



Avaya Solution & Interoperability Test Lab

Configuring Connectivity between Avaya Communication Manager, Avaya Meeting Exchange Express Edition, and the Cantata Technology IMG 1010 Media Gateway Utilizing ISDN-PRI and SIP - Issue 1.0

Abstract

These Application Notes present the procedures for configuring connectivity between Avaya Communication Manager, Avaya Meeting Exchange Express Edition (Avaya Meeting Exchange), and the Cantata Technology IMG 1010 Media Gateway (IMG). The IMG provided T1 ISDN-PRI to SIP gateway functionality between Avaya Communication Manager and Avaya Meeting Exchange. This configuration enables telephones registered to either Avaya Communication Manager, or Avaya SIP Enablement Services access to a rich set of audio conferencing options provided by Avaya Meeting Exchange via the IMG.

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 present the procedures for configuring connectivity between Avaya Communication Manager, Avaya Meeting Exchange Express Edition (Avaya Meeting Exchange), and the Cantata Technology IMG 1010 Media Gateway (IMG). The IMG provided T1 ISDN-PRI to SIP gateway functionality between Avaya Communication Manager and Avaya Meeting Exchange. This configuration enables telephones registered to either Avaya Communication Manager, or Avaya SIP Enablement Services access to a rich set of audio conferencing options provided by Avaya Meeting Exchange via the IMG.

Figure 1 illustrates the sample configuration utilized for this compliance tested solution. Avaya Communication Manager provided endpoint aggregation and media gateway functionality. For example, any telephone or trunk type associated with Avaya Communication Manager can interoperate with Avaya Meeting Exchange via the IMG. For this sample configuration, SIP, H.323, Digital, and Analog telephones were utilized.

Avaya Meeting Exchange is a SIP-based voice conferencing solution that runs on an S6100 server and provides mid-market enterprise customers with an IP based audio conferencing system. For this sample configuration, Avaya Meeting Exchange was provisioned to accept calls from Avaya Communication Manager via either direct or basic call flows. A direct call flow allows access to conferences provisioned on Avaya Meeting Exchange without entering a passcode. Conversely, to enter a conference via a basic call flow requires a passcode. Avaya Meeting Exchange was also administered for outbound calling, which enabled call origination from Avaya Meeting Exchange to participants registered to either Avaya Communication Manager, or Avaya SIP Enablement Services.

The IMG provides network connectivity for voice services, enabling the delivery of VoIP services via SIP into ISDN-PRI, CAS and SS7 networks, as well as IP to IP transcoding for network peering applications. For this sample configuration, the IMG provided SIP connectivity to Avaya Meeting Exchange and T1 ISDN-PRI connectivity to Avaya Communication Manager.

The end-to-end signaling and media connectivity is as follows:

- Signaling (SIP) and media (RTP) connectivity between Avaya Meeting Exchange and the IMG is depicted by the green dashed line.
- T1 signaling and media (ISDN-PRI) connectivity between Avaya Communication Manager and the IMG is depicted by the blue dotted line.

To account for the SIP telephones in this sample configuration, Avaya SIP Enablement Services was utilized as a SIP registration server only.

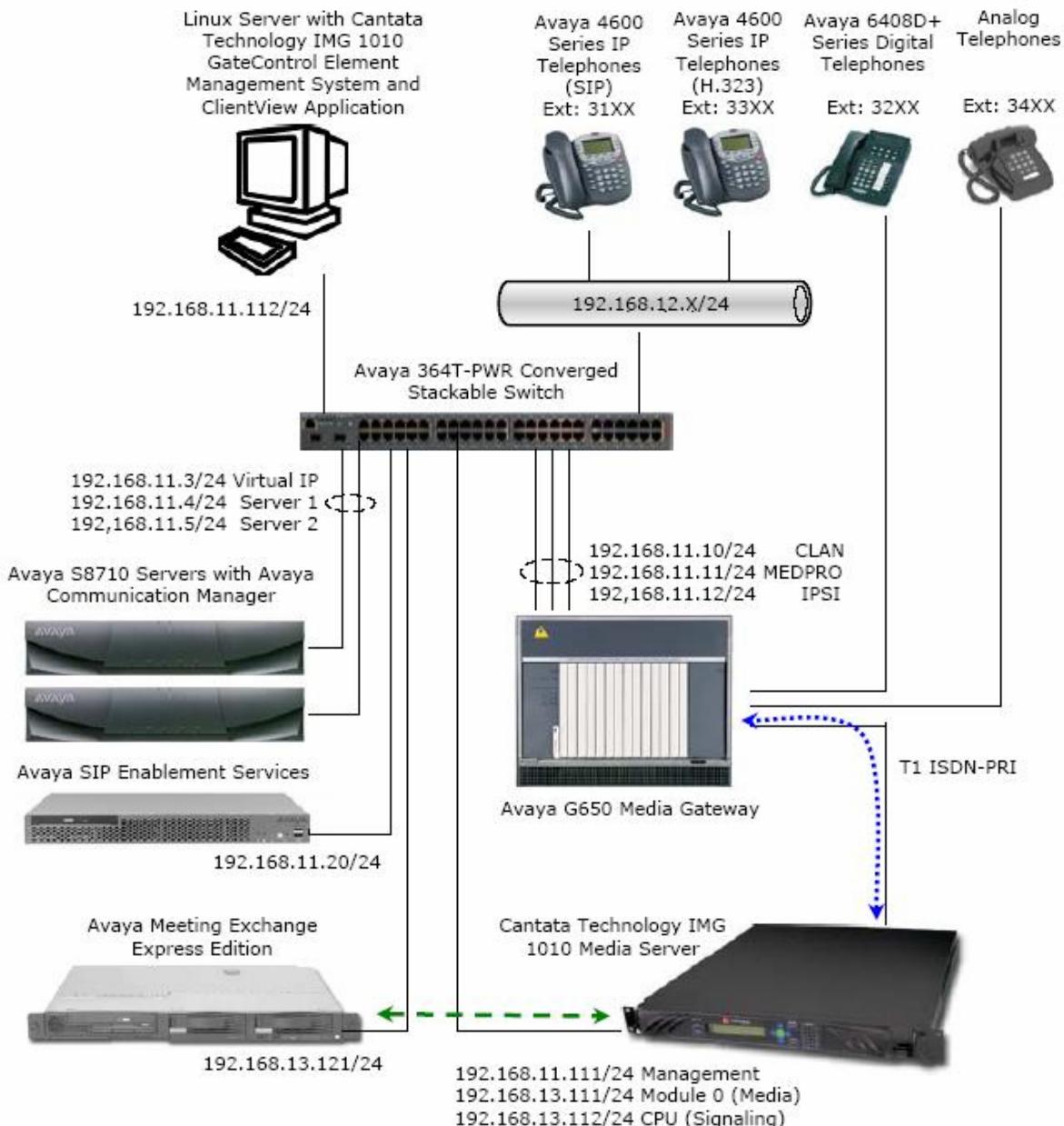


Figure 1: Sample Configuration

2. Equipment and Software Validated

The following equipment and software versions were used for this sample configuration:

Equipment	Software Version
Avaya S8710 Servers	Avaya Communication Manager 4.0 (R014x.00.1.731.2)
Avaya G650 Media Gateway <ul style="list-style-type: none">• Avaya TN2312BP (IPSI)• Avaya TN799DP (C-LAN)• Avaya TN2302AP (MEDPRO)	HW12 FW040 HW01 FW024 HW20 FW117
Avaya Meeting Exchange Express Edition	S6100-2.5.60.0
Avaya SIP Enablement Services	SES04.0-04.0.033.6
Avaya C364T-PWR Converged Stackable Switch	4.5.14
Avaya 4600 Series IP Telephones	2.8 (H.323)
Avaya 4600 Series IP Telephones	2.2.2 (SIP)
Avaya 6408D+ Digital Telephones	--
Analog Telephones	--
Cantata Technology IMG 1010 Media Gateway	10.3.3
Cantata Technology IMG 1010 GateControl Element Management System	10.3.3.174
Cantata Technology ClientView	10.3.3.174

Table 1: Equipment and Software Versions

3. Avaya Communication Manager Configuration

This section displays the configuration for enabling Avaya Communication Manager to interoperate with Avaya Meeting Exchange via the IMG.

Avaya Communication Manager was administered from the System Access Terminal (SAT). In these Application Notes the SAT screens are shown with a gray shaded background. In some instances, the information from the original screen has been edited or annotated for brevity or clarity in presentation. For example, entries and/or fields in the SAT screens that were either modified or were required for these Application Notes are displayed with boldface type. Refer to [3] and [4] for additional information regarding the configuration displayed in this section.

3.1. Verify Licensing

The following steps verify licensing on Avaya Communication Manager that is required to support the configuration displayed in these Application Notes. If a required feature is not enabled or there is insufficient capacity, contact an authorized Avaya account representative to make the appropriate changes.

Step	Description																														
3.1.1	<p>Issue the command “display system-parameters customer-options”, and proceed to page 3. Verify that the ARS/AAR Dialing without FAC field is enabled.</p> <p><i>Note: The ARS/AAR Dialing without FAC feature allows direct access to Automatic Alternate Routing (AAR) and Automatic Route Selection (ARS) from the dial plan analysis table.</i></p> <p>display system-parameters customer-options</p> <p style="text-align: right;">Page 3 of 11</p> <p style="text-align: center;">OPTIONAL FEATURES</p> <table><tbody><tr><td>Abbreviated Dialing Enhanced List? n</td><td>Audible Message Waiting? y</td></tr><tr><td>Access Security Gateway (ASG)? n</td><td>Authorization Codes? n</td></tr><tr><td>Analog Trunk Incoming Call ID? n</td><td>Backup Cluster Automatic Takeover? n</td></tr><tr><td>A/D Grp/Sys List Dialing Start at 01? n</td><td>CAS Branch? n</td></tr><tr><td>Answer Supervision by Call Classifier? n</td><td>CAS Main? n</td></tr><tr><td>ARS? y</td><td>Change COR by FAC? n</td></tr><tr><td>ARS/AAR Partitioning? y</td><td>Computer Telephony Adjunct Links? y</td></tr><tr><td>ARS/AAR Dialing without FAC? y</td><td>Cvg Of Calls Redirected Off-net? n</td></tr><tr><td>ASAI Link Core Capabilities? n</td><td>DCS (Basic)? n</td></tr><tr><td>ASAI Link Plus Capabilities? n</td><td>DCS Call Coverage? n</td></tr><tr><td>Async. Transfer Mode (ATM) PNC? n</td><td>DCS with Rerouting? n</td></tr><tr><td>Async. Transfer Mode (ATM) Trunking? n</td><td>Digital Loss Plan Modification? n</td></tr><tr><td>ATM WAN Spare Processor? n</td><td>DS1 MSP? n</td></tr><tr><td>ATMS? n</td><td>DS1 Echo Cancellation? n</td></tr><tr><td>Attendant Vectoring? y</td><td></td></tr></tbody></table> <p>(NOTE: You must logoff & login to effect the permission changes.)</p>	Abbreviated Dialing Enhanced List? n	Audible Message Waiting? y	Access Security Gateway (ASG)? n	Authorization Codes? n	Analog Trunk Incoming Call ID? n	Backup Cluster Automatic Takeover? n	A/D Grp/Sys List Dialing Start at 01? n	CAS Branch? n	Answer Supervision by Call Classifier? n	CAS Main? n	ARS? y	Change COR by FAC? n	ARS/AAR Partitioning? y	Computer Telephony Adjunct Links? y	ARS/AAR Dialing without FAC? y	Cvg Of Calls Redirected Off-net? n	ASAI Link Core Capabilities? n	DCS (Basic)? n	ASAI Link Plus Capabilities? n	DCS Call Coverage? n	Async. Transfer Mode (ATM) PNC? n	DCS with Rerouting? n	Async. Transfer Mode (ATM) Trunking? n	Digital Loss Plan Modification? n	ATM WAN Spare Processor? n	DS1 MSP? n	ATMS? n	DS1 Echo Cancellation? n	Attendant Vectoring? y	
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Step	Description
3.1.2	<p>Proceed to Page 4, and verify that the ISDN-PRI field is enabled.</p> <pre>display system-parameters customer-options OPTIONAL FEATURES Emergency Access to Attendant? y IP Stations? y Enable 'dadmin' Login? y Internet Protocol (IP) PNC? n Enhanced Conferencing? y ISDN Feature Plus? n Enhanced EC500? y ISDN 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? n Malicious Call Trace? n External Device Alarm Admin? n Media Encryption Over IP? n Five Port Networks Max Per MCC? n Mode Code for Centralized Voice Mail? n Flexible Billing? n Multifrequency Signaling? y Forced Entry of Account Codes? n Multimedia Appl. Server Interface (MASI)? n Global Call Classification? n Hospitality (Basic)? y Multimedia Call Handling (Basic)? y Hospitality (G3V3 Enhancements)? n Hospitality (G3V3 Enhancements)? n Multimedia Call Handling (Enhanced)? y IP Trunks? y IP Attendant Consoles? n (NOTE: You must logoff & login to effect the permission changes.)</pre>

3.2. Configure Connectivity

This section describes the steps for configuring ISDN-PRI trunking between Avaya Communication Manager and the IMG.

Step	Description
3.2.1	<p>Issue the command “add ds1 <xxxxx>”, where xxxxx is the location of the DS1 circuit pack in the Avaya G650 Media Gateway, and administer settings as displayed.</p> <ul style="list-style-type: none"> Enter a descriptive name for the DS1 circuit pack in the Name field. Set the Signaling Mode field to isdn-pri. Set the Connect field to pbx since this DS1 link is connected to another switch in a private network, e.g., the IMG. Configure additional fields with boldface type as displayed, and use default settings for remaining fields. <pre>add ds1 01a06 DS1 CIRCUIT PACK Location: 01A06 Bit Rate: 1.544 Line Compensation: 1 Signaling Mode: isdn-pri Connect: pbx TN-C7 Long Timers? n Interworking Message: PROGRESS Interface Companding: mulaw Idle Code: 11111111 Name: IMG ISDN-PRI Line Coding: b8zs Framing Mode: esf Interface: network Country Protocol: 1 Protocol Version: a CRC? n DCP/Analog Bearer Capability: 3.1kHz T303 Timer(sec): 4 Slip Detection? n Near-end CSU Type: other</pre>

Step	Description																											
3.2.2	<p>Issue the command “add signaling-group <n>”, where n is the number of an unallocated signaling group, and administer settings as displayed:</p> <ul style="list-style-type: none"> Set the Group Type field to isdn-pri. Set the Primary D-Channel field to utilize channel 24 on the DS1 circuit pack provisioned in Step 3.2.1. Use default settings for remaining fields. <pre data-bbox="295 530 600 559">add signaling-group 6</pre> <table data-bbox="752 587 1486 804"> <tr> <td colspan="3" style="text-align: right;">Page 1 of 5</td> </tr> <tr> <td colspan="3" style="text-align: center;">SIGNALING GROUP</td> </tr> <tr> <td>Group Number: 6</td> <td>Group Type: isdn-pri</td> <td>Max number of NCA TSC: 0</td> </tr> <tr> <td>Associated Signaling? y</td> <td>Primary D-Channel: 01A0624</td> <td>Max number of CA TSC: 0</td> </tr> <tr> <td>Trunk Group for Channel Selection: TSC Supplementary Service Protocol: a</td> <td></td> <td>Trunk Group for NCA TSC: X-Mobility/Wireless Type: NONE</td> </tr> </table>	Page 1 of 5			SIGNALING GROUP			Group Number: 6	Group Type: isdn-pri	Max number of NCA TSC: 0	Associated Signaling? y	Primary D-Channel: 01A0624	Max number of CA TSC: 0	Trunk Group for Channel Selection: TSC Supplementary Service Protocol: a		Trunk Group for NCA TSC: X-Mobility/Wireless Type: NONE												
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3.2.3	<p>Issue the command “add trunk-group <n>”, where n is the number of an unallocated trunk group, and administer settings as displayed.</p> <ul style="list-style-type: none"> Enter a descriptive name for the trunk group in the Name field. Administer settings for the Group Type and Carrier Medium fields that are consistent with the signaling group provisioned in Step 3.2.2. Enter a number in the TAC (Trunk Access Code) field that is consistent with the configuration for the dial plan. Configure additional fields with boldface type as displayed, and use default settings for remaining fields. <pre data-bbox="295 1262 540 1292">add trunk-group 6</pre> <table data-bbox="1209 1262 1437 1292"> <tr> <td colspan="3" style="text-align: right;">Page 1 of 21</td> </tr> <tr> <td colspan="3" style="text-align: center;">TRUNK GROUP</td> </tr> <tr> <td>Group Number: 6</td> <td>Group Type: isdn</td> <td>CDR Reports: y</td> </tr> <tr> <td>Group Name: PRI Trunk to IMG-1010</td> <td>COR: 1</td> <td>TN: 1 TAC: 106</td> </tr> <tr> <td>Direction: two-way</td> <td>Outgoing Display? n</td> <td>Carrier Medium: PRI/BRI</td> </tr> <tr> <td>Dial Access? n</td> <td>Busy Threshold: 255</td> <td>Night Service:</td> </tr> <tr> <td>Queue Length: 0</td> <td></td> <td></td> </tr> <tr> <td>Service Type: tie</td> <td>Auth Code? n</td> <td>TestCall ITC: rest</td> </tr> <tr> <td>TestCall BCC: 4</td> <td>Far End Test Line No:</td> <td></td> </tr> </table>	Page 1 of 21			TRUNK GROUP			Group Number: 6	Group Type: isdn	CDR Reports: y	Group Name: PRI Trunk to IMG-1010	COR: 1	TN: 1 TAC: 106	Direction: two-way	Outgoing Display? n	Carrier Medium: PRI/BRI	Dial Access? n	Busy Threshold: 255	Night Service:	Queue Length: 0			Service Type: tie	Auth Code? n	TestCall ITC: rest	TestCall BCC: 4	Far End Test Line No:	
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Step	Description
3.2.4	<p>Proceed to Page 2, and administer hunting as displayed.</p> <ul style="list-style-type: none"> Set the Trunk Hunt field to descend. <i>Note: It is a convention to configure each side of the ISDN-PRI trunk to hunt for B-channels in opposite directions, e.g., ascending/descending. This helps avoid the possibility of glare conditions. Glare occurs when both sides of an ISDN interface select the same B-channel for call origination. For this sample configuration, Avaya Communication Manager is administered as descending.</i> Use default settings for remaining fields.

add trunk-group 6	Page 2 of 21	
Group Type: isdn		
TRUNK PARAMETERS		
Codeset to Send Display: 6 Codeset to Send National IEs: 6		
Max Message Size to Send: 260 Charge Advice: none		
Supplementary Service Protocol: a Digit Handling (in/out): enbloc/enbloc		
Trunk Hunt: descend		
Digital Loss Group: 13		
Incoming Calling Number - Delete:	Insert:	Format:
Bit Rate: 1200	Synchronization: async	Duplex: full
Disconnect Supervision - In? y Out? n		
Answer Supervision Timeout: 0		
Administer Timers? n		

Step	Description																																																																																																																																																
3.2.5	<p>Proceed to Page 5, and administer the members for the trunk group as displayed.</p> <ul style="list-style-type: none"> Enter xxxxxyy in the Port field, where xxxxx corresponds to the location of the DS1 circuit pack in the Avaya G650 Media Gateway, and yy corresponds to the trunk group member. Enter the number of the signaling group provisioned in Step 3.2.2 in the Sig Grp field for each member. <pre>add trunk-group 6</pre> <pre> TRUNK GROUP Administered Members (min/max): 1/23 Total Administered Members: 23 GROUP MEMBER ASSIGNMENTS</pre> <table> <thead> <tr> <th>Port</th> <th>Code</th> <th>Sfx</th> <th>Name</th> <th>Night</th> <th>Sig Grp</th> </tr> </thead> <tbody> <tr><td>1: 01A0601</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> <tr><td>2: 01A0602</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> <tr><td>3: 01A0603</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> <tr><td>4: 01A0604</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> <tr><td>5: 01A0605</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> <tr><td>6: 01A0606</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> <tr><td>7: 01A0607</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> <tr><td>8: 01A0608</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> <tr><td>9: 01A0609</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> <tr><td>10: 01A0610</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> <tr><td>11: 01A0611</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> <tr><td>12: 01A0612</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> <tr><td>13: 01A0613</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> <tr><td>14: 01A0614</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> <tr><td>15: 01A0615</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> <tr><td>16: 01A0616</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> <tr><td>17: 01A0617</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> <tr><td>18: 01A0618</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> <tr><td>19: 01A0619</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> <tr><td>20: 01A0620</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> <tr><td>21: 01A0621</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> <tr><td>22: 01A0622</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> <tr><td>23: 01A0623</td><td>TN464</td><td>F</td><td></td><td></td><td>6</td></tr> </tbody> </table>	Port	Code	Sfx	Name	Night	Sig Grp	1: 01A0601	TN464	F			6	2: 01A0602	TN464	F			6	3: 01A0603	TN464	F			6	4: 01A0604	TN464	F			6	5: 01A0605	TN464	F			6	6: 01A0606	TN464	F			6	7: 01A0607	TN464	F			6	8: 01A0608	TN464	F			6	9: 01A0609	TN464	F			6	10: 01A0610	TN464	F			6	11: 01A0611	TN464	F			6	12: 01A0612	TN464	F			6	13: 01A0613	TN464	F			6	14: 01A0614	TN464	F			6	15: 01A0615	TN464	F			6	16: 01A0616	TN464	F			6	17: 01A0617	TN464	F			6	18: 01A0618	TN464	F			6	19: 01A0619	TN464	F			6	20: 01A0620	TN464	F			6	21: 01A0621	TN464	F			6	22: 01A0622	TN464	F			6	23: 01A0623	TN464	F			6
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3.3. Configure Call Routing

This section describes the steps for configuring call routing from Avaya Communication Manager to Avaya Meeting Exchange via the IMG. For this sample configuration, ARS/AAR dialing without FAC is utilized to route calls to Avaya Meeting Exchange. Note that other forms of call routing may be utilized.

Step	Description																																																																																																																					
3.3.1	<p>Issue the command “change dialplan analysis”, and administer settings to route any numbers beginning with a 4 and totaling 3 digits in length via AAR as displayed.</p> <p>change dialplan analysis</p> <p style="text-align: right;">Page 1 of 12</p> <table><caption>DIAL PLAN ANALYSIS TABLE</caption><thead><tr><th>Dialed String</th><th>Total Length</th><th>Call Type</th><th>Dialed String</th><th>Total Length</th><th>Call Type</th><th>Dialed String</th><th>Total Length</th><th>Call Type</th></tr></thead><tbody><tr><td>0</td><td>1</td><td>fac</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1</td><td>3</td><td>dac</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2</td><td>3</td><td>aar</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>3</td><td>5</td><td>ext</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>4</td><td>3</td><td>aar</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>5</td><td>3</td><td>aar</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>6</td><td>3</td><td>aar</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>7</td><td>5</td><td>ext</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>8</td><td>2</td><td>fac</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>9</td><td>2</td><td>dac</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>*</td><td>1</td><td>fac</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>#</td><td>3</td><td>fac</td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table>	Dialed String	Total Length	Call Type	Dialed String	Total Length	Call Type	Dialed String	Total Length	Call Type	0	1	fac							1	3	dac							2	3	aar							3	5	ext							4	3	aar							5	3	aar							6	3	aar							7	5	ext							8	2	fac							9	2	dac							*	1	fac							#	3	fac						
Dialed String	Total Length	Call Type	Dialed String	Total Length	Call Type	Dialed String	Total Length	Call Type																																																																																																														
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Step	Description
3.3.2	<p>Issue the command “change route-pattern <n>”, where n is the number of an unallocated route pattern. Administer settings to utilize the trunk group provisioned in Step 3.2.3 to route calls from Avaya Communication Manager to the IMG.</p> <ul style="list-style-type: none"> • Enter the number of the trunk group that was provisioned in Step 3.2.3 in the Grp No field. • To disable restrictions for call routing via this route pattern, set the Facility Restriction Level (FRL) field to the lowest setting. • Configure additional fields with boldface type as displayed, and use default settings for remaining fields. <pre>change route-pattern 6 Page 1 of 3 Pattern Number: 6 Pattern Name: PRI Rt To IMG SCCAN? n Secure SIP? n Grp FRL NPA Pfx Hop Toll No. Inserted DCS/ IXC No Mrk Lmt List Del Digits QSIG Dgts Intw 1: 6 0 0 2: 3: 4: 5: 6: BCC VALUE TSC CA-TSC ITC BCIE Service/Feature PARM No. Numbering LAR 0 1 2 M 4 W Request Dgts Format Subaddress 1: Y Y Y Y y n n rest 2: Y Y Y Y y n n rest 3: Y Y Y Y y n n rest 4: Y Y Y Y y n n rest 5: Y Y Y Y y n n rest 6: Y Y Y Y y n n rest </pre>

Step	Description
3.3.3	<p>Issue the command “change aar analysis x”, and add an entry in the table to utilize the route pattern provisioned in Step 3.3.2.</p> <ul style="list-style-type: none"> Enter a number in the Dialed String field that will be utilized by Avaya Meeting Exchange to map to a direct call flow. Enter the number of the route pattern provisioned in Step 3.3.2 in the Route Pattern field. Configure additional fields with boldface type as displayed, and use default settings for remaining fields. <pre>change aar analysis 4 AAR DIGIT ANALYSIS TABLE Percent Full: 1 Dialed Total Route Call Node ANI String Min Max Pattern Type Num Reqd 401 3 3 6 aar n 444 3 3 6 aar n</pre>

4. Avaya Meeting Exchange Configuration

This section displays the configuration for enabling Avaya Meeting Exchange to interoperate with Avaya Communication Manager via the IMG. Avaya Meeting Exchange is administered and maintained using a standard web browser over a secure connection by entering <https://<IP address of Avaya Meeting Exchange>/mx> into the web browser’s Uniform Resource Locator (URL) bar.

4.1. Configure Connectivity

This section describes the steps for configuring SIP/TCP connectivity between Avaya Meeting Exchange and the IMG.

