

Avaya Solution & Interoperability Test Lab

Application Notes for configuring Komutel SIT2 SIP Console Version 2.5.11 with Avaya Aura® Communication Manager Release 10.1 and Avaya Aura® Session Manager Release 10.1 – Issue 1.0

Abstract

These Application Notes describe the configuration steps for provisioning the Komutel SIT2 SIP Console 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 steps required to integrate the Komutel SIT2 SIP Console (Solution for Integrated Telecommunications) with Avaya Aura® Session Manager (Session Manager) and Avaya Aura® Communication Manager (Communication Manager). The SIT2 SIP Console provides a desktop communications center with enhanced control of call handling features. It provides the ability to handle a high volume of calls and offers tools designed to manage telephony functions. In the compliance test, the SIT2 SIP Console successfully registered with Session Manager, established calls with other telephones, and executed telephony features such as Hold, Transfer, and Conference.

Komutel SIT2 SIP Console registers to Session Manager and is able to work as a SIP agent in Avaya Call Center Elite environment, by using Avaya's Advanced SIP Telephone (AST). Support for this solution is restricted solely to deployments with Canadian Emergency 911 PSAPs and is not supported by Avaya for general enterprise deployments or for use in emergency services call centers in other geographies.

2. General Test Approach and Test Results

The interoperability compliance test included feature and serviceability testing. The feature testing focused on establishing calls between the SIT2 SIP Console and Avaya SIP, H.323, and digital stations and exercising common telephony features, such as hold, transfer, and conference.

The serviceability testing focused on verifying that the SIT2 SIP Console comes back into service after re-connecting the Ethernet connection or rebooting the PC on which the SIT2 SIP Console is running.

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 this DevConnect Application Note included the enablement of supported encryption capabilities in the Avaya products only (private network side). 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 Komutel SIT2 SIP Console did not include use of any specific encryption features as requested by Komutel.

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.

- Successful registration of the SIT2 IP Console with Session Manager.
- Calls between SIT2 SIP Console and Avaya SIP, H.323, digital stations and PSTN.
- G.711Mulaw, G.711Alaw and G.722 codecs support.
- Caller ID display on Avaya and SIT2 SIP Console.
- Proper recognition of DTMF tones.
- Basic telephony features including Hold, Mute, Transfer, and Conference.
- Extended telephony features using Communication Manager Feature Access Code (FAC) such as Call Park and Call Pickup.
- Contact center features including agent login, agent logout, various agent states and receiving the contact center call.
- Multi Device Access.
- Proper system recovery after a restart of the SIT2 SIP Console and loss of IP connectivity.

2.2. Test Results

All test cases passed successfully with the following observation.

- Komutel SIT2 SIP Console does not support codec G.729
- Komutel SIT2 SIP Console does not support Call Forward and Call Park at the time of testing.

2.3. Support

For technical support on the SIT2 SIP Console, contact Komutel Support via phone, email, or website.

- Phone: +1(877) 225-9988Email: service@komutel.com
- Web: https://www.komutel.com/fr/a-propos-de-komutel/services/

3. Reference Configuration

Figure 1 illustrates a sample configuration with an Avaya SIP-based network that includes the following Avaya products:

- Avaya Aura® Communication Manager running on a virtualized environment with a G450 Media Gateway.
- Avaya Aura® Session Manager connected to Communication Manager via a SIP trunk and acting as a Registrar/Proxy for SIP telephones.
- Avaya Aura® System Manager used to configure Session Manager.
- Enterprise has SIP trunk connected to PSTN through Avaya Session Border Controller.
- Komutel SIT2 IP Console registered with Session Manager with Advanced SIP Telephony (AST) and acted as a SIP agent for Call Center Elite in Communication Manager.

