



# **CCS-UC-1**

## SIP Endpoint with Avaya Aura<sup>®</sup> 7.0 System

Configuration Guide

Crestron Electronics, Inc.

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# CCS-UC-1: SIP Endpoint with Avaya Aura 7.0

## Introduction

This configuration guide describes the necessary procedure to configure a Crestron® Mercury™ device to register to the Avaya® Aura Communication Manager as a basic SIP endpoint.

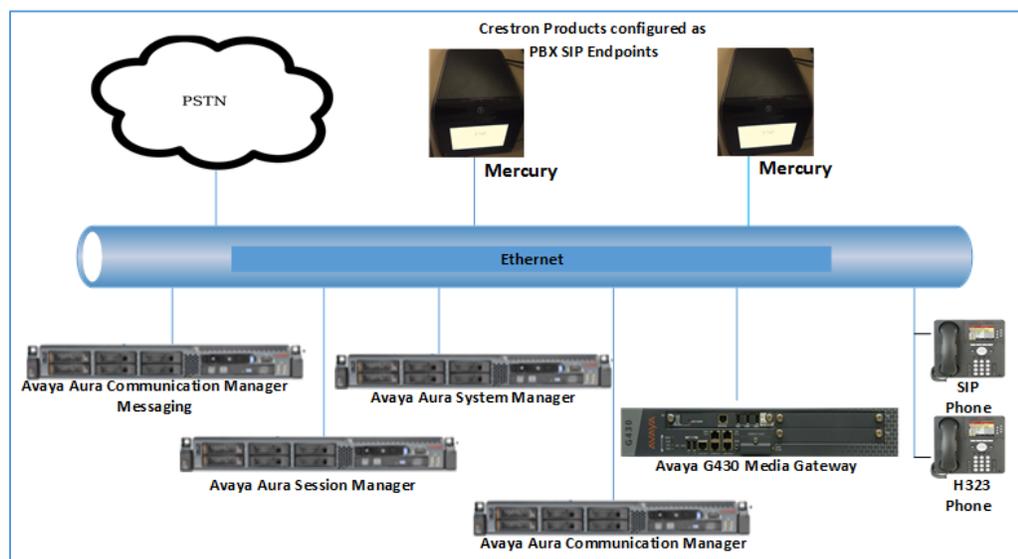
## Audience

This document is intended for users attempting to configure and use Crestron Mercury devices as SIP endpoints registering to the Avaya Aura® Communication Manager.

## Topology

The network topology for the Crestron Mercury endpoint to interop with the Avaya Aura is shown below.

*SIP Endpoint Integration with Avaya - Reference Network*



The lab network consists of the following components:

- Avaya Aura Communication Manager
- Avaya Aura Session Manager
- Avaya Aura System Manager
- Avaya H323 and SIP phones
- Avaya G430 Media Gateway
- Avaya Aura Communication Manager Messaging as the voicemail system
- Mercury as the SIP endpoints

## Software Requirements

- Avaya Aura Communication manager v 7.0.1.1.0.441.23169
- Avaya Aura Communication manager messaging v 7.0-28.0
- Avaya Aura System Manager v 7.0
- Avaya Aura Session Manager v 7.0.1.1.701114
- Avaya G430 Media Gateway v 37 .39 .0 /2
- Mercury devices v 1.3211.00020

## Hardware Requirements

- Avaya Components either in a virtual environment or separate hardware servers
  - Avaya Aura Communication Manager
  - Avaya Aura Session Manager
  - Avaya G430 Media Gateway
  - Avaya Aura Communication Manager Messaging
  - Avaya Aura Session Manager
- PSTN Gateway
- Avaya Phones (3) in SIP and H323 mode
- Crestron Mercury devices (2)

## Product Description

The Mercury device is a complete solution for conference rooms. It acts as an all-in-one touch screen, speakerphone, and AirMedia product for conference rooms that integrates microphones and speakers into the user interface at the table.

Crestron Toolbox™ is used to discover and control all Crestron devices on the network.

The Crestron Mercury web interface is used to control the Crestron Mercury devices on the network.

---

## Summary

The Mercury devices were configured on the Avaya Aura as basic SIP endpoints since they support only a single line/extension. The devices were successfully registered to the Avaya Aura Session Manager with digest authentication.

### Features Supported

- Registration with digest authentication
- Basic calls with G722, G711u, and G711a codecs
- Caller ID (limited to only calling number)
- DTMF support
- Early media support
- Retrieval of a parked call
- Transferee in a call transfer
- Conference participant
- Member of hunt group
- Voicemail access and interaction

### Features Not Supported

- Caller ID presentation with name and number display
- Call hold and resume
- Call forwarding on the device (Forwarding can be configured on the PBX for the DN assigned to the endpoint.)
- Call waiting
- Conference
- Attended call transfer
- Early attended call transfer
- Blind call transfer
- Shared line (configuration of shared line on device)
- Call park (initiating call park)
- Message Waiting Indicator

## Known Issues/Limitations

- Caller ID is not supported on Mercury. This issue is tracked via Crestron's Bugzilla™ Defect: 119006.
- The Mercury device does not support music on hold when integrated with Cisco® Call Manager. This issue is tracked via Crestron's Bugzilla Defect: 118993.
- Message Waiting Indicator (MWI) is not supported on Mercury. This issue is tracked via Crestron's Bugzilla Defect: 116290.

---

## Mercury Configuration

### Setup

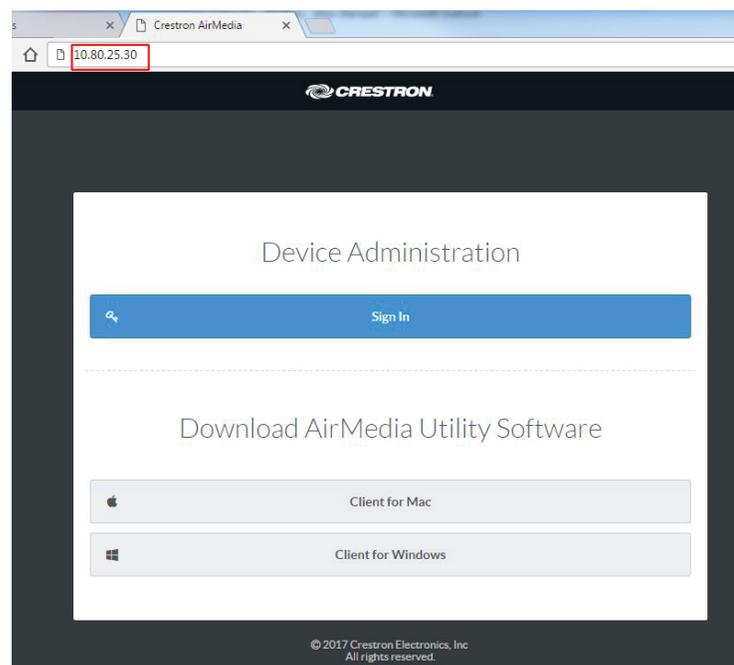
The Mercury device requires only one connection from its LAN port. The LAN port needs to be connected to one POE+ port to power it up and to be connected to the network for reachability to the Avaya Aura.

### Configuring the Device

1. Access the web GUI for the device by using an http session with the device's IP address. 10.80.25.30 was used during test as the device IP address.

The initial page that displays is as shown below.

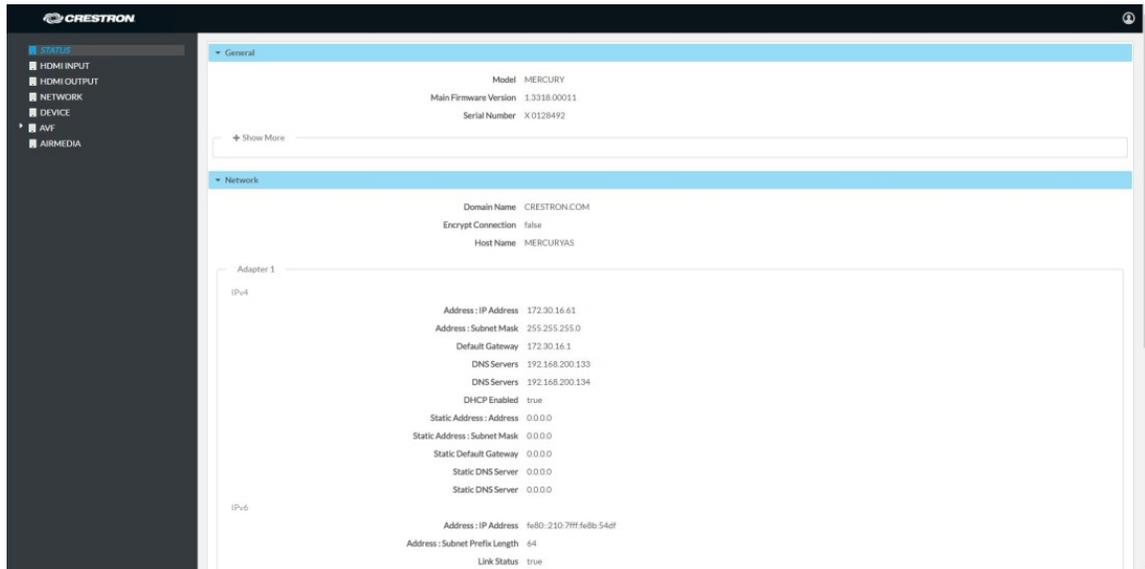
#### *Crestron Mercury Login to Web GUI*



2. Click **Sign In** and log in to the device. For information on device administration, refer to Doc. 7844 at [www.crestron.com/manuals](http://www.crestron.com/manuals).

The **Status** screen that appears displays basic information on the device as shown below.

### *Crestron Mercury Configuration: Status Screen*



The device can be configured from the Network page.

3. On the web GUI, navigate to **Network**.

### *Crestron Mercury Configuration: Network Screen*

4. Enter the following parameters in the **Adapter 1** section to configure the Mercury device.
  - **Domain Name:** lab.tekvizion.com, used in this example (mostly auto-detected by device when in DHCP mode).
  - **DHCP:** Either of the two can be chosen:
    - Obtain an IP address automatically
    - Use the following IP address

For the test, a static IP was configured with the following parameters.

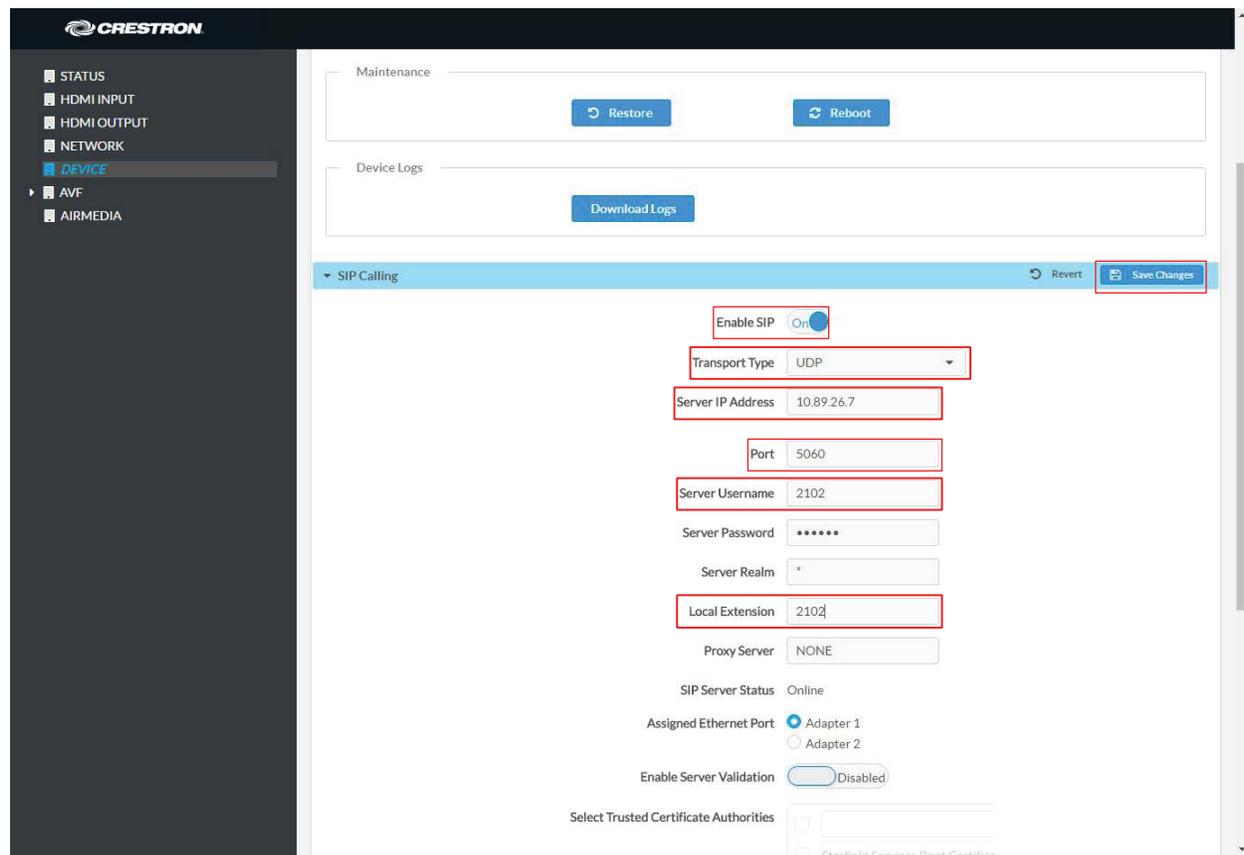
- **IP address:** 10.80.25.30, used in this example.
- **Subnet Mask:** 255.255.255.0, used in this example.
- **Default Gateway:** 10.80.25.1, used in this example.
- **DNS Servers:** 10.64.1.3, used in this example.

