



Avaya Solution & Interoperability Test Lab

Application Notes for Avaya Business Communications Manager 450 R6.0 to support BT Wholesale/HIPCOM SIP Trunk Service – Issue 1.1

Abstract

These Application Notes describe the steps to configure Session Initiation Protocol (SIP) Trunking between BT Wholesale (BTW)/HIPCOM SIP Trunk Service and an Avaya SIP enabled Enterprise Solution. The Avaya solution consists of Avaya Business Communications Manager 450.

BT is a member of the DevConnect Service Provider program. Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect lab.

1. Introduction

These Application Notes describe the steps to configure Session Initiation Protocol (SIP) trunking between BT Wholesale/HIPCOM SIP Trunk Service and an Avaya SIP enabled enterprise solution. The Avaya solution consists of Avaya Business Communications Server (BCM) 450 connected to BT Wholesale/HIPCOM SIP Trunk Service. Customers using this Avaya SIP-enabled enterprise solution with BT Wholesale/HIPCOM's SIP Trunk Service are able to place and receive PSTN calls via a dedicated Internet connection and the SIP protocol. This converged network solution is an alternative to traditional PSTN trunks. This approach normally results in lower cost for the enterprise.

2. General Test Approach and Test Results

The general test approach was to configure a simulated enterprise site using an Avaya SIP telephony solution consisting of BCM 450. The enterprise site was configured to use the SIP Trunk Service provided by BTW/HIPCOM.

2.1. Interoperability Compliance Testing

The interoperability test included the following:

- Incoming calls to the enterprise site from the PSTN were routed to the DID numbers assigned by BTW/HIPCOM. Incoming PSTN calls were made to Unistim, Digital and analog telephones at the enterprise.
- Outgoing calls from the enterprise to the PSTN were made from Unistim, Digital and analog telephones.
- G.729 annex b (silence suppression) is not supported by BTW/HIPCOM's SIP Trunk Service and thus was not tested.
- Calls using G.729 and G.711A codecs were tested.
- Fax calls to/from a Group 3 fax machine to a PSTN connected fax machine using the T.38 mode.
- User features such as hold and resume, transfer, conference, call forwarding, etc. were tested.
- Caller ID Presentation and Caller ID Restriction features were tested.
- Call coverage and call forwarding for endpoints at the enterprise site was tested.

2.2. Test Results

Interoperability testing of the sample configuration was completed with successful results for BTW/HIPCOM SIP Trunk Service with no observations seen.

2.3. Support

For technical support on BTW/HIPCOM products please contact the following website:

<http://www.hipcom.co.uk/support> or <http://ipvoicesupport.btwholesale.com>.

3. Reference Configuration

Figure 1 illustrates the test configuration. The test configuration shows an enterprise site connected to BTW/HIPCOM using SIP Trunks. Located at the enterprise site is a BCM 450. Endpoints are Avaya 1140, i2004 and i2007 series IP Deskphones with Unistim firmware, Avaya IP Softphones 2050, Avaya Digital telephone, Analog telephone and fax machine. For security purposes, any public IP addresses or PSTN routable phone numbers used in the compliance test are not shown in these Application Notes.

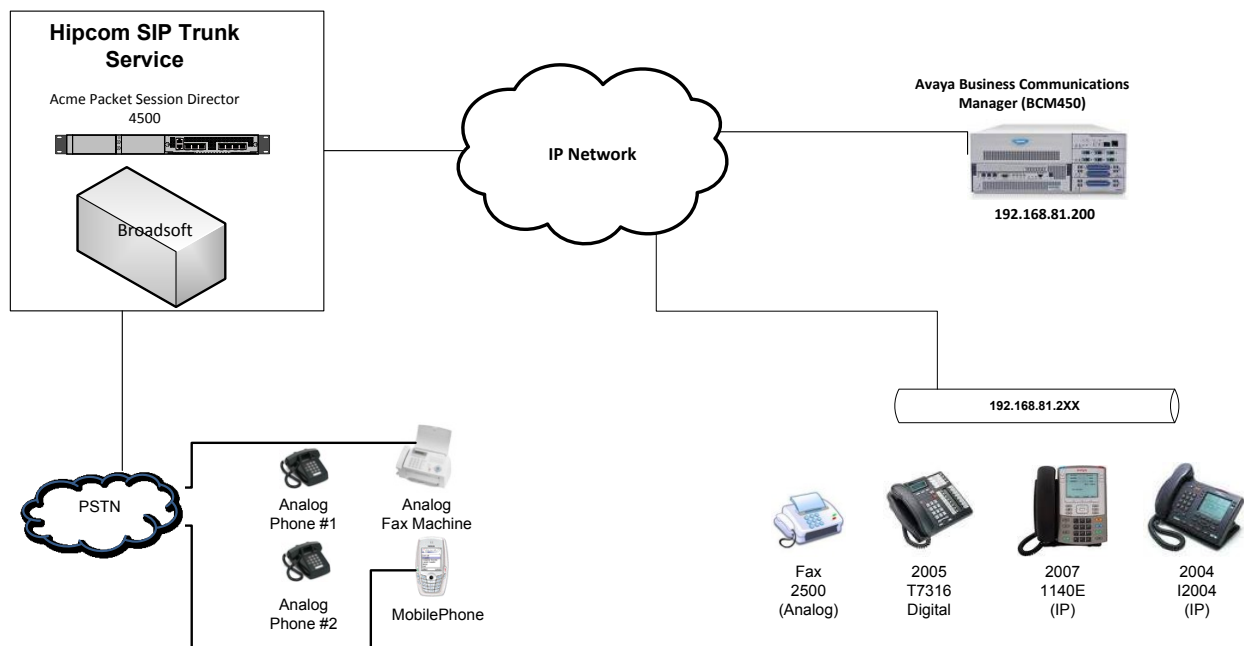


Figure 1: BT Wholesale/HIPCOM SIP Trunk topology with Avaya Business Communication Manager 450

4. Equipment and Software Validated

The following equipment and software were used for the sample configuration provided.

Equipment	Software
Avaya Business Communications Manager 450 R6.0 Standard System Base Unit	Avaya Business Communications Manager 450 R6.0 System Software Version 10.0.1.02.120 Manufacturing SW Version 450.06
Avaya 1140E	UNISTIM /Firmware: 0625C70
Avaya i2004	UNISTIM /Firmware: 0602B76
Avaya i2007	UNISTIM /Firmware: 0621C8D
Avaya 2050 IP Softphone	Release 4.0.2.0062
Avaya T7316 (Digital)	Release 01
BTW/HIPCOM SIP Trunk Service	Acme Packet 4500 Net-Net SBC - version SCX6.1.0 Broadsoft - version 14 Service Pack 9 Configuration version - HIPCOM v8.1

Note: BCM450 and BCM50 use the same software stream on BCM Release 6.0. The SIP Trunking implementations on both platforms use the same components and behave the same.

5. Configure Avaya Business Communication Manager

These Application Notes assume that the basic configuration of the BCM 450 system has already been administered and the system has working lines and handsets. For further information on Avaya Business Communication Manager 450, please consult references in **Section 9**. The below procedures describe the configuration details of BCM 450 with Public SIP trunks connecting to BTW/HIPCOM SIP Trunk Service.

- Accessing the BCM 450 system
- Administer BCM SIP Trunk Keycodes
- Administer BCM Business Name
- Administer BCM Trunk Routes
- Administer BCM Destination Codes
- Administer BCM SIP Trunks Settings
 - Administer IP Trunks General
 - Administer SIP Account – Parent and Child
 - Administer BCM SIP Trunks Global Settings
 - Administer SIP Trunks Media Parameters
 - Administer SIP Trunks Private
- Administer Dialing Plan Private Network Settings
- Administer BCM Handset Settings

5.1. Accessing the Avaya Business Communication Manager 450

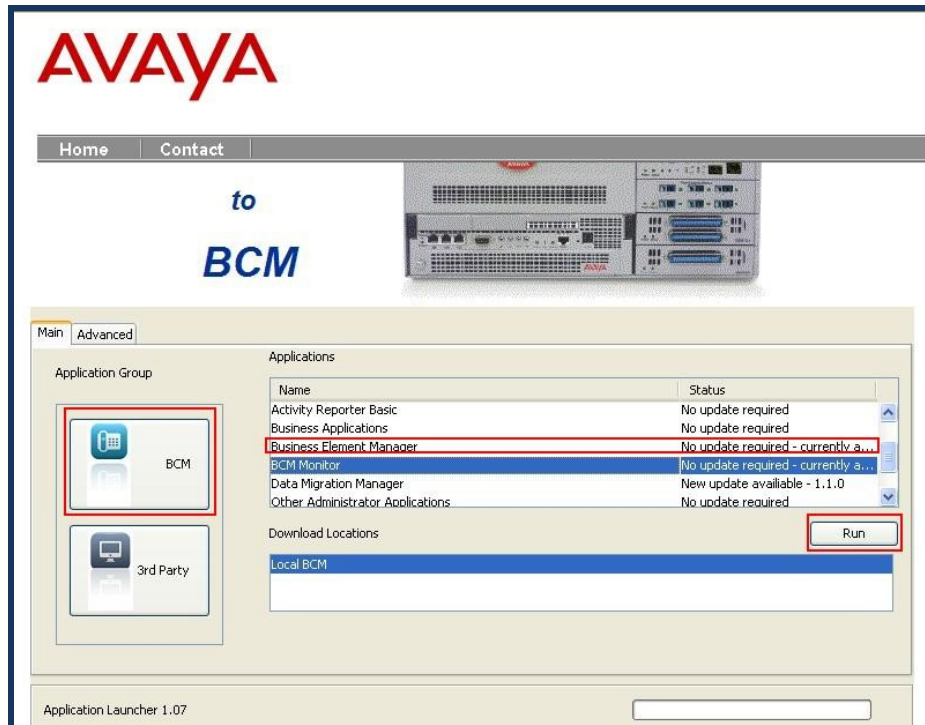
5.1.1. Install Business Element Manager and Avaya Business Communication Manager 450 Monitor

Open web browser and connect to the Web GUI **https://<BCM 450 IP address>** as shown below. Login using the appropriate Username and Password.

