



Avaya Solution & Interoperability Test Lab

Configuring Connectivity between Avaya Communication Manager, the Avaya Meeting Exchange S6200 Conferencing Server and the Cantata Technology Integrated Media Gateway 1010 Utilizing ISDN-PRI and SIP - Issue 1.0

Abstract

These Application Notes present the procedures for configuring connectivity between Avaya Communication Manager, the Avaya Meeting Exchange S6200 Conferencing Server (Avaya Meeting Exchange) and the Cantata Technology Integrated Media Gateway 1010 (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, the Avaya Meeting Exchange S6200 Conferencing Server (Avaya Meeting Exchange) and the Cantata Technology Integrated Media Gateway 1010 (IMG). The IMG provided ISDN-PRI connectivity to Avaya Communication Manager, as well as SIP connectivity to 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 S6200 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.

It should be noted that Avaya Communication Manager supports direct SIP connectivity with Avaya Meeting Exchange. However, the premise of this compliance test effort was to validate the media gateway functionality of the IMG. Therefore, Avaya Communication Manager was configured for T1 ISDN-PRI connectivity with the IMG, and the IMG was configured for SIP connectivity with Avaya Meeting Exchange. To account for the SIP telephones in this sample configuration, Avaya SIP Enablement Services was utilized as a SIP registration server only.

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.

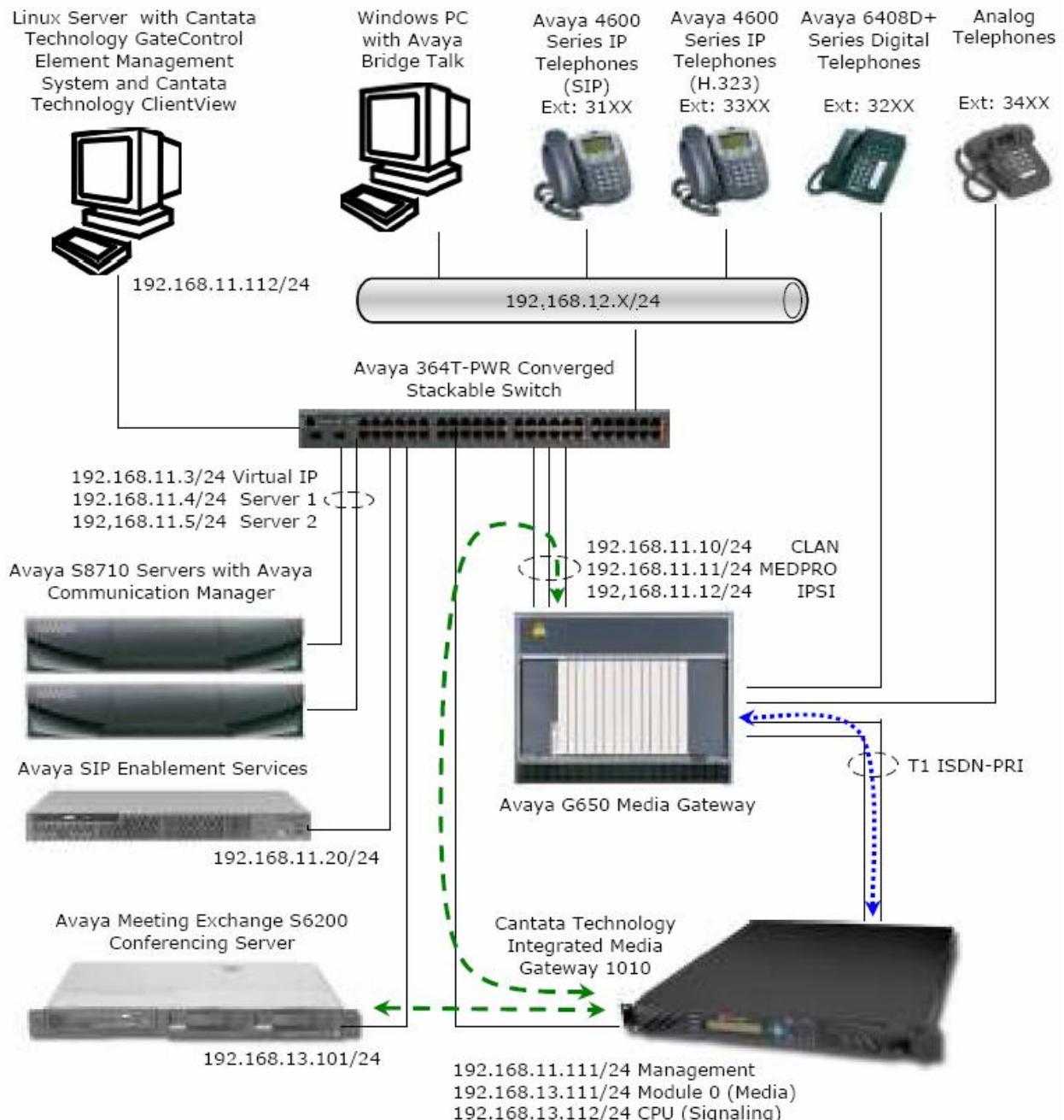


Figure 1: Sample Configuration

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 S6200 Conferencing Server	40102h mx7_1.3.00-84
Avaya Bridge Talk	4.0.03a
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 Integrated Media Gateway 1010	10.3.3
Cantata Technology 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 [1] and [2] 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> <pre>display system-parameters customer-options Page 3 of 11 OPTIONAL FEATURES 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 ASA Link Core Capabilities? n DCS (Basic)? n ASA 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 (NOTE: You must logoff & login to effect the permission changes.)</pre>

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="295 530 600 557">add signaling-group 6</pre> <table data-bbox="752 572 1529 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 Group 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 1290">add trunk-group 6</pre> <table data-bbox="752 1290 1529 1586"> <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
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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 xxxxxx 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 5 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>1</td><td>3</td><td>dac</td><td>2</td><td>3</td><td>aar</td></tr><tr><td>3</td><td>5</td><td>ext</td><td>4</td><td>3</td><td>aar</td><td>5</td><td>3</td><td>aar</td></tr><tr><td>6</td><td>3</td><td>aar</td><td>7</td><td>5</td><td>ext</td><td>8</td><td>2</td><td>fac</td></tr><tr><td>9</td><td>2</td><td>dac</td><td>*</td><td>1</td><td>fac</td><td>#</td><td>3</td><td>fac</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																																						
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																																						

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 n user 2: n n user 3: n n user 4: n n user 5: n n user 6: n n user 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 none 2: Y Y Y Y y n n rest none 3: Y Y Y Y y n n rest none 4: Y Y Y Y y n n rest none 5: Y Y Y Y y n n rest none 6: Y Y Y Y y n n rest none</pre>

Step	Description
3.3.3	<p>Issue the command “change aar analysis x” and add entries 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 call branding for a direct call flow (see Step 4.3.2). 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. Repeat these steps to add an entry that will be utilized by Avaya Meeting Exchange to map to call branding for a scan call flow (see Step 4.3.3). <pre>change aar analysis 5 AAR DIGIT ANALYSIS TABLE Percent Full: 1 Dialed Total Route Call Node ANI String Min Max Pattern Type Num Reqd 502 3 3 6 aar n 501 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. Call routing, call branding and SIP connectivity are administered on Avaya Meeting Exchange via a Command Line Interface (CLI) accessed via a telnet connection. Conference related attributes are administered and maintained via the Avaya Bridge Talk application. Refer to [3], [4] and [5] for additional information regarding the configuration displayed in this section.

4.1. Configure Connectivity

This section describes the steps for configuring SIP connectivity between Avaya Meeting Exchange and other SIP User Agents (UA). The provisioning depicted in this section was administered via the CLI.

Step	Description
4.1.1	<p>Administer settings that enable SIP connectivity between Avaya Meeting Exchange and the IMG by editing the system.cfg file as follows:</p> <ul style="list-style-type: none"> From the /usr/ipcb/config directory, edit the system.cfg file with a text editor. Enter the IP address of Avaya Meeting Exchange (as defined in the /etc/hosts file) for the IPAddress variable. Enter a SIP URI for Avaya Meeting Exchange that conforms to SIP standards for the MyListener variable. This entry is used to populate the “From” header field in SIP INVITE messages from Avaya Meeting Exchange. To enable SIP connectivity on port 5060, this entry must contain 5060 and transport=tcp. The user field, S6200, must conform to SIP standards and is selected to uniquely identify this server. For example, S6200 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-users to identify a call from Avaya Meeting Exchange. Enter a SIP URI for Avaya Meeting Exchange that conforms to SIP standards for the respContact variable. This entry is used to provide the IMG a Contact address to use for acknowledging SIP messages from Avaya Meeting Exchange. Enter a value in seconds for the sessionRefreshTimerValue and minSETimerValue variables. These entries correspond to the Min-SE timer in SIP INVITE messages from Avaya Meeting Exchange. <pre> # ip address of the server IPAddress=192.168.13.101 # request we will be listening to MyListener=sip:S6200@192.168.13.101:5060;transport=tcp # if this setting is populated will Overwrite the contact field in responses respContact=<sip:S6200@192.168.13.101:5060;transport=tcp> # diff serv this value will appear on the TOS field of the IP packet DiffServTOSValue=0 # vlan value EthernetVlanValue=0 # initipcb process keep-alive time (seconds) processKeepAlivePollTime=11 # softms time interval (microseconds) softmsTimeInterval=20000 # bridgeTranslator time interval (seconds) bridgeTranslatorTimeInterval=6 sessionRefreshTimerValue=86400 minSETimerValue=86400 </pre>

4.2. Configure Call Routing

The following steps show procedures to enable call routing for Avaya Meeting Exchange, where call routing is defined as follows:

- For outbound calls from Avaya Meeting Exchange, telephone number to URI translations are utilized. These translations associate a telephone number pattern with a corresponding SIP URI, thus allowing call origination from Avaya Meeting Exchange.
- For inbound calls to Avaya Meeting Exchange, URI to telephone number translations are utilized. These translations associate calls to Avaya Meeting Exchange with corresponding call branding, based on incoming SIP URIs.

The provisioning depicted in this section was administered via the CLI.