5. Click **Save Changes**.

## **Configure the SIP Parameters**

1. On the web GUI, navigate to **Device > SIP Calling**.

## Crestron: Mercury: Device Configuration: SIP Parameters



2. Enable the check box for **Enable SIP**.
3. Configure the **SIP Server IP Address**: Enter the IP address of the Avaya Aura Session Manager node. *10.80.26.7* was used in this example.
4. Configure the **SIP port**: *5060*, used in this example.
5. Configure the **SIP Server Username**: Enter the end user configured on Avaya Aura Communication Manager for this device. *2102* was used in this example.
6. Configure the **SIP Server Password**: Enter the password as configured on Avaya Aura Communication Manager for this end user.
7. Configure the **SIP Local Extension**: Enter the directory number that was configured for this device on Avaya Aura Communication Manager. *2102* was used in this example.
8. Leave all other fields at their default values.
9. Click **Save Changes**.

Once the device successfully registers with the Avaya Aura Session Manager, the **SIP Server Status** updates its status to show *Online*.

---

## Avaya Aura Communication Manager Configuration

This section describes the configuration necessary on the Avaya Aura Communication Manager (Avaya CM) to support registration of the devices and connectivity to PSTN.

It is assumed that the general installation and basic Avaya configuration has already been administered.

### Node Names

Configure the node IP for Avaya Aura Session Manager and Avaya CM.

Use the **change name-names ip** command to add the node name. In this example, *ASM1* and *procr* have been added with their respective IPs.

- *ASM1* is an Avaya Aura Session Manager used in this example and is used to register the SIP phones and third-party SIP devices.
- *procr* is used to register H323 phones and SIP trunk.

*Avaya Aura CM: Configure Node*

```
display node-names ip
IP NODE NAMES
  Name          IP Address
ASM1            10.89.26.7
default        0.0.0.0
procr           10.89.26.4
procr6         ::

( 4 of 4 administered node-names were displayed )
Use 'list node-names' command to see all the administered node-names
Use 'change node-names ip xxx' to change a node-name 'xxx' or add a node-name
Command:
F1=Cancel F2=Refresh F3=Submit F4=Clr F1d F5=Help F6=Update F7=Nxt Pg F8=Prv Pg
```

### Media Gateway

The G430 media gateway was added for DSP resources utilization in Avaya.

The G430 provides VoIP services over the LAN and WAN. The G430 has an on-board VoIP DSP providing 20 VoIP channels, and supports an optional additional DSP board providing 10, 20, or 80 VoIP channels.

*Avaya Aura CM: Media Gateway Configuration (1/3)*

```
list media-gateway
```

MEDIA-GATEWAY REPORT						
Num	Name	Serial No/ FW Ver/HW Vint/ RecRule	IPV4 Address/ IPV6 Address/ Cntrl IP Addr	Type	NetRgn	Reg?
1	G430	16OL17035780 37 .39 .0 /2 none	10.89.26.14  10.89.26.4	g430	1	y

*Avaya Aura CM: Media Gateway Configuration (2/3)*

```
display media-gateway 1
```

MEDIA GATEWAY 1		Page 1 of 2
Type:	g430	
Name:	G430	
Serial No:	16OL17035780	
Link Encryption Type:	any-ptls/tls	Enable CF? n
Network Region:	1	Location: 1
		Site Data:
Recovery Rule:	none	
Registered?	y	
FW Version/HW Vintage:	37 .39 .0 /2	
MGP IPV4 Address:	10.89.26.14	
MGP IPV6 Address:		
Controller IP Address:	10.89.26.4	
MAC Address:	a4:25:1b:a7:b5:91	
Mutual Authentication?	optional	

F1=Cancel F2=Refresh F3=Submit F4=Clr Fld F5=Help F6=Update F7=Nxt Pg F8=Prv Pg

Configure the media gateway as shown above using the **add media-gateway** command.

- **Type:** *g430*, used in this example.
- **Name:** *G430*, used in this example.
- **Serial No:** *16OL17035780*, used in this example.
- **Registered?:** *Y*, used in this example.

- MGP IPV4 Address: 10.89.26.14, used in this example.
- Controller IP Address: 10.89.26.4, procr IP used in this example.

*Avaya Aura CM: Media Gateway Configuration (3/3)*

```

display media-gateway 1                                     Page 2 of 2
MEDIA GATEWAY 1
Type: g430

Slot  Module Type      Name      DSP Type  FW/HW version
V1:
V2:  MM710             DS1 MM    MP120     153  0
V3:  MM711             ANA MM
V5:
V6:
V7:
V8:
V9:  gateway-announcements  ANN VMM

Expansion Type HW version
Max Survivable IP Ext: 8

F1=Cancel F2=Refresh F3=Submit F4=Clr Fld F5=Help F6=Update F7=Nxt Pg F8=Prv Pg

```

## Dial Plan Analysis

Several dial strings were configured for this test to ensure complete test coverage that included calling between stations, calling to PSTN and accessing PBX features.

Configure the following dial patterns using the **change dialplan analysis** command.

```

display 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
2       4   ext
8       1   fac
9       1   fac
*       3   fac
#       3   dac
    
```

---

```

F1=Cancel F2=Refresh F3=Submit F4=Clr Fld F5=Help F6=Update F7=Nxt Pg F8=Prv Pg
    
```

- **Dialed string:** 2, used in this example for station number.
- **Dialed string:** 8, used in this example as feature access code.
- **Dialed string:** 9, used in this example as feature access code.
- **Dialed string:** \*, used in this example as feature access code.
- **Dialed string:** #, used in this example as a dial access code.

The `display dialplan analysis` command can be used to view the configured dialed strings/codes.

## Uniform Dial Plan

Configure a dial plan using the `change uniform-dialplan n` command, where n is the first digit of the extension numbers used for SIP stations in the system.

In the sample configuration, 4-digit extension numbers starting with “21xx” were used for extensions associated with the Avaya SIP phones and Crestron SIP devices.

To add the dialplan, issue the above command and configure:

- **Matching Pattern:** 21, starting digit of the extension number used for SIP in this example.
- **Len:** 4, used in this example.
- **Del:** 0, used in this example.

- **Net:** *aar*, used in this example.

## Inbound Routing

DID numbers received from PSTN were mapped to extensions using the incoming call handling treatment of the receiving trunk group. Use the **change inc-call-handling-trmt** command to create an entry for each DID number.

*Avaya Aura CM: Inbound Routing*

```
change inc-call-handling-trmt trunk-group 1
```

Page 1 of 3

INCOMING CALL HANDLING TREATMENT				
Service/ Feature	Number Len	Number Digits	Del	Insert
tie	10	9722657277	10	2102
tie	10	9722657278	10	2103
tie	---	---	---	---
tie	---	---	---	---
tie	---	---	---	---

## Outbound Routing

### Automatic Route Selection (ARS)

The **Automatic Route Selection (ARS)** feature is used to route outbound calls via the SIP trunk to the PSTN. In the sample configuration, the single digit **9** is used as the ARS access code. PBX users dial 9 to initiate a call to PSTN. This common configuration is illustrated below with little elaboration. Use the **change dialplan analysis** command to define a dialed string beginning with **9** of length **1** as a feature access code (**fac**).

*Avaya Aura CM: Outbound Routing: Configure Dial Plan Analysis Table*

```
change dialplan analysis
```

Page 1 of 12

DIAL PLAN ANALYSIS TABLE								
Location: all						Percent Full: 3		
Dialed String	Total Length	Call Type	Dialed String	Total Length	Call Type	Dialed String	Total Length	Call Type
0	1	attd	9	1	fac			

The following feature access codes were configured for this test:

- **Auto Alternate Routing (AAR):** 8, used in this example.
- **Automatic Route Selection (ARS):** 9, used in this example.

Avaya Aura CM: Outbound Routing: Configure Feature Access Codes

```

display feature-access-codes                                     Page 1 of 10
                                FEATURE ACCESS CODE (FAC)
Abbreviated Dialing List1 Access Code:
Abbreviated Dialing List2 Access Code:
Abbreviated Dialing List3 Access Code:
Abbreviated Dial - Prgm Group List Access Code:
Announcement Access Code:
Answer Back Access Code: *11
Attendant Access Code:
Auto Alternate Routing (AAR) Access Code: 8
Auto Route Selection (ARS) - Access Code 1: 9
                                Access Code 2:
                                Deactivation:
Automatic Callback Activation:                                Deactivation: *15
Call Forwarding Activation Busy/DA: *14 All: *10             Deactivation: *17
Call Forwarding Enhanced Status: Act: *16
Call Park Access Code: *01
Call Pickup Access Code: *02
CAS Remote Hold/Answer Hold-Unhold Access Code:
CDR Account Code Access Code:
Change COR Access Code:
Change Coverage Access Code:
Conditional Call Extend Activation: Deactivation:
Contact Closure Open Code: Close Code:

F1=Cancel F2=Refresh F3=Submit F4=Clr Fld F5=Help F6=Update F7=Nxt Pg F8=Prv Pg
    
```

Use the **change ars analysis** command to configure the routing of dialed digits following the first digit 9.

For the test, an entry for the number beginning with 214242 was added using the above command and configuring:

- **Dialed string:** 214242, used in this example to call PSTN numbers.
- **Min:** 10, used in this example.
- **Max:** 10, used in this example.
- **Route Pattern:** 1, used in this example.
- **Call Type:** natl, used in this example.

Avaya Aura CM: Outbound Routing: Auto Route Selection

```

display ars analysis 2                                         Page 1 of 2
                                ARS DIGIT ANALYSIS TABLE
                                Location: all                    Percent Full: 2
Dialed      Total      Route      Call      Node      ANI
String      Min      Max      Pattern   Type      Num      Reqd
2           7       7       2         hnpa      n
214242     10      10      1         natl      n
3           7       7       2         hnpa      n
4           7       7       2         hnpa      n
    
```

## Route Pattern

The route pattern defines which trunk group will be used for the call and performs any necessary digit manipulation. Use the **change route pattern n** command, where n is the route pattern number to configure the parameters for the PSTN trunk route pattern.

