



System Overview

Avaya Business Communications Manager Release 6.0

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Chapter 1

Getting started

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

About this guide

This system overview gives a high-level understanding of the core capabilities and features of Avaya Business Communications Manager (Avaya BCM) 6.0.

Audience

This overview is for installers, network administrators, and others who are interested in the Avaya BCM.

Acronyms

Following is a list of acronyms used in this guide.

Acronym	Description
ADID	Analog direct inward dial
AMIS	Audio Messaging Interchange Specification
APAC	Asia Pacific
BCM	Business Communication Manager
BFT	Base function tray
BRI	Basic Rate Interface
CALA	Caribbean and Latin America
CCR	Custom call routing
CDR	Call Detail Recording
CEC	Capacity expansion card
CIM	Common information model
CTI	Computer telephony integration
DDC	Dynamic device configuration
DMTF	Distributed Management Task Force
DN	Directory number

Acronym	Description
DTMF	Dual-tone multi frequency
FEM	Fiber expansion module
FRU	Field replacable unit
GASI	Global Analog Station Interface
GASI	Global Analog Station Interface
GASM	Global Analog Station Module
GATI	Global Analog Trunk Interface
GATI	Global Analog Trunk Interface
GATM	Global Analog Trunk Module
GNPS	Global Network Product Support
GNTS	Global Enterprise Technical Support
HDD	Hard disk drive
ICC	Intelligent Contact Center
ICCL	ISDN call connection limit
IP	Internet Protocol
ISDN	Integrated services digital network
KEM	Key expansion module
LAN CTE	Local area network computer telephony engine
MBM	Media bay module
MCDN	Meridian customer defined network
MIB	Management information base
MWI	Message waiting indication
NCGL	BCM Linux
NCM	Network Configuration Manager
NCRI	Network call redirection info
NRE	Non Recoverable Engineering
OEM	Original Equipment Manufacturer
OS	Operating system
POST	Power on Self Test
PSTN	Public switched telephone network
PVQM	Proactive voice quality monitoring
QoE	Quality of Experience
SFTP	Secure File Transfer Protocol
SIP	Session Initiated Protocol
SMB	Small and Medium Business

Acronym	Description
SME	Small and Medium Enterprise
SNMP	Simple Network Management Protocol
VoIP	Voice over Internet Protocol
VPIM	Voice profile for internet mail

Related publications

This section provides a list of additional documents. For more information on the BCM 6.0 documentation suite, see *Avaya Business Communications Manager 6.0 Documentation Roadmap* (NN40170-119).

Avaya Business Communications Manager 450 6.0 Installation — System (NN40170-303)

Avaya Business Communications Manager 450 6.0 Maintenance (NN40170-503)

Avaya Business Communications Manager 50 6.0 Installation and Maintenance Guide (NN40170-305)

Avaya Business Communications Manager 6.0 Upgrade Guide (NN40170-401)

Avaya Business Communications Manager 6.0 Installation — Devices (NN40170-304)

Avaya Business Communications Manager 6.0 Configuration — System (NN40170-501)

Avaya Business Communications Manager 6.0 Configuration — Devices (NN40170-500)

Avaya Business Communications Manager 6.0 Configuration — Remote Worker (NN40171-505)

Avaya Business Communications Manager 6.0 Configuration — Telephony (NN40170-502)

Avaya Business Communications Manager 6.0 Planning and Engineering (NN40170-200)

Avaya Business Communications Manager 6.0 Administration and Security (NN40170-603)

Avaya Business Communications Manager 6.0 Fault and Performance Management (NN40160-701)

Avaya Business Communications Manager 6.0 Troubleshooting Guide (NN40170-700)

Avaya Business Communications Manager Find Me/Follow Me Administration Guide (NN40010-678)

Avaya Business Communications Manager Find Me/Follow Me Administration Guide (NN40010-118)

BCM50 and BCM450 Imaging Tool User Guide (NN40171-104)

Keycode Installation Guide (NN40010-301)

Meet Me Conferencing User Guide (NN40020-104)

Unified Messaging Configuration Guide (NN40080-501)

CallPilot Fax Set Up and Operation Guide (NN40080-301)

CallPilot Message Networking Set Up and Operation Guide (NN40090-301)

Personal Call Manager User Guide (NN40020-103)

Intelligent Contact Center Set Up and Operation Guide (NN40040-301)

LAN CTE Configuration Guide (NN40020-602)

Call Detail Recording System Administration Guide (NN40020-605)

Personal Call Manger User Guide (NN40010-104)

Activity Reporter Administration Guide (NN40010-627)

Activity Reporter User Guide (NN40010-112)

Central Answering Position (CAP) User Guide (NN40090-106)

Expansion Module for Avaya 1100 Series IP Deskphones User Guide (NN40050-118)

IP KEM User Guide (NN40050-103)

InTouch Administration Guide (NN40170-605)

InTouch User Guide (NN40170-102)

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Chapter 2

BCM450 hardware

The information in this chapter applies to the BCM450 platform running Avaya Business Communications Manager (Avaya BCM) 6.0.

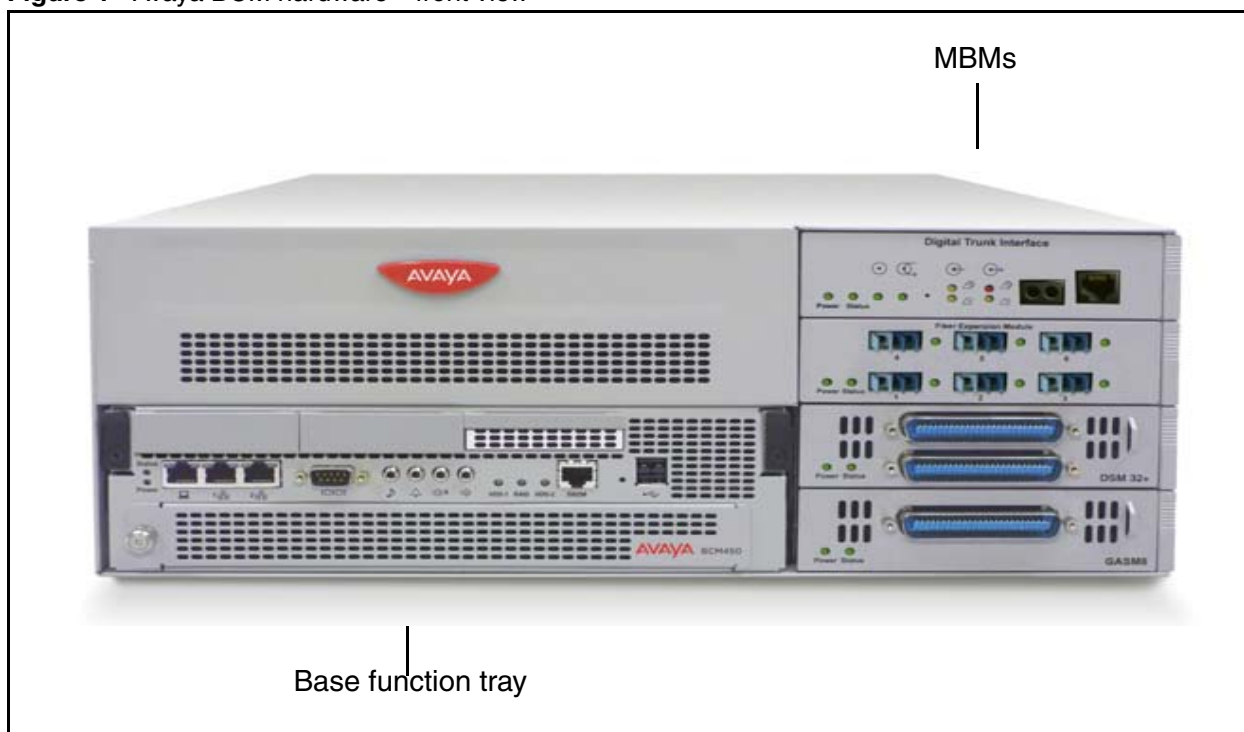
The Avaya BCM provides private network and telephony management capability to small- and medium-sized businesses.

BCM is a complete, converged voice, and feature-rich business telephony applications solution for small business and small enterprise branch offices. BCM gives you the features and applications of traditional small office PBX and key systems plus the converged value of IP.

For more information, see [“Avaya BCM features” on page 35](#).

Avaya BCM (as shown in [Figure 1 “Avaya BCM hardware—front view” \(page 15\)](#)) features a new base function tray.

Figure 1 Avaya BCM hardware—front view



For more information about Avaya BCM hardware, see *Avaya Business Communications Manager 450 6.0 Installation — System (NN40170-303)*.

Avaya BCM450

The primary hardware component of your BCM450 system is the main unit. Each BCM450 system must have one main unit. The main unit houses the base function tray (BFT) and has four slots for media bay modules (MBM).

You can connect your BCM450 system directly to a power source or through an optional uninterruptible power supply (UPS).

The BCM450 main unit provides call processing functions. The BFT, which is housed in the main unit, provides four connections for auxiliary equipment (auxiliary ringer, page relay, page output, and music source). The BCM450 main unit has no router, but it has two LAN ports and one OAM port. The main unit includes four slots for MBMs, and supports up to one fiber expansion module (FEM) MBM for connecting up to 6 Norstar trunk or station fibre expansion modules. For more information the FEM, see *Avaya Business Communications Manager 450 6.0 Installation—System* (NN40170-303).

A main unit contains the following field-replaceable units:

- cooling fan
- power supply unit
- base function tray (BFT)
- hard disk drive (HDD)
- up to four MBMs
- optional capacity expansion card (CEC)

Additional Avaya BCM hardware

In addition to a main unit, the BCM450 system can include a BCM450 expansion cabinet. An expansion cabinet connects to the main unit and provides additional functionality through one or more installed media bay modules (MBM).

The Avaya BCM expansion cabinet accommodates the MBMs used by other BCM platforms. The Avaya BCM main unit can support one expansion cabinet. For more information, see [“Avaya BCM expansion cabinet or unit and media bay modules” on page 31](#).

BCM450 also supports an optional secondary power supply and fan, as well as an optional secondary hard disk drive for RAID disk mirroring. For more information about installing a redundant power supply or hard disk drive, see *Avaya Business Communications Manager 450 6.0 Maintenance* (NN40170-503).

The BCM450 is available with the following mounting options:

- rack-mount (standard 19-inch rack)
- stand-alone (feet included);
- wall-mount (optional wall-mount bracket available separately)

The wall-mount bracket is an inexpensive bracket for mounting the Avaya BCM or expansion cabinet to a wall; for more information, see [“Mounting kits” on page 32](#).

You can rack-mount a maximum of four Avaya BCM systems directly into a standard 19-inch rack. For more information, see [“Mounting kits” on page 32](#).

Avaya BCM physical dimensions

[Table 1 “BCM450 physical dimensions” \(page 17\)](#) describes the physical dimensions of the Avaya BCM main unit and expansion cabinet.

Table 1 BCM450 physical dimensions

Dimensions	Avaya BCM main unit	Avaya BCM expansion cabinet
Height	7 in. (17.8 cm)	7 in. (17.8 cm)
Width	17.5 in. (44.5 cm)	17.5 in. (44.5 cm)
Depth	18 in. (45.8 cm)	18 in. (45.8 cm)

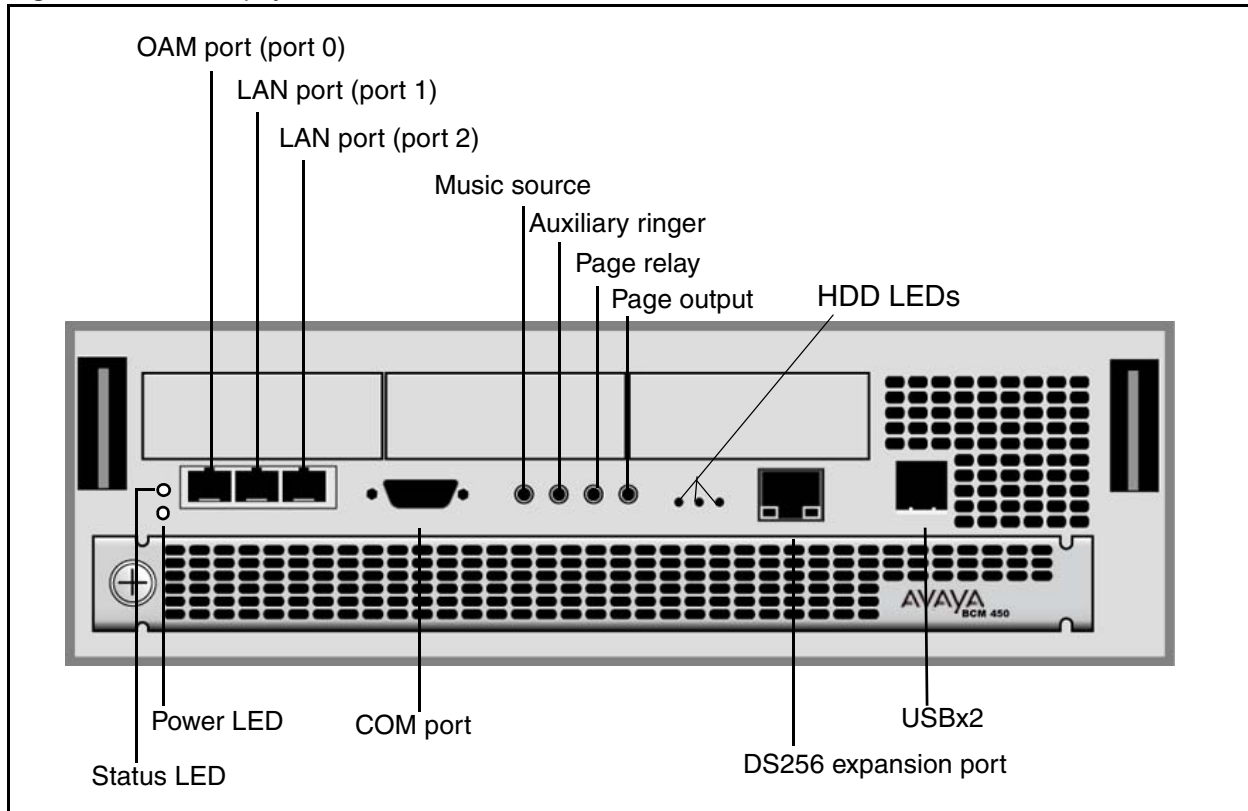
The Avaya BCM main unit and expansion cabinet design features include in following components:

- rubber feet that allow unit installation on a desktop or a shelf
- optional wall-mount bracket kit
- optional rack-mount shelf

Avaya BCM physical interfaces

Figure 2 "BCM450 physical interfaces and LEDs" (page 18) maps the physical interfaces of the BCM450 hardware.

Figure 2 BCM450 physical interfaces and LEDs



Your Avaya BCM is equipped with the following interfaces:

- An RJ-45 jack used to connect a computer running administration software, such as Business Element Manager, to the main unit.
- Two RJ-45 jacks used to connect the customer LAN to the main unit.
- Two USB 2.0 (compatible with USB 1.1) ports used to connect USB storage devices or the data interfaces for an uninterruptible power supply (UPS) to the main unit.
- One DS256 jack to connect the BCM expansion cabinet to the BCM450 main unit.
- One auxiliary ringer jack to control the cadence of an auxiliary ringer (customer supplied).
- A page relay jack connects a floating relay contact pair. The BCM450 system uses this jack to control the external paging amplifier.
- A page output port allows generated voice paging signal to an external paging amplifier (customer supplied).
- Music on hold input supported either through the front panel jack.

You can extend the capacity of your system by using the optional [“Avaya BCM expansion cabinet or unit and media bay modules”](#) on page 31.

Chapter 3

BCM50 hardware

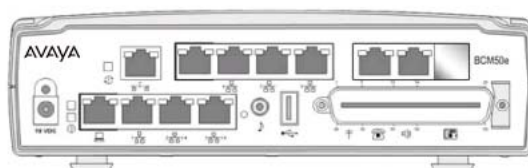
The information in this chapter applies to BCM50 platforms running Avaya Business Communications Manager (Avaya BCM) 6.0.

BCM50 is available in six configurations.

- BCM50: The compact main unit, suitable for networks where you do not require integrated data-routing capability or if your networks already have an IP network.
- BCM50e: Includes an integrated Ethernet router.
- BCM50b: Includes an integrated Dual ISDN S/T BRI.
- BCM50be: Includes an Ethernet router and a Dual ISDN S/T BRI.
- BCM50ba: Includes ADSL router and a Dual ISDN S/T BRI.

Figure 3 "BCM50e" (page 19) shows the BCM50e.

Figure 3 BCM50e



For more information, see ["BCM50e BCM50a: Avaya BCM systems with integrated routers" \(page 22\)](#) or ["" \(page 24\)](#).

BCM50a and BCM50ba models are not sold with Release 6.0 installed at factory. However, BCM50a and BCM50ba systems support release 6.0 software when upgraded to that software level.

