stop versus courtesy stop

By using either one of the following two methods of removing a component from service, you can choose how active calls are affected.

---

## Courtesy stop

A courtesy removes the component from service only after the component finishes processing the active call.

- If the component is currently processing a call, the call is not dropped; the component remains active until the call is finished.
- If the component is not currently in use, it is removed from service immediately.

Courtesy stop is preferred over a regular stop.

---

## Stop

A stop removes the component from service immediately, regardless of whether the component is currently processing calls. All active calls are dropped. Typically, you perform a stop only when severe problems that affect a large number of incoming calls occur or if your organization determines a special need for it.

---

## Components that can be started and stopped

You can start and stop only the following components.

 **Note:**

If you want to start or stop more than one or two multimedia (DSP) or call (DS30X) channels, use the Multimedia Monitor or Channel Monitor. For instructions, see [Section C: Working with the Multimedia and Channel Monitors](#) on page 63.

Component	Effect of stopping
Motherboard (IPE server)	Removes all call processing resources on the selected board from service.
Time Switch	You cannot perform maintenance administration on the time switch.
Multimedia channels	Removes the selected DSP from service.
Channels	Removes the selected DS30X channel from service.
DS30X link	Removes the selected DS30X link from service.

### To start or stop a component

1. Run CallPilot Manager and log on.
2. In CallPilot Manager, click Maintenance, Maintenance Admin.  
The Maintenance page appears.
3. Click the plus sign (+) beside the CallPilot server to expand the component tree.
4. Continue clicking the plus sign (+) until the component with which you want to work is visible.
5. Click the hardware component that you want to start or stop.  
The Maintenance page refreshes to show details about the component.

6. Scroll down to the Maintenance section.
7. Click Courtesy Stop, Stop, or Start, as required.

Button	Description
Start	If the selected component is out of service, click this button to return it to service.
Courtesy Stop	<p>Click this button to remove the selected component from service. CallPilot waits for the call to be completed before disabling the component.</p> <p> <b>Important:</b></p> <p>If you courtesy stop all components (that is, you take the entire system down), ensure that you inform all administrators, desktop messaging users, and Web messaging users so that they can log off their sessions before you proceed. The system asks you to confirm the Courtesy stop. If you click OK, the component is removed from service after all calls finish.</p>
Stop	<p>Click this button to remove the selected component from service immediately. All calls that are in progress are disconnected immediately.</p> <p> <b>Important:</b></p> <p>If you stop all components (that is, you take the entire system down), ensure that you inform all administrators, desktop messaging users, and Web messaging users so that they can log off their sessions before you proceed.</p>

---

## Running integrated diagnostics

Run diagnostic tests from the Diagnostics section on the Maintenance page in the following circumstances:

- You want to ensure that a component is operating properly after you install or reinstall it.
- The CallPilot server cannot process incoming calls, and you hope that diagnostic results explain why.

Problems include static, dropped calls, and cross talk (hearing another conversation).

---

## Before you begin



### Important:

Remove the component from service before you run the diagnostic test. See [Starting and stopping components](#) on page 55.

---

## Components that have diagnostic tests available

The following table identifies the components on which you can run diagnostics.

Component	Diagnostics available?	Replaceable?
Motherboard	Yes	Yes (IPE server)
Time Switch	No	No
Media channels	No	No
Call channels	No	No
DS30X link	No	No

---

## Diagnostic tests available for each component

The diagnostic tests that are available for each component are listed in the Diagnostic section of the Maintenance page. To view the list of diagnostic tests for a particular component, click the component in the component tree.

---

## If a diagnostic test fails or cannot be run

If a warning message appears, you cannot run the diagnostic test because a prerequisite condition is not met. If a diagnostic test fails, a message appears in a new browser window (see the example on page [9](#) on page 60).

In both cases, check the Alarm Monitor to determine the reason and the appropriate action to take. (See [Section A: Tools for isolating and fixing hardware problems](#) on page 46.)

If the Alarm Monitor and Event Browser do not provide a solution to a hardware problem, you may need to replace or service a component. If the problem is with a component that is not

replaceable because it is not a physical entity (such as the Time Switch), you must either replace its parent component or contact your Avaya technical support representative, depending on the component.

 **Important:**

Avaya recommends that you courtesy stop rather than stop a component if possible. For instructions, see [Starting and stopping components](#) on page 55

**To run a diagnostic test**

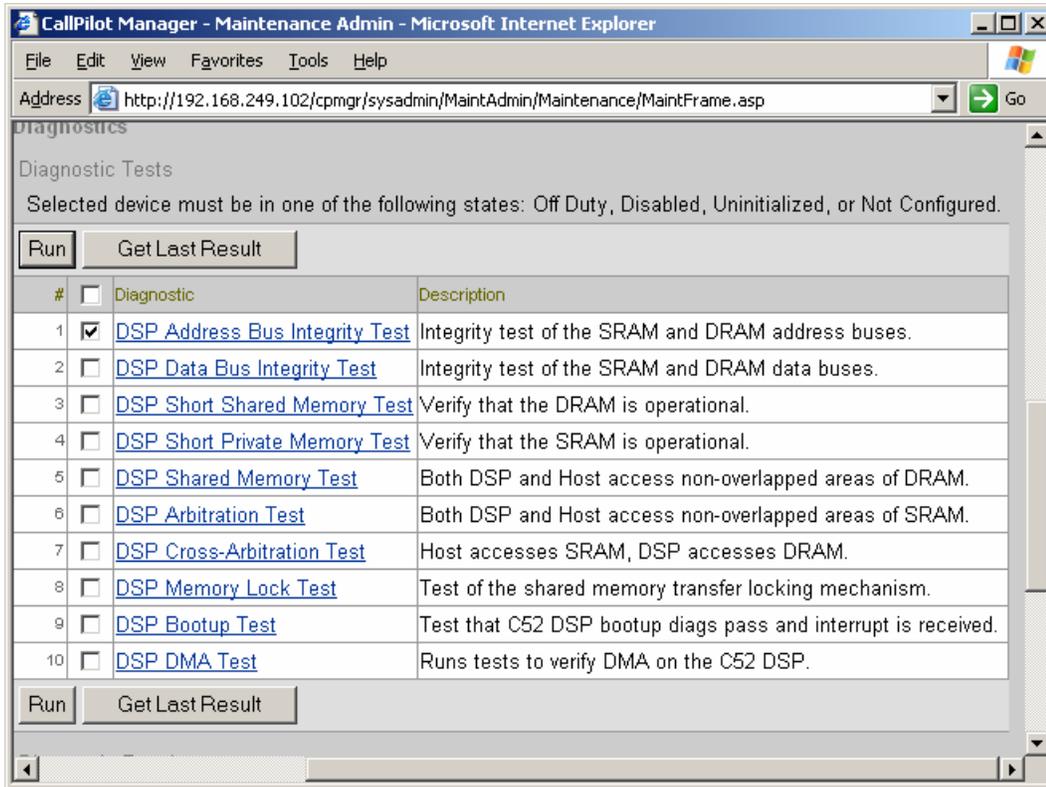
1. Run CallPilot Manager and log on.
2. In CallPilot Manager, click Maintenance, Maintenance Admin.  
The Maintenance page appears.
3. Click the plus sign (+) beside the CallPilot server to expand the component tree.
4. Continue clicking the plus sign (+) until the component with which you want to work is visible.
5. Click the hardware component for which you want to run diagnostics.  
The Maintenance page refreshes to show details about the component.
6. Scroll down to the Maintenance section, and ensure that the component is out of service.

 **Note:**

For instructions about removing the component from service, see [To start or stop a component](#) on page 56.

7. Scroll down to the Diagnostics section.

The following illustration shows the Diagnostics section for a DSP.



8. Check the check box for each diagnostic that you want to run.

 **Note:**

If you want to run all diagnostics, check the Diagnostic Description check box at the top of the list.

9. Click Run.

A new Web browser window displays the progress and results of the diagnostics.

 **Note:**

The Diagnostic Results box in the Diagnostics section displays diagnostic results when you click Get Last Result.