**Route pattern:** 1, used for Public numbering plan for calling PSTN via Avaya Aura Session manager.

**Grp No:** 1, used in this example.

### Avaya Aura CM: PSTN Route Pattern Configuration

```
display route-pattern 1                                     Page 1 of 3
Pattern Number: 1      Pattern Name: Trunk Group 1
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
                                           Intw
1: 1      0
2:
3:
4:
5:
6:
                                           n  user
                                           n  user
                                           n  user
                                           n  user
                                           n  user
                                           n  user

      BCC VALUE  TSC CA-TSC      ITC BCIE Service/Feature PARM Sub  Numbering LAR
      0 1 2 M 4 W      Request      Dgts Format
1:  Y Y Y Y Y n  n      rest      lev0-pvt  none
2:  Y Y Y Y Y n  n      rest      none
3:  Y Y Y Y Y n  n      rest      none
4:  Y Y Y Y Y n  n      rest      none
5:  Y Y Y Y Y n  n      rest      none
6:  Y Y Y Y Y n  n      rest      none

F1=Cancel F2=Refresh F3=Submit F4=Clr Fld F5=Help F6=Update F7=Nxt Pg F8=Prv Pg
```

**Route pattern:** 2, used as a Private numbering plan for accessing the Voicemail feature offered by Avaya Communication Manager Messaging via Avaya Aura Session manager.

*Avaya Aura CM: Voicemail Route Pattern Configuration*

```

display route-pattern 2                                     Page 1 of 3
Pattern Number: 2      Pattern Name: Trunk Group 2
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      Intw
1: 2   0
2:
3:
4:
5:
6:

      BCC VALUE  TSC CA-TSC      ITC BCIE Service/Feature PARM Sub  Numbering LAR
      0 1 2 M 4 W      Request
1:  Y Y Y Y Y n  n      rest      lev0-pvt  none
2:  Y Y Y Y Y n  n      rest      none
3:  Y Y Y Y Y n  n      rest      none
4:  Y Y Y Y Y n  n      rest      none
5:  Y Y Y Y Y n  n      rest      none
6:  Y Y Y Y Y n  n      rest      none

F1=Cancel F2=Refresh F3=Submit F4=Clr Fld F5=Help F6=Update F7=Nxt Pg F8=Prv Pg

```

*Auto Alternative Routing*

Use the **change aar analysis n** command, where **n** is the first digit of the extension numbers used for SIP stations in the system.

The following entries were configured for this test:

- **Dialed number:** 21, used for Avaya SIP phones and Crestron Mercury SIP devices.
- **Dialed number:** 2222, used for voicemail access.

```
display aar analysis 2
```

Page 1 of 2

AAR DIGIT ANALYSIS TABLE						
Location: all				Percent Full: 2		
Dialed String	Total Min	Total Max	Route Pattern	Call Type	Node Num	ANI Req'd
21	4	4	2	aar		n
2222	4	4	2	aar		n
28	4	4	2	aar		n
3	7	7	254	aar		n
4	7	7	254	aar		n
5	7	7	254	aar		n
6	7	7	254	aar		n
7	7	7	254	aar		n
8	7	7	254	aar		n
9	7	7	254	aar		n

## Trunk Groups

Two trunk groups were configured for this test:

- **Trunk Group 1** utilized a public numbering plan to access the stations registered to the Avaya Session Manager.
- **Trunk Group 2** utilized a private numbering plan to send 4-digit calling number to Avaya Communication Manager Messaging or voicemail access.

Use the **add trunk-group n** command to add a new trunk group, where **n** is the trunk group number.

Configure Trunk Group 1:

- **Group Number:** 1, used in this example.
- **Group Name:** *trunk to asm*, used in this example.
- **Group Type:** *sjp*, used in this example.
- **Service Type:** *tie*, used in this example.
- **TAC:** #10, used in this example.
- **Signaling Group:** 1, used in this example.
- **Number of Members:** 10, used in this example.
- **Preferred Minimum Session Refresh Interval (Sec):** 1800.
- **Numbering Format:** *public*.

Avaya Aura CM: Trunk Configuration to Session Manager (1/4)

```
display trunk-group 1                                     Page 1 of 21
TRUNK GROUP
Group Number: 1                                         Group Type: sip          CDR Reports: y
Group Name: trunk to asm                               COR: 1                  TN: 1          TAC: #10
Direction: two-way                                   Outgoing Display? y
Dial Access? n                                       Night Service:
Queue Length: 0
Service Type: tie                                     Auth Code? n
Member Assignment Method: auto
Signal Group: 1
Number of Members: 10
```

Avaya Aura CM: Trunk Configuration to Session Manager (2/4)

```
display trunk-group 1                                     Page 2 of 21
Group Type: sip
TRUNK PARAMETERS
Unicode Name: auto
Redirect On OPTIM Failure: 5000
SCCAN? n                                             Digital Loss Group: 18
Preferred Minimum Session Refresh Interval(sec): 1800
Disconnect Supervision - In? y Out? y
XOIP Treatment: auto   Delay Call Setup When Accessed Via IGAR? n
Caller ID for Service Link Call to H.323 1xC: station-extension
F1=Cancel F2=Refresh F3=Submit F4=Clr F1d F5=Help F6=Update F7=Nxt Pg F8=Prv Pg
```

Avaya Aura CM: Trunk Configuration to Session Manager (3/4)

```
display trunk-group 1 Page 3 of 21
TRUNK FEATURES
    ACA Assignment? n Measured: none Maintenance Tests? y

    Suppress # Outpulsing? n Numbering Format: public
                                UUI Treatment: service-provider

                                Replace Restricted Numbers? n
                                Replace Unavailable Numbers? n

                                Hold/Unhold Notifications? y
                                Modify Tandem Calling Number: no

    Show ANSWERED BY on Display? y
```

Avaya Aura CM: Trunk Configuration to Session Manager (4/4)

```
display trunk-group 1 Page 4 of 21
PROTOCOL VARIATIONS
    Mark Users as Phone? n
    Prepend '+' to Calling/Alerting/Diverting/Connected Number? n
    Send Transferring Party Information? n
    Network Call Redirection? n

    Send Diversion Header? n
    Support Request History? y
    Telephone Event Payload Type:

    Convert 180 to 183 for Early Media? n
    Always Use re-INVITE for Display Updates? n
    Identity for Calling Party Display: From
    Block Sending Calling Party Location in INVITE? n
    Accept Redirect to Blank User Destination? n
    Enable Q-SIP? n

    Interworking of ISDN Clearing with In-Band Tones: keep-channel-active
    Request URI Contents: may-have-extra-digits

F1=Cancel F2=Refresh F3=Submit F4=Clr Fld F5=Help F6=Update F7=Nxt Pg F8=Prv Pg
```

Configure Trunk Group 2:

- **Group Number:** 2, used in this example.
- **Group Name:** *CM Messaging*, used in this example.
- **Group Type:** *sip*, used in this example.
- **Service Type:** *tie*, used in this example.
- **TAC:** #002, used in this example.
- **Signaling Group:** 1, used in this example.
- **Number of Members:** 5, used in this example.
- **Preferred Minimum Session Refresh Interval (Sec):** 1800.
- **Numbering Format:** *private*.

*Avaya Aura CM: Trunk Configuration to Session Manager (1/4)*

```
change trunk-group 2                                     Page 1 of 22
TRUNK GROUP
Group Number: 2                                         Group Type: sip           CDR Reports: y
Group Name: CM Messaging                               COR: 1                   TN: 1                 TAC: #002
Direction: two-way                                     Outgoing Display? n
Dial Access? n                                         Night Service: █
Queue Length: 0
Service Type: tie                                       Auth Code? n
Member Assignment Method: auto
Signal Group: 1
Number of Members: 5
```

Avaya Aura CM: Trunk Group 2 Configuration for Private Numbering (2/4)

```
display trunk-group 2                                     Page 2 of 21
  Group Type: sip

TRUNK PARAMETERS

  Unicode Name: auto

                                         Redirect On OPTIM Failure: 5000

  SCCAN? n                                     Digital Loss Group: 18
                                         Preferred Minimum Session Refresh Interval(sec): 1800

  Disconnect Supervision - In? y  Out? y

                                         XOIP Treatment: auto    Delay Call Setup When Accessed Via IGAR? n

  Caller ID for Service Link Call to H.323 1xC: station-extension

F1=Cancel F2=Refresh F3=Submit F4=Clr Fld F5=Help F6=Update F7=Nxt Pg F8=Prv Pg
```

Avaya Aura CM: Trunk Group 2 Configuration for Private Numbering (3/4)

```
display trunk-group 2                                     Page 3 of 21
TRUNK FEATURES
  ACA Assignment? n                                     Measured: none
                                                         Maintenance Tests? y

  Suppress # Outpulsing? n   Numbering Format: private
                                                         COI Treatment: service-provider

                                                         Replace Restricted Numbers? n
                                                         Replace Unavailable Numbers? n

                                                         Hold/Unhold Notifications? y
                                                         Modify Tandem Calling Number: no

  Show ANSWERED BY on Display? y
```

```

display trunk-group 2                                     Page 4 of 21
PROTOCOL VARIATIONS
    Mark Users as Phone? n
Prepend '+' to Calling/Alerting/Diverting/Connected Number? n
    Send Transferring Party Information? n
    Network Call Redirection? n
    Send Diversion Header? n
    Support Request History? y
    Telephone Event Payload Type:
    Convert 180 to 183 for Early Media? n
    Always Use re-INVITE for Display Updates? n
    Identity for Calling Party Display: From
Block Sending Calling Party Location in INVITE? n
    Accept Redirect to Blank User Destination? n
    Enable Q-SIP? n
Interworking of ISDN Clearing with In-Band Tones: keep-channel-active
Request URI Contents: may-have-extra-digits
F1=Cancel F2=Refresh F3=Submit F4=Clr F1d F5=Help F6=Update F7=Nxt Pg F8=Prv Pg

```

## Signaling Group

Use the *add signaling-group* command to create a signaling group between Communication Manager and Session Manager for use by the PSTN SIP trunk. This signaling group is used for inbound and outbound calls between the PBX and PSTN.

The *add signaling-group n* command was used to add the Signaling Group in the system, where *n* is the signaling group number used in this example.

For this test, signaling group 1 was configured.

- **Group Number:** 1, used in this example.
- **Group Type:** *sip*, used in this example.
- **Transport Method:** *tcp*, used in this example.
- **Peer Server:** *SM*, used in this example.
- **Near-end Node Name:** *procr*, used in this example.
- **Near-end Listen Port:** 5060, used in this example.
- **Far-end Node Name:** *ASM1*, used in this example.
- **Far-end Listen Port:** 5060, used in this example.
- **Far-end Network Region:** 1, used in this example.
- **Far-end Domain:** *lab.tekvizion.com*, used in this example.

- Direct IP-IP Audio Connections? *n*, used in this example.

*Avaya Aura CM: Signaling Group Configuration*

```

display signaling-group 1                                     Page 1 of 2
SIGNALING GROUP
Group Number: 1
IMS Enabled? n
Q-SIP? n
IP Video? n
Peer Detection Enabled? y
Prepend '+' to Outgoing Calling/Alerting/Diverting/Connected Public Numbers? y
Remove '+' from Incoming Called/Calling/Alerting/Diverting/Connected Numbers? n
Alert Incoming SIP Crisis Calls? n
Near-end Node Name: procr
Near-end Listen Port: 5060
Group Type: sip
Transport Method: tcp
Peer Server: SM
Far-end Node Name: ASM1
Far-end Listen Port: 5060
Far-end Network Region: 1
Far-end Domain: lab.tekvizion.com
Incoming Dialog Loopbacks: eliminate
DTMF over IP: rtp-payload
Session Establishment Timer(min): 3
Enable Layer 3 Test? y
H.323 Station Outgoing Direct Media? n
Enforce SIPS URI for SRTP? y
Bypass If IP Threshold Exceeded? n
RFC 3389 Comfort Noise? n
Direct IP-IP Audio Connections? y
IP Audio Hairpinning? n
Initial IP-IP Direct Media? n
Alternate Route Timer(sec): 6
F1=Cancel F2=Refresh F3=Submit F4=Clr Fld F5=Help F6=Update F7=Nxt Pg F8=Prv Pg

```

## Codecs

Use the **change ip-codec-set** command to define a list of codecs to use for calls between the PBX and PSTN.

For the test, **ip-codec-set 1** was used for this purpose. The Crestron Mercury device supports **G.711A**, **G.722**, and **G.711MU**. These codecs were configured in this set. To test the codecs with Mercury, enter **G.711A**, **G722**, and **G.711MU** in the **Audio Codec** column of the table. Default values can be used for all other fields.

