Avaya Solution & Interoperability Test Lab

Application Notes for configuring Axis Communications AB AXIS C2005 Network Ceiling Speaker with Avaya Aura® Communication Manager R7.0.1 and Avaya Aura® Session ManagerR7.0.1 – Issue 1.0

Abstract

These Application Notes describe the configuration steps for provisioning the AXIS C2005 Network Ceiling Speaker from Axis Communications AB to interoperate with Avaya Aura® Communication Manager and Avaya Aura® Session Manager.

Readers should pay particular attention to the scope of testing as outlined in **Section 2.1**, as well as 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 the AXIS C2005 Network Ceiling Speaker from Axis Communications AB to interoperate with Avaya Aura® Communication Manager and Avaya Aura® Session Manager.

AXIS C2005 Network Ceiling Speaker is an indoor loudspeaker that provides clear, long-range speech for remote speaking. The loudspeaker can play a pre-recorded audio file when it is manually or automatically triggered in response to an alarm event.

The unit supports Session Initiation Protocol (SIP) for easy integration with Avaya Aura® Communication Manager and Avaya Aura® Session Manager and the AXIS C2005 Network Ceiling Speaker makes announcements possible from anywhere with network connectivity. It easily integrates with video management software (VMS) that support two-way audio and with Voice over IP (VoIP) telephony systems that use SIP (Session Initiation Protocol).

2. General Test Approach and Test Results

The interoperability compliance testing evaluates the ability of the AXIS C2005 Network Ceiling Speaker (Axis Speaker) to receive calls from Avaya Digital, H.323 and SIP desk phones as well as mobile/PSTN endpoints. The speaker is registered to Session Manager as a SIP endpoint.

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's formal testing and Declaration of Conformity is provided only on the headsets/Smartphones that carry the Avaya brand or logo. Avaya may conduct testing of non-Avaya headset/handset to determine interoperability with Avaya phones. However, Avaya does not conduct the testing of non-Avaya headsets/Smartphones for: Acoustic Pressure, Safety, Hearing Aid Compliance, EMC regulations, or any other tests to ensure conformity with safety, audio quality, long-term reliability or any regulation requirements. As a result, Avaya makes no representations whether a particular non-Avaya headset will work with Avaya's telephones or with a different generation of the same Avaya telephone.

2.1. Interoperability Compliance Testing

The compliance testing included the test scenarios shown below. Note that when applicable, all tests were performed with Avaya SIP phones, H.323 phones Digital phones, and PSTN endpoints.

- Registration of speaker.
- Invalid usernames/passwords for registration.
- Basic calls.
- Codec support.
- Serviceability testing.

2.2. Test Results

All test cases passed successfully with no issues or observations.

2.3. Support

Support from Avaya is available by visiting the website http://support.avaya.com and a list of product documentation can be found in **Section 10** of these Application Notes. Technical support for the AXIS C2005 Network Ceiling Speaker product can be obtained as follows:

Axis Communications AB
Tel: +46 46 272 18 00
Fax: +46 46 13 61 30
http://www.axis.com/global/en/learning-and-support

3. Reference Configuration

Figure 1 shows the network topology during compliance testing, an AXIS C2005 Network Ceiling Speaker from Axis Communications AB with Avaya Aura® Communication Manager and Avaya Aura® Session Manager.

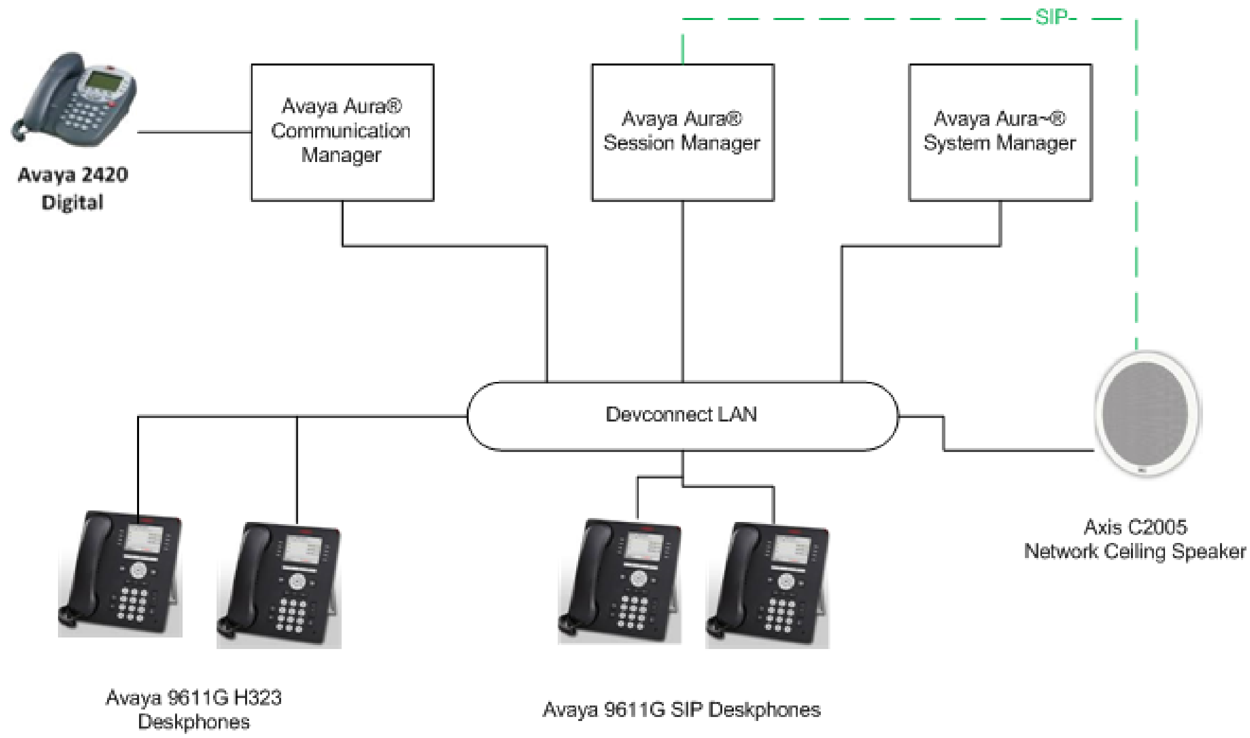


Figure 1: Connection of Axis Communications AB AXIS C2005 Network Ceiling Speaker with Avaya Aura® Communication Manager and Avaya Aura® Session Manager.