Note: The web browser has to enable Java Runtime Environment to support the BCM 450 Web GUI. On first time of login, the user will be prompted for a username and password, along with the opportunity to save these credentials and set this web page for auto login in the future.

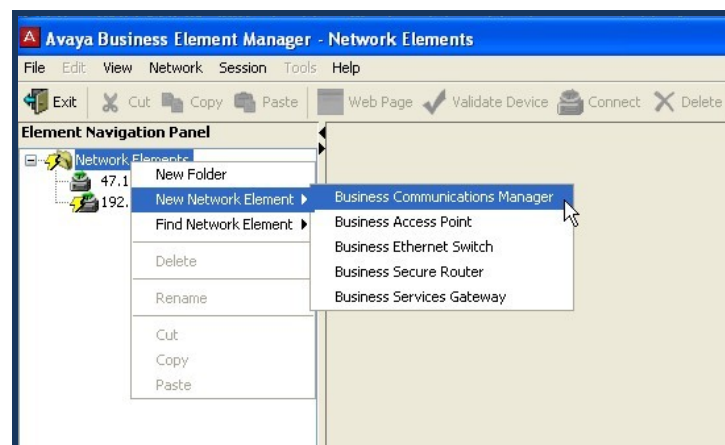


The **Welcome to BCM** page is displayed. From the **Applications** area select **Business Element Manager**, and then click **Run** as highlighted below. This action will install **Business Element Manager** to the local PC. After the installation complete, **Business Element Manager** shortcut will be created on the desktop.



5.1.2. Create a new Network Element Entry for Business Element Manager

Once the software has been installed, double click on the **Business Element Manager** desktop icon; the **Avaya Business Element Manager – Network Elements** screen will open. It is necessary to create a **Network Element** to connect to the BCM 450 system. To do this, highlight **Network Element**, and right click and select **New Network Element → Business Communications Manager**.

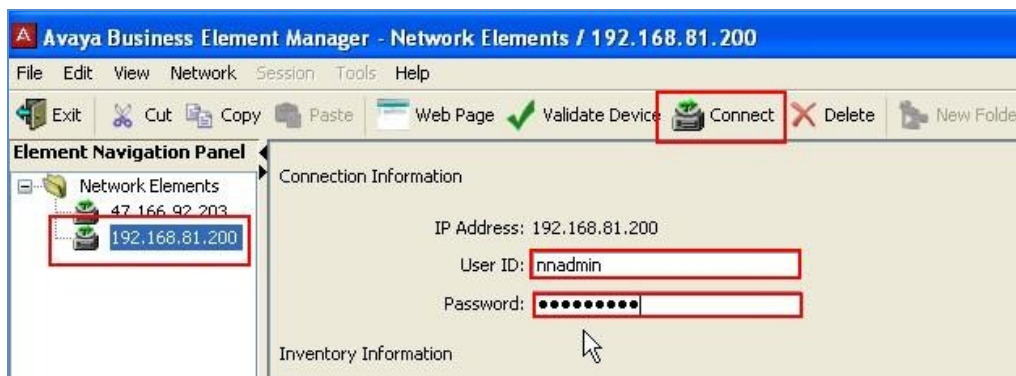


Input the IP address of BCM 450, username: **nnadmin** and appropriate password in the relevant fields. Then click **OK**.

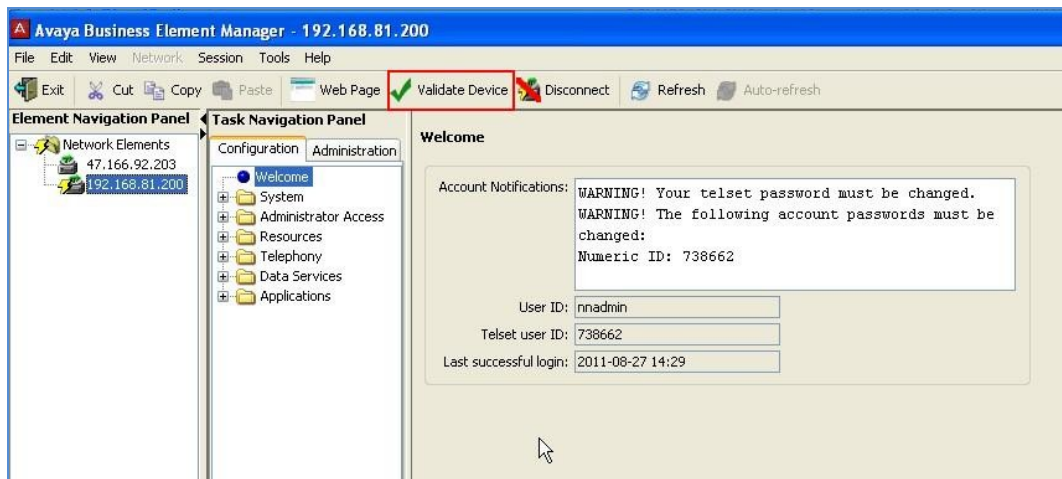


5.1.3. Login to Business Element Manager

Double click on the **Business Element Manager** desktop icon; select the **Network Element** then click **Connect** as shown below.

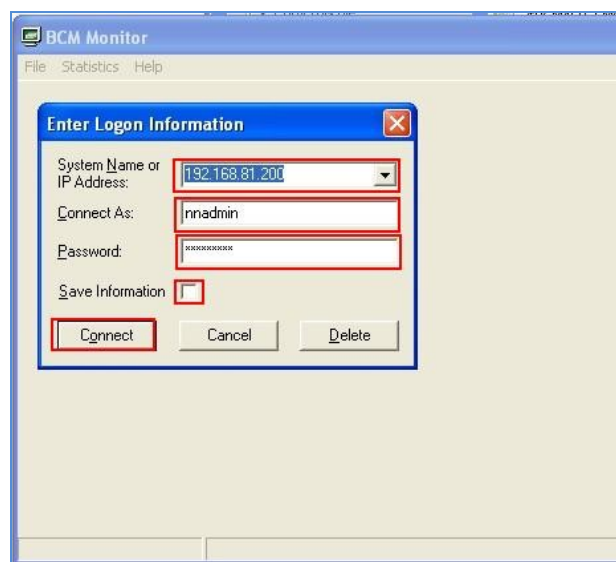


After the connection has been established, click **OK** in the **Confirm** dialog (not shown). It may also be necessary to **validate** the Device at this stage. Click on the **Validate Device** button at the top of the screen.

