



## **Avaya Solution & Interoperability Test Lab**

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# **Sample Configuration of the Indyme CONNECT SIP Call Box with Avaya Communication Manager and Avaya SIP Enablement Services - Issue 1.0**

### **Abstract**

These Application Notes present a sample configuration of the Indyme CONNECT SIP Call Box application with Avaya Communication Manager and Avaya SIP Enablement Services.

Indyme CONNECT, consisting of “Press Here for HELP” wireless call boxes and the CONNECT server application, is an integral part of the Avaya Intelligent Retail Store Solution. The combination of Indyme CONNECT Call Box capabilities and the variety of intelligent routing options of Avaya Communication Manager offers retailers a powerful in-store customer service solution. This solution ensures the appropriate sales associate is alerted to a customer’s need for assistance regardless of the type of telephone device the sales associate is equipped with. The end result, customers getting the help they need when they need it.

Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab at the request of the Solutions Marketing Team.

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# 1. Introduction

These Application Notes present a sample configuration of the Indyme CONNECT SIP Call Box application integrated with Avaya Communication Manager and Avaya SIP Enablement Services.

Indyme CONNECT is an integral part of the Avaya Intelligent Retail Store Solution [1]. The combination of Indyme CONNECT Call Box capabilities and the wide variety of intelligent routing options of Avaya Communication Manager offers retailers a powerful in-store customer service solution. This solution ensures the appropriate sales associate is alerted to a customer's need for assistance regardless of the type of telephone device the sales associate is equipped with. The end result, customers getting the help they need when they need it.

## 1.1. Indyme CONNECT Overview

Indyme CONNECT consists of two main components: the CONNECT server application and the Call Boxes.

### 1.1.1. Indyme CONNECT Server

The CONNECT server application interfaces with the Call Boxes using an Indyme proprietary protocol. CONNECT manages the Call Boxes and determines the appropriate action to take upon receiving a Call Box customer help request. CONNECT also interfaces with Avaya Communication Manager and SIP Enablement Services using the SIP signaling protocol. The primary functions of the CONNECT server application are:

- Maintain Call Box communication
- Manage Call Box configurations
- Per Call Box Action Rules
- Per Call Box Audio Messages
- Reset and Escalation timers
- SIP Interface to Avaya SES
- SQL Database

### 1.1.2. Indyme Call Boxes

Indyme offers a wide variety of Call Boxes. The model used in the sample configuration is the Radius Call Box Model 838. The 838 Call Boxes, typically distributed throughout the retail establishment, communicate over the in-building 802.11 wireless network to the CONNECT server. Each Call Box is assigned a different identification number by Indyme allowing the CONNECT server to maintain unique action rules per Call Box.

## 2. Sample Configuration Overview

This section describes the sample configuration used in these Application Notes. Features of Indyme CONNECT and Avaya Communication Manager implemented in the configuration are highlighted.

The sample configuration is modeled after a retail store with Indyme Call Boxes deployed throughout the store. Each department in the store has an assigned Call Box with the Call Box physically located within the department to which it is assigned. The Lumber Department is used in the sample configuration as an example department.

### 2.1. Department Extension using Coverage Answer Group

The sample configuration will include a Department Extension for the Lumber Department by utilizing the Coverage Answer Group feature of Avaya Communication Manager. A Coverage Answer Group enables a call to a single extension to be delivered to multiple extensions. For example, a call to the Lumber Department extension 250 will simultaneously ring all in-service extensions assigned to the Lumber Department and defined in the Coverage Answer Group. When one of the extensions in the Lumber Department answers the incoming call, the remaining Lumber Department extensions stop ringing.

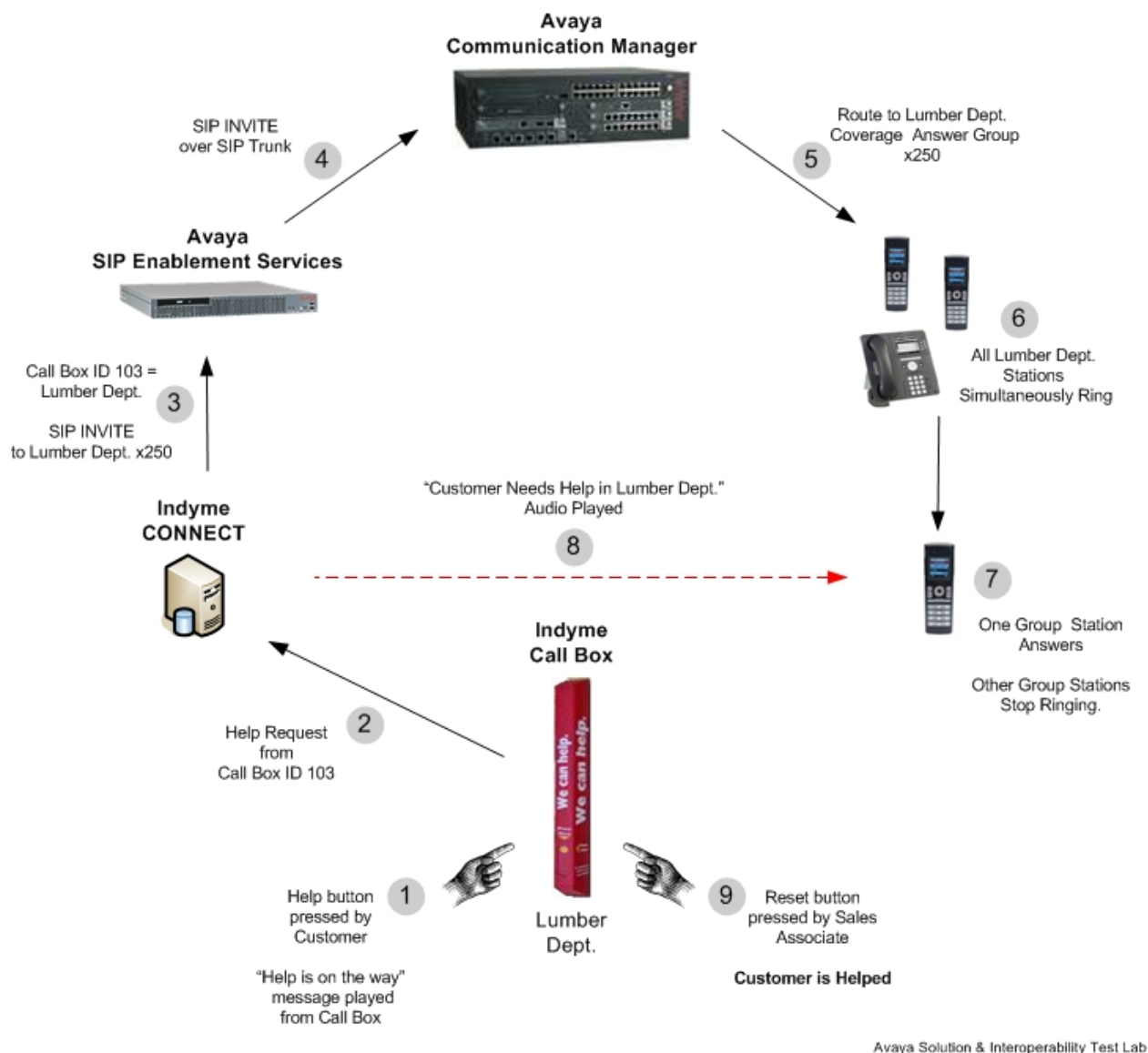
### 2.2. Extension Assignments

**Table 1** below summarizes the extension assignments to be used in the sample configuration.

Extension	Assignment	Description
<b>x250</b>	<b>Lumber Dept. Extension</b>	<ul style="list-style-type: none"><li>• Lumber Department</li><li>• Phantom Station (no hardware)</li><li>• Covers to Lumber Dept. Answer Group</li><li>• All in-service Lumber Dept. extensions simultaneous Ring ( x251 - x258)</li><li>• Initial number called by Lumber Dept. Call Box</li></ul>
<b>x251 – x258</b>	<b>Lumber Dept. Stations</b>	<ul style="list-style-type: none"><li>• Stations used by Lumber Dept. associates.</li><li>• Wired, Wireless, IP, Digital, Analog...</li><li>• Member of Coverage Answer Group</li></ul>
<b>x259</b>	<b>Lumber Dept. Manager</b>	<ul style="list-style-type: none"><li>• First escalation number called by Lumber Dept. Call Box if no Reset detected</li></ul>
<b>x300</b>	<b>Store Manager</b>	<ul style="list-style-type: none"><li>• Second escalation number called by Lumber Dept. Call Box if no Reset detected</li></ul>

**Table 1 – Extension Assignments**

**Figure 1** below illustrates the steps that take place when the Call Box Help button is pressed. Note that the figure shows Avaya SES and Avaya Communication Manager on separate hardware platforms to better illustrate the flow of SIP messages. The call flow is identical when using Avaya Communication Manager with Co-Resident SES, as was used in the sample configuration; however the SIP Trunk between SES and Avaya Communication Manager is internal to the S8300 Server.