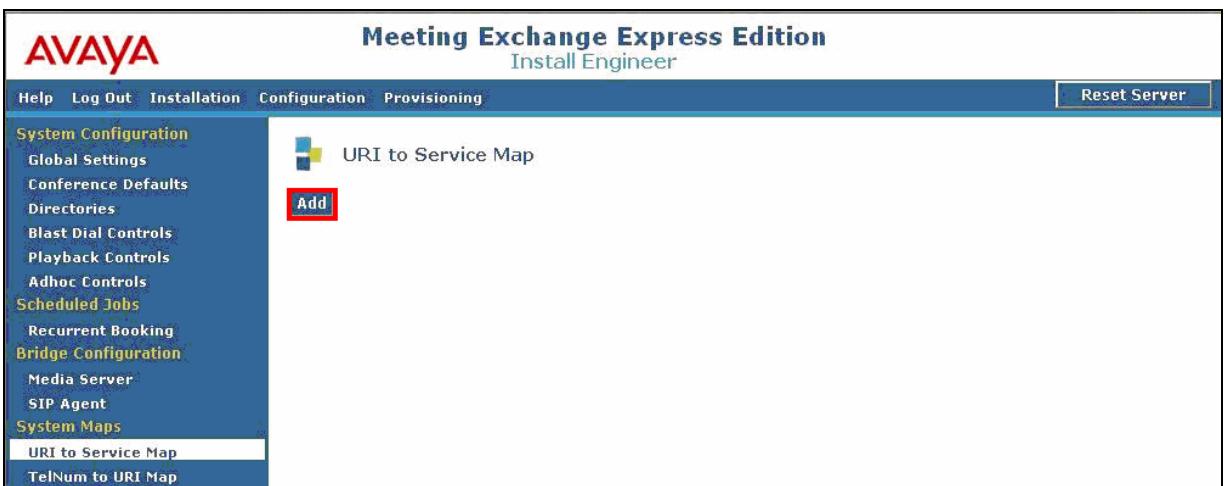
Step	Description
4.1.1	<p>Administer settings that enable SIP connectivity between Avaya Meeting Exchange and other SIP User Agents as follows:</p> <ul style="list-style-type: none">From the web interface toolbar, click Configuration.Click SIP Agent under Bridge Configuration.Enter a SIP URI for Avaya Meeting Exchange that conforms to SIP standards in the SIP Address field. This field is used to populate the From Header Field in SIP INVITE messages from Avaya Meeting Exchange. To enable SIP/TCP connectivity on port 5060, this entry must contain 5060 and transport=tcp. The user field, S6100, must conform to SIP standards, and is selected to uniquely identify this server. For example, S6100 will be inserted in the From Header Field of SIP INVITE messages from Avaya Meeting Exchange and will display on a participant's endpoint when Dial-Out procedures from Avaya Meeting Exchange are invoked. This allows end-user's to identify a call from Avaya Meeting Exchange.Enter the SIP URI, as configured for the SIP Address field, in angled brackets in the Contact field. This field is used to populate the Contact Header Field in SIP INVITE messages from Avaya Meeting Exchange, and provides SIP User Agents, for these Application Notes the IMG, a means for acknowledging SIP messages from Avaya Meeting Exchange.Use default settings for remaining fields.Click the Submit button to add the configuration to the database.

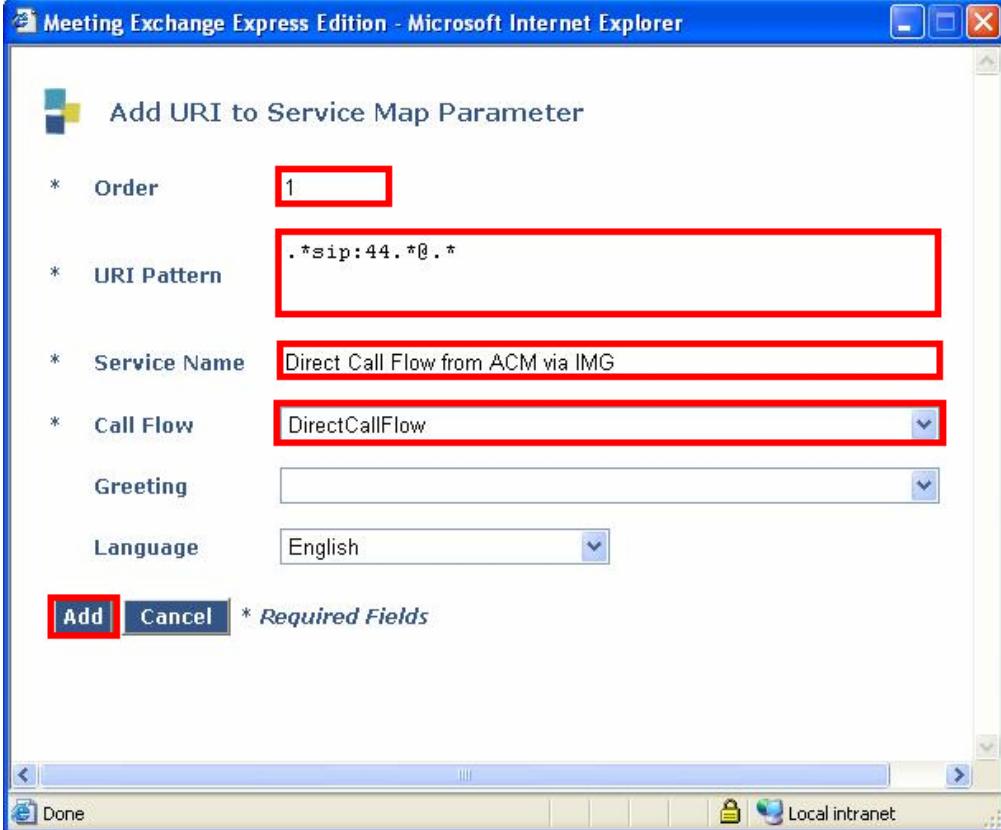
The screenshot shows the Avaya Meeting Exchange Express Edition web interface. The top navigation bar includes Help, Log Out, Installation, Configuration (which is highlighted in yellow), Provisioning, and a Reset Server button. The left sidebar has a tree view with System Configuration, Global Settings, Conference Defaults, Directories, Blast Dial Controls, Playback Controls, Adhoc Controls, Scheduled Jobs, Recurrent Booking, Bridge Configuration (which is highlighted in blue), Media Server, SIP Agent (which is highlighted in white), System Maps, URI to Service Map, and TelNum to URI Map. The main content area is titled 'Meeting Exchange Express Edition' and 'Install Engineer'. It shows the 'SIP Agent' configuration under 'Bridge Configuration'. The 'SIP Address' field contains 'sip:S6100@192.168.13.121:5060;transport=tcp'. The 'Contact' field contains '<sip:S6100@192.168.13.121:5060;transport=tcp>'. There are also dropdowns for 'Differentiated Service TOS Value' (set to 4) and 'Ethernet VLAN Value' (set to 10), and a dropdown for 'SIPPING Notification Interval' (set to 1). A red box highlights the 'SIP Address' and 'Contact' fields.

4.2. Configure Call Routing

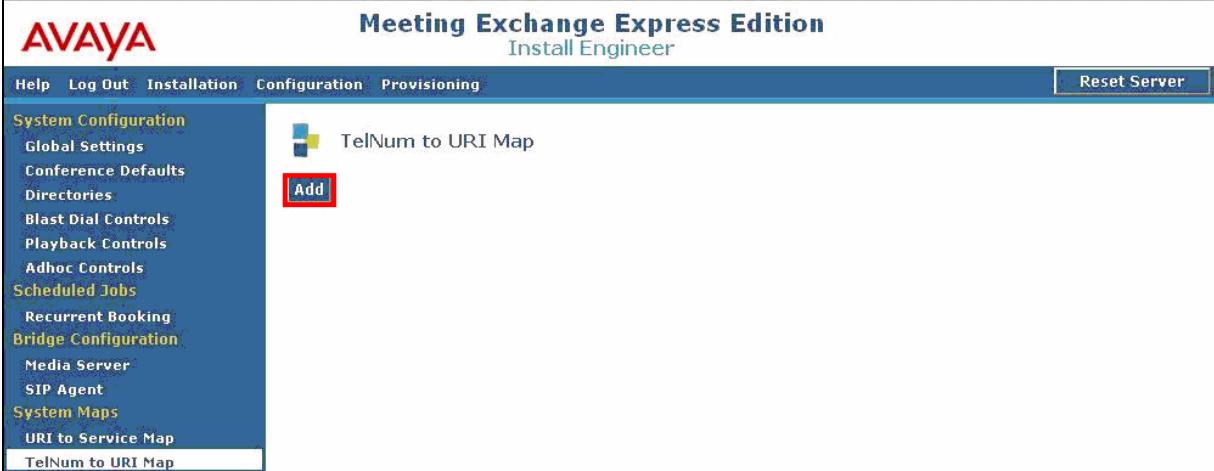
This section describes the steps for configuring call routing for Avaya Meeting Exchange. On Avaya Meeting Exchange, call routing is defined by service maps as follows:

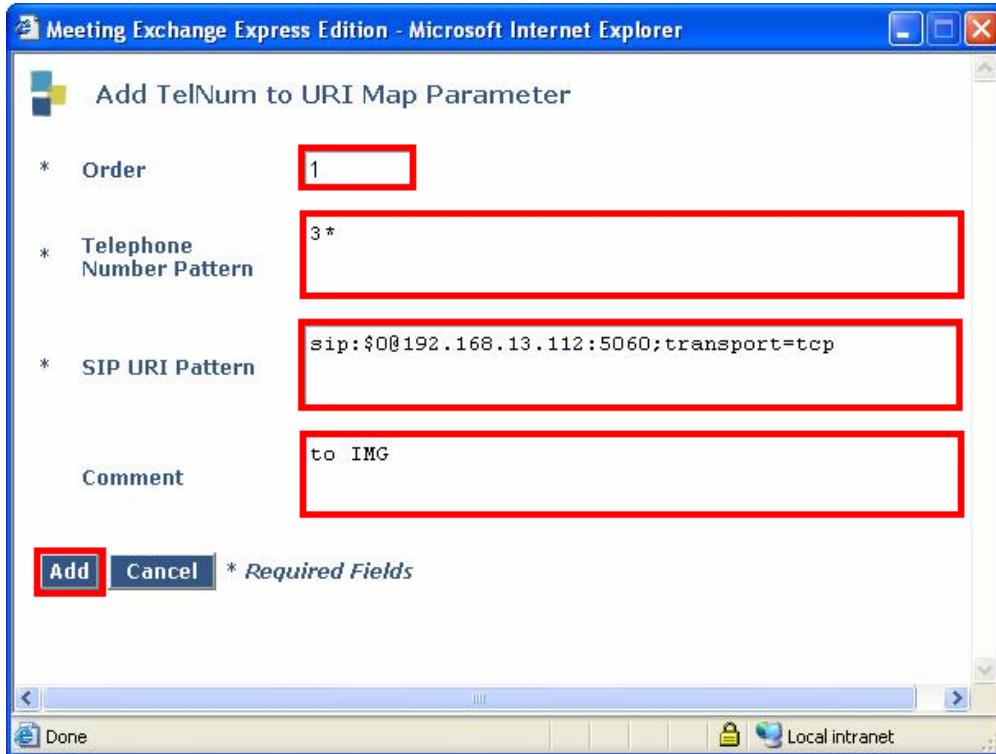
- For inbound calls to Avaya Meeting Exchange, service maps for URI to telephone number translations are utilized. These translations associate calls to Avaya Meeting Exchange with corresponding call flows, thus allowing for specific treatment for a participant based on incoming calls based on a SIP Uniform Resource Identifier (URI).
- For outbound calls from Avaya Meeting Exchange, service maps for telephone number to URI translations are utilized. These translations associate a telephone number pattern with a corresponding SIP URI of a SIP User Agent (UA), thus allowing call origination from Avaya Meeting Exchange to the SIP UA.

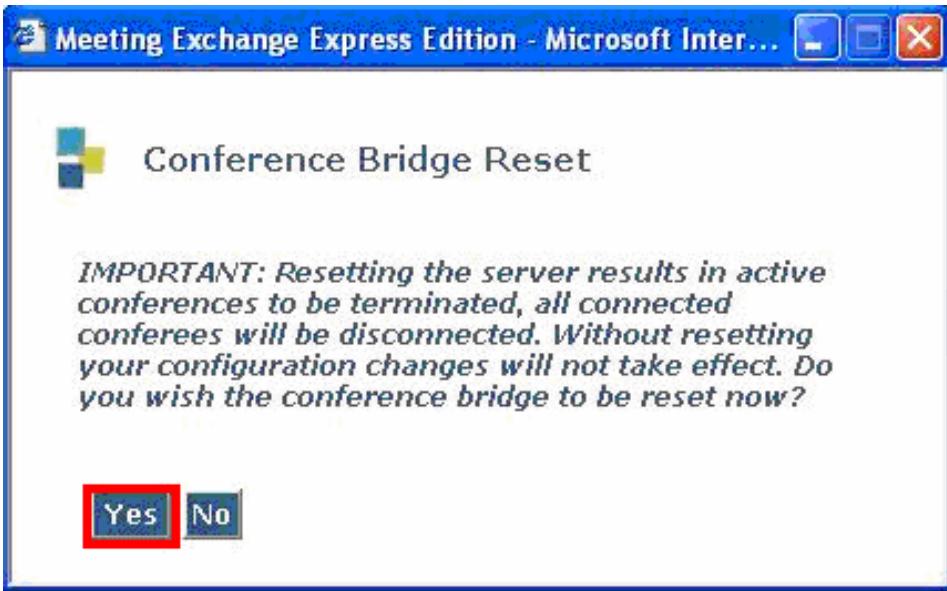
Step	Description
4.2.1	To associate incoming calls to Avaya Meeting Exchange with a call flow, add a URI to service map entry as follows: <ul style="list-style-type: none">• Click URI to Service Map under System Maps.• Click the Add button. 

Step	Description
4.2.2	<p>From the Add URI to Service Map Parameter screen, administer settings to enable a direct call flow for calls from Avaya Communication Manager via the IMG as follows:</p> <ul style="list-style-type: none"> Leave the Order field at the default value. Avaya Meeting Exchange parses URI to service map entries for pattern matches in descending order, terminating the search once a pattern is matched. For this sample configuration, order is irrelevant as the patterns for call flows are mutually exclusive. Enter a rule in the URI Pattern field to match the pattern of incoming Request URIs in SIP INVITE messages from Avaya Communication Manager via the IMG. Metacharacters such as . (matches any one character) or * (matches zero or more of the preceding character) may be utilized. For example, assume the IMG sends the following URI: <i>sip:444@192.168.13.121:5060;transport=tcp</i>. The entry in the URI Pattern field, <i>.*sip:44.*@.*</i>, would match <i>sip:44</i>, then zero or more characters, followed by @, then zero or more characters. To allow access to conferences as moderator, without entering a passcode, select DirectCallFlow from the drop down menu for the Call Flow field. Enter a descriptive name for this map in the Service Name field. Click the Add button to add the map to the database. 

Step	Description															
4.2.3	<p>To associate incoming calls to Avaya Meeting Exchange with a basic call flow, repeat Step 4.2.1 to add a URI to service map entry for a basic call flow with the following parameters:</p> <ul style="list-style-type: none"> Leave the Order field at the default value. Enter .*sip:40.*@.* in the URI Pattern field to match the pattern of incoming Request URIs in SIP INVITE messages from Avaya Communication Manager via the IMG. To access a conference with an associated passcode, select BasicCallFlow from the drop down menu for the Call Flow field. Enter a descriptive name for this map in the Service Name field. The resulting URI to service map list is displayed below. <p><i>Note: The provisioning for the URI Pattern fields for the direct and basic call flows utilize wild cards that make the call flows mutually exclusive while maximizing the breadth of the pattern match. For example, the URI Pattern field for the basic call flow is .*sip:40.*@.*. This aligns with the provisioning for call routing on Avaya Communication Manager in Section 3.3, and allows 40x, where x can be any digit, to match this direct call flow.</i></p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="text-align: left; padding: 5px;">Order</th> <th style="text-align: left; padding: 5px;">URI Pattern</th> <th style="text-align: left; padding: 5px;">Service Name</th> <th style="text-align: left; padding: 5px;">Call Flow</th> <th style="text-align: left; padding: 5px;">Greeting</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;"><input type="checkbox"/></td> <td style="padding: 5px;">1 *sip:44.*@.*</td> <td style="padding: 5px;">Direct Call Flow from ACM via IMG</td> <td style="padding: 5px;">DirectCallFlow</td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;"><input type="checkbox"/></td> <td style="padding: 5px;">2 *sip:40.*@.*</td> <td style="padding: 5px;">Basic Call Flow from ACM via IMG</td> <td style="padding: 5px;">BasicCallFlow</td> <td style="padding: 5px;">greeting</td> </tr> </tbody> </table>	Order	URI Pattern	Service Name	Call Flow	Greeting	<input type="checkbox"/>	1 *sip:44.*@.*	Direct Call Flow from ACM via IMG	DirectCallFlow		<input type="checkbox"/>	2 *sip:40.*@.*	Basic Call Flow from ACM via IMG	BasicCallFlow	greeting
Order	URI Pattern	Service Name	Call Flow	Greeting												
<input type="checkbox"/>	1 *sip:44.*@.*	Direct Call Flow from ACM via IMG	DirectCallFlow													
<input type="checkbox"/>	2 *sip:40.*@.*	Basic Call Flow from ACM via IMG	BasicCallFlow	greeting												

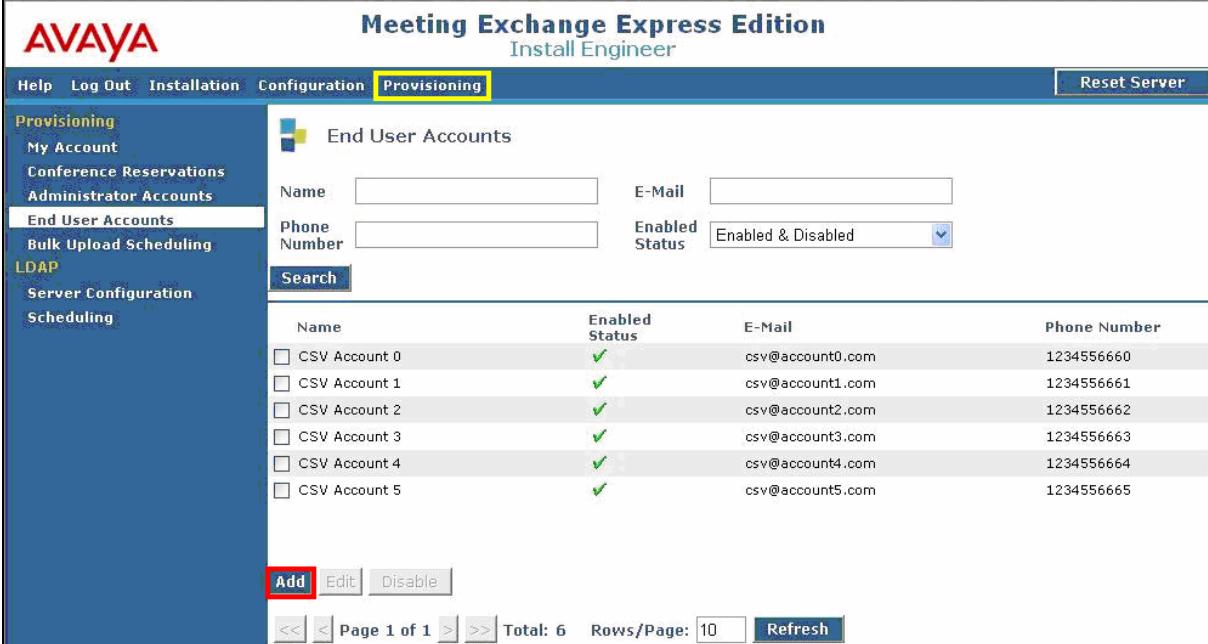
Step	Description
4.2.4	<p>To enable routing of outbound calls from Avaya Meeting Exchange, add a TelNum to URI map entry as follows:</p> <ul style="list-style-type: none"> Click TelNum to URI Map under System Maps. Click the Add button. 

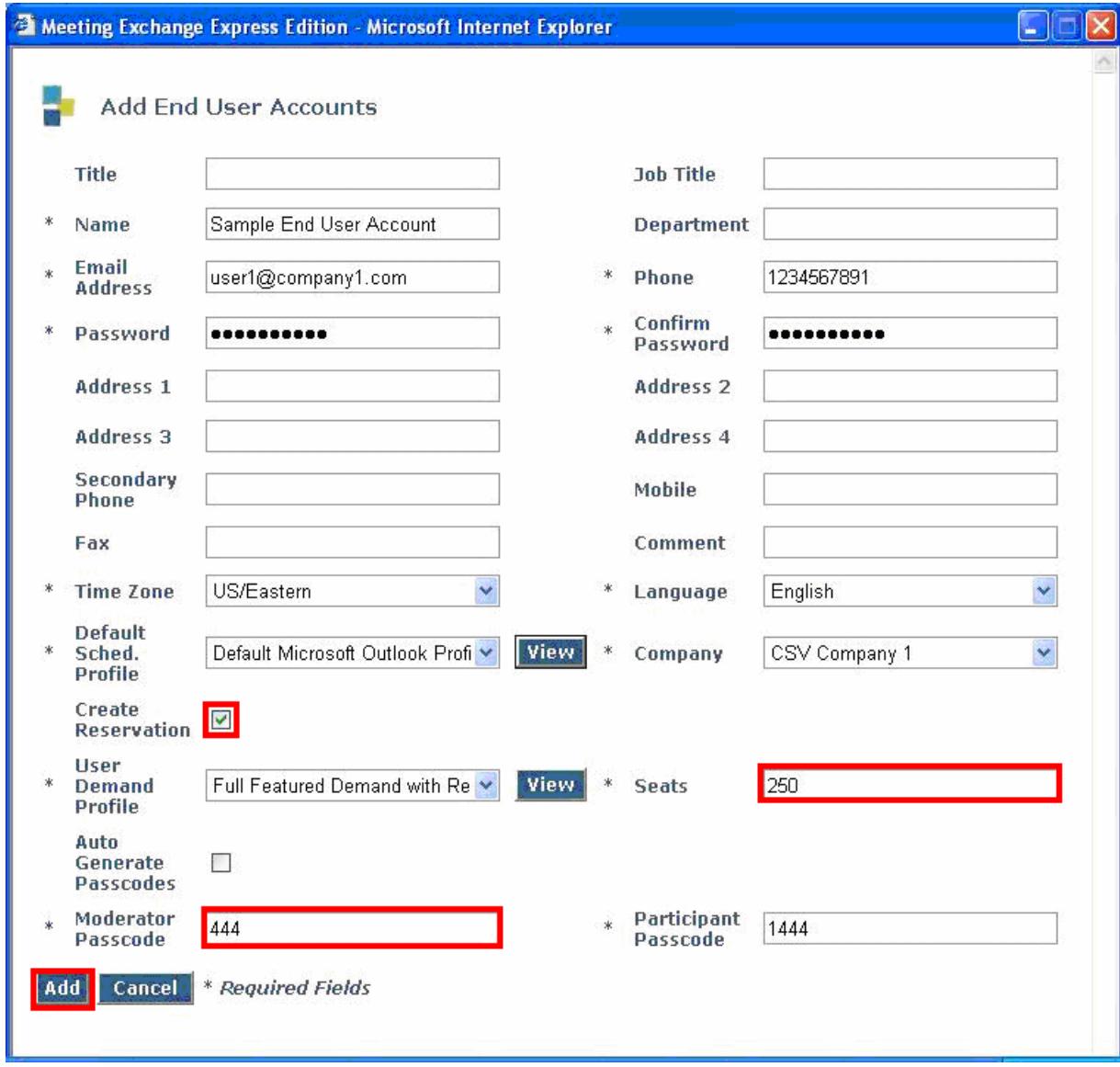
Step	Description
4.2.5	<p>From the Add TelNum to URI Map Parameter screen, administer settings to enable outbound calling to Avaya Communication Manager via the IMG as follows:</p> <ul style="list-style-type: none"> Leave the Order field at the default value. Avaya Meeting Exchange parses TelNum to URI map entries for pattern matches in descending order, terminating the search once a pattern is matched. For this sample configuration, order is irrelevant as there is only one entry in the database. Enter a rule in the Telephone Number Pattern field that matches the administration on for telephone extensions on Avaya Communication Manager. Metacharacters such as * (refers to a character string) or ? (refers to a single character) may be utilized. To enable outbound calling from Avaya Meeting Exchange, enter a rule in the SIP URI Pattern field that conforms to SIP standards. To enable SIP/TCP connectivity for outbound calls to Avaya Communication Manager via the IMG, the rule must contain 5060 and transport=tcp. The metacharacter, \$0 is replaced by the entire Telephone Number Pattern at the location of \$0 in the SIP URI Pattern. For example, if 31002 is the dialed string, Avaya Meeting Exchange will send a SIP INVITE message with a SIP URI and To Header Field formatted as follows: <i>sip:31002@192.168.13.112:5060;transport=tcp</i>. Click the Add button to add the map to the database. 

