

Avaya Solution & Interoperability Test Lab

Application Notes for IPC Unigy v5.2 with Avaya Aura[®] Session Manager R8.1 and Avaya Aura[®] Communication Manager R8.1 using SIP Trunks – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for IPC Unigy v5.2 to interoperate with Avaya Aura® Session Manager R8.1 and Avaya Aura® Communication Manager R8.1 using SIP trunks.

IPC Unigy is a trading communication solution. In the compliance testing, IPC Unigy uses SIP trunks to Avaya Aura[®] Session Manager. Using the SIP trunks, IPC Unigy users with IPC MAX/TOUCH endpoints (turrets) were able to reach users on Avaya Aura[®] Communication Manager and on the PSTN.

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

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

1 Introduction

These Application Notes describe the configuration steps required for IPC Unigy v5.2 (Unigy) to interoperate with Avaya Aura® Session Manager R8.1 (Session Manager) and Avaya Aura® Communication Manager R8.1 (Communication Manager). Unigy integrates with Session Manager via SIP Trunks (UDP). IPC MAX/TOUCH endpoints are to provide calling functionality.

The Unigy Platform is a unified trading communications system designed specifically to make the entire trading ecosystem more productive, intelligent and efficient. Based on a SIP-enabled, open and distributed architecture, Unigy utilizes the latest, standards-based technology to create a groundbreaking, innovative Unified Trading Communications (UTC) solution.

Unigy offers a portfolio of devices and applications that serve the entire trading workflow, across the front, middle and back offices.

2 General Test Approach and Test Results

The feature test cases were performed manually. Calls were manually established among IPC turret users with Avaya SIP, Avaya H.323, and/or PSTN users. Call controls were performed from various users to verify the call scenarios.

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

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

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

For the testing associated with these Application Notes, the interface between Avaya systems and Unigy did not include use of any specific encryption features as requested by IPC.

2.1 Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing included basic call, display, G.711MU, G.729, hold/reconnect, DTMF, call forwarding unconditional/ring-no-answer/busy, blind/attended transfer, and conference. Messaging interoperability is not verified except for sending DTMF tones to the server.

The serviceability testing focused on verifying the ability of Unigy to recover from adverse conditions, simulated by disabling/reenabling the entity links to Unigy.

2.2 Test Results

All test cases were executed and verified. The following were the observations on Unigy from the compliance testing:

- During the compliance test media shuffling was disabled, as shown in **Section 5.2** and **Section 5.4**. (IPC requested)
- DTMF tones sent to turrets were not heard on their handset. Tones sent from turrets were heard on Avaya handsets and messaging.
- The G.729 codec was not supported unless a license was enabled on Unigy.
- Call forwarding on IPC endpoints to Avaya endpoints, other IPC endpoints, and PSTN configured using Unigy features.

2.3 Support

Technical support on IPC Unigy can be obtained through the following:

• **Phone:** +1-(800)-NEED-IPC, +1-(203) 339-7800

• Email: systems.support@ipc.com

3 Reference Configuration

As shown in the test configuration below, Unigy consists of the Media Manager (MM), Converged Communication Manager (CCM), and Turret Endpoints. The Media Manager and Converged Communication Manager are typically deployed on separate servers.

SIP trunks are used from Unigy to Session Manager to reach Avaya users (SIP and H.323) and the simulated PSTN via Avaya Session Border Controller for Enterprise.

A five-digit dial plan was used to facilitate dialing between Communication Manager and Unigy. Unique extension ranges were associated with Communication Manager users (70xxx for H.323 and SIP), and IPC turret users (7205x).

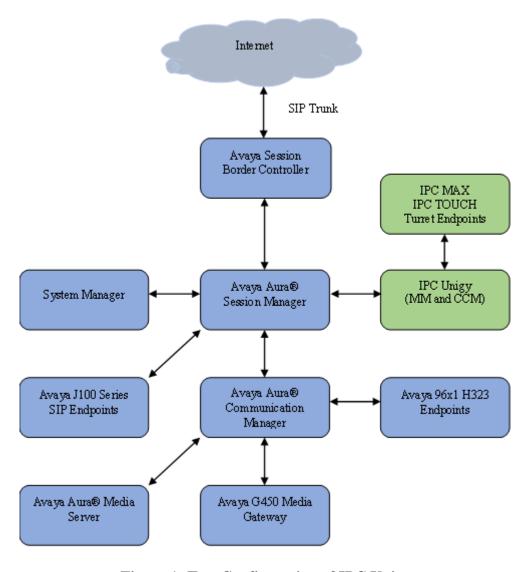


Figure 1: Test Configuration of IPC Unigy

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 running on Virtualized Environment	8.1.3.0.1.890.26685			
Avaya G450 Media Gateway	41.34.1			
Avaya Aura® Media Server running on Virtualized Environment	8.0.2.61			
Avaya Aura® Session Manager running on Virtualized Environment	8.1.3.0.813014			
Avaya Aura® System Manager running on Virtualized Environment	8.1.3.0.813014			
Avaya Session Border Controller for Enterprise running on Virtualized Environment	8.1.2.0-19794			
Avaya IP Deskphones				
Avaya 9641G SIP	7.1.13.0.4			
• Avaya 9641G H.323	6.8.5.02			
Avaya J179/J189 SIP	4.0.9.0.4			
IPC Unigy				
Media Manager	05.02.00.00.0023			
Converged Communication Manager	05.02.00.00.0023			
IPC TOUCH Turret Endpoints	05.02.00.00.0023			
IPC MAX Turret Endpoints	05.02.00.00.0023			

5 Configure Avaya Aura® Communication Manager

This section provides the procedures for configuring Communication Manager. The procedures include the following areas:

- Verify Communication Manager license
- Administer SIP signaling group
- Administer SIP trunk group
- Administer IP network region
- Administer IP codec set
- Administer route pattern
- Administer private numbering
- Administer AAR analysis
- Administer Trunk Group Calling Number
- Administer Tandem Calling Party Number

5.1 Verify Communication Manager License

Log into the System Access Terminal (SAT) to verify that the Communication Manager license has proper permissions for features illustrated in these Application Notes. Use the "display system-parameters customer-options" command. Navigate to **Page 2** and verify that there is sufficient remaining capacity for SIP trunks by comparing the **Maximum Administered SIP Trunks** field value with the corresponding value in the **USED** column.