Step	Description						
4.2.1	<p>Administer settings to enable outbound calling from Avaya Meeting Exchange to Avaya Communication Manager via the IMG by adding telephone number to URI translations to the telnumToUri.tab file as follows:</p> <ul style="list-style-type: none"> • From the /usr/ipcb/config directory, edit the telnumToUri.tab file with a text editor. • Add rules, separated by either tabs or single spaces, as a line in the file to route outbound calls from Avaya Meeting Exchange to the IMG. Metacharacters such as * (refers to a character string) or ? (refers to a single character) may be utilized. <ul style="list-style-type: none"> ○ The rule entered under the TelnumPattern column matches any five digit pattern with a leading “3”. ○ The rule entered under the TelnumConversion column routes the call to the IP address of the CPU on the IMG via SIP/TCP. To enable SIP connectivity utilizing TCP, the rule must syntactically conform to SIP standards regarding URI and contain 5060 and transport=tcp. Avaya Meeting Exchange will replace \$0 with the dialed number in outgoing SIP INVITE messages. For example, if 31001 is dialed, Avaya Meeting Exchange will format a SIP INVITE message with the following line in the SIP URI and “To” header field: <ul style="list-style-type: none"> ▪ sip:31001@192.168.13.112:5060;transport=tcp <p><i>Note: Alternatively, call routing to Avaya Communication Manager via the IMG could have been enabled with the following entry:</i></p> <p>* sip:\$0@192.168.13.112:5060;transport=tcp, where * is a wildcard and routes any dialed digits to the IMG.</p> <pre data-bbox="290 1121 1428 1389"># telnum to uri conversion table # # This file is for dialing out from the Bridge to an external party. The # digits that are dialed are converted into the Request URI in the SIP INVITE. # For example, if the digits dialed were 936543 and one of the patterns was # "93????" a match would take place. If the conversion for that match was # \$1 then the Request URI for the SIP INVITE would be sip:936543@10.221.11.250 #THE COMMENT COLLUM OR ANY OF THE COLLUMS SHOULD HAVE NO SPACES</pre> <table border="1" data-bbox="290 1347 1237 1389"> <thead> <tr> <th data-bbox="290 1347 502 1389">TelnumPattern</th> <th data-bbox="502 1347 1090 1389">TelnumConversion</th> <th data-bbox="1090 1347 1237 1389">comment</th> </tr> </thead> <tbody> <tr> <td data-bbox="290 1347 372 1389">3????</td> <td data-bbox="372 1347 1090 1389">sip:\$0@192.168.13.112:5060;transport=tcp</td> <td data-bbox="1090 1347 1237 1389">IMG</td> </tr> </tbody> </table>	TelnumPattern	TelnumConversion	comment	3????	sip:\$0@192.168.13.112:5060;transport=tcp	IMG
TelnumPattern	TelnumConversion	comment					
3????	sip:\$0@192.168.13.112:5060;transport=tcp	IMG					

Step	Description
4.2.2	<p>Administer settings to associate incoming calls to Avaya Meeting Exchange with corresponding call branding by adding URI to telephone number translations to the UriToTelnum.tab file. These translations extract a value for the Direct Inward Dial (DID, also known as DDI in Europe).</p> <ul style="list-style-type: none"> • From the /usr/ipcb/config directory, edit the UriToTelnum.tab file with a text editor. • Add rules, separated by either tabs or single spaces, as a line in the file to match the pattern of the “To” header field in SIP INVITE messages from the IMG. If the match is successful, the DID is extracted from the “To” header field. Metacharacters such as * or ? may be utilized. <ul style="list-style-type: none"> ◦ The rules under the TelnumPattern and TelnumConversion columns work in conjunction. Assume the IMG sends a SIP INVITE message with the following “To” header field. The rule “*<sip:*@*” matches the following: <ul style="list-style-type: none"> ▪ To: <sip:502@192.168.13.101>, where \$2 utilizes 502 (the variable mapped to the second *) as the DID value for the call. • Enable an undefined caller to receive a prompt for operator assistance by adding an entry for a wildcard as the last line in this file. This entry accounts for the condition of an unmatched “To” header field. <p><i>Note: Entries in this file are read sequentially, therefore, the entry for the wildcard must be the last line in the file. Otherwise, all calls to Avaya Meeting Exchange would match the wildcard and thus receive a prompt for operator assistance.</i></p> <pre># request URI to telnum conversion table # # This table converts the Request URI in the SIP INVITE request to the # appropriate value specified when a pattern is matched. For example, if the # request Uri was "<sip:3333@10.220.10.4>" and one of the patterns was # "<sip:*@*>" a match would take place. If the conversion for that match was # \$1 then 3333 would be passed as the ddi for the call. If the conversion for # that match were "0000" then 0000 would be passed as their ddi for the call. #THE COMMENT COLLUM OR ANY OF THE COLLUMS SHOULD HAVE NO SPACES TelnumPattern TelnumConversion comment "*<sip:*@*>" \$2 IMG1010 * \$0 wildcard</pre>
4.2.3	<p>Reboot Avaya Meeting Exchange for changes to take effect.</p> <pre>[S6200]> init 6</pre>

4.3. Configure Call Branding

The following steps provide examples of how to provision direct and scan call branding by utilizing the Call Branding Utility (CBUTIL) on Avaya Meeting Exchange. A command line utility, CBUTIL enables administrators to assign a specific annunciator message, line name, company name, system function, reservation group and prompt sets to a maximum of 30,000 DNIS or DID entries. Avaya Meeting Exchange parses these entries in numerically ascending order, with the wildcard character “?” last in the list. For example, 129? follows 1299. The last entry in the table consists entirely of wildcard characters. The number of characters in this entry corresponds to the number of DNIS/DDI digits specified in the Digit Parameters configuration.

Step	Description
4.3.1	<p>Prior to utilizing the CBUTIL utility, set the UNIX shell environment as follows:</p> <ul style="list-style-type: none">• If not already logged on, login to the Avaya Meeting Exchange console to access the CLI with the appropriate credentials.• At the command prompt, enter “tcsesh” to set the UNIX shell environment.• At the command prompt, enter ”cbutil” to view a list and description of commands associated with the call branding utility.
	<pre># tcsesh .tcseshrc on /dev/pts002 You are connected to the root account. Your environment has been set to vt220. This system currently has release 40102h of software installed. S6200->cbutil cbutil Copyright 2004 Avaya, Inc. All rights reserved. Usage: cbutil <command> [command-specific args...] where <command> may be one of: add Add an entry to the Call Branding table remove Remove an entry from the Call Branding table update Update an entry in the Call Branding table lookup Display an entry in the Call Branding table count Display the number of entries in the Call Branding table list List entries in the Call Branding table dnissize Set system configured max dnis length (1-16) Note: This command should only be used when the bridge is not running. Use "cbutil<command> -help" to get help on a specific command</pre>

Step	Description																																				
4.3.2	<p>Administer call branding for a direct call flow as follows:</p> <ul style="list-style-type: none"> Add an entry to the call branding table to map the DID value obtained from procedures in Step 4.2.2 to a conference by entering cbutil add 502 0 301 1 n direct at the command prompt. The syntax for this command is case insensitive and is defined as follows. <pre>cbutil add <dnis> <rg> <msg> <ps> <ucps> <func> [-l <ln> -c <cn>], where,</pre> <ul style="list-style-type: none"> <dnis> DNIS <rg> Reservation group <msg> Annunciator message number <ps> Prompt set number (0-20) <ucps> Use conference prompt set (y/n) <func> One of: DIRECT/SCAN/ENTER/HANGUP/AUTOVL/FLEX -l <"ln"> Optional line name to associate with caller -c <"cn"> Optional company name to associate with caller <pre>S6200-> cbutil add 502 0 301 1 n direct cbutil Copyright 2004 Avaya, Inc. All rights reserved.</pre>																																				
4.3.3	<p>Repeat Step 4.3.2 to add an entry to the call branding table for a scan call flow.</p> <pre>S6200-> cbutil add 501 0 1 1 n scan cbutil Copyright 2004 Avaya, Inc. All rights reserved.</pre>																																				
4.3.4	<p>At the command prompt, enter “cbutil list” to verify the entries provisioned in Step 4.3.2 and Step 4.3.3.</p> <p><i>Note: The last entry in the call branding table, with a DNIS value ???, was added previously and is a wild card entry. This entry captures any wrong number (e.g., unmatched DID values) and places the call into the enter queue for operator assistance.</i></p> <pre>S6200-> cbutil list cbutil Copyright 2004 Avaya, Inc. All rights reserved.</pre> <table border="1"> <thead> <tr> <th data-bbox="279 1600 355 1628">DNIS</th> <th data-bbox="535 1600 567 1628">Grp</th> <th data-bbox="572 1600 605 1628">Msg</th> <th data-bbox="610 1600 643 1628">PS</th> <th data-bbox="654 1600 682 1628">CP</th> <th data-bbox="687 1600 784 1628">Function</th> <th data-bbox="789 1600 833 1628">Line</th> <th data-bbox="838 1600 969 1628">Name</th> <th data-bbox="1176 1600 1356 1628">Company Name</th> </tr> </thead> <tbody> <tr> <td data-bbox="279 1649 355 1676">501</td><td data-bbox="535 1649 567 1676">0</td><td data-bbox="572 1649 605 1676">1</td><td data-bbox="610 1649 643 1676">1</td><td data-bbox="654 1649 682 1676">N</td><td data-bbox="687 1649 784 1676">SCAN</td><td></td><td></td><td></td></tr> <tr> <td data-bbox="279 1676 355 1704">502</td><td data-bbox="535 1676 567 1704">0</td><td data-bbox="572 1676 605 1704">301</td><td data-bbox="610 1676 643 1704">1</td><td data-bbox="654 1676 682 1704">N</td><td data-bbox="687 1676 784 1704">DIRECT</td><td></td><td></td><td></td></tr> <tr> <td data-bbox="279 1704 355 1731">???</td><td data-bbox="535 1704 567 1731">0</td><td data-bbox="572 1704 605 1731">208</td><td data-bbox="610 1704 643 1731">1</td><td data-bbox="654 1704 682 1731">N</td><td data-bbox="687 1704 784 1731">ENTER</td><td></td><td></td><td></td></tr> </tbody> </table>	DNIS	Grp	Msg	PS	CP	Function	Line	Name	Company Name	501	0	1	1	N	SCAN				502	0	301	1	N	DIRECT				???	0	208	1	N	ENTER			
DNIS	Grp	Msg	PS	CP	Function	Line	Name	Company Name																													
501	0	1	1	N	SCAN																																
502	0	301	1	N	DIRECT																																
???	0	208	1	N	ENTER																																

4.4. Administer Conferences

The following steps utilize Avaya Bridge Talk to provision conferences on Avaya Meeting Exchange. Avaya Bridge Talk is an application that runs on a standard Windows based PC and is utilized for provisioning and managing conferencing applications on Avaya Meeting Exchange. Refer to [5] for information regarding the PC requirements. If any of the features displayed in the Avaya Bridge Talk screen captures are not present, contact an authorized Avaya sales representative to make the appropriate changes.

Figure 2 illustrates the main window of the Avaya Bridge Talk application. The following is a brief description of the task areas of the window that were utilized for these Application Notes.

1. The Menu Bar, which includes menus for both Avaya Meeting Exchange specific and Windows-based commands.
2. The Main Tool Bar, which includes commands for entering command-line text.
3. The Conference Room, which displays information about features and attributes for individual conferences; and lists participants, moderators and their status.
4. The Conference Navigator, which displays a portion of the conferences currently running on the bridge as well as individual conference attributes or features.

