BCM50 Troubleshooting Guide

BCM50 3.0

Business Communications Manager

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Task List

Contents

Chapter 1
Introduction

The Nortel Business Communications Manager 50 (BCM50) provides private network and telephony management capability to small and medium-sized businesses. The BCM50 system integrates voice and data capabilities, IP Telephony gateway functions, and data-routing features 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 BCM50 network.

Audience

The *BCM50 Troubleshooting Guide* is for use by network administrators responsible for maintaining BCM networks that include BCM50 devices. This guide is also useful for network operations center (NOC) personnel supporting a BCM50 managed services solution. To use this guide, you must:

- be an authorized BCM50 administrator within your organization
- know basic Nortel BCM50 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 BCM50 system. This guide contains information on the following topics:

Acronyms

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

Table 1 List of acronyms

Acronym	Description
3DES	Triple Data Encryption Standard
AES	Analog Encryption Standard
AIS	Alarm Indication Signal
BCM	Business Communications Manager
BRI	Basic Rate Interface
CbC	Call by Call
CDR	Call Detail Recording
CFA	Carrier Failure Alarms
CLID	Calling Line Identification
CPE	Customer Premises Equipment
CSU	Channel Service Unit
DES	Digital Encryption Standard
DHCP	Dynamic Host Configuration Protocol
DN	Directory Number
DNIS	Dialed Number Idenification Service
DTM	Digital Trunk Module
ES	Errored Seconds
HTTP	Hypertext Transfer Protocol
IP	Internet Protocol
ISDN	Integrated Switched Digital Network
LAN	Local Area Network
MBM	Media Bay Module
MIB	Management Information Base
MGS	Media Gateway Server
MOS	Mean Opinion Score
MPS	Media Path Server
NAT	Network Address Translation
NCM	Network Configuration Manager
NOC	Network Operations Center
NTP	Network Time Protocol
OOF	Out of Frame

Table 1 List of acronyms

Acronym	Description
PPP	Point-to-Point Protocol
PRI	Primary Rate Interface
PBX	Private Branch Exchange
PSTN	Public Switched Telephone Network
PVQM	Proactive Voice Quality Monitoring
QoS	Quality of Service
RAI	Remote Alarm Indication
RTP	Real-time Transport Protocol
SFTP	Secure File Transfer Protocol
SNMP	Simple Network Management Protocol
SSH	Secure Shell
SSL	Secure Socket Layer
UAS	Unavailable Seconds
UPS	Uninterrruptable Power Supply
USB	Universal Serial Bus
VoIP	Voice over Internet Protocol
VLAN	Virtual Local Area Network
VPN	Virtual Private Network
WAN	Wide Area Network

Symbols and conventions used in this guide

These symbols are used to highlight critical information for the BCM50 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 BCM50 main unit and expansion unit power cords from the ac outlet before performing any maintenance procedure.

Related publications

Related publications are listed below. To locate specific information, you can refer to the *Master Index of BCM50 Library* (NN40020-100).

BCM50 Administration Guide (NN40020-600)

BCM50 Installation and Maintenance Guide (NN40020-302)

Keycode Installation Guide (NN40010-301)

BCM50 Device Configuration Guide (NN40020-300)

BCM50 Networking Configuration Guide (NN40020-603)

BCM50 Telset Administration Guide (NN40020-604)

CallPilot Telephone Administration Guide (NN40090-500)

CallPilot Contact Center Telephone Administration Guide (NN40040-600)

Reporting for Contact Center Troubleshooting

Chapter 2
Initial Troubleshooting

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

See the *BCM50 Installation and Maintenance Guide* (NN40020-302) for detailed installation information. This document also outlines the routine tasks required for operating the BCM50.

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

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 to 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 you 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 3
Hardware Troubleshooting

Use the tasks in this chapter to troubleshoot problems related to the BCM50 hardware components.

Navigation

- Troubleshooting the BCM50 hardware on page 17
- Testing basic hardware functionality on page 27

Troubleshooting the BCM50 hardware

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

- Check the power source on page 17
- Check LED indicators on page 17
- Check the wiring connections on page 25
- Verify the keycodes on page 25
- Restart the system on page 26

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 BCM50 system LEDs:

- System status LEDs on page 18
- LAN port LEDs on page 19
- ADSL router LEDs (BCM50a and BCM50ba only) on page 20
- Ethernet router LEDs (BCM50e and BCM50be only) on page 21
- BRI port LEDs on main unit (BRI series only) on page 22
- Media bay module LEDs (expansion units only) on page 23
- DTM LEDs on page 24

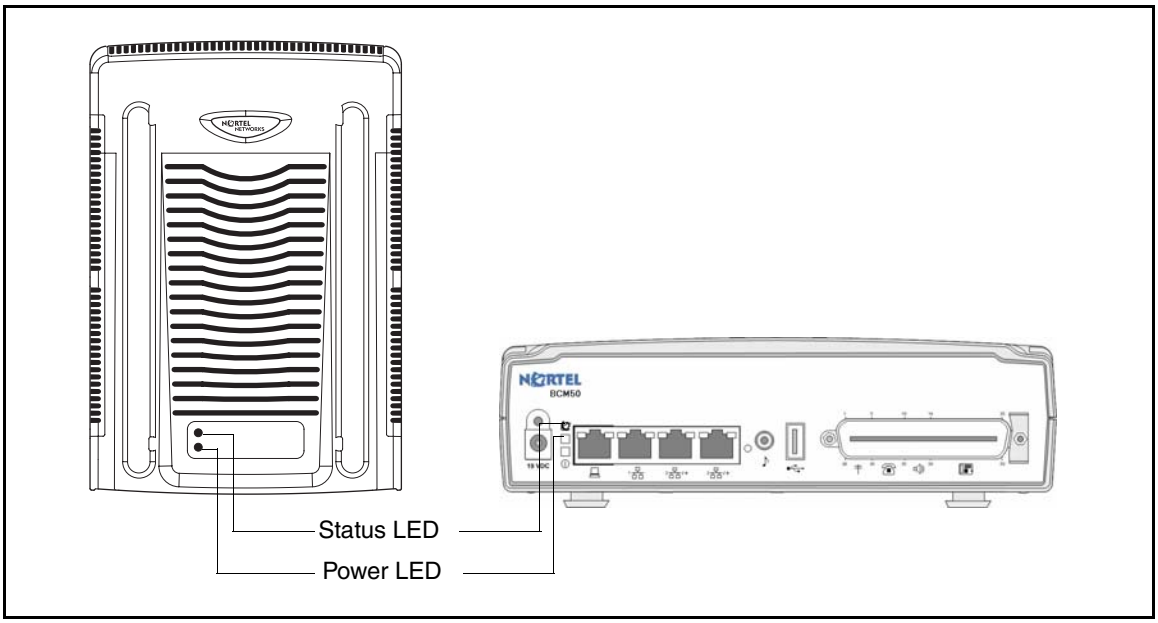
- BRIM LEDs on page 25

System status LEDs

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

You can view the system status LEDs on the faceplate and on the top of the main unit. See the figure Location of system status LEDs on a 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.

Figure 1 Location of system status LEDs on a main unit



The table System status LEDs states and descriptions on page 18 describes the meaning of the system status LEDs after the system boots up and is in service.

Table 1 System status LEDs states and descriptions

Power	Status	Description
Solid green	Solid green	Normal operation.
Solid green or Flashing green	Solid red	A Major or Critical alarm is activated on the BCM50. You must clear the status LED using the Element Manager Alarm Panel. The LED does not clear itself. See the *Administration Guide* for more information.
Flashing green	Solid green	Contact technical support.
Off	Off	No power to BCM50.

During BCM50 system startup or reboot, 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 table System status LEDs during startup or reboot on page 19 shows the key states indicating service availability.

Table 2 System status LEDs during startup or reboot

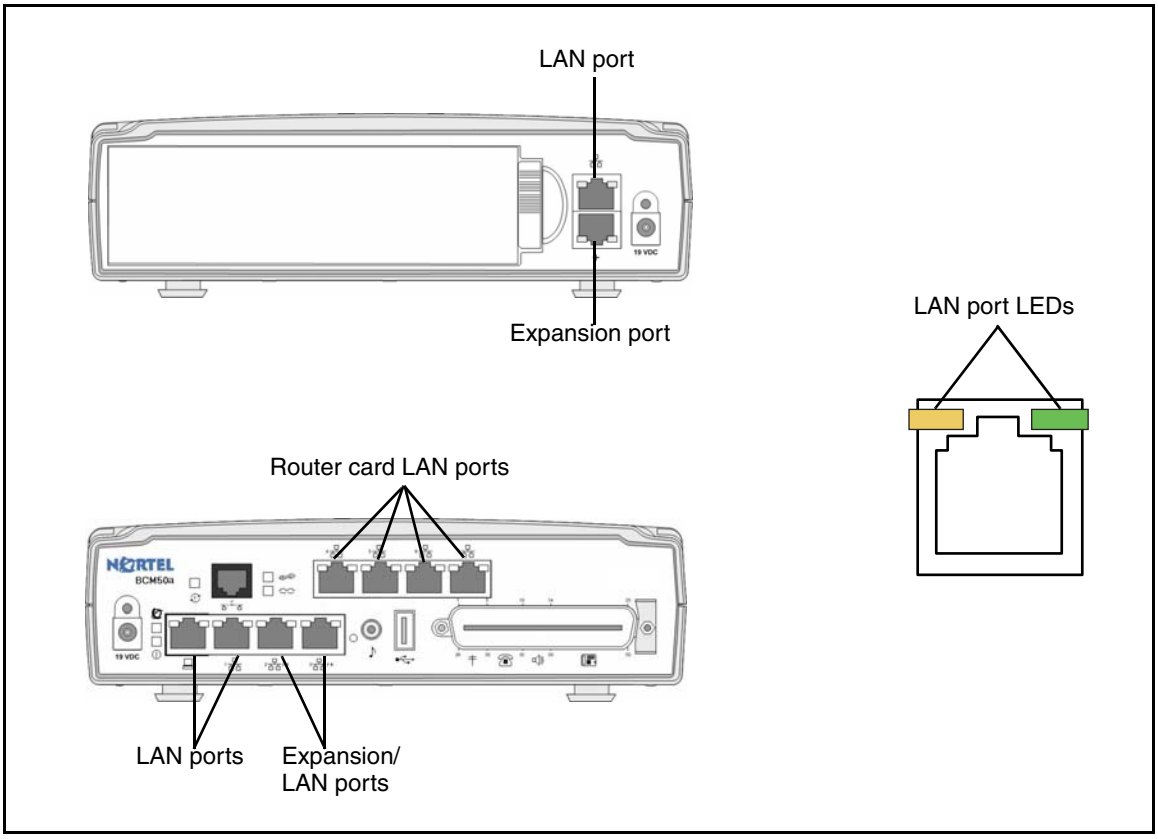
Power	Status	Description
Solid yellow	Any	System initializing; not ready for service.
Flashing or solid green	Flashing or solid yellow	System initializing; not ready for service.
Flashing green	Flashing green	BCM50 telephony services are available, including IP telephony and voice mail.
Solid green	Flashing green	Administrator can log into BCM50 with Element Manager.
Solid green	Solid green	All BCM50 services are functioning, and the system is ready for normal use.

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 figure LAN port LED locations on page 20 shows the location of these LEDs on the main units and expansion unit.

Note: The expansion ports on the 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 2 LAN port LED locations



The table LAN port and expansion port LED indicators on page 20 describes the possible LED states for the LAN ports LEDs.

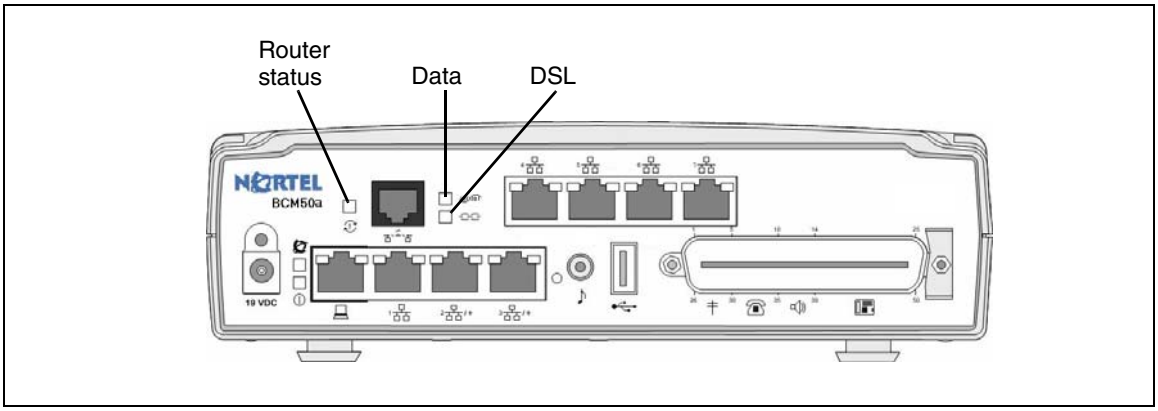
Table 3 LAN port and expansion port LED indicators

LED	Status	Description
Yellow	On	The LAN port is operating at 10 Mb/s.
Green	On	The LAN port is operating at 100 Mb/s.
Both LEDs	Off	No connection.
Any LED	Flashing	The LAN port is sending or receiving network data. The frequency of the flashes increases with increased traffic.

ADSL router LEDs (BCM50a and BCM50ba only)

The three ADSL router LEDs on the faceplate of the BCM50a and BCM50ba main units monitor router status, data, and DSL. The figure ADSL router LEDs on the BCM50a and BCM50ba main units (BCM50a shown) on page 21 shows the location of the three ADSL router LEDs.

Figure 3 ADSL router LEDs on the BCM50a and BCM50ba main units (BCM50a shown)



The table ADSL router LED descriptions on page 21 describes the possible ADSL router LED states.

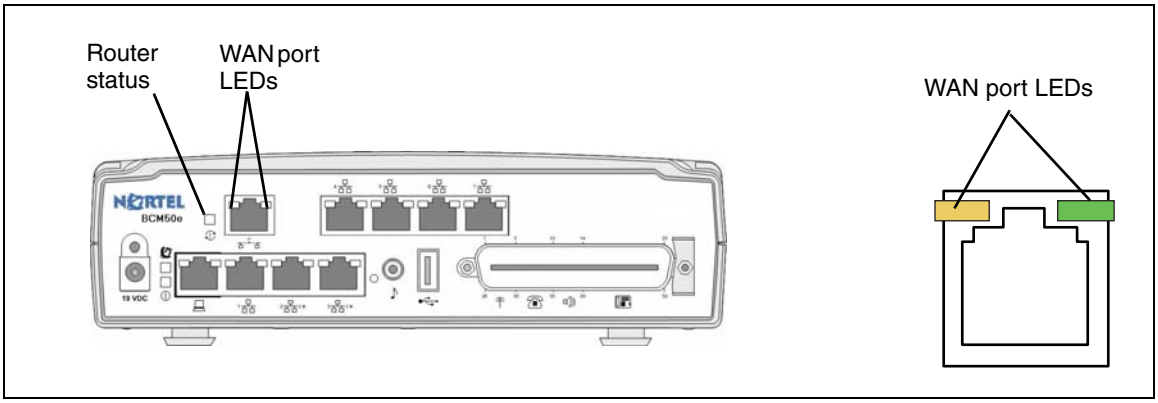
Table 4 ADSL router LED descriptions

LED	Status	Description
Router status	On	The router card is functioning properly.
	Off	The router card is not ready or malfunctioned.
	Flashing	The router card is rebooting.
Data	Flashing	The router card is sending or receiving data through the WAN port.
	Off	The router card is not sending or receiving data through the WAN port.
DSL	On	The router card is linked successfully to a digital subscriber line access multiplexer (DSLAM).
	Off	The DSL link is not functioning.
	Flashing	The router card is initializing the DSL line.

Ethernet router LEDs (BCM50e and 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 BCM50e and BCM50be main units (BCM50e shown) on page 22 shows the location of the three Ethernet router LEDs.

Figure 4 Ethernet router LEDs on the BCM50e and BCM50be main units (BCM50e shown)



The table LAN port LED indicators on page 22 describes the possible Ethernet router LED states.

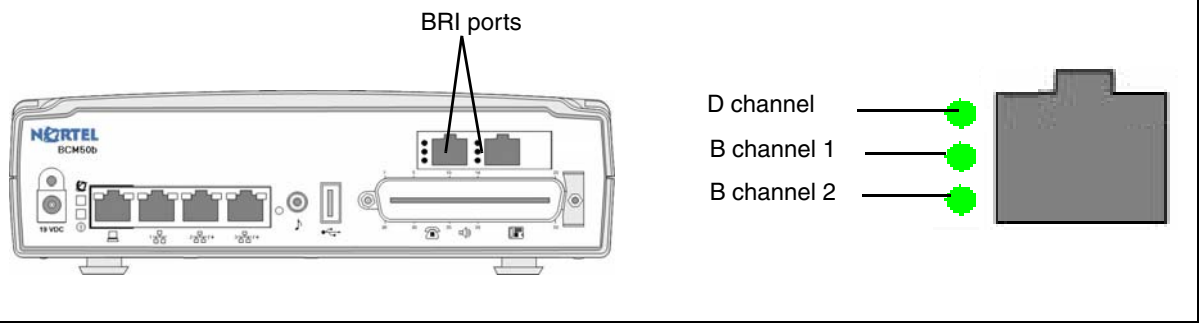
Table 5 LAN port LED indicators

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

BRI port LEDs on main unit (BRI series only)

The three BRI port LEDs on the BCM50b, BCM50ba, and BCM50be main units monitor the BRI port status. The figure Ethernet router LEDs on the BCM50e and BCM50be main units (BCM50e shown) on page 22 shows the location of the BRI ports and LEDs.