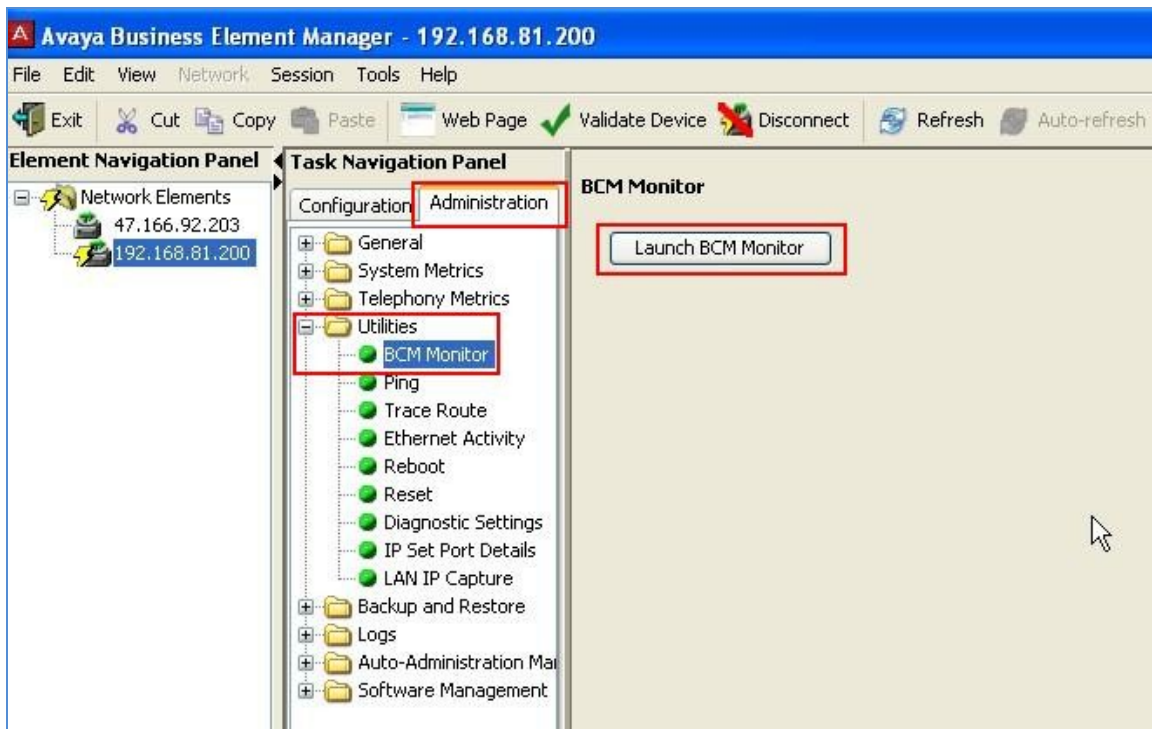


5.1.4. Login to Avaya Business Communication Manager 450 Monitor

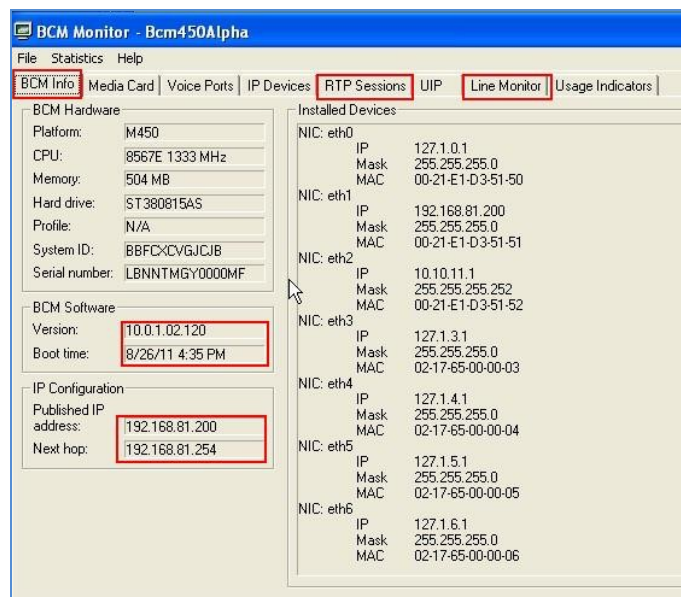
The BCM Monitor is a useful tool for monitoring the lines in and out of the BCM. The software may be installed via the web page to a local PC. (See **Section 5.1.1** - the BCM Monitor is listed below the BCM Element Manager and is installed the same way). Once the software has been installed double click the **BCM 450 Monitor** icon on the desktop. Then input IP address of BCM 450, username: **nnadmin** and appropriate password.



The BCM Monitor can also be accessed via the BCM Element Manager screens. From the **Task Navigation Panel**, click on the **Administration** Tab. Select **Utilities** → **BCM Monitor**. Click on the **Launch BCM Monitor** button that appears on the right hand side of the screen.



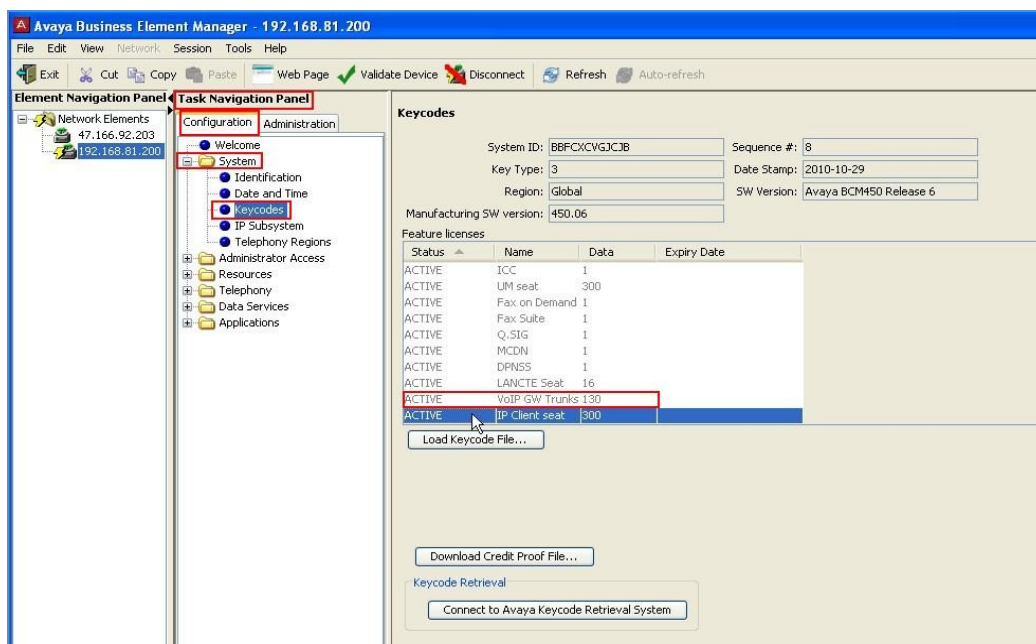
A number of tabs are available once connected. Besides the **BCM Info** tab, the **RTP Sessions** and **Line Monitor** tabs show useful information on calls transiting the system.



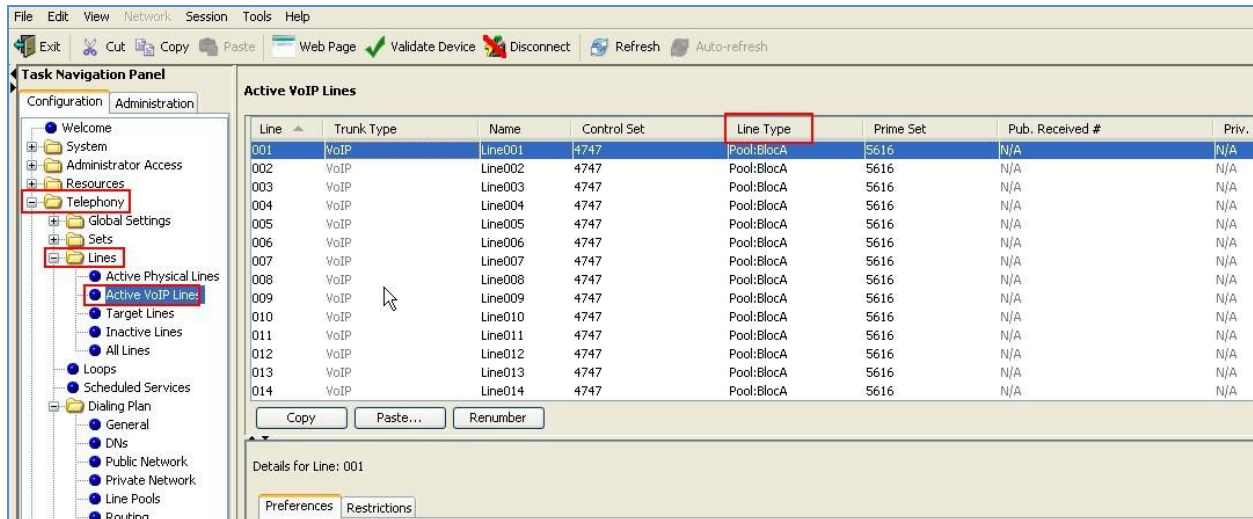
5.2. Verify Avaya Business Communication Manager SIP Trunk Keycodes

Keycodes are required in order to activate IP trunks on BCM. The **VoIP GW Trunks** license enables H.323 and SIP trunks. Alternatively a separate keycode is available to enable only SIP trunks. Ensure the BCM has the keycode installed prior to starting. If the required keycode is not installed, contact an authorized Avaya sales representative.

Connect to BCM Business Element Manager. From the **Task Navigation Panel** select the **Configuration** Tab. From the sub menu select **System** → **Keycodes**. Review the data column to display the number of VoIP GW trunks available and check the Status to confirm as **Active**.



This document assumes that the VoIP trunks are present and have been programmed onto the system. A check may be made by going to the **Task Navigation Panel**. From the **Configuration** tab select **Telephony** → **Lines** → **Active VoIP Lines**. The VoIP lines are displayed and the associated **Line Type**. By default, SIP lines are assigned to **Bloc A**.



The screenshot shows the Avaya configuration interface. On the left is the **Task Navigation Panel** with the **Configuration** tab selected. The navigation tree shows **Telephony** → **Lines** → **Active VoIP Lines** selected. The main area displays a table titled **Active VoIP Lines**. The **Line Type** column is highlighted with a red box. Below the table are buttons for **Copy**, **Paste...**, and **Renumber**. At the bottom, there is a section for **Details for Line: 001** with tabs for **Preferences** and **Restrictions**.

Line	Trunk Type	Name	Control Set	Line Type	Prime Set	Pub. Received #	Priv.
001	VoIP	Line001	4747	Pool:BlocA	5616	N/A	N/A
002	VoIP	Line002	4747	Pool:BlocA	5616	N/A	N/A
003	VoIP	Line003	4747	Pool:BlocA	5616	N/A	N/A
004	VoIP	Line004	4747	Pool:BlocA	5616	N/A	N/A
005	VoIP	Line005	4747	Pool:BlocA	5616	N/A	N/A
006	VoIP	Line006	4747	Pool:BlocA	5616	N/A	N/A
007	VoIP	Line007	4747	Pool:BlocA	5616	N/A	N/A
008	VoIP	Line008	4747	Pool:BlocA	5616	N/A	N/A
009	VoIP	Line009	4747	Pool:BlocA	5616	N/A	N/A
010	VoIP	Line010	4747	Pool:BlocA	5616	N/A	N/A
011	VoIP	Line011	4747	Pool:BlocA	5616	N/A	N/A
012	VoIP	Line012	4747	Pool:BlocA	5616	N/A	N/A
013	VoIP	Line013	4747	Pool:BlocA	5616	N/A	N/A
014	VoIP	Line014	4747	Pool:BlocA	5616	N/A	N/A

5.3. Administer Avaya Business Communication Manager Business Name

In order for the BCM to send CLID, a business name must be configured for the system. From the **Task Navigation Panel** select the **Configuration** Tab. From the sub menu select **Telephony** → **Global Settings** → **Feature Settings**. In field **1** of the **Business Names** area configure a suitable name.