*Avaya Aura CM: Codec Configuration*

```

display ip-codec-set 1                                     Page 1 of 2
IP CODEC SET
Codec Set: 1
Audio Codec      Silence Suppression  Frames Per Pkt  Packet Size(ms)
1: G.711A        n              2              20
2: G.711MU      n              2              20
3: G.722-64K    n              2              20
4:

```

## Hunt Group

Two hunt groups were configured for this test:

- **Hunt Group Extension:** 2200, used in this example for **Group Hunt** feature.
- **Hunt Group Extension:** 2222, used in this example for **Voicemail** feature.

Use the *add hunt-group n* to add a new hunt group, where n is the available hunt group number.

### Avaya Aura CM: Hunt Group Configuration (1/3)

```
list hunt-group
```

HUNT GROUPS											
Grp No.	Grp Name/Ext	Grp Type	ACD/MEAS	Vec	MCH	Que	No. Mem	Cov Path	Notif/Adj	Dom Ctrl	Message Center
1	Crestron HG 2200	circ	n/-	n	none	n	0	1	n		n
2	cmm_hunt 2222	ucd-mia	n/-	n	none	n	0		n		S

Configure the Hunt Group:

- **Group Number:** 1, used in this example.
- **Group Name:** *Crestron HG*, used in this example.
- **Group Extension:** 2200, used in this example.
- **Group Type:** *circ*, used in this example to enable sequential ringing on the hunt group members.
- **Coverage Path:** 1, used in this example that includes hunt group members that will be alerted sequentially.

### Avaya Aura CM: Hunt Group Configuration (2/3)

```
display hunt-group 1
```

HUNT GROUP	
Group Number:	1
Group Name:	Crestron HG
Group Extension:	2200
Group Type:	circ
Coverage Path:	1
TN:	1
Night Service Destination:	
COR:	1
MM Early Answer?	n
Security Code:	
Local Agent Preference?	n
ISDN/SIP Caller Display:	

Use the *add coverage path n* command, where n is the available coverage path number, to add the coverage path which includes members of the hunt group.

*Coverage path 1* was configured in the test. This is invoked by Hunt Group 1.

Coverage Points configured:

- Point1: 2000, station used in this example.
- Point2: 2103, station used in this example.
- Point3: 2102, station used in this example.
- Point4: 2101, station used in this example.

*Avaya Aura CM: Hunt Group Coverage Path Configuration*

```
display coverage path 1
                                COVERAGE PATH
                                Coverage Path Number: 1
                                Cvg Enabled for VDN Route-To Party? n
                                Next Path Number:
                                Hunt after Coverage? n
                                Linkage

COVERAGE CRITERIA
  Station/Group Status   Inside Call   Outside Call
    Active?                n              n
    Busy?                  y              y
    Don't Answer?         y              y      Number of Rings: 2
    All?                   n              n
  DND/SAC/Goto Cover?    y              y
  Holiday Coverage?      n              n

COVERAGE POINTS
  Terminate to Coverage Pts. with Bridged Appearances? n
  Point1: 2000           Rng: 1   Point2: 2103           Rng: 1
  Point3: 2102           Rng: 3   Point4: 2101           Rng:
  Point5:                 Point6:

Command:
F1=Cancel F2=Refresh F3=Submit F4=Clr Fld F5=Help F6=Update F7=Nxt Pg F8=Prv Pg
```

Configure the voicemail hunt pilot:

- **Group Number:** 2, used in this example.
- **Group Name:** *cmm\_hunt*, used in this example.
- **Group Extension:** 2222, used in this example.
- **Group Type:** *ucd\_mia*, used in this example.

## Avaya Aura CM: Hunt Group Configuration for Voicemail

```
display hunt-group 2                                     Page 1 of 60
HUNT GROUP
Group Number: 2                                         ACD? n
Group Name: cmm_hunt                                    Queue? n
Group Extension: 2222                                   Vector? n
Group Type: ucd-mia                                     Coverage Path:
IN: 1                                                   Night Service Destination:
COR: 1                                                  MM Early Answer? n
Security Code: 1234                                    Local Agent Preference? n
ISDN/SIP Caller Display: mbr-name
```

## Music on Hold

Configure the Music on Hold source using the following:

- *enable announcement-board 1v9* command to enable music source 1v9.
- *add audio group n* command to add the source of audio.
  - **Audio Source Location:** 001v9, used in this example.

## Avaya Aura CM: MoH Configuration

```
display audio-group 1
AUDIO GROUP 1
Group Name: MOH
AUDIO SOURCE LOCATION
1: 001V9 16: 31: 46:
2: 17: 32: 47:
3: 18: 33: 48:
4: 19: 34: 49:
5: 20: 35: 50:
6: 21: 36:
7: 22: 37:
8: 23: 38:
9: 24: 39:
10: 25: 40:
11: 26: 41:
12: 27: 42:
13: 28: 43:
14: 29: 44:
15: 30: 45:
Command:
F1=Cancel F2=Refresh F3=Submit F4=Clr Fld F5=Help F6=Update F7=Nxt Pg F8=Prv Pg
```

- *add announcement n* command is used to add the new announcement associated with station number.

- **Extension:** *2050*, used in this example.
- **Annc Name:** *music*, used in this example.
- **Annc Type:** *integ-mus*, used in this example.
- **Source:** *001v9*, used in this example.

*Avaya Aura CM: Announcement Configuration*

```
display announcement 2050

ANNOUNCEMENTS/AUDIO SOURCES

Extension: 2050                COR: 1
Annc Name: music              TN: 1
Annc Type: integ-mus         Queue? b
Source: 001V9
Protected? n                  Rate: 64
```

- *display music-sources* command used to see the list of music sources configured on the system.
  - **Source No:** *1*, used in this example.
  - **Type:** *music*, used in this example.
  - **Source:** Type: *ext 2050*, used in this example.

Avaya Aura CM: Music Source Configuration

```
display music-sources                                     Page 1 of 17
MUSIC SOURCES

Source No.   Type   Source   Description
-----
1:           music  Type: ext 2050
2:           none
3:           none
4:           none
5:           none
6:           none
7:           none
8:           none
9:           none
10:          none
11:          none
12:          none
13:          none
14:          none
15:          none

F1=Cancel F2=Refresh F3=Submit F4=Clr Fld F5=Help F6=Update F7=Nxt Pg F8=Prv Pg
```

Verify the configuration using the list integrated-announcement board.

Avaya Aura CM: Integrated Announcement Configuration

```
list integrated-annc-boards
INTEGRATED ANNOUNCEMENTS
Source: 001V9                               Time Remaining at 64Kbps: 2796
Internal Group Announcement                 Length   Size
Number   Number Extension   Name     (Sec)   (Kb)
NA       2050             music    51      411
```

## Configuring a User for Each Device/Phone

A user was configured for each phone or Crestron device used in the test.

Navigate to **Home > User Management > Manage Users**.

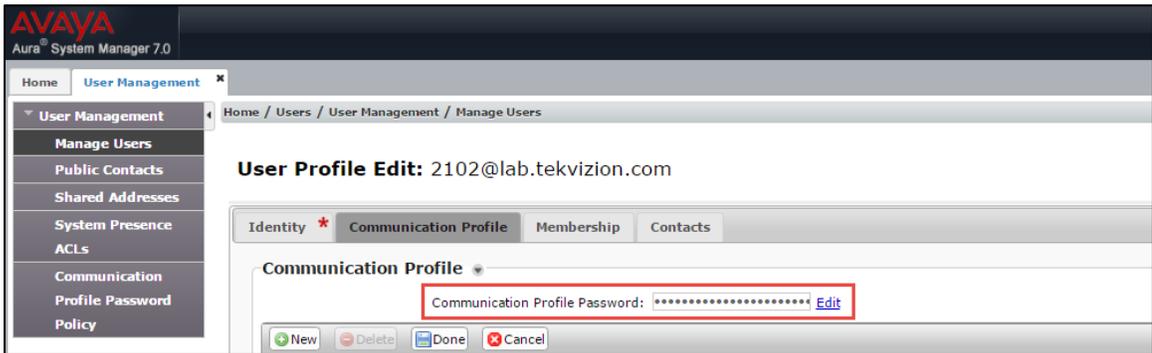
1. Click **Add New**. The User Profile configuration window appears.

*Avaya Aura CM: Phone Configuration (1/4)*

The screenshot shows the Avaya Aura System Manager 7.0 interface. The top navigation bar includes 'Home', 'User Management', and 'Routing'. The left sidebar shows 'User Management' with sub-items like 'Manage Users', 'Public Contacts', 'Shared Addresses', 'System Presence', 'ACLs', 'Communication', 'Profile Password', and 'Policy'. The main content area is titled 'User Profile View: 2102@lab.tekvizion.com' and includes tabs for 'Identity', 'Communication Profile', 'Membership', and 'Contacts'. The 'Identity' tab is active, showing a 'User Provisioning Rule' dropdown and an 'Identity' section with various fields. The following fields are highlighted with red boxes: 'Last Name: Test2', 'First Name: user2', and 'Login Name: 2102@lab.tekvizion.com'. Other visible fields include 'Last Name (Latin Translation): Test2', 'First Name (Latin Translation): user2', 'Middle Name', 'Description', 'Update Time: September 15, 2016 9:17', 'User Type: Basic', 'Source: local', 'Localized Display Name: Test2, user2', 'Endpoint Display Name: Test2, user2', 'Title', 'Language Preference: English (United States)', 'Time Zone', 'Employee ID', 'Department', and 'Company: admin'.

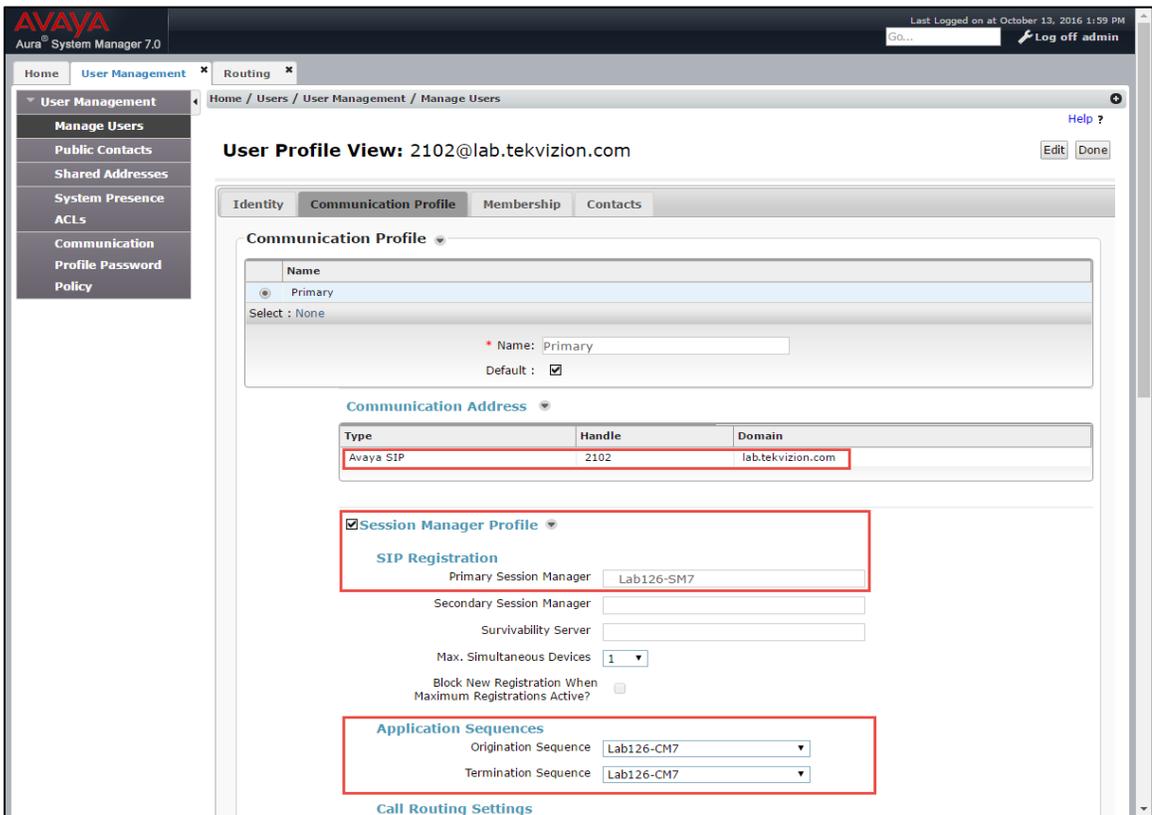
2. Configure **Last Name** and **First Name**: *Test2*, used in this example.
3. Configure **Login Name**: *2102@lab.tekvizion.com*, used in this example.
4. Select **Communication Profile** tab.