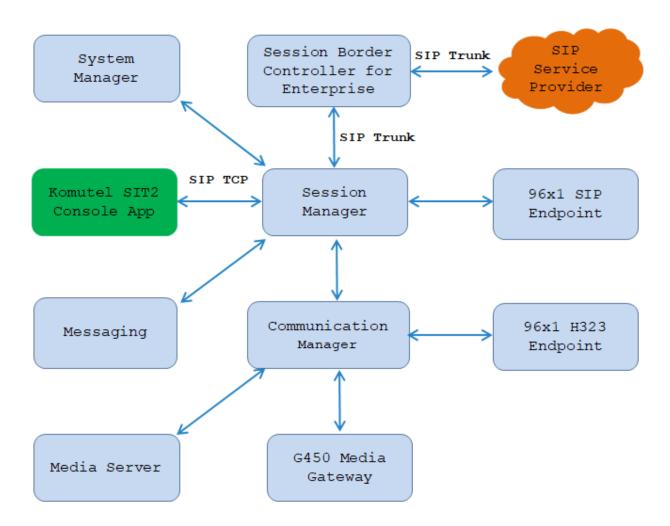


Figure 1: Avaya SIP Network with Komutel SIT2 SIP Console

4. Equipment and Software Validated

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

| Equipment/Software | Release/Version |
|--|------------------------|
| Avaya Aura® Communication Manager | 10.1 |
| running on virtualized environment | (10.1.0.1.0.974.27372) |
| Avaya Messaging | 11.1 |
| Avaya Aura® Session Manager running on | 10.1 |
| virtualized environment | (10.1.0.0.1010019) |
| Avaya Aura® System Manager running on | 10.1 |
| virtualized environment | (10.1.0.0.0614119) |
| Avaya Aura® Media Server running on | 8.0 |
| virtualized environment | (8.0.2.163) |
| Avaya Session Border Controller for | 8.1.3 |
| Enterprise | |
| Avaya G450 Media Gateway | 42.07.0 |
| Avaya IP Deskphones | |
| • 9608 (H.323) | 6.8.304 |
| • 9621 (H.323) | 6.8.304 |
| • 9641GS (SIP) | 7.1.9.0.8 |
| • J189 (SIP) | 4.0.7.1.5 |
| Komutel SIP2 Console Application | 2.5.11.61095 |
| modAdvancedSearch.dll | 1.1.3.60837 |
| modDisplayGroupButton.dll | 1.1.0.51798 |

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**.

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
                                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
        (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.

```
10
display system-parameters customer-options
                                                                      2 of
                                                               Page
                                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
 Max Concur Registered Unauthenticated H.323 Stations: 100
                        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
                             Maximum TN2501 VAL Boards: 128
                     Maximum Media Gateway VAL Sources: 250
           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
        (NOTE: You must logoff & login to effect the permission changes.)
```

On **Page 8** of the **system-parameters customer-options form**, verify that the number of **Logged-In ACD Agents** supported by the system is sufficient.

```
display system-parameters customer-options
CALL CENTER OPTIONAL FEATURES

VDN of Origin Announcement? y
VDN Return Destination? y
VuStats (G3V4 Enhanced)? y

Logged-In ACD Agents: 10000
Logged-In Advocate Agents: 10000
Logged-In IP Softphone Agents: 10000
Logged-In SIP EAS Agents: 10000
(NOTE: You must logoff & login to effect the permission changes.)
```

5.2. Administer Hunt Group

This section provides the Hunt Group configuration for the call center agents. Agents will log into Hunt Group 1 configured below. Provide a descriptive name and set the **Group Extension** field to a valid extension. Enable the **ACD**, **Queue**, and **Vector** options. This hunt group will be specified in the **Agent LoginIDs** configured in **Section 5.5**.

```
add hunt-group 1
                                                             Page
                                                                    1 of
                                                                           4
                             HUNT GROUP
           Group Number: 1
                                                           ACD? y
             Group Name: Skill-1
                                                         Queue? y
        Group Extension: 3320
                                                        Vector? y
             Group Type: ucd-mia
                     TN: 1
                    COR: 1
                                              MM Early Answer? n
          Security Code:
                                       Local Agent Preference? n
 ISDN/SIP Caller Display:
            Queue Limit: unlimited
 Calls Warning Threshold:
 Time Warning Threshold:
SIP URI:
```

On Page 2 of the Hunt Group form, enable the Skill option and Both in the Measured field.

```
add hunt-group 1

Skill? y

AAS? n

Measured: both
Supervisor Extension:

Controlling Adjunct: none

VuStats Objective:

Multiple Call Handling: none

Timed ACW Interval (sec): After Xfer or Held Call Drops? n
```