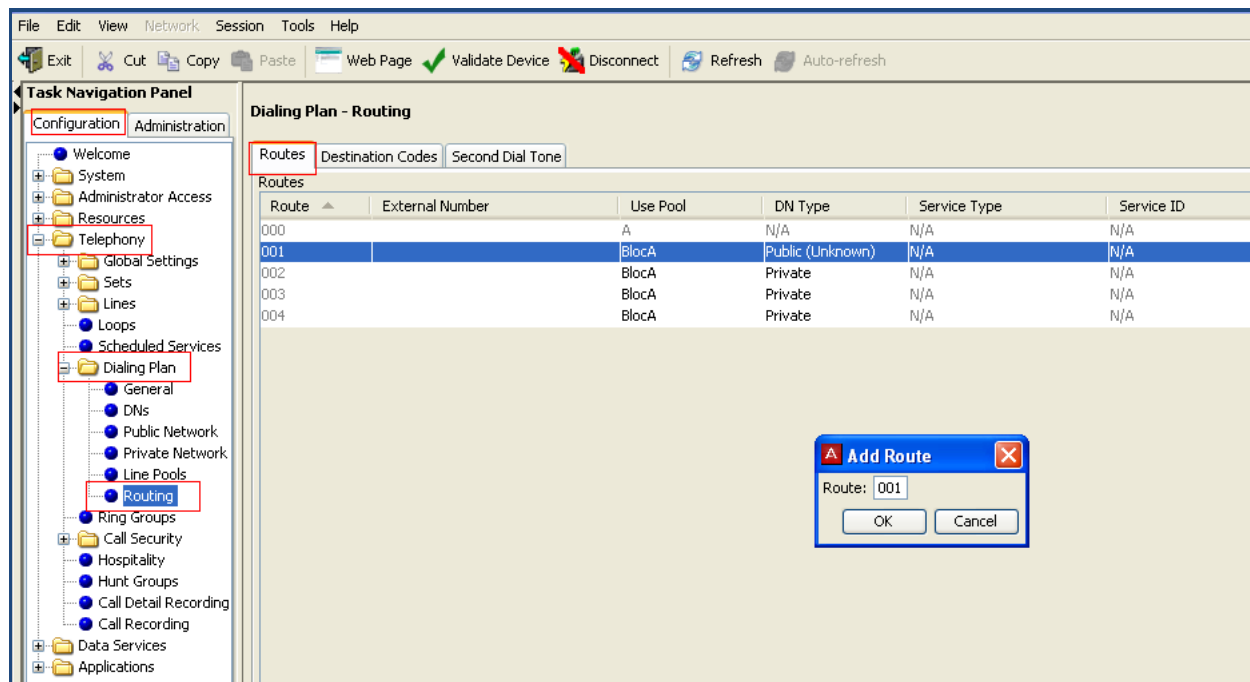
Note: Since Business Communication Manager concatenates the station name to the end of the Business Name in the SIP message and there is a fixed length for this concatenated string, using a short Business Name is recommended.

The screenshot displays the Avaya Business Communication Manager configuration interface. The **Task Navigation Panel** on the left shows the **Configuration** tab selected, with the **Feature Settings** option highlighted under the **Global Settings** section. The main content area is titled **Feature Settings** and contains the following sections:

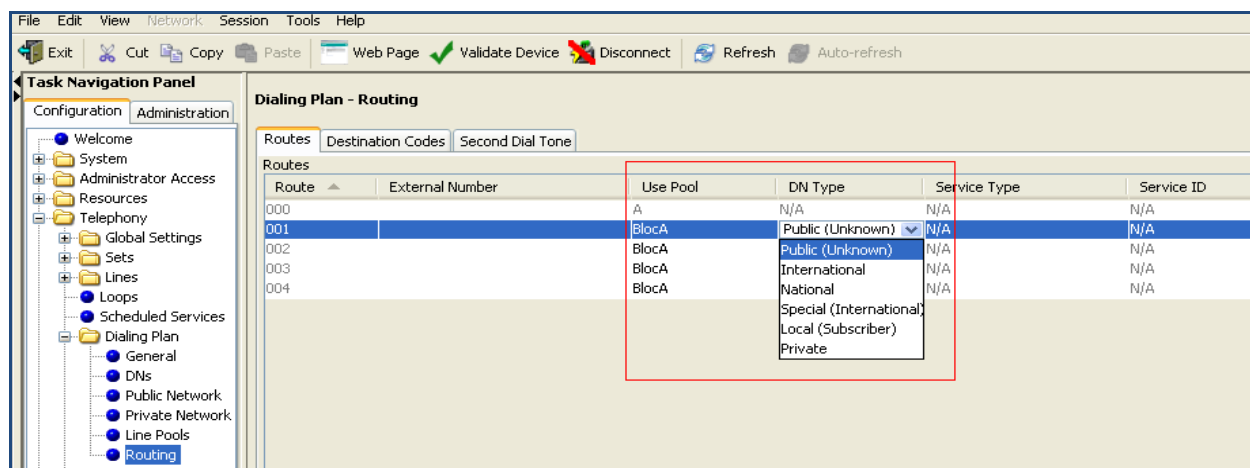
- Business Names:** A section with five input fields labeled 1 through 5. Field 1 contains the text "BCM450".
- Feature Settings:** A section with various configuration options, including:
 - Background music: ☐
 - Page tone: ☐
 - Conference tone: ☒
 - Message reply enhancement: ☐
 - Force auto/spd dial over ic/conf: ☐
 - On hold: **Tones** (dropdown)
 - Held line reminder: **Immediate** (dropdown)
 - Delayed ring transfer: **After 10 rings** (dropdown)
 - Park mode: **Lowest** (dropdown)
 - Maximum CLI per line: **50** (text input)
 - Answer keys: **Enhanced** (dropdown)
 - Receiver volume: **Use set volume** (dropdown)
 - Directed pickup: ☐
 - Set relocation: ☐
 - Alarm set: **4747** (text input)
- Timers:** A section with various timeout and delay settings, including:
 - Camp timeout (sec.): **45** (dropdown)
 - Park timeout (sec.): **45** (dropdown)
 - Page timeout (sec.): **180** (dropdown)
 - Transfer callback timeout: **After 4 rings** (dropdown)
 - Network callback: **30** (dropdown)
 - Host delay (ms.): **1000** (dropdown)
 - Link time (ms.): **200** (dropdown)

5.4. Administer Avaya Business Communication Manager Trunk Routes

From the **Task Navigation Panel** select the **Configuration** Tab. Select **Telephony** → **Dialing Plan** → **Routing**. On the **Routes** tab, click **Add** to create a new route. (Add button at the bottom of the screen is not shown). Enter appropriate Route number in **Route** field and click **OK** to confirm change.



Once the route has been created, it can be modified, by clicking into the relevant field. Set the **Use Pool** to **BlocA** and set **DN Type** to **Public (Unknown)**. All SIP lines by default will go into **BlocA**.



Destination Codes were also added and linked to the newly created Route 001. Click on the **Destination Codes** tab in **Dialing Plan - Routing**. In the example below **Destination Code 9** was created to access **Normal Route 001** (which was created above). This is shown below:

Dialing Plan - Routing

Routes: Destination Codes Second Dial Tone

Destination Code	Normal Route	Absorbed Length	Wild Card: 0	1	2	3	4	5	6	7	8	9
9	001	All										

Add... Delete

Alternate Routes for Destination Code: 9

Schedule	First Route	Absorbed Length	Second Route	Absorbed Length	Third Route	Absorbed Length
Evening	All	All	All	All	All	All
Lunch	All	All	All	All	All	All
Night	All	All	All	All	All	All
Sched 5	All	All	All	All	All	All
Sched 6	All	All	All	All	All	All
VoIP	All	All	All	All	All	All

5.5. Administer Avaya Business Communication Manager SIP Trunks Settings

5.5.1. Administer IP Trunks General

From the **Task Navigation Panel** select the **Configuration** Tab; select **Resources**→**IP Trunks**→**General**. Click on the tab **IP Trunk Settings**. Set the following fields:

- **Forward redirected OLI:** Set to **Last Redirect**
- **Send name display:** Enabled with tick

