



BCM50 First Time Installation and Configuration Guide

Part No. N0027149 01
08 April 2005

Copyright © Nortel Networks Limited 2005

All rights reserved.

The information in this document is subject to change without notice. The statements, configurations, technical data, and recommendations in this document are believed to be accurate and reliable, but are presented without express or implied warranty. Users must take full responsibility for their applications of any products specified in this document. The information in this document is proprietary to Nortel Networks.

Trademarks

*Nortel, Nortel (Logo), the Globemark, and This is the way, This is Nortel (Design mark) are trademarks of Nortel Networks.

*Microsoft, MS, MS-DOS, Windows, and Windows NT are registered trademarks of Microsoft Corporation.

All other trademarks and registered trademarks are the property of their respective owners.

SOFTWARE LICENSE

NORTEL NETWORKS INC. ("NORTEL NETWORKS") TELECOMMUNICATION PRODUCTS

THIS LEGAL DOCUMENT IS A LICENSE AGREEMENT ("License") BETWEEN YOU, THE END-USER ("CUSTOMER") AND NORTEL NETWORKS. PLEASE READ THIS LICENSE CAREFULLY BEFORE USING THE SOFTWARE. BY USING THIS SOFTWARE, YOU, THE CUSTOMER, ARE AGREEING TO BE BOUND BY THE TERMS OF THIS LICENSE. IF YOU DO NOT AGREE TO THE TERMS OF THIS LICENSE, RETURN THE UNUSED SOFTWARE AND THE ASSOCIATED DOCUMENTATION TO NORTEL NETWORKS THROUGH A NORTEL NETWORKS AUTHORIZED DISTRIBUTOR WITHIN FIVE (5) DAYS OF YOUR ACQUISITION OF THE SOFTWARE FOR A REFUND.

Subject to the terms hereinafter set forth, NORTEL NETWORKS grants to CUSTOMER and/or its representatives, with a "need to know," a personal, non-exclusive license (1) to use the licensed software, proprietary to NORTEL NETWORKS or its suppliers and (2) to use the associated documentation. CUSTOMER is granted no title or ownership rights, in or to the licensed software, in whole or in part, and CUSTOMER acknowledges that title to and all copyrights, patents, trade secrets and/or any other intellectual property rights to and in all such licensed software and associated documentation are and shall remain the property of NORTEL NETWORKS and/or NORTEL NETWORKS' suppliers. The right to use licensed software may be restricted by a measure of usage of applications based upon number of lines, number of ports, number of terminal numbers assigned, number of users, or some similar measure. Expansion beyond the specified usage level may require payment of an incremental charge or another license fee.

NORTEL NETWORKS considers the licensed software to contain "trade secrets" of NORTEL NETWORKS and/or its suppliers. Such "trade secrets" include, without limitation thereto, the specific design, structure and logic of individual licensed software programs, their interactions with other portions of licensed software, both internal and external, and the programming techniques employed therein. In order to maintain the "trade secret" status of the information contained within the licensed software, the licensed software is being delivered to CUSTOMER in object code form only.

NORTEL NETWORKS or any of its suppliers holding any intellectual property rights in any licensed software, and/or any third party owning any intellectual property rights in software from which the licensed software was derived, are intended third party beneficiaries of the License. All grants of rights to use intellectual property intended to be accomplished by this License are explicitly stated. No other grants of such rights shall be inferred or shall arise by implication.

CUSTOMER warrants to NORTEL NETWORKS that CUSTOMER is not purchasing the rights granted by this License in anticipation of reselling those rights.

CUSTOMER shall:

- Hold the licensed software in confidence for the benefit of NORTEL NETWORKS and/or NORTEL NETWORKS' suppliers using no less a degree of care than it uses to protect its own most confidential and valuable information; and
- Keep a current record of the location of each copy of licensed software made by it; and
- Install and use each copy of licensed software only on a single CPU at a time (for this purpose, single CPU shall include systems with redundant processing units); and

- Affix to each copy of licensed software made by it, in the same form and location, a reproduction of the copyright notices, trademarks, and all other proprietary legends and/or logos of NORTEL NETWORKS and/or NORTEL NETWORKS' suppliers, appearing on the original copy of such licensed software delivered to CUSTOMER; and retain the same without alteration on all original copies; and
- Issue instructions to each of its authorized employees, agents and/or representatives to whom licensed software is disclosed, advising them of the confidential nature of such licensed software and to provide them with a summary of the requirements of this License; and
- Return the licensed software and all copies through an Authorized Distributor to NORTEL NETWORKS at such time as the CUSTOMER chooses to permanently cease using it.

CUSTOMER shall not:

- Use licensed software (i) for any purpose other than CUSTOMER's own internal business purposes and (ii) other than as provided by this License; or
- Allow anyone other than CUSTOMER's employees, agents and/or representatives with a "need to know" to have physical access to licensed software; or
- Make any copies of licensed software except such limited number of object code copies in machine readable form only, as may be reasonably necessary for execution or archival purposes only; or
- Make any modifications, enhancements, adaptations, or translations to or of licensed software, except as may result from those CUSTOMER interactions with the licensed software associated with normal use and explained in the associated documentation; or
- Attempt to reverse engineer, disassemble, reverse translate, decompile, or in any other manner decode licensed software, in order to derive the source code form or for any other reason; or
- Make full or partial copies of any documentation or other similar printed or machine-readable matter provided with licensed software unless the same has been supplied in a form by NORTEL NETWORKS intended for periodic reproduction of partial copies; or
- Export or re-export licensed software and/or associated documentation by downloading or otherwise from the fifty states of the United States and the District of Columbia.

PLEASE REFER TO THE NEXT PAGE

Except for Java Product (as defined herein below), CUSTOMER may assign collectively its rights under this License to any subsequent owner of the associated hardware, but not otherwise, subject to the payment of the then current license fee for new users, if any. No such assignment shall be valid until CUSOMTER (1) has delegated all of its obligations under this License to the assignee; and (2) has obtained from the assignee an unconditional written assumption of all such obligations; and (3) has provided NORTEL NETWORKS a copy of such assignment, delegation and assumption; and (4) has transferred physical possession of all licensed software and all associated documentation to the assignee and destroyed all archival copies. Except as provided, neither this License nor any rights acquired by CUSTOMER through this License are assignable. Any attempted assignment of rights and/or transfer of licensed software not specifically allowed shall be void and conclusively presumed a material breach of this License.

If NORTEL NETWORKS (i) claims a material breach of this License, and (ii) provides written notice of such claimed material breach to CUSTOMER and (iii) observes that such claimed material breach remains uncorrected and/or unmitigated more than thirty (30) days following CUSTOMER's receipt of written notice specifying in reasonable detail the nature of the claimed material breach, then CUSTOMER acknowledges that this License may be immediately terminated by NORTEL NETWORKS and CUSTOMER further acknowledges that any such termination shall be without prejudice to any other rights and remedies that NORTEL NETWORKS may have at law or in equity.

EXPRESS LIMITED WARRANTIES FOR ANY ITEM OF LICENSED SOFTWARE, IF ANY, WILL BE SOLELY THOSE GRANTED DIRECTLY TO CUSTOMER BY DISTRIBUTOR. OTHER THAN AS SET FORTH THEREIN, THIS LICENSE DOES NOT CONFER ANY WARRANTY TO CUSTOMER FROM OR BY NORTEL NETWORKS.

THE LICENSED SOFTWARE IS PROVIDED BY NORTEL NETWORKS "AS IS" AND WITHOUT WARRANTY OF ANY KIND OR NATURE, WRITTEN OR ORAL, EXPRESS OR IMPLIED, INCLUDING (WITHOUT LIMITATION) THE IMPLIED WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE.

