



## Enterprise: Common

# Solution Integration Guide for Multisite Business Communications Manager Systems



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# Contents

How to get help Finding the latest updates on the Nortel Web site 5 Getting help from the Nortel Web site 6 Getting help over the phone from a Nortel Solutions Center 6 Getting help from a specialist by using an Express Routing Code 6 Getting help through a Nortel distributor or reseller 6	5
About this document Audience 7 Related information 7	7
Overview	9
Prerequisites Knowledge requirements 11 Training 11 Capturing integration parameters 11 Establishing the system baseline 12	11
BCM 200/400 Release 4.0 configuration BCM 200/400 Release 4.0 configuration procedures 17 Configuring incoming VoIP trunks 17 Verifying system license and keycodes 18 Configuring VoIP trunk media parameters 19 Configuring local Gateway parameters 23 Configuring VoIP lines 28 Configuring target lines 33	17
BCM 200/400 Release 3.7 configuration BCM 200/400 Release 3.7 configuration procedures 37 Verifying incoming VoIP trunks provisioning 37 Adding keycodes files 38 Adding a functionality-specific keycode 38 Configuring VoIP H.323 trunk media parameters 39 Configuring VoIP SIP trunk media parameters 40 Configuring H.323 local Gateway IP parameters 41 Configuring SIP local Gateway IP parameters 42	37

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

Configuring SIP subdomains 43 Configuring remote H.323 Gateways 44 Configuring remote SIP endpoints 45 Configuring VoIP lines for outgoing calls 46 Configuring target lines for incoming calls 49 Configuring telephones to access outgoing VoIP lines 50

#### **BCM50** configuration

BCM50 configuration procedures 51 Configuring incoming VoIP trunks 51 Verifying system license and keycodes 52 Configuring VoIP trunk media parameters 53 Configuring local Gateway parameters 57 Configuring VoIP lines 61 Configuring target lines 65 51

# How to get help

This chapter explains how to get help for Nortel products and services.

## Finding the latest updates on the Nortel Web site

The content of this documentation is current at the time of product release. To check for updates to the latest documentation and software for Business Communications Manager (BCM), click one of the following links:

For the	Go to
Latest BCM 200 software	Nortel page for BCM 200 software located at: http://www130.nortelnetworks.com/go/main.jsp ?cscat=SOFTWARE&resetFilter=1&poid=8236
Latest BCM 400 software	Nortel page for BCM 400 software located at: http://www130.nortelnetworks.com/go/main.jsp ?cscat=SOFTWARE&resetFilter=1&poid=171 41
Latest BCM50 software	Nortel page for BCM 400 software located at: http://www130.nortelnetworks.com/go/main.jsp ?cscat=SOFTWARE&resetFilter=1&poid=151 81
Latest BCM 200 documentation	Nortel page for BCM 200 documentation located at: http://www130.nortelnetworks.com/go/main.jsp ?cscat=DOCUMENTATION&resetFilter=1&poi d=8236
Latest BCM 400 documentation	Nortel page for BCM 200 documentation located at: http://www130.nortelnetworks.com/go/main.js p?cscat=DOCUMENTATION&resetFilter=1&p oid=17141
Latest BCM50 documentation	Nortel page for BCM 200 documentation located at: http://www130.nortelnetworks.com/go/main.js p?cscat=DOCUMENTATION&resetFilter=1&p oid=15181

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

#### Getting help from the Nortel Web site

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

#### www.nortel.com/support

This site provides quick access to software, documentation, bulletins, and tools to address issues with Nortel products. From this site, you can:

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

#### Getting help over the phone from a Nortel Solutions Center

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

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

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

www.nortel.com/callus

#### Getting help from a specialist by using an Express Routing Code

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

www.nortel.com/erc

#### Getting help through a Nortel distributor or reseller

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

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

## About this document

This document describes the configuration of the Business Communications Manager (BCM) to integrate multiple BCM systems in a network. Integrate the BCM systems when all systems are installed and a baseline of operation has been achieved and tested.

The following systems and software releases are covered in this guide:

- Business Communications Manager 200 Releases 4.0, 3.7, and 2.0
- Business Communications Manager 400 Releases 4.0, 3.7, and 2.0
- Business Communications Manager 50 Release 2.0

This document is intended to be a stand-alone guide, covering the prerequisites to and implementation of a successful multisite BCM integration. A minimum skill set and level of understanding is assumed. References to other NTPs, engineering guides, or troubleshooting guides are made for informational purposes.

If you are integrating the BCM to a CS 1000 system, refer to Solution Integration Guide for Communication Server 1000/Business Communications Manager (NN43001-326).

#### Audience

The intended audience for this document includes installation, planning, and maintenance personnel.

### **Related information**

The following NTPs are referenced in this guide:

- BCM 4.0 Device Configuration Guide (N0060600)
- BCM 4.0 Telephony Device Installation Guide (N0060609)
- Keycode Installation Guide (NN40010-301)

#### 8 About this document

# **Overview**

The tasks in the Business Communications Manager multisite integration process are listed in Table 1 "Task Completion Checklist" (page 9). Use this checklist to implement the integration.

#### Table 1 **Task Completion Checklist**

Task	Reference		
Configure BCM 200/400	1. "Configuring incoming VoIP trunks" (page 17)		
Release 4.0	2. "Verifying system license and keycodes" (page 18)		
	<ol> <li>"Configuring VoIP trunk media parameters" (page 19)</li> </ol>		
	4. "Configuring local Gateway parameters" (page 23)		
	5. "Configuring VoIP lines" (page 28)		
	6. "Configuring target lines" (page 33)		
Configure BCM 200/400 Release 3.7	<ol> <li>"Verifying incoming VoIP trunks provisioning" (page 37)</li> </ol>		
	2. "Adding keycodes files" (page 38)		
	3. "Adding a functionality-specific keycode" (page 38)		
	<ol> <li>"Configuring VoIP H.323 trunk media parameters" (page 39)</li> </ol>		
	<ol> <li>"Configuring VoIP SIP trunk media parameters" (page 40)</li> </ol>		
	<ol> <li>"Configuring H.323 local Gateway IP parameters" (page 41)</li> </ol>		
	<ol> <li>"Configuring SIP local Gateway IP parameters" (page 42)</li> </ol>		
	8. "Configuring SIP subdomains" (page 43)		
	9. "Configuring remote H.323 Gateways" (page 44)		
	10. "Configuring remote SIP endpoints" (page 45)		
	11. "Configuring VoIP lines for outgoing calls" (page 46)		

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

#### 10 Overview

Task	Ref	ference
	12.	"Configuring target lines for incoming calls" (page 49)
	13.	"Configuring telephones to access outgoing VoIP lines" (page 50)
Configure BCM50	1.	"Configuring incoming VoIP trunks" (page 51)
	2.	"Verifying system license and keycodes" (page 52)
	3.	"Configuring VoIP trunk media parameters" (page 53)
	4.	"Configuring local Gateway parameters" (page 57)
	5.	"Configuring VoIP lines" (page 61)
	6.	"Configuring target lines" (page 65)

## **Prerequisites**

Before you begin to integrate the Business Communications Manager (BCM) systems, ensure that you complete the following prerequisites:

- "Knowledge requirements" (page 11)
- "Capturing integration parameters" (page 11)
- "Establishing the system baseline" (page 12)

#### **Knowledge requirements**

The following knowledge and skills are required to implement a multisite BCM systems integration:

- basic programming and provisioning skills for BCM systems
- working knowledge of various operating systems, including VxWorks, Unix, Linux, and Windows
- principles of Voice over IP (VoIP) protocols
- networking principles

#### Training

Nortel recommends that you complete product-specific training before you begin integrating the BCM systems. A complete list of courses is available at <u>www.nortel.com</u>

#### Capturing integration parameters

Table 2 "Integration parameters" (page 11) provides a list of parameters required to successfully complete the integration. Record these parameters during the initial planning phase of the integration.

Table 2

Integration parameters

Parameter	Value
User IDs and passwords	

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

#### 12 Prerequisites

Parameter	Value
SIP Gateway endpoint authentication password (must match the NRS password)	
IP addresses and URLs	
Gatekeeper IP address	
Alternate Gatekeeper IP address (optional)	
Primary SIP proxy address	
Alternate SIP proxy address	
Primary NCS IP address	
Alternate NCS IP address	
Static endpoint IP address (same as the Node IP address)	
Collaborative server IP address	
Names	
Service domain name in NRS	
SIP domain name (must be the same as the service domain name)	
SIP Gateway endpoint name (must match the NRS user ID)	
H.323 ID (preferable if it is the same as the one in the Primary Signaling Server)	
H.323 Gatekeeper alias name (default is the H.323 ID)	
Endpoint alias for BCM	
Read and write community names	
Miscellaneous	
SIP access port to use (port 5060 is recommended)	

## Establishing the system baseline

To successfully integrate voice services, you must first establish the system baseline for the Business Communications Manager (BCM) systems, so that the systems are configured and working in a stand-alone environment.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

Use Table 3 "Pre-integration checklist" (page 13)to complete system baselines prior to integration.