5.3. Administer Vector

Use the command "**change vector n**" while "n" is the vector number from 1-8000. The example of the vector 1 with the basic scripting is shown below. The vector 1 is used for the configuration of VDN in the next step.

```
change vector 1
                                                          Page 1 of 6
                                CALL VECTOR
   Number: 1
                           Name: Contact Center
Multimedia? n Attendant Vectoring? n Meet-me Conf? n
   Basic? y EAS? y G3V4 Enhanced? y ANI/II-Digits? y ASAI Routing? y
Prompting? y LAI? y G3V4 Adv Route? y CINFO? y BSR? y Holidays? y
Variables? y 3.0 Enhanced? y
01 wait-time 10 secs hearing 1100 02 queue-to skill 1 pri m
                                   then silence
03 wait-time 5 secs hearing ringback
04 check skill 1 pri m if expected-wait < 30
05 announcement 1104
06 queue-to skill 1 pri m \,
07 stop
```

5.4. Administer VDN

Use the "add vdn <ext>" command to add a VDN number. In the **Destination** field, enter **Vector Number** 1 as configured in **Section 5.3** above and keep other fields at their default values.

```
add vdn 3340
                                                             Page 1 of 3
                           VECTOR DIRECTORY NUMBER
                            Extension: 3340
                                Name*: Contact Center 1
                          Destination: Vector Number
                  Attendant Vectoring? n
                 Meet-me Conferencing? n
                   Allow VDN Override? n
                                   COR: 1
                                  TN*: 1
                             Measured: both
                                                Report Adjunct Calls as ACD*? n
       Acceptable Service Level (sec): 20
       VDN of Origin Annc. Extension*:
                           1st Skill*:
                           2nd Skill*:
                           3rd Skill*:
```

5.5. Administer Agent Login ID

To add an **Agent LoginID**, use the command "**add agent-loginID <agent ID>**" for each agent. In the compliance test, three agent login IDs 1000, 1001, and 1002 were created.

```
add agent-loginID 1000
                                                            Page
                                                                   1 of
                                                                          2
                                AGENT LOGINID
               Login ID: 1000
                                                                AAS? n
                                                              AUDIX? n
                   Name: Agent 1000
                     TN: 1
                    COR: 1
          Coverage Path:
                                                      LWC Reception: spe
          Security Code: 1234
                                            LWC Log External Calls? n
          Attribute:
                                           AUDIX Name for Messaging:
                                       LoginID for ISDN/SIP Display? n
                                                           Password:
                                             Password (enter again):
                                                       Auto Answer: station
                                                  MIA Across Skills: system
AUX Agent Considered Idle (MIA)? system
                                         ACW Agent Considered Idle: system
                                          Aux Work Reason Code Type: system
                                            Logout Reason Code Type: system
                      Maximum time agent in ACW before logout (sec): system
                                           Forced Agent Logout Time: :
   WARNING: Agent must log in again before changes take effect
```

On **Page 2** of the **Agent LoginID** form, set the skill number (**SN**) to hunt group 1, which is the hunt group (skill) and Skill Level (**SL**) to 1 that the agents will log into.

```
Page
add agent-loginID 1000
                                                                     2 of
                                 AGENT LOGINID
                                                         Service Objective? n
      Direct Agent Skill:
Call Handling Preference: skill-level
                                                   Local Call Preference? n
         RL SL
    SN
                        SN
                             RL SL
 1: 1
         1
                    16:
 2:
                    17:
 3:
                    18:
 4:
                    19:
 5:
                    20:
 6:
 7:
 8:
 9:
10:
11:
12:
13:
14:
15:
```

5.6. 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 4 digits long and begin with **33** and **34**.

| change dial | olan ar | nalysis | | | | | Page 1 of 12 | | |
|------------------|---------|-------------------|------------------|--|----|------------------|---------------------------|--|--|
| | | | | DIAL PLAN ANALYSIS TABLE Location: all | | | Percent Full: 1 | | |
| Dialed String | | L Call th Type | Dialed String | Total Length | | Dialed String | Total Call Length Type | | |
| 33 | 4 | ext | , | , | 21 | , | J 11 | | |
| 34 | 4 | ext | | | | | | | |
| * | 3 | fac | | | | | | | |
| # | 3 | fac | | | | | | | |

5.7. Administer IP-Codec Set

Use "change ip-codec set n" where n is the chosen value of the configuration for the enterprise endpoint. Enter the list of audio codec's eligible to be used in order of preference. For the interoperability test the codec supported by Komutel SIT2 Console were configured, namely G.722-64K, G.711Mu and G.711A.