4. Equipment and Software Validated

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

Equipment/Software	Version/Release
Avaya Aura® Communication Manager running on a virtual platform	R 7.0.1.1.0.441.23169
Avaya Aura® Session Manager running on a virtual platform	R 7.0.1.1.701114
Avaya Aura® System Manager running on a virtual platform	R 7.0.1.2 Revision 7.0.1.2.075662 Service Pack 2
Avaya 9611G Deskphone	H.323 Release 6.6029
Avaya 9611G Deskphone	SIP 7.0.1.1
Avaya 2420 Digital Deskphone	V 2.0
Axis Communications AB AXIS C2005 Network Ceiling Speaker	Firmware Version 1.25.1

5. Configure Avaya Aura® Communication Manager

Configuration and verification operations on Communication Manager illustrated in this section were all performed using Avaya Site Administrator Emulation Mode. The information provided in this section describes the configuration of Communication Manager for this solution. It is implied a working system is already in place, including SIP trunks to a Session Manager. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 10**. The configuration described in this section can be summarized as follows:

- Verify System Capacity
- Define the Dial Plan
- Configure IP-Codec Set

Note: Any settings not in **Bold** in the following screen shots may be left as default.

5.1. Verify System Capacity

The license file installed on the system controls these attributes. If a required feature is not enabled or there is insufficient capacity, contact an authorized Avaya sales representative. Use the **display system-parameters customer-options** command to determine these values. On **Page 1**, verify that the **Maximum Off-PBX Telephones** allowed in the system is sufficient. One OPS station is required per SIP device.

```
display system-parameters customer-options                      Page   1 of  10
                                OPTIONAL FEATURES

     G3 Version: V16                            Software Package: Enterprise
       Location: 2                               System ID (SID): 1
       Platform: 28                              Module ID (MID): 1

                                                              USED
                                Platform Maximum Ports: 65000 290
                                      Maximum Stations: 41000 44
                              Maximum XMOBILE Stations: 41000 0
                    Maximum Off-PBX Telephones - EC500: 41000 0
                    Maximum Off-PBX Telephones -   OPS: 41000 14
                    Maximum Off-PBX Telephones - PBFMC: 41000 0
                    Maximum Off-PBX Telephones - PVFMC: 41000 0
                    Maximum Off-PBX Telephones - SCCAN: 41000 0
                         Maximum Survivable Processors: 313   0

        (NOTE: You must logoff & login to effect the permission changes.)
```

On **Page 2** of the **System-Parameters Customer-Options form**, verify that the number of **Maximum Administered SIP Trunks** supported by the system is sufficient.

```
display system-parameters customer-options                      Page   2 of  10
                                OPTIONAL FEATURES

IP PORT CAPACITIES                                              USED
                     Maximum Administered H.323 Trunks: 12000 16
           Maximum Concurrently Registered IP Stations: 18000 2
             Maximum Administered Remote Office Trunks: 12000 0
Maximum Concurrently Registered Remote Office Stations: 18000 0
              Maximum Concurrently Registered IP eCons: 414   0
  Max Concur Registered Unauthenticated H.323 Stations: 100   0
                        Maximum Video Capable Stations: 41000 1
                   Maximum Video Capable IP Softphones: 18000 4
                       Maximum Administered SIP Trunks: 24000 180
  Maximum Administered Ad-hoc Video Conferencing Ports: 24000 0
   Maximum Number of DS1 Boards with Echo Cancellation: 522   0
                             Maximum TN2501 VAL Boards: 128   0
                     Maximum Media Gateway VAL Sources: 250   0
           Maximum TN2602 Boards with 80 VoIP Channels: 128   0
          Maximum TN2602 Boards with 320 VoIP Channels: 128   0
   Maximum Number of Expanded Meet-me Conference Ports: 300   0

        (NOTE: You must logoff & login to effect the permission changes.)
```

5.2. Define the Dial Plan

Use the **change dialplan analysis** command to define the dial plan used in the system. This includes all telephone extensions. In the sample configuration, telephone extensions are seven digits long and begin with **8**.

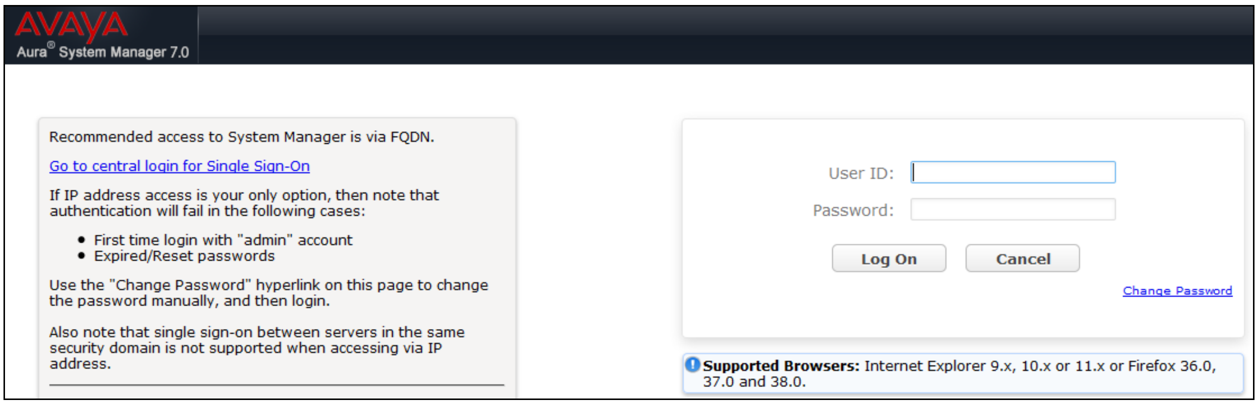
```
change dialplan analysis                                        Page   1 of  12
                             DIAL PLAN ANALYSIS TABLE
                                  Location: all            Percent Full: 1

    Dialed   Total  Call      Dialed   Total  Call      Dialed   Total  Call
    String   Length Type      String   Length Type      String   Length Type
   8           3   ext
   9           3   fac
   *           3   fac
   #           3   fac
```

6. Configure Avaya Aura® Session Manager

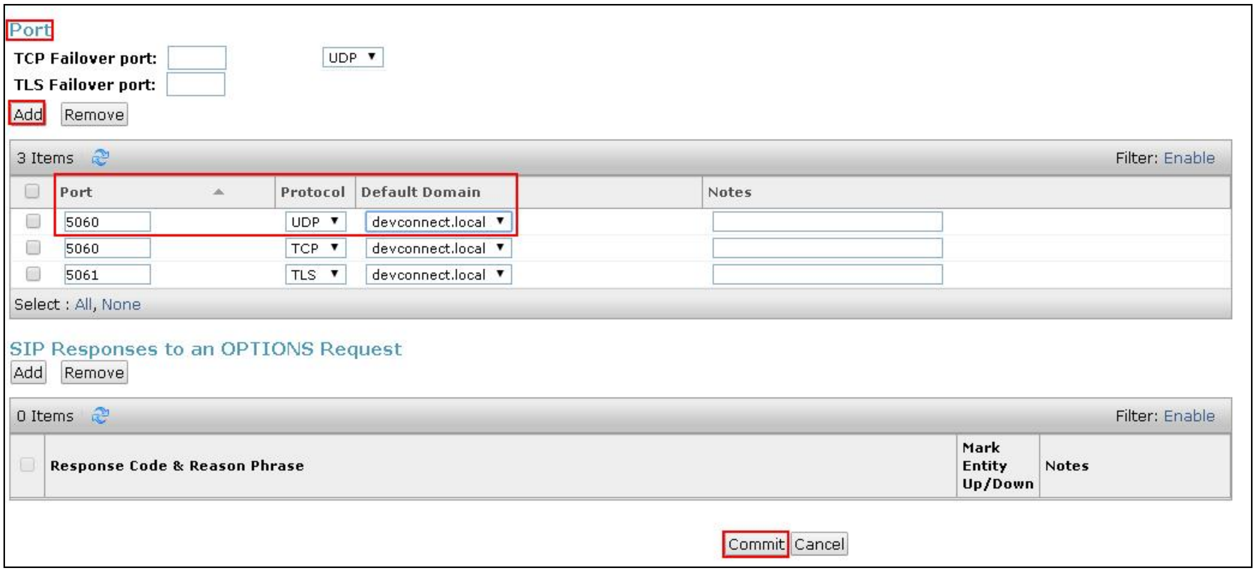
This section describes aspects of the Session Manager configuration required for interoperating with the Axis AXIS C2005 Network Ceiling Speaker. It is assumed that the Domains, Locations, SIP entities for each Session Manager, Communication Manager, Entity Links, Routing Policies, Dial Patterns and Application Sequences have been configured.