---

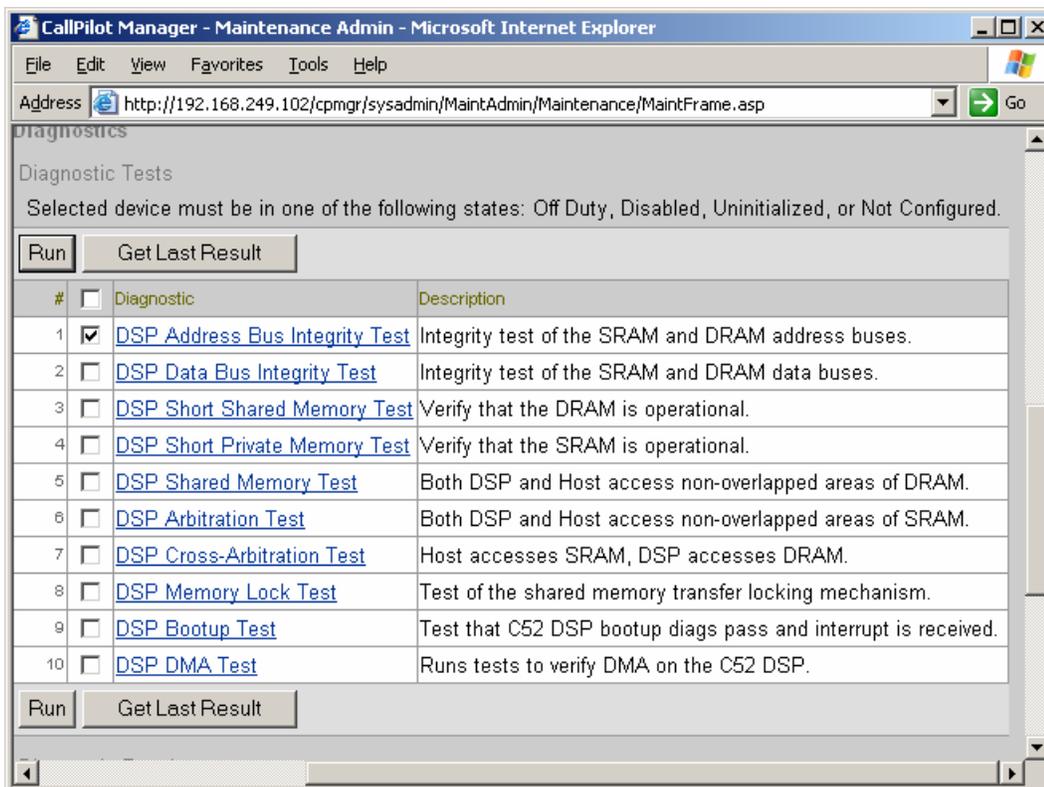
## Viewing the last diagnostic results

You can review the results of previously run diagnostics by clicking the Get Last Results button for a component.

## To view the last diagnostics result

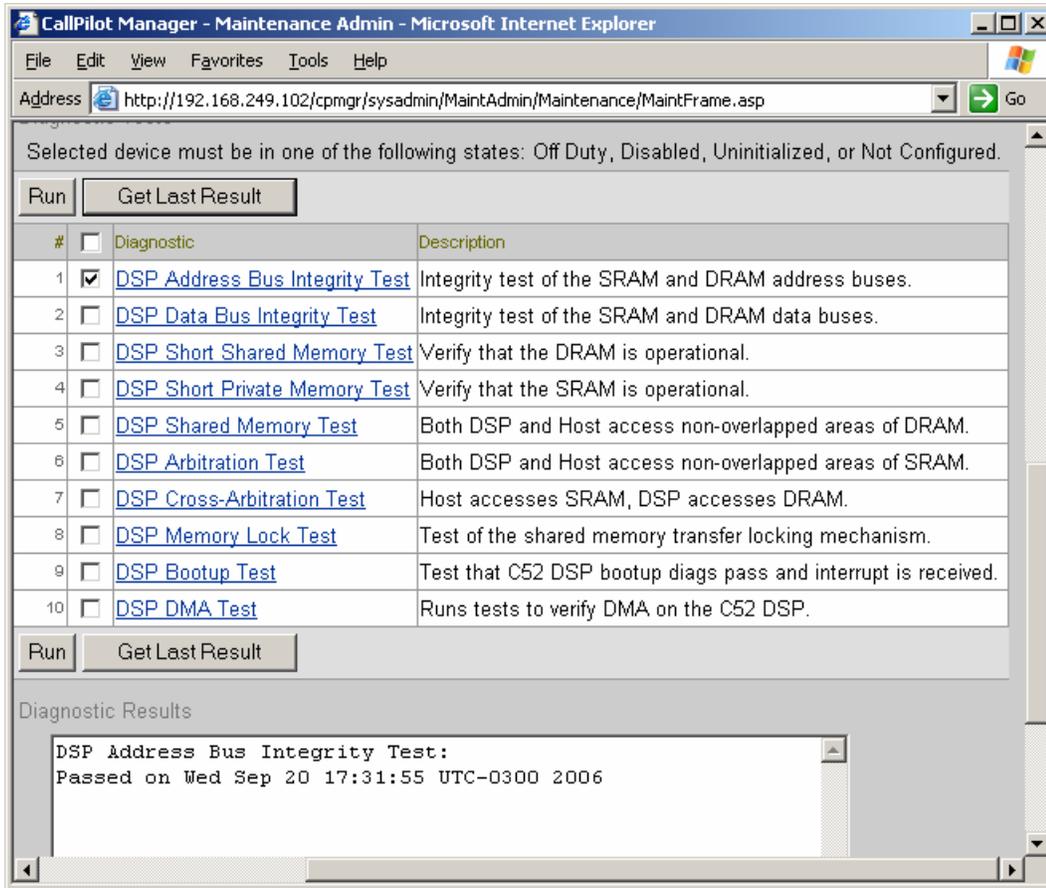
- !** **Important:**  
Avaya recommends that you courtesy stop rather than stop a component if possible. For instructions, see [Starting and stopping components](#) on page 55.

Run CallPilot Manager and log on.
- In CallPilot Manager, click Maintenance, Maintenance Admin.  
The Maintenance page appears.
- Click the plus sign (+) beside the CallPilot server to expand the component tree.
- Continue clicking the plus sign (+) until the component with which you want to work is visible.
- Click the hardware component for which you want to run diagnostics.  
The Maintenance page refreshes to show details about the component.
- Scroll down to the Diagnostics section.  
The following figure shows the Diagnostics section for a DSP.



- Check the check box for each diagnostic for which you want to review results.
- Click Get Last Result.

The results appear in the Diagnostic Results box.



---

## Last diagnostic results

The results of the last diagnostic test display the following information in the Diagnostic Results box:

- diagnostic title
- diagnostic result: pass or fail
- the date and time the test was completed

---

## Section C: Working with the Multimedia and Channel Monitors

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### In this section

[Working with the Multimedia Monitor](#) on page 63

[Working with the Channel Monitor](#) on page 64

---

## Working with the Multimedia Monitor

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

### To view or work with multimedia channel states

1. Run CallPilot Manager and log on.
2. In CallPilot Manager, click Maintenance, Multimedia Monitor.

The Multimedia Monitor page appears, showing the channels associated with each DSP.



**Note:**

For an explanation of the channel states, see the CallPilot Manager online Help.

3. Perform one of the following:

IF you want to stop or start	THEN
All of the channels associated with a DSP.	Check the check box to the left of the DSP that you want to stop or start. Repeat this step for each DSP.
Only one or several channels that are associated with a DSP.	Check the check box for each channel that you want to stop or start.

4. Click Courtesy Stop, Stop, or Start as required.

If you clicked Courtesy Stop or Stop, you are asked to confirm the courtesy stop or stop; click OK.

The selected channels change to off-duty or on-duty status, according to the action you chose.

 **Note:**

If the buttons are not available, wait a few seconds for the page to refresh.

---

## Working with the Channel Monitor

The Channel Monitor shows the status of call channels. The call channels are the connections between the server and the switch that carry the call signals to CallPilot.

### To view or work with call channel states

1. Run CallPilot Manager and log on.
2. In CallPilot Manager, click Maintenance, Channel Monitor.

The Channel Monitor page appears, showing the DS30X (also known as DS0) channels associated with each DS30X link.

 **Note:**

For an explanation of the channel states, see the CallPilot Manager online Help.

3. Perform one of the following:

IF you want to stop or start	THEN
All channels associated with a DS30X link.	Check the check box to the left of the DS30X link that you want to stop or start. Repeat this step for each DS30X link.
Only one or several channels that are associated with a DS30X link.	Check the check box for each channel that you want to stop or start.

4. Click Courtesy Stop, Stop, or Start, as required.

If you clicked Courtesy Stop or Stop, you are asked to confirm the courtesy stop or stop; click OK.

The selected channels change to off-duty or on-duty status, according to the action you chose.

 **Note:**

If the buttons are not available, wait a few seconds for the page to refresh.

# Chapter 6: Using Avaya CallPilot® system utilities

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## In this chapter

[Overview](#) on page 65

[Diagnostics Tool](#) on page 66

[PEP Maintenance utility](#) on page 68

[Session Trace](#) on page 68

[System Monitor](#) on page 73

---

## Overview

The following table lists the Avaya CallPilot system utilities.