File Edit View Network Session Tools Help

Exit Cut Copy Paste Web Page Validate Device Disconnect Refresh Auto-refresh

Task Navigation Panel

Configuration Administration

System

Administrator Access

Resources

Application Resources

Media Gateways

Port Ranges

Telephony Resources

IP Trunks

General

SIP Trunking

H323 Trunking

Dial Up Interfaces

Telephony

Data Services

General

Call Routing Summary IP Trunk Settings

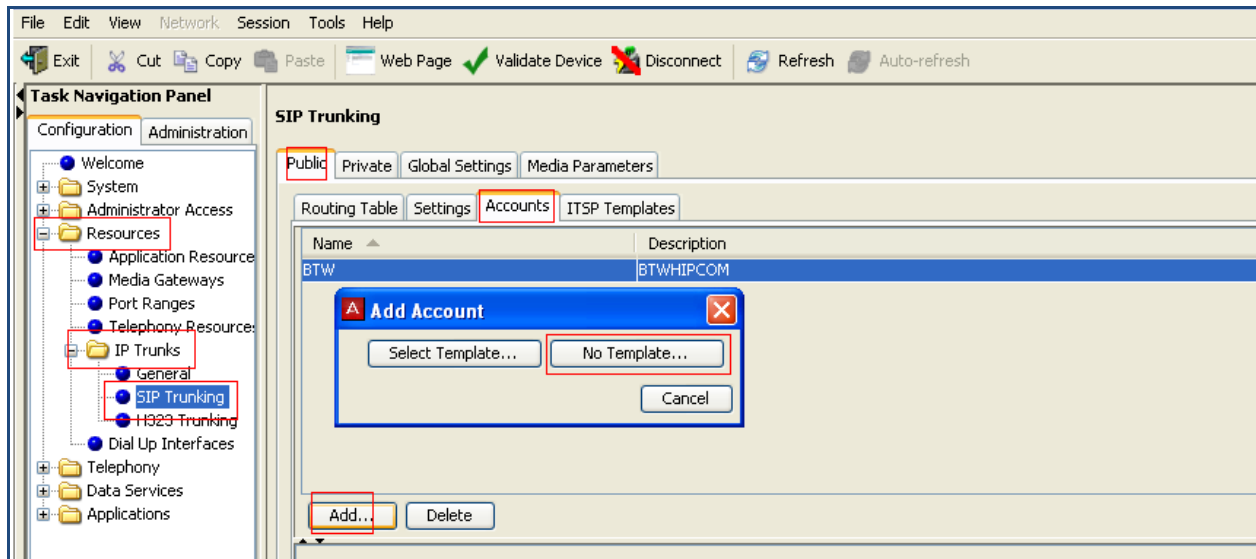
Telephony Settings

Forward redirected OLI: Last Redirect Send name display: ☒

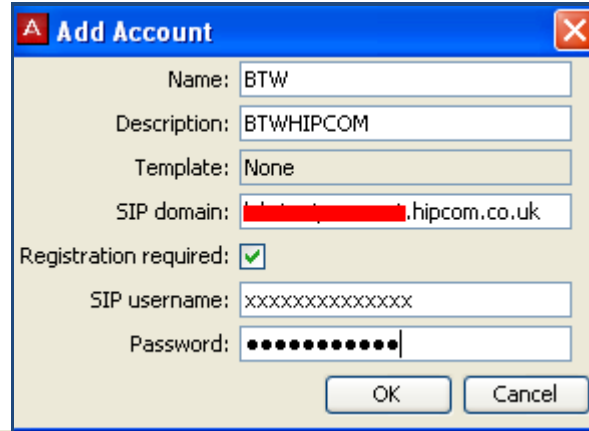
Remote capability MWI: ☒ Ignore in-band DTMF in RTP: ☐

5.5.2. Configure BCM Public SIP Account – Parent

From the **Task Navigation Panel** select the **Configuration** Tab, then select **Resources** → **IP Trunks** → **SIP Trunking** and click on the **Public** tab in the right pane. Select the **Accounts** tab and click on **Add** and select **No Template**, as shown below.



The following window appears:



Add Account

Name: BTW

Description: BTWHIPCOM

Template: None

SIP domain: [redacted].hipcom.co.uk

Registration required: ☒

SIP username: xxxxxxxxxxxxxxxx

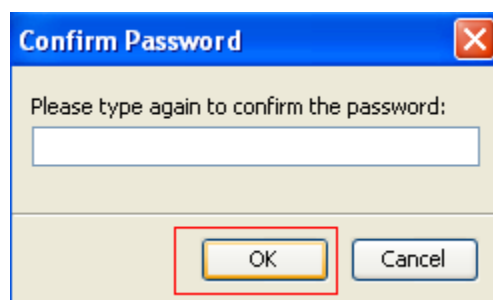
Password: [masked with dots]

OK Cancel

Enter the following information in the fields:

- **Name:** Enter a name for the new account e.g. **BTW**
- **Description:** Enter a description e.g. **BTWHIPCOM**
- **SIP domain:** Enter the domain name that is going to be used. This is partially hidden for security purposes
- **Registration required:** Enabled with **tick**
- **SIP username:** Enter the SIP username provided by BTW/HIPCOM
- **Password** Enter the Password provided by BTW/HIPCOM

NOTE – It is important not to click on the OK button in the above screen but hit the TAB key. The following window will appear, reconfirm the password. Click on the OK button as highlighted below when ready.



Confirm Password

Please type again to confirm the password:

[text input field]

OK Cancel

Once the account has been created basic information needs to be added. At the bottom pane of the **Accounts** window is where the **Details for Account** section can be found. Click on the **Basic** tab, as shown in the screen shot below. Enter the following values in the fields:

- **Local:** The local domain was the same as the Remote domain. This was configured when adding the SIP domain in **Section 5.5.2**, (hidden for security purposes)
- **Proxy Address:** IP address of proxy, this was given by BTW/HIPCOM, (hidden for security purposes)
- **Proxy Port:** **5060**
- **Registrar Address:** IP address of registrar, this was given by BTW/HIPCOM, (hidden for security purposes)
- **Registrar Port:** **5060**

Details for Account:

Basic Advanced User Accounts

SIP Domain

Remote: [REDACTED].co.uk

Local: [REDACTED].co.uk

Proxy

Address: [REDACTED].4

Port: 5060

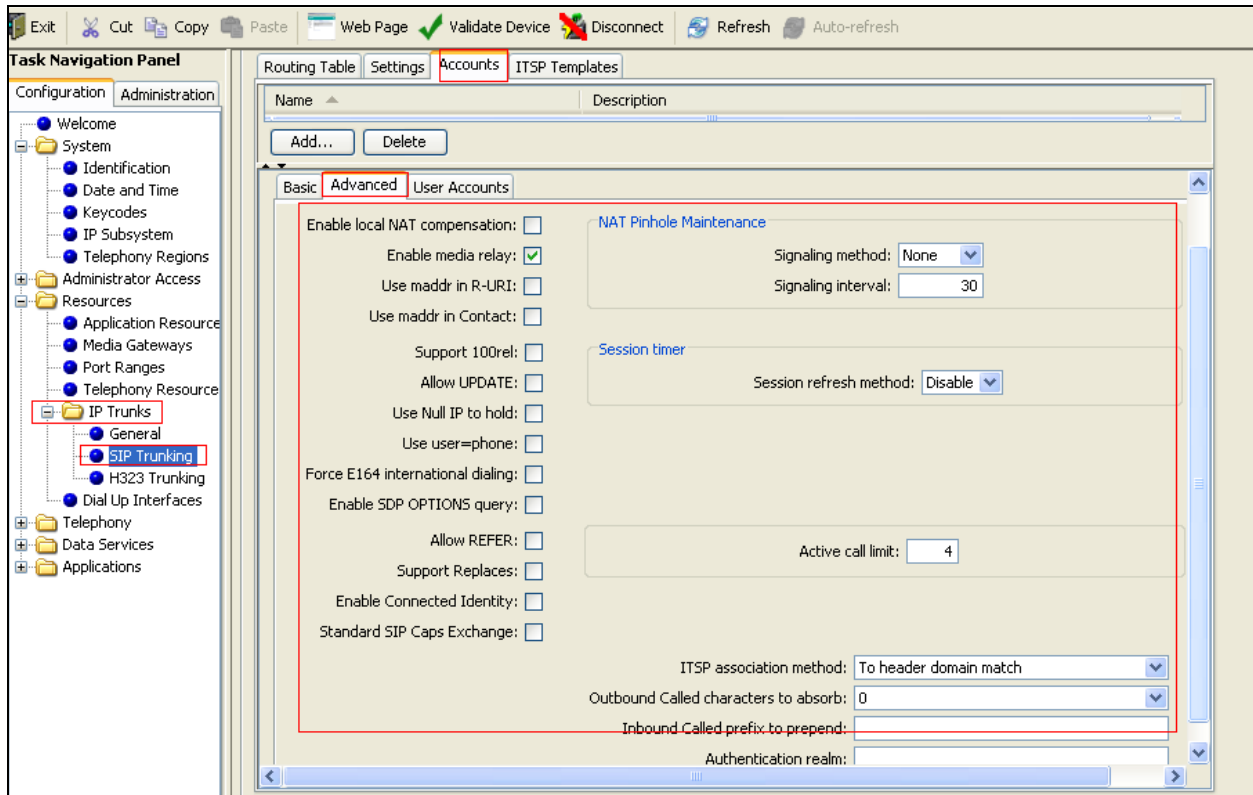
Transport: UDP

Registrar

Address: [REDACTED].4

Port: 5060

Also Advanced settings can be set. At the bottom pane of the **Accounts** window is where the **Advanced** section can be found. Click on the **Advanced** tab, this is shown in the screen shot below. The following values were set for the testing:



5.5.3. Configure BCM Public SIP Account – Child

Child accounts need to be created for every DDI that is associated with a line on the BCM. Once the parent account has been created child accounts need to be added. At the bottom pane of the **Accounts** window is where the **User Accounts** section can be found. Click on the **User Accounts** tab and click on **Add** (not shown). A new window will appear, this is shown in the screen shot below. Enter the following values in the fields:

- **Description:** Enter a name for this child account e.g. can be a DDI number or name.
- **CLID:** Enter the Public OLI number of an individual extension or extensions. This will match outgoing calls to a particular DDI (child account).
- **SIP Username:** Enter the SIP username provided by BTW/HIPCOM, same SIP Username configured in **Section 5.5.2**. The number inserted **must** be in the following format i.e. 441234567890.
- **Auth Username:** Enter the SIP username provided by BTW/HIPCOM, same Auth Username configured in **Section 5.5.2**.
- **Auth Password:** Enter the Password provided by BTW/HIPCOM, same Auth Password configured in **Section 5.5.2**.
- **CLID Override:** Enter the DDI number that will be presented to the PSTN. The number inserted **must** be in the following format i.e. 441234567890.

- **PAI CLID Override:** Enter the DDI number you want to present to the PSTN. The number inserted **must** be in the following format i.e. 441234567890.
- **Contact Override:** Enter the DDI number you want to present to the PSTN. The number inserted **must** be in the following format i.e. 441234567890.

Click **OK** to save changes.

