Avaya Solution & Interoperability Test Lab

Application Notes for Configuring BTS CommsWare Console 1.0 with Avaya ® Communication Manager R8.1.2 and Avaya Aura® Session Manager R8.1.2 - Issue 1.0

Abstract

These Application Notes describe the configuration steps for provisioning BTS CommsWare Console 1.0 to interoperate with Avaya Aura® Communication R8.1.2 and Avaya Aura® Session Manager R8.1.2.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as any 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 for provisioning BTS CommsWare Console to interoperate with Avaya Aura® Communication Manager R8.1.2 and Avaya Aura® Session Manager R8.1.2.

CommsWare Console client from BTS is a screen-based Operator/Attendant console application running on a Desktop with a separate Avaya H.323 or SIP IP Deskphone for voice. It provides operators with extended call-handling functionality including call routing, call queuing, directory, search, attended and unattended transfers, camp-on and call parking (up to 6 calls per Operator). The CommsWare Console Client application works with BTS Call Director and BTS PhoneWare Directory to provide a Console solution. The Call Director connects to Communication Manager R8.1.2 using a SIP Trunk via an Entity Link on the Session Manager using UDP. An incoming call to an operator queue will be routed over the SIP Trunk to Call Director. The Call Director will then deliver the incoming call to an operator console queue. A login operator will answer the queue call from CommsWare Console client and the voice will be bridged onto the operator's Avaya Deskphone. Similarly, the outbound call is initiated from the CommsWare Console client where outbound call is make by Call Director via the SIP Trunk and the voice is bridged onto the operator's Avaya Deskphone.

Note: BTS supply, install and configure their solution for the end customer directly or through qualified partners. In line with BTS's request the configuration of the BTS solution is not required to be part of these Application Notes. Certain information from these Application Notes will be highlighted as a requirement for the BTS solution.

2. General Test Approach and Test Results

The interoperability compliance testing focused on verifying that CommsWare Console and all features behaved as expected. Various call scenarios were performed to simulate calls as would be observed on a customer premise. See **Figure 1** for a network diagram. The interoperability compliance test included both feature functionality and serviceability tests. All calls destined for the CommsWare Console are routed to the Call Director over SIP trunks using Session Manager to route the calls.

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.

Avaya recommends our customers implement Avaya solutions using appropriate security and encryption capabilities enabled by our products. The testing referenced in these DevConnect Application Notes included the enablement of supported encryption capabilities in the Avaya products. Readers should consult the appropriate Avaya product documentation for further information regarding security and encryption capabilities supported by those Avaya products.

Support for these security and encryption capabilities in any non-Avaya solution component is the responsibility of each individual vendor. Readers should consult the appropriate vendor-supplied product documentation for more information regarding those products.

For the testing associated with these Application Notes, the interface between Avaya systems and the CommsWare Console did not include use of any specific encryption features as requested by BTS Holdings PLC.

2.1. Interoperability Compliance Testing

The interoperability compliance testing focuses on various testing scenarios to verify the use of CommsWare Console with the Avaya solution. In addition, serviceability tests were also performed to assess the reliability and accuracy of the joint solution. The testing focused on the following types of calls:

- Verification of connectivity between Communication Manager and CommsWare Console via Session Manager
- CommsWare Console Agent logs in/out
- Outbound calls to Communication Manager extensions and PSTN from the CommsWare Console
- DTMF and SIP Options keep alive
- Shuffling and non-shuffling scenarios
- G.711 Mu-law and G.711 A-law codec
- Inbound calls to the CommsWare Console queue number from Communication Manager and PSTN
- Hold and Transfer/Conference (both blind and supervised) between the Communication Manager and CommsWare Console
- Hold and Transfer/Conference (both blind and supervised) between PSTN and CommsWare Console
- CLID preservation for basic and transferred calls
- CommsWare Console Agent Parks/Unparks calls
- Greeting heard when calling queue
- CommsWare Console Agent Camps on calls
- All the above with physical console using Avaya SIP and H.323 Deskphones

Testing also includes serviceability test where the effect of call flow occurs when a LAN failure occurs in Session Manager, CommsWare server (including Call Director) and CommsWare Console.

2.2. Test Results

All test cases passed except for the following observations.

- For internal call transfer to a CommsWare Console (using Avaya SIP endpoint) as transferring party, the transfer-to party is not showing the calling party's extension/name.
- Loss of connectivity to Session Manager does not affect voice calls already setup by Call Director to console.

2.3. Support

Technical support for the BTS CommsWare solution can be obtained as follows.

Email:	support@bts.co.uk
Web:	www.bts.co.uk
Phone:	+44 208 4019111

3. Reference Configuration

Figure 1 shows the setup for compliance testing CommsWare Console with Communication Manager and Session Manager over SIP trunks to pass callers from Communication Manager and/or Session Manager to the CommsWare Console Operators.