Utility	Description
Diagnostics Tool	Allows CallPilot startup diagnostics to be enabled or disabled (turned on or off).
PEP Maintenance	Displays a list of installed PEPs and enables PEP uninstall.
Session Trace	Provides detailed information about the activity in a user's mailbox and the state of the message waiting indicator (MWI).
System Monitor	Displays the following information: <ul style="list-style-type: none"><li>• the status of all CallPilot channels</li><li>• the status of all CallPilot services</li></ul> <p> <b>Note:</b> This status is more accurate than the status the operating system provides in the Services control panel.</p> <ul style="list-style-type: none"><li>• particulars about the CallPilot System, such as names, keycodes, serial numbers, IP addresses, and system numbers</li></ul>

---

## Accessing the system utilities

All CallPilot utilities are accessible from the CallPilot server in the Start, Programs, CallPilot, System Utilities menu.

---

## Diagnostics Tool

Use the Diagnostics Tool to enable or disable CallPilot startup diagnostics.

CallPilot startup diagnostics automatically identify hardware problems that may exist when the system and services start (DSP, TimeSwitch, MediaBus).

When you disable startup diagnostics, you can save time during system maintenance operations where restarts or Call Processing services restarts are required.

Avaya recommends that you perform the following three steps:

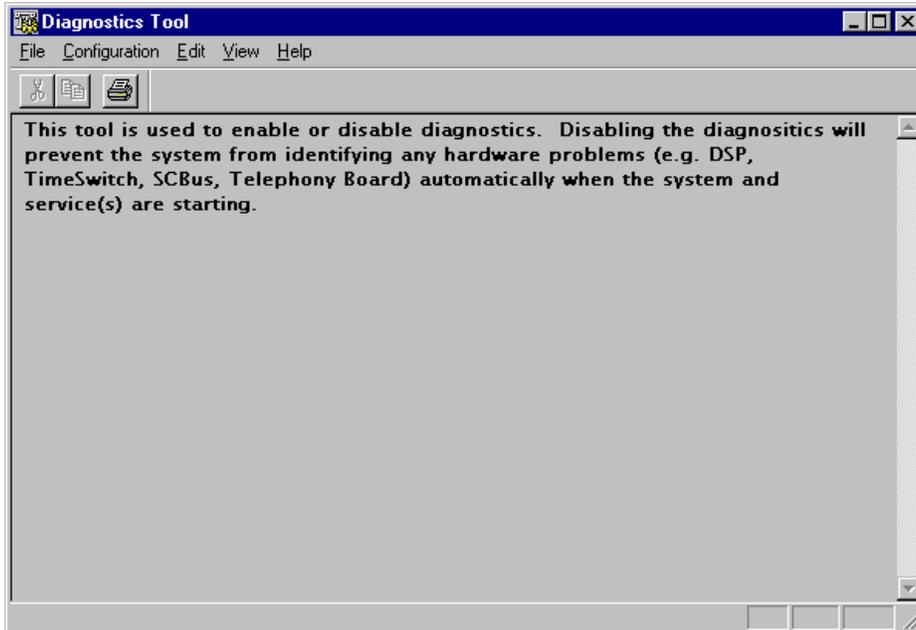
- Use the Diagnostics Tool to turn off CallPilot startup diagnostics.
- Perform system maintenance.
- Use the Diagnostics Tool to turn on CallPilot startup diagnostics.

---

## To access the Diagnostics Tool

On the Windows desktop, click Start, Programs, CallPilot, System Utilities, Diagnostic Tool.

The Diagnostics Tool window appears.



---

## To enable startup diagnostics

From the Diagnostics Tool window, select Configuration, Maintenance Startup Diag, Enable.

---

## To disable startup diagnostics

**!** Important:

Avaya recommends that you leave the startup diagnostics turned on.

When you disable CallPilot startup diagnostics, you prevent CallPilot from automatically identifying hardware problems that may exist when the system and the services start (DSP, TimeSwitch, MediaBus).

**!** Important:

SU04 (Service Update 4) for CallPilot 5.0 changes the default diagnostic settings. With SU04 installed, diagnostics do not run on a scheduled soft reboot, but run on an unscheduled hard reboot or shutdown. Consult Avaya Technology for details.

On the Diagnostics Tool window, select Configuration, Maintenance Startup Diag, Disable.

---

## PEP Maintenance utility

The PEP Maintenance utility displays a list of all installed PEPs on the server. You can also uninstall PEPS.

For information about installing or uninstalling PEPs, see the CallPilot Software Administration and Maintenance guide.

---

## To access the PEP Maintenance utility

From the Windows desktop, click Start, Programs, CallPilot, System Utilities, PEP Maintenance Utility.

The DMI Viewer window appears.

### To view a list of all installed PEPs

1. Click the component for which you want to display the PEP list.
2. Click Show PEPs.  
A list of all installed PEPs appears in the left pane.
3. If you want to review the readme file associated with a PEP, click the PEP, and then click Read.

The readme file opens in Notepad.

---

## Session Trace

The Session Trace tool displays detailed information about the activity in a user's mailbox and the state of the message waiting indicator (MWI). The session information includes the following items:

- voice messaging
- call answering
- express messaging activity (messages composed and sent, or left in a mailbox)
- the number of messages played or not played at the beginning, middle, and end of a session
- the number of deleted read messages

- the number of deleted unread messages
- messages and personal distribution lists restored into a mailbox
- the last change to the MWI (turned on or off, or untouched)

An administrator or technician use this session information to study the state of a user's mailbox and the MWI, and to use that information to follow up on user complaints. For example, a user might complain that the MWI was on, but no voice messages were in the mailbox when the user logged on. The session information might tell the administrator why the MWI was turned on.

 **Warning:**

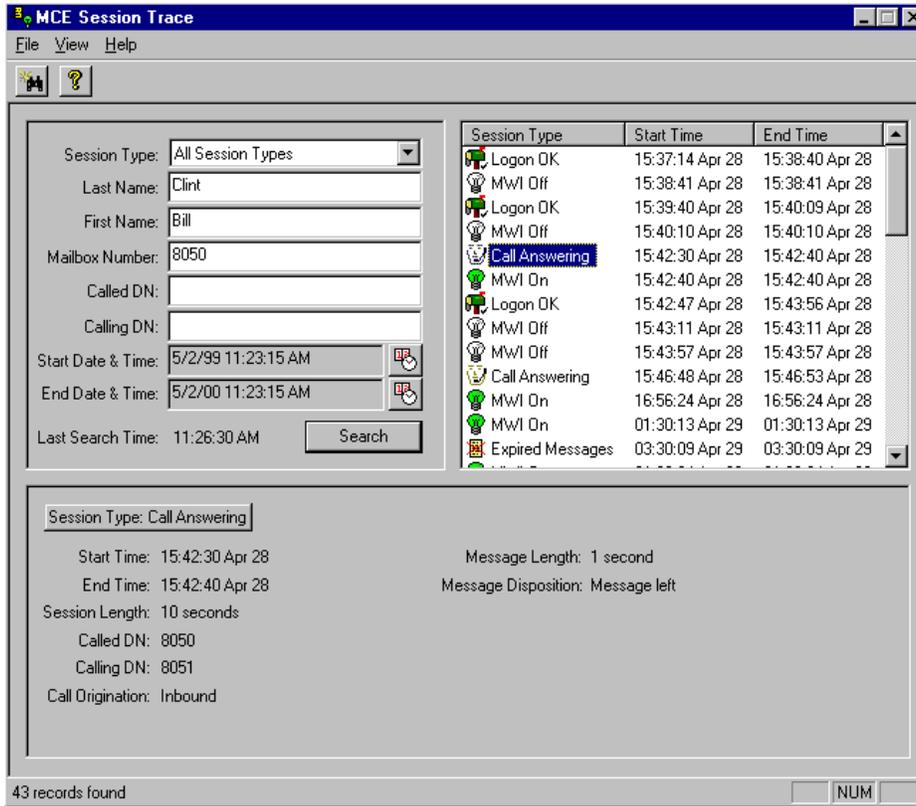
The Session Trace Tool is a resource intensive tool. It is strongly recommended to use this utility during off-peak hours. If the CP database or OMs are large, it may require a significant amount of time to perform this activity. To minimize the search time, OM data should be collected for no more than 1–2 days.