For more information about BCM50 hardware, see *Avaya Business Communications Manager 50 Installation and Maintenance Guide (NN40170-305)*.

BCM50 main unit

The BCM50 Main Unit (with telephony only) provides call processing and simple data-networking functions. It provides connections for 12 digital telephones, 4 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 has no router, but it has four LAN ports: one is the OAM port for technicians, and three are for basic LAN connectivity.

A Main Unit contains the following field-replaceable units:

- one programmed hard disk
- one cooling fan

- one router card (BCM50a, BCM50e, BCM50ba and BCM50be only)

Additional BCM50 hardware

The BCM50 expansion unit is a compact unit that accommodates the Media Bay Modules (MBM) used by other Avaya BCM platforms. The BCM50 main unit can support a maximum of two expansion units. For more information, see ["Avaya BCM expansion cabinet or unit and media bay modules" \(page 31\)](#).

The wall-mount bracket is an inexpensive bracket for mounting the BCM50 or expansion unit to a wall; for more information, see ["Mounting kits" \(page 32\)](#). An optional wiring card, which provides RJ-45 connectors for all main unit trunk and station interfaces, is also available for use with the wall-mount bracket.

The rack-mount shelf is an inexpensive shelf for mounting a maximum of four BCM50 systems into a standard 19-inch rack. For more information, see ["Mounting kits" \(page 32\)](#). An optional patch field that provides RJ-45 connectors for all main unit trunk and station interfaces is also available.

BCM50 supports the complete range of IP telephony capability offered by existing Avaya BCM products. These features are enabled through keycodes and require no additional hardware:

- VoIP Gateway (H.323 or SIP): up to 12 VoIP trunks
- VoIP Telephony Clients: up to 32 VoIP Telephony clients, that support the Avaya 2050 IP Softphone client, the Mobile Voice Client 2050 and the complete range of Avaya IP Deskphones

BCM50 physical dimensions

BCM50 has a compact plastic enclosure so that you need not add hardware to enable features and applications. The compact size and flexible installation options support fast installations and accommodate the diverse environmental and physical conditions of small businesses.

[Table 2 "BCM50 physical dimensions" \(page 20\)](#) describes the physical dimensions of the BCM50 main unit and expansion unit.

Table 2 BCM50 physical dimensions

Dimensions	BCM50 main unit	BCM50 expansion unit
Height	2 in. (5.1 cm)	2 in. (5.1 cm)
Width	8.5 in. (21.6 cm)	8.5 in. (21.6 cm)
Depth	12.5 in. (31.8 cm)	12.5 in. (31.8 cm)

The BCM50 main unit and expansion unit design features include in following components:

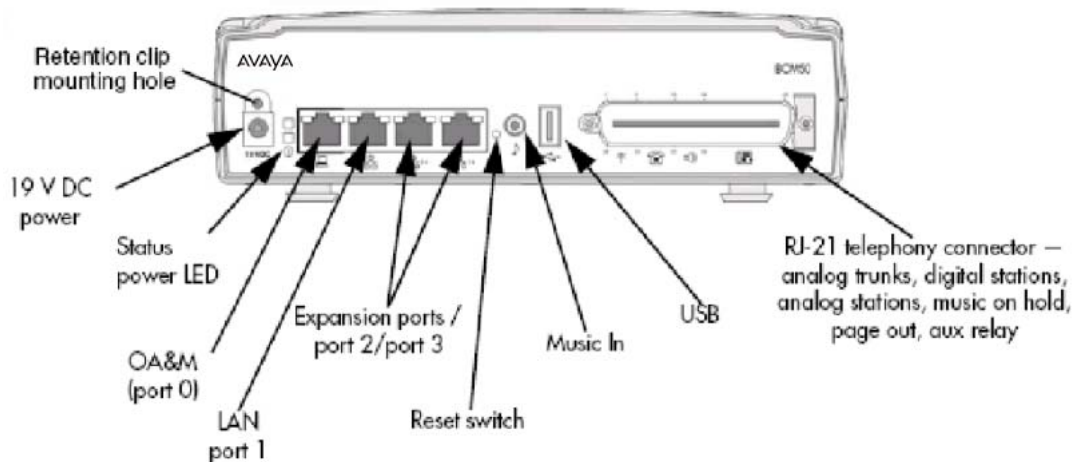
- external power supply
- stackable units

- rubber feet that allow unit installation on a desktop or a shelf
- optional wall-mount bracket
- optional rack-mount shelf

BCM50 physical interfaces

The BCM50 interfaces preclude the need for additional hardware. See [Figure 4 "BCM50 Front panel and interfaces"](#) (page 21) for a graphical representation of the BCM50 interfaces.

Figure 4 BCM50 Front panel and interfaces



Your BCM50 is equipped with these interfaces:

- Twelve digital station ports support the complete line of Business Series Telephones. These ports are accessible through the front panel RJ-21 connector and are enabled through keycodes.
- Four Analog Loop Supervised Trunks. These ports are accessible through the front panel RJ-21 connector and are enabled through keycodes.
- Four Analog Station interfaces with message waiting and CLID support. These ports are accessible through the front panel RJ-21 connector and are enabled through keycodes.
- Page and auxiliary relay output on the front panel RJ-21 connector.
- Three-port 10/100 Ethernet switch with automatic sensing and automatic polarity. Two of these ports support connecting optional expansion units.
- One 10/100 Ethernet port reserved for direct-access management of the system.
- Music on hold input supported either through the front panel jack or an RJ-21 connector.
- USB port to enhance BCM50 management.

You can extend the capacity of your system by using the optional [Avaya BCM expansion cabinet or unit and media bay modules](#) (page 31).

BCM50e BCM50a: Avaya BCM systems with integrated routers

BCM50 is available with an optional integrated ADSL or Ethernet router. These units suit the needs of small businesses and small enterprise branch offices that require external data networking, such as Internet access or VPN-based networking to other offices.

Two variations of the BCM50 have an integrated router, depending on the WAN interface you require: the BCM50e (Ethernet WAN). The routers have the following data features:

- secure Internet access
- multisite VoIP trunking using secure VPN tunnels
- wide-area VoIP applications with remote user support
- remote IP management and support using VPN clients

Common features and capabilities

BCM50e has four additional LAN ports and 1 port for the Ethernet WAN connection for local premises use. All Ethernet ports are 10/100 Mb/s automatic sensing and support automatic polarity. Therefore, you require no crossover cable to connect data hardware to the unit. An additional port is provided for WAN access for, either Ethernet or ADSL.

The following features makes BCM50e attractive for small sites that want to become Internet-capable and multisite enterprises with many small sites. Until now, these sites could not be part of the corporate WAN because of the high cost of traditional WAN connectivity and managed service.

VPN

- 10 IPSec Branch Office Tunnels (peer-to-peer)
- IPSEC client termination supported
- support for bandwidth management
- support for Dynamically addressed peers – ABOT
- support for Client Tunnel origination (not termination) to simplify the connection to a larger VPN Router network
- IKEv1 Main Mode
- IKEv1 Quick Mode
- Diffie-Hellman Group 1,2
- IPSec Tunnel Mode
- ESP
- NAT Traversal

Security Services

- cryptographic services
- DES and 3DES
- data authentication SHA-1

- data authentication MD-5
- authentication services
- preshared secrets
- security services
- stateful firewall
- intrusion detection
- AES support
- digital certificates supported
- RADIUS support

NAT

- many-to-one, static, many-to-many
- port forwarding
- IPSec pass through
- NAT support for tunnel mode IPSec tunnels
- Throughput traffic performance - 23.1 Mb/s

Router

- Clear text routing
- Static: through tunnel
- RIP v1: through tunnel and clear text
- RIP v2: through tunnel and clear text

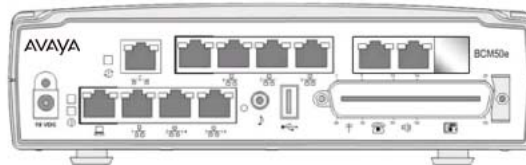
IP Services

- DHCP client
- DHCP server with support for Avaya Internet Telephones
- DHCP Relay supported
- DNS Proxy
- DNS with VPN client
- WAN failover supported
- PPPoE
- PPTP (ethernet router only)
- Configurable MAC address
- Clear text traffic:
 - WAN to LAN 33.9 Mb/s
 - LAN to WAN 30.5 Mb/s

BCM50e

The BCM50e in [Figure 5 "BCM50e front panel" \(page 24\)](#) provides call-processing and data-routing features and is suitable for networks that require data-routing capability using an integrated Ethernet router. The WAN interface port provides 10/100 Ethernet with automatic sensing and automatic polarity. If you have existing or alternative WAN access technology, you can still benefit from the VoIP features of the BCM50.

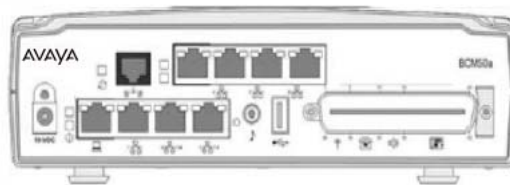
Figure 5 BCM50e front panel



BCM50a

The BCM50a (see [Figure 6](#)) provides call-processing, data-routing features, and an integrated ADSL modem. The BCM50a is a stand-alone set of integrated applications. With the BCM50a, you have complete voice and Internet service with efficiency and convenience.

Figure 6 BCM50a front panel



These features provide a complete, integrated Communications Server/ADSL access package for ease of interconnecting with service-provider ADSL networks:

- ITU G.992.1 (G.DMT)
- G.992.1 Annex A
- ITU G.992.2 (G.Lite)
- ANSI T1.413 Issue 2
- DSL Forum document TR-042 ATM Transport over ADSL
- G.hs 994.1
- G.ploam G.997.1
- Autonegotiation rate adaptation
- RFC 2364 PPP over AAL5
- RFC 2684 Multi protocol Encapsulation over ATM, both Bridged and Routed encapsulation
- Support for British Telecom SIN 329

- Broadband IP Products requirements for End User NTE equipment, where the router and ADSL modem functions are integrated into one device
- RFC 1483 Multi-protocol over AAL5
- RFC 2365 PPP over AAL5

- RFC 2516 PPPoE
- Traffic-shaping UBR, CBR
- ATM forum UNI 3.1/4.0 PVC (minimum 5 PVCs)

BCM50b, BCM50ba, and BCM50be: Avaya BCM systems with integrated BRIs

The BCM50 system provides private network and telephony-management capability to small and medium businesses the EMEA and APAC markets. The BCM50 integrates voice and data capabilities, IP telephony gateway functions, and data-routing features into a single telephony system. The BCM50 is a compact system that you use to create and provide telephony applications for use in a business environment.

Common features and capabilities

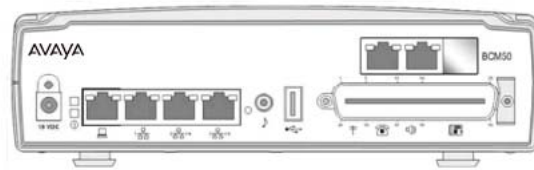
- BRI Compact Daughter Card (CDC)— Performance conforms to ITU I.430, ETSI ETS 300012, ANSI T1.605, and safety standards and lightning protection
- Additional CDC connector, for a total of two CDC slots
- Xilinx FPGA - XC3S400-4FT256C
- Integrated eight-port 10/100 Ethernet switch to support future eDSP CDC (upgraded from five-port)
- 2.5 in. hard drive and new bracket
- Optimized position of fan cable, SATA cable, and hard-drive connector
- POL Current Limiting
- Introduce BRI and improve pack performance, and customer feature set.
- Memory parity
- Upgrade DSP and microprocessor
- GASI support

BCM50b

The BCM50b Main Unit provides functionality similar to the BCM50 main unit. The difference is that the BCM50b main unit has two integrated BRI ports that replace the four analog lines on the RJ-21 telephony connector.

- new CSC with integrated BRI in place of integrated GATI
- keycode BRI ports

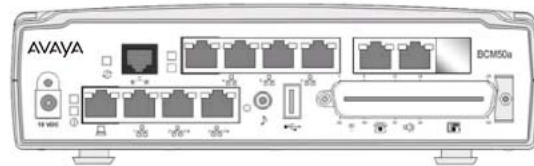
[Figure 7"BCM50b front panel" \(page 27\)](#) shows a BCM50b front panel.

Figure 7 BCM50b front panel

BCM50ba

The BCM50ba Main Unit provides similar functionality to the BCM50a main unit. The difference is that the BCM50ba main unit has two integrated BRI ports that replace the four analog lines on the RJ-21 telephony connector.

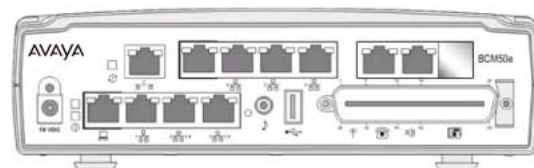
[Figure 8 "BCM50ba front panel" \(page 27\)](#) shows a BCM50ba front panel.

Figure 8 BCM50ba front panel

BCM50be

The BCM50be Main Unit provides similar functionality to the BCM50e main unit. The difference is that the BCM50be main unit has two integrated BRI ports that replace the four analog lines on the RJ-21 telephony connector.

[Figure 9 "BCM50be front panel" \(page 27\)](#) shows a BCM50be front panel.

Figure 9 BCM50be front panel

Chapter 4

LED strategy

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

Avaya BCM offers a simplified LED strategy, reducing the status LEDs to two: the Power LED and the Status LED (see [Figure 2 "BCM450 physical interfaces and LEDs" \(page 18\)](#) and [Figure 4 "BCM50 Front panel and interfaces" \(page 21\)](#)). The Power and Status LEDs provide visual status for the platform areas shown in [Table 3 "LED states with descriptions of LED combinations" \(page 29\)](#).

Table 3 LED states with descriptions of LED combinations

Power LED	Status LED	LED combinations description
Start-up sequence		
Solid yellow	Solid yellow	Power is applied to the system.
Solid yellow	Off	POST (Power On Self Test) (duration 9 seconds)
Solid yellow	Solid yellow	System initialization (duration 14 seconds)
Solid green	Solid yellow	Kernel initialization (duration 8 seconds) or Safe OS
Solid green	Blink yellow	Waiting for user input on multi-image hard drive CLI
Solid Red	Solid Red	Image installation is in progress (multi-image hard drive)
Solid Red	Blink Red	Error occurred during image installation (multi-image hard drive)
Solid green	Blinking green	Services initialization (duration 1 minute)
Solid green	Solid green	System running
Solid green	Solid red	Services initialization FAILURE
Safe Mode start-up sequence		
Solid red	Solid green	System is running with manufacturing settings enabled
Solid red	Solid red	System is running in Software Reset mode
Solid red	Blinking yellow	System is running in Configuration Reset mode
Shutdown sequence or FAILURE		
Solid green	Blinking yellow	Graceful shutdown in progress (trigger: Business Element Manager or UPS)
Off	Solid yellow	Graceful shutdown completed.
Solid red	Blinking yellow	Overheat detected; thermal shutdown completed
Solid red	Solid red	Power spike or rail power fluctuation detected
Blinking red	Solid red	Rail power fluctuation; power monitor shutdown completed

Table 3 LED states with descriptions of LED combinations

Power LED	Status LED	LED combinations description
Solid yellow	Solid red	Power spike shutdown completed (temperature and rail power OK)
Off	Off	No power; system is shut down (power cable is disconnected)
Start-up profile (LED combinations seen only during initial system install or staging)		
Blinking yellow	Blinking yellow	Start-up profile executing
Solid green	Solid green	Start-up profile successfully applied
Blinking yellow	Blinking red	Start-up profile FAILURE

Chapter 5

Avaya BCM expansion cabinet or unit and media bay modules

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

BCM450 capacity can be expanded by means of an expansion cabinet. BCM50 capacity can be expanded by means of an expansion unit. Expansion cabinets and expansion units are populated with media bay modules (MBM).

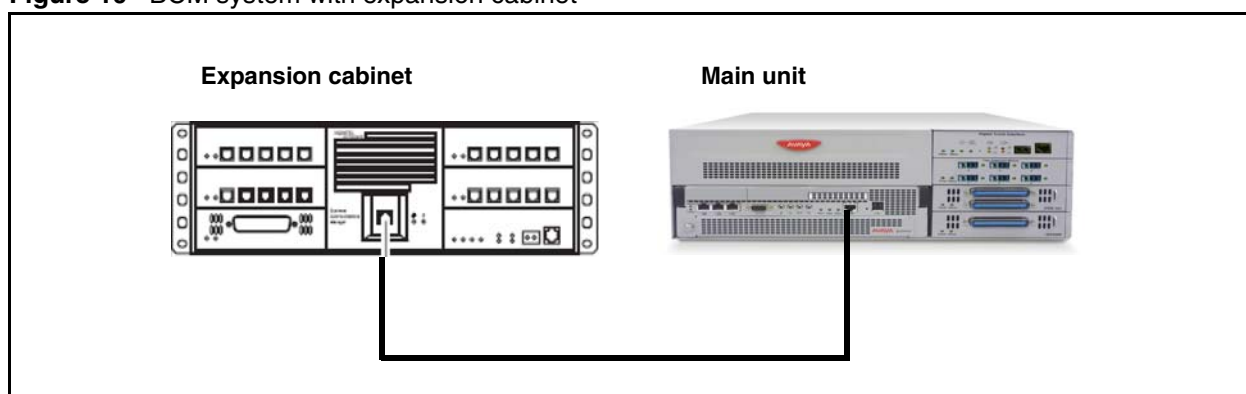
BCM450 expansion cabinet

You can expand BCM trunk and station capacity by connecting an external BCM expansion cabinet. The expansion port on the BCM is enabled through keycodes.