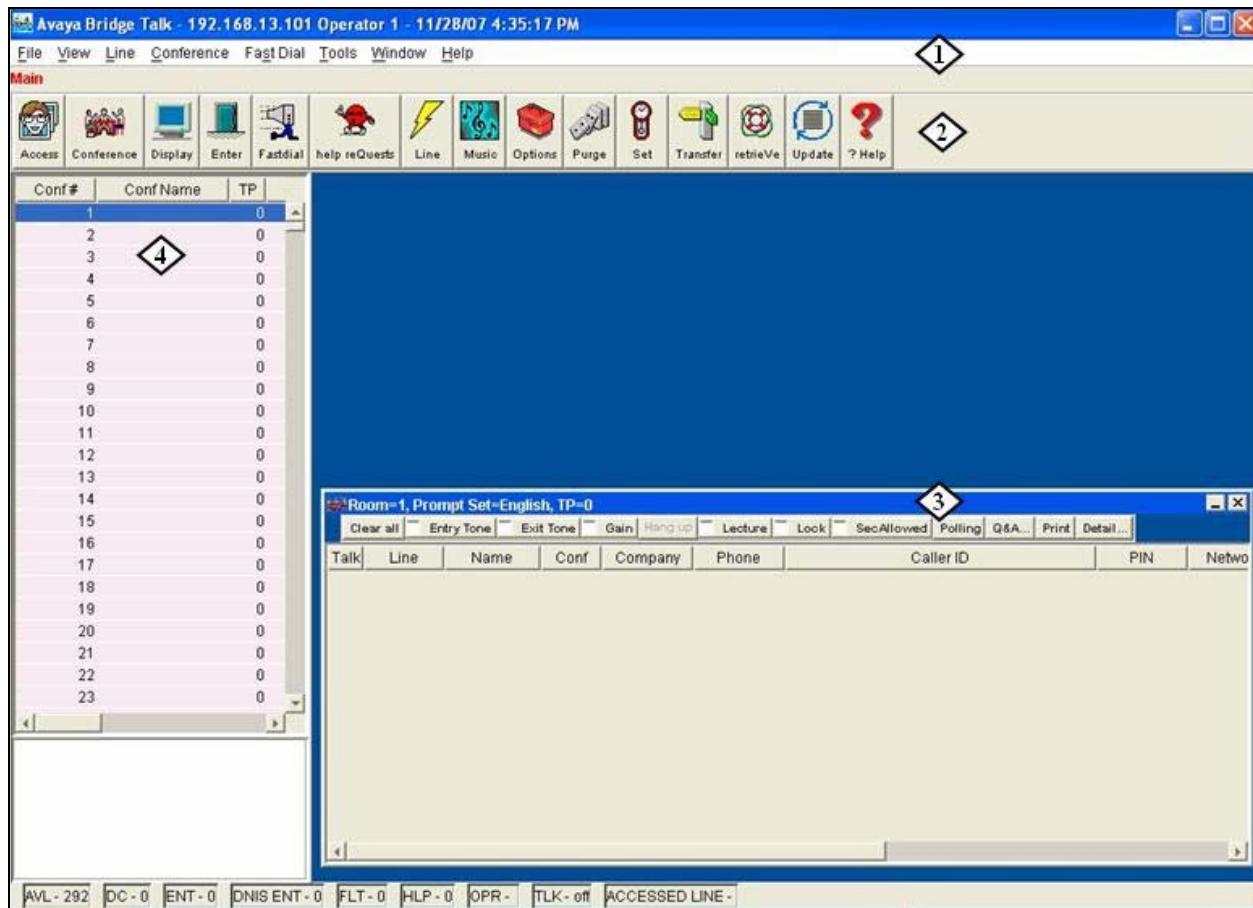
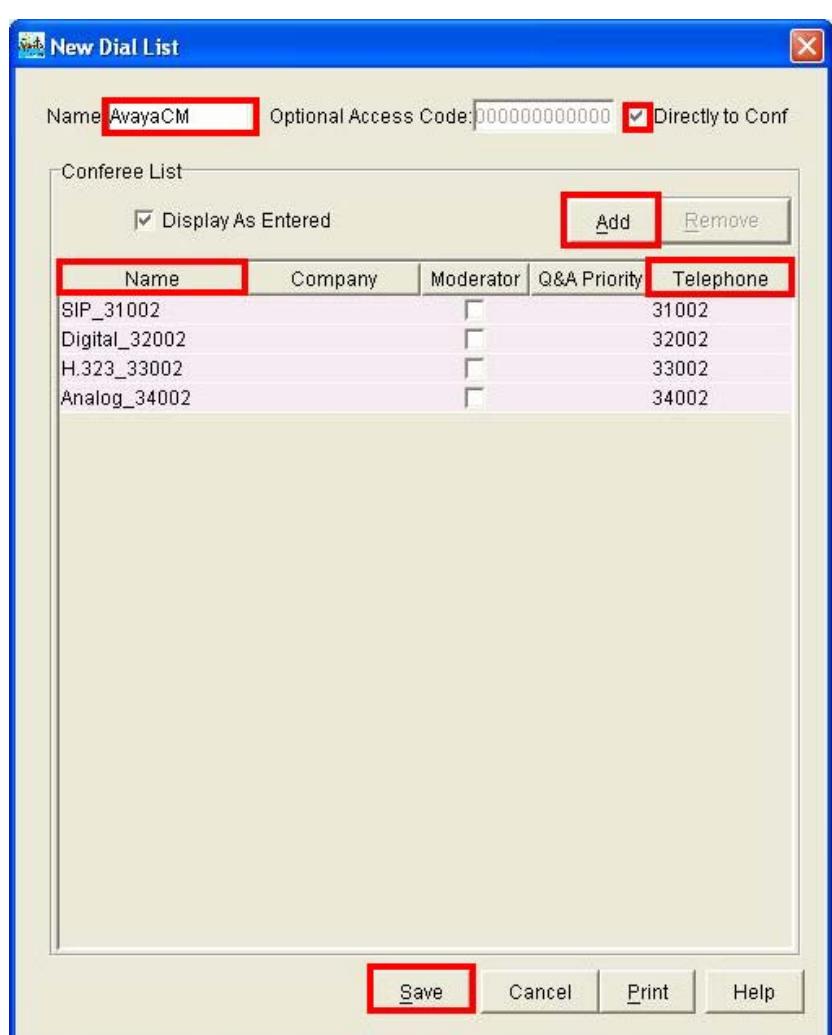
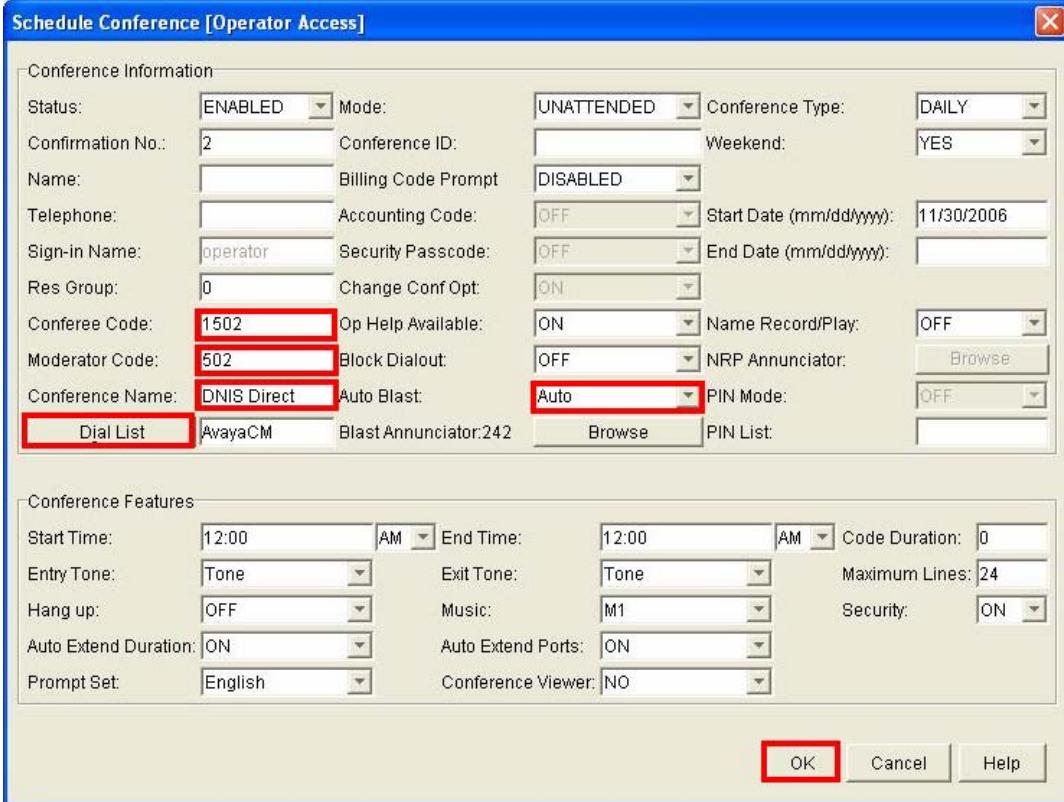


Figure 2: Avaya Bridge Talk Main Window

Step	Description
4.4.1	<p>Create a new dial list for outbound calling from Avaya Meeting Exchange. From the Avaya Bridge Talk Menu Bar, select Fast Dial ➔ New. From the New Dial List window that is displayed, add participants to the dial list as follows:</p> <ul style="list-style-type: none"> Enter a descriptive label for this dial list in the Name field. Add entries to the dial list by clicking on the Add button for each participant. <ul style="list-style-type: none"> Enter a descriptive label for each participant in the Name field. Enter a number in the Telephone field that corresponds to telephones registered to either Avaya Communication Manager or Avaya SIP Enablement Services. Enable conference participants on the dial list to enter the conference without a passcode by checking the Directly to Conf box. Refer to [5] for provisioning the remaining fields in this screen. Click on the Save button on the bottom of the screen. 

Step	Description
4.4.2	<p>Schedule conferences that utilize the call branding for a direct call flow provisioned in Section 4.3 as follows. From the Menu Bar, click View → Conference Scheduler. From the Conference Scheduler window that is displayed, click File → Schedule Conference. From the Schedule Conference window that is displayed, administer settings as follows:</p> <ul style="list-style-type: none"> Enter a unique passcode in the Conferee Code field to allow access to this conference. Enter a unique passcode in the Moderator Code field to allow access to this conference with moderator/host privileges. <p><i>Note: Enable direct access (without entering a passcode) to this conference by ensuring the Moderator Code has associated call branding for a direct call flow (see Step 4.3.2).</i></p> <ul style="list-style-type: none"> Enter a descriptive label for this conference in the Conference Name field. Administer settings to enable an auto blast dial by setting the Auto Blast field to Auto and selecting the dial list provisioned in Step 4.4.1 in the Dial List field. <ul style="list-style-type: none"> Select a dial list by clicking on the Dial List button. [Not Shown] Select a dial list from the <i>Create, Select or Edit Dial List</i> window that is displayed. Refer to [5] for provisioning of the remaining fields in this screen. Click on the OK button on the bottom of the screen. 

5. Cantata Technology Integrated Media Gateway 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 with the Cantata Technology ClientView (ClientView) application which is accessible from the Cantata Technology GateControl Element Management System (GCEMS). Refer to the Cantata website for on-line documentation regarding the IMG, ClientView and GCEMS.

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 3 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.