The license file installed on the system controls the maximum permitted. If there is insufficient capacity, contact an authorized Avaya sales representative to make the appropriate changes.

```
display system-parameters customer-options
                                                                      2 of 12
                                                               Page
                               OPTIONAL FEATURES
IP PORT CAPACITIES
                    Maximum Administered H.323 Trunks: 12000 0
          Maximum Concurrently Registered IP Stations: 2400
            Maximum Administered Remote Office Trunks: 12000 0
Maximum Concurrently Registered Remote Office Stations: 2400
             Maximum Concurrently Registered IP eCons: 128
 Max Concur Registered Unauthenticated H.323 Stations: 100
                      Maximum Video Capable Stations: 36000 0
                  Maximum Video Capable IP Softphones: 2400 0
                      Maximum Administered SIP Trunks: 12000 10
  Maximum Administered Ad-hoc Video Conferencing Ports: 12000 0
  Maximum Number of DS1 Boards with Echo Cancellation: 688
```

5.2 Administer SIP Signaling Group

Use the "add signaling-group n" command, where "n" is an available signaling group number, in this case "1". Enter the following values for the specified fields and retain the default values for the remaining fields.

Group Type: "sip" Transport Method: "tls"

Near-end Node Name: An existing C-LAN node name or "procr".
 Far-end Node Name: The existing Session Manager node name.

• Near-end Listen Port: An available port for integration on Communication

Manager.

• Far-end Listen Port: The same port number as in Near-end Listen Port.

• Far-end Network Region: Set to "1"

• **Direct IP-IP Audio Connection:** "n" to turn off Media Shuffling.

```
add signaling-group 1
                                                           Page 1 of
                               SIGNALING GROUP
Group Number: 1
                             Group Type: sip
 IMS Enabled? n
                       Transport Method: tls
       Q-SIP? n
    IP Video? y
                        Priority Video? n
                                               Enforce SIPS URI for SRTP? n
 Peer Detection Enabled? y Peer Server: SM
                                                               Clustered? n
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
                                           Far-end Node Name: sm81
Near-end Listen Port: 5061
                                         Far-end Listen Port: 5061
                                      Far-end Network Region: 1
Far-end Domain: avaya.com
                                           Bypass If IP Threshold Exceeded? n
Incoming Dialog Loopbacks: eliminate
                                            RFC 3389 Comfort Noise? n
        DTMF over IP: rtp-payload
                                            Direct IP-IP Audio Connections? n
Session Establishment Timer(min): 65
                                                      IP Audio Hairpinning? y
        Enable Layer 3 Test? y
                                                Alternate Route Timer(sec): 6
```

5.3 Administer SIP Trunk Group

Use the "add trunk-group n" command, where "n" is an available trunk group number, in this case "1". Enter the following values for the specified fields and retain the default values for the remaining fields.

• Group Type: "sip"

• **Group Name:** A descriptive name.

• TAC: An available trunk access code.

• Service Type: "tie"

• **Signaling Group:** Number of signaling group configured in previous section.

• Number of Members: As required in the environment.

```
add trunk-group 1
                                                         Page
                                                               1 of
                              TRUNK GROUP
                                Group Type: sip
Group Number: 1
                                                        CDR Reports: y
 Group Name: sm8
                                       COR: 1
                                                   TN: 1 TAC: 101
  Direction: two-way Outgoing Display? y
Dial Access? n
                                              Night Service:
Queue Length: 0
Service Type: tie
                                 Auth Code? n
                                           Member Assignment Method: auto
                                                   Signaling Group: 1
                                                 Number of Members: 10
```

Navigate to Page 3 and enter "private" for Numbering Format.

```
add trunk-group 1
                                                                    3 of
                                                             Page
TRUNK FEATURES
         ACA Assignment? n
                                      Measured: both
                                                          Maintenance Tests? y
  Suppress # Outpulsing? n Numbering Format: private
                                                UUI Treatment: shared
                                              Maximum Size of UUI Contents: 128
                                                Replace Restricted Numbers? n
                                                Replace Unavailable Numbers? n
                               Modify Tandem Calling Number: no
              Send UCID? y
Show ANSWERED BY on Display? Y
DSN Term? n
```

Navigate to **Page 5** and disable Network Call Redirection (REFER) since REFER is not supported on Unigy.

```
add trunk-group 1
                                                             Page 5 of 5
                              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: 120
                        Convert 180 to 183 for Early Media? n
                 Always Use re-INVITE for Display Updates? y
                        Identity for Calling Party Display: P-Asserted-Identity
           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
```

5.4 Administer IP Network Region

Use the "change ip-network-region n" command, where "n" is the existing far-end network region number used by the SIP signaling group from **Section 5.2**.

For **Authoritative Domain**, set to the pertinent domain, in this case "avaya.com". Enter a descriptive **Name**. Enter "no" for **Intra-region IP-IP Direct Audio** and **Inter-region IP-IP Direct Audio**, as shown below. For **Codec Set**, enter an available codec set number for integration with Unigy.

```
change ip-network-region 1
                                                                  Page
                                                                        1 of 20
                                IP NETWORK REGION
Region: 1 NR Group: 1
Location: Authoritative Domain: avaya.com
   Name: Main
                                Stub Network Region: n
MEDIA PARAMETERS
                                Intra-region IP-IP Direct Audio: no
  Codec Set: 1
UDP Port Min: 2048
                               Inter-region IP-IP Direct Audio: no
                                           IP Audio Hairpinning? y
  UDP Port Max: 3329
DIFFSERV/TOS PARAMETERS
Call Control PHB Value: 46
       Audio PHB Value: 46
       Video PHB Value: 26
802.1P/Q PARAMETERS
Call Control 802.1p Priority: 6
       Audio 802.1p Priority: 6
        Video 802.1p Priority: 5
                                      AUDIO RESOURCE RESERVATION PARAMETERS
H.323 IP ENDPOINTS
                                                          RSVP Enabled? n
 H.323 Link Bounce Recovery? y
 Idle Traffic Interval (sec): 20
  Keep-Alive Interval (sec): 5
            Keep-Alive Count: 5
```

5.5 Administer IP Codec Set

Use the "change ip-codec-set n" command, where "n" is the codec set number from **Section 5.4**. Update the audio codec types in the **Audio Codec** fields as necessary. Note that Unigy supports G.711 and G.729. For G.729, IPC needs to install a license.

```
change ip-codec-set 1

IP MEDIA PARAMETERS

Codec Set: 1

Audio Silence Frames Packet

Codec Suppression Per Pkt Size(ms)

1: G.711MU n 2 20

2: G.729 n 2 20
```

5.6 Administer Route Pattern

Use the "change route-pattern n" command, where "n" is an existing route pattern number to be used to reach IPC, in this case "1". Enter the following values for the specified fields and retain the default values for the remaining fields.

• **Pattern Name:** A descriptive name.

• **Grp No:** The SIP trunk group number from **Section 5.3**.