Session Manager is managed via System Manager. Using a web browser, access **https://<ip-addr of System Manager>/SMGR**. In the **Log On** screen, enter appropriate **User ID** and **Password** and click the **Log On** button.



6.1. Check Session Manager ports for AXIS C2005 Registration

Each Session Manager Entity must be configured so that the Network Ceiling Speaker can register to it using UDP/TCP. From the web interface click **Routing → SIP Entities** (not shown) and select the Session Manager entity used for registration. Make sure that **TCP** and **UDP** entries are present. The UDP entry is highlighted below.

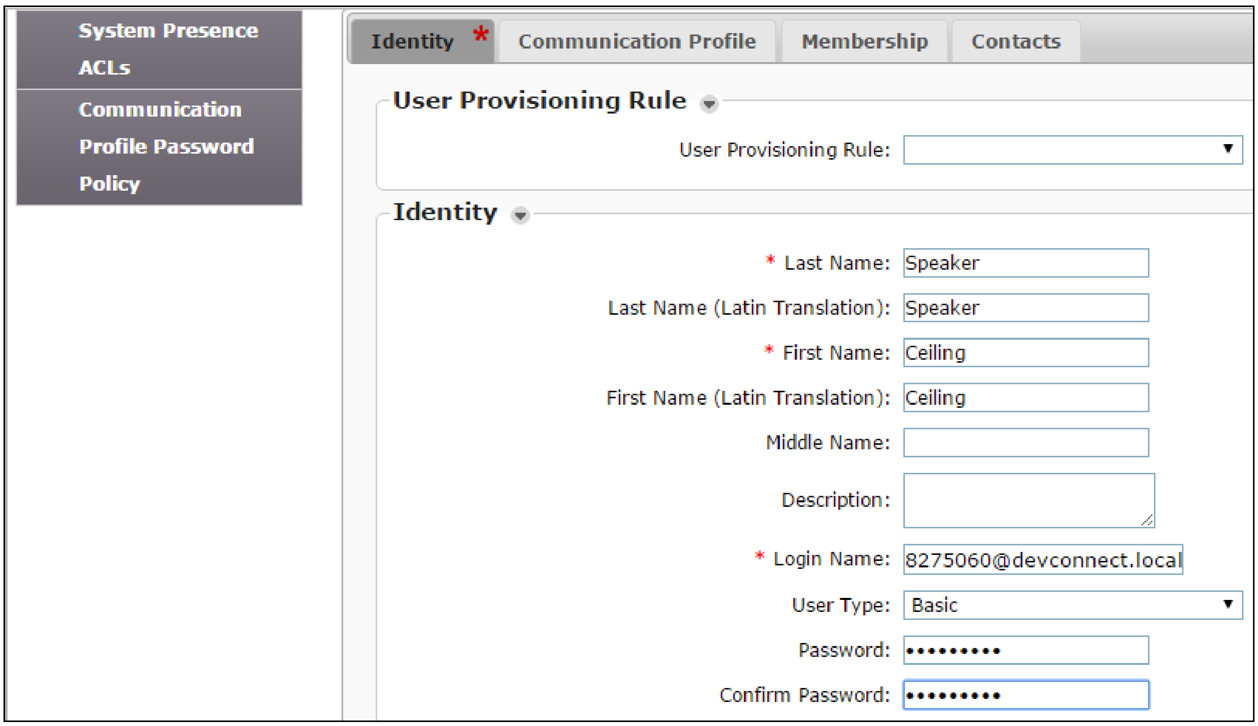


Repeat accordingly on the alternative Session Manager.

6.2. Add AXIS C2005 User

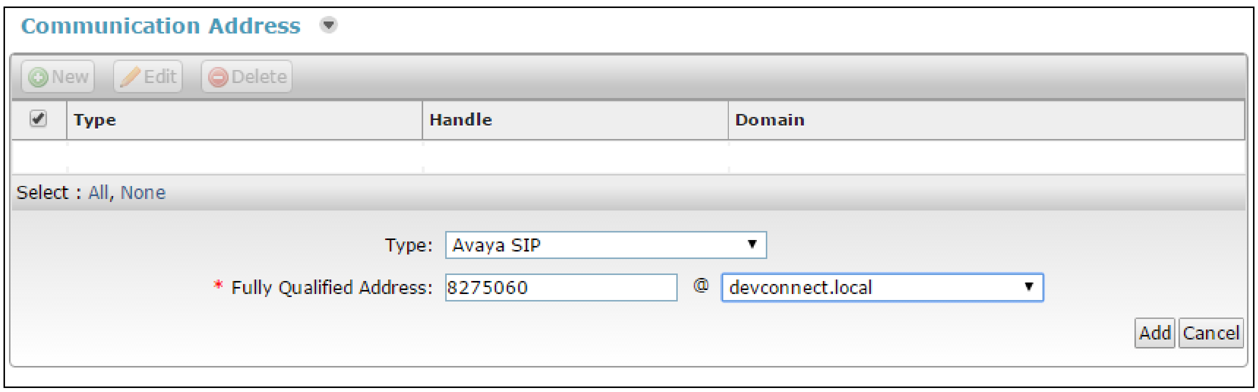
The AXIS C2005 Network Ceiling Speaker must be added as a user. A user must be added for each AXIS C2005 Network Ceiling Speaker. Click **User Management → Manage Users → New** (not shown) and configure as following in the **Identity** tab.

