



Avaya Solution & Interoperability Test Lab

Application Notes for British Telecom (Financial Technology Services) Session Manager 4.1 with Avaya IP Office Server Edition 9.1 and 500v2 Expansion - Issue 1.0

Abstract

These Application Notes describe the configuration steps required to integrate British Telecom (Financial Technology Services) Session Manager 4.1 with Avaya IP Office Server Edition 9.1 and 500v2 Expansion. British Telecom Session Manager 4.1 is a SIP endpoint that interoperates with IP Office via a SIP Trunk.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as the observations noted in **Section 2.2**, to ensure that their own use cases are adequately covered by this scope and results.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

These Application Notes describe the configuration steps required to successfully integrate British Telecom (BT) Session Manager with Avaya IP Office Server Edition 9.1 and 500v2 Expansion. BT Session Manager is a SIP proxy a SIP Trunk to interoperate with IP Office as a SIP Line.

2. General Test Approach and Test Results

The general test approach was to configure the BT Session Manager to communicate with the IP Office via a SIP Trunk.

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly-defined test plan focuses on exercising APIs and/or standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute full product performance or feature testing performed by DevConnect members, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a DevConnect member's solution.

2.1. Interoperability Compliance Testing

The interoperability compliance test included both feature functionality and serviceability testing. The feature functionality testing focused on carrying out different call scenarios with good quality audio. Calls were routed through the BT Session Manager to the IP Office from BT Netrix Trading Turrets registered to the BT Session Manager. The tests included:

- SIP trunk is connected and in Service.
- Netrix Trading Turret can make and receive calls.
- Netrix Trading Turret can transfer and conference.
- Netrix Trading Turret can recover from loss of service

2.2. Test Results

All test cases were passed with the following observations.

- A supervised transfer between Netrix Turrets via IP Office is not supported on the current version of IP Office causing a line appearance to remain active after the transfer is completed. The call is presented on a second line and this is used as a work around. This is a known IP Office issue. But it is not known at this time if a fix will be provided in future releases of IP Office.
- No calls out to the PSTN were tested from the Netrix Turrets due to BT Security policy.
- During a BT Session Manager LAN outage, SIP Calls remain active but no subsequent calls can be made until service is resumed. Calls active when service is resumed are lost when the Netrix Turret renews it's registration.

2.3. Support

BT Unified Trading Interoperability Team
Email: Unified.trading.interop.team@bt.com

3. Reference Configuration

The configuration shown in **Figure 1** was used during the compliance test of BT Netrix Turret with IP Office. Netrix Turrets utilize a SIP trunk to communicate with IP Office handsets.

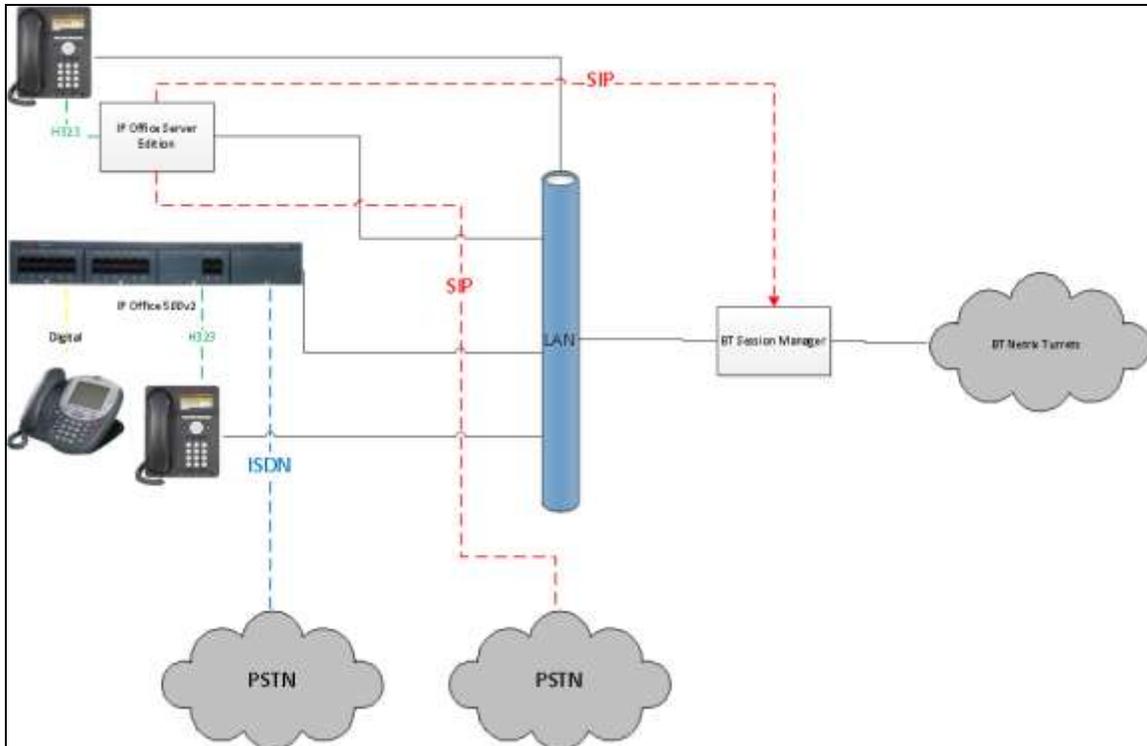


Figure 1: Connection of Netrix Turret with Avaya IP Office Server Edition 9.1 and 500v2 Expansion

4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya IP Office Server Edition	9.1.0.0 Build 437
Avaya IP Office 500v2	9.1.0.0 Build 437
Avaya 96xx Series IP Deskphones H.323	3.2
Avaya 2420 Series Digital Deskphones	N/A
BT Netrix Trading Turret	4.0.27
BT Session Manager (Co-Hosted).	4.1.0.20
NST Load Balancer	1.1.9.10.38
NST Media Resource Broker (MRB)	1.2.23
Dialogic Media Server.	2.4.10856