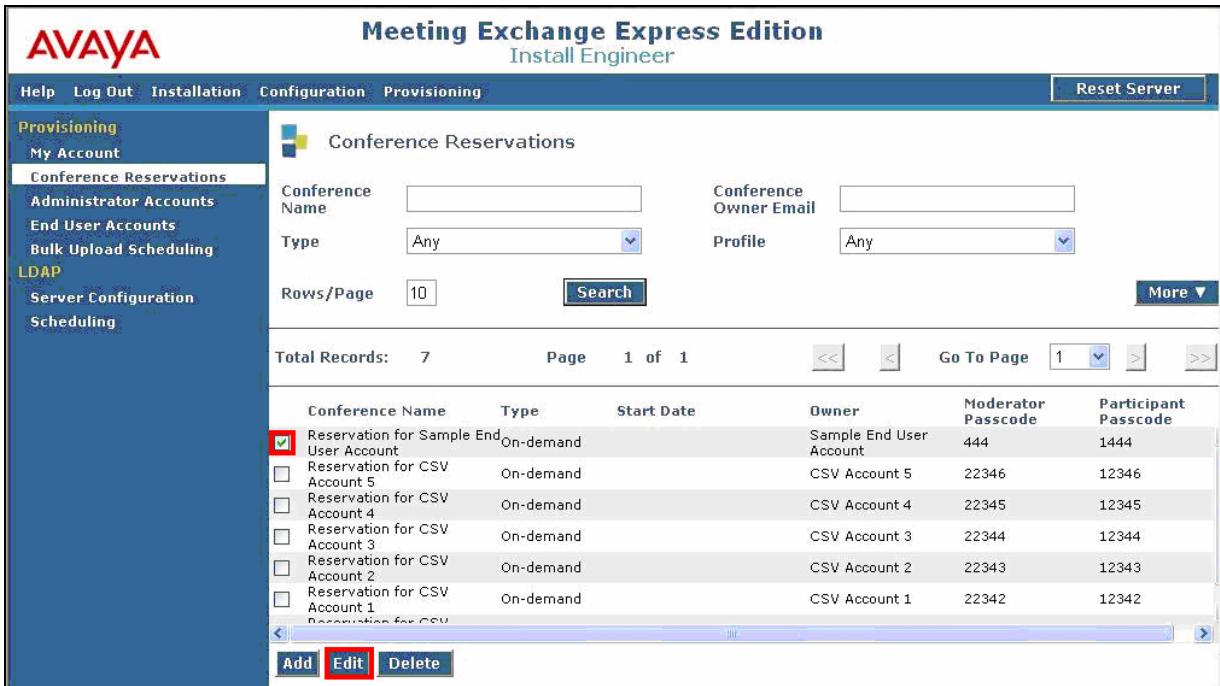
Step	Description
4.2.6	<p>Apply the configuration by clicking the Reset Server button located on the right hand side of the web interface toolbar. Confirm this action by clicking Yes in the pop up window.</p> 

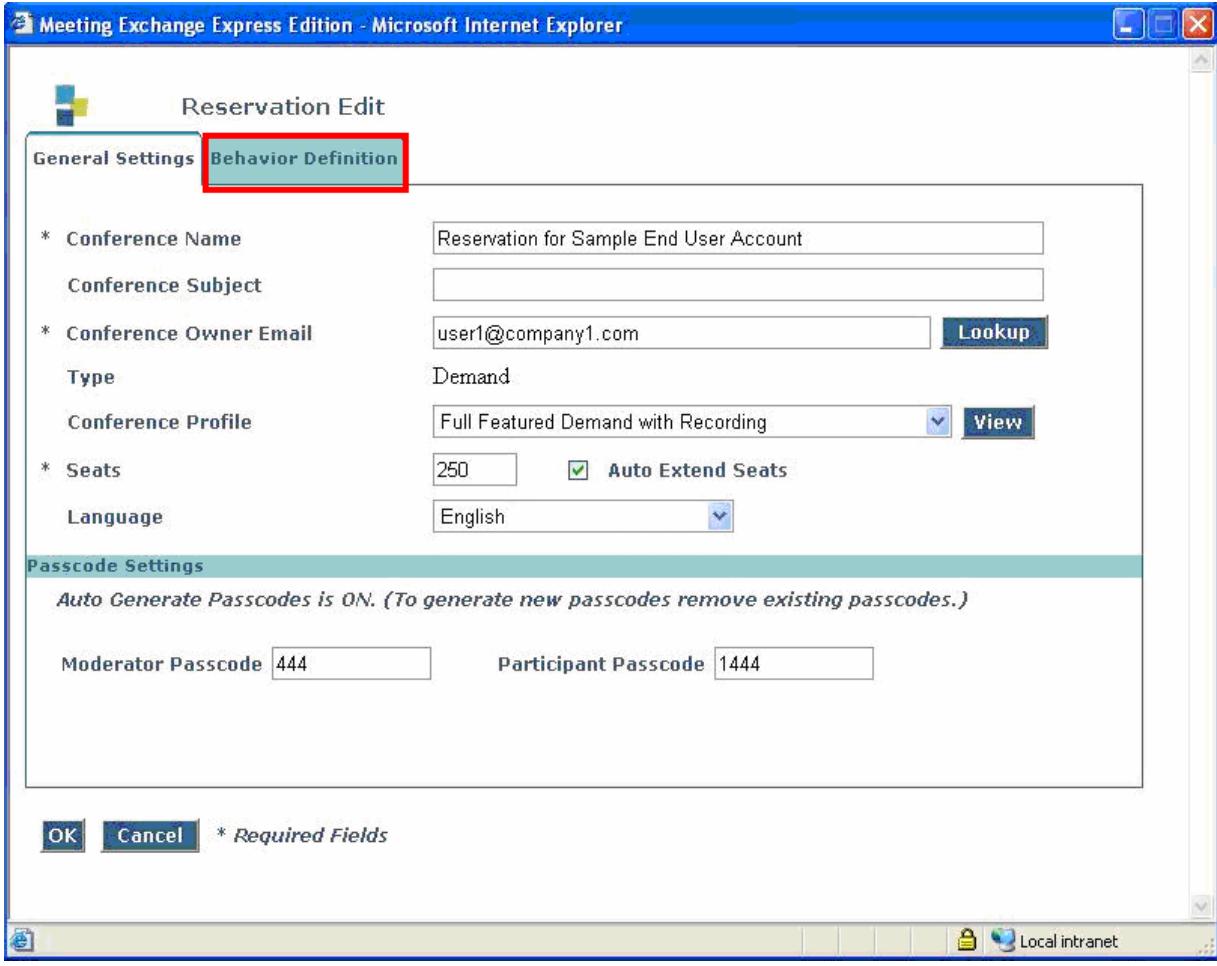
4.3. Provision Accounts

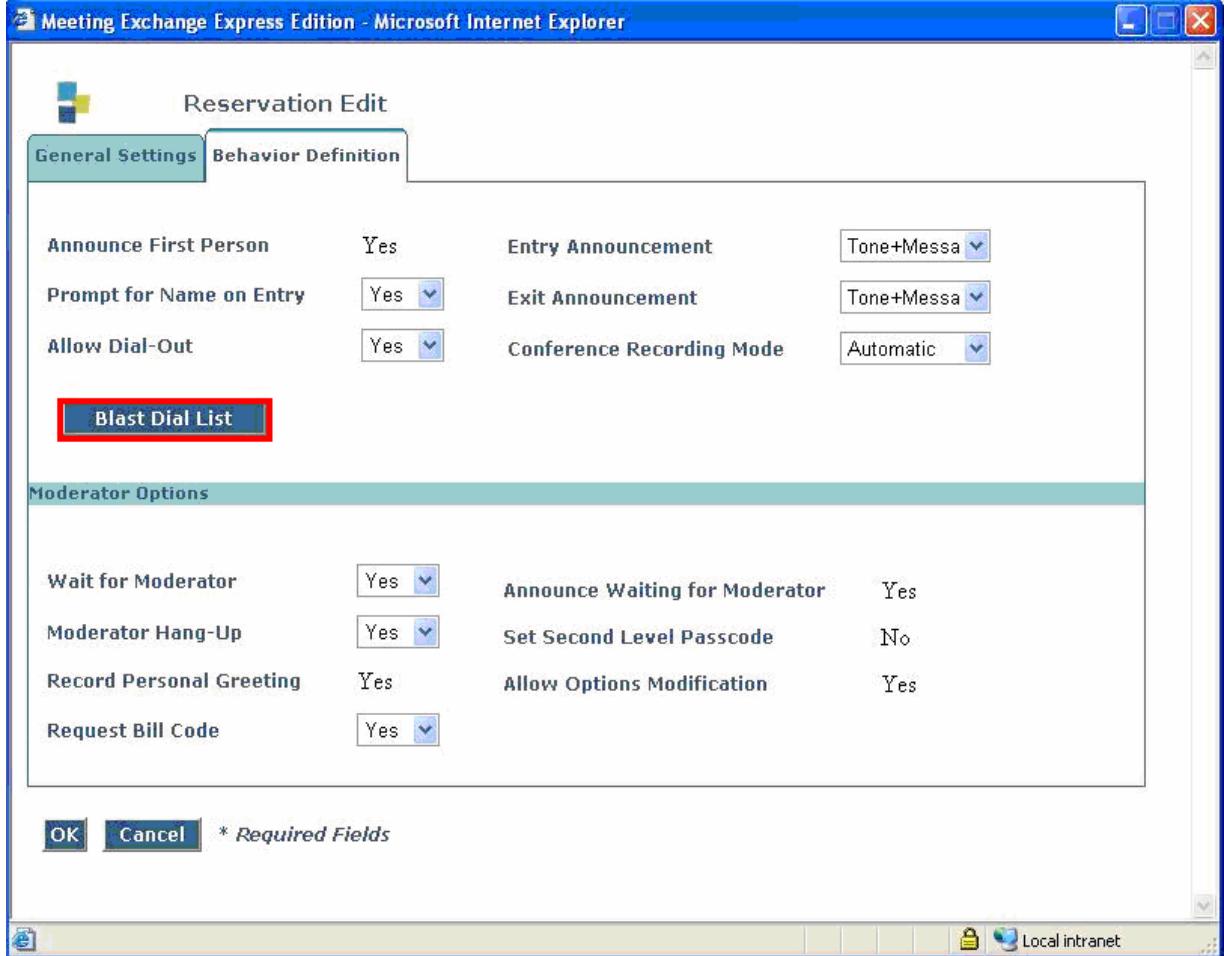
The following steps present an example of provisioning an end user account and associated conference reservation on Avaya Meeting Exchange.

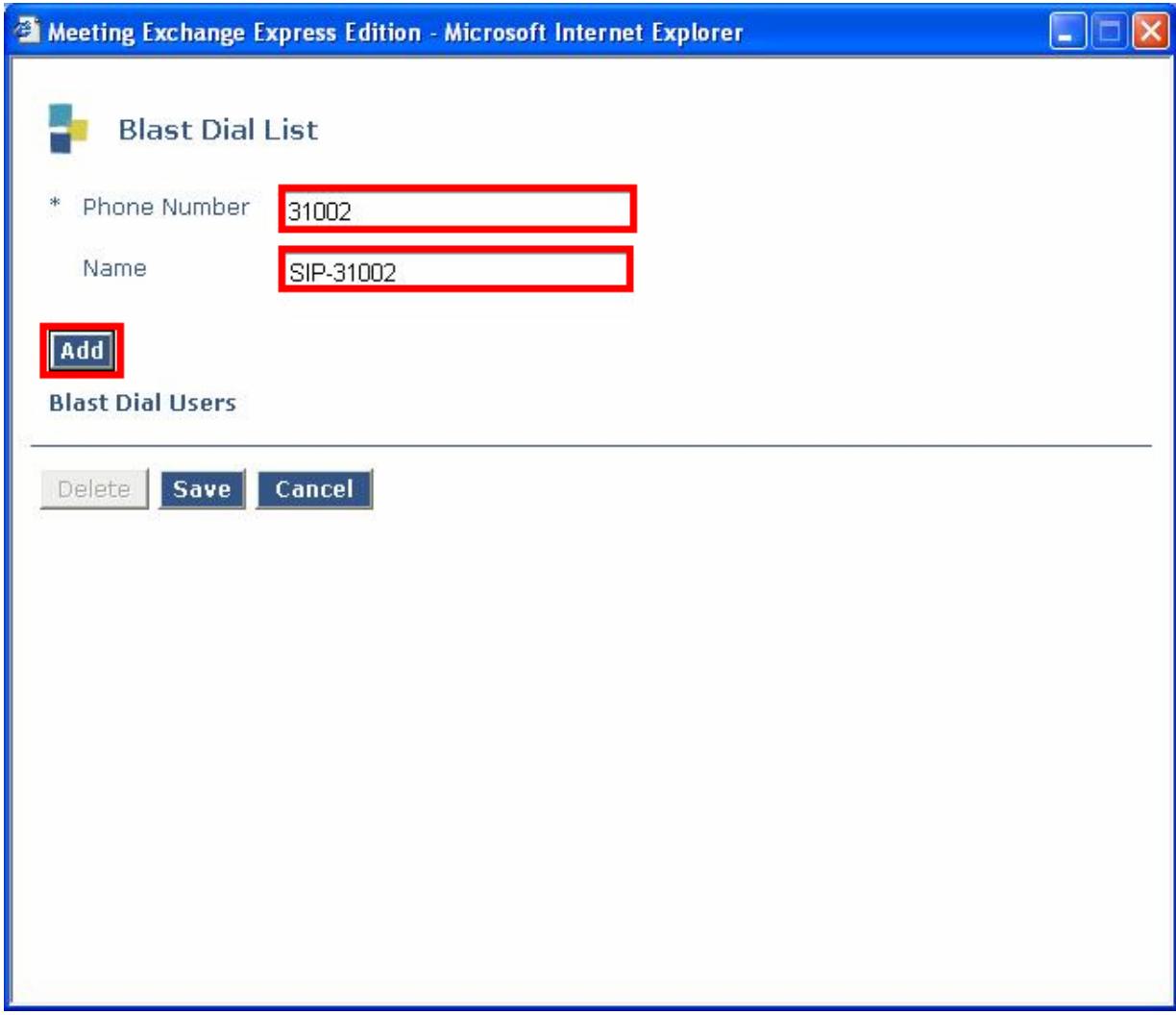
Step	Description
4.3.1	To provide end users access to the conferencing features available on Avaya Meeting Exchange, add an end user account as follows: <ul style="list-style-type: none">From the web interface toolbar, click Provisioning.Click End User Accounts under Provisioning.Click the Add button. <p><i>Note: Avaya Meeting Exchange comes with pre-provisioned accounts as displayed.</i></p>  <p>The screenshot shows the Avaya Meeting Exchange Express Edition software interface. The title bar reads "AVAYA Meeting Exchange Express Edition Install Engineer". The menu bar includes "Help", "Log Out", "Installation", "Configuration", "Provisioning" (which is selected), and "Reset Server". On the left, a sidebar lists "Provisioning", "My Account", "Conference Reservations", "Administrator Accounts", "End User Accounts" (which is selected), "Bulk Upload Scheduling", "LDAP", "Server Configuration", and "Scheduling". The main content area is titled "End User Accounts". It has input fields for "Name" and "E-Mail", and dropdowns for "Phone Number" and "Enabled Status" (set to "Enabled & Disabled"). A "Search" button is below these fields. Below is a table listing six pre-provisioned accounts (CSV Account 0 to CSV Account 5) with columns for Name, Enabled Status, E-Mail, and Phone Number. At the bottom are buttons for "Add", "Edit", and "Disable", and a pagination control showing "Page 1 of 1" and "Total: 6 Rows/Page: 10 Refresh".</p>

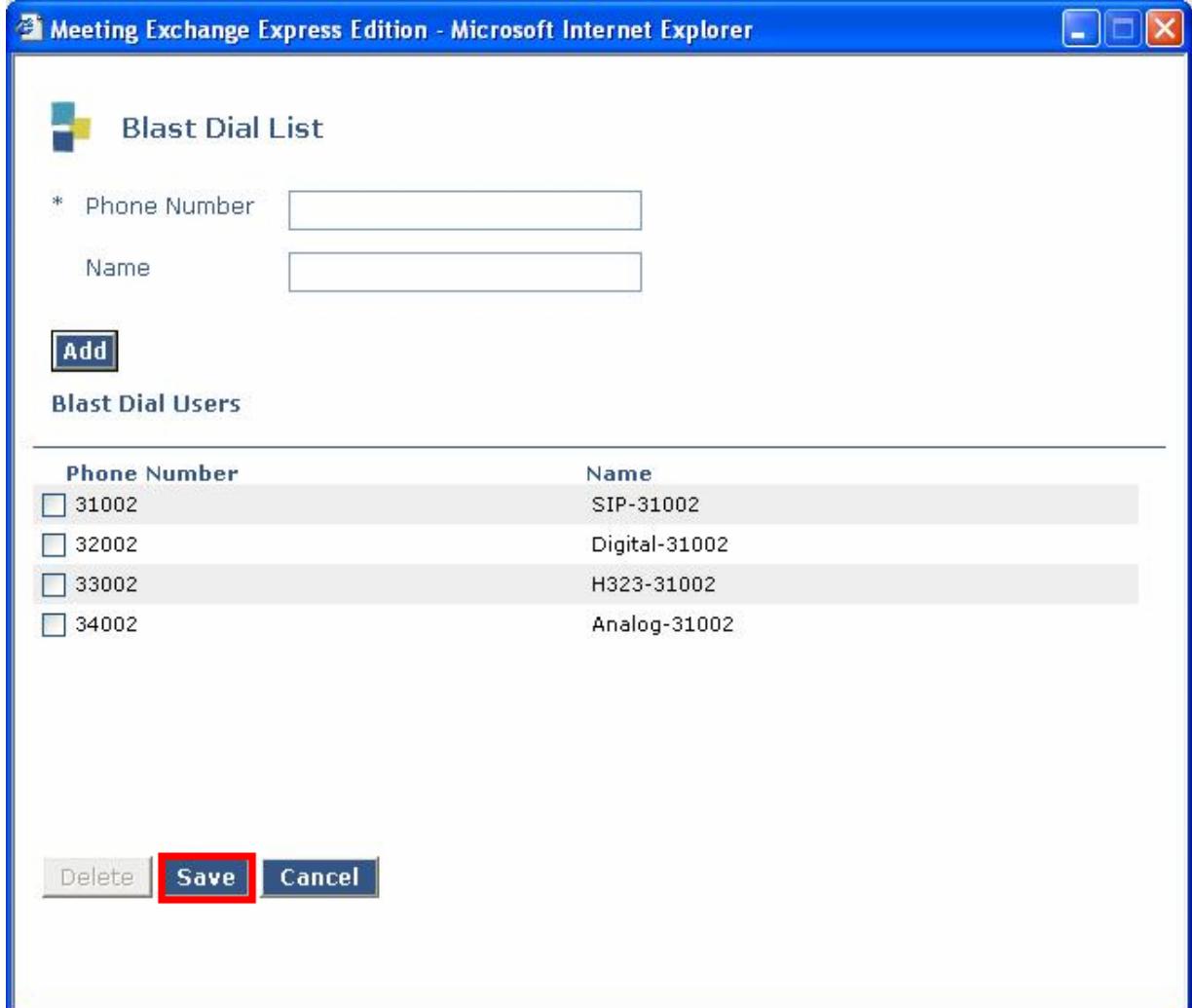
Step	Description
4.3.2	<p>From the Add End User Accounts screen, provision an end user account as follows:</p> <ul style="list-style-type: none"> Check Create Reservation to generate a reservation for a conference that is associated with this end user account. Enter the number of ports assigned to this conference in the Seats field. Enter a number in the Moderator Passcode field that corresponds to the direct call flow provisioned in Step 4.2.2. Refer to [1] for definitions regarding the remaining required fields on this screen. Click the Add button to add the account to the database. 

Step	Description																																										
4.3.3	<p>Modify the conference reservation corresponding to the end user account provisioned in Step 4.3.2 as follows:</p> <ul style="list-style-type: none"> Click Conference Reservations under Provisioning. Check the conference reservation corresponding to the end user account provisioned in Step 4.3.2. Click the Edit button.  <table border="1"> <thead> <tr> <th>Conference Name</th> <th>Type</th> <th>Start Date</th> <th>Owner</th> <th>Moderator Passcode</th> <th>Participant Passcode</th> </tr> </thead> <tbody> <tr> <td>Reservation for Sample End User Account</td> <td>On-demand</td> <td></td> <td>Sample End User Account</td> <td>444</td> <td>1444</td> </tr> <tr> <td>Reservation for CSV Account 5</td> <td>On-demand</td> <td></td> <td>CSV Account 5</td> <td>22346</td> <td>12346</td> </tr> <tr> <td>Reservation for CSV Account 4</td> <td>On-demand</td> <td></td> <td>CSV Account 4</td> <td>22345</td> <td>12345</td> </tr> <tr> <td>Reservation for CSV Account 3</td> <td>On-demand</td> <td></td> <td>CSV Account 3</td> <td>22344</td> <td>12344</td> </tr> <tr> <td>Reservation for CSV Account 2</td> <td>On-demand</td> <td></td> <td>CSV Account 2</td> <td>22343</td> <td>12343</td> </tr> <tr> <td>Reservation for CSV Account 1</td> <td>On-demand</td> <td></td> <td>CSV Account 1</td> <td>22342</td> <td>12342</td> </tr> </tbody> </table>	Conference Name	Type	Start Date	Owner	Moderator Passcode	Participant Passcode	Reservation for Sample End User Account	On-demand		Sample End User Account	444	1444	Reservation for CSV Account 5	On-demand		CSV Account 5	22346	12346	Reservation for CSV Account 4	On-demand		CSV Account 4	22345	12345	Reservation for CSV Account 3	On-demand		CSV Account 3	22344	12344	Reservation for CSV Account 2	On-demand		CSV Account 2	22343	12343	Reservation for CSV Account 1	On-demand		CSV Account 1	22342	12342
Conference Name	Type	Start Date	Owner	Moderator Passcode	Participant Passcode																																						
Reservation for Sample End User Account	On-demand		Sample End User Account	444	1444																																						
Reservation for CSV Account 5	On-demand		CSV Account 5	22346	12346																																						
Reservation for CSV Account 4	On-demand		CSV Account 4	22345	12345																																						
Reservation for CSV Account 3	On-demand		CSV Account 3	22344	12344																																						
Reservation for CSV Account 2	On-demand		CSV Account 2	22343	12343																																						
Reservation for CSV Account 1	On-demand		CSV Account 1	22342	12342																																						

Step	Description
4.3.4	<p>The configuration displayed in the General Settings tab for this conference reservation is correlated with the configuration administered for the end user account provisioned in Step 4.3.2. Any updates made in this screen will be reflected in the corresponding end user account and vice-versa. To modify parameters associated with this conference reservation, click the Behavior Definition tab.</p> 

Step	Description
4.3.5	<p>The configuration displayed in the Behavior Definition tab may be modified to suit the requirements for this conference. For this sample configuration, a blast dial list was provisioned. To configure a blast dial list, click the Blast Dial List button.</p> 

Step	Description
4.3.6	<p>From the Blast Dial List screen, add entries to the blast dial list as follows:</p> <ul style="list-style-type: none"> Enter a number in the Phone Number field that is associated with the following: <ul style="list-style-type: none"> The telephone number pattern provisioned for the TelNum to URI map in Step 4.2.5. Telephones registered to either Avaya Communication Manager, or Avaya SIP Enablement Services. Enter a descriptive name for this phone number in the Name field. Click the Add button to add entries to this blast dial list. The resultant provisioning is shown below. 

Step	Description
4.3.7	<p>Repeat Step 4.3.6 to add additional phone numbers to the blast dial list. The resultant blast dial list is displayed below.</p> <ul style="list-style-type: none"> Click the Save button to save and associate the blast dial list with this conference. Click the OK button (displayed in the lower left hand corner of the Behavior Definition tab in Step 4.3.5) to save the modifications to this conference in the database.  <p>The screenshot shows a Microsoft Internet Explorer window titled 'Meeting Exchange Express Edition - Microsoft Internet Explorer'. The main content is a 'Blast Dial List' configuration page. At the top, there are input fields for 'Phone Number' and 'Name'. Below these is a blue 'Add' button. The next section, 'Blast Dial Users', displays a table with columns for 'Phone Number' and 'Name'. It lists four entries: 31002 (SIP-31002), 32002 (Digital-31002), 33002 (H323-31002), and 34002 (Analog-31002). At the bottom of the page are three buttons: 'Delete', 'Save' (which is highlighted with a red box), and 'Cancel'.</p>

5. Cantata Technology IMG 1010 Configuration

This section displays the configuration for enabling the IMG to interoperate with Avaya Communication Manager as well as Avaya Meeting Exchange.

The IMG was administered from the Cantata Technology ClientView (ClientView) application running which was co-resident with the Cantata Technology GateControl Element Management System (GCEMS) running on a Linux server. Refer to the Cantata website for on-line documentation regarding the IMG, GCEMS and the ClientView application.

Note that this section displays the provisioning that was utilized for this sample configuration, and does not show exhaustive procedures for administering an initial configuration. For example, the screens for adding “new” elements to this sample configuration are not shown. However, the sequence of these procedures is relevant, as the configuration was administered in the order presented. Refer to the on-line help available on the Cantata website regarding procedures/commands to administer an initial configuration.

Figure 2 illustrates the main window of the ClientView application that was utilized to provision the IMG. The following panes appear in the main window:

- The **Configuration Tree**, which is located in the top-left portion of the main window. This pane contains all of the items that can be configured. Right-click an item to access additional configuration items. Creating an entry in the Configuration Tree opens the corresponding Configuration Pane.
- The **Configuration Pane**, which is located in the top-right portion of the main window. This pane shows the properties of the selected object. This pane is used to view and edit the configuration.
 - The column titled **As-Configured**, shows the current configuration for parameters, as defined by the **Property** column. Enter or edit values in the **User-Specified** column.