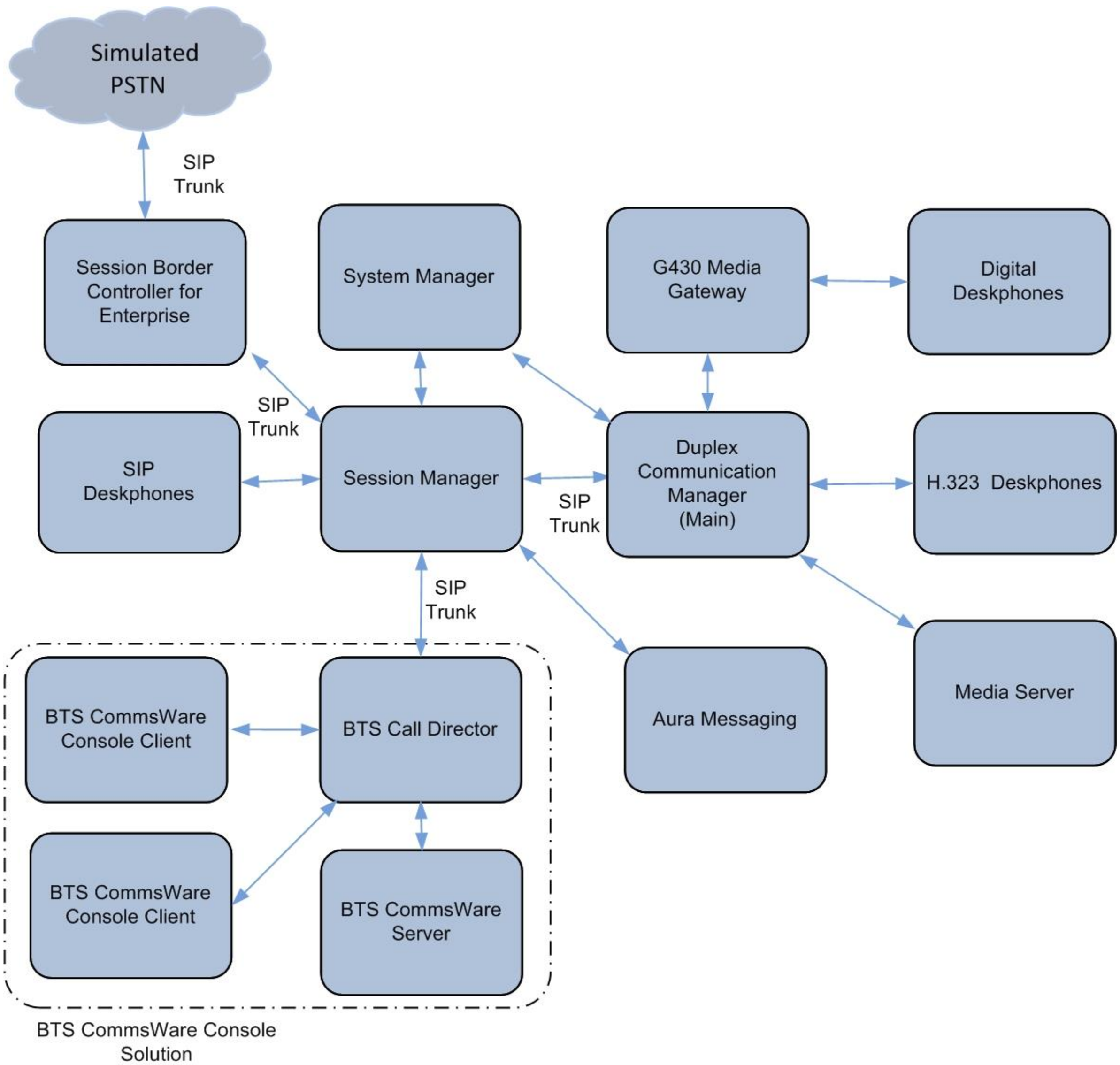


Figure 1: Connection of BTS CommsWare Console with Avaya Aura® Communication Manager R8.1.2 and Avaya Aura® Session Manager R8.1.2

4. Equipment and Software Validated

The following equipment and software were used for the compliance test.

Equipment/Software	Release/Version
Avaya Aura® Communication Manager running on a virtual server	8.1.2.0.0.890.26095
Avaya G430 Media Gateway • MGP	41.16.0
Avaya Aura® System Manager running on a virtual server	8.1.2.0.0611588
Avaya Aura® Session Manager running on a virtual server	8.1.2.1.812101
Avaya Aura® Media Server running on a virtual server	8.0.2.93
Avaya Aura® Messaging running on a virtual server	7.1.532.002-1.263670
Avaya 9600 Series Deskphone • 9641G • 9608	6.8304 (H.323) 7.1.9.0.8 (SIP)
Avaya J100 Series Deskphone • J179 • J169	6.8304 (H.323) 4.0.4.0.10 (SIP)
Avaya 1400 Series Digital Deskphone • 1408	R4 SP10
BTS Call Director BTS CommsWare Server BTS CommsWare Client	140 1.07 1.0.69

5. Configure Avaya Aura® Communication Manager

It is assumed that a fully functioning Communication Manager is in place with the necessary licensing and with SIP trunks in place to Session Manager. For further information on the configuration of Communication Manager, please see reference [2] in **Section 10** of these Application Notes. All the configuration changes in Communication Manager are performed through the System Access Terminal (SAT) interface.

5.1. Configure a Dial Plan for calls to the BTS Call Director

Enter "change dialplan analysis" command to utilise an unused extension. In this compliance test, extension beginning with **Dialed String 7** with **Total Length 5** is added.

```
change dialplan analysis                                           Page   1 of  12
                             DIAL PLAN ANALYSIS TABLE
                                   Location: all          Percent Full: 2

    Dialed   Total  Call      Dialed   Total  Call      Dialed   Total  Call
    String   Length Type      String   Length Type      String   Length Type
 0             1  attd
 1             5  ext
 2             5  ext
 22            4  ext
 32            4  ext
 33            2  fac
 4             6  ext
 5             4  ext
 6             5  ext
 7             5  ext
 8             1  fac
 9             1  fac
 *             3  fac
 #             3  dac
```

A matching pattern of **71**xxx is created on the uniform dial plan using "change uniform-dialplan 7" command **Len 5** and routing through the **aar** (private network).

```
change uniform-dialplan 7                                          Page   1 of   2
                        UNIFORM DIAL PLAN TABLE
                                                                 Percent Full: 0

  Matching                        Insert                Node
  Pattern            Len Del      Digits       Net Conv Num
 71                  5   0                     aar n
```

Check the existing route pattern for routing to the SIP Trunk Group **7** that connects to the Session Manager i.e. **6**.

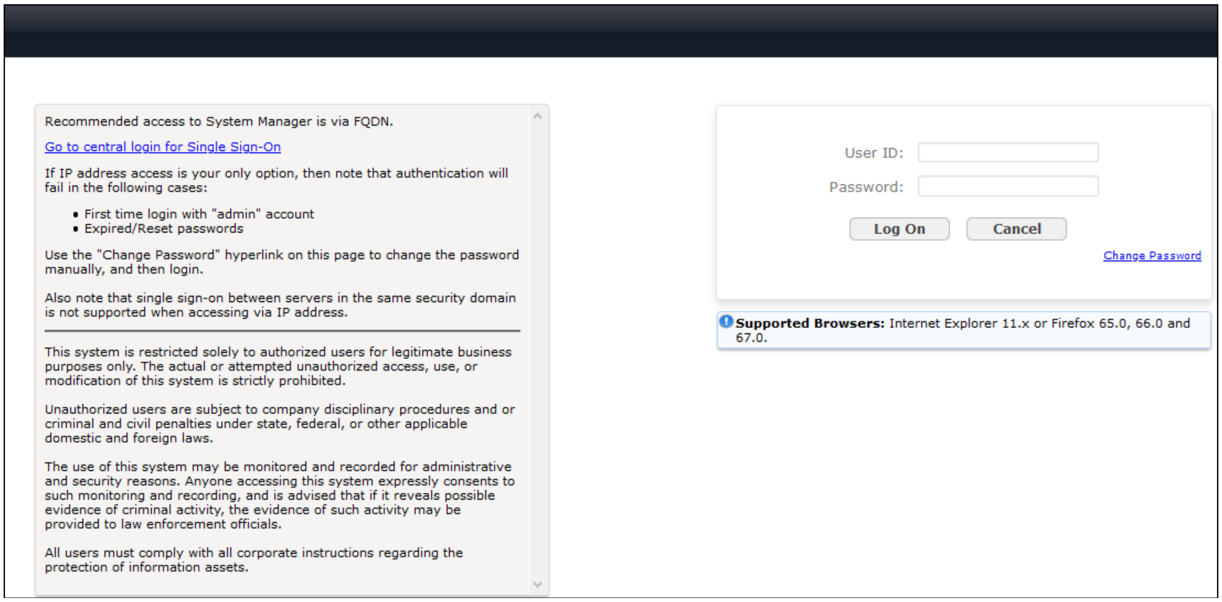
```
display route-pattern 6                                         Page   1 of   4
                    Pattern Number: 6      Pattern Name: non-IMS to SM
    SCCAN? n    Secure SIP? n     Used for SIP stations? n

    Grp FRL NPA Pfx Hop Toll No.  Inserted                            DCS/ IXC
    No          Mrk Lmt List Del  Digits                              QSIG
                             Dgts                                     Intw
 1: 7    0                    0                                        n   user
```

Using "change aar analysis 71", route the extension **71**xxx to the SIP Trunk group to the Session Manager with **Min** and **Max Dialed String** as length **5** through **aar** on **Route Pattern 6**.