Add Trunk User Account

Description: child3

Domain: h.co.uk

Account identity

Parent: ☐

CLID: 6173

User Credentials

SIP Username: [redacted] 6170

Auth Username: [redacted] 6170

Auth Password: [redacted]

Message Handling

CLID Override: [redacted] 6173

Display name Override: [redacted]

PAI CLID Override: [redacted] 6173

PAI Display name Override: [redacted]

Contact Override: [redacted] 6173

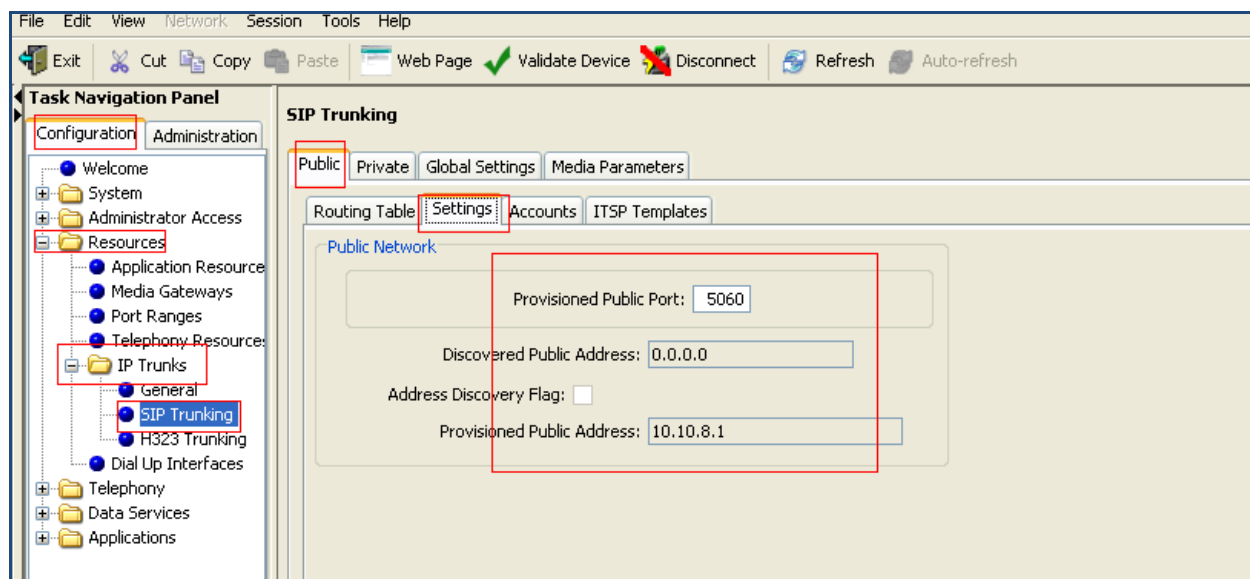
SIP Registration

Registration: ☐

OK Cancel

5.5.4. Configure BCM Public Settings

Check the **Public Provisioned Port** field is set to **5060**. From the **Task Navigation Panel** select the **Configuration** Tab then select **Resources** → **IP Trunks** → **SIP Trunking**. Under the **Public** tab, click on the **Settings** tab in the right pane as shown below.



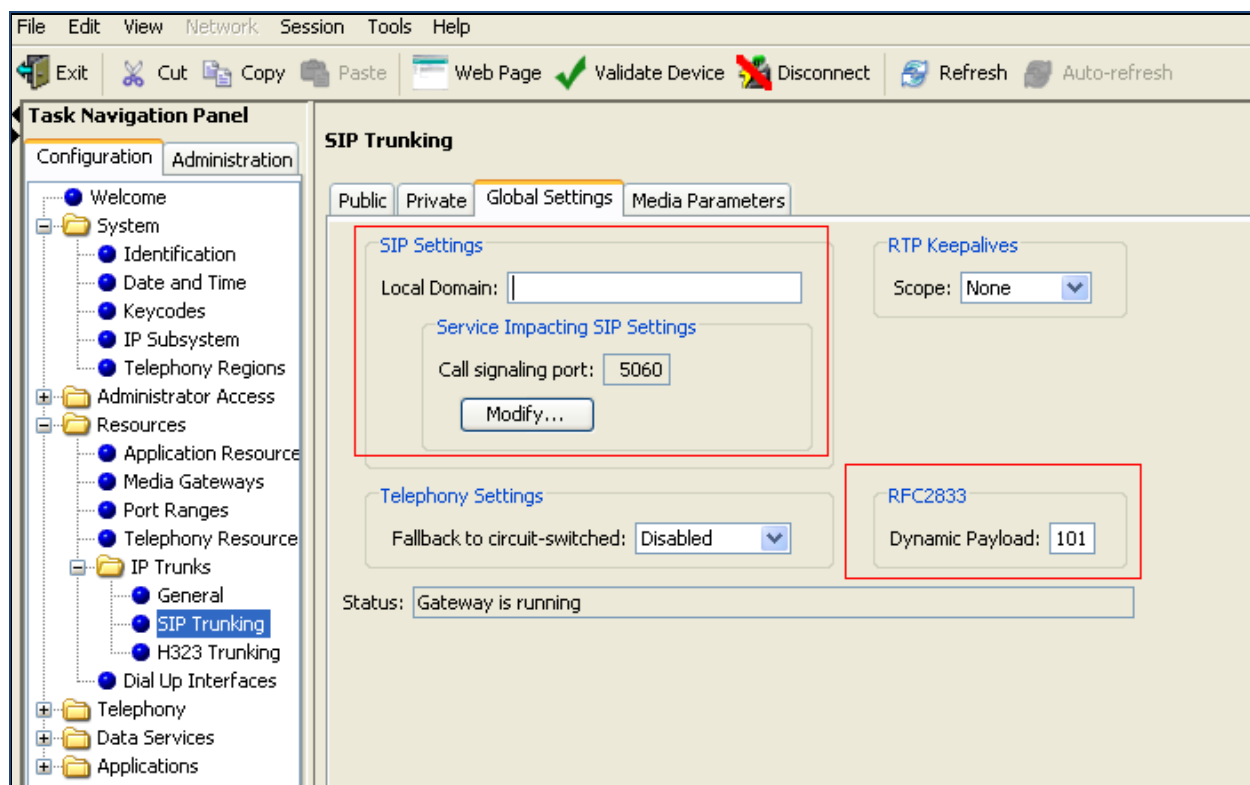
5.5.5. Configure BCM SIP Trunks Global Settings

From the **Task Navigation Panel** select the **Configuration** Tab, then select **Resources → IP Trunks → SIP Trunking** and click on **Global Settings** tab. In the **SIP Settings** area, enter the following:

- **Local Domain** Leave blank
- **Call Signaling Port** Set to **5060** (Click the **Modify** button to alter)

In the **RFC2833** Area

- **Dynamic Payload** Set to **101**

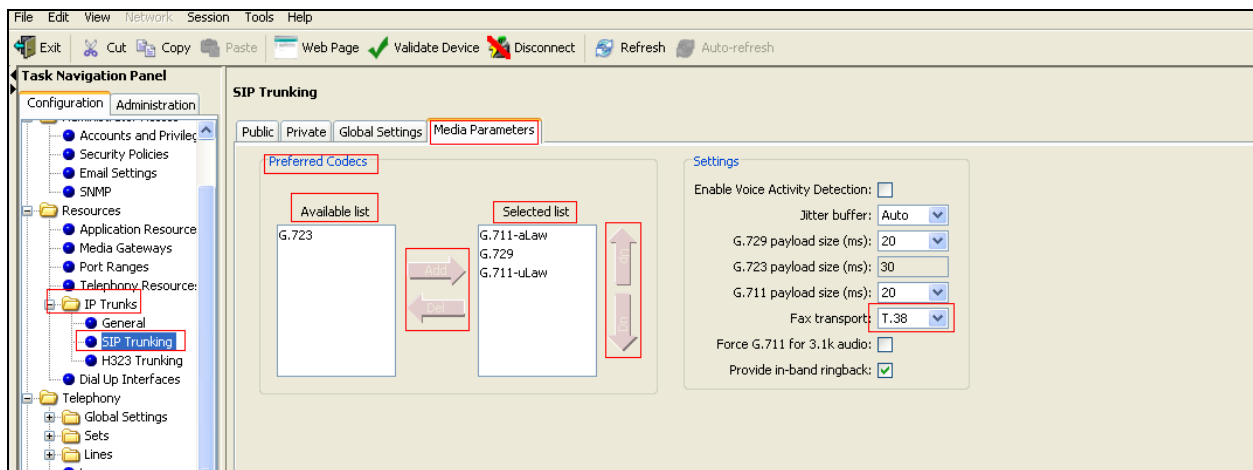


5.5.6. Configure SIP Trunks Media Parameters

From the **Task Navigation Panel** select the **Configuration** Tab, then select **Resources** → **IP Trunks** → **SIP Trunking** and click on **Media Parameters** tab. From the **Preferred Codecs** area, select the relevant codecs from the **Available list** and add to the **Selected list**. The codec order may be changed by using the **Up/Down** arrows.