• **FRL:** A level that allows access to this trunk, with 0 being least restrictive.

```
change route-pattern 1
                                               Page
                                                    1 of
             Pattern Number: 1
                              Pattern Name: sm81
  SCCAN? n Secure SIP? n Used for SIP stations? n
  Grp FRL NPA Pfx Hop Toll No. Inserted
                                                    DCS/ IXC
  No Mrk Lmt List Del Digits
                                                    QSIG
                    Dgts
                                                    Intw
1: 1 0
                                                    n user
2:
                                                    n user
3:
                                                    n
                                                       user
4:
                                                    n
                                                       user
5:
                                                    n
                                                       user
6:
                                                       user
   0 1 2 M 4 W Request
                                    Dgts Format
1: y y y y y n n
                     rest
                                               lev0-pvt none
2: yyyyyn n
                     rest
                                                       none
```

5.7 Administer Private Numbering

Use the "change private-numbering 0" command, to define the calling party number to send to IPC. In the example shown below, all calls originating from a 5-digit extension beginning with 5 or 7 will result in a 5-digit calling number. The calling party number will be in the SIP "From" header.

```
change private-numbering 0
                                                         Page
                                                               1 of
                       NUMBERING - PRIVATE FORMAT
Ext Ext
                  Trk
                            Private
                                            Total
Len Code
                  Grp(s)
                            Prefix
                                            Len
5 5
                                            5 Total Administered: 2
5 7
                                             5 Maximum Entries: 540
```

5.8 Administer AAR Analysis

Use the "change aar analysis 720" command, and add an entry to specify how to route calls to 720xx. In the highlighted example shown below, calls with digits 720xx will be routed using route pattern "1" from **Section 5.6**.

change aar analysis 720					Page 1 of 2			
AAR DIGIT ANALYSIS TABLE								
	Location: all				Percent Full: 0			
Dialed	Total	Route	Call	Node	ANI			
String	Min Max	Pattern	Type	Num	Reqd			
720	5 5	1	aar		n			

5.9 Administer Trunk Group Calling Number

Use the "change trunk-group n" command, where "n" is the SIP trunk group from **Section 5.3**, in this case "1".

Navigate to **Page 3**. For **Modify Tandem Calling Number**, enter "tandem-cpn-form" to allow for the calling party number from IPC to be modified.

```
change trunk-group 1
                                                             Page 3 of
                                                                         5
TRUNK FEATURES
        ACA Assignment? n
                                   Measured: both
                                                       Maintenance Tests? y
  Suppress # Outpulsing? n Numbering Format: private
                                             UUI Treatment: shared
                                           Maximum Size of UUI Contents: 128
                                              Replace Restricted Numbers? n
                                             Replace Unavailable Numbers? n
                              Modify Tandem Calling Number: tandem-cpn-form
              Send UCID? y
Show ANSWERED BY on Display? Y
DSN Term? n
```

5.10 Administer Tandem Calling Party Number

Use the "change tandem-calling-party-num" command to define the calling party number to send to the PSTN for tandem calls from IPC turret users.

In the example shown below, all calls originating from a 5-digit extension beginning with 720 and routed to trunk group 1 will result in a 10-digit calling number. For **Number Format**, use an applicable format, in this case "pub-unk".

change tandem-calling-party-num					Page	1 of	67	
CALLING PARTY NUMBER CONVERSION								
FOR TANDEM CALLS								
		Incoming	Outgoing			Ou	tgoing	
	CPN	Number	Trunk			Nu	mber	
Len	Prefix	Format	Group(s)	Delete	Insert	Fo	rmat	
5	720		1	30	ОЗжжжуууу	pub	-unk	

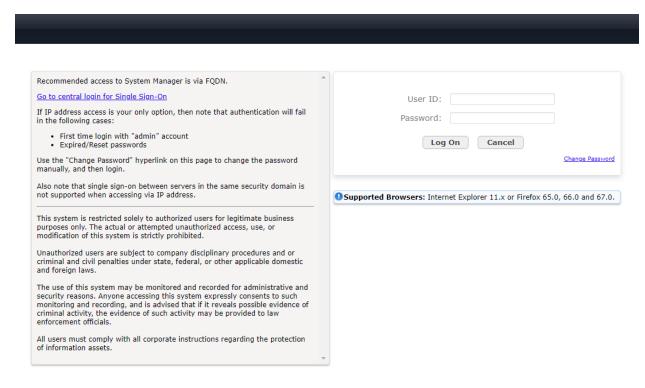
6 Configure Avaya Aura® Session Manager

This section provides the procedures for configuring Session Manager. It is assumed that the basic configuration is already in place. This section discusses the following area:

- Launch System Manager
- Administer locations
- Administer adaptations
- Administer SIP entities
- Administer entity links
- Administer routing policies
- Administer dial patterns

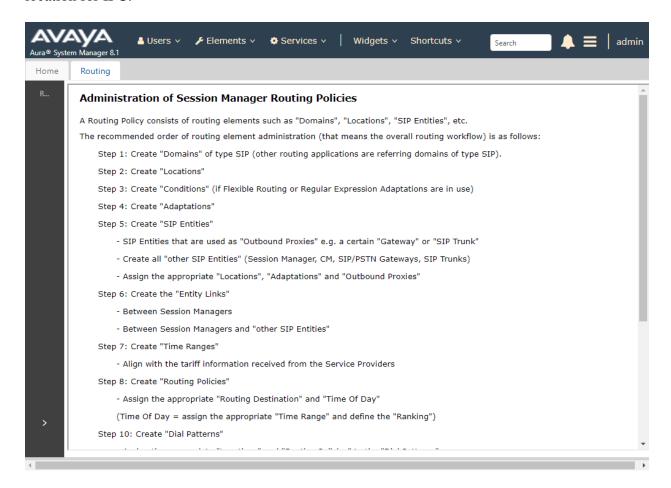
6.1 Launch System Manager

Access the System Manager web interface by using the URL "https://ip-address/SMGR" in an internet browser window, where "ip-address" is the IP address of the System Manager server. Log in using the appropriate credentials.

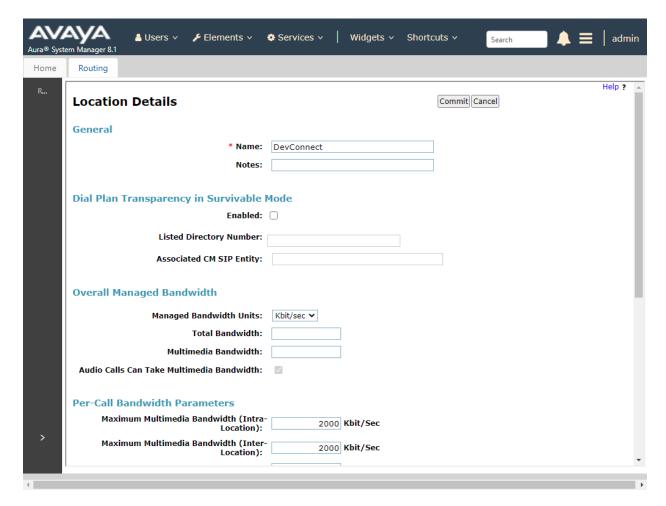


6.2 Administer Locations

In the subsequent screen (not shown), select **Elements** → **Routing** to display the **Administration of Session Manager Routing Policies** screen below. Select **Routing** → **Locations** from the left pane and click **New** in the subsequent screen (not shown) to add a new location for IPC.