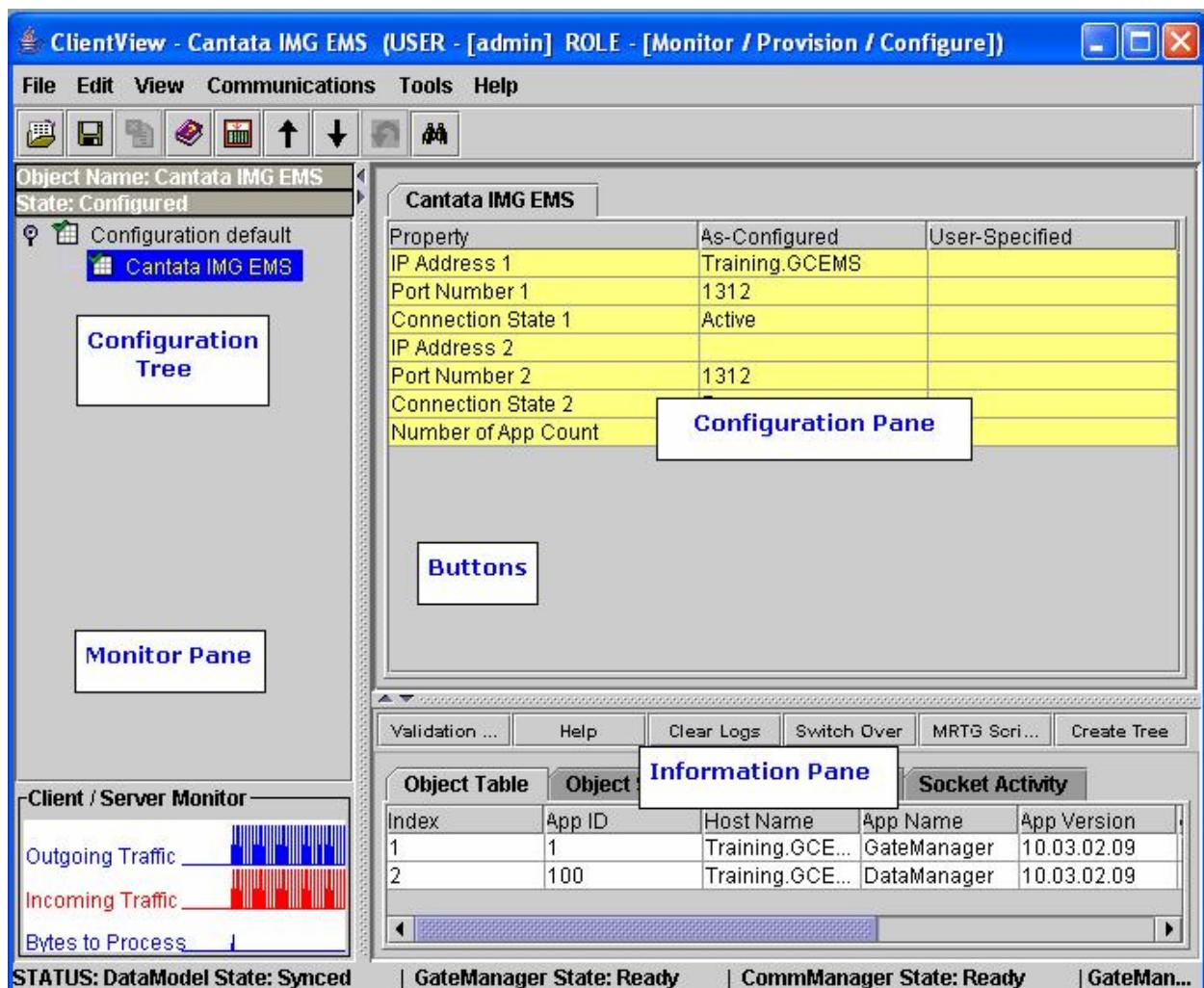
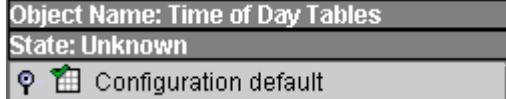
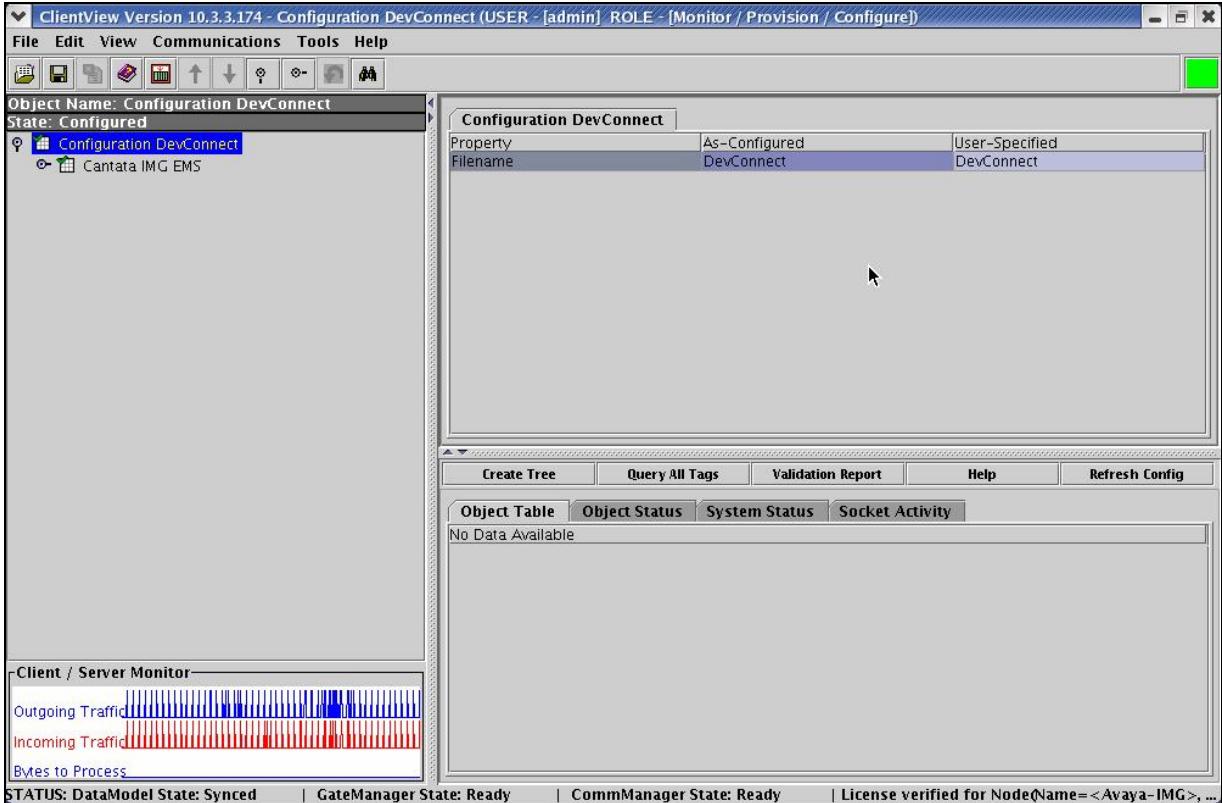
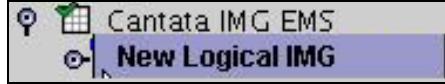
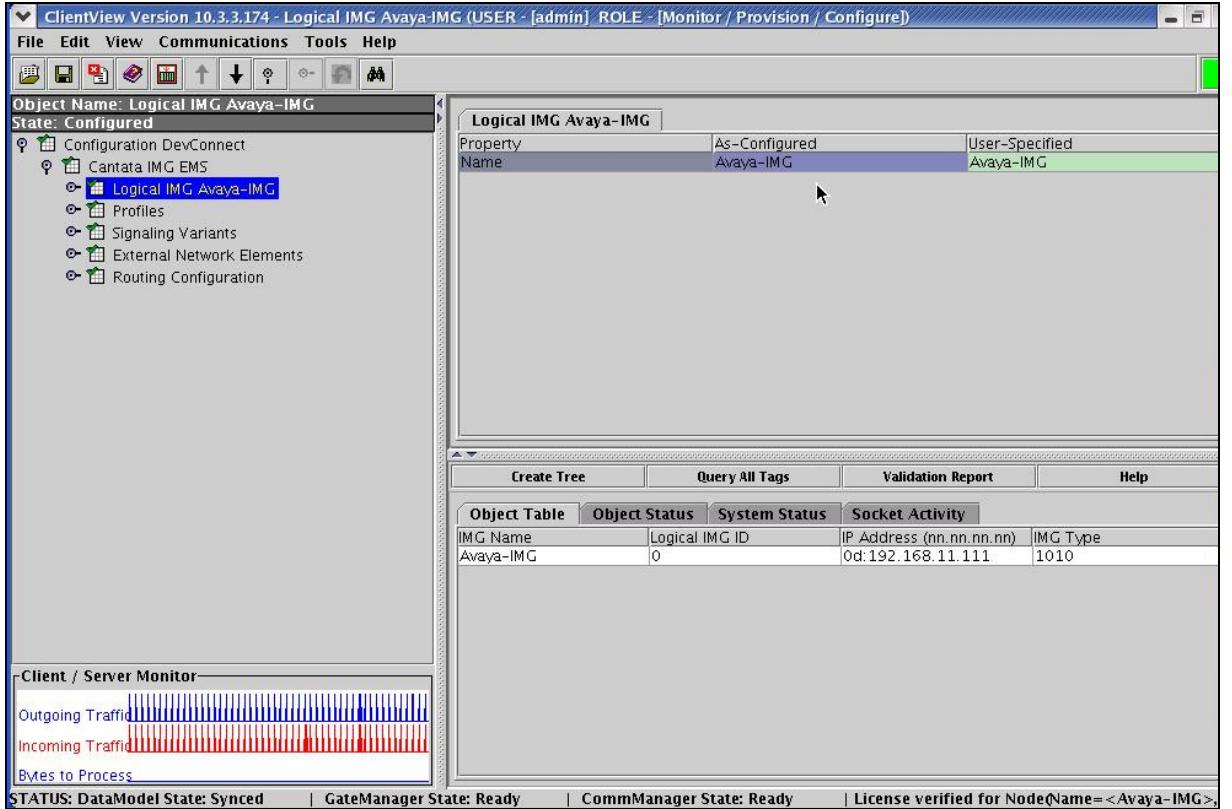
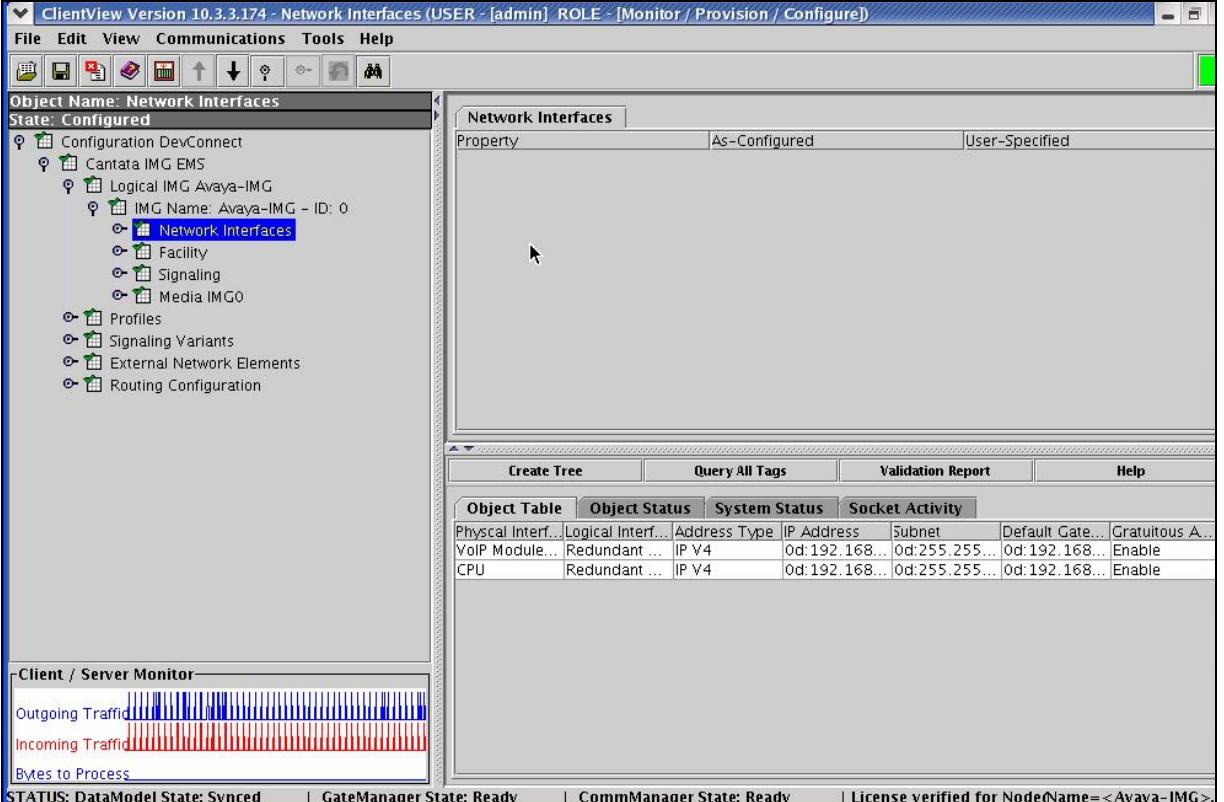


Figure 2: Cantata Technology ClientView Main Window

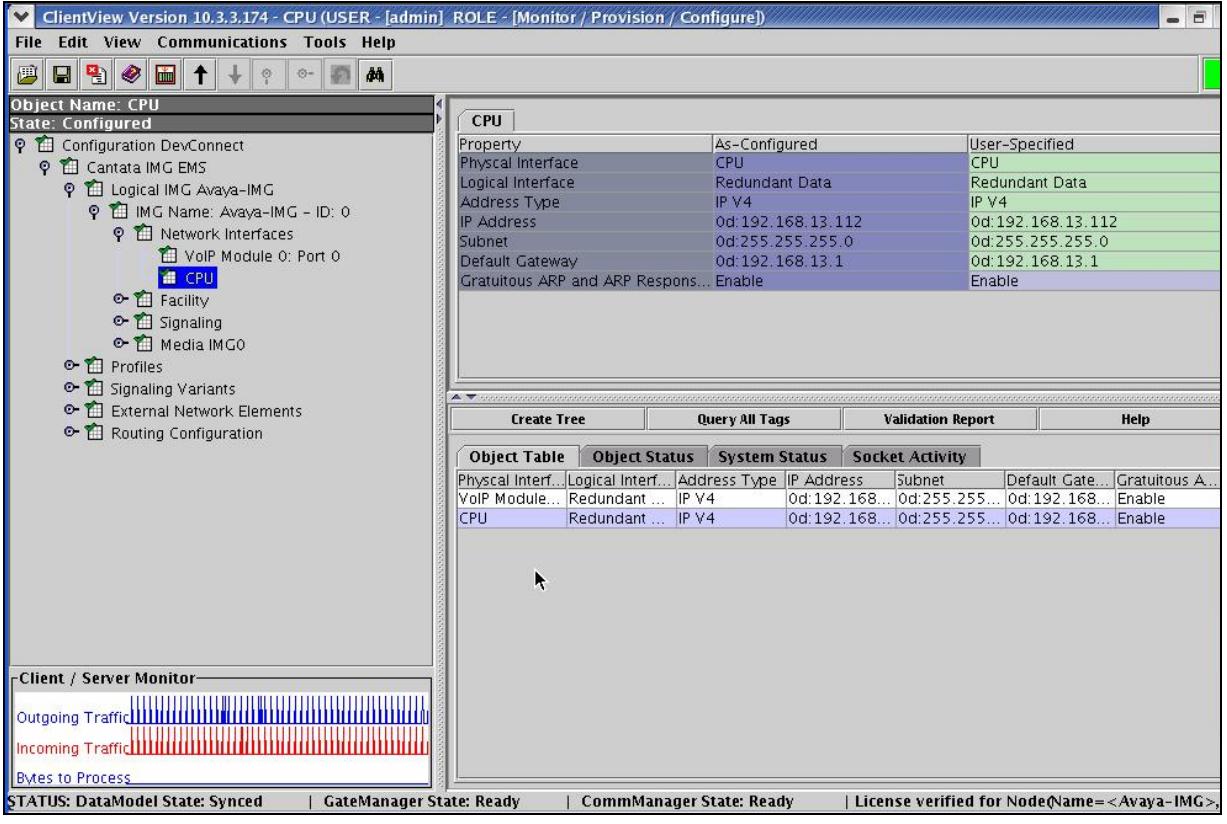
Step	Description
5.1.1	<p>A default configuration file named “default” is created when ClientView connects to GCEMS. To save the configuration file with a new name:</p> <ul style="list-style-type: none"> Right-click Configuration default in the Configuration Tree, and select Modify.  <ul style="list-style-type: none"> Enter a descriptive name in the Filename field in the Configuration Pane. To save the changes, right-click Configuration DevConnect, and select Commit. The resultant provisioning is shown below. 

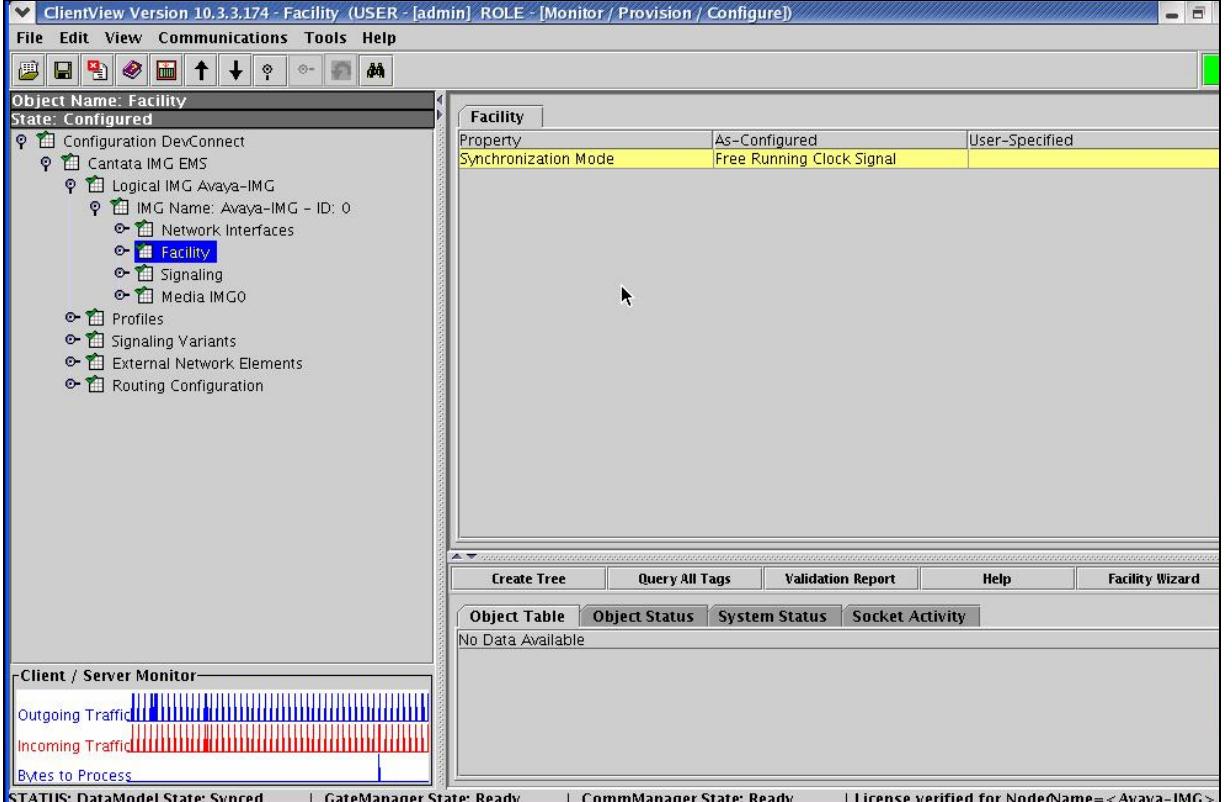
Step	Description
5.1.2	<p>Create a logical IMG as follows:</p> <ul style="list-style-type: none"> Right-click Cantata IMG EMS in the Configuration Tree, and select New Logical IMG.  <ul style="list-style-type: none"> Enter a descriptive name for the logical IMG in the Name field in the Configuration Pane. To save the changes, right-click Logical IMG Avaya-IMG, and select Commit. The resultant provisioning is shown below. 

Step	Description																																																			
5.1.3	<p>Create a physical IMG as follows:</p> <ul style="list-style-type: none"> Right-click the logical IMG in the Configuration Tree, and select New Physical IMG. Enter a descriptive name for the physical IMG in the IMG Name field in the Configuration Pane. Enter the IP address of the physical IMG in the IP Address field. This is the same IP address assigned to the CTRL 0 port on the back of the IMG. Use default settings for remaining fields. To save the changes, right-click IMG Name: Avaya-IMG - ID:0, and select Commit. The resultant provisioning is shown below. <table border="1"> <thead> <tr> <th colspan="3">IMG Name: Avaya-IMG - ID: 0</th> </tr> <tr> <th>Property</th> <th>As-Configured</th> <th>User-Specified</th> </tr> </thead> <tbody> <tr> <td>Logical IMG ID</td> <td>0</td> <td>0</td> </tr> <tr> <td>IMG Name</td> <td>Avaya-IMG</td> <td>Avaya-IMG</td> </tr> <tr> <td>IP Address (nn.nnn.nnn)</td> <td>0d:192.168.11.111</td> <td>0d:192.168.11.111</td> </tr> <tr> <td>IMG Type</td> <td>1010</td> <td>1010</td> </tr> <tr> <td>Subnet</td> <td>0d:255.255.255.0</td> <td></td> </tr> <tr> <td>Serial Number</td> <td>00902738</td> <td></td> </tr> <tr> <td>Mother Board Revision</td> <td>A16</td> <td></td> </tr> <tr> <td>Mother Board IO Revision</td> <td>A2</td> <td></td> </tr> <tr> <td>Software Version</td> <td>10.3.3:52074</td> <td></td> </tr> <tr> <td>TDM Group 0 Type</td> <td>Spans are T1</td> <td></td> </tr> <tr> <td>TDM Group 1 Type</td> <td>Spans are T1</td> <td></td> </tr> <tr> <td>VoIP Module 0 Status</td> <td>Any Vocoder (4 Picasso)</td> <td></td> </tr> <tr> <td>VoIP Module 1 Status</td> <td>Any Vocoder</td> <td></td> </tr> <tr> <td>Connection State</td> <td>Link is Up</td> <td></td> </tr> <tr> <td>NFS for Configuration Status</td> <td>Configuration NFS Server Failed</td> <td></td> </tr> </tbody> </table>	IMG Name: Avaya-IMG - ID: 0			Property	As-Configured	User-Specified	Logical IMG ID	0	0	IMG Name	Avaya-IMG	Avaya-IMG	IP Address (nn.nnn.nnn)	0d:192.168.11.111	0d:192.168.11.111	IMG Type	1010	1010	Subnet	0d:255.255.255.0		Serial Number	00902738		Mother Board Revision	A16		Mother Board IO Revision	A2		Software Version	10.3.3:52074		TDM Group 0 Type	Spans are T1		TDM Group 1 Type	Spans are T1		VoIP Module 0 Status	Any Vocoder (4 Picasso)		VoIP Module 1 Status	Any Vocoder		Connection State	Link is Up		NFS for Configuration Status	Configuration NFS Server Failed	
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Step	Description																					
5.1.4	<p>Create an object for Network Interfaces as follows:</p> <ul style="list-style-type: none"> Right-click the physical IMG in the Configuration Tree, and select New Network Interfaces. To save the changes, right-click Network Interfaces, and select Commit. The resultant provisioning is shown below.  <table border="1" data-bbox="742 1003 1525 1087"> <thead> <tr> <th>Physical Interf...</th> <th>Logical Interf...</th> <th>Address Type</th> <th>IP Address</th> <th>Subnet</th> <th>Default Gate...</th> <th>Gratuitous A...</th> </tr> </thead> <tbody> <tr> <td>VoIP Module...</td> <td>Redundant ...</td> <td>IP V4</td> <td>0d:192.168...</td> <td>0d:255.255...</td> <td>0d:192.168...</td> <td>Enable</td> </tr> <tr> <td>CPU</td> <td>Redundant ...</td> <td>IP V4</td> <td>0d:192.168...</td> <td>0d:255.255...</td> <td>0d:192.168...</td> <td>Enable</td> </tr> </tbody> </table>	Physical Interf...	Logical Interf...	Address Type	IP Address	Subnet	Default Gate...	Gratuitous A...	VoIP Module...	Redundant ...	IP V4	0d:192.168...	0d:255.255...	0d:192.168...	Enable	CPU	Redundant ...	IP V4	0d:192.168...	0d:255.255...	0d:192.168...	Enable
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VoIP Module...	Redundant ...	IP V4	0d:192.168...	0d:255.255...	0d:192.168...	Enable																
CPU	Redundant ...	IP V4	0d:192.168...	0d:255.255...	0d:192.168...	Enable																