## Table 3Pre-integration checklist

Task	Reference	Comments
BCM configuration is complete and passing data traffic.		
BCM networking hardware is installed for integration.		To check the installed hardware:
		1 Log on to Element Manager.
		<b>2</b> Select the <b>Administration</b> tab.
		<b>3</b> Expand the <b>General</b> folder.
		4 Select Hardware Inventory.
		<b>5</b> Select the <b>PCI Cards</b> tab. The cards installed in BCM are listed.
PEC III Media Service Cards (MSC) are later.		PECIII MSCs are required for T.38 Fax and IP telephony.
		To check the PEC hardware:
		1 Log on to Element Manager.
		<b>2</b> Select the <b>Administration</b> tab.
		<b>3</b> Expand the <b>General</b> folder.
		4 Select Hardware Inventory.
		5 Select the PCI Cards tab.
		6 Select the MSC PCI card and scroll down to the Details for Card section.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

#### 14 Prerequisites

Task	Reference	Comments
BCM 200/400 is Release 4.0, 3.7, or 2.0.		To check the software version:
BCM50 is Release 2.0 or later.		1 Log on to Element Manager.
		2 Select the <b>Configuration</b> tab.
		<b>3</b> Expand the <b>System</b> folder.
		4 Select Identification.
BCM 200/400 systems on the same network as the		To check the software version:
systems being integrated are Release 4.0 or later.		1 Log on to Element Manager.
		2 Select the <b>Configuration</b> tab.
		<b>3</b> Expand the <b>System</b> folder.
		4 Select Identification.
VoIP Gateway Trunk	Keycode Installation Guide (NN40010-301)	To check Feature Licenses:
licensing is purchased and loaded on BCM.		<b>1</b> Log on to Element Manager.
		2 Select the <b>Configuration</b> tab.
		<b>3</b> Expand the <b>System</b> folder.
		4 Select Keycodes.
IP Client licensing is	Keycode Installation Guide	To check Feature Licenses:
on BCM.	(NN40010-30	<b>1</b> Log on to Element Manager.
		2 Select the <b>Configuration</b> tab.
		<b>3</b> Expand the <b>System</b> folder.
		4 Select Keycodes.
MCDN feature licensing is	Keycode Installation Guide	To check Feature Licenses:
purchased and loaded on BCM.	(NN40010-30	<b>1</b> Log on to Element Manager.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

Establishing the system baseline 15

Task	Reference	Comments
		2 Select the <b>Configuration</b> tab.
		<b>3</b> Expand the <b>System</b> folder.
		4 Select Keycodes.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

#### 16 Prerequisites

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

# **BCM 200/400 Release 4.0 configuration**

This chapter describes configuration procedures for the Business Communications Manager (BCM) 200 and 400 Release 4.0 systems.

Element Manager as viewed on your system may differ slightly from the screens shown in this chapter because you can customize the column display in Element Manager.

#### BCM 200/400 Release 4.0 configuration procedures

The sequence of BCM 200/400 Release 4.0 configuration procedures is as follows:

- "Configuring incoming VoIP trunks" (page 17)
- "Verifying system license and keycodes" (page 18)
- "Configuring VoIP trunk media parameters" (page 19)
- "Configuring local Gateway parameters" (page 23)
- "Configuring VoIP lines" (page 28)
- "Configuring target lines" (page 33)

#### **Configuring incoming VoIP trunks**

Perform the following procedure to configure incoming VoIP trunks.

#### **Configuring incoming VoIP trunks**

Step	Action
1	Log on to Element Manager.
2	In the Task Navigation Panel, select the Configuration tab.
3	Select System > Keycodes

See Figure 1 "Keycodes" (page 18).

\_\_\_

BCM Element Manage	r - 192.168.249.27	/				_0
s Edit View Network	Session Tools	Help				
📕 Exit 🐰 Cut 📭	Copy 💼 Paste	💳 Web Page 🛛 🗸	🛛 Validate Device - 🧏 Disc	onnect 🔗 Rel	<b>resh </b> Auto-refresh	
ask Navigation Parts	Kaucades					
Administration						
Configuration	System ID	E3FE9D0B0000	Sequence #	23	Key type	
Welcome						
<ul> <li>Idantification</li> </ul>	Eestura liconcor					
Dats and Time	Chahur	(Marra	Data	[Eurin Data ]		
Keycodes	ACTIVE	Name	Data	Expiry Date		
E-main Administrator Acce	ACTIVE	Fax Overnow				
	ACTIVE	Pax Suite				
Data Services	ACTIVE	O SIG				
Applications	ACTIVE	MCDN				
	ACTIVE	DENSS				
	ACTIVE	LANCEE Seat				
	ACTIVE	VolP GW Truck				
	ACTIVE	IP Client seat				
	ACTIVE	NCM Config	1			
			1			
		Load File	Hodity Feature Licence	is I able		
	-Keucode Br	atria: tal				

4 Load new Keycodes by loading a new keycode file or connecting to Nortel's Keycode Retrieval System (KRS). For more information about keycodes and keycode retrieval, see *Keycode Installation Guide* (NN40010-301).

—End—	

## Verifying system license and keycodes

Perform the following procedure to verify system license and keycodes.

#### Verifying system license and keycodes

Step	Action
1	Log on to Element Manager.
2	In the Task Navigation Panel, select the Configuration tab.
3	Select <b>System &gt; Keycodes</b> . See Figure 1 "Keycodes" (page 18).
4	In the <b>Name</b> column, scroll down to <b>VoIP GW Trunk</b> . The number of license keys you have are listed in the Data column.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

—End—

#### Configuring VoIP trunk media parameters

Perform the following procedure to configure VoIP trunk media parameters.

#### **Configuring VoIP trunk media parameters**

## Step Action

- 1 Log on to Element Manager.
- 2 In the Task Navigation Panel, select the Configuration tab.

## 3 Select Resources > Telephony Resources.

See Figure 2 "Telephony Resources" (page 19).

Figure 2 Telephony Resources

BCM Element Manager - 192.168.249.27							
📲 Exit 🔏 Cut 📭	Copy 💼 Par	ste 🗧 💳 Wab Pa	ıgə 🗸 Validate Device 🄰	Disconnect	🚭 Refresh 👩	Auto-refresh	
Task Marvigation Panel Administration							
Configuration	Modules						
Welcome	Bus	Prog Type	Actual Type	Dip Sw	State	Devices	Lo
System Administrator Access	0	N/A	IP Trunks	N/A	N/A	Lines	4
Resources • • Application Resource	1	N/A	IP & App Sets	N/A	Enabled	Sets	-
Media Gateways							•
Port Ranges		1 entre 1					
- S Leiephony Resources	Lisable	Enable					
Telenhony	L C						
Data Services	lula: 0						
Applications			a contraction of the second			1 ann una	
	able IP Tru	nk Settings   H323	Settings H323 Media Parama	ISIP Setti	ngs   SIP Media Parai	meters   SIP UR	Map
	Preferred Cod	lecs			Settings		
	Codec Prefe	rences			Enable Voice Ac	tivity Detection	
	Availab	le list	Salected list			Jitter buffsr	Auto
	G.729 G.711-uLaw G.729 psyload s				syload size (ms)	20 💌	
6.723 p 6.711 p				G.723 pa	yload size (ms)	30 👻	
				G.711 pa	wload size (ms)	20 💌	
				/			
					Increment	al payload size	

- 4 In the **Modules** panel, select the line where the **Actual Type** column is set to **IP Trunks**.
- 5 Select the H.323 Media Parameters or SIP Media Parameters tab.
- 6 Enter the information that supports your system.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

Ensure that these settings are consistent with the other systems on your network.

Refer to Table 4 "H.323 Media Parameters fields" (page 20) and Table 5 "SIP Media Parameters fields" (page 21) for a description of the parameters.

–End—

## Table 4H.323 Media Parameters fields

Field	Value	Description
Preferred Codecs	G.711 -uLaw G.711 -aLaw G.729	Add codecs to the Selected list and order them in the order in which you want the system to attempt to use them. The system attempts to use the codecs in top-to-bottom sequence.
	G.723 <b>Performance note:</b> Codecs on all BCMs must be consistent to ensure functionality of interacting features Transfer and Conference.	
		Systems running BCM Release 3.5 or later allow codec negotiation and renegotiation to accommodate inconsistencies in codec settings over VoIP trunks.
Enable Voice Activity Detection	<check box=""></check>	Voice Activity Detection (VAD), 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. If VAD is enabled, no voice packets are sent from the listener end. This greatly reduces bandwidth requirements. G.723.1 and G.729 support VAD. G.711 does not support VAD.
		<b>Performance note:</b> VAD on all networked BCMs and IPT systems must be consistent to ensure functionality of features such as Transfer and Conference. The Payload size on the IPT must be set to 30ms.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

Field	Value	Description
Jitter Buffer	Auto	Select the size of jitter buffer for your system.
	None	
	Small	
	Medium	
	Large	
G.729 payload size (ms)	10,20,30,40,50,60	Set the maximum required payload size, per codec, for the VoIP calls sent over H.323 trunks.
G.723 payload size (ms)	30	<b>Note:</b> Payload size can also be set for Nortel IP telephones. See <i>BCM 4.0 Telephony Device</i>
G.711 payload size (ms)	10,20,30,40,50,60	Installation Guide (N0060609).
Incremental payload size	<check box=""></check>	When enabled, the system advertises a variable payload size (40, 30, 20, 10 ms).
Enable T.38 fax <check box=""> When over I</check>		When enabled, the system supports T.38 fax over IP.
		<b>Caution:</b> Fax tones broadcast through a telephone speaker may disrupt calls at other telephones using VoIP trunks in the vicinity of the fax machine. To minimize the possibility of your VoIP calls being dropped due to fax tone interference:
		<ul> <li>place the fax machine away from other telephones</li> </ul>
		turn the fax machine's speaker volume to the lowest level, or off, if available
Force G.711 for 3.1k Audio	<check box=""></check>	When enabled, the system forces the VoIP trunk to use the G.711 codec for 3.1k audio signals, such as modem or TTY machines.
		<b>Note:</b> You also can use this setting for fax machines if T.38 fax is not enabled on the trunk.

## Table 5SIP Media Parameters fields

Field	Value	Description
Preferred Codecs	G.711 -uLaw	Add codecs to the Selected list and order them
	G.711 -aLaw	in the order in which you want the system to attempt to use them. The system attempts to use
	G.729	the codecs in a top-to-bottom sequence.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

Field	Value	Description
	G.723	<b>Performance note:</b> Codecs on all networked BCMs must be consistent to ensure the proper functionality of interacting features such as Transfer and Conference.
		Systems running BCM Release 3.5 or later allow codec negotiation and renegotiation to accommodate inconsistencies in codec settings over VoIP trunks.
Enable Voice Activity Detection	<check box=""></check>	Voice Activity Detection (VAD), 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. If VAD is enabled, no voice packets are sent from the listener end. This greatly reduces bandwidth requirements. G.723.1 and G.729 support VAD. G.711 does not support VAD.
		<b>Performance note:</b> VAD on all networked BCMs and IPT systems must be consistent to ensure functionality of features such as Transfer and Conference. The Payload size on the IPT must be set to 30ms.
Jitter Buffer	Auto	Select the size of jitter buffer for your system.
	None	
	Small	
	Medium	
	Large	
G.729 payload size (ms)	10,20,30,40,50,60	Set the maximum required payload size, per codec, for the VoIP calls sent over H.323 trunks.
G.723 payload size (ms)	30	<b>Note:</b> Payload size can also be set for Nortel IP telephones. See <i>BCM 4.0 Telephony Device</i>
G.711 payload size (ms)	10,20,30,40,50,60	Installation Guide (N0060609).
Enable T.38 fax	<check box=""></check>	When enabled, the system supports T.38 fax over IP.
		<b>Caution:</b> Fax tones broadcast through a telephone speaker may disrupt calls at other telephones using VoIP trunks in the vicinity of

Field	Value	Description
		the fax machine. To minimize the possibility of your VoIP calls being dropped due to fax tone interference:
		<ul> <li>place the fax machine away from other telephones</li> </ul>
		<ul> <li>turn the fax machine's speaker volume to the lowest level, or off, if available</li> </ul>

## **Configuring local Gateway parameters**

Perform the following procedure to configure local Gateway parameters.