The Location Details screen is displayed. In the General sub-section, enter a descriptive Name and optional Notes. In the Location Pattern sub-section, click Add and enter the applicable IP Address Pattern of 10.64.* (not shown). Retain the default values in the remaining fields.



6.3 Administer Adaptations

Add an adaptation to translate incoming/outgoing SIP headers. Select **Adaptations** Adaptations from the left pane and click **New** (not shown) to add a new adaptation for IPC.

The **Adaptation Details** screen is displayed. Enter the following values for the specified fields:

• Adaptation Name: A descriptive name.

Module Name: "DigitConversionAdapter"
 Module Parameter Type: "Name-Value Parameter"

• Egress URI Parameters: "fromto"

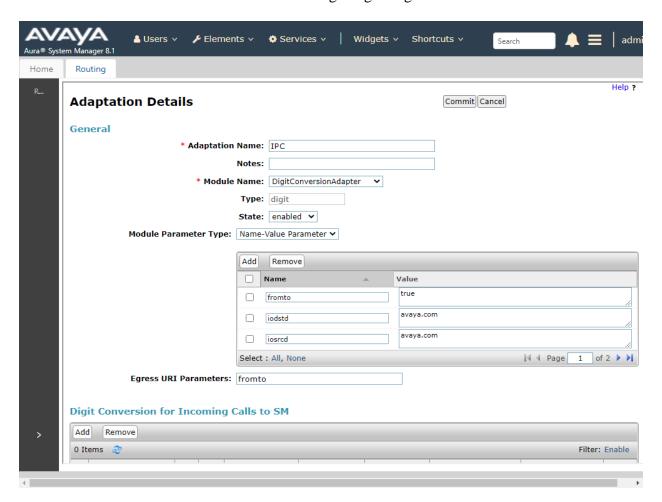
Click **Add** to add the adaptation name value pairs as specified:

• fromto: "true"

iodstd: The pertinent domain name.
 iosrcd: The pertinent domain name.

• odstd: "ipc.com"

• **osrcd:** The Session Manager signaling IP address.



6.4 Administer SIP Entities

Add two new SIP entities, one for IPC, and another for the new SIP trunks for Communication Manager.

6.4.1 IPC SIP Entity

Select **Routing** \rightarrow **SIP Entities** from the left pane and click **New** in the subsequent screen (not shown) to add a new SIP entity for IPC.

The **SIP Entity Details** screen is displayed. Enter the following values for the specified fields and retain the default values for the remaining fields.

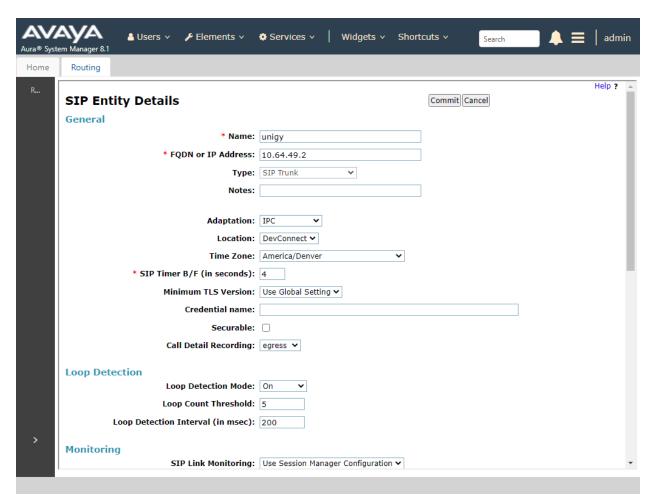
• Name: A descriptive name.

• FQDN or IP Address: The IP address of the IPC Media Manager server.

• Type: "SIP Trunk"

Adaptation: Select the Adaptation Name from Section 6.3.
 Location: Select the IPC location name from Section 6.2.

• **Time Zone:** Select the applicable time zone.



6.4.2 Communication Manager SIP Entity

Select **Routing** \rightarrow **SIP Entities** from the left pane and click **New** in the subsequent screen (not shown) to add a new SIP entity for Communication Manager. Note that this SIP entity is used for integration with IPC.

The **SIP Entity Details** screen is displayed. Enter the following values for the specified fields and retain the default values for the remaining fields.

• Name: A descriptive name.

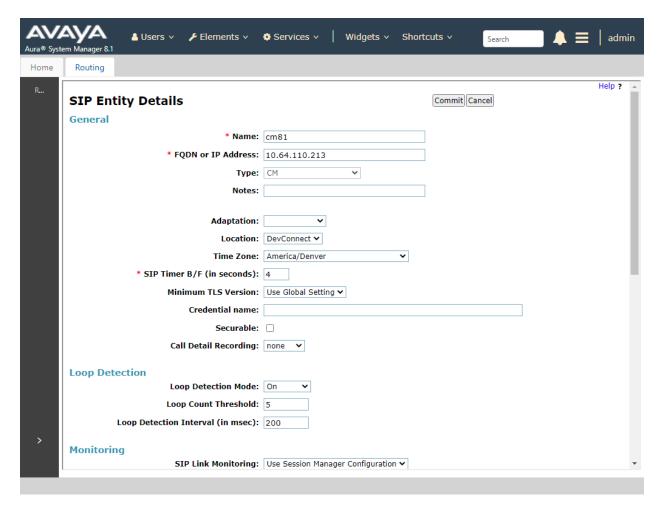
• FQDN or IP Address: The IP address of Communication Manager.

• **Type:** "CM"

• **Notes:** Any descriptive notes.

• Location: Select the location administered in Section 6.2

• **Time Zone:** Select the applicable time zone.



6.5 Administer Entity Links

Add entity links for IPC and for Communication Manager.

6.5.1 IPC Entity Links

Select **Routing** \rightarrow **Entity Links** from the left pane and click **New** in the subsequent screen (not shown) to add a new entity link for IPC.

The **Entity Links** screen is displayed. Enter the following values for the specified fields and retain the default values for the remaining fields.