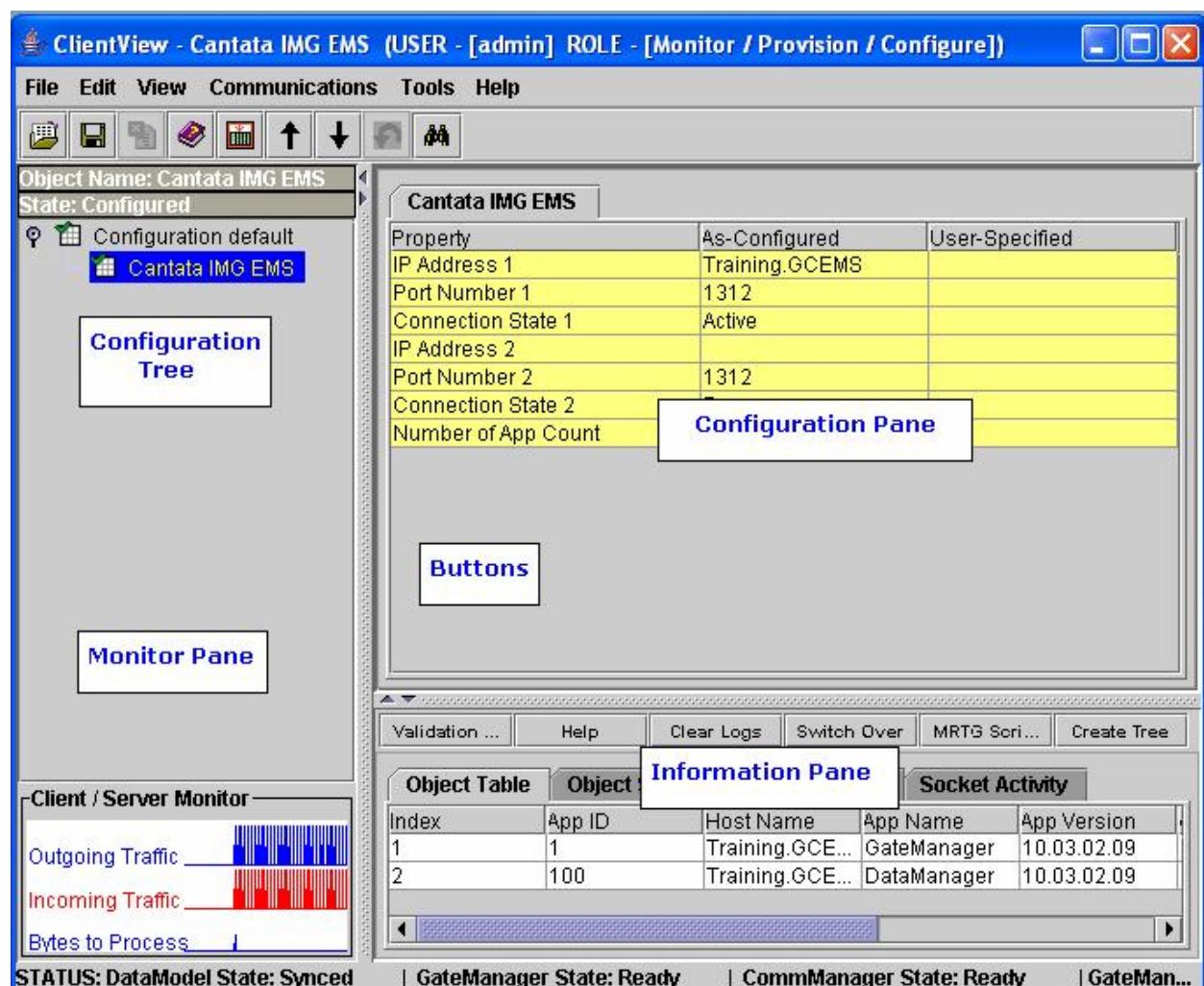
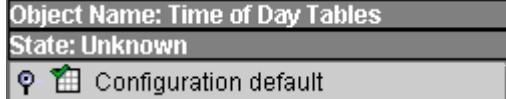
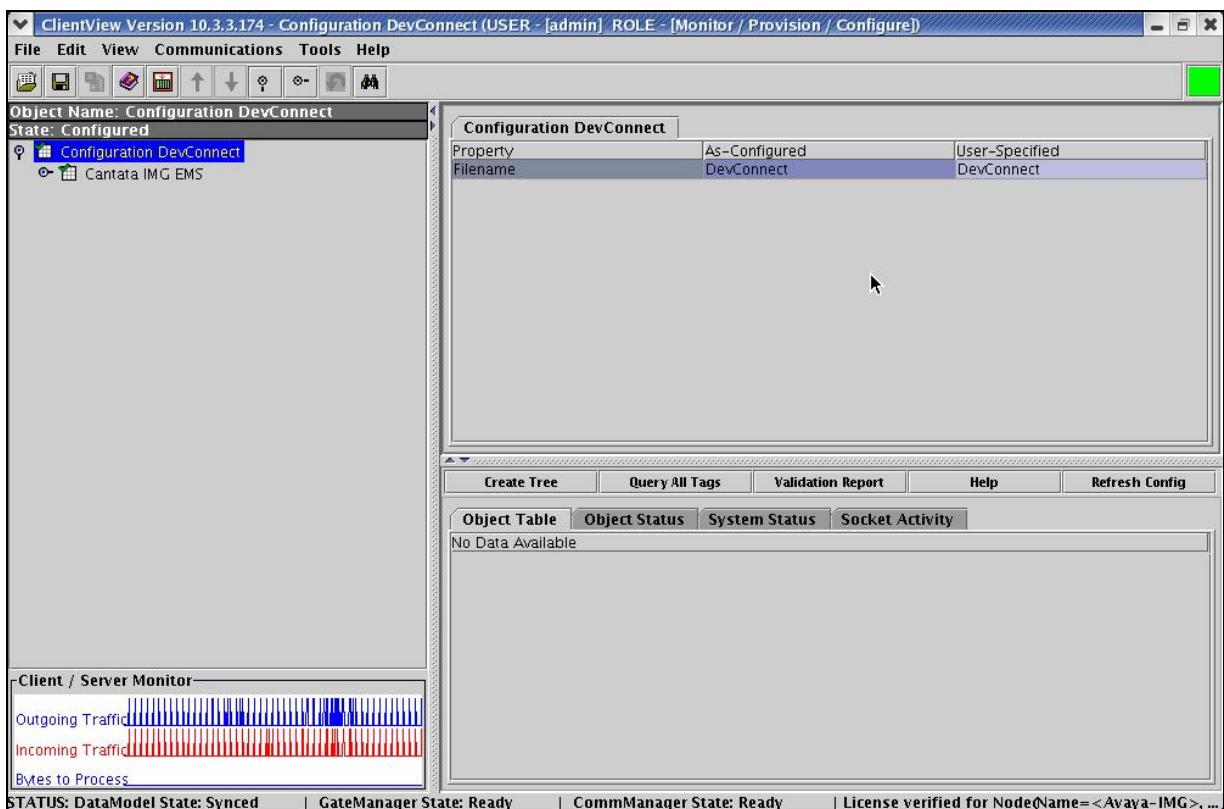
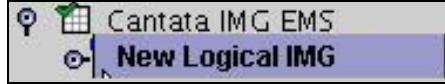
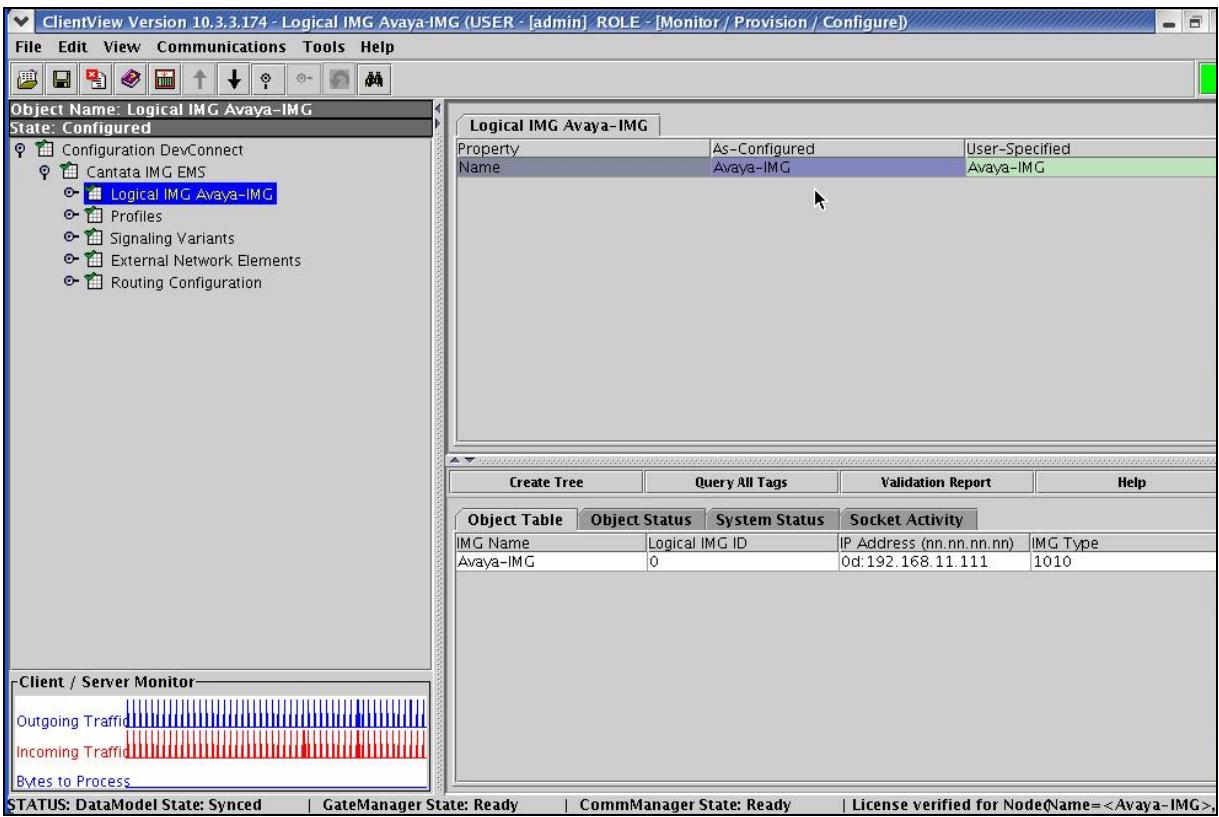
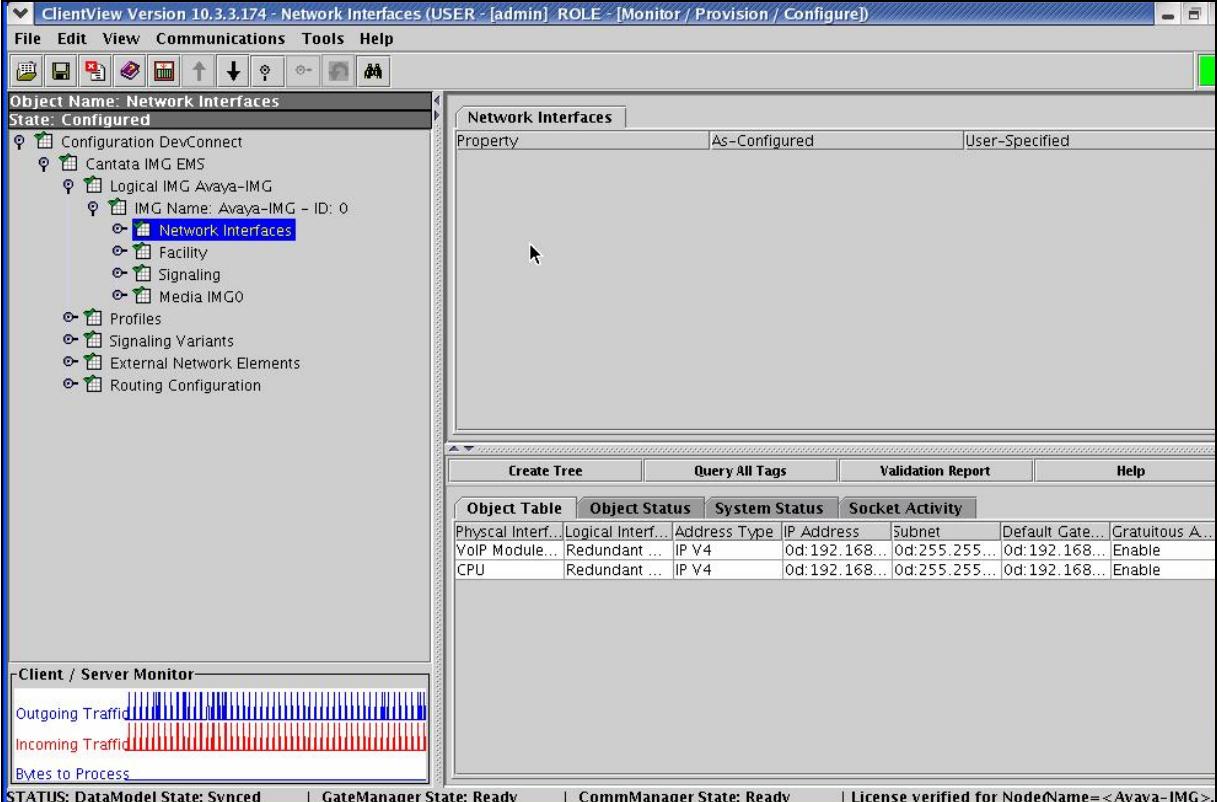