The expansion cabinet is easy to integrate and install with the BCM using the wall-mount and rack-mount accessories. The expansion cabinet connects to the BCM using an RJ-45 CAT5 cable and uses its own external power supply, both of which are provided with the expansion cabinet.

An expansion cabinet can support six MBMs. [Figure 10 "BCM system with expansion cabinet" \(page 31\)](#) shows a BCM450 system with expansion cabinet.

Figure 10 BCM system with expansion cabinet



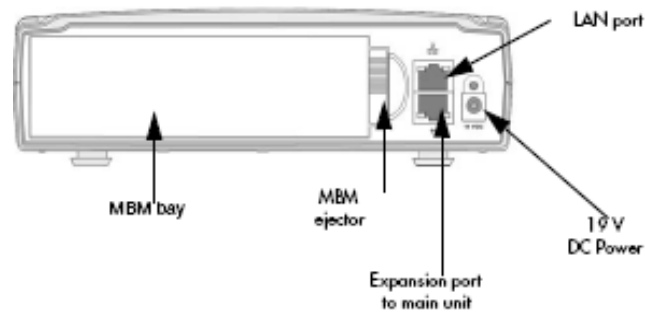
BCM50 expansion unit

You can expand BCM50 trunk and station capacity by connecting up to two external BCM50 expansion units. Expansion ports on the BCM50 are enabled through keycodes.

The expansion unit fits easily with the BCM50 and is easy to integrate and install using the wall-mount and rack-mount accessories. The expansion unit connects to the BCM50 using an RJ-45 CAT5 cable and uses its own external power supply, both of which are provided with the expansion unit.

Figure 11 "BCM50 Expansion unit" (page 32) shows an expansion unit.

Figure 11 BCM50 Expansion unit



Avaya BCM media bay modules

Avaya BCM supports the following MBMs:

- 4x16 Combo (4 analog trunks, 16 digital stations) — North America only
- 8x16 combo (8 analog trunks, 16 digital stations)
- ADID4 and ADID8 modules — North America, Taiwan and Hong Kong
- DTM (digital trunk module)
- BRI (ISDN Basic Rate trunk module)
- DSM16+ (16-port digital station module)
- DSM32+ (32-port digital station module)
- GATM4 (4-port global analog trunk module)
- GATM8 (8-port global analog trunk module)
- GASM8 (8-port global analog station module)
- R2MFC
- FEM, for BCM450

Mounting kits

Businesses can have a range of physical environments in which the system must be installed. Mounting kits are available for the BCM450 and BCM50.

BCM450

The BCM has optional accessories you can use to tailor the installation to the needs of the location. For more information on mounting options, mounting equipment, and procedures, refer to *Avaya Business Communications Manager 450 6.0 Installation—System* (NN40170-303).

BCM50

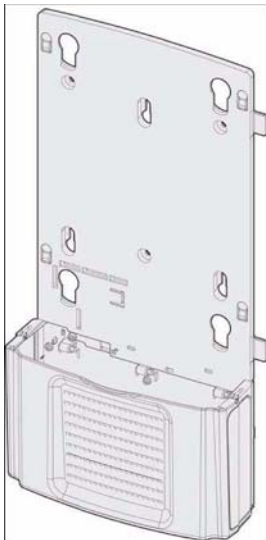
The BCM50 has optional accessories you can use to tailor the installation to the needs of the location.

Small system wallmount bracket

You can use this optional bracket to mount the BCM50 and expansion unit on a vertical surface. Attach the bracket to the surface and hang the BCM50 from the bracket. The details on the bracket ensure that the BCM50 securely locks into place. The bottom of the bracket includes a covered cable tray to organize cables. An optional add-in card that mounts into the cable tray is available, to provide RJ-45 connections for the main unit trunk and station interfaces.

[Figure 12 "Small system wallmount bracket" \(page 33\)](#) shows a small system wallmount bracket.

Figure 12 Small system wallmount bracket

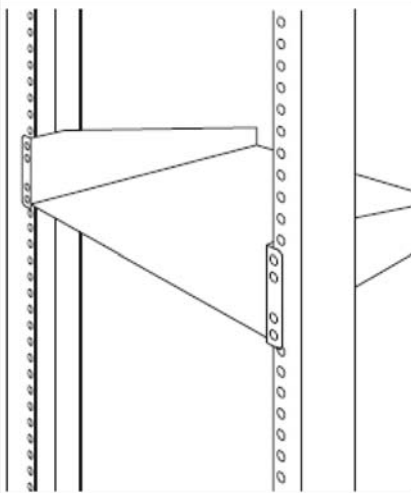


Small system rackmount bracket

You can install this optional shelf in a standard 19-inch rack and mount the BCM50 and expansion unit on it. The details on the shelf firmly lock the BCM50 in place. The bracket also provides space to store power supplies for the BCM50. An optional patch panel is available to provide RJ-45 connections for the main unit trunk and station interfaces.

[Figure 13 "Small system rackmount shelf" \(page 34\)](#) shows a small system rackmount shelf.

Figure 13 Small system rackmount shelf



Chapter 6

Avaya BCM features

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

This chapter contains the following sections:

- [“Telephony features” on page 35](#)
- [“New features” on page 36](#)
- [“Existing features” on page 42](#)

Telephony features

Avaya BCM provides a full set of telephony features that can respond to the various requirements of your business. BCM supports the following features and components:

- full set of base telephony features consistent with the BCM portfolio
- Business Series Telephones including Doorphone
- analog station terminals, including phones and fax machines
- IP Deskphones, such as Avaya 2000 Series IP Deskphones, Avaya 1100 Series IP Deskphones, Avaya 1200 Series IP Deskphones, and WLAN IP handsets

IP telephony features

Table 1 "IP telephony features" (page 36) lists IP telephony features currently provided in the Avaya BCM product line.

Table 1 IP telephony features

IP Telephony feature	Supported on BCM450	Supported on BCM50
G.711 and G.729 codecs with echo cancellation	yes	yes
H.323 VoIP trunking	yes	yes
SIP VoIP trunking	yes	yes
MCDN support on both H.323 and SIP trunks	yes	yes
SIP and SIP proxy	no	yes
T.38 Fax over IP	yes	yes
G.711 Fax over IP	yes	yes



Note: Support for desktop clients includes Avaya IP Deskphone portfolio including Avaya 1210 IP Deskphone, Avaya 1220 IP Deskphone, Avaya 1230 IP Deskphone, Avaya 2001IP Deskphone, Avaya 2002 IP Deskphone, Avaya 2004 IP Deskphone, Avaya 2007 IP Deskphone, Avaya 1110 IP Deskphone, Avaya 1120E IP Deskphone, Avaya 1140E IP Deskphone, Avaya 2033 IP Conference Phone. Support for soft-clients is offered through the IP 2050 software phones that extend voice services to mobile and home-based employees over the Internet.

New features

The following list indicates the new features introduced with BCM 6.0.

- “Advanced Paging Productivity Pack text paging” on page 37
- “Find Me/Follow Me enhancements” on page 37
- “Meet Me Conference Portal” on page 39
- “BCM50 and BCM450 imaging tool” on page 40
- “Programming memory buttons with names for external autodial” on page 40
- “CLID enhancements” on page 40
- “Public SIP trunks for VoIP” on page 41
- “SIP trunking accounts” on page 41
- “Set template support for line pool assignment” on page 41
- “Remote Worker support” on page 41
- “Multi-image hard drive” on page 42

Advanced Paging Productivity Pack text paging

In addition to the existing Advanced Paging Productivity Pack (APPP) One Button Page feature, administrators have the option of programming a phone or customer assistance box to send a text message page by pressing a pre-programmed button or feature key.

A user presses a call button on a customer assistance box (CAB) or uses a symbol kiosk to request assistance. The system sends a text message to a pre-configured number of sets indicating customer requires assistance. An employee responds to the page and presses a button on the CAB or uses the symbol kiosk to cancel the page. Alternatively, the page will stop when the retry interval is completed.

For more information about the APPP text paging feature, see *Advanced Paging Productivity Pack Configuration Guide* (NN40010-503).

Find Me/Follow Me enhancements

The following sections outline new features and capabilities of Find Me/Follow Me. For more information on existing Find Me/Follow Me features and capabilities see [“Find Me/Follow Me” on page 49](#).

Virtual terminal capacity enhancements

BCM450 supports up to 64 virtual terminals. BCM50 supports up to 24 Virtual Terminals.

For information on configuring virtual terminals for Find Me/Follow Me, see *Avaya Business Communications Manager Find Me/Follow Me Administration* (NN40010-678).

Calling Delay Time

You can configure the Calling Delay Time to specify a timed delay when calling your external destination numbers. Calling Delay Time allows you to customize the number of devices that ring at the same time. For example, you can configure a Find Me/Follow Me call to ring your desk phone first, then to ring your mobile phone second after a specified amount of time (0 to 120 seconds), and finally to ring your alternate desk phone third after another specified amount of time (0 to 120 seconds). Ringing at all external destinations ends when the call is answered at one of the destinations or when the configured Ring Time period expires.

After Find Me/Follow Me has attempted to ring all of your configured external destination numbers, the call is handled according to normal Call Forward No Answer rules (for example, sending the call to voicemail).



Note: When you configure the number of rings for the Call Forward No Answer rules, you must consider the durations configured for Find Me/Follow Me Calling Time Delay.

For more information on Find Me/Follow Me Calling Delay Time configuration, see *Avaya Business Communications Manager Find Me/Follow Me Administration Guide* (NN40010-118).

Call Conferencing

Find Me/Follow Me supports Call Conferencing to internal extensions from mobile phones configured as external destinations. You can press the “*” key to disconnect the third party and return to the original call within 20 seconds of the call being answered.

For more information on Find Me/Follow Me Call Conferencing, see to *Avaya Business Communications Manager Find Me/Follow Me Administration Guide* (NN40010-118).

Fixed Mobile Convergence

With the new Fixed Mobile Convergence (FMC) feature, mobile phones configured as external destinations have access to BCM Park, Page, Conference, and Transfer features during Find Me/Follow Me calls. You must first input your mailbox number and password, then the associated feature code.

For more information on Find Me/Follow Me FMC and the associated feature codes, see to *Avaya Business Communications Manager Find Me/Follow Me Administration Guide* (NN40010-118).

Disabling Find Me/Follow Me for hunt groups

You can disable the Find Me/Follow Me feature for calls coming in through a hunt group so that other hunt group members can answer the call instead of ringing your Find Me/Follow Me external destinations. You must be logged on to Callpilot Manager as an administrator to disable Find Me/Follow Me for hunt groups.

For more information on disabling Find Me/Follow Me for hunt groups, see to *Avaya Business Communications Manager Find Me/Follow Me Administration Guide* (NN40010-118).

Voice activity detection and analog trunks

If you are attempting to use Find Me/Follow Me on analog trunks, you must first enable voice activity detection. Voice activity detection, also known as silence suppression, identifies periods of silence in a conversation and stops sending IP speech packets during those periods. In a typical telephone conversation, most of the conversation is half-duplex, meaning that one person is speaking while the other is listening. For more information about enabling voice activity detection through the Telset administration interface, see *Avaya Business Communications Manager 6.0 Configuration—Telephony* (NN40170-502).

Depending on your location or mobile service provider, cell phones that you configure as external destinations can cause Find Me/Follow Me calls to stop ringing before they are answered due to interference on the line or automated messages (for example, if your phone is turned off, or you are out of a service area). This is a result of voice activity detection mistaking the noise on the line as activity. For information on configuring voice activity detection parameters through Telset administration interface, see *Avaya Business Communications Manager 6.0 Troubleshooting Guide* (NN40170-700).

Disable handoff

When you are adding an external destinations through CallPilot Manager or Mailbox Manager for Find Me/Follow Me, you can choose to disable resource handoff. In CallPilot Manager, select Disable Handoff if you want to allow Find Me/Follow Me resources (such as Virtual Terminals and conference ports) released after you have transferred your call to a configured extension, such as a home phone or another fixed line, where handoffs are not required. When you select this checkbox, resources are optimized.

For more information on the Find Me/Follow Me Disable handoff feature, see *Avaya Business Communications Manager Find Me/Follow Me Administration Guide* (NN40010-118).

Call Forward Busy

When you are adding an external destinations through CallPilot Manager or Mailbox Manager for Find Me/Follow Me, you can select the Extension busy during call option for an external destination number. Select Extension busy during call if, when you are on a Find Me/Follow Me call at that external destination number, you want all subsequent calls to your main extension to be forwarded to the Call Forward Busy phone number configured by the Administrator. This Call Forward Busy phone number must be an internal number. Selecting Extension busy during call for this number puts the desk phone in a busy state when this destination answers the call. Find Me/Follow Me will not ring your configured extensions on subsequent calls, but will forward them to your voice mail if Call Forward Busy to voice mail is configured for the desk phone.

For more information on the Find Me/Follow Me Call Forward Busy feature, see *Avaya Business Communications Manager Find Me/Follow Me Administration Guide* (NN40010-118).

Meet Me Conference Portal

BCM 6.0 introduces a new Meet Me web portal user interface. The Meet Me Conference Portal allows you to monitor data from your current conference. If you are logged on to a conference as a chairperson, you can mute a participant, or the whole conference, and lock or unlock the conference from the portal. You can also change your chairperson password from the portal.

The Meet Me Conference Portal displays the CLID name and CLID number (if available), entry times, and the mute status of conference participants, the locked/unlocked status of the conference, a list of available telephone commands, and a Conference History. The Conference History displays the following events, which are updated in real time:

- participant entry and exit times
- conference started and stopped times
- conference locked and unlocked times
- conference muted and unmuted times
- 1 minute remaining notification
- conference chair left time

For more information on existing Find Me/Follow Me features and capabilities see “[Meet Me Conferencing](#)” on page 48. For more information about the Meet Me Conference Portal and how to log on to the portal, see *Meet Me Conferencing User Guide* (NN40020-104).

BCM50 and BCM450 imaging tool

The BCM Imaging Tool is a software application you use if the contents of the Business Communications Manager hard drive becomes corrupted. With the BCM Imaging Tool you can change the contents of the hard drive back to factory default. On a BCM50 or BCM450 platform, you can reclone a BCM50 or BCM450 hard drive. Recloning hard drives allows partners to keep spare blank hard drives on which to clone the release version of the hard drive they need instead of keeping all the BCM hard drives at different releases.

For more information about recloning BCM50 and BCM450 hardware, see *BCM50 and BCM450 Imaging Tool User Guide* (NN40171-104). For information about recloning BCM200, BCM400, or BCM1000 hardware, refer to *Imaging Tool User Guide* (NN40010-314).

Programming memory buttons with names for external autodial

In addition to the existing capability of programming memory buttons for external autodial on an IP key expansion module (KEM), expansion module for Avaya 1100 Series IP Deskphones, or Central Answering Position (CAP), you can now also program names to correspond to external autodial numbers, and you can verify what names are programmed against which external autodial buttons after you have entered the names.

For more information on programming memory buttons with names for external autodial on the IP KEM, see *IP KEM User Guide* (NN40050-103).

For more information on programming memory buttons with names for external autodial on the expansion module for Avaya 1100 Series IP Deskphones, see *Expansion Module for Avaya 1100 Series IP Deskphones User Guide* (NN40050-118).

For more information on programming memory buttons with names for external autodial on the CAP, see *Central Answering Position (CAP) User Guide* (NN40090-106).

For telephone feature codes associated with this feature, also see *Telephone Features User Guide* (NN40170-101).

For information on Business Element Manager configuration of names for external autodial, see *Avaya Business Communications Manager 6.0 Configuration — Devices* (NN40170-500).

CLID enhancements

Calling line identification (CLID) capabilities are enhanced to allow for Network Name Display Configuration. CLID also allows you to configure multiple Business Names. BCM supports a maximum of five Business Names. This allows a single BCM to present five unique business Network Name Display information strings to represent multiple businesses, business tenants, or business divisions from the same BCM system.

For more information on CLID Network Name Display and multiple Business Names configuration, also see *Avaya Business Communications Manager 6.0 Planning and Engineering* (NN40170-200) and *Avaya Business Communications Manager 6.0 Installation — Devices* (NN400170-304).