THIS LIMITATION OF WARRNATIES WAS A MATERIAL FACTOR IN THE ESTABLISHMENT OF THE LICENSE FEE CHARGED FOR EACH SPECIFIC ITEM OF SOFTWARE LICENSED.

IN NO EVENT WILL NORTEL NETWORKS AND/OR NORTEL NETWORKS' SUPPLIERS AND THEIR DIRECTORS, OFFICERS, EMPLOYEES OR AGENTS BE LIABLE TO OR THROUGH CUSTOMER FOR INCIDENTAL, INDIRECT, SPECIAL, CONSEQUENTIAL, PUNITIVE, OR EXEMPLARY DAMAGES OF ANY KIND, INCLUDING LOST PROFITS, LOSS OF BUSINESS OR BUSINESS INFORMATION, BUSINESS INTERRUPTION, OR OTHER ECONOMIC DAMAGE, AND FURTHER INCLUDING INJURY TO PROPERTY, AS A RESULT OF USE OR INABILITY TO USE THE LICENSED SOFTWARE OR BREACH OF ANY WARRANTY OR OTHER TERM OF THIS LICENSE, REGARDLESS OF WHETHER NORTEL NETWORKS AND/OR NORTEL NETWORKS' SUPPLIERS WERE ADVISED, HAD OTHER REASON TO KNOW, OR IN FACT KNEW OF THE POSSIBILITY THEREOF.

Restricted Rights. Use, duplication or disclosure by the United States government is subject to the restrictions as set forth in the Right in Technical Data and Computer Software Clauses in DFARS 252.227-7013(c) (1) (ii) and FAR 52.227-19(c) (2) as applicable.

The rights and obligations arising under this License shall be construed in accordance with the laws of the State of Tennessee. If for any reason a court of competent jurisdiction finds any provision of this License or portion thereof to be unenforceable, that provision of the License shall be enforced to the maximum extent permissible so as to effect the intent of the parties and the remainder of this License shall continue in full force and effect.

This License constitutes the entire agreement between the parties with respect to the use of the licensed software and the associated documentation, and supersedes all prior or contemporaneous understandings or agreements, written or oral, regarding such subject matter. No amendment to or modification of this License will be binding unless in writing and signed by a duly authorized representative of NORTEL NETWORKS.

BCM50 quick start information

Default IP addresses

Port	IP address	Subnet mask
OAM port (see Note)	10.10.11.1	255.255.255.252
BCM50 LAN (no router)	192.168.1.2	255.255.255.0
Router LAN (BCM50a or BCM50e)	192.168.1.1	255.255.255.0
Note: DHCP is enabled on this port and assigns the following IP address: 10.10.11.2		

Default user names and passwords

Tool	User ID User Name	Password
Element Manager	nnadmin	PlsChgMe!
Telset Administration (F9*8 and F**Config)	SETNNA (738662)	CONFIG (266344)
Telset Administration voice mail (Feature 983)	SETNNA (738662)	CONFIG (266344)
Telset Administration initialize voice mail (Feature 983)	–	CONFIG (266344)
Onbox main web page (http:// [IP address])	nnadmin	PlsChgMe!
Router	–	setup

Task List

Installing the BCM50 hardware	17
To install a BCM50 unit	17
To verify the media bay module (MBM) switches	18
To install an MBM in an expansion unit	19
To install an expansion unit	19
To connect the power supply without a UPS	20
To disable the DHCP server on the main unit	25
To connect the BCM50a to the WAN	26
To connect the BCM50e to the WAN	26
Configuring the BCM50 system	27
To download and install Element Manager	29
To connect to the BCM50 system	30
To work with keycodes, IP addresses, modem properties, and user accounts	31
To select the region	31
To select the telephony startup template and start DN	31
To initialize voice mail	32
To download the Startup Profile template	33
To configure the MBMs	33

Contents

Chapter 1	
Getting started with BCM50	11
About BCM50	11
BCM50 installation support	11
Main units	12
Expansion unit and media bay modules (MBM)	14
Additional BCM50 hardware	16
Chapter 2	
Installing the BCM50 hardware	17
Installing a BCM50, BCM50a, or BCM50e main unit	17
Installing an expansion unit	18
Connecting the power supply	20
Connecting the telephony connector	21
Connecting the BCM50 to the LAN	23
Determining DHCP server configuration and IP address	23
BCM50 main unit (no integrated router)	24
BCM50a or BCM50e (with integrated router)	25
Connecting the BCM50 to the WAN	25
Chapter 3	
Configuring the BCM50 system	27
Configuring the initial parameters	27
Configuring the startup parameters	28
Using Element Manager to configure the system	29
Using Telset Administration to configure the system	31
Using the Startup Profile to configure the system	32
Startup Profile requirements	32
Completing the initial configuration	33
Configuring the media bay module	33
Customizing other parameters	34
Additional information	34

Chapter 1

Getting started with BCM50

About BCM50

The Business Communications Manager 50 (BCM50) system 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
- enables you to create and provide telephony applications for use in a business environment

This guide leads an installer through initial installation and configuration of a new BCM50 system.

This guide assumes that:

- there is an existing plan outlining the telephony and data requirements for your BCM50 system
- all operators have a working knowledge of the Windows operating system and graphical user interfaces (GUI)
- operators managing the data portion of the system are familiar with network management and applications

BCM50 installation support

All applications and documentation required to install and configure a BCM50 system are available on the main unit hard disk. You can access the hard disk information and applications through a web browser on a PC connected to the main unit OAM port.

This port is DHCP-enabled and automatically assigns an IP address of 10.10.11.2 to your computer. Then, launch your web browser and enter <http://10.10.11.1> to access the default web page (user name: **nnadmin**; password: **PlsChgMe!**), where the technician can access:

- User applications
- User documentation
- Administrator applications
- Administrator documentation
- Hardware overview



Note: You must install keycodes to enable any applications on your BCM50 system, including digital telephones, analog station ports, and analog lines. Apply keycodes using Element Manager, Telset Administration (feature 9*8), or the Startup Profile.

Refer to the *BCM50 Keycode Installation Guide* (N0016865) for more information on obtaining and installing keycodes.

Main units

The central hardware component in the BCM50 system is the main unit. The BCM50 system contains one main unit and up to two expansion units. Three types of main units are available:

- **BCM50 (Telephony and basic data)**
The BCM50 main unit provides call processing and simple data networking functions. It provides connections for 12 digital telephones, 4 Public Switched Telephone Network (PSTN) lines, 4 analog station ports, and 4 connections for auxiliary equipment (auxiliary ringer, page relay, page output, and music source). The BCM50 main unit does not have a router, but it does have 4 LAN ports: one is the OAM port for technicians, and the other three are for basic LAN connectivity.
- **BCM50a (with ADSL Router)**
The BCM50a main unit provides all of the same core functionality as the BCM50 main unit, and it also has an integrated ADSL router for advanced data applications. For detailed configuration information, refer to the *BCM50a Integrated Router Configuration Guide* (N0027181).
- **BCM50e (with Ethernet Router)**
The BCM50e main unit provides all of the same core functionality as the BCM50 main unit, and it also has an integrated Ethernet router for advanced data applications. For detailed configuration information, refer to the *BCM50e Integrated Router Configuration Guide* (N0027182).

Refer to [Figure 1 on page 13](#), [Figure 2 on page 13](#), and [Figure 3 on page 13](#) for port locations and descriptions of the various main units.