---

## To access the session trace tool

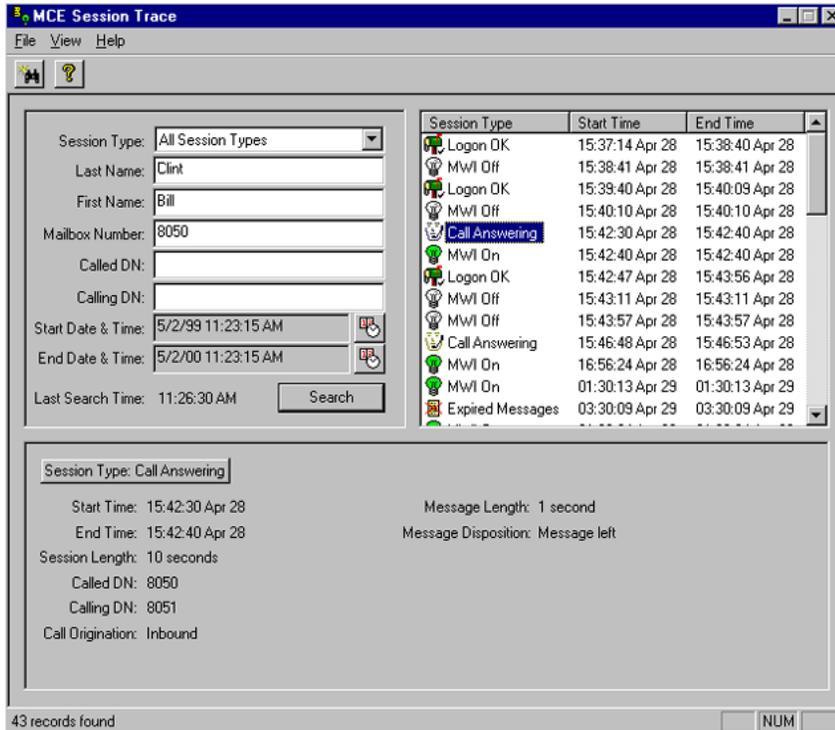
From the Windows desktop, click Start, Programs, CallPilot, System Utilities, Session Trace Tool.

The MCE Session Trace window appears.



## To find a session

1. From the Session Type list, select the type of session.



To display a list of all session types, select All Session Types.

2. Enter as much information in the search criteria boxes to identify the session you want to view.

To display a list of all users for the selected Session Type, leave the search criteria boxes blank.

3. Click Search to initiate the search.
  - a. If you did not enter any user information, a list of users matching the Session Type appears at the bottom of the window.
 

To select a user from the list, double-click the user name to display session type information.
  - b. If you selected All Session Types for a user, the session type information appears to the right of the window.

4. Double-click the session type to display the session information.

The Session Type information appears at the bottom of the window.

## Session type information

The screenshot shows the 'MCE Session Trace' application window. On the left, there are search filters: Session Type (All Session Types), Last Name (Clint), First Name (Bill), Mailbox Number (8050), Called DN, and Calling DN. Date and time filters are also present for Start Date & Time (5/2/99 11:23:15 AM) and End Date & Time (5/2/00 11:23:15 AM). A 'Search' button is at the bottom of this section.

The main area contains a table of session records:

Session Type	Start Time	End Time
Logon OK	15:37:14 Apr 28	15:38:40 Apr 28
MWI Off	15:38:41 Apr 28	15:38:41 Apr 28
Logon OK	15:39:40 Apr 28	15:40:09 Apr 28
MWI Off	15:40:10 Apr 28	15:40:10 Apr 28
Call Answering	15:42:30 Apr 28	15:42:40 Apr 28
MWI On	15:42:40 Apr 28	15:42:40 Apr 28
Logon OK	15:42:47 Apr 28	15:43:56 Apr 28
MWI Off	15:43:11 Apr 28	15:43:11 Apr 28
MWI Off	15:43:57 Apr 28	15:43:57 Apr 28
Call Answering	15:46:48 Apr 28	15:46:53 Apr 28
MWI On	16:56:24 Apr 28	16:56:24 Apr 28
MWI On	01:30:13 Apr 29	01:30:13 Apr 29
Expired Messages	03:30:09 Apr 29	03:30:09 Apr 29

The 'Call Answering' session is selected, and its details are shown in the lower section:

Session Type: Call Answering  
 Start Time: 15:42:30 Apr 28  
 End Time: 15:42:40 Apr 28  
 Session Length: 10 seconds  
 Called DN: 8050  
 Calling DN: 8051  
 Call Origination: Inbound  
 Message Length: 1 second  
 Message Disposition: Message left

At the bottom left, it says '43 records found' and there is a 'NUM' button on the right.

Figure 1: Call Answering session type information

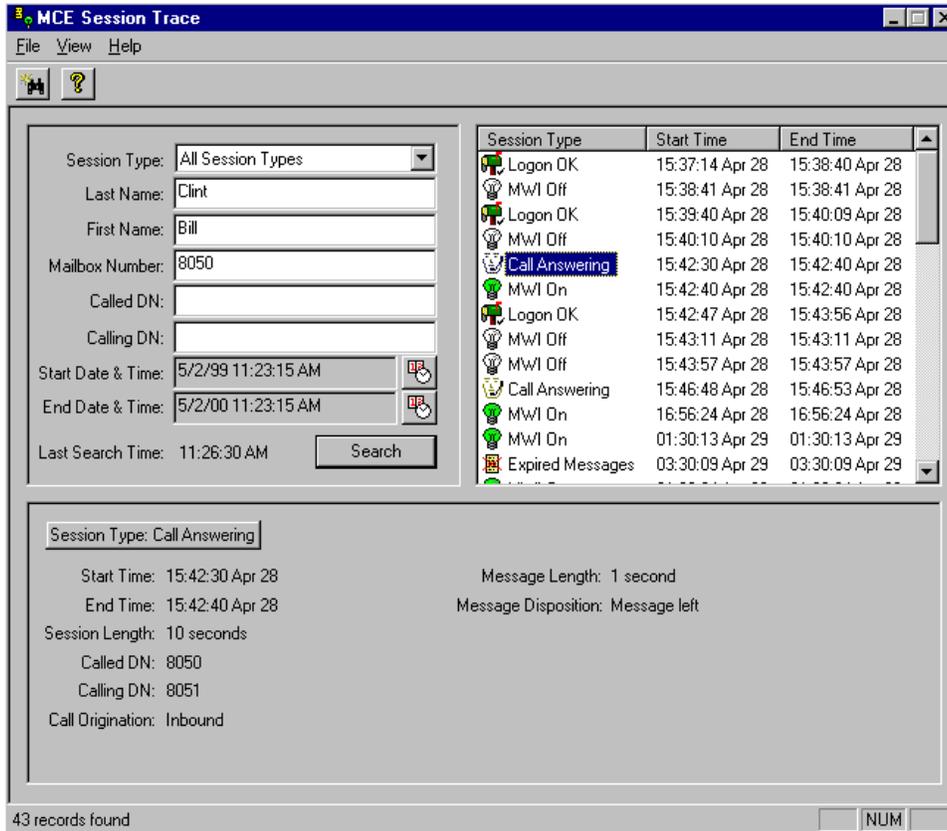


Figure 2: Logon OK session type information

## System Monitor

The System Monitor consists of three tabs, as described in the following table.

Tab	Description
Channel Monitor	Shows the status of all CallPilot services, multimedia channels (DSP channels), and call channels (DS30X channels).
System Info	Displays details about the CallPilot System, such as features purchased, keycode, serial number, and CallPilot server IP addresses.
Legend/Help	Provides a description of icons and terminology displayed in the System Monitor window.

System Monitor is a non destructive tool that does not alter the behavior of any CallPilot components.

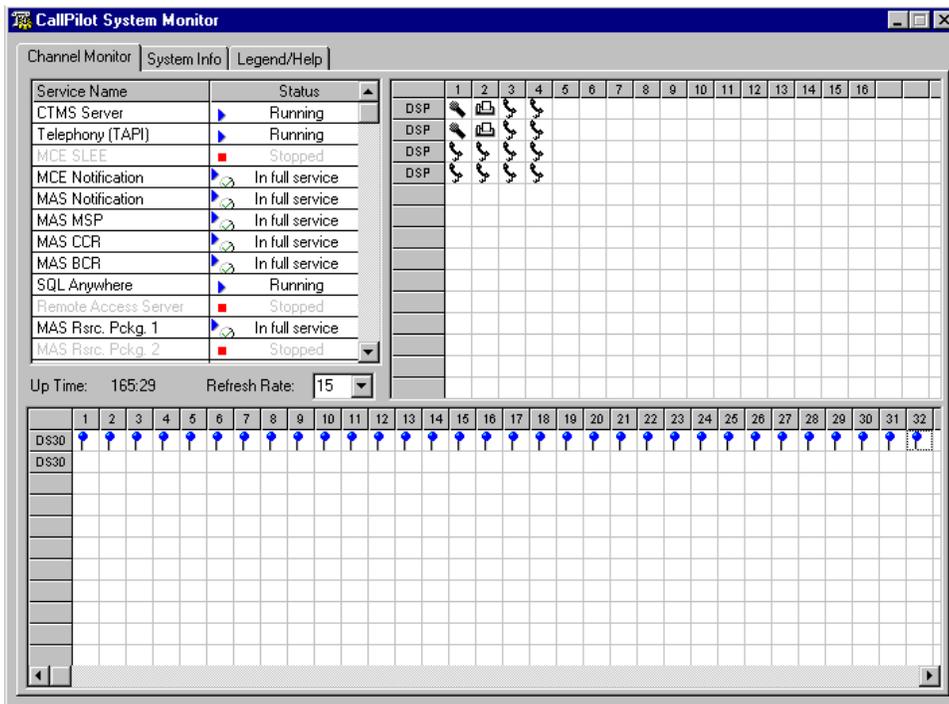
## To access the System Monitor

On the Windows desktop, click Start, Programs, CallPilot, System Utilities, System Monitor.