- **First Name** and **Last Name** — Enter an identifying name
- **Login Name** — Enter the extension number followed by the domain, in this case **8275060@devconnect.local**
- **Authentication Type** — Select **Basic** from the drop down list
- **Password** and **Confirm Password** — Enter and confirm a password

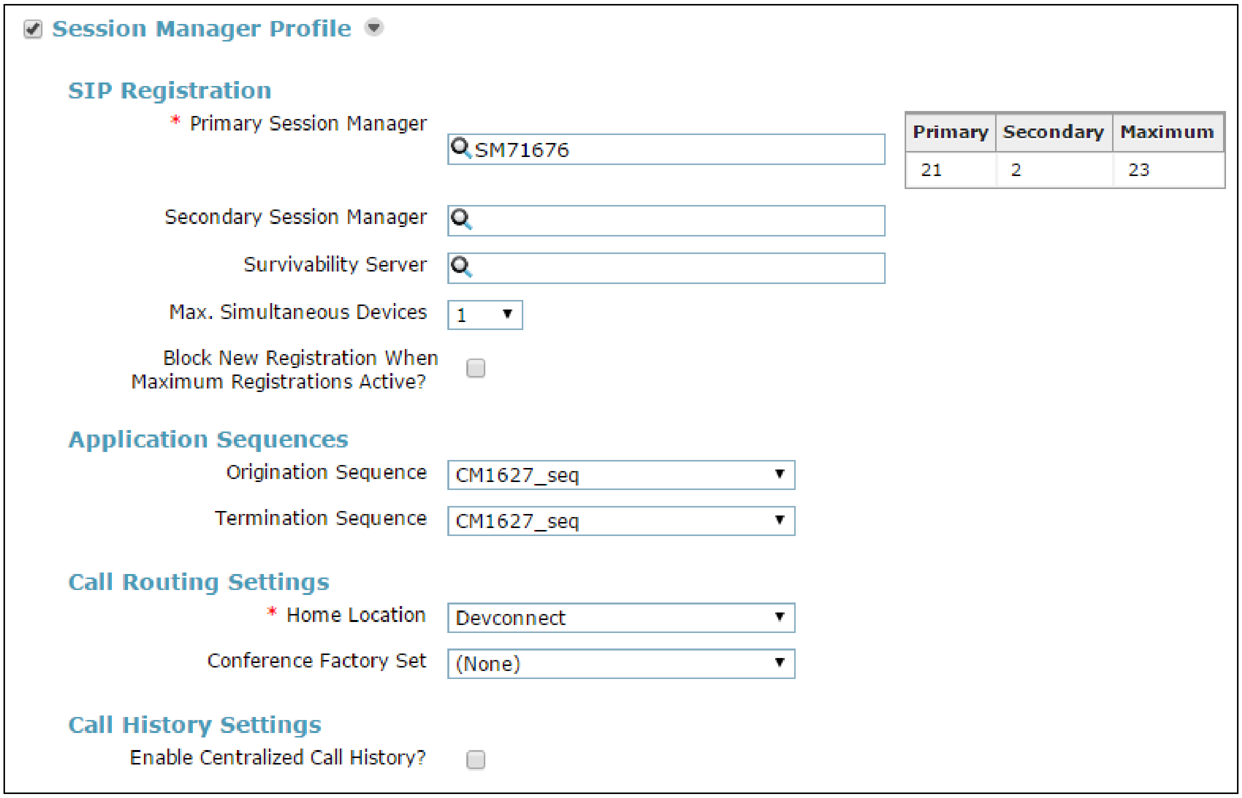


Click the **Communication Profile** tab and in the **Communication Profile Password** and **Confirm Password** fields, enter a numeric password. This will be used to register the Network Ceiling Speaker during login.

Select **Avaya SIP** from the drop down list. In the **Fully Qualified Address** field enter the extension number as required, and select the appropriate **Domain** from the drop down list. Click **Add** when done.



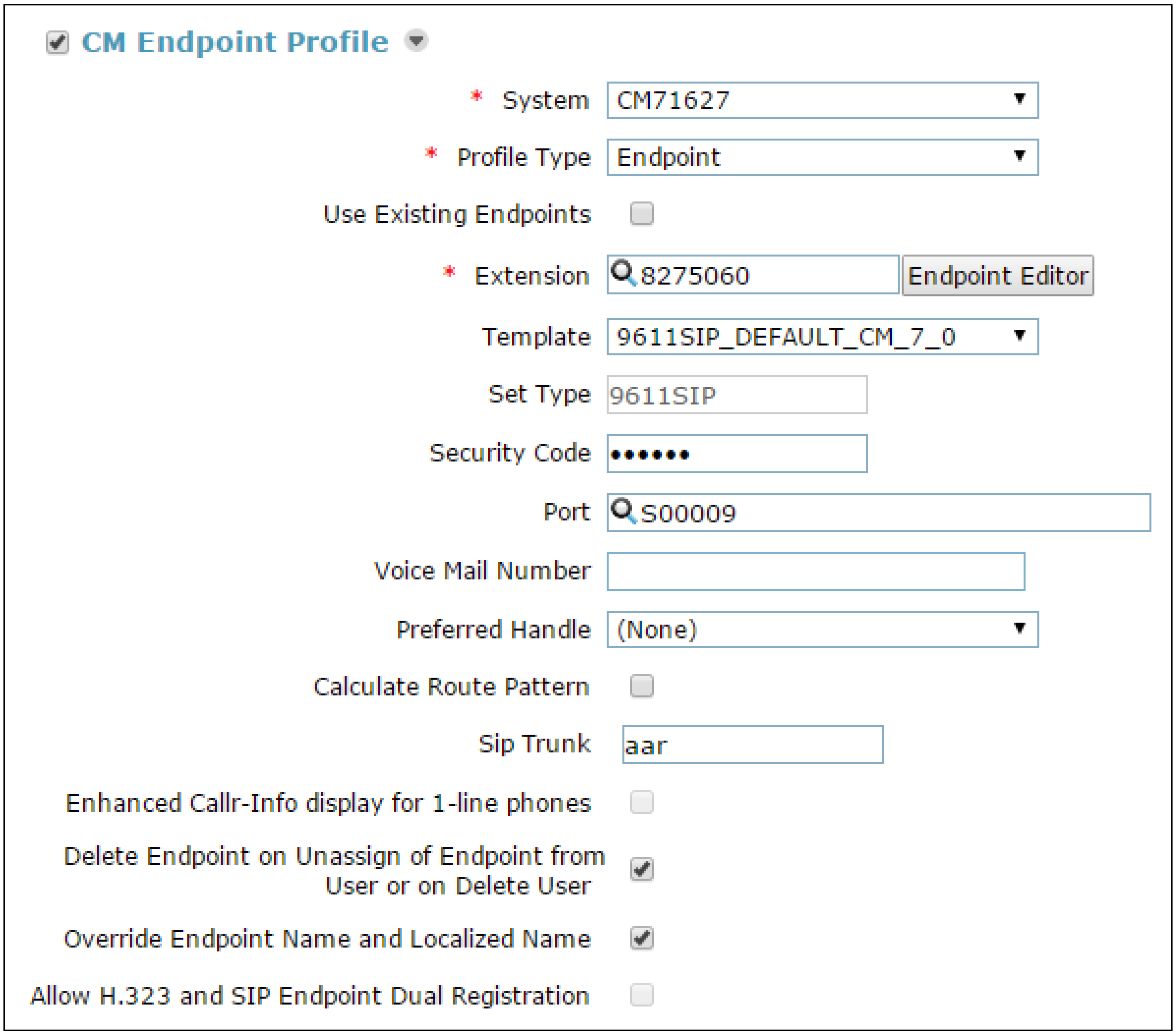
Place a tick in the **Session Manager Profile** check box and configure the **Primary Session Manager, Origination Application Sequence, Termination Application Sequence** and **Home Location,** from the respective drop down lists. The Primary Session Manager used was **SM71676**.