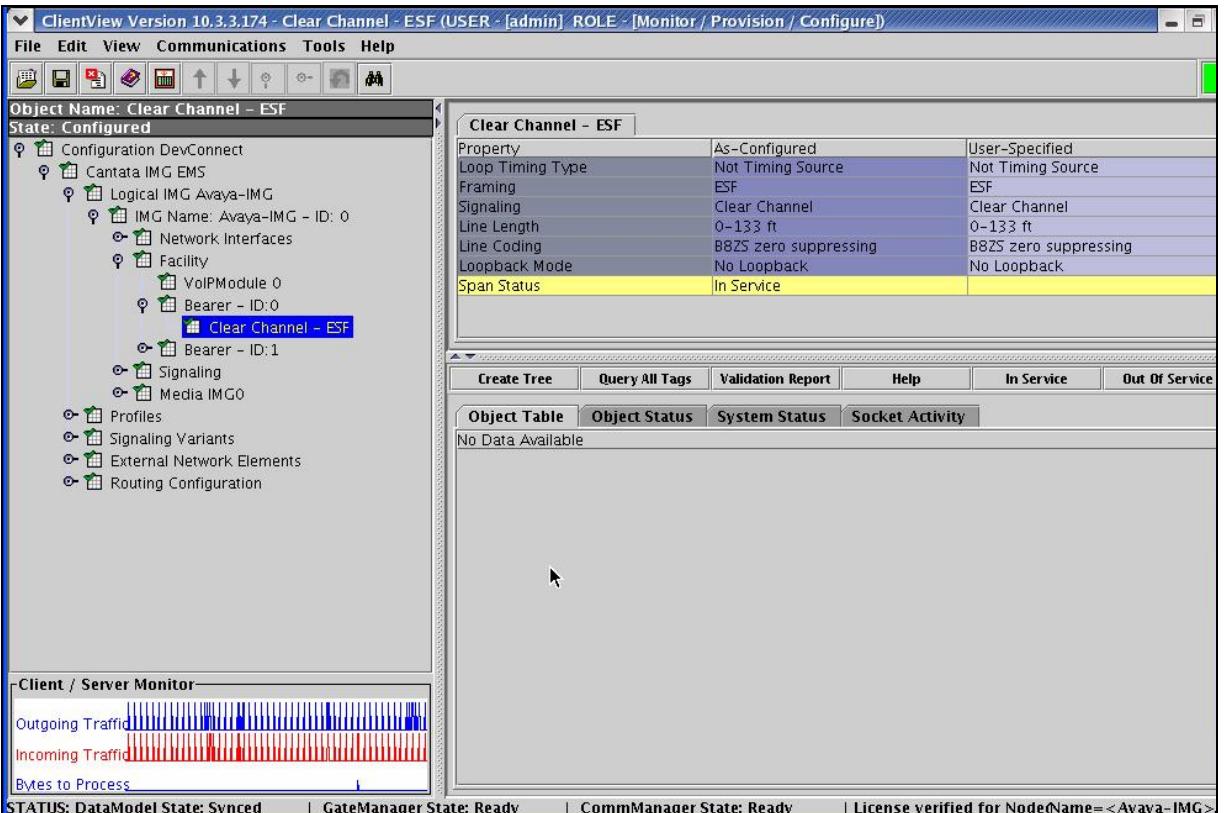
Step	Description																																													
5.1.5	<p>Create a Network Interface corresponding to VoIP Module 0: Port 0 as follows:</p> <ul style="list-style-type: none"> Right-click Network Interfaces in the Configuration Tree, and select New Network Interface. Select VoIP Module 0: Port 0 from the drop down list for the Physical Interface field in the Configuration Pane. Administer settings for module's IP network configuration in the IP Address, Subnet and Default Gateway fields respectively. Use default settings for remaining fields. To save the changes, right-click VoIP Module 0: Port 0, and select Commit. The resultant provisioning is shown below. <table border="1"> <thead> <tr> <th>Property</th> <th>As-Configured</th> <th>User-Specified</th> </tr> </thead> <tbody> <tr> <td>Physical Interface</td> <td>VoIP Module 0: Port 0</td> <td>VoIP Module 0: Port 0</td> </tr> <tr> <td>Logical Interface</td> <td>Redundant Data</td> <td>Redundant Data</td> </tr> <tr> <td>Address Type</td> <td>IP V4</td> <td>IP V4</td> </tr> <tr> <td>IP Address</td> <td>0d:192.168.13.111</td> <td>0d:192.168.13.111</td> </tr> <tr> <td>Subnet</td> <td>0d:255.255.255.0</td> <td>0d:255.255.255.0</td> </tr> <tr> <td>Default Gateway</td> <td>0d:192.168.13.1</td> <td>0d:192.168.13.1</td> </tr> <tr> <td>Gratuitous ARP and ARP Response</td> <td>Enable</td> <td>Enable</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Physical Interface</th> <th>Logical Interface</th> <th>Address Type</th> <th>IP Address</th> <th>Subnet</th> <th>Default Gateway</th> <th>Gratuitous ARP and ARP Response</th> </tr> </thead> <tbody> <tr> <td>VoIP Module 0: Port 0</td> <td>Redundant Data</td> <td>IP V4</td> <td>0d:192.168.13.111</td> <td>0d:255.255.255.0</td> <td>0d:192.168.13.1</td> <td>Enable</td> </tr> <tr> <td>CPU</td> <td>Redundant Data</td> <td>IP V4</td> <td>0d:192.168.13.111</td> <td>0d:255.255.255.0</td> <td>0d:192.168.13.1</td> <td>Enable</td> </tr> </tbody> </table>	Property	As-Configured	User-Specified	Physical Interface	VoIP Module 0: Port 0	VoIP Module 0: Port 0	Logical Interface	Redundant Data	Redundant Data	Address Type	IP V4	IP V4	IP Address	0d:192.168.13.111	0d:192.168.13.111	Subnet	0d:255.255.255.0	0d:255.255.255.0	Default Gateway	0d:192.168.13.1	0d:192.168.13.1	Gratuitous ARP and ARP Response	Enable	Enable	Physical Interface	Logical Interface	Address Type	IP Address	Subnet	Default Gateway	Gratuitous ARP and ARP Response	VoIP Module 0: Port 0	Redundant Data	IP V4	0d:192.168.13.111	0d:255.255.255.0	0d:192.168.13.1	Enable	CPU	Redundant Data	IP V4	0d:192.168.13.111	0d:255.255.255.0	0d:192.168.13.1	Enable
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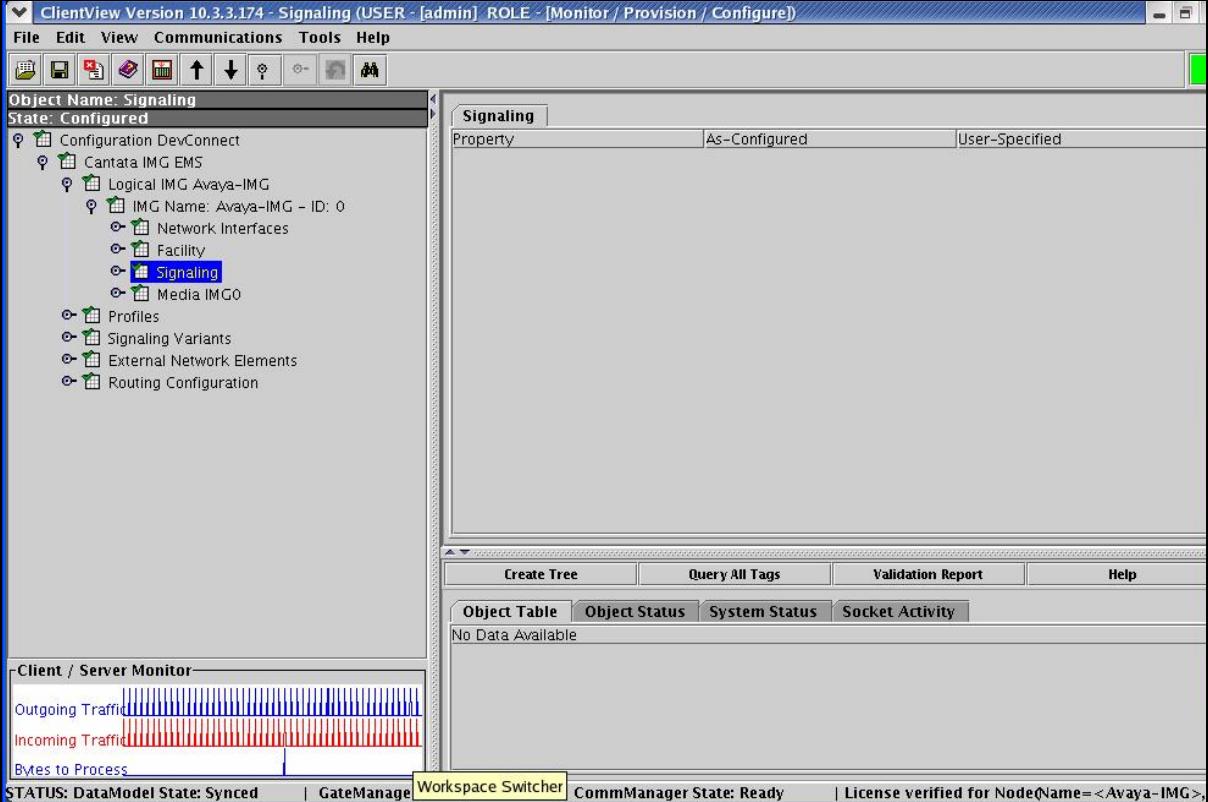
Step	Description																																																				
5.1.6	<p>Create a Network Interface corresponding to the CPU as follows:</p> <ul style="list-style-type: none"> Right-click Network Interfaces in the Configuration Tree, and select New Network Interface. Select CPU from the drop down list for the Physical Interface field in the Configuration Pane. Administer settings for module's IP network configuration in the IP Address, Subnet and Default Gateway fields respectively. Use default settings for remaining fields. To save the changes, right-click CPU, and select Commit. The resultant provisioning is shown below.  <table border="1" data-bbox="742 792 1525 982"> <thead> <tr> <th colspan="3">CPU</th> </tr> <tr> <th>Property</th> <th>As-Configured</th> <th>User-Specified</th> </tr> </thead> <tbody> <tr> <td>Physical Interface</td> <td>CPU</td> <td>CPU</td> </tr> <tr> <td>Logical Interface</td> <td>Redundant Data</td> <td>Redundant Data</td> </tr> <tr> <td>Address Type</td> <td>IP V4</td> <td>IP V4</td> </tr> <tr> <td>IP Address</td> <td>Od:192.168.13.112</td> <td>Od:192.168.13.112</td> </tr> <tr> <td>Subnet</td> <td>Od:255.255.255.0</td> <td>Od:255.255.255.0</td> </tr> <tr> <td>Default Gateway</td> <td>Od:192.168.13.1</td> <td>Od:192.168.13.1</td> </tr> <tr> <td>Gratuitous ARP and ARP Respons...</td> <td>Enable</td> <td>Enable</td> </tr> </tbody> </table> <table border="1" data-bbox="742 1129 1525 1235"> <thead> <tr> <th>Object Table</th> <th>Object Status</th> <th>System Status</th> <th>Socket Activity</th> </tr> </thead> <tbody> <tr> <td>Physical Interf...</td> <td>Logical Interf...</td> <td>Address Type</td> <td>IP Address</td> <td>Subnet</td> <td>Default Gate...</td> <td>Gratuitous A...</td> </tr> <tr> <td>VoIP Module...</td> <td>Redundant ...</td> <td>IP V4</td> <td>Od: 192.168...</td> <td>Od:255.255...</td> <td>Od:192.168...</td> <td>Enable</td> </tr> <tr> <td>CPU</td> <td>Redundant ...</td> <td>IP V4</td> <td>Od: 192.168...</td> <td>Od:255.255...</td> <td>Od:192.168...</td> <td>Enable</td> </tr> </tbody> </table>	CPU			Property	As-Configured	User-Specified	Physical Interface	CPU	CPU	Logical Interface	Redundant Data	Redundant Data	Address Type	IP V4	IP V4	IP Address	Od:192.168.13.112	Od:192.168.13.112	Subnet	Od:255.255.255.0	Od:255.255.255.0	Default Gateway	Od:192.168.13.1	Od:192.168.13.1	Gratuitous ARP and ARP Respons...	Enable	Enable	Object Table	Object Status	System Status	Socket Activity	Physical Interf...	Logical Interf...	Address Type	IP Address	Subnet	Default Gate...	Gratuitous A...	VoIP Module...	Redundant ...	IP V4	Od: 192.168...	Od:255.255...	Od:192.168...	Enable	CPU	Redundant ...	IP V4	Od: 192.168...	Od:255.255...	Od:192.168...	Enable
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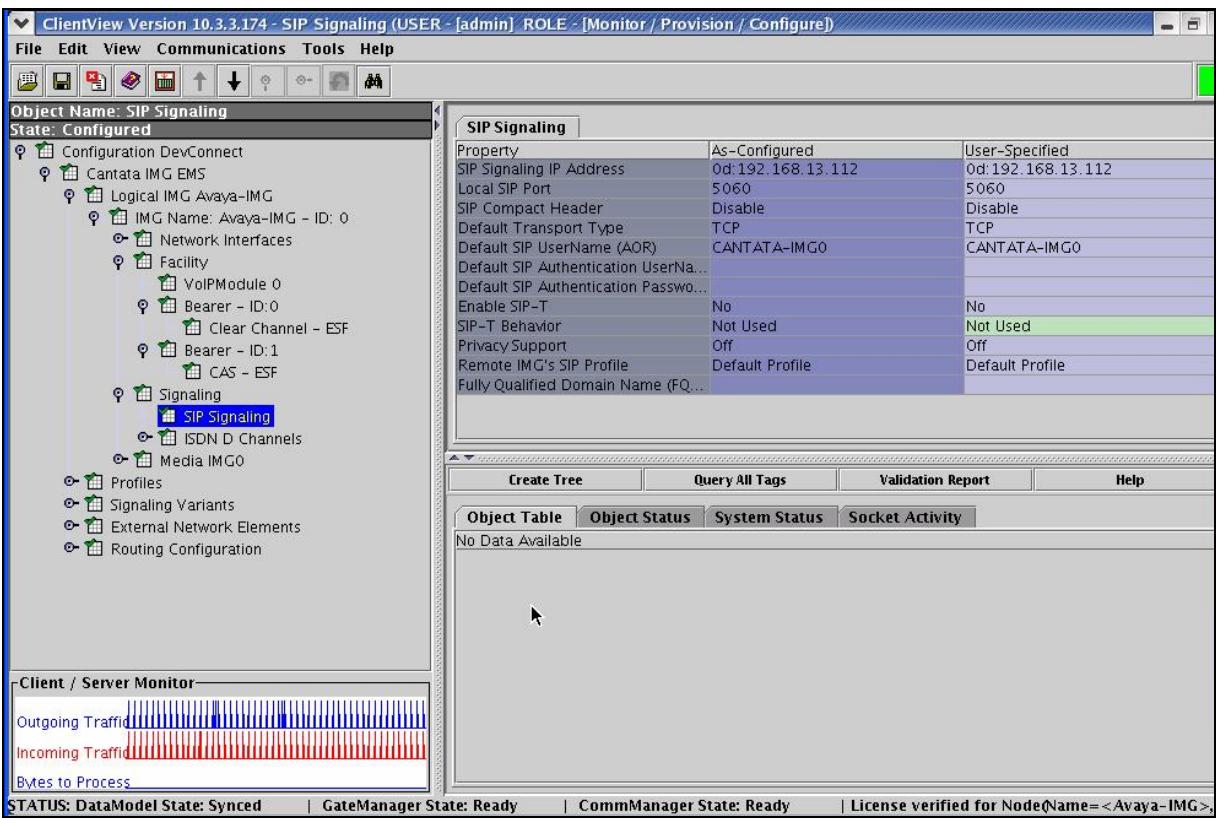
Step	Description						
5.1.7	<p>Create an object for a Facility as follows:</p> <ul style="list-style-type: none"> Right-click the physical IMG in the Configuration Tree, and select New Facility. To save the changes, right-click Facility, and select Commit. The resultant provisioning is shown below.  <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: left;">Property</th> <th style="text-align: left;">As-Configured</th> <th style="text-align: left;">User-Specified</th> </tr> </thead> <tbody> <tr> <td>Synchronization Mode</td> <td>Free Running Clock Signal</td> <td></td> </tr> </tbody> </table>	Property	As-Configured	User-Specified	Synchronization Mode	Free Running Clock Signal	
Property	As-Configured	User-Specified					
Synchronization Mode	Free Running Clock Signal						

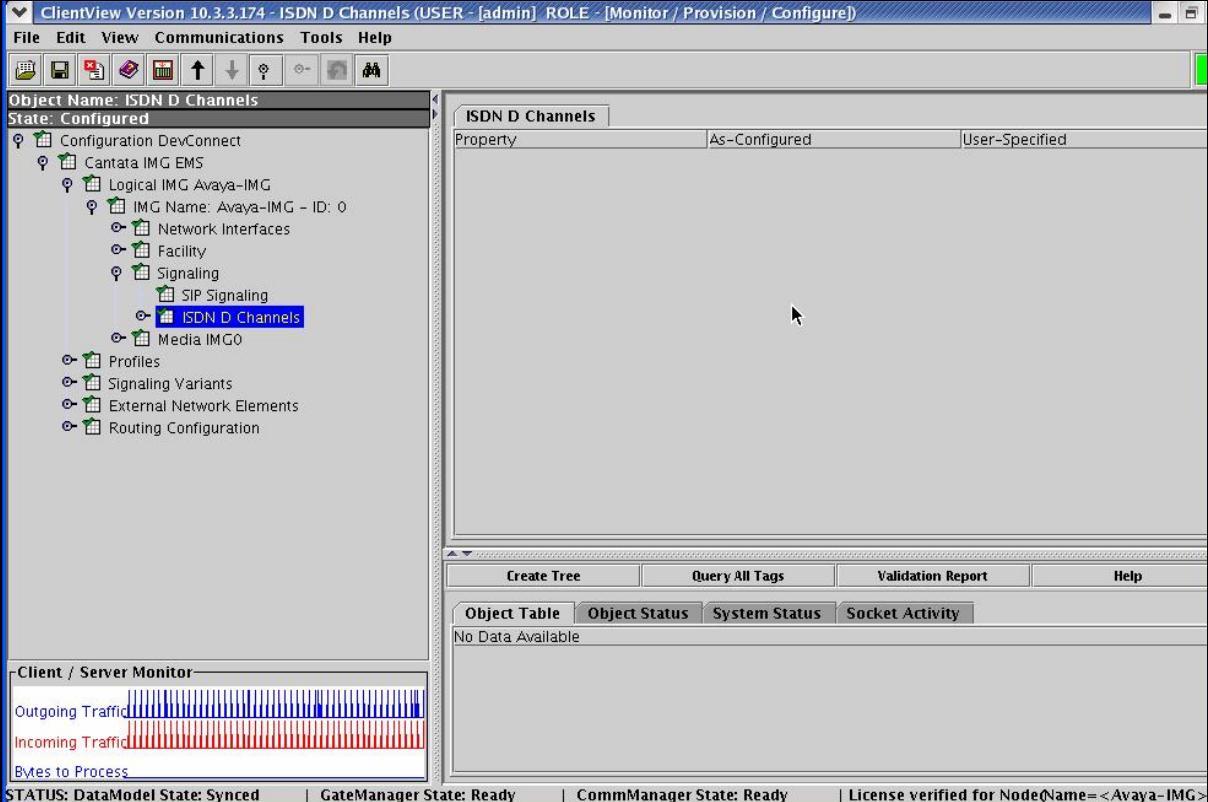
Step	Description																																																																																																																						
5.1.8	<p>Configure VoIP Facilities as follows:</p> <ul style="list-style-type: none"> Right-click Facility in the Configuration Tree, and select New Bearer - IP. Use default settings for all fields. <p><i>Note: The Network IP Address field is populated from the configuration provided for VoIP Module 0: Port 0 in Step 5.1.5.</i></p> <ul style="list-style-type: none"> To save the changes, right-click VoIPModule 0, and select Commit. The resultant provisioning is shown below. <table border="1"> <caption>Properties for VoIPModule 0</caption> <thead> <tr> <th>Property</th> <th>As-Configured</th> <th>User-Specified</th> </tr> </thead> <tbody> <tr> <td>Module ID</td> <td>0</td> <td>0</td> </tr> <tr> <td>Network Interface</td> <td>VoIP Module 0: Port 0</td> <td>VoIP Module 0: Port 0</td> </tr> <tr> <td>Network IP Address</td> <td>0d:192.168.13.111</td> <td>0d:192.168.13.111</td> </tr> <tr> <td>Module Configuration Profile</td> <td>Any Vocoder (4 Picasso)</td> <td>Any Vocoder (4 Picasso)</td> </tr> <tr> <td>Starting RTP Port</td> <td>8000</td> <td>8000</td> </tr> <tr> <td>Fully Qualified Domain Name (FQDN)</td> <td></td> <td></td> </tr> <tr> <td>Number of Channels Configured</td> <td>384</td> <td></td> </tr> </tbody> </table> <table border="1"> <caption>Object Table</caption> <thead> <tr> <th>Object Table</th> <th>Object Status</th> <th>System Status</th> <th>Socket Activity</th> </tr> </thead> <tbody> <tr> <td>IMG Name</td> <td>VoIP Module</td> <td>IP Address</td> <td>RTP Port</td> <td>Status</td> </tr> <tr> <td>Avaya-IMG</td> <td>0</td> <td>0d:192.168.13.1...</td> <td>8000</td> <td>In Service Idle</td> </tr> <tr> <td>Avaya-IMG</td> <td>0</td> <td>0d:192.168.13.1...</td> <td>8004</td> <td>In Service Idle</td> </tr> <tr> <td>Avaya-IMG</td> <td>0</td> <td>0d:192.168.13.1...</td> <td>8008</td> <td>In Service Idle</td> </tr> <tr> <td>Avaya-IMG</td> <td>0</td> <td>0d:192.168.13.1...</td> <td>8012</td> <td>In Service Idle</td> </tr> <tr> <td>Avaya-IMG</td> <td>0</td> <td>0d:192.168.13.1...</td> <td>8016</td> <td>In Service Idle</td> </tr> <tr> <td>Avaya-IMG</td> <td>0</td> <td>0d:192.168.13.1...</td> <td>8020</td> <td>In Service Idle</td> </tr> <tr> <td>Avaya-IMG</td> <td>0</td> <td>0d:192.168.13.1...</td> <td>8024</td> <td>In Service Idle</td> </tr> <tr> <td>Avaya-IMG</td> <td>0</td> <td>0d:192.168.13.1...</td> <td>8028</td> <td>In Service Idle</td> </tr> <tr> <td>Avaya-IMG</td> <td>0</td> <td>0d:192.168.13.1...</td> <td>8032</td> <td>In Service Idle</td> </tr> <tr> <td>Avaya-IMG</td> <td>0</td> <td>0d:192.168.13.1...</td> <td>8036</td> <td>In Service Idle</td> </tr> <tr> <td>Avaya-IMG</td> <td>0</td> <td>0d:192.168.13.1...</td> <td>8040</td> <td>In Service Idle</td> </tr> <tr> <td>Avaya-IMG</td> <td>0</td> <td>0d:192.168.13.1...</td> <td>8044</td> <td>In Service Idle</td> </tr> <tr> <td>Avaya-IMG</td> <td>0</td> <td>0d:192.168.13.1...</td> <td>8048</td> <td>In Service Idle</td> </tr> <tr> <td>Avaya-IMG</td> <td>0</td> <td>0d:192.168.13.1...</td> <td>8052</td> <td>In Service Idle</td> </tr> <tr> <td>Avaya-IMG</td> <td>0</td> <td>0d:192.168.13.1...</td> <td>8056</td> <td>In Service Idle</td> </tr> <tr> <td>Avaya-IMG</td> <td>0</td> <td>0d:192.168.13.1...</td> <td>8060</td> <td>In Service Idle</td> </tr> <tr> <td>Avaya-IMG</td> <td>0</td> <td>0d:192.168.13.1...</td> <td>8064</td> <td>In Service Idle</td> </tr> </tbody> </table>	Property	As-Configured	User-Specified	Module ID	0	0	Network Interface	VoIP Module 0: Port 0	VoIP Module 0: Port 0	Network IP Address	0d:192.168.13.111	0d:192.168.13.111	Module Configuration Profile	Any Vocoder (4 Picasso)	Any Vocoder (4 Picasso)	Starting RTP Port	8000	8000	Fully Qualified Domain Name (FQDN)			Number of Channels Configured	384		Object Table	Object Status	System Status	Socket Activity	IMG Name	VoIP Module	IP Address	RTP Port	Status	Avaya-IMG	0	0d:192.168.13.1...	8000	In Service Idle	Avaya-IMG	0	0d:192.168.13.1...	8004	In Service Idle	Avaya-IMG	0	0d:192.168.13.1...	8008	In Service Idle	Avaya-IMG	0	0d:192.168.13.1...	8012	In Service Idle	Avaya-IMG	0	0d:192.168.13.1...	8016	In Service Idle	Avaya-IMG	0	0d:192.168.13.1...	8020	In Service Idle	Avaya-IMG	0	0d:192.168.13.1...	8024	In Service Idle	Avaya-IMG	0	0d:192.168.13.1...	8028	In Service Idle	Avaya-IMG	0	0d:192.168.13.1...	8032	In Service Idle	Avaya-IMG	0	0d:192.168.13.1...	8036	In Service Idle	Avaya-IMG	0	0d:192.168.13.1...	8040	In Service Idle	Avaya-IMG	0	0d:192.168.13.1...	8044	In Service Idle	Avaya-IMG	0	0d:192.168.13.1...	8048	In Service Idle	Avaya-IMG	0	0d:192.168.13.1...	8052	In Service Idle	Avaya-IMG	0	0d:192.168.13.1...	8056	In Service Idle	Avaya-IMG	0	0d:192.168.13.1...	8060	In Service Idle	Avaya-IMG	0	0d:192.168.13.1...	8064	In Service Idle
Property	As-Configured	User-Specified																																																																																																																					
Module ID	0	0																																																																																																																					
Network Interface	VoIP Module 0: Port 0	VoIP Module 0: Port 0																																																																																																																					
Network IP Address	0d:192.168.13.111	0d:192.168.13.111																																																																																																																					
Module Configuration Profile	Any Vocoder (4 Picasso)	Any Vocoder (4 Picasso)																																																																																																																					
Starting RTP Port	8000	8000																																																																																																																					
Fully Qualified Domain Name (FQDN)																																																																																																																							
Number of Channels Configured	384																																																																																																																						
Object Table	Object Status	System Status	Socket Activity																																																																																																																				
IMG Name	VoIP Module	IP Address	RTP Port	Status																																																																																																																			
Avaya-IMG	0	0d:192.168.13.1...	8000	In Service Idle																																																																																																																			
Avaya-IMG	0	0d:192.168.13.1...	8004	In Service Idle																																																																																																																			
Avaya-IMG	0	0d:192.168.13.1...	8008	In Service Idle																																																																																																																			
Avaya-IMG	0	0d:192.168.13.1...	8012	In Service Idle																																																																																																																			
Avaya-IMG	0	0d:192.168.13.1...	8016	In Service Idle																																																																																																																			
Avaya-IMG	0	0d:192.168.13.1...	8020	In Service Idle																																																																																																																			
Avaya-IMG	0	0d:192.168.13.1...	8024	In Service Idle																																																																																																																			
Avaya-IMG	0	0d:192.168.13.1...	8028	In Service Idle																																																																																																																			
Avaya-IMG	0	0d:192.168.13.1...	8032	In Service Idle																																																																																																																			
Avaya-IMG	0	0d:192.168.13.1...	8036	In Service Idle																																																																																																																			
Avaya-IMG	0	0d:192.168.13.1...	8040	In Service Idle																																																																																																																			
Avaya-IMG	0	0d:192.168.13.1...	8044	In Service Idle																																																																																																																			
Avaya-IMG	0	0d:192.168.13.1...	8048	In Service Idle																																																																																																																			
Avaya-IMG	0	0d:192.168.13.1...	8052	In Service Idle																																																																																																																			
Avaya-IMG	0	0d:192.168.13.1...	8056	In Service Idle																																																																																																																			
Avaya-IMG	0	0d:192.168.13.1...	8060	In Service Idle																																																																																																																			
Avaya-IMG	0	0d:192.168.13.1...	8064	In Service Idle																																																																																																																			

Step	Description
5.1.9	<p>Configure a TDM DS1 as follows:</p> <ul style="list-style-type: none"> Right-click Facility in the Configuration Tree, and select New TDM DS1. Select Bearer from the drop down list for the Component ID field. Use default settings for remaining fields. To save the changes, right-click Bearer - ID:0, and select Commit. The resultant provisioning is shown below.