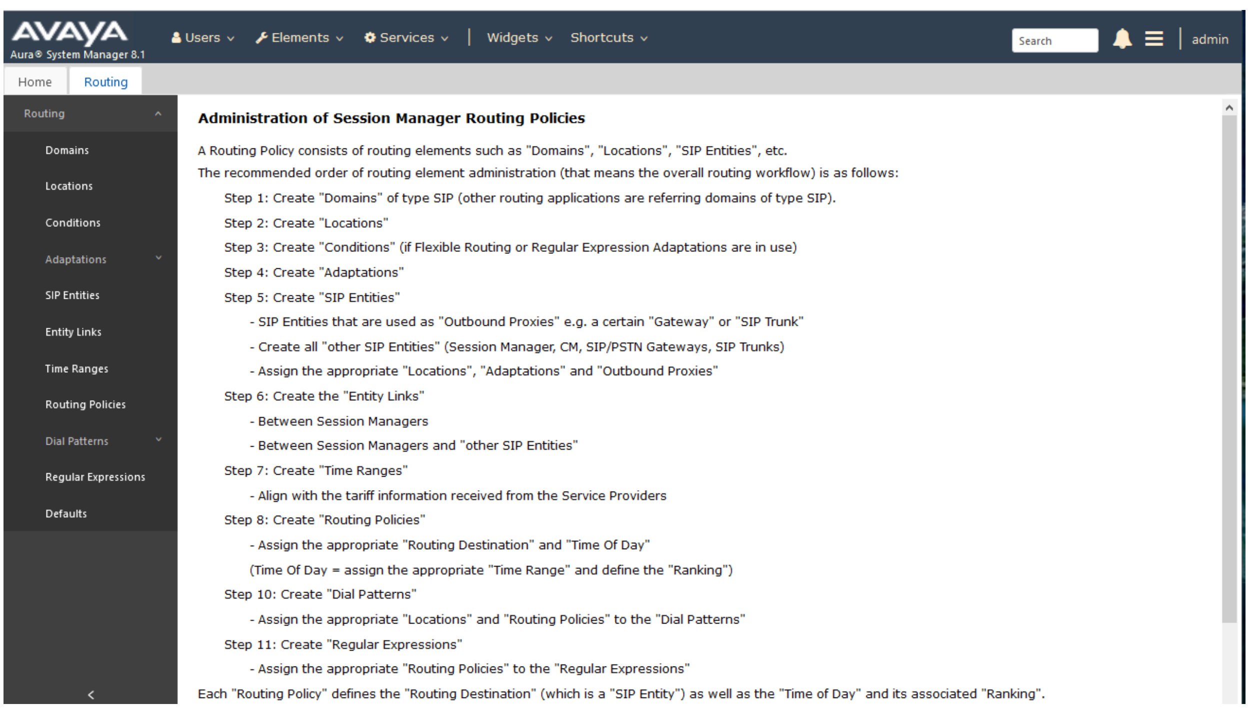
```
change aar analysis 71                                         Page   1 of   2
                             AAR DIGIT ANALYSIS TABLE
                                   Location: all           Percent Full: 0

          Dialed           Total     Route     Call   Node  ANI
          String          Min  Max  Pattern    Type   Num   Reqd
    71                    5    5     6         aar          n
                                                            n
```

6. Configure Avaya Aura® Session Manager

In order to make changes in Session Manager a web session is established to System Manager. Log into System Manager by opening a web browser and navigating to http://<System Manager IP Address>/SMGR. Enter the appropriate credentials for the **User ID** and **Password** and click on **Log On** highlighted below.



Once logged in, click on **Elements → Routing** shown below.

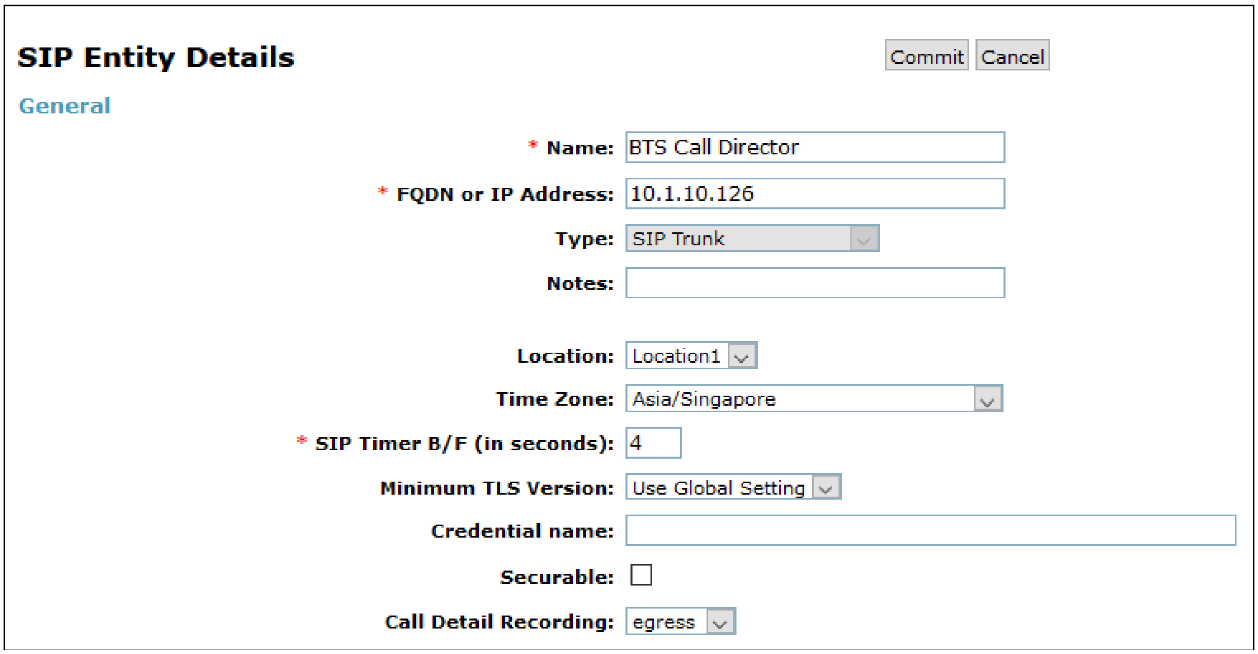


6.1. Domains and Locations

Note: It is assumed that a domain and a location have already been setup for an existing system which will not be highlighted here.