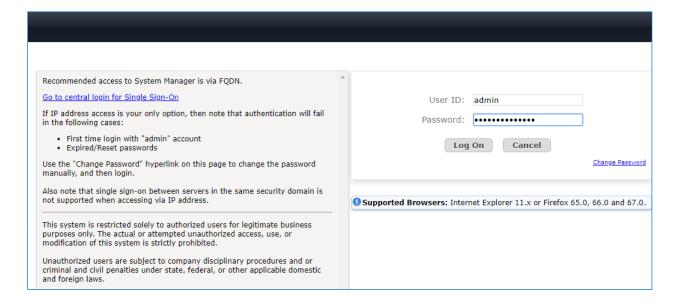
Note that the **Media Encryption** is defined here for use between Avaya IP endpoints. Komutel SIT2 Console did not use any media encryption during the compliance test; therefore the media encryption between Komutel SIT2 Console and Avaya IP endpoint is not utilized.

```
change ip-codec-set 1
                                                                              1 of
                             IP MEDIA PARAMETERS
    Codec Set: 1
    Audio Silence Frames Packet Codec Suppression Per Pkt Size(ms)
Codec
1: G.722-64K
2: G.711MU
                                              20
                       n
                                  2
                                              20
                                    2
3: G.711A
                                              20
                        n
5:
6:
7:
     Media Encryption
                                             Encrypted SRTCP: best-effort
1: 1-srtp-aescm128-hmac80
2: none
3:
4:
 5:
```

6. Configure Avaya Aura® Session Manager

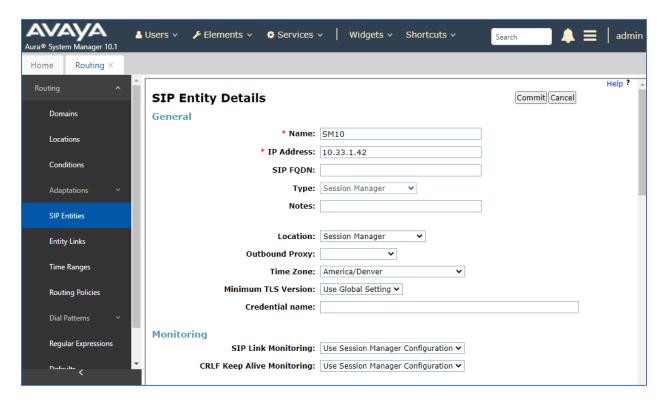
This section describes aspects of the Session Manager configuration required for interoperating with Komutel SIT2 IP Console. It is assumed that the Domains, Locations, SIP entities, Entity Links, Routing Policies, Dial Patterns and Application Sequences have been configured where appropriate for Communication Manager, Session Manager and Aura Messaging.

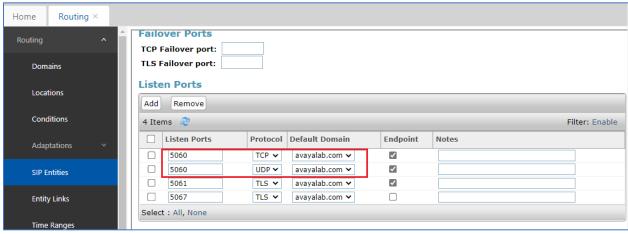
Session Manager is managed via System Manager. Using a web browser, access https://<ip-addr of System Manager>/SMGR. In the Log On screen, enter appropriate User ID and Password and click the Log On button.



6.1. Check Avaya Aura® Session Manager ports for SIP Endpoint Registration

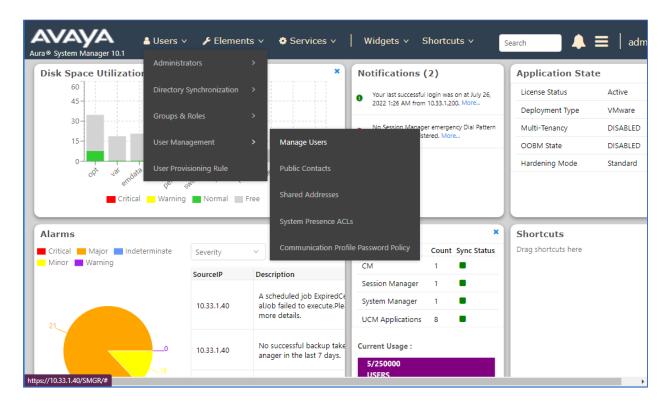
Each Session Manager Entity must be configured so that the SIT2 SIP Console can register to it using UDP/TCP. From the web interface click **Routing** \rightarrow **SIP Entities** (not shown) and select the Session Manager entity used for registration. Make sure that **TCP** and **UDP** listen ports are present. The TCP and UDP port and SIP domain name are highlighted below.