Figure 5 BRI port LEDs on the BCM50b, BCM50ba, and BCM50be main units (BCM50b shown)



The table BRI port LED indicators on page 23 describes the possible BRI port LED states.

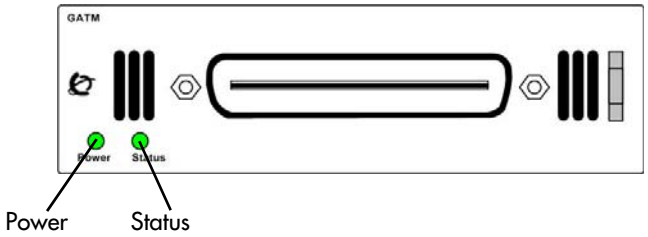
Table 6 BRI port LED indicators

LED (channel)	Status	Description
D	On (green)	D channel is functioning through this BRI port.
B1	On (green)	B channel 1 is functioning through this BRI port.
B2	On (green)	B channel 2 is functioning through this BRI port.

Media bay module LEDs (expansion units only)

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 23 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 6 MBM LEDs



The table MBM LED descriptions on page 23 describes the possible MBM LED states.

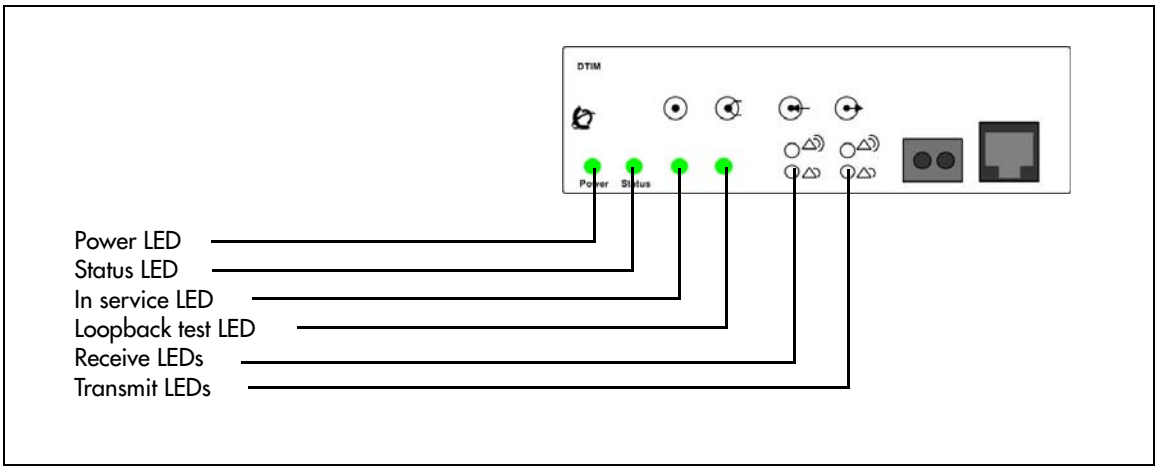
Table 7 MBM LED descriptions

Power	Status	Description
Off	Off	The MBM has no power, or a failure occurred on the MBM power converter.
On	Off	BCM50 to expansion unit failure or system initialization.
On	Blinking	Hardware is working, but an operational problem exists such as: • no link to the main unit is detected • frame alignment is lost on messages from the main unit • bandwidth not allocated • MBM is in maintenance state • MBM is in download state (GASM, GATM4/GATM8)
Blinking	Blinking	The MBM has power, but a hardware problem exists such as: • partial failure of power converter • thermal overload • fan failure
On	On	The MBM is ready to operate.

DTM LEDs

The DTM has additional LEDs that are not on most other MBMs. The figure DTM LEDs on page 24 shows the location of the DTM LEDs.

Figure 7 DTM LEDs



The table DTM LED functions on page 24 describes the functions of the DTM LEDs.

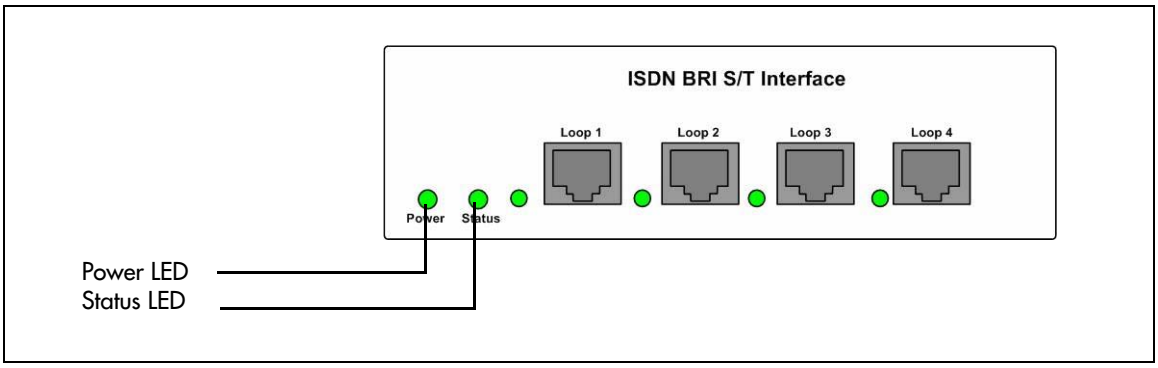
Table 8 DTM LED functions

LED	Status	Descriptions
Power	–	See “Media bay module LEDs (expansion units only)” for details.
Status	–	See “Media bay module LEDs (expansion units only)” for details.
In service	Flashing	The T1, ETSI, or PRI trunks are out of service because a loopback test is running or the DTM is initializing.
Loopback test	On	A continuity loopback test is running.
Receive alarm	On	A problem with the received digital transmission. This half-duplex link does not work.
Receive error	On	A small error as a result of degraded digital transmission. Possible causes are an ohmic connection, water ingress, or too long a loop.
Transmit alarm	On	The DTM cannot transmit. The DTM sends an alarm indication signal (AIS) to the terminating switch. This half-duplex link does not work.
Transmit error	On	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.
All LEDS	Flashing	The DTM is initializing.

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 25 shows the location of the LEDs on a BRIM.

Figure 8 BRIM LEDs



For more information on the power and status LED functions, see Media bay module LEDs (expansion units only) on page 23.

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
- the power supply and the main unit and the AC power outlet
- if you are using a UPS, check the connection from:
  - — the USB hub to both the UPS and the BCM50
  - — the UPS and the electrical outlet,
  - — the connection from the power supply to both the UPS and the BCM50 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

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 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 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 the system

You can use the Reset utility in Element Manager to:

- reboot the BCM50 system
- perform a warm reset of telephony services
- perform a cold reset of telephony services
- perform a cold reset of the router

Use this procedure to restart the system.

To restart the system

1 Select **Administration > Utilities > Reset**.

2 Click the appropriate reset button.

Table 9 lists the Reset functions.

Table 9 Reset functions

Function	Description	Impact
Reboot BCM50 System	Restarts the operating system of the BCM50 system	Temporarily stops all services on the system. Restarts all services. This operation does not affect configuration parameters or programming.
Warm Reset Telephony Services	Restarts telephony services running on the BCM50 system	Restarts all telephony services, including LAN CTE, Voicemail, and IP telephony. This operation does not affect configuration parameters or programming.
Cold Reset Telephony Services	Resets telephony programming of the BCM50 system to the factory defaults for that software level	Affects all telephony services, including LAN CTE, Voicemail, and IP telephony. Telephony services restart with all telephony programming at default values for the specified region, template, and start DN, for the current software release level. A cold reset erases voice message mailboxes and messages if the DN length is not set to system defaults. For information about setting the DN length, refer to the *BCM50 Device Configuration Guide*.
Cold Reset Router	Resets the router programming to the factory defaults.	Affects services that rely on the WAN.

Testing basic hardware functionality

This section describes how to test the components of the BCM50 system, and how to troubleshoot them if they fail the test.

Use the following procedures to help isolate and identify problems with your BCM50 hardware:

- To test the main unit on page 28
- To troubleshoot the main unit on page 28
- To test the expansion unit on page 29
- To troubleshoot the expansion unit on page 29
- To test the MBM on page 30
- To test a station MBM on page 30

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, use 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. Reboot the BCM50 system.
4. Check LEDs.
5. Use Element Manager or the Telset Administration feature to check the programming for the lines or extensions that failed the call test.
6. 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 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 BCM50 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. For imore information, see the *BCM50 Installation and Maintenance Guide*.
5. Perform a firmware download to ensure that the correct version is loaded on the ASM/GASM or GATM unit.
6. Use Element Manager or Telset Admin to check the programming for the lines or extensions connected to the MBM.
7. Reboot the system to ensure that the BCM50 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 Element Manager or the Telephone Administration feature.

To test the MBM

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. Perform a call test to make sure the new MBM functions correctly. If you replaced a station MBM, use To test a station MBM on page 30. If you replaced a trunk MBM, use To test a trunk MBM on page 30. If you replaced a 4x16 MBM, use To test a station MBM on page 30 and To test a trunk MBM on page 30.

To test a station MBM

1. Go to an extension on the MBM.
2. Check for a dial tone.
3. Use this extension to make a call to another extension on the system.
4. Use this extension to make a call to an external telephone number.

To test a trunk MBM

1. Go to an extension that has access to one of the lines on the MBM.
2. Select the line or line pool to which the line belongs.
3. Check for a dial tone.
4. Make a call using the line or line pool.

To determine why an MBM does not appear in 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 Element Manager or Telset Administration. If the units are enabled, disable them, and then re-enable 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 imore information, see the *BCM50 Installation and Maintenance Guide*.

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 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 BCM50 hardware works correctly.

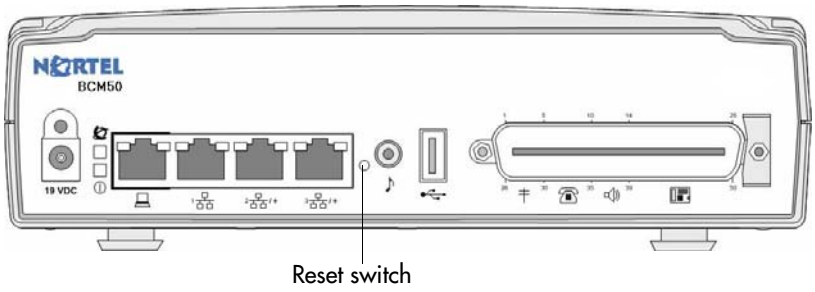
To check the ATA2 wiring

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. BCM50 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 BCM50 hardware and ATA2.

Reset to factory settings

This section describes how to reset the BCM50 system to the factory settings or a stable working condition using the reset switch (see the figure Reset switch location on page 32). When the BCM50 is in this condition, you can make further modifications.

Figure 9 Reset switch location



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

- If the BCM50 system is configured incorrectly to an extent that it is no longer functional. The customer must use a level 1 reset to return to the default system programming and restore a previous configuration or reconfigure the system.
- If distributors want to reuse BCM50 systems, they must first erase all customer-specific data using a level 1 or level 2 reset.

Reset levels

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

- **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. No Ethernet connectivity to the system occurs during this operation.
- **Level 2** reset erases all customer and system configuration data and all software releases and patches. This reset re-installs the original factory configuration settings. Level 2 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 Level 2 reset to solve an undetermined problem and still have access to Element Manager, you must retrieve all the log files for technical support before performing the Level 2 reset. A Level 2 reset erases all log files from the system.

Activate the reset feature

You activate the reset feature by pressing the reset switch with a long, thin, nonmetallic needle in the sequence described in the procedure To perform a Level 1 and Level 2 reset on page 33.

Warning: Before performing a Level 1 or Level 2 reset, review all the effects of the levels of reset. See Reset levels on page 32.

As you press the reset switch, the LEDs blink in a predefined fashion to guide and confirm user input. The various states of the power and status LEDs indicate the following:

- A blinking power LED indicates a user input window; the BCM50 system is waiting for user input.
- A solid red power LED indicates extreme action is requested; caution is urged.
- A solid status LED (any color) indicates level of reset action:
  - Level 1 is yellow
  - Level 2 is red
- A blinking status LED indicates an interim state; trying to establish user request.
- A solid status LED indicates confirmation of a user selection (power LED has priority).

To perform a Level 1 and Level 2 reset

The router configuration of a BCM50a or BCM50e is not affected by a Level 1 reset. To perform a soft reset on the router, use Element Manager.

See the figure Level 1 and Level 2 reset sequence on page 34, or follow the sequence in the table Level 1 reset on page 35 and the table Level 2 reset on page 35 to perform a Level 1 and Level 2 reset. All times shown in the figure are approximate; it is important that you wait for the system to complete the reset before taking any further action.

Figure 10 Level 1 and Level 2 reset sequence

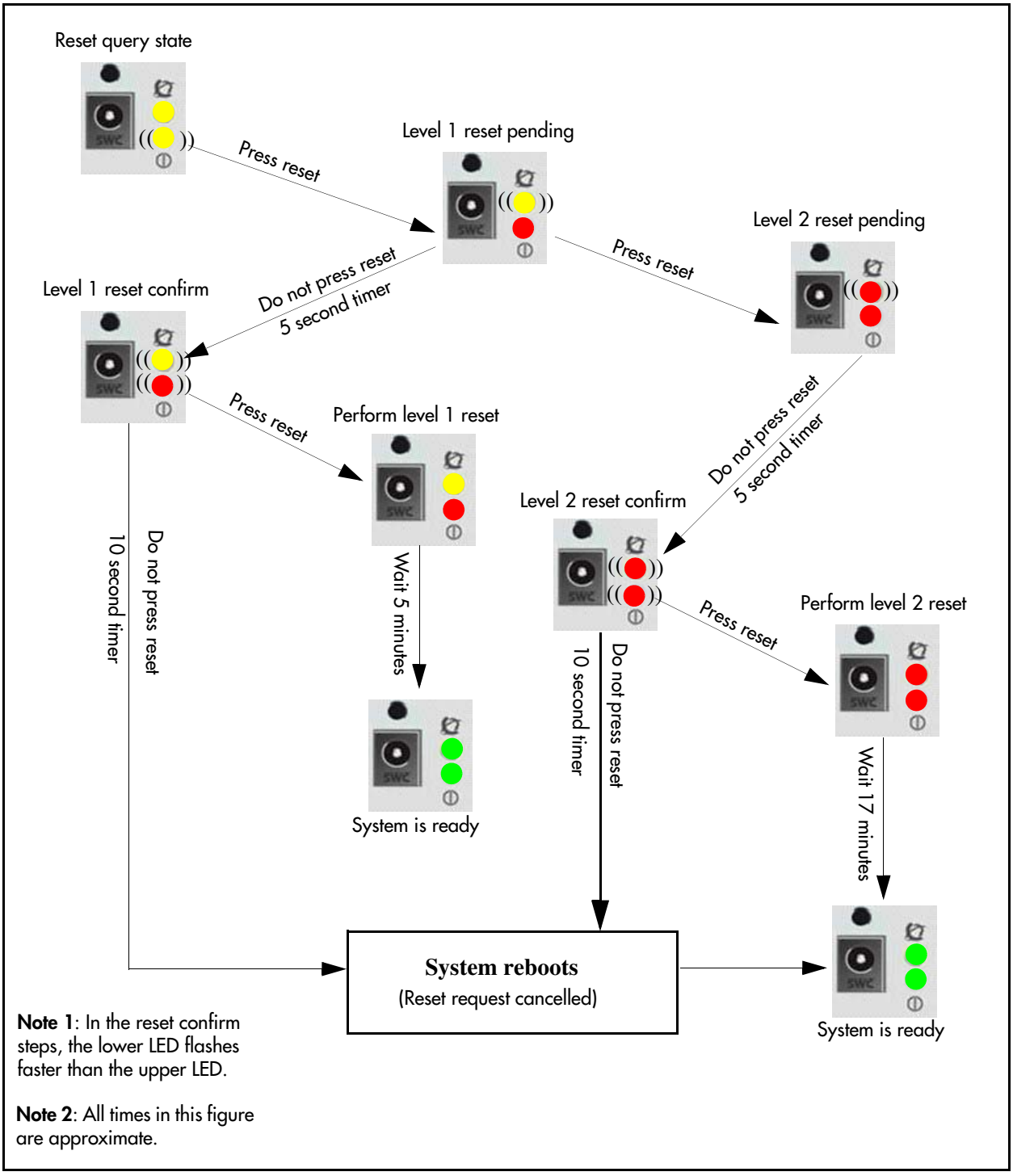


Table 10 Level 1 reset

Step	User action	Power LED	Status LED	System state	Alternative user action
1	Boot the system	Solid yellow	Solid yellow	Power self-test	No action; system remains off
		Solid yellow	Off	Power self-test	
		Flashing yellow	Solid yellow	Ready for reset input	
2	Press reset switch	Solid red	Flashing yellow	Request Level 1 reset	Do not press reset switch; system boots normally
3	Wait five seconds	Flashing red	Flashing yellow	Awaiting Level 1 reset confirmation	Press reset switch; system proceeds to Level 2 reset
4	Press reset switch	Solid red	Solid yellow	System performs Level 1 reset All configuration programming erased.	Do not press reset switch; system boots normally
		Solid green	Solid green	System rebooted and is ready for user action.	