Avaya Aura CM: Phone Configuration (2/4)



5. Configure **Communication Profile Password**: enter the desired password for the SIP user to use for registration.
6. Confirm Password.
7. Scroll down to Communication Address sub-section, and click **New** to add a new address.

Avaya Aura CM: Phone Configuration (3/4)



8. Communication Manager Type **Avaya SIP**.

9. SIP Registration: Primary Session Manager.
10. Check the **CM Endpoint Profile** check box.

#### Avaya Aura CM: Phone Configuration (4/4)

The screenshot shows the 'Avaya Aura CM: Phone Configuration' interface. The 'CM Endpoint Profile' section is highlighted with a red box. The configuration includes:

- System: Lab126-CM7
- Profile Type: Endpoint
- Extension: 2102
- Set Type: 9600SIP
- Port: 500003
- Sip Trunk: aar

Other settings visible include:

- Home Location: Lab126-Plano
- Conference Factory Set: (None)
- Enable Centralized Call History? (unchecked)
- Avaya Breeze Profile (unchecked)
- Presence Profile (unchecked)
- Delete Endpoint on Unassign of Endpoint from User or on Delete User (checked)
- Override Endpoint Name and Localized Name (checked)
- Allow H.323 and SIP Endpoint Dual Registration (unchecked)

Buttons for 'Edit' and 'Done' are located at the bottom right of the configuration area.

11. Configure **System**: *Lab126-CM7*, used in this example.
12. Configure **Profile Type**: *Endpoint*, used in this example.
13. Configure **Extension**: *2102*, used in this example.
14. Click **Done**.

---

## Avaya Aura Session Manger

### Domain

Create an SIP domain for each domain the Session Manager needs to be aware of in order to route calls.

To configure a domain, perform the following procedure.

1. Navigate to **Home > Routing > Domains**.
2. Click **New**.
3. Enter the following information.
  - **Name:** Enter the domain name. *lab.tekvizion.com* was used in this example.
  - **Type:** Select *sip* from the drop-down menu.
  - **Notes:** Add a brief description (optional).
  - Click **Commit** to save (not shown).

### Avaya Aura SM: Domain Configuration



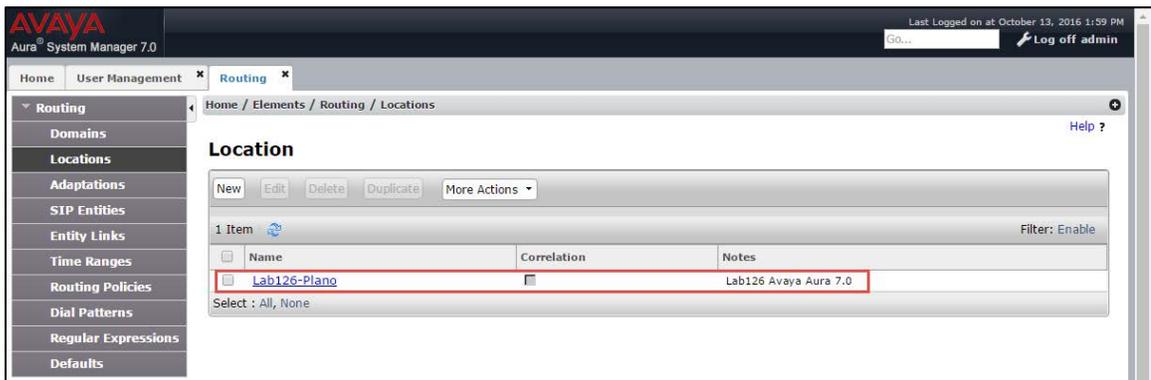
## Location

Locations can be used to identify logical and/or physical locations where SIP Entities reside for the purposes of bandwidth management and call admission control.

To add a location, perform the following procedure.

1. Navigate to **Routing > Locations**.
2. Click the **New** button.
3. In the General section, enter the following values:
  - **Name:** Enter a descriptive name for the location: *Lab126-Plano* was used in this example.
  - **Notes:** Add a brief description (optional).
  - Use default values for all remaining fields.
  - Click **Commit** to save.

## Avaya Aura SM: Location Configuration



## Adaptation

Adaptations are used to modify SIP messages that are administered. An SIP entity can have its own unique adaptation, or one adaptation can be shared among multiple entities. Session Manager includes a module called DigitConversionAdapter, which can convert digit strings in various message headers as well as hostnames in the Request-URI and other headers.

To configure an adaptation, perform the following procedure.

1. **Navigate to:** Home > Routing > Adaptations.
2. Click **New**.

## Avaya Aura SM: Adaptation Configuration

AVAYA  
Aura System Manager 7.0

Home | User Management | Routing | Adaptations

Adaptation Details

Commit Cancel

General

\* Adaptation Name: DomainAdapter

\* Module Name: DigitConversionAdapter

Module Parameter Type: Name-Value Parameter

Name	Value
fromto	true
odstd	lab.tekvizion.com
osrcd	lab.tekvizion.com

Egress URI Parameters:

Notes:

Digit Conversion for Incoming Calls to SM

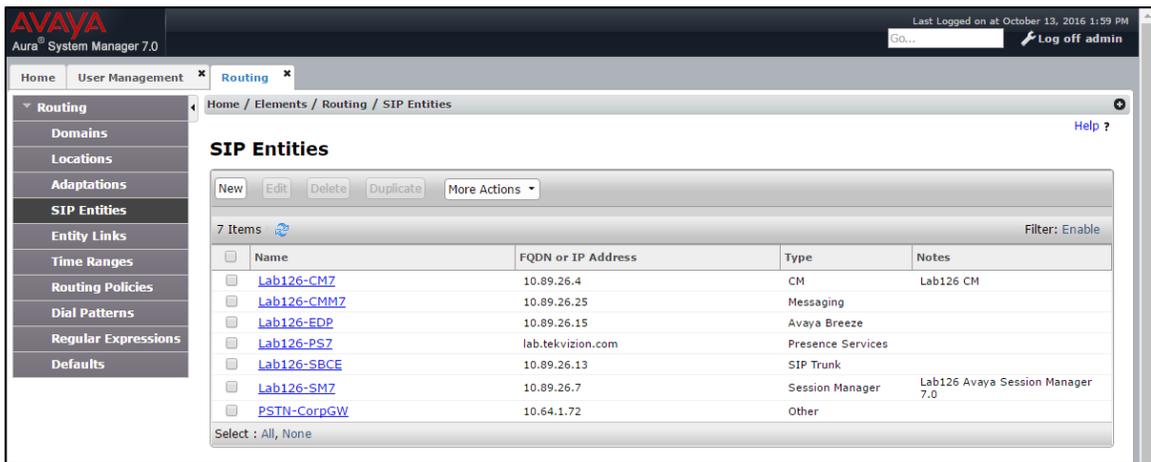
Matching Pattern	Min	Max	Phone Context	Delete Digits	Insert Digits	Address to modify	Adaptation Data	Notes
*19725980143	11	11		1		both		
*19725980145	11	11		1		both		

- Configure the adaptation as follows:
  - Adaptation Name:** *DomainAdapter*, used in this example.
  - Module Name:** *DigitConversionAdapter* from the drop-down menu.
  - Module Parameter Type:** *Name-Value Parameter* from the drop-down menu.
  - Fromto:** *true*.
  - Odstd:** *lab.tekvizion.com*.
  - Osrcd:** *lab.tekvizion.com*.
  - Notes:** Add a brief description (optional).
  - Click **Commit** to save.

## SIP Entity

An SIP Entity must be added for Session Manager and for each SIP telephony system connected to it, which includes Communication Manager and Avaya Communication Manager Messaging component.

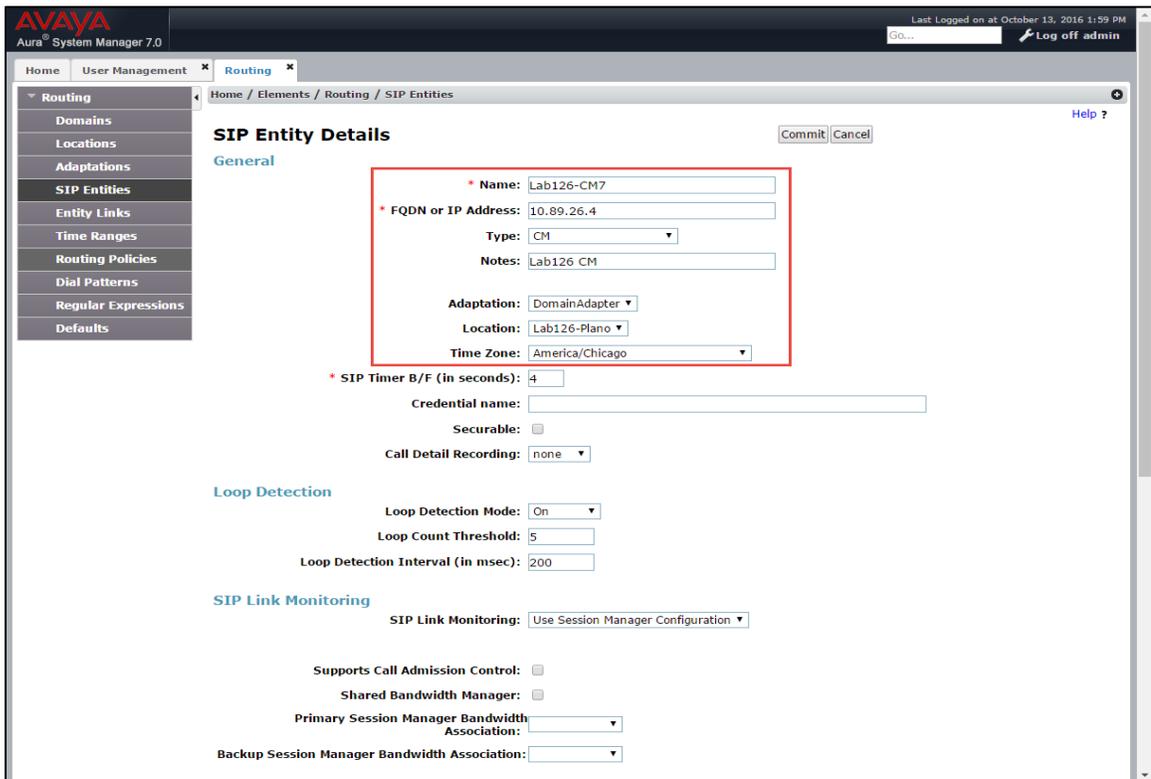
## Avaya Aura SM: SIP Entity



To add an SIP entity, perform the following procedure.

1. Navigate to **Routing > SIP Entities**.
2. Click on the **New** button.

## Avaya Aura CM: SIP Entity- CM Configuration (1/2)



3. In the General section, enter the following values.

- a. **Name:** Enter a descriptive name. *Lab126-CM7* was used for the Avaya CM in this example.
- b. **FQDN or IP Address:** Enter the FQDN or IP address of the SIP Entity interface that is used for SIP signaling. *10.89.26.4* was used in this example.
- c. **Type:** Enter *Session Manager* for Session Manager, *CM* for Communication Manager, and *Other* for the Avaya SBCe.
- d. **Adaptation:** *DomainAdapter*, used in this example.
- e. **Location:** Select one of the locations defined previously—*Lab126-Plano*.
- f. **Time Zone:** Select the time zone for the location above.
- g. To define the ports used by Communication Manager, scroll down to the **Port** section of the **SIP Entity Details** screen.
- h. In the **Port** section, click **Add** and enter the following values.
  - **Port:** Port number on which the CM will listen for SIP requests. *5060* was used in this example.
  - **Protocol:** Transport protocol to be used to send SIP requests. *TCP* was used in this example.
  - Use default values for all remaining fields.