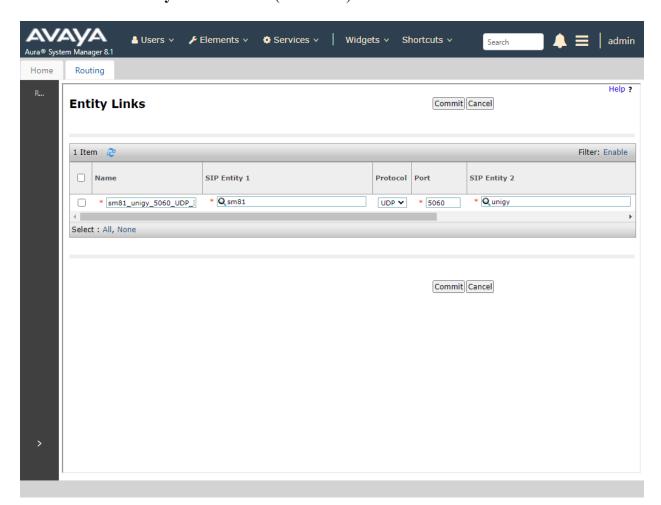
• Name: A descriptive name.

• **SIP Entity 1:** The Session Manager entity name

Protocol: "UDP" Port: "5060"

• **SIP Entity 2:** The IPC entity name from **Section 6.4.1**.

Port: "5060" (not shown)Connection Policy: "trusted" (not shown)



6.5.2 Communication Manager Entity Link

Select **Routing** \rightarrow **Entity Links** from the left pane and click **New** in the subsequent screen (not shown) to add a new entity link for Communication Manager.

The **Entity Links** screen is displayed. Enter the following values for the specified fields and retain the default values for the remaining fields.

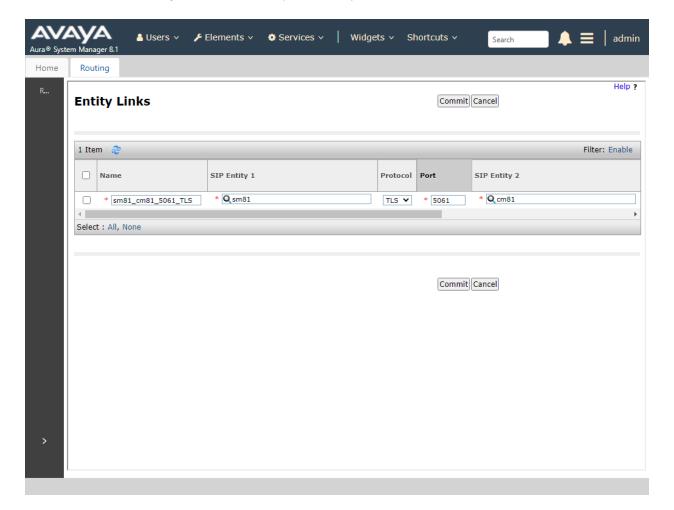
• Name: A descriptive name.

• **SIP Entity 1:** The Session Manager entity name, in this case "sm81".

Protocol: "TLS" Port: "5061"

• SIP Entity 2: The Communication Manager entity name from Section 6.4.2.

Port: "5061" (not shown)Connection Policy: "trusted" (not shown)



6.6 Administer Routing Policies

Add two new routing policies, one for IPC, and another for Communication Manager. The routing policies are linked to matching digits in dial plans defined in **Section 6.7** below. Then digits matching that dial plan entry are routed to the proper destination.

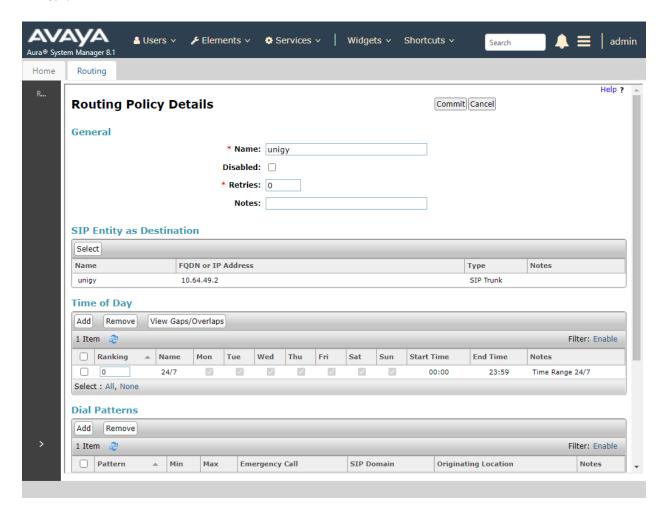
6.6.1 IPC Routing Policy

Select **Routing** \rightarrow **Routing Policies** from the left pane and click **New** in the subsequent screen (not shown) to add a new routing policy for IPC.

The **Routing Policy Details** screen is displayed. Enter the following values for the specified fields and retain the default values for the remaining fields.

• Name: A descriptive name

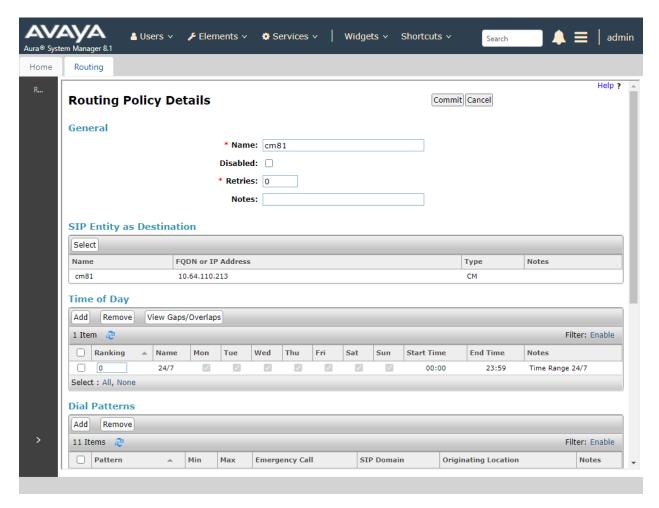
• **SIP Entity as Destination:** Click **Select** and choose the IPC entity name from **Section 6.4.1**.



6.6.2 Communication Manager Routing Policy

Select **Routing** → **Routing Policies** from the left pane and click **New** in the subsequent screen (not shown) to add a new routing policy for Communication Manager. The **Routing Policy Details** screen is displayed. Enter the following values for the specified fields and retain the default values for the remaining fields.

- Name: A descriptive name
- **SIP Entity as Destination:** Click **Select** and choose the Communication Manager entity name from **Section 6.4.2**.



6.7 Administer Dial Patterns

Add a new dial pattern for IPC and update the existing dial pattern for Communication Manager.