Public SIP trunks for VoIP

This feature introduces BCM SIP trunking enhancements to provide interoperability with public Internet Telephony Service Providers (ITSP). As part of this enhancement, the Business Element Manager panels for VoIP have been reorganized to increase ease of use. This feature affects the following configurations:

- Telephony resources configuration
- IP (VoIP) trunk configuration
- IP trunks configuration
- IP trunk fallback configuration

For more information on configuring the SIP trunking for ITSP, see *Avaya Business Communications Manager 6.0 Configuration — Telephony* (NN40170-502).

SIP trunking accounts

A new section on the Advanced tab for SIP trunking accounts allows you to specify the ITSP association method.

For more information on existing SIP trunk enhancements, see [“SIP trunk enhancements” on page 50](#). For more information on configuring the ITSP association method, see *Avaya Business Communications Manager 6.0 Configuration — Telephony* (NN40170-502).

Set template support for line pool assignment

Set template functionality has been enhanced to support the addition, deletion, and modification of line pool assignments in a set template. For more information on configuring line pool assignments in set templates, see *Avaya Business Communications Manager 6.0 Configuration — Devices* (NN40170-500).

Remote Worker support

BCM 6.0 includes new options for remote worker support. You can connect your Avaya 1100 Series IP Deskphones to the BCM through a secure VPN tunnel, or by using the new Remote Worker feature. Using the Remote Worker feature, you can use the BCM system as an HTTP server, allowing you to distribute configuration files, license files, and firmware to IP clients. For information about Remote Worker support see *Avaya Business Communications Manager 6.0 Configuration — Remote Worker* (NN40171-104).

Multi-image hard drive

BCM 6.0 introduces a new Multi-Image Hard Drive Field Replacable Unit (FRU). The Multi-Image Hard Drive comes pre-loaded with all BCM 6.0 images, allowing you to select which image you want to install. This simplifies ordering replacement hard drives by only having one model number across all platforms. For more information about installing a Multi-Image Hard Drive on a BCM450 system, see *Avaya Business Communications Manager 450 6.0 Maintenance* (NN40170-503). For more information about installing a Multi-Image Hard Drive on a BCM50 system, see *Avaya Business Communications Manager 50 6.0 Installation and Maintenance* (NN40170-305).

Existing features

In addition to features introduced in previous BCM releases, BCM 6.0 includes features that are present in previous BCM platforms such as BCM50 3.0, BCM 4.0, and BCM 6.0. These include the features listed in the following table.

Table 4 Existing BCM features

Existing feature	Supported on BCM450	Supported on BCM50
"Capacity" (page 43)	yes	yes
"Dynamic Device Configuration" (page 44)	yes	yes
"Avaya 6120 WLAN Handset and Avaya 6140 WLAN Handset" (page 45)	yes	yes
"System reset button" (page 45)	yes	yes
"Power On Self Test logging" (page 45)	yes	yes
"Security" (page 46)	yes	yes
"Advanced Paging Productivity Pack" (page 48)	yes	yes
"Meet Me Conferencing" (page 48)	yes	yes
"Find Me/Follow Me" (page 49)	yes	yes
"InTouch" (page 49)	yes	yes
"Software upgrade" (page 49)	no	yes
"SIP trunk enhancements" (page 50)	no	yes
"Silent Record-a-call" (page 52)	no	yes
"Professional call recording" (page 52)		
"Activity Reporter" (page 52)	yes	yes
"R2MFC MBM support" (page 52)	yes	yes
"EU-compliant routers M222 and M252 firmware" (page 52)	no	yes
"WAN failover" (page 53)	no	yes (router versions only)
"Integrated Services Digital Network Basic Rate Interface dial-up support" (page 53)	no	yes
"Network Configuration Manager 6.0 support for BCM 6.0" (page 54)	yes	yes

Table 4 Existing BCM features

Existing feature	Supported on BCM450	Supported on BCM50
"Analog Direct Inward Dial Media Bay Module" (page 54)	yes	yes
"8x16 Media Bay Module" (page 54)	yes	yes
"Next generation IP Deskphones" (page 54)	yes	yes
"Hardware inventory" (page 55)	yes	yes
"Hardware inventory" (page 55)	yes	yes
"Proactive voice quality monitoring" (page 55)	yes	yes
"Ad Hoc conferencing" (page 56)	yes	yes
"Meridian Customer Defined Network Trunk Anti-Tromboning with integrated applications" (page 56)	yes	yes
"Session initiation protocol" (page 56)	yes	yes
"Terminal and mobility support" (page 57)	yes	yes
"Global markets" (page 58)	yes	yes
"Set templates" (page 61)	yes	yes
"Parameter renumbering" (page 62)	yes	yes

For new features and capabilities introduced with BCM 6.0, see [“New features” on page 36](#).

Capacity

For BCM450, the base platform supports 100 stations, 48 trunk channels (with the exception of E1 trunks, which support two DTM MBMs for a total of 60 E1 trunks), 64 conference participants, and 2 fax ports.

BCM features are enabled through keycodes and require a CEC to be installed to allow maximum capacities:

- VoIP Gateway (H.323 or SIP): up to 130 VoIP trunks for BCM450 and up to 12 VoIP trunks for BCM50
- VoIP Telephony Clients: up to 300 VoIP Telephony clients for BCM450, that support the Avaya 2050 IP Softphone client, the Mobile Voice Client 2050 and the complete range of Avaya IP Deskphones, and up to 32 VoIP Telephony clients for BCM50

Table 5" BCM capacity" (page 44) provides the overall capacity limits of the BCM450 and BCM50 platforms. Table 6" Device type maximums" (page 44) shows the device type maximums for the BCM450 and BCM50.

Table 5 BCM capacity

Feature	Value for BCM450	Value for BCM50
Digital sets support	300 total users of any mix of analog, IP, and digital sets (with CEC installed)	76 (44 with one DSM)
IP sets support	Up to 300, depending on other set allocation (with CEC installed)	32
Conference participants	120 (Ad hoc or Meet Me participants)	18 (Ad hoc or Meet Me participants)
Unified Messaging seats	300	50
Voice mail storage	400 hours	100 hours
Fax	up to 8 ports	up to 2 ports

Table 6 Device type maximums

Device type	Value for BCM450	Value for BCM50
Maximum TDM set DNs	300	80 (when both expansions are configured with DSM32s)
Maximum number of IP set DNs	300	32
Maximum number of application DNs	179	71
Maximum number of target lines (target line numbering starts at line 361)	639	176
Maximum number of TDM trunks (analog and digital physical trunks)	130	2 X T1 + 4 (Analog trunks)
Maximum number of IP trunks	130	12
Maximum conference parties	120	18
Maximum Find Me/Follow Me users	300	50
Maximum Professional Call Recording ports	40(80 with CEC)	16
Maximum Virtual Terminals	64	24
Maximum In Touch users	256	256

Dynamic Device Configuration

BCM450 6.0 supports a different method of assigning directory numbers (DN) and line numbers to devices and hardware on the platform.

On previous platforms all possible DNs and line numbers were preconfigured, regardless of the actual configured hardware on a system. For BCM450 6.0, DN and line number allocation and assignment must be provisioned

When a hardware device is installed on the BCM, you must configure that device to assign the necessary DN's and lines and other associated resources to make that device operational. To remove a device, you must deconfigure it first.

Dynamic Device Configuration is not supported on BCM50 6.0, however, the Telephony Resources screen in Business Element Manager now has a similar look and feel to the BCM450 version.

Avaya 6120 WLAN Handset and Avaya 6140 WLAN Handset

BCM 6.0 supports the new Avaya 6120 WLAN Handset and Avaya 6140 WLAN Handset. For more information on these new handsets, refer to *WLAN 2210/2211/2212 Handset Installation and Configuration Guide Addendum* (NN40050-400).

System reset button

The BCM450 and BCM50 6.0 system is equipped with a reset button which reboots and makes available a user interface to invoke a configuration reset (Level 1) or software reset (Level 2).

After pressing the reset button, connect a PC to the local OAM BCM port (Ethernet or serial), and log on to the system (while it is running the Safe OS mode).

Enter the command for level 1 or level 2 reset. Alternatively, you can decide not to do a Level 1 or Level 2 reset and simply reboot the system in normal mode.

For more information on performing a system reset, refer to *Avaya Business Communications Manager 6.0 Administration and Security* (NN40170-603).

Power On Self Test logging

Power On Self Test (POST) is a set of hardware tests occurs early in the system boot cycle. The data from these tests are captured and published to the standard log system when the boot cycle is complete.

When the BCM is powered up, it goes through a number of POST to validate the system. Results from the POST are currently displayed on the serial port in real time.

The solution provided here is a complete solution for making POST results available on the main file system.

IP Music enhancements

The volume normalized enhancement resolves issues where the on hold play back volume is too loud and can not be adjusted.

The multiple files upload feature enhancement allows customers to upload multiple music files in a compressed format.

The files preservation over upgrade enhancement resolves issues where music files are not preserved over upgrade, specially important for professional music recordings.

Business Element Manager change tracking logs

Bring back the tracking changes log that was available on BCM 3.x this log was very useful in validating and checking steps that lead up to a failure and also validated the steps the installer took to get in to the configuration problem. This log tracked all changes that had been applied to the system since it was initialized. The log records the entire configuration steps, not just the final result.

System ID field copy

This feature allows you to copy the System ID field from the Business Element Manager to your PC clip board, and can then paste it directly into the KRS web tool interface. By implementing this simple ease-of-use functionality, you can remove the human error in querying, downloading and applying the wrong keycode file to a system that will impact the installation time. Also, this can help to prevent the case of applying the new authorization code to the wrong system ID and generate the wrong keycode which can only be reset by Avaya support which impacts installation time, potential miss customer delivery of system, and cost of ownership.

Security

BCM supports the following security enhancements introduced in previous BCM platforms.

Last failed login time

The last failed login time information is added to the current user panel in Business Element Manager and displays the last time the login was attempted and failed.

Web access on Secure Socket Layer Version 3

BCM sets the default Secure Socket Layer (SSL) protocol to SSLv3 for Web access.

User account access management

This feature significantly improves BCM user-account access management by enhancing password, session, account authentication, and access-management. These improvements align the BCM with the security enhancements introduced with BCM50 and BCM450 and add incremental capabilities.

Password Management and Policy Enhancements include

- Minimize the vulnerability of passwords
 - password characteristics are now more stringent (length, criteria)
 - password aging, history and change notification added
 - forced password change on initial login
 - password storage hashing with Secure Hashing Algorithm 1 (SHA1)

Session Management Enhancements minimizes the vulnerability of logged-on sessions for idle session time outs.

Account Management includes

- Minimize the vulnerability of User IDs
 - Automatic disabling of unused accounts
 - Set-based administration requires user ID and password

Account User ID Access Privilege Management includes the logged-on user ID session and access display.

These enhancements to user-account access management provide a secure BCM access environment, which makes it difficult for a malicious user to gain access to a BCM. BCM owners can enforce secure account-access controls to the BCM to ensure secure BCM management and to increase protection against potential vulnerabilities.

Secure interface and audit logging

This feature enhances interface security by adding secure access controls, security audit logs (configchange.systemlog), and system activity by User ID, date, and time. Secure Interface Access and Communications Controls provide

- support for Secure Copy (SFTP) SSH encrypted file transfers
- support for Simple Network Management Protocol (SNMP) v2 and v3, including encryption provided with v3
- BCM owner control of Avaya technical support access
- use of digital signatures and enhanced tamper detection to ensure trusted sources for software upgrades (patches and software release upgrades)
- ability to test the system ability to generate alarms and logs, including system security alarms and logs

Audit log tracks critical changes to the system and the logon attempts, including

- last successful login identification and interface
- last failed login attempt and total failed logons since last successful logon
- configuration change log to track configuration changes to system by user ID

With audit logging of long attempts, the BCM user can track security violation attempts and determine further action. If you suspect a user ID security breach as a result of system configuration changes, the audit logging of configuration changes provides traceability to user IDs and interfaces.

An overall increase in security you have with effective logging capabilities for Audit Trail logs, Alarm logs and Configuration Change logs.

If you require improved interface access and communications security for alarm, log, and file transfers, you can use these security enhancements. As well, you can audit and identify the critical system changes that specific users initiate.

Platform accounts

Platform accounts are integrated accounts that allow access to Business Element Manager and other functions based on privileges. The maximum number of accounts is increased to 280 active accounts for each BCM.

User ID length

The maximum character length for the user ID is 128 characters.

Advanced Paging Productivity Pack

The Advanced Paging Productivity Pack (APPP) includes the following features:

- One Button Page
- One Button Text
- Customer Assistance Page
- Schedule Page
- Reporting

Enable the APPP features through a single keycode that you apply to the Avaya Business Communications Manager (Avaya BCM) system. If you require the APPP on multiple Avaya BCM systems, apply a unique keycode file to each BCM system.

Configure and administer the One Button Text and Schedule Page features with Business Element Manager or Network Configuration Manager (NCM). Administration through Telset Admin or CallPilot Manager is not supported for these two features.

Configure and administer the One Button Page and Customer Assistance Page features through CallPilot Manager.

The Avaya BCM system reserves a total of 56 feature codes that you can use for One Button Page, One Button Text, and one-button access to Park and Page.

For more information about APPP, as well as installation and configuration procedures, see *Advanced Paging Productivity Pack Configuration Guide* (NN40010-503).

Meet Me Conferencing

Meet Me Conferencing is supported on all BCM 6.0 systems. With Meet Me Conferencing, callers can establish a teleconference by calling in to a specified number at an agreed-upon time. One caller acts as the chairperson and has additional powers to start, stop, secure, and control the conference.

Anyone can participate in a conference, but a BCM user must have chairperson privileges to chair a conference.

Meet Me Conferencing has a special directory number (DN) used to access the Meet Me Conferencing feature. Although you can access a conference in several ways, the system administrator should notify every conferencing user of the Meet Me Conferencing DN

Find Me/Follow Me

Find Me/Follow Me allows simultaneous ringing of up to five different external destinations. Users and administrators can configure these destination numbers. Using Find Me/Follow Me, you can pick up a call either at your primary extension (your desk phone for example) or at one of the five external destinations, such as a cell phone, your home phone, or another phone. When you answer the call at one destination the other alerting calls are disconnected. By doing this, the Find Me/Follow Me feature reduces the chance of missed calls. You can then transfer the answered call back and forth between your desk phone and other devices on your Find Me/Follow Me external destinations list. For more information about Find Me/Follow Me, see *Avaya Business Communications Manager Find Me/Follow Me Administration Guide* (NN40010-678) and *Avaya Business Communications Manager Find Me/Follow Me User Guide* (NN40010-118).

InTouch

InTouch is a feature that integrates with a user's Microsoft Outlook, and provides direct one-touch interaction between a user's telephony, email, calendar and instant messenger. InTouch brings together all popular forms of communications from within both Outlook and external contacts. InTouch appears as a contact list that is part of your Outlook screen. This is referred to as the "UC Activity Pane". Regardless of which Outlook page the user may have on their screen at any time (Mail, Calendar, Outlook Contacts or Tasks), the InTouch task panel will retain the same view and functionality.

For more information about InTouch, see *InTouch User Guide* (NN40170-605) and *InTouch Administration Guide* (NN40170-102).

Software upgrade

The upgrade impacts all on-box software of a field installed BCM50 2.0, BCM50 3.0, BCM50 5.0, BMB450 1.0 or BCM450 5.0 system to BCM 6.0 software while preserving customer programmed data. New software introduced as part of the BCM 6.0 program is installed as part of the upgrade. An upgraded BCM 6.0 system is functionally equivalent to a factory BCM 6.0 system. The target time for an upgrade is 45 minutes.

The upgrade with BCM 6.0 and Business Element Manager supports remote and scheduled upgrades. This new capacity is significant for partners and administrators to reduce installation costs and business impacts.

Support exists for the following upgrade paths:

- BCM50 2.0 to BCM50 6.0
- BCM50 3.0 to BCM50 6.0

- BCM50 5.0 to BCM50 6.0
- BCM450 1.0 to BCM450 6.0
- BCM450 5.0 to BCM450 6.0
- BCM50 systems running Release 1.0 software can be upgraded to Release 6.0 software, but must first be upgraded to Release 2.0 or 3.0 software, and then from Release 2.0 or 3.0 to Release 6.0.

BCM200/400 system upgrade

Field installed BCM200 and BCM400 systems can be upgraded to BCM 6.0 with the purchase of a hardware and software upgrade kit. The upgrade kit will include a new Chassis Interface Card (CIFC), Base Function Tray, and a hard disk drive pre-loaded with BCM 6.0 software.

Configuration settings and other data can be imported from the existing BCM200 or 400 to the newly upgraded system using the new Data Migration Manager (DMM) tool.

A BCM200 system or a BCM400 system upgraded to Release 6.0 has the same capacity and functionality as a BCM450 Release 6.0 system, however, an upgraded BCM200 system only has 2 MBM slots in the main chassis. Therefore, an upgraded BCM200 system can only support a maximum of 8 MBMs, compared to 10 for a BCM450 system.