*Avaya Aura CM: SIP Entity-CM Configuration (2/2)*

**Entity Links**

Override Port & Transport with DNS SRV:

Add Remove

1 Item Filter: Enable

	Name	SIP Entity 1	Protocol	Port	SIP Entity 2	Port	Connection Policy	Deny New Service
<input type="checkbox"/>	* Lab126SM-Lab126CM	Lab126-SM7 ▼	TCP ▼	* 5060	Lab126-CM7 ▼	* 5060	trusted ▼	<input type="checkbox"/>

Select : All, None

Similarly, add an SIP entity for the Avaya SM.

*Avaya Aura SM: SIP Entity- SM Configuration (1/2)*

The screenshot shows the Avaya Aura System Manager 7.0 web interface. The top navigation bar includes 'Home', 'User Management', and 'Routing'. The left sidebar lists various configuration options, with 'SIP Entities' selected. The main content area is titled 'SIP Entity Details' and contains a 'General' tab. A red box highlights the following fields: Name (Lab126-SM7), FQDN or IP Address (10.89.26.7), Type (Session Manager), Notes (Lab126 Avaya Session Manager 7.0), Location (Lab126-Plano), Outbound Proxy, and Time Zone (America/Chicago). There are also buttons for 'Commit' and 'Cancel'.

- **Name:** *Lab126-SM7*, used in this example for an SIP entity of Avaya SM.
- **IP address:** *10.89.26.7*, used in this example.
- **Type:** *Session Manager*, used in this example.
- **Notes:** *Lab126 Avaya Aura Session Manager 7.0*, used in this example.
- **Adaptation:** *DomainAdapter*, used in this example.
- **Location:** *Lab126-Plano*, used in this example.
- **Time Zone:** *America/Chicago*, used in this example.

Avaya Aura SM: SIP Entity-SM Configuration (2/2)

### Entity Links

Add Remove

5 Items Filter: Enable

<input type="checkbox"/>	Name	SIP Entity 1	Protocol	Port	SIP Entity 2	Port	Connection Policy	Deny New Service
<input type="checkbox"/>	* Lab126-CMM7	Lab126-SM7	TCP	* 5060	Lab126-CMM7	* 5060	trusted	<input type="checkbox"/>
<input type="checkbox"/>	* Lab126-SM7_Lab126-SB	Lab126-SM7	TCP	* 5060	Lab126-SBCE	* 5060	trusted	<input type="checkbox"/>
<input type="checkbox"/>	* Lab126-SM7_PSTN-Corp	Lab126-SM7	UDP	* 5060	PSTN-CorpGW	* 5060	trusted	<input type="checkbox"/>
<input type="checkbox"/>	* Lab126SM-Lab126CM	Lab126-SM7	TCP	* 5060	Lab126-CM7	* 5060	trusted	<input type="checkbox"/>
<input type="checkbox"/>	* Lab126SM-Lab126EDP	Lab126-SM7	TLS	* 5061	Lab126-EDP	* 5061	trusted	<input type="checkbox"/>

Select : All, None

### Listen Ports

TCP Failover port:

TLS Failover port:

Add Remove

3 Items Filter: Enable

<input type="checkbox"/>	Listen Ports	Protocol	Default Domain	Endpoint	Notes
<input type="checkbox"/>	5060	TCP	lab.tekvizion.com	<input type="checkbox"/>	<input type="text"/>
<input type="checkbox"/>	5060	UDP	lab.tekvizion.com	<input type="checkbox"/>	<input type="text"/>
<input type="checkbox"/>	5061	TLS	lab.tekvizion.com	<input type="checkbox"/>	<input type="text"/>

Select : All, None

Similarly, add an SIP entity for the PSTN Gateway.

*Avaya Aura SM: SIP Entity- PSTN GW Configuration (1/2)*

The screenshot shows the Avaya Aura System Manager 7.0 interface. The top navigation bar includes 'Home', 'User Management', and 'Routing'. The left sidebar lists various configuration options, with 'SIP Entities' selected. The main content area is titled 'SIP Entity Details' and contains a 'General' tab. A red box highlights the following fields: '\* Name: PSTN-CorpGW', '\* FQDN or IP Address: 10.64.1.72', and 'Type: Other'. Other fields include 'Notes', 'Adaptation', 'Location', 'Time Zone: America/Chicago', '\* SIP Timer B/F (in seconds): 4', 'Credential name', 'Securable', 'Call Detail Recording: none', and 'CommProfile Type Preference'. The 'Loop Detection' section is also visible, with 'Loop Detection Mode: On', 'Loop Count Threshold: 5', and 'Loop Detection Interval (in msec): 200'. Buttons for 'Commit' and 'Cancel' are located at the top right of the form area.

- **Name:** *PSTN-CorpGW*, used in this example for an SIP entity of PSTN Gateway.
- **IP address:** *10.64.1.72*, used in this example.
- **Type:** *Other*, used in this example.
- **Time Zone:** *America/Chicago*, used in this example.

Avaya Aura SM: SIP Entity Configuration (2/2)

**SIP Link Monitoring**

SIP Link Monitoring: Use Session Manager Configuration ▼

Supports Call Admission Control:

Shared Bandwidth Manager:

Primary Session Manager Bandwidth Association: ▼

Backup Session Manager Bandwidth Association: ▼

**Entity Links**

Override Port & Transport with DNS SRV:

Add Remove

1 Item Filter: Enable

<input type="checkbox"/>	Name	SIP Entity 1	Protocol	Port	SIP Entity 2	Port	Connection Policy	Deny New Service
<input type="checkbox"/>	* Lab126-SM7_PSTN-Cor	Lab126-SM7 ▼	UDP ▼	* 5060	PSTN-CorpGW ▼	* 5060	trusted ▼	<input type="checkbox"/>

Select : All, None

**SIP Responses to an OPTIONS Request**

Add Remove

0 Items Filter: Enable

<input type="checkbox"/>	Response Code & Reason Phrase	Mark Entity Up/Down	Notes
--------------------------	-------------------------------	---------------------	-------

Commit Cancel

Similarly, add an SIP entity for the Avaya Communication Manager Messaging.

*Avaya Aura SM: SIP Entity- Avaya Communication Manager Messaging Configuration (1/2)*

The screenshot shows the Avaya Aura System Manager 7.0 interface. The top navigation bar includes 'Home', 'User Management', and 'Routing'. The left sidebar lists various configuration options, with 'SIP Entities' selected. The main content area is titled 'SIP Entity Details' and contains a 'General' tab. A red box highlights the following fields: Name (Lab126-CMM7), FQDN or IP Address (10.89.26.25), Type (Messaging), Adaptation (DomainAdapter), Location (Lab126-Plano), and Time Zone (America/Chicago). Other visible fields include SIP Timer B/F (4), Credential name, Securable (unchecked), Call Detail Recording (none), Loop Detection Mode (On), Loop Count Threshold (5), and Loop Detection Interval (200).

- **Name:** *Lab126-CMM7*, an entity of Avaya Communication Manager Messaging.
- **IP address:** *10.89.26.25*, used in this example.
- **Type:** *Messaging*, used in this example.
- **Adaptation:** *DomainAdapter*, used in this example.
- **Location:** *Lab126-Plano*, used in this example.
- **Time Zone:** *America/Chicago*, used in this example.

### SIP Link Monitoring

SIP Link Monitoring:

Supports Call Admission Control:

Shared Bandwidth Manager:

Primary Session Manager Bandwidth Association:

Backup Session Manager Bandwidth Association:

### Entity Links

Override Port & Transport with DNS SRV:

Add Remove

1 Item Filter: Enable

<input type="checkbox"/>	Name	SIP Entity 1	Protocol	Port	SIP Entity 2	Port	Connection Policy	Deny New Service
<input type="checkbox"/>	* Lab126-CMM7	Lab126-SM7	TCP	* 5060	Lab126-CMM7	* 5060	trusted	<input type="checkbox"/>

Select : All, None

### SIP Responses to an OPTIONS Request

Add Remove

0 Items Filter: Enable

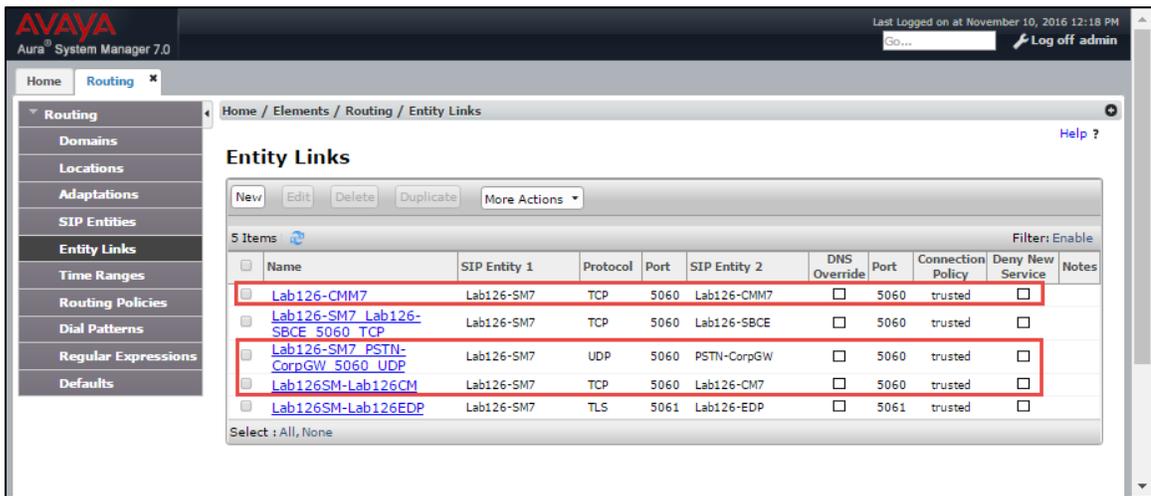
<input type="checkbox"/>	Response Code & Reason Phrase	Mark Entity Up/Down	Notes
<input type="checkbox"/>			

Commit Cancel

## Entity Links

An SIP trunk between Avaya Session Manager and a telephony system is described by an Entity Link. Three entity links were created: one to Communication Manager, one to the Avaya Communication Manager Messaging, and one to the PSTN gateway.

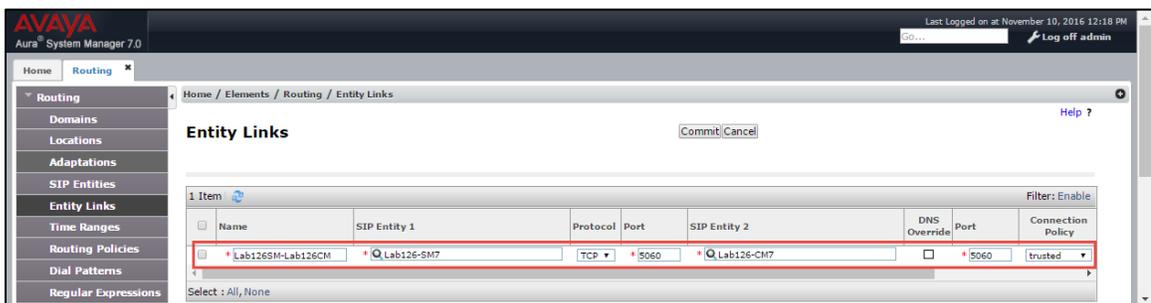
## Avaya Aura SM: Entity Links



To add Avaya CM as an entity link, perform the following procedure.

1. Navigate to **Routing > Entity Links**.
2. Click on the **New** button. Fill in the following fields in the new row that is displayed:
  - o **Name:** Enter a descriptive name.
  - o **SIP Entity 1:** Select the Session Manager.
  - o **Protocol:** *TCP*, used in this example.
  - o **Port:** *5060*, used in this example.
  - o **SIP Entity 2:** Select the Communication Manager.
  - o **Port:** *5060*, used in this example.
  - o **Connection Policy:** Select *Trusted*.
3. Click **Commit** to save.