### **Configuring local Gateway parameters**

#### Step Action

- 1 Log on to Element Manager.
- 2 In the Task Navigation Panel, select the Configuration tab.
- **3** Select **Resources > Telephony Resources**.
- 4 In the **Module Panel**, select the line in which the **Actual Type** column is set to **IP Trunks**. See Figure 2 "Telephony Resources" (page 19).
- 5 Select the IP Trunk Settings tab and enter the information that supports your system. See Figure 3 "IP Trunk Settings" (page 24). Refer to Table 6 "IP Trunk Settings fields" (page 24) for information about the IP Trunk Settings fields.

Figure 3 IP Trunk Settin	gs					
🙋 BCM Element Manager ·	- 192.168.24	49.27				<u>_ 0 ×</u>
File Edit View Network	Session To	ols Heip				
🐗 Exit  🎇 Cut 🖳 C	topy 💼 Pa	aste 🛛 💳 Web Page	🗸 Validate Device 🏾 🎽	Disconnect	🎯 Refresh 🧂	Auto-refresh
Task Havigation Parts Administration	Telephony	Resources				
Configuration	Modules					
Welcome	Bus	Рюд Туре	Actual Type	Dip Sw	State	Devices Lo
Administrator Access	0	N/A	IP Trunks	N/A	N/A or bus	
Resources	1	N/A	IP & App Sets	N/A	Enabled	Sets
Madia Gateways     Port Banges						Þ
Telephony Resources     Network Interfaces	Disable	Enable				
Telephony Data Services	Details for	Module: 0				<u>^</u>
Applications	Rout	ting Table TP Trunk Setti	ngs H323 Settings H32	3 Media Parame	eters   SIP Settings	SIP Media Parameters   S
	[] []	elephony Settings				
		Forward redirected OLi	Send name	display 🔽		
		Remote capability MWI	V			

#### Table 6 IP Trunk Settings fields

Field	Value	Description
Forward redirected OLI	<check box=""></check>	If enabled, the OLI of an internal telephone is forwarded over the VoIP trunk when a call is transferred to an external number over the private VoIP network. If disabled, only the CLID of the transferred call is forwarded.
Send name display	<check box=""></check>	If enabled, the telephone name is sent with outgoing calls to the network.
Remote capability MWI	<check box=""></check>	This setting must coordinate with the functionality of the remote system hosting remote voice mail.

6 For H.323 VoIP trunks, select the **H.323 Settings** tab. See Figure 4 "H.323 Settings" (page 25).

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

#### Figure 4 H.323 Settings

BCM Element Manager	- 192.168.249.27					- [1]
File Edit View Network	Session Tools Help	Validate Decina	Disconnect	🔊 Refrech 🔎 útí	o-refresh	
Task Navigatino Panel		Validate Device	Disconnect			
Administration	Telephony Resources					
Configuration	Bus Proo Type	Actual Type	Dip Sw	State	Devices	Lo
System	0 N/A	IP Trunks	N/A	N/A	Lines	
Resources	1 N/A	IP & App Sets	N/A	Enabled	Sets	
<ul> <li>Application resource</li> <li>Media Gateways</li> </ul>				1		Þ
Port Ranges     Telephony Resources     Network Interfaces	Disable Enable					
Telephony	hutino Table IP Trunk Settings	323 Settinosi H323 Media	Parameters   SIP	Sattings   SIP Media Pa	rameters   SIP	IBL V
Applications	Telenhonu Settings					
	Fallback to circuit-switched	Epabled-All	Gateksepsi digi	ts		
	'					
	Gateway protocol	CSE 👻 G	iateksepsi wildca	rd 🗖		
	- Configuration		_	C-11-1		
	Call signaling Gat	ekeeper Routed	<u>*</u>	Call signaling port	1720	
	Enable H245 tunnelling 🕅			RAS port	0	
	Prinary Gatek and at IR			Residention TTL (a)		
	192	.167.101.2		riegiaueuori riic (a)	60	
	Backup Gatekaeper(s)			Gatekeeper TTL (s)	30	
	àlian marta a					
	Miles names NA	/IE:bcm40		Modify		-
						1
▲ ▶	Attempting to discover	gatekeeper at 192.167.	.101.2			Þ
one.			C:0	M:1	7 Include ACKe	d alar

- 7 When implementing your dialing plan, in the **H.323 Settings** tab, select a value for **Fall back to circuit-switched**. This determines how the system handles calls if the IP network cannot be used.
- 8 For Gateway protocol, select CSE.
- 9 Scroll down to Alias names and click Modify. The Modify Call Signaling Settings page appears.
- 10 Enter the information that supports your system. Applying the changes made to the Call Signaling Settings causes all H.323 calls to be dropped. It is recommended that you make changes to the Call Signaling Settings during off-peak hours or a scheduled maintenance window.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

Refer to Table 7 "H.323 Call Signaling Settings fields" (page 26).

Table 7	
H.323 Call Signaling	Settings fields

Field	Value	Description
Call signaling	Direct	Call signaling information is passed directly between H.323 endpoints. You must set up remote Gateways.
	Gatekeeper Resolved	All call signaling occurs directly between H.323 endpoints. This means that the Gatekeeper resolves the phone numbers into IP addresses, but the Gatekeeper is not involved in call signaling.
	Gatekeeper Routed	Gatekeeper Routed uses a Gatekeeper for call setup and control. In this method, call signaling is directed through the Gatekeeper.
	Gatekeeper Routed no RAS	Use this setting for a NetCentrex Gatekeeper. With this setting, the system routes all calls through the Gatekeeper but does not use any of the Gatekeeper Registration and Admission Services (RAS).
		Choose this option if RAS is not enabled on the NRS.
Call signaling port	<port value=""></port>	If VoIP applications are installed that require nonstandard call signaling ports, enter the port number here. Port number 0 means that the system uses the first available port.
		The default port for call signaling is 1720.
RAS port	<port value=""></port>	If the VoIP application requires a nonstandard RAS port, enter the port number here. Port number 0 means that the system uses the first available port.
Enable H245 tunneling	<check box=""></check>	Select this field to allow H.245 messages within H.225. Restart the VoIP service for this feature to take effect.
Primary Gatekeeper IP	<ip address=""></ip>	Fill in this field only if the network is controlled by a Gatekeeper. This is the IP address of the primary Gatekeeper (TLAN IP address).
Backup Gatekeepe r(s)	<ip address=""></ip>	NetCentrex Gatekeeper does not support RAS. Any backup Gatekeepers must be entered in this field. Gatekeepers that use RAS can provide a list of backup Gatekeepers for the endpoint to use in the event of a primary Gatekeeper failure.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

Field	Value	Description
Alias names	NAME: <alias name=""></alias>	Enter the alias names of the BCM required to direct call signals to your system.
		<b>Note:</b> The Alias name is case sensitive. It must match the name configured in NRS.
Registration TTL(s)	<numeric value=""></numeric>	Specifies the keep-alive interval.

#### 11 For SIP trunks, select the **SIP Settings** tab. See Figure 5 "SIP Settings" (page 27).

#### Figure 5 SIP Settings

BCM Element Manager -	- 192.168.249.27 Session Tools Help				_15
Trach Marine Trace	opy 🖷 Paste 📑 Web Page	🗸 Validate Device 🎽	Disconnect	🚭 Refresh 🧂	🛿 Auto-refresh
Administration	Telephony Resources	Interogate the de	vice in order to c	hack for any chan	iges
Welcome	Bus Prog Type	Actual Type	Dip Sw	State	Devices Lo
System Administrator Access	0 N/A	IP Trunks	N/A	N/A	Lines
Application Resource	1 N/A	IP & App Sets	N/A	Enabled	Sets
Media Gateways     Port Ranges     Telephony Resources	Disable Enable				<u>•</u>
<ul> <li>Network Interfaces</li> <li>Telephony</li> <li>Data Services</li> </ul>	puting Table   IP Trunk Settings   H32	23 Settings   H323 Media F	Parameters SIP 9	SIP Me	dia Parameters   SIP URI
Applications	Telephony Settings		SIP Se	ttings	
	Fallback to circuit-switched	Enabled:All		Uomain Name	ccsip.com
			Ca	Il signaling port	5060
			Outg	joing Transport	UDP 💌
	Proxy Support				
	Proxy				
	Status Gateway is running				

**12** Enter the information that supports your system.

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Refer to Table 8 "SIP Settings fields" (page 28) for more information.

Tab	le 8	
SIP	Settings	fields

Field	Value	Description
Fallback to	Disabled	Defines how you want the system to handle calls
circuit-switched	Enabled-TDM	that the system fails to send over the VoIP trunk.
	Enabled-All	Enabled-TDM enables fallback for calls originating on digital telephones. This is useful if your IP telephones are connected remotely, on the public side of the BCM network, because PSTN fallback is unlikely to result in better quality of service.
Domain Name		Type the domain name of the SIP network.
Call signaling port	<port value=""></port>	If VoIP applications are installed that require nonstandard call signaling ports, enter the port number here. Port number 0 means that the system uses the first available port.
Outgoing Transport	UDP	
	ТСР	
Proxy		If entered, all SIP calls originate to this address.
Status	Read Only	This field displays the current status of the Gatekeeper.