Figure 1 BCM50 main unit ports and connectors

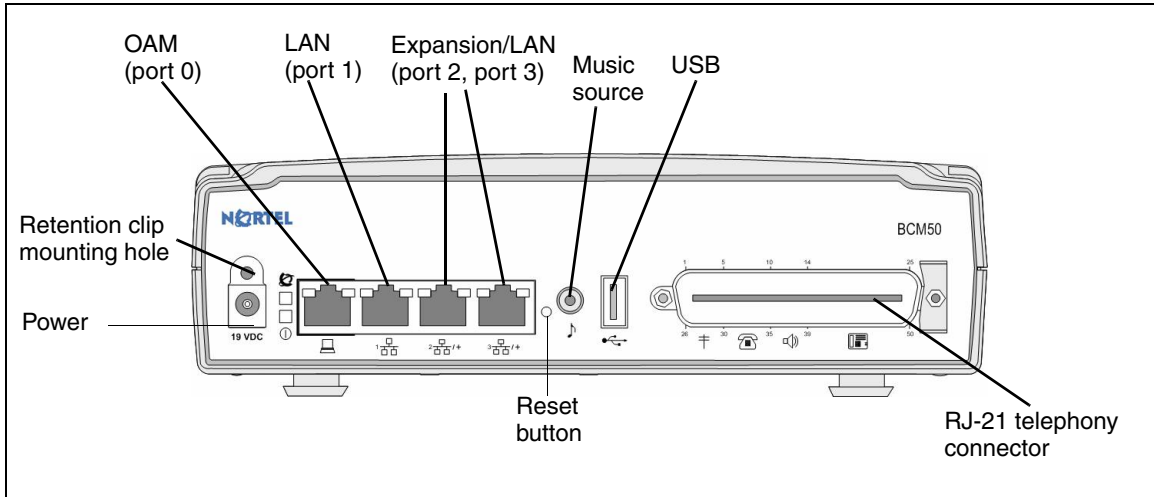


Figure 2 BCM50a main unit ports and connectors

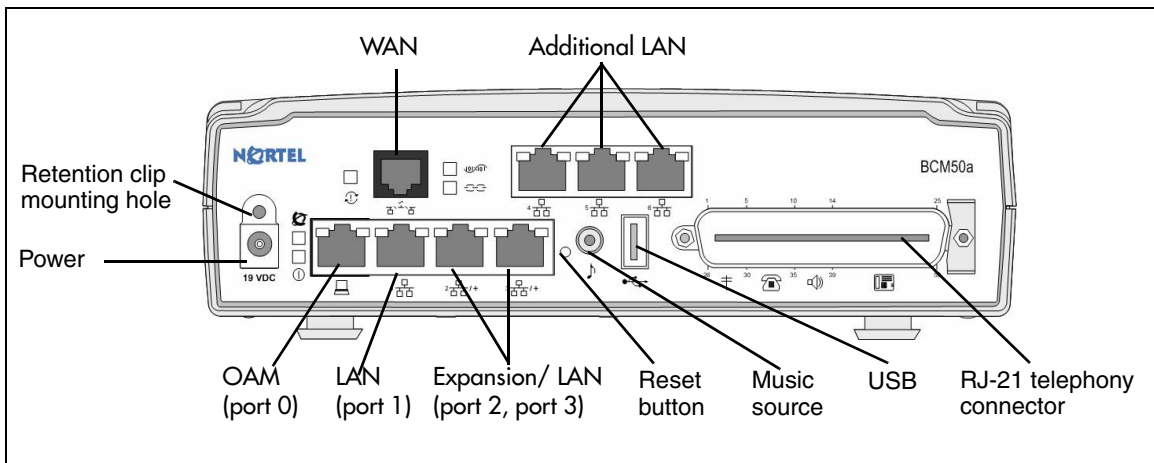
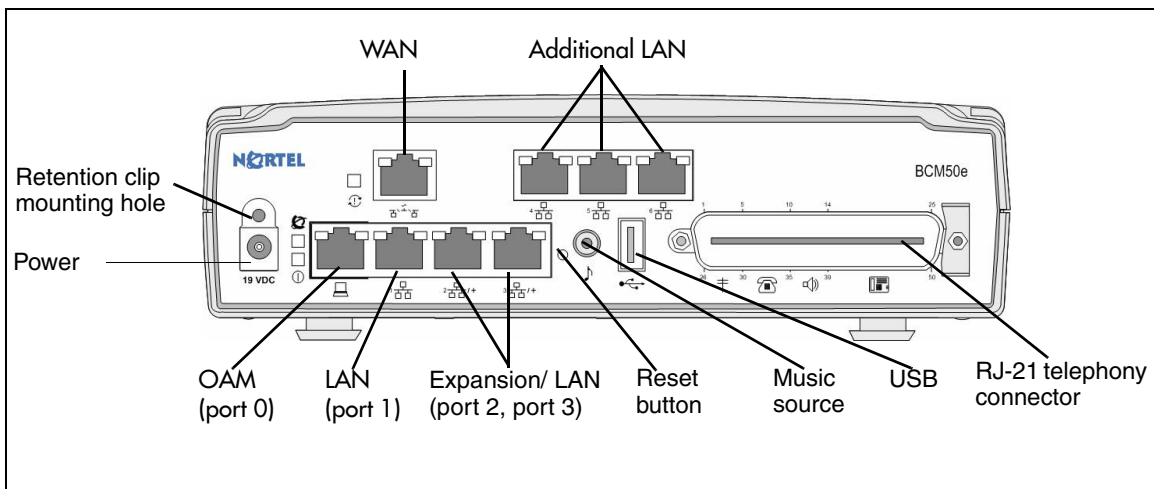


Figure 3 BCM50e main unit ports and connectors

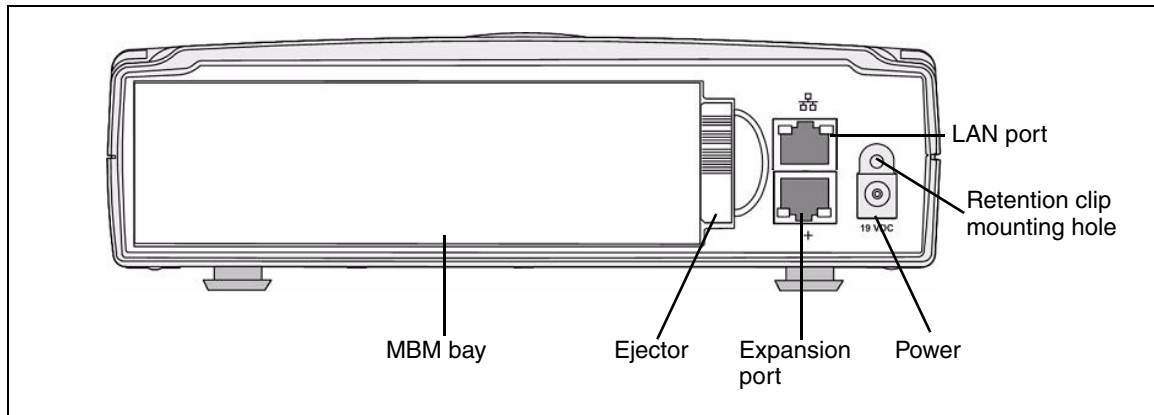


Expansion unit and media bay modules (MBM)

In addition to a main unit, the BCM50 system can have up to two expansion units. An expansion unit connects to the main unit and provides additional functionality. Refer to [Figure 4](#) for expansion unit port locations.