The CallPilot System Monitor window appears. By default, the Channel Monitor tab appears on top. Click the other tabs to view the information on those tabs.

## About the Channel Monitor tab

The following illustration shows the Channel Monitor tab, followed by a description of the contents.



## CallPilot services

The Service Name pane shows the status of services from a CallPilot perspective. The status in the operating system Services control panel may state that a service is running, but it may not actually be fully running or in service from a CallPilot perspective. See the System Monitor tool Channel Monitor tab for the true status.

The services listed under Service Name should be either running or in full service when CallPilot functions optimally. If any CallPilot services are stopped, investigate the cause. Call Avaya technical support for assistance.

 **Note:**

While you need to investigate stopped services, some services are not critical. CallPilot may continue to handle call processing even with some services stopped.

The critical services that are needed for basic CallPilot call answering are listed in the following table. For your reference, the equivalent names as they appear in the Windows Control Panel are also listed.

CallPilot SystemMonitor	Windows Control Panelequivalent
CTMS Service	CTMS Server
Telephony (TAPI)	Telephony Service
MCE SLEE	CallPilot SLEE Service
MCE Notification	CallPilot MWI Service
MAS Notification	CallPilot Notification Service
MAS CCR	CallPilot Call Channel Router
MAS BCR	CallPilot Blue Call Router
SQL Anywhere	Adaptive Server Anywhere - %ComputerName %_SQLANY
MAS MltmediaCache	CallPilot Multimedia Cache
MAS MltmediaVol1	CallPilot Multimedia Volume 1
MAS MltmediaVol102(TRP only)	CallPilot Multimedia Volume 102 (TRP only)
MAS MltmediaVol103 (TRP only)	CallPilot Multimedia Volume 103 (TRP only)
MAS Rsrc. Pckg. 1	CallPilot Resource Package1

## DSPs

In the DSP pane, each DSP is represented in a separate row. Each box in the row is one DSP channel or multimedia channel. Click the Legend/Help tab to view descriptions of the multimedia channel icons.

For 202i servers, DSPs reside on the motherboard.

DSPs are distributed as follows. The 202i server contains four DSPs located on the motherboard.

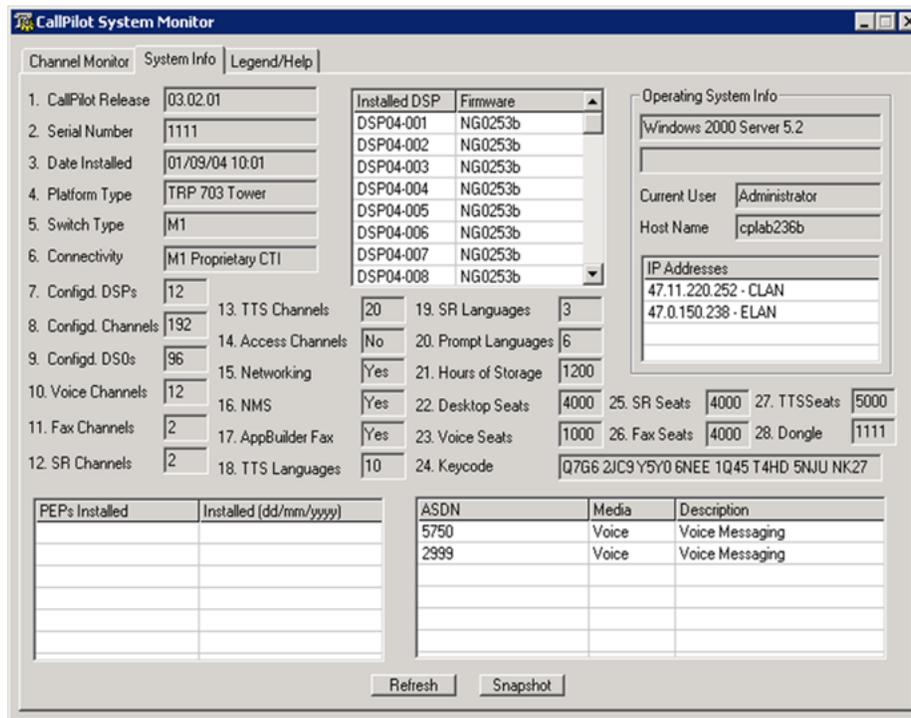
## DS30X links

In the DS30X link pane, each DS30 row represents a separate DS30X link (also referred to as a DS30 link). Each box in the row represents one DS30X channel.

For the 202i server, the DS30X link to the switch is supported by the server connection to the switch backplane.

## About the System Info tab

The following illustration shows the System Info tab.

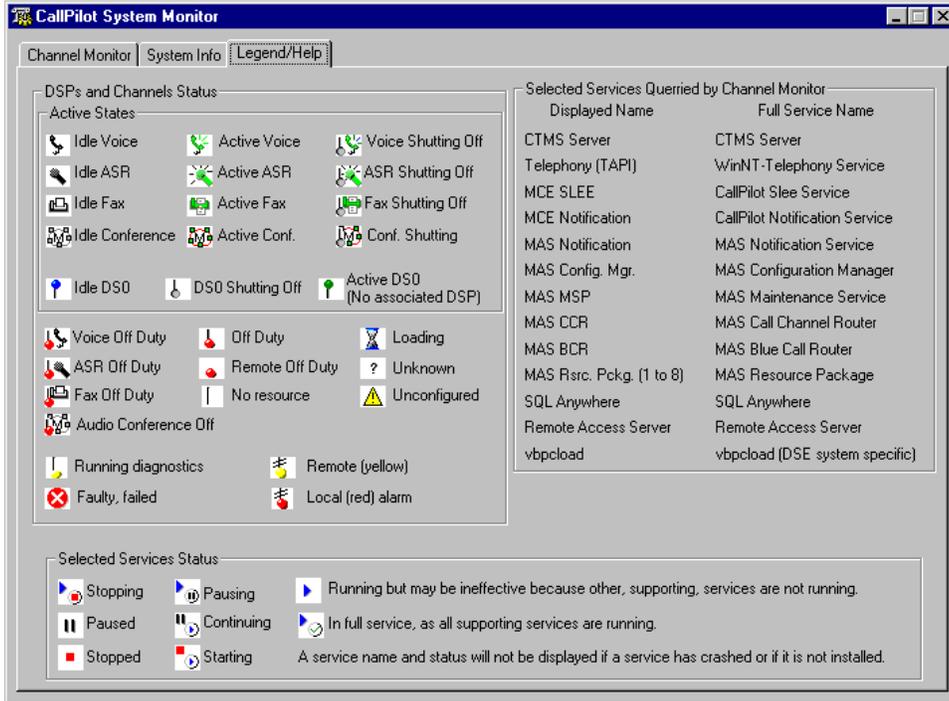


The numbered items provide information about the purchased features . Information about the underlying operating system, including the server IP addresses, is in the top right corner.

PEP information and configured Service DNs are in the bottom part of the window.

## About the Legend/Help tab

The following illustration shows the Legend/Help tab. Consult this tab for descriptions of the icons on the Channel Monitor tab.





# Chapter 7: Performing hardware maintenance and mechanical assembly

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## In this chapter

[Overview](#) on page 79

[Removing the server from the switch](#) on page 80

[Replacing the server](#) on page 81

[Replacing the hard drive](#) on page 82

[Replacing the software feature key](#) on page 86

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## Overview

Before you can replace components, you must perform the following tasks:

- Gather the tools you need.
- Remove the 202i server from the switch.
- Become familiar with component layout on the 202i server.