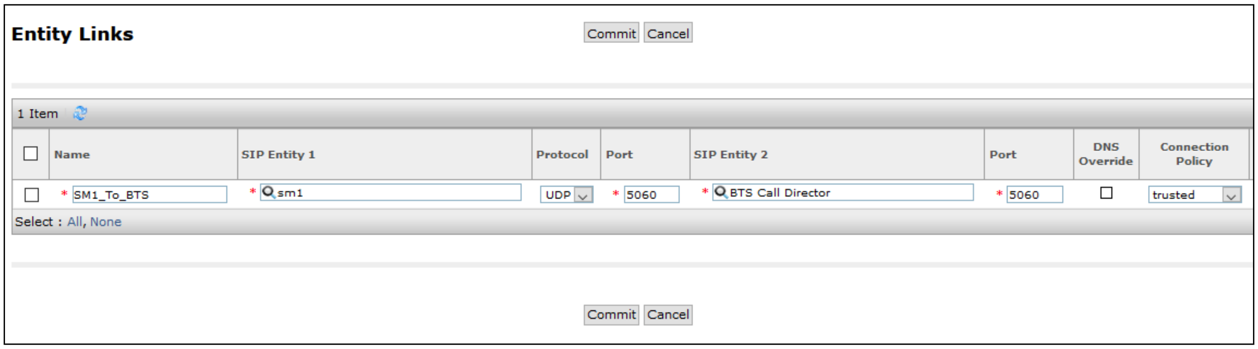
6.2. Adding BTS Call Director as a SIP Entity

Click on **SIP Entities** in the left column and select **New** in the right window (not shown). Enter a suitable **Name** for the new SIP Entity and the **IP Address** of the BTS Call Director. Enter the correct **Time Zone** and **Location** and click on **Commit**.



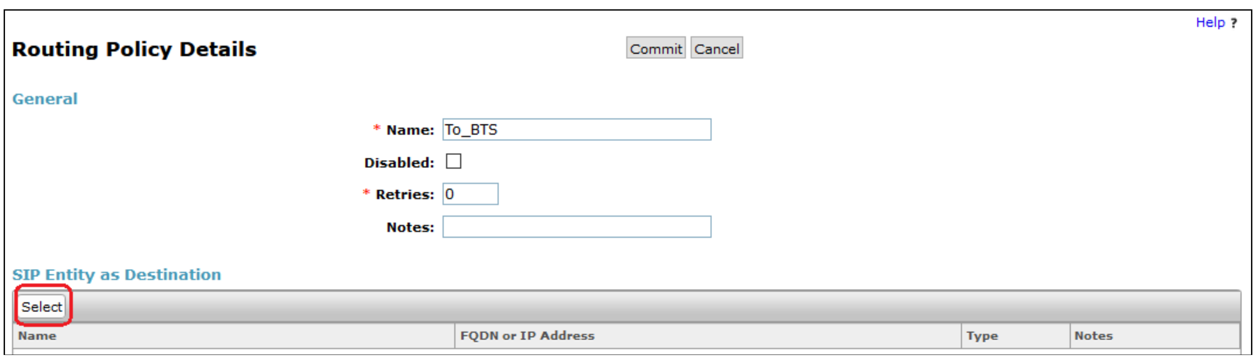
6.3. Adding the BTS Call Director Entity Link

A UDP Entity link was added for the BTS Call Director. Click on **Entity Links** in the left column and select **New** in the main window (not shown). Enter a suitable **Name** for the Entity Link and select the **Session Manager** SIP Entity for **SIP Entity 1** and the newly created BTS Call Director Entity called **BTS Call Director** for **SIP Entity 2**. Ensure that **UDP** is selected for the **Protocol** and that **Port 5060** is used. Click on **Commit** once finished to save the new Entity Link.