6.7.1 IPC Dial Pattern

Select **Routing** \rightarrow **Dial Patterns** from the left pane and click **New** in the subsequent screen (not shown) to add a new dial pattern to reach IPC turret users. The **Dial Pattern Details** screen is displayed. In the **General** sub-section, enter the following values for the specified fields, and retain the default values for the remaining fields.

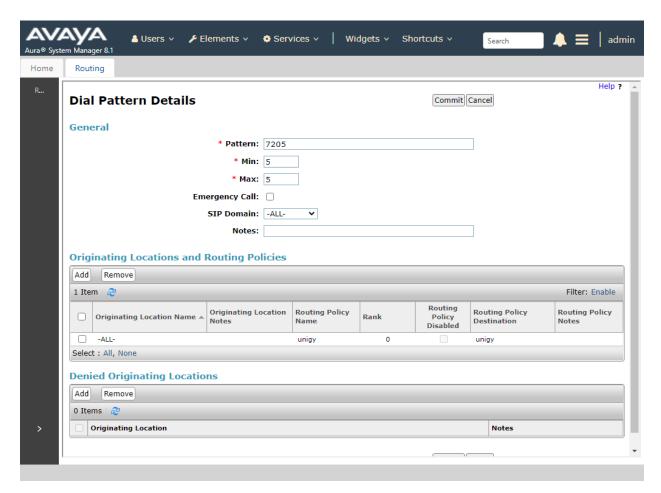
• **Pattern:** A dial pattern to match.

Min: The minimum number of digits to be matched.
Max: The maximum number of digits to be matched.

• SIP Domain: "ALL"

• **Notes:** Any desired description.

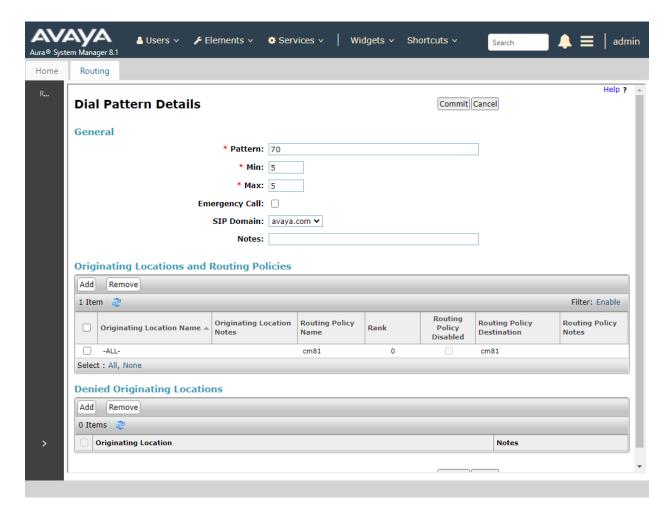
In the **Originating Locations and Routing Policies** sub-section, click **Add** and create a new policy for reaching IPC turret users. In the compliance testing, the policy allowed for call origination from all locations, and the IPC routing policy from **Section 6.6.1** was selected as shown below.



6.7.2 Communication Manager Dial Pattern

Select **Routing** → **Dial Patterns** from the left pane and click on the existing dial pattern for Communication Manager in the subsequent screen, in this case dial pattern **70** (not shown). The **Dial Pattern Details** screen is displayed.

In the **Originating Locations and Routing Policies** sub-section, click **Add** and create a new policy as necessary for calls from IPC turret users. The Communication Manager routing policy from **Section 6.6.2** was selected as shown below. Retain the default values in the remaining fields.



7 Configure IPC Unigy Converged Communication Manager

This section provides the procedures for configuring IPC Unigy Converged Communication Manager. The procedures include the following areas:

- Launch Unigy Management System
- Administer SIP trunks
- Administer trunk groups
- Administer route lists
- Administer zone dial patterns
- Administer route plans

The configuration of Converged Communication Manager is typically performed by IPC installation technicians. The procedural steps are presented in these Application Notes for informational purposes.

7.1 Launch Unigy Management System

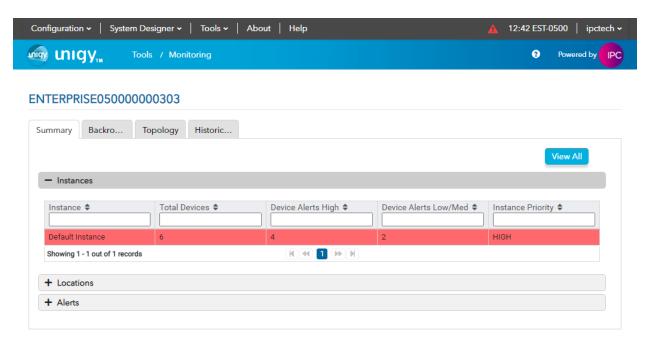
Access the Unigy Management System web interface by using the URL http://ip-address in an Internet browser window, where "ip-address" is the VIP of the Zone or in a standalone environment is the IP address of the CCM. Log in using appropriate credentials.

The screen below is displayed. Enter the appropriate credentials. Check **I agree with the Terms of Use** and click **Login** (not shown).

In the subsequent screen (not shown), click Continue.

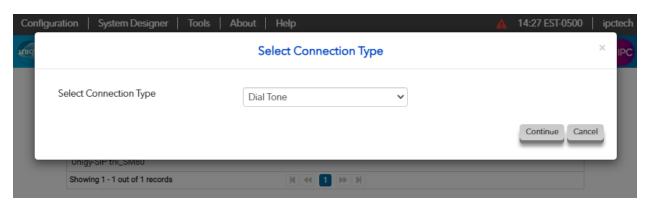


The following screen (**Tools** \rightarrow **Monitoring**) is displayed. Navigate to **Configuration** \rightarrow **Sites** under the main menu.



7.2 Administer SIP Trunks

Select **Trunks** → **SIP Trunks** (not shown) in the left pane and click the **Add New** icon (not shown) in the upper right pane to add a new SIP trunk. Select "Dial Tone" from the **Select Connection Type** drop-down list. Click **Continue**.



The screen below is displayed next. Select **Show Advanced** (not shown) on the top right, enter the following values for the specified fields, and retain the default values for the remaining fields.

• **Trunk Name:** A descriptive name.

• **Destination Address:** IP address of the Session Manager signaling interface.