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## Equipment required

You need the following tools, based on the component you are replacing:

- antistatic wrist strap or antistatic mat
- Phillips No. 1 and No. 2 screwdrivers
- tweezers

## Before you begin

Shut down the server (Windows) software. Then remove the server from the switch and place it on a static-resistant surface, with the component side facing up.

If you need to replace the entire 202i server, review [Replacing the server](#) on page 81. Then review the procedures to install the server and conduct diagnostic tests.

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## Removing the server from the switch

You must remove the server from the switch before you replace the following components:

- hard drive
  - software feature key (dongle)
- 

## Equipment required

The following equipment is required for this procedure:

- antistatic mat
- antistatic wrist strap

### To remove the server from the switch

1. Power down the server by unseating it from the back plane. Wait 15 seconds to complete powering down, then remove the server.  
  
For instructions, see the CallPilot Installation and Configuration Task List NN44200-306.
2. Turn off the monitor.
3. Disconnect all the cables.
4. Open the lock latches at the top and bottom of the server.
5. Grip the faceplate, and then unseat the server from the switch. Wait 15 seconds, and then remove the server.
6. Place the server on a clean, static-resistant surface.

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## What is next?

Replace and upgrade components, as required.

---

## Replacing the server

Replace the server only if you are instructed to do so. For activities that are not supported as field procedures, you must return the server to Avaya for service.

This section summarizes the procedure to replace the server. References are made to specific component replacement procedures where applicable.

### To replace the server

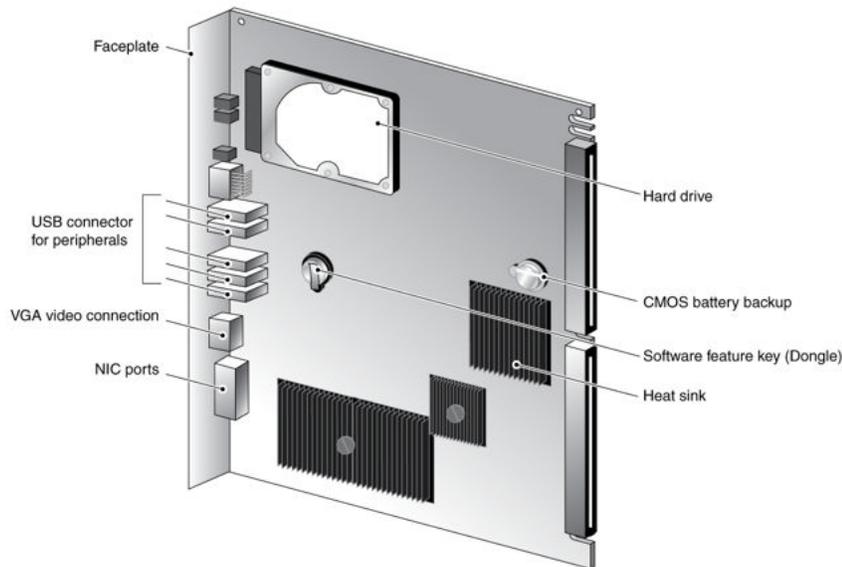
1. If the installed server is functional, perform a full backup of the hard disk as a precautionary measure.
2. Shut down the installed server (see "Starting up and shutting down the Avaya CallPilot® server" in the Avaya CallPilot Installation and Configuration Task List).
3. Power down the server by unseating it from the back plane. Wait 15 seconds to complete powering down, and then remove the server.
4. Disconnect all peripherals from the server.
5. Remove the server from the switch (see [Removing the server from the switch](#) on page 80).
6. Remove the software feature key (dongle) from the defective server, and then install it in the replacement server (see [Replacing the software feature key](#) on page 86).
7. Remove the hard drive from the defective server, and then install it in the replacement server (see [To remove the hard drive](#) on page 83).
8. Install the replacement server on the switch, and then reconnect the peripherals.
9. Boot the server to the operating system.
10. Run the Configuration Wizard to configure the new hardware.

For instructions, see the CallPilot <switch model> and CallPilot Server Configuration guide for your switch and server.

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## 202i server component diagram

The following diagram shows a completely assembled 202i server.



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## Replacing the hard drive

The hard drive is secured in place by four screws through the motherboard.

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## Equipment required

The following equipment is required for this procedure:

- antistatic wrist strap
- Phillips No. 1 screwdriver
- nonmetallic pencil

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## Before you begin

Before you replace the hard drive, review the following:

[Removing the server from the switch](#) on page 80

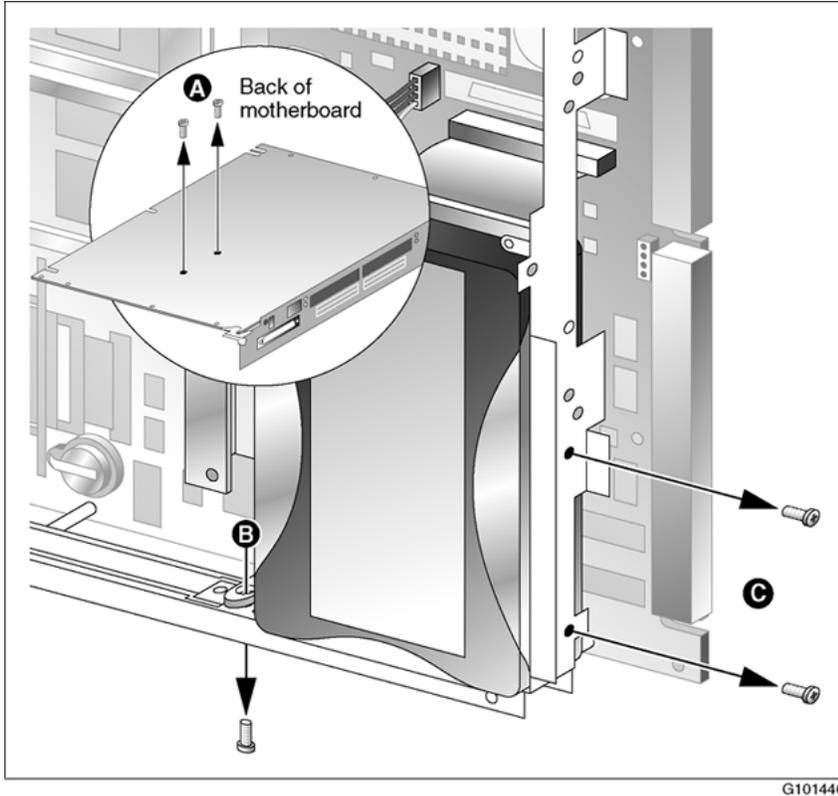
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## Hard drive assembly diagram

Follow this procedure to assemble the hard drive.

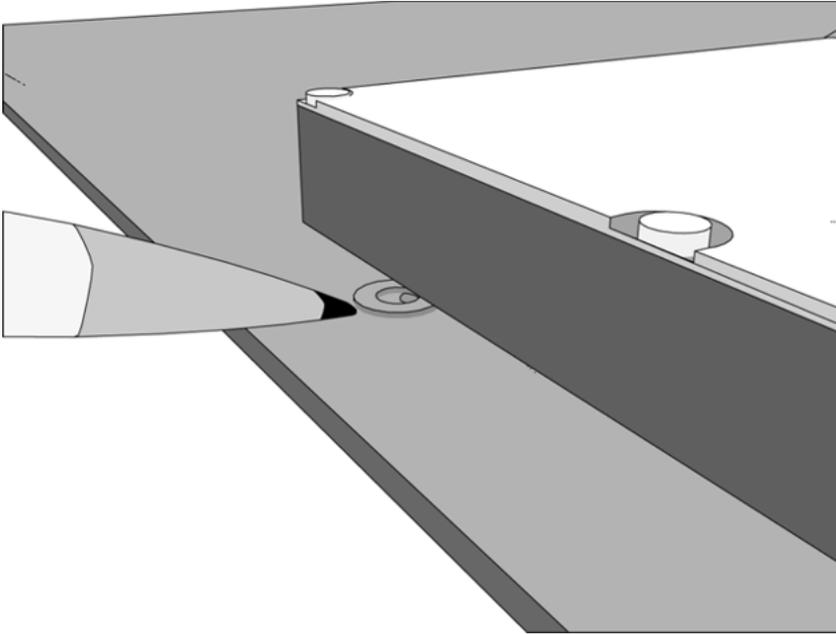
### To remove the hard drive

1. Ensure that the server is hard drive assembly side down on the antistatic mat.
2. Perform the following steps:
  - a. Remove the four screws that fasten the hard drive to the motherboard and set aside the four fiber washers that are between the hard drive and the motherboard for reuse.
  - b. Turn the server over and slide the hard drive toward the backplane connectors to remove it from the socket.