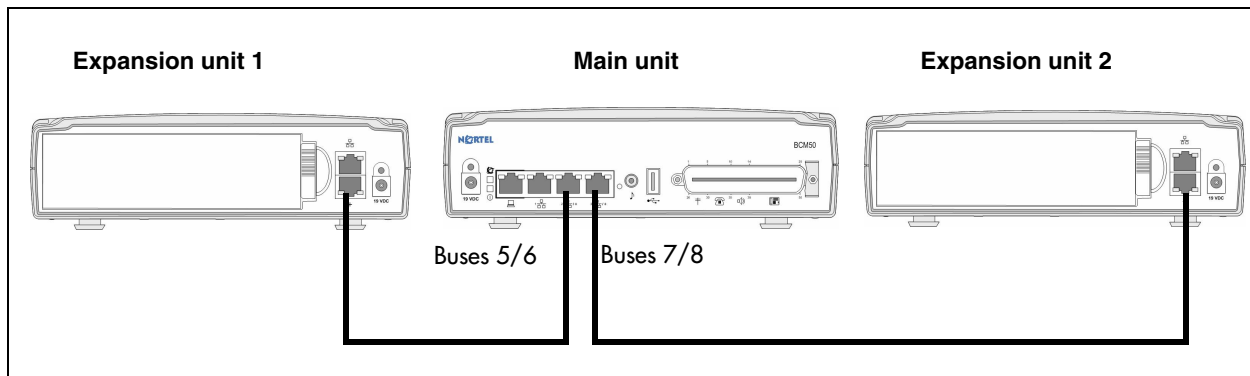
The expansion unit is designed to accommodate one media bay module (MBM) that enables you to connect additional telephony equipment to the BCM50 system. The MBMs connect with external devices to implement various types of voice trunks and stations.

Figure 4 Expansion unit connections



[Figure 5](#) shows how expansion units are connected to a main unit.

Figure 5 Expansion unit and expansion connectors



The LAN port on the expansion unit is connected to the internal Ethernet switch on the main unit. You can use the expansion unit LAN port to connect an additional device to the LAN.



Note: When you plug an expansion unit into the correct port on the main unit, the LEDs on the expansion unit port light up, while the LEDs on the main unit port go out.

Table 1 and Table 2 list the trunk MBMs and station MBMs that are supported in the expansion units.

Table 1 Trunk MBMs

Module type	What it does	Special notes
DTM	Connects digital public switched telephone lines to the BCM50 system.	Can connect to one of four types of lines: T1, North American PRI, ETSI ISDN (E1), and European PRI (E1).
BRIM	Connects a maximum of four ISDN BRI S/T interfaces.	Refer to the <i>BCM50 Installation and Maintenance Guide</i> (N027152) for supported regions.
GATM4/GATM8	Connects either four (GATM4) or eight (GATM8) analog public switched telephone lines to the BCM50 system.	Refer to the <i>BCM50 Installation and Maintenance Guide</i> (N027152) for supported regions.

Table 2 Station MBMs

Module type	What it does	Special Notes
DSM16+/DSM32+	Connects a maximum of 16 or 32 digital telephones to the BCM50 system.	Refer to the <i>BCM50 Installation and Maintenance Guide</i> (N027152) for supported regions.
4X16 Combination of a CTM4 and a DSM16	Connects a maximum of four analog public switched telephone lines to the BCM50 system. Also connects a maximum of 16 digital telephones to the BCM50 system.	North America only. Refer to the <i>BCM50 Installation and Maintenance Guide</i> (N027152) for supported regions.
ASM8	Connects a maximum of eight analog devices to the BCM50 system.	North America only. Refer to the <i>BCM50 Installation and Maintenance Guide</i> (N027152) for supported regions.
ASM8+	Connects a maximum of eight analog devices to the BCM50 system. This module provides the following additional services: caller ID, pass through, message waiting indication, and direct supervision at the telephone. This module also allows you to download new firmware.	North America only. Refer to the <i>BCM50 Installation and Maintenance Guide</i> (N027152) for supported regions.

Additional BCM50 hardware

In addition to the main unit, expansion unit, and MBM, the BCM50 system has additional hardware as listed in [Table 3](#).

Table 3 BCM50 hardware description

Hardware	Description
Rackmount shelf	A shelf designed for mounting up to four BCM50 units (main unit and expansion unit) into a standard 19-inch equipment rack. An optional patch field, which provides RJ-45 connectors for all main unit trunk and station interfaces, is available.
Wallmount bracket	A bracket designed for mounting a BCM50 unit (main unit or expansion unit) to a wall. An optional wiring field card (WFC), which provides RJ-45 connectors for all main unit trunk and station interfaces, is available with the wallmount bracket.
Patch panel	The patch panel simplifies the connections of lines and extensions to the main unit. The patch panel installs into the rackmount shelf in a standard equipment rack and connects to the telephony connector.
Wiring field card (WFC)	The WFC simplifies the connections of lines and extensions to the main unit. The WFC installs into the cable management tray of the wallmount bracket and connects to the telephony connector through a 50-pin header.
Power supply	The power supply is an external device that connects to the BCM50 units (main unit and expansion unit). You must have one power supply for each unit you have in your BCM50 system. A power supply is included with each main unit and expansion unit.
Power supply adapter cord	The power supply adapter cord is for international (non-North American) BCM50 users. It connects to the power supply on one end and to the (C-14) BCM50 power bar on the other end. You require one power supply adapter cord for each power supply you want to connect to the power bar.
Uninterruptable power supply (UPS) (if applicable)	An uninterruptable power supply (UPS) is an optional device that maintains continuous operation during power interruption or failure conditions. The UPS provides power source monitoring and battery backup activation so that critical BCM50 functionality is maintained. BCM50 supports American Power Conversion (APC) UPS devices that use a USB control interface. The UPS control software enables the configuration of various operational settings.
USB hub (if applicable)	The USB port on the UPS uses a different communication speed than the USB port on the main unit. Due to this difference, you must use a USB hub to connect the UPS data connection to the main unit. The USB hub also provides additional USB ports.

Chapter 2

Installing the BCM50 hardware

Refer to the following procedures to install the BCM50 hardware:

- “Installing a BCM50, BCM50a, or BCM50e main unit”
- “Installing an expansion unit” on page 18
- “Connecting the power supply” on page 20
- “Connecting the telephony connector” on page 21
- “Connecting the BCM50 to the LAN” on page 23
- “Determining DHCP server configuration and IP address” on page 23
- “Connecting the BCM50 to the WAN” on page 25



Caution: To keep the BCM50 system operating at the optimal internal temperature, keep the top, sides, and rear clear of obstructions and away from the exhaust of other equipment.

Do not place any objects, except other BCM50 units, on top of the main unit.

Installing a BCM50, BCM50a, or BCM50e main unit

Verify that your main unit box contains these items:

- one main unit (either a BCM50, a BCM50a, or a BCM50e)
- one power supply
- one power supply cable
- one power supply retention clip
- four rubber feet
- one screw to secure the RJ-21 telephony connector
- one cable tie
- a documentation CD
- the *BCM50 First Time Installation and Configuration Guide* (N0027149)

To install a BCM50 unit

- 1 The BCM50 can be installed on a rack, on a wall, or on a desktop. Refer to the *BCM50 Installation and Maintenance Guide* (N027152) for more details on the installation options.
- 2 Pay close attention to the following cautions and warning messages when installing BCM50 units into certain environments.

Review this message when performing a rackmount installation:



Caution: Use only the screws supplied with the rackmount kit (NT9T6325). Do not replace the screws. Other screws can damage the unit.

