Troubleshooting Guide

Avaya Business Communications Manager

Document Status: Standard
Document Number: NN40170-700
Document Version: 02.02
Date: June 2010
© 2010 Avaya Inc. All Rights Reserved.

Notices
While reasonable efforts have been made to ensure that the information in this document is complete and accurate at the time of printing, Avaya assumes no liability for any errors. Avaya reserves the right to make changes and corrections to the information in this document without the obligation to notify any person or organization of such changes.

Documentation disclaimer
Avaya shall not be responsible for any modifications, additions, or deletions to the original published version of this documentation unless such modifications, additions, or deletions were performed by Avaya. End User agree to indemnify and hold harmless Avaya, Avaya’s agents, servants and employees against all claims, lawsuits, demands and judgments arising out of, or in connection with, subsequent modifications, additions or deletions to this documentation, to the extent made by End User.

Link disclaimer
Avaya is not responsible for the contents or reliability of any linked Web sites referenced within this site or documentation(s) provided by Avaya. Avaya is not responsible for the accuracy of any information, statement or content provided on these sites and does not necessarily endorse the products, services, or information described or offered within them. Avaya does not guarantee that these links will work all the time and has no control over the availability of the linked pages.

Warranty
Avaya provides a limited warranty on this product. Refer to your sales agreement to establish the terms of the limited warranty. In addition, Avaya’s standard warranty language, as well as information regarding support for this product, while under warranty, is available to Avaya customers and other parties through the Avaya Support Web site: http://www.avaya.com/support
Please note that if you acquired the product from an authorized reseller, the warranty is provided to you by said reseller and not by Avaya.

Licenses
THE SOFTWARE LICENSE TERMS AVAILABLE ON THE AVAYA WEBSITE, HTTP://SUPPORT.AVAYA.COM/LICENSEINFO/ ARE APPLICABLE TO ANYONE WHO DOWNLOADS, USES AND/OR INSTALLS AVAYA SOFTWARE, PURCHASED FROM AVAYA INC., ANY AVAYA AFFILIATE, OR AN AUTHORIZED AVAYA RESELLER (AS APPLICABLE) UNDER A COMMERCIAL AGREEMENT WITH AVAYA OR AN AUTHORIZED AVAYA RESELLER. UNLESS OTHERWISE AGREED TO BY AVAYA IN WRITING, AVAYA DOES NOT EXTEND THIS LICENSE IF THE SOFTWARE WAS OBTAINED FROM ANYONE OTHER THAN AVAYA, AN AVAYA AFFILIATE OR AN AVAYA AUTHORIZED RESELLER, AND AVAYA RESERVES THE RIGHT TO TAKE LEGAL ACTION AGAINST YOU AND ANYONE ELSE USING OR SELLING THE SOFTWARE WITHOUT A LICENSE. BY INSTALLING, DOWNLOADING OR USING THE SOFTWARE, OR AUTHORIZING OTHERS TO DO SO, YOU, ON BEHALF OF YOURSELF AND THE ENTITY FOR WHOM YOU ARE INSTALLING, DOWNLOADING OR USING THE SOFTWARE (HEREINAFTER REFERRED TO INTERCHANGEABLY AS “YOU” AND “END USER”), AGREE TO THESE TERMS AND CONDITIONS AND CREATE A BINDING CONTRACT BETWEEN YOU AND AVAYA INC. OR THE APPLICABLE AVAYA AFFILIATE (“AVAYA”).

Copyright
Except where expressly stated otherwise, no use should be made of the Documentation(s) and Product(s) provided by Avaya. All content in this documentation(s) and the product(s) provided by Avaya including the selection, arrangement and design of the content is owned either by Avaya or its licensors and is protected by copyright and other intellectual property laws including the sui generis rights relating to the protection of databases. You may not modify, copy, reproduce, republish, upload, post, transmit or distribute in any way any content, in whole or in part, including any code and software. Unauthorized reproduction, transmission, dissemination, storage, and or use without the express written consent of Avaya can be a criminal, as well as a civil offense under the applicable law.

Third Party Components
Certain software programs or portions thereof included in the Product may contain software distributed under third party agreements (“Third Party Components”), which may contain terms that expand or limit rights to use certain portions of the Product (“Third Party Terms”). Information regarding distributed Linux OS source code (for those Products that have distributed the Linux OS source code), and identifying the copyright holders of the Third Party Components and the Third Party Terms that apply to them is available on the Avaya Support Web site: http://support.avaya.com/Copyright.

Trademarks
The trademarks, logos and service marks (“Marks”) displayed in this site, the documentation(s) and product(s) provided by Avaya are the registered or unregistered Marks of Avaya, its affiliates, or other third parties. Users are not permitted to use such Marks without prior written consent from Avaya or such third party which may own the Mark. Nothing contained in this site, the documentation(s) and product(s) should be construed as granting, by implication, estoppel, or otherwise, any license or right in and to the Marks without the express written permission of Avaya or the applicable third party. Avaya is a registered trademark of Avaya Inc. All non-Avaya trademarks are the property of their respective owners.

Downloading documents
For the most current versions of documentation, see the Avaya Support. Web site: http://www.avaya.com/support

Contact Avaya Support
Avaya provides a telephone number for you to use to report problems or to ask questions about your product. The support telephone number is 1-800-242-2121 in the United States. For additional support telephone numbers, see the Avaya Web site: http://www.avaya.com/support
# Contents

## Chapter 1
**New in this release** ................................................. 7
Features ........................................................................... 7

## Chapter 2
**Introduction** ............................................................. 9
Purpose ............................................................................ 9
Audience .......................................................................... 9
Organization ..................................................................... 9
Acronyms ......................................................................... 10
Symbols and conventions used in this guide .................. 12

## Chapter 3
**Hardware Troubleshooting** ........................................ 15
Navigation ......................................................................... 15
LAN IP Packet Capture .................................................. 15
Troubleshooting Avaya BCM hardware ......................... 16
  Check the power source ................................................ 16
  Check LED indicators ..................................................... 17
    Avaya BCM450 system status LEDs ............................. 17
    Avaya BCM50 system status LEDs ............................... 17
  LAN port LEDs ........................................................... 19
  ADSL router LEDs (Avaya BCM50a and Avaya BCM50ba only) .......... 21
  Ethernet router LEDs (Avaya BCM50e and Avaya BCM50be only) .... 22
  BRI port LEDs on main unit (BRI series only) ................. 23
  Media bay module LEDs .............................................. 24
  DTM LEDs .................................................................. 25
  BRIM LEDs .................................................................. 26
  Check the wiring connections ....................................... 26
  Verify the keycodes ...................................................... 27
  Restart or shut down the system ................................... 28
    Reboot ...................................................................... 29
  Power on self test (Avaya BCM450 only) ....................... 30
  Testing basic hardware functionality ............................ 31
  Reset to factory settings ............................................. 36
    Reset levels .............................................................. 38
  Command Line Interface .............................................. 38
    Configuration CLI ..................................................... 38
    Maintenance CLI ...................................................... 39
Monitoring the boot process (Avaya BCM450 only) ............................................. 40

Chapter 4
Initial Troubleshooting .......................................................... 43

Navigation ............................................................................. 43
Proper installation and routine maintenance ............................... 43
Network configuration ........................................................... 43
  Site network map ............................................................... 43
  Logical connections .......................................................... 44
Device configuration information ............................................. 44
  Other important data about your network ............................... 44
Normal behavior on your network ............................................ 44

Chapter 5
Software Troubleshooting......................................................... 45

Navigation ............................................................................. 45
Verify the software version ...................................................... 45
Verify the keycodes ............................................................... 45
Check the programming of lines and phones ............................. 45
  Check line programming ..................................................... 46
  Trunk/Line data ............................................................... 46
Properties ............................................................................. 48
Preferences ......................................................................... 49
Restrictions .......................................................................... 52
Assigned DNs ....................................................................... 53
Restoring system data ............................................................ 54
  Restoring data from an archive ............................................ 54
  Restoring the factory configuration ..................................... 55
Verify the software inventory ................................................... 55
  Viewing the inventory of Avaya BCM software ....................... 55
Obtaining software updates ................................................... 56

Chapter 6
Advanced Troubleshooting ....................................................... 57

Navigation ............................................................................. 57
Example 1: Cannot dial out from an analog trunk ....................... 57
Example 2: Cannot dial out from a SIP or H323 VoIP trunk ............ 62
Example 3: IP set is not registering with the Avaya BCM ............... 68
Example 4: Cannot install keycode or invalid keycode application .... 70
Example 5: Cannot dial out from digital trunk ............................. 70
Example 6: MeetMe Conferencing commands do not work, or conferencing is busy 75
Example 7: Unable to apply a software update from a USB storage device ........ 76
Example 8: Business Element Manager incorrectly shows expansion cabinet as empty 77
Example 9: HDD-2 LED is Off after installing second hard disk ............................. 77
Example 10: VLAN interfaces cannot communicate with external devices ............. 77

Chapter 7
Recovery trees ................................................. 79
Navigation ....................................................... 79
System is not processing calls ................................ 79
Start-up profile fails ......................................... 80
Cannot access Avaya BCM450 through Business Element Manager ................. 81
Avaya BCM450 shuts down unexpectedly ............................................. 83

Chapter 8
Downloading Software .......................................... 85
Navigation ....................................................... 85
Downloading software from the Avaya BCM system webpage ......................... 85
Downloading software from the Avaya web site ....................................... 88

Chapter 9
Troubleshooting Tools ........................................... 89
Navigation ....................................................... 89
Service Management ........................................... 89
Status and Metrics ............................................. 89
Utilities ......................................................... 90
Command Line Interface ......................................... 90
   Accessing the CLI ........................................... 91
   Using the Configuration CLI ................................ 92
   Using the Maintenance CLI ................................ 92

Chapter 10
Understanding System Messages ................................ 95
Alarms, logs, and traps .......................................... 95
Reporting for dropped calls ...................................... 95

Chapter 11
Useful Troubleshooting Links .................................. 97
Navigation ....................................................... 97
Partner Bulletins .............................................. 97
Knowledge and Solution Engine ................................... 97

Chapter 12
Frequently Asked Questions .................................... 99
Navigation ....................................................... 99
Backup, restore, and reset operations ............................................. 99
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do I back up the database?</td>
<td>99</td>
</tr>
<tr>
<td>How do I restore the Avaya BCM from a previous backup?</td>
<td>100</td>
</tr>
<tr>
<td>How do I complete a Warm Reset or Cold Reset? Is it safe and will I lose customer data?</td>
<td>100</td>
</tr>
<tr>
<td>Password protection</td>
<td>101</td>
</tr>
<tr>
<td>How do I recover a lost password for the Avaya BCM?</td>
<td>101</td>
</tr>
<tr>
<td>Fault management</td>
<td>102</td>
</tr>
<tr>
<td>How do I view Alarms? Can I acknowledge and clear them?</td>
<td>102</td>
</tr>
<tr>
<td>System and status information</td>
<td>103</td>
</tr>
<tr>
<td>How do I capture the logs from the Avaya BCM?</td>
<td>103</td>
</tr>
<tr>
<td>Using the Avaya BCM Web Page to transfer log files</td>
<td>104</td>
</tr>
<tr>
<td>How do I capture the current Avaya BCM configuration?</td>
<td>105</td>
</tr>
<tr>
<td>How do I find the Avaya BCM system health?</td>
<td>106</td>
</tr>
<tr>
<td>How do I show specific process states?</td>
<td>106</td>
</tr>
<tr>
<td>How do I verify current software revision?</td>
<td>106</td>
</tr>
<tr>
<td>How do I find the Avaya BCM450 System ID and Serial Number?</td>
<td>107</td>
</tr>
<tr>
<td>Connectivity problems</td>
<td>108</td>
</tr>
<tr>
<td>What is an Ethernet loop, and how do I avoid creating one?</td>
<td>108</td>
</tr>
<tr>
<td>IP addresses</td>
<td>109</td>
</tr>
<tr>
<td>Can I modify the IP address of the OAM port?</td>
<td>109</td>
</tr>
<tr>
<td>What are the default IP addresses of the Avaya BCM ports?</td>
<td>110</td>
</tr>
<tr>
<td>Chapter 13</td>
<td></td>
</tr>
<tr>
<td>Contacting Technical Support</td>
<td>111</td>
</tr>
<tr>
<td>Navigation</td>
<td>111</td>
</tr>
<tr>
<td>Getting technical documentation</td>
<td>111</td>
</tr>
<tr>
<td>Getting product training</td>
<td>111</td>
</tr>
<tr>
<td>Getting help from a distributor or reseller</td>
<td>111</td>
</tr>
<tr>
<td>Getting technical support from the Avaya Web site</td>
<td>111</td>
</tr>
</tbody>
</table>
Chapter 1
New in this release

The following section details what’s new in Avaya Business Communications Manager (Avaya BCM) 6.0.

Features

The following features are new for Avaya BCM 6.0:

• Analog Trunk support for Find Me/Follow Me using Voice Activity Detection (VAD). For more information about troubleshooting VAD, see Example 1: Cannot dial out from an analog trunk on page 57.

• Avaya BCM 6.0 introduces the new Multi-Image Hard Drive Field Replaceable Unit (FRU). For more information about new LED states related to Multi-Image Hard Drives, see LED states with descriptions of LED combinations on page 18.
Chapter 2
Introduction

Avaya Business Communications Manager (Avaya BCM) 6.0 provides private network and telephony management capability to small and medium-sized businesses. The Avaya BCM system integrates voice and data capabilities, and IP Telephony gateway functions into a single telephony system. It also enables you to create and provide telephony applications for use in a business environment.

Purpose

This guide provides procedural information to help you troubleshoot and isolate problems in your BCM network.

Audience

The *Avaya Business Communications Manager 6.0 Troubleshooting Guide* is for use by network administrators responsible for maintaining Avaya BCM networks. This guide is also useful for network operations center (NOC) personnel supporting a BCM managed services solution. The following are the considerations to use this guide:

- be an authorized BCM administrator within your organization
- know basic Avaya BCM terminology
- be knowledgeable about telephony and IP networking technology

Organization

This guide is organized for easy access to information that explains the troubleshooting procedures associated with using the Avaya BCM system. This guide contains information on the following topics:

- Initial Troubleshooting on page 43
- Hardware Troubleshooting on page 15
- Software Troubleshooting on page 45
- Advanced Troubleshooting on page 57
- Recovery trees on page 79
- Downloading Software on page 85
- Troubleshooting Tools on page 89
- Understanding System Messages on page 95
- Useful Troubleshooting Links on page 97
- Frequently Asked Questions on page 99
Acronyms

The following is a list of acronyms used in this guide.