-End—

## **Configuring VoIP lines**

Voice over IP (VoIP) lines simulate traditional Central Office (CO) lines. VoIP lines transmit data over an IP network rather than over physical lines.

## **Configuring VoIP lines**

Step	Action
1	Log on to Element Manager.
2	In the Task Navigation Panel, select the Configuration tab.
3	Select Telephony > Lines > All Lines.
4	Highlight the individual line you wish to configure.
5	Select the <b>Parameters</b> tab. See Figure 6 "VoIP lines" (page 29).

Figure 6							
VOIP lines	100 0 40 07						
Cie Edit View Network Cessi	.100.249.27						
File Edit View Metwork Sessi	on tools Help						
🐗 Exit 🛛 💥 Cut 📑 Copy	Paste 📑	wab Paga 🗸 V	alidate Device	🧏 Disconnect	🔗 Refresh	Muto-refresh	
Task Newigation Partel Configuration Administration	All Lines						
Welcome	Line Trunk	Гуре	Control Set	Prime Set			
⊕ System	001 VolP		222	222			<b>A</b>
🕀 💼 Administrator Access	002 VolP		222	222			
E-     Resources	000 1/-10		222	222			-
E-C Telephony	Com 1	2-44-					
🗄 💼 Global Settings 📗		aste					
E _ Sets	<u> </u>						
	Details for Line:	001					
Active Physical L							
Active VolP Line	Parameters	Preferences Re	estrictions Assi	gned DNs			
		Name Line001					
Schaduled Services	Line	Tuna In-LA	-				
E Dialing Plan		POOKA	<u> </u>				
Bing Groups	Disting	t Ring None	-				
E Call Security		- Income					
- O Hospitality							
Hunt Groups							
Call Detail Becording							

6 Configure the Parameters tab appropriately for your network. Refer to Table 9 "VoIP line descriptions" (page 29) for configuration information.

# Table 9VoIP line descriptions

Field	Value	Description
Line	001-060	Unique line number.
Trunk Type	VoIP	Ensure that the trunk type is set to VoIP when configuring VoIP lines.
Control Set		Identify a DN if you are using this line with scheduling. To change the DN, double-click the Control Set DN.
		For VoIP trunks, it is recommended that the Control Set be set to None because these are virtual trunks. Ensure that the VoIP trunk is assigned to a line pool.
Prime Set		Use the Prime Set if you want the line to be answered at another telephone when the line is not answered at the target telephone. To change the Prime set, double-click the Prime set DN.
		For VoIP trunks, it is recommended that the Prime Set be set to None because these are virtual trunks. Ensure that the VoIP trunk is assigned to a line pool.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

#### 30 BCM 200/400 Release 4.0 configuration

Field	Value	Description
Name		Identify the line in a meaningful way.
Line Type		Defines how the line is used in relation to other lines in the system.
	Public	If the line is to be shared among telephones, set to Public.
	DN:*	If the line is assigned to only one telephone, set to DN:*.
	Pool [A to O]	If you are using routing, put the line into line pool (A to F). If you are using line pools, configure the target lines. If your system uses both H.323 and SIP trunks, assign H.323 trunks to one pool and SIP trunks to another.
Distinct Ring	2, 3, 4, or None	For trunks assigned to line pools, set the Distinct Ring pattern to None.

#### 7 Select the **Preferences** tab.

See Figure 7 "Preferences" (page 30).

#### Figure 7

Preferences	
BCM Element Manager - 192.168.249.27	
File Edit View Network Session Tools Help	
🐐 Exit 🐰 Cut 🧤 Copy 👒 Paste 📑 Web Page 🖌 Validate Device 🧏 Disconnect 🔗 Refresh 💋	Auto-refresh
Task (Kavigatino Pans) All Lioss	Auto-remesh ali polied heids
Administration	
Control Set Prime Set	
Welcome 001 VoIP 222 222	<u> </u>
System 002 VolP 222 222	<b>v</b>
Administrator Acc	
Hesources Copy Paste	
Brief Getails for Line: 001	
Parameters Preferences Restrictions Assigned DNs	
Active Vol	
Target Lin Auto privacy	
● Inactive L	
All Lines Full autohold	
Loops	
Scheduled Se Aux, ringer	
📴 💼 Dialing Plan	
Bing Groups     Distinct rings in use     Patterns 3,4	
Call Security	
Hospitality	

- 8
- Configure the Preferences tab appropriately for your network.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

Refer to Table 10 "Preferences fields" (page 31) for configuration information.

#### Table 10 Preferences fields

Field	Value	Description
Auto privacy	<check box=""></check>	Defines whether one BCM user can select a line in use at another telephone to join an existing call. For more information, see <i>BCM 4.0 Device</i> <i>Configuration Guide</i> (N0060600).
Full autohold	<check box=""></check>	Enables or disables Full autohold. When enabled, if a caller selects an idle line but does not dial any digits, that line is automatically placed on hold if the caller selects another line. Change the default setting only if Full autohold is required for a specific application.
Aux. ringer	<check box=""></check>	If your system is equipped with an external ringer, you can enable this setting so that this line rings at the external ringer.
Distinct rings in use	Read only	Indicates whether a special ring is assigned.

## 9 Select the **Restrictions** tab.

See Figure 8 "Restrictions" (page 31).

#### Figure 8 Restrictions



10

Configure the Restrictions tab appropriately for your network.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

Refer to Table 11 "Restrictions fields" (page 32) for configuration information.

#### Table 11 Restrictions fields

Field	Value	Description
Use remote package	< package #>	If the line is used to receive external calls or calls from other nodes on the private network, ensure that you indicate a remote package that provides only the availability that you want for external callers. This attribute is typically used for tandeming calls.
Schedule	Default: Normal, Night, Evening, Lunch, Sched 4, Sched 5, Sched 6	
Line Restrictions - Use Filter	<00-99>	Enter the restriction filter number that applies to each schedule. These settings control outgoing calls.
Remote Restriction s - Use Filter	<00-99>	Enter the restriction filter that applies to each schedule. These settings provide call controls for incoming calls over a private network or from a remote user dialing in over PSTN.

#### 11 Select the Assigned DNs tab. See Figure 9 "Assigned DNs" (page 32).

## Figure 9

#### Assigned DNs



Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

- 12 Edit the listed DNs or click Add to add a DN as required.
- **13** Enter the appropriate information for your network. Refer to Table 12 "Assigned DNs fields" (page 33) for configuration information.

Table 12	
Assigned	DNs fields

Field	Value	Description
DN		Unique number
Appearance Type	Ring Only	Select Appr Only or Appr&Ring if the telephone
	Appr&Ring	has an available button. Otherwise select Ring Only.
	Appr Only	
Appearances		Target lines can have more than one appearance to accommodate multiple calls. For telephones that have these lines set to Ring Only, set to None.
Caller ID Set	<check box=""></check>	When enabled, displays caller ID for calls coming in over the target line.
Vmsg Set	<check box=""></check>	When enabled, an indicator appears on the telephone when a message is waiting from a remote voice mail system. Check with your system administrator for the system voice mail setup before changing this parameter.

-End-

## **Configuring target lines**

Target lines are virtual communication paths between trunks and telephones on the BCM system. They are incoming lines only and cannot be selected for outgoing calls or networking applications.

#### **Configuring target lines**

#### Step Action

- 1 Log on to Element Manager.
- 2 In the Task Navigation Panel, select the Configuration tab.
- **3** Select **Telephony > Lines > Target Lines**.
- 4 Highlight the individual line you wish to configure.

5 Select the **Parameters** tab and enter the appropriate information for your network.

See Figure 10 "Parameters" (page 34). Refer to Table 13 "Parameters fields" (page 34) for configuration information.

## Figure 10



Table 13 Parameters fields

Field	Value	Description
Name		Enter the name for the line, for example, Line241.
Line Type	Public DN:*:	If the line is to be shared among telephones, select Public. If the line is only assigned to one telephone, select DN:*:.
Pub. Received #		Confirm the existing number or enter a public received number (PSTN DID or PRI trunks) that the system uses to identify calls from the public network to the target line.
		The public received number cannot be the same as the beginning digits of a line pool access code or destination code.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

Field	Value	Description
Priv. Received #		If private network trunks (PRI or VoIP trunks) are configured, enter a private received number. The private received number specifies the digits the system uses to identify calls from the private network to a target line.
		This number is usually the same as the DN.
Distinct Ring	2, 3, 4, or None	If you want this line to have a special ring, select a ring pattern.

6 Select the **Preferences** tab and enter the appropriate information for your network.

See Figure 11 "Preferences" (page 35). Refer to Table 14 "Preferences fields" (page 35) for configuration information.

#### Figure 11 Preferences

BCM Element Manager	- 192.168.249.27				
File Edit View Network	Session Tools Help				
📲 Exit 🐰 Cut 📭	Copy 💼 Paste 🔚 W	ab Paga 🖌 Validate De	svice 🧏 Disconnect	t 🔗 Refresh 💣 Auto-refresh	
Task Navigation Panel	Target Lines			Auto-refresh all po	led fields for 60
Administration		[a., 1a.		· · · ·	
Conriguration	Line Trunk Type	Control Set	Prime Set		
- • Welcome	241 Target line	222	222		<u> </u>
- System	242 Target line	222	222		Ţ
Administrator Access					
Teisphonu	Copy Paste				
H- Global Settings	2				
	r Line: 241				
E-C Lines					
Active Physic	maters Preferences Assigned DNs				
Active VolP L					
😌 Target Lines	Aur inner	-		If Busu	
<ul> <li>Inactive Line</li> <li>All Lines</li> </ul>	-ax. mgor			n o day	Busy tone
All Lines	Distinct rings in use	Patterns 3.4		Voice message center	1
<ul> <li>Scheduled Servic</li> </ul>				_	
				Pedirect to	
<ul> <li>Ring Groups</li> </ul>				Hadirect to	
🗈 🚞 Call Security					

#### Table 14 Preferences fields

Field	Value	Description
Aux. ringer	<check box=""></check>	If your system is equipped with an external ringer, you can enable this setting so that this line rings at the external ringer.
lf Busy	Busy tone	To automatically direct calls to the prime telephone, select To prime. Otherwise, select
		Busy tone.
Distinct rings in use	Read only	

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

#### 36 BCM 200/400 Release 4.0 configuration

Field	Value	Description
Voice message center		If the system is using a remote voice mail, select the center configured with the contact number.
Redirect to		To automatically direct calls out of the system to a specific telephone, such as a head office answer attendant, enter that remote number here. Ensure that you include the proper routing information.