Support exists for the following upgrade paths:

- BCM400 to BCM400 6.0
- BCM200 to BCM200 6.0

SIP trunk enhancements

SIP REFER

BCM50 3.0 and BCM450 1.0 introduced support for SIP REFER, which is the call transfer mechanism for SIP. BCM responds to a REFER request on an existing call by making a second call and transferring the two calls together. BCM also responds to a REPLACE request on an incoming call by replacing the identified incoming SIP call with this new call.

SIP refer supports two types of call transfer:

- Blind (or Unattended): The TransferOR puts the primary call on hold, then dials the Transfer Target and completes the transfer without communicating with the Transfer Target. The TransferEE hears ringback on the secondary call and connects when the Transfer Target answers.
- Consult (or Attended): The TransferOR places the primary call on hold and establishes a Consult call (consultation) to another party. After the consultation, the TransferOR completes the transfer, causing the TransferEE to connect to the Transfer Target and replaces the Transfer Target's call with the TransferOR.

SIP Registration for SIP user accounts

An optional feature of each SIP trunk user account is ability to register with the remote domain on behalf of the SIP trunk user. You can enable SIP Registration through the SIP user account configuration screen.

SIP registration is widely used by SIP trunking service providers to simplify provisioning as an alternative to static mapping of DID's to PBX address.

SIP proxy failover

A new setting, called Route all calls using proxy, on the SIP Proxy tab in the Business Element Manager, determines whether to ignore the Routing Table for SIP calls. With SIP proxy failover, the SIP Proxy configuration is used. The SIP Proxy Domain is mandatory and is used in SIP message headers.

A dedicated SIP Proxy Agent provides outbound proxy failover. The SIP Proxy Agent runs within the SIP Component of the FEPS process on the BCM.

RFC 2833

With RFC 2833 the BCM SIP gateway can send and receive Dual-Tone Multi Frequency (DTMF) digits on SIP trunks using RFC 2833. This feature does not apply to H.323.

For outgoing digits received, the core software enters the digits as DTMF. The Digital Signal Processor (DSP) intercepts the digits and encodes them as described in RFC 2833. This is required in both short- and long-tone mode whenever the media path goes through the BCM. When the media path does not go through the BCM, the short tone digits are sent to Functional Endpoint Proxy Server (FEPS) in VDI messages.

For incoming digits, the core software handles incoming digit indications from FEPS and provides short-tone functionality. While the digits received can be longer than the short-tone duration, the long duration is not required.

SIP trunk authentication

SIP trunk local users are accounts used to authorize remote SIP entities when they attempt to connect through the SIP trunk interface to place calls through the BCM. SIP trunk accounts are also used for remote connections to the ISP and incoming call requests. The total number of SIP trunk accounts is 240.

Configuration of domain and ports for remote SIP trunk endpoints

Configuration and use of domain and port entries for remote endpoints allows more flexible installations, compared to the BCM 4.0 and BCM50 R2 use of IP addresses only. The BCM50 3.0 introduces RFC3263-based DNS support for locating SIP servers. The addition of DNS support means that customers do not need to know the IP addresses of those remote servers. Standards based DNS support using RFC3263 to simplify network deployment.

Optional G.711 based transport of FAX communication

This solution will allow the choice of whether T.38 or G.711 is used to transmit fax calls over SIP trunks, to and from the BCM. The choice is decided during configuration, and applies to all SIP trunk calls.

If T.38 is not configured, then SuperG3 fax and V.34 modem will be supported over G.711. Previously, they had to use G3/V.17 in case there was a switch to T.38 which cannot encode V.34 successfully.

Silent Record-a-call

Intelligent Contact Center Agent and Supervisor ad hoc silent record a call. This enables an agent or supervisor to silently record the call they are on and can also be sent to a SFTP server. The recorded call is left in the agents/ supervisors mailbox or skillset mailbox.

This feature does not provide the ability for a supervisor to trigger silent call recording while listening in on an agent's call.

Professional call recording

The professional call recording feature records a call from the time that you request to record the call until the call ends. The feature supports recording a conference call hosted or joined by a DN. For more information about Professional Call Recording, see *Avaya Business Communications Manager 6.0 Configuration — Telephony* (NN40170-502), and *Avaya Business Communications Manager 6.0 Planning and Engineering* (NN40170-200).

Activity Reporter

For information about the Activity Reporter and Activity Reporter Basic features, see the Activity Reporter Administration Guide and the Activity Reporter User Guide.

R2MFC MBM support

BCM supports the R2MFC MBM in selected Caribbean and Latin America (CALA) and APAC countries. See the matrices in [“Global markets” on page 58](#).

EU-compliant routers M222 and M252 firmware

BCM50 routers deliver Removal of Hazardous Substances (RoHS) compliancy for network infrastructure, or 5/6 compliancy. This requires new hardware for both the Ethernet router and the ADSL router. The new hardware is based on a common architecture for both routers and is also common to Contivity EU releases.

These new features apply to the M222/252 routers only. A software upgrade is available for installed M221/251. The following features align to Contivity 2.5 with the addition of VPN client termination support.

- VPN Client Termination (new)
- Port Restricted Cone NAT
- SIP firewall ALG
- Nailed Up tunnels
- SSH, SSL and Secure FTP
- New hardware support for ADSL2+
- Client emulation enhancements
- Client management privileges
- Failover IP assignment for automatic assignment of fail over site IP address
- X.509 digital certificates
- New DSL version support for ADSL2+

Note that M221/251 refers to the routers shipped with BCM50e/a 1.0 units, and M222/252 refers to the new EU-compliant routers shipped with BCM50e/a 2.0, BCM50e/a 3.0 and BCM50e/a 6.0 units.

WAN failover

The router hardware simplifies WAN failover as well as future management integration through the internal serial connector. The router provides support for WAN failover on all BCM50 platforms with M222/252 routers.

WAN failover allows calls that experience issues using the WAN link to continue over the soft modem or LAN or ISDN.

Integrated Services Digital Network Basic Rate Interface dial-up support

The BCM requires a data layer over the channelized Integrated Services Digital Network (ISDN) for remote management dial-up over Basic Rate Interface (BRI). Support is available for remote management over BRI over the integrated BRI CDC or BRI MBM configured for ISDN support. Support is available for all on-demand and scheduled management tasks, are such as CDR collection, backup and restore, software updates, and log collection.

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Network Configuration Manager 6.0 support for BCM 6.0

Network Configuration Manager (NCM) Release 6.0 supports BCM3.7, BCM4.0, BCM50 1.0, BCM50 2.0, BCM50 3.0, BCM50 5.0, BCM50 6.0, BCM450 1.0, BCM450 5.0, BCM450 6.0, BCM200/400 5.0, and BCM200/400 6.0. The product is delivered to new customers on a new CD. For more information, see [“Network Configuration Manager” on page 71](#).

Global Analog Trunk Interface localization

Global Analog Trunk Interface (GATI) supports EMEA, China, and APAC countries where the BCM50 is currently sold. See the country matrix in ["Global markets" \(page 58\)](#). Some profiles require new Disconnect Supervision (DS) or Caller ID (CLID) support as described in [Table 7"Analog interface availability by market profile" \(page 59\)](#) and [Table 8"Digital interface availability by market profile" \(page 60\)](#).

Analog Direct Inward Dial Media Bay Module

BCM adds Analog Direct Inward Dial (ADID) Media Bay Modules (MBM) (ADID4 and ADID8) for North America, Taiwan, and Hong Kong markets.

8x16 Media Bay Module

BCM has an 8x16 Combo MBM to deliver GATM8 plus DSM16 capability in one MBM. It is available in all markets where the GATM8 or DSM16 is sold.

Next generation IP Deskphones

BCM supports Next Generation IP Deskphones from previous BCM platforms. PVQM, Desktop Assistant, and Business Element Manager button programming includes support for both existing sets and new sets. The following list provides the IP Deskphone set types supported by BCM 6.0:

- Avaya 2001 IP Deskphone
- Avaya 2002 IP Deskphone
- Avaya 2004 IP Deskphone
- Avaya 2007 IP Deskphone
- Avaya 2050 IP Softphone
- Avaya 2033 IP Conference Phone

- Avaya 1100 Series IP Deskphones
- Avaya 1120E IP Deskphone
- Avaya 1140E IP Deskphone
- Avaya 1210 IP Deskphone
- Avaya 1220 IP Deskphone
- Avaya 1230 IP Deskphone

Hardware inventory

The Business Element Manager hardware inventory panel for BCM50, BCM450 and the Entity management information base (MIB) provides a complete hardware inventory view of all BCM450 hardware components to the FRU level.

Proactive voice quality monitoring

With the proactive voice quality monitoring (PVQM) capability, you can set call-quality thresholds for IP sets and receive an alert and if these thresholds are exceeded. You can proactively identify voice quality of experience (QoE) issues for every call. In turn, you can troubleshoot of voice-quality issues within the network.

PVQM supports calls from an IP set to any other set or trunk. The measured call-quality metrics includes the following.

- packet loss
- inter-arrival jitter
- listening R-value
- RTCP round trip delay

With PVQM, a system-wide summary view of threshold-violation alert occurrences is maintained. Threshold violations can be sent as alarms and used by the central AppManager VoIP performance-monitoring product from NetIQ to generate a system-wide view of the voice quality of the network and to help diagnose voice-quality issues. The alarms include extensive call-quality information in accordance with IETF RTCP-XR RFC 3611.

PVQM on BCM

- provides the ability to monitor the quality and integrity of IP-based voice networking
- is a significant differentiator in VoIP convergence network sales with its market-leading, proactive focus on every call.
- mitigates customer issues to determine whether the data network or the BCM is at fault when call-quality issues situations occur
- provides consistency in the QoE solution across Avaya enterprise call servers to facilitate mixed network deployments

Ad Hoc conferencing

Currently, the BCM supports three-party conferencing. Ad-Hoc Conferencing extends this capability to support multi party conferencing.

Ad-Hoc conferencing

- provides a user interface model which is similar to the current F3 conference
- ensures no impact on the user's feature button footprint (that is, no requirement exists for additional IC keys or for an additional feature key)
- provides the current three-party conferencing capabilities, allowing users the flexibility to have larger multi-party conferences
- BCM450 supports up to 120 simultaneous participants on up to 62 conferences. BCM 50 supports up to 18 simultaneous participants on multiple conferences.

Meridian Customer Defined Network Trunk Anti-Tromboning with integrated applications

The BCM currently uses Meridian customer-defined network (MCDN) signaling to optimize network-resource use to transfer or forward station-to-station calls. With this feature, voice mail and autoattendant applications can use MCDN capabilities to optimize network use.

MCDN trunk anti-tromboning (TAT) on BCM 6.0

- provides customers with optimal use of trunk facilities
- enables a large number of feasible networking scenarios to serve customers

With MCDN TAT, BCM can determine whether calls routed across a network by the integrated AutoAttendant or Voicemail should invoke TAT or Trunk Route Optimization (TRO) MCDN to optimize the trunking network connection.

Session initiation protocol

BCM supports H.323 and SIP VoIP basic call communication for BCM-to-BCM calls. Both SIP and H.323 can leverage the same features that Avaya Voice Networking (MCDN) capability provides.

Existing supported SIP features include:

- SIP REFER (incoming only)
- SIP proxy failover
- RFC 2833 locating SIP Servers using DNS (RFC3263)
- SIP Trunk Authentication
- SIP registration
- T.38 and G.711 Fax over IP support

The Avaya voice networking (MCDN) supported features include:

- Private Name/Number
- Network Call Redirection Info (NCRI)

- Trunk Anti-Tromboning (TAT)
- ISDN Call Connection Limit (ICCL)
- Message Waiting Indication (MWI)
- Trunk Route Optimization (TRO)

In enterprise network systems, the SIP feature supports private numbering plans, optimizes the use of network traffic (TAT/TRO/ICCL), and supports centralized voice mail applications (NCRI, MWI) using the SIP messaging protocol. By making these capabilities available using the SIP protocol, you can begin to transition your network to the latest standard.

SIP and H.323 interoperability

SIP interoperability includes the following products:

- BCM50 2.0 and BCM50 3.0
- BCM50 5.0 and BCM50 6.0
- BCM450 1.0, BCM450 5.0, and BCM450 6.0
- BCM200/400 4.0, BCM200/400 5.0, BCM200/400 6.0
- Avaya CS1000 5.0, 5.5 and 6.0
- CS2000 CVM12 and CVM13
- Avaya CS2100 SE11 and SE13
- MCS5100 3.5 and 4.0 (with exception of SIP Refer)
- SCS2.0 and 3.0

H.323 interoperability supports the following products:

- BCM50 2.0, BCM50 3.0, BCM50 5.0, and BCM50 6.0
- BCM450 1.0, BCM450 5.0, and BCM450 6.0
- BCM200/400 4.0, BCM200/400 5.0, and BCM200/400 6.0
- Avaya CS1000 5.5 and 6.0
- CS2000 CVM12 and CVM13
- Avaya CS2100 SE11 and SE13
- MCS5100 3.5

Terminal and mobility support

BCM 6.0 supports the following phones:

- Avaya 1100 Series IP Deskphones
- Avaya 1100 Series Expansion Module
- Avaya 1200 Series IP Deskphones
- Avaya 2000 Series IP Deskphones
- Avaya 1200 Series Expansion Module
- T7406E Cordless Handset
- Avaya 2033 IP Conference Phone

- IP Key Expansion Module I24
- DECT 4100 series handsets
- Avaya 7400 Series DECT Handsets
- Avaya 6120/6140 WLAN Handsets
- Avaya 7000 Series Digital Deskphones

For additional terminal and mobility supported devices, see the [“Avaya BCM compatibility matrix” on page 87](#).

Global markets

BCM voice prompts, which were introduced in BCM 4.0, include Polish, Finnish, Korean, Turkish, and Czech.

The following additional capabilities are available:

- addition of second dial tone for PRI/BRI
 - In some markets, a PBX must provide a local tone to the originating party (as opposed to the central office).
 - This feature adds the ability to provide the local tone.
- increased public received digit length from 7 to 12 digits
 - Some markets require more than public received digits to support dial plans.

Analog interfaces are not supported in the following market profiles: Denmark, France, Germany, Holland, Italy, Norway, Spain, Sweden, and Switzerland.

Table 7 "Analog interface availability by market profile" (page 59) shows analog interface availability by market profile.

Table 7 Analog interface availability by market profile

Market profile	ASM/ ASM8	ASM8+	GASM8	GASI	CTM4/ CTM8	Legacy GATM4/ GATM8	New GATM4/ GATM8	Legacy 4X16	G4x16 G8x16 (new)	GATI	ADID
Australia		✓*	✓	✓		✓	✓		✓	✓	
Bahrain		✓*					✓		✓	✓	
Brazil						✓	✓		✓	✓	
CALA			✓	✓	✓ *	✓	✓	✓*	✓ *	✓ *	
Canada	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Caribbean			✓	✓	✓	✓	✓	✓	✓	✓	✓
Global	✓ *	✓*	✓*	✓	✓ *	✓*	✓*	✓*	✓ *	✓ *	
Hong Kong	✓ *	✓*	✓*	✓ *	✓ *	✓*	✓		✓	✓	✓
Ireland			✓	✓			✓		✓	✓	
Italy			✓	✓		✓	✓		✓*	✓	
Malaysia			✓*	✓ *		✓	✓		✓	✓	
Mexico			✓*			✓	✓		✓	✓	
New Zealand		✓*	✓	✓		✓	✓		✓	✓	
North America	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Poland	✓ *	✓*	✓	✓		✓	✓		✓	✓	
PRC					✓ *	✓*	✓		✓	✓	
Russia							✓		✓	✓	
Saudi Arabia			✓*	✓ *		✓	✓		✓	✓	
Singapore			✓*	✓ *		✓	✓		✓	✓	
South Africa			✓	✓		✓	✓		✓	✓	

Table 7 Analog interface availability by market profile

Market profile	ASM/ ASM8	ASM8+	GASM8	GASI	CTM4/ CTM8	Legacy GATM4/ GATM8	New GATM4/ GATM8	Legacy 4X16	G4x16 G8x16 (new)	GATI	ADID
Spain			✓	✓		✓	✓		✓	✓	
Taiwan					✓ *	✓	✓		✓	✓	✓
Turkey			✓	✓		✓	✓			✓	
United Kingdom	✓ *	✓*	✓	✓		✓	✓		✓	✓	

Table 8 "Digital interface availability by market profile" (page 60) shows the digital interfaces supported in each market profile. Note that the Digital Station Interface and the BRI cNIC are onboard interfaces.