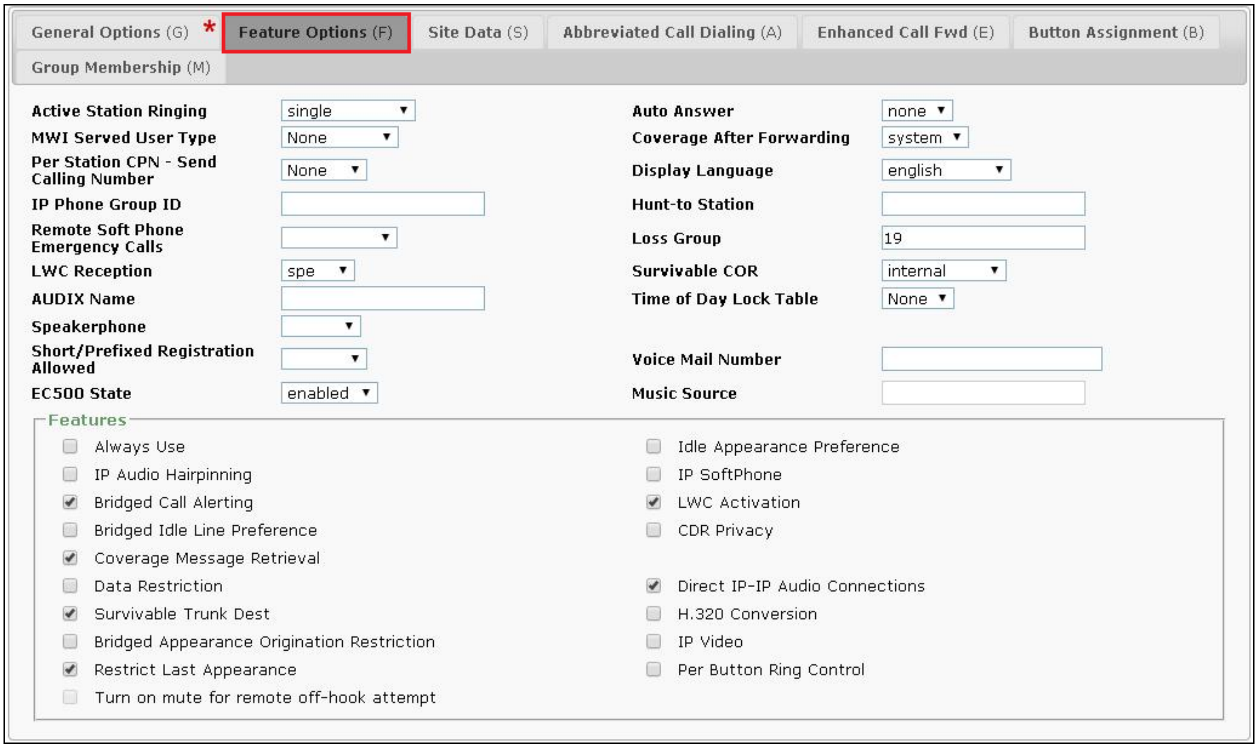
Place a tick in the **CM Endpoint Profile** check box and configure as follows:

- **System** Select the relevant Communication Manager SIP Entity from the drop down list
- **Profile Type** Select **Endpoint** from the drop down list
- **Extension** Enter the required extension number, in this case **8275060**
- **Template** Select **DEFAULT_9611SIP_CM_7_0** from the drop down list
- **Port** Enter **IP**

Click on **Endpoint Editor**.



Click on the **Feature Options** tab. The screen shot below shows the Feature Options that were used during compliance testing.

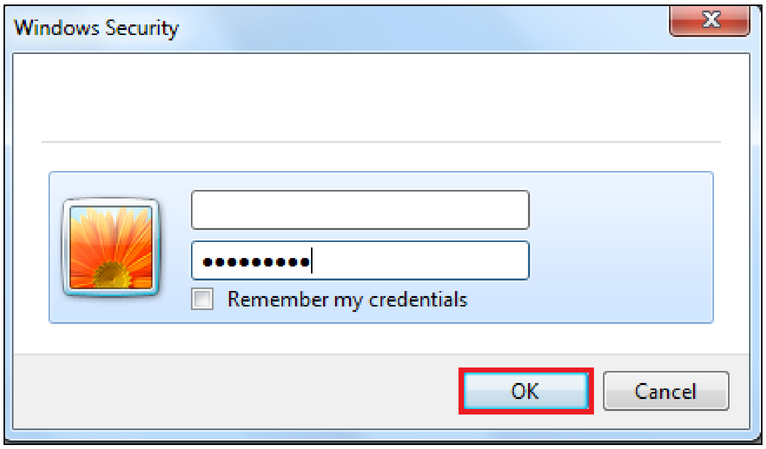


7. Configure AXIS C2005 Network Ceiling Speaker

The configuration of the Axis speaker uses a web interface.

Note: The speaker obtains its IP address using DHCP and this was the way in which an IP address was given to the device during compliance testing.

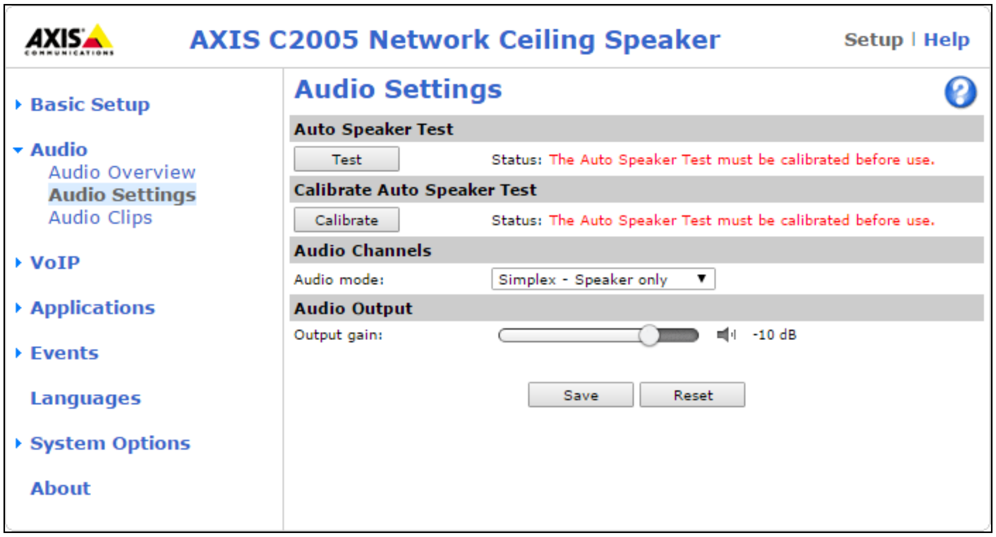
Open a web session to the IP address of the Axis speaker, enter the proper credentials and click on **OK**.



