AT&T IP Flexible Reach Service Nortel BCM 50 (Release 1.00.2.04j) Configuration Guide

AT&T VOIP Nortel BCM 50 (Release 1.00.2.04j) Configuration Guide For Use with AT&T IP Flexible Reach Service

> Issue 2.3 3/02/2007



BCM50

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1 Introduction

This document provides a configuration guide to assist Nortel Networks BCM administrators in connecting to AT&T IP Flexible Reach service.

1.1 Document Change History

Issue 1.0	October 12, 2006; first general release
Issue 2.0	November 29, 2006; updated fax support via PSTN
Issue 2.1	01-11-2007; modified section 4.3 to reflect that
	Customer care is to be contacted for TPBE IP addresses
	for customer IP PBX. Also indicated the specific software
	release on the title page.
Issue 2.2	02-12-2007;
	1) modified section 4.2 for clarity of IP trunks and line
	pool configuration.
	2) Added CCG disclaimer statement at end of document.
	3) Modified cover page.

2 Special Notes

Emergency 911/E911 Services Limitations

While AT&T IP Flexible Reach services support E911/911 calling capabilities in certain circumstances, there are significant limitations on how these capabilities are delivered. Please review the AT&T IP Flexible Reach Service Guide in detail to understand these limitations and restrictions.

Failover to an Alternate AT&T Border Element Not Supported

BCM does not support failover to an alternate AT&T Border Element. BCM must be configured to send to one specific border element.

Unattended Call Transfers are not supported

An unattended transfer is one in which the recipient of the transfer has not answered the phone prior to the transfer. This type of transfer is not supported with BCM and the AT&T Network. For example, if a call with the AT&T network is transferred by BCM phone 1 to BCM phone 2, phone 2 must answer prior to the completion of the transfer by phone 1.

Fax Limitations

Fax limitations include the following:

- T.38 fax is not currently supported with the IP Flexible Reach service
- IP Flexible Reach service supports fax using G.711; however, this is not supported by the BCM 50 today when configured to use G.729 as the first preferred codec. There is an issue where the BCM does not automatically detect fax/modem tones and switching the call to G.711. This will be corrected in future releases.
- To work-around this limitation; the BCM supports fax by using analog/POTS lines to the PSTN. BCM-GATM-8 or BCM-GATM-4 media bay modules are required to interface with analog/POTS lines. **NOTE:** four analog lines are included on the base BCM 50 chassis.

3 Overview

This section provides a service overview of the Nortel Business Communication Manager 50 (BCM 50) IP PBX integration with AT&T IP Flexible Reach service. For an overview of Nortel BCM 200/400 for IP Flexible Reach; please reference a separate document named "Nortel BCM 200/400 Configuration Guide."



Figure 1: AT&T IP Flexible Reach Network

The Nortel BCM customer premises site shall consist of the following components.

- Nortel IP 200x and 11xx phones These phones use the Nortel proprietary UNIStim signaling protocol to communicate to the Nortel BCM 50 IP PBX for call feature and routing support. These phones can be connected to a Nortel Ethernet switch (ES 470, ERS 5520, etc.) that supplies in-line power (IEEE 802.3af) to the phones.
- Nortel IP 2050 Software Phone The IP 2050 is a soft phone client application that uses the Nortel proprietary UNIStim signaling protocol. The following are system requirements for the IP 2050 software phone:
 - Pentium-compatible CPU (200MHz or higher)
 - 128 MB of memory (Windows 2000, XP)

- o 64 MB of memory (Windows 98)
- o 55 MB of free hard drive space (all languages)
- Monitor settings: 16-bit high color; 800x600 resolution or higher
- o USB port
- Nortel USB audio kit
- Supported OS; Windows 2000 Professional, Windows 2000 Professional Service pack 1 & 2, Windows 98, Windows XP Professional and Windows XP Home
- The following interfaces are provided on all three variants of the BCM 50 main module:
 - o 12 digital station ports supporting digital phones.
 - 4 Analog Loop Supervised Trunks (NA networking standards).
 - 4 Analog Station interfaces with message waiting and CLID support.
 - 3 port 10/100 Ethernet switch with auto sensing and auto polarity. Two of these ports also support connection of optional expansion units.
 - 1 10/100 Ethernet port reserved for direct access management of the system
 - Integrated CallPilot voice mail system
 - T1 voice card for connection to the local PSTN.