In the **Settings** area;

- Check whether **Enable Voice Activity Detection** (*Silence Suppression*) is ticked.
Note: BTW/HIPCOM do not support this option, so it was left not ticked.
- Alter the **codec payload size**, if required.
- Set the **Fax transport** to **T.38**.
- Choose whether **Provide in-band ringback** should always be provided by the BCM on incoming SIP calls. (Default is unselected)

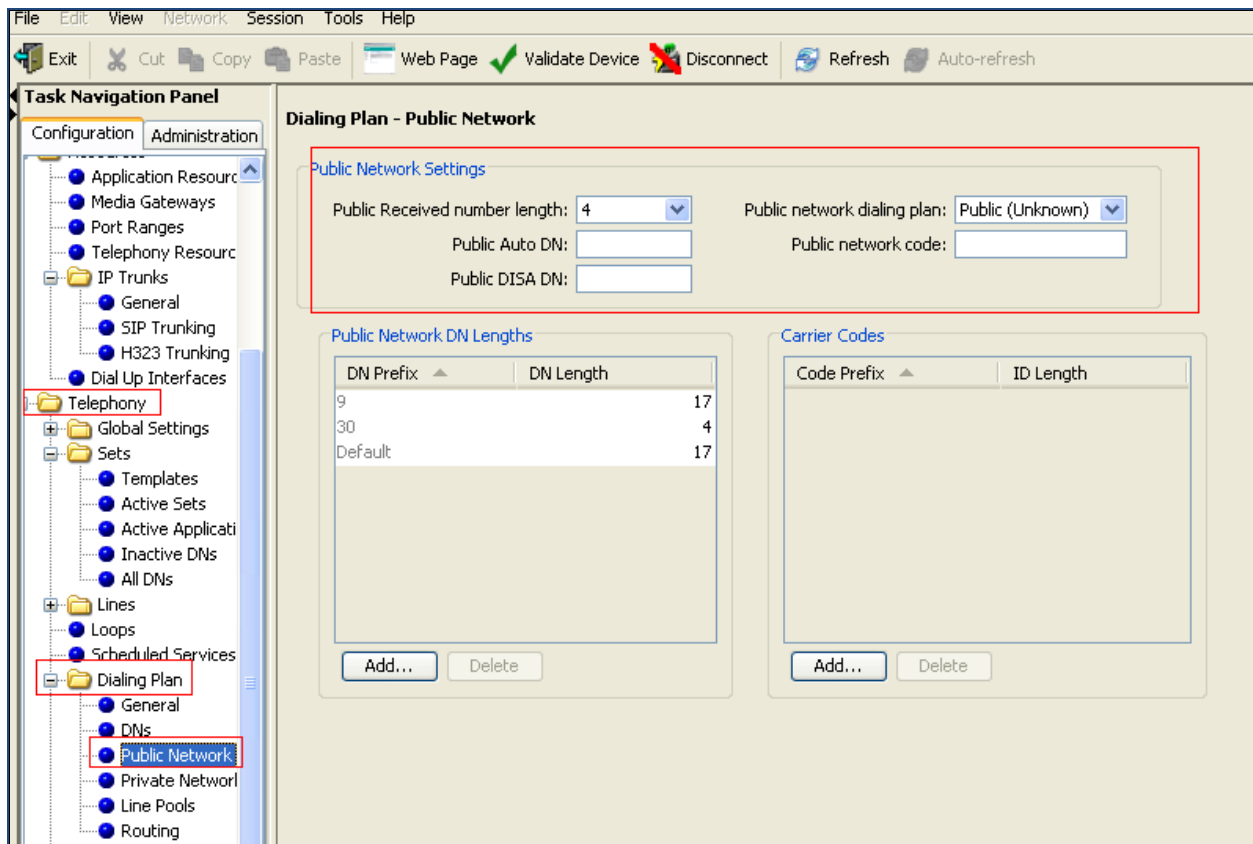


5.6. Configure Dialing Plan Public Network Settings

From the **Task Navigation Panel** select the **Configuration** Tab. Select **Telephony** → **Dialing Plan** → **Public Network**. In the **Public Network Settings** area, set the following:

- **Public Received number length:** Set to **4**. The BCM will then match on the last 4 digits of the DDI number sent from BTW/HIPCOM
- **Public network dialing plan:** Set to **Public (Unknown)**

Click **Add** to save changes.

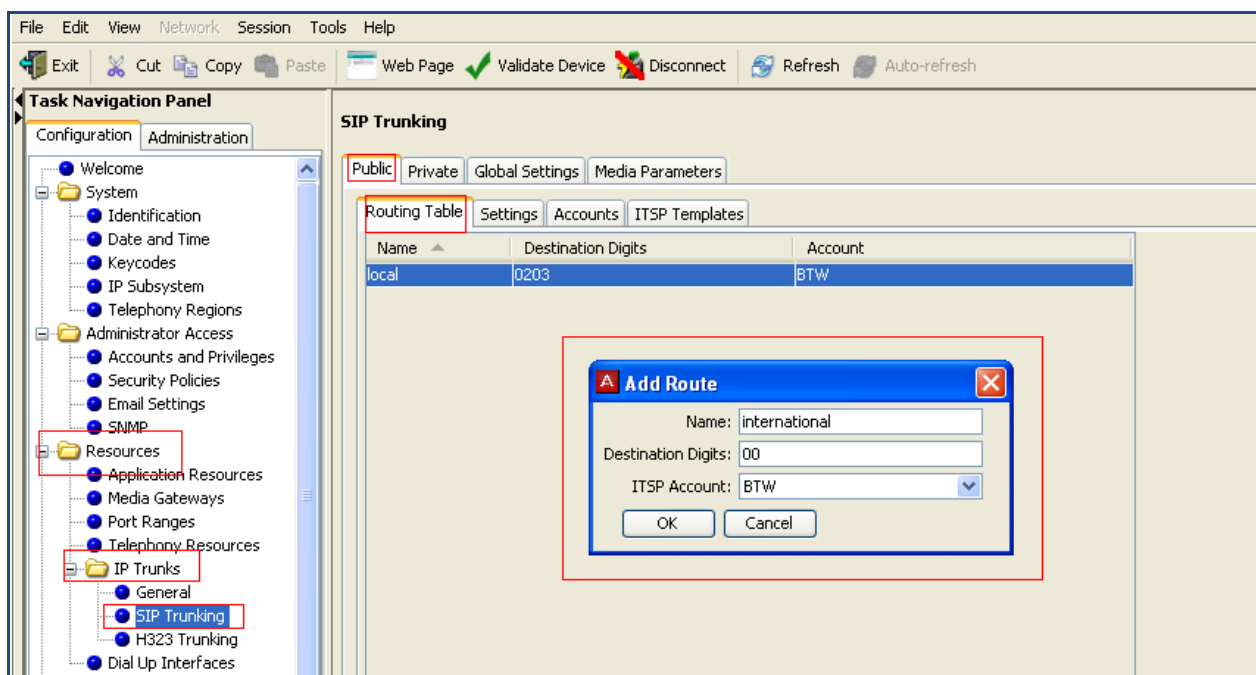


5.6.1. Configure Dialing Plan Public for Outgoing Calls

To add a public route from the **Task Navigation Panel** select the **Configuration** tab, then select **Resources → IP Trunks → SIP Trunking** and click on the **Public** tab in the right pane. Select **Routing Table** tab and click on **Add** (not shown). Enter the following fields in **Add Route** window:

- **Name:** Enter a name for the route, e.g. **international**
- **Destination Digits:** Prefix of the digits that are going to use this route e.g. **00**
- **ITSP Account** Associate with the ITSP account that was created in **Section 5.5.2**

Click **OK** to save changes. As shown in the screen shot below, a local route that uses prefix digits of **0203** had been previously added.



5.7. Configure Avaya Business Communication Manager Handset Settings

This document assumes that handsets are programmed and already working on the system and have been assigned a line. So this section concentrates on settings on the handsets which may need to be checked to ensure operability with the settings described in previous sections. From the **Task Navigation Panel** select the **Configuration** Tab, select **Telephony** → **Sets** → **Active Sets**. Click once on an extension from the list of available **Active Sets**. Click on the **Line Access** tab.

Set the following:

- **Pub Received #:** Set this to be the last 4 digits of the DDI number that is going to be received by the BCM from the PSTN. The Pub Received number is allocated to a target line, which can be allocated to an individual or multiple extensions. Maps incoming calls to particular extension(s).
Note: field is located in **Line Assignment** Tab located in the (lower half of the screen).
- **Pub OLI:** Set to same value as **Pub Received #**

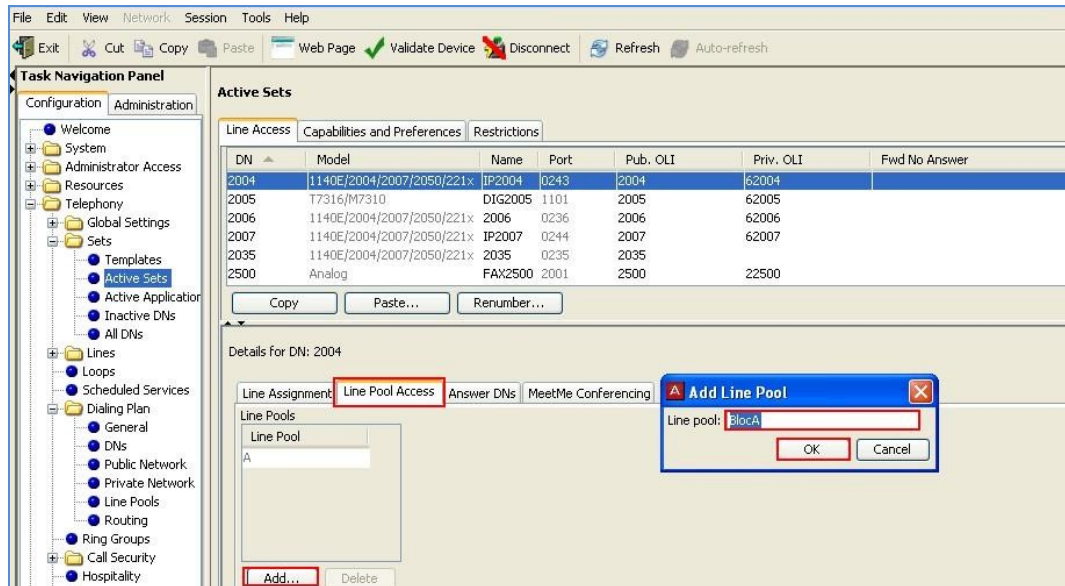
In the **Line Assignment** Tab, select **Caller ID Set**. This ensures the BCM handset will display the incoming callers name or extension number or line number on the BCM handset.