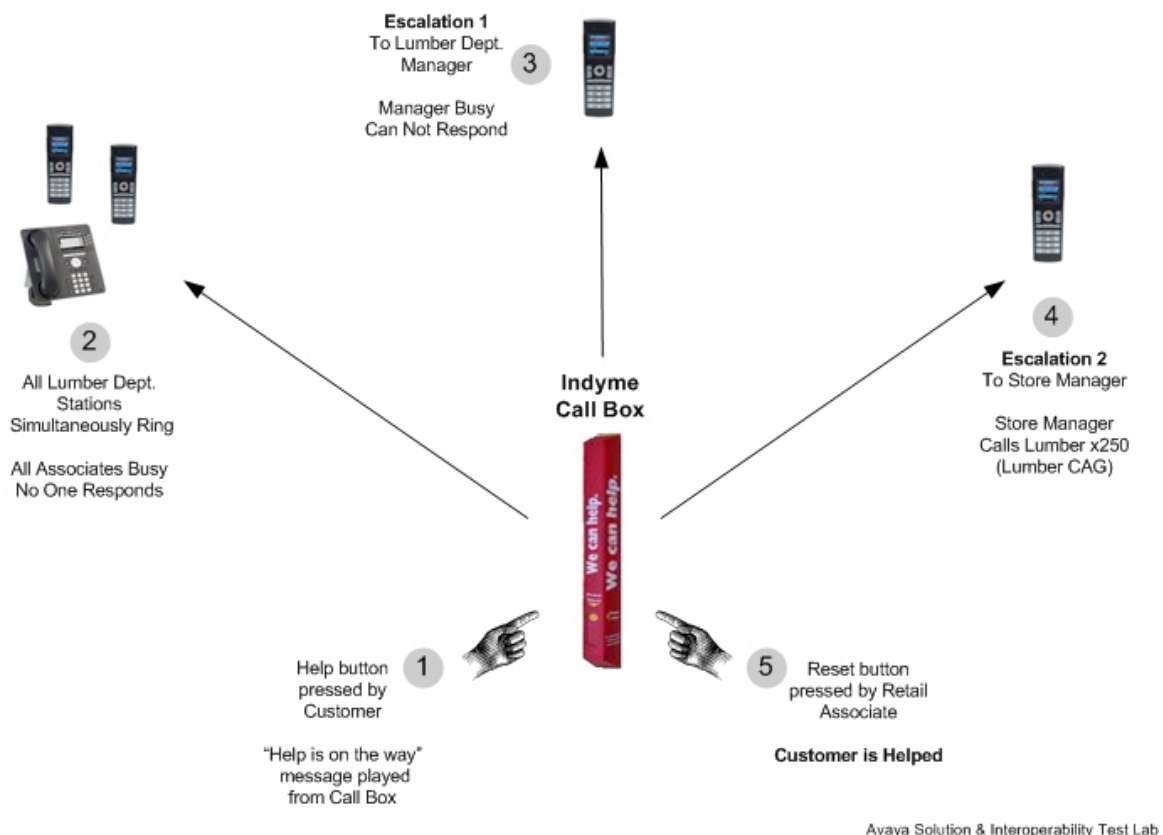
**Figure 1 – Call Box Help Button-press Flow**

## 2.3. Indyme CONNECT Escalation Feature

The Lumber Department Call Box will first call the Lumber Department Coverage Answer Group extension 250 ringing all Lumber Department extensions simultaneously. The first associate to answer will hear the “Customer needs Help” message. If the associate is able to respond to the customer in a timely manner and press the Call Box Reset button, the session stops.

If the associate is not able to respond and the reset button is not pressed in a defined period of time, 60 seconds in the sample configuration, Indyme CONNECT will initiate an escalation. The first escalation point is the Lumber Department manager extension 259. If the Lumber Department manager does not respond then a second escalation is initiated by Indyme CONNECT to the Store Manager extension 300.

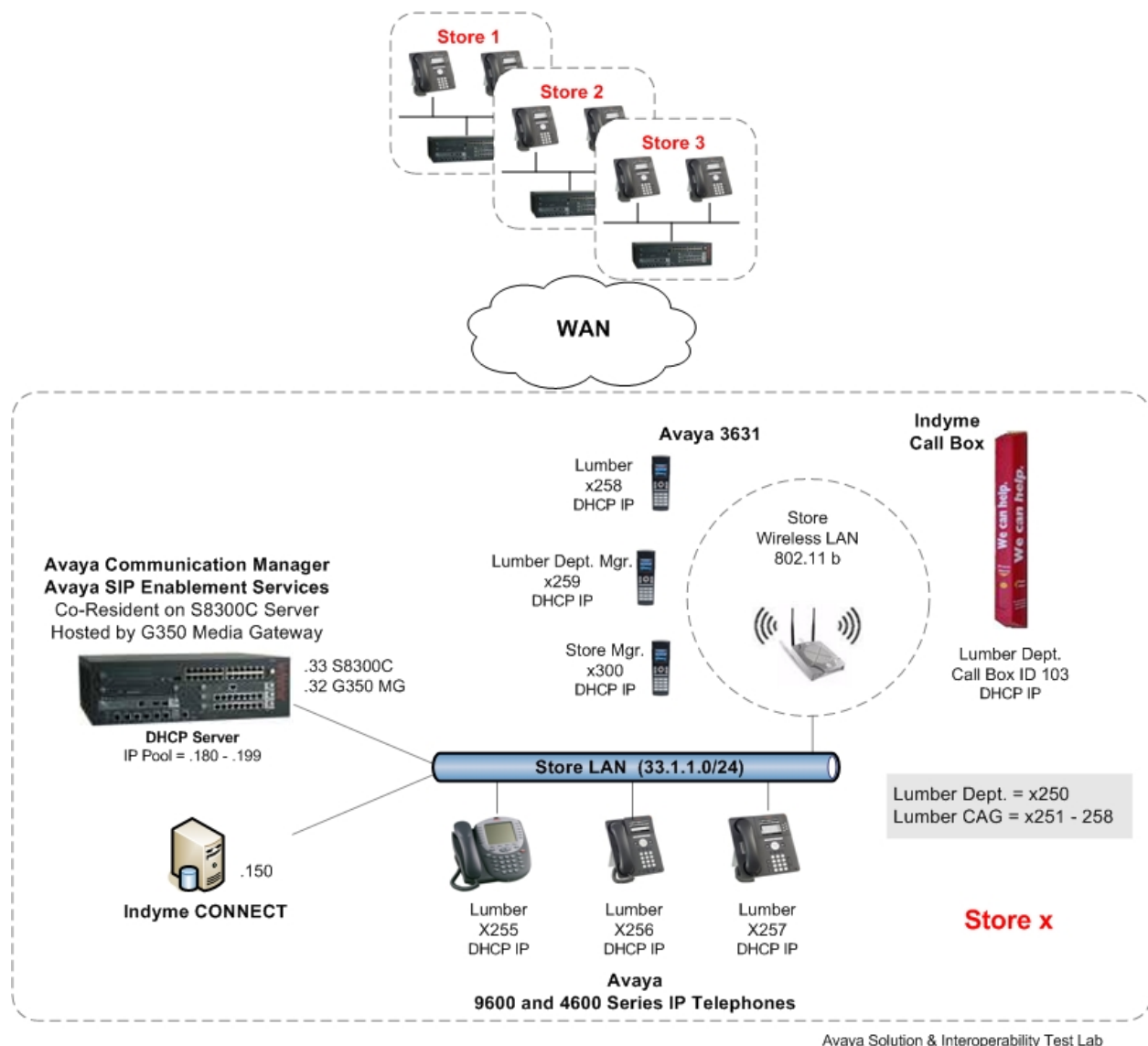
There are many ways to implement the call flows and escalation rules with Indyme CONNECT. The extensions and escalation flow used in the sample configuration is one example. Other options may be to include the overhead paging system or escalate to a department extension adjacent to the department the customer request is coming from to get any available associate to get any available associate to the customer. **Figure 2** below illustrates the Escalation steps Indyme CONNECT will take based on the sample configuration.