The following routing scenarios are supported by the Nortel BCM IP PBX and **DO NOT** use the AT&T Call Control.

- Local Nortel BCM phone to other local Nortel BCM phone
- Local fax machine to other fax machine via PSTN

The following routing scenarios are supported by the Nortel Networks BCM IP PBX and **DO** use the AT&T Call Control. For voice calls, the G.729 codec shall be used.

- Nortel BCM phones to PSTN (domestic US and international).
- Nortel BCM phones to legacy PBX site with Cisco gateway.
- Legacy PBX site with Cisco gateway to Nortel BCM phones.
- Nortel BCM phones at one Nortel BCM IP PBX site to Nortel BCM phones at another Nortel BCM IP PBX site.

If the customer has subscribed to Calling Plans B and C (Local), then the following routing scenarios are supported by the BCM IP PBX and **DO** use the

AT&T Call Control. For voice calls, the G.729 or G.711 codec may be used. BCM selects G.729 as the highest priority codec.

- Inbound PSTN to BCM phone
- Outbound local PSTN calls from the BCM phones.
- Outbound local N11 (i.e. 411, 911) calls from the BCM phones

4 Configuration Guide

This configuration guide specifies the Nortel BCM 50 screens that must be configured and updated to support the AT&T IP Flexible Reach service.

4.1 Nortel BCM Version and Feature Requirements

The Nortel Networks BCM must be running release 1.00.2.04j. You can check the version of BCM by viewing the following screen.

2 Nortel BCM50 Element	Manager - 172.16.10	0.80	
File View Network Session	Tools Help		
Task Navigation Panel	Software Update Histo	rv	*
Configuration			
Administration	Current Release	.00.2.04.j	
General	Software Undate Hist		
Alarms	Date	Category	Name
SNMP Trap Destinati	2006-05-31 17:35:03	Patch Applied	BCM050 079-VOIPGATEMAY.IPTEL PROVIDERA
Service Manager	2006-05-31-18-11-22	Patch Applied	BCM050 073 CORE
Hardware Inventory	2000-03-31 10:11:22	Patch Applied	PCM050.073-CORE
System Metrics	2006-00-11 16.31.02	Patch Applied	
Utilities	2006-08-24 17:54:45	Patch Applied	BCM050.081-SOFTWARE-MANAGEMENT
📄 Backup and Restore	2006-08-24 18:04:48	Patch Applied	BCMU5U.U39-DSP-FPGA
Logs	2006-08-24 18:24:21	Patch Applied	BCM050.093-DSP-FIRM/VARE
Software Management Software Updates Software Update Hi Software Inventory	Remove Software	e Update	<
			5 month of a

Figure 2: BCM 50 Software Version Number

Ensure that the current release field specifies **1.00.2.04j**. This is the supported release that is required for AT&T IP Flexible Reach service.

The following BCM 50 patches must be applied. To verify installed patches: under the BCM Unified Manager's "Administration" tab, click on "Software Management" and select "Software Update History."

s	oftware Update Histo	iry			
	Current Release	.00.2.04.j			•
(Software Update Hist	ory	4	Version Description IOVIDERAGENT 1.2-1.1 VoIP GATEWAY and IPTelProviderAgent UPDATE 2.6-1.0 Core telephony update 1.1-1.0 VoIP GATEWAY, IPTelProviderAgent, MGS, MPSMI and UTPS INT 1.2.1.0 Resolves issues with patching canability	
L	Date	Category	Name	Version	Description
	2006-05-31 17:35:03	Patch Applied	BCM050.079-VOIPGATEWAY-IPTELPROVIDERAGENT	1.2-1.1	VoIP GATEWAY and IPTelProviderAgent UPDATE
	2006-05-31 18:11:22	Patch Applied	BCM050.073-CORE	2.6-1.0	Core telephony update
	2006-08-11 16:31:02	Patch Applied	BCM050.108-FEPS	1.1-1.0	VolP GATEWAY, IPTelProviderAgent, MGS, MPSMI and UTPS
	2006-08-24 17:54:45	Patch Applied	BCM050.081-SOFTWARE-MANAGEMENT	1.2-1.0	Resolves issues with patching capability
	2006-08-24 18:04:48	Patch Applied	BCM050.039-DSP-FPGA	1.3-1.1	Improves T38 and modem reliability. Resolves driver issues
	2006-08-24 18:24:21	Patch Applied	BCM050.093-DSP-FIRM/VARE	1.5-1.0	DSP Firmware Update.
	Remove Softwar	e Update	ور اللي معمد المعر اللي مع		