Table 8 Digital interface availability by market profile

Market profile	DSM16+/ DSM32+	Digital station interface	BRI	BRI cNIC	DTM	R2MFC
Australia	✓	✓	✓	✓	✓	
Bahrain	✓	✓	✓	✓	✓	
Brazil	✓	✓	✓		✓	
CALA	✓	✓	✓		✓	✓
Canada	✓	✓	✓	✓	✓	
Caribbean	✓	✓	✓	✓	✓	
Denmark	✓	✓	✓	✓	✓	
France	✓	✓	✓	✓	✓	
Germany	✓	✓	✓	✓	✓	
Global	✓	✓	✓	✓	✓	✓
Holland	✓	✓	✓	✓	✓	
Hong Kong	✓	✓	✓		✓	
Ireland	✓	✓	✓	✓	✓	
Italy	✓	✓	✓	✓	✓	
Malaysia	✓	✓				
Mexico	✓	✓	✓		✓	✓
New Zealand	✓	✓	✓	✓	✓	

Table 8 Digital interface availability by market profile

Market profile	DSM16+/ DSM32+	Digital station interface	BRI	BRI cNIC	DTM	R2MFC
North America	✓	✓	✓	✓	✓	
Norway	✓	✓	✓	✓	✓	
Poland	✓	✓	✓	✓	✓	
PRC	✓	✓	✓		✓	
Russia	✓	✓				
Saudi	✓	✓				
Singapore	✓	✓				
South Africa	✓	✓				
Spain	✓	✓	✓	✓	✓	
Sweden	✓	✓	✓	✓	✓	
Switzerland	✓	✓	✓	✓	✓	
Taiwan	✓	✓	✓		✓	
United Kingdom	✓	✓	✓	✓	✓	

For additional information about the market profile attributes for your BCM system, refer to the market profiles reference in *Avaya Business Communications Manager 6.0 Configuration—System* (NN40170-501).

Set templates

Business Element Manager administrators can use this feature to configure multiple telephone sets by propagating the information and modifications through the template. You can combine a number of set parameter settings into a template. You can add a number of set models to a template for buttons programming. You can also include voice mail box as part of the template. This creates a voice mailbox for the sets that are associated with a template. You can then assign those parameters to appropriate sets on the BCM. You can use the template import and export feature or the BCM Backup and Restore feature to achieve template portability.

You can create templates in three ways:

- as an original template
- from a set (DN)
- from an existing template, including the default DID or PBX templates

Parameter renumbering

Use the Business Element Manager to quickly renumber specific parameters in the sets and lines configuration. The following list shows the parameters that you can renumber using a template:

- DNs
- Public OLI
- Private OLI
- Target Line Assignments
- Public Received Digits
- Private Received Digits

When you renumber DNs, all related parameters, such as the DN name, also change to match the DN. When you renumber DNs and the set has a voice mailbox, it is possible to also renumber the mailbox. In this case, the mailbox is deleted and a new one is created using the same parameters that existed for the old mailbox, with the exception of the extension. The extension field is set to the new DN created by renumbering process.

Chapter 7

Support, security, and servicing

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

Avaya BCM provides solutions for client support, replacement parts, upgrades, and enhanced servicing.

Client operating system support

In general, BCM PC-based applications support the following:

- Microsoft Windows XP Professional (32-bit and 64-bit versions)



Note: TAPI is only supported on Microsoft Windows XP Professional 32-bit version.

- Windows Vista
- Windows 7 (32 bit and 64 bit versions)
- Windows Server 2003
- Windows Server 2008
- Windows Server 2008 Release 2

Business Element Manager also supports Citrix Presentation Server 4.0 on Windows 2003 Server (All Editions).

For the Unified Messaging Client, Citrix MetaFrame XP, Citrix Presentation Server 3.0, and Citrix Presentation Server 4.0 are also supported on Windows Server 2003 (All Editions).

BCM applications for BCM 6.0 support the following Vista versions:

- Microsoft Vista Business
- Microsoft Vista Ultimate
- Microsoft Vista Enterprise

For more information about BCM Microsoft Vista support, see [“Microsoft Windows Vista operating system”](#) on page 72.

Field replaceable units

BCM450

Field replaceable units (FRU) include primary and secondary hard disk drives, primary and secondary fans, Universal Power Supply module, redundant power supply module, and the Base Function Tray. For more information on replacing FRUs, see *Avaya Business Communications Manager 450 6.0 Maintenance* (NN40170-503).

BCM50

Field replaceable units (FRU) strategy is consistent with previous BCM50 systems, including a replacement router, hard disk drive, and a BRI CDC card. CDCs are not hot-pluggable.

Chapter 8

Avaya BCM management

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

You can quickly and easily install, configure, and administer Avaya BCM. These topics summarize the BCM management areas:

- ["Ease of installation"](#)
- ["Remote management accessibility" on page 66](#)
- ["On-box and device manageability features" on page 67](#)
- ["Log management" on page 68](#)
- ["Set-based administration" on page 68](#)
- ["Business Element Manager" on page 69](#)
- ["Keycodes" on page 71](#)
- ["Network Configuration Manager" on page 71](#)
- ["Microsoft Windows Vista operating system" on page 72](#)

Ease of installation

BCM installation is easy with innovative hardware and management tools.

The simple nature of BCM physical installation, with the multipurpose RJ-45-based connector strategy, provides easy installation. The dedicated RJ-45 port for management access provides easy access to the unit for on-site PC-based element management tasks.

You can perform all configuration using the ["Business Element Manager" on page 69](#).

DHCP

Installations that require data networking, IP sets, or VoIP trunking, BCM50 and BCM450 can function as a DHCP client to a network DHCP server for automated IP address assignment. BCM50 and BCM450 can also function as a DHCP server to provide both IP Deskphones and a directly connected Business Element Manager PC with the IP configuration.

Startup profile

To accelerate the initial installation programming of system-level parameters, you can use the Startup Profile to quickly place the BCM in a basic operational state, ready to program, without having to use Business Element Manager or set-based administration.

The Startup Profile is an easy-to-use template you can datafill using Microsoft Excel. The Startup Profile provides a quick interface to define, for example, the following parameters:

- system profile including country, telephony template, and key voice mail attributes
- system IP parameters
- system-level telephony attributes to automatically create the system DNs
- keycode information through automated application of keycodes
- users and groups

You fill out the template, save it to a USB storage device, and insert the memory stick into the USB port of the BCM during the initial startup of the system. This information is read into the BCM and applied during a single restart sequence.

Remote management accessibility

BCM has an integrated analog modem that can accept an incoming modem call on any BCM system line. You can configure the BCM system to have the modem automatically answer a specific line with configuration options. You can manage from BRI. Remote users can also initiate a voice call to a person or an autoattendant, who transfers the call to the modem.

The analog modem also supports callback for management access to the BCM, which can be used to support automatic dial-out on SNMP traps and automated sending of Call Detail Records (CDR) to a remote CDR collection point. The modem is also enhanced with CLID.

Although Avaya does not recommend that you use the analog modem to transfer large files, the modem provides a flexible method of remote access to remotely perform all programming tasks.

BCM50 and BCM450 Release 6.0 also include 2 ISDN interfaces. ISDN uses existing analog telephone wires to multiplex data into separate digital channels, which increases bandwidth. ISDN uses a single transport to carry multiple information types. Where you once required separate networks for voice, data, images, or video conferencing, it now combines into one common high-speed transport.

The default IP address for both interfaces is 10.11.16.1. The default configuration for ISDN dial-in is for the BCM to assign the first ISDN interface an address of 10.10.18.1 and the second client an address of 10.10.18.2. If the default of either interface is already being used, both interfaces have to be reconfigured. The first remote client is assigned 10.10.18.10 and the second client is assigned 10.10.18.11. The settings can be changed to have the remote clients assign themselves an address or even assign the BCM an address.



Note: The default IP address configuration applies only to BCM50ba and BCM50be.

Finally, an administrator has the capability to disconnect a modem or ISDN call if they find that a modem or ISDN call is in progress.

BCM50e and BCM50a

The BCM50e and BCM50a provides remote management capability with a high-speed connection. Tasks such as transferring backup files to a remote destination and transferring software update files, CDR records, and log files can occur more efficiently than over the analog modem.

On-box and device manageability features

BCM has an SNMPv3 interface that includes support for SNMP v1 and v2 for management by legacy SNMP managers. SNMPv3 delivers improved security features for SNMP device access.

The BCM main unit supports the following versions of SNMP:

- SNMP v1—the first implementation of SNMP; this version supports protocols such as IP
- SNMP v2C—provides improved efficiency and error handling
- SNMP v3—provides improvements in security and privacy

Using the BCM Business Element Manager, you can select which versions of SNMP you want the BCM agent to support.

Management Information Bases (MIB) provide access to the managed objects of a system and specify the format of traps. BCM supports these standard MIBs for remote management:

- MIBII RFC 1213—second version of the MIB for use with network management protocols in a TCP/IP-based internet. This MIB includes System Group and Interfaces Group and is a baseline RFC implemented by data-networking systems.
- Entity MIB RFC 2737—describes managed objects used to manage multiple logical and physical entities to manage by a single SNMP agent.
- System Host MIB RFC 2790 MIB for to manage host systems — defines a set of objects common across many computer system architectures that are useful to manage host computers, such as memory and CPU.
- SmallSiteEvent MIB for traps.
- RFC 2261—SNMP Framework MIB.

BCM adopts the Common Information Model (CIM) standard according to the industry standards organization Distributed Management Task Force (DMTF), which provides a modeled method to manage system-programming parameters. BCM uses the transport mechanism CIM operations over HTTP using XML, also referred to as CIM-XML. The BCM CIM-XML interface provides a consistent way to manage data on the device, whether by the BCM Business Element Manager, NCM, or third-party network or service-management applications.

Log management

The following sections outline log management for the BCM 450 and the BCM50.

BCM 6.0 logs are grouped in three categories:

- operational logs
- diagnostic logs
- sensitive logs

Operational logs are meant to be used by customers and channel partners to debug and diagnose issues for the BCM. Diagnostic and secure logs are used by Avaya for troubleshooting. Diagnostic and secure logs have been encrypted to ensure that the customer and channel partner data is protected.

Operational logs include:

- alarms.systemlog - a log that contains alarm and information events
- configchange.systemlog - a log that tracks administrative operations

Set-based administration

BCM gives you the ability to use a telephone interface to program much of the BCM system. Set-based administration benefits include:

- BCM installations that have no TCP/IP connectivity
- BCM installations where the installer has no on-site access to a computer
- installers who prefer the speed of programming using set-based administration
- installers who are familiar with the Norstar interface

With set-based administration, you can manage

- core telephony
- voice mail services
- IP network settings
- admin password change
- modem on or off

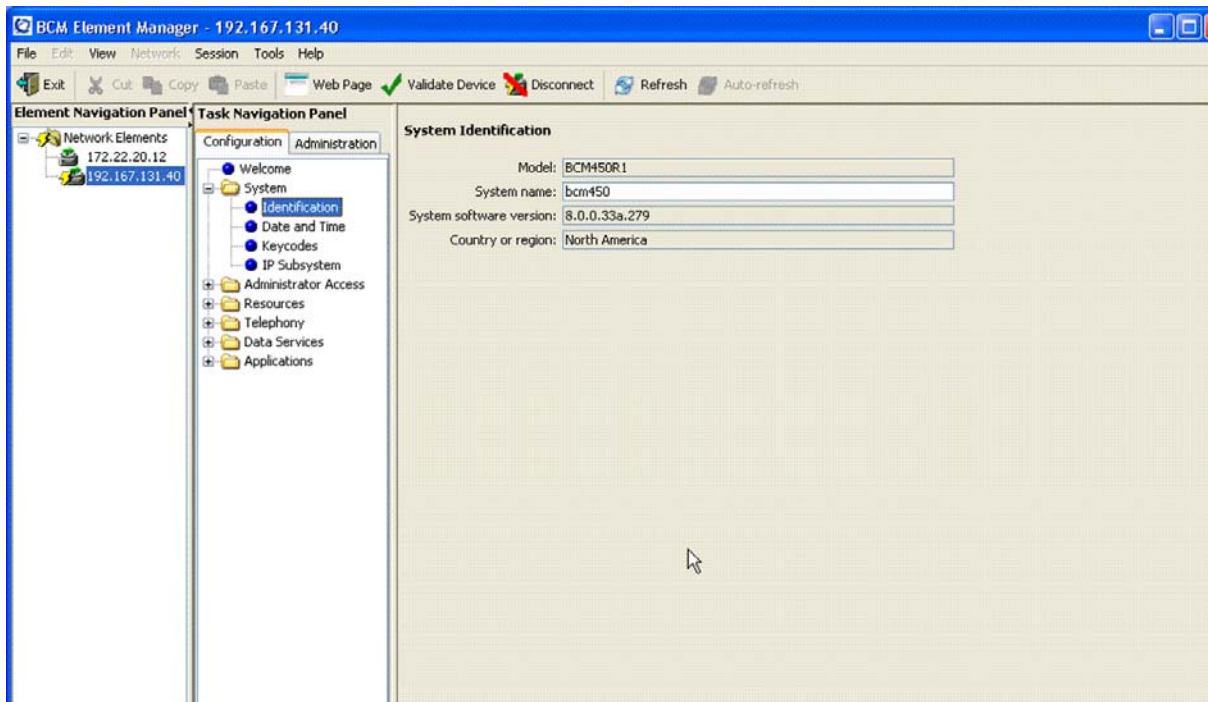
Support is available for multiple languages, consistent with Norstar set-based administration.

Business Element Manager

Business Element Manager provides access to BCM information in an off-box management architecture. With Business Element Manager you can access any programming screen in three or fewer mouse-clicks.

Programming data is enhanced in the Business Element Manager to quickly show all the associations between data in the form of tables. This eliminates looking in multiple places to obtain a system view of the programming.

Figure 14 Business Element Manager interface



Business Element Manager runs on a PC, and the information required to draw the screens is contained locally within the client application. The only data transferred between Business Element Manager and the BCM are queries and actual data. Business Element Manager has familiar Microsoft Office-like capabilities, such as the ability to sort information.

Business Element Manager integrates all the traditional BCM administration tools, including managing backups and software updates.

Business Element Manager has an element navigation panel to organize a network of elements. You can simultaneously manage multiple elements. After you connect to an element, you can perform configuration and administration tasks.

Business Element Manager administration interface

The Business Element Manager administration management environment includes

- BCM diagnostic and maintenance tools, including access to BCM Monitor.
- Fault management for viewing BCM alarms. You can set which alarms are displayed in the Business Element Manager alarm browser and which alarms trigger an SNMP trap.
- Log management for off-box transfer of logs, including component logs and administrator logs such as alarm log, security log, configuration change log, and system log.
- Software management tools for software updates (for example, for corrective software) and software upgrades.
- Backup and restore. You can schedule full back ups with the option of excluding certain components which are presented in the user interface. A scheduled backup provides the ability to routinely perform a backup, which you can save on the BCM hard drive or transfer to an off-box destination such as network folder, FTP server, or locally attached USB storage device.

For backup and restore, software management, and log management, a flexible set of source and destinations is supported along with protocols to access them. For example, you can save backups from the BCM to either the USB port, the Business Element Manager client PC (on-demand only), a shared drive available on the network, or a remote FTP server.

Software updates

To ensure that BCM maintenance costs are low, even in an environment of security and corrective content updates, the BCM handles software updates as follows.

Note that you can apply the Factory Backup Image with a Level 2 reset, which overwrites the current installed software on the BCM.

- You can download software updates to the BCM, either on-demand or according to a schedule, from a USB port, a shared network drive, a remote FTP server, or a client PC.
- Update software is automatically checked against the BCM software history and validated before you transfer it
- You can schedule the software update separately. For example, you can schedule a download for Tuesday night, but you can schedule the application for Friday at 2:00.
- You can program multiple software-update packages to be applied at the same time.
- One software-update package can include updates for multiple software components. While many software updates do not require a system restart, some software components require a restart for the update to take effect. No more than one system restart is required if one or more of the software components being updated by the software-update package requires a reboot.
- Software upgrades are handled in the same way and use the same tool as software updates.
- You can set up the entire software-update process for hands-off operation if the software content can either be downloaded remotely or sent and installed from the USB port.

Keycodes

The BCM keycode structure includes the following capabilities:

- One keycode validates all feature entitlements, which simplifies installation.
- You can apply keycodes in a number of ways:
 - through Business Element Manager
 - through NCM
 - through a USB memory stick

Network Configuration Manager

Many Business Communications Manager customers already use the optional client/server-based management application Network Configuration Manager (NCM) to manage their multisite BCM network. Designed to provide a system-wide perspective for up to 2000 BCM devices, NCM is a centralized database that stores information about every Business Communications Manager device on your network.