**Figure 2 – CONNECT Escalation Flow**

## 2.4. Network Topology

The network implemented for the sample configuration is shown in **Figure 3**. Avaya Communication Manager is running in a Co-Resident configuration with Avaya SIP Enablement Services on an S8300C Server hosted by an Avaya G350 Media Gateway. The G350 Media Gateway is also serving as a DHCP server for both wired and wireless endpoints. The wireless LAN supports the Indyme Call Box as well as the Avaya 3631 wireless phones. The Indyme CONNECT server is on the Store LAN with an assigned static IP address. The configuration of the wired and wireless LAN infrastructure is beyond the scope of these Application Notes and therefore is not discussed.



**Figure 3 – Network Diagram**

### 3. Equipment and Software Versions

The following equipment and software were used for the configurations provided:

Equipment / Product	Software
Avaya S8300C Server Avaya G350 Media Gateway	Co-Resident: <ul style="list-style-type: none"><li>- Avaya Communication Manager 5.0 (R015x.00.0.825.4)</li><li>- Avaya SIP Enablement Services 5.0 (SES-5.0.0.0-825.31)</li></ul>
Avaya 9600 Series IP Telephones	1.5 (H.323)
Avaya 4600 Series IP Telephones	2.8 (H.323)
Indyme CONNECT	1.5.049
Indyme Radius Call Box Model 838	2.4.1
Indyme Call Box Configuration Manager	1.5.049
Microsoft SQL Management Studio Express	9.00.2047.00

Table 2 – Software/Hardware Version Information

### 4. Configure Avaya Communication Manager

This section shows the necessary steps to configure Avaya Communication Manager to support the Indyme CONNECT SIP application. It is assumed that the basic configuration on Avaya Communication Manager has already been completed [3]. All commands discussed in this section are executed on Avaya Communication Manager using the System Access Terminal (SAT).

#### 4.1. System Parameters

Execute the **display system-parameters customer-options** command to verify that the installed license grants permission to use the features used in this sample configuration.

On Page 1, verify that the number of available Off-PBX Telephone licenses is sufficient for the total number of SIP endpoints to be used. The **Maximum Off-PBX Telephones** field indicates the maximum number available in the system. The **USED** column indicates the number of SIP endpoint licenses currently in use. The difference between the two represents the additional number of SIP endpoints that can be added. The Indyme CONNECT server requires one available Off-PBX Telephone license.



display system-parameters customer-options		Page 1 of 10
OPTIONAL FEATURES		
G3 Version: V15	Software Package: Standard	
Location: 1	RFA System ID (SID): 1	
Platform: 13	RFA Module ID (MID): 1	
		USED
Platform Maximum Ports:	900	85
Maximum Stations:	450	36
Maximum XMOBILE Stations:	0	0
Maximum Off-PBX Telephones - EC500:	0	0
<b>Maximum Off-PBX Telephones - OPS:</b>	<b>100</b>	<b>11</b>
Maximum Off-PBX Telephones - PBFMC:	0	0
Maximum Off-PBX Telephones - PVFMC:	0	0
Maximum Off-PBX Telephones - SCCAN:	0	0

On Page 2, verify that the number of SIP Trunks administered on the system is sufficient. This is required for the SIP Trunk between Avaya Communication Manager and Avaya SES.

display system-parameters customer-options		Page 2 of 10
OPTIONAL FEATURES		
IP PORT CAPACITIES		USED
Maximum Administered H.323 Trunks:	100	6
Maximum Concurrently Registered IP Stations:	450	4
Maximum Administered Remote Office Trunks:	0	0
Maximum Concurrently Registered Remote Office Stations:	0	0
Maximum Concurrently Registered IP eCons:	0	0
Max Concur Registered Unauthenticated H.323 Stations:	0	0
Maximum Video Capable Stations:	0	0
Maximum Video Capable IP Softphones:	0	0
<b>Maximum Administered SIP Trunks:</b>	<b>100</b>	<b>20</b>
Maximum Administered Ad-hoc Video Conferencing Ports:	0	0
Maximum Number of DS1 Boards with Echo Cancellation:	0	0
Maximum TN2501 VAL Boards:	0	0
Maximum Media Gateway VAL Sources:	0	0
Maximum TN2602 Boards with 80 VoIP Channels:	0	0
Maximum TN2602 Boards with 320 VoIP Channels:	0	0
Maximum Number of Expanded Meet-me Conference Ports:	0	0

The bolded fields shown on Page 4 below are features that must be enabled in the license to implement the sample configuration.

display system-parameters customer-options		Page 4 of 10
OPTIONAL FEATURES		
Emergency Access to Attendant? y		IP Stations? y
Enable 'dadmin' Login? y		
Enhanced Conferencing? n		ISDN Feature Plus? n
Enhanced EC500? y		ISDN/SIP Network Call Redirection? n
Enterprise Survivable Server? n		ISDN-BRI Trunks? n
Enterprise Wide Licensing? n		ISDN-PRI? y
ESS Administration? n		Local Survivable Processor? n
Extended Cvg/Fwd Admin? y		Malicious Call Trace? n
External Device Alarm Admin? n		Media Encryption Over IP? y
Five Port Networks Max Per MCC? n		Mode Code for Centralized Voice Mail? n
Flexible Billing? n		
Forced Entry of Account Codes? n		Multifrequency Signaling? y
Global Call Classification? n		Multimedia Call Handling (Basic)? n
Hospitality (Basic)? y		Multimedia Call Handling (Enhanced)? n
Hospitality (G3V3 Enhancements)? n		Multimedia IP SIP Trunking? y
IP Trunks? y		
IP Attendant Consoles? n		

## 4.2. Node Names

Node names are logical mappings of names to IP addresses which are used in various SAT configuration screens. Execute the **change node-names ip** command to add the appropriate names and IP addresses to Avaya Communication Manager. The node name “procr” refers to the Avaya S8300C Server processor Ethernet where Avaya Communication Manager is running. The node name “ses” refers to the SIP Enablement Services server. Note that the IP address for these two entries is the same because they are co-resident on the Avaya S8300C Server.

change node-names ip		Page 1 of 2
		IP NODE NAMES
Name	IP Address	
ia770	33.1.1.34	
<b>procr</b>	<b>33.1.1.33</b>	
<b>ses</b>	<b>33.1.1.33</b>	

### 4.3. SIP Signaling Group and Trunk Group

The SIP Trunk interface between Avaya Communication Manager and Avaya SES must be created. The steps to create the SIP Signaling Group and SIP Trunk Group are shown below.

Configure the SIP signaling group using the **add signaling-group** command. In the sample configuration, signaling group **1** is created. The parameters relevant to the sample configuration are highlighted in bold below. All remaining fields can be left at default values.