The screenshot displays the Avaya Business Communication Manager configuration interface. The **Task Navigation Panel** on the left shows the **Configuration** tab selected, with **Telephony** → **Sets** → **Active Sets** highlighted. The main window shows the **Active Sets** configuration page with the **Line Access** tab selected. A table lists various DN (Directory Number) entries with columns for DN, Model, Name, Port, Pub. OLI, Priv. OLI, Fwd No Answer, Fwd Delay, Fwd Busy, and Fwd All. The entry for DN 2007 is highlighted. Below the table, the **Details for DN: 2007** section shows the **Line Assignment** tab selected. This tab contains a table for **Assigned Lines** with columns for Line, Appearance Type, Appearances, Caller ID Set, Vmsg Set, Priv. Received #, and Pub. Received #. The entry for Line 416 is highlighted, showing that the **Caller ID Set** is checked and the **Pub. Received #** is 6173.

DN	Model	Name	Port	Pub. OLI	Priv. OLI	Fwd No Answer	Fwd Delay	Fwd Busy	Fwd All
2007	1140E/2004/2007/2050/221x	IP2007	0244	6173	12007				
2008	1140E/2004/2007/2050/221x	2008	0237	6170			N/A		
2009	1140E/2004/2007/2050/221x	2009	0245	6170			N/A		
2035	1140E/2004/2007/2050/221x	2035	0235	2035			N/A		
2500	Analog	FAX2500	2001	6170	22500		N/A		
2501	Analog	2501	2002	2501	22501		N/A		
2502	Analog	2502	2003	2502	22502		N/A		
2503	Analog	2503	2004	2503	22503		N/A		
2504	Analog	2504	2005	2504	22504		N/A		
2505	Analog	2505	2006	2505	22505		N/A		
2506	Analog	2506	2007	2506	22506		N/A		
2507	Analog	2507	2008	2507	22507		N/A		
4600	1140E/2004/2007/2050/221x	Martin	0233	4600			N/A		

Line	Appearance Type	Appearances	Caller ID Set	Vmsg Set	Priv. Received #	Pub. Received #
416	ApprORing	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	12007	6173

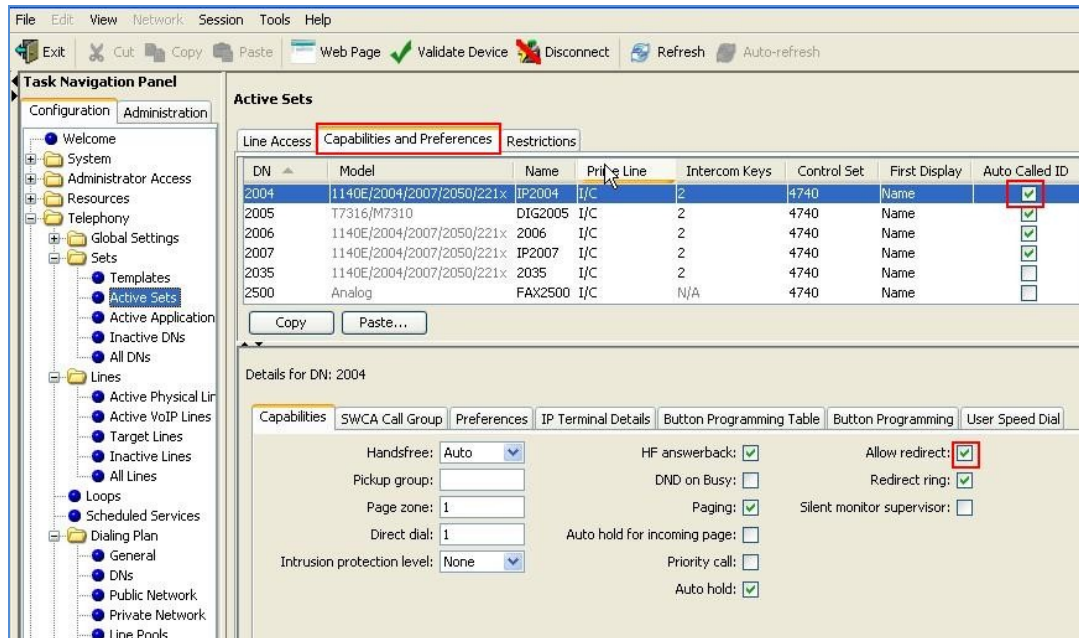
Next, select the **Line Pool Access** tab. By default, SIP Lines/trunks are put into pool BlocA on the BCM 450. Sets do not automatically have access to this pool, so access permissions must be added to BlocA on a set by set basis. Click on the **Add** button and in the pop up window; enter the name of the Line Pool. Click **OK** to confirm.



Next, click on the **Capabilities and Preference** tab at the top of the screen. In the top half of the screen, set the following fields

- **First Display** Set to **Name**, **Number** or **Line**. This determines what incoming details from the calling handset will be displayed on the BCM Handset
- **Auto Called ID** **Enabled** (to see the CLID of internal telephones)

In the lower half of the screen, set the field **Allow redirect**, enabled with a **Tick**. This permits the BCM 450 handset to use Call Forward Always.



6. BT Wholesale/HIPCOM Service Provider Configuration

The configuration of BTW/HIPCOM's equipment used to support the SIP trunk service is outside of the scope for these Application Notes and will not be covered. To obtain further information on BTW/HIPCOM's equipment and system configuration please contact an authorised BTW/HIPCOM representative.

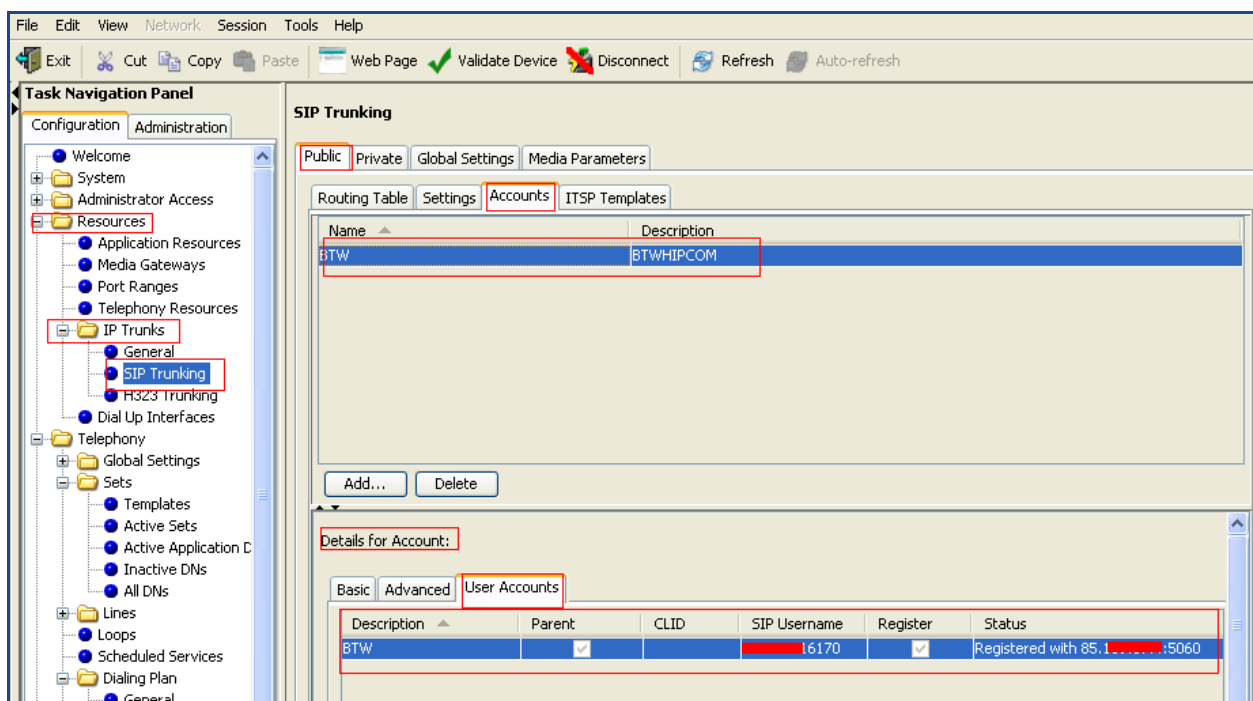
7. Verification Steps

This section provides details on how to verify the main configuration setup of the BCM 450 SIP trunk with BTW/HIPCOM's SBC.

7.1. Verify Avaya Business Communication Manager SIP Trunk

To verify that the sip trunk is up and operational, set up test calls between the BCM handsets and the PSTN and ensure that these calls route out over the sip trunk.

From the **Task Navigation Panel** select the **Configuration** Tab, then select **Resources** → **IP Trunks** → **SIP Trunking** and click on the **Public** tab in the right pane. Select the **Accounts** tab and select the account that was created in **Section 5.5.2**. In the bottom pane in the **Details for Account** section, click on **User Accounts**. Verify that under **Status** is showing as displayed **Registered with xx.xx.xx.xx:5060**, where xx.xx.xx.xx is the Registrar IP address configured in **Section 5.5.2**.



To monitor traffic between BCM 450 and BTW/HIPCOM use the BCM Line Monitor to determine the incoming and outgoing line numbers and the RTP sessions tab.

8. Conclusion

These Application Notes describe the configuration necessary to connect Avaya Business Communication Manager 450 to BTW/HIPCOM's SIP Service. Please refer to **Section 2** for observations from testing.

9. Additional References

Product Documentation for Avaya Products, including BCM 450 may be found at <http://support.avaya.com>

- [1] Avaya Business Communications Manager 6.0 Configuration —Telephony NN40170-502 Document issue: 03.03 Document date: October 2010 Product release: 6.0
- [2] Avaya Business Communications Manager 450 6.0 Installation — System NN40170-303 Document issue: 03.03 Document date: February 2011 Product release: 6.0
- [3] Avaya Business Communications Manager 6.0 Planning and Engineering NN40170-200 Document issue: 02.03 Document date: May 2010 Product release: 6.0

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