Table 1 List of acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3DES</td>
<td>Triple Data Encryption Standard</td>
</tr>
<tr>
<td>AES</td>
<td>Analog Encryption Standard</td>
</tr>
<tr>
<td>AIS</td>
<td>Alarm Indication Signal</td>
</tr>
<tr>
<td>BCM</td>
<td>Avaya Business Communications Manager</td>
</tr>
<tr>
<td>BFT</td>
<td>Base Function Tray</td>
</tr>
<tr>
<td>BRI</td>
<td>Basic Rate Interface</td>
</tr>
<tr>
<td>CbC</td>
<td>Call by Call</td>
</tr>
<tr>
<td>CDR</td>
<td>Call Detail Recording</td>
</tr>
<tr>
<td>CFA</td>
<td>Carrier Failure Alarms</td>
</tr>
<tr>
<td>CIF</td>
<td>Chassis Interface Card</td>
</tr>
<tr>
<td>CLID</td>
<td>Calling Line Identification</td>
</tr>
<tr>
<td>CPE</td>
<td>Customer Premises Equipment</td>
</tr>
<tr>
<td>CSU</td>
<td>Channel Service Unit</td>
</tr>
<tr>
<td>DES</td>
<td>Digital Encryption Standard</td>
</tr>
<tr>
<td>DHCP</td>
<td>Dynamic Host Configuration Protocol</td>
</tr>
<tr>
<td>DN</td>
<td>Directory Number</td>
</tr>
<tr>
<td>DNS</td>
<td>Domain Name Server</td>
</tr>
<tr>
<td>DNIC</td>
<td>Dialed Number Identification Service</td>
</tr>
<tr>
<td>DTM</td>
<td>Digital Trunk Module</td>
</tr>
<tr>
<td>ES</td>
<td>Errored Seconds</td>
</tr>
<tr>
<td>HTTP</td>
<td>Hypertext Transfer Protocol</td>
</tr>
<tr>
<td>IP</td>
<td>Internet Protocol</td>
</tr>
<tr>
<td>ISDN</td>
<td>Integrated Switched Digital Network</td>
</tr>
<tr>
<td>LAN</td>
<td>Local Area Network</td>
</tr>
<tr>
<td>MBM</td>
<td>Media Bay Module</td>
</tr>
<tr>
<td>MIB</td>
<td>Management Information Base</td>
</tr>
<tr>
<td>MGS</td>
<td>Media Gateway Server</td>
</tr>
<tr>
<td>MOS</td>
<td>Mean Opinion Score</td>
</tr>
<tr>
<td>MPS</td>
<td>Media Path Server</td>
</tr>
<tr>
<td>NAT</td>
<td>Network Address Translation</td>
</tr>
<tr>
<td>NCM</td>
<td>Network Configuration Manager</td>
</tr>
</tbody>
</table>
### Table 1  List of acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOC</td>
<td>Network Operations Center</td>
</tr>
<tr>
<td>NTP</td>
<td>Network Time Protocol</td>
</tr>
<tr>
<td>OOF</td>
<td>Out of Frame</td>
</tr>
<tr>
<td>PPP</td>
<td>Point-to-Point Protocol</td>
</tr>
<tr>
<td>PRI</td>
<td>Primary Rate Interface</td>
</tr>
<tr>
<td>PBX</td>
<td>Private Branch Exchange</td>
</tr>
<tr>
<td>PSTN</td>
<td>Public Switched Telephone Network</td>
</tr>
<tr>
<td>PVQM</td>
<td>Proactive Voice Quality Monitoring</td>
</tr>
<tr>
<td>QoS</td>
<td>Quality of Service</td>
</tr>
<tr>
<td>RAI</td>
<td>Remote Alarm Indication</td>
</tr>
<tr>
<td>RTP</td>
<td>Real-time Transport Protocol</td>
</tr>
<tr>
<td>SFTP</td>
<td>Secure File Transfer Protocol</td>
</tr>
<tr>
<td>SNMP</td>
<td>Simple Network Management Protocol</td>
</tr>
<tr>
<td>SSH</td>
<td>Secure Shell</td>
</tr>
<tr>
<td>SSL</td>
<td>Secure Socket Layer</td>
</tr>
<tr>
<td>UAS</td>
<td>Unavailable Seconds</td>
</tr>
<tr>
<td>UPS</td>
<td>Uninterruptable Power Supply</td>
</tr>
<tr>
<td>USB</td>
<td>Universal Serial Bus</td>
</tr>
<tr>
<td>VoIP</td>
<td>Voice over Internet Protocol</td>
</tr>
<tr>
<td>VLAN</td>
<td>Virtual Local Area Network</td>
</tr>
<tr>
<td>VPN</td>
<td>Virtual Private Network</td>
</tr>
<tr>
<td>WAN</td>
<td>Wide Area Network</td>
</tr>
</tbody>
</table>
Symbols and conventions used in this guide

These symbols are used to highlight critical information for the Avaya BCM system:

**Caution:** Alerts you to conditions where you can damage the equipment.

**Danger:** Alerts you to conditions where you can get an electrical shock.

**Warning:** Alerts you to conditions where you can cause the system to fail or work improperly.

**Note:** A Note alerts you to important information.

**Tip:** Alerts you to additional information that can help you perform a task.

**Security note:** Indicates a point of system security where a default should be changed, or where the administrator needs to make a decision about the level of security required for the system.

**Warning:** Alerts you to ground yourself with an antistatic grounding strap before performing the maintenance procedure.

**Warning:** Alerts you to remove the Avaya BCM main unit and expansion unit power cords from the ac outlet before performing any maintenance procedure.
Related publications are listed below. For more information, see *Avaya Business Communications Manager Documentation Roadmap* (NN40170-119).

*Avaya Business Communications Manager 6.0 Administration and Security* (NN40170-603)
*Avaya Business Communications Manager 450 6.0 Installation—System* (NN40170-303)
*Avaya Business Communications Manager 450 6.0 Maintenance* (NN40170-503)
*Avaya Business Communications Manager 450 6.0 Installation and Maintenance* (NN40170-305)
*Keycode Installation Guide* (NN40010-301)
*Avaya Business Communications Manager 6.0 Configuration—Devices* (NN40170-500)
*Avaya Business Communications Manager 6.0 Configuration—System* (NN40170-501)
*Telset Administration Guide* (NN40070-604)
*CallPilot Telephone Administration Guide* (NN40170-601)
*CallPilot Contact Center Telephone Administration Guide* (NN40170-600)
Chapter 3

Hardware Troubleshooting

The information in this chapter applies to both Avaya BCM50 and Avaya BCM450 platforms running Avaya Business Communications Manager (Avaya BCM) 6.0.

Perform the tasks in this chapter to troubleshoot problems related to the BCM50 and BCM450 hardware components.

Navigation

- Troubleshooting Avaya BCM hardware on page 16
- Power on self test (Avaya BCM450 only) on page 30
- Testing basic hardware functionality on page 31
- Monitoring the boot process (Avaya BCM450 only) on page 40

LAN IP Packet Capture

Use the LAN IP packet capture feature to help isolate and resolve voice applications set up issues. You must have DataAdmin privileges to use the LAN Packet capture feature.

You can initiate IP packets capture on the Avaya BCM LAN and store captured IP packets in the output file on BCM filesystem or a USB flash drive. LAN IP Packet Capture is accessed through Business Element Manager at Administration > Utilities > LAN IP Packet Capture. Packets can be captured at the OAM port or any of the LAN ports.

On the Configuration tab, you can select to store the output file on a network drive, a USB flash drive, or on the Avaya BCM system. The configuration options will change depending on where you want to store the output file.

The Filters tab allows you to set filters to reduce or increase the amount of data captured.

The table Reset functions on page 16 lists the fields on the LAN IP Packet Capture panel.
Table 1  Reset functions

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port</td>
<td>The port you want to capture from. If LAN is selected, all LAN ports will be captured.</td>
</tr>
<tr>
<td>Mode</td>
<td>Promiscuous: gives IP Packet Capture access to all packets on the LAN. Non-promiscuous: gives IP Packet Capture access only to packets coming to or from the BCM.</td>
</tr>
<tr>
<td>Output format</td>
<td>Allows you to select the output format. The options are: Raw: The raw packet data. Text: converts the data to a text file.</td>
</tr>
<tr>
<td>Duration (sec)</td>
<td>The duration (in seconds) of the capture.</td>
</tr>
<tr>
<td>Start</td>
<td>Starts the capture</td>
</tr>
<tr>
<td>Stop</td>
<td>Stops the capture</td>
</tr>
<tr>
<td>Status</td>
<td>View the status of the capture</td>
</tr>
</tbody>
</table>

IP packets going to WAN port will not be captured if entering one of the router ports regardless of Promiscuous mode state. Any packets entering any of the LAN ports will always be captured if promiscuous mode is ON.

If you are using a USB flash drive and it is disconnected during the capture, the capture session does not stop. Stop the capture manually before disconnecting the USB drive.

Troubleshooting Avaya BCM hardware

Complete the following tasks, in the order shown below, to troubleshoot some of the common problems that you may encounter with the Avaya BCM50 and Avaya BCM450 hardware:

- Check the power source on page 16
- Check LED indicators on page 17
- Check the wiring connections on page 26
- Verify the keycodes on page 27
- Restart or shut down the system on page 28

Check the power source

Begin troubleshooting the hardware by checking the power source:

- check the connection between the power supply and the main unit
- check the connection from the power supply to the electrical outlet
Check LED indicators

After checking the power source, check the LED indicators. This section describes the operation of the Avaya BCM450 system LEDs:

- Avaya BCM450 system status LEDs on page 17
- Avaya BCM50 system status LEDs on page 17
- LAN port LEDs on page 19
- ADSL router LEDs (Avaya BCM50a and Avaya BCM50ba only) on page 21
- Ethernet router LEDs (Avaya BCM50e and Avaya BCM50be only) on page 22
- BRI port LEDs on main unit (BRI series only) on page 23
- Media bay module LEDs on page 24
- DTM LEDs on page 25
- BRIM LEDs on page 26

Not all MBMs are supported on all platforms. For more information about which MBMs are supported on each platform, see Avaya Business Communications Manager 450 6.0 Installation—System (NN40170-303), Avaya Business Communications Manager 450 6.0 Maintenance (NN40170-503), or Avaya BCM50 6.0 Installation and Maintenance Guide (NN40170-305).

Avaya BCM450 system status LEDs

The chassis of the Avaya BCM450 contains two LEDs: a Status LED and a Power LED. The Power LED is located at the bottom left of the chassis; the Status LED is immediately above it. The LED states with descriptions of LED combinations table describes the meaning of the system status LEDs in the following situations:

- start-up sequence: LED indicators during the normal start-up process
- safe-mode start-up sequence: LED indicators during a safe-mode start-up
- shutdown sequence: LED indicators during a shutdown or failure
- start-up profile sequence: LED indicators during an initial installation or staging

Avaya BCM50 system status LEDs

The information in this section applies to the Avaya BCM50 platform only.

The two system status LEDs on the BCM50 main units (BCM50, BCM50a, BCM50e, BCM50b, BCM50ba, and BCM50be) show the current state of the Avaya BCM50 system.

You can view the system status LEDs on the faceplate and on the top of the main unit, as shown in the figure Location of system status LEDs on an Avaya BCM50 main unit on page 18. The bottom LED is the power LED, and the top LED is the status LED. Under normal operating conditions, both LEDs are solid green.
The LED states with descriptions of LED combinations table describes the meaning of the system status LEDs after the system turn on and is in service.

During BCM50 system startup or restart, the system status LEDs move through a sequence of state changes. If either the power LED or status LED is yellow, the system is initializing and is not ready for service. The LED states with descriptions of LED combinations table shows the key states indicating service availability.

### Table 2  LED states with descriptions of LED combinations

<table>
<thead>
<tr>
<th>Power LED</th>
<th>Status LED</th>
<th>LED combinations description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Start-up sequence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solid yellow</td>
<td>Solid yellow</td>
<td>Power is applied to the system.</td>
</tr>
<tr>
<td>Solid yellow</td>
<td>Off</td>
<td>POST (Power On Self Test) (duration 9 seconds)</td>
</tr>
<tr>
<td>Solid yellow</td>
<td>Solid yellow</td>
<td>System initialization (duration 14 seconds)</td>
</tr>
<tr>
<td>Solid green</td>
<td>Solid yellow</td>
<td>Kernel initialization (duration 8 seconds) or Safe OS</td>
</tr>
<tr>
<td>Solid green</td>
<td>Blink yellow</td>
<td>Waiting for user input on Multi-Image Hard Drive CLI</td>
</tr>
<tr>
<td>Solid red</td>
<td>Solid red</td>
<td>Installation is in progress (Multi-Image Hard Drive)</td>
</tr>
<tr>
<td>Solid red</td>
<td>Blink red</td>
<td>Error during installation (Multi-Image Hard Drive)</td>
</tr>
<tr>
<td>Solid green</td>
<td>Blinking green</td>
<td>Services initialization (duration 1 minute)</td>
</tr>
<tr>
<td><strong>Safe Mode start-up sequence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solid green</td>
<td>Solid green</td>
<td>System running</td>
</tr>
<tr>
<td>Solid green</td>
<td>Solid red</td>
<td>Services initialization FAILURE</td>
</tr>
<tr>
<td>Solid red</td>
<td>Solid green</td>
<td>System is running with manufacturing settings enabled</td>
</tr>
</tbody>
</table>
Table 2  LED states with descriptions of LED combinations

<table>
<thead>
<tr>
<th>Power LED</th>
<th>Status LED</th>
<th>LED combinations description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid red</td>
<td>Solid red</td>
<td>System is running in Software Reset mode</td>
</tr>
<tr>
<td>Solid red</td>
<td>Blinking yellow</td>
<td>System is running in Configuration Reset mode</td>
</tr>
<tr>
<td><strong>Shutdown sequence or FAILURE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solid green</td>
<td>Blinking yellow</td>
<td>Graceful shutdown in progress (trigger: Business Element Manager or UPS)</td>
</tr>
<tr>
<td>Off</td>
<td>Solid yellow</td>
<td>Graceful shutdown completed.</td>
</tr>
<tr>
<td>Solid red</td>
<td>Blinking yellow</td>
<td>Overheat detected; thermal shutdown completed</td>
</tr>
<tr>
<td>Solid red</td>
<td>Solid red</td>
<td>Power spike or rail power fluctuation detected</td>
</tr>
<tr>
<td>Blinking red</td>
<td>Solid red</td>
<td>Rail power fluctuation; power monitor shutdown completed</td>
</tr>
<tr>
<td>Solid yellow</td>
<td>Solid red</td>
<td>Power spike shutdown completed (temperature and rail power OK)</td>
</tr>
<tr>
<td>Off</td>
<td>Off</td>
<td>No power; system is shut down (power cable is disconnected)</td>
</tr>
<tr>
<td><strong>Start-up profile (LED combinations seen only during initial system install or staging)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blinking yellow</td>
<td>Blinking yellow</td>
<td>Start-up profile executing</td>
</tr>
<tr>
<td>Solid green</td>
<td>Solid green</td>
<td>Start-up profile successfully applied</td>
</tr>
<tr>
<td>Blinking yellow</td>
<td>Blinking red</td>
<td>Start-up profile FAILURE</td>
</tr>
</tbody>
</table>

LAN port LEDs

Each LAN port on the main unit and expansion unit has two LEDs. These LEDs indicate the status of the connection for that LAN port. The LAN port LED locations on the Avaya BCM450 main unit table shows the location of these LEDs on the main unit.
Figure 2  LAN port LED locations on the Avaya BCM450 main unit

The figure LAN port LED locations on the Avaya BCM50 main unit on page 21 shows the LAN port LED locations on the Avaya BCM50 main unit. The expansion ports on the BCM50 main unit also function as LAN ports. The expansion port LEDs indicate LAN activity only. The LEDs do not indicate expansion unit presence. The LEDs do not light.
Figure 3  LAN port LED locations on the Avaya BCM50 main unit

The LAN port and expansion port LED indicators table describes the possible LED states for the LAN ports LEDs.

Table 3  LAN port and expansion port LED indicators

<table>
<thead>
<tr>
<th>LED</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow (left LED)</td>
<td>On</td>
<td>The LAN port is operating at 10 Mb/s.</td>
</tr>
<tr>
<td>Green (right LED)</td>
<td>On</td>
<td>The LAN port is operating at 100 Mb/s.</td>
</tr>
<tr>
<td>Both LEDs</td>
<td>Off</td>
<td>No connection.</td>
</tr>
<tr>
<td>Any LED</td>
<td>Flashing</td>
<td>The LAN port is sending or receiving network data. The frequency of the flashes increases with increased traffic.</td>
</tr>
</tbody>
</table>

ADSL router LEDs (Avaya BCM50a and Avaya BCM50ba only)

The three ADSL router LEDs on the faceplate of the Avaya BCM50a and Avaya BCM50ba main units monitor router status, data, and DSL. The figure ADSL router LEDs on the Avaya BCM50a and Avaya BCM50ba main units (BCM50a shown) on page 22 shows the location of the three ADSL router LEDs.
The ADSL router LED descriptions table describes the possible ADSL router LED states.