Figure 3: BCM 50 Lists of Applied Patches

4.2 IP Trunks

Voice over IP (VoIP) trunks are signaling channels that simulate how CO lines work. However, VoIP trunks transmit data to the IP network over a LAN or IP network rather than over physical lines. Once the VoIP trunks are set up, you can assign them to line pools, and program their behavior in the same way you would PRI lines.

VoIP trunks use line numbers 001 to 012. These line records appear under Configuration -->Telephony -->Lines -->Active VoIP Lines. To access VoIP lines, you need to enter software keycodes. Each keycode supports a specific number of Trunks. No entries appear in the Enabled VoIP lines field until you complete the IP Trunks Settings field, which displays when you click IP Trunks under Configuration -->Resources -->Telephony Resources -->IP trunks.

VoIP trunks should be configured to use a single line pool, per VoIP trunk type. Do not mix other trunk types on the same line pool. The VoIP line pools are assigned to routes, which, in turn, are configured with destination codes that route calls to the AT&T IP Flex Reach network.

You can also create a fallback for the trunk. This is a situation where the system reroutes the call to a PSTN line pool if the primary route is not available or the

call quality is not suitable. If you do not configure your network for fallback and the call quality is below threshold, the IP call fails.

Check under *Configuration* -> *Telephony* -> *Active VOIP Lines* to see if Trunks have been allocated (See Figure 4 below). You should have a number of H.323 trunks displayed. The total number of lines indicated corresponds to the number of IP trunks licensed by Nortel for your BCM.

£	Control BCM50 Element Manag	er	- 172.16.	10.80								1
F	ile View Network Session Tools	He	elp									
	Task Navigation P: 172.16.10.80	• c	active VolP	Lines								
	System		Line	Trunk Type	Name	Control Set	Line Type	Prime Set	Pub. Received #	Priv. Received #	Distinct Ring	r
	Administrator Access		001	VoIP	Line001	2000	Pool:BlocA	2000	N/A	N/A	Pattern 3	à
	Application Resources		002	VolP	Line002	2000	Pool:BlocA	2000	N/A	N/A	Pattern 3 🛛 🚽	0
	Media Gateways		_									۴
	Port Ranges		Conv	Docto							3	L
	Telephony Resources		Copy	Faste							1	ø
	🖃 🔄 Telephony											۶.
	🗉 🧰 Global Settings											
	🗄 🧰 Sets											5
	🖃 🔄 Lines											3
	Active Physical Lines		A ¥									Į.
	Active VolP Lines											1
	Target Lines											2
	Inactive Lines											
Ι,	All Lines				 ····	and the second	ىلىسى م		an anna a	and a second	and the second second	

Figure 4: Available H.323 IP Trunks

Under *Configuration* -> *Telephony* -> *Dialing Plan*; (See Figures 5 & 6 below) select "Line Pools." In this case we selected "BlocA" under the "Pool" tab. We will use this line pool to access the VOIP trunks. Additionally, all DN numbers that need to access the VOIP trunks must be added to this pool. Please see the following screen shots for an example configuration.



Figure 5: Assigning Line Pool to IP Trunks

Details for Line Pool BlocA	
DNS With Access to Line Pool DN 2000 2001	
2012 2013 Add Delete	3

Figure 6: Assigning DN to Line Pool

Under Configuration \rightarrow Telephony \rightarrow Dialing Plan \rightarrow Routing (See Figure 7 below): Select the "routes" tab and ensure there is an entry for "BlocA." In this case "001" is the route number and the DN type is specified as "National."