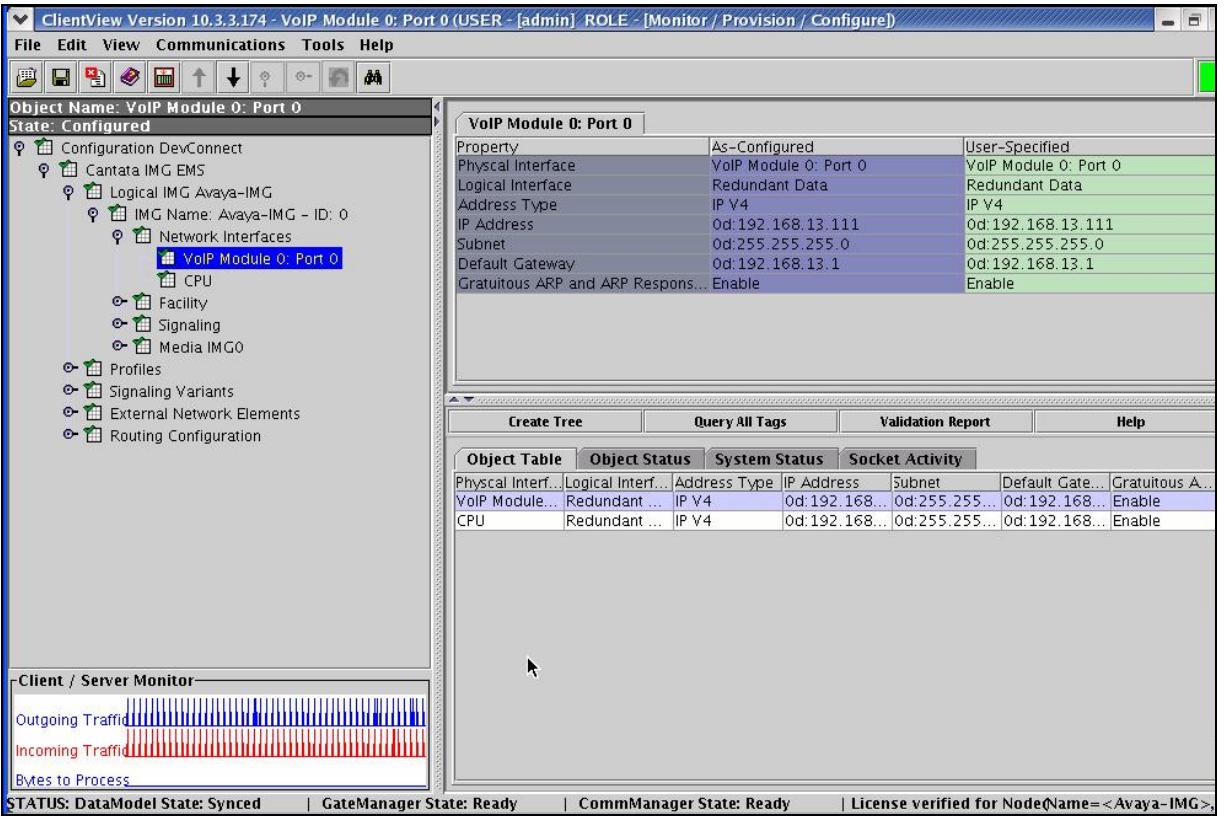
Figure 3: Cantata Technology ClientView Main Window

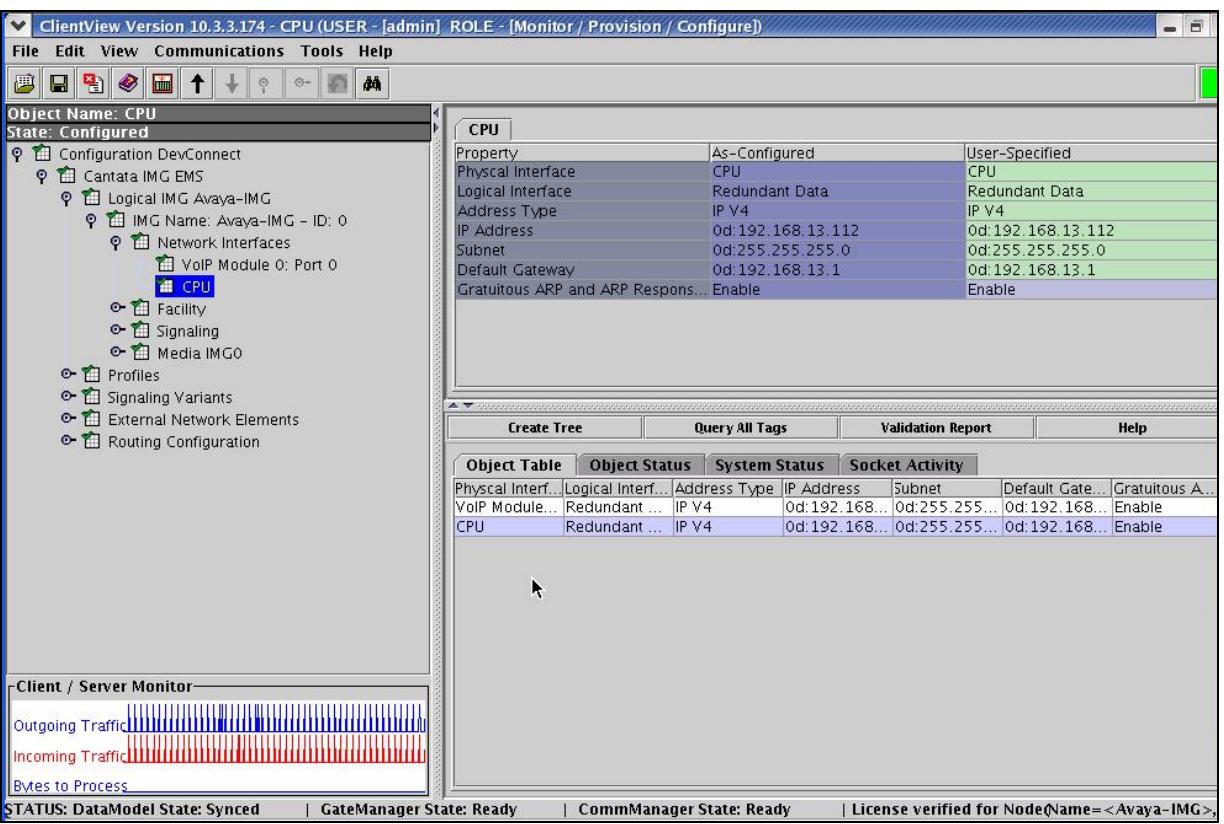
Step	Description
5.1.1	<p>A default configuration file named “default” is created when ClientView connects to GCEMS. To save the configuration file with a new name:</p> <ul style="list-style-type: none"> Right-click Configuration default in the Configuration Tree and select Modify.  <p>In the Configuration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

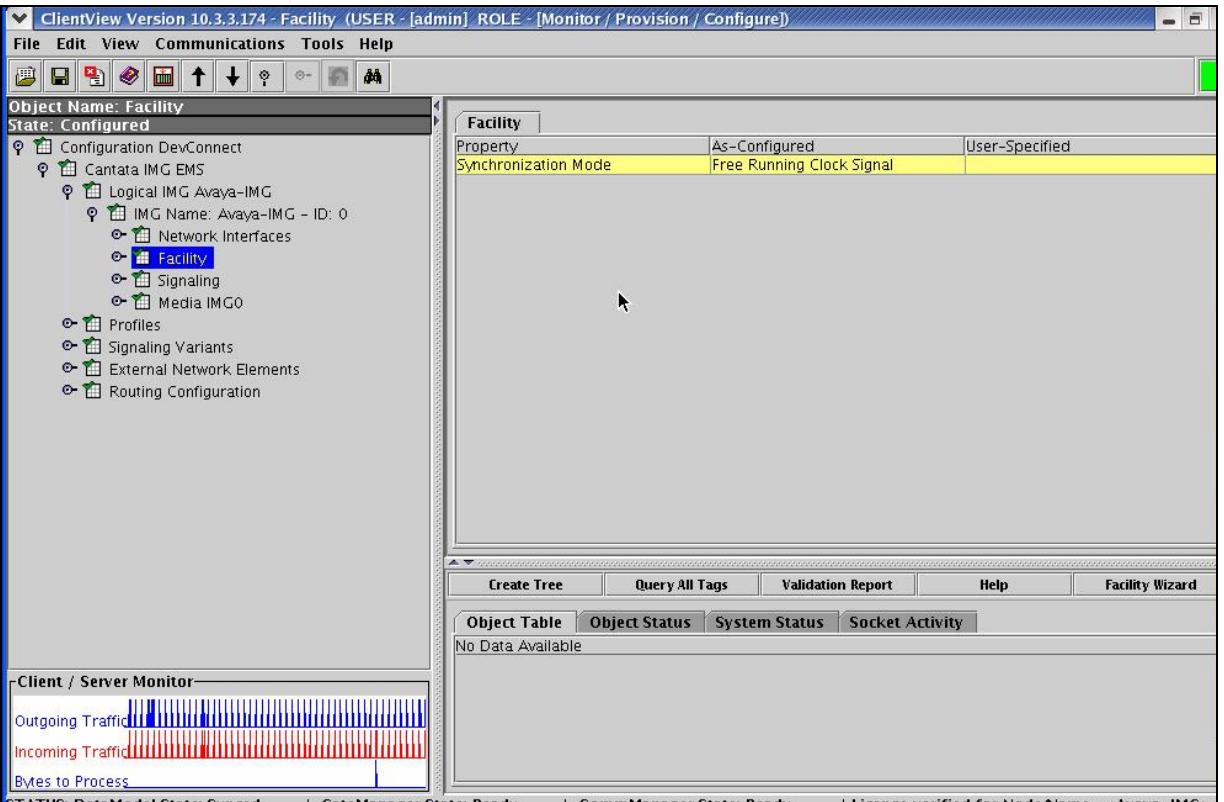
Step	Description
<p>5.1.2 Create a logical IMG as follows:</p> <ul style="list-style-type: none"> Right-click Cantata IMG EMS in the Configuration Tree and select New Logical IMG.  <p>In the Configuration Pane:</p> <ul style="list-style-type: none"> Enter a descriptive name for the logical IMG in the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