Review these messages when stacking BCM50 units on top of one another:



Caution: Do not attempt to install a BCM50 unit on top of a wallmounted unit. Wallmounted units must be installed directly on the wall using a wallmount bracket for each unit.



Warning: For safety reasons, do not stack more than one unit on top of a first BCM50 unit.

Installing an expansion unit

Open the expansion unit box and remove all of the components. Check that you have all the following components:

- one expansion unit
- one expansion unit power supply
- one power supply cable
- one expansion cable (shielded Ethernet cable)
- one power supply retention clip
- four rubber feet
- the *BCM50 First Time Installation and Configuration Guide* (N0027149)

To verify the media bay module (MBM) switches

The media bay module (MBM) dip switches must remain in their default factory position. Any required modifications to the MBM settings are made through the software.

- 1 Verify that the 6-pin dip switch is set to on for all MBMs that have the 6-pin dip switch.
- 2 To install a GATM:
 - a For the dip switches on the left side, at the rear of the module, set all of the switches to on.
 - b For the dip switches on the right side, at the rear of the module (country profile switches), set all of the switches to off. The GATM downloads the country profiles automatically.

- 3 To install a GASM8:
 - a For the dip switches on the left side, at the rear of the module, set all of the switches to on.
 - b For the dip switches on the right side, at the rear of the module, set the switches according to [Table 4](#) and [Table 5](#).

Table 4 GASM8 dip switch settings (switch 1–3)

Switch	Description	Setting
Switch 1	Firmware download capability	OFF — Standard mode (firmware downloading not supported) ON — Enhanced mode (firmware downloading supported)
Switch 2	Set when the firmware is downloaded from the BCM50 (for enhanced mode only)	OFF — if you want the GASM8 to download the firmware when the firmware version in the BCM50 is different than the version in the GASM8 (default) ON — if you want the GASM8 to download the firmware whenever there is a cold start of the BCM50
Switch 3	Enable/disable echo cancellation	OFF — Enables echo cancellation (default) ON — Disables echo cancellation

Table 5 GASM8 regional dip switch settings (switch 4–8)

Switches 4 to 8 select the region for the GASM8 as follows:					
	Switch 4	Switch 5	Switch 6	Switch 7	Switch 8
North America	OFF	OFF	OFF	OFF	OFF
United Kingdom	OFF	OFF	OFF	OFF	ON
Australia	OFF	OFF	OFF	ON	OFF
Poland	OFF	OFF	OFF	ON	ON

To install an MBM in an expansion unit

- 1 Attach one end of a grounding strap to your wrist and the other end to a grounded metal surface.
- 2 With the face of the MBM toward you, insert the MBM into the expansion unit.
- 3 Push the MBM completely into the expansion unit. You hear a click when the MBM is firmly seated in the expansion unit.

The MBM must be configured for it to function. Refer to [“To configure the MBMs” on page 33](#) for information on configuring an MBM.

To install an expansion unit

- 1 Mount the expansion unit the same way as the main unit.
- 2 Locate the expansion cable that was supplied with the expansion unit.
If you do not have the expansion cable, you can use a shielded category 5e-compliant Ethernet cable (maximum length of 10 m).

- 3 Plug one end of the expansion cable into the expansion port on the expansion unit.
- 4 Do one of the following:
 - **To connect the first expansion unit:** Plug the other end of the expansion cable into expansion/LAN port 2 on the main unit. This expansion unit is now designated as Expansion 1 in Element Manager.
 - **To connect the second expansion unit:** Plug the other end of the expansion cable into expansion/LAN port 3 on the main unit. This expansion unit is now designated as Expansion 2 in Element Manager.



Note: When you plug an expansion unit into the correct port on the main unit, the LEDs on the expansion unit port light up, while the LEDs on the main unit port go out.

Connecting the power supply

Use the power supply and power supply cable supplied with each BCM50 unit.

There are two ways to connect the power supply to your BCM50 system:

- [“To connect the power supply without a UPS”](#)
- [“To connect the power supply using a UPS”](#) – refer to the *BCM50 Installation and Maintenance Guide* (N027152).

To connect the power supply without a UPS

- 1 Rotate the retention clip so the power outlet is open.
- 2 Plug the BCM50 power supply cord into the BCM50 unit.
- 3 Rotate the retention clip so that it locks the power supply cord in place.
- 4 Plug one end of the power supply cable into the BCM50 power supply.
- 5 Repeat steps 1 to 4 for each BCM50 unit.
- 6 Plug the other end of the power supply cable into the AC power source (wall outlet).

The BCM50 system boots.



Note: If you are using the Startup Profile for initial configuration of the BCM50 system, make sure that the Startup Profile is saved on your USB storage device and that the USB storage device is inserted in the USB port of the main unit before connecting the power. See [“Using the Startup Profile to configure the system”](#) on page 32.



Warning: Leakage currents

You must reconnect the power cords to a grounded outlet before connecting the telephony and data networking cables.

Connecting the telephony connector



Note: You can use the wiring field card (WFC) or rackmount patch panel to simplify the connections of the telephony connector to the BCM50. Refer to the *BCM50 Installation and Maintenance Guide* (N027152) for more information.

You can connect 4 analog telephone lines, 4 analog telephony devices, and 12 digital telephones to the RJ-21 telephony connector.

Figure 6 shows the RJ-21 telephony connector on a BCM50.

Figure 6 RJ-21 telephony connector on a BCM50

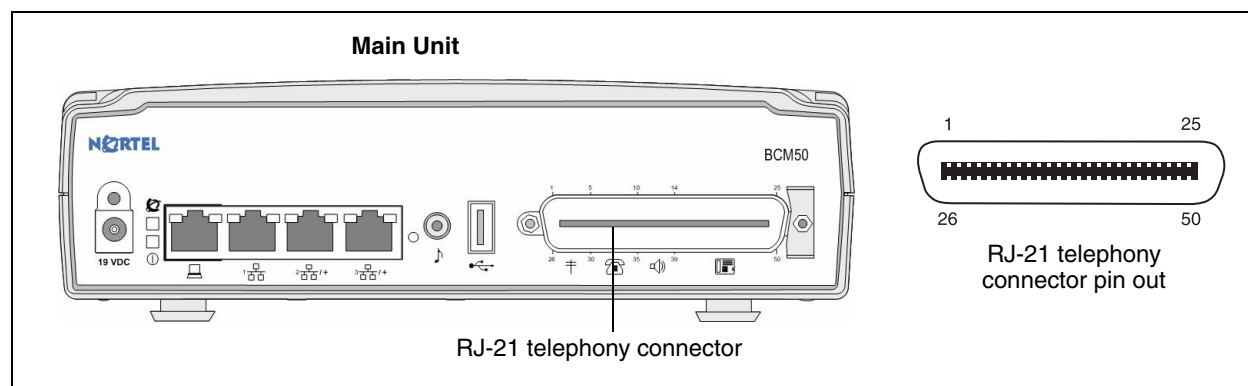


Table 6 lists the wiring details for the RJ-21 telephony connector.