Please refer to Axis Communications documentation listed in **Section 10** of these Application Notes for further information about the Axis speaker configuration. The following sections cover specific settings concerning SIP and the connection to Session Manager.

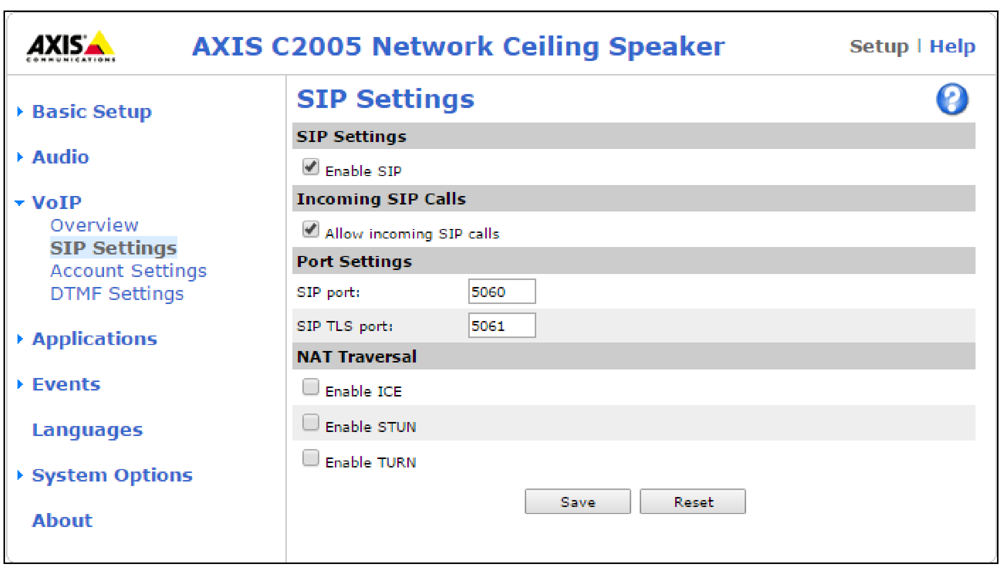
7.1. Audio Settings

Although the audio settings are not relevant to the SIP connection with Session Manager it is important as it governs the volume from the speaker and so it is shown below how to adjust this under **Audio → Audio Settings**.



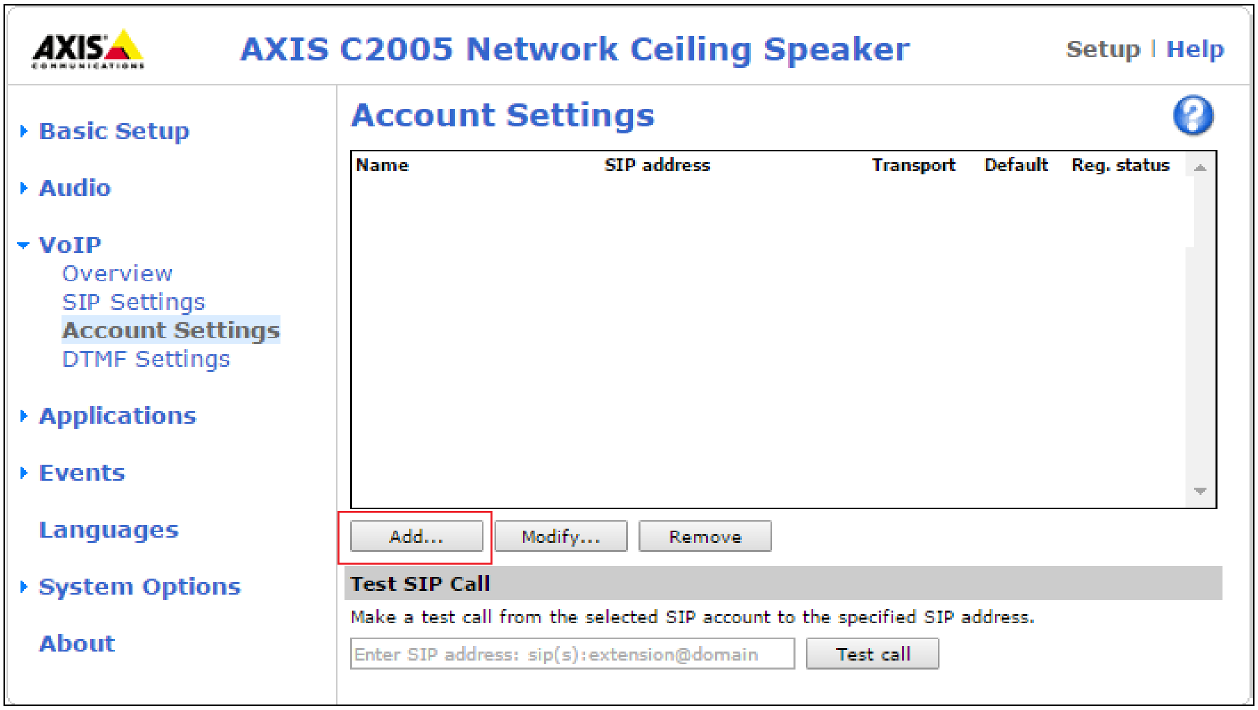
7.2. Configure SIP Settings

Click on **VoIP → SIP Settings** in the left window, in the main window ensure that **Enable SIP** is ticked under **SIP Settings** and **Allow incoming SIP calls** under **Incoming SIP Calls**. Under **Port Settings** select the SIP ports that are to be used and click on **Save** once all is configured correctly.