Table 11 Level 2 reset

Step	User action	Power LED	Status LED	System state	Alternative user action
1	Boot up the system	Solid yellow	Solid yellow	Power self-test	No action; system remains off
		Solid yellow	Off	Power self-test	
		Flashing yellow	Solid yellow	Ready for reset input	
2	Press reset switch	Solid red	Flashing yellow	Request Level 1 reset	Do not press reset switch; system boots normally
3	Press reset switch again within five seconds of the first button press.	Solid red	Flashing red	Request Level 2 reset	Do not press reset switch; system remains in Level 1 reset state
4	Wait five seconds	Flashing red	Flashing red	Awaiting Level 2 reset confirmation	Press reset switch; system proceeds to Nortel factory mode (do not use)
5	Press reset switch	Solid red	Solid red	System performs Level 2 reset; all configuration programming and software updates erased.	Do not press reset switch; system boots normally
		Solid green	Solid green	System rebooted and is ready for user action.	

Chapter 4
Software Troubleshooting

Use the information in this chapter to troubleshoot problems related to the BCM50 software components.

Navigation

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

- Verify the software version on page 37
- Verify the keycodes on page 37
- Check the programming of lines and phones on page 37
- Restoring system data on page 46
- Verify the software inventory on page 48

Verify the software version

In the Element Manager, select **Help > About**. A panel displays and provides information about the 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 25.

Check the programming of lines and phones

You can use the 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 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.
  - The Properties tabbed panel provides the settings for individual line characteristics.
  - The Preferences tab shows information that may vary from trunk to trunk

— The Restrictions tabbed panel allows you to define which restrictions will be active for individual lines. Note that lines that are assigned to the same line pool will automatically assign the same restrictions.

— The Assigned DNs tabbed panel provides a quick way to assign lines to telephones. You must use the DN records panels to assign line pools to telephones.

Check line programming

Use the following procedure to check line programming in your BCM50 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 38 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 40 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 42 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 45 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 46 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; see "Restoring system data" on page 46 for more information.

Trunk/Line data

The top-level Table View panel shows line records for all lines active on the system, and the common assigned parameters.

Table 12 on page 38 describes the fields found on the Trunk/Line Data main panel.

Table 12 Trunk/Line Data main panel (Sheet 1 of 3)

Attribute	Value	Description
Line	This list contains all the possible line numbers for the system, including target lines.	Configure only those lines that are active on the system. (Click the Active check box and ensure that the Inactive check box is empty).

Table 12 Trunk/Line Data main panel (Sheet 2 of 3)

Attribute	Value	Description
Trunk Type	PSTN-based lines, VoIP, Target	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.
Name	<maximum of seven alphanumeric characters>	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.
Control Set	DN <control telephone DN> Default: 221 (default Start DN)	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.
	**Tips:** External lines and telephones must be programmed to use one of the Scheduled Services: Ringing, Restriction, and Routing Services. For maximum flexibility, Nortel 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.	
Line Type	Public Private to: <telephone DN> Pool A to O, BlocA to BlocF	Define how the line is used in relation to other lines in the system. • Public line: can be accessed by more than one telephone. • Private line: can be assigned only to one telephone and the prime telephone for that line. Enter the internal number of the telephone. • Pool A - O (analog and T1 lines) BlocA to BlocF (PRI and VoIP lines): assigns the line to one of the line pools. If a line is assigned to a line pool, but is not assigned to any telephone, that line is available only for outgoing calls. Bloc line pools must be used in conjunction with routes and destination codes. Target line*s* cannot be put into line pools.
Prime set	DN: <telephone DN> None	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.

Table 12 Trunk/Line Data main panel (Sheet 3 of 3)

Attribute	Value	Description
Pub. Received # (Target lines only)	<digits associated with a specific target line>	Specify the digits the system will use to identify a call from the public network to this target line. • 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. • 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.
Priv. Received # (Target lines only)	<digits associated with a specific target line>	Specify the digits the system will use to identify a call from the private network to this target line. • 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. • 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.
Distinct ring	None Pattern 2 Pattern 3 Pattern 4	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. When more than one line with the distinct ring settings rings at a telephone, the line with the highest priority rings first. • Pattern 4 has the highest ring priority • Pattern 3 has second highest ring priority • Pattern 2 has third highest ring priority • None has the lowest ring priority. By default, all telephones and lines are set to None.

Properties

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

The Properties tab is shown in Figure 11 on page 41.

Figure 11 Properties details panel

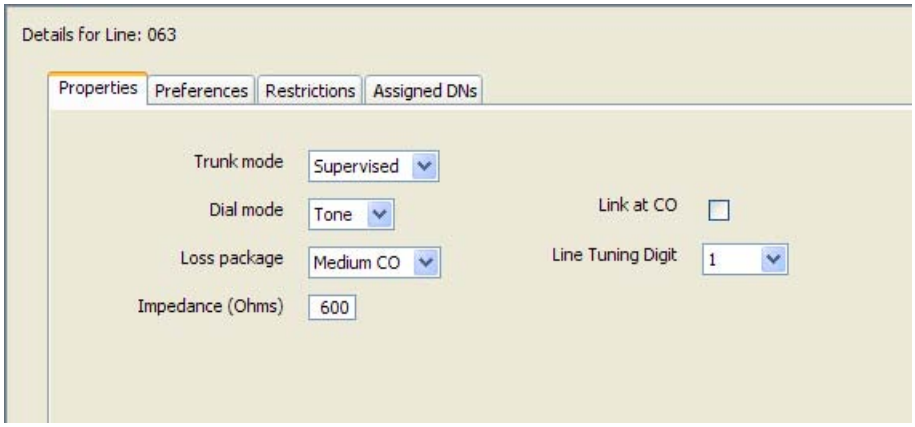


Table 13 on page 41 defines the fields on this panel and indicates the lines.

Table 13 Properties line settings (Sheet 1 of 2)

Attribute	Value	Description
Legend: Loop = analog/digital loop; GS = ground start; DID = DID; E&M = E&M; BRI = BRI; DPNSS = DPNSS; VoIP = VoIP; TL = Target. Note: PRI fields are all included under the main table.		
Trunk mode	**Loop**	
	Unspr Supervised *Earth calling *Loop guarded *Loop unguarded **ROE, ROI	Define whether disconnect supervision, also referred to as loop supervision, releases an external line when an open switch interval (OSI) is detected during a call on that line. You must set this to Supervised if a loop trunk has its Answer mode set to Auto or if you enable Answer with DISA. Disconnect supervision is also required to conference two external callers. The line must be equipped with disconnect supervision from the central office for the Supervised option to work. * These listing only appear for UK analog lines. ** These appear only for Australia.
Dial mode	**Loop** **GS**	**DID** **E&M**
	Pulse Tone	Specify whether the system uses dual tone multifrequency (DTMF) or pulse signaling on the trunk. Tone does not appear if Signaling is set to Immediate (T1 DID &T1 E&M trunk types only).
Loss package	**Loop (analog only)**	
	Short CO Medium CO Long CO Short PBX Long PBX	Select the appropriate loss/gain and impedance settings for each line.
Impedance (Ohms)	**Loop (analog only)**	
	600 ohm-900 ohm	The GATM can be set to a specific impedance level.

Table 13 Properties line settings (Sheet 2 of 2)

Attribute	Value	Description
Legend: Loop = analog/digital loop; GS = ground start; DID = DID; E&M = E&M; BRI = BRI; DPNSS = DPNSS; VoIP = VoIP; TL = Target. Note: PRI fields are all included under the main table.		
Signaling	**DID**	**E&M**
	WinkStart Immediate DelayDial	Select the signal type for the line. The immediate setting does not appear for T1 E&M or T1 DID trunks connected to a DTM if the Dial mode is set to tone. Make sure that this matches the signal type programmed for the trunk at the other switch.
Link at CO	**Loop (analog only)**	
	<check box>	Some exchanges respond to a Link signal, also called hook flash (**FEATURE 71**), by providing an alternative line for making outgoing calls. Enabling Link at CO causes the system to apply the restrictions on outgoing calls to the digits dialed after the Link signal. As well, the call on the alternative line is subject to all restrictions. Disabling Link at CO prevents a Link signal from resetting the BCM50 restrictions in cases where the host exchange does not provide an alternative line.
Line Tuning Digit	drop-down menu	Select the line tuning digit to use. When a trunk is connected, the BCM50 starts a call and sends this digit to the CO to turn off the dial tone signal, and then tests the line to optimize the trunk levels. The default digit is 1. You may need to change the default digit if your CO uses the digit 1 to route the call to a special service or to a second dial tone or busy/re-order tone. Select the digit that will result in silence on the trunk.

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 Preferences tab is shown in Figure 12.

Figure 12 Preferences details panel

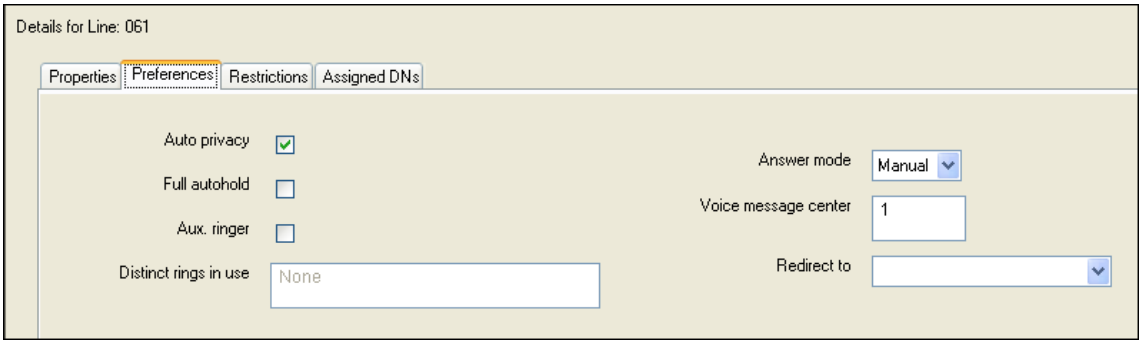


Table 14 defines the fields on this panel and indicates the lines.

Table 14 Preferences details fields for lines (Sheet 1 of 3)

Attribute	Value	Description
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.		
Auto privacy	**Loop** **GS**	**DID** **E&M** **BRI** **VoIP**
	<check box>	Define whether one BCM50 user can select a line in use at another telephone to join an existing call.
Full autohold	**Loop**	**BRI** **DPNSS** **VoIP**
	<check box>	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&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.
Aux. ringer	**Loop** **GS**	**DID** **E&M** **BRI** **DPNSS** **VoIP** **TL**
	<check box>	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.	
ANI Number	**DID**	**E&M**
	<check box>	Define whether the telephone number of the caller will be shown for this line. For T1 E&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.
DNIS Number		**E&M**
	<check box>	Defines whether the digits dialed by an external caller on this line will be shown.For T1 E&M trunks connected to a DTM, this setting only appears if Signaling is set to WinkStart and Answer mode is set to Manual.
Distinct Rings in use	<read-only>	Indicates if a special ring has been assigned. See Distinct Ring on the main table.

Table 14 Preferences details fields for lines (Sheet 2 of 3)

Attribute	Value	Description
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.		
Answer mode	**Loop** **GS**	**E&M** **BRI** **DPNSS**
	Manual Auto	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.
	Note: You require Disconnect supervision on the line if loop start trunks are to operate in auto-answer mode.	
Answer with DISA	**Loop** **GS**	**E&M** **BRI**
	<check box>	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		**TL**
	To Prime Busy Tone	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 BCM50 disconnects a call is programmed by the Disconnect timer setting.	
Voice Message Center	**Loop** **GS**	**DID** **E&M** **BRI** **DPNSS** **VoIP** **TL**
	Center 1 - Center 5	If this line connects t o a remote voice mail, either through the private network or at the Central Office, indicate which Center number has been configured with the contact number.The system calls that number to check voice mail messages when a message indicator is presented to a telephone.
Redirect to	**Loop** **GS**	**DID** **E&M** **TL**
	<dial string>	Enter a dial string (including destination code) to redirect the line to an external telephone, such as a call attendant on another system. If you want to stop redirection, you need to delete the dial string and allow the record to update. **Warning**: If the dialstring is set up, the line will immediately be redirected out of the system not ringing any telephone.

Table 14 Preferences details fields for lines (Sheet 3 of 3)

Attribute	Value	Description
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.		
Warning: Enable modules If you disabled any trunk media bay modules prior to performing programming, enable them now to ensure your system will function properly.		

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 Restrictions tab shows the restrictions for a line.

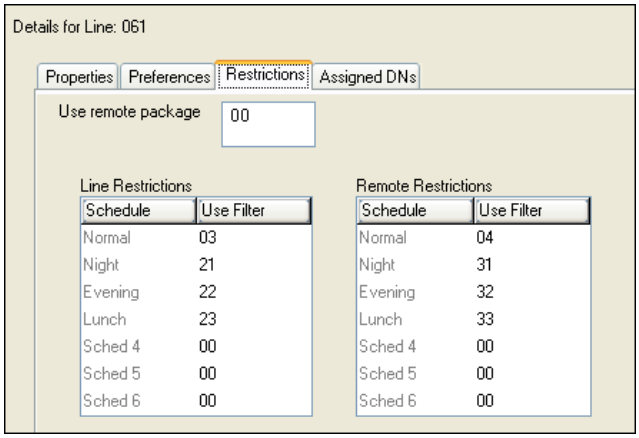


Table 15 describes the fields on this panel.

Table 15 Restrictions

Attribute	Values	Description
Use remote package	<remote package #>	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.
Schedule	Default: Normal, Night, Evening, Lunch, Sched 4, Sched 5, Sched 6	
Line Restrictions - Use Filter	<00-99>	Enter the restriction filter number that applies to each schedule. (controls outgoing calls)
Remote Restrictions - Use Filter	<00-99>	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)

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 the *BCM50 Administration Guide* (NN40020-600)

Restoring data from an archive

Caution: A backup operation can interrupt services running on the BCM50. 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 **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 BCM50 system will be 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 BCM50 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 re-configure your BCM50 and would like to erase the settings programmed on your device. Although you can select individual components to restore, Nortel 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, please refer to the *BCM50 Administration Guide* (NN40020-600).

Viewing the inventory of BCM50 software

BCM50 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 BCM50 to the component level.

You can view the complete inventory of software installed on the BCM50. The Software Inventory table displays all the software components installed on the system, the functional group and the software version of each component.

Table 16 lists the information displayed in the Software Component Version Information table.

Table 16 Information displayed in the Software Component Version Information table

Column	Description
Component	The name of the software component installed on the BCM50. For example, backup-recovery.
Group	The functional group to which the software component belongs. For example, Operating System.
Version	The version of the software component.

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 BCM50 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.
3. View the details in the **Software Component Version Information** table.

Obtaining software updates

Before you can apply a software update to your BCM50, you must obtain the software update and unzip the file. Authorized Nortel partners can download BCM50 software updates from the Nortel Technical Support web page.

To obtain updates from the Nortel Technical Support Web page

1. In your web browser, enter **www.nortel.com/cs** and then click the **Go** button.
   The Nortel Technical Support Web page opens.
2. Download the required updates.
3. Create a directory for each update and unzip the downloaded file into a directory.

Chapter 5
Advanced Troubleshooting

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

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

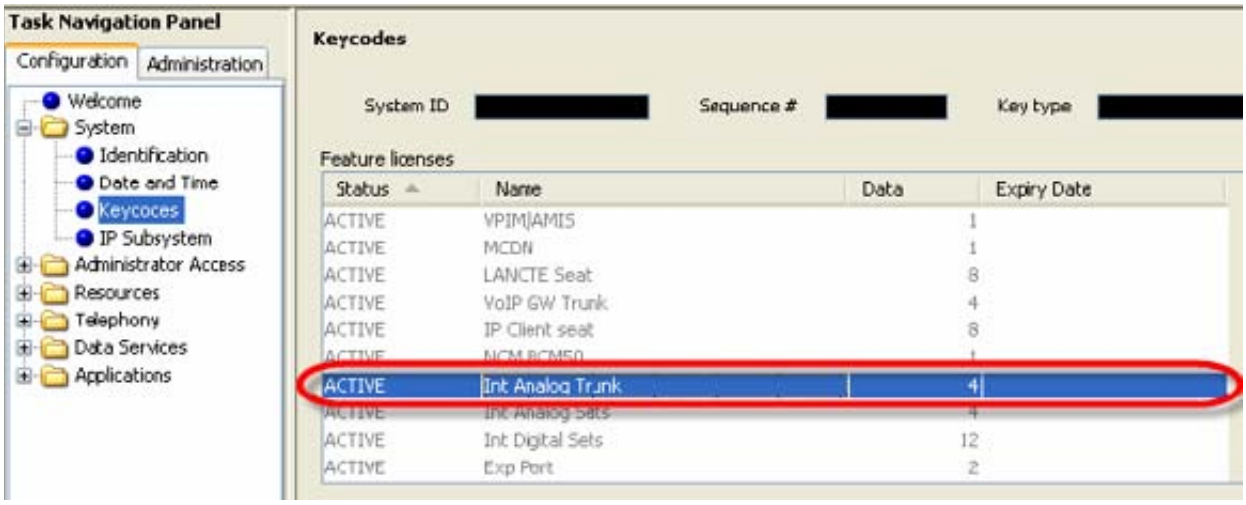
- you are unable to reach a destination number when you dial it
- there is no dial tone
- instead of a dial tone, you hear a re-order or fast-busy tone
- you hear a “wrong number” message from the central office.