File View Network Session Tools	Help				
Task Navigation Panel Configuration Administration	Dialing Plan - Routing Routes Destination Codes				
Administrator Access Access Access	Routes Route External Number	Use Pool	DN Type	Service Type	Service ID
I I I I I I I I I I I I I I I I I I I		A	N/A	N/A	N/A
		BIOCA	National	N/A	
● Scheduled Services □ <u></u> Dialing Plan ● General	Add Delete				5
 DNs Public Network Private Network 					3
					3
Ring Groups Ring Groups Sall Security	سور و او استا		and and an	and present	man

Figure 7: Assigning a Route for IP Trunks

Under Configuration \rightarrow Telephony \rightarrow Dialing Plan \rightarrow Routing (See Figure 8 below): This time select the "Destination" tab to assign an access code for the IP trunks. Configure a destination code "9" or to whatever code you want to access for outside (IP off-net) call that will be presented to the AT&T service for routing. In this case, when "9" is dialed we wish to push the dialed string to the IP trunk for routing.



Figure 8: Assign Code to Access IP Trunk Routes

4.3 H.323 Gateway Parameters

Configuration→ *Resources*→ *Telephony Resources:*

Select module type "IP Trunks" and click on the "Local Gateway" tab:

- On this screen we need to populate the Call Signaling as "Gatekeeper Routed no RAS"
- Alias Name: The AT&T IP Flexible Reach service does not require a H.323 ID name. However, the BCM was tested with a H.323 ID name and Nortel recommends that the customer provides a name in this field.
- H.245 tunneling must be enabled.
- For the Call Signaling Port use 1720 as a value.
- Make sure the **Primary Gatekeeper IP** is populated with the correct AT&T IPBE IP address. Sample IP addresses are shown next.
 - Primary Gatekeeper (please contact your Customer Care Representative for the AT&T IP border element IP address)
- File View Network Session Tools Help Task Navigation Panel Telephony Resources Configuration Administration Modules 🗉 🚞 System _____ Administrator Access Bus State Location Module type Devices Low High Total Busy 🖃 🚞 Resources Internal 1 N/A Sets in Sets N/A N/A 14 Application Resources N/A N/A Lines Internal Truni Media Gateways Lines 3 Enabled 61 64 Internal 4 t Range O Te Internal Sets 4 Enabled Sets N/A N/A 4 hony N/A N/A N/A Expansion 1 Empty 5 N/A N/A Data Services Ŧ Applications Expansion 2 Empty 7 N/A N/A N/A N/A N/A Disable Enable .
- Backup Gatekeeper 0.0.0.0*

Figure 9: Selecting IP Trunk Module for H.323 Gateway

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Telephony Resources	Details for Module: Internal	3
🗄 🔛 Telephony		1
🗄 🔜 Data Services	Local Gateway Media Parameters Remote Gateways	
🗄 🧰 Applications		A.
	Telephony Settings	H.323 Settings
	Fallback to circuit-switched Disabled	Call signaling Gatekeeper Routed no RAS
	Forward redirected OLI	Call signaling port 1720
	Send name display	RAS port 0
	Remote capability MVI	Enable H245 tunnelling 🔽
		-
	- Gatekeeper Support	<u> </u>
		3
	Primary Gatekeeper IP 135.25.29.135	Gateway protocol None 💌
	Backup Gatekeeper(s)	Registration TTL (s) 60
	Alias names bcm50_bvoip	Gatekeeper TTL (s)
		2
	Status Gateway is running in Direct mode	
and the second	and the plan at an and	many and and many and

Figure 10: H.323 Gateway Parameters

*Note: the backup gatekeeper will not be support on the current BCM 50 release. The Nortel implementation is not compatible with the IP Flexible Reach service today. Nortel will provide support in a future release. In case of failure to the primary gatekeeper; the BCM will not be able to place any outgoing calls to the AT&T IP Flexible Reach service. The backup gatekeeper IP address (Please contact your Customer Care representative) must be manually configured in the "**Primary Gatekeeper IP**" field to restore outgoing calls. Additionally, the AT&T IP Flexible Reach service will send incoming calls to the BCM from multiple IP border elements. The BCM will accept calls from any border elements without additional configuration.