<b>Group Type:</b>	Set to <b>SIP</b> .
<b>Co-Resident SES?</b>	This field, introduced in Avaya Communication Manager Release 5, is set to <b>y</b> .
<b>Near-end Node Name:</b>	Set to <b>procr</b> , the S8300C Server processor Ethernet.
<b>Far-end Node Name:</b>	Set to <b>ses</b> , the node name assigned to the logical IP address of the co-resident SES.
<b>Near-end Listen Port:</b>	Set to <b>6001</b> .
<b>Far-end Listen Port:</b>	Set to <b>5061</b> .
<b>Far-end Network Region:</b>	In this case, Network Region <b>1</b> is used.
<b>Far-end Domain:</b>	Set to the SIP domain name of the SES. In this case, the SIP domain is <b>retail-cores.com</b> .
<b>Direct IP-IP Audio Connections:</b>	Left at the default value of <b>y</b> to allow direct RTP audio paths for calls using this signaling group.

```
add signaling-group 1                                     Page 1 of 1
                                                    SIGNALING GROUP

Group Number: 1                Group Type: sip
                               Transport Method: tls
                               Co-Resident SES? y
                               IP Video? n

Near-end Node Name: procr      Far-end Node Name: ses
Near-end Listen Port: 6001     Far-end Listen Port: 5061
                               Far-end Network Region: 1
                               Far-end Domain: retail-cores.com

                               Bypass If IP Threshold Exceeded? n

                               DTMF over IP: rtp-payload
                               Direct IP-IP Audio Connections? y
                               IP Audio Hairpinning? n

                               Enable Layer 3 Test? n
                               Session Establishment Timer(min): 3
```

Configure the SIP trunk group and associate it with the SIP signaling group created above by using the **add trunk-group** command. In the sample configuration, trunk group **1** is created. The parameters relevant to the sample configuration are highlighted in bold below. All remaining fields can be left at default values.

<b>Group Type:</b>	Set to <b>SIP</b> .
<b>Group Name:</b>	Enter descriptive text about the trunk group.
<b>TAC</b>	Set to an appropriate trunk access code value.
<b>Service Type</b>	Set to <b>tie</b>
<b>Signaling Group</b>	Set to the group number used above.
<b>Number of Members</b>	Set to an appropriate value. Consideration should be given to the number of SIP phones being used with the Indyme solution.

add trunk-group 1			Page 1 of 21		
TRUNK GROUP					
Group Number: 1		Group Type: sip		CDR Reports: y	
Group Name: CoRes SES		COR: 1	TN: 1	TAC: 101	
Direction: two-way		Outgoing Display? n		Night Service:	
Dial Access? n					
Queue Length: 0					
Service Type: tie		Auth Code? n			
Signaling Group: 1					
Number of Members: 10					

## 4.4. Update Dial Plan

The dial plan must be updated to accommodate the extensions shown in **Table 1**. Use the **change dialplan analysis** command to update the dial plan with values matching the local dial plan. The values highlighted in bold below reflect the values used in the sample configuration.

change dialplan analysis							Page 1 of 12				
DIAL PLAN ANALYSIS TABLE											
Location: all							Percent Full: 2				
	Dialed	Total	Call		Dialed	Total	Call		Dialed	Total	Call
	String	Length	Type		String	Length	Type		String	Length	Type
1		3	dac								
2		3	ext								
3		3	ext								
4		3	fac								
6		5	ext								
9		1	fac								
*		2	fac								

## 4.5. Add Stations

### 4.5.1. Add Indyme Station

The Indyme CONNECT server functions as a SIP endpoint to Avaya Communication Manager and therefore a SIP station must be added for Indyme CONNECT. This section shows the necessary steps to create the Indyme SIP station on Avaya Communication Manager.

Use the **add station** command to add a station to Avaya Communication Manager. The add station command for the Indyme extension **203** is shown below. Because this is a SIP station, only the Port and Name fields are required to be updated as highlighted in bold. All remaining fields can be left at default values.

Note: The text of the “Name” field will be displayed on stations as the Calling Party Name for calls placed by Indyme CONNECT. Using the appropriate name can assist sales associates to visually identify customer help calls coming from a call box.

add station 203		Page	1 of	5
STATION				
Extension: 203	Lock Messages? n	BCC: 0		
Type: 6408D+	Security Code:	TN: 1		
Port: X	Coverage Path 1:	COR: 1		
Name: HELP CB	Coverage Path 2:	COS: 1		
	Hunt-to Station:			
STATION OPTIONS				
	Time of Day Lock Table:			
Loss Group: 2	Personalized Ringing Pattern: 1			
Data Module? n	Message Lamp Ext: 203			
Speakerphone: 2-way	Mute Button Enabled? y			
Display Language: english				
Survivable COR: internal	Media Complex Ext:			
Survivable Trunk Dest? y	IP SoftPhone? n			
	IP Video? n			

### 4.5.2. Add Indyme Off PBX Station

Use the **add off-pbx-telephone station-mapping** command to designate the Indyme station created above as a SIP station. The add off-pbx-telephone command for the Indyme extension **203** is shown below being mapped to SIP trunk 1.

add off-pbx-telephone station-mapping						Page	1 of	2
STATIONS WITH OFF-PBX TELEPHONE INTEGRATION								
Station	Application	Dial	CC	Phone Number	Trunk	Config		
Extension		Prefix			Selection	Set		
203	OPS	-		203	1	1		

### 4.5.3. Add Avaya IP Stations

The add station screen below shows an Avaya 9630 IP Telephone being assigned to Lumber Department extension **257**. Use the add station command to create the remaining Lumber Department stations with extension assignments of **251 – 258** as shown in **Table 1**.

add station 251		Page 1 of 6
STATION		
Extension: 257	Lock Messages? n	BCC: 0
Type: 9630	Security Code: 1234	TN: 1
Port: IP	Coverage Path 1:	COR: 1
Name: Lumber	Coverage Path 2:	COS: 1
	Hunt-to Station:	
STATION OPTIONS		
Loss Group: 19	Time of Day Lock Table:	
	Personalized Ringing Pattern: 1	
Speakerphone: 2-way	Message Lamp Ext: 257	
Display Language: english	Mute Button Enabled? y	
Survivable GK Node Name:	Button Modules: 0	
Survivable COR: internal	Media Complex Ext:	
Survivable Trunk Dest? y	IP SoftPhone? n	
	IP Video? n	
	Customizable Labels? y	

To add the Avaya 3631 Wireless IP Telephone to Avaya Communication Manager, one of the following two options can be used:

1. Add a station with station type set to 4620
2. Add an alias for the 3631 mapped to a 4620 and then add a station with station type set to 3631.

Aliasing the 3631 as described in option 2 is useful when using commands such as 'list station' and 'list registered-ip-stations' so 3631 is displayed as the set type. The screens below show a 3631 station being added for the Lumber Dept. Manager extension **259** using the aliasing option 2. Follow the same steps to add the Store Manager's 3631 phone using extension **300**.

change alias station		Page 1 of 1
ALIAS STATION		
Alias Set Type	Supported Set Type	
3631	4620	

```

add station 259                                     Page 1 of 5

                                     STATION

Extension: 259                                     Lock Messages? n          BCC: 0
  Type: 3631                                       Security Code: 1234      TN: 1
  Port: IP                                         Coverage Path 1:        COR: 1
  Name: Lumber Dept Manager                     Coverage Path 2:        COS: 1
                                                Hunt-to Station:

STATION OPTIONS

          Loss Group: 19                         Time of Day Lock Table:
          Speakerphone: 2-way                    Personalized Ringing Pattern: 1
          Display Language: english              Message Lamp Ext: 259
Survivable GK Node Name:                        Mute Button Enabled? y
          Survivable COR: internal               Expansion Module? n
Survivable Trunk Dest? y                       Media Complex Ext:
                                                IP SoftPhone? n

                                                IP Video? n

                                                Customizable Labels? y

```

## 4.6. IP Codec Set Configuration

The default IP Codec Set is used in the sample configuration as shown below. Indyme CONNECT is configured to support the G.711 codec.

```

display ip-codec-set 1                             Page 1 of 2

                                     IP Codec Set

Codec Set: 1

Audio      Silence      Frames      Packet
Codec      Suppression   Per Pkt    Size(ms)
1: G.711MU      n           2         20
2:
3:
4:
5:
6:
7:

Media Encryption
1: none
2:
3:

```

## 4.7. IP Network Regions

### 4.7.1. Network Region Map

All IP telephones reside in IP Network Region 1 with the IP-IP Direct Audio feature of Avaya Communication Manager enabled. Indyme CONNECT does not support the IP-IP Direct Audio feature. In the sample configuration, the **ip-network-map** command is used to map Indyme CONNECT, using the static IP address of the CONNECT server, to IP Network Region 2 where the IP-IP Direct Audio feature will be disabled. This allows IP telephones within Network Region 1 to take advantage of the IP-IP Direct Audio feature while calls from Indyme CONNECT Network Region 2 include the Media Gateway in the audio path.

change ip-network-map							Page 1 of 32
IP ADDRESS MAPPING							
From IP Address	(To IP Address	Subnet	Region	VLAN	Emergency	Location	
	or Mask)				Extension		
33 .1 .1 .150	33 .1 .1 .150		2	n			

### 4.7.2. Network Region Configuration

Use the change ip-network-region command to configure the IP Network Region. The **change ip-network-region 1** command from the sample configuration is shown below. All IP stations use Network Region 1 by default. Fields relevant to the sample configuration are described and highlighted. All remaining fields can be left at default values.