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

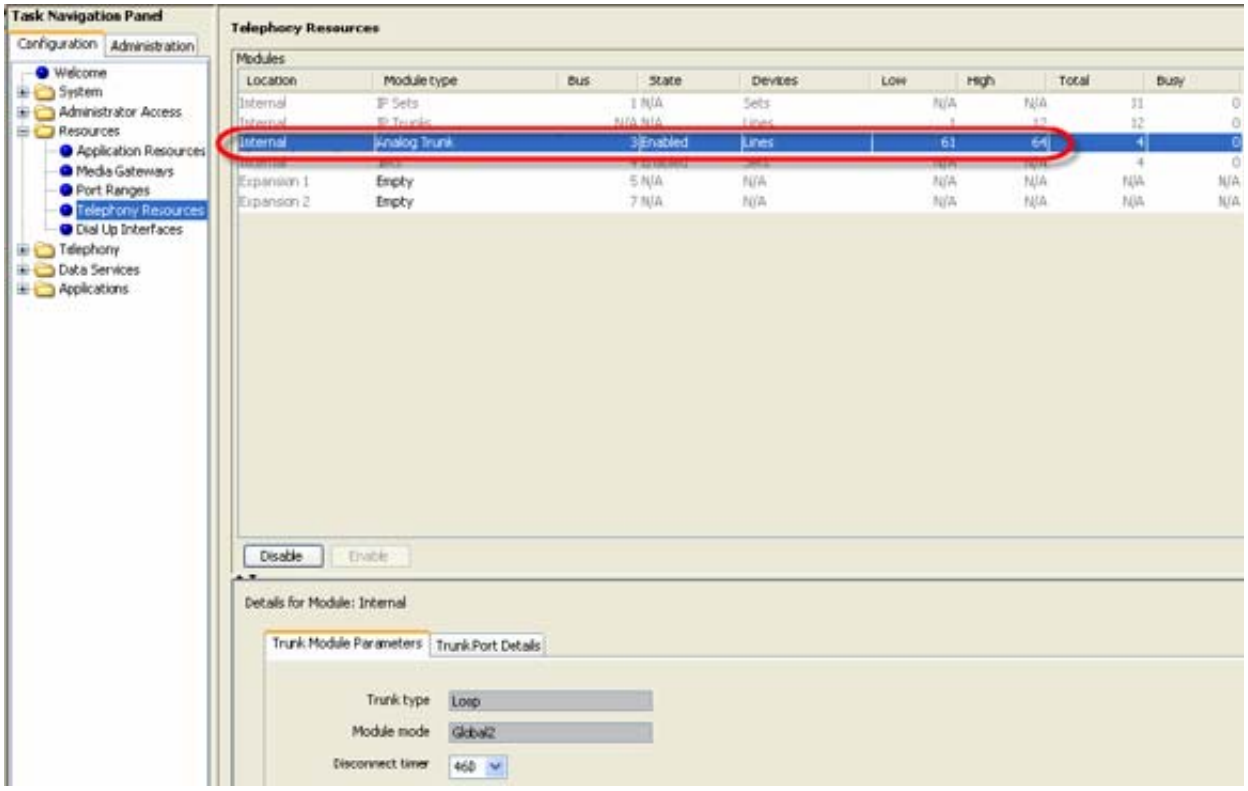
Troubleshooting example 1

1. Check that the LED indicators on the BCM50 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 Element Manager, select **Configuration > System > Keycodes** to view the list of installed features.

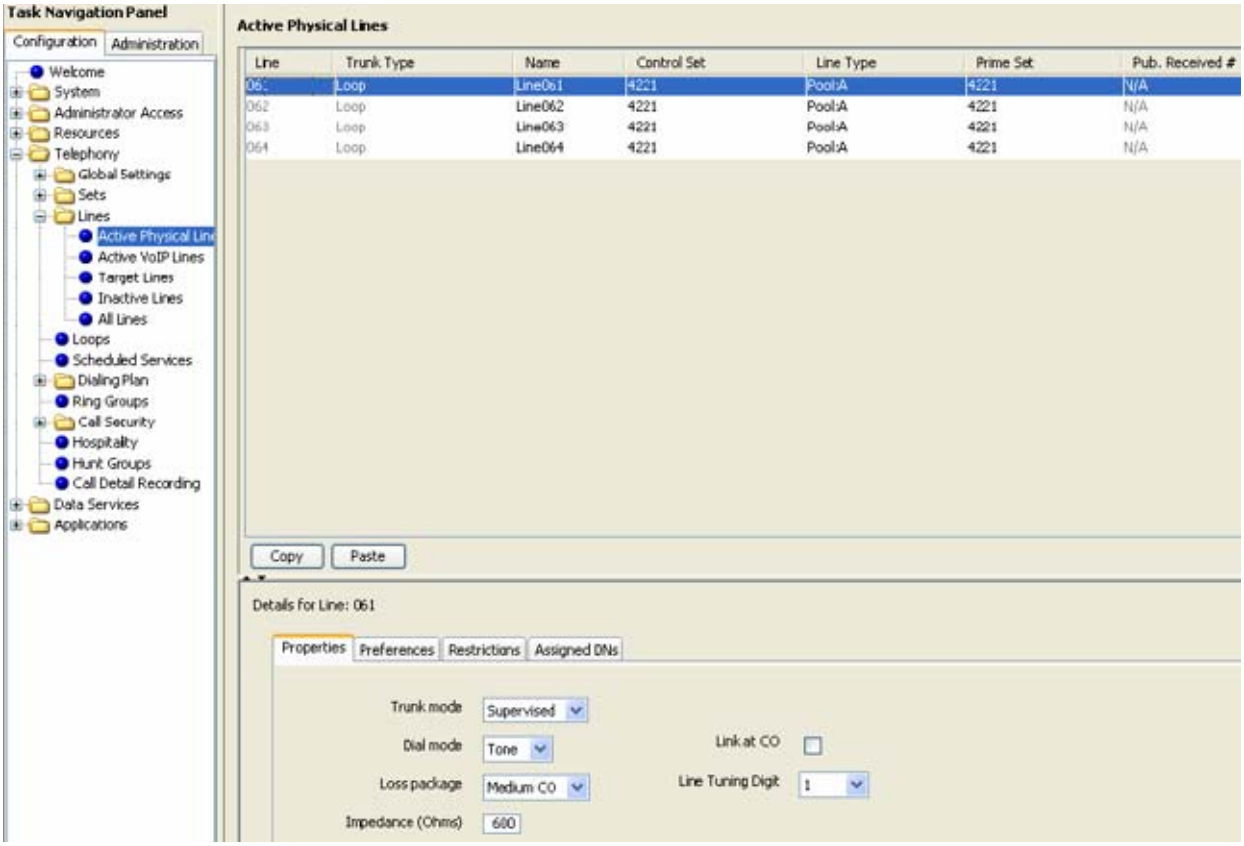
4 Verify that the appropriate keycode is active. For analog trunk modules, the keycode is **Exp Port**, and for BCM50 built-in trunks (main chassis), the keycode is **Int Analog Trunk**.



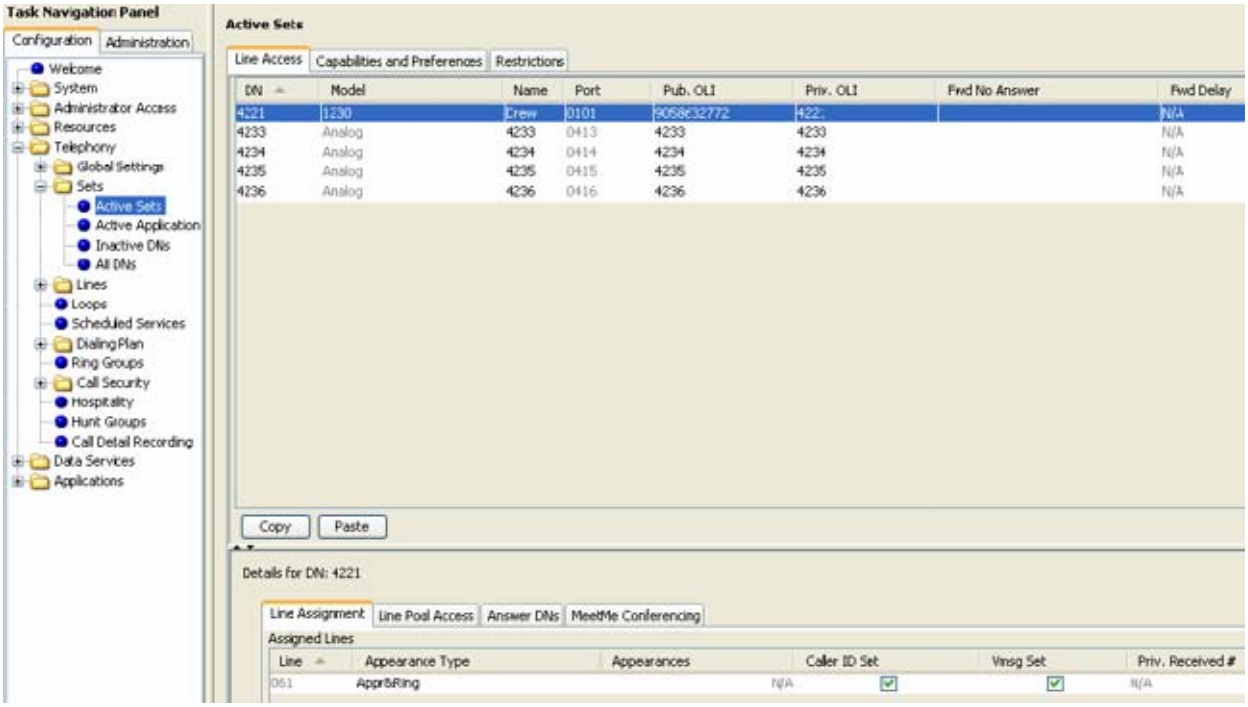
5 Select **Configuration > Resources > Telephony Resources** and select the appropriate trunk. Verify that the trunk is active.



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.

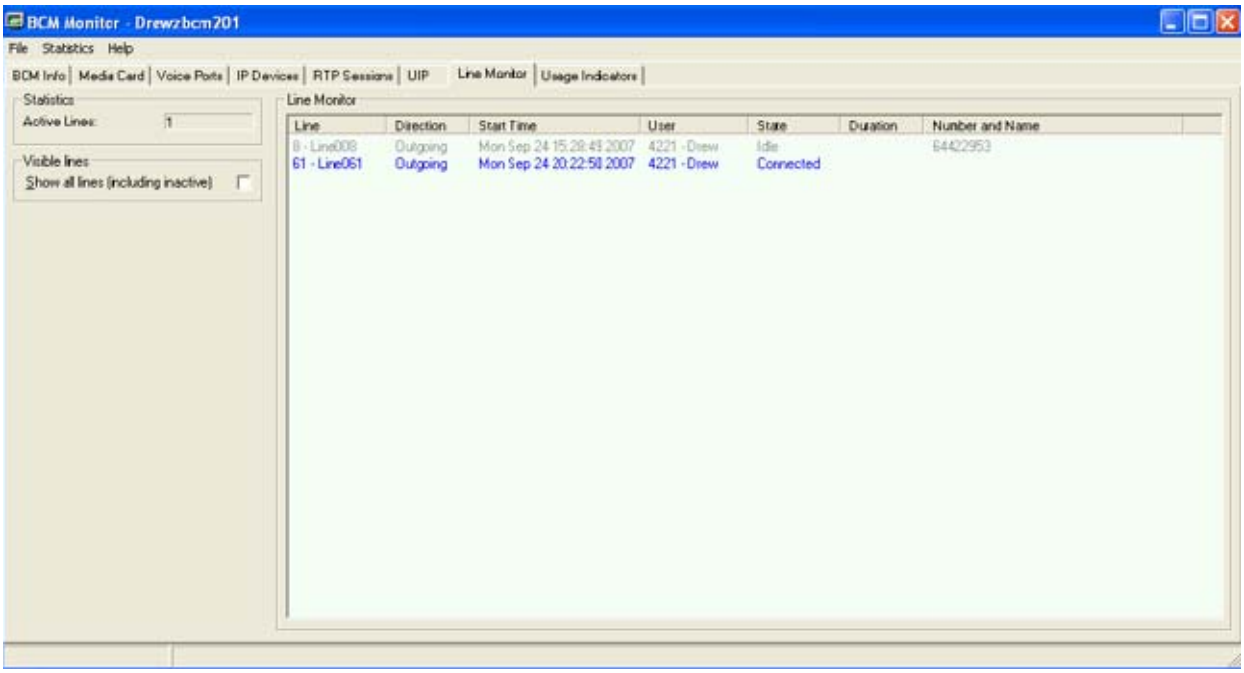


7 Select **Configuration > Telephony > Sets > Active Sets.** Select the appropriate set and verify that it is provisioned correctly. On the **Line Assignment** tab, verify that the Appearance Type is one of the following: appear only, appear and ring, or ring only.



8 Select **Administration > Utilities > BCM Monitor** and click the **Launch BCM Monitor** button.

9 Select the **BCM Info** tab and verify the status of the line.



Example 2: Cannot dial out from a SIP or H323 VoIP trunk

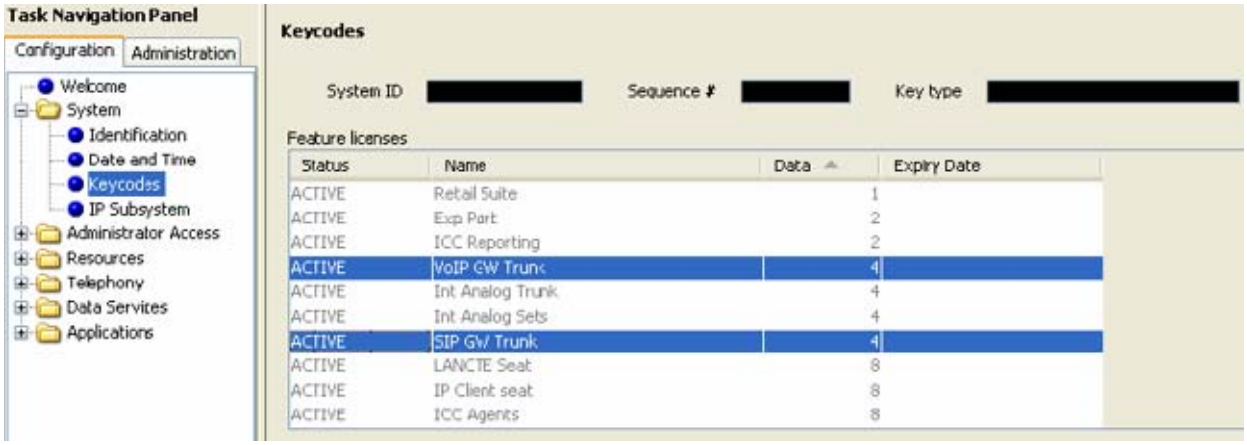
When you cannot dial out from a SIP or H323 VoIP trunk, you may experience the following problems in your network:

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

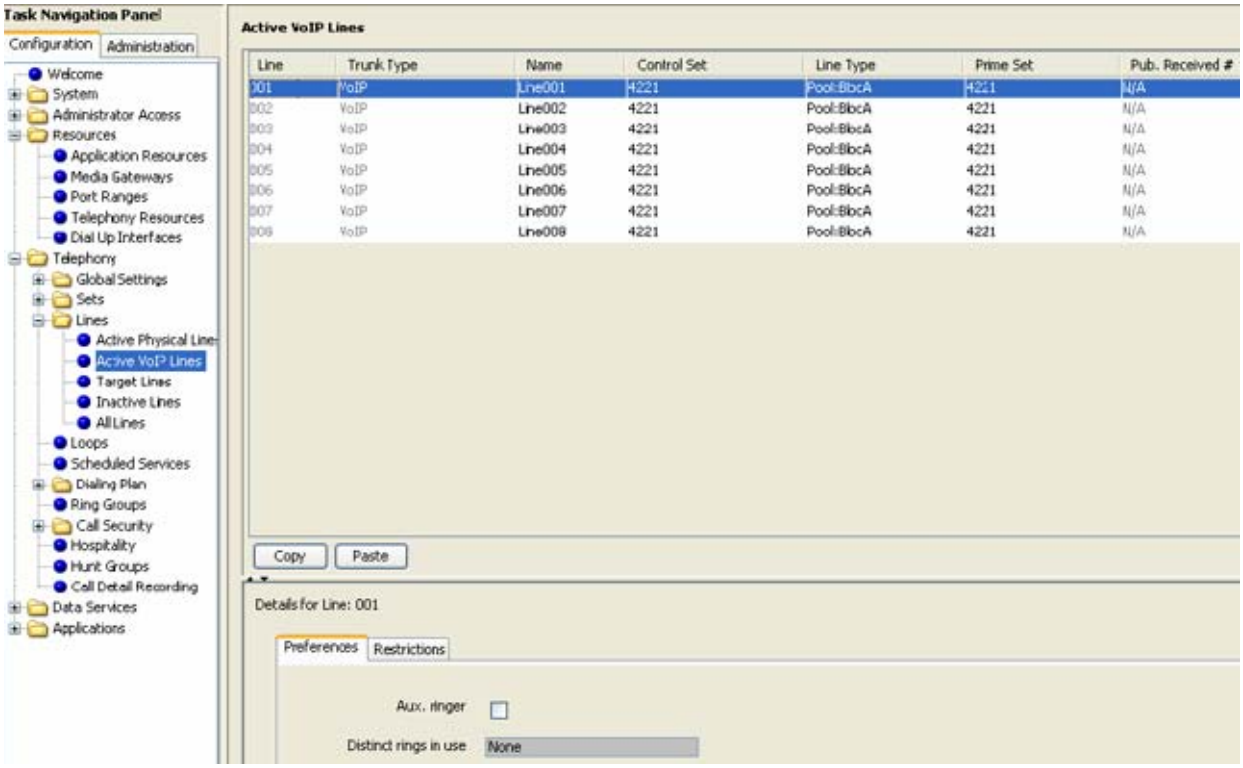
Use the following procedure when you cannot dial out from a SIP or H323 trunk.