NCM 6.0 allows customers to manage networks consisting of BCM50, BCM450 and BCM200/400 systems. NCM 6.0 supports the following BCM platforms:

- BCM3.7
- BCM4.0
- BCM50 1.0
- BCM50 2.0
- BCM50 3.0
- BCM50 5.0
- BCM50 6.0
- BCM450 1.0
- BCM450 5.0
- BCM450 6.0
- BCM200/400 5.0
- BCM200/400 6.0

Microsoft Windows Vista operating system

BCM applications for (BCM) 50/450 6.0 support the following Vista versions: Windows Vista Business, Windows Vista Ultimate, and Windows Vista Enterprise. BCM applications support both 32-bit and 64-bit versions of Windows Vista, except for the following limitations:

- The CTE TAPI option is not supported by the 64-bit version of Windows Vista (x64).
- Personal Call Manager is not supported by the 64-bit version of Windows Vista (x64).
- CallPilot Desktop Messaging 4.0 does not support Groupwise 7.x on Windows Vista operating systems.
- The Avaya 2050 IP Softphone is not supported by the 64-bit version of Windows Vista operating systems.

BCM application	Vista compatible
Activity Reporter and Activity Reporter Basic	Yes
Business Element Manager	Yes
BCM Monitor	Yes
CDR	Yes
CDR Pull Client	Yes
CDR Livestream	Yes
Desktop Assistant Pro	Yes, with exception. See WinHlp32.exe help file exception (page 73)
Avaya 7400 Series DECT Controller	Yes (32-bit version only)
Digital Mobility Service Tool	Yes (32-bit version only)
Avaya 2050 IP Softphone	Yes (32-bit version only)
IP client 2050 v2 and QoS	Yes (32-bit version only)
ipView Software Wallboard Setup and Operation Guide	Yes
LAN CTE	Yes
LAN CTE Client	Yes
LAN CTE TAPI Service Provider	Yes (32-bit version only)
NCM (server and client)	Yes
BCM50 only, VPN	Yes, Avaya VPN Client v6.07. See WinHlp32.exe help file exception (page 73) .
Personal Call Manager	Yes (32-bit version only)
Reporting for Contact Center	Yes
SSH Client	Yes
Startup Profile Template	Yes
Unified Messaging Client	Yes, with exception. See Unified Messaging Client exceptions (page 73)

BCM application	Vista compatible
Call Pilot Manager	Yes
Multimedia Contact Center (agent and caller)	Yes
InTouch	Yes
Mailbox Manager	Yes
<p>WinHlp32.exe help file exception</p> <p>WinHlp32.exe, previously used to display the help files (.hlp files), is not included in Microsoft Windows Vista. The Windows Help program does not ship as a component of Windows Vista. Also, third-party programs that include.hlp files are prohibited from redistributing the Windows Help program with their products. To view 32-bit .hlp files, you must download the program from the Microsoft Download Center, and then install it on your computers.</p> <p>VPN exceptions</p> <p>The Avaya VPN Client for Windows Vista has the following limitations:</p> <ul style="list-style-type: none"> • The Avaya VPN Client must be run as an administrator. UAC always prompt for elevation when it runs. • The VPN Client installs and runs only as an application. This is due to Vista services hardening and the deprecation of the GINA infrastructure. • Support exists only UDP encapsulation. This is due to changes in the Microsoft stack, which prevents ESP packets from reaching the VPN driver as it is currently implemented. Enable UDP encapsulation in the Contivity switch group profile. For Vista users, the NAT Traversal setting must have any value other than Not Allowed. <p>Unified Messaging Client exceptions</p> <p>The Unified Messaging Client requires a new compatible fax driver from ImageMaker.</p> <p>CallPilot Desktop Messaging 4.0 does not support Groupwise 7.x on Windows Vista. You can download Windows Help that is used by CallPilot help from the Microsoft Download Center. The Desktop Messaging installation can appear to be stalled for several minutes when you are completing the installation process.</p> <p>Vista Windows Mail purge messages fails because of Microsoft limitations. To avoid this failure and keep deleted messages in your Inbox, navigate to Tools > Options > Advanced. Deselect the Use the Deleted Items Folders with IMAP accounts check box. To show deleted messages in your Inbox, navigate to View > Current View. Select the Deleted Messages check box</p>	
BCM application	Vista compatible

Microsoft Windows 7 operating system

BCM applications for (BCM) 50/450 6.0 support both 32-bit and 64-bit versions of Windows 7, except for the following limitations:

- The CTE TAPI option is not supported by the 64-bit version of Windows 7 (x64).
- Personal Call Manager is not supported by the 64-bit version of Windows 7 (x64).
- The Avaya 2050 IP Softphone is not supported by the 64-bit version of Windows Vista operating systems.

BCM application	Windows 7 compatible
Activity Reporter and Activity Reporter Basic	Yes
Business Element Manager	Yes
BCM Monitor	Yes
CDR	Yes
CDR Pull Client	Yes
CDR Livestream	Yes
Desktop Assistant Pro	Yes, with exception. See WinHlp32.exe help file exception (page 73)
Avaya 7400 Series DECT Controller	Yes (32-bit version only)
Digital Mobility Service Tool	Yes (32-bit version only)
Avaya 2050 IP Softphone	Yes (32-bit version only)
IP client 2050 v2 and QoS	Yes (32-bit version only)
ipView Software Wallboard Setup and Operation Guide	Yes
LAN CTE	Yes
LAN CTE Client	Yes
LAN CTE TAPI Service Provider	Yes (32-bit version only)
NCM (server and client)	Yes
BCM50 only, VPN	Yes, Avaya VPN Client v6.07. See WinHlp32.exe help file exception (page 73) .
Personal Call Manager	Yes
Reporting for Contact Center	Yes
SSH Client	Yes
Startup Profile Template	Yes
Unified Messaging Client	Yes, with exception. See Unified Messaging Client exceptions (page 73)
Call Pilot Manager	Yes
Multimedia Contact Center (agent and caller)	Yes

BCM application	Windows 7 compatible
InTouch	Yes
Mailbox Manager	Yes
<p>WinHlp32.exe help file exception</p> <p>WinHlp32.exe, previously used to display the help files (.hlp files), is not included in Microsoft Windows 7. The Windows Help program does not ship as a component of Windows 7. Also, third-party programs that include .hlp files are prohibited from redistributing the Windows Help program with their products. To view 32-bit .hlp files, you must download the program from the Microsoft Download Center, and then install it on your computers.</p> <p>VPN exceptions</p> <p>The Avaya VPN Client for Windows 7 has the following limitations:</p> <ul style="list-style-type: none"> • The Avaya VPN Client must be run as an administrator. UAC always prompt for elevation when it runs. • The VPN Client installs and runs only as an application. This is due to Windows 7 services hardening and the deprecation of the GINA infrastructure. • Support exists only UDP encapsulation. This is due to changes in the Microsoft stack, which prevents ESP packets from reaching the VPN driver as it is currently implemented. Enable UDP encapsulation in the Contivity switch group profile. For Vista users, the NAT Traversal setting must have any value other than Not Allowed. <p>Unified Messaging Client exceptions</p> <p>The Unified Messaging Client requires a new compatible fax driver from ImageMaker.</p> <p>CallPilot Desktop Messaging 4.0 does not support Groupwise 7.x on Windows 7. You can download Windows Help that is used by CallPilot help from the Microsoft Download Center. The Desktop Messaging installation can appear to be stalled for several minutes when you are completing the installation process.</p> <p>Vista Windows Mail purge messages fails because of Microsoft limitations. To avoid this failure and keep deleted messages in your Inbox, navigate to Tools > Options > Advanced. Deselect the Use the Deleted Items Folders with IMAP accounts check box. To show deleted messages in your Inbox, navigate to View > Current View. Select the Deleted Messages check box</p>	

Chapter 9

Avaya BCM applications

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

Avaya BCM has a wide range of applications. You enable these applications through keycodes, and you require no additional hardware.

BCM50 supports 15 ports for simultaneous users to connect to Call Pilot or Contact Center applications. In the case of BCM50, when the number of Call Pilot + CC resources exceeds 10 (which is allowed in R3.0 and later releases), the following engineering rule applies: For a BCM50 systems deployed in a hybrid configuration, if the number of Call Pilot + CC channel resources required exceeds 10 (max 15), the number of IP trunks should not exceed 10 if these trunks use the G.729 codec. The number of IP trunks may go to the usual limit of 12 if the trunks are configured with the G.711 codec.

BCM450 supports 35 ports without CEC and 63 with CEC for the same purpose. Each port supports one connection to an application. For example, four callers can leave voice messages, and two callers can be in the autoattendant, while four callers listen to voice messages. The number of ports can support a fully configured a BCM system with a full complement of voice mailboxes.

BCM is delivered with Mailbox Manager and CallPilot. Keycoded CallPilot options are also available, as are other BCM applications, such as Meet-Me Conferencing, LAN CTE, Personal Call Manager, and Call Detail Recording.

Meet Me Conferencing

Meet-Me Conferencing provides feature-rich, high density conferencing capabilities for BCM users. Designed to provide a more sophisticated feature set for formal conference calls, Meet-Me Conferencing allows parties to establish a teleconference by calling in to a specified bridge number at an agreed on time. One party acts as the chairperson and has additional powers to start, stop, secure and control the conference.

Conferences are initiated by calling in to the system on designated lines or to a specified directory number. The service responds by prompting the caller for the conference ID and optional pass-code. The caller then receives music-on-hold until the chairperson starts the conference. At that point, a multiway voice conference is established with all parties in the conference.

BCM 6.0 introduces a new web portal interface where you can view a history of events for your current bridge, the current participants, and a list of available phone commands. If you log onto the conference portal as a chairperson, you can also change your chairperson PIN if it is about to expire, or has already expired.

Mailbox Manager

You can use Mailbox Manager to administer the following features through a browser:

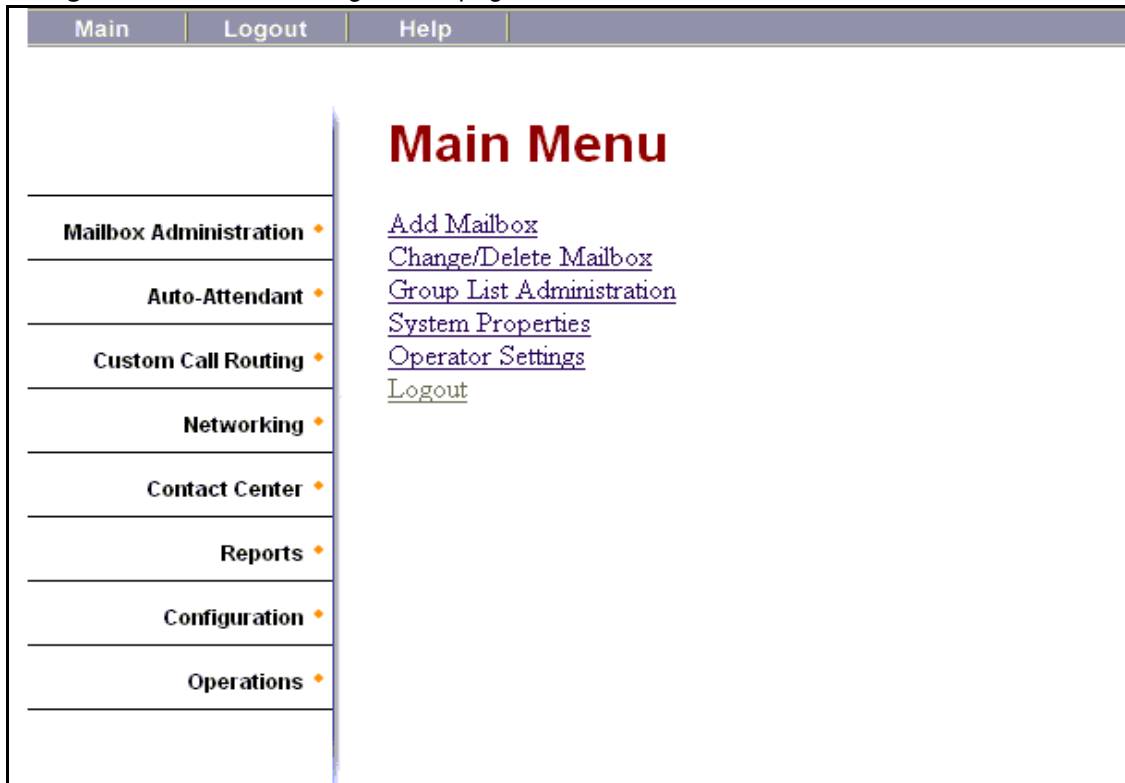
- Off Premise Notification settings
- Password
- Outbound transfer settings
- Spoken name (import, export, play and record)
- Primary, Alternate, and Personal Greetings (import, export, play, and record)
- Personal Attendant DN
- Fax settings (if fax messaging keycode is applied)
- Call forward to voice mail and display CLID



Note: You can administer some items with F981. Currently, you can administer only subscriber mailboxes, the general delivery mailbox, and the system administrator mailbox through the Mailbox Manager application.

The main page shows your mailbox status information, such as whether the telephone is forwarded, the mailbox is full, the number of broadcast messages, new messages and how many are urgent, saved messages, unsent messages (if you use the CallPilot user interface), new fax messages, and saved fax messages. A warning appears about an Off Premise Notification destination and the outbound transfer having failed. If you use the alternative greeting, an indication of its use is presented with an indication of whether messages are being accepted.

Figure 15 Mailbox Manager main page



Mailbox Manager features

My Mailbox

Information about the mailbox includes the number of each type of messages (if more than one message) and other information related to the state of the mailbox, including

- The number of broadcast messages.
- The number of new messages. If one or more is urgent, this information is specified.
- The number of unsent messages.
- The number of saved messages.
- The number of new fax messages (if the fax keycode is applied).
- The number of saved fax messages (if the fax keycode is applied).
- Warning messages that appear in red if

- an extension is specified for the mailbox, but no telephone is associated with the extension
- the telephone is currently forwarded
- an off-premise notification is not allowed
- the outbound transfer is not allowed
- the alternative greeting is selected
- messages are not accepted
- the mailbox is full

Also, My Mailbox displays useful messages to help you familiarize yourself with lesser-known features:

- You can use the Off Premise Notification to be notified at a location different from your telephone when you receive a new or an urgent message.
- You can use the Outbound Transfer to allow your callers to reach you at a destination different from your telephone by the pressing a key.

Off Premise Notification

Use Off Premise Notification (OPN) to enter a destination that can be an extension, an external number, or a pager number. You can turn notifications on or off, apply start and end times, and select a message type.

Outbound Transfer

You can enter an extension number as your outbound transfer destination or a telephone number to for outbound calling.

Greeting and Spoken Name

You can use the greetings and spoken name page to record or re-record your spoken name, standard greetings (primary and alternative), and three personalized greetings. For each spoken name and greeting, a guide text informs you whether the spoken name and greeting are recorded.

Personal Attendant

You can select the system attendant as your personal attendant (default setting), or you can enter a specific extension.

Fax Setting

Use the Fax Setting page to enter a destination where faxes can be printed. The destination can be an extension or a telephone number, if outcalling is enabled. For users without the outcalling capability, you can enter only an extension on the Fax Setting page.

Call Forward

You can use the Call Forward page to forward your phone to voice mail. When you forwarded the telephone to voice mail, you can view the callers being forwarded to your mailbox on the telephone screen. You can select which calls you want to retrieve with F987.

Find Me/Follow Me

You can use Find Me/Follow Me to configure a maximum of five different external destinations to ring simultaneously. You can configure Find Me/Follow Me based on the time and day by configuring schedules. Use Find Me/Follow Me to pick up a call either at your primary extension (your desk phone, for example) or at one of the five external destinations, such as a cell phone, your home phone, or another phone. When you answer the call at one destination the other alerting calls are disconnected. By doing this, the Find Me/Follow Me feature reduces the chance of missed calls. You can then transfer the answered call back and forth between your desk phone and other devices in your list of Find Me/Follow Me external destinations.

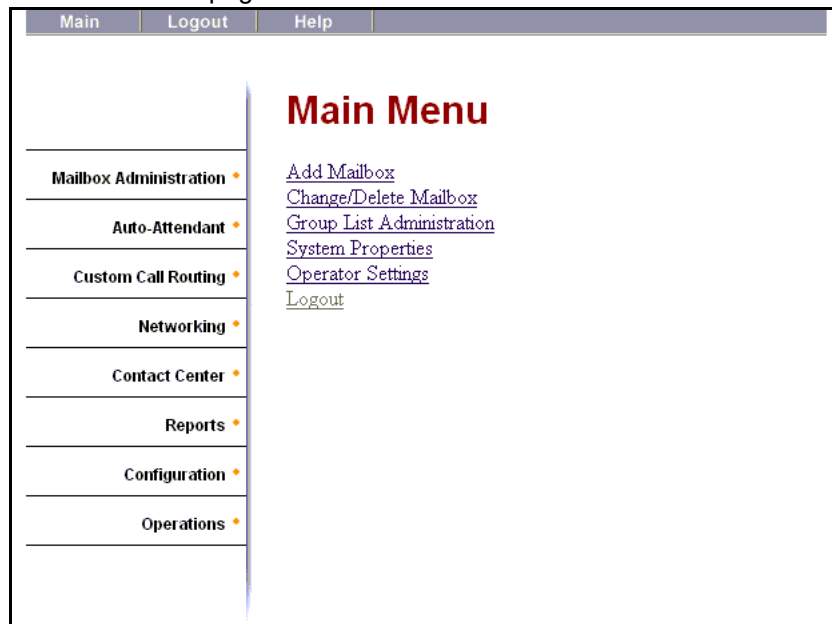
CallPilot

BCM Release 6.0 is a versatile business communications tool that you can use to

- answer incoming calls
- offer callers options to route their calls or to access information
- provide advanced voice mail, Auto Attendant, and call-handling capabilities

CallPilot Manager is a Web-based application that is accessible through the BCM Business Element Manager.