Table 6 RJ-21 telephony connector wiring (Sheet 1 of 3)

Device	Pin	Connection	Wire color	Type of device	Default DN	Default line number
1	26	Tip	White-Blue	Analog line	—	061
	1	Ring	Blue-White			
2	27	Tip	White-Orange	Analog line	—	062
	2	Ring	Orange-White			
3	28	Tip	White-Green	Analog line	—	063
	3	Ring	Green-White			
4	29	Tip	White-Brown	Analog line	—	064
	4	Ring	Brown-White			

Table 6 RJ-21 telephony connector wiring (Sheet 2 of 3)

Device	Pin	Connection	Wire color	Type of device	Default DN	Default line number
5	30	Tip	White-Slate	Analog telephone	233	—
	5	Ring	Slate-White			
6	31	Tip	Red-Blue	Analog telephone	234	—
	6	Ring	Blue-Red			
7	32	Tip	Red-Orange	Analog telephone	235	—
	7	Ring	Orange-Red			
8	33	Tip	Red-Green	Analog telephone	236	—
	8	Ring	Green-Red			
9	34	No connection	Red-Brown	No connection	—	—
	9	No connection	Brown-Red			
10	35	Tip	Red-Slate	Auxiliary Ringer	—	—
	10	Ring	Slate-Red			
11	36	Tip	Black-Blue	Page Relay	—	—
	11	Ring	Blue-Black			
12	37	Tip	Black-Orange	Page Output	—	—
	12	Ring	Orange-Black			
13	38	Tip	Black-Green	Music Source	—	—
	13	Ring	Green-Black			
14	39	Tip	Black-Brown	Digital telephone	232	—
	14	Ring	Brown-Black			
15	40	Tip	Black-Slate	Digital telephone	231	—
	15	Ring	Slate-Black			
16	41	Tip	Yellow-Blue	Digital telephone	230	—
	16	Ring	Blue-Yellow			
17	42	Tip	Yellow-Orange	Digital telephone	229	—
	17	Ring	Orange-Yellow			
18	43	Tip	Yellow-Green	Digital telephone	228	—
	18	Ring	Green-Yellow			
19	44	Tip	Yellow-Brown	Digital telephone	227	—
	19	Ring	Brown-Yellow			
20	45	Tip	Yellow-Slate	Digital telephone	226	—
	20	Ring	Slate-Yellow			
21	46	Tip	Violet-Blue	Digital telephone	225	—
	21	Ring	Blue-Violet			
22	47	Tip	Violet-Orange	Digital telephone	224	—
	22	Ring	Orange-Violet			

Table 6 RJ-21 telephony connector wiring (Sheet 3 of 3)

Device	Pin	Connection	Wire color	Type of device	Default DN	Default line number
23	48	Tip	Violet-Green	Digital telephone	223	—
	23	Ring	Green-Violet			
24	49	Tip	Violet-Brown	Digital telephone	222	—
	24	Ring	Brown-Violet			
25	50	Tip	Violet-Slate	Digital telephone	221	—
	25	Ring	Slate-Violet			

Connecting the BCM50 to the LAN



Warning: The DHCP server on the main unit is enabled by default. If your network already contains a DHCP server, then disable the DHCP server on the main unit.

- 1 Connect one end of a standard Ethernet cable to your LAN.
- 2 Plug the other end of the Ethernet cable into the LAN port on the main unit.
- 3 If you want to use the internal BCM50 network switch to connect another IP device to the LAN, connect an Ethernet cable between the IP device and one of the additional LAN ports on the BCM50 system (Router card LAN ports, Expansion port, or expansion unit LAN port).
- 4 Repeat step 3 for each IP device you want to connect to the LAN using the BCM50 switch.

Determining DHCP server configuration and IP address

Each main unit has a DHCP server. This DHCP server can supply Nortel IP Phones and client computers with IP addresses and connection information.

If the main unit does not have an integrated router, then the DHCP server can be configured using Element Manager.

If the main unit has an integrated router, then the DHCP server on the main unit is disabled and the DHCP server is configured using the Router Configuration page.

The BCM50 system can have a main unit with or without an integrated router:

- [“BCM50 main unit \(no integrated router\)” on page 24](#)
- [“BCM50a or BCM50e \(with integrated router\)” on page 25](#)

BCM50 main unit (no integrated router)

By default, the main unit is configured with a dynamic IP address, which means it requests an IP configuration from a DHCP server.

The BCM50 main unit can have two DHCP server configurations:

- “If an external DHCP server is not present”
- “If an external DHCP server is present”

If an external DHCP server is not present

If an external DHCP server is not present, then the main unit uses the following default IP configuration:

IP address:	192.168.1.2
Subnet mask:	255.255.255.0
Gateway:	192.168.1.1

The DHCP server on the main unit supplies IP configuration information for all IP devices (PCs and IP Phones). It also supplies specific connection information to the IP Phones.

If an external DHCP server is present



Warning: The DHCP server on the main unit is enabled by default. If your network already contains a DHCP server, then disable the DHCP server on the main unit. Refer to “[To disable the DHCP server on the main unit](#)” on page 25 for more information on disabling the DHCP server.

If an external DHCP is present, then the BCM50 system uses the IP configuration supplied by the external DHCP server.

In this case, the DHCP server on the main unit supplies only IP Phones with IP configuration information. It does not supply any other devices with IP settings. This means that the administrator does not need to set up the external DHCP server to supply configuration settings to the IP Phones.

The DHCP server on the main unit must configure a range of IP addresses to supply to the IP Phones. It uses the top 20 percent of a subnet.

For example:

If the external DHCP server supplies the following IP address to the BCM50: 177.218.21.45 (subnet mask is 255.255.255.0), then the BCM50 DHCP server reserves the following range: 177.218.21.200 – 177.218.21.254.

You can use Element Manager to verify and change this default range.

The administrator must ensure that this range agrees with the network configuration. The range is not used by the external DHCP server.

BCM50a or BCM50e (with integrated router)

By default, the BCM50a main unit or BCM50e main unit is configured with a dynamic IP address, meaning that it requests an IP configuration from a DHCP server. Since the integrated router has a DHCP server, this DHCP server responds to the request.

By default, the router LAN IP address is 192.168.1.1, and the IP address assigned to the BCM50 system is the first IP address in the DHCP pool. If the DHCP pool started at 192.168.1.190, then the BCM50 is 192.168.1.190 even though the router is 192.168.1.1. So the BCM50 system receives the IP address 192.168.1.2 (subnet mask is 255.255.255.0) from the DHCP server on the integrated router.

The DHCP server on the integrated router supplies the information (primary and secondary TPS server information, VLAN IDs) to the IP Phones, enabling them to connect to the BCM50. If the IP address of the integrated router is changed, then the IP address reserved for the BCM50 is automatically changed. The DHCP server on the integrated router automatically updates the S1 and S2 IP address.

To disable the DHCP server on the main unit

- 1 From the **Configuration** tab, click the **Data Services** folder to expand it.
- 2 Select **DHCP Server** from the Data Services folder.
- 3 Select the **General Settings** tab. It is normally selected by default.
- 4 Select **Disabled** from the drop-down list to disable the DHCP server.

Connecting the BCM50 to the WAN

Two types of BCM50 main units have a router card, the BCM50e (with Ethernet router) and the BCM50a (with ADSL router). On the BCM50e, the WAN port is an RJ-45 port. On the BCM50a, the WAN port is an RJ-11 port.

Refer to the following sections for information on connecting the BCM50 to the WAN:

- [“To connect the BCM50a to the WAN” on page 26](#)
- [“To connect the BCM50e to the WAN” on page 26](#)

To connect the BCM50a to the WAN

- 1 Use the Integrated Router Web GUI to configure the router card on the BCM50a main unit. Refer to the *BCM50a Integrated Router Configuration Guide* (N0027181) for information about how to configure the router.
- 2 Make sure the power supply is connected to the BCM50a main unit and to the AC power source (wall outlet).