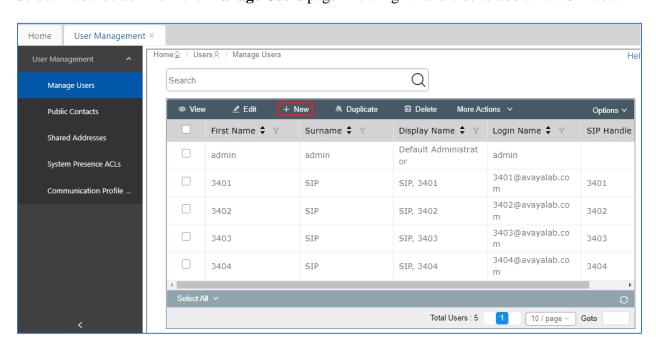


6.2. Administer SIP User

The Komutel SIT2 SIP Console application registers to a SIP user in Session Manager, to create a SIP user navigate to **Users** → **User Management** → **Manage Users**.



Select +New button from the Manage Users page in the right hand side to add a new SIP user.

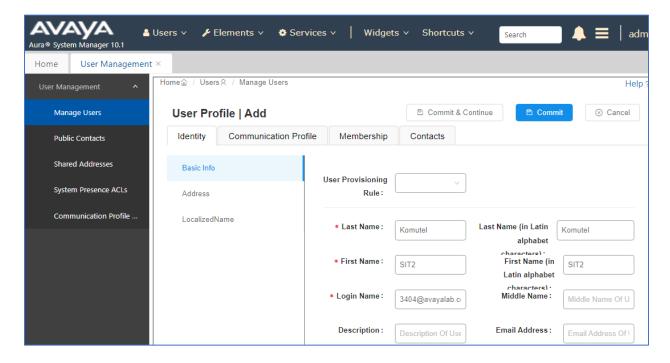


In the **Identity** tab enter the basic information for the SIP user; the fields with asterisk are mandatory.

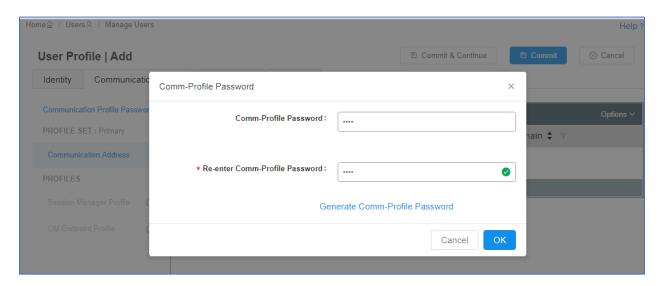
First Name
 Last Name
 Enter a descriptive name
 Enter an descriptive name

• **Login Name** Enter the extension number followed by the domain

Leave other fields at default values



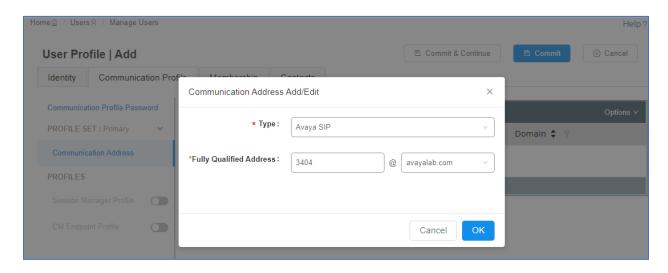
Select Communication Profile → Communication Profile Password. The Comm-Profile Password window displays, enter the same password in the Comm-Profile Password and Reenter Comm-Profile Password fields. Click on OK button to save the configuration.