Figure 16 CallPilot main page



Features included with CallPilot

CallPilot for BCM Release 6.0 includes the following features.

Voicemail

The Voicemail feature records messages and stores them in a mailbox for easy retrieval. Business telephones on your system can have their own mailbox and greeting. You can quickly distribute information to departments and work groups.

Auto Attendant

Auto Attendant is the CallPilot answering service that promptly answers your business calls 24 hours a day with a company greeting, plays a list of options to callers, and performs call-routing functions in response to caller selections.

Custom Call Routing

Custom Call Routing (CRC) enhances the Auto Attendant menu with custom menus and information messages. With CCR, you can determine the menu commands and record the voice prompts that guide callers along call paths.

Fax Answering

Outside callers use Fax Answering to send faxes to the main site telephone number. Fax Answering is available even if you do not have the Fax option installed on your system. With Fax Answering, a fax call that arrives through the Auto Attendant or CCR is transferred to a specified extension.

CallPilot options

CallPilot has options that enhance your office communications. You need a keycode to enable a CallPilot option. Contact your vendor to purchase a software authorization code.

Message networking

Message networking links your BCM system with other voice mail systems and allows the exchange of voice messages between users at different sites. CallPilot supports Voice Profile for Internet Mail (VPIM) and Audio Messaging Interchange Specification (AMIS) networking.

For more information, see the *CallPilot Message Networking Set Up and Operation Guide*.

Message Forwarding

With the Message Forwarding feature, mailbox owners can send an e-mail message when new or urgent voice messages arrive in their CallPilot mailbox. Message Forwarding can attach the voice or fax message to the forwarded e-mail message so users can play the voice message or view the fax on the destination device. For more information about Message Forwarding, see *CallPilot Manager Setup and Operation Guide* (NN40170-300).

Fax

Fax is a CallPilot option that enhances your office communications by providing incoming and outgoing fax capability (two ports only). With Fax, callers can send and retrieve fax messages as easily as they send and retrieve voice messages. The Fax option includes Fax Mail, Fax On Demand, and Fax Overflow. Fax Answering is available even if you do not have the Fax option installed on your system.

For more information about Fax, see the *CallPilot Fax Set Up and Operation Guide*.

Unified messaging

With Unified messaging, you can use your e-mail application to access voice, fax, and text messages from your personal computer. You can use Unified Messaging with several popular e-mail application. You can use Unified Messaging with one or more of these clients:

- Microsoft Outlook 2007
- Microsoft Outlook 2003
- Microsoft Outlook 2002/XP
- Novell GroupWise 6.5, 7.0, 7.0.1, and 8.0
- Lotus Notes 6.0, 6.5, 7.0, 8.0.0, 8.0.1, 8.0.2, and 8.5

CallPilot Desktop Messaging 5.0 does not support Groupwise 7.x on Microsoft Vista operating systems.

For more information, see the *Unified Messaging Configuration Guide*.

Intelligent Contact Center

Intelligent Contact Center (ICC) is an evolution of the existing Call Center capability on BCM. ICC has the same functionality as the current Professional Call Center with the ability to choose exactly the number of agents and skillsets that a customer or customer site requires.

The existing Intelligent Contact Center provides the following features:

- Provides maximum flexibility in granularity.
- Any combination of Agents and Skillsets within the boundaries of a platform. This combination confusing of features between Basic and Professional. Channel partners and customers need not to worry about which functionality belongs to which product.
 - Contact Center with Professional Contact Center level of functionality.

- Simplifies product offering
 - Contact Center, x skillsets, x agents, RCC
 - Eliminates Basic, Pro, and upgrade between the two
- Increases market potential
 - Customers that require more skillsets than agents

Example: Real Estate — 3 receptionists (3 agents) answering telephones for 20 real estate agents (20 skillsets)

— Big-box retail — 3 receptionists (3 agents) answering telephones for 12 departments (12 skillsets).

Optional components include

- x agents (keycodes offer granular selection of the number of desired agents)
- x skillsets (keycodes offer granular selection of the number of desired skillsets)
- Reporting for CC
- Multimedia CC

For more information, see the *Intelligent Contact Center Set Up and Operation Guide*.

Multimedia Contact Center

Agents and callers can use the Multimedia Contact Center to participate in multimedia calls that include

- speaking over a Public Switched Telephone Network (PSTN) voice connection
- text chatting
- exchanging and viewing Web pages
- viewing screen captures (sent by an agent to the caller)

Multimedia Contact Center supports two call types:

- Phone-and-browser calls (using PSTN), which integrate a standard voice call with a Contact Center agent and a Multimedia Contact Center browser call session with follow-me browsing, text chat, and screen-capture push.
- Browser-only calls, which have the same browser features of phone-and-browser calls but no voice call component.

Local Area Network Computer Telephony Engine

BCM Computer Telephony Integration (CTI) products provide an interface between your personal computer and your BCM system. With these products, you can use telephony applications through the Windows operating system to control your telephone.

One BCM CTI software component is Local Area Network Computer Telephony Engine (LAN CTE). LAN CTE provides an interface between your personal computer, your telephone, and the BCM system. With LAN CTE installed on your computer, you can run LAN CTE or TAPI applications to communicate with and control your telephone.

For more information, see the *LAN CTE Configuration Guide*.

Call Detail Recording

Call Detail Recording (CDR) is an application that collects call activity. Each time a telephone call is made to or from your company, CDR can record information about the call. You can use the information CDR collects to create reports about call activity. CDR also provides an interface to third-party applications for call accounting and billing.

For more information, see the *Call Detail Recording System Administration Guide* (NN40020-605).

Activity Reporter

Activity Reporter provides user access to reports highlighting the previous 4 days of telephone activity, CCR tree utilization, voice mailbox activity, and hunt group utilization. No additional software is required. Activity Reporter Standard provides additional reports, ad hoc queries, and the ability to collect the information for an extended period. To enable Activity Reporter Standard you must have the appropriate keycode.

Personal Call Manager

Personal Call Manager is a TAPI-based application that provides an easy-to-use interface between your computer and your telephone. You use the telephone to speak with a caller. You can customize your Address Book and your calls. Basic functions that Personal Call Manager performs include making and answering calls, placing calls on hold, transferring calls, and making conference calls.

For more information, see the *Personal Call Manager User Guide* (NN40010-104).

Find Me/Follow Me

Find Me/Follow Me allows simultaneous ringing of up to five different external destinations. Users and administrators can configure these destination numbers. You can configure Find Me/Follow Me based on the time and day by configuring schedules.

Using Find Me/Follow Me, you can pick up a call either at your primary extension (your desk phone for example) or at one of the five external destinations, such as a cell phone, your home phone, or another phone. When you answer the call at one destination the other alerting calls are disconnected. By doing this, the Find Me/Follow Me feature reduces the chance of missed calls.

You can then transfer the answered call back and forth between your desk phone and other devices on your Find Me/Follow Me external destinations list. For more information about Find Me/Follow Me, see *Avaya Business Communications Manager Find Me/Follow Me Administration Guide* (NN40010-678) and *Avaya Business Communications Manager Find Me/Follow Me User Guide* (NN40010-118).

Professional Call Recording

The professional call recording feature records a call from the time that you request to record the call until the call ends. The feature supports recording a conference call hosted or joined by a DN. For more information about Professional Call Recording, see *Avaya Business Communications Manager 6.0 Configuration — Telephony* (NN40170-502).

- This feature does not allow voice and tone prompt to parties involved on a call during establishment of recording session.
- This feature allows recording of established calls on BCM. It supports multiple simultaneous recording of the same call.
- A maximum of 80 concurrent recording sessions are supported for BCM450 6.0 (with CEC) and maximum of 40 concurrent recording sessions are supported for BCM450 6.0 (without CEC) subject to engineering considerations.
- A maximum of 16 concurrent recording sessions are supported for BCM50 6.0.
- This feature supports recording of faxes. Faxes are treated as voice calls and recorded as audio.
- You need to buy a minimum of one Professional Call Recording keycode to enable the call recording feature.
- Avaya recommends you to consider the laws and legal restrictions when utilizing the Professional Call Recording feature.

InTouch

The InTouch feature integrates with a user's Microsoft Outlook, and provides direct one-touch interaction between a user's telephony, email, calendar and instant messenger. InTouch brings together all popular forms of communications from within both Outlook and external contacts. InTouch appears as a contact list that is part of your Outlook screen. This is referred to as the "UC Activity Pane". Regardless of which Outlook page the user may have on their screen at any time (Mail, Calendar, Outlook Contacts or Tasks), the InTouch task panel retains the same view and functionality.

For more information about InTouch, see *InTouch User Guide* (NN40170-102) and *InTouch Administration Guide* (NN40170-605).

Chapter 10

Avaya BCM compatibility matrix

The following table indicates the compatibility of components and features through the Avaya Business Communications Manager (Avaya BCM) product line.

Table 9 Avaya BCM compatibility matrix

Component or feature	BCM 4.0	BCM50 3.0	BCM450 1.0	BCM50 5.0	BCM450 5.0	BCM50 6.0	BCM450 6.0
Operating system							
BCM Linux	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hardware							
Digital Terminals	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Avaya 7100 Digital Deskphone and M7100	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Avaya 7208 Digital Deskphone and M7208	Yes	Yes	Yes	Yes	Yes	Yes	Yes
T7316 and M7324	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Avaya 7316E Digital Deskphone	Yes	Yes	Yes	Yes	Yes	Yes	Yes
T7406	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Avaya 7406E Digital Mobile Handset	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Avaya 7316E Digital Key Expansion Module	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Norstar Audio Conference Unit	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Doorphone	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IP Terminals							
Avaya 2001 IP Deskphone	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Avaya 2002 IP Deskphone	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Avaya 2004 IP Deskphone	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Avaya 2007 IP Deskphone	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IP Key Expansion Module 24	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IP 11xx Key Expansion Module	No	3.0 Yes	Yes	Yes	Yes	Yes	Yes

Table 9 Avaya BCM compatibility matrix

Component or feature	BCM 4.0	BCM50 3.0	BCM450 1.0	BCM50 5.0	BCM450 5.0	BCM50 6.0	BCM450 6.0
IP 12xx Key Expansion Module	No	3.0 Yes	Yes	Yes	Yes	Yes	Yes
IP 12xx Key Expansion Module with Display	No	3.0 Yes	Yes	Yes	Yes	Yes	Yes
i2050 Softphone	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Avaya 2050 IP Softphone	No	Yes	Yes	Yes	Yes	Yes	Yes
Avaya 2007 IP Deskphone	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Avaya 1110 IP Deskphone	No	Yes	Yes	Yes	Yes	Yes	Yes
Avaya 1120E IP Deskphone	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Avaya 1140E IP Deskphone	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Avaya 1210/1220/1230 IP Deskphone	No	Yes	Yes	Yes	Yes	Yes	Yes
Avaya 2033 IP Conference Phone	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WLAN Handsets							
WLAN 2210	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WLAN 2211	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WLAN 2212	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Avaya 6120 WLAN Handset	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Avaya 6140 WLAN Handset	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MSC Card	Yes						
Expansion cabinet	1 Exp with 6 MBMs	2 Exp for a max of 2 MBMs	1 Exp with 6 MBMs	2 Exp for a max of 2 MBMs	1 Exp with 6 MBMs	2 Exp for a max of 2 MBMs	1 Exp with 6 MBMs
Applications							
Integrated IVR	Yes	No	No	No	Yes	No	Yes
IP Sets	64	32	300	32	300	32	300
IP Trunks	60	12	130	12	130	12	130
H.323 with MCDN	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SIP	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 9 Avaya BCM compatibility matrix

Component or feature	BCM 4.0	BCM50 3.0	BCM450 1.0	BCM50 5.0	BCM450 5.0	BCM50 6.0	BCM450 6.0
SIP with MCDN	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Voice Mail ports	32	15	35 (63 with CEC)	15	35 (63 with CEC)	15	35 (63 with CEC)
IP Music	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fax ports	2	2	2 (8 with CEC installed)	2	2 (8 with CEC installed)	2	4 (8 with CEC installed)
IP Trunks Codecs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Management							
NCM	NCM 5.0	NCM 5.0	NCM 5.0	NCM 5.0	NCM 5.0	NCM 6.0	NCM 6.0
NetIQ support	Yes	Yes	Yes	Yes	Yes	Yes	Yes
System Set-Based Admin (F9*8)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Business Element Manager	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Telephony	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CallPilot	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PVQM	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BCM Monitor	Yes	Yes	Yes	Yes	Yes	Yes	Yes
POST				Yes	Yes	Yes	Yes
Applications							
LAN CTE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CDR	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Meet-Me Conferencing	No	Yes	Yes	Yes	Yes	Yes	Yes
Activity Reporter	No	Yes	Yes	Yes	Yes	Yes	Yes
Mailbox Manager	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Operator MB Manager	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Intelligent Contact Center	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Basic Contact Center	No	No	No	No	No	No	No
Professional Contact Center	No	No	No	No	No	No	No
Reporting for Contact Center	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Multimedia Contact Center	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Silent Record-a-Call	No	Yes	Yes	Yes	Yes	Yes	Yes
Find Me/Follow Me	No	No	Yes	Yes	Yes	Yes	Yes

Table 9 Avaya BCM compatibility matrix

Component or feature	BCM 4.0	BCM50 3.0	BCM450 1.0	BCM50 5.0	BCM450 5.0	BCM50 6.0	BCM450 6.0
InTouch	No	No	No	Yes	Yes	Yes	Yes
Professional Call Recording	No	No	No	Yes	Yes	Yes	Yes
UPS support	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Backup and Restore	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Upgrade from previous version	Yes	Yes	Not available	Yes	Yes	Yes	Yes
BCM Imaging Tool	Yes	No	No	No	No	No	No
Level 1 and 2 Reset	No	Yes	Yes	Yes	Yes	Yes	Yes
Wireless							
T7406 and Avaya 7406E Digital Mobile Handset	Yes	Yes	Yes	Yes	Yes	Yes	Yes
802.11b WVoIP i22xx	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Digital Mobility	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Data services							
Firewall	Yes	Yes	No	Yes	No	Yes	No
ISDN Dial-up	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ADSL							
Integrated ADSL Modem	No	Yes	No	No*	No	No*	No
VPN							
IPsec Client	Yes	Yes	No	No	No	No	No
IPsec Branch	Yes	Yes	No	No	No	No	No
PPTP	No	No	No	No	No	No	No
DHCP Client	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DHCP Server	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DHCP Relay	Yes	Yes	No	No	No	No	No
NAT	Yes	Yes	Yes (only on dial-up interfaces)	Yes (only on dial-up interfaces)	Yes (only on dial-up interfaces)	Yes (only on dial-up interfaces)	Yes (only on dial-up interfaces)
Routing Protocols	Yes	Yes	No	No	No	No	No

Table 9 Avaya BCM compatibility matrix

Component or feature	BCM 4.0	BCM50 3.0	BCM450 1.0	BCM50 5.0	BCM450 5.0	BCM50 6.0	BCM450 6.0
QoS	Yes	Yes	Yes (only VoIP DSCP marking. Default values cannot be changed)	Yes	Yes (only VoIP DSCP marking. Default values cannot be changed)	Yes	Yes (only VoIP DSCP marking. Default values cannot be changed)
Dial Back-up	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SNMP							
*BCM50a systems sold on previous releases can be upgraded to Release 6.0.							

BCM50 hybrid configuration

A BCM50 system is defined as a hybrid configuration if it is configured with a mix of IP Deskphones, IP clients, or IP trunks and with non-IP Deskphones, terminals, or trunks (digital phones, analog phones, FAX machines, digital T1/E1/PRI trunks, BRI interfaces, and analog trunks).

For a BCM50 system deployed in a hybrid configuration, it is recommended that the total number of stations (digital phones, IP Deskphones, analog terminals, BRI B channels for station side) not exceed 50. Additional stations can reduce the performance effectiveness of the BCM50.

If you use Meet Me Conferencing, Avaya recommends you increase the number of voice mail plus Call Centre (Voice Mail + CC) resources from 10 to 15.

When the number of voice mail plus Call Centre resources exceeds 10, the following engineering rule applies:

- For a BCM50 system deployed in a hybrid configuration, if the number of voice mail plus Call Centre resources required exceeds 10 (maximum 15) and the trunks use the G.729 codec, the number of IP trunks must not exceed 10.
- The number of IP trunks may number 12 if the trunks are configured with the G.711 codec.