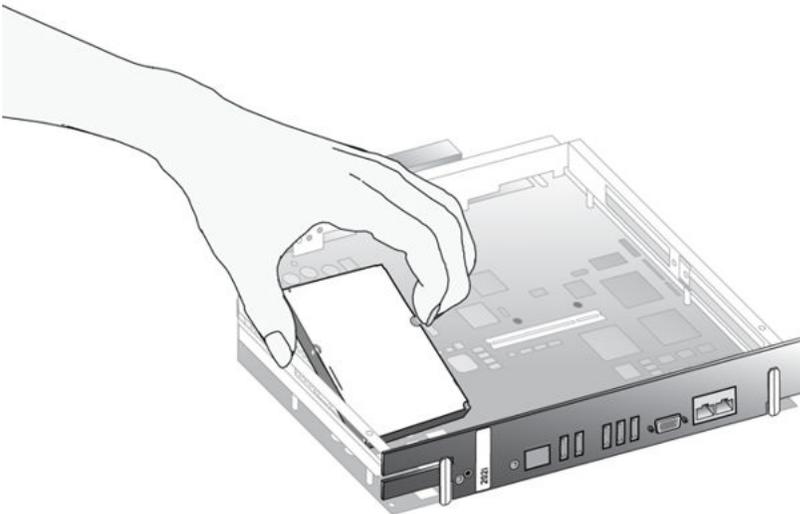


3. Perform the following steps:

- a. Remove the new hard drive from the antistatic bag and slide the hard drive part way into the drive socket.
- b. Using a nonmetallic object, such as a pencil, slide a fiber washer between the drive and the motherboard roughly aligning it with one of the four mounting holes.
- c. Hold the hard drive against the motherboard with one hand and turn the board over to access the mounting hole.
- d. Use the nonmetallic object to align the fiber washer with the mounting hole.



- a. Insert one of the four screws and use the screw driver to turn the screw one or two rotations to partially tighten the screw,
  - b. Repeat steps c through e to place the remaining three fiber washers and partially tighten the three remaining screws in the remaining mounting holes.
4. Slide the hard drive the remainder of the way into the socket on the motherboard.



5. Fully tighten the four hard drive retaining screws.
6. Replace the server in the shelf.

## What is next?

Review the procedures for installing the server and conducting diagnostic tests.

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## Replacing the software feature key

The software feature key (dongle) stores the unique serial number of the server. If you must replace the 202i server, use this procedure to move the software feature key from the faulty server to the replacement server.

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## Equipment required

The following equipment is required for this procedure:

- flat blade screwdriver
  - tweezers
- 

## Before you begin

Before you replace the software feature key, review [Removing the server from the switch](#) on page 80.

### To replace the software feature key

1. Use the flat blade of the screwdriver to lift the clip that secures the software feature key to the motherboard.



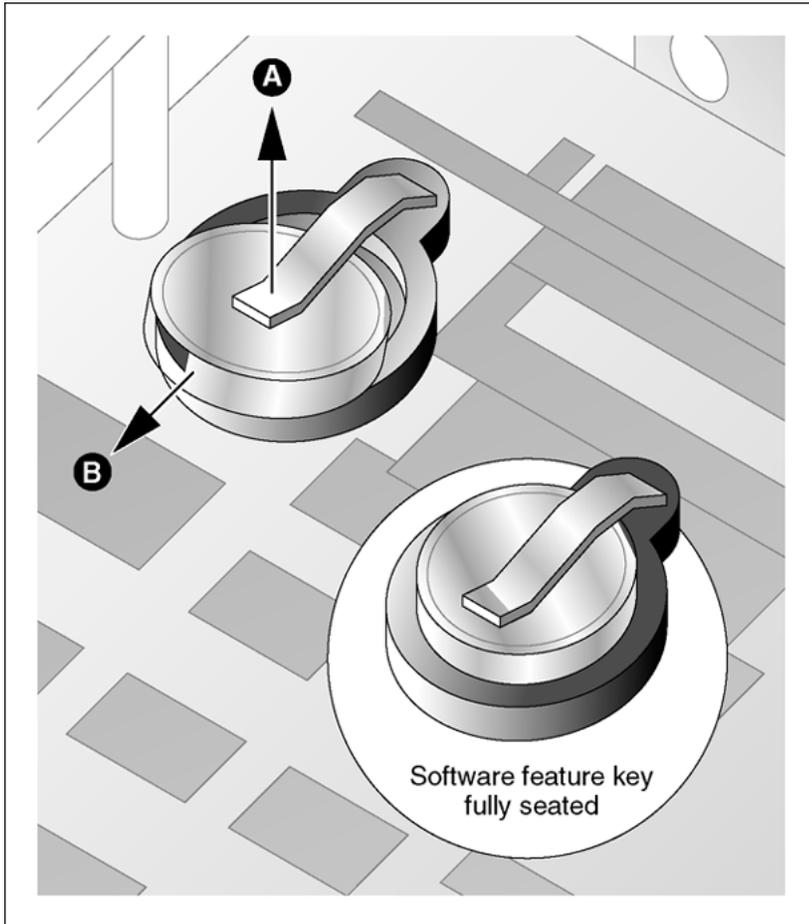
**Caution:**

Risk of equipment damage

Ensure that you do not bend the clip so that it can no longer apply downward pressure.

2. Use the tweezers to pull the software feature key from the socket.
3. Insert the software feature key into the socket on the replacement server, lip side up.

When the software feature key (dongle) is correctly installed, it is firmly seated in the socket.



G101539

Performing hardware maintenance and mechanical assembly

## Index

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### Numerics

202i server	
startup failure	
8051, what to do .....	<a href="#">29</a>
CallPilot, what to do .....	<a href="#">29</a>

---

### A

Alarm Monitor, using .....	<a href="#">48</a>
alarms	
about .....	<a href="#">46</a> , <a href="#">48</a>
investigating .....	<a href="#">48</a>
alert icons, component states .....	<a href="#">54</a>
application event log	
description .....	<a href="#">33</a>
arp command .....	<a href="#">40</a>
parameters and descriptions .....	<a href="#">40</a>
running from the operating system .....	<a href="#">40</a>
syntax .....	<a href="#">40</a>

---

### C

call channels	
diagnostics, running .....	<a href="#">50</a>
disabling .....	<a href="#">50</a>
working with .....	<a href="#">64</a>
CallPilot	
software, reinstalling .....	<a href="#">10</a>
utilities	
Diagnostics Tool .....	<a href="#">65</a>
PEP Maintenance .....	<a href="#">65</a> , <a href="#">68</a>
Session Trace .....	<a href="#">65</a> , <a href="#">69</a>
System Monitor .....	<a href="#">65</a>
CallPilot Manager	
Alarm Monitor, using .....	<a href="#">48</a>
alarms	
about .....	<a href="#">46</a> , <a href="#">48</a>
investigating .....	<a href="#">48</a>
alert icons, component states .....	<a href="#">54</a>
Channel Monitor, using .....	<a href="#">50</a> , <a href="#">64</a>
Event Browser, using .....	<a href="#">49</a>
events	
about .....	<a href="#">46</a> , <a href="#">49</a>
investigating .....	<a href="#">49</a>
fault management	

alarm notification .....	<a href="#">46</a>
event processing .....	<a href="#">46</a>
Maintenance page	
Diagnostics section .....	<a href="#">51</a>
General section .....	<a href="#">51</a>
Maintenance section .....	<a href="#">51</a>
purpose .....	<a href="#">51</a>
using .....	<a href="#">49</a>
Multimedia Monitor, using .....	<a href="#">50</a> , <a href="#">63</a>
CallPilot services, Channel Monitor tab .....	<a href="#">74</a>
Channel Monitor tab .....	<a href="#">74</a> – <a href="#">76</a>
CallPilot services .....	<a href="#">74</a>
critical .....	<a href="#">74</a>
DS30X links pane in .....	<a href="#">76</a>
DSP pane in .....	<a href="#">75</a>
Channel Monitor, using .....	<a href="#">50</a> , <a href="#">64</a>
channels	
call, working with .....	<a href="#">64</a>
diagnostics, running .....	<a href="#">50</a>
disabling .....	<a href="#">50</a>
multimedia, working with .....	<a href="#">63</a>
commands, TCP/IP	
arp .....	<a href="#">40</a>
ipconfig .....	<a href="#">36</a>
nbtstat .....	<a href="#">41</a>
netstat .....	<a href="#">42</a>
ping .....	<a href="#">37</a>
tracert .....	<a href="#">38</a>
components	
CallPilot Manager maintenance activities .....	<a href="#">52</a>
dependencies .....	<a href="#">47</a>
diagnostics that can be run .....	<a href="#">58</a>
diagnostics-eligible .....	<a href="#">58</a>
list .....	<a href="#">51</a>
replacing .....	<a href="#">12</a> , <a href="#">13</a>
start, about .....	<a href="#">55</a> , <a href="#">56</a>
starting .....	<a href="#">56</a>
states	
Alert icons .....	<a href="#">54</a>
description .....	<a href="#">53</a>
viewing .....	<a href="#">54</a>
stop, about .....	<a href="#">55</a> , <a href="#">56</a>
stopping .....	<a href="#">56</a>
Courtesy stop, description .....	<a href="#">55</a>
CRI (fault status), what to do .....	<a href="#">27</a>
critical services, CallPilot .....	<a href="#">74</a>
critical startup diagnostics .....	<a href="#">25</a>