5. Configure Avaya IP Office

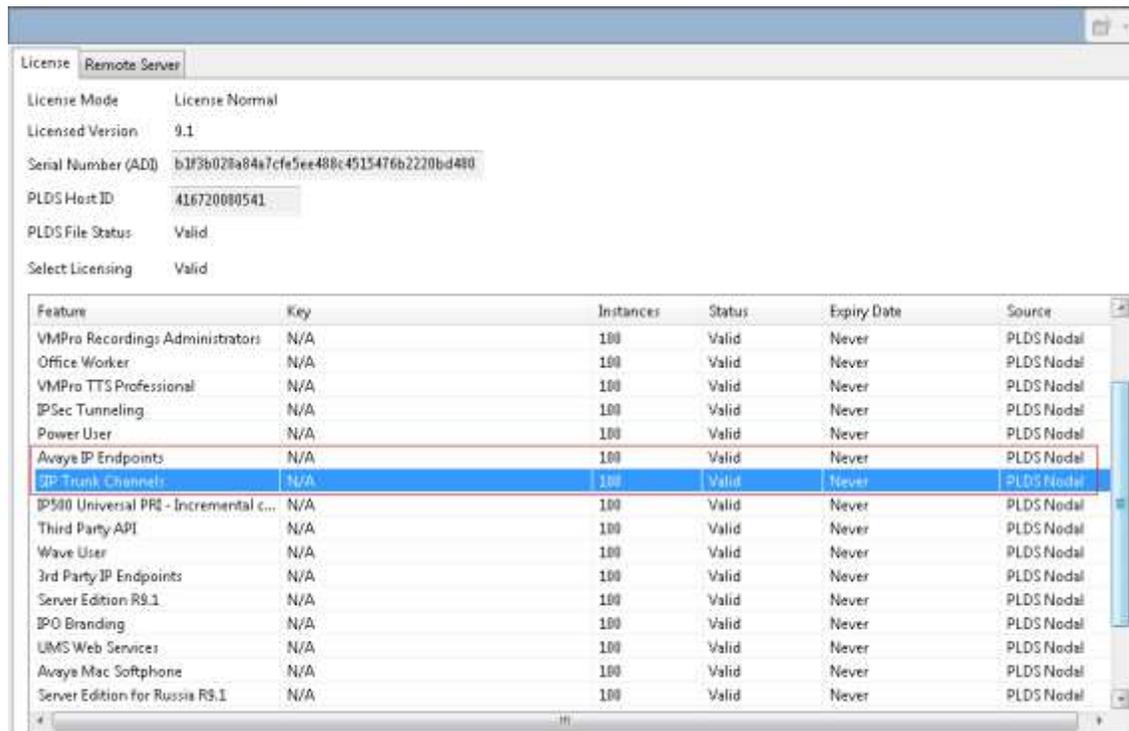
This section describes the steps required to allow IP Office to communicate with BT Session Manager. It is assumed that IP Office is installed and configured before implementing the configuration steps below. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 10**.

The configuration illustrated in this section was performed using IP Office Manager.

Configuration steps include:

- Check SIP Trunk Licensing.
- Administer System Lan settings.
- Administer Short Codes for routing and feature.
- Administer SIP Line.

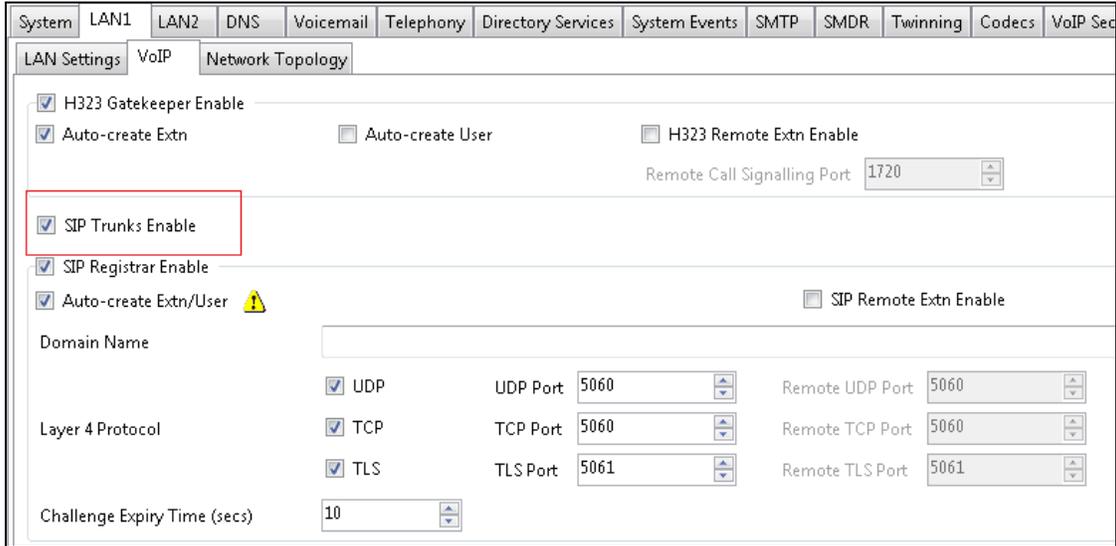
In IP Office Manager under configuration, select **License** and check the number of **SIP Trunk Channels** are enough for the Netrix Turret SIP line requirements as shown below.