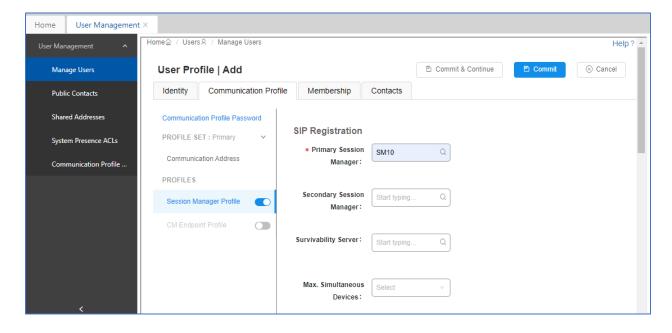
Select Communication Profile \rightarrow Communication Address and then select "+ New" button (not shown) to add a new communication address; enter the information as shown in the picture below.

- Type Select "Avaya SIP" in the dropdown menu
- Fully Qualified Address Enter the number 3404 and select SIP domain avayalab.com" in the dropdown menu

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

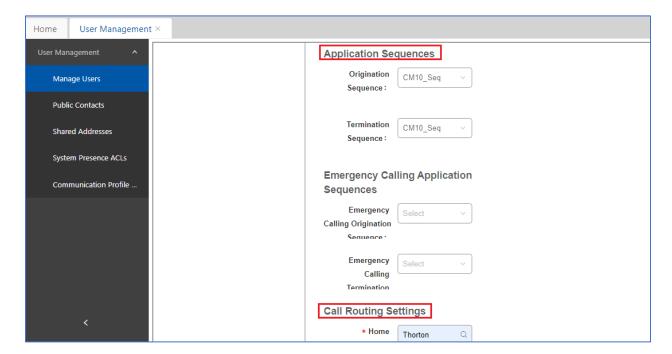


Enable Session Manager Profile in the Communication Profile tab. In the SIP Registration section, select the Session Manager SIP entity SM10 as shown in the picture below.



In the **Application Sequences** section of **Session Manager Profile**, select the previously created *CM10_Seq* in the **Origination Sequence** and **Termination Sequence** fields.

In the **Call Routing Settings** section, select the previously created *Thornton* in the **Home Location** field.



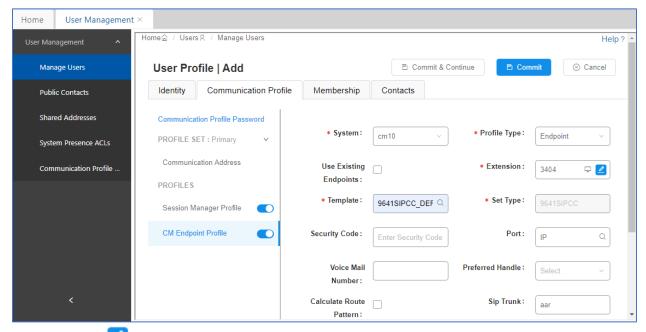
Enable **CM Endpoint Profile** in the **Communication Profile** tab. Enter the following values as shown in the picture below.

• System Select the previously created *cm10*

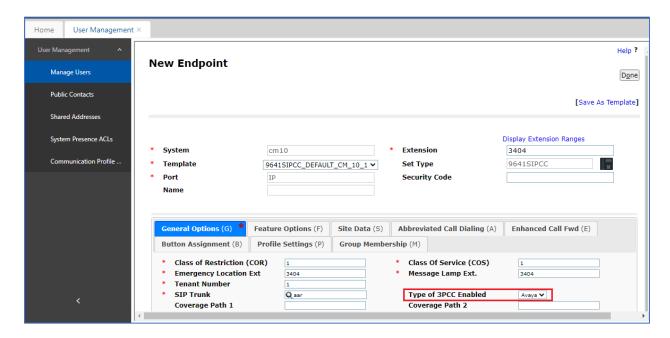
Profile Type Select Endpoint

• Extension Enter the extension 3404

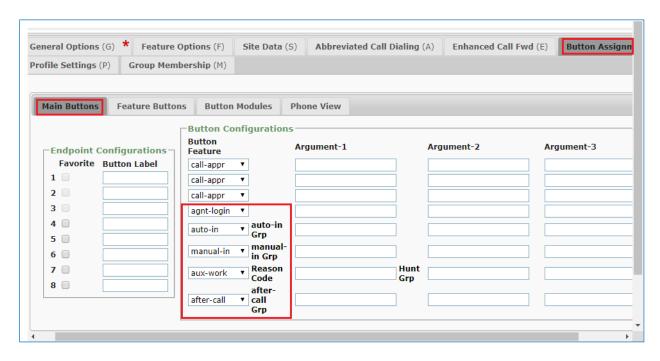
• **Template** Select the template **9641SIPCC_DEFAULT_CM**