customer service .....	<a href="#">7</a>	failure codes, diagnostics .....	<a href="#">27</a>
<hr/>		<hr/>	
<b>D</b>		fault management	
diagnostics		alarm notification .....	<a href="#">46</a>
critical startup .....	<a href="#">25</a>	event processing .....	<a href="#">46</a>
failure codes .....	<a href="#">27</a>	<hr/>	
integrated		<b>G</b>	
running .....	<a href="#">57, 58</a>	General section, Maintenance page .....	<a href="#">51</a>
troubleshooting failures .....	<a href="#">58</a>	<hr/>	
when to run .....	<a href="#">57</a>	<b>H</b>	
last results		hard drive	
description .....	<a href="#">62</a>	LED .....	<a href="#">22</a>
viewing .....	<a href="#">60</a>	hardware maintenance	
noncritical OS and switch .....	<a href="#">26</a>	components, replacing .....	<a href="#">12</a>
startup .....	<a href="#">18</a>	performing .....	<a href="#">10</a>
TCP/IP .....	<a href="#">32, 36–38, 40–42</a>	preparing for .....	<a href="#">10</a>
arp .....	<a href="#">40</a>	hardware problems, detecting .....	<a href="#">47</a>
ipconfig .....	<a href="#">36</a>	HEX display	
nbtstat .....	<a href="#">41</a>	codes .....	<a href="#">23, 24</a>
netstat .....	<a href="#">42</a>	location on 202i server .....	<a href="#">19</a>
ping .....	<a href="#">37</a>	purpose .....	<a href="#">18</a>
tracert .....	<a href="#">38</a>	<hr/>	
Diagnosics section, Maintenance page .....	<a href="#">51</a>	<b>I</b>	
diagnostics tool		integrated diagnostics	
CallPilot .....	<a href="#">65, 66</a>	running .....	<a href="#">58</a>
diagrams		troubleshooting failures .....	<a href="#">58</a>
202i server		when to run .....	<a href="#">57</a>
HEX display, location .....	<a href="#">19</a>	ipconfig command .....	<a href="#">36</a>
LEDs, location .....	<a href="#">19</a>	flags and descriptions .....	<a href="#">36</a>
display, HEX		running from the operating system .....	<a href="#">36</a>
codes .....	<a href="#">23, 24</a>	syntax .....	<a href="#">36</a>
location .....	<a href="#">19</a>	ipconfig default .....	<a href="#">36</a>
distributor .....	<a href="#">7</a>	<hr/>	
documentation .....	<a href="#">7</a>	<b>L</b>	
<hr/>		LEDs	
<b>E</b>		drive .....	<a href="#">22</a>
Event Browser, using .....	<a href="#">49</a>	location on 202i server .....	<a href="#">19</a>
event log		network .....	<a href="#">21</a>
system .....	<a href="#">33</a>	power status .....	<a href="#">19, 20</a>
event logs		purpose .....	<a href="#">18</a>
application .....	<a href="#">33</a>	Legend/Help tab .....	<a href="#">77</a>
security .....	<a href="#">33</a>	logs	
types, description .....	<a href="#">33</a>	event, viewing .....	<a href="#">33</a>
viewing .....	<a href="#">33</a>	types, viewing .....	<a href="#">33</a>
events		<hr/>	
about .....	<a href="#">46, 49</a>	<b>F</b>	
investigating .....	<a href="#">49</a>	FAIL (fault status), what to do .....	<a href="#">27</a>
<hr/>		<hr/>	

---

**M**

maintenance	
activities by component .....	<a href="#">52</a>
preparing for .....	<a href="#">10, 13</a>
Maintenance page, CallPilot Manager	
Diagnostics section .....	<a href="#">51</a>
General section .....	<a href="#">51</a>
Maintenance section .....	<a href="#">51</a>
purpose .....	<a href="#">51</a>
using .....	<a href="#">49</a>
MAJ (fault status), what to do .....	<a href="#">27</a>
MIN (fault status), what to do .....	<a href="#">27</a>
multimedia channels, working with .....	<a href="#">63</a>
Multimedia Monitor, using .....	<a href="#">50, 63</a>

---

**N**

nbtstat command .....	<a href="#">41</a>
parameters and descriptions .....	<a href="#">41</a>
running from the operating system .....	<a href="#">41</a>
syntax .....	<a href="#">41</a>
netstat command .....	<a href="#">42</a>
parameters and descriptions .....	<a href="#">42</a>
running from the operating system .....	<a href="#">42</a>
syntax .....	<a href="#">42</a>
network LED .....	<a href="#">21</a>
noncritical OS and switch diagnostics .....	<a href="#">26</a>

---

**O**

operating system	
reinstalling .....	<a href="#">10</a>
system event log, viewing .....	<a href="#">33</a>
OS and switch diagnostics, noncritical .....	<a href="#">26</a>

---

**P**

parts, obtaining replacement .....	<a href="#">13</a>
PEP Maintenance utility .....	<a href="#">65, 68</a>
ping command .....	<a href="#">37</a>
parameters and descriptions .....	<a href="#">37</a>
running from the operating system .....	<a href="#">37</a>
syntax .....	<a href="#">37</a>
power status LED .....	<a href="#">19, 20</a>

---

**R**

replacement parts, obtaining .....	<a href="#">13</a>
reseller .....	<a href="#">7</a>

---

resources, troubleshooting .....	<a href="#">12</a>
----------------------------------	--------------------

---

**S**

security event log	
description .....	<a href="#">33</a>
server, 202i	
startup failure	
8051, what to do .....	<a href="#">29</a>
CallPilot, what to do .....	<a href="#">29</a>
Session Trace utility .....	<a href="#">65, 69</a>
software	
maintenance, preparing for .....	<a href="#">10</a>
reinstalling .....	<a href="#">10</a>
startup	
diagnostics .....	<a href="#">18, 25, 26</a>
critical .....	<a href="#">25</a>
noncritical .....	<a href="#">26</a>
failure	
8051, what to do .....	<a href="#">29</a>
CallPilot, what to do .....	<a href="#">29</a>
sequence, description .....	<a href="#">27</a>
Stop, description .....	<a href="#">56</a>
system	
event log, viewing .....	<a href="#">33</a>
problems, resolving .....	<a href="#">10, 11</a>
rebuild, performing .....	<a href="#">10</a>
system event log	
description .....	<a href="#">33</a>
System Info tab .....	<a href="#">76</a>
System Monitor .....	<a href="#">65, 74, 76, 77</a>
Channel Monitor tab .....	<a href="#">74</a>
Legend/Help tab .....	<a href="#">77</a>
System Info tab .....	<a href="#">76</a>
using .....	<a href="#">74</a>
system utilities	
Diagnostics Tool .....	<a href="#">66</a>
System Monitor .....	<a href="#">74</a>

---

**T**

TCP/IP diagnostics .....	<a href="#">32, 36–38, 40–42</a>
arp .....	<a href="#">40</a>
ipconfig .....	<a href="#">36</a>
nbtstat .....	<a href="#">41</a>
netstat .....	<a href="#">42</a>
ping .....	<a href="#">37</a>
tracert .....	<a href="#">38</a>
tracert command .....	<a href="#">38, 39</a>
parameters and descriptions .....	<a href="#">39</a>
running from the operating system .....	<a href="#">39</a>

syntax .....	<a href="#">39</a>
training .....	<a href="#">7</a>
troubleshooting	
overview .....	<a href="#">10</a> , <a href="#">11</a>
resources .....	<a href="#">11</a> , <a href="#">12</a>
in this guide .....	<a href="#">11</a>

---

## U

utilities

Diagnostics Tool .....	<a href="#">65</a> , <a href="#">66</a>
PEP Maintenance .....	<a href="#">65</a> , <a href="#">68</a>
Session Trace .....	<a href="#">65</a> , <a href="#">69</a>
System Monitor .....	<a href="#">65</a> , <a href="#">74</a>

---

## W

WARN (fault status), what to do .....	<a href="#">27</a>
---------------------------------------	--------------------