Warning: Do not plug the WAN cable into the system unless the power supply is connected to the main unit and an AC power source with a third-wire ground.

- 3 Connect one end of a standard telephone cable to the ADSL telephone line provided by your ISP.
- 4 Plug the other end of the telephone cable into the WAN port.



Note: If you use the ADSL telephone line for both ADSL and regular voice communication, you must install a splitter filter. The splitter filter is provided by your ADSL service provider. Follow your service provider's instructions on how to connect the splitter.

To connect the BCM50e to the WAN

- 1 Use the Integrated Router Web GUI to configure the router card on the BCM50e main unit. Refer to the *BCM50e Integrated Router Configuration Guide* (N0027182) for information about how to configure the router.
- 2 Connect one end of a standard Ethernet cable to your WAN edge device (for example, an external ADSL modem or cable modem).

Refer to the documentation for your WAN edge device for proper setup and configuration of the device.

- 3 Plug the other end of the Ethernet cable into the WAN port.

Chapter 3

Configuring the BCM50 system

This section provides information on configuring the basic BCM50 parameters. You can configure more advanced parameters using Element Manager or Telset Administration after the BCM50 system is operational.

For simplicity, the task of configuring the basic BCM50 parameters is divided into two parts:

- “Configuring the initial parameters”
- “Configuring the startup parameters” on page 28

Configuring the initial parameters

The initial parameters are the required parameters that can be configured using Telset Administration, Element Manager, or the Startup Profile. See [Table 7](#) for a list of the initial parameters.

Table 7 Initial parameters (Sheet 1 of 2)

Parameters	Telset Administration	Element Manager	Startup Profile
Keycode	Feature 9*8 > Keycode	Configuration > System > Keycodes	Keycodes
IP address: <ul style="list-style-type: none"> • Obtain dynamically? • IP address • Subnet mask • Default gateway 	Feature 9*8 > IP Address	Configuration > System > IP Subsystem	IP Address
Modem: <ul style="list-style-type: none"> • Enable/disable modem 	Feature 9*8 > Modem	Configuration > Administrator Access > Modem	Modem
System: <ul style="list-style-type: none"> • Region 	Feature **PROFILE	Administration > Utilities > Reset > Cold Reset Telephony Services	System
Telephony startup: <ul style="list-style-type: none"> • Template • Start DN 	Feature **STARTUP	Administration > Utilities > Reset > Cold Reset Telephony Services	Telephony Startup

Table 7 Initial parameters (Sheet 2 of 2)

Parameters	Telset Administration	Element Manager	Startup Profile
Voice mail: <ul style="list-style-type: none"> • Attendant DN • UI style • Language • From Line • To Line • Number of rings 	Feature 983	Configuration > Applications > Voice Messaging/Call Center	Voice Mail Startup
User account: <ul style="list-style-type: none"> • Numeric ID 	Feature 9*8 > User Accounts	Configuration > Administrator Access > View by Accounts	UserAccount

Configuring the startup parameters

The startup parameters are the remaining required parameters that cannot be configured using Telset Administration. These parameters must be configured using Element Manager or the Startup Profile. See [Table 8](#) for a list of the startup parameters.

Table 8 Startup parameters (Sheet 1 of 2)

Parameters	Telset Administration	Element Manager	Startup Profile
System: <ul style="list-style-type: none"> • Name • ID 	N/A	Configuration > System > Identification (ID set automatically)	System
Time: <ul style="list-style-type: none"> • Zone • Clock control • NTP server • Year 	N/A	Configuration > System > Date and Time	Time
DHCP server: <ul style="list-style-type: none"> • Enable/disable server • IP domain name • Primary DNS • Secondary DNS • Default gateway 	N/A	Configuration > Data Services > DHCP Server	DHCP Server
IP Phones: <ul style="list-style-type: none"> • Enable registration • Enable global pwd • Global pwd • Auto-assign DNs • Advertisement logo 	N/A	Configuration > Resources > Telephony Resources	IP Telephones

Table 8 Startup parameters (Sheet 2 of 2)

Parameters	Telset Administration	Element Manager	Startup Profile
SNMP: <ul style="list-style-type: none"> • Enable/disable SNMP • Minimum security • Version 	N/A	Configuration > Administrator Access > SNMP	SNMP Agent
SNMP community: <ul style="list-style-type: none"> • Community string • Type of access 	N/A	Configuration > Administrator Access > SNMP	SNMP Community
SNMP manager: <ul style="list-style-type: none"> • IP address 	N/A	Configuration > Administrator Access > SNMP	SNMP Manager
User account: <ul style="list-style-type: none"> • User ID • Group • Description • Callback number 	N/A	Configuration > Administrator Access > View by Accounts	User Account

There are three ways to configure the BCM50 system:

- [“Using Element Manager to configure the system”](#)
- [“Using Telset Administration to configure the system” on page 31](#)
- [“Using the Startup Profile to configure the system” on page 32](#)



Note: You must install your keycodes to enable specific applications on your BCM50 system. Use Element Manager or the Startup Profile to install your keycodes. Refer to the *BCM50 Keycode Installation Guide* (N0016865) for more detailed information on obtaining and installing keycodes.

Using Element Manager to configure the system

To use Element Manager to configure your BCM50 system, you must first install Element Manager on your computer. Element Manager is located on the Nortel support web page (www.nortel.com/support) and on the BCM50 hard drive under Administrator Applications.

Refer to [“To download and install Element Manager”](#) for details on downloading Element Manager from the BCM50 main unit.

To download and install Element Manager

- 1 Connect one end of the Ethernet cable to the OAM port on the main unit, and connect the other end to the Ethernet port on your computer.

The DHCP-enabled computer is assigned IP address **10.10.11.2. (255.255.255.252)**.

- 2 Open a web browser and enter the IP address **10.10.11.1** (BCM50 OAM port IP address).

- The Enter Network Password dialog box opens.
- 3 Enter the following username and password:
Username: **nnadmin**
Password: **PlsChgMe!**
 - 4 Click **OK**.
The Welcome to BCM50 web page opens.
 - 5 From the **Welcome to BCM50** web page, click **Administrator Applications**.
The Administrator Applications page opens.
 - 6 From the **Administrator Applications** page, click **BCM50 Element Manager**.
The Element Manager panel opens.
 - 7 Click **Download Element Manager** on the right side of the screen.
 - 8 When BCM50 Element Manager has finished downloading, double-click the application and follow the instructions to install.

To connect to the BCM50 system

- 1 Open Element Manager.
- 2 From the **Network** menu, select **New Network Element**, then select **Business Communications Manager**.
- 3 Enter the IP address **10.10.11.1** in the dialog box.
- 4 Click **OK**.
- 5 Select the address **10.10.11.1** from the Network Elements folder.
- 6 Enter the following username and password:
Username: **nnadmin**
Password: **PlsChgMe!**
- 7 Click **Connect**.

You are now connected to the BCM50 system.

Refer to the online Help within Element Manager for more information on configuring the system.

Using Telset Administration to configure the system



Note: BCM50 reintroduces Telset Administration. A technician can administer many aspects of the system using Telset Administration, although Element Manager is required to administer the data startup parameters (see [Table 7 on page 27](#) and [Table 8 on page 28](#) for details).

You can use the following Telset Administration procedures to configure some of the basic parameters of your system. Use Element Manager to configure any other parameters.