7.3. Configure Account

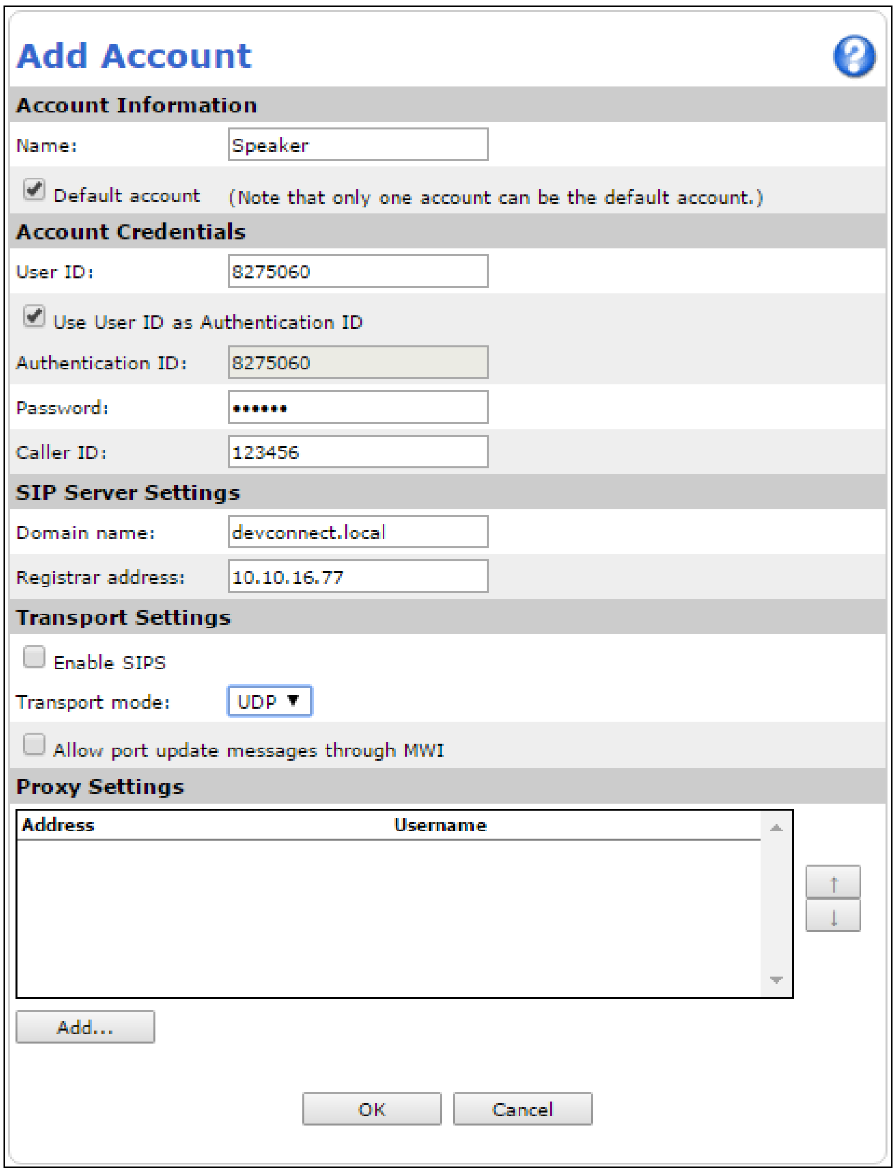
Click on **Account Settings** under **VoIP** in the left window. Click on the **Add** button in the main window.



Enter the following details under the **General** tab:

- **Name:** Enter a suitable name for the SIP account.
- **User ID**: Enter the SIP user number configured in **Section 6.2**.
- **Password**: Enter the password for the SIP user created in **Section 6.2**.
- **Caller ID**: This should be the extension number created in **Section 6.2**.
- **Domain Name**: The Session Manager SIP domain.
- **Registrar address**: The IP address of the Session Manager
- **Transport mode** This can be **UDP**, TCP or TLS. TLS was not tested as no 3rd Party Certificates were exchanged.

Click on **OK** to save the configuration.

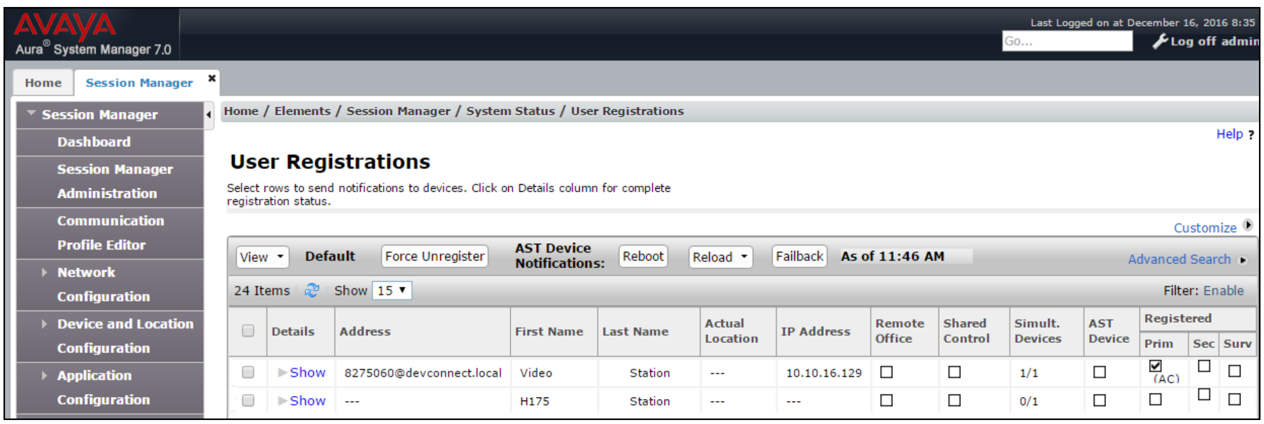


8. Verification Steps

Pressing the Axis door phone button and answering the call from the Communication Manager set and ensuring there is two-way speech and video (where possible) is the ultimate verification that the product works and is connected and configured correctly. The steps below can also be taken to ensure that the Axis door phone is registered correctly with Session Manager and some monitoring tips to see that this is the case.

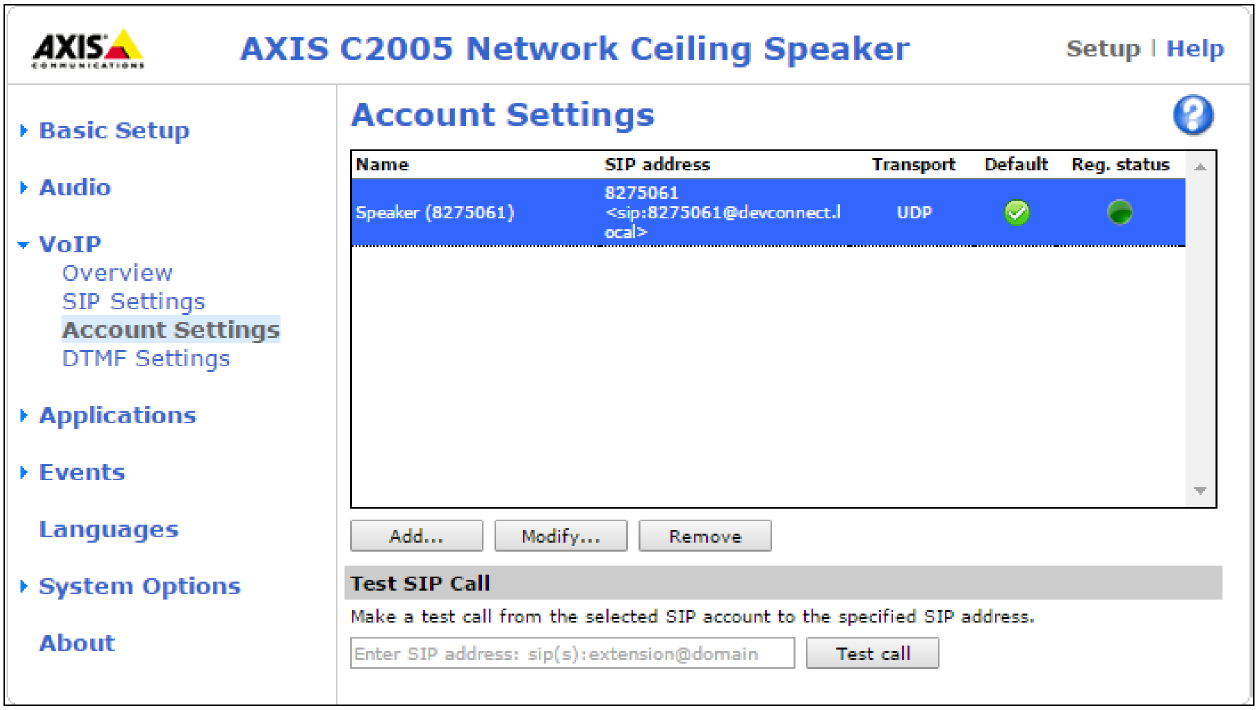
8.1. Verify Registration to Avaya Aura® Session Manager