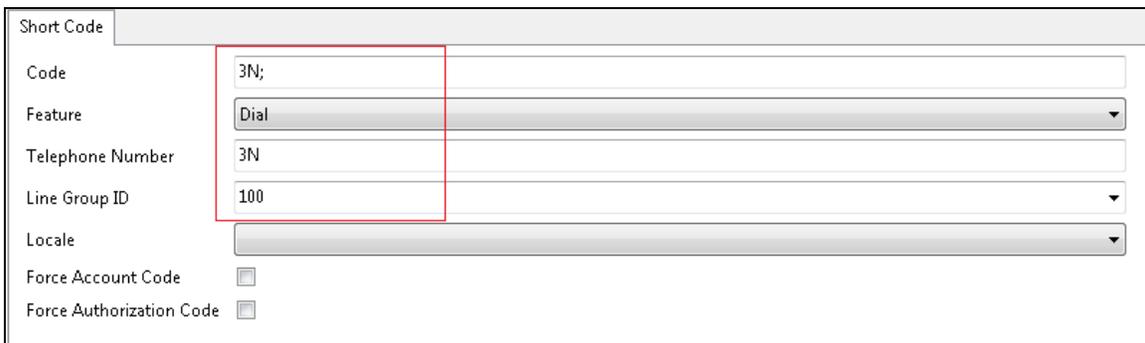
The screenshot shows the 'License' configuration window in IP Office Manager. The 'Remote Server' tab is active. The license mode is 'License Normal', version is '9.1', and the serial number is 'b1f5b028a84a7cfe5ee488c4515476b2270bd480'. The PLDS Host ID is '416720080541' and the PLDS File Status is 'Valid'. The 'Select Licensing' option is also 'Valid'.

Feature	Key	Instances	Status	Expiry Date	Source
VMPPro Recordings Administrators	N/A	100	Valid	Never	PLDS Nodal
Office Worker	N/A	100	Valid	Never	PLDS Nodal
VMPPro TTS Professional	N/A	100	Valid	Never	PLDS Nodal
IPSec Tunneling	N/A	100	Valid	Never	PLDS Nodal
Power User	N/A	100	Valid	Never	PLDS Nodal
Avaya IP Endpoints	N/A	100	Valid	Never	PLDS Nodal
SIP Trunk Channels	N/A	100	Valid	Never	PLDS Nodal
IP500 Universal PRS - Incremental c...	N/A	100	Valid	Never	PLDS Nodal
Third Party API	N/A	100	Valid	Never	PLDS Nodal
Wave User	N/A	100	Valid	Never	PLDS Nodal
3rd Party IP Endpoints	N/A	100	Valid	Never	PLDS Nodal
Server Edition R9.1	N/A	100	Valid	Never	PLDS Nodal
IPO Branding	N/A	100	Valid	Never	PLDS Nodal
URMS Web Services	N/A	100	Valid	Never	PLDS Nodal
Avaya Mac Softphone	N/A	100	Valid	Never	PLDS Nodal
Server Edition for Russia R9.1	N/A	100	Valid	Never	PLDS Nodal

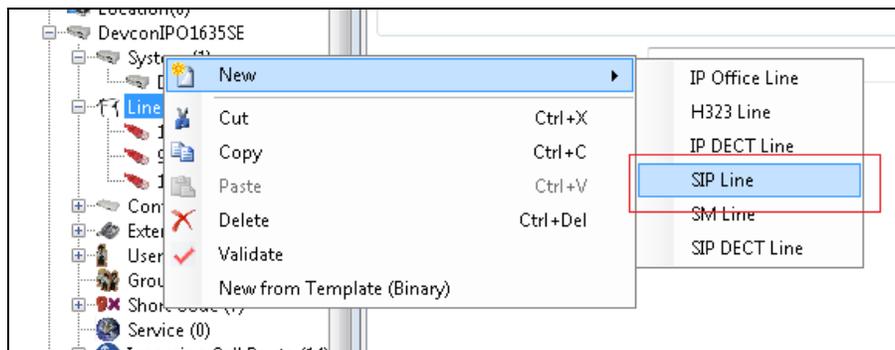
Select the **Server** edition → **System** (not shown) and check that **SIP Trunks Enable** is selected.



From **Solution**→**Short Code** (not shown), right click and select **New**(not shown). Enter the leading number used to dial to access the Netrix Trading Turrets as the **Code** followed by **N**; Select **Dial** from the **Feature** drop down, enter the number again without the ; as the **Telephone Number** and select the **SIP Line Group ID** used to dial the Netrix Trading Turrets.



From the **Server Edition**→**Line** right click and select **New**→**SIP Line**.



On the **SIP Line** tab, enter an **ITSP Domain Name**. The BT Session Manager Server IP Address is used here. Also make sure **Check OOS** is not selected so that IP Office does not send options messages to the BT Session Manager.

SIP Line | Transport | SIP URI | VoIP | SIP Credentials | SIP Advanced | Engineering

Line Number: 10

ITSP Domain Name: []

URI Type: SIP

Location: Cloud

Prefix: []

National Prefix: 0

International Prefix: 00

Country Code: []

Name Priority: System Default

Description: []

In Service:

Check OOS:

Session Timers

Refresh Method: Auto

Timer (seconds): On Demand

Forwarding and Twinning

Originator number: []

Send Caller ID: None

Redirect and Transfer

Incoming Supervised REFER: Auto

Outgoing Supervised REFER: Auto

Send 302 Moved Temporarily:

Outgoing Blind REFER:

On the **Transport** tab, enter the BT Session Manager Server IP Address as the **ITSP Proxy Address** and set the **Layer 4 Protocol** and **Send Port**.

SIP Line | Transport | SIP URI | VoIP | SIP Credentials | SIP Advanced | Engineering

ITSP Proxy Address: 10.10.10.10

Network Configuration

Layer 4 Protocol: TCP

Send Port: 5060

Use Network Topology Info: None

Listen Port: 5060

Explicit DNS Server(s): 0 . 0 . 0 . 0

Calls Route via Registrar:

Separate Registrar: []

On the **SIP URI** tab, click on **Add**. Set the **Incoming** and **Outgoing Group** to the default value given for **Outgoing Group**. Click on **OK** to save changes.