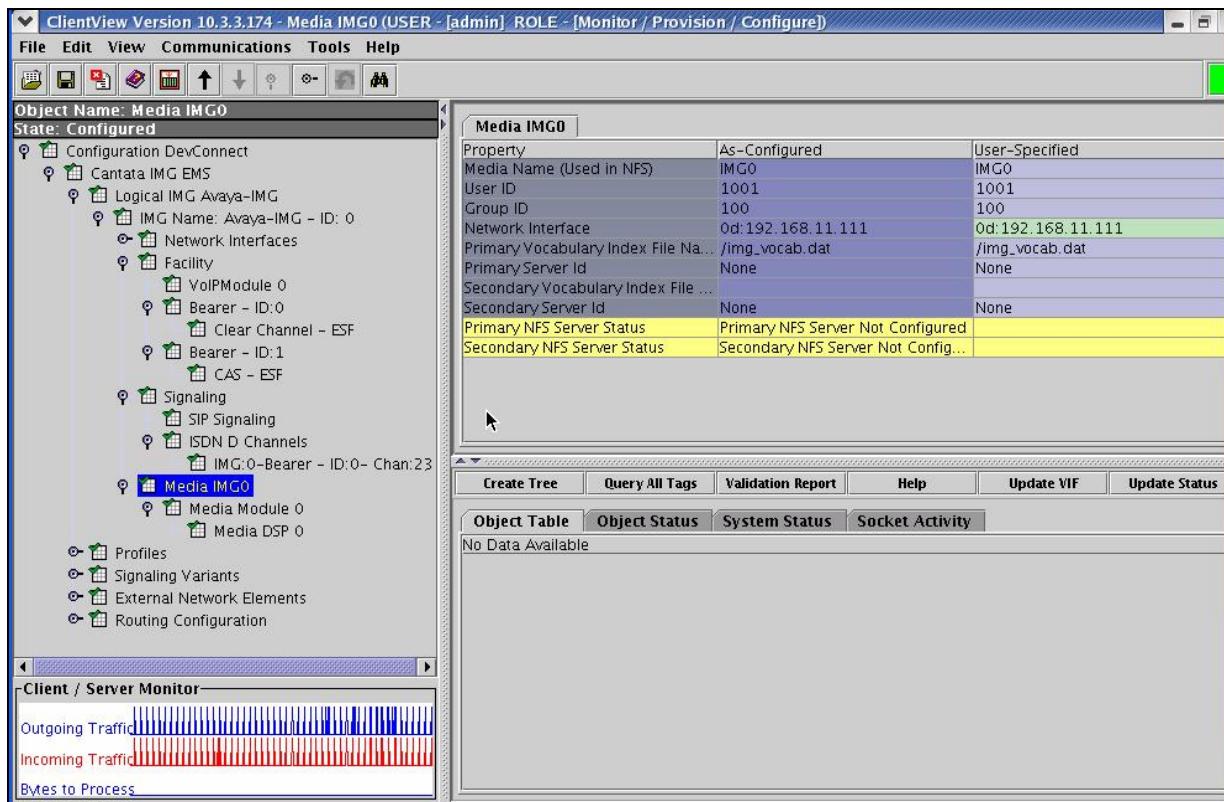
Step	Description																											
5.1.10	<p>Configure a T1 Physical Span for ISDN-PRI as follows</p> <ul style="list-style-type: none"> Right-click the TDM DS1 created in Step 5.1.9 in the Configuration Tree, and select New T1 Physical Span. Select Clear Channel from the drop down list for the Signaling field in the Configuration Pane. <p><i>Note: Clear Channel corresponds to ISDN-PRI.</i></p> <ul style="list-style-type: none"> Administer settings for the Framing and Line Coding fields that correspond to the configuration on Avaya Communication Manager (see Step 3.2.1). Use default settings for remaining fields. To save the changes, right-click Clear Channel - ESF, and select Commit. The resultant provisioning is shown below.  <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">Clear Channel - ESF</th> </tr> </thead> <tbody> <tr> <td>Property</td> <td>As-Configured</td> <td>User-Specified</td> </tr> <tr> <td>Loop Timing Type</td> <td>Not Timing Source</td> <td>Not Timing Source</td> </tr> <tr> <td>Framing</td> <td>ESF</td> <td>ESF</td> </tr> <tr> <td>Signaling</td> <td>Clear Channel</td> <td>Clear Channel</td> </tr> <tr> <td>Line Length</td> <td>0-133 ft</td> <td>0-133 ft</td> </tr> <tr> <td>Line Coding</td> <td>B8ZS zero suppressing</td> <td>B8ZS zero suppressing</td> </tr> <tr> <td>Loopback Mode</td> <td>No Loopback</td> <td>No Loopback</td> </tr> <tr> <td>Span Status</td> <td>In Service</td> <td></td> </tr> </tbody> </table>	Clear Channel - ESF			Property	As-Configured	User-Specified	Loop Timing Type	Not Timing Source	Not Timing Source	Framing	ESF	ESF	Signaling	Clear Channel	Clear Channel	Line Length	0-133 ft	0-133 ft	Line Coding	B8ZS zero suppressing	B8ZS zero suppressing	Loopback Mode	No Loopback	No Loopback	Span Status	In Service	
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Span Status	In Service																											

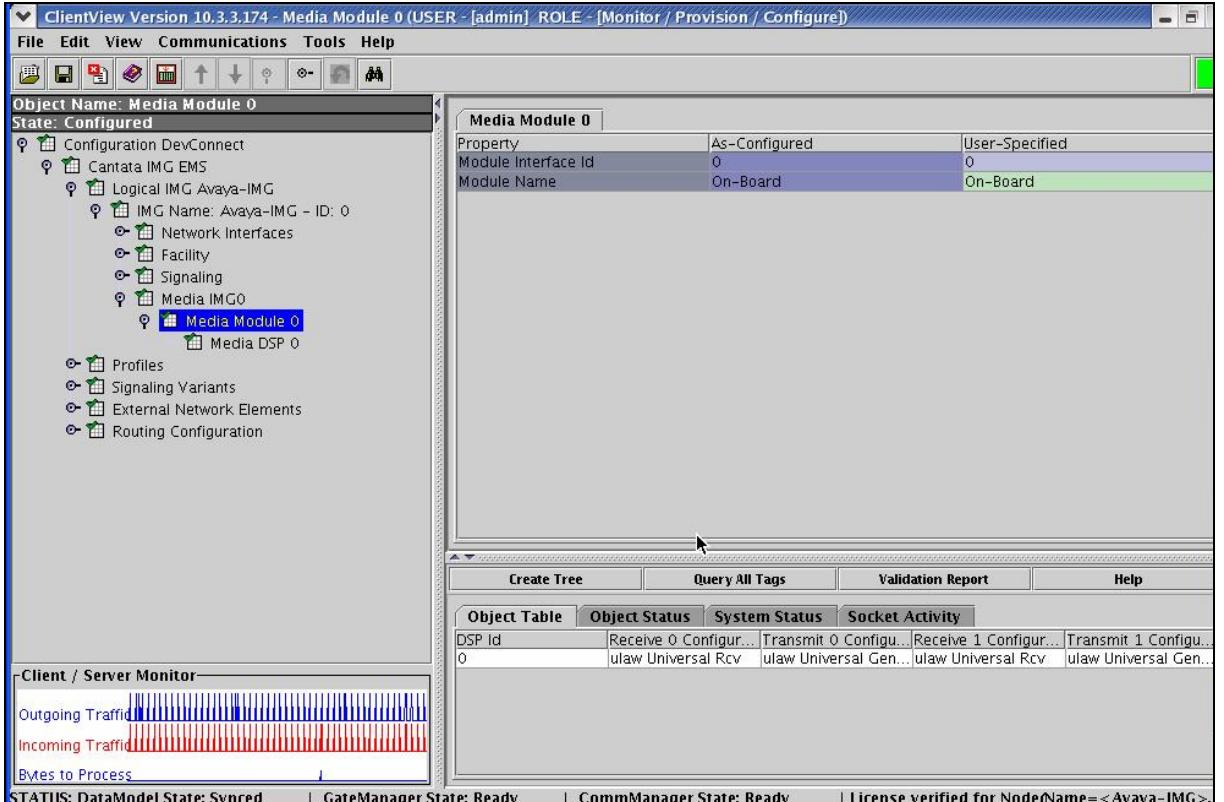
Step	Description
5.1.11	<p>Create an object for Signaling as follows:</p> <ul style="list-style-type: none"> Right-click the physical IMG in the Configuration Tree, and select New Signaling. To save the changes, right-click Signaling, and select Commit. The resultant provisioning is shown below.  <p>The screenshot shows the ClientView interface. The title bar reads "ClientView Version 10.3.3.174 - Signaling (USER - [admin] ROLE - [Monitor / Provision / Configure])". The menu bar includes File, Edit, View, Communications, Tools, and Help. The toolbar has icons for file operations like Open, Save, Print, and zoom. The left pane displays the "Object Name: Signaling" and "State: Configured" status. Below this is the "Configuration DevConnect" tree view, which includes "Cantata IMG EMS", "Logical IMG Avaya-IMG" (with "IMG Name: Avaya-IMG - ID: 0" expanded), "Network Interfaces", "Facility", "Signaling" (selected), and "Media IMGO", along with "Profiles", "Signaling Variants", "External Network Elements", and "Routing Configuration". The right pane shows the "Signaling" properties with tabs for "Property", "As-Configured", and "User-Specified". At the bottom, there's a "Client / Server Monitor" section with "Outgoing Traffic" and "Incoming Traffic" graphs, and a status bar with "STATUS: DataModel State: Synced", "GateManage", "Workspace Switcher", "CommManager State: Ready", and "License verified for NodeName=<Avaya-IMG>".</p>

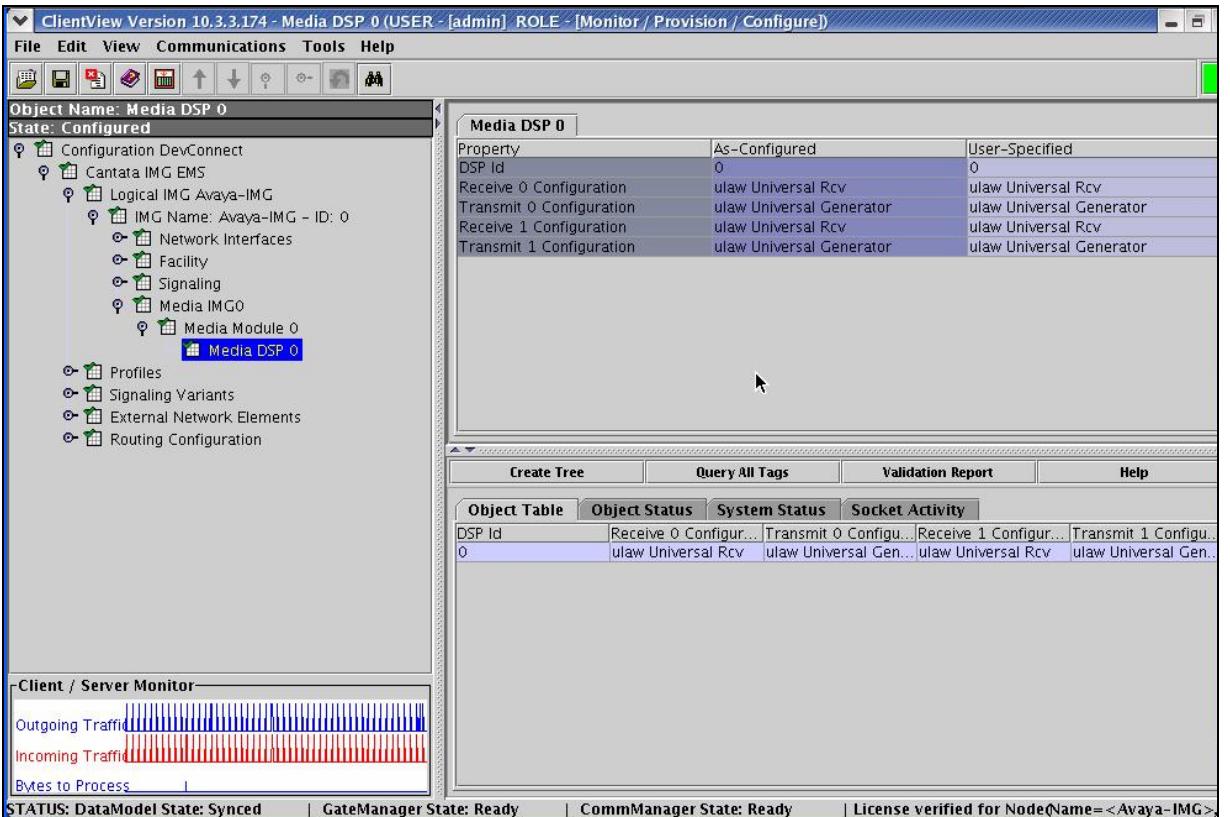
Step	Description																																										
5.1.12	<p>Configure SIP Signaling as follows</p> <ul style="list-style-type: none"> Right-click Signaling in the Configuration Tree, and select New SIP. Administer settings in the Configuration Pane that enable SIP connectivity between the IMG and other SIP User Agents as follows: <ul style="list-style-type: none"> Enter the IP address assigned to the IMG in the SIP Signaling IP Address field. Enter values in the Local SIP Port and Default Transport Type fields that correspond to the configuration on Avaya Meeting Exchange (see Step 4.2.5). Use default settings for remaining fields. To save the changes, right-click SIP Signaling, and select Commit. The resultant provisioning is shown below.  <table border="1"> <thead> <tr> <th colspan="3">SIP Signaling</th> </tr> <tr> <th>Property</th> <th>As-Configured</th> <th>User-Specified</th> </tr> </thead> <tbody> <tr> <td>SIP Signaling IP Address</td> <td>0d:192.168.13.112</td> <td>0d:192.168.13.112</td> </tr> <tr> <td>Local SIP Port</td> <td>5060</td> <td>5060</td> </tr> <tr> <td>SIP Compact Header</td> <td>Disable</td> <td>Disable</td> </tr> <tr> <td>Default Transport Type</td> <td>TCP</td> <td>TCP</td> </tr> <tr> <td>Default SIP UserName (AOR)</td> <td>CANTATA-IMG0</td> <td>CANTATA-IMG0</td> </tr> <tr> <td>Default SIP Authentication UserNa...</td> <td></td> <td></td> </tr> <tr> <td>Default SIP Authentication Passwo...</td> <td></td> <td></td> </tr> <tr> <td>Enable SIP-T</td> <td>No</td> <td>No</td> </tr> <tr> <td>SIP-T Behavior</td> <td>Not Used</td> <td>Not Used</td> </tr> <tr> <td>Privacy Support</td> <td>Off</td> <td>Off</td> </tr> <tr> <td>Remote IMG's SIP Profile</td> <td>Default Profile</td> <td>Default Profile</td> </tr> <tr> <td>Fully Qualified Domain Name (FQ...</td> <td></td> <td></td> </tr> </tbody> </table>	SIP Signaling			Property	As-Configured	User-Specified	SIP Signaling IP Address	0d:192.168.13.112	0d:192.168.13.112	Local SIP Port	5060	5060	SIP Compact Header	Disable	Disable	Default Transport Type	TCP	TCP	Default SIP UserName (AOR)	CANTATA-IMG0	CANTATA-IMG0	Default SIP Authentication UserNa...			Default SIP Authentication Passwo...			Enable SIP-T	No	No	SIP-T Behavior	Not Used	Not Used	Privacy Support	Off	Off	Remote IMG's SIP Profile	Default Profile	Default Profile	Fully Qualified Domain Name (FQ...		
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Default SIP Authentication UserNa...																																											
Default SIP Authentication Passwo...																																											
Enable SIP-T	No	No																																									
SIP-T Behavior	Not Used	Not Used																																									
Privacy Support	Off	Off																																									
Remote IMG's SIP Profile	Default Profile	Default Profile																																									
Fully Qualified Domain Name (FQ...																																											

Step	Description
5.1.13	<p>Create an object for ISDN as follows:</p> <ul style="list-style-type: none"> Right-click Signaling in the Configuration Tree, and select New ISDN. To save the changes, right-click ISDN D Channels, and select Commit. The resultant provisioning is shown below.  <p>The screenshot shows the ClientView interface. The title bar reads "ClientView Version 10.3.3.174 - ISDN D Channels (USER - [admin] ROLE - [Monitor / Provision / Configure])". The menu bar includes File, Edit, View, Communications, Tools, and Help. The toolbar has icons for file operations like Open, Save, Print, and Undo/Redo. The left pane displays the "Object Name: ISDN D Channels" and "State: Configured" status. A configuration tree is shown under "Configuration DevConnect", with "Logical IMG Avaya-IMG" expanded to show "IMG Name: Avaya-IMG - ID: 0", "Network Interfaces", "Facility", "Signaling" (which is expanded to show "SIP Signaling" and "ISDN D Channels"), and "Media IMGO". Other collapsed categories include Profiles, Signaling Variants, External Network Elements, and Routing Configuration. The main pane shows a table titled "ISDN D Channels" with three columns: Property, As-Configured, and User-Specified. The bottom pane contains tabs for Create Tree, Query All Tags, Validation Report, and Help, with "Object Table" selected. It also shows a "Client / Server Monitor" section with Outgoing Traffic, Incoming Traffic, and Bytes to Process. The status bar at the bottom indicates STATUS: DataModel State: Synced GateManager State: Ready CommManager State: Ready License verified for NodeName=<Avaya-IMG>.</p>

Step	Description																																				
5.1.14	<p>Configure an ISDN D Channel as follows:</p> <ul style="list-style-type: none"> Right-click ISDN D Channels in the Configuration Tree, and select New ISDN D Channel. Administer settings for the Primary Channel, Base Variant, Network Side Layer 2 Override and Location fields that correspond to the configuration on Avaya Communication Manager (see Step 3.2.1, and Step 3.2.2) in the Configuration Pane. <p><i>Note: The IMG counts ISDN channels from zero, where Avaya Communication Manager counts from one.</i></p> <ul style="list-style-type: none"> Use default settings for remaining fields. To save the changes, right-click IMG:0-Bearer - ID:0- Chan:23, and select Commit. The resultant provisioning is shown below. <table border="1"> <caption>Properties of IMG:0-Bearer - ID:0- Chan:23</caption> <thead> <tr> <th>Property</th> <th>As-Configured</th> <th>User-Specified</th> </tr> </thead> <tbody> <tr> <td>Primary Interface - Offset</td> <td>Bearer - ID:0</td> <td>Bearer - ID:0</td> </tr> <tr> <td>Primary Channel</td> <td>23</td> <td>23</td> </tr> <tr> <td>NFAS Supported</td> <td>Yes</td> <td>Yes</td> </tr> <tr> <td>Secondary Interface - Offset</td> <td>Not Used</td> <td>Not Used</td> </tr> <tr> <td>Secondary Channel</td> <td>Not Used</td> <td>Not Used</td> </tr> <tr> <td>Base Variant</td> <td>ATT 5ESS Q.931 PRI User Side</td> <td>ATT 5ESS Q.931 PRI User Side</td> </tr> <tr> <td>B Channel Selection</td> <td>Linear Clockwise</td> <td>Linear Clockwise</td> </tr> <tr> <td>HDLC Bit Polarity</td> <td>Normal</td> <td>Normal</td> </tr> <tr> <td>Network Side Layer 2 Override</td> <td>User</td> <td>User</td> </tr> <tr> <td>Location</td> <td>User</td> <td>User</td> </tr> <tr> <td>Primary D Channel Status</td> <td>D Channel In Service(Active)</td> <td></td> </tr> </tbody> </table>	Property	As-Configured	User-Specified	Primary Interface - Offset	Bearer - ID:0	Bearer - ID:0	Primary Channel	23	23	NFAS Supported	Yes	Yes	Secondary Interface - Offset	Not Used	Not Used	Secondary Channel	Not Used	Not Used	Base Variant	ATT 5ESS Q.931 PRI User Side	ATT 5ESS Q.931 PRI User Side	B Channel Selection	Linear Clockwise	Linear Clockwise	HDLC Bit Polarity	Normal	Normal	Network Side Layer 2 Override	User	User	Location	User	User	Primary D Channel Status	D Channel In Service(Active)	
Property	As-Configured	User-Specified																																			
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Primary Channel	23	23																																			
NFAS Supported	Yes	Yes																																			
Secondary Interface - Offset	Not Used	Not Used																																			
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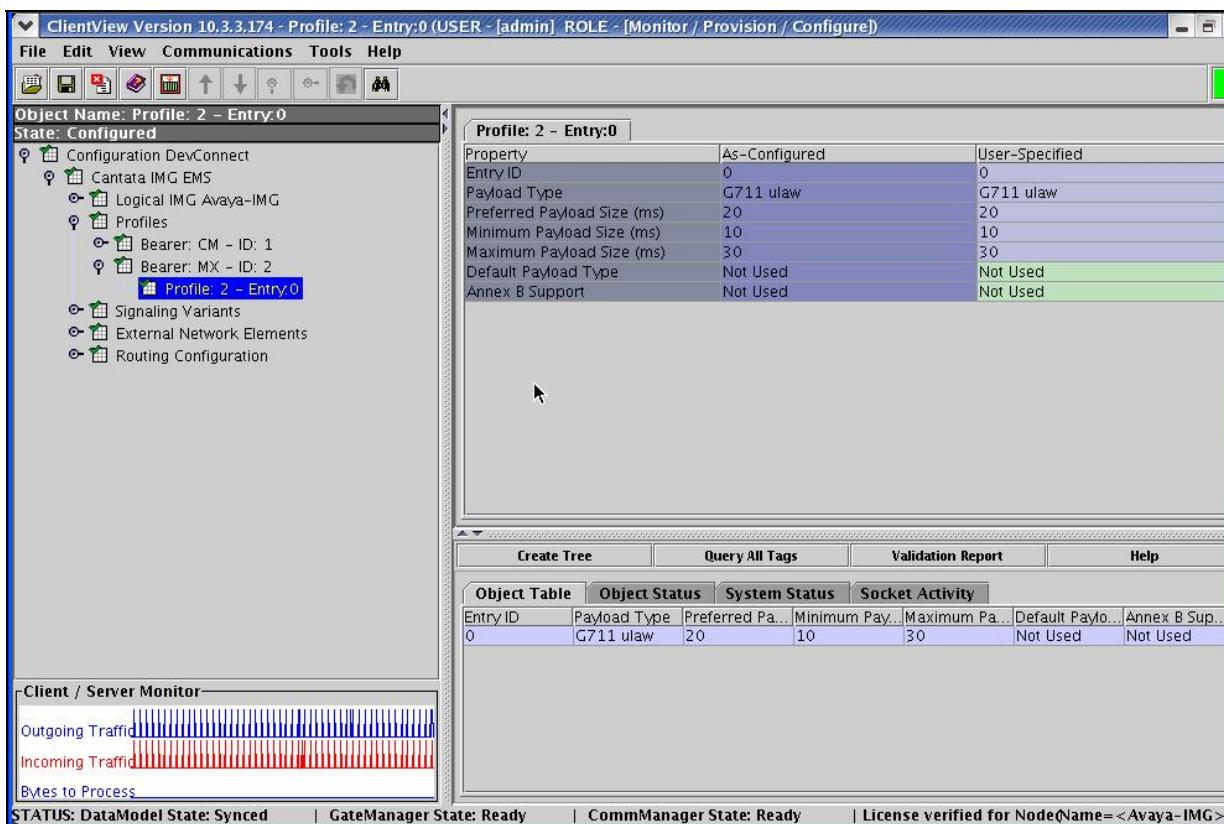
Step	Description																																	
5.1.15	<p>Configure settings for Media as follows:</p> <ul style="list-style-type: none"> Right-click the physical IMG in the Configuration Tree, and select New Media. Select the Network File Server (NFS) from the drop down list for the Media Name field in the Configuration Pane. Enter the User ID of the NFS for UNIX permissions in the User ID field. Enter the Group ID of the NFS for UNIX permissions in the Group ID field. Use default settings for remaining fields. <p><i>Note: The Network Interface field is automatically populated with the IP address provisioned for the management interface for the IMG.</i></p> <ul style="list-style-type: none"> To save the changes, right-click Media IMG0, and select Commit. The resultant provisioning is shown below.  <table border="1" data-bbox="734 823 1501 1077"> <thead> <tr> <th>Property</th> <th>As-Configured</th> <th>User-Specified</th> </tr> </thead> <tbody> <tr> <td>Media Name (Used in NFS)</td> <td>IMG0</td> <td>IMG0</td> </tr> <tr> <td>User ID</td> <td>1001</td> <td>1001</td> </tr> <tr> <td>Group ID</td> <td>100</td> <td>100</td> </tr> <tr> <td>Network Interface</td> <td>0d:192.168.11.111</td> <td>0d:192.168.11.111</td> </tr> <tr> <td>Primary Vocabulary Index File Na...</td> <td>/img_vocab.dat</td> <td>/img_vocab.dat</td> </tr> <tr> <td>Primary Server Id</td> <td>None</td> <td>None</td> </tr> <tr> <td>Secondary Vocabulary Index File ...</td> <td></td> <td></td> </tr> <tr> <td>Secondary Server Id</td> <td>None</td> <td>None</td> </tr> <tr> <td>Primary NFS Server Status</td> <td>Primary NFS Server Not Configured</td> <td></td> </tr> <tr> <td>Secondary NFS Server Status</td> <td>Secondary NFS Server Not Config...</td> <td></td> </tr> </tbody> </table>	Property	As-Configured	User-Specified	Media Name (Used in NFS)	IMG0	IMG0	User ID	1001	1001	Group ID	100	100	Network Interface	0d:192.168.11.111	0d:192.168.11.111	Primary Vocabulary Index File Na...	/img_vocab.dat	/img_vocab.dat	Primary Server Id	None	None	Secondary Vocabulary Index File ...			Secondary Server Id	None	None	Primary NFS Server Status	Primary NFS Server Not Configured		Secondary NFS Server Status	Secondary NFS Server Not Config...	
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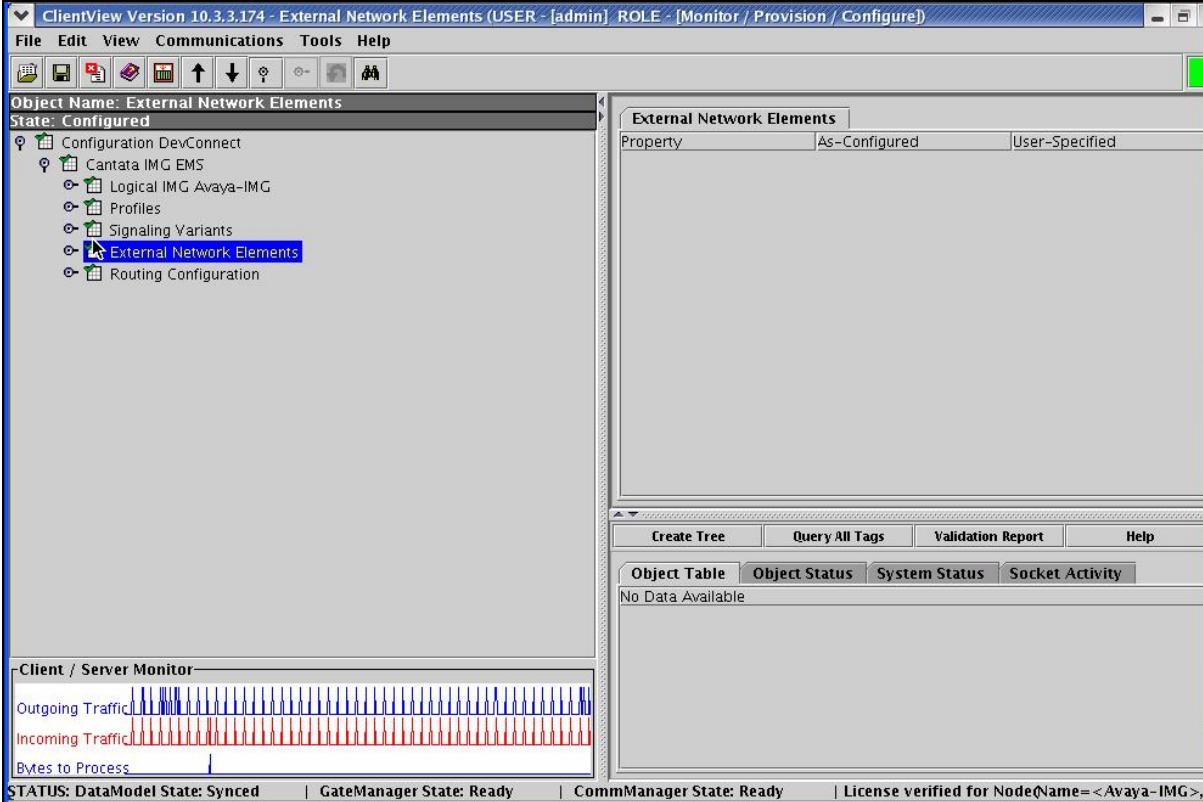
Step	Description												
5.1.16	<p>Create an object for a Media Module as follows:</p> <ul style="list-style-type: none"> Right-click Media IMGO in the Configuration Tree, and select New Media Module. Use default settings for all fields. To save the changes, right-click Media Module 0, and select Commit. The resultant provisioning is shown below.  <table border="1" data-bbox="750 601 1525 686"> <thead> <tr> <th colspan="3">Media Module 0</th> </tr> <tr> <th>Property</th> <th>As-Configured</th> <th>User-Specified</th> </tr> </thead> <tbody> <tr> <td>Module Interface Id</td> <td>0</td> <td>0</td> </tr> <tr> <td>Module Name</td> <td>On-Board</td> <td>On-Board</td> </tr> </tbody> </table>	Media Module 0			Property	As-Configured	User-Specified	Module Interface Id	0	0	Module Name	On-Board	On-Board
Media Module 0													
Property	As-Configured	User-Specified											
Module Interface Id	0	0											
Module Name	On-Board	On-Board											