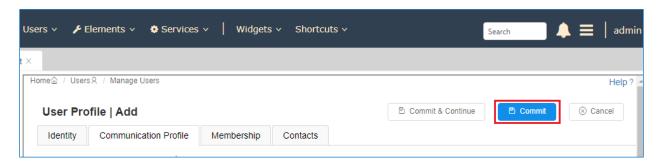
Select Editor icon next to the Extension field. The New Endpoint window displays, in the General Options (G) tab, make sure the Type of 3PCC Enabled is set to Avaya.



Select the **Button Assignment** (**B**) tab, in the Main Buttons sub-tab, add 5 buttons for the contact center agent: **agnt-login**, **auto-in**, **manual-in**, **aux-work**, and **after-call**.

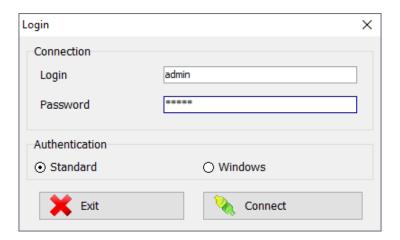


Click on **Done** button (not shown) on the **New Endpoint** window and then click on **Commit** button to save the configuration for the new user created.



7. Komutel SIT2 Console Application

Launch the SIT2 SIP Console application and login in with the appropriate credentials.

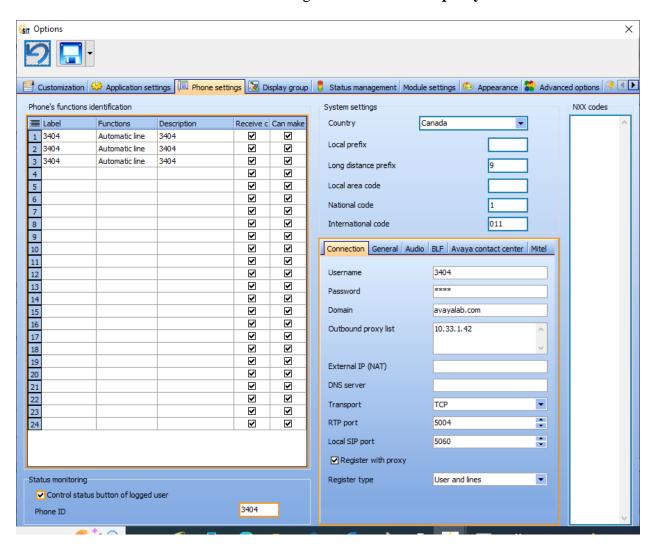


To configure the console's lines, navigate to the **Tools** \rightarrow **Options** \rightarrow **Phone Settings** tab. Depending on the number of lines that are available, choose *Automatic Line* in the **Functions** column, enter the **DN** in the **Description** column and type the text that will be displayed on the line's button in the **Label** column. As shown below, the console was configured with three line appearances with extension 3404.

| | Label | Functions | Description | Receive c | Can make |
|----|-------|----------------|-------------|-------------------------|----------|
| 1 | 3404 | Automatic line | 3404 | ✓ | ✓ |
| 2 | 3404 | Automatic line | 3404 | ✓ | ✓ |
| 3 | 3404 | Automatic line | 3404 | ✓ | ✓ |
| 4 | | | | ✓ | ✓ |
| 5 | | | | ✓ | ✓ |
| 6 | | | | ✓ | ✓ |
| 7 | | | | ✓ | ✓ |
| 8 | | | | ✓ | ✓ |
| 9 | | | | ✓ | ✓ |
| 10 | | | | ✓ | ✓ |
| 11 | | | | ✓ | ✓ |
| 12 | | | | ✓ | ✓ |
| 13 | | | | ✓ | ✓ |
| 14 | | | | ✓ | ✓ |
| 15 | | | | ✓ | ✓ |
| 16 | | | | ✓ | ✓ |
| 17 | | | | ✓ | ✓ |
| 18 | | | | ✓ | V |
| 19 | | | | ✓ | V |
| 20 | | | | ✓ | V |
| 21 | | | | ✓ | ✓ |
| 22 | | | | ✓ | ✓ |
| 23 | | | | ✓ | ✓ |
| 24 | | | | $\overline{\mathbf{Z}}$ | V |