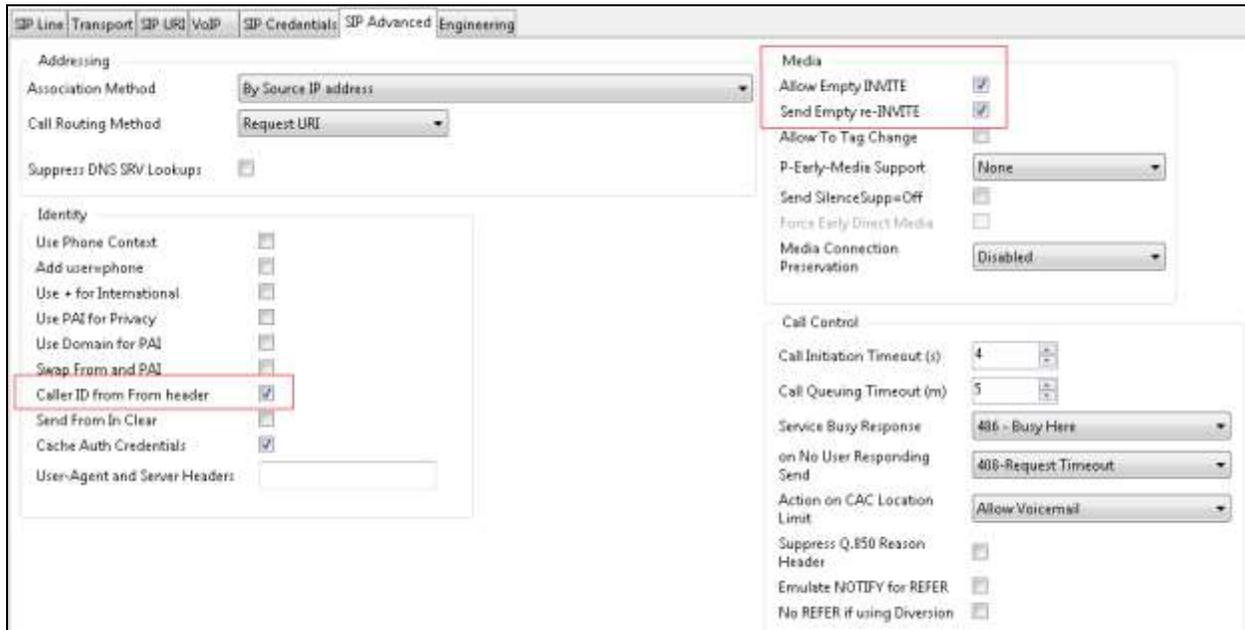
The screenshot displays the SIP Line configuration interface. At the top, there are tabs for SIP Line, Transport, SIP URI, VoIP, SIP Credentials, SIP Advanced, and Engineering. The SIP URI tab is active. Below the tabs is a table with columns: Channel, Groups, Via, Local URI, Contact, Display Name, PAI, Credential, and Max Calls. The first row is highlighted in blue and contains the values: 1, 100, 100, <...>, N..., 0: <Non..., and 100. To the right of the table are three buttons: Add..., Remove, and Edit... The Add... button is highlighted with a red box. Below the table is the 'Edit Channel' dialog. It contains several fields: Via (set to <None>), Local URI (set to Use Internal Data), Contact (set to Use Internal Data), Display Name (set to Use Internal Data), PAI (set to None), Registration (set to 0: <None>), Incoming Group (set to 100), Outgoing Group (set to 100), and Max Calls per Channel (set to 100). The Incoming Group and Outgoing Group fields are highlighted with a red box. At the bottom right of the dialog are OK and Cancel buttons.

Channel	Groups	Via	Local URI	Contact	Display Name	PAI	Credential	Max Calls
1	100	100	<...>	N...	0: <Non...			100

Buttons: Add..., Remove, Edit...

OK, Cancel

On the **SIP Advanced** tab, select **Caller ID from From header** and select **Allow Empty INVITE** and **Send Empty re-INVITE**.



Click **OK** (not shown). After all IP Office configuration has been completed, the Configuration needs to be saved and the IP Office must be rebooted.

6. Configure BT Session Manager

This section is used to describe the steps required to configure BT Session Manager to interoperate with IP Office 9.1.

Log into the BT Session Manager by browsing to the IP Address of the BT Session Manager Virtual IP Address followed by the port used for the UI, this is normally 8080.

For this example, <http://<Session Manager IP>:8080> was used.

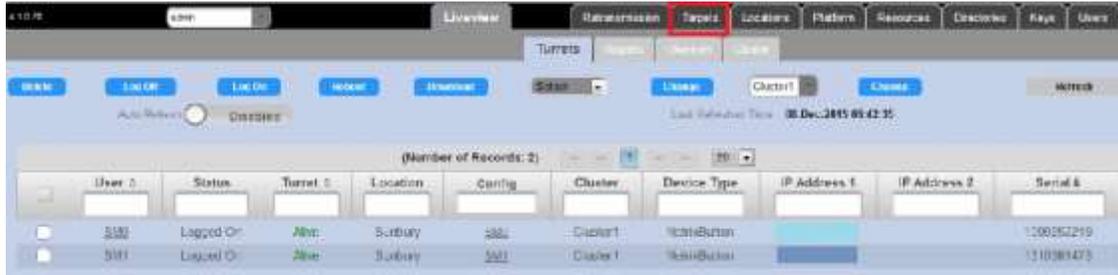
After browsing to BT Session Manager Address, the following login screen is shown. Please enter username and password.



The main screen is shown.



Select the tab named **Targets**.



Select **New** to create a new Target.