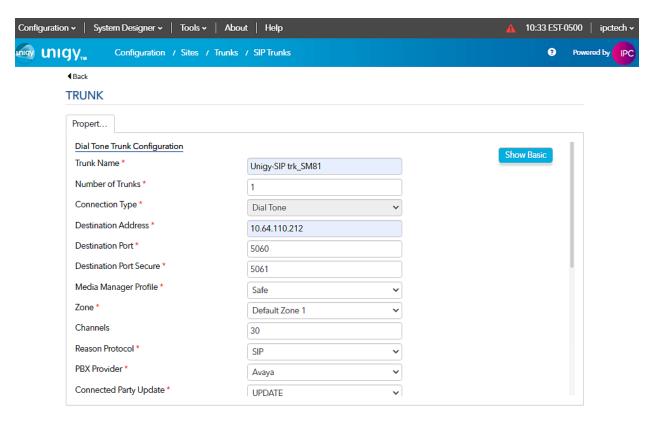
• **Destination Port:** The port number from **Section 6.5.1**.

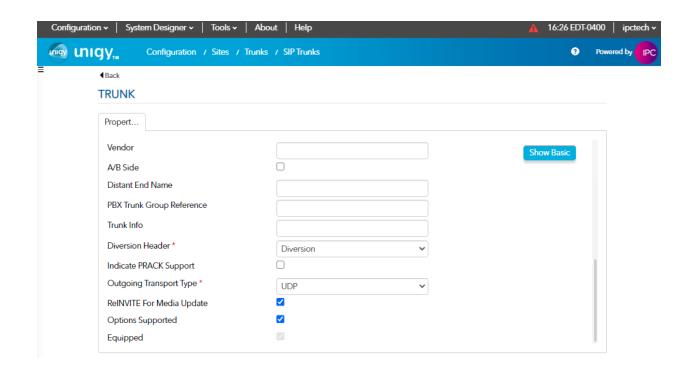
• **Zone:** An available zone, in this case "Default Zone 1".

• **Channels:** The number of SIP trunk group members.

Reason Protocol: "SIP"
PBX Provider: "Avaya"
Connected Party Update: "UPDATE"
Diversion Header "Diversion"
Outgoing Transport Type "UDP"

Retain the default values in the remaining fields.

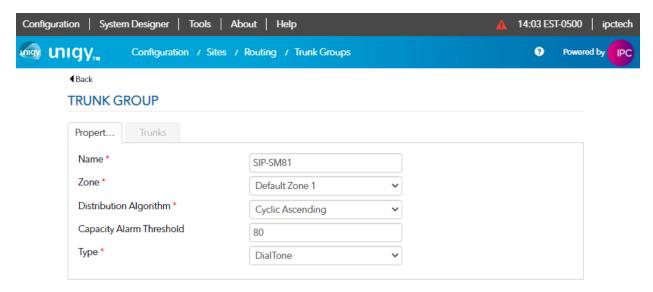




7.3 Administer Trunk Groups

Select **Routing → Trunk Groups** in the left pane and click the **Add New** icon in the upper right pane to add a new trunk group.

In the **Properties** tab, enter a descriptive **Name**, select "Default Zone 1" for the **Zone** field, select "Cyclic Ascending" for the **Distribution Algorithm** field, and click **Save**.

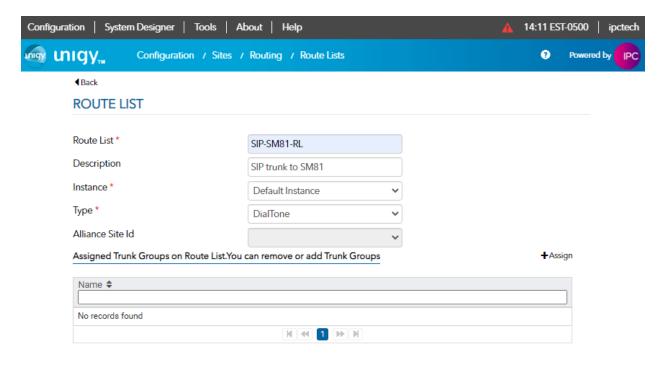


Select the **Trunks** tab. Click on the **+Assign** icon on the upper right to display available trunks. Select the SIP trunk from **Section 7.2** (not shown). Click **Save**.

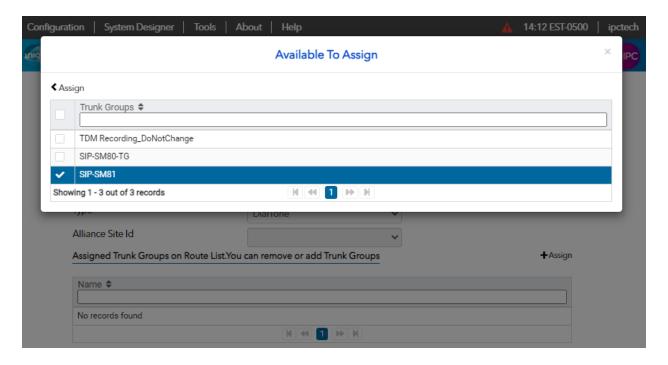
7.4 Administer Route Lists

Select **Routing** → **Route Lists** in the left pane and click the +**Add New** icon in the upper right to add a new route list.

The **ROUTE LIST** screen is displayed. For **Route List**, enter a descriptive name. Input a description in the **Description** field if desired. Click the **+Assign** icon and select the trunk group from **Section 7.3**.

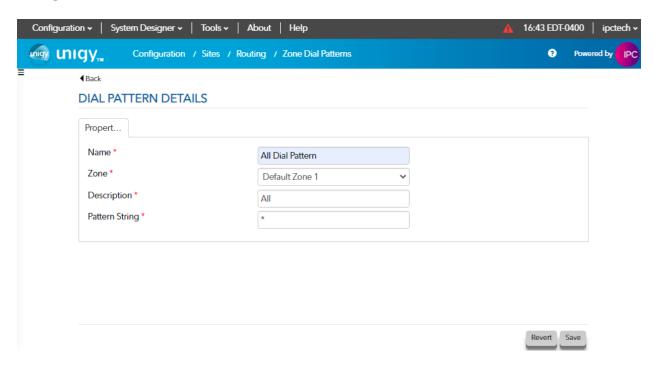


Click the **Assign** icon to return to the route lists window. Click **Save**.



7.6 Administer Zone Dial Patterns

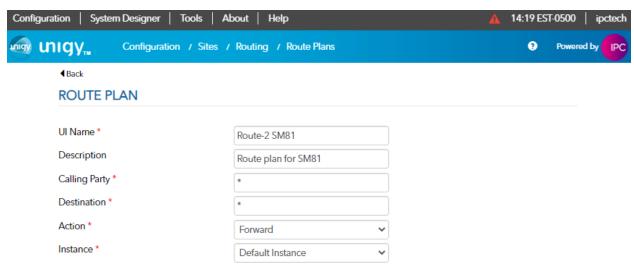
Select **Routing** → **Zone Dial Pattern**. Click **Add** New. Enter an appropriate value for **Name**. Select **Default Zone** 1 for Zone. Enter an appropriate value for **Description**. Input * for **Pattern String**. Click **Save**.