## Avaya Aura SM: Avaya CM Entity Link Configuration



To add Avaya Communication Manager Messaging as an entity link, perform the following procedure.

1. Navigate to **Routing > Entity Links**.

2. Click on the **New** button. Fill in the following fields in the new row that is displayed:
  - o **Name:** Enter a descriptive name.
  - o **SIP Entity 1:** Select the Avaya Communication Manager Messaging.
  - o **Protocol:** *TCP*, used in this example.
  - o **Port:** *5060*, used in this example.
  - o **SIP Entity 2:** Select the Session Manager.
  - o **Port:** *5060*, used in this example.
  - o **Connection Policy:** Select *Trusted*.
3. Click **Commit** to save.

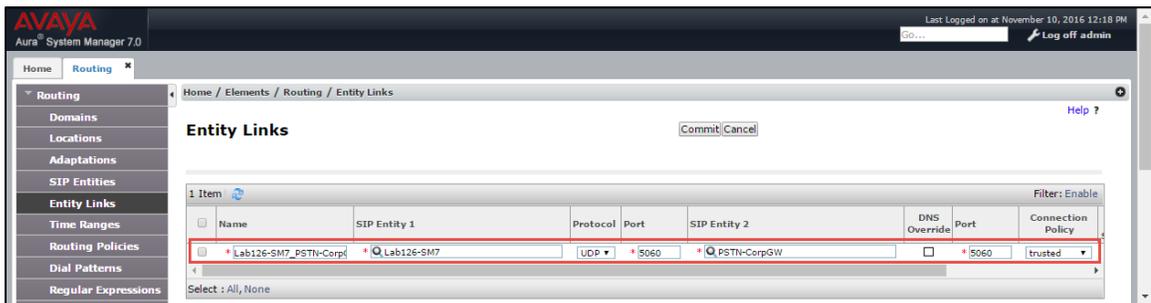
*Avaya Aura SM: Avaya CMM Entity Link Configuration*



To add PSTN GW as an entity link, perform the following procedure.

1. Navigate to **Routing > Entity Links**.
2. Click on the **New** button. Fill in the following fields in the new row that is displayed:
  - o **Name:** Enter a descriptive name.
  - o **SIP Entity 1:** Select the PSTN GW.
  - o **Protocol:** *TCP*, used in this example.
  - o **Port:** *5060*, used in this example.
  - o **SIP Entity 2:** Select the Session Manager.
  - o **Port:** *5060*, used in this example.
  - o **Connection Policy:** Select *Trusted*.
3. Click **Commit** to save.

## Avaya Aura SM: PSTN GW Entity Link Configuration



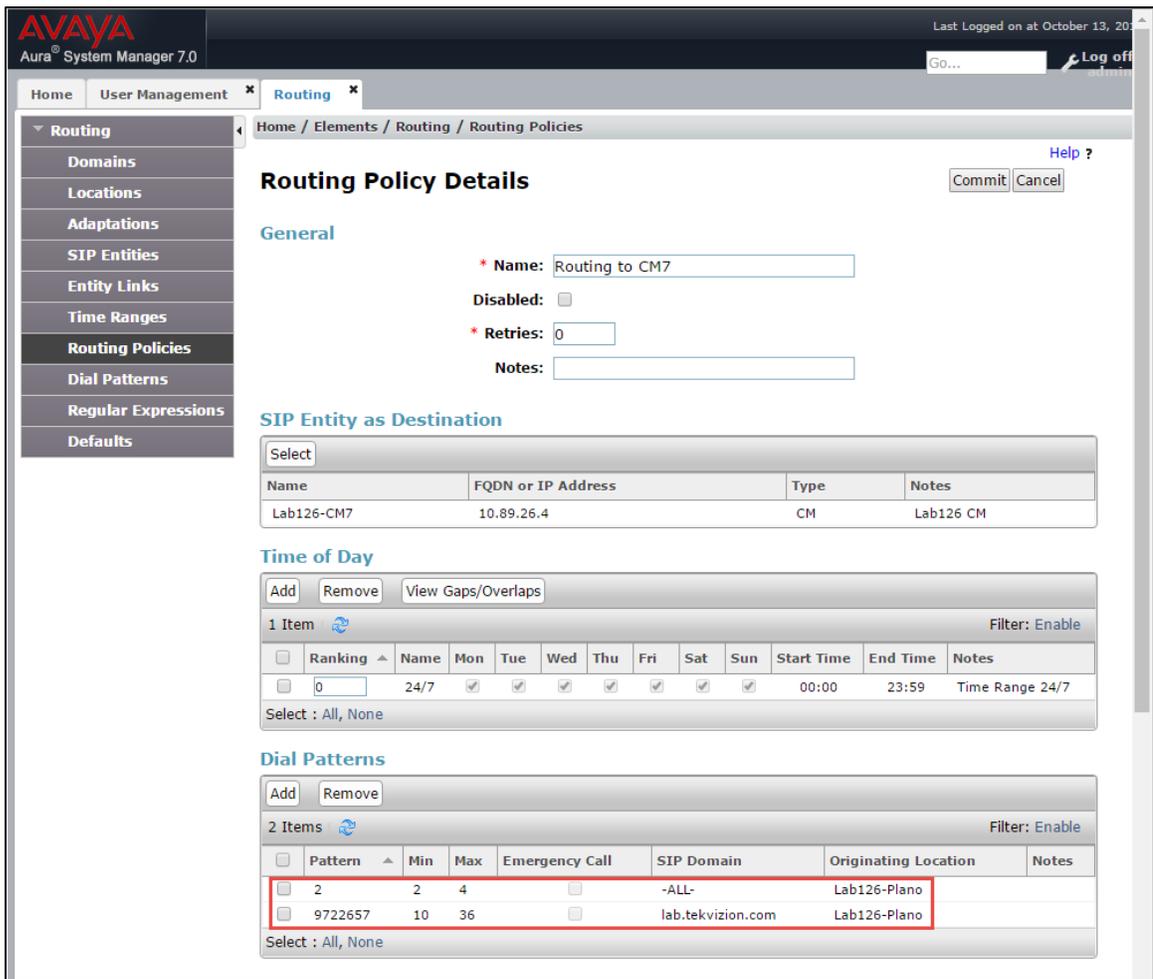
## Routing Policy

Routing Policies describe the conditions under which calls are routed to the SIP entities. Three routing policies were added for this test: one for Communication Manager, one for the Voicemail, and one to the PSTN GW.

To add a routing policy for Avaya CM, perform the following procedure.

1. Navigate to **Routing > Routing Policies**.
2. Click on the **New** button.

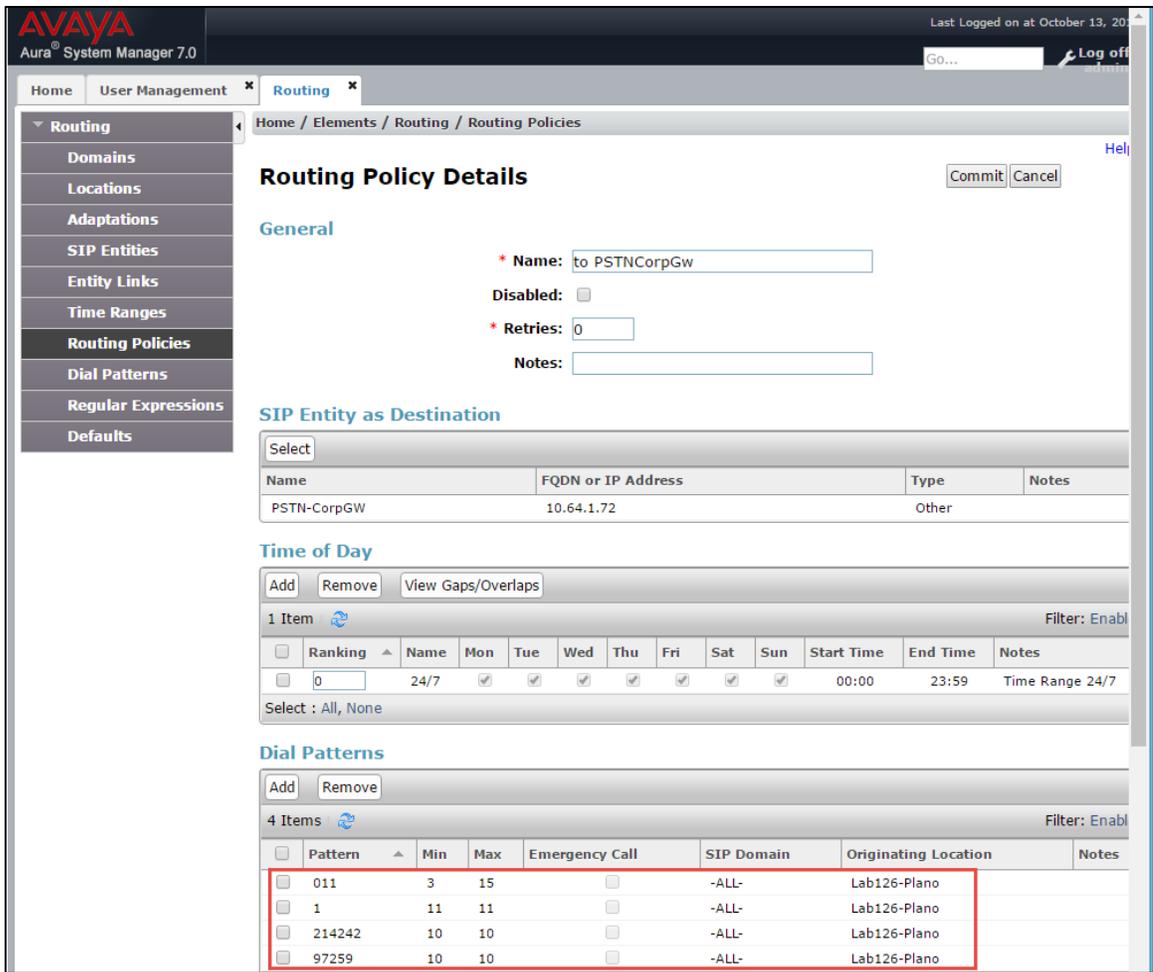
Avaya Aura SM: Routing Policy Configuration (1/3)



3. In the General section, enter the following values.
  - **Name:** *Routing to CM7* used in this example.
  - **SIP Entity as Destination:** Select the Avaya CM: *Lab126-CM7* used in this example.
  - Use default values for all remaining fields.
4. Add the following Dial patterns that can be routed using this policy:
  - **Pattern:** *2*, Avaya and Crestron endpoints had their 4 digit extensions starting with 2.
  - **Pattern:** *9722657*, 10 digit Avaya and Crestron endpoints DID starting with 9722657.

Similarly, add a routing policy for the PSTN GW.