Use the following procedures to configure the initial parameters for the BCM50 using Telset Administration:

- [“To work with keycodes, IP addresses, modem properties, and user accounts”](#)
- [“To select the region”](#)
- [“To select the telephony startup template and start DN”](#)
- [“To initialize voice mail” on page 32](#)

To work with keycodes, IP addresses, modem properties, and user accounts

BCM50 provides a Telset-based interface to administer keycodes, IP addresses, modem properties, and user accounts. To access this interface:

- 1 Select feature 9*8 from a two-line display telephone.
- 2 Enter the following user ID and password:

Username: **SETNNA**

Password: **CONFIG**

The numerical values of the user ID and password are 738662 and 266344, respectively.

For details about configuring these parameters, refer to the *BCM50 Installation and Maintenance Guide* (N027152).

To select the region

You set the region using Feature ****PROFILE** from a two-line display telephone.

Refer to the *BCM50 Telset Administration Guide* (N0027176) for information on using Telset Administration to set this parameter.

To select the telephony startup template and start DN

You set the template and start DN using Feature ****STARTUP** from a two-line display telephone.



Note: You only have 15 minutes after system bootup to set these parameters.

Refer to the *BCM50 Telset Administration Guide* (N0027176) for information on using Telset Administration to set this parameter.

Other telephony startup parameters are configured using Feature ****CONFIG**. Refer to the *BCM50 Telset Administration Guide* (N0027176) for more information.

To initialize voice mail

You initialize your voice mail system using Feature 983 from a two-line display telephone.

Refer to the *CallPilot Telephone Administration Guide* (N0027331) for information on using Telset Administration to initialize your voice mail system.

Using the Startup Profile to configure the system

The Startup Profile tool allows you to quickly set several common BCM50 configuration parameters. You create the Startup Profile using Microsoft Excel. You then use a USB storage device to transfer the data to the BCM50.

For more information on using the Startup Profile, refer to the *BCM50 Installation and Maintenance Guide* (N027152).

Startup Profile requirements

To use the Startup Profile template, you need the following:

- a computer with a USB port
- Microsoft Excel 2000 or later
- the Nortel BCM50 Startup Profile template (Microsoft Excel template)

If you do not have the Startup Profile template on your computer, you can get a copy from the the Nortel support website (www.nortel.com/support), or the Administrator Applications page on the main unit. Refer to [“To download the Startup Profile template” on page 33](#) for details on getting the Startup Profile template from the main unit

- a portable USB storage device compatible with USB 1.1 (formatted for FAT32)



Note: The Startup Profile template uses macros to perform certain functions. You must set your Excel macro security level to medium or low to enable the macros:

- From the Tools menu, select **Macros**, then select **Security...**, and select **Medium** or **Low**.
 - Exit from Excel.
 - Open the Startup Profile template (in Excel).
 - Enable macros if prompted.
-

To download the Startup Profile template

- 1 Connect one end of the Ethernet cable to the OAM port on the main unit, and connect the other end to the Ethernet port on your computer.

The DHCP-enabled computer is assigned IP address **10.10.11.2. (255.255.255.252)**.

- 2 Open a web browser and enter the IP address **10.10.11.1** (BCM50 OAM port IP address).

The Enter Network Password dialog box opens.

- 3 Enter the following username and password:

Username: **nnadmin**

Password: **PlsChgMe!**

- 4 Click **OK**.

The Welcome to BCM50 web page opens.

- 5 From the **Welcome to BCM50** web page, click **Administrator Applications**.

The Administrator Applications page opens.

- 6 From the **Administrator Applications** page, click **Startup Profile Template**.

The Startup Profile Template panel opens.

- 7 Click **Download Startup Profile Template** on the right side of the screen.

For more information on using the Startup Profile, refer to the *BCM50 Installation and Maintenance Guide* (N027152).

Completing the initial configuration

This section provides information on completing the initial configuration of your BCM50 system using Element Manager. Refer to the Element Manager online Help for more information.

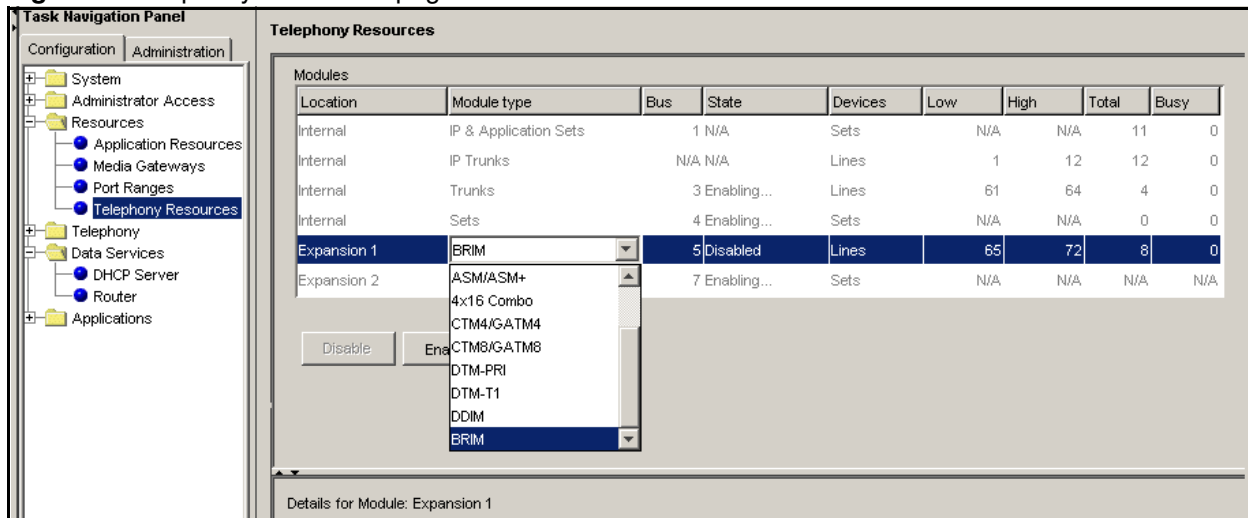
Configuring the media bay module

For information on installing a media bay module (MBM) and setting the dip switches, refer to [“Installing an expansion unit” on page 18](#).

To configure the MBMs

- 1 From the **Configuration** tab, click the **Resources** folder to expand it.
- 2 Select **Telephony Resources** from the Resources folder (see [Figure 7 on page 34](#)).

Figure 7 Telephony Resources page



- 3 From the **Modules** section, select the expansion unit that you want to configure.

Keycodes are required for the expansion ports to function. If you purchase a keycode for one expansion port only, the expansion port on the left (port 2) is active. Therefore, Expansion 1 must be connected to the active port (port 2).

- 4 Double-click the **module type** field to display the dropdown list.
- 5 Select the MBM that you installed in the expansion unit.
- 6 Click **Enable**.
- 7 If you installed a second expansion unit, repeat steps 3 to 6 to enable the second MBM.

Refer to the *BCM50 Telset Administration Guide* (N0027176) for information on configuring the MBM using Telset Administration.

Customizing other parameters

You can also customize the following parameters:

- Security policies (see the *BCM50 Administration Guide* [N0016868])
- Modem settings (see the *BCM50 Networking Configuration Guide* [N0027156])
- Software updates (see the *BCM50 Administration Guide* [N0016868])
- Voice mail (see the *CallPilot Manager Set Up and Operation Guide* [N0027247]) for information on using the web-based interface to configure your voice mail system, or the *CallPilot Telephone Administration Guide* [N0027331] for information on using Telset Administration to configure your voice mail system)
- Backup and restore (see the *BCM50 Administration Guide* [N0016868])

Additional information

For more information about installing the BCM50 (such as wiring charts and cable diagrams), refer to the *BCM50 Installation and Maintenance Guide* (N027152).