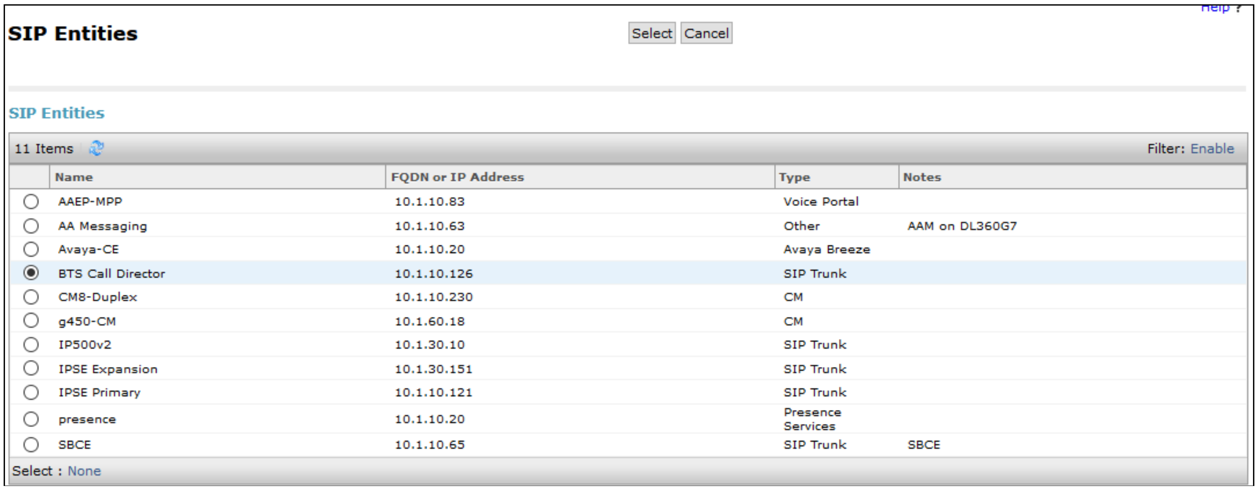


6.4. Adding the BTS Call Director Routing Policy

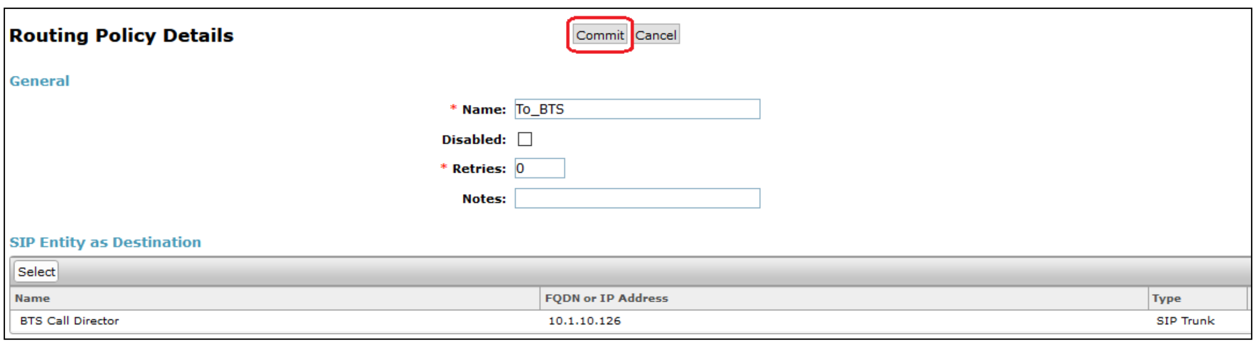
Click on **Routing Policies** in the left window and select **New** in the main window (not shown). Enter a suitable **Name** for the Routing Policy and click on **Select** under **SIP Entity as Destination**, highlighted below.



Select the **BTS Call Director** SIP Entity as shown below and click on **Select**.

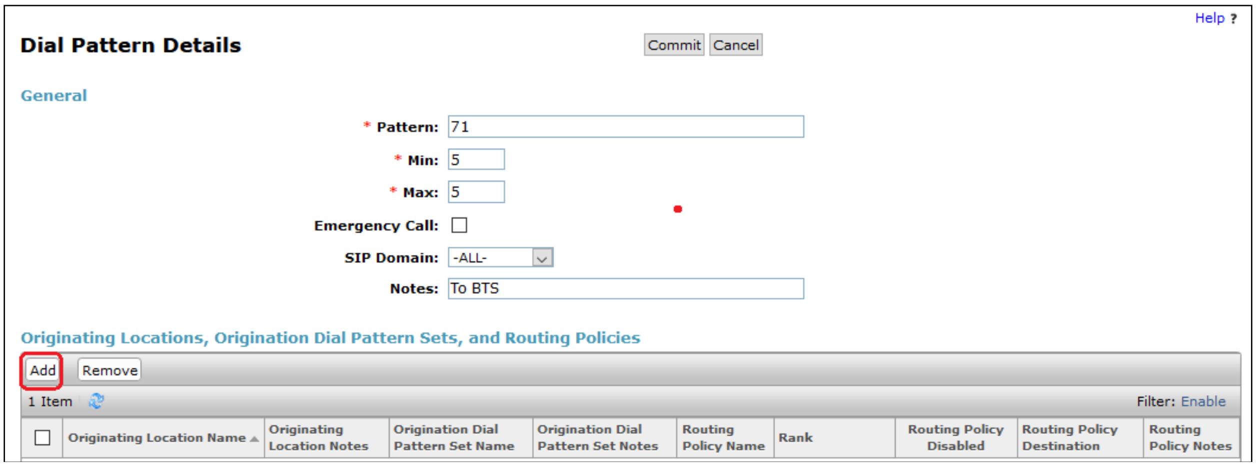


The selected destination is now shown, click on **Commit** to save this.