4.4 Media Parameters

Configuration→ *Resources*→ *Telephony Resources:*

Select module type "**IP Trunks**" and click on the "**Media Parameters**" tab: Within this screen; ensure that all values are exactly as the sample screen shot shown below:

- 1st Preferred Codec: G.729
- Silence Compression: Disabled
- Jitter Buffer Voice: Auto
- T.38 Fax Support: Disabled
- G.729 Payload Size: 20

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Details for Module: Ir ynal Local Gateway Media Parameters Remote Gateways		
Preferred Codecs Codec Preferences Available list G.723 G.711-aLaw Del	Settings Enable silence compression Jitter buffer G.729 payload size (ms) G.723 payload size (ms) G.711 payload size (ms) Incremental payload size Enable T.38 fax Force G.711 for 3.1k audio	Auto V 20 V 30 V 20 V

Figure 11: Media Parameters

4.5 Port Ranges

Configuration→ *Resources*→ *Telephony Resources:*

Select "**Port Ranges**" and use the values shown below. The default RTP ranges are from 28000 to 28255. This range is used for fax (T.38), digital phones and analog phones. The media gateway port ranges are configurable.

Port Ranges	Sianallina	
Begin End Begin End	Begin	
28000 28255 20000 20255	0	1023
	1718	1719
Add Delete Add Delete	2216	2219
	5000	5000
	7000	7000
	60000	60001
and the second	and and the set	and so a f

Figure 12: Media Gateway Port Ranges

The BCM IP phone's RTP and RTCP port range are 51000-51399. Each IP phone call uses two ports. The default port range for RTP and RTCP are not configurable.

4.6 Configuring Outgoing Calls from BCM to AT&T IP Flex Reach

Configuration → Telephony → Sets → Active Sets

We will now associate the private DN number with the DID number. In the example below; 2000 is entered in the "**Private OLI**" field and 7323680459 is entered in the "**Public OLI**" field. This example enables "calling number translation" (outgoing) for this particular DN number.

and a state of the second								
sk Navigation Panel	Active Sets							
Infiguration Administration	6		-	-	-			
System	Line Access	Capabilities and	Preferences	Restrictio	ns			
Administrator Access	DN	Model	Name	Port	LAD. OU	Priv. OLI	Fwd No Answer	Fwd Delay
 Accounts and Privilegi Security Policies 	2000	2004/2050	Set 1	0133	7323680459	2000	2142	4
SIMP	2001	(2004/(2050	Set 2	0141	7323680460	2001	2142	4
 Modem 	2012	Analog	2012	0413		2012		NIA
Resources	2013	Analog	2013	0414		2013		NUG.
Application Resource Made Cateward	2014	Analog	2014	0415				NUL
 Port Ranges 	2015	Analog	2015	0416				1406
Telephony Resources			h					
Telephony			R	1				
I Global Settings	Copy	Paste						
Sets								3
Active Application								
 Active Applicator Inactive DNr 								
All DNs								
I Lines								
	Details for D	N 2000						3
Ucops								

Figure 13: Configuring DID for Outgoing Calls

4.7 Configuring Incoming Calls from AT&T IP Flex Reach to BCM

Configuration → Telephony → Sets → Active Sets

We will now configure the "called number translation" (incoming) for the DN number. In our example, go to the "**Line Assignment**" tab located at the bottom of the "**Line Access**" page. Enter 2000 in the "Private" received number field; then enter the 7 digit DID (Public number) in the "public" received number. Incoming DID calls will be routed to telephones, based on the trailing portion of the digits received by the network. For example, Incoming calls from the AT&T IP Flexible Reach network will deliver a ten digit DID number, e.g. 7323680459. The BCM will route the call using the last seven digits, e.g. 3680459.

\frown		1r	1	1	1	1	1	1	1
DN	Model	Name	Port	Pub. OLI	Priv. OLI	Fwd No Answer	Fwd Delay	Fwd Busy	FW
2000	2004/12050	Set 1	0133	7323680459	2000	2142	4		
2001	12004/12050	Set 2	0141	7323680460	2001	2142	4		
2012	Analog	2012	0413		2012		N/A		
2013	Analog	2013	0414		2013		N/A		
	A contract of the second	2014	0415				N/A		
2014	Analog								
2014 2015 Cop	Analog Analog y Paste	2015	0416				N/A		
2014 2015 Cop	Analog Analog y Paste	2015	0416				N/A		
2014 2015 Cop Details fo	Analog y Paste r DN: 2000 Assignment Line Po	2015	0416 Answer DN	8			N/A		
2014 2015 Cop Details fo	Analog Analog y Paste r DN: 2000 Assignment Line Po isigned Lines	2015	0416 Answer DN	IS			N/A		
2014 2015 Cop Details fo	Analog Analog y Paste r DN: 2000 Assignment Line Po signed Lines ne Appearance	2015 pol Access	0416 Answer DN	ls Cailer ID Set	Vmsg Set	Priv. Received #	N/A	1#	