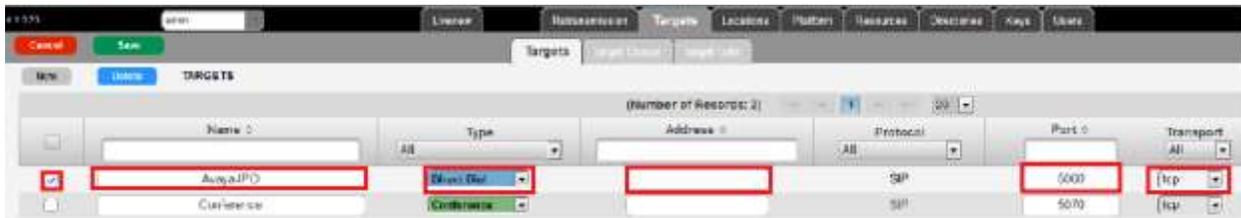
Enter Target Name in the **Name** field.

Type will always be **Direct Dial**.

Enter the IP Address of the IP Office in the **Address** field.

Enter the Port that is used in the **Port** field.

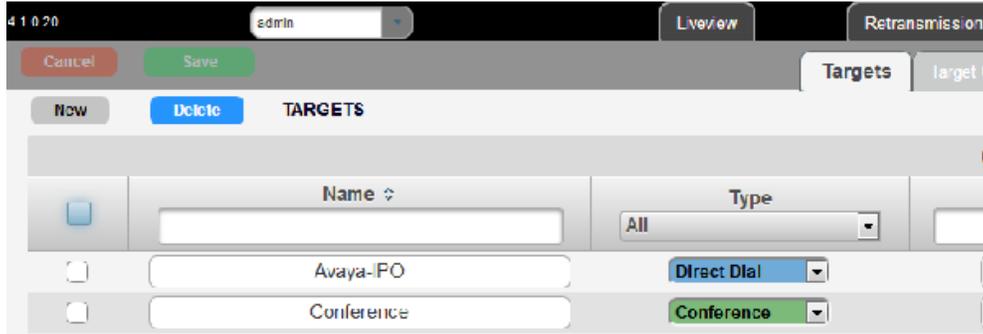
Choose **tcp** from the **Transport** dropdown box.



Select the **Target** by ticking the checkbox, then press **Save**.



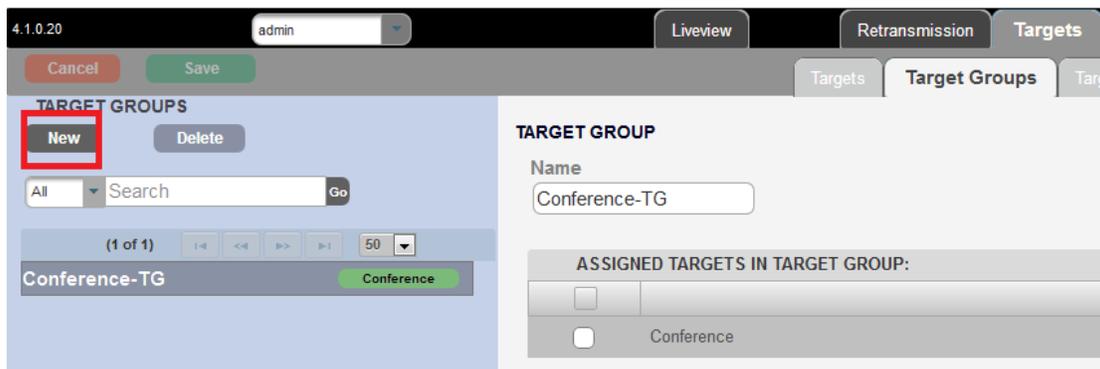
Ensure that the Target is saved before moving to the next step, confirmation is shown below.



Select the **Target Groups** Tab.



Select **New**.



Enter the Target Group name in the **Name** field



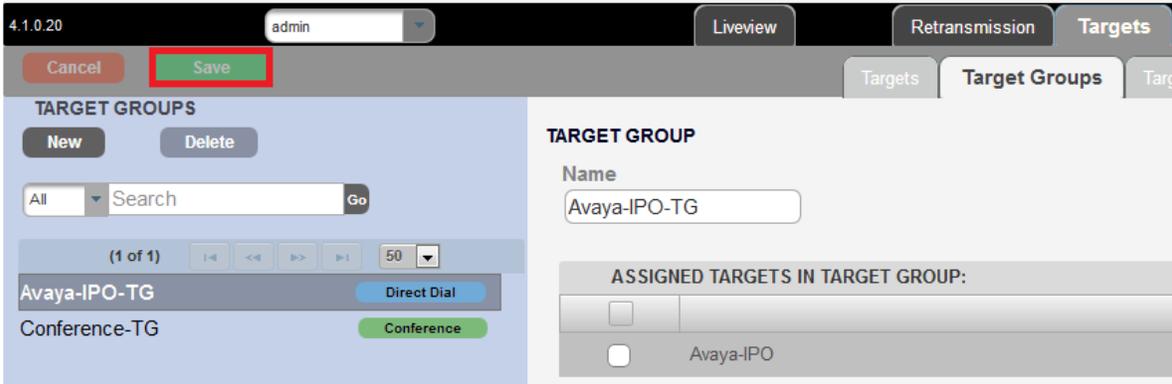
Select the **Target** created on the right hand side of the screen and then press **Assign**.



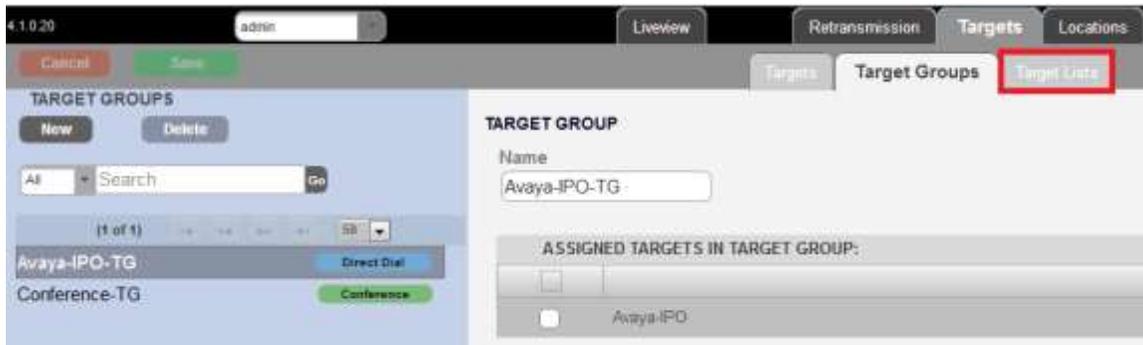
The Target will move into the **ASSIGNED TARGETS IN TARGET GROUP**.