Troubleshooting example 2

1. Check that the LED indicators on the BCM Chassis are solid green.
2. From the Element Manager, select **Configuration > System > Keycodes** to view the list of installed features.
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**.

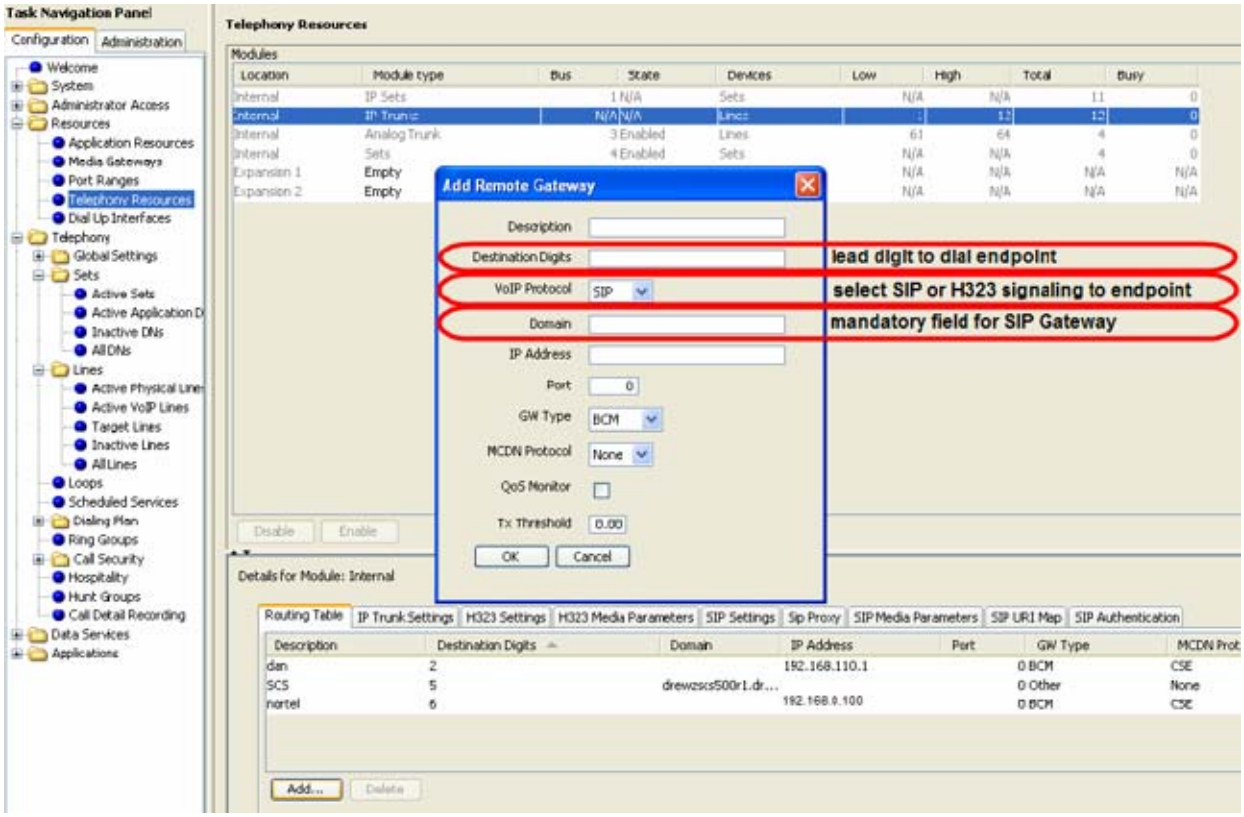


4 Select **Configuration > Telephony > Lines > Active VoIP Lines.** Select the appropriate line and verify that the Control Set and Prime Set are provisioned correctly.

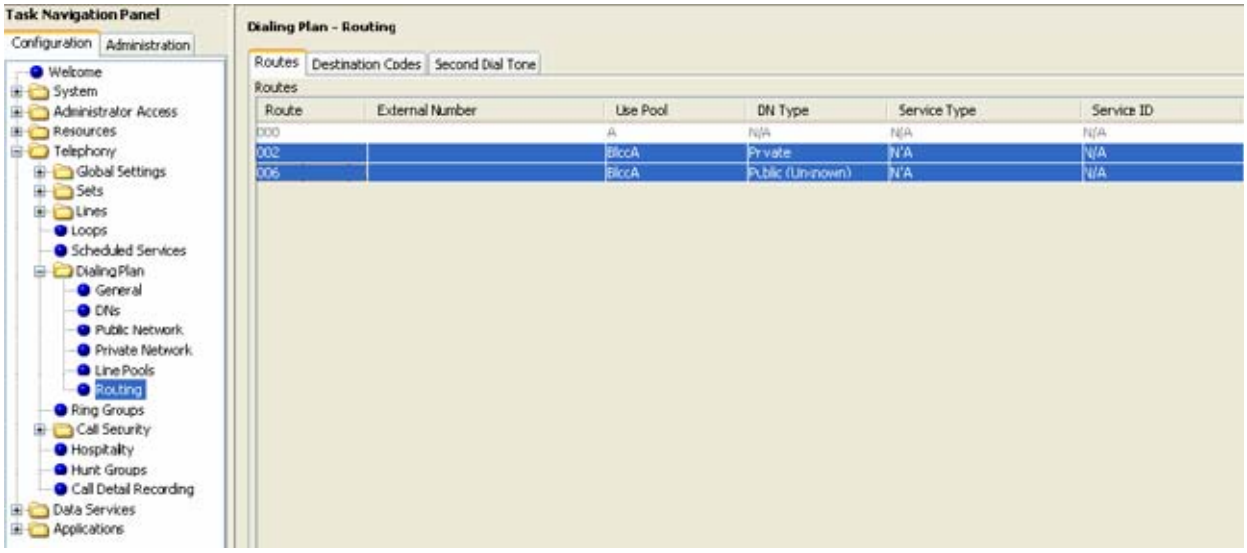


5 Select **Configuration > Resources > Telephony Resources** and select the appropriate trunk.

6 Click the **Add** button to open the **Add Remote Gateway** dialog box. Verify that the remote gateway is configured correctly.

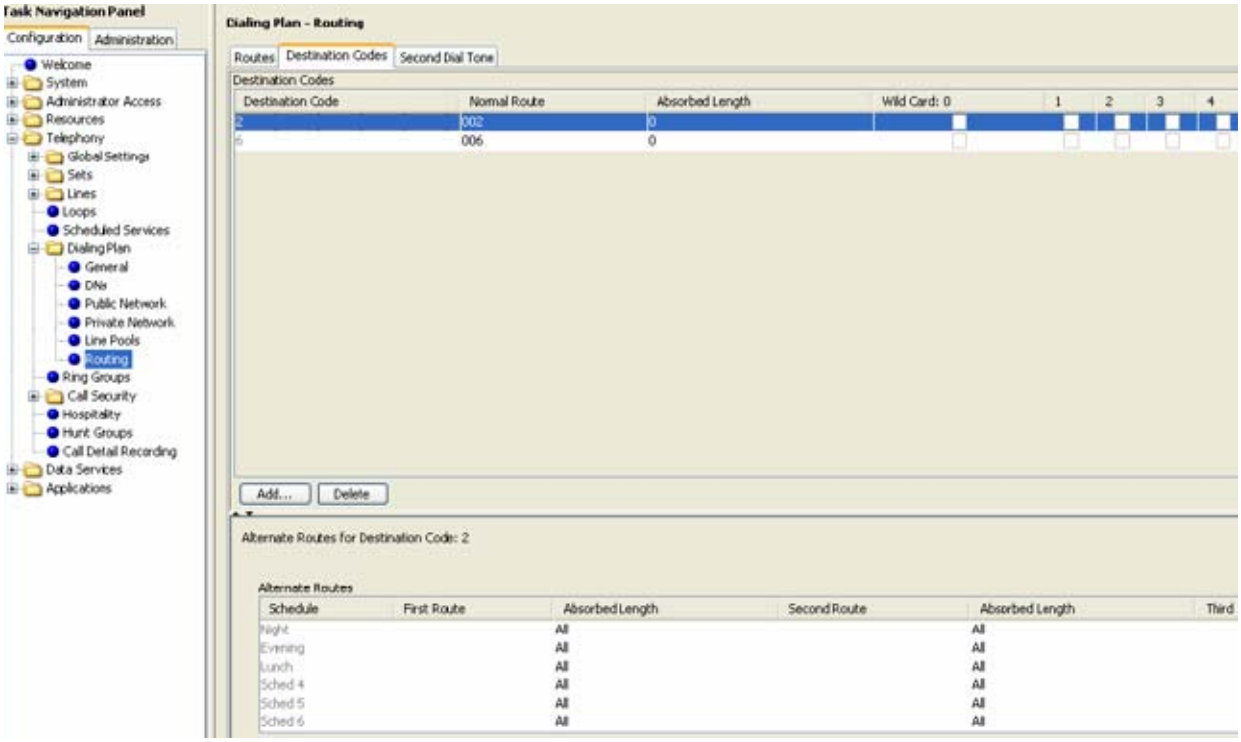


7 Select **Configuration > Telephony > Dialing Plan > Routing** and select the **Routes** tab. Verify that the route is configured correctly.



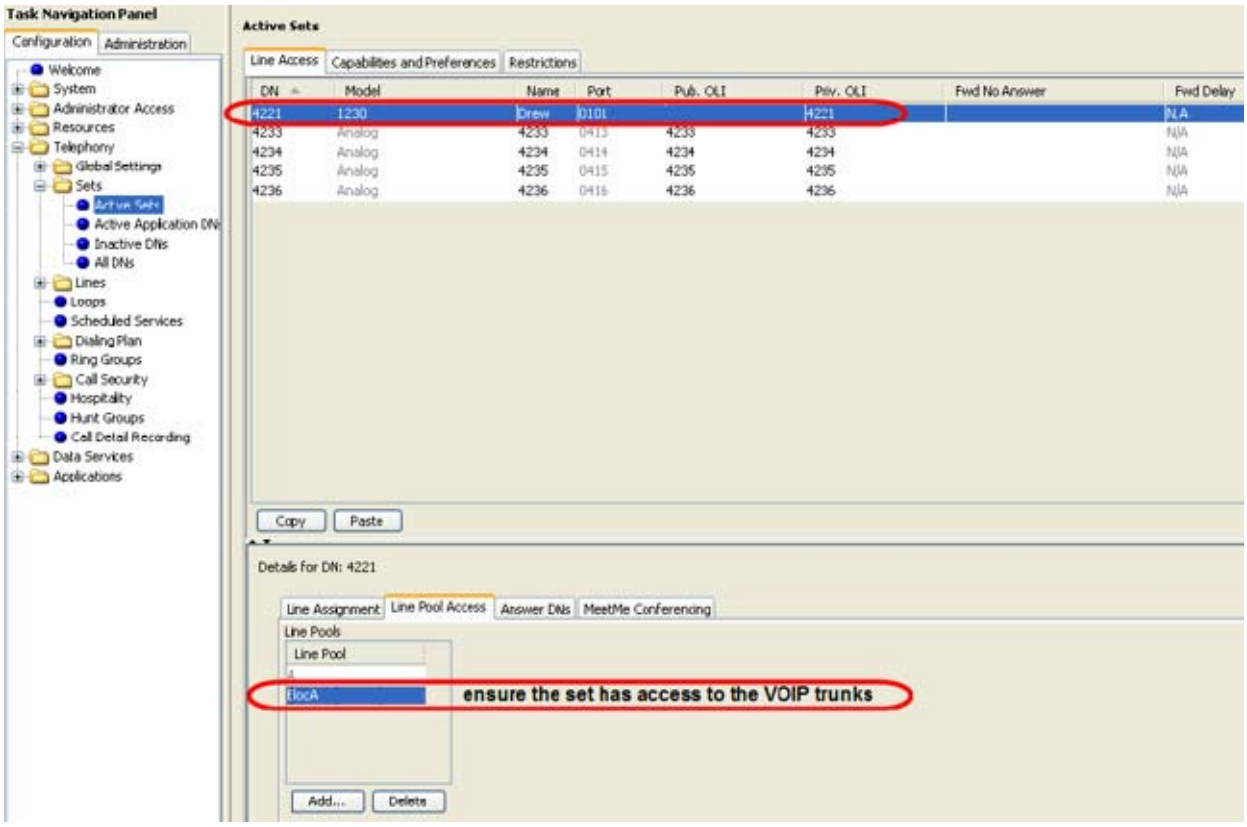
8 Select **Configuration > Telephony > Dialing Plan > Routing** and select the **Destination Codes** tab. Verify that the destination code is configured correctly.

Note: Ensure that the **Absorbed Length** is configured to the expected dialing plan.



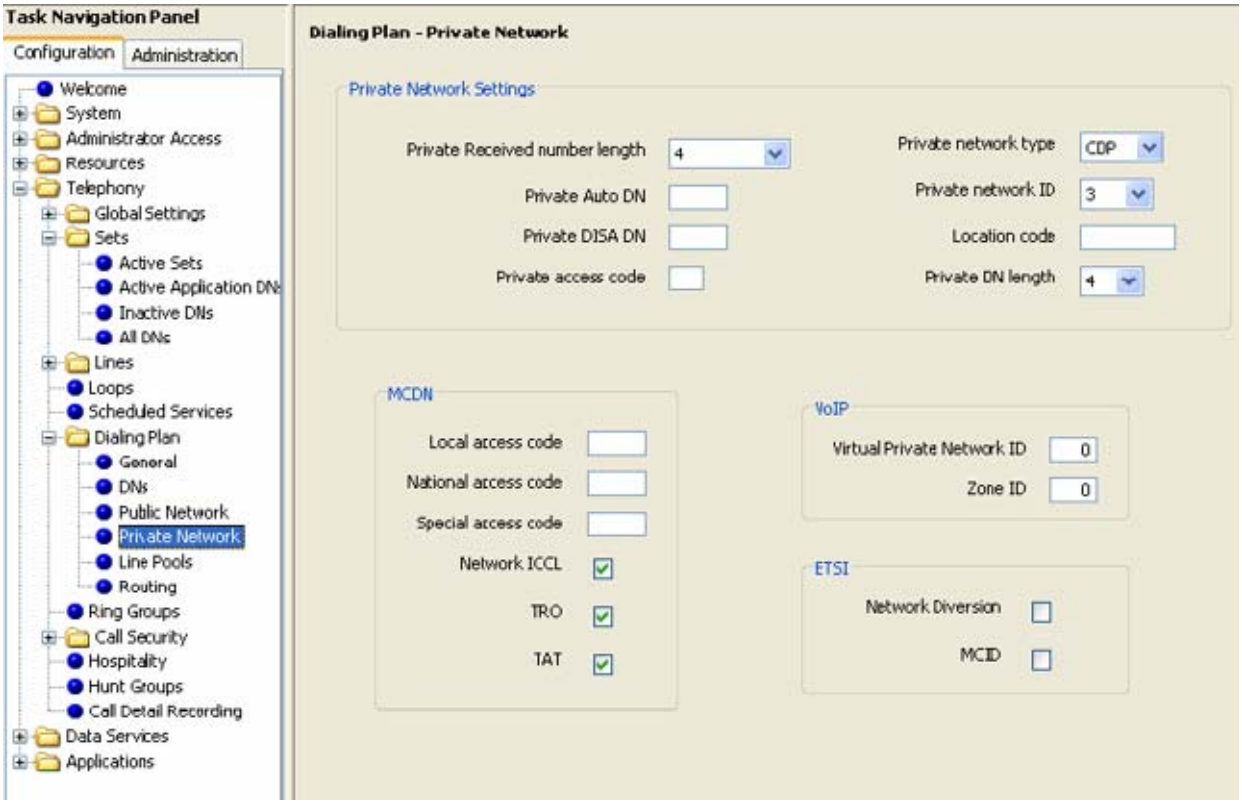
9 Select **Configuration > Telephony > Sets > Active Sets** and select the **Line Access** tab.