# 7 Select the Assigned DNs tab.See Figure 12 "Assigned DNs" (page 36).

#### Figure 12 Assigned DNs

🙋 BCM Element Manager - 19	92.168.249.27			_ D X	
File Edit View Network Ses	ssion Tools Help				
📲 Exit 💥 Cut 🖺 Copy	📲 Exit 🐰 Cut 🌇 Copy 🖷 Paste 👘 Web Page 🖌 Validate Device 🧏 Disconnect  Refresh 🍘 Autorefresh				
Task Navigatizo Panel Ta	arget Lines				
Administration Configuration	Line Trunk Type	Control Set Prime Set			
Welcome	241 Target line	222 222		<b></b>	
- Sustem	242 Target line	222 222			
Administrator Access	242 Taiget line	222 222		Ŧ	
- 🗀 Resources	Conv.   Basta				
- 🔄 Telaphony	Copy Faste				
🗄 💼 Global Settings 📗 👘	· · · · · · · · · · · · · · · · · · ·				
E Sets	s Details for Line: 241				
<ul> <li>Active Physic</li> </ul>	Parameters Preferences Assig	ned DNs			
Active VolP L	DN Appearance Type	Appearances Caller ID Set	Vmsg Set		
	222 Appr&Ring	1 🗆			
All Lines	241 Bing only	1 🗆			
- O Loops	ACE Appri Ping	1 1			
Scheduled Servic	465 Apprening	1 19	L.		
😥 💼 Dialing Plan					
- Sing Groups					
🔁 💼 Call Security					
O Hospitality	1				
Hunt Groups	Add Delete				
Call Detail Record					
Data Services					
Applications					

- 8 Edit the listed DNs, or click **Add** to add a DN as required.
- 9 Enter the appropriate information for your network. Refer to Table 12 "Assigned DNs fields" (page 33) for configuration information.



Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

# BCM 200/400 Release 3.7 configuration

This chapter describes configuration procedures for the Business Communications Manager (BCM) 200 and 400 Release 3.7 systems.

#### BCM 200/400 Release 3.7 configuration procedures

The sequence of BCM 200/400 Release 3.7 configuration procedures is as follows:

- "Verifying incoming VoIP trunks provisioning" (page 37)
- "Adding keycodes files" (page 38)
- "Adding a functionality-specific keycode" (page 38)
- "Configuring VoIP H.323 trunk media parameters" (page 39)
- "Configuring VoIP SIP trunk media parameters" (page 40)
- "Configuring H.323 local Gateway IP parameters" (page 41)
- "Configuring SIP local Gateway IP parameters" (page 42)
- "Configuring SIP subdomains" (page 43)
- "Configuring remote H.323 Gateways" (page 44)
- "Configuring remote SIP endpoints" (page 45)
- "Configuring VoIP lines for outgoing calls" (page 46)
- "Configuring target lines for incoming calls" (page 49)
- "Configuring telephones to access outgoing VoIP lines" (page 50)

#### Verifying incoming VoIP trunks provisioning

Perform this procedure to verify that incoming VoIP trunks are provisioned.

Step	Action		

- 1 Log on to the Unified Manager.
- 2 Select the **BCM>System>Licensing** heading. The Licensing Setting page appears.

- **3** Select the Applied Keycodes tab.
- 4 In the list of applied keycodes, check that there are sufficient VoIP gateway ports.

—End—

## Adding keycodes files

Perform the following procedure to add keycodes.

Step	Action
1	Log on to the Unified Manager.
2	Select <b>BCM&gt;System&gt;Licensing&gt;Keycode Files</b> . The Keycode File Location Information page appears.
3	Enter the required information for the keycode file.
4	Select the <b>Configuration</b> tab.
5	Click Apply new Keycode File.
6	A message appears asking you to confirm. Click Yes.
7	When prompted, reboot the system to activate your new keycodes.

—End—

## Adding a functionality-specific keycode

Perform the following procedure to verify the system license and keycodes.

Step	Action
1	Log on to the Unified Manager.
2	Select the <b>BCM&gt;System&gt;Licensing</b> heading. See figure from Adding keycodes files.
3	Select the <b>Configuration</b> tab.
4	Click <b>Add a keycode</b> . The Keycode dialog box appears.
5	Enter a valid <b>Keycode</b> .
6	Click Save.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

–End—

## Configuring VoIP H.323 trunk media parameters

Perform the following procedure to configure H.323 Gateway trunks.

#### Step Action

- 1 Log on to the Unified Manager.
- 2 Select the BCM>Services>IP telephony>IP trunks>H.323 trunks heading.

The Local Gateway IP Interface page appears.

- 3 Select the **Media Parameters** tab.
- Configure the parameters listed in the table below with the appropriate values for your network.
   Ensure that these settings are consistent with the other systems on your network

#### Table 15 H.323 media parameters

Parameter	Value
1st Preferred Codec	None
	G.729
2nd Preferred Codec	None
	G.723
3rd Preferred Codec	None
	G.711-uLaw
4th Preferred Codec	None
	G.711-aLaw
Silence Compression	Enabled
	Disabled
Jitter Buffer – Voice	Auto
	None
	Small
	Medium
	Large

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

Parameter	Value	
T.38 Fax Support	Enabled	
	Disabled	
G.729 Payload Size (ms)	10, 20, 30, 40, 50, 60	
G.723 Payload Size (ms)	30	
G.729 Payload Size (ms)	10, 20, 30, 40, 50, 60	
Incremental Payload Size	Enabled	
	Disabled	

		-	_	
_	ᄃ	П	U	

## **Configuring VoIP SIP trunk media parameters**

Perform the following procedure to configure SIP media parameters.

#### Step Action

- 1 Log on to the Unified Manager.
- 2 Select the BCM>Services>IP Telephony> IP Trunks>SIP Trunks heading. The SIP Trunks Summary page appears

The SIP Trunks Summary page appears.

- 3 Select the Media Parameters tab.
- 4 Configure the parameters listed in the table below with the appropriate values for your network. Ensure that these settings are consistent with the other systems on your network.

## Table 16SIP media parameters

Parameter	Value
1st Preferred Codec	None
	G.729
2nd Preferred Codec	None
	G.723
3rd Preferred Codec	None
	G.711-uLaw

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

Parameter	Value
4th Preferred Codec	None
	G.711-aLaw
Silence Compression	Enabled
	Disabled
Jitter Buffer – Voice	Auto
	None
	Small
	Medium
	Large

—End—

## **Configuring H.323 local Gateway IP parameters**

Perform the following procedure to configure local Gateway parameters.

Step	Action
1	Log on to the Unified Manager.
2	Select the <b>BCM&gt;Services&gt;IP Telephony&gt;IP Trunks&gt;H.323 Trunks</b> heading. The Local Gateway IP Interface page appears.
3	Select Resources>Telephony Resources.

4 In the Local Gateway IP Interface section, configure the parameters listed in the table below with the appropriate values for your network.

#### Table 17 H.323 local Gateway IP parameters

Parameter	Value
Fallback to Circuit-Switched	Enabled-All
	Enabled-TDM-only
	Disabled

Parameter	Value
Call Signaling	Direct
	GatekeeperRouted
	GatekeeperResolved
	Gatekeeper RoutedNoRAS
Primary Gatekeeper IP	
Backup Gatekeeper	
Alias Names	
Registration TTL (Seconds)	
Gateway Protocol	None
	SL1
	CSE
H245 Tunneling	Enabled
	Disabled
Call Signaling Port	
RAS Port	
Force G.711 for 3.1k Audio	Enabled
	Disabled
Forward Redirected OLI	Enabled
	Disabled

- 5 When implementing your dialing plan, in the **H.323 Local Gateway** IP Interface tab, be sure to select a value for **Fall back to** circuit-switched. This determines how the system handles calls if the IP network cannot be used.
- 6 For Gateway protocol, select CSE.
- 7 Applying the changes made to the Call Signaling Settings causes all H.323 calls to be dropped. It is recommended that you make changes to the Call Signaling Settings during off-peak hours or a scheduled maintenance window.

—End—

## **Configuring SIP local Gateway IP parameters**

Perform the following procedure to configure SIP local Gateway IP parameters.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

#### Step Action

- 1 Log on to the Unified Manager.
- 2 Select the BCM>Services>IP Telephony>IP Trunks>SIP Trunks heading. The Summary page appears.
- 3 Configure the parameters listed in the table below with the
  - appropriate values for your network.

## Table 18SIP local Gateway IP parameters

Parameter	Value
Fallback to Circuit-Switched	Enabled-All
	Enabled-TDM-only
	Disabled
SIP Domain	

Ling	

## **Configuring SIP subdomains**

Perform the following procedure to configure SIP subdomains.

Step	Action		

- 1 Log on to the Unified Manager.
- Expand the BCM>Services>IP telephony>IP trunks>SIP trunks heading.
   The SIP Trunks Summary page appears.
- 3 Select the **Dialing Sub-Domain** tab.
- 4 Configure the parameters listed in the table below with the appropriate values for your network.

Parameter	Value
e.164 / National	
e.164 / Subscriber	
e.164 / Special	
e.164 / Unknown	

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

#### 44 BCM 200/400 Release 3.7 configuration

Parameter	Value
Private / UDP	
Private / CDP	
Private / Special	
Private / Unknown	
Unknown / Unknown	

—End—	

### Configuring remote H.323 Gateways

Perform the following procedure to configure remote H.323 Gateways.

Step	Action	

- 1 Log on to the Unified Manager.
- 2 Expand the BCM>Services>IP telephony>IP trunks>H.323 trunks>Remote Gateway heading. The Remote Gateway page appears.
- 3 Select Configuration.
- 4 Select Add Entry to add a new remote gateway.
- **5** Configure the parameters listed in the table below with the appropriate values for your network.