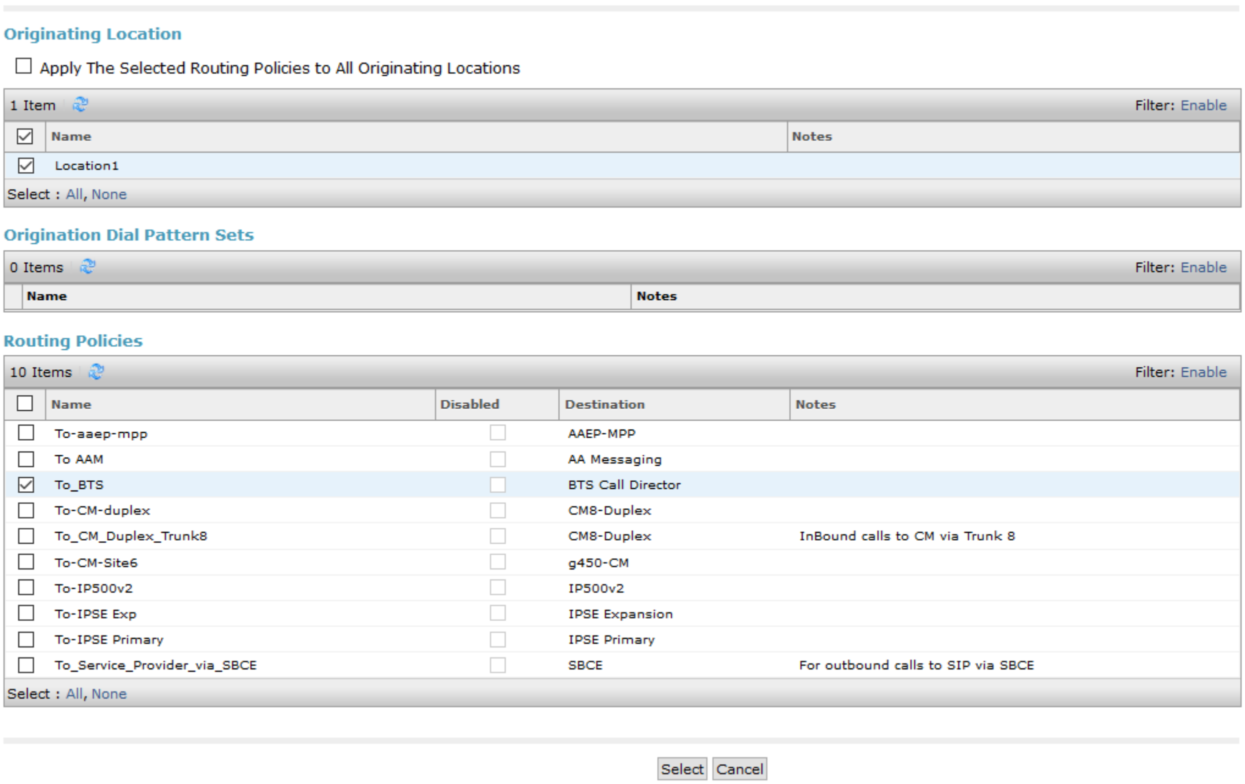


6.5. Adding a Dial Pattern for the BTS Call Director

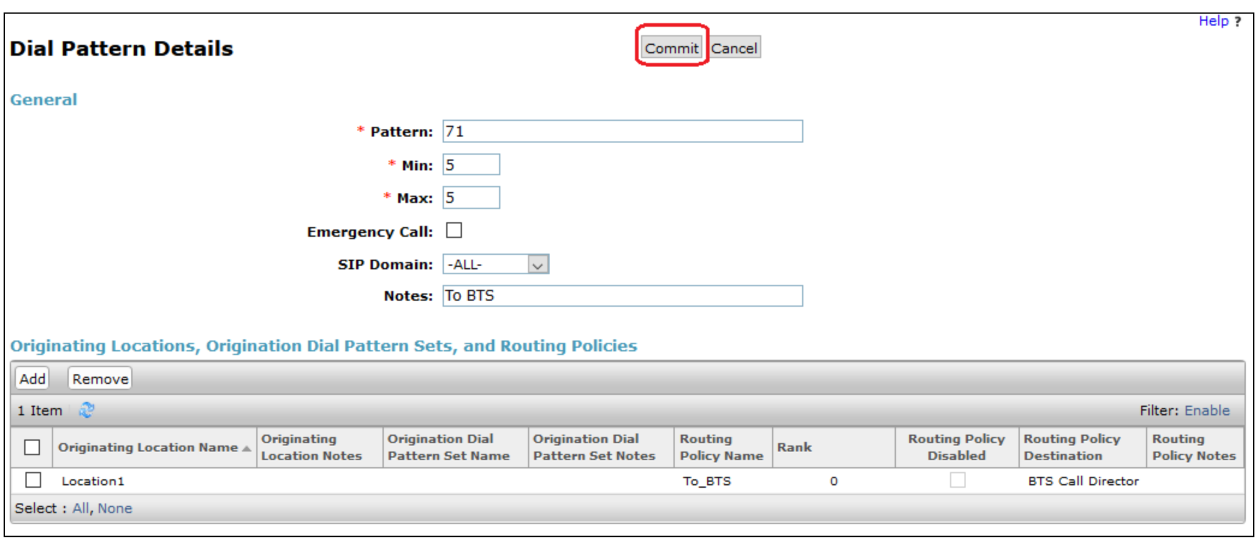
Select **Dial Patterns** in the left window and select **New** in the main window (not shown). Enter the required digits for the Pattern, in the example below 71xxx is used. 71 is entered as the **Pattern** and the **Min** and **Max** digit length of **5** is used thus giving 71xxx. Click on **Add** under **Originating Locations, Origination Dial Pattern Sets, and Routing Policies** in order to select this Routing Policy.



Select the Originating Location and select the newly created routing policy for the BTS Call Director created in **Section 6.4** for **Routing Policies**.



With the Routing Policy selected click on **Commit** to finish adding the **Dial Pattern**.



7. Configure BTS Call Director Server and CommsWare Server

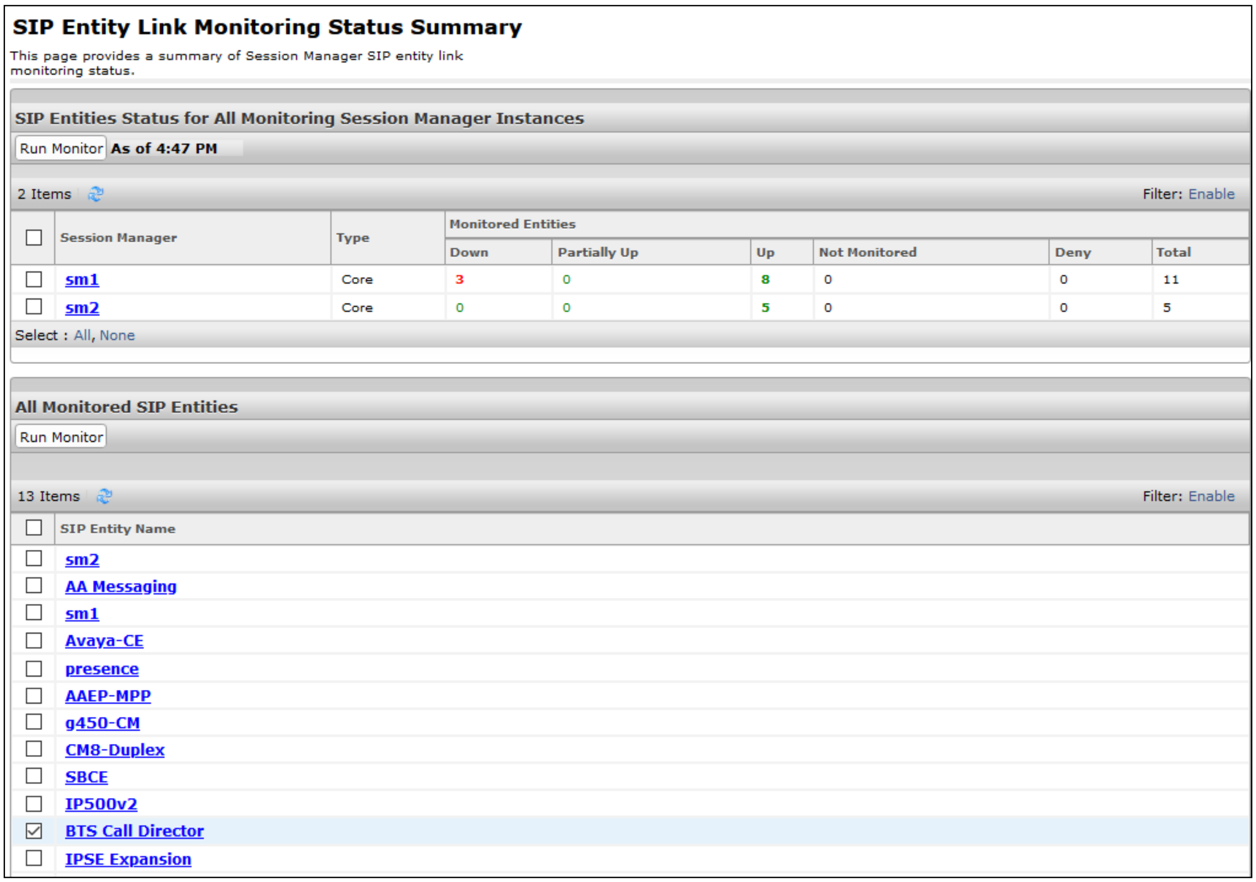
As stated in **Section 1**. BTS does not require the configuration of BTS Call Director Server or CommsWare server to be part of these Application Notes. However, do note that queue numbers 71001-71004 were configured for the operators on the Call Director and two extensions were configured as consoles.