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 BCM50

When an IP set cannot register with the BCM50, you may notice the following problem in your network:

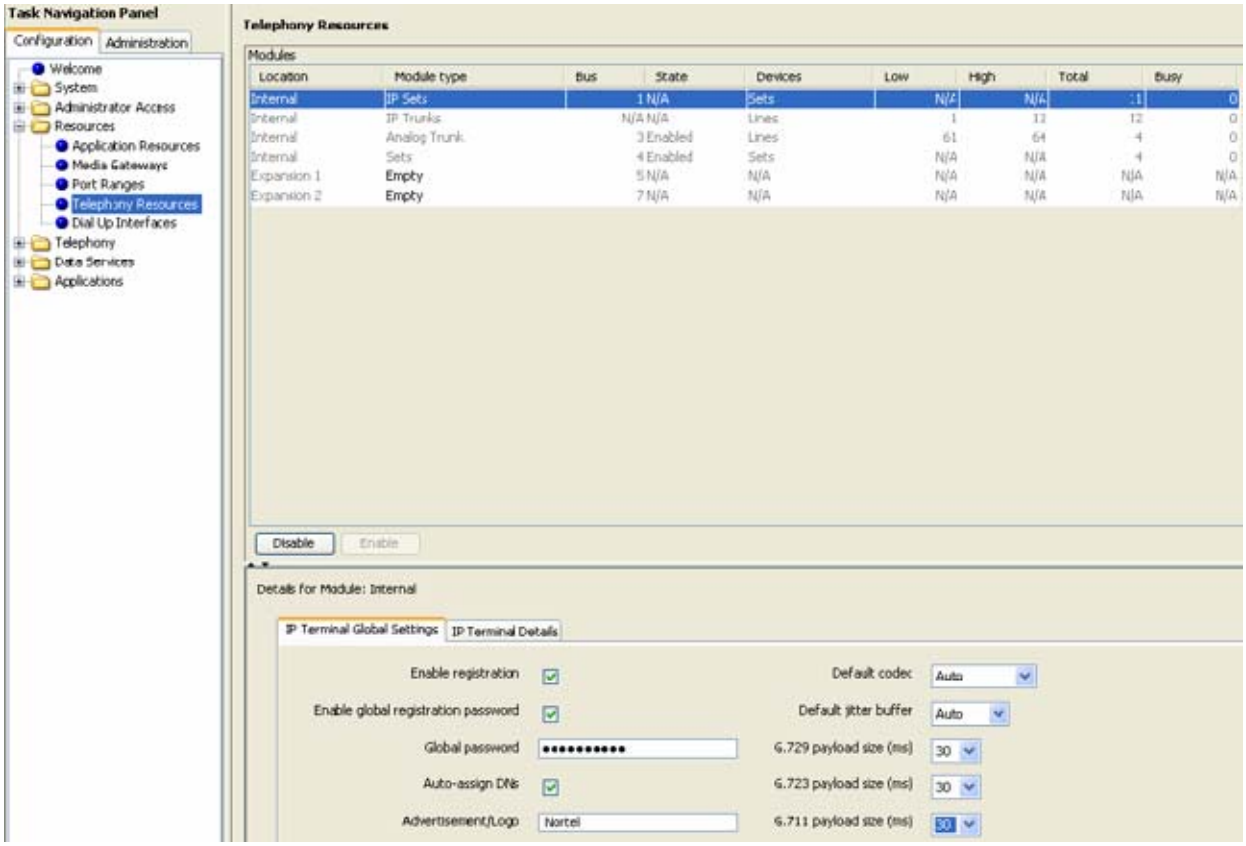
- the IP set is not registered and repeatedly tries to connect to the BCM50

Use the following procedure when the IP set is not registering with the BCM50.

Troubleshooting example 3

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 BCM50 is the same password that you are using the register the IP set (the default password is 2264). If this field is left blank, no password prompt occurs during phone registration.

4 Verify S1/S2 IP address & Port settings on phone (Port 7000 for BCM)



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.”

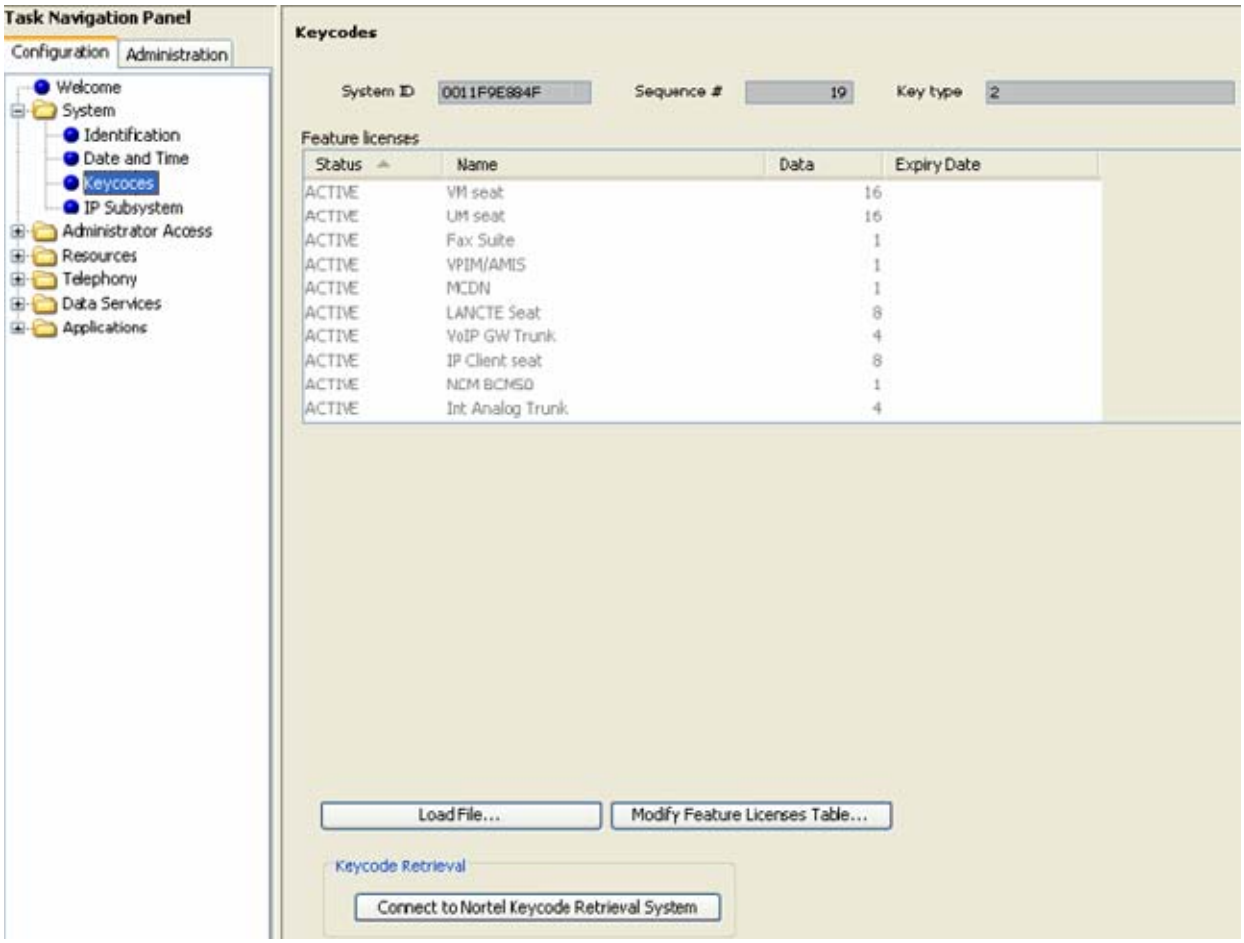
Use the following procedure when you cannot install a keycode, or when a keycode application is invalid. For further information about keycodes, see the *Keycode Installation Guide* (NN40010-301).

Troubleshooting example 4

1 Verify that the keycode is generated against the right system ID in the Keycode Retrieval System (KRS). Access the KRS using one of the following methods:

   a Connect to http://www.nortel.com/support/tools/krs/

   b In Element Manager, select **Configuration > System > Keycodes** and click the **Connect to Nortel Keycode Retrieval System** button.



2 In the Element Manager, select **Help > About**. Verify that the installed version is the latest version of the software.

Example 5: Cannot dial out from digital trunk

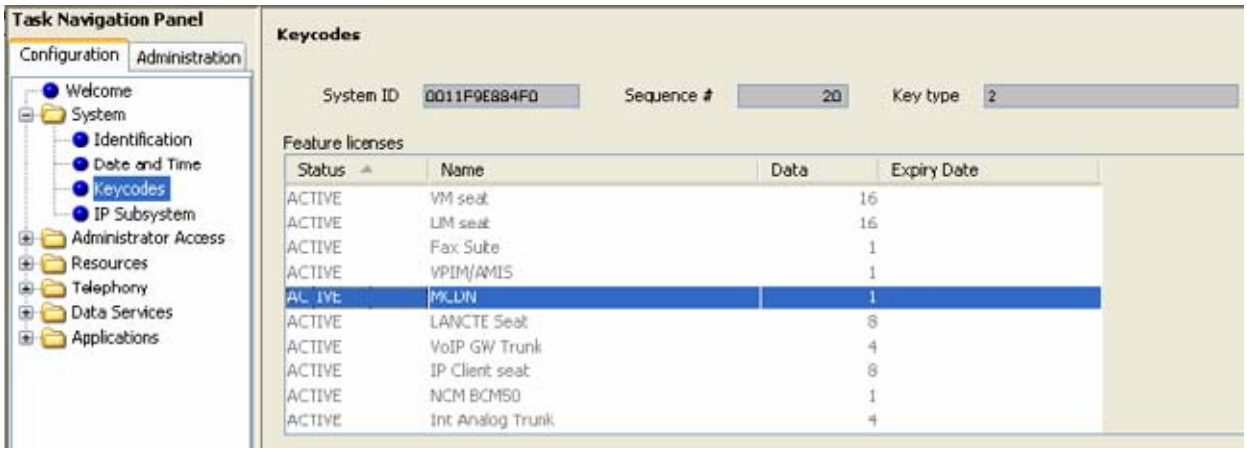
When you cannot dial out from a digital trunk, you may experience the following problems in your network:

- 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.

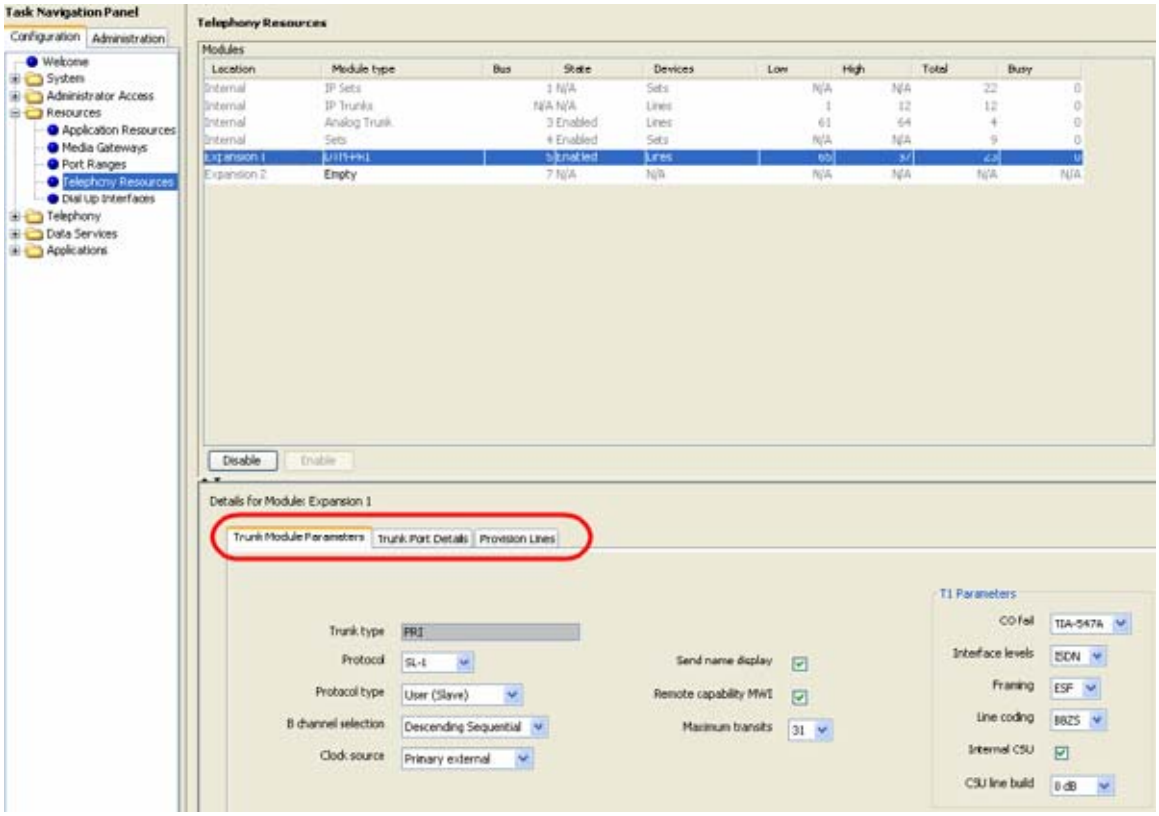
Troubleshooting example 5

1. Check that the LED indicators on the 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 BCM50 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 Element Manager, select **Configuration > System > Keycodes** to view the list of installed features.

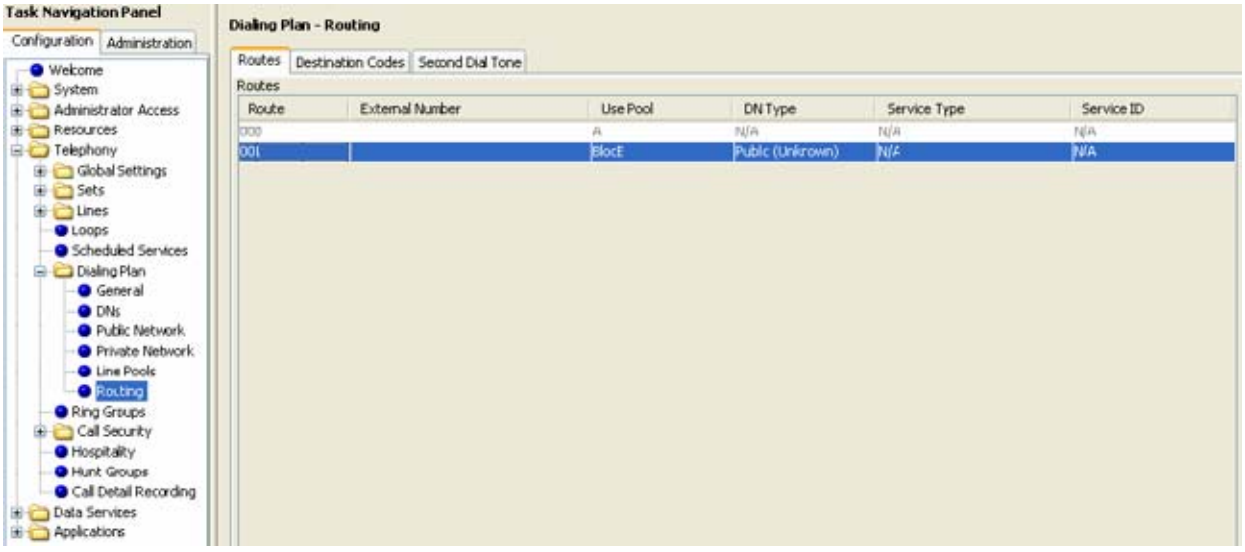


5. Verify that the digital trunk parameters are configured according to the parameters specified by your carrier or central office.
6. Select **Configuration > Resources > Telephony Resources** and click the **Trunk Port Details** tab. Verify that the trunk port details and state are correctly provisioned.