From the System Manager dashboard select **Session Manager** from the **Elements** section (not shown). From the left hand menu select **System Status→User Registrations** (not shown). The AXIS C2005 Network Ceiling Speaker is listed and a tick under **Registered** for the Session Manager it is registered to.

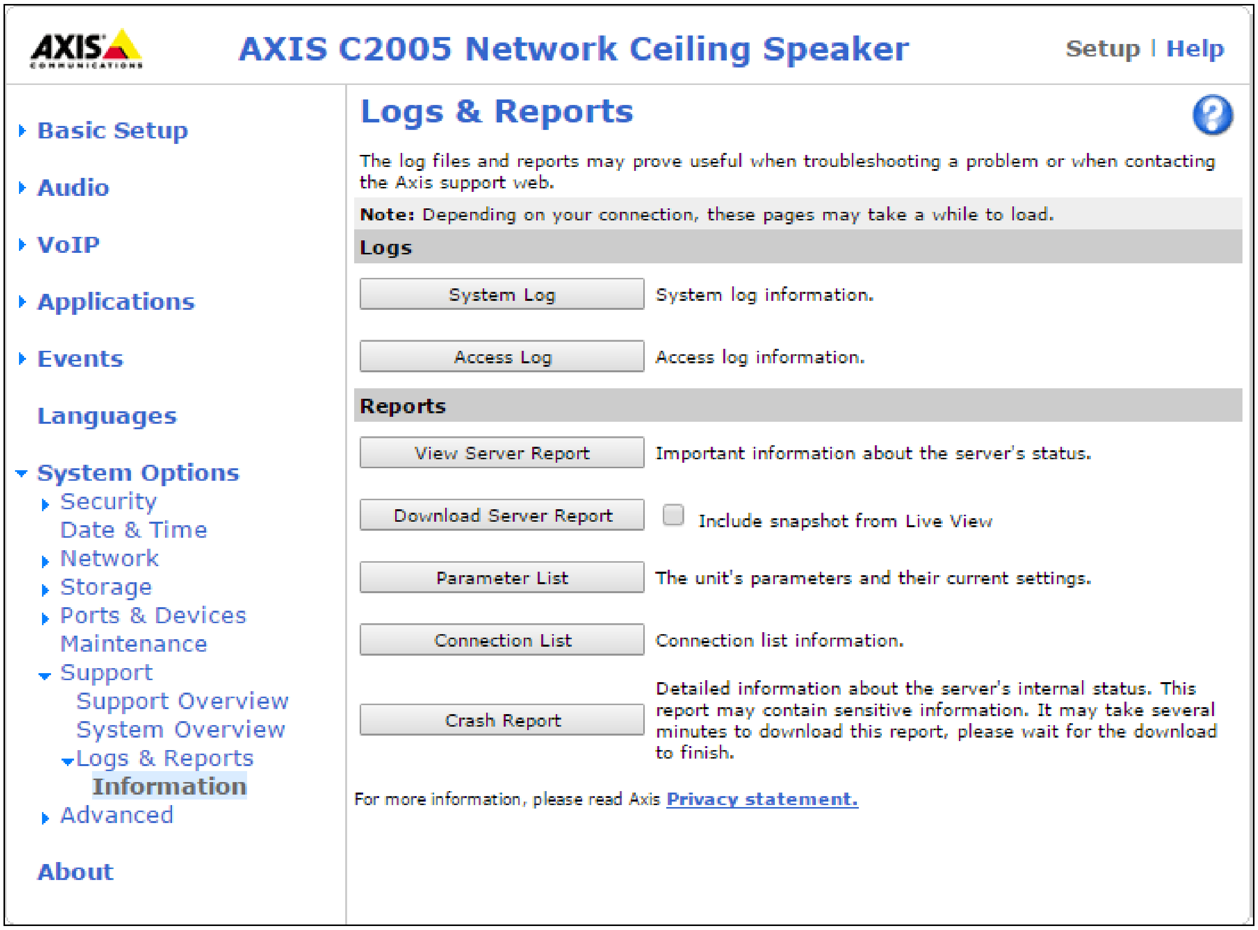


8.2. Verify Registration from AXIS C2005 Network Ceiling Speaker

Log in to the speaker as per **Section 7**. Navigate to **VoIP → Account Settings** in the left window and the registration information is displayed in the main window as shown below. The green lights show a successful registration of **8275060**. Test call can be made from each account to a specific phone number using the **Test SIP Call** at the bottom of the screen.



In the event of an issue with a call to the Axis speaker there are logs that can be accessed that show some further information on where the issue may lie. Navigate to **System Options → Support → Logs & Reports** in the left window and from the main window select **View Server Report** under the **Reports** section also the System Log is available as shown below.



9. Conclusion

These Application Notes describe the configuration steps for provisioning the AXIS C2005 Network Ceiling Speaker from Axis Communications AB to interoperate with Avaya Aura® Communication Manager R7.0.1 and Avaya Aura® Session Manager R7.0.1. 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.

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

[1] Administering Avaya Aura® Communication Manager, Release 7.0, August 2015, Document Number 03-300509, Issue 1.

[2] Avaya Aura® Communication Manager Feature Description and Implementation, Release 7.0, August 2015, Document Number 555-245-205, Issue 1.

[3] Administering Avaya Aura® Session Manager, Release 7.0, Issue 1 August 2015

[4] Administering Avaya Aura® System Manager, Release 7.0, Issue 1, August, 2015

Technical information for the AXIS C2005 Network Ceiling Speaker can be obtained from:

Axis Communications AB
Tel: +46 46 272 18 00
Fax: +46 46 13 61 30
http://www.axis.com/global/en/learning-and-support

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.