<b>Authoritative Domain:</b>	Set to match the SIP Domain of the SES.
<b>Codec Set:</b>	Set to the Codec Set created in the previous step.
<b>Intra-region IP-IP Direct Audio:</b>	Use default value <b>yes</b> as highlighted below.
<b>Inter-region IP-IP Direct Audio:</b>	Use default value <b>yes</b> as highlighted below.

change ip-network-region 1		Page 1 of 19
IP NETWORK REGION		
Region: 1		
Location: 1	Authoritative Domain: retail-cores.com	
Name:		
MEDIA PARAMETERS	Intra-region IP-IP Direct Audio: yes	
Codec Set: 1	Inter-region IP-IP Direct Audio: yes	
UDP Port Min: 2048	IP Audio Hairpinning? n	
UDP Port Max: 3329		
DIFFSERV/TOS PARAMETERS	RTCP Reporting Enabled? y	
Call Control PHB Value: 46	RTCP MONITOR SERVER PARAMETERS	
Audio PHB Value: 46	Use Default Server Parameters? y	
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		



The **change ip-network-region 2** command from the sample configuration is shown below (partial screen). Indyme CONNECT is mapped to Network Region 2, as described above, and IP-IP Direct Audio is set to no.

<b>Authoritative Domain:</b>	Set to match the SIP Domain of the SES.
<b>Codec Set:</b>	Set to the Codec Set created in the previous step.
<b>Inter-region IP-IP Direct Audio:</b>	The Indyme CONNECT application requires this field be set to <b>no</b> as highlighted below.

```

change ip-network-region 2                                     Page 1 of 19
                                IP NETWORK REGION
  Region: 2
  Location: 1      Authoritative Domain: retail-cores.com
    Name: Indyme CB
  MEDIA PARAMETERS                                Intra-region IP-IP Direct Audio: yes
    Codec Set: 1                                Inter-region IP-IP Direct Audio: no
    UDP Port Min: 2048                            IP Audio Hairpinning? n
    UDP Port Max: 3329
    Keep-Alive Count: 5

```

## 4.8. Coverage Answer Group

This Coverage Answer Group includes extensions of all stations defined to be associated with the Indyme Call Box located in the Lumber Department. All of the included in-service extensions will simultaneously ring when the Lumber Department is called. When one of the extensions in the Lumber Department answers the incoming call, the remaining Lumber Department extensions stop ringing. The sales associate who answered the call hears the Indyme CONNECT message notification that a customer requires assistance at the Lumber Department Call Box.

Execute the **add coverage answer-group x** command where **x** is an available coverage answer group number. The add coverage answer-group command for the Lumber Department is shown below. The required fields are highlighted in bold. All remaining fields can remain at defaults values.

<b>Group Name:</b>	A descriptive name associated with the function of the group
<b>Extension:</b>	Existing extensions to be included in the group.

```

add coverage answer-group 1
Page 1 of 1

          COVERAGE ANSWER GROUP

          Group Number: 1
          Group Name: Lumber

GROUP MEMBER ASSIGNMENTS

      Extension      Name
1: 251
2: 252
3: 253
4: 254
5: 255
6: 256
7: 257
8: 258

```

The name field remains blank until the Coverage Answer Group form is submitted. The names associated with each extension are then populated as shown in the **display coverage answer-group 1** output shown below.

```

display coverage answer-group 1
          COVERAGE ANSWER GROUP

          Group Number: 1
          Group Name: Lumber

GROUP MEMBER ASSIGNMENTS

      Extension      Name
1: 251              Lumber
2: 252              Lumber
3: 253              Lumber
4: 254              Lumber
5: 255              Lumber
6: 256              Lumber
7: 257              Lumber
8: 258              Lumber

```

The **list coverage answer-group** command lists all existing coverage answer groups. This is a useful command to list the coverage answer groups for all Departments in a store or enterprise.

```

list coverage answer-group

          COVERAGE ANSWER GROUPS

      Group      Group
      Number     Name

      1          Lumber

```

## 4.9. Coverage Path

Execute the **add coverage path x** command where **x** is an available coverage path number. The add coverage path command covering to the Lumber Department is shown below. The required fields are highlighted in bold. All remaining fields can remain at defaults values.

<b>Point1:</b>	The coverage point to which the call will be directed. c1 shown below represents Coverage Answer Group 1 created in the previous section.
----------------	---

<b>add coverage path 1</b>		Page 1 of 1	
COVERAGE PATH			
Coverage Path Number: 1		Hunt after Coverage? n	
Next Path Number:		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			
<b>Point1: c1</b>	Rng:	Point2:	
Point3:		Point4:	
Point5:		Point6:	

## 4.10. Add Lumber Department Phantom Station

The Lumber Department Phantom Station is a station assigned to an extension that does not have a physical telephone associated with it. When the extension assigned to the Phantom Station is called, in this case by the Indyme CONNECT application, the call will be directed to the specified Coverage Path which, in this case, routes to the Lumber Department Coverage Answer Group and rings all of the in-service Lumber Department stations.

<b>add station 250</b>		Page 1 of 5	
STATION			
Extension: 250	Lock Messages? n	BCC: 0	
Type: 6408D+	Security Code:	TN: 1	
<b>Port: X</b>	<b>Coverage Path 1: 1</b>	COR: 1	
<b>Name: Customer HELP</b>	Coverage Path 2:	COS: 1	
	Hunt-to Station:		
STATION OPTIONS			
Loss Group: 2		Time of Day Lock Table:	
Data Module? n	Personalized Ringing Pattern: 1		
Speakerphone: 2-way	Message Lamp Ext: 250		
Display Language: english	Mute Button Enabled? y		
Survivable COR: internal	Media Complex Ext:		
Survivable Trunk Dest? y	IP SoftPhone? n		
	IP Video? n		

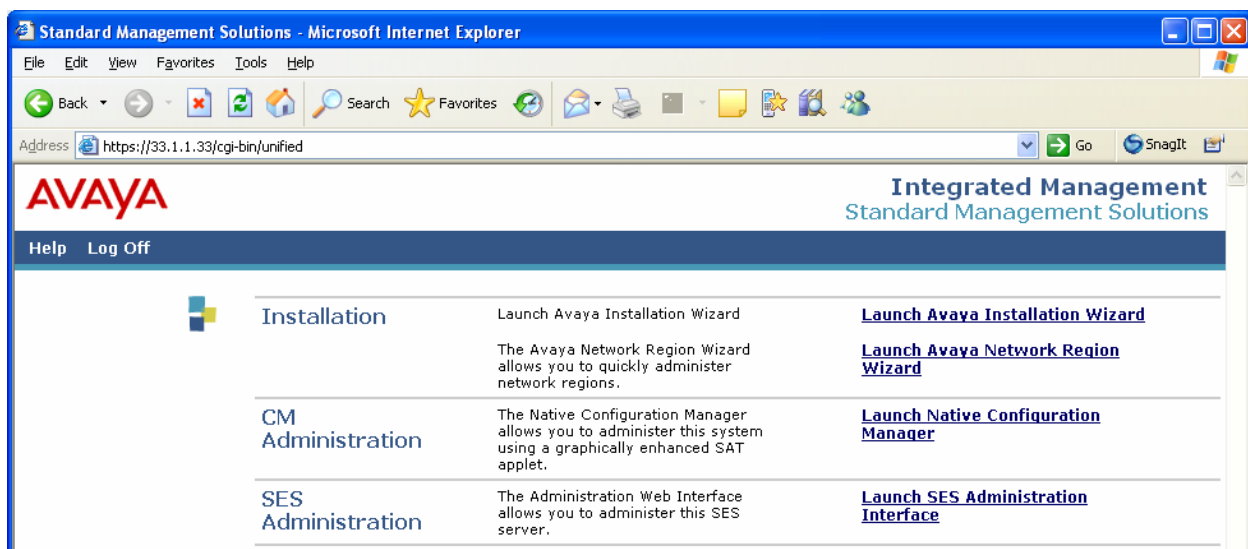
## 4.11. Save Configuration Changes

The command **save translation all** can be used to save configuration changes.