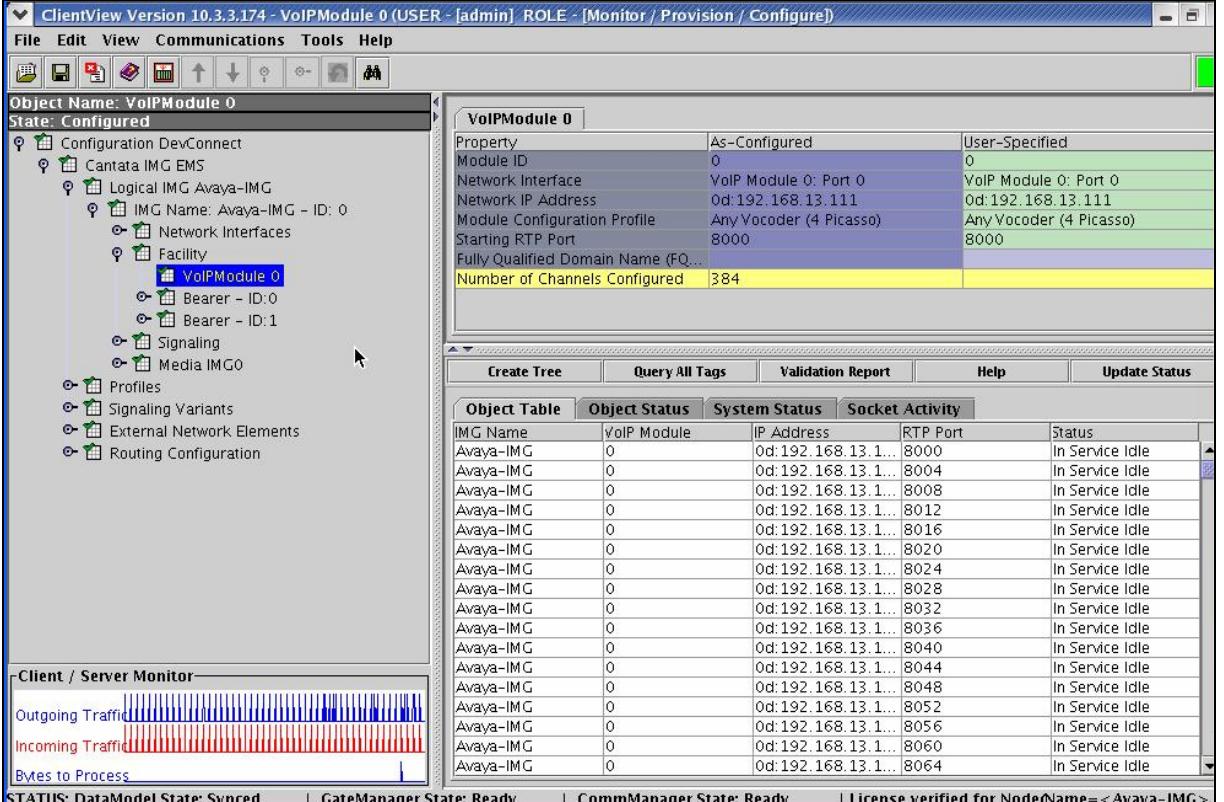
Step	Description																																																		
<p>5.1.3 Create a physical IMG as follows:</p> <ul style="list-style-type: none"> • Right-click the logical IMG in the Configuration Tree and select New Physical IMG. <p>In the Configuration Pane:</p> <ul style="list-style-type: none"> ◦ Enter a descriptive name for the physical IMG in the IMG Name field. ◦ 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" style="width: 100%; border-collapse: collapse;"> <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.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.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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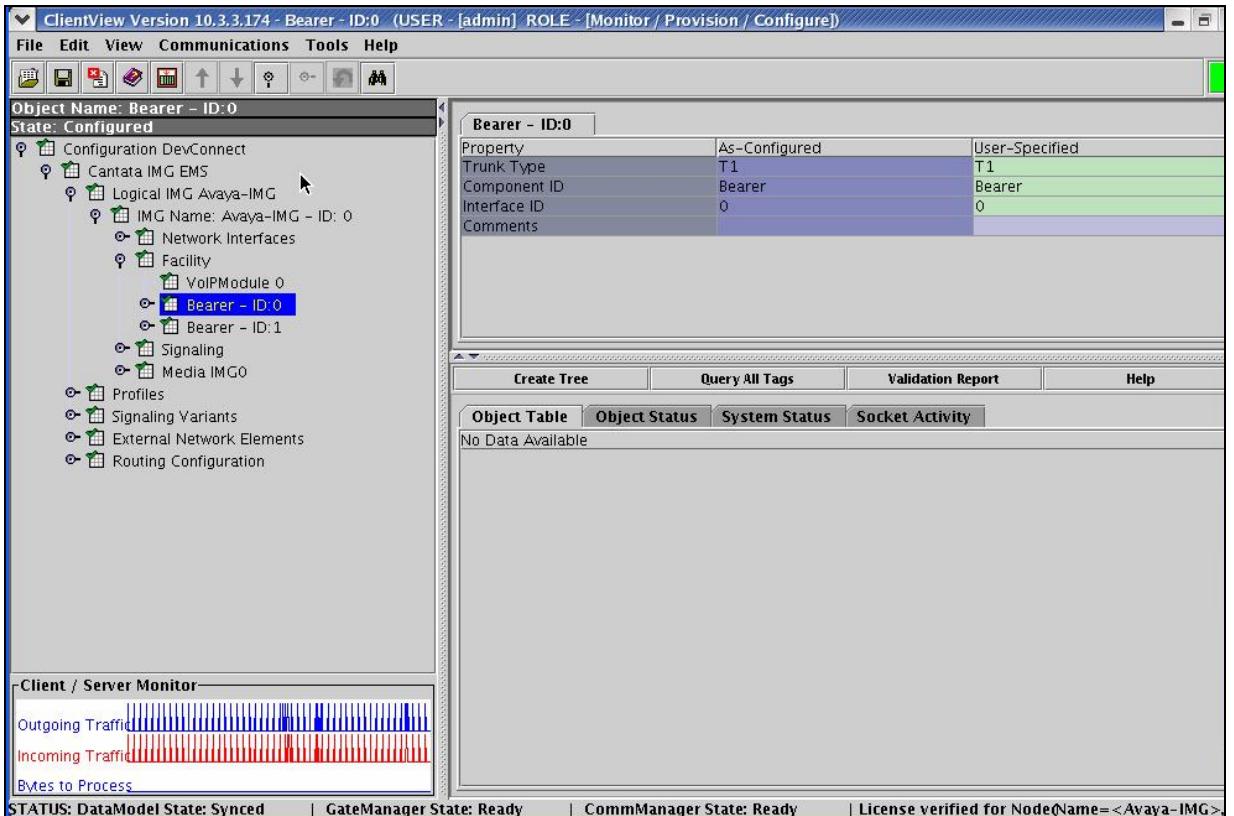
Step	Description																					
5.1.4	<p>Create an object for Network Interfaces as follows:</p> <ul style="list-style-type: none"> Right-click the physical IMG in the Configuration Tree and select New Network Interfaces. To save the changes, right-click Network Interfaces and select Commit. The resultant provisioning is shown below.  <table border="1" data-bbox="742 1003 1525 1108"> <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
Physical Interf...	Logical Interf...	Address Type	IP Address	Subnet	Default Gate...	Gratuitous A...																
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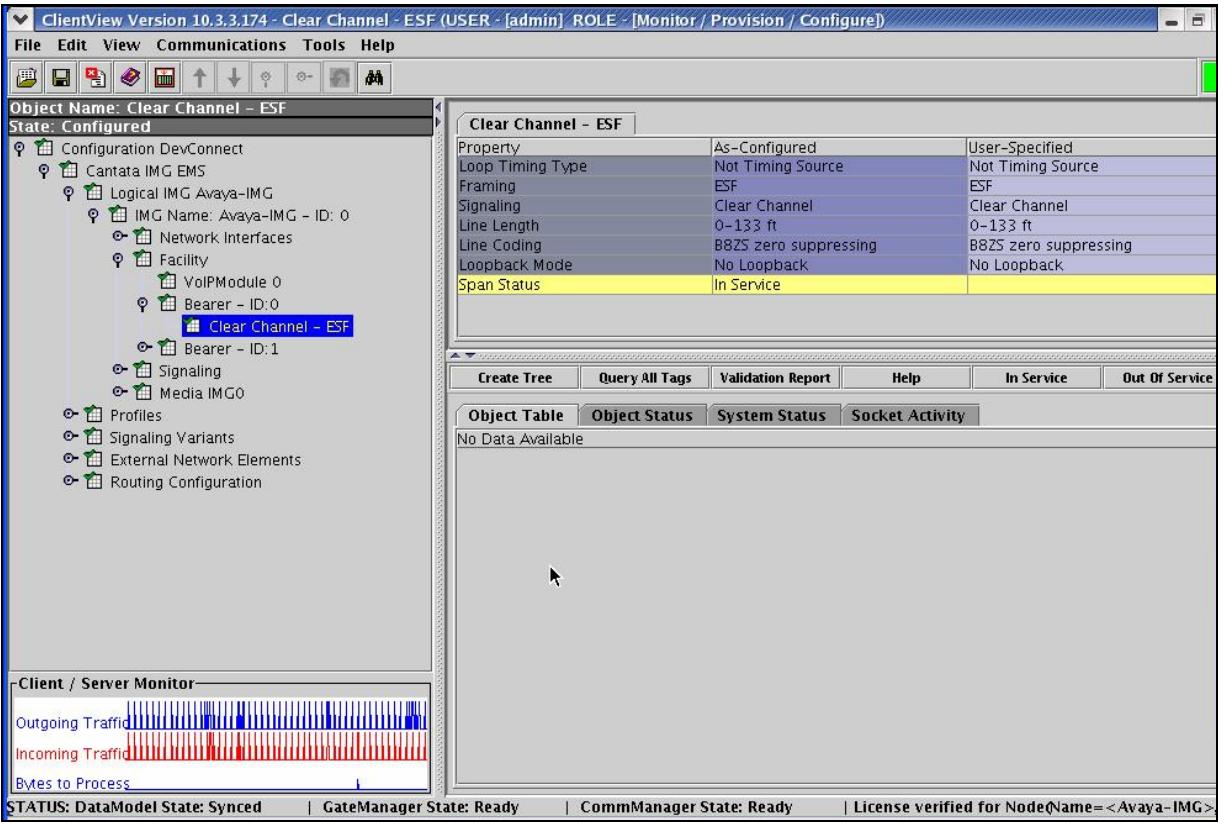
Step	Description																																																
<p>5.1.5 Create a Network Interface corresponding to VoIP Module 0: Port 0 as follows:</p> <ul style="list-style-type: none"> • Right-click Network Interfaces in the Configuration Tree and select New Network Interface. <p>In the Configuration Pane:</p> <ul style="list-style-type: none"> ○ Select VoIP Module 0: Port 0 from the drop down list for the Physical Interface field. ○ Administer settings for the 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" data-bbox="750 876 1509 1045"> <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" data-bbox="750 1151 1509 1277"> <thead> <tr> <th>Object Table</th> <th>Object Status</th> <th>System Status</th> <th>Socket Activity</th> </tr> </thead> <tbody> <tr> <td>Physical Interface</td> <td>Logical Interface</td> <td>Address Type</td> <td>IP Address</td> <td>Subnet</td> <td>Default Gateway</td> <td>Gratuitous ARP and ARP Response...</td> </tr> <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	Object Table	Object Status	System Status	Socket Activity	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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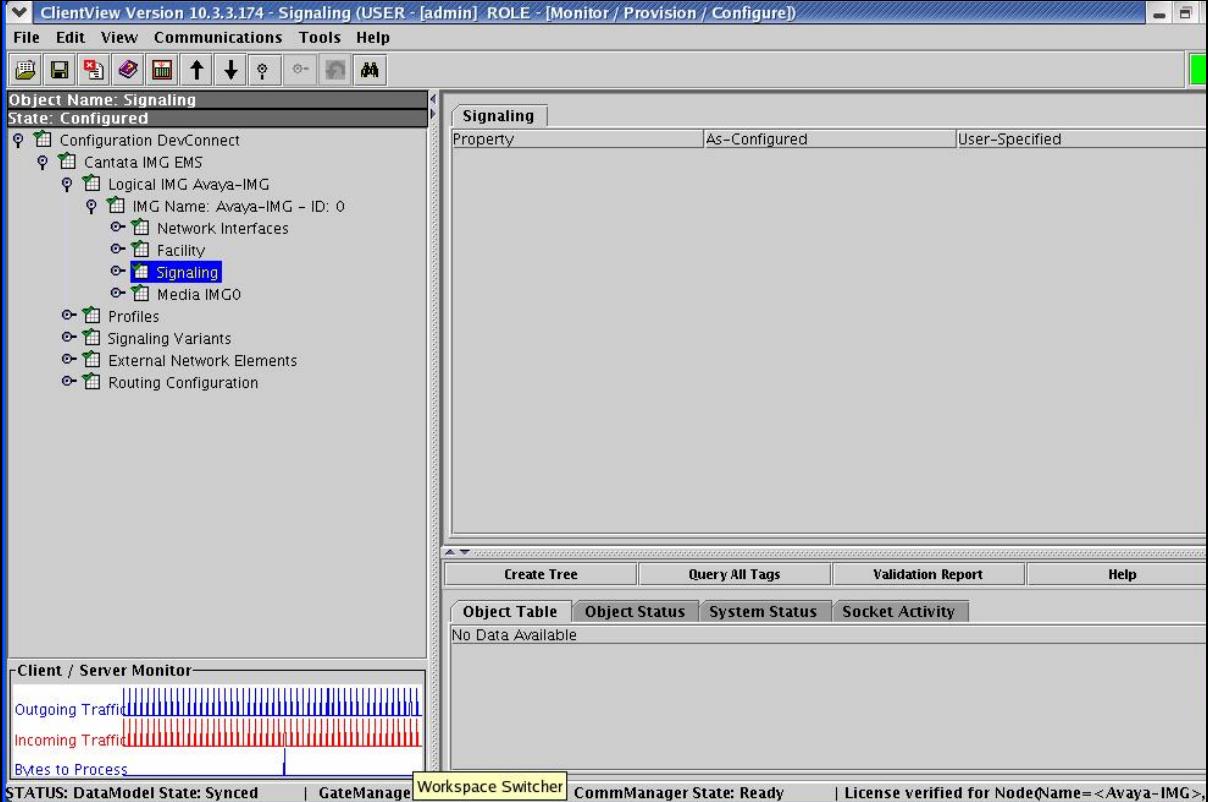
Step	Description																																																			
<p>5.1.6 Create a Network Interface corresponding to the CPU as follows:</p> <ul style="list-style-type: none"> • Right-click Network Interfaces in the Configuration Tree and select New Network Interface. <p>In the Configuration Pane:</p> <ul style="list-style-type: none"> ○ Select CPU from the drop down list for the Physical Interface field. ○ Administer settings for the 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="742 834 1525 1024"> <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>0d:192.168.13.112</td> <td>0d:192.168.13.112</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 Respons...</td> <td>Enable</td> <td>Enable</td> </tr> </tbody> </table> <table border="1" data-bbox="742 1151 1525 1256"> <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>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>	CPU			Property	As-Configured	User-Specified	Physical Interface	CPU	CPU	Logical Interface	Redundant Data	Redundant Data	Address Type	IP V4	IP V4	IP Address	0d:192.168.13.112	0d:192.168.13.112	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 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	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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CPU	Redundant ...	IP V4	0d:192.168...	0d:255.255...	0d:192.168...	Enable																																														