Parameter	Value
Name	<alphanumeric></alphanumeric>
Destination IP	<ip address=""></ip>
QoS Monitor	Disabled
	Enabled
Transmit Threshold	0.0 (bad) to 5.0 (excellent)
Receive Threshold	0.0 (bad) to 5.0 (excellent)

Parameter	Value
Gateway type	BCM3.6
	BCM3.5
	BCM3.0
	BCM2.5
	CS1000
	CS2000
	IPT
	NetMeeting
	Norstar IP Gateway
	Other
Gateway Protocol	None
	SL1
	CSE
Destination Digits	<numeric></numeric>
	Can be the same as the destination code for the route to the system.

6 Click the **Save** button to save the remote gateway.

_	Ε	n	d	
	╘		ч	

## **Configuring remote SIP endpoints**

Perform the following procedure to configure remote SIP endpoints.

Step	Action
1	Log on to the Unified Manager.
2	Expand the <b>BCM&gt;Services&gt;IP telephony&gt;IP trunks&gt;SIP trunks</b> heading.
3	Select <b>Address Book</b> . The Address Book page appears.
4	Select Configuration.

5 Select Add Entry to add a new remote gateway.

6 Configure the parameters listed in the table below with the appropriate values for your network.

Parameter	Value
Name	<alphanumeric></alphanumeric>
Destination IP	<ip address=""></ip>
QoS Monitor	Disabled
	Enabled
Transmit Threshold	0.0 (bad) to 5.0 (excellent)
Receive Threshold	0.0 (bad) to 5.0 (excellent)
Destination Digits	<numeric></numeric>
	Can be the same as the destination code for the route to the system.

7 Click the **Save** button to save the remote endpoint.

—End—
-------

### **Configuring VoIP lines for outgoing calls**

Perform the following procedure to configure VoIP lines for outgoing calls.

#### Step Action

- 1 Log on to the Unified Manager.
- 2 Expand the BCM>Services>Telephony Services>Lines>VoIP Lines>All VoIP lines heading.
- 3 In the All VoIP lines section, expand the **Line** you wish to configure (for example, Line 001).
- 4 Select the **General** tab.
- **5** Configure the parameters listed in the table below with the appropriate values for your network.

## Table 19General parameters

Parameter	Value
Name	
Control Set	
Use Remote Package	

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

- 6 Expand the **Trunk/line data** heading. The Trunk/Line data page appears.
- 7 Configure the parameters listed in the table below with the appropriate values for your network.

*Note:* The Line pool must belong to a line pool that contains the same type of VoIP line.

If you want specific restrictions assigned to the line, enter the information under the **Restrictions** heading.

Parameter	Value	Description
Line Type	Public	
	Private to:	
	Pool {A to O }	
Prime Set	DN:	
	None	
	DN <defined #="" dn=""></defined>	
Distinct Ring	None	
	Pattern 2	
	Pattern 3	
	Pattern 4	
Auto Privacy	N (No)	
	Y (Yes)	
Use auxiliary ringer	N (No)	
	Y (Yes)	
Full autohold	N (No)	
	Y (Yes)	
Redirect to	<dial string=""></dial>	Enter a dial string (including routing code) to redirect the line to an external telephone, such as a call attendant on another system. To stop redirection, delete the dial string and allow the record to update

#### 8 Expand the **Restrictions>Line Restrictions** heading.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

**9** Configure the local restrictions schedules for this line. Refer to the table below for details.

Schedule	Filter	Description
Normal		Assign the filter to be used for Normal.
Night		Assign the filter to be used for Night.
Evening		Assign the filter to be used for Evening.
Lunch		Assign the filter to be used for Lunch.
Sched 4		Assign the filter to be used for Sched 4.
Sched 5		Assign the filter to be used for Sched 5.
Sched 6		Assign the filter to be used for Sched 6.

- 10 Expand the **Restrictions> Remote Restrictions** heading.
- 11 Configure the remote restrictions schedules for this line. Refer to the table below for details.

Schedule	Filter	Description
Normal		Assign the filter to be used for Normal.
Night		Assign the filter to be used for Night.
Evening		Assign the filter to be used for Evening.
Lunch		Assign the filter to be used for Lunch.
Sched 4		Assign the filter to be used for Sched 4.
Sched 5		Assign the filter to be used for Sched 5.
Sched 6		Assign the filter to be used for Sched 6.

**12** Repeat this procedure for all the outgoing lines you wish to configure.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

*Note:* Configuring SIP and H.323 trunks in the same pool may result in unpredictable results because they do not support the same level of service.



## Configuring target lines for incoming calls

Perform the following procedure to configure telephones to access outgoing VoIP lines.

Step	Action
1	Log on to the Unified Manager.
2	Expand the BCM>Services>Lines>Target Lines heading.
3	Expand the target line to be configured.

- 4 Select the **General** tab.
- **5** Configure the parameters listed in the table below with the appropriate values for your network.

## Table 20

Target li	ne para	meters
-----------	---------	--------

Parameter	Value
Name	
Control Set	

#### 6 Select the **Trunk/Line data** tab.

7 Configure the parameters listed in the table below with the appropriate values for your network.

## Table 21Target line parameters

Parameter	Value
Trunk type	
Line Type	
If busy	
Prime Set	
Distinct ring in use	

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

#### 50 BCM 200/400 Release 3.7 configuration

Parameter	Value
Distinct ring	
use Auxiliary ringer	
redirect to	

—End—

# Configuring telephones to access outgoing VoIP lines Perform the following procedure to configure telephones to access outgoing

VoIP lines.

Step	Action
1	Log on to the Unified Manager.
2	Expand the <b>BCM</b> folder.
3	Expand the Services heading.
4	Expand the Telephony Services heading.
5	Expand the System DNs heading.
6	Expand the All System DNs or Active Set DNs heading.
7	Expand the <b>DN</b> you wish to configure to use VoIP trunking (for example, DN 222).
8	Expand the Line Access heading.
9	Select Line pool access.
10	Click the <b>Add</b> button. The Add Line Pool Access page appears.
11	Type the letter of the VoIP Line Pool to be used.
12	Click Save.
13	To configure the line to access both H.323 and SIP Line pools, repeat steps 11 and 12.
14	Repeat this procedure for all telephones you wish to configure to access outside lines.
	—End—

# **BCM50** configuration

This chapter describes configuration procedures for the Business Communications Manager 50 (BCM50) system.

Element Manager as viewed on your system may differ slightly from the screens shown in this chapter because you can customize the column display in Element Manager.

#### **BCM50** configuration procedures

The sequence of BCM50 configuration procedures is as follows:

- "Configuring incoming VoIP trunks" (page 51)
- "Verifying system license and keycodes" (page 52)
- "Configuring VoIP trunk media parameters" (page 53)
- "Configuring local Gateway parameters" (page 57)
- "Configuring VoIP lines" (page 61)
- "Configuring target lines" (page 65)

#### Configuring incoming VoIP trunks

Perform the following procedure to configure incoming VoIP trunks.

#### **Configuring incoming VoIP trunks**

Step	Action
1	Log on to Element Manager.

- 2 In the Task Navigation Panel, select the Configuration tab.
- 3 Select System > Keycodes. See Figure 13 "Keycodes" (page 52).

Task Navigation Panel	Keycodes				
Configuration Administration					
<ul> <li>Welcome</li> </ul>	System ID	0016CA417D10	Sequence # 4	Key type 🥊	
∃					
Date and Time					
Keycodes	Feature license	28	,		
IP Subsystem	Status	Name	Data	Expiry Date	
E- in Administrator Access	ACTIVE	Fax on Demand		1	
E- <u>_</u> Resources	ACTIVE	Fax Suite		1	
E-B Data Services	ACTIVE	VPIM/AMIS		1	
	ACTIVE	Q.SIG		1	
	ACTIVE	MCDN		1	
	ACTIVE	DPNSS		1	
	ACTIVE	LANCTE Seat		1	
	ACTIVE	VoIP GW Trunk		1	
	ACTIVE	IP Client seat		1	
	ACTIVE	NCM BCM50a/e		1	
		Load File	Modify Feature Lic	enses Table	
	Keycode F	tetrieval nect to Nortel Keycode Ri	etrieval System		

 Load new Keycodes by loading a new keycode file or connecting to Nortel's Keycode Retrieval System (KRS).
 For more information about keycodes and keycode retrieval, see Keycode Installation Guide (NN40010-301).

—End—

## Verifying system license and keycodes

Perform the following procedure to verify system license and keycodes.

#### Verifying system license and keycodes

#### Step Action

- 1 Log on to Element Manager.
- 2 In the Task Navigation Panel, select the Configuration tab.
- 3 Select System > Keycodes. See Figure 13 "Keycodes" (page 52).

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

4 In the **Name** column, scroll down to **VoIP GW Trunk**. The number of license keys you have are listed in the Data column.

—End—

## **Configuring VoIP trunk media parameters**

Perform the following procedure to configure VoIP trunk media parameters.

#### **Configuring VoIP trunk media parameters**

Step	Action
1	Log on to Element Manager.

- 2 In the Task Navigation Panel, select the Configuration tab.
- Select Resources > Telephony Resources.
   See Figure 14 "Telephony Resources" (page 53).
  - Figure 14 **Telephony Resources** Task Navigation Panel **Telephony Resources** Configuration Administration Modules • Welcome Module type Bus State Devices Low High Total Location Bu 🚞 System Administrator Access IP & Application Set 1 N/A N/A N/A Sel 0 Application Resource IP Trunks N/A N/A Media Gateways Port Ranges
     Telephony Resource BRI Loop 61 3 Enabled Lines 64 4 Dial Up Interfaces Sets 4 Enabled Sets N/A N/A 0 Telephony 🛅 Data Services -Applications Enable Details for Module: Internal Routing Table | H323 Settings | H323 Media Parameters | SIP Settings | SIP Media Parameters | SIP URI Map | Preferred Codecs Settings Enable Voice Activity Detection Codec Preferences Available list Selected list Jitter buffer Auto 💌 G.729 G.729 payload size (ms) 30 💌 G.723 G.711-uLaw G.723 payload size (ms) 30 👻 G.711-aLaw G.711 payload size (ms) 30 👻 Incremental payload size Enable T.38 fax 2 Force G.711 for 3.1k audio C:0 M:0 m:44 Done
- 4 In the **Modules** panel, select the line where the **Module Type** column is set to **IP Trunks**.
- 5 Select the H.323 Media Parameters or SIP Media Parameters tab.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

Enter the information that supports your system.
 Ensure that these settings are consistent with the other systems on your network.
 Refer to Table 22 "H.323 Media Parameters fields" (page 54) and Table 23 "SIP Media Parameters fields" (page 55) for a description of the parameters.