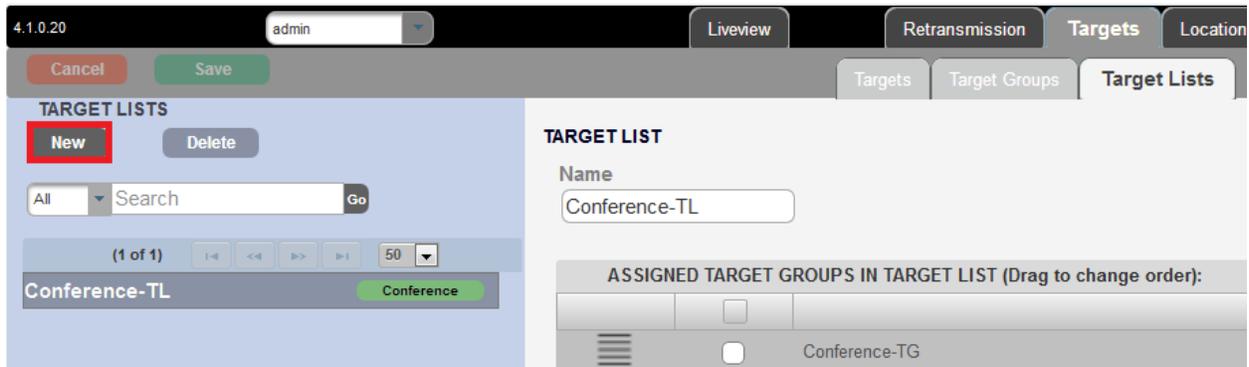
Select **Save**. Wait for the confirmation message(not shown) before moving onto the next step.



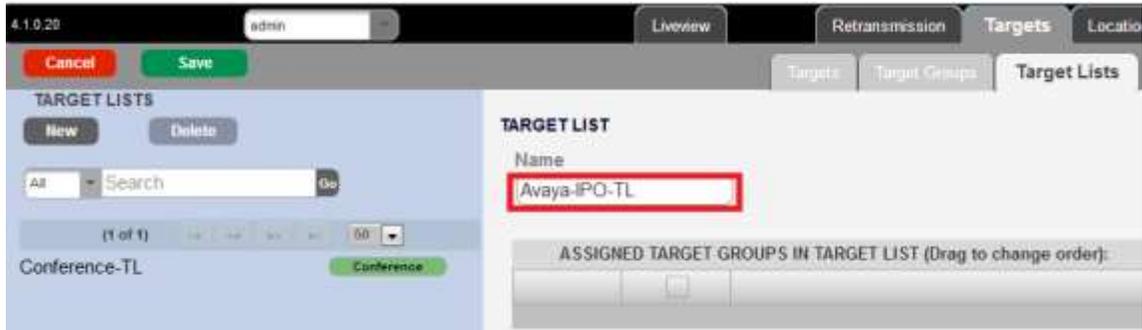
Select the **Target Lists** Tab.



Select **New**.



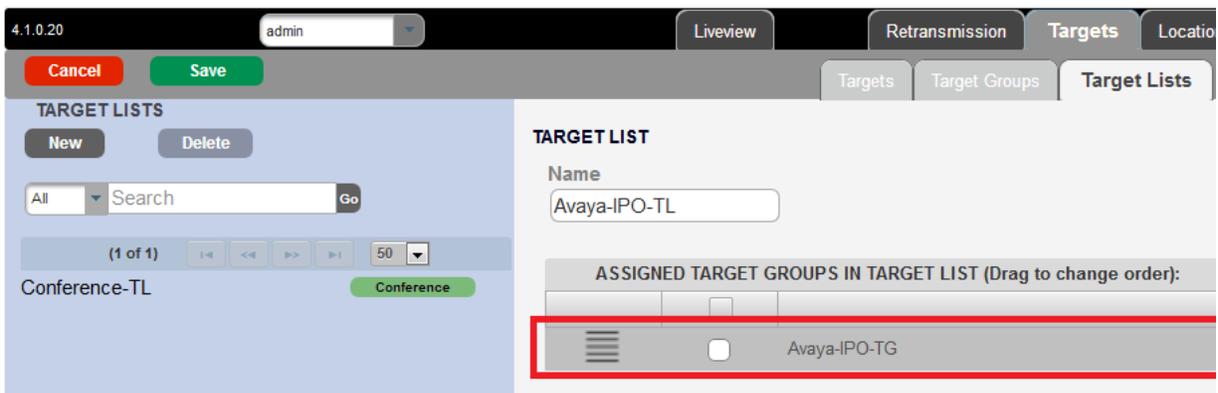
Enter the Target List Name in **Name** field.



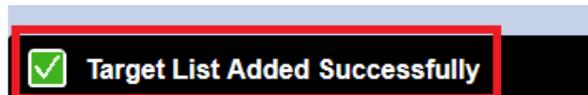
Select the Target Group that was just created on the right hand side of the screen and then press **Assign**.



The Target Group will move into the **ASSIGNED TARGET GROUPS IN TARGET LIST** after hitting Assign.



Select **Save**. Ensure the confirmation message is shown at the bottom of the screen before moving onto the next step.



Select the **Locations** Tab.