**Table 4  ADSL router LED descriptions**

<table>
<thead>
<tr>
<th>LED</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Router status</td>
<td>On</td>
<td>The router card is functioning properly.</td>
</tr>
<tr>
<td></td>
<td>Off</td>
<td>The router card is not ready or has malfunctioned.</td>
</tr>
<tr>
<td></td>
<td>Flashing</td>
<td>The router card restarts.</td>
</tr>
<tr>
<td>Data</td>
<td>Flashing</td>
<td>The router card is sending or receiving data through the WAN port.</td>
</tr>
<tr>
<td></td>
<td>Off</td>
<td>The router card is not sending or receiving data through the WAN port.</td>
</tr>
<tr>
<td>DSL</td>
<td>On</td>
<td>The router card is linked successfully to a digital subscriber line access multiplexer (DSLAM).</td>
</tr>
<tr>
<td></td>
<td>Off</td>
<td>The DSL link is not functioning.</td>
</tr>
<tr>
<td></td>
<td>Flashing</td>
<td>The router card is initializing the DSL line.</td>
</tr>
</tbody>
</table>

**Ethernet router LEDs (Avaya BCM50e and Avaya BCM50be only)**

The three Ethernet router LEDs on the BCM50e and BCM50be main units monitor the router status and the WAN port. The figure Ethernet router LEDs on the Avaya BCM50e and Avaya BCM50be main units (BCM50e shown) on page 23 shows the location of the three Ethernet router LEDs.
Figure 5  Ethernet router LEDs on the Avaya BCM50e and Avaya BCM50be main units (BCM50e shown)

The **LAN port LED indicators** table describes the possible Ethernet router LED states.

**Table 5  LAN port LED indicators**

<table>
<thead>
<tr>
<th>LED</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Router status</td>
<td>On</td>
<td>The router card is functioning properly.</td>
</tr>
<tr>
<td></td>
<td>Off</td>
<td>The router card is not ready or malfunctioned.</td>
</tr>
<tr>
<td></td>
<td>Flashing</td>
<td>The router card restarts.</td>
</tr>
<tr>
<td>WAN port yellow</td>
<td>On</td>
<td>The WAN port is operating at 10 Mb/s.</td>
</tr>
<tr>
<td>WAN port green</td>
<td>On</td>
<td>The WAN port is operating at 100 Mb/s.</td>
</tr>
<tr>
<td>Any WAN port LED</td>
<td>Flashing</td>
<td>The WAN port is sending or receiving network data. The</td>
</tr>
<tr>
<td></td>
<td></td>
<td>frequency of the flashes increases with increased traffic.</td>
</tr>
<tr>
<td>Both WAN port LEDs</td>
<td>Off</td>
<td>No connection.</td>
</tr>
</tbody>
</table>

**BRI port LEDs on main unit (BRI series only)**

The three BRI port LEDs on the Avaya BCM50b, Avaya BCM50ba, and Avaya BCM50be main units monitor the BRI port status. The figure **BRI port LEDs on the BCM50b, BCM50ba, and BCM50be main units (BCM50b shown)** on page 24 shows the location of the BRI ports and LEDs.
Figure 6  BRI port LEDs on the BCM50b, BCM50ba, and BCM50be main units (BCM50b shown)

The BRI port LED indicators table describes the possible BRI port LED states.

<table>
<thead>
<tr>
<th>LED (channel)</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>On (green)</td>
<td>D channel is functioning through this BRI port.</td>
</tr>
<tr>
<td>B1</td>
<td>On (green)</td>
<td>B channel 1 is functioning through this BRI port.</td>
</tr>
<tr>
<td>B2</td>
<td>On (green)</td>
<td>B channel 2 is functioning through this BRI port.</td>
</tr>
</tbody>
</table>

Media bay module LEDs

The two media bay module (MBM) LEDs on an expansion unit show the power and status of the MBM. The figure MBM LEDs on page 24 shows the location of the (Power) and Status LEDs on an MBM. The power and status LEDs are in the same location on all MBMs.

Figure 7  MBM LEDs

The MBM LED descriptions table describes the possible MBM LED states.

<table>
<thead>
<tr>
<th>Power</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off</td>
<td>Off</td>
<td>The MBM has no power, or a failure occurred on the MBM power converter.</td>
</tr>
<tr>
<td>On</td>
<td>Off</td>
<td>Avaya BCM450 to expansion unit failure or system initialization.</td>
</tr>
</tbody>
</table>
DTM LEDs

The DTM has additional LEDs that are not on most other MBMs. Figure 8 on page 25 shows the location of the DTM LEDs.

Table 7  MBM LED descriptions

<table>
<thead>
<tr>
<th>Power</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>On</td>
<td>Blinking</td>
<td>Hardware is working, but an operational problem exists such as:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• no link to the main unit is detected</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• frame alignment is lost on messages from the main unit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• bandwidth not allocated</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• MBM is in maintenance state</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• MBM is in download state (GASM, GATM4/GATM8)</td>
</tr>
<tr>
<td>Blinking</td>
<td>Blinking</td>
<td>The MBM has power, but a hardware problem exists such as:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• partial failure of power converter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• thermal overload</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• fan failure</td>
</tr>
<tr>
<td>On</td>
<td>On</td>
<td>The MBM is ready to operate.</td>
</tr>
</tbody>
</table>

The DTM LED functions table describes the functions of the DTM LEDs.

Table 8  DTM LED functions (Sheet 1 of 2)

<table>
<thead>
<tr>
<th>LED</th>
<th>Status</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>–</td>
<td>See “Media bay module LEDs” for details.</td>
</tr>
<tr>
<td>Status</td>
<td>–</td>
<td>See “Media bay module LEDs” for details.</td>
</tr>
<tr>
<td>In service</td>
<td>Flashing</td>
<td>The T1, ETSI, or PRI trunks are out of service because a loopback test is running or the DTM is initializing.</td>
</tr>
<tr>
<td>Loopback test</td>
<td>On</td>
<td>A continuity loopback test is running.</td>
</tr>
</tbody>
</table>
Table 8  DTM LED functions (Sheet 2 of 2)

<table>
<thead>
<tr>
<th>LED</th>
<th>Status</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receive alarm</td>
<td>On</td>
<td>A problem with the received digital transmission. This half-duplex link does not work.</td>
</tr>
<tr>
<td>Receive error</td>
<td>On</td>
<td>A small error as a result of degraded digital transmission. Possible causes are an ohmic connection, water ingress, or too long a loop.</td>
</tr>
<tr>
<td>Transmit alarm</td>
<td>On</td>
<td>The DTM cannot transmit. The DTM sends an alarm indication signal (AIS) to the terminating switch. This half-duplex link does not work.</td>
</tr>
<tr>
<td>Transmit error</td>
<td>On</td>
<td>The DTM is sending a remote alarm indication (RAI) carrier failure alarm (CFA) to the terminating switch. If the transmit alarm is not on, this error indicates a far-end or cable problem.</td>
</tr>
<tr>
<td>All LEDs</td>
<td>Flashing</td>
<td>The DTM is initializing.</td>
</tr>
</tbody>
</table>

**BRIM LEDs**

The BRIM has one additional LED beside each RJ-48C jack. These LEDs are on when the ISDN line is active. The figure BRIM LEDs on page 26 shows the location of the LEDs on a BRIM.

**Figure 9  BRIM LEDs**

For more information on the power and status LED functions, see Media bay module LEDs on page 24.

**Check the wiring connections**

After you check the power source and the LEDs, begin to check the wiring. Check the connections between the following components:

- the expansion unit and the main unit
- the main unit and to the MBMs—make sure that the cables are properly seated and are connected to the correct ports
- for the Avaya BCM450, the power supply and the AC power outlet
- for the Avaya BCM50, the power supply and the main unit and the AC power outlet
- if you are using a UPS, check the connection from:
  - the USB port on the Avaya BCM450 to the USB port on the UPS
  - the UPS and the electrical outlet
— the connection from the power supply to both the UPS and the BCM450 main unit
• the lines and extensions connected through the RJ-21 telephony connector
• the auxiliary equipment—connections at the auxiliary terminal block, or at the patch panel
• For more information on wiring connections, refer to Avaya Business Communications Manager 450 6.0 Installation—System (NN40170-303) or Avaya BCM50 6.0 Installation and Maintenance (NN40170-305).

Verify the keycodes
If a specific feature is not functioning, verify that the feature is included in your installed keycodes. This section provides procedure for verifying the installed keycodes using either Business Element Manager or Telset. For more detailed information about retrieving and entering the keycode for your system, see the Keycode Installation Guide (NN40010-301).

To verify the keycodes using Business Element Manager
1 In the Task Navigation Panel, select the Configuration tab.
2 Select the System folder and click the Keycodes task.
   The Keycodes panel displays and the installed features appear in the Keycodes list.
3 To enter a new keycode, click Load File.
4 Browse to where you saved the keycode file you downloaded from KRS.
5 Click Open.
   The file uploads and the feature appears in the Keycodes list.

To verify the keycodes using Telset
1 Select Feature 9*8 from a two-line display telephone.
2 Enter the following user ID and password:
   User ID: SETNNA
   Password: CONFIG
   The numerical values of the user ID and password are 738662 and 266344, respectively.
3 Press NEXT to scroll through the menu and select Feature Codes.
4 Press OK.
   The system ID (SID) displays.
5 Press NEXT.
6 Enter your sequence ID.
7 Press NEXT to scroll through the list and perform one or both of the following tasks:
   a To activate features, select Feature List.
   • Press SHOW to view the available features.
   • Use the soft keys to activate features for your system.
b To enter a new keycode, select Entitlement Code.
- Press SHOW to view the current keycode.
- Use the soft keys to modify the keycode for your system.

## Restart or shut down the system

You can use the Avaya BCM 6.0 Reset utility to
- perform a warm reset of telephony services
- perform a cold reset of telephony services

You can also perform a Configuration Reset, which restores the configuration settings to factory default, or a Software Reset which restores both the software and configuration settings to factory default. For more information on Configuration and Software resets. Use this procedure to restart the system.

### To restart the system

Perform this procedure to restart the system from the Business Element Manager.

1. Select Administration > Utilities > Reset.
2. Click the appropriate reset button.

The table Reset functions on page 28 lists the Reset functions.

### Table 9 Reset functions

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warm Reset Telephony</td>
<td>Restarts telephony services running on the Avaya BCM450</td>
<td>Restarts all telephony services, including LAN CTE, voice mail, and IP</td>
</tr>
<tr>
<td>Services</td>
<td>system</td>
<td>telephony. This operation does not affect configuration parameters or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>programming.</td>
</tr>
<tr>
<td>Cold Reset Telephony</td>
<td>Resets telephony programming of the Avaya BCM450 system</td>
<td>Affects all telephony services, including LAN CTE, voice mail, and IP</td>
</tr>
<tr>
<td>Services</td>
<td>to the factory defaults for that software level</td>
<td>telephony. Telephony services restart with all telephony programming</td>
</tr>
<tr>
<td></td>
<td></td>
<td>at default values for the specified region, template, and start DN,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>for the current software release level.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A cold reset erases voice message mailboxes and messages if the DN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>length is not set to system defaults. For more information about</td>
</tr>
<tr>
<td></td>
<td></td>
<td>setting the DN length, see Avaya Business Communications Manager 6.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Configuration—Devices (NN40170-500).</td>
</tr>
</tbody>
</table>
Table 10  Avaya BCM50 hardware reset functions

<table>
<thead>
<tr>
<th>Reset Level</th>
<th>Description</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>This reset erases all the customer-specific data and restores the default configuration for all components. The LED illuminates yellow to denote Level 1 reset.</td>
<td>Only the system and user configuration data is erased and replaced with default values. The software components are not altered, that is, the system will have the latest release and patch level of the software installed. There will be no Ethernet connectivity during this operation.</td>
</tr>
<tr>
<td>Level 2</td>
<td>This reset erases all the customer-specific data and software releases and patches. This also resets the router firmware to the original configuration settings. The LED illuminates red to denote Level 1 reset.</td>
<td>The system re-installs the original factory configuration settings. There will be no Ethernet connectivity during this operation.</td>
</tr>
</tbody>
</table>

**Reboot**

You can use the Reboot utility to:

- reboot the Avaya BCM450 system
- shut down the system
- reboot the integrated router (BCM50a/e only)
- create a scheduled reboot to take place at a specified time. This can be configured to occur once, daily, weekly or monthly.

The table **Reboot functions** on page 29 lists the Reboot functions.

Table 11  Reboot functions

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reboot BCM450 System</td>
<td>Restarts the operating system of the Avaya BCM450 system.</td>
<td>Temporarily stops all services on the system. Restarts all services. This operation does not affect configuration parameters or programming.</td>
</tr>
<tr>
<td>System Shutdown</td>
<td>Shuts down the Avaya BCM450.</td>
<td>Stops all services in preparation for removing power from the system.</td>
</tr>
<tr>
<td>Add (Scheduled Reboot tab)</td>
<td>Allows you to create a new Scheduled Reboot.</td>
<td></td>
</tr>
</tbody>
</table>
Table 12  LED Status

<table>
<thead>
<tr>
<th>LED Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blinking power LED</td>
<td>Indicates a user input window; the Avaya BCM50 system is waiting for user input.</td>
</tr>
<tr>
<td>Solid power LED</td>
<td>Indicates caution for extreme action.</td>
</tr>
<tr>
<td>Red/Green</td>
<td>Level of reset</td>
</tr>
<tr>
<td>Blinking status LED</td>
<td>Indicates an interim state, the system is trying to establish user input.</td>
</tr>
<tr>
<td>Solid status LED</td>
<td>Indicates confirmation of user selection</td>
</tr>
</tbody>
</table>

Note: Power LED has priority over Status LED.

Power on self test (Avaya BCM450 only)

The information in this section applies to the Avaya BCM450 platform only.

The power on self test (POST) feature tests basic hardware functionality when the BCM450 system powers up, and stores the results in a log file. You can view the log file for hardware failures.

Viewing the POST log file

1. Use Business Element Manager to transfer the log files to your PC. For more information about how to transfer log files, see *Avaya Business Communications Manager 6.0 Administration and Security* (NN40170-603).

2. View the bootloader.log file.

3. Check the log file for errors. The figure Example: Bootloader.log file with no errors on page 31 shows a bootloader.log file with no errors.
Figure 10  Example: Bootloader.log file with no errors

2008-07-16T13:24:46.653 [INFO ] {BootLoader} (18000) - Finished processing boot loader log

Figure 11  Example: Boot file with errors

2008-07-16T13:10:45.089 [INFO ] {BootLoader} (18000) - Start processing boot loader log
2008-07-16T13:10:45.188 [WARN ] {BootLoader} (180001) - Self test was unable to provide results. Flash memory may be malfunctioning
2008-07-16T13:10:45.188 [INFO ] {BootLoader} (18000) - Finished processing boot loader log

Testing basic hardware functionality

This section describes how to test the components of the Avaya BCM system, and how to troubleshoot them if they fail the test.

The table Procedures to test and troubleshoot Avaya BCM platform components on page 31 lists the procedures to use to help isolate and identify problems with your BCM hardware:

Table 13  Procedures to test and troubleshoot Avaya BCM platform components

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Supported on BCM450</th>
<th>Supported on BCM50</th>
</tr>
</thead>
<tbody>
<tr>
<td>To test the main unit on page 32</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>To troubleshoot the main unit on page 32</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>To test the expansion unit on page 33</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>To troubleshoot the expansion unit on page 33</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Testing an MBM on page 34</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Determining why an Avaya BCM450 MBM does not appear in Business Element Manager on page 34</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Determining why an Avaya BCM50 MBM does not appear in Business Element Manager on page 35</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>Troubleshooting the FEM on the Avaya BCM450 on page 35</td>
<td>yes</td>
<td>no</td>
</tr>
</tbody>
</table>
To test the main unit

If you have the digital station feature included in your installed keycode, use the following test to ensure the main unit is operating properly:

1. Go to an extension that is connected to the RJ-21 telephony connector on the main unit.
2. Check for a dial tone.
3. Use this extension to make a call to another extension on the system.
4. If this system has an expansion unit with a media bay module (MBM) that supports extensions, repeat steps 3 and 4 for an extension connected to the expansion unit.
5. Go to an extension that has access to one of the lines on the main unit.
6. Select the line or line pool to which the line belongs.
7. Check for a dial tone.
8. Make a call using the line or line pool.
9. If this system has an expansion unit with an MBM that supports lines, repeat steps 6 to 8 with an extension that can access one of the lines connected to the expansion unit.