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						

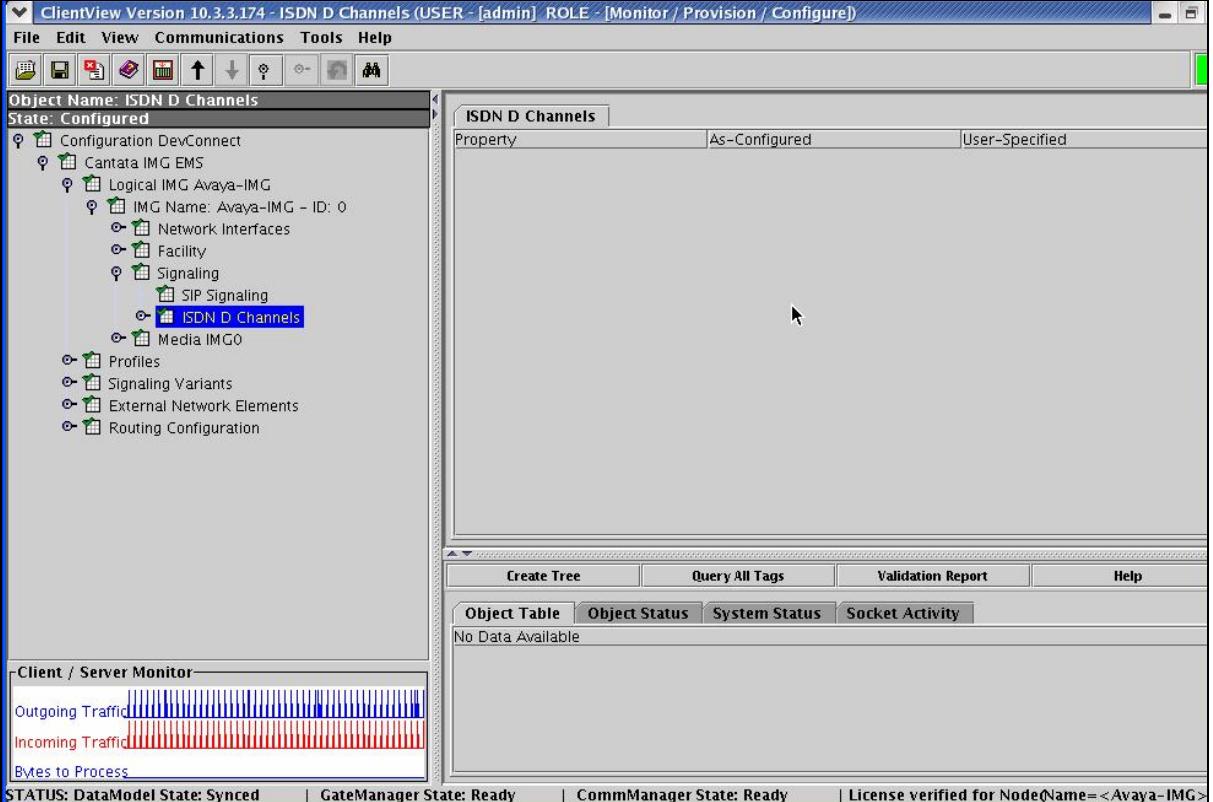
Step	Description																																																																																									
<p>5.1.8 Configure VoIP Facilities as follows:</p> <ul style="list-style-type: none"> • Right-click Facility in the Configuration Tree and select New Bearer - IP. <p>In the Configuration Pane:</p> <ul style="list-style-type: none"> ○ Use default settings for all fields. <p style="margin-left: 20px;"><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" data-bbox="742 749 1493 1425"> <caption>Object Table</caption> <thead> <tr> <th>IMG Name</th> <th>VoIP Module</th> <th>IP Address</th> <th>RTP Port</th> <th>Status</th> </tr> </thead> <tbody> <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>	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
IMG Name	VoIP Module	IP Address	RTP Port	Status																																																																																						
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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. <p>In the Configuration Pane:</p> <ul style="list-style-type: none"> Select Bearer from the drop down list for the Component ID field. Use default settings for remaining fields. <ul style="list-style-type: none"> To save the changes, right-click Bearer - ID:0 and select Commit. The resultant provisioning is shown below. 