8. Verification Steps

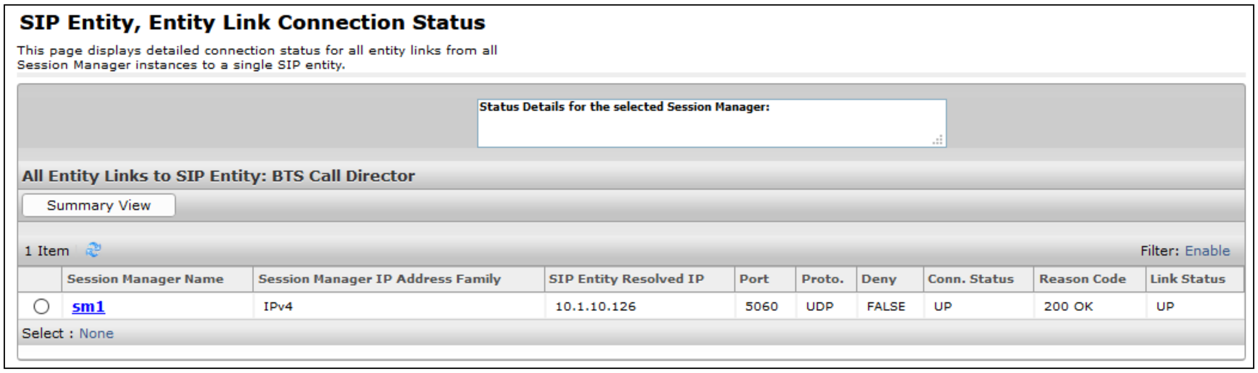
The following step can be taken to ensure that the connection between CommsWare Console and Session Manager is configured correctly.

8.1. Verify Link to Avaya Aura® Session Manager

Log into System Manager as done previously in **Section 6**, and navigate to **Elements → Session Manager → System Status → SIP Entity Monitoring Status Summary**. The following screen appear as below. Select the **BTS Call Director** SIP Entity.



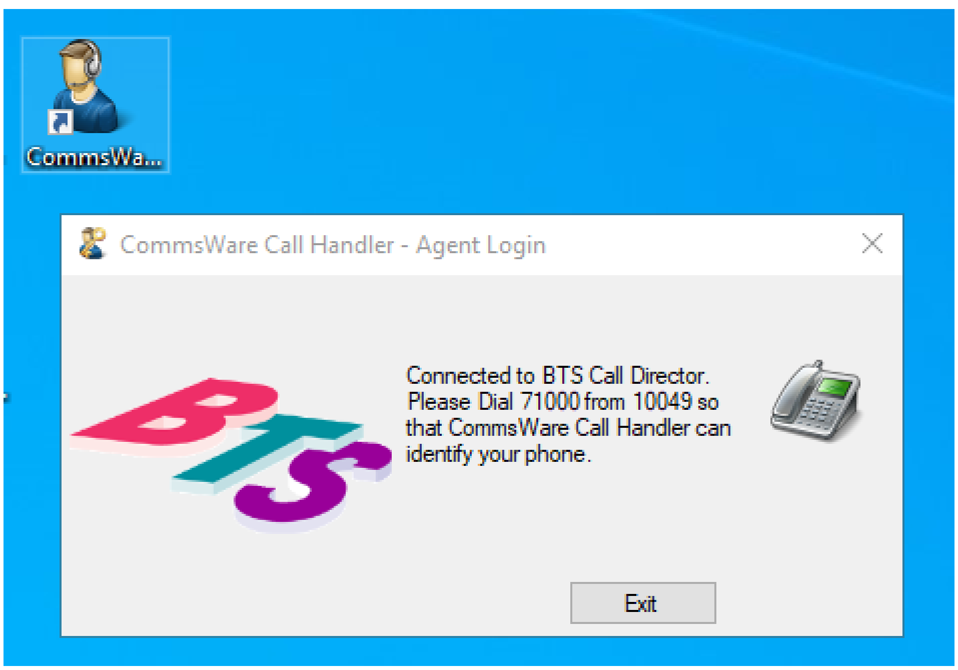
Note that the SIP Entity **BTS Call Director**, shows **Link Status UP** and **Reason Code 200 OK**.



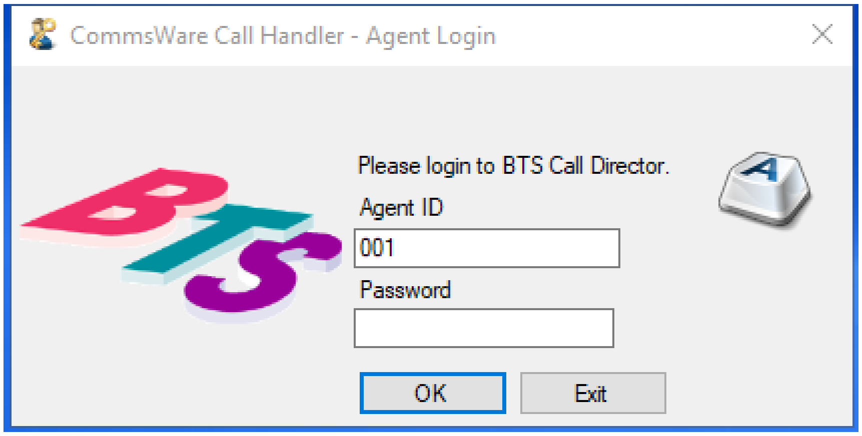
8.2. Verify BTS CommsWare Console

If the CommsWare Console is operational and connected correctly to the BTS Call Director and the Avaya solution the following steps should be possible.