—End—

Table 22		
H.323 Media	Parameters	fields

Field	Value	Description
Preferred Codecs	G.711 -uLaw G.711 -aLaw G.729	Add codecs to the Selected list and order them in the order in which you want the system to attempt to use them. The system attempts to use the codecs in top-to-bottom sequence.
	G.723	<b>Performance note:</b> Codecs on all networked BCMs must be consistent to ensure the proper functionality of interacting features such as Transfer and Conference.
		Systems running BCM Release 3.5 or later allow codec negotiation and renegotiation to accommodate inconsistencies in codec settings over VoIP trunks.
Enable Voice Activity Detection	<check box=""></check>	Voice Activity Detection (VAD), 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. If VAD is enabled, no voice packets are sent from the listener end. This greatly reduces bandwidth requirements. G.723.1 and G.729 support VAD. G.711 does not support VAD. <b>Performance note:</b> VAD on all networked BCMs and IPT systems must be consistent to ensure
		functionality of features such as Transfer and Conference. The Payload size on the IPT must be set to 30ms.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

Field	Value	Description
Jitter buffer	Auto	Select the size of jitter buffer for your system.
	None	
	Small	
	Medium	
	Large	
G.729 payload size (ms)	10,20,30,40,50,60	Set the maximum required payload size, per codec, for the VoIP calls sent over H.323 trunks.
G.723 payload size (ms)	30	<b>Note:</b> Payload size can also be set for Nortel IP telephones. See <i>BCM 4.0 Telephony Device</i>
G.711 payload size (ms)	10,20,30,40,50,60	Installation Guide (N0060609).
Incremental payload size	<check box=""></check>	When enabled, the system advertises a variable payload size (40, 30, 20, 10 ms).
Enable T.38 fax	<check box=""></check>	When enabled, the system supports T.38 fax over IP.
		<b>Caution:</b> Fax tones broadcast through a telephone speaker may disrupt calls at other telephones using VoIP trunks in the vicinity of the fax machine. To minimize the possibility of your VoIP calls being dropped due to fax tone interference:
		<ul> <li>place the fax machine away from other telephones</li> </ul>
		• turn the fax machine's speaker volume to the lowest level, or off, if available
Force G.711 for 3.1k audio	<check box=""></check>	When enabled, the system forces the VoIP trunk to use the G.711 codec for 3.1k audio signals, such as modem or TTY machines.
		<b>Note:</b> You also can use this setting for fax machines if T.38 fax is not enabled on the trunk.

## Table 23SIP Media Parameters fields

Field	Value	Description
Preferred Codecs	G.711 -uLaw	Add codecs to the Selected list and order them
	G.711 -aLaw	in the order in which you want the system to attempt to use them. The system attempts to use
	G.729	the codecs in a top-to-bottom sequence.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

#### 56 BCM50 configuration

Field	Value	Description
	G.723	<b>Performance note:</b> Codecs on all networked BCMs must be consistent to ensure the proper functionality of interacting features such as Transfer and Conference.
		Systems running BCM Release 3.5 or later allow codec negotiation and renegotiation to accommodate inconsistencies in codec settings over VoIP trunks.
Enable Voice Activity Detection	<check box=""></check>	Voice Activity Detection (VAD), 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. If VAD is enabled, no voice packets are sent from the listener end. This greatly reduces bandwidth requirements. G.723.1 and G.729 support VAD. G.711 does not support VAD.
		<b>Performance note:</b> VAD on all networked BCMs and IPT systems must be consistent to ensure functionality of features such as Transfer and Conference. The Payload size on the IPT must be set to 30ms.
Jitter buffer	Auto	Select the size of jitter buffer for your system.
	None	
	Small	
	Medium	
	Large	
G.729 payload size (ms)	10,20,30,40,50,60	Set the maximum required payload size, per codec, for the VoIP calls sent over H.323 trunks.
G.723 payload size (ms)	30	<b>Note:</b> Payload size can also be set for Nortel IP telephones. See <i>BCM 4.0 Telephony Device</i>
G.711 payload size (ms)	10,20,30,40,50,60	Installation Guide (N0060609).
Enable T.38 fax	<check box=""></check>	When enabled, the system supports T.38 fax over IP.
		<b>Caution:</b> Fax tones broadcast through a telephone speaker may disrupt calls at other telephones using VoIP trunks in the vicinity of

Field	Value	Description
		the fax machine. To minimize the possibility of your VoIP calls being dropped due to fax tone interference:
		<ul> <li>place the fax machine away from other telephones</li> </ul>
		<ul> <li>turn the fax machine's speaker volume to the lowest level, or off, if available</li> </ul>

## **Configuring local Gateway parameters**

Perform the following procedure to configure local Gateway parameters.

## **Configuring local Gateway parameters**

#### Step Action

- 1 Log on to Element Manager.
- 2 In the Task Navigation Panel, select the Configuration tab.
- **3** Select **Resources > Telephony Resources**.
- 4 In the **Module Panel**, select the line in which the **Module type** column is set to **IP Trunks**. See Figure 14 "Telephony Resources" (page 53).
- 5 For H.323 VoIP trunks, select the **H.323 Settings** tab. See Figure 15 "H323 Settings" (page 58).

Figure 15	
H323 Setting	js

	Modules				and the						
nfiguration Administration	Location	Module type		Bus	State	Devices	Low	High	Total	Busy	
VVeicome     System	Internal	P & Application	Seta	-	1 N/A	Sets	N	A 10	·A	0 0	
Administrator Access Resources	Internal	P Trunks		NO	a pua	Lines		1 1	12	12 0	
<ul> <li>Application Resources</li> <li>Media Gateways</li> </ul>	Internal	BRI Loop			3 Enabled	Lines	6	it ε	58	4 0	
Port Hanges	Internal	Sets			4 Enabled	Sets	14	A. N	A	2 0	
	F	orward redirected OLI		199	G	atekeeper digits				1	
		orward redirected OLI			G	atekeeper digits				-	
		Send name display	2		Gatel	eeper wildcard					
		Remote capability MVI			Ignore in-ba	nd DTMF in RTP					
	N	lormal route failback to	None	¥							
	Configu	ration									

- 6 When implementing your dialing plan, in the H323 Settings tab, select a value for Fall back to circuit-switched. This determines how the system handles calls if the IP network cannot be used.
- 7 For Gateway protocol, select CSE.
- 8 Scroll down to Alias names and click Modify. The Modify Call Signaling Settings page appears.
- 9 Enter the information that supports your system. Applying the changes made to the Call Signaling Settings causes all H.323 calls to be dropped. It is recommended that you make changes to the Call Signaling Settings during off-peak hours or a scheduled maintenance window.

Refer to Table 24 "H.323 Call Signaling Settings fields" (page 59).

Field	Value	Description
Call signaling	Direct	Call signaling information is passed directly between H.323 endpoints. You must set up remote Gateways.
	Gatekeeper Resolved	All call signaling occurs directly between H.323 endpoints. This means that the Gatekeeper resolves the phone numbers into IP addresses, but the Gatekeeper is not involved in call signaling.
	Gatekeeper Routed	Gatekeeper Routed uses a Gatekeeper for call setup and control. In this method, call signaling is directed through the Gatekeeper.
	Gatekeeper Routed no RAS	Use this setting for a NetCentrex Gatekeeper. With this setting, the system routes all calls through the Gatekeeper but does not use any of the Gatekeeper Registration and Admission Services (RAS).
		Choose this option if RAS is not enabled on the NRS.
Call signaling Port	<port value=""></port>	If VoIP applications are installed that require nonstandard call signaling ports, enter the port number here. Port number 0 means that the system uses the first available port.
		The default port for call signaling is 1720.
RAS port	<port value=""></port>	If the VoIP application requires a nonstandard RAS port, enter the port number here. Port number 0 means that the system uses the first available port.
Enable H245 tunneling	<check box=""></check>	Select this field to allow H.245 messages within H.225. Restart the VoIP service for this feature to take effect.
Primary Gatekeeper IP	<ip address=""></ip>	Fill in this field only if the network is controlled by a Gatekeeper. This is the IP address of the primary Gatekeeper (TLAN IP address).
Backup Gatekeepe r(s)	<ip address=""></ip>	NetCentrex Gatekeeper does not support RAS. Any backup Gatekeepers must be entered in this field. Gatekeepers that use RAS can provide a list of backup Gatekeepers for the endpoint to use in the event of a primary Gatekeeper failure.

### Table 24 H.323 Call Signaling Settings fields

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

#### 60 BCM50 configuration

Field	Value	Description
Alias names	NAME: <alias name=""></alias>	Enter the alias names of the BCM required to direct call signals to your system.
		<b>Note:</b> The Alias name is case sensitive. It must match the name configured in NRS.
Registration TTL(s)	<numeric value=""></numeric>	Specifies the keep-alive interval.