Figure 14: Configuring DID for Incoming Calls

Configuration → Telephony → Lines → Target Lines

To display the DID number on the IP phone LCD screen; under the "Target Lines" tab click on the assigned "Line" number of the DN you want to program. In our example below we click on "**Line 141**"; enter 3680459 in the "Name" field and then enter "DN 2000" for the "Control DN" field.

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ask Navigation Panel	Target Lir	ies							
Administration	Line	Truck Type	liane	Control Set	Line Type	Prime Set	Pub. Received #	Priv. Received #	Distinct 5
System	137	Target line	Line137	2000	Public	2000	, T		None
Administrator A	138	Target line	Line138	2000	Public	2000	1		None
Accounts an	139	Target Ine	Line139	2000	Public	2000			None 1
SIMP	140	Target live	Line140	2000	Public	2000			None
Modem	141	Target Inn	3680459	2000	Public	2000	3680459	2000	Pattern 3
Resources	142	Target line	Liver42	2000	Public	2142		1	None-
Application P	140	Twoet Ine	Line143	2000	Public	2000			None
Media Gatev	144	Target line	Line144	2000	Public	2000			None
Telechory R	145	Target Ine	Line145	2000	Public	2000			None at
Telephony	146	Target line	Line146	2000	Public	2000			None 4
🗷 🧰 Global Sette	1								
🗟 🥶 Sets	-								
Active S	Co	py Paste							10
Active A									
ALCON:									
B Citizer									
Active P									
Active V									_

Figure 15: Display DID on IP Set LCD

Additionally, all telephone sets that need to access the VOIP trunks needs to be configured with the designated "Line Pool" code. In our example we defined "BlocA" as the code to access the VOIP trunks.

DN	Model	Name	Port		Terix OLL	Ewd No Answer	Ewd Deley	Fund Burey	Ewd
2000	2004/2050	Set 1	0133	7323680459	2000	2142	4	1 wu Dusy	1 wu
2001	i2004/i2050	Set 2	0141	7323680460	2001	2142	4		
2012	Analog	2012	0413		2012		N/A		
2013	Analog	2013	0414		2013		N/A		
2014	Analog	2014	0415				N/A		
2015 Copy	Analog Paste	2015	0416				N/A		
2015 Copy Toetails for	Analog Paste DN: 2000	2015	0416				N/A		
2015 Copy Details for	Analog Paste DN: 2000 Assignment Line F	2015	0416	łs			N/A		
2015 Copy Details for Line	Analog Paste DN: 2000 Assignment Line F a Pools te Pool	2015	0416	15			N/A		
2015 Copy Details for Line / Line B	Analog Paste DN: 2000 Assignment Line F e Pools e Pool	2015	0416	15			N/A		

Figure 16: Assign Line Pool to IP Sets

5 Troubleshooting

This section provides some tips about troubleshooting problems

5.1 System Monitoring with BCM Monitor

A valuable application for performance monitoring is the BCM Monitor. It allows the BCM administrator to see the current status of various parts of the BCM system. Statistical information is provided on system throughput and other performance-related information, including system CPU usage (graph or table format) and memory usage (graph or table format).

If a performance display is active, it is automatically updated with real-time performance information in user-selectable time increments.