## 5. Configure Avaya SIP Enablement Services

The following section describes the steps to verify the SES SIP Domain and create a SIP user account for Indyme CONNECT. This section assumes that the Avaya SES has been previously installed, licensed, and configured to interface with the Co-Resident Avaya Communication Manager [4] and [5].

Access the Co-Resident SES server by entering **http://<SES server IP Address>** in a web browser. Click **Launch SES Administration Interface**.



### 5.1. Indyme CONNECT SIP User Account

Indyme CONNECT implements a SIP User Agent and functions as a SIP endpoint to Avaya Communication Manager. A SIP user account must be added to Avaya SES for Indyme CONNECT to interface with Avaya Communication Manager. The following screens illustrate the steps to create the Indyme CONNECT SIP user account.

From the SES menu, select **Users → Add**, and complete the information as shown in the example screen below. Note the **Host** field is set to the IP Address of the Avaya S8300C Server and the **Add Media Server Extension** option is enabled with a check to create a Media Server extension for this user. Press the **Add** button.

Top

▢ Users

Add

Default Profile

Delete

Edit

List

Password

Search

Manage All Registered  
Users

Search Registered  
Devices

Search Registered  
Users

Address Map Priorities

▢ Adjunct Systems

▢ Conferences

Emergency Contacts

▢ Export/Import to ProVision

▢ Hosts

IM logs

▢ Media Servers

List

▢ Media Server Extensions

▢ Server Configuration



## Add User

Primary Handle\*

User ID

Password\*

Confirm Password\*

Host\*  ▼

First Name\*

Last Name\*

Address 1

Address 2

Office

City

State

Country

Zip

Survivable Call  
Processor  ▼

Add Media Server  
Extension ☒

Fields marked \* are required.

**Add**

Press the **Continue** button in the confirmation screen that appears.



Enter the extension created in Avaya Communication Manager for Indyme CONNECT in Section 4.5.1 in the **Extension** field. Note that the value in the **Media Server** field represents the Avaya Communication Manager Co-Resident with the Avaya SES on the Avaya S8300C Server with IP Address 33.1.1.33. Press the **Add** button.



Press the **Continue** button in the confirmation screen that appears.



## 6. Configure Indyme CONNECT Server

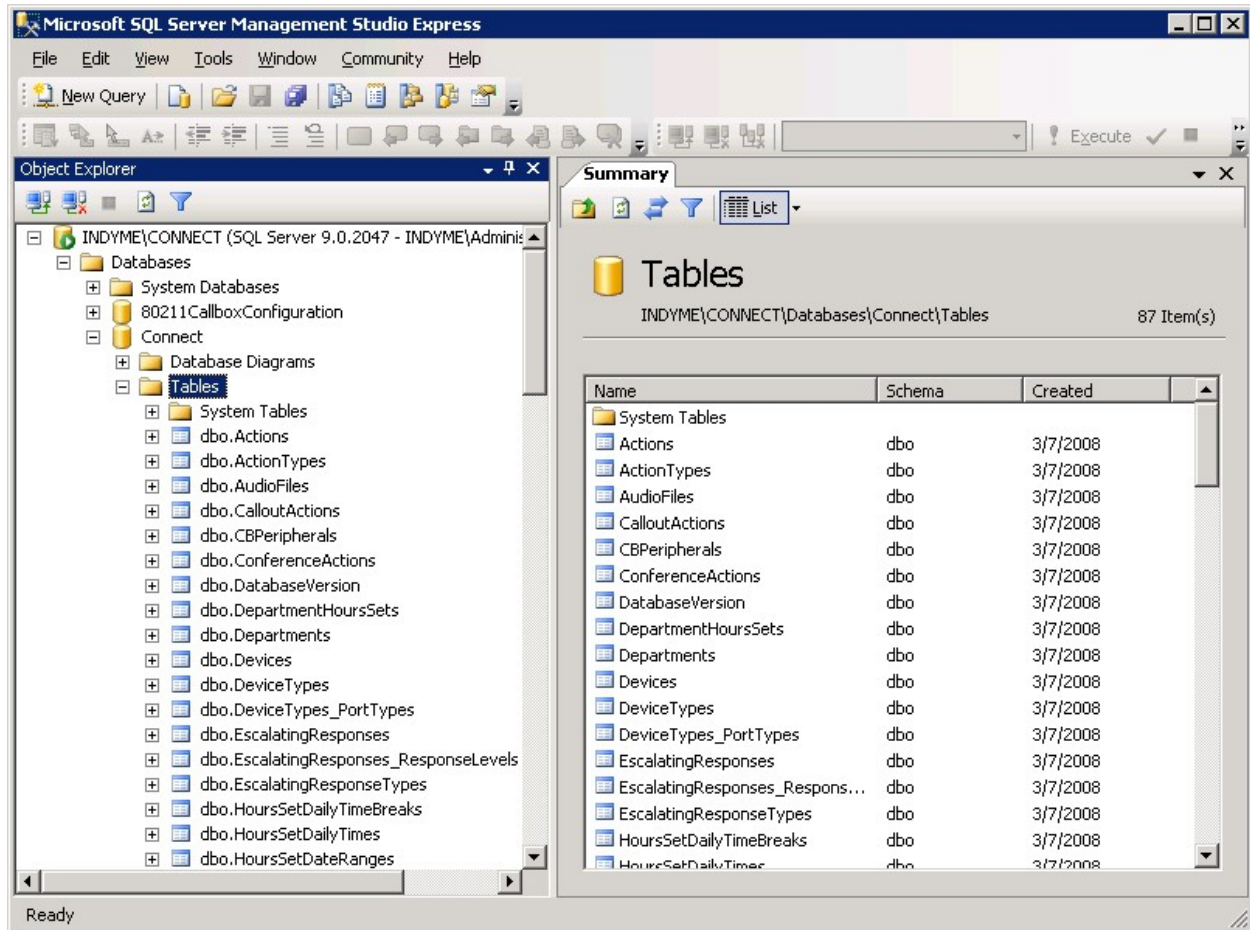
The Indyme CONNECT application and the Indyme Call Boxes are installed and configured by the Indyme Services Organization. This section describes the configuration aspects of Indyme CONNECT specific to the sample configuration and assumes the CONNECT application and the Call Boxes have been previously installed and configured by the Indyme Services Organization.

### 6.1. Database Configuration

Indyme CONNECT utilizes the Microsoft SQL Server as its database engine. The steps below describe how to modify the data maintained within the Microsoft SQL Database specific to the sample configuration.

The Indyme CONNECT application contains two databases; one specific to Call Box configurations called **80211CallboxConfiguration** and one specific to the application rules and SIP interfaces called **Connect**. The Connect database is the focus of this section. The Microsoft SQL Server Management Studio Express application is used to make modifications to the CONNECT database. Note that care must be taken when accessing and modifying the Connect database. Improper configuration of the database can cause the application to not function properly. Database access and modifications should be performed by experienced database staff.

From Microsoft SQL Server Management Studio Express, navigate to the Indyme Connect database tables list by selecting **Databases → Connect → Tables** as shown below.