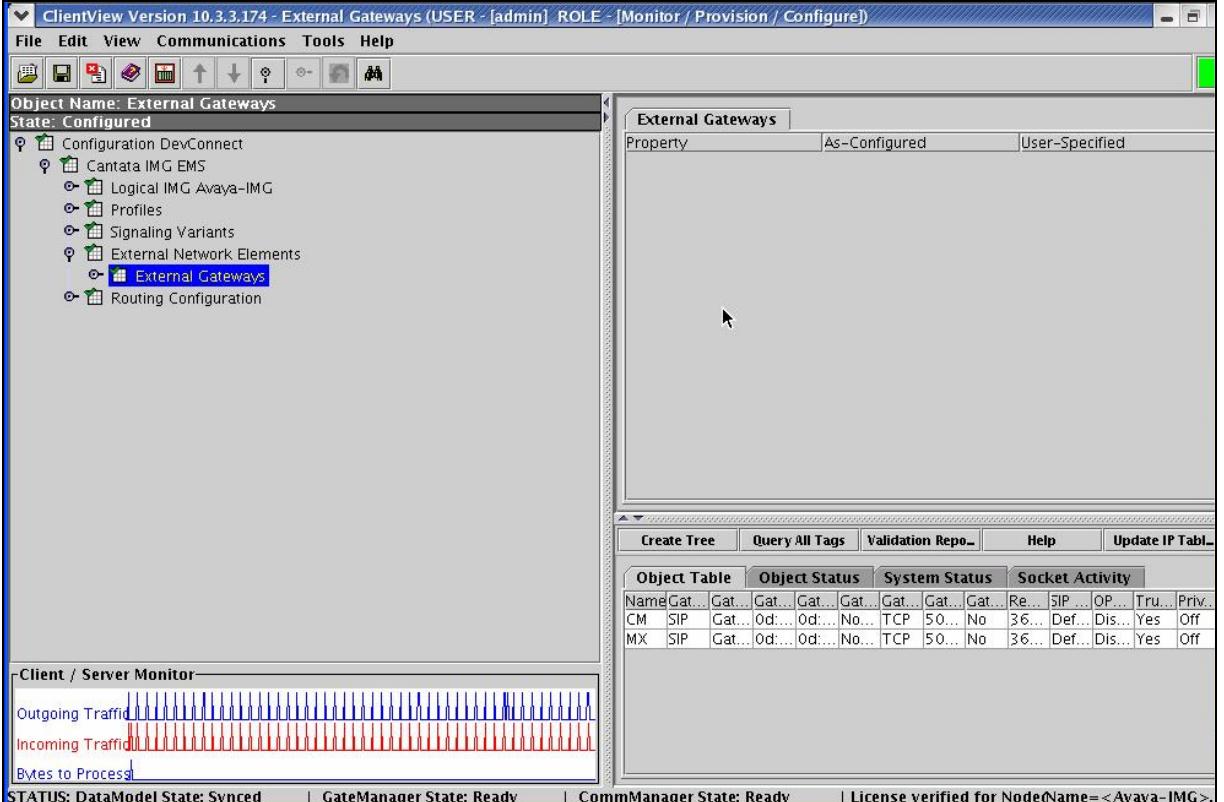
Step	Description																												
5.1.17	<p>Configure the Media Module DSP as follows:</p> <ul style="list-style-type: none"> Right-click the Media Module created in Step 5.1.16 in the Configuration Tree, and select New Media DSP. Use default settings for all fields. To save the changes, right-click Media DSP 0, and select Commit. The resultant provisioning is shown below.  <table border="1" data-bbox="752 650 1454 783"> <thead> <tr> <th>Property</th> <th>As-Configured</th> <th>User-Specified</th> </tr> </thead> <tbody> <tr> <td>DSP Id</td> <td>0</td> <td>0</td> </tr> <tr> <td>Receive 0 Configuration</td> <td>ulaw Universal Rcv</td> <td>ulaw Universal Rcv</td> </tr> <tr> <td>Transmit 0 Configuration</td> <td>ulaw Universal Generator</td> <td>ulaw Universal Generator</td> </tr> <tr> <td>Receive 1 Configuration</td> <td>ulaw Universal Rcv</td> <td>ulaw Universal Rcv</td> </tr> <tr> <td>Transmit 1 Configuration</td> <td>ulaw Universal Generator</td> <td>ulaw Universal Generator</td> </tr> </tbody> </table> <table border="1" data-bbox="752 994 1530 1079"> <thead> <tr> <th>DSP Id</th> <th>Receive 0 Configur...</th> <th>Transmit 0 Configu...</th> <th>Receive 1 Configur...</th> <th>Transmit 1 Configu...</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>ulaw Universal Rcv</td> <td>ulaw Universal Gen...</td> <td>ulaw Universal Rcv</td> <td>ulaw Universal Gen...</td> </tr> </tbody> </table>	Property	As-Configured	User-Specified	DSP Id	0	0	Receive 0 Configuration	ulaw Universal Rcv	ulaw Universal Rcv	Transmit 0 Configuration	ulaw Universal Generator	ulaw Universal Generator	Receive 1 Configuration	ulaw Universal Rcv	ulaw Universal Rcv	Transmit 1 Configuration	ulaw Universal Generator	ulaw Universal Generator	DSP Id	Receive 0 Configur...	Transmit 0 Configu...	Receive 1 Configur...	Transmit 1 Configu...	0	ulaw Universal Rcv	ulaw Universal Gen...	ulaw Universal Rcv	ulaw Universal Gen...
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0	ulaw Universal Rcv	ulaw Universal Gen...	ulaw Universal Rcv	ulaw Universal Gen...																									

Step	Description
5.1.18	<p>Create an object for Profiles as follows:</p> <ul style="list-style-type: none"> Right-click Cantata IMG EMS in the Configuration Tree, and select New Profiles. To save the changes, right-click Profiles, and select Commit. The resultant provisioning is shown below.

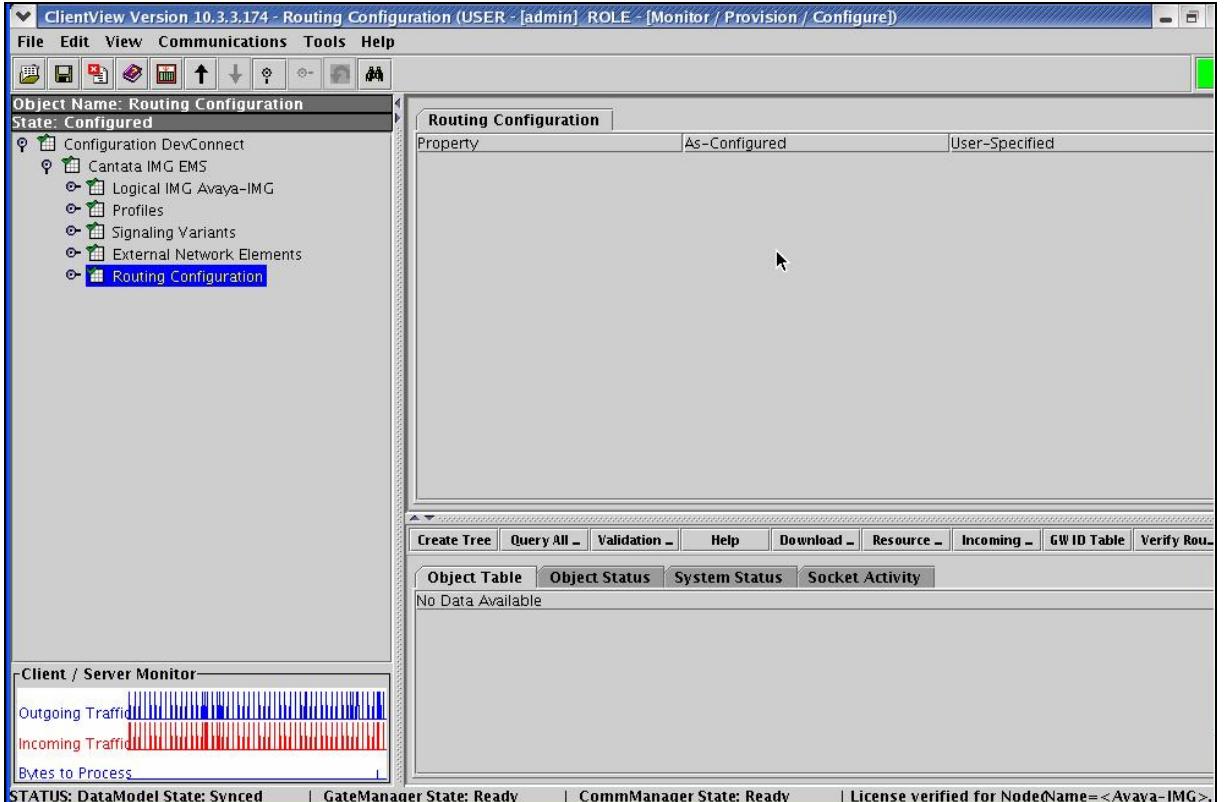
Step	Description
5.1.19	<p>Configure an IP Bearer Profile corresponding to Avaya Meeting Exchange as follows:</p> <ul style="list-style-type: none"> Right-click Profiles in the Configuration Tree, and select New IP Bearer Profile. Enter a descriptive name for the IP Bearer Profile in the IP Bearer Profile Name field in the Configuration Pane. Use default settings for remaining fields. To save the changes, right-click Bearer: MX - ID:2, and select Commit. The resultant provisioning is shown below.

Step	Description																								
5.1.20	<p>Assign a codec to the IP Bearer Profile corresponding to Avaya Meeting Exchange as follows:</p> <ul style="list-style-type: none"> Right-click the IP Bearer Profile created in Step 5.1.19 in the Configuration Tree, and select New Supported Vcoders. Select a codec from the drop down list for the Payload Type field that is supported on Avaya Meeting Exchange in the Configuration Pane. Use default settings for remaining fields. To save the changes, right-click Profile: 2 - Entry:0, and select Commit. The resultant provisioning is shown below.  <p>The screenshot shows the ClientView interface with the title bar "ClientView Version 10.3.3.174 - Profile: 2 - Entry:0 (USER - [admin] ROLE - [Monitor / Provision / Configure])". The menu bar includes File, Edit, View, Communications, Tools, and Help. The left pane displays the "Object Name: Profile: 2 - Entry:0" tree structure under "State: Configured". The "Profiles" node has two children: "Bearer: CM - ID: 1" and "Bearer: MX - ID: 2", with "Profile: 2 - Entry:0" selected. The right pane shows the "Profile: 2 - Entry:0" configuration table with the following data:</p> <table border="1"> <thead> <tr> <th>Property</th> <th>As-Configured</th> <th>User-Specified</th> </tr> </thead> <tbody> <tr> <td>Entry ID</td> <td>0</td> <td>0</td> </tr> <tr> <td>Payload Type</td> <td>G711 ulaw</td> <td>G711 ulaw</td> </tr> <tr> <td>Preferred Payload Size (ms)</td> <td>20</td> <td>20</td> </tr> <tr> <td>Minimum Payload Size (ms)</td> <td>10</td> <td>10</td> </tr> <tr> <td>Maximum Payload Size (ms)</td> <td>30</td> <td>30</td> </tr> <tr> <td>Default Payload Type</td> <td>Not Used</td> <td>Not Used</td> </tr> <tr> <td>Annex B Support</td> <td>Not Used</td> <td>Not Used</td> </tr> </tbody> </table> <p>At the bottom, there is a "Client / Server Monitor" section with "Outgoing Traffic" and "Incoming Traffic" status, and a "Bytes to Process" section. The status bar at the bottom shows: STATUS: DataModel State: Synced GateManager State: Ready CommManager State: Ready License verified for Node<Name=<Avaya-IMG></p>	Property	As-Configured	User-Specified	Entry ID	0	0	Payload Type	G711 ulaw	G711 ulaw	Preferred Payload Size (ms)	20	20	Minimum Payload Size (ms)	10	10	Maximum Payload Size (ms)	30	30	Default Payload Type	Not Used	Not Used	Annex B Support	Not Used	Not Used
Property	As-Configured	User-Specified																							
Entry ID	0	0																							
Payload Type	G711 ulaw	G711 ulaw																							
Preferred Payload Size (ms)	20	20																							
Minimum Payload Size (ms)	10	10																							
Maximum Payload Size (ms)	30	30																							
Default Payload Type	Not Used	Not Used																							
Annex B Support	Not Used	Not Used																							

Step	Description
5.1.21	<p>Create an object for External Network Elements as follows:</p> <ul style="list-style-type: none"> Right-click Cantata IMG EMS in the Configuration Tree, and select New External Network Elements. To save the changes, right-click External Network Elements, and select Commit. The resultant provisioning is shown below. 

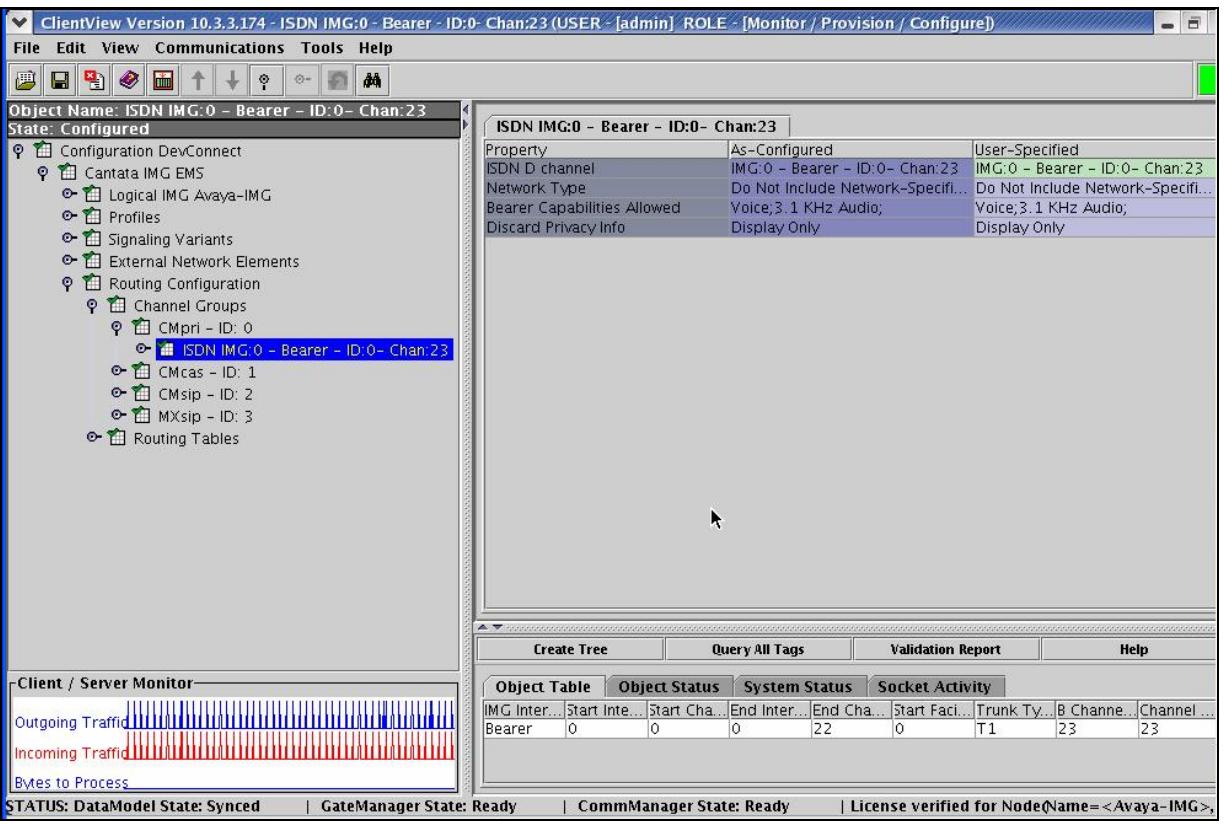
Step	Description																																									
5.1.22	<p>Create an object for External Gateways as follows:</p> <ul style="list-style-type: none"> Right-click External Network Elements in the Configuration Tree, and select New External Gateways. To save the changes, right-click External Gateways, and select Commit. The resultant provisioning is shown below.  <table border="1" data-bbox="922 1066 1525 1172"> <thead> <tr> <th>Name</th> <th>Gat...</th> <th>Gat...</th> <th>Gat...</th> <th>Gat...</th> <th>Gat...</th> <th>Gat...</th> <th>Gat...</th> <th>Re...</th> <th>SIP ...</th> <th>OP...</th> <th>Tru...</th> <th>Priv...</th> </tr> </thead> <tbody> <tr> <td>CM</td> <td>SIP</td> <td>Gat...</td> <td>Od...</td> <td>Od...</td> <td>No...</td> <td>TCP</td> <td>50...</td> <td>No</td> <td>36...</td> <td>Def...</td> <td>Dis...</td> <td>Yes</td> <td>Off</td> </tr> <tr> <td>MX</td> <td>SIP</td> <td>Gat...</td> <td>Od...</td> <td>Od...</td> <td>No...</td> <td>TCP</td> <td>50...</td> <td>No</td> <td>36...</td> <td>Def...</td> <td>Dis...</td> <td>Yes</td> <td>Off</td> </tr> </tbody> </table>	Name	Gat...	Re...	SIP ...	OP...	Tru...	Priv...	CM	SIP	Gat...	Od...	Od...	No...	TCP	50...	No	36...	Def...	Dis...	Yes	Off	MX	SIP	Gat...	Od...	Od...	No...	TCP	50...	No	36...	Def...	Dis...	Yes	Off						
Name	Gat...	Gat...	Gat...	Gat...	Gat...	Gat...	Gat...	Re...	SIP ...	OP...	Tru...	Priv...																														
CM	SIP	Gat...	Od...	Od...	No...	TCP	50...	No	36...	Def...	Dis...	Yes	Off																													
MX	SIP	Gat...	Od...	Od...	No...	TCP	50...	No	36...	Def...	Dis...	Yes	Off																													

Step	Description																																										
5.1.23	<p>Configure an External Gateway corresponding to Avaya Meeting Exchange as follows:</p> <ul style="list-style-type: none"> Right-click External Gateways in the Configuration Tree, and select New External Gateway. Enter a descriptive name for the IP Bearer Profile in the Name field in the Configuration Pane. Select SIP from the drop down list for the Gateway Signaling Protocol field. Enter the IP address of Avaya Meeting Exchange in the Gateway IP Address field. Use default settings for remaining fields. <p><i>Note: The settings for the Gateway Transport Type, and Gateway Remote Port fields are compatible with the configuration on Avaya Meeting Exchange (see Step 4.1.1, and Step 4.2.5).</i></p> <ul style="list-style-type: none"> To save the changes, right-click MX, and select Commit. The resultant provisioning is shown below. <table border="1"> <thead> <tr> <th>Name</th> <th>Gate...</th> <th>Gate...</th> <th>Gate...</th> <th>Gate...</th> <th>Gate...</th> <th>Gate...</th> <th>Gate...</th> <th>Gate...</th> <th>Regis...</th> <th>SIP Pr...</th> <th>OPTI...</th> <th>Trusted</th> <th>Privacy</th> </tr> </thead> <tbody> <tr> <td>CM</td> <td>SIP</td> <td>Gate...</td> <td>0d:1...</td> <td>0d:2...</td> <td>Not U...</td> <td>TCP</td> <td>5060</td> <td>No</td> <td>3600</td> <td>Defa...</td> <td>Disable</td> <td>Yes</td> <td>Off</td> </tr> <tr> <td>MX</td> <td>SIP</td> <td>Gate...</td> <td>0d:1...</td> <td>0d:2...</td> <td>Not U...</td> <td>TCP</td> <td>5060</td> <td>No</td> <td>3600</td> <td>Defa...</td> <td>Disable</td> <td>Yes</td> <td>Off</td> </tr> </tbody> </table>	Name	Gate...	Gate...	Gate...	Gate...	Gate...	Gate...	Gate...	Gate...	Regis...	SIP Pr...	OPTI...	Trusted	Privacy	CM	SIP	Gate...	0d:1...	0d:2...	Not U...	TCP	5060	No	3600	Defa...	Disable	Yes	Off	MX	SIP	Gate...	0d:1...	0d:2...	Not U...	TCP	5060	No	3600	Defa...	Disable	Yes	Off
Name	Gate...	Gate...	Gate...	Gate...	Gate...	Gate...	Gate...	Gate...	Regis...	SIP Pr...	OPTI...	Trusted	Privacy																														
CM	SIP	Gate...	0d:1...	0d:2...	Not U...	TCP	5060	No	3600	Defa...	Disable	Yes	Off																														
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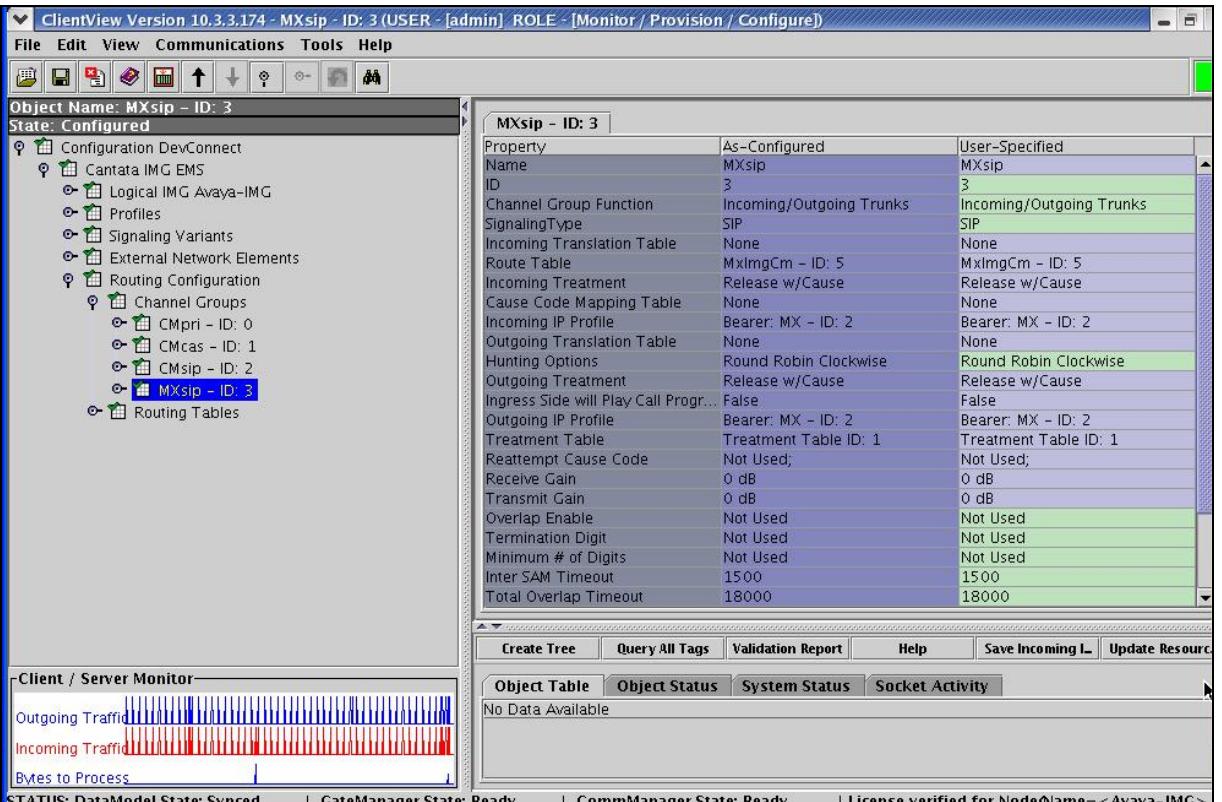
Step	Description
5.1.24	<p>Create an object for Routing Configuration as follows:</p> <ul style="list-style-type: none"> Right-click Cantata IMG EMS in the Configuration Tree, and select New Routing Configuration. To save the changes, right-click Routing Configuration, and select Commit. The resultant provisioning is shown below. 

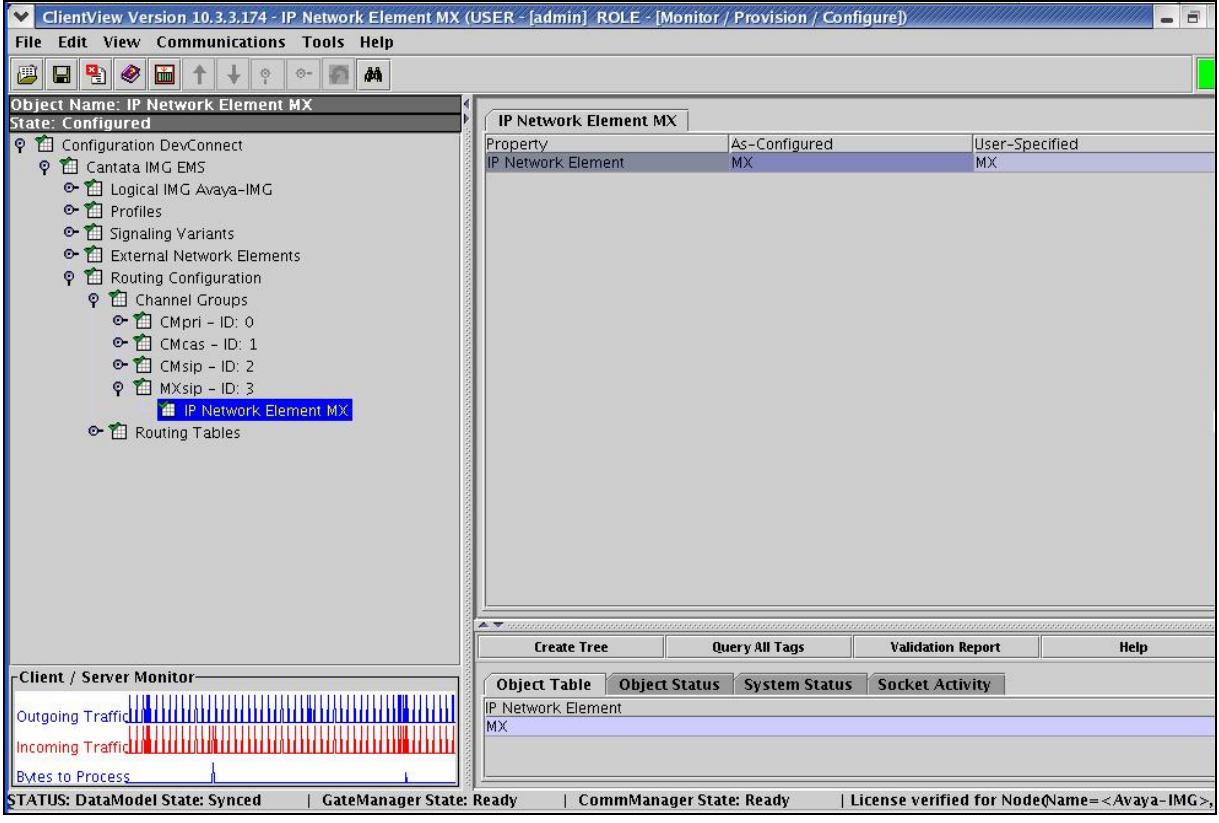
Step	Description
5.1.25	<p>Create an object for Channel Groups as follows:</p> <ul style="list-style-type: none"> Right-click Routing Configuration in the Configuration Tree, and select New Channel Groups. To save the changes, right-click Channel Groups, and select Commit. The resultant provisioning is shown below.