The focus of the real-time monitoring capabilities is:

- Overall system status
- Utilization of resources on the Media Services Card (e.g. signaling channel usage)
- Operation of telephony applications (e.g., Messaging, Call Center, etc.).
- IP telephony activity
- D-channel monitoring for PRI, BRI and VoIP trunks

BCM Monitor - Bc	m_2			
File Statistics Help				-
BCM Info Media Card	Voice Ports	Devices RTP Sessions UIP Line	Monitor Usage Indicators	-
BCM Info			······	
CPU:		6		
Physical memory (MB):	187 of 254	%		-
Nonpaged mem. (MB):	33 of 98	%		
⊢ Used Media Card Reso	ources			
Signaling channels:	10 of 59	%		
Media channels:	4 of 59	«		
Voice bus channels:	5 of 62	6		
DSP resources:	10 of 64	%		
∟ ⊢Active Telephony Devi	ces			
IP trunks:	1 of 16	š 🔲		
IP sets:	1 of 2	%		\rightarrow
Voice ports:	0 of 6	<u>د</u> ا		->
Media gateways:	0 of 4	<u>í</u>		->
			and the second s	_

Figure 17: System Monitoring Example

The BCM Monitor application can be downloaded to an administrator's PC from the BCM and pointed at a specific BCM's IP address for monitoring. Multiple

instances of the BCM Monitor application can be used on a single PC to monitor several remote BCM systems at the same time. Backward version compatibility is supported.

All of the registered IP devices can be viewed with the BCM Monitor. The screen shot below depicts IP Phone type, DN number and IP address of each registered IP phone. Additionally, if the device is active on a call the RTP session information is also displayed.

9	BCM Monite	or - Bcm_2									-E .
File	Statistics	Help									
BO	M Init Medi	a Card Voice F	Port	s IP C	evices)	RTP Sessions UIP	L	ine Monitor Usage Indicators			a de la compañía de l
Г	IP Clients		EI	IP Set D	Details						
	Used licenses:	2 of 12	[DN	Туре	IP:Port		RTP Session	Info		2
	120xx Sets Enabled:	2		3000 3002	12004 12002	172.16.6.103:5000 172.16.6.105:5000		51000<->135.25.29.135:16770	G729 2 fpp, SMALL jb		3
	Connected:	2									
	Active (on call)	: 1									- 5
F	Wireless Sets-										- 5
	Enabled:	0									- 5
	Connected:	0									- >
Ľ	Active (on call)	: 0									
	IP Trunks										
	Used licenses:	16 of 16									- ₹
	Active (on call)	: 1									
	MCDN over IP:	Enabled									٦,
-											
	And Art	Constant Sec.			and the second		1		and and	and in	

Figure 18: IP Device Listing

The end-to-end RTP sessions per IP call can also be displayed with the BCM Manager. The example below depicts an end-to-end call.

BCM Monitor - Bcm_2	זר
File Statistics Help	
BCM hr Media Card Voice Ports IP Devices RTP Sessions UIP Line Monitor Usage Indicators	- 5
Local IP Endpoints RTP Session Details	-
IP to IP: 0 {Set 3000 172.16.6.103:51000}<->(IP Trunk 16}(135.25.29.135:16768) G.729, 2 fpp, SMALL jb	
TDM to IP: 0	1
TDM to TDM: 0	2
Est. bandwidth: 0 bps	
Cocal to Remote IP Endpoint	1
IP to IP: 1	
TDM to IP: 0	1
Est. bandwidth: 62.4 kbps	<
- Remote IP Endnoints	- 1
	1
Est. bandwidth: 0 bps	1
	1
Media Gateways	1
Active (on call): U of 4	1
and the second	

Figure 19: RTP Session Information

The BCM Monitor can be used to monitor incoming and outgoing trunks to determine if trunks are being busy or if they are idle. The example below depicts utilized lines used by local and remote telephone/DN numbers.

BCM Monitor - Bcm_2							_ 0
File Statistics Help							
BCM Info Media Card Voice Ports IP Devi	ices RTP Session	ns UIP L	ine Monitor Usage	Indicators			1
Statistics	Line Monitor						
Active Lines: 1	Line	Direction	Start Time	User	State	Duration	Number and Name
Visible lines Show all lines (including inactive)	1 - Line001 15 - Line015 16 - Line016	Incoming Outgoing Outgoing	09/08/06 15:1 09/08/06 12:4 09/08/06 18:4	3680415 - Li 3128 - 3128F 3000 - 3000	Idle Idle Connected	00:00:35	7323680459 - BVOU 19082223076 17324208823
	<						

Figure 20: Line Monitor Information

The BCM Monitor can also be used to monitor all types of system usages. The following are some parameters that can be monitored:

- CPU utilization
- Physical memory
- Media card DSP utilization
- IP sets and IP Trunks
- Voice ports and media gateway usage

🗳 BCM Monitor - Bc	m_2		
File Statistics Help			
BCM Info Media Card	Voice Ports	IP Dev	vices RTP Sessions UIP Line Monitor Usage Indicators
BCM Info			· · · · · · · · · · · · · · · · · · ·
CPU:		0%	
Physical memory (MB):	187 of 254	74%	
Nonpaged mem. (MB):	33 of 98	34%	
Used Media Card Reso	ources		
Signaling channels:	10 of 59	17%	
Media channels:	4 of 59	7%	_ {
Voice bus channels:	5 of 62	8%	<u> </u>
DSP resources:	10 of 64	16%	
Active Telephony Devi	ices		
IP trunks:	1 of 16	6%	-
IP sets:	1 of 2	50%	
Voice ports:	0 of 6	0%	5
Media gateways:	0 of 4	0%	
and the second sec	and a state	and the second	a for the second second for the second secon

Figure 21: System Resources

5.2 Real-time display of BCM 50 Alarms

Administration → General →Alarms

The BCM 50 provides extensive alarm logs along with severity and problem descriptions. The following is an example screen shot of the "Alarms" display:

Navigation Panel	Alarms			
Administration	Time	Alarm Acked	Alarm ID Severity	Problem Description
d General	2006-09-21 16:20:06		30200 information	User logon User=nnadmin Host=172.16.10.233 Comp=CIM
Alarms	2006-09-21 16:20:03		30200 information	User logon User=nnadmin Host=172.16.10.233 Comp=CIM
SNMP Trap Destin	2006-09-19 16:29:01		30200 information	User logon: User=nnadmin Host=172.16.10.138 Comp=CIM
Service Manager	2006-09-19 16:28:58		30200 information	User logon: User=nnadmin Host=172.16.10.138 Comp=CIM
Hardware Invention	2006-09-19 10:19:28		30200 information	User logon: User=nnadmin Host=172.16.10.138 Comp=CIM
System Metrics	2006-09-19 10:19:25		30200 information	User logon User=nnadmin Host=172.16.10.138 Comp=CIM
Utilities	2006-09-19 10:19:14		30200 information	User logon User=nnadmin Host=stevench-1 Comp=BCMMonito
Backup and Restore	2006-09-15 15:00:24		6008 minor	Cannot contact NTP server
Logs	2006-09-15 14:41:14		30200 information	User logon User=nnadmin Host=172.16.10.233 Comp=CIM
Software Manageme	2006-09-15 14:41:11		30200 information	User logon User=nnadmin Host=172.16.10.233 Comp=CIM

Figure 22: BCM 50 Alarms Page

5.3 Log Management

Another extremely useful tool is the "Log Management." This allows you to quickly and easily collect all relevant logs files and other information to help the various support teams debug any problems you may have with your BCM 50. The entire log files required to diagnose a problem is consolidated into a single file.

Task Navigation Panel Configuentian Adarms Alarms Alarm Settings SNMP Trap Destinations Service Manager Hardware Inventory System Metrics Telephony Metrics Substructions End Data Restore Cong Management	e View Network Session Tools Help	
E Software Management	Task Navigation Panel Configue Administration General Alarms Alarm Settings Alarm Settings SNMP Trap Destinations Service Manager Hardware Inventory System Metrics Telephony Metrics Utilities Backup and Restore Logs Cog Management Software Management	Log Management Immediate Log Transfer Scheduled Log Transfer Transfer to My Computer Transfer to My Computer Transfer

Figure 23: Log Management

When you first suspect a problem with your BCM, it is important that you go into the "Log Management" screen and download the log file to your PC. Even if you end up resolving the issue, it is good to know that this information has been captured if it does end up being required. This Customer Configuration Guide ("CCG") is offered as a convenience to AT&T's customers. The specifications and information regarding the product in this CCG are subject to change without notice. All statements, information, and recommendations in this CCG are believed to be accurate but are presented without warranty of any kind, express or implied, and are provided "AS IS". Users must take full responsibility for the application of the specifications and information in this CCG.

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