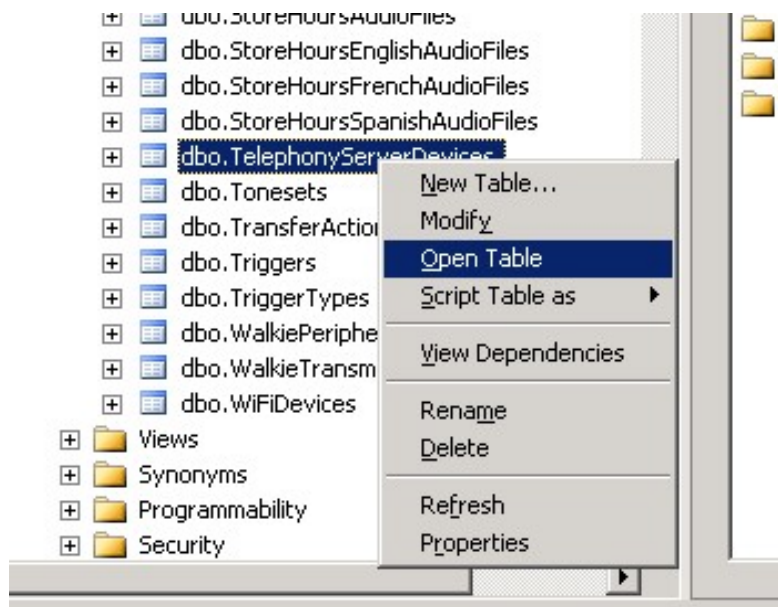


Data in the following tables will be modified to match with the sample configuration.

**TelephonyServerDevices** Contains the SIP Proxy Address CONNECT will interface with.  
**CalloutActions** Contains the Escalation extensions to be called per Call Box.

Right click on the **TelephonyServerDevices** table and select **Open Table** from the drop down menu as shown below.





Verify the value of the SipProxyAddress field matches the SIP Domain name of the Avaya SES and update if necessary. The remaining fields should not be modified from the values set by Indyme Services. The SipProxyAddress field does not support using an IP address and must contain a domain name. The Windows Hosts file is used to resolve the domain name to the SES IP address as described in **Section 6.4**.

Table - dbo.Te...yServerDevices					
Summary					
	DeviceID	HostAddress	HostPort	ConnectionRetr...	SipProxyAddress
▶	4	127.0.0.1	15000	1	retail-cores.com
*	NULL	NULL	NULL	NULL	NULL

Right click on the **CalloutActions** table and select **Open Table** from the drop down menu as described above. In the example shown below, ActionID's 489-491 have been configured by Indyme Services as the actions to be taken when the Call Box Help button is pressed. The primary extension 250 and escalation extensions 259 and 300 are entered under the **DestinationURI** field following a format of **<extension number>@SIP Domain Name**.

Table - dbo.CalloutActions		
	ActionID	DestinationURI
	489	250@retail-cores.com
	490	259@retail-cores.com
	491	300@retail-cores.com

**Note:** Any changes to the data in the Connect database requires the Indyme Windows Services described in Section 6.3 to be restarted for the changes to go into effect.

## 6.2. TelephonyServer.ini Configuration

The Indyme CONNECT TelephonyServer.ini configuration file contains SIP and telephony configuration information. The file is located on the CONNECT server in **C:\Program Files\Indyme\Connect\TelephonyServer**. The file contains several sections with each section formatted with a row of data. The data is separated by tabs into fields. The definition of each field is shown in the first commented row of each section. The following shows the sections relevant to the sample configuration with values of particular interest highlighted. Note the SIP Password field of the Resourcegroup section contains the password on SES of the SIP user account used by CONNECT.

### [RESOURCEGROUP]

```
;;;;;;;;;;
;
;GroupID   SetID   AudioTypeTx   Protocol   DeviceName       VoxDevice
;;;;;;;;;;
sip1       gcSip   stream        gc:SIP      iptB1T1:M_ipmB1C dxxxB1C1

(continuation of above row)
;;;;;;;;;;
;
; Originating          CallInfoID          SIP          SIP          SIP
; Address              From [CALLINFORMATION] Domain        Password     Reg Ext.
;;;;;;;;;;
203@retail-cores.com  CallInfo_1      retail-cores.com xxxxxx       203
```

### [CALLINFORMATION]

```
;;;;;;;;;;
;
;Group      Destination Addr      Tx Codec Grp  Rx Codec Grp      DTMF Type
;;;;;;;;;;
CallInfo_1  203@retail-cores.com  TX_CODEC_1    RX_CODEC_1         RFC2833
```





### [CODEC]

```
;;;;;;;;;;
;
;Group      Audio Capability      Type          Direction
;;;;;;;;;;
TX_CODEC_1  GCCAP_AUDIO_g711Ulaw64k  GCCAPTYPE_AUDIO IP_CAP_DIR_LCLTRANSMIT


(continuation of above row)
;;;;;;;;;;
;
; Payload Type          FramesPerPkt      VAD
;;;;;;;;;;
IP_USE_STANDARD_PAYLOADTYPE      20              GCPV_DISABLE
```

## 6.3. Windows Services

The following Windows Services must be started for the Indyme CONNECT application to be fully functional. These Windows Services are all configured to start up automatically during the CONNECT installation.

 Indyme Connect Service	Indyme Connects everything from ca...	Started	Automatic	Local System
 Indyme Connect Watchdog	Monitors and maintains the Connect ...	Started	Automatic	Local System
 Indyme Enterprise Updater	Enterprise Updater downloads chang...	Started	Automatic	Local System
 IndymeConnectTelephonyService	Indyme Connect Telephony Server S...	Started	Automatic	Local System

Indyme CONNECT utilizes components of the Intel HMP application and requires the following INTEL HMP service to also be started.

 INTEL HMP License Manager	Started	Automatic	Local System
---	---------	-----------	--------------

## 6.4. Hosts File Update

Indyme CONNECT uses the local hosts file of the CONNECT server to resolve the SIP Domain entered in the database to the IP address of the Avaya SES server. Edit the hosts file located in **C:\WINDOWS\system32\drivers\etc** and add an entry for the Avaya SES similar to the entry shown below.

**33.1.1.33      retail-cores.com**

## 7. Verification Steps

This section provides the tests that can be performed to verify proper configuration of SIP between Avaya SES, Avaya Communication Manager and Indyme.

### 7.1. SIP Registration

Verify the Indyme CONNECT user account created in Section 5.2 is listed. This indicates Indyme CONNECT has an active SIP Registration with Avaya SES.

#### 7.1.1. Avaya SES

From the SES menu, select **Users → Search Registered Users**. Click **Search**.

## Registered Users on 33.1.1.33

### Search Registered Users

Handle	<input type="text"/>
First Name	<input type="text"/>
Last Name	<input type="text"/>
Address	<input type="text"/>
Include Registered Users	<input checked="" type="checkbox"/>
Include Provisioned Users	<input type="checkbox"/>

Search

All of the active SIP Registrations will be listed. An entry for Indyme CONNECT, similar to the one shown below, should be included in the list. One Indyme CONNECT SIP Registration will exist per solution deployment.

<input type="checkbox"/>	203@retail-cores.com	CONNECT, Indyme	sip:203@retail-cores.com	Fri, 28 Mar 2008 13:45:41 EDT
--------------------------	----------------------	-----------------	--------------------------	-------------------------------

## 7.1.2. Indyme CONNECT

The Indyme CONNECT server is the source and destination of SIP sessions with Avaya SES. Running a packet sniffer application, such as Wireshark, allows all SIP messages sent to and from the CONNECT server to be viewed. The screen below shows a sample packet capture, using Wireshark, of an Indyme CONNECT SIP Registration session with Avaya SES.