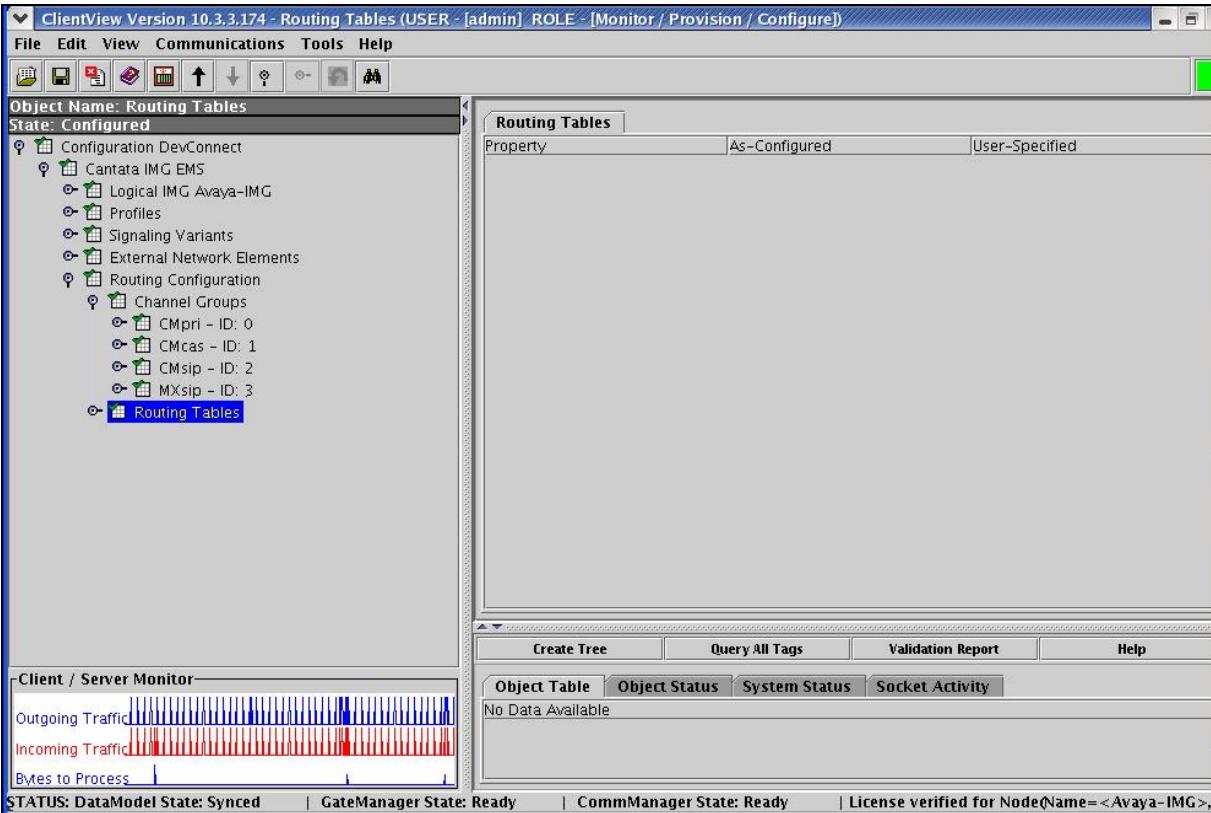
Step	Description																																																
5.1.26	<p>Configure a Channel Group corresponding to Avaya Communication Manager as follows:</p> <ul style="list-style-type: none"> Right-click Channel Groups in the Configuration Tree, and select New Channel Group. Enter a descriptive name for the Channel Group in the Name field in the Configuration Pane. Select ISDN from the drop down list for the Signaling Type field. Select a hunt algorithm that selects B-channels inverse to the provisioning on Avaya Communication Manager (see Step 3.2.4) from the drop down list for the Hunting Options field. Use default settings for remaining fields. <p><i>Note: The administration for the Route Table field is displayed in this screen capture, although the Route Table has not been created. When providing the IMG with an initial configuration, create a Channel Group first, then create a Route Table, then edit the Channel Group to include the Route Table.</i></p> <ul style="list-style-type: none"> To save the changes, right-click CMpri - ID: 0, and select Commit. The resultant provisioning is shown below. <table border="1"> <thead> <tr> <th>Property</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Name</td> <td>CMpri</td> </tr> <tr> <td>ID</td> <td>0</td> </tr> <tr> <td>Channel Group Function</td> <td>Incoming/Outgoing Trunks</td> </tr> <tr> <td>Signaling Type</td> <td>ISDN</td> </tr> <tr> <td>Incoming Translation Table</td> <td>None</td> </tr> <tr> <td>Route Table</td> <td>MxImgCm - ID: 5</td> </tr> <tr> <td>Incoming Treatment</td> <td>Release w/Cause</td> </tr> <tr> <td>Cause Code Mapping Table</td> <td>None</td> </tr> <tr> <td>Incoming IP Profile</td> <td>Not Used</td> </tr> <tr> <td>Outgoing Translation Table</td> <td>None</td> </tr> <tr> <td>Hunting Options</td> <td>Sequential Top Down</td> </tr> <tr> <td>Outgoing Treatment</td> <td>Release w/Cause</td> </tr> <tr> <td>Ingress Side will Play Call Progress...</td> <td>False</td> </tr> <tr> <td>Outgoing IP Profile</td> <td>Not Used</td> </tr> <tr> <td>Treatment Table</td> <td>Treatment Table ID: 1</td> </tr> <tr> <td>Reattempt Cause Code</td> <td>Not Used;</td> </tr> <tr> <td>Receive Gain</td> <td>0 dB</td> </tr> <tr> <td>Transmit Gain</td> <td>0 dB</td> </tr> <tr> <td>Overlap Enable</td> <td>Disabled</td> </tr> <tr> <td>Termination Digit</td> <td>Not Used</td> </tr> <tr> <td>Minimum # of Digits</td> <td>Not Used</td> </tr> <tr> <td>Inter SAM Timeout</td> <td>1500</td> </tr> <tr> <td>Total Overlap Timeout</td> <td>18000</td> </tr> </tbody> </table>	Property	Value	Name	CMpri	ID	0	Channel Group Function	Incoming/Outgoing Trunks	Signaling Type	ISDN	Incoming Translation Table	None	Route Table	MxImgCm - ID: 5	Incoming Treatment	Release w/Cause	Cause Code Mapping Table	None	Incoming IP Profile	Not Used	Outgoing Translation Table	None	Hunting Options	Sequential Top Down	Outgoing Treatment	Release w/Cause	Ingress Side will Play Call Progress...	False	Outgoing IP Profile	Not Used	Treatment Table	Treatment Table ID: 1	Reattempt Cause Code	Not Used;	Receive Gain	0 dB	Transmit Gain	0 dB	Overlap Enable	Disabled	Termination Digit	Not Used	Minimum # of Digits	Not Used	Inter SAM Timeout	1500	Total Overlap Timeout	18000
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Step	Description
5.1.27	<p>Assign a D-Channel to the Channel Group corresponding to Avaya Communication Manager as follows:</p> <ul style="list-style-type: none"> Right-click the Channel Group created in Step 5.1.26 in the Configuration Tree, and select New ISDN Group. Use default settings for all fields. To save the changes, right-click ISDN IMG:0 - Bearer - ID:0- Chan:23 and select Commit. The resultant provisioning is shown below.  <p>The screenshot shows the ClientView interface for Avaya Communication Manager. The title bar reads "ClientView Version 10.3.3.174 - ISDN IMG:0 - Bearer - ID:0- Chan:23 (USER - [admin] ROLE - [Monitor / Provision / Configure])". The menu bar includes File, Edit, View, Communications, Tools, and Help. The toolbar has icons for New, Open, Save, Print, and others. The left pane is the "Object Tree" showing a tree structure under "Object Name: ISDN IMG:0 - Bearer - ID:0- Chan:23 State: Configured". The "Channel Groups" node has a child node "CMpri - ID: 0" which contains "ISDN IMG:0 - Bearer - ID:0- Chan:23". The right pane displays the "ISDN IMG:0 - Bearer - ID:0- Chan:23" properties table. The table has three columns: Property, As-Configured, and User-Specified. The properties listed are: ISDN D channel (As-Configured: IMG:0 - Bearer - ID:0- Chan:23, User-Specified: IMG:0 - Bearer - ID:0- Chan:23); Network Type (As-Configured: Do Not Include Network-Specific..., User-Specified: Do Not Include Network-Specific...); Bearer Capabilities Allowed (As-Configured: Voice;3.1 kHz Audio; Discard Privacy Info, User-Specified: Voice;3.1 kHz Audio; Discard Privacy Info); and Discard Privacy Info (As-Configured: Display Only, User-Specified: Display Only). Below the properties table is a "Client / Server Monitor" window showing Outgoing Traffic, Incoming Traffic, and Bytes to Process. At the bottom, there are status messages: STATUS: DataModel State: Synced GateManager State: Ready CommManager State: Ready License verified for NodeName=<Avaya-IMG>, and navigation buttons: Create Tree, Query All Tags, Validation Report, and Help.</p>

Step	Description																														
5.1.28	<p>Assign B-Channels to the ISDN Channel Group corresponding to Avaya Communication Manager as follows:</p> <ul style="list-style-type: none"> Right-click the ISDN Group created in Step 5.1.27 in the Configuration Tree, and select New Channel Group. Use default settings for all fields. To save the changes, right-click B Channels: Bearer-0, and select Commit. The resultant provisioning is shown below. <table border="1"> <caption>B Channels: Bearer-0 Properties</caption> <thead> <tr> <th>Property</th> <th>As-Configured</th> <th>User-Specified</th> </tr> </thead> <tbody> <tr> <td>IMG Interface</td> <td>Bearer</td> <td>Bearer</td> </tr> <tr> <td>Start Interface Offset</td> <td>0</td> <td>0</td> </tr> <tr> <td>Start Channel</td> <td>0</td> <td>0</td> </tr> <tr> <td>End Interface Offset</td> <td>0</td> <td>0</td> </tr> <tr> <td>End Channel</td> <td>22</td> <td>22</td> </tr> <tr> <td>Start Facility Number</td> <td>0</td> <td>0</td> </tr> <tr> <td>Trunk Type</td> <td>T1</td> <td></td> </tr> <tr> <td>B Channel Count</td> <td>23</td> <td></td> </tr> <tr> <td>Channel Count</td> <td>23</td> <td></td> </tr> </tbody> </table> <p>Client / Server Monitor</p> <p>Outgoing Traffic Incoming Traffic Bytes to Process</p> <p>STATUS: DataModel State: Synced GateManager State: Ready CommManager State: Ready License verified for NodeName=<Avaya-IMG></p>	Property	As-Configured	User-Specified	IMG Interface	Bearer	Bearer	Start Interface Offset	0	0	Start Channel	0	0	End Interface Offset	0	0	End Channel	22	22	Start Facility Number	0	0	Trunk Type	T1		B Channel Count	23		Channel Count	23	
Property	As-Configured	User-Specified																													
IMG Interface	Bearer	Bearer																													
Start Interface Offset	0	0																													
Start Channel	0	0																													
End Interface Offset	0	0																													
End Channel	22	22																													
Start Facility Number	0	0																													
Trunk Type	T1																														
B Channel Count	23																														
Channel Count	23																														

Step	Description																																																																								
5.1.29	<p>Configure a Channel Group corresponding to Avaya Meeting Exchange as follows:</p> <ul style="list-style-type: none"> Right-click Channel Groups in the Configuration Tree, and select New Channel Group. Enter a descriptive name for the Channel Group in the Name field in the Configuration Pane. Select SIP from the drop down list for the Signaling Type field. Use default settings for remaining fields. <p><i>Note: The administration for the Route Table field is displayed in this screen capture, although the Route Table has not been created. When providing the IMG with an initial configuration, create a Channel Group first, then create a Route Table, then edit the Channel Group to include the Route Table.</i></p> <ul style="list-style-type: none"> To save the changes, right-click MXsip - ID: 3, and select Commit. The resultant provisioning is shown below.  <table border="1"> <thead> <tr> <th>Property</th> <th>As-Configured</th> <th>User-Specified</th> </tr> </thead> <tbody> <tr> <td>Name</td> <td>MXsip</td> <td>MXsip</td> </tr> <tr> <td>ID</td> <td>3</td> <td>3</td> </tr> <tr> <td>Channel Group Function</td> <td>Incoming/Outgoing Trunks</td> <td>Incoming/Outgoing Trunks</td> </tr> <tr> <td>SignalingType</td> <td>SIP</td> <td>SIP</td> </tr> <tr> <td>Incoming Translation Table</td> <td>None</td> <td>None</td> </tr> <tr> <td>Route Table</td> <td>MxImgCm - ID: 5</td> <td>MxImgCm - ID: 5</td> </tr> <tr> <td>Incoming Treatment</td> <td>Release w/Cause</td> <td>Release w/Cause</td> </tr> <tr> <td>Cause Code Mapping Table</td> <td>None</td> <td>None</td> </tr> <tr> <td>Incoming IP Profile</td> <td>Bearer: MX - ID: 2</td> <td>Bearer: MX - ID: 2</td> </tr> <tr> <td>Outgoing Translation Table</td> <td>None</td> <td>None</td> </tr> <tr> <td>Hunting Options</td> <td>Round Robin Clockwise</td> <td>Round Robin Clockwise</td> </tr> <tr> <td>Outgoing Treatment</td> <td>Release w/Cause</td> <td>Release w/Cause</td> </tr> <tr> <td>Ingress Side will Play Call Prog...</td> <td>False</td> <td>False</td> </tr> <tr> <td>Outgoing IP Profile</td> <td>Bearer: MX - ID: 2</td> <td>Bearer: MX - ID: 2</td> </tr> <tr> <td>Treatment Table</td> <td>Treatment Table ID: 1</td> <td>Treatment Table ID: 1</td> </tr> <tr> <td>Reattempt Cause Code</td> <td>Not Used;</td> <td>Not Used;</td> </tr> <tr> <td>Receive Gain</td> <td>0 dB</td> <td>0 dB</td> </tr> <tr> <td>Transmit Gain</td> <td>0 dB</td> <td>0 dB</td> </tr> <tr> <td>Overlap Enable</td> <td>Not Used</td> <td>Not Used</td> </tr> <tr> <td>Termination Digit</td> <td>Not Used</td> <td>Not Used</td> </tr> <tr> <td>Minimum # of Digits</td> <td>Not Used</td> <td>Not Used</td> </tr> <tr> <td>Inter SAM Timeout</td> <td>1500</td> <td>1500</td> </tr> <tr> <td>Total Overlap Timeout</td> <td>18000</td> <td>18000</td> </tr> </tbody> </table>	Property	As-Configured	User-Specified	Name	MXsip	MXsip	ID	3	3	Channel Group Function	Incoming/Outgoing Trunks	Incoming/Outgoing Trunks	SignalingType	SIP	SIP	Incoming Translation Table	None	None	Route Table	MxImgCm - ID: 5	MxImgCm - ID: 5	Incoming Treatment	Release w/Cause	Release w/Cause	Cause Code Mapping Table	None	None	Incoming IP Profile	Bearer: MX - ID: 2	Bearer: MX - ID: 2	Outgoing Translation Table	None	None	Hunting Options	Round Robin Clockwise	Round Robin Clockwise	Outgoing Treatment	Release w/Cause	Release w/Cause	Ingress Side will Play Call Prog...	False	False	Outgoing IP Profile	Bearer: MX - ID: 2	Bearer: MX - ID: 2	Treatment Table	Treatment Table ID: 1	Treatment Table ID: 1	Reattempt Cause Code	Not Used;	Not Used;	Receive Gain	0 dB	0 dB	Transmit Gain	0 dB	0 dB	Overlap Enable	Not Used	Not Used	Termination Digit	Not Used	Not Used	Minimum # of Digits	Not Used	Not Used	Inter SAM Timeout	1500	1500	Total Overlap Timeout	18000	18000
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Cause Code Mapping Table	None	None																																																																							
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Ingress Side will Play Call Prog...	False	False																																																																							
Outgoing IP Profile	Bearer: MX - ID: 2	Bearer: MX - ID: 2																																																																							
Treatment Table	Treatment Table ID: 1	Treatment Table ID: 1																																																																							
Reattempt Cause Code	Not Used;	Not Used;																																																																							
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Transmit Gain	0 dB	0 dB																																																																							
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Inter SAM Timeout	1500	1500																																																																							
Total Overlap Timeout	18000	18000																																																																							

Step	Description
5.1.30	<p>Assign an IP Network Element to the Channel Group corresponding to Avaya Meeting Exchange as follows:</p> <ul style="list-style-type: none"> Right-click the Channel Group created in Step 5.1.29 in the Configuration Tree, and select New IP Network Element. Select the External Gateway provisioned in Step 5.1.23 from the drop down list for the IP Network Element field. To save the changes, right-click IP Network Element MX, and select Commit. The resultant provisioning is shown below. 

Step	Description
5.1.31	<p>Create an object for Routing Tables as follows:</p> <ul style="list-style-type: none"> Right-click Routing Configuration in the Configuration Tree, and select New Routing Tables. To save the changes, right-click Routing Tables, and select Commit. The resultant provisioning is shown below. 
5.1.32	<p>Configure a Route Table as follows:</p> <ul style="list-style-type: none"> Right-click Routing Tables in the Configuration Tree, and select New Route Table. Enter a descriptive name for the Route Table in the Name field in the Configuration Pane. Use default settings for remaining fields. To save the changes, right-click the entry, and select Commit. See Step 5.1.33 for resultant provisioning.

Step	Description																											
5.1.33	<p>Add route entries to the Route Table provisioned in Step 5.1.32 as follows:</p> <ul style="list-style-type: none"> To add a route entry corresponding to Avaya Communication Manager, right-click the Route Table in the Configuration Tree and select Add Route Entry. <ul style="list-style-type: none"> Enter a pattern to match extensions on Avaya Communication Manager, where & is a wildcard, in the Router String field in the New Entry dialog box. Select the Channel Group provisioned in Step 5.1.26 from the drop down list for the Outgoing Channel Group field. <p><i>Note: This is displayed below under the Route Action List column.</i></p> <ul style="list-style-type: none"> Click OK in the New Entry dialog box. To add a route entry corresponding to Avaya Meeting Exchange, right-click the Route Table in the Configuration Tree and select Add Route Entry. <ul style="list-style-type: none"> Enter a pattern to match the provisioning for call flows on Avaya Meeting Exchange, where & is a wildcard, in the Router String field in the New Entry dialog box. Select the Channel Group provisioned in Step 5.1.29 from the drop down list for the Outgoing Channel Group field. <p><i>Note: This is displayed below under the Route Action List column.</i></p> <ul style="list-style-type: none"> Click OK in the New Entry dialog box. The resultant provisioning is shown below. <table border="1"> <thead> <tr> <th>Entry ID</th> <th>Enable</th> <th>Route Crite...</th> <th>Router String</th> <th>In Channel...</th> <th>Match IMG...</th> <th>Criteria Val...</th> <th>Route Action Type</th> <th>Route Action List</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>True</td> <td>Dialed Nu...</td> <td>3&</td> <td>Not Used</td> <td>Not Used</td> <td>Not Used</td> <td>Channel Group</td> <td>CMpri - ID: 0</td> </tr> <tr> <td>1</td> <td>True</td> <td>Dialed Nu...</td> <td>4&</td> <td>Not Used</td> <td>Not Used</td> <td>Not Used</td> <td>Channel Group</td> <td>MXsip - ID: 3</td> </tr> </tbody> </table>	Entry ID	Enable	Route Crite...	Router String	In Channel...	Match IMG...	Criteria Val...	Route Action Type	Route Action List	0	True	Dialed Nu...	3&	Not Used	Not Used	Not Used	Channel Group	CMpri - ID: 0	1	True	Dialed Nu...	4&	Not Used	Not Used	Not Used	Channel Group	MXsip - ID: 3
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1	True	Dialed Nu...	4&	Not Used	Not Used	Not Used	Channel Group	MXsip - ID: 3																				

6. Interoperability Compliance Testing

6.1. General Test Approach

The general test approach was to place calls between Avaya Communication Manager and Avaya Meeting Exchange via the IMG utilizing the sample configuration displayed in **Figure 1**. The main objectives were to verify the following:

- Inbound calling from Avaya Communication Manager to scheduled and demand conferences provisioned on Avaya Meeting Exchange via the Cantata IMG 1010:
 - Direct call flow (without participant-access-code)
 - Basic call flow (with participant-access-code)
- Outbound calling from Avaya Meeting Exchange to stations registered to either Avaya Communication Manager, or Avaya SIP Enablement Services via the Cantata IMG 1010:
 - Blast dial to a pre-provisioned blast dial list
 - Originator dial-out
- Conference features for both moderator and participant accessed during a conference call via touchtone commands
- The following sub-set of the SIPPING-19 supplementary features for SIP endpoints:
 - Call hold
 - Attended/unattended call transfer
 - Call forward
 - Three-way conference
- The following transport methods for signaling between Avaya Meeting Exchange and the IMG:
 - TCP
 - UDP
- The following transport methods for signaling/media between Avaya Communication Manager and the IMG:
 - T1 ISDN-PRI
- The following codecs:
 - G711MU
- Subjective voice quality for endpoints participating in a conference.
- DTMF transmission via RFC 2833.

6.2. Test Results

All test cases, as defined by the general test approach, passed.

7. Verification Steps

The following steps were used to verify the administrative steps presented in these Application Notes and are applicable for similar configurations in the field.

Step	Description
7.1.1	<p>Verify ISDN-PRI connectivity between Avaya Communication Manager and the IMG by retrieving status regarding the trunk group provisioned in Step 3.2.3. From a SAT session:</p> <ul style="list-style-type: none"> Issue the command “status trunk <n>”, where n is the number of the trunk group to verify. Verify that all members in the trunk group are in-service/idle.
7.1.2	<p>Validate signaling and media connectivity for inbound calls to Avaya Meeting Exchange from Avaya Communication Manager via the IMG. This is accomplished by verifying that the trunk provisioned in Step 3.2.3 is utilized when a call from a phone registered to either Avaya Communication Manager, or Avaya SIP Enablement Services dials in to a conference provisioned on Avaya Meeting Exchange. From a SAT session:</p> <ul style="list-style-type: none"> Issue the command “list trace tac <n>”, where n is the TAC defined for the trunk group. From a station registered to either Avaya Communication Manager, or Avaya SIP Enablement Services, dial 444 to enter the conference provisioned in Section 4.3 as moderator via the direct call flow provisioned in Step 4.2.2. <p><i>Note: The trace below shows a station (33006) that dialed (444) and utilized the call routing provisioned in Section 3.3 to route the call to Avaya Meeting Exchange.</i></p> <pre>list trace tac 106</pre>
	<p style="text-align: right;">Page 1</p> <pre> LIST TRACE time data 10:50:29 dial 444 route:AAR 10:50:29 term trunk-group 6 cid 0x290 10:50:29 dial 444 route:AAR 10:50:29 route-pattern 6 preference 1 cid 0x290 10:50:29 seize trunk-group 6 member 23 cid 0x290 10:50:29 Calling Number & Name 33006 H.323 33006 V 10:50:29 Proceed trunk-group 6 member 23 cid 0x290 10:50:29 active trunk-group 6 member 23 cid 0x290 </pre>

Step	Description
7.1.3	<p>Validate signaling and media connectivity for outbound calls from Avaya Meeting Exchange to Avaya Communication Manager via the IMG. This is accomplished by verifying that the trunk provisioned in Step 3.2.3 is utilized when a call is placed from a participant in conference on Avaya Meeting Exchange to a station registered to either Avaya Communication Manager, or Avaya SIP Enablement Services. From a SAT session:</p> <ul style="list-style-type: none"> Issue the command “list trace tac <n>”, where n is the TAC defined for the trunk group. From a station in a conference on Avaya Meeting Exchange, enter the appropriate touchtone command to invoke a blast dial to the blast dial list provisioned in Section 4.3. <p><i>Note: The trace below shows the call that originated from Avaya Meeting Exchange to a SIP station registered to Avaya SIP Enablement Services. The call utilized the trunk group between Avaya Communication Manager and the IMG.</i></p> <pre data-bbox="290 832 1165 1157">list trace tac 106 Page 1 LIST TRACE time data 10:51:09 Calling party trunk-group 6 member 1 cid 0x291 10:51:09 Calling Number & Name 444 NO-CPName 10:51:09 active trunk-group 6 member 1 cid 0x291 10:51:09 dial 31002 10:51:09 term station 31002 cid 0x291 10:51:11 active station 31002 cid 0x291</pre>
7.1.4	<p>Verify that calls to and from Avaya Meeting Exchange are managed correctly, e.g., callers are added/removed from conferences. This is verified by the following procedures:</p> <ul style="list-style-type: none"> Log in to the Avaya Meeting Exchange server console with the appropriate credentials. At the command prompt, enter the command: watch -t -n 5 -d "ipinfo -l egrep -ci active" <ul style="list-style-type: none"> This command provides a real time, continuous update of port utilization on Avaya Meeting Exchange.

8. Conclusion

These Application Notes presented a compliance-tested solution comprised of Avaya Communication Manager, Avaya Meeting Exchange Express Edition, and the Cantata Technology IMG 1010 Media Gateway. This solution enables connectivity between Avaya Communication Manager and Avaya Meeting Exchange Express Edition via the Cantata Technology IMG 1010 Media Gateway utilizing standards based SIP and ISDN-PRI connectivity.

9. Additional References

Avaya references are available at <http://support.avaya.com>.

- [1] *Avaya Meeting Exchange Express Edition Release 1.5 Administration and Maintenance Guide*, Issue 1, Doc ID: 04-601909, March 2007.
- [2] *Avaya Meeting Exchange Express Edition Release 1.5 Installation and Configuration Guide*, Issue 1, Doc ID: 04-601898, March 2007.
- [3] *Administrator Guide for Avaya Communication Manager*, Issue 3.1, Doc ID: 03-300509, February 2007.
- [4] *Administration for Network Connectivity for Avaya Communication Manager*, Issue 12, Doc ID: 555-233-504, February 2007.

Cantata references are available at: <http://www.cantata.com/>.

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