To troubleshoot the main unit

If a test fails, perform the following procedure:

1. Verify that any nonfunctional feature is included in your installed keycode.
2. Check the wiring to the main unit and to the MBMs. Make sure that the cables are properly seated and are connected to the correct ports.
3. Restart the BCM system.
4. Check LEDs.
5. Use Business Element Manager or the Telset Administration feature to check the programming for the lines or extensions that failed the call test.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Supported on BCM450</th>
<th>Supported on BCM50</th>
</tr>
</thead>
<tbody>
<tr>
<td>To determine why the ATA 2 does not function on page 35</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>To determine why there is no dial tone at the ATA2 on page 36</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>To check the ATA2 wiring on page 36</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Reset to factory settings on page 36</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>To perform a Level 1 reset (configuration reset) on page 40</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>To perform a Level 2 reset (software reset) on page 40</td>
<td>yes</td>
<td>yes</td>
</tr>
</tbody>
</table>
If the programming is incorrect, use the Backup and Restore Utility to load a recent backup of system programming. If a recent backup is not available, correct the programming using Business Element Manager or the Telephone Administration feature.

To test the expansion unit

Use the following test to ensure the expansion unit is operating properly:

1. Make sure that the Avaya BCM450 system is fully booted.
2. Check the power and status LEDs on the MBM that is inserted in the expansion unit. Both LEDs must be solid green. If either LED is not solid green, a problem exists with the MBM or the expansion unit.
3. If the expansion unit has an MBM that supports extensions, go to an extension that is connected to the MBM.
4. Check for a dial tone.
5. Use this extension to make a call to another extension on the system.
6. If the expansion unit has an MBM that supports lines, go to an extension that has access to one of the lines on the MBM.
7. Select the line or line pool to which the line belongs.
8. Check for a dial tone.
9. Make a call using the line or line pool.

To troubleshoot the expansion unit

1. Check that the correct feature for the expansion unit is included in your installed keycode.
2. Check that the expansion port is connected to the proper connector.
3. Check the wiring to the MBM. Make sure that the cables are properly seated and are connected to the correct ports with proper LED indications.
4. Check that the switches on the MBM are all set to on.
   If the MBM is a GASM or GATM, all the switches on the right are not on.
   To check the MBM switches, you must remove the MBM from the expansion unit.
5. Perform a firmware download to ensure that the correct version is loaded on the ASM/GASM or GATM unit.
6. Use Business Element Manager or Telset Admin to check the programming for the lines or extensions connected to the MBM.
7. Restart the system to ensure that the Avaya BCM450 main unit functions correctly.
8. If the programming is incorrect, use the Backup and Restore Utility to load a recent backup of system programming. If a recent backup is not available, correct the programming using Business Element Manager or the Telephone Administration feature.
Testing an MBM

Perform the following procedure to test an MBM installed in the main unit or expansion cabinet.

For Avaya BCM450, if you are experiencing an issue with an FEM, ensure all DIP switches are set to the On position. The FEM is not supported on the BCM50 platform.

1. Check the Power and Status LEDs on the MBM. Both LEDs must be solid green. If either LED is not solid green, a problem exists with the MBM.

2. Go to an extension on the MBM if it is a station MBM.
   OR
   Go to an extension that has access to one of the lines on the MBM if it is a trunk MBM. Select the line or line pool to which the line belongs.

3. Check for a dial tone.

4. Use this extension to make a call to another extension on the system if it is a station MBM.
   OR
   Make a call using the line or line pool if it is a trunk MBM.

5. Use this extension to make a call to an external telephone number if you are testing a station MBM.

Determining why an Avaya BCM450 MBM does not appear in Business Element Manager

Use the following procedure if an installed MBM does not appear in Business Element Manager.

1. Check that the correct feature is included in your installed keycode.

2. Check that both the Power and Status LEDs on the MBM are solid green.

3. If the Power LED is off, and the MBM is installed in the expansion cabinet, check that the power supply cable is properly seated in the expansion cabinet and the power supply is connected to a working power outlet.

4. Ensure that the MBM is properly seated in the MBM bay.

5. If the Status LED is not solid green, and the MBM is installed in the expansion cabinet, check that the Expansion cable is properly seated in the Expansion port on the expansion cabinet and on the main unit.

6. Ensure that the MBM is enabled using either Business Element Manager or Telset Administration. If the MBM is enabled, disable and re-enable it.

7. Ensure that all DIP switches are set correctly.
Determining why an Avaya BCM50 MBM does not appear in Business Element Manager

1. Check that the correct feature for the expansion unit is included in your installed keycode.
2. Check that both the Power and Status LEDs on the MBM are solid green.
   - If the Power LED is off, check that the power supply cable is properly seated in the expansion unit, and the power supply is connected to a working power outlet. Also check that the MBM is properly seated in the expansion unit.
   - If the Status LED is not solid green, check that the expansion cable is properly seated in the expansion port on the expansion unit and on the main unit.
3. Check that the MBM and expansion unit are enabled using either Business Element Manager or Telset Administration. If the units are enabled, disable them, and then reenable them.
4. Check that all the switches on the MBM are on. If the MBM is a GASM or GATM, all the switches on the right are not set to on. To check the MBM switches, you must remove the MBM from the expansion unit. For more information, see the BCM50 Installation and Maintenance Guide.

Troubleshooting the FEM on the Avaya BCM450

This procedure applies to the Avaya BCM450 only.

Perform the following procedure to troubleshoot an installed fibre expansion module (FEM).
1. Ensure that all six connector LEDs are lit.
2. If all six LEDs are not lit, ensure that all six DIP switches are set to the On (up) position.

To determine why the ATA 2 does not function

1. Check for a dial tone using an analog device.
2. Check that AC power is connected to the ATA 2 unit.
3. Check that the correct feature for digital sets is included in your installed keycode.
4. Verify that the ATA2 is connected to a digital station port.
5. Allow sufficient startup time (30–60 sec).
6. Plug an analog device into the phone port of the ATA2 and check for a dial-tone.
7. In Business Element Manager, verify that the ATA 2 is correctly configured:
   a. Select Configuration, Telephony, Sets, All DNs.
   b. Select the appropriate DN from the list and click the ATA settings tab. The options for the Device Type are Modem or Telephone.
To determine why there is no dial tone at the ATA2

1. If you hear no dial tone, replace a single-line telephone for the data communication device.
2. If you hear no dial tone at the ATA2 unit:
   a. Disconnect the line side of the ATA2. Connect a digital telephone to the ATA2 port.
   b. Check that the connection from the ATA2 to the hardware works correctly.

To check the ATA2 wiring

1. Use an analog phone to test the ATA2.
2. Check the following connections:
   a. ATA 2 to the terminal
      The resistance must be 200 ohms or less for data applications and 1300 ohms or less for voice applications.
   b. Avaya BCM450 hardware to the ATA2
      The wiring must be equivalent to 800 m of 0.5 mm wire (2600 ft. of 24-AWG) or less. Do not use bridge taps and loading coils between the hardware and ATA2.

Reset to factory settings

This section describes how to reset the Avaya BCM system to the factory settings or a stable working condition using the reset switch. When the BCM450 is in this condition, you can make further modifications.

You can perform a Configuration Reset (previously known as a Level 1 reset), which restores configuration settings to the factory default, or a Software Reset (previously known as a Level 2 reset), which resets the software and configuration to the factory default. Configuration and Software resets are performed through the Command Line Interface (CLI) (see).

The figure Reset switch location on BCM450 on page 37 shows the location of the reset switch on the BCM450.
The figure **Reset switch location on BCM50** on page 37 shows the location of the reset switch on the BCM50.

Some possible situations in which you use the reset feature are:

- If the system is configured incorrectly to an extent that it is no longer functional. The customer must use a Configuration reset to return to the default system programming and restore a previous configuration or reconfigure the system.
- If distributors want to reuse systems, they must first erase all customer-specific data using a Configuration or Software reset.
Reset levels

Reset to factory settings is a stand-alone feature that has the following levels of reset:

- **Configuration Reset (previously known as Level 1)** reset erases all customer-specific data and restores the default configuration for all components. This reset leaves the software components untouched. That is, the system has the latest release and patch level of the software installed. Only the system and user configuration data is erased and replaced with default values. For the Avaya BCM50, no Ethernet connectivity to the system occurs during this operation.

- **Software Reset (previously known as Level 2)** reset erases all customer and system configuration data and all software releases and patches. This reset reinstalls the original factory configuration settings. For Avaya BCM50, a Software reset also resets the router firmware to what was shipped from the factory. No Ethernet connectivity to the system occurs during this operation.

**Warning:** If you perform a software reset to solve an undetermined problem and still have access to Business Element Manager, you must retrieve all the log files for technical support before performing the software reset. A software reset erases all log files from the system.

Command Line Interface

You can use the Command Line Interface (CLI) to configure basic settings, as well as shut down, reboot, or perform a Configuration or Software Reset on your Avaya BCM450 or Avaya BCM50 system. Two CLI modes are available: Maintenance CLI, and Configuration CLI.

Your user account must be assigned the System-CLI privilege in order to access the CLI.

Before performing a Configuration or Software reset, review all the effects of the levels of reset. See Reset levels on page 38.

This section contains information about the following topics:

- Configuration CLI on page 38
- Maintenance CLI on page 39

Configuration CLI

The Configuration CLI displays when the system is in Main OS mode. The options available on the Configuration CLI are

- 0—Exit. The system exits the CLI to the login prompt.
- 1—Reboot. The system reboots to the Main OS.
- 2—Shutdown. The system shuts down. You need physical access to the BCM hardware to restart the system.
• 3—Safe OS. The system reboots to the Safe OS and waits 1 minute for you to login. When you login within 1 minute, the Maintenance CLI displays. If you do not login within 1 minute, the system changes to the Main OS.
• 4—Configuration Reset. A Level 1 reset occurs. The system resets all configuration data to the factory defaults.
• 5—Software Reset. A Level 2 reset occurs. The system resets all configuration data and software to the factory defaults.
• 6—IP Configuration. You can configure the following basic IP settings:
  — 0—Return to Previous Menu. The system returns to the main menu.
  — 1—Hostname. Provision the hostname of the system.
  — 2—IP Address. Provision the IP address of the system.
  — 3—Subnet Mask. Provision the subnet mask for the IP address.
  — 4—Default Gateway. Provision the default gateway for the system.
  — 5—DHCP Client Mode. Enable or disable the DHCP client.
  — 6—Commit Changes. Save changes to the IP settings.
  — 7—Reload Settings. Reload the existing IP settings.

**Maintenance CLI**

The Maintenance CLI displays when the system is in Safe OS mode. The Safe OS is a diagnostic mode that you can use if the Main OS is experiencing problems. No applications or telephony services run when the Avaya BCM 6.0 is in Safe OS mode. The options available on the Maintenance CLI are

• 0—Exit. The system exits to the Safe OS login prompt.
• 1—Reboot into Main OS. The system reboots to the Main OS.
• 2—Shutdown. The system shuts down. You need physical access to the Avaya BCM450 hardware to restart the system.
• 3—Reboot into Safe OS. The system reboots to the Safe OS and waits 1 minute for you to login. If you do not login within 1 minute, the system changes to the Main OS.
• 4—Transition to Main OS. The system changes from the Safe OS to the Main OS without restarting.
• 5—Configuration Reset. A Level 1 reset occurs. The system resets all configuration data to the factory defaults.
• 6—Software Reset. A Level 2 reset occurs. The system resets all configuration data and software to the factory defaults.
To perform a Level 1 reset (configuration reset)

1. Access the CLI. For more information about how to access the CLI, see Command Line Interface on page 90.
2. From the Configuration CLI, select option 4—Configuration Reset. If you are using the Maintenance CLI, select option 5—Configuration Reset.
3. The LEDs progress through the start-up and shut down sequence. This process can take more than 2 minutes.
4. A Status LED that is flashing yellow, and a Power LED that is solid red, indicates that a configuration reset is in progress. This process can take more than 2 minutes.
5. The system restarts to the Main OS. This process can take more than 2 minutes.

To perform a Level 2 reset (software reset)

1. Access the CLI. For more information about how to access the CLI, refer to Command Line Interface on page 90.
2. From the Configuration CLI, select option 5—Software Reset. If you are using the Maintenance CLI, select option 6—Software Reset.
3. The LEDs will progress through the start-up and shut down sequence. This process can take more than 2 minutes.
4. A Status LED that is flashing yellow, and a Power LED that is solid red, indicates that a software reset is in progress. This process can take more than 5 minutes.
5. The system restarts to the Main OS. This process can take more than 2 minutes.

Monitoring the boot process (Avaya BCM450 only)

1. Connect a serial cable with a 9-pin female connector from the serial port on a PC to the serial port on the Avaya BCM450.
2. Ensure that you use the following settings:
   - bits per second: 115200
   - data bits: 8
   - parity: N
   - stop bits: 1
   - no flow control
3. Use a terminal emulation program, such as Hyperterminal or Avaya CLI Manager, to establish a connection to the BCM450.
4. Restart the system and observe the boot process. Figure 14 shows an example of a boot process when there is failed or missing memory; Figure 15 shows an example of a boot process when there is a failed or missing hard drive.
5. If the system starts normally, the CLI login prompt displays when the boot cycle is complete.
Figure 14  Boot process with failed or missing memory

BCM U-Boot 1.2.0 (Jul 8 2008 - 18:51:26)
CPU: 8568_E, Version: 1.1, (0x8070011)
Core: E500, Version: 2.2, (0x80210022)
Clock Configuration:
  CPU: 1333 MHz, CCB: 533 MHz,
  DDR: 266 MHz, LBC: 33 MHz
  QE: 533 MHz
L1:  D-cache 32 kB enabled
    I-cache 32 kB enabled
Board: BMB450 R1.0
I2C:  ready
DRAM: Initializing
Unable to locate DDR 1 or DDR II module.
  Fundamental memory type is 0x0
  DDR: *** failed ***
  ### ERROR ### Please RESET the board ###

Figure 15  Boot process with failed or missing hard drive

BCM U-Boot 1.2.0 (Jul 8 2008 - 18:51:26)
CPU: 8568_E, Version: 1.1, (0x8070011)
Core: E500, Version: 2.2, (0x80210022)
Clock Configuration:
  CPU: 1333 MHz, CCB: 533 MHz,
  DDR: 266 MHz, LBC: 33 MHz
  QE: 533 MHz
L1:  D-cache 32 kB enabled
    I-cache 32 kB enabled
Board: BMB450 R1.0
I2C:  ready
DRAM: Initializing
  DDR: 512 MB
POST: running... POST memory PASSED
L2 cache 512KB: enabled
FLASH: 8 MB
Reboot Reason: Power Recycle
Configuring Mac address from NsSecSi PROM
PCI: first=0 last=0
PCIe: LTTSM=0x16
PCIe: first=1 last=1
In:  serial
Out:  serial
Err:  serial
Net:  FSL UEC1, FSL UEC0, FSL UEC2, FSL UEC3, FSL UEC4, FSL UEC5, FSL UEC6, FSL UEC7
IDE:  Bus 0: not available
Fatal Error Occurred
Chapter 4
Initial Troubleshooting

The information in this chapter applies to both the Avaya BCM50 and the Avaya BCM450 platforms running Avaya Business Communications Manager (Avaya BCM) 6.0.

You can better troubleshoot the problems on your network and reduce their impact by preparing for such events in advance. To do this, you must know the following:

- that your system is properly installed and routinely maintained
- the configuration of your network
- the normal behavior of your network

Navigation

- Proper installation and routine maintenance on page 43
- Network configuration on page 43
- Normal behavior on your network on page 44

Proper installation and routine maintenance

For more information about detailed installation information, see Avaya Business Communications Manager 6.0 Installation—System (NN40170-303). This document also outlines the routine tasks required for operating the BCM50 and BCM450.

Network configuration

To keep track of your network’s configuration, gather the information described in the following sections. This information, when kept up-to-date, is extremely helpful when you experience network or device problems.

- Site network map on page 43
- Logical connections on page 44
- Device configuration information on page 44
- Other important data about your network on page 44

Site network map

A site network map identifies where each device is physically located on your site, which helps locate the users and applications that are affected by a problem. You can use the site network map to systematically search each part of your network for problems.
Logical connections

With virtual LANs (VLANs), you must know how your devices are connected logically as well as physically.

Device configuration information

You should maintain online and paper copies of your device configuration information. Ensure that all online data is stored with your site’s regular data backup. If your site does not have a backup system, copy the information onto a backup disk (such as a CD or zip disk) and store the backup disk at an offsite location.