Broadcom NetXtreme Gigabit Ethernet Driver: Capturing - Wireshark

File Edit View Go Capture Analyze Statistics Help

Filter: sip Expression... Clear Apply

No.	Time	Source	Destination	Protocol	Info
20	15:55:37.762037	33.1.1.150	33.1.1.33	SIP	Request: REGISTER sip:retail-cores.
21	15:55:37.771909	33.1.1.33	33.1.1.150	SIP	Status: 401 Unauthorized (0 bindings)
22	15:55:37.773769	33.1.1.150	33.1.1.33	SIP	Request: REGISTER sip:retail-cores.
25	15:55:37.845670	33.1.1.33	33.1.1.150	SIP	Status: 200 OK (1 bindings)

## 7.2. Indyme CONNECT Log

The Indyme CONNECT application includes an active log file named **test.log** located in **C:\Program Files\Indyme\Connect\TelephonyServer**. When the CONNECT application starts the log file is updated with the last line ending with the text **“Waiting for Call”**. This indicates the CONNECT application is fully started and operational. The last several lines of a test.log file are shown below as an example.

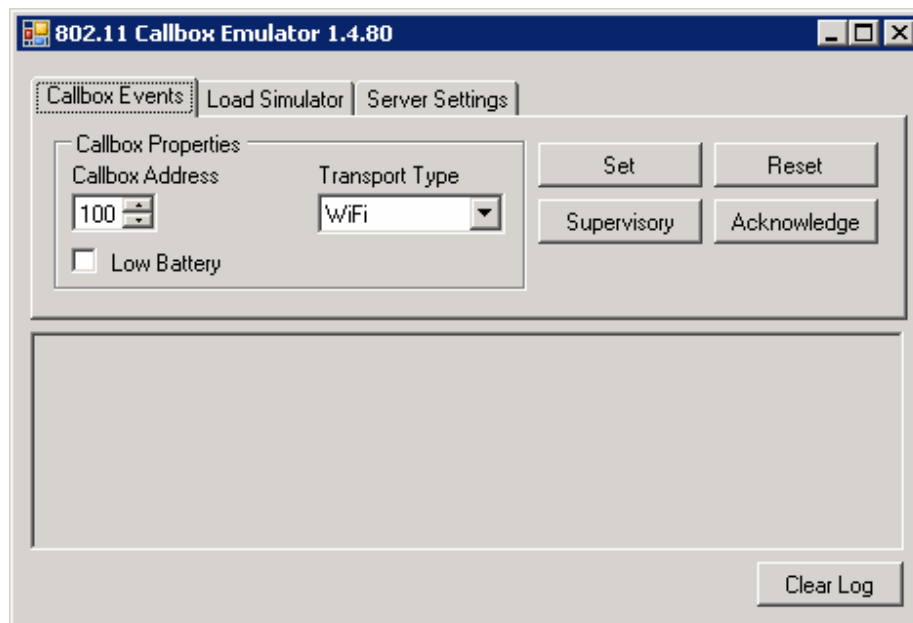
```

DEBUG:[2008/03/27 15:48:58.513, iptB1T4:M_ipmB1C4, (Idle) CDlgcGcSIPNet:SetOption]
[tid 4480] Setting IpReceive_Type to 0x2 (2)
DEBUG:[2008/03/27 15:48:58.513, iptB1T4:M_ipmB1C4, (Idle) CDlgcGcSIPNet:SetOption]
[tid 4480] IpReceive_Direction
DEBUG:[2008/03/27 15:48:58.513, iptB1T4:M_ipmB1C4, (Idle) CDlgcGcSIPNet:SetOption]
[tid 4480] Setting IpReceive_Direction to 0x2 (2)
DEBUG:[2008/03/27 15:48:58.513, iptB1T4:M_ipmB1C4, (Idle) CDlgcGcSIPNet:SetOption]
[tid 4480] IpReceive_PayloadType
DEBUG:[2008/03/27 15:48:58.513, iptB1T4:M_ipmB1C4, (Idle) CDlgcGcSIPNet:SetOption]
[tid 4480] Setting IpReceive_PayloadType to 0xFF (255)
DEBUG:[2008/03/27 15:48:58.513, iptB1T4:M_ipmB1C4, (Idle) CDlgcGcSIPNet:SetOption]
[tid 4480] Setting IpReceive_FramesPerPacket to 20
DEBUG:[2008/03/27 15:48:58.513, iptB1T4:M_ipmB1C4, (Idle) CDlgcGcSIPNet:SetOption]
[tid 4480] IpReceive_VoiceActivityDetect
DEBUG:[2008/03/27 15:48:58.513, iptB1T4:M_ipmB1C4, (Idle) CDlgcGcSIPNet:SetOption]
[tid 4480] Setting IpReceive_VoiceActivityDetect to 0x0 (0)
DEBUG:[2008/03/27 15:48:58.513, iptB1T4:M_ipmB1C4, (Idle) CDlgcGcSIPNet:SetState]
[tid 4480] Waiting for Call

```

### 7.3. Indyme Call Box Emulator

The Indyme Call Box Emulator application is a Windows application that can be installed on the same server as the CONNECT application. It allows an Indyme CONNECT configuration to be tested and verified without requiring the full Radius Call Box deployment to be in place. Consult with Indyme for details on installation and operation.



### 7.4. Avaya Communication Manager list trace

The **list trace** command can be used to view the events of an active Avaya Communication Manager call. The list trace capture of a call from Indyme CONNECT, initiated by the press of

the Call Box Help button, is shown below. The values relevant to the sample configuration are highlighted.

list trace station 250		Page 1
LIST TRACE		
time	data	
16:27:29	Calling party station 203 cid 0x167	
16:27:29	Calling Number & Name 203 HELP CB	
16:27:29	dial 250	
16:27:29	redirect station 250 cid 0x167	
16:27:29	G711MU ss:off ps:20 rn:2/1 33.1.1.150:49156 33.1.1.2:2054	
16:27:29	xoip: fax:Relay modem:off tty:US 33.1.1.2:2054 uid:0x50001	
16:27:30	coverage-path 1 point 1 cid 0x167	
16:27:30	G711MU ss:off ps:20 rn:1/1 33.1.1.190:2122 33.1.1.2:2052	
16:27:30	xoip: fax:Relay modem:off tty:US 33.1.1.2:2052 uid:0x94f	
	VOIP data from: 33.1.1.2:2054	
16:27:30	Jitter:0 0 0 0 0 0 0 0 0 0: Buff:8 WC:0 Avg:0	
16:27:30	Pkloss:0 0 0 0 0 0 0 0 0 0: Oofo:0 WC:0 Avg:0	
	VOIP data from: 33.1.1.2:2052	

## 8. Conclusion

These Application Notes provide a sample configuration for integrating the Indyme CONNECT Call Box solution with Avaya Communication Manager and Avaya SIP Enablement Services using a SIP interface. The sample configuration demonstrates how the Indyme and Avaya products can be used in a retail environment as an in-store customer service solution. Indyme CONNECT is an integral component of the Avaya Intelligent Retail Store Solution.

## 9. References

Avaya Application Notes and additional resources can be found at the following web address <http://www.avaya.com/gcm/master-usa/en-us/resource/>. Avaya Product Support web site can be found at the following web address <http://support.avaya.com/>.

The following Avaya references are relevant to these Application Notes:

- [1] *The Avaya Intelligent Retail Store Solution Web Page*,  
[http://www.avaya.com/gcm/master-usa/en-us/solutions/offers/intelligent\\_retail\\_store.htm?R=y](http://www.avaya.com/gcm/master-usa/en-us/solutions/offers/intelligent_retail_store.htm?R=y)
- [2] *Avaya Intelligent Solutions WebPage*,  
<http://www.avaya.com/gcm/master-usa/en-us/solutions/solutionfinder.htm>
- [3] *Administrator Guide for Avaya Communication Manager*,  
Doc ID: 03-300509, Issue 4, January 2008
- [4] *Administering SIP Enablement Services on the Avaya S8300 Server*,  
Doc ID: 03-602508, Issue 1, January 2008
- [5] *Application Note: Sample Configuration for SIP Private Networking among Avaya Distributed Office sites and Avaya Communication Manager Release 5 with Co-Resident SES Home – Issue 1.0*  
<http://www.avaya.com/master-usa/en-us/resource/assets/applicationnotes/cores-w-do.pdf>

The following Indyme references are relevant to these Application Notes:

- [6] *Indyme Web Page*,  
<http://www.indyme.com/>

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