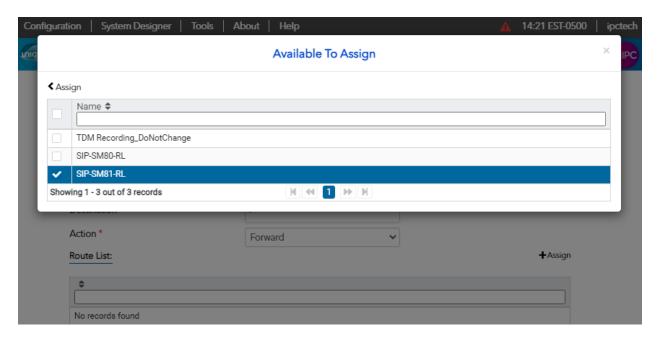
7.7 Administer Route Plans

Select **Routing** → **Route Plans** in the left pane and click **Add New** (not shown) in the right pane to create a new route plan.

In the ROUTE PLAN pane, enter a descriptive **UI Name** and optional **Description**. For **Calling Party**, enter "*" to denote any calling party from Unigy. For **Destination** enter "*". For **Action** select "Forward". For **Instance** select "Default Instance". Click **Save**.



Click +Assign to open the Available To Assign window. Select the Route List from Section 7.4. Click on the <Assign icon to return to the route plan window. Click Save.



8 Verification Steps

This section provides tests that can be performed to verify proper configuration of Communication Manager, Session Manager, and Unigy.

8.1 Verify Avaya Aura® Communication Manager

From the SAT interface, verify the status of the SIP trunk groups by using the "status trunk n" command, where "n" is the trunk group number administered in **Section 5.3**. Verify that all trunks are in the "in-service/idle" state as shown below.

Verify the status of the SIP signaling group by using the "status signaling-group n" command, where "n" is the signaling group number administered in **Section 5.2**. Verify that the signaling group is "in-service" as indicated in the **Group State** field shown below.

```
status signaling-group 1
STATUS SIGNALING GROUP

Group ID: 1
Group Type: sip

Group State: in-service
```

Verify the codec set specified is used in the calls made between Avaya sets and the turret sets. For example, with the codec set to only G.729 as below:

```
change ip-codec-set 1

IP MEDIA PARAMETERS

Codec Set: 1

Audio Silence Frames Packet

Codec Suppression Per Pkt Size(ms)

1: G.729

n 2 20
```

The trunk status on the call should show the codec used:

```
SRC PORT TO DEST PORT TALKPATH

SRC PORT TO DEST PORT TALKPATH

SRC port: T000001

T000001:TX:10.64.49.5:36154/g729/10ms

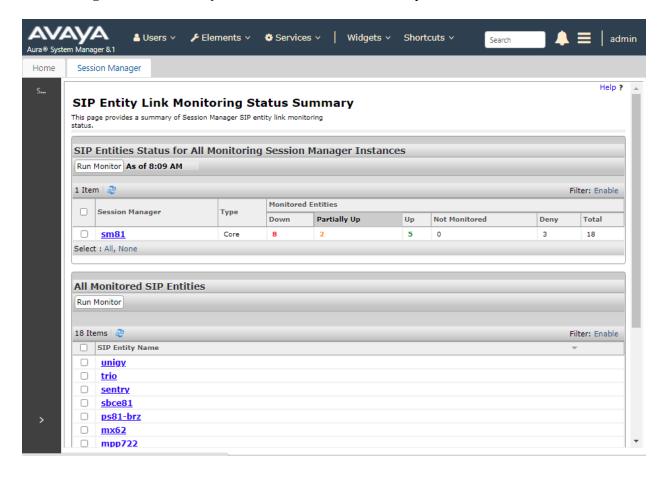
001V063:RX:10.64.50.54:2054/g729/10ms:TX:ctxID:155

001V065:RX:ctxID:155:TX:10.64.50.54:2050/g729/20ms/1-srtp-aescm128-hmac80

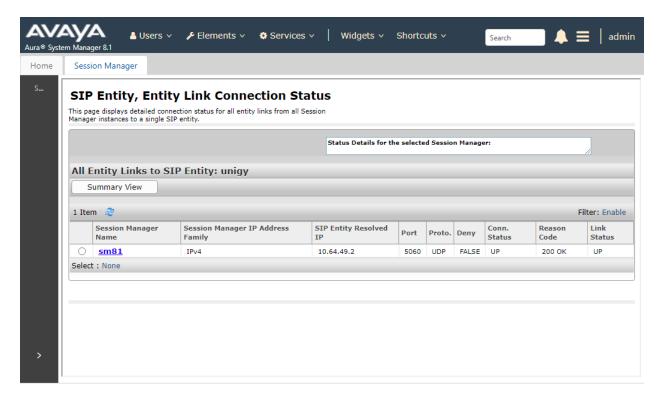
S000017:RX:10.64.10.202:2116/g729a/20ms/1-srtp-aescm128-hmac80
```

8.2 Verify Avaya Aura® Session Manager

From the System Manager home page (not shown), select **Elements** \rightarrow **Session Manager** to display the **Session Manager Dashboard** screen (not shown). Select **Session Manager** \rightarrow **System Status** \rightarrow **SIP Entity Monitoring** from the left pane to display the **SIP Entity Link Monitoring Status Summary** screen. Click on the IPC entity name from **Section 6.4.1**.



The **SIP Entity, Entity Link Connection Status** screen is displayed. Verify that **Conn. Status** and **Link Status** are "UP", as shown below.



8.3 Verify IPC Unigy

Make a call from an IPC turret user to an Avaya endpoint. Verify that the call can be connected with two-way talk paths.

9 Conclusion

These Application Notes describe the configuration steps required for IPC Unigy 5.2 to successfully interoperate with Avaya Aura[®] Session Manager R8.1 and Avaya Aura[®] Communication Manager R8.1. All feature and serviceability test cases were completed with observations noted in **Section 2.2**.

10 Additional References

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

The following Avaya product documentation can be found at http://support.avaya.com.

- 1. Administering Avaya Aura® Communication Manager, , Issue 12, Release 8.1.x, July 2021.
- 2. Avaya Aura® Communication Manager Feature Description and Implementation, Issue 17, Release 8.1.x, August 2021.
- 3. Administering Avaya Aura® Session Manager, Issue 10, Release 8.1.x, September 2021.
- 4. Administering Avaya Aura® System Manager, Issue 16, Release 8.1.x, October 2021.

The following IPC documentation is available upon request from IPC Support in Section 2.3.

5. Unigy 5.0 System Configuration.

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