Other important data about your network

For a complete picture of your network, have the following information available:

- **All passwords**—Store passwords in a safe place. It is a good practice to keep records of your previous passwords in case you must restore a device to a previous software version and need to use the old password that was valid for that version.

- **Device inventory**—It is a good practice to maintain a device inventory, which list all devices and relevant information for your network. The inventory allows you to easily see the device type, IP address, ports, MAC addresses, and attached devices.

- **MAC address-to-port number list**—If your hubs or switches are not managed, you must keep a list of the MAC addresses that correlate to the ports on your hubs and switches.

- **Change control**—Maintain a change control system for all critical systems. Permanently store change control records.

- **Contact details**—It is a good practice to store the details of all support contracts, support numbers, engineer details, and telephone and fax numbers. Having this information available when troubleshooting can save a lot of time.

Normal behavior on your network

When you are familiar with the performance of your network when it is fully operational, you can be more effective at troubleshooting problems that arise. To understand the normal behavior of your network, monitor your network over a long period of time. During this time you can see a pattern in the traffic flow, such as which devices are typically accessed or when peak usage times occur.

To identify problems, you can use a baseline analysis, which is an important indicator of overall network health. A baseline serves as a useful reference of network traffic during normal operation, which you can then compare to captured network traffic while you troubleshoot network problems. A baseline analysis speeds the process of isolating network problems. By running tests on a healthy network, you compile normal data for your network. This normal data can then be used to compare against the results that you get when your network is experiencing trouble. For example, ping each node to discover how long it typically takes to receive a response from devices on your network. Capture and save each device’s response time and when you are troubleshooting you can use these baseline response times to help you troubleshoot.
Chapter 5
Software Troubleshooting

The information in this chapter applies to both the Avaya BCM 50 and the Avaya BCM450 platforms running Avaya Business Communications Manager (BCM) 6.0.

Use the information in this chapter to troubleshoot problems related to the BCM software components.

Navigation

Complete the following tasks, in the order shown below, to troubleshoot some of the common problems that you can encounter with the Avaya BCM software:

- Verify the software version on page 45
- Verify the keycodes on page 45
- Check the programming of lines and phones on page 45
- Restoring system data on page 54
- Verify the software inventory on page 55

Verify the software version

In the Business Element Manager, select Help, About. A panel displays and provides information about the Business Element Manager, such as the Release level.

Verify the keycodes

If a specific feature is not functioning, verify that the feature is included in your installed keycodes. For information about how to verify the installed keycodes, see Verify the keycodes on page 27.

Check the programming of lines and phones

You can use the Business Element Manager to view the programming of lines and phones. When you view the lines, the information on the panels may vary, depending on the type of line.

The Business Element Manager displays line information in two sections:

- The main section, Trunk/Line data, is located at the top of the screen and provides a table of lines and the current or default settings.
- The bottom section contains three tabs. The contents of the tabs may vary, depending on the line selected in the top table.
Check line programming

Use the following procedure to check line programming in your Avaya BCM system.

To check line programming

1. In the Task Navigation Panel, select the Configuration tab.
2. Select Telephony > Lines.
3. Verify that the programming for all lines is correct; see Trunk/Line data on page 46 for an explanation of the fields on the panel.
4. Select a line, and then select a tab:
   a. Select the Properties tab and verify that the settings are correct; see Properties on page 48 for an explanation of the fields on the tab.
   b. Select the Preferences tab and verify that the settings are correct; see Preferences on page 49 for an explanation of the fields on the tab.
   c. Select the Restrictions tab and verify that the settings are correct; see Restrictions on page 52 for an explanation of the fields on the tab.
   d. Select the Assigned DNs tab and verify that the settings are correct; see Assigned DNs on page 53 for an explanation of the fields on the tab.
5. Repeat step 4 for the remaining lines.
6. Correct any programming problems, or restore the system data; for more information, see Restoring system data on page 54.

Trunk/Line data

The top-level Table View panel shows line records for all lines active on the system, and the common assigned parameters.
The table **Trunk/Line Data main panel** on page 47 describes the fields found on the Trunk/Line Data main panel.

**Table 14  Trunk/Line Data main panel (Sheet 1 of 2)**

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line</td>
<td>This list contains all the possible line numbers for the system, including target lines.</td>
<td>Configure only those lines that are active on the system. (Click the Active check box and ensure that the Inactive check box is empty).</td>
</tr>
<tr>
<td>Trunk Type</td>
<td>PSTN-based lines, VoIP, Target</td>
<td>There are three main categories of lines: PSTN-based lines: (analog, T1, PRI, BRI) Voice over IP (VoIP) trunks, which connect through the LAN or WAN. Target lines, which are internal channels that provide direct dial capability.</td>
</tr>
<tr>
<td>Name</td>
<td>&lt;maximum of seven alphanumeric characters&gt;</td>
<td>Identify the line in a way that is meaningful to your system, such as by the type of line and line pool or the DN it is attached to in the case of target lines.</td>
</tr>
<tr>
<td>Control Set</td>
<td>DN &lt;control telephone DN&gt;</td>
<td>Enter a telephone DN for a telephone that you want to use to turn service off or on for other telephones using this line. The control telephone must have the line assigned, or must be assigned to the line pool the line is in.</td>
</tr>
<tr>
<td></td>
<td>Default: 221 (default Start DN)</td>
<td></td>
</tr>
<tr>
<td>Tips:</td>
<td></td>
<td><strong>Tips:</strong> External lines and telephones must be programmed to use one of the Scheduled Services: Ringing, Restriction, and Routing Services. For maximum flexibility, Avaya recommends that you create two different control telephones, one for the lines and one for the telephones. You can turn on a service manually or automatically for all external lines from an assigned control telephone. However, you cannot combine schedules. A service can only be active as normal service or one of the six schedules at any one time. Several schedules can be active at one time, but they must use different services.</td>
</tr>
<tr>
<td>Line Type</td>
<td>Public</td>
<td>Define how the line is used in relation to other lines in the system.</td>
</tr>
<tr>
<td></td>
<td>Private to: &lt;telephone DN&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pool A to O, BlocA to BlocF</td>
<td></td>
</tr>
</tbody>
</table>
Table 14  Trunk/Line Data main panel (Sheet 2 of 2)

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prime set</td>
<td>DN: &lt;telephone DN&gt; None</td>
<td>Assign a telephone to provide backup answering for calls on the line. For an Auto Answer line, calls are redirected if the received number is invalid or the target line is busy, and if the If busy parameter is set To prime. Each line can be assigned only one prime telephone.</td>
</tr>
<tr>
<td>Pub. Received #</td>
<td>&lt;digits associated with a specific target line&gt;</td>
<td>Specify the digits the system will use to identify a call from the public network to this target line.</td>
</tr>
<tr>
<td>(Target lines only)</td>
<td></td>
<td>• A received number cannot be the same as, or be the start digits, of a line pool access code, a destination code, the DISA DN or the Auto DN.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If you are configuring auto-answer BRI trunks to map to target lines, the received number should be the same as the Network DN supplied by your service provider. The call will be directed to the prime telephone for the incoming line if the Network DN is not used.</td>
</tr>
<tr>
<td>Priv. Received #</td>
<td>&lt;digits associated with a specific target line&gt;</td>
<td>Specify the digits the system will use to identify a call from the private network to this target line.</td>
</tr>
<tr>
<td>(Target lines only)</td>
<td></td>
<td>• A received number cannot be the same as, or be the start digits, of a line pool access code, a destination code, the DISA DN or the Auto DN.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If you are configuring auto-answer BRI trunks to map to target lines, the received number should be the same as the Network DN supplied by your service provider. The call will be directed to the prime telephone for the incoming line if the Network DN is not used.</td>
</tr>
<tr>
<td>Distinct ring</td>
<td>None</td>
<td>Choose the distinctive ring pattern that you want to assign to the line. This allows you to provide selective service to calls with differing answer priorities.</td>
</tr>
<tr>
<td></td>
<td>Pattern 2</td>
<td>When more than one line with the distinct ring settings rings at a telephone, the line with the highest priority rings first.</td>
</tr>
<tr>
<td></td>
<td>Pattern 3</td>
<td>• Pattern 4 has the highest ring priority</td>
</tr>
<tr>
<td></td>
<td>Pattern 4</td>
<td>• Pattern 3 has second highest ring priority</td>
</tr>
<tr>
<td></td>
<td>None</td>
<td>• Pattern 2 has third highest ring priority</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• None has the lowest ring priority.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>By default, all telephones and lines are set to None.</td>
</tr>
</tbody>
</table>

**Properties**

The Properties tab shows basic line properties. Not all fields apply to all types of lines.

The Properties tab is shown in the figure Properties details panel on page 49.
The table Properties line settings on page 49 defines the fields on this panel and indicates the lines.

Table 15  Properties line settings

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Legend:</strong> Loop = analog/digital loop; GS = ground start; DID = DID; E&amp;M = E&amp;M; BRI = BRI; DPNSS = DPNSS; VoIP = VoIP; TL = Target. Note: PRI fields are all included under the main table.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss package</td>
<td>Loop (analog only)</td>
<td>Select the appropriate loss/gain and impedance settings for each line.</td>
</tr>
<tr>
<td>Short CO</td>
<td>Medium CO</td>
<td>Long CO</td>
</tr>
<tr>
<td>Long PBX</td>
<td>Short PBX</td>
<td>Line Tuning Digit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Line Tuning Digit</td>
</tr>
</tbody>
</table>

**Preferences**

The Preferences tab shows information that may vary from trunk to trunk. Most of this information needs to coordinate with the line service provider equipment.

The figure Preferences details panel on page 50 shows the Preferences tab.
The table **Preferences details fields for lines** on page 50 defines the fields on this panel and indicates the lines.

### Table 16  Preferences details fields for lines (Sheet 1 of 3)

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto privacy</td>
<td>Loop</td>
<td>Define whether one Avaya BCM450 user can select a line in use at another telephone to join an existing call.</td>
</tr>
<tr>
<td>Full autohold</td>
<td>Loop</td>
<td>Enables or disables Full autohold. When enabled, if a caller selects an idle line but does not dial any digits, that line is automatically placed on hold if you then select another line. Full autohold is always in place for T1 E&amp;M trunks because it has no meaning for incoming-only T1 DID trunks. The default setting should be changed only if Full autohold is required for a specific application.</td>
</tr>
<tr>
<td>Aux. ringer</td>
<td>Loop</td>
<td>Turn the auxiliary ringer on or off for all telephones using this line. When programmed on a line, the auxiliary ringer will ring every time a call is received. Note: When programmed only on a telephone, no ring occurs for a transferred call. An auxiliary ringer can also be programmed in Services to ring for a line placed into a scheduled Ringing service.</td>
</tr>
</tbody>
</table>

Legend: Loop = analog/digital loop; GS = ground start; DID = DID; E&M = E&M; BRI = BRI; DPNSS = DPNSS; VoIP = VoIP; TL = Target and DASS2. Note: PRI fields are all included under the main panel.
Table 16  Preferences details fields for lines (Sheet 2 of 3)

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANI Number</td>
<td></td>
<td>&lt;check box&gt; Define whether the telephone number of the caller will be shown for this line. For T1 E&amp;M and T1 DID trunks connected to a DTM, this setting only appears if Signaling is set to WinkStart. The central office must deliver ANI/DNIS in DTMF mode. No additional equipment is required.</td>
</tr>
<tr>
<td>DNIS Number</td>
<td></td>
<td>&lt;check box&gt; Defines whether the digits dialed by an external caller on this line will be shown. For T1 E&amp;M trunks connected to a DTM, this setting only appears if Signaling is set to WinkStart and Answer mode is set to Manual.</td>
</tr>
<tr>
<td>Distinct Rings in use</td>
<td>&lt;read-only&gt;</td>
<td>Indicates if a special ring has been assigned. See Distinct Ring on the main table.</td>
</tr>
</tbody>
</table>

Answer mode

<table>
<thead>
<tr>
<th>Loop</th>
<th>GS</th>
<th>E&amp;M</th>
<th>BRI</th>
<th>DPNSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual</td>
<td>Auto</td>
<td>Define whether a trunk is manual or automatic answer. Auto answer mode allows the trunk to be a shared resource by the system telephones. This shared resource is created through routing to target lines or using DISA. For auto answer trunks being used to allow remote call-in from system users, the trunk can be configured to answer with a straight dial tone, if DISA has not been enabled. It can also be configured to answer with a stuttered dial tone if DISA is enabled and the caller is expected to enter a CoS password. The CoS password defines which system features the caller is permitted to access. Manual answer trunks are assigned to one or more telephones. The assigned telephones exclusively own the line.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: You require Disconnect supervision on the line if loop start trunks are to operate in auto-answer mode.

Answer with DISA

<table>
<thead>
<tr>
<th>Loop</th>
<th>GS</th>
<th>E&amp;M</th>
<th>BRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;check box&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Define whether the system prompts a caller for a six-digit class of service (CoS) password. This setting appears for T1 loop start, T1 E&M lines that have auto-answer mode, and analog trunks. Set this option to No for T1 E&M lines on a private network that have auto-answer mode.

If busy

<table>
<thead>
<tr>
<th>To Prime Busy Tone</th>
<th>TL</th>
</tr>
</thead>
</table>

Define whether a caller receives a busy tone or the call forwards to the prime telephone when the target line is busy. Busy tone only works for PRI trunks.

Tips: The duration of an open switch interval (OSI) before BCM450 disconnects a call is programmed by the Disconnect timer setting.
Restrictions

Assigning Line restrictions and Remote Access Package restrictions are part of the configuration for controlling calls out of the system (line restrictions) and into the system from a private network node or from a remote user calling in over the PSTN lines (Remote Access Packages).

The figure Restrictions tab on page 53 shows the restrictions for a line.
The table **Restrictions** on page 53 describes the fields on this panel.

**Table 17  Restrictions**

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use remote package</td>
<td>&lt;remote package #&gt;</td>
<td>If the line is being used to receive external calls or calls from other nodes on the private network, ensure that you indicate a remote package that provides only the availability that you want external callers to have. This attribute is typically used for tandeming calls.</td>
</tr>
<tr>
<td>Schedule</td>
<td>Default: Normal, Night, Evening, Lunch, Sched 4, Sched 5, Sched 6</td>
<td></td>
</tr>
<tr>
<td>Line Restrictions</td>
<td>&lt;00-99&gt;</td>
<td>Enter the restriction filter number that applies to each schedule. (controls outgoing calls)</td>
</tr>
<tr>
<td>Remote Restrictions</td>
<td>&lt;00-99&gt;</td>
<td>Enter the restriction filter that applies to each schedule. This setting provides call controls for incoming calls over a private network or from remote user dialing in over PSTN)</td>
</tr>
</tbody>
</table>

**Assigned DNs**

The Assigned DNs tabbed panel displays the DN properties for lines that are assigned to telephones.

This information can also be configured on the DN record. Any information added, deleted or modified in this table reflects in the DN record.

**Note:** Lines that do not allow single-line assignment, such as PRI lines and VoIP lines, will not display this tabbed panel.
Restoring system data

If the programming of lines and extensions is incorrect, you can restore from an archive file, or you can restore the system to factory defaults. This section provides the procedures to follow to restore system data from an archive file, and to restore factory defaults. For information about the effects of performing a restore operation, or about optional components, see *Avaya Business Communications Manager 6.0 Administration and Security* (NN40170-603).

Restoring data from an archive

**Caution:** A backup operation can interrupt services running on the Avaya BCM. A warning displays whenever the backup will cause a service interruption. If you want to perform a backup that does not affect the system, you can exclude services that would be affected. Alternatively, you can include these services and perform a backup at a time when the system is typically not in use.

**To restore data from an archive**

1. In the task panel, click the **Administration** tab.
2. Open the **Backup and Restore** folder, and then click **Restore**. The **Restore** panel opens. The **Restore From** selection field has **Avaya BCM** as a default value.
3. In the **Restore From** selection field, select the location of the archive file to restore:
   - BCM
   - My Computer
   - Network folder
   - FTP server
   - SFTP server
   - USB storage device
   - Factory Default
4. Click the **Restore** button. The **Select Components to Restore** window opens.
5. Select the optional components that you want to include from the backup file.
6. Click the **OK** button. A warning window opens and displays information about components that will be affected by the restore operation. Read the warning carefully before proceeding.
7. Click the **Yes** button to proceed. A progress window opens. When the operation is complete, the **Restore Complete** window opens.
8. Click the **OK** button.
Restoring the factory configuration

Caution: A restore operation is a service-affecting operation. A number of services running on the Avaya BCM system are stopped and then restarted using the restored configuration or application data. A reboot is required if you choose Keycodes as a restore option. It will take several minutes before Voicemail is working again.