7 Select the **Provision Lines** tab and verify that the lines are correctly provisioned.

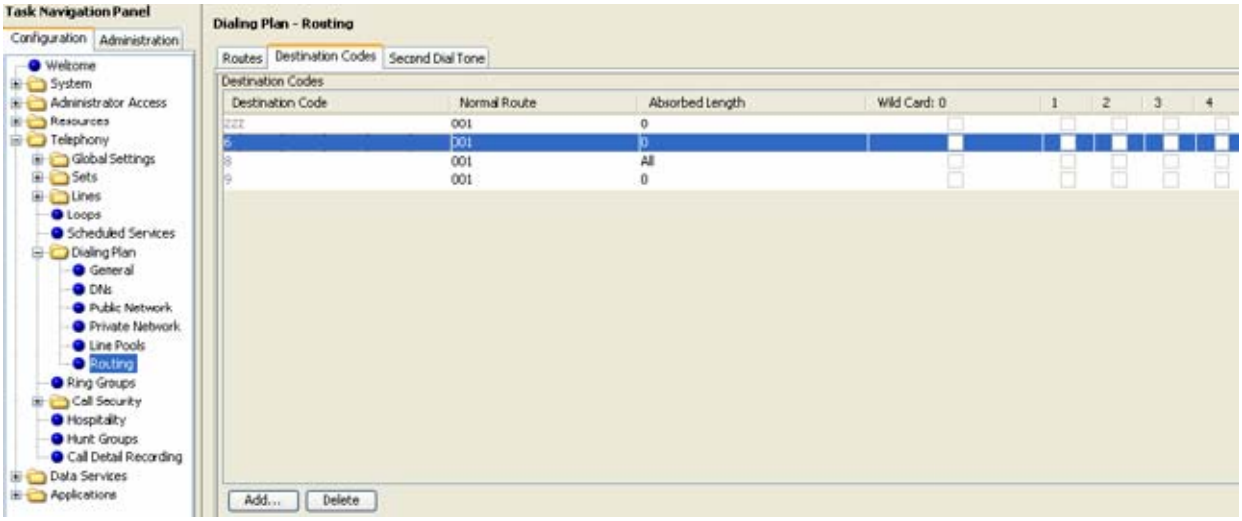


8 Select **Configuration > Telephony > Dialing Plan > Routing** and select the **Routes** tab. Verify that the route is configured correctly



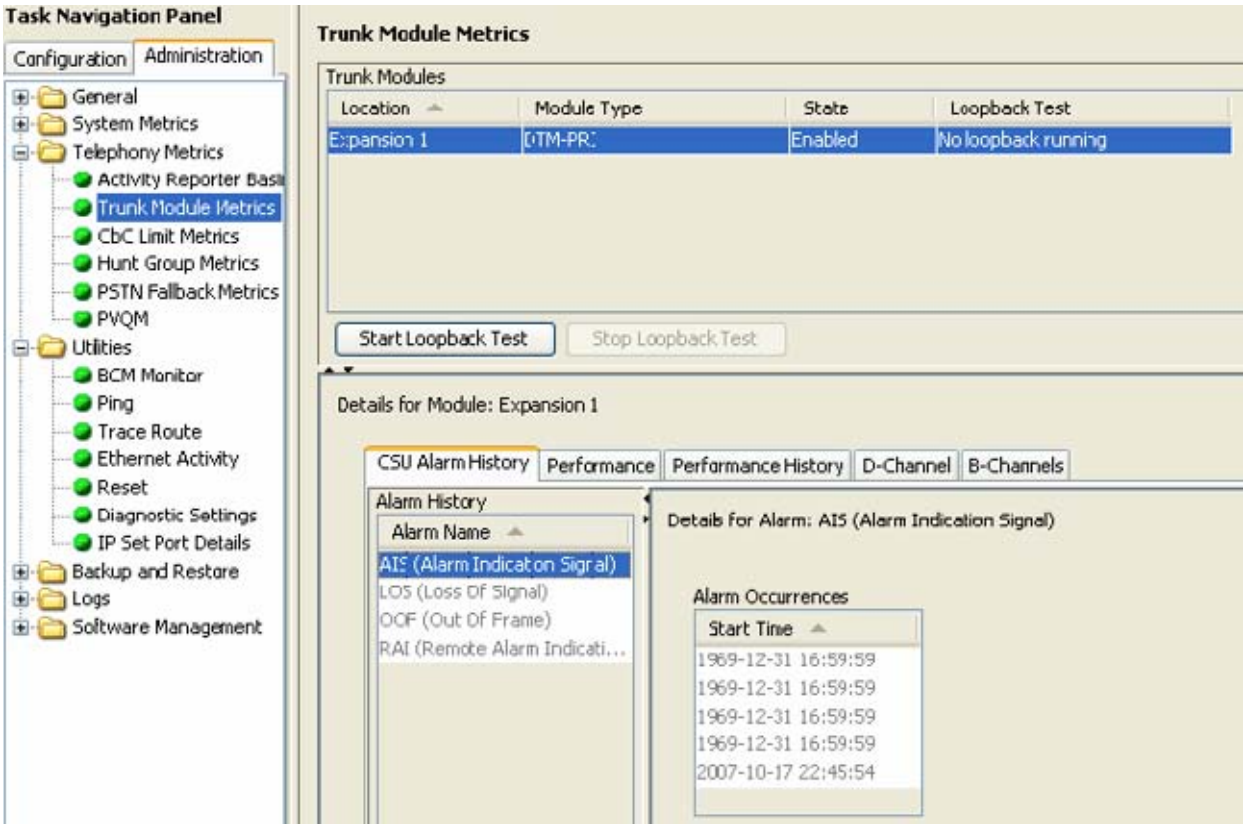
9 Select **Configuration > Telephony > Dialing Plan > Routing** and select the **Destination Codes** tab. Verify that the destination code is configured correctly.

Note: Ensure that the **Absorbed Length** is configured to the expected dialing plan.

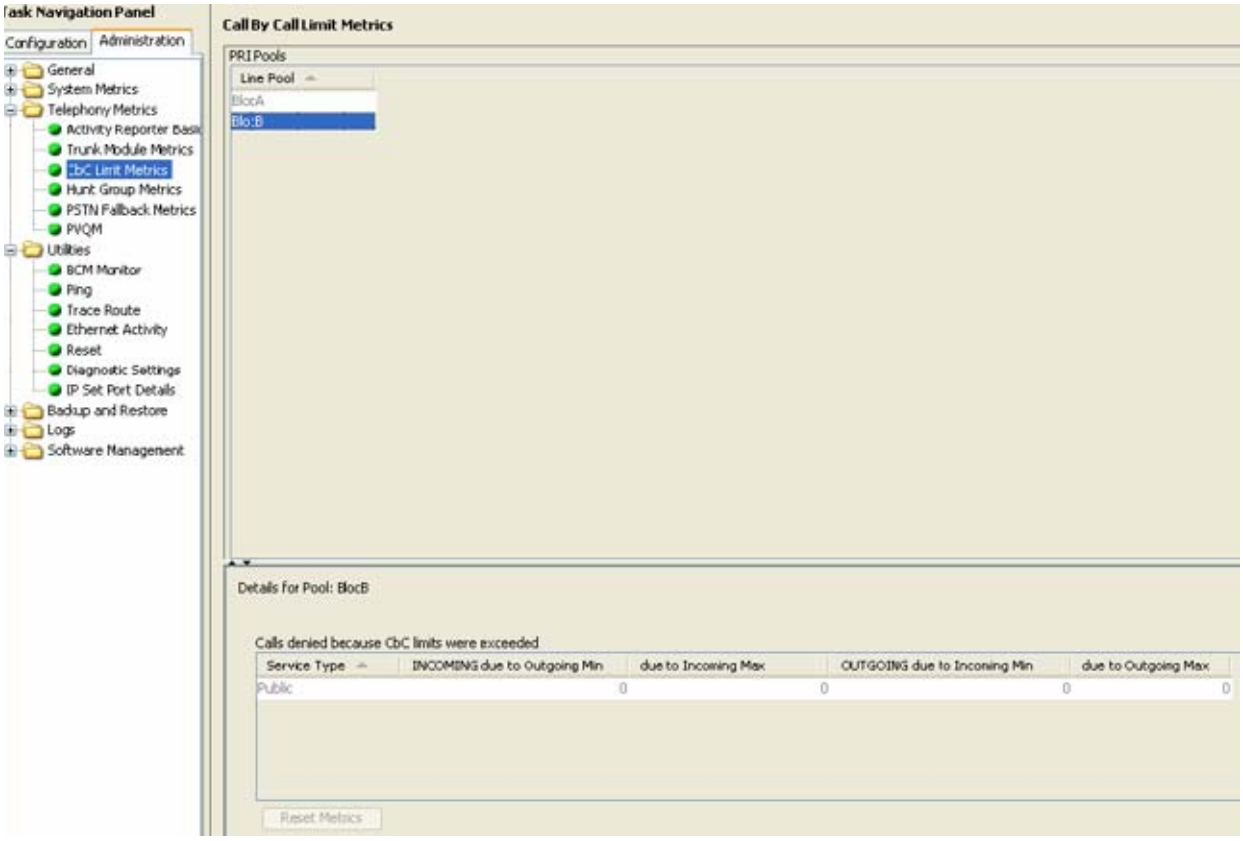


10 Select **Administration > Telephony Metrics > Trunk Module Metrics** and select the DTM module. Verify that the State of the DTM module is Enabled.

11 Select the **CSU Alarm History** tab and check the alarm status of the module.

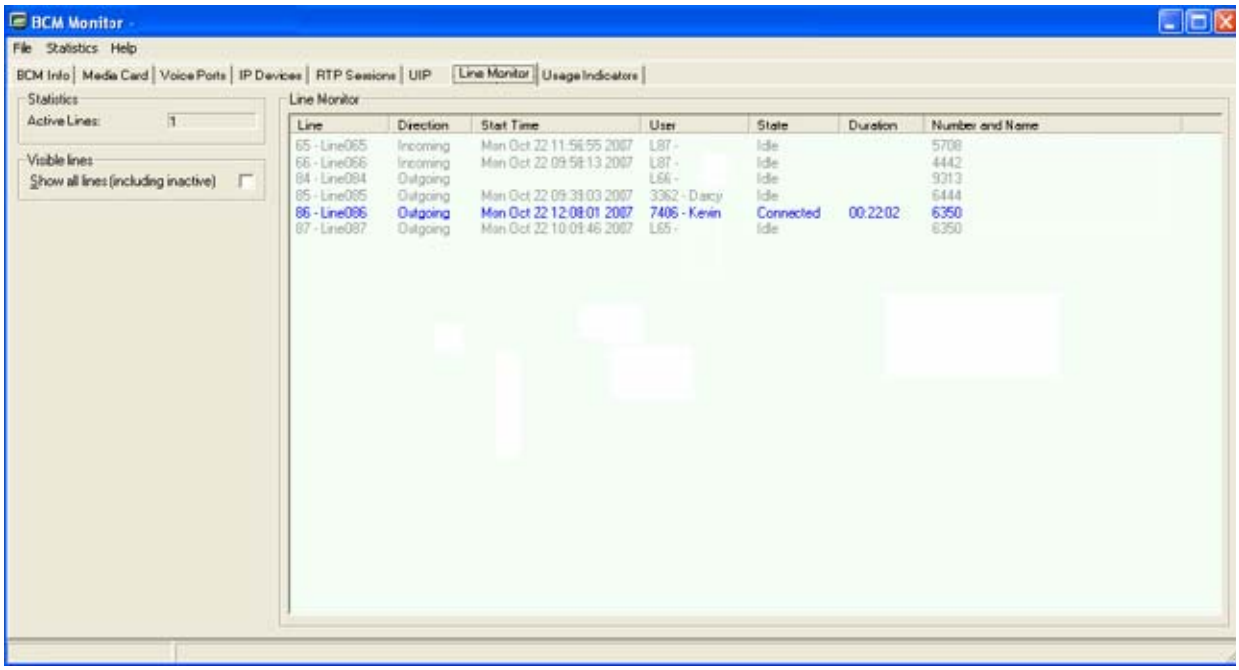


12 Select **Administration > Telephony Metrics > CBC Limit Metrics** and verify calls were not denied due to exceeding CBC limits.



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.



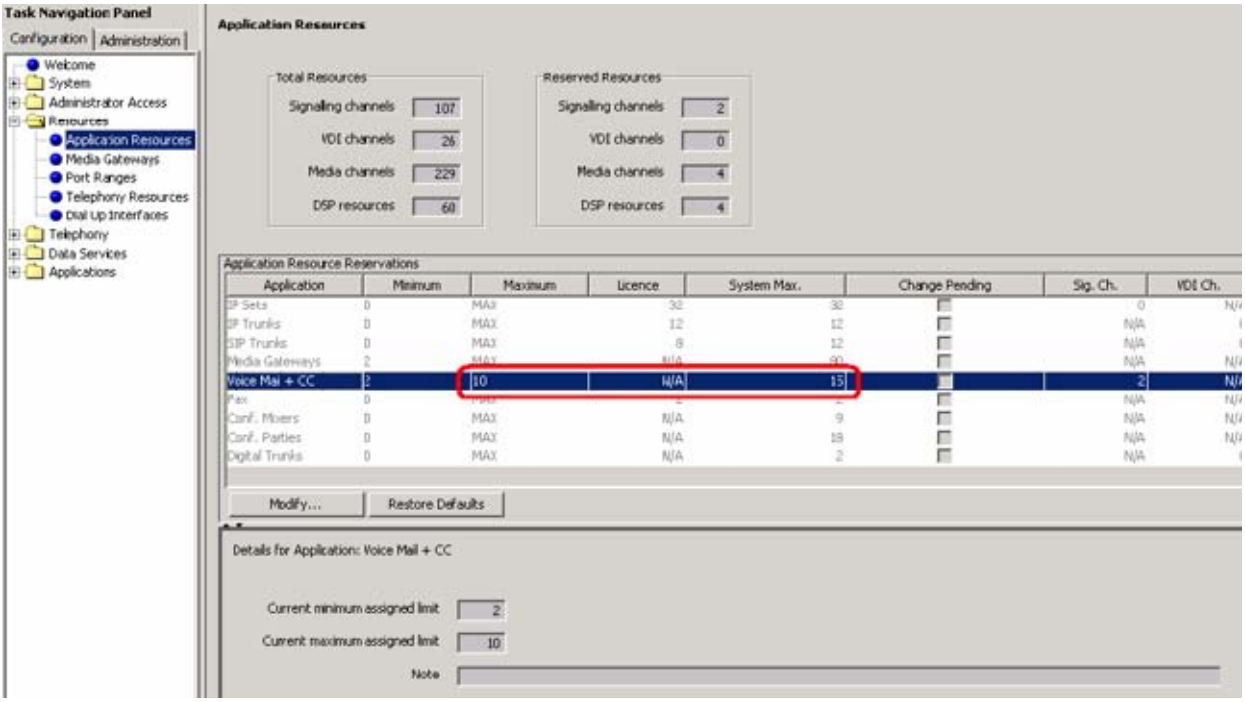
Example 6: MeetMe Conferencing commands do not work, or conferencing is busy

Use the following procedure to troubleshoot problems with MeetMe Conferencing.

Troubleshooting example 6

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

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



Chapter 6
Downloading Software

Use the information in this chapter to download BCM50 software.

Navigation

Downloading software from the BCM50 webpage

The BCM50 web page facilitates the download of applications, documentation, and other information necessary for running the BCM50 and its services. You connect to the BCM50 web page by typing the IP address of your BCM50 device into your browser. A valid user name and password are required in order to access the web page.

The BCM50 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 17 that are available to the end users of the BCM50.
- Business Applications - Applications listed in Table 17 that are available to business users of the BCM50.
- Administrator Applications - Applications listed in Table 17 that are available to BCM50 administrators.
- Documentation - Documentation for the BCM50 end users to explain the end-user applications and BCM50-specific tasks.

Table 17 Applications available on BCM50 web page

Application	User	Administrator
User Applications		
Mailbox Manager	Y	Y
Desktop Assistant Pro	Y	Y
CallPilot Unified Messaging	Y	Y
Personal Call Manager	Y	Y
LAN CTE Client	Y	Y
IP Software Phone 2050*	Y	Y
Mobile Voice Client 2050	Y	Y

Table 17 Applications available on BCM50 web page (Continued)

Application	User	Administrator
Nortel VPN Client*	N	Y
Business Applications		
Reporter Applications		
Activity Reporter Basic	N	Y
Activity Reporter	N	Y
Contact Center Applications		
Reporting for Contact Center	N	Y
Contact Center Reporting Server	N	Y
Multimedia Contact Center	N	Y
IP View Softboard	N	Y
Administrator Applications		
Administrator Management Tools		
CallPilot Manager	N	Y
Business Element Manager	N	Y
Desktop Assistant Pro AE	N	Y
NCM for BCM	N	Y*
BCM Monitor	N	Y
CDR Clients	N	Y
BCM MIBs	N	Y
RADIUS Dictionary		
SSH Client (PuTTY)	N	Y
BCM Logs	N	Y
Digital Mobility Tools		
Digital Mobility Controller	N	Y
Digital Mobility Service Tool	N	Y
Templates		
Startup Profile Template	N	Y
Factory Default Programming Record	N	Y

To download software from the BCM50 webpage

1 Connect to the BCM50 web page:

— If the BCM50 is installed on the network use a browser and type in the BCM50 IP address as the URL in the following format:

http://xxx.xxx.xxx.xxx

— If the BCM50 is installed but not yet configured, connect directly to the BCM50 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 BCM50 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 Nortel web site

To download software from the Nortel Web site, see the following web site:

http://www.nortel.com/downloadingcontent

Chapter 7
Troubleshooting Tools

The BCM50 system provides several tools that you can use to diagnose problems.

Navigation

Service Management

You can use the Element Manager to view a list of the services that are running on your BCM50 system.

For information about service management on the BCM50, see “Using the BCM50 Service Managment System” in the *BCM50 Administration Guide* (NN40020-600).

Status and Metrics

You can use the Element Manager to view detailed information about the performance of the BCM50 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 chapter “Using BCM50 System Metrics” in the *BCM50 Administration Guide* (NN40020-600).