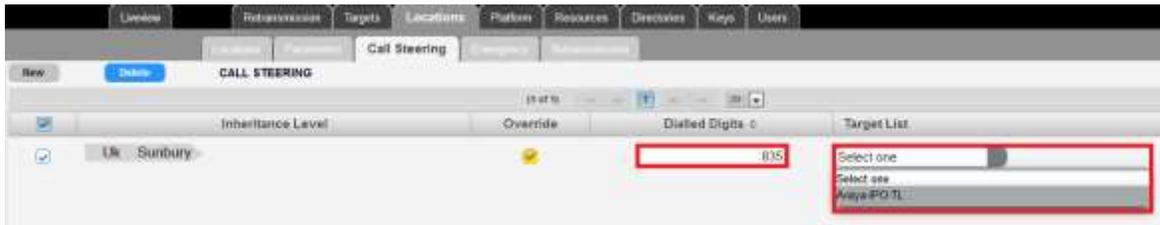
Select the **Call Steering** Tab.



Select **New**.



Enter the Dialled Digits, i.e. the digits to send to Avaya IP Office and then choose the **IP Office Target List** from the dropdown box.



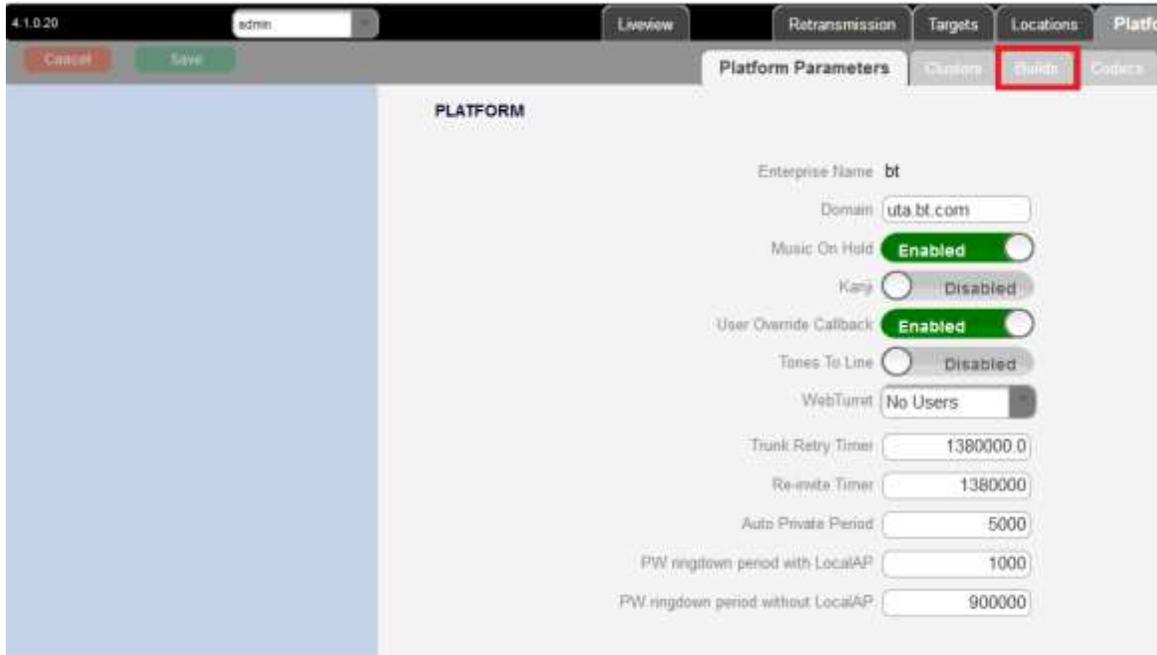
Select **Save** and ensure the confirmation message is shown at the bottom of the screen before moving onto the next step.



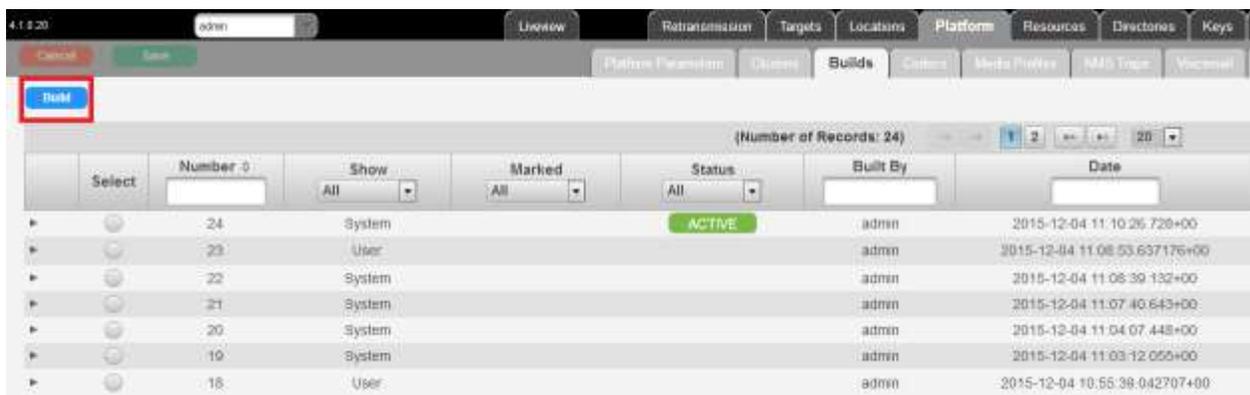
Select the **Platform** Tab.



Select the **Builds** Tab.



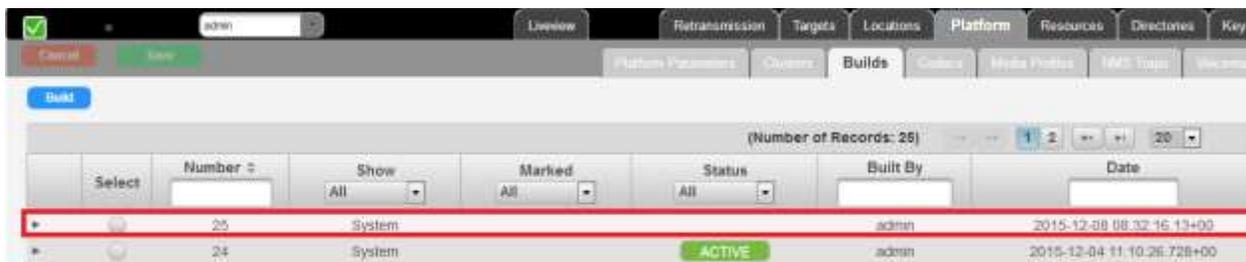
Select **Build**.