To restore the factory configuration

Your Avaya BCM is delivered with a backup file that was created at the factory. This file can be a helpful starting point if you decide to completely reconfigure your BCM and you want to erase the settings programmed on your device. Although you can select individual components to restore, Avaya recommends that you restore all components when using this option.

1. In the task panel, click the Administration tab.
2. Open the Backup and Restore folder, and then click Restore. The Restore panel opens.
3. In the Restore From selection field, select Factory Default. A warning dialog box displays.
4. Click the Restore button. The Select Components to Restore panel opens.
5. Select the optional components that you want to include from the backup archive.
6. Click the OK button. A warning window opens and displays information about components that will be affected by the restore operation. Read the warning carefully before proceeding.
7. Click the Yes button to proceed. A progress window opens. When the operation is complete, the Restore Complete window opens.
8. Click the OK button.

Verify the software inventory

This section provides information about how to verify the level of software components and obtain updates to your software inventory. For information about applying software updates, see Avaya Business Communications Manager 6.0 Administration and Security (NN40170-603).

Viewing the inventory of Avaya BCM software

Avaya BCM software is organized into software components that you can individually update as required. The version of each software component is tracked so that you can determine the exact software release level of a BCM to the component level.
You can view the complete inventory of software installed on the BCM. The Software Inventory table displays all the software components installed on the system, the functional group and the software version of each component.

The table Information displayed in the Software Component Version Information table on page 56 lists the information displayed in the Software Component Version Information table.

Table 18 Information displayed in the Software Component Version Information table

<table>
<thead>
<tr>
<th>Column</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component</td>
<td>The name of the software component installed on the BCM450. For example, backup-recovery.</td>
</tr>
<tr>
<td>Group</td>
<td>The functional group to which the software component belongs. For example, Operating System.</td>
</tr>
<tr>
<td>Version</td>
<td>The version of the software component.</td>
</tr>
</tbody>
</table>

You can change the order of the information displayed in the table by clicking a column heading and dragging it to a new place in the table. You can also sort the information in a column by descending or ascending order, by clicking the column heading.

To view the Avaya BCM software inventory

1. In the task panel, click the Administration tab.
2. Open the Software Management folder, and then click the Software Inventory task. The Software Inventory panel opens.

Obtaining software updates

Before you can apply a software update to your Avaya BCM, you must obtain the software update and unzip the file. Authorized Avaya partners can download BCM software updates from the Avaya Technical Support web page. For more information about obtaining updates from the Avaya Technical Support web page, see www.avaya.com/support.
Chapter 6
Advanced Troubleshooting

The information in this chapter applies to both the Avaya BCM50 and Avaya BCM450 platforms running Avaya Business Communications Manager (BCM) 6.0.

This chapter contains examples of advanced troubleshooting procedures. You must be a system administrator to perform these procedures.

Navigation

- Example 1: Cannot dial out from an analog trunk on page 57
- Example 2: Cannot dial out from a SIP or H323 VoIP trunk on page 62
- Example 3: IP set is not registering with the Avaya BCM on page 68
- Example 4: Cannot install keycode or invalid keycode application on page 70
- Example 5: Cannot dial out from digital trunk on page 70
- Example 6: MeetMe Conferencing commands do not work, or conferencing is busy on page 75
- Example 7: Unable to apply a software update from a USB storage device on page 76
- Example 8: Business Element Manager incorrectly shows expansion cabinet as empty on page 77

Example 1: Cannot dial out from an analog trunk

When you cannot dial out from an analog trunk, you may experience the following problems in your network:

- you are unable to reach a destination number when you dial it
- there is no dial tone
- instead of a dial tone, you hear a re-order or fast-busy tone
- you hear a “wrong number” message from the central office
- if you are attempting to make a Find Me/Follow Me call, your external destinations do not ring, or stop before you pick up the call

Use the following procedure when you cannot dial out from an analog trunk.

Troubleshooting example 1a

1. Check that the LED indicators on the Avaya BCM Chassis and the MBM are solid green.
2. Using an analog test set, verify that a dial tone is present at the MBM termination point.
3 From the Business Element Manager, select Configuration > System > Keycodes to view the list of installed features.

4 Verify that the appropriate keycode is active. For analog trunk modules, the keycode is Exp Port, and for BCM50 built-in trunks (main chassis), the keycode is Int Analog Trunk.

5 Select Configuration, Resources > Telephony Resources and select the appropriate trunk. Verify that the trunk is active.

6 Select Configuration, Telephony > Lines > Active Physical Lines. Select the appropriate line and verify that it is provisioned correctly. The Line Type should be Pool A, the Trunk Mode should be Supervised, and the Dial Mode should be Tone.

7 Select Configuration, Telephony > Sets > Active Sets. Select the appropriate set and verify that it is provisioned correctly. On the Line Assignment tab, verify that the Appearance Type is one of the following: appear only, appear and ring, or ring only.

8 Select Administration > Utilities > BCM Monitor, and then click Launch BCM Monitor.
9. Select the **BCM Info** tab and verify the status of the line.

**Troubleshooting example 1b**

1. If you are attempting to use Find Me/Follow Me over an analog trunk, log on to Set Based Admin. For more information about Set Based Admin, see *Avaya Business Communications Manager 6.0 Telset Administration Guide* (NN40170-604).

2. To ensure that Voice Activity Detection is enabled, navigate to **System prgrming> AnlgTrks VAD > VAD Enabled**. If **VAD Disabled** appears as a parameter instead, then Voice Activity Detection is disabled.

3. If VAD is enabled and Find Me/Follow Me calls are still being dropped, adjust the VAD parameters to account for line noise. Table 19 on page 60 details the available VAD parameters available under **System prgrming> AnlgTrks VAD > VAD Parameters**.
Table 19  VAD Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SpchSlow</td>
<td>The system uses this value when the DSP VAD algorithm detects a &quot;possible tone&quot; or &quot;unwanted spike&quot; and delays speech detection for this value times 10 milliseconds (default = 10, or 100 milliseconds). You must adjust this value for each analog trunk. This value can be increased to prevent a VAD misdetection. Range = 10 - 32767.</td>
</tr>
<tr>
<td>SpchFast</td>
<td>The system uses this value to delay speech detection by 10 milliseconds for every increment of one. The default value is 6 meaning that it takes at least 60 milliseconds to detect speech. In normal circumstances this value should not change. In some situations where the call progress tones are received with fluctuations in energy level, increasing this value may prevent false VAD detection at the cost of delaying actual speech detection. Range = 1 - 10.</td>
</tr>
<tr>
<td>NoiseFloor</td>
<td>This value is the average noise level in the channel. The speech detection algorithm considers a signal as valid speech if its short term average energy in the past 50 milliseconds is greater than this value, otherwise it will consider this as noise. The value can be converted to dB using this formula: Noise floor in dB = Log10(NOISE_FLOOR/2^20)*10; The default value is 10 so the noise level is between -50dB to -15dB. Range = 0 - 65535</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| EdgeThrsh   | This value is the minimum energy level before sound can be considered an "edge of a tone" energy or "unwanted spike". The value can be converted to dB using this formula:  
  \[
  \text{Edge Threshold in dB} = \log_{10}(\frac{\text{EDGE_THRESHOLD}}{2^{20}}) \times 10;
  \]
  The default value is 900, so all spikes in the channel with more than -30dB and have been jumped in energy level by a factor of PeakRatio will be delayed for speech detection by the SpchSlow value.  
  Increasing this value will improve speech detection time at the cost of possible misdetection when there is any unwanted spike in the channel.  
  You must adjust this value for each analog trunk. The minimum value of this parameter is the minimum energy of an "unwanted spike" for all analog trunks in the system.  
  Range = 0 - 65535                                                                                                                                 |
| PeakRatio   | The DSP VAD algorithm uses this value to detect the start of a "possible tone" or an "unwanted spike".  
  The default value of this parameter is 10 meaning that the average energy in the last 20 milliseconds must be 10 times bigger or smaller than the current energy to be considered as a "possible rising/falling edge" of tone energy or a possible spike.  
  You can decrease this value for channels with weak progress tones and VAD misdetection. You can increase this value if there is a delay in speech detection. Lowering the number causes more delay in speech detection. Higher numbers increase the possibility of VAD misdetection for low amplitude call progress tones.  
  Range = 1 - 4095                                                                                                                                 |
Example 2: Cannot dial out from a SIP or H323 VoIP trunk

When you cannot dial out from a SIP or H323 VoIP trunk, you may experience the following problems in your network:

• you are unable to reach a destination number when you dial it
• there is no route to the destination

Use the following procedure when you cannot dial out from a SIP or H323 trunk.

Troubleshooting example 2

1 Check that the LED indicators on the Avaya BCM Chassis are solid green.

2 From the Business Element Manager, select Configuration > System > Keycodes to view the list of installed features.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FixFrmNum</td>
<td>This value indicates the minimum number of speech frames in the past 10 frames. Each speech frame is 10 milliseconds. The system uses this value to detect the rising and falling edges of a tone. You can decrease this value for tones with significant fluctuation during the tone ON period. You can increase this value to increase the speech detection time at the cost of possible misdetection during a call progress tone. Range = 1 - 10</td>
</tr>
<tr>
<td>VarFrmNum</td>
<td>This value indicates the minimum number of frames in the past 10 frames that violate the steady state condition after a possible tone edge detection. Each speech frame is 10 milliseconds. This value detects the rising and falling edges of a tone. You can increase this value to increase the speech detection time at the cost of possible misdetection during a call progress tone. Range = 1 - 10</td>
</tr>
</tbody>
</table>
3 Verify that the appropriate keycode is active. For H323 trunks, the keycode is VoIP GW Trunk, and for SIP trunks, the keycode is SIP GW Trunk.

---

<table>
<thead>
<tr>
<th>Line</th>
<th>Trunk Type</th>
<th>Name</th>
<th>Control Set</th>
<th>Line Type</th>
<th>Prime Set</th>
<th>Pub. Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>VoIP</td>
<td>Line001</td>
<td>221</td>
<td>VoIP</td>
<td>221</td>
<td>N/A</td>
</tr>
<tr>
<td>002</td>
<td>VoIP</td>
<td>Line002</td>
<td>221</td>
<td>VoIP</td>
<td>221</td>
<td>N/A</td>
</tr>
<tr>
<td>003</td>
<td>VoIP</td>
<td>Line003</td>
<td>221</td>
<td>VoIP</td>
<td>221</td>
<td>N/A</td>
</tr>
<tr>
<td>004</td>
<td>VoIP</td>
<td>Line004</td>
<td>221</td>
<td>VoIP</td>
<td>221</td>
<td>N/A</td>
</tr>
<tr>
<td>005</td>
<td>VoIP</td>
<td>Line005</td>
<td>221</td>
<td>VoIP</td>
<td>221</td>
<td>N/A</td>
</tr>
<tr>
<td>006</td>
<td>VoIP</td>
<td>Line006</td>
<td>221</td>
<td>VoIP</td>
<td>221</td>
<td>N/A</td>
</tr>
<tr>
<td>007</td>
<td>VoIP</td>
<td>Line007</td>
<td>221</td>
<td>VoIP</td>
<td>221</td>
<td>N/A</td>
</tr>
<tr>
<td>008</td>
<td>VoIP</td>
<td>Line008</td>
<td>221</td>
<td>VoIP</td>
<td>221</td>
<td>N/A</td>
</tr>
</tbody>
</table>

---

Details for Line: 003

- References
- Restrictions
  - Aux. ring: False
  - Distinct rings in use: None
4 Select Configuration > Telephony > Line > Active VoIP Lines. Select the appropriate line and verify that the Control Set and Prime Set are provisioned correctly.

Keycodes

<table>
<thead>
<tr>
<th>System ID</th>
<th>8BCXT2CJGK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sequence #</td>
<td>5</td>
</tr>
<tr>
<td>Key Type</td>
<td>3</td>
</tr>
<tr>
<td>Date Stamp</td>
<td>2009-06-15</td>
</tr>
<tr>
<td>Region</td>
<td>Global</td>
</tr>
<tr>
<td>SW Version</td>
<td>Avaya BCM50 Release 5</td>
</tr>
<tr>
<td>Manufacturing SW version</td>
<td>450.05</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Status</th>
<th>Name</th>
<th>Data</th>
<th>Expiry Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIVE</td>
<td>ICC</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ACTIVE</td>
<td>IM seat</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>ACTIVE</td>
<td>Fax User</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ACTIVE</td>
<td>Fax User</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ACTIVE</td>
<td>Fax User</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ACTIVE</td>
<td>Fax User</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ACTIVE</td>
<td>Fax User</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ACTIVE</td>
<td>Fax User</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ACTIVE</td>
<td>QSIG</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ACTIVE</td>
<td>MCDI</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ACTIVE</td>
<td>IPMSS</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Load Keycode File...

5 Select Configuration > Resources > Telephony Resources and select the appropriate trunk.
6 Click the **Add** button to open the **Add Remote Gateway** dialog box. Verify that the remote gateway is configured correctly.

![Add Remote Gateway dialog box](image1.png)

7 Select **Configuration > Telephony > Dialing Plan > Routing** and select the **Routes** tab. Verify that the route is configured correctly.

![Routing configuration](image2.png)

8 Select **Configuration > Telephony > Dialing Plan > Routing** and select the **Destination Codes** tab. Verify that the destination code is configured correctly.

![Destination Codes configuration](image3.png)
**Note:** Ensure that the **Absorbed Length** is configured to the expected dialing plan.

9. Select **Configuration > Telephony > Sets > Active Sets** and select the **Line Access** tab.
10 Highlight the appropriate set and select the **Line Pool Access** tab. Verify that the set has access to VoIP trunks.

11 Select **Configuration > Telephony > Dialing Plan > Private Network** and ensure that the **Private Network Type** is set to CDP or UDP.

**Note:** In this example, the dialing plan is configured for a CDP Network with the recommended minimum 4 digit Private DN length.
Example 3: IP set is not registering with the Avaya BCM

When an IP set cannot register with the Avaya BCM450, you notice the following problem in your network:

- the IP set is not registered and repeatedly tries to connect to the BCM

If an IP phone is not registering with the BCM, there are three possible causes:

- there are not enough licenses for the number of IP phones connected to the system
- the number of IP sets connected exceeds the maximum: the maximum for BCM450 is 300 and the maximum for BCM50 is 32
- the phone is not correctly configured

Verify that the number of phones does not exceed the number of licenses. If there are too many phones for the number of licenses, disconnect unnecessary phones, or increase the number of licenses.

If the number of IP sets connected to the Avaya BCM exceeds the maximum number of IP set licenses or keycodes, it is possible that after a system reboot, not all of the supported IP sets can register. To resolve this problem, refer to the procedure Troubleshooting example 3a on page 69.
If the number of phones connected does not exceed the number of licenses, and does not exceed the maximum number of IP sets supported, use the procedure Troubleshooting example 3b on page 69 to verify the configuration of the IP phone.

**Troubleshooting example 3a**

1. Select Configuration > Telephony Resources to deregister the offline sets.
   OR
2. To connect more than the maximum number of IP sets, configure unused Application DNs for these sets by selecting Configuration > Telephony Resources > Application Sets.
3. Decrease the Application DNs and increase the IPSet DN count.

**Troubleshooting example 3b**

1. Select Configuration > Resources > Telephony Resources and select the appropriate IP set from the list.
2. On the IP Terminal Global Settings tab, ensure that the Enable Registration checkbox is selected.
3. Verify that the Global password on the BCM is the same password that you are using to register the IP set (the default password is 2264). If this field is left blank, no password prompt occurs during phone registration.
Example 4: Cannot install keycode or invalid keycode application

When you cannot install a keycode, or have an invalid keycode application, you will see the following message: “Error Happened. Error detail; Invalid Keycode File.”

Use the following procedure when you cannot install a keycode, or when a keycode application is invalid. For more information about keycodes, see Keycode Installation Guide.