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 information about monitoring system performance, see the chapter "Monitoring BCM50 Telephony Metrics" in the *BCM50 Administration Guide* (NN40020-600):

Utilities

BCM50 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 BCM50 systems.
- Ping—Ping (Packet InterNet Groper) is a utility that you can use to verify that a route exists between the BCM50 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 BCM50 system.

For information about utilities, see the "BCM50 Utilities" chapter in the *BCM50 Administration Guide* (NN40020-600).

Chapter 8
Understanding system messages

The BCM50 system generates alarms, logs, traps, and other system messages that you can use to troubleshoot problems.

Alarms, logs, and traps

For information about system messages, see the following chapters in the BCM50 Administration Guide (NN40020-600):

- "Using the BCM50 Fault Management System," which describes fault management tools such as alarms, logs, and SNMP traps
- "List of Alarms," which provides alarm messages, problem descriptions, and possible solutions

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 18 lists the possible values for Release reasons.

Table 18 Release reasons

Attributes	Values	Description
None	Default Value	No text will accompany a dropped call notification.
Simple	Cause Code: Off On	 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.

Table 18 Release reasons

Attributes	Values	Description
Detailed	No setting	A detailed explanation of the Cause code is provided.
Cause Code	check box	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.

Chapter 9
Useful Troubleshooting Links

Use the information in this chapter to find additional reference information when you are troubleshooting a problem with the BCM50 system. As part of your initial troubleshooting, Nortel recommends that you check these resources for information about known issues and for solutions related to the problem you are experiencing.

Navigation

Partner Bulletins

To locate Partner Bulletins, visit the Nortel Partner Information Center:

http://www.nortel.com/pic

Knowledge and Solution Engine

The Knowledge and Solution Engine allows you to search an entire database of Nortel technical documents, troubleshooting solutions, software, and technical bulletins.

The document types available from the Knowledge and Solution Engine include the following:

- Bulletins: Includes a listing of technical bulletins.
- Documentation: Includes all technical documentation written for Nortel
- products (such as installation guides, administration guides, release
- notes).
- Service Requests: Includes technical support cases created within the past year. The availability of service requests is based on your customer entitlement.
- Software: Includes software patches and software releases.
- Solutions: Includes troubleshooting solutions written by the Nortel Technical Support team.

When searching through the Knowledge and Solution Engine, enter a natural language query (that is, a query in the form of a statement or a question).

Using the Knowledge and Solution Engine

Use the following procedure to access the Knowledge and Solution Engine.

To use the Knowledge and Solution Engine

1. Go to the Nortel Web site: **www.nortel.com**
2. Log in using user name and password.
3. Select **SUPPORT & TRAINING**.
4. Select **ONLINE SELF-SERVICE**, and then select **Knowledge Base**.

   The Online Self-Service page appears and shows the Knowledge and Solution Engine. For information on performing your search, click the **Search Tips** link.

   To view an interactive tutorial for the Knowledge and Solution Engine, go to the **Help & Contact** section, click the **Help Using This Site** link and then scroll to find the **Knowledge Base** tutorial.
5. Enter your problem statement or question in the text box. Ensure that you leave spaces between the words in the statement or question.
6. From the **ALL TYPES** drop-down list, select the document type you would like to search against. The default is ALL TYPES, which searches on all available documents (bulletins, documentation, services requests, software, and solutions).
7. Click **>** (the arrow adjacent to the text box) or press **Enter** to start your search. The page reloads and provides the option to narrow your search by product family.

Chapter 10
Frequently Asked Questions

The chapter provides answers to frequently asked questions.

Navigation

Backup, restore, and reset operations

This section contains answers to the following questions:

How do I back up the database?

Use the following procedure to back up the BCM50 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.
4. In the **Optional Components** table, select or clear the check box for each component to include or exclude these components from the backup operation.
5. Click the **OK** button.
   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 BCM50 from a previous backup?

Use the following procedure to restore the BCM50 database.

To restore data from the BCM50

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 Element Manager to:

- reboot the BCM50 system
- perform a warm reset of telephony services
- perform a cold reset of telephony services
- 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 27.

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 BCM50 System** will restart the operatingsystem of the BCM50

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 **Cold Reset Router** will reset the router programming to the factory defaults.

Password protection

This section answers the following frequently asked question:

• How do I recover a lost password for the BCM50? on page 81

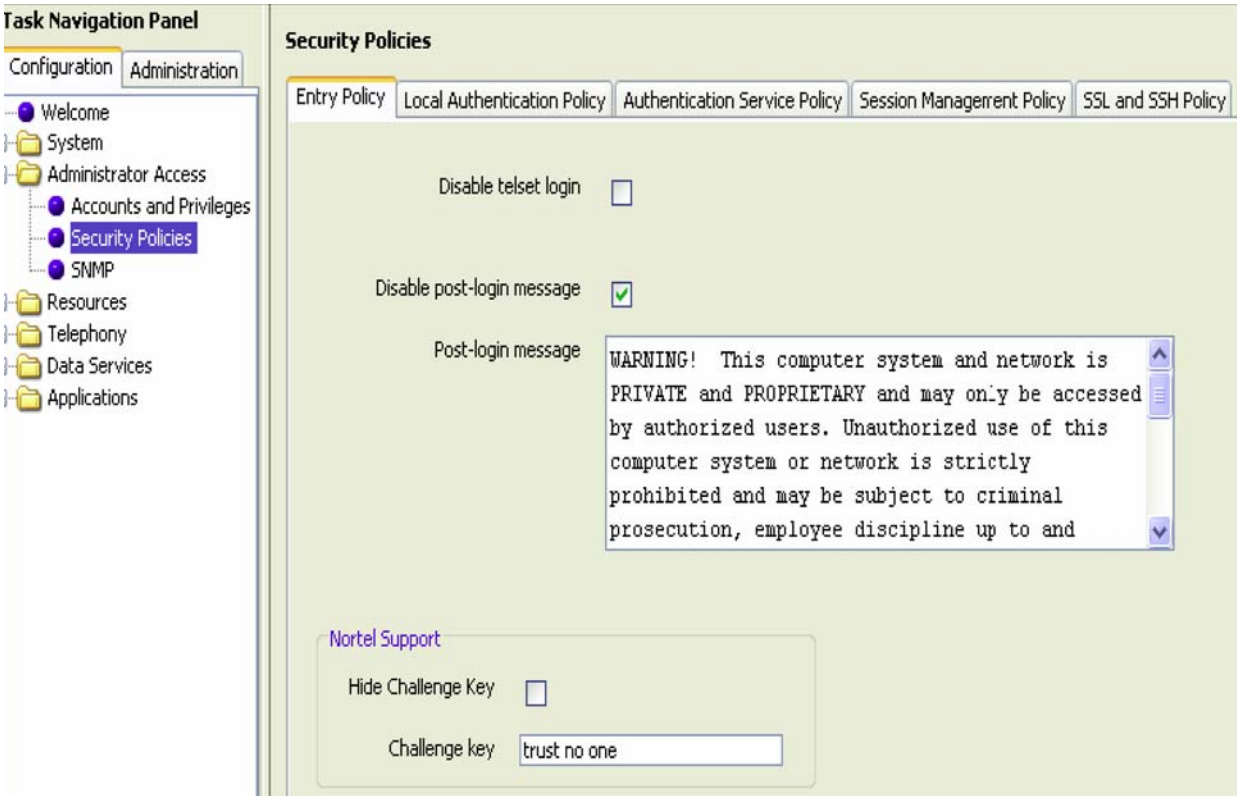
How do I recover a lost password for the BCM50?

There is a Nortel support default user which cannot be deleted or modified. This account is set up to allow Nortel 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 Nortel support technicians can access your system.

Recovering a lost password

1 Select **Configuration > Administrator Access > Security Policies**, and select the **Entry Policy** tab.

2 With the **Challenge Key** available, contact Nortel 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 82

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 BCM50?

You can capture or transfer logs from the BCM50 using Element Manager, or from the BCM50 Web page.

When you use the BCM50 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 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**.**

5 Click the **Transfer** button.
The **Transfer To** window opens.

6 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.

7 Click the **OK** button.
A transfer window opens and displays applicable warnings.

8 Click the **Yes** button to initiate the transfer.
A **Save** dialog box displays.

9 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.

10 Click the **OK** button.
The log archive is saved in the location you specified.

Using the BCM50 Web Page to transfer log files

1 In your web browser, type the IP address of the BCM50 and click the **Go** button.
The login screen opens.

2 Log in to the BCM50 using the same username and password that you use to log into a BCM50 using the Element Manager.
The BCM50 Web page opens.

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 BCM50 configuration?

You can create a programming file that contains the current settings of all or part of your 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 BCM web page.

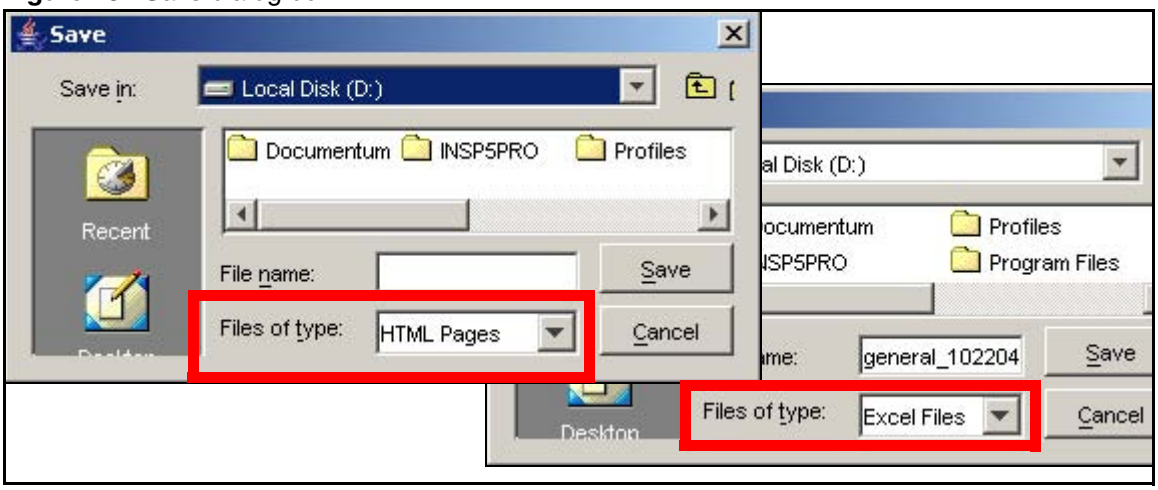
Note: It may take several hours to save programming records, depending on the size of the system. Nortel recommends that you saving programming records during periods of low system use.

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 then displays.

Figure 13 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. Nortel 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 BCM50 system health?

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

The Usage Indicators tab on the BCM Monitor displays real time information about the BCM50 system, including:

- BCM50 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

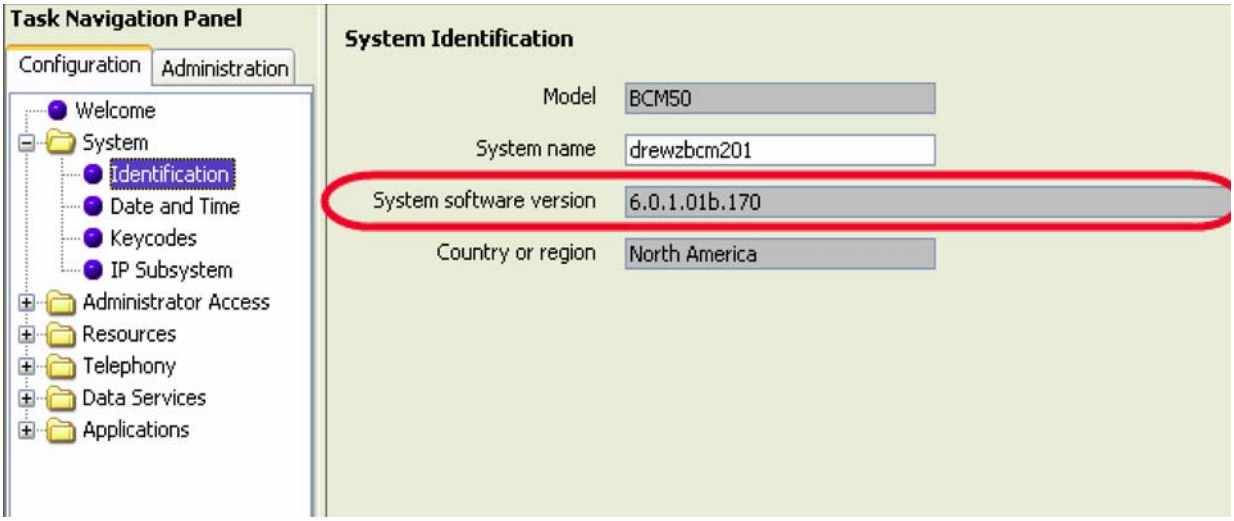
1 Select **Administration > General > Service Manager**.
The **Service Manager** page opens. Services are displayed in the Services table.

How do I verify current software revision?

Use the following procedure to view the current software revision.

Verify the current software revision

1 Select **Configuration > Sytem > Identification**.



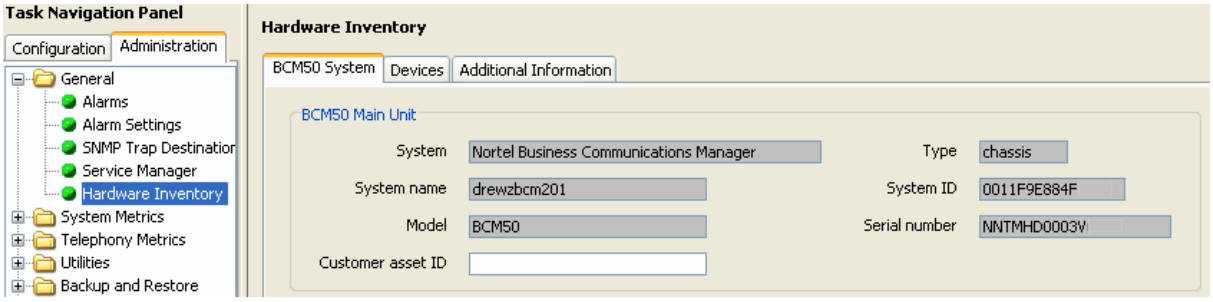
How do find the BCM50 System ID and Serial Number?

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 Select the **BCM50 System** tab.



Chapter 11
Contacting Technical Support

If you have been unable to resolve an issue using the information and steps provided in this guide, use the information in this chapter to contact Nortel Technical Support. This chapter identifies all of the critical information that you must gather before contacting Nortel Technical Support.

Navigation

Gathering critical information

Before contacting Nortel Technical Support, you must gather information that can help the technical support personnel when troubleshooting. This section identifies all the critical information that should be gathered before contacting Nortel Technical Support.

You must attempt to resolve your problem using this troubleshooting guide. Contacting Nortel is a final step taken only when you have been unable to resolve the issue using the information and steps provided in this troubleshooting guide. Gather the following information before contacting Nortel Tech Support. Collecting this information helps Nortel analyze and address the reported issue.

- Problem scenario:
  - Detailed description of the problem
  - Expected Response (how you would expect the system to perform)
  - Actual Response (A detailed account of how the system actually performs)
  - Date and time when the problem started
  - Frequency of the problem
  - Is this a new installation?
  - Can you restore normal operation?
- History:
  - Have you recently changed or upgraded your system, your network, or a custom application? For example, has any configuration or code been changed?
  - What events can be identified prior to the fault: e.g. upgrade, new LAN, increased traffic, new hardware?
  - When were these changes made? Provide the date and time.

— Who made these changes? Were the changes made by a partner or customer? Provide the names of the individuals who made the changes.

- Actions taken:
  — Have you checked that the product's software or firmware is a Current or Sustained Release?
  — Have you checked whether patches or maintenance releases are available that address this issue?
  — You have checked the solutions database for possible solutions (found on http://www.nortel.com/cs)?
  — Detailed description of your investigation to date, previous actions taken and outcomes.

Also provide Nortel Technical Support with the following information:

- Provide a full list of patches that you have applied to your system
- Have any additional information available , such network diagrams, diagnostic/error logs, and configuration files
- Is remote access to the system available?

Getting Help from the Nortel Web site

The best way to get technical support for Nortel products is from the Nortel Technical Support Web site:

http://www.nortel.com/support

This site provides quick access to software, documentation, bulletins, and tools to address issues with Nortel products. More specifically, the site enables you to:

- download software, documentation, and product bulletins
- search the Technical Support Web site and the Nortel Knowledge Base for answers to technical issues
- sign up for automatic notification of new software and documentation for Nortel equipment
- open and manage technical support cases

Getting help over the phone from a Nortel Solutions Center

If you do not find the information you require on the Nortel Technical Support Web site, and have a Nortel support contract, you can also get help over the phone from a Nortel Solutions Center.

In North America, call 1-800-4NORTEL (1-800-466-7835).

Outside North America, go to the following Web site to obtain the phone number for your region:

www.nortel.com/callus

Getting help from a specialist by using an Express Routing Code

To access some Nortel Technical Solutions Centers, you can use an Express Routing Code (ERC) to quickly route your call to a specialist in your Nortel product or service. To locate the ERC for your product or service, go to:

www.nortel.com/erc

Getting help through a Nortel distributor or reseller

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