Select the radio button next to the build and populate the comments field. Once completed, press **Save**.



Build should be present in the **Builds** list. However, not showing as **Active** under the **Status** field. Ensure the confirmation message is shown at the bottom of the screen before moving onto the next step.



Select the build by selecting the radio button next to it.



Click the Arrow on the far left hand side of the screen next to the build.



Select **Activate**.



The build is now **Active**. Ensure confirmation that the build was successful is shown at the bottom of the screen.



7. Verification Steps

This section describes the checks that can be carried out to verify the connection between BT Session Manager and IP Office.

7.1. IP Office Verification

Using IP Office **System Status**, select **Trunks**→**Line x** where x is the line added above. Check that the Trunk shows **In Service** and that **Current State** of the trunks are Idle or Active

Status
Utilization Summary
Alarms

SIP Trunk Summary

Line Service State: In Service

Peer Domain Name:

Resolved Address:

Line Number: 10

Number of Administered Channels: 100

Number of Channels in Use: 0

Administered Compression: G711 A, G711 Mu, G729 A

Enable Faststart: Off

Silence Suppression: Off

Layer 4 Protocol: TCP

SIP Trunk Channel Licenses: 100

SIP Trunk Channel Licenses in Use: 0 ● 0%

SIP Device Features:

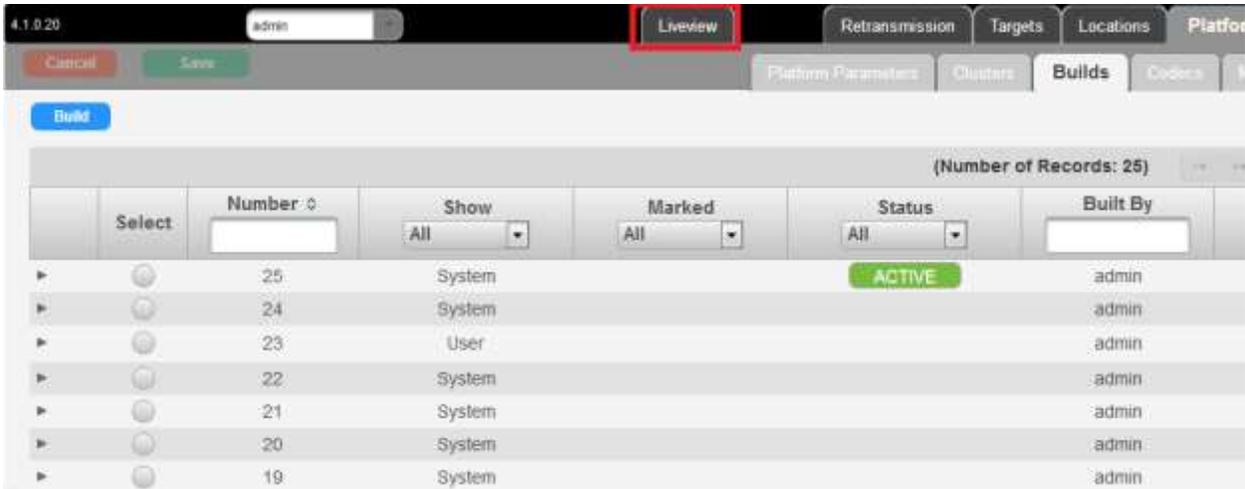
Channel Number	URI G...	Call Ref	Current State	Time in State	Remote Media Address	Codec	Connection Type	Caller ID or Dialed Digits	Other Party on C
1			Idle	17:37:10					
2			Idle	19:43:17					
3			Idle	23:08:15					
4			Idle	3 days 22:...					
5			Idle	3 days 22:...					
6			Idle	3 days 22:...					
7			Idle	3 days 22:...					

7.2. BT Session Manager Verification

Log into the BT Session Manager by browsing to the IP Address of the BT Session Manager Virtual IP Address followed by the port used for the UI, this is normally 8080.

For this example, <http://<Session Manager IP>:8080> was used.

Select **Liveview**.



Select **Cluster**.



Ensure that the Target created in **Section 6** is showing as **Alive** in Liveview.

The screenshot shows a web interface with a navigation bar at the top containing tabs for Retransmission, Targets, Locations, Platform, Resources, Directories, Keys, and Users. Below this is a sub-navigation bar with tabs for Reports, Diversion, and Cluster. A 'Refresh' button is set to 'Disabled' and the 'Last Refreshed Time' is '08-Dec-2015 08:56:01'. The main content area is titled 'TARGETS' and shows a table with 2 records. The first record is highlighted with a red box:

Target	Ip Address	TargetType	Status
Avaya-IPO Conference	10.221.43.210	Direct Dial Conference	Alive Alive

8. Conclusion

These Application Notes describe the configuration steps required for British Telecom Session Manager to interoperate with Avaya IP Office Server Edition with 500v2 Expansion. All feature functionality and serviceability test cases were completed successfully as outlined in **Section 2.2**.

9. Additional References

This section references the Avaya and British Telecom product documentation that are relevant to these Application Notes.

Product documentation for Avaya products may be found at <http://support.avaya.com>.

[1] *Administering Avaya IP OfficePlatform with Manager, Id: 101005673*

[2] *Using IP Office Platform System Status Id: 101005061*

Information regarding Product documentation for BT Netrix Trading Turret can be obtained by contacting the Support email in **Section 2.3**

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