Example 5: Cannot dial out from digital trunk

When you cannot dial out from a digital trunk, you may experience the following problems in your network:

- you are unable to reach a destination number when you dial it
- there is no route to the destination
Use the following procedure when you cannot dial out from a digital trunk.

**Troubleshooting example 5**

1. Check that the LED indicators on the Avaya BCM Chassis are solid green.
2. Verify the physical connection from the carrier demarcation; ensure that the cable is securely connected.
3. Verify the physical connection from the carrier demarcation to the BCM450 equipment; ensure that the cable is securely connected.
4. If you are using SL-1 or ETSI QSIG, verify that the MCDN keycode is active. From the Business Element Manager, select **Configuration > System > Keycodes** to view the list of installed features.

5. Verify that the digital trunk parameters are configured according to the parameters specified by your carrier or central office.
6. Select **Configuration > Resources > Telephony Resources** and click the **Trunk Port Details** tab. Verify that the trunk port details and state are correctly provisioned.
7 Select the **Provision Lines** tab and verify that the lines are correctly provisioned.

8 Select **Configuration > Telephony > Dialing Plan > Routing** and select the **Routes** tab. Verify that the route is configured correctly.

9 Select **Configuration > Telephony > Dialing Plan, > Routing** and select the **Destination Codes** tab. Verify that the destination code is configured correctly.
Note: Ensure that the **Absorbed Length** is configured to the expected dialing plan.

10 Select Administration > Telephony Metrics > Trunk Module Metrics and select the DTM module. Verify that the State of the DTM module is Enabled.

11 Select the CSU Alarm History tab and check the alarm status of the module.
12 Select Administration > Telephony Metrics > CBC Limit Metrics and verify calls were not denied due to exceeding CBC limits.

13 Select Administration > Utilities > BCM Monitor and click the Launch BCM Monitor button.
14 Select the **Line Monitor** tab and verify the status of the line; select the **UIP** tab and verify the call set up.

**Example 6: MeetMe Conferencing commands do not work, or conferencing is busy**

Use the following procedure to troubleshoot problems with MeetMe Conferencing.
Troubleshooting example 6

1. Select Configuration > Resources > Application Resources and then select the VoiceMail + CC application.

2. Increase the maximum number of application resources (voice ports) for Voice Mail + CC.

Example 7: Unable to apply a software update from a USB storage device

Use the following procedure when a software update from a USB storage device fails. When the update fails, the Avaya BCM generates alarm 1003.

Troubleshooting example 7

1. Verify that only one USB storage device is attached to the BCM in the bottom USB port.
2. If a second USB storage device is attached, remove it.
3. Verify that there is only one partition on the USB storage device, and that the software update is on the first partition. The BCM will recognize only the first partition.
Example 8: Business Element Manager incorrectly shows expansion cabinet as empty

Use the following procedure when a module is installed in the expansion cabinet, but the Business Element Manager shows the expansion cabinet as empty, and the MBM is not active.

1. Select Configuration > Resources > Telephony Resources.
2. Double-click the Module Type field for the expansion cabinet.
3. Select the module from the list.
4. Configure the module and select Enable.

Example 9: HDD-2 LED is Off after installing second hard disk

When you apply a RAID upgrade kit to an existing Avaya BCM450 6.0 software system, the LED indicator of HDD-2 remains off after installing the second hard disk.

Perform the following actions when this occurs:

1. Verify if the version of the running software is Avaya BCM450 6.0 or greater. BCM450 1.0 systems are incompatible with RAID upgrade kit.
2. Verify if the hard disk is seated properly.
   - If not, shut down the system, remove the second hard disk, and reset it, ensuring the hard disk tray is firmly locked to the rear SATA connection. When the hard disk clips into the correct position as the hard disk tray locks itself firmly into position, the front of the second hard disk tray must be flush with the first hard disk tray.

Example 10: VLAN interfaces cannot communicate with external devices

When VLAN interfaces cannot communicate with external devices, you can notice the following problems in your network:

- The network is not connected to the appropriate Avaya BCM LAN port.
- The remote VLAN endpoint is not configured with the same VLAN ID as on the BCM.
- The remote VLAN endpoint is configured on the same VLAN ID as on the BCM but their subnet IP address differ.

Use the following procedure when VLAN interfaces cannot communicate with external devices:

1. Select the Ethernet Activity option from the Business Element Manager.
2. Verify the BCM LAN port connectivity and traffic forwarding statistics.

Note: The statistics of the Layer 2 switch ports do not differentiate between normal LAN traffic and VLAN traffic.
Chapter 7
Recovery trees

The information in this chapter applies to the Avaya Business Communications Manager 450 (Avaya BCM450) platform only.

This chapter provides recovery trees for common troubleshooting scenarios.

Navigation

- System is not processing calls on page 79
- Start-up profile fails on page 80
- Cannot access Avaya BCM450 through Business Element Manager on page 81
- Avaya BCM450 shuts down unexpectedly on page 83

System is not processing calls

Use the following flowchart when the Avaya BCM450 is not processing calls.
Start-up profile fails

Use the following flowchart when the start-up profile of the Avaya BCM450 fails.
Figure 20 Start-up profile fails

Cannot access Avaya BCM450 through Business Element Manager

Use the following flowchart when you cannot access the BCM450 through Business Element Manager.
Figure 21  Cannot access BCM450 through Business Element Manager

1. Cannot access BCM via Element Manager
   - Verify IP address, username, and password are correct in Element Manager: No → Correct the information and retry connection
   - Yes
   - Does device validate in Element Manager? Yes → Retry connection
   - No
   - Does BCM respond to ping? Yes
   - Can BCM web page be accessed? No → Is CLI accessible from serial port
   - Yes → Log into CLI and verify IP settings are correct
   - No
   - Is log into BCM Web page successful? Yes → Retry connection
   - No → Correct IP settings in CLI or Element Manager
   - Yes → Retry connection
Avaya BCM450 shuts down unexpectedly

Use the following flowchart when the BCM450 shuts down unexpectedly.

Figure 22  Unexpected shutdown
Chapter 8
Downloading Software

The information in this chapter applies to both the Avaya BCM50 and Avaya BCM450 platforms running Avaya Business Communications Manager (Avaya BCM) 6.0. Use the information in this chapter to download Avaya BCM software.

Navigation

- Downloading software from the Avaya BCM system webpage on page 85
- Downloading software from the Avaya web site on page 88

Downloading software from the Avaya BCM system webpage

The Avaya BCM system web page facilitates the download of applications, documentation, and other information necessary for running the BCM platform and its services. You connect to the BCM system web page by typing the IP address of your BCM system device into your browser. A valid user name and password are required in order to access the web page.

The BCM system web page contains the following links:

- Quick Link - Provides links to frequently used applications, including Mailbox Manager, Activity Reporter Basic, and CallPilot Manager.
- User Applications - Applications listed in Table 20 that are available to the end users of the BCM platform.
- Business Applications - Applications listed in Table 20 that are available to business users of the BCM platform.
- Administrator Applications - Applications listed in Table 20 that are available to BCM platform administrators.
- Documentation - Documentation for the BCM450 end users to explain the end-user applications and BCM platform-specific tasks.

Table 20   Applications available on Avaya BCM system Web page

<table>
<thead>
<tr>
<th>Application</th>
<th>User</th>
<th>Administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>User Applications</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mailbox Manager</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Desktop Assistant Pro</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>CallPilot Unified Messaging</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Personal Call Manager</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>LAN CTE Client</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>
Table 20  Applications available on Avaya BCM system Web page

<table>
<thead>
<tr>
<th>Application</th>
<th>User</th>
<th>Administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP Software Phone 2050</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Mobile Voice Client 2050</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td><strong>Business Applications</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reporter Applications</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity Reporter Basic</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Activity Reporter</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td><strong>Contact Center Applications</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reporting for Contact Center</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Contact Center Reporting Server</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Multimedia Contact Center</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>IP View Softboard</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td><strong>Administrator Applications</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrator Management Tools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CallPilot Manager</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Business Element Manager</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Desktop Assistant Pro AE</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>NCM for BCM</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>BCM Monitor</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>CDR Clients</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>BCM MiBs</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>RADIUS Dictionary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSH Client (PuTTY)</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>BCM Logs</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td><strong>Digital Mobility Tools</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital Mobility Controller</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Digital Mobility Service Tool</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td><strong>Templates</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Startup Profile Template</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Factory Default Programming Record</td>
<td>N</td>
<td>Y</td>
</tr>
</tbody>
</table>

Table 21  Applications available on BCM50 Web page

<table>
<thead>
<tr>
<th>Application</th>
<th>User</th>
<th>Administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>User Applications</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mailbox Manager</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Desktop Assistant Pro</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>
### Table 21  Applications available on BCM50 Web page

<table>
<thead>
<tr>
<th>Application</th>
<th>User</th>
<th>Administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td>CallPilot Unified Messaging</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Personal Call Manager</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>LAN CTE Client</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>IP Software Phone 2050</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Mobile Voice Client 2050</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Avaya VPN Client</td>
<td>N</td>
<td>Y</td>
</tr>
</tbody>
</table>

#### Business Applications

#### Reporter Applications

<table>
<thead>
<tr>
<th>Application</th>
<th>User</th>
<th>Administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity Reporter Basic</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Activity Reporter</td>
<td>N</td>
<td>Y</td>
</tr>
</tbody>
</table>

#### Contact Center Applications

<table>
<thead>
<tr>
<th>Application</th>
<th>User</th>
<th>Administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reporting for Contact Center</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Contact Center Reporting Server</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Multimedia Contact Center</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>IP View Softboard</td>
<td>N</td>
<td>Y</td>
</tr>
</tbody>
</table>

#### Administrator Applications

#### Administrator Management Tools

<table>
<thead>
<tr>
<th>Application</th>
<th>User</th>
<th>Administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td>CallPilot Manager</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Business Element Manager</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Desktop Assistant Pro AE</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>NCM for BCM</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>BCM Monitor</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>CDR Clients</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>BCM MiBs</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>RADIUS Dictionary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSH Client (PuTTY)</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>BCM Logs</td>
<td>N</td>
<td>Y</td>
</tr>
</tbody>
</table>

#### Digital Mobility Tools

<table>
<thead>
<tr>
<th>Application</th>
<th>User</th>
<th>Administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Mobility Controller</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Digital Mobility Service Tool</td>
<td>N</td>
<td>Y</td>
</tr>
</tbody>
</table>

#### Templates

<table>
<thead>
<tr>
<th>Application</th>
<th>User</th>
<th>Administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Startup Profile Template</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Factory Default Programming</td>
<td>N</td>
<td>Y</td>
</tr>
</tbody>
</table>
To download software from the Avaya BCM Web page

1  Connect to the BCM Web page
   — If the BCM is installed on the network use a browser and type in the BCM IP address as the URL in the following format:
     http://xxx.xxx.xxx.xxx
   — If the BCM is installed but not yet configured, connect directly to the BCM through the OAM port and, using a browser, type the following:
     http://10.10.11.1/

2  Enter the user name and password to be authenticated on the BCM Web page.

3  Select the link for the type of application that you want to download.

4  Select the link for the specific application or tool that you want to download and select the download link.

Downloading software from the Avaya web site

To download software from the Avaya Web site, see the following web site:
http://www.avaya.com/support
Chapter 9
Troubleshooting Tools

The information in this chapter applies to both the Avaya BCM50 and the Avaya BCM450 platforms running Avaya Business Communications Manager (Avaya BCM) 6.0.

The Avaya BCM system provides several tools that you can use to diagnose problems.

Navigation

- Service Management on page 89
- Status and Metrics on page 89
- Utilities on page 90
- Command Line Interface on page 90, for BCM450 only

Service Management

You can use the Business Element Manager to view a list of the services that are running on your BCM system.

For more information about service management on Avaya BCM 6.0, see Avaya Business Communications Manager 6.0 Administration and Security Guide (NN40170-603).

Status and Metrics

You can use the Business Element Manager to view detailed information about the performance of the BCM and about the performance of system resources.

You monitor system status using the following tools:

- QoS Monitor—QoS Monitor monitors the quality of service (QoS) of IP trunk services.
- UPS Status—The Uninterruptible Power Supply (UPS) feature provides monitoring of the power source and the battery backup.
- NTP Metrics—The Network Time Protocol (NTP Metrics) feature provides an overview of the integrity of the NTP time source

For information about monitoring the system status, see the Avaya Business Communications Manager 6.0 Administration and Security Guide (NN40170-603).

You can monitor system performance using the following tools:

- Activity Reporter Basic—Generate reports about call activity and voice mail receive statistics.
- Trunk Module Metrics—View the status of digital trunk modules as well as identify any device or lines connected to the system.
• CbC Limit Metrics—Use the CbC Limit metrics panel to monitor denied call activity for each service on each line pool.
• Hunt Group Metrics—Access the Hunt Group metrics to evaluate total call processing by hunt group member.
• PSTN Fallback Metrics—View how many fallback attempts and fallback failures occur within a specific period using the PSTN Fallback Metrics panel.
• Proactive Voice Quality Management—Proactive Voice Quality Management (PVQM) metrics allow you to monitor the quality of VoIP calls. You can also use the PVQM metrics to diagnose infrastructure problems in your network.

For more information about monitoring system performance, see *Avaya Business Communications Manager 6.0 Administration and Security* (NN40170-603).

Utilities

Avaya BCM provides the following utilities:

• BCM Monitor—BCM Monitor is a stand-alone diagnostic application that the system administrator can use to view real-time system and IP telephony information about BCM systems.
• Ping—Ping (Packet InterNet Groper) is a utility that you can use to verify that a route exists between the BCM and another device.
• Route trace—You can use Trace Route to measure round-trip times to all hops along a route. This helps you to identify bottlenecks in the network.
• Ethernet activity—The Ethernet Activity panel is a utility that you can use to view ethernet activity in the BCM system.

For more information about utilities, see *Avaya Business Communications Manager 6.0 Administration and Security* (NN40170-603).

Command Line Interface

The information in this section applies to the BCM50 and the BCM450 platforms running Avaya BCM 6.0.

You can use the Command Line Interface (CLI) to configure basic settings, as well as shut down, reboot, or reset the BCM450 system. Two CLI modes are available: Maintenance CLI, and Configuration CLI.

This section contains information about the following topics:

• Accessing the CLI on page 91
• Using the Configuration CLI on page 92
• Using the Maintenance CLI on page 92
Accessing the CLI

There are two methods of accessing the CLI:

- through a serial connection
- through the OAM port

For either method, your user account must be assigned the System-CLI privilege before you can access the CLI.

Accessing the CLI through a serial connection

Caution: The CLI is intended for use by experienced technicians, or as directed by Avaya Technical Support. Improper use of the CLI may result in data loss.

1. Connect a serial cable with a 9-pin female connector from the serial port on a PC to the serial port on the Avaya BCM450.
2. Ensure that you use the following settings:
   - bits per second: 115200
   - data bits: 8
   - parity: N
   - stop bits: 1
   - no flow control
3. Use a terminal emulation program, such as Hyperterminal or Avaya CLI Manager, to establish a connection to the BCM450.
4. Log into the BCM450 by entering your username and password. Your user account must be assigned the System-CLI privilege in order to access the CLI.

Accessing the CLI through the OAM port

Caution: The CLI is intended for use by experienced technicians, or as directed by Avaya Technical Support. Improper use of the CLI may result in data loss.

1. Connect an Ethernet cable from the Ethernet port on a PC to the OAM Ethernet port on the Avaya BCM450.
2. Set the IP address of the PC to 10.10.11.2.
3. Use putty to establish an SSH connection to the default IP address of the OAM port: 10.10.11.1.
4. Log into the BCM450 by entering your username and password. Your user account must be assigned the System-CLI privilege in order to access the CLI.
Using the Configuration CLI

The Configuration CLI displays when the system is in Main OS mode. The options available on the Configuration CLI are:

- **0—Exit.** The system exits the CLI to the login prompt.
- **1—Reboot.** The system reboots to the Main OS.
- **2—Shutdown.** The system shuts down. You need physical access to the Avaya BCM450 hardware to restart the system.
- **3—Safe OS.** The system reboots to the Safe OS and waits 1 minute for you to login. When you login within 1 minute, the Maintenance CLI displays. If you do not login within 1 minute, the system changes to the Main OS. For more information about the Safe OS, see Using the Maintenance CLI on page 92.
- **4—Configuration Reset.** A Level 1 reset occurs. The system resets all configuration data to the factory defaults.
- **5—Software Reset.** A Level 2 reset occurs. The system resets all configuration data and software to the factory defaults.
- **6—IP Configuration.** You can configure the following basic IP settings:
  - **0**—Return to Previous Menu. The system returns to the main menu.
  - **1**—Hostname. Provision the hostname of the system.
  - **2**—IP Address. Provision the IP address of the system.
  - **3**—Subnet Mask. Provision the subnet mask for the IP address.
  - **4**—Default Gateway. Provision the default gateway for the system.
  - **5**—DHCP Client Mode. Enable or disable the DHCP client.
  - **6**—Commit Changes. Save changes to the IP settings.
  - **7**—Reload Settings. Reload the existing IP settings.