# **10** For SIP trunks, select the **SIP Settings** tab. See Figure 16 "SIP Settings" (page 60).

#### Figure 16 SIP Settings

BCM Element Manage	er - 192.168.249.27 Session Tools	/ Help					_0
🗊 Exit 🐰 Cut 🐚	Copy 🚔 Paste	web Page	🗸 Validate Device	M Disconnect	🚭 Refresh 🏻	🕤 Auto-refresh	
Task Mawigation Panel Administration	Uelsphong Res	auices	Interogate the	a device in order to (	thack for any cha	nges	
Configuration	Modules	a Turco	Astual Tures	Dia Sur	Chate	Devices	1.0
Welcome System Administrator Access	0 NZ	A A	IP Trunks	N/A	N/A	Lines	
Resources Application Resource	1 NZ	â,	IP & App Sets	N/A	Enabled	Sets	
<ul> <li>Media Gateways</li> <li>Port Ranges</li> <li>Telephony Resources</li> <li>Network Interfaces</li> </ul>	Disable	Enable			]		Þ
Telephony Data Services Applications	outing Table   IP	Trunk Settings   H3	23 Settings   H323 Med	tia Parametars SIP	Sattings SIP M	edia Parameters   SI	P URI i
	Fallbac	v Sattings < to circuit-switched	Enabled All	-SIP S	ettings Domain Name	ccsip.com	
				C	all signaling port	5060	
				Ou	tgoing Transport	UDP 💌	
	- Proxy Support						
	Ргоху			1			
	Status Ga	teway is running					
	I						•
one.				C:0;	d:1 🔜 m:1 🔜	W:8 🔽 Include AC	Ked ala

**11** Enter the information that supports your system.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

Refer to Table 25 "SIP Settings fields" (page 61) for more information.

#### Table 25 SIP Settings fields

Field	Value	Description
Fallback to	Disabled	Defines how you want the system to handle calls
circuit-switched	Enabled-TDM	that the system fails to send over the VoIP trunk.
	Enabled-All	Enabled-TDM enables fallback for calls originating on digital telephones. This is useful if your IP telephones are connected remotely, on the public side of the BCM network, because PSTN fallback is unlikely to result in better quality of service.
Domain Name		Type the domain name of the SIP network.
Call signaling port	<port value=""></port>	If VoIP applications are installed that require nonstandard call signaling ports, enter the port number here. Port number 0 means that the system uses the first available port.
Outgoing Transport	UDP	
	ТСР	
Proxy		If entered, all SIP calls originate to this address.
Status	Read Only	This field displays the current status of the Gatekeeper.

-End—

## **Configuring VoIP lines**

Voice over IP (VoIP) lines simulate traditional Central Office (CO) lines. VoIP lines transmit data over an IP network rather than over physical lines.

## **Configuring VoIP lines**

Step	Action
1	Log on to Element Manager.
2	In the Task Navigation Panel, select the Configuration tab.
3	Select Telephony > Lines > All Lines.
4	Highlight the individual line you wish to configure.
5	Select the <b>Preferences</b> tab. See Figure 17 "Preferences" (page 62).

Figure 17									
Preferences									
ask Navigation Panel All Lines									
Configuration Administration	Line	Trunk Type	Name	Control Set	Line Type	Prime Set	Pub. Received #	Priv. Received #	Distinct Ring
± · _ System	001	VolP	Line001	221	Pool:BlocA	221	N/A	N/A	None
Administrator Access	002	VolP	Line002	221	Pool:BlocA	221	N/A	N/A	None
Resources     Telephony	003	VoIP	Line003	221	Pool:BlocA	221	N/A	N/A	None
Global Settings     Sets	Copy Paste								
E-G Lines	The second secon								
<ul> <li>Active Physical Active VolP Line</li> </ul>	Deta	ils for Line: 001							
Target Lines	ſ	Preferences   R	estrictions	1					
Inactive Lines									
- Loops			Aux. rin	nger 🖵					
Scheduled Services									
🕀 💼 Dialing Plan		Distin	ct rings in	use None					
Bing Groups									
E - Call Security									

6 Configure the Preferences tab appropriately for your network. Refer to Table 26 "Preferences fields" (page 62) for configuration information.

#### Table 26 Preferences fields

Field	Value	Description
Aux. ringer	<check box=""></check>	If your system is equipped with an external ringer, you can enable this setting so that this line rings at the external ringer.
Distinct rings in use	Read only	Indicates whether a special ring is assigned.

#### 7 Select the **Restrictions** tab.

See Figure 18 "Restrictions" (page 63).



8 Configure the Restrictions tab appropriately for your network. Refer to Table 27 "Restrictions fields" (page 63) for configuration information.

#### Table 27 Restrictions fields

Field	Value	Description
Use remote package	< package #>	If the line is used to receive external calls or calls from other nodes on the private network, ensure that you indicate a remote package that provides only the availability that you want for external callers. This attribute is typically used for tandeming calls.
Schedule	Default: Normal, Night, Evening, Lunch, Sched 4, Sched 5, Sched 6	
Line Restrictions - Use Filter	<00-99>	Enter the restriction filter number that applies to each schedule. These settings control outgoing calls.
Remote Restriction s - Use Filter	<00-99>	Enter the restriction filter that applies to each schedule. These settings provide call controls for incoming calls over a private network or from a remote user dialing in over PSTN.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

- 9 In the Task Navigation Panel, in the Configuration tab, select Telephony > Sets > All DNs.
- **10** Highlight the individual line you wish to configure.
- 11 Select the Line Assignment tab. See Figure 19 "Line Assignment" (page 64).

## Figure 19



- 12 Edit the listed DNs, or click Add to add a DN as required.
- **13** Enter the appropriate information for your network. Refer to Table 28 "Assigned DNs fields" (page 64) for configuration information.

#### Table 28 Assigned DNs fields

Field	Value	Description
DN		Unique number
Appearance Type	Ring only	Select Appr Only or Appr&Ring if the telephone
	Appr&Ring	has an available button. Otherwise select Ring
	Appr only	
Appearances		Target lines can have more than one appearance to accommodate multiple calls. For telephones that have these lines set to Ring Only, set to None.

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

Field	Value	Description
Caller ID Set	<check box=""></check>	When enabled, displays caller ID for calls coming in over the target line.
Vmsg Set	<check box=""></check>	When enabled, an indicator appears on the telephone when a message is waiting from a remote voice mail system. Check with your system administrator for the system voice mail setup before changing this parameter.

—End—

## **Configuring target lines**

Target lines are virtual communication paths between trunks and telephones on the BCM system. They are incoming lines only and cannot be selected for outgoing calls or networking applications.

## **Configuring target lines**

-	-
Step	Action
1	Log on to Element Manager.
2	In the Task Navigation Panel, select the Configuration tab.
3	Select Telephony > Lines > Target Lines.
4	Highlight the individual line you wish to configure.
5	Select the <b>Preferences</b> tab and enter the appropriate information for your network. See Figure 20 "Preferences" (page 66). Refer toTable 29 "Preferences fields" (page 66) for configuration information

Figure 20									
Preferences									
Task Navigation Panel	Target	Lines							
Configuration Administration	Line	Trunk Tune	Name	Control Sat	Line Tune	Drime Cet	Pub Received #	Driv Received #	Distinct Ping
Welcome	Line	Hunk Type	Name	CONICI SEL	Line Type	Phille Set	Fub. hebeiveu #	Fliv. Necelved #	District Hing
E-System	125	l arget line	Line125	221	Public	221			None
Administrator Access	126	Target line	Line126	221	Public	221			None
	127	Target line	Line127	221	Public	221			None
E- Clobal Settings	128	Target line	Line128	221	Public	221			None
🕀 🚞 Sets	129	Target line	Line129	221	Public	221			None
E-Cines	120	Target Inc	Line120	221	Dublic	224			None
Active Physical L	130	i arget ine	Line 150	221	Fublic	221			None
Active VolP Line:	131	Target line	Line131	221	Public	221			None
Inactive Lines	132	Target line	Line132	221	Public	221			None
- O Al Lines	133	Target line	Line133	221	Public	221			None
• Loops	-	. I Prote	1						
<ul> <li>Scheduled Services</li> </ul>	Cop	y Paste							
🖲 🚞 Dialing Plan									
Ring Groups     Gall Security	Detail	s for Line: 125							
Hospitalitu		hataranaa La							
Hunt Groups	1 1	releiences   Assi	gned UNs						
<ul> <li>Call Detail Recording</li> </ul>									
🗄 🚞 Data Services			Aux. ringer				If Busy Top	orime 💌	
		Distinct	ings in use	None		Voice mess	age center 1		
							Redirect to		-
									_

Table 29 Preferences fields

Field	Value	Description
Aux. ringer	<check box=""></check>	If your system is equipped with an external ringer, you can enable this setting so that this line rings at the external ringer.
lf Busy	Busy tone	To automatically direct calls to the prime
	To prime	telephone, select To prime. Otherwise, select Busy tone.
Distinct rings in use	Read only	
Voice message center		If the system is using a remote voice mail, select the center configured with the contact number.
Redirect to		To automatically direct calls out of the system to a specific telephone, such as a head office answer attendant, enter that remote number here. Ensure that you include the proper routing information.

6 Select the Assigned DNs tab. See Figure 21 "Assigned DNs" (page 67).

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

ion Administration	Lines							
lcome	Trunk Type	Name	Control Set	Line Type	Prime Set	Pub. Received #	Priv. Received #	Distinct Rin
vstem 125	Target line	Line125	221	Public	221			None
dministrator Access	Target line	Line126	221	Public	221			None
esources	Target line	Line127	221	Public	221			None
Global Settings 128	Target line	Line128	221	Public	221			None
Sets 129	Target line	Line129	221	Public	221			None
nes	i algerine	Line123	221	Public	221			None
Active Physical L 130	I arget line	Line130	221	Public	221			None
Target Lines	T arget line	Line131	221	Public	221			None
Inactive Lines 132	T arget line	Line132	221	Public	221			None
All Lines	T arget line	Line133	221	Public	221			None
Loops	ou Paste	1						
Dialing Plan								
Ring Groups Deta	ils for Line: 125							
Call Security								
Hospitality	Preferences Assi	gned DNs						
Hunt Groups Call Detail Recording	DN Appeara	nce Type	Appearances	Caller ID	Set Vmsg	Set		
Services	221 Appr&Rin	a		1 E	1			
lications								
		A 🖸	dd Line Appe	arance		×		
		DN	1			_		
			JI.					
					ok [ r	ancel		

- 7 Edit the listed DNs, or click **Add** to add a DN as required.
- 8 Enter the appropriate information for your network. Refer to Table 12 "Assigned DNs fields" (page 33) for configuration information.

–End—

Enterprise: Common Solution Integration Guide for Multisite Business Communications Manager Systems NN49000-303 01.01 Standard Release 4.0, 3.7 29 June 2007

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