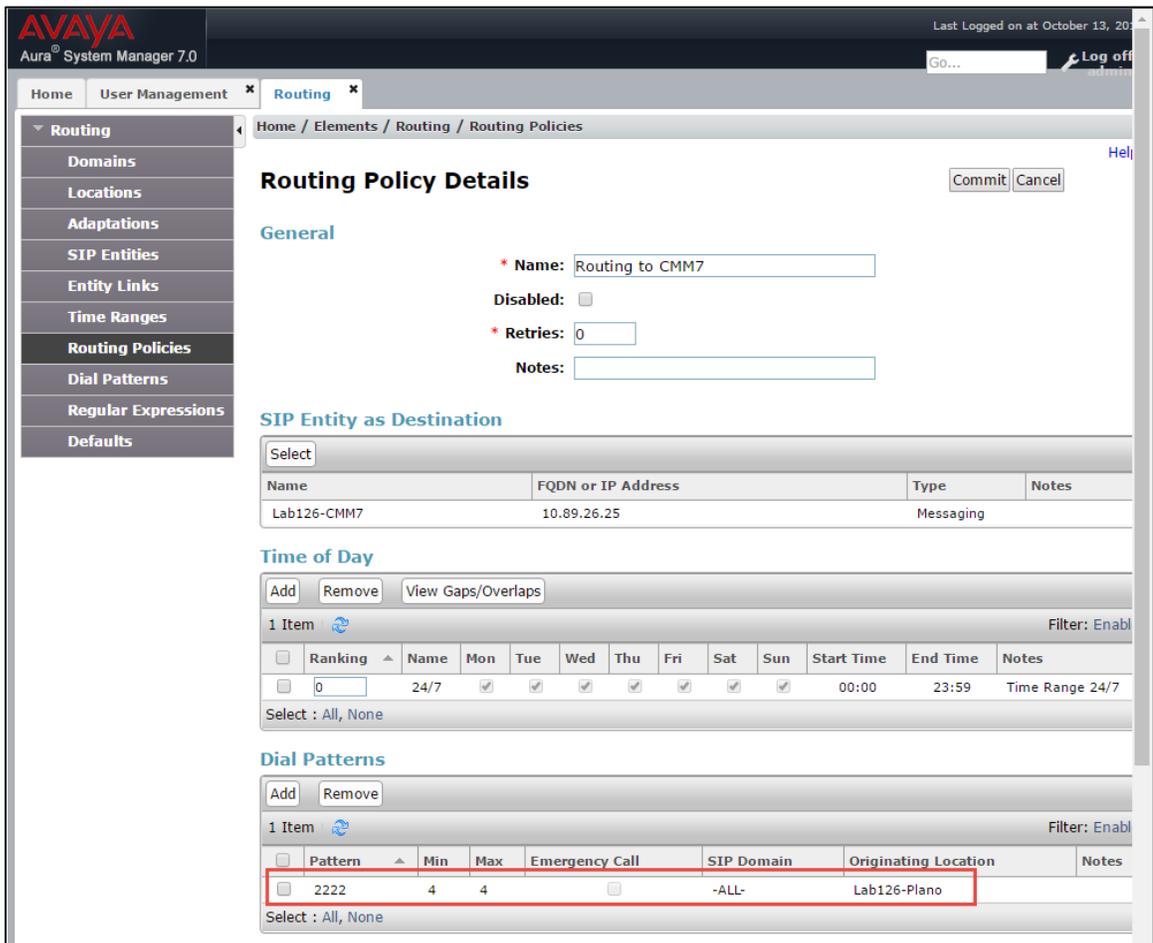
*Avaya Aura SM: Routing Policy Configuration (2/3)*



1. In the **General** section, enter the following values.
  - **Name:** *to PSTNCorpGw*, used to reach PSTN in this example.
  - **SIP Entity as Destination:** *PSTNCorpGw*, used in this example.
  - Use default values for all remaining fields.
2. Add the following Dial patterns that can be routed using this policy:
  - **Pattern:** *011*, an 11 digit international dialing pattern starting with 1 was used in this example.
  - **Pattern:** *214242*, a 10 digit PSTN dialing pattern starting with 214242 was used in this example.
  - **Pattern:** *1*, an 11 digit national dialing pattern starting with 1 was used in this example.

Similarly, add a routing policy for the Avaya Communication Manager Messaging - Voicemail System.

*Avaya Aura SM: Routing Policy Configuration (3/3)*



- In the **General** section, enter the following values.
  - Name:** *Routing to CMM7* was used to reach PSTN in this example.
  - SIP Entity as Destination:** *Lab126-CMM7*, used in this example.
  - Use default values for all remaining fields.
- Add the following Dial patterns that can be routed using this policy:
  - Pattern:** *2222*, used as the Voicemail pilot in this example.

# Avaya Communication Manager Messaging

This section describes the steps for configuring the Avaya Communication Manager Messaging to interoperate with Avaya Aura Session Manager via SIP trunking.

## Switch Link Administration

To administer the switch link, perform the following procedure.

1. Navigate to **Administration > Messaging > Switch Link Administration > Switch Link Admin.**

### Avaya Communication Manager Messaging Switch Link Administration

**AVAYA** Avaya Aura® Communication Manager Messaging System Management Interface (SMI)

Help Log Off Administration This Server: Lab126-CMM7

Administration / Messaging

### Switch Link Administration

The Switch Link Administration page is used for administration of the switch link parameters of the messaging system.

BASIC CONFIGURATION	
Extension Length	4
Switch Integration Type	SIP
IP Address Version	IPv4

SIP SPECIFIC CONFIGURATION	
SIP Domain	Messaging lab.tekvizion.com Far-end lab.tekvizion.com
Far-end Connections	1
Connection 1	IP 10.89.26.7 TCP Port 5060 Monitor interval 0
Messaging Address	IP 10.89.26.25 TCP Port 5060 TLS Port 5061
Messaging Ports	Call Answer Ports 24 Maximum 24 Transfer Ports 12
Switch Trunks	Total 36 Maximum 36

Save Help Show Capacity Calculator Show Advanced Options

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2. Configure the following:
  - **Extension Length:** 4, used in this example.
  - **Switch Integration Type:** SIP, used in this example.
  - **IP Address Version:** IPv4, used in this example.
  - **SIP Domain:** lab.tekvizion.com, used in this example.
  - **Connection 1:** 10.89.26.7, Avaya Session manager IP used in this example.

- **Messaging Address:** 10.89.26.25, used in this example.

## Messaging Server

To configure the parameters for the Communication Manager Messaging Server, perform the following procedure.

1. Navigate to **Administration > Messaging > Server Administration > Messaging Server Admin.**

### Avaya Communication Manager Messaging: Messaging Server Configuration

**AVAYA** Avaya Aura® Communication Manager Messaging System Management Interface (SMI)

Help Log Off Administration This Server: Lab126-CMM7

Administration / Messaging

**Edit Messaging Server**

The Edit Messaging Server allows the changing of the local messaging server.

<b>Server Name</b>	Lab126-CMM7	<b>Password</b>	<input type="text"/>
		<b>Confirm Password</b>	<input type="text"/>
<b>IP Address</b>	10.89.26.25	<b>Server Type</b>	tcpip ▼
<b>Mailbox Number Length</b>	4 ▼	<b>Default Community</b>	1 ▼
<b>Voiced Name</b>	NO	<b>Voice ID</b>	<input type="text"/>
<b>Updates In</b>	no ▼	<b>Updates Out</b>	no ▼
<b>Remote LDAP Port</b>	56389	<b>Log Updates In</b>	no ▼

MAILBOX NUMBER RANGES		
Prefix	Starting Mailbox Number	Ending Mailbox Number
	2000	2999

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2. Configure the following parameters:
  - **Server Name:** Lab126-CMM7, used in this example.
  - **IP Address:** 10.89.26.25, used in this example.
  - **Starting Mailbox Number:** 2000, used in this example.
  - **Ending Mailbox Number:** 2999, used in this example.

## Subscriber

To create a subscriber of the messaging server, perform the following procedure.

1. Navigate to: **Administration > Messaging > Messaging Administration > Subscriber Management.**

### Avaya Communication Manager Messaging Subscriber Configuration (1/3)

**AVAYA** Avaya Aura® Communication Manager Messaging System Management Interface (SMI)

Help Log Off Administration This Server: Lab126-CMM7

Administration / Messaging

### Edit Local Subscriber

The Edit Local Subscriber allows the changing or deletion of a local subscriber.

BASIC INFORMATION			
Last Name	tekvdut	First Name	
Mailbox Number	2102	Password	
Class Of Service	0 - class00	Covering Extension	
MWI Enabled?	yes	Account Code	
Community ID	1	Broadcast Mailbox?	no
Secondary Ext		Time Zone	
Locked?	no	Messaging Locale	Default (English)

SUBSCRIBER DIRECTORY	
Email	2102@Lab126-CMM7
Ascii Name	tekvdut

MISCELLANEOUS			
Miscellaneous1		Miscellaneous2	

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2. Click **Add** and configure the following:
  - **Last Name:** *tekvdut*, used in this example.
  - **Mailbox Number:** *2102*, used in this example.
  - **MWI Enabled:** *yes*.
3. Leave all other fields with their default values.

Avaya Communication Manager Messaging Subscriber Configuration (2/3)



**Avaya Aura® Communication Manager Messaging**  
 System Management Interface (SMI)

Help Log Off
Administration
This Server: Lab126-CMM7

Administration / Messaging

Messaging Administration

- Subscriber Management
- Attendant Management
- Enhanced List Setup
- Enhanced List Management
- Classes-of-Service
- Limits
- Features
- Sending Restrictions
- System Administration
- Announcement Sets
- Announcement Admin
- Announcement Copy
- Fax Options
- Fax Dial Strings
- Dial Sequences
- MCAPI Options
- MCAPI Password
- Thresholds
- Outcalling Options
- Activity Log Configuration
- Non-Admin Remote Subs

Server Administration

- External Hosts
- Trusted Servers
- Messaging Server Admin
- Networked Servers
- Request Remote Update

IMAP/SMTP Administration

- General Options
- Mail Options
- IMAP/SMTP Status
- Messaging Networked Machines
- Excluded Mailbox Admin

Server Information

- System Status

### Edit Local Subscriber

The Edit Local Subscriber allows the changing or deletion of a local subscriber.

BASIC INFORMATION	
<b>Last Name</b>	tekvdut
<b>First Name</b>	
<b>Mailbox Number</b>	2102
<b>Password</b>	
<b>Class Of Service</b>	0 - class00 ▼
<b>Covering Extension</b>	
<b>MWI Enabled?</b>	yes ▼
<b>Account Code</b>	
<b>Community ID</b>	1 ▼
<b>Broadcast Mailbox?</b>	no ▼
<b>Secondary Ext</b>	
<b>Time Zone</b>	
<b>Locked?</b>	no ▼
<b>Messaging Locale</b>	Default (English)

SUBSCRIBER DIRECTORY	
<b>Email</b>	2102 @Lab126-CMM7
<b>Ascii Name</b>	tekvdut

MISCELLANEOUS	
<b>Miscellaneous1</b>	
<b>Miscellaneous2</b>	

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Avaya Communication Manager Messaging Subscriber Configuration (3/3)



**Avaya Aura® Communication Manager Messaging**  
 System Management Interface (SMI)

Help Log Off
Administration
This Server: Lab126-CMM7

Administration / Messaging

**Messaging Administration**

- [Subscriber Management](#)
- Attendant Management
- Enhanced List Setup
- Enhanced List Management
- Classes-of-Service
- Limits
- Features
- Sending Restrictions
- System Administration
- Announcement Sets
- Announcement Admin
- Announcement Copy
- Fax Options
- Fax Dial Strings
- Dial Sequences
- MCAPI Options
- MCAPI Password
- Thresholds
- Outcalling Options
- Activity Log Configuration
- Non-Admin Remote Subs

**Server Administration**

- External Hosts
- Trusted Servers
- Messaging Server Admin
- Networked Servers
- Request Remote Update

**IMAP/SMTP Administration**

- General Options
- Mail Options
- IMAP/SMTP Status
- Messaging Networked Machines

**INCOMING MAILBOX**

<a href="#">Order</a>	FIFO ▼	<a href="#">Category Order</a>	lnuo
<a href="#">Retention Time. New</a>	10 days <input type="checkbox"/> Forever	<a href="#">Retention Time. Old</a>	10 days <input type="checkbox"/> Forever
<a href="#">Retention Time. Unopened</a>	10 days <input type="checkbox"/> Forever		

**OUTGOING MAILBOX**

<a href="#">Order</a>	FIFO ▼	<a href="#">Category Order</a>	unfda
<a href="#">Retention Time. File</a>	10 days <input type="checkbox"/> Forever	<a href="#">Delivered/Nondeliverable</a>	5

**MISCELLANEOUS**

<a href="#">Voice Mail Message (seconds), Maximum Length</a>	300	<a href="#">Minimum Needed</a>	8
<a href="#">Call Answer Message (seconds), Maximum Length</a>	300	<a href="#">Minimum Needed</a>	2
<a href="#">End of Message Warning Time (seconds)</a>			
<a href="#">Maximum Mailing Lists</a>	25	<a href="#">Total Entries in all Lists</a>	600

<a href="#">Maximum Mailing Lists</a>	25	<a href="#">Total Entries in all Lists</a>	600
<a href="#">Mailbox Size (seconds), Maximum</a>	2100	<a href="#">Minimum Guarantee</a>	0

Back Save Delete Help

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**04.17**  
Specifications subject to  
change without notice.