Using the Maintenance CLI

The Maintenance CLI displays when the system is in Safe OS mode. The Safe OS is a diagnostic mode that you can use if the Main OS is experiencing problems. No applications or telephony services are running when the Avaya BCM450 is in Safe OS mode. The options available on the Maintenance CLI are:

- **0—Exit.** The system exits to the Safe OS login prompt.
- **1—Reboot into Main OS.** The system reboots to the Main OS.
- **2—Shutdown.** The system shuts down. You need physical access to the BCM450 hardware to restart the system.
- **3—Reboot into Safe OS.** The system reboots to the Safe OS and waits 1 minute for you to login. If you do not login within 1 minute, the system changes to the Main OS.
- **4—Transition to Main OS.** The system changes from the Safe OS to the Main OS without restarting.
• **5—Configuration Reset.** A Level 1 reset occurs. The system resets all configuration data to the factory defaults.

• **6—Software Reset.** A Level 2 reset occurs. The system resets all configuration data and software to the factory defaults.
Chapter 10
Understanding System Messages

The information in this chapter applies to both the BCM50 and the BCM450 platforms running Avaya Business Communications Manager (Avaya BCM) 6.0.

The Avaya BCM450 generates alarms, logs, traps, and other system messages that you can use to troubleshoot problems.

Alarms, logs, and traps

For information about system messages, alarms, logs, and SNMP traps, see *Avaya Business Manager 6.0 Fault and Performance* (NN40170-701). For more information about specific alarms, see *Avaya Business Communications Manager 6.0 Alarms Reference* (NN40170-702).

Reporting for dropped calls

You can specify the level of system reporting that you require for released ISDN or VoIP calls. You can choose to have no text, a simple explanation, or a detailed explanation in the dropped call notification.

Use this procedure to set the level of reporting for dropped calls.

To set Release Reasons

To set Release reasons, follow these steps:

1. Click **Administration > Utilities > Diagnostic settings**.
2. Click the **Telephony** tab.
   - The **Release Reasons** panel appears.
3. From the Release Reason drop-down menu, select the level of reporting that you require.
   - Table 22 lists the possible values for Release reasons.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Default Value</td>
<td>No text will accompany a dropped call notification.</td>
</tr>
<tr>
<td>Simple</td>
<td>Cause Code: Off On</td>
<td>Off: no text is provided On: the code only is provided Note: if you select Simple text, you must turn off the Cause code. This is for diagnostic purposes only.</td>
</tr>
</tbody>
</table>
### Table 22  Release reasons

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detailed</td>
<td>No setting</td>
<td>A detailed explanation of the Cause code is provided.</td>
</tr>
<tr>
<td>Cause Code</td>
<td>check box</td>
<td>This check box appears when you select Simple in the Release Reason Text drop-down menu. When you select the check box, only the cause code accompanies a dropped call notification.</td>
</tr>
</tbody>
</table>
Chapter 11
Useful Troubleshooting Links

The information in this chapter applies to both the BCM50 and the BCM450 platforms running Avaya Business Communications Manager (Avaya BCM) 6.0.

Use the information in this chapter to find additional reference information when you are troubleshooting a problem with the Avaya BCM450. As part of your initial troubleshooting, Avaya recommends that you check these resources for information about known issues and for solutions related to the problem you are experiencing.

Navigation

- Partner Bulletins on page 97
- Knowledge and Solution Engine on page 97

Partner Bulletins

For more information about Partner Bulletins, see www.avaya.com/support.

Knowledge and Solution Engine

The Knowledge and Solution Engine allows you to search an entire database of Avaya technical documents, troubleshooting solutions, software, and technical bulletins. For more information, see www.avaya.com/support.
Chapter 12
Frequently Asked Questions

The information in this chapter applies to both the BCM50 and the BCM450 platforms running Avaya Business Communications Manager (BCM) 6.0.

This chapter provides answers to frequently asked questions.

Navigation

- Backup, restore, and reset operations on page 99
- Password protection on page 101
- Fault management on page 102
- System and status information on page 103
- Connectivity problems on page 108, for BCM450 only
- IP addresses on page 109

Backup, restore, and reset operations

This section contains answers to the following questions:

- How do I back up the database? on page 99
- How do I restore the Avaya BCM from a previous backup? on page 100
- How do I complete a Warm Reset or Cold Reset? Is it safe and will I lose customer data? on page 100

How do I back up the database?

Use the following procedure to back up the Avaya BCM450 database.

To perform a backup

1. In the task panel, click the Administration tab.
2. Open the Backup and Restore folder, and then click Backup.
   The Backup panel opens and displays the Immediate Backup tab. In the Backup To selection field, choose a destination for the backup archive.
3. Click the Backup button.
   The Backup window opens. In the Optional Components table, select or clear the check box for each component to include or exclude these components from the backup operation.
4. Click the OK button.
5. A warning window opens. Read the warning carefully before proceeding.

6. Click the Yes button to proceed.
   A progress window opens. When the backup is complete, the Backup Complete message appears.

7. Click the OK button.

**How do I restore the Avaya BCM from a previous backup?**

Use the following procedure to restore the BCM database.

**To restore data from the Avaya BCM**

1. In the task panel, click the Administration tab.

2. Open the Backup and Restore folder, and then click Restore.
   The Restore panel opens. In the Restore From field, select the location of the backup archive to use.

3. Click the Restore button.
   The Select Components to Restore window opens.

4. Select the optional components that you want to include from the backup file.

5. Click the OK button.
   A warning window opens and displays information about components that will be affected by the restore operation. Read the warning carefully before proceeding.

6. Click the Yes button to proceed.
   A progress window opens. When the operation is complete, the Restore Complete window opens.

7. Click the OK button.

**How do I complete a Warm Reset or Cold Reset? Is it safe and will I lose customer data?**

You can use the Reset utility in Business Element Manager to:

- reboot the Avaya BCM system
- perform a warm reset of telephony services
- perform a cold reset of telephony services
- for the BCM450, shut down the system
- for the BCM50, perform a cold reset of the router

For a description of the impact on the system of each of these resets, see Reset functions on page 28.

Use this procedure to perform a warm or cold reset.
Completing a warm or cold reset

1. Select Administration, Utilities, Reset, and click one of the following buttons:
   a. Reboot BCM450 System will restart the operating system of the Avaya BCM450
   b. Warm Reset Telephony Services will restart telephony services. Customer data will be retained.
   c. Cold Reset Telephony Services will reset telephony programming to factory defaults. Customer data will be lost.
   d. Shutdown System will stop all services and shut down the system. Restarting the system requires physical access to the BCM450.
   e. Cold Reset Router resets the router programming to the factory defaults. This applies to BCM50 only.

Password protection

This section answers the following frequently asked question:

- How do I recover a lost password for the Avaya BCM? on page 101

How do I recover a lost password for the Avaya BCM?

There is a Avaya support default user which cannot be deleted or modified. This account is set up to allow Avaya troubleshooting technicians to access areas of the system that are not available to other users. You can change the default challenge key, but be sure to retain a record of the change so that Avaya support technicians can access your system.

Recovering a lost password

2. With the Challenge Key available, contact Avaya Technical Support and request help to recover the lost password.
Fault management

This section answers the following frequently asked question:

- How do I view Alarms? Can I acknowledge and clear them? on page 102

How do I view Alarms? Can I acknowledge and clear them?

When you view an alarm on the alarms panel, you can change the order of the columns in the table and you can sort alarms. For example, you may want to sort alarms by Component ID and Alarm ID.

Use the following procedures to view alarms and to acknowledge alarms.

To view an alarm

1. Click the Administration tab.
2. Open the General folder, and then click the Alarms task. The Alarms page opens.
3 In the Alarms Panel table, select an alarm.
   The Alarm Details panel displays below the Alarms table.

4 To change the order of columns in the Alarm table, select a column and drag it left or right to
   the desired location, and release it.

5 To view a column by ascending or descending order, click the column heading.

To acknowledge an alarm

1 Click the Administration tab.

2 Open the General folder, and then click the Alarms task.
   The Alarms panel opens.

3 In the Alarms table, select the alarm you want to acknowledge.
   The Alarm Details panel is displayed below the Alarms table.

4 On the Alarms Details panel, click the Acknowledge Alarm button.
   A check box appears in the Alarm ACKed column in the Alarms table for this alarm.
   Acknowledging the alarm does not clear the alarm; it indicates only that the alarm has been
   noted.

System and status information

This section answers to the following frequently asked questions:

- How do I capture the logs from the Avaya BCM? on page 103
- How do I capture the current Avaya BCM configuration? on page 105
- How do I find the Avaya BCM system health? on page 106
- How do I show specific process states? on page 106
- How do I verify current software revision? on page 106
- How do I find the Avaya BCM450 System ID and Serial Number? on page 107

How do I capture the logs from the Avaya BCM?

You can capture or transfer logs from the Avaya BCM using Business Element Manager, or from
the BCM Web page.

When you use the BCM Web page to transfer log files, you cannot choose the log file categories
that you will transfer; all the log files in all the categories will be transferred.

Use the following procedures to transfer log files.
Using the Business Element Manager to transfer log files

1. Click the Administration tab, and then open the Logs folder.
2. Click the Log Management task.
   The Log Management panel opens.
3. Click the Immediate Log Transfer tab.
4. In the Transfer To selection field, select a storage location. Click the Transfer button.
   The Transfer To window opens.
5. Select the log file categories that you want to include in the log file transfer. All the log files associated with the selected categories will be transferred.
6. Click the OK button.
   A transfer window opens and displays applicable warnings.
7. Click the Yes button to initiate the transfer.
   A Save dialog box displays.
8. Specify a filename and location for the log file and click Save.
   The Progress Update window opens. When the log files are transferred, the Transfer Complete window opens.
9. Click the OK button.
   The log archive is saved in the location you specified.

Using the Avaya BCM Web Page to transfer log files

1. In your Web browser, type the IP address of the Avaya BCM, and then click Go.
   The login screen opens.
2. Log on to the BCM using the same user name and password that you use to log on to an Avaya BCM using the Business Element Manager.
   The BCM Web pages appear.
3. Click the Administrators Applications link.
4. Click BCM Logs.
5. Click the Retrieve Log Files link.
   The Retrieve Log Files panel appears.
6. Click one of the three options for file transfer: Transfer to My Computer, Store on USB Memory, or Send to.
7. If you select the Send to radio button, select a destination from the drop-down list, otherwise, go to the next step.
8. Click Submit. The web page shows the status as Working; when complete, it shows Success.
9. Click the Click Here to Download Logs link.
   The File Download screen opens.
10. Click the Save button.
    The Save As screen opens.
11 Specify the location where you want to save the log file transfer, and enter a name for the file in the **File Name** field.

12 Click the **Save** button.
   The file is saved.

### How do I capture the current Avaya BCM configuration?

You can create a programming file that contains the current settings of all or part of your Business Element Manager data. These files can be saved in either HTML or Excel spreadsheet format. You can access the programming record in the same way you access any other HTML file or by using Excel, version 2002 or later, for the spreadsheet format.

A programming record that contains the factory default settings is available in Excel format from the Avaya BCM web page.

**Note:** It may take several hours to save programming records, depending on the size of the system. Avaya recommends that you saving programming records during periods of low system use.

Use the following procedure to capture the current programming record.

### Capturing the current configuration

1 Select the item on the task navigation panel for which you want to save the data into an HTML report or Excel workbook. An item can be a task item, task bullet, or a folder.

2 Click on **Session, device IP address, Save Programming Record, Save Selected Data**.
   A warning dialog box appears; review the warning and click **Yes**. A **Save** dialog box appears.

![Save dialog box](image)

**Figure 23** Save dialog box

3 In the **Save** field choose the path where you want the file stored.
4 In the Files of type: field, choose the format in which you want to save the data (HTML or Microsoft Excel spreadsheet).

5 Enter a File name. Avaya recommends that you make the current date and system name part of the file name.

6 Click on Save.

**Note:** The Save All Data selection can take up to 45 minutes to complete. Your computer must stay connected to the element during this time, as the Save All Data function is actively writing into the file specified until the function is complete.

**How do I find the Avaya BCM system health?**

You can use the Avaya BCM Monitor to view information about system health.

The Usage Indicators tab on the BCM Monitor displays real time information about the BCM450 system, including:

- BCM system data, including CPU and memory use
- Resources used on the Media Card, including signaling channels, media channels, voice bus channels, and DSP resources
- Active telephony devices, such as IP trunks, IP sets, voice ports, and media gateways

The information is displayed as an absolute figure and as a percentage of the resource used. Use this procedure to access system health information.

**Viewing the system health**

1 Select Administration, Utilities, BCM Monitor and click the Launch BCM Monitor button.

1 Select the Usage Indicators tab.

**How do I show specific process states?**

Use the following procedure to view specific process states.

**Viewing specific process states**

1 Select Administration, General, Service Manager.

The Service Manager page opens. Services are displayed in the Services table.

**How do I verify current software revision?**

Use the following procedure to view the current software revision.
Verify the current software revision


<table>
<thead>
<tr>
<th>Task Navigation Panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>System Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model: BCM450</td>
</tr>
<tr>
<td>System name: bc450</td>
</tr>
<tr>
<td>System software version: 9.0.084beta.41S</td>
</tr>
<tr>
<td>Country or region: North America</td>
</tr>
</tbody>
</table>

How do I find the Avaya BCM450 System ID and Serial Number?

Use the following procedure to view the system ID and serial number.
Viewing the system ID and serial number

1. Select Administration, General, Hardware Inventory.
2. Click the BCM450 System tab.

Connectivity problems

This section answers the following question:

- What is an Ethernet loop, and how do I avoid creating one? on page 108

What is an Ethernet loop, and how do I avoid creating one?

The Avaya BCM450 does not support the Bridging Protocol Data Unit (BPDU), and therefore, you must be careful not to create Ethernet loops in the network while connected to these two ports. Figure 24 shows an Ethernet loop and how to avoid it.
Can I modify the IP address of the OAM port?

You cannot change the IP address of the OAM port. You can use Business Element Manager to view the OAM port parameters.

---

IP addresses

This section answers the following questions:

- Can I modify the IP address of the OAM port? on page 109
- What are the default IP addresses of the Avaya BCM ports? on page 110

---

Figure 24  Ethernet loops

**Ethernet Loop**

**No Ethernet Loop**

[Diagram showing Ethernet loops]
What are the default IP addresses of the Avaya BCM ports?

The default addresses of the OAM LAN port are:

- IP address: 10.10.11.1
- Subnet mask: 255.255.255.0

The default addresses of the customer LAN port are:

- IP address: 192.168.2.2
- Subnet mask: 255.255.254.0
Chapter 13
Contacting Technical Support

The information in this chapter applies to both the BCM50 and the BCM450 platforms running Avaya Business Communications Manager (BCM) 6.0.

If you cannot resolve an issue using the information and steps provided in this guide, use the information in this chapter to contact Avaya Technical Support. This chapter identifies all of the critical information that you must gather before contacting Avaya Technical Support.

Navigation

- Getting technical documentation on page 111
- Getting product training on page 111
- Getting help from a distributor or reseller on page 111
- Getting technical support from the Avaya Web site on page 111

Getting technical documentation

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

Getting product training

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

Getting help from a distributor or reseller

If you purchased a service contract for your Avaya product from a distributor or authorized reseller, contact the technical support staff for that distributor or reseller for assistance.

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 http://www.avaya.com/support.