In the **Connection** tab, configure the SIP parameters, including:

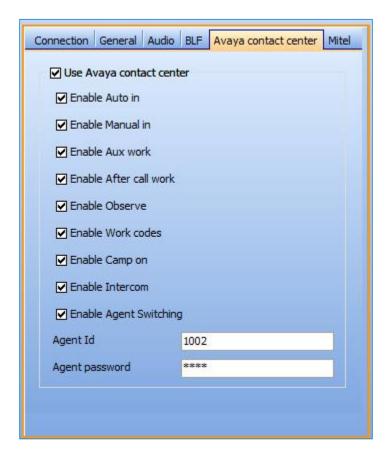
- Enter **Username** and **Password** as configured in **Section 6.2** to register with Session Manager.
- Enter the SIP domain avayalab.com in the **Domain** field.
- Enter the IP address of Session Manager in the **Outbound proxy list** field.



In the **Audio** tab, specify the audio device or headset that will be used with the console.



In the Avaya contact center tab, check on the Use Avaya contact center check box and its features such as Enable Auto in, Enable Manual in, Enable Aux work, Enable After call work and enter the Agent Id and Agent password as configured in Section 5.5.

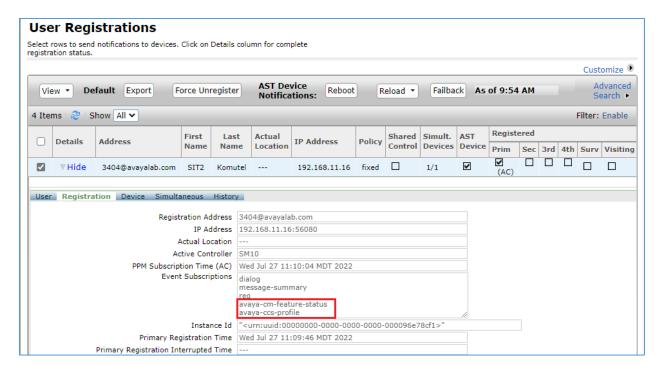


Click on the **Save** button in the **Options** window to save the configuration.

8. Verification Steps

This section provides the tests that can be performed to verify proper configuration of the Komutel SIT2 SIP Console with Avaya Aura® Communication Manager and Avaya Aura® Session Manager.

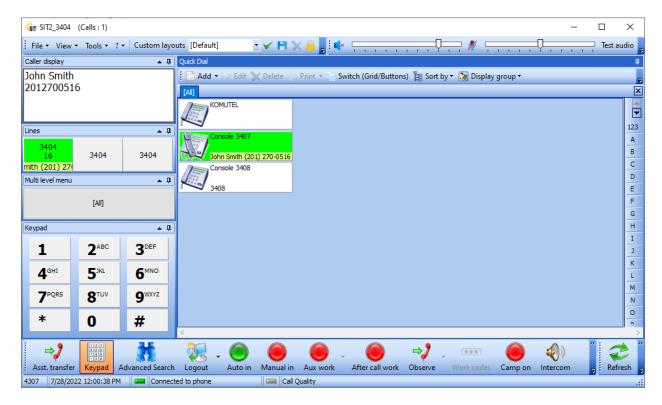
1. Verify that the SIT2 SIP Console is successfully registered with Session Manager and acquire the AST feature as well as subscribe the contact center events such as "avaya-cm-feature-status" and "avaya-ccs-profile".



2. Verify SIT2 SIP Console is able to login an agent and set it to the **Ready** status...



3. Verify SIT2 SIP Console was able to receive an inbound call center ACD call.



9. Conclusion

These Application Notes describe the configuration steps for provisioning the Komutel SIT2 SIP Console as a SIP agent in Call Center Elite using Advanced SIP Telephony to interoperate with Avaya Aura® Communication Manager and Avaya Aura® Session Manager. Please refer to **Section 2.2** for test results and observations.

10. Additional References

This section references the product documentation relevant to these Application Notes.

- [1] Administering Avaya Aura® Communication Manager, Release 10.1, Issue 1, December 2021.
- [2] Administering Avaya Aura® Session Manager, Release 10.1, Issue 1, April 2021.
- [3] Administering Avaya Aura® Application Enablement Services, Release 10.1, Issue 4, April 2022.

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