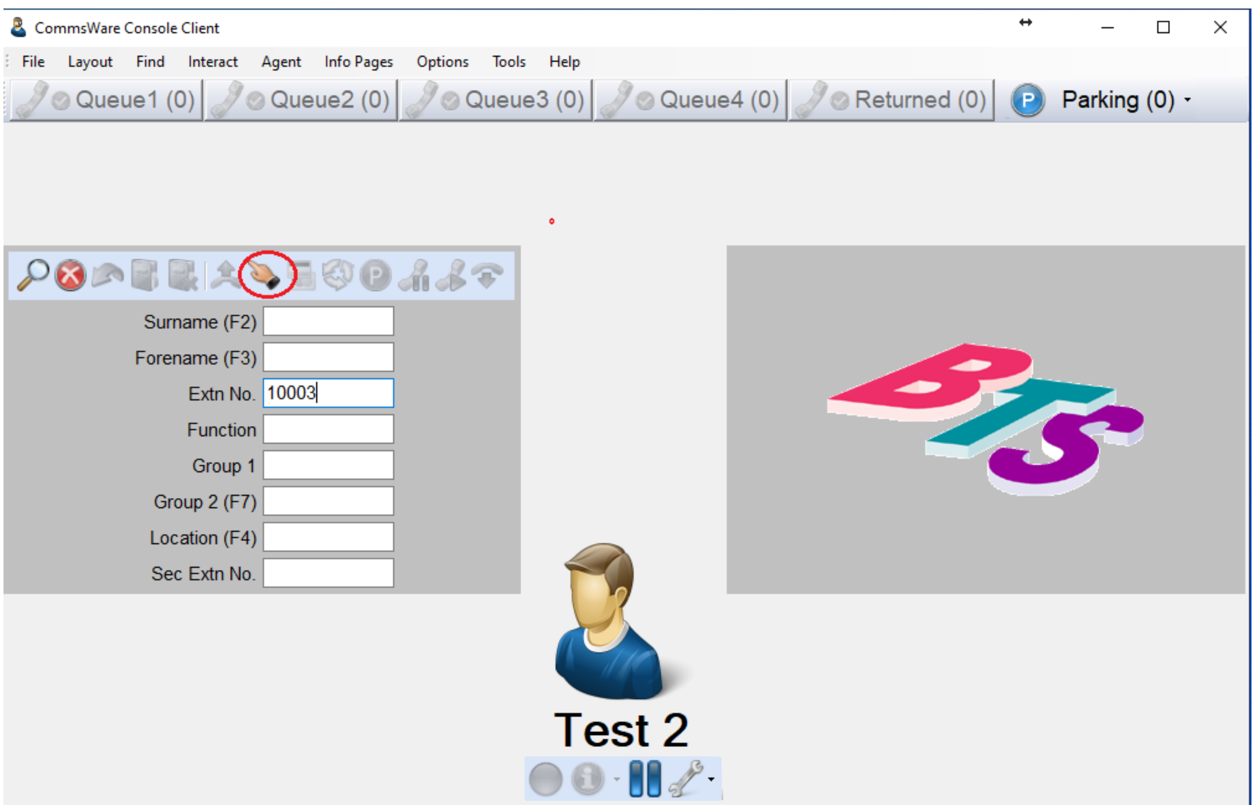
On the console client PC, click the **CommsWare Call Handler** shortcut and a message will be displayed asking to log in via an Avaya phone associated with the CommsWare Console. In this compliance testing, an Avaya H.323 and SIP Deskphone are used as physical console.



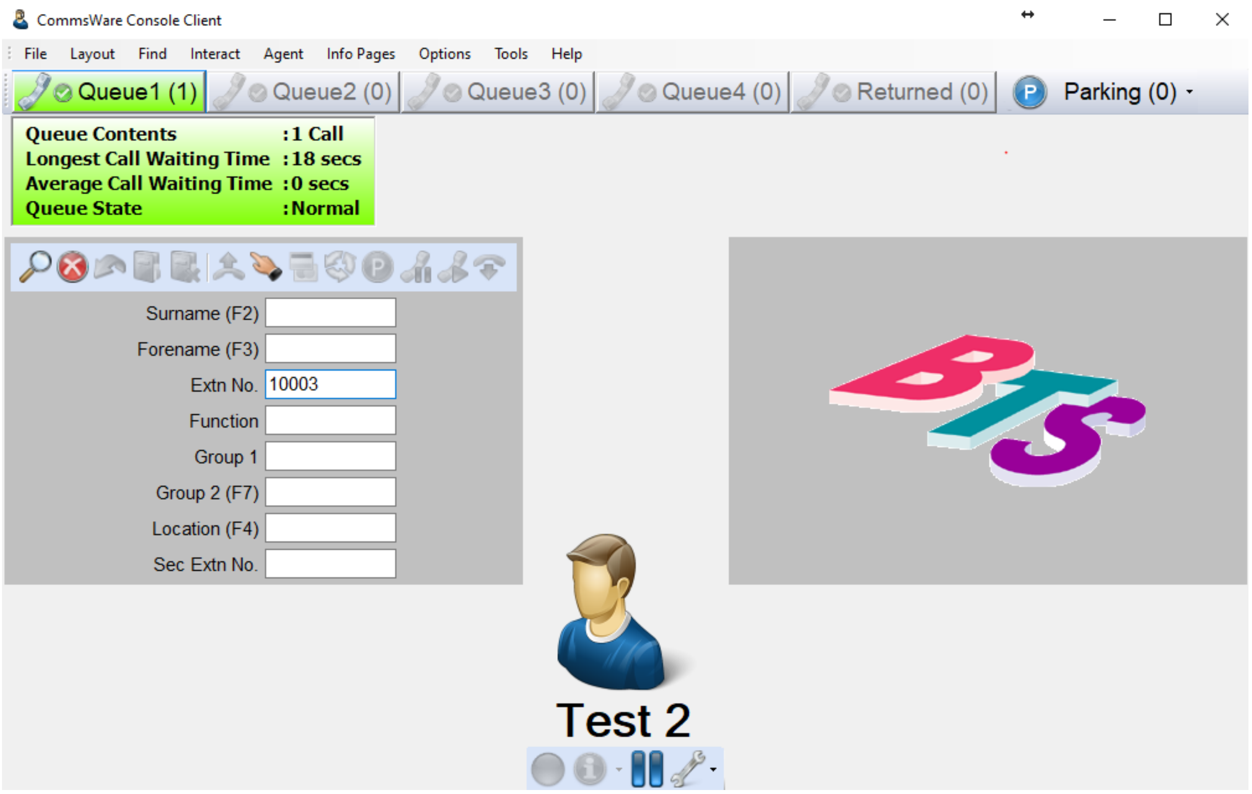
Make a call from the Avaya Deskphone to the BTS Call Director using the number indicated on the prompt message earlier and the following screen should be displayed asking for the BTS agent login details. Logged in with appropriate credentials.



Outgoing calls can be made by entering the appropriate **Extn No.** (e.g., an internal extension below) as shown below and clicking on the icon highlighted.



Incoming calls are made by calling to the queue number (for compliance testing a number of queues from 71001-71004 were added). These queue numbers are configured on the Call Director. The call was made to 71001 as shown below and this call can be answered by selecting the queue flashing.



9. Conclusion

These Application Notes describe the configuration steps required for BTS CommsWare Console 1.0 to successfully interoperate with Avaya Aura® Communication Manager and Avaya Aura® Session Manager R8.1.2. Please refer to **Section 2.2** for test results and observations.

10. Additional References

This section references documentation relevant to these Application Notes. The Avaya product documentation is available at http://support.avaya.com, where the following documents can be obtained.

[1] *Deploying Avaya Aura® Communication Manager in Virtualized Environment*, Release 8.1.x, Issue 5, Jun 2020.
[2] *Administering Avaya Aura Communication Manager*, Release 8.1.x, Issue 6, Mar 2020
[3] *Deploying Avaya Aura® Session Manager and Avaya Aura® Branch Session Manager in Virtual Appliance*, Release 8.1.x, Issue 3, Mar 2020.
[4] *Administering Avaya Aura® Session Manager*, Release 8.1.x, Issue 6, Aug 2020.

Product documentation for BTS CommsWare Console can be requested from BTS or may be downloaded from http://*www.bts.co.uk*

[1] *CommsWare Console Client Getting Started Guide*, 2020.
[2] *Installing BTS CommsWare Console Client*, 2020.

Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya DevConnect Program at devconnect@avaya.com.