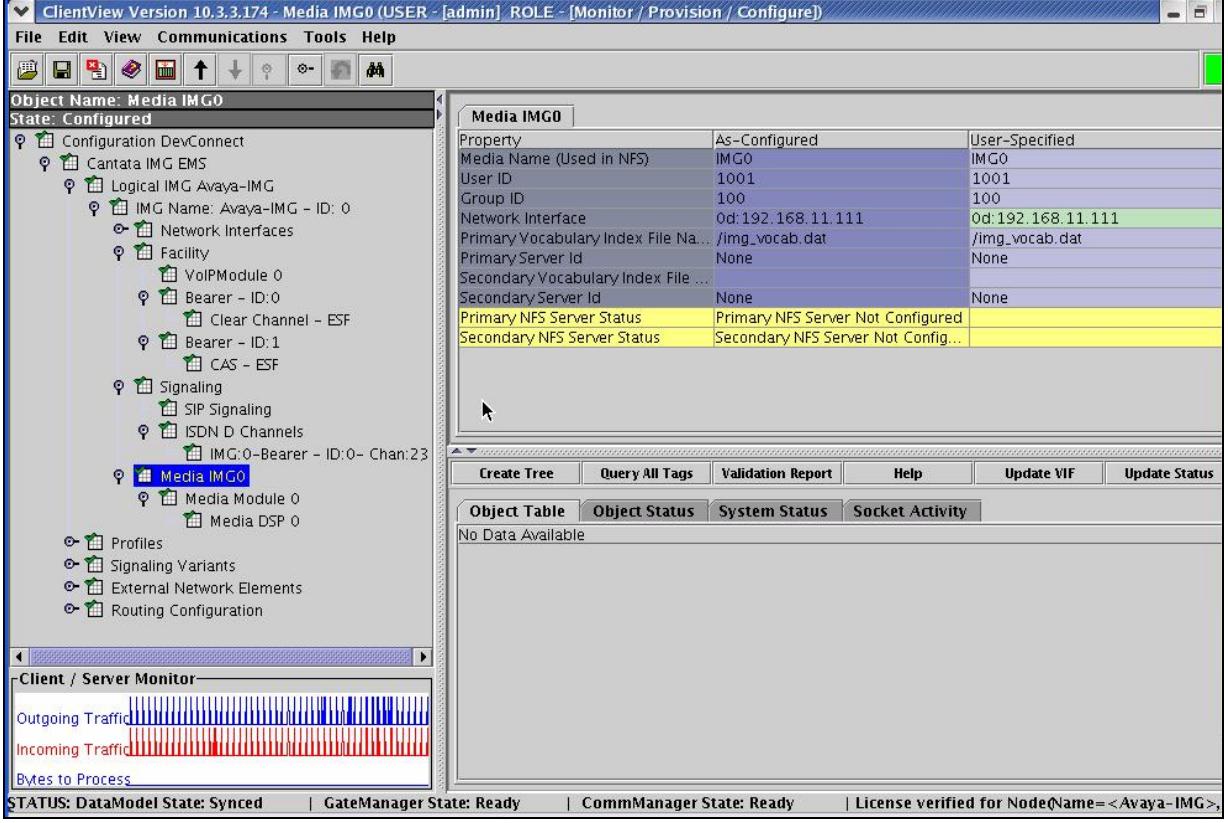
Step	Description																											
5.1.10	<p>Configure a T1 Physical Span for ISDN-PRI as follows</p> <ul style="list-style-type: none"> Right-click the TDM DS1 created in Step 5.1.9 in the Configuration Tree and select New T1 Physical Span. <p>In the Configuration Pane:</p> <ul style="list-style-type: none"> Select Clear Channel from the drop down list for the Signaling field. <i>Note: Clear Channel corresponds to ISDN-PRI.</i> 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. <ul style="list-style-type: none"> To save the changes, right-click Clear Channel - ESF and select Commit. The resultant provisioning is shown below.  <table border="1" data-bbox="750 855 1525 1056"> <thead> <tr> <th colspan="3">Clear Channel - ESF</th> </tr> <tr> <th>Property</th> <th>As-Configured</th> <th>User-Specified</th> </tr> </thead> <tbody> <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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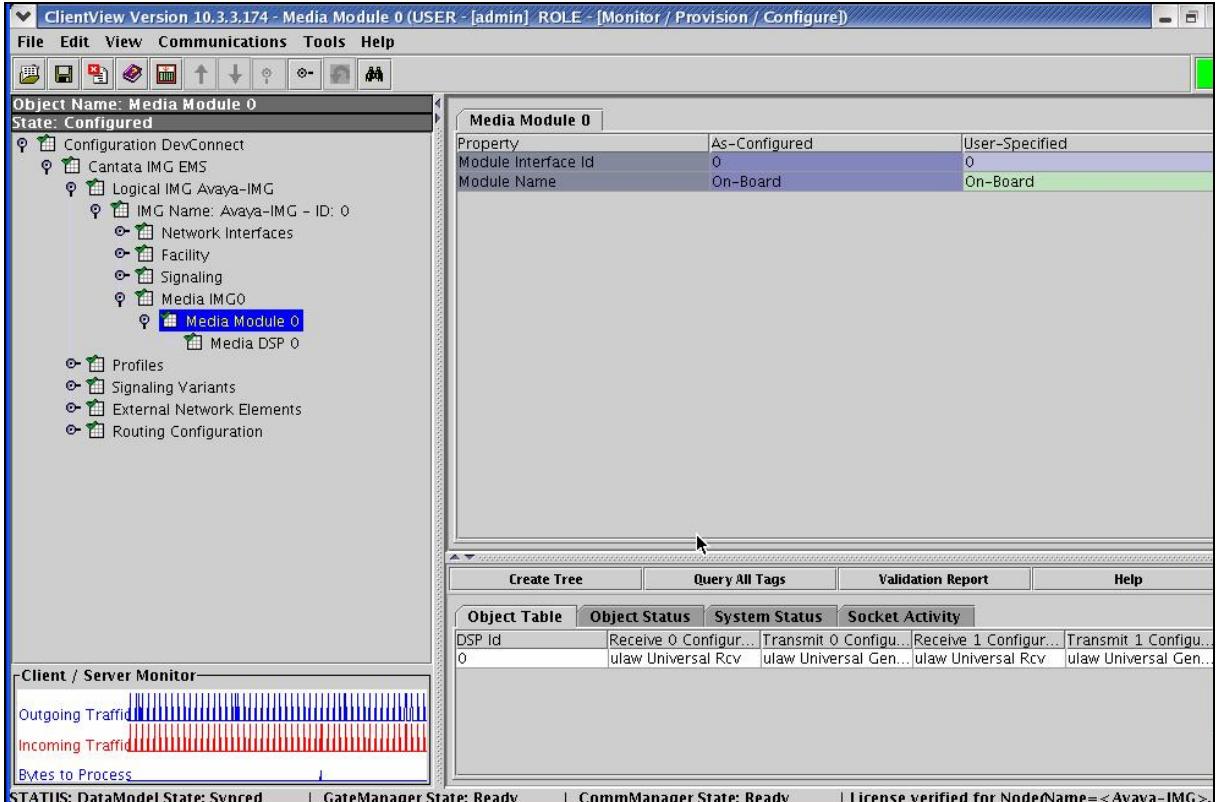
Step	Description
5.1.11	<p>Create an object for Signaling as follows:</p> <ul style="list-style-type: none"> Right-click the physical IMG in the Configuration Tree and select New Signaling. To save the changes, right-click Signaling and select Commit. The resultant provisioning is shown below.  <p>The 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 to enable SIP connectivity between the IMG and other SIP UAs as follows</p> <ul style="list-style-type: none"> Right-click Signaling in the Configuration Tree and select New SIP. <p>In the Configuration Pane:</p> <ul style="list-style-type: none"> Enter the IP address assigned to the CPU on the IMG in Step 5.1.6 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 4.1.1). Use default settings for remaining fields. <ul style="list-style-type: none"> To save the changes, right-click SIP Signaling and select Commit. The resultant provisioning is shown below. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">SIP Signaling</th> </tr> </thead> <tbody> <tr> <td>Property</td> <td>As-Configured</td> <td>User-Specified</td> </tr> <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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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																																									
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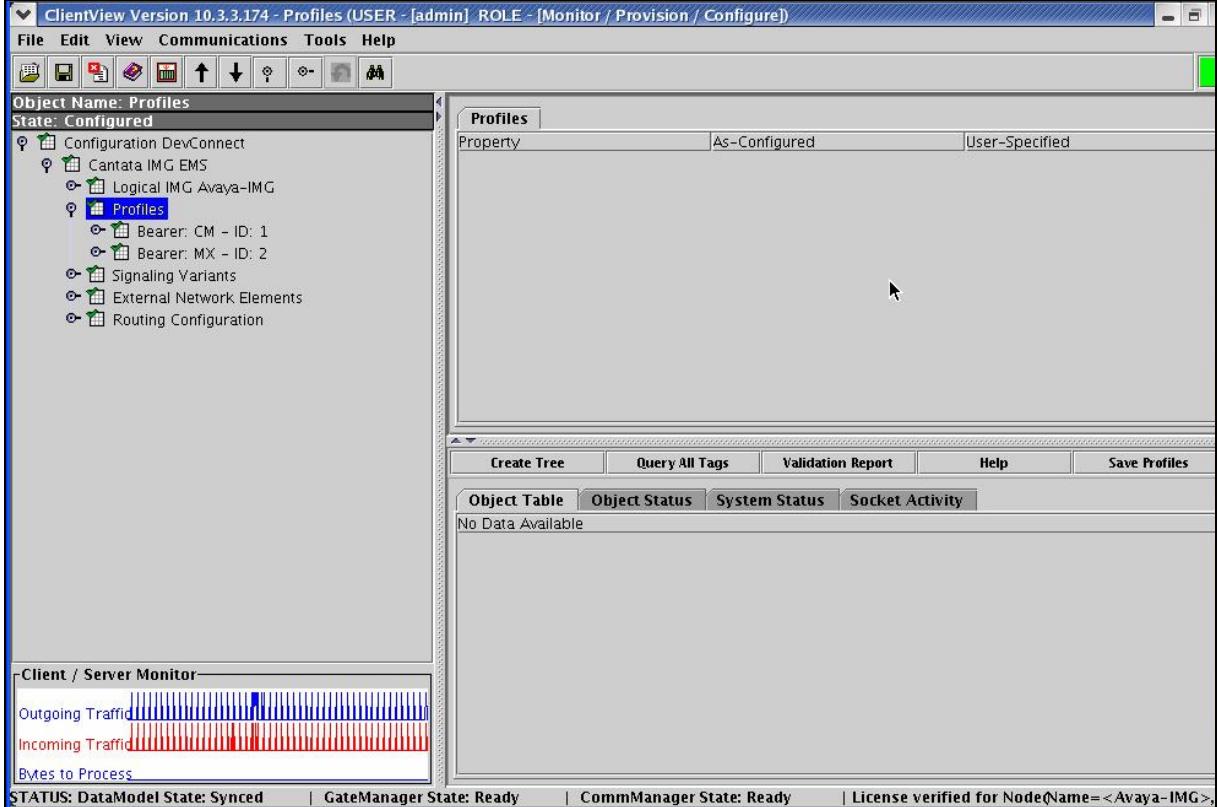
Step	Description
5.1.13	<p>Create an object for ISDN as follows:</p> <ul style="list-style-type: none"> Right-click Signaling in the Configuration Tree and select New ISDN. To save the changes, right-click ISDN D Channels and select Commit. The resultant provisioning is shown below.  <p>The screenshot shows the ClientView interface for version 10.3.3.174. The title bar indicates 'ClientView Version 10.3.3.174 - ISDN D Channels (USER - [admin] ROLE - [Monitor / Provision / Configure])'. The main window has a toolbar at the top with icons for file operations, zoom, and search. Below the toolbar is a menu bar with File, Edit, View, Communications, Tools, and Help. 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 right pane shows a table titled 'ISDN D Channels' with columns 'Property', 'As-Configured', and 'User-Specified'. The bottom of the interface includes tabs for Create Tree, Query All Tags, Validation Report, and Help, along with tabs for Object Table, Object Status, System Status, and Socket Activity. The status bar at the bottom shows 'No Data Available' and system status messages: STATUS: DataModel State: Synced GateManager State: Ready CommManager State: Ready License verified for NodeName=<Avaya-IMG>.</p>

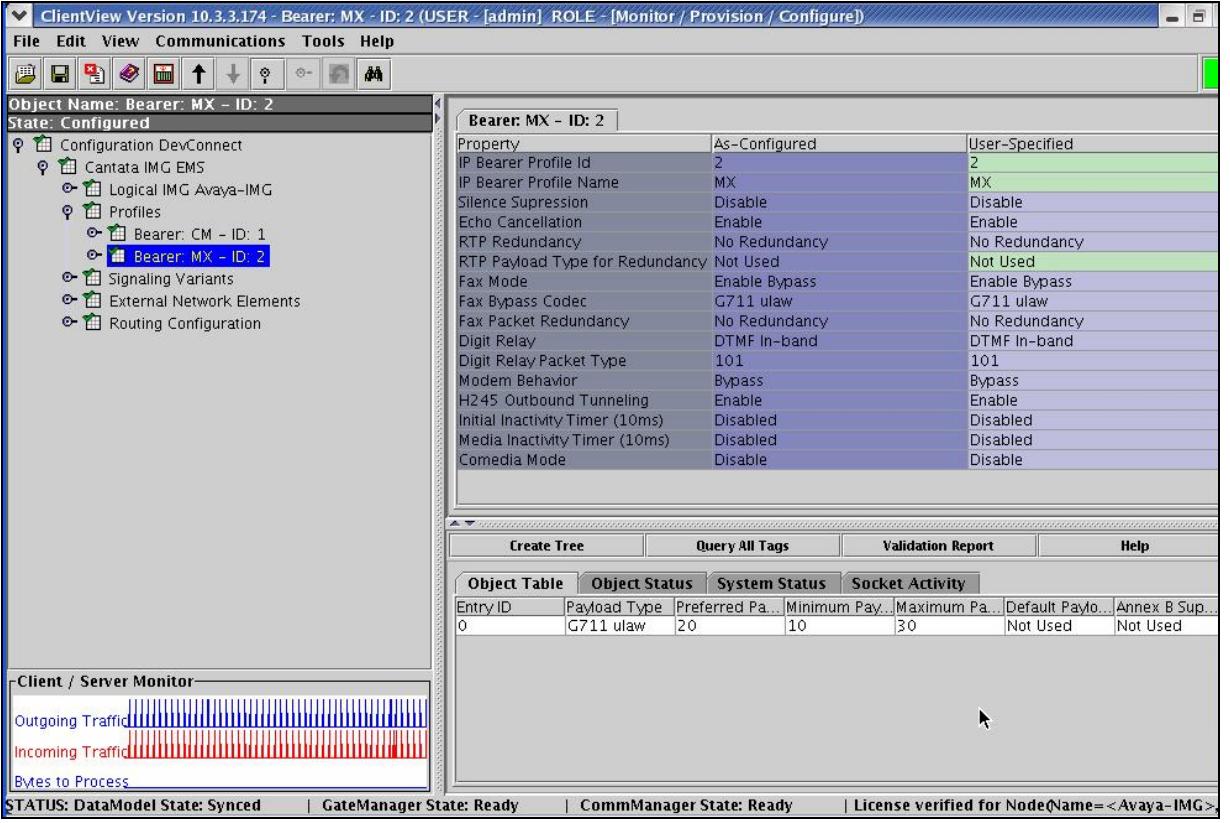
Step	Description																																				
5.1.14	<p>Configure an ISDN D Channel as follows:</p> <ul style="list-style-type: none"> Right-click ISDN D Channels in the Configuration Tree and select New ISDN D Channel. <p>In the Configuration Pane:</p> <ul style="list-style-type: none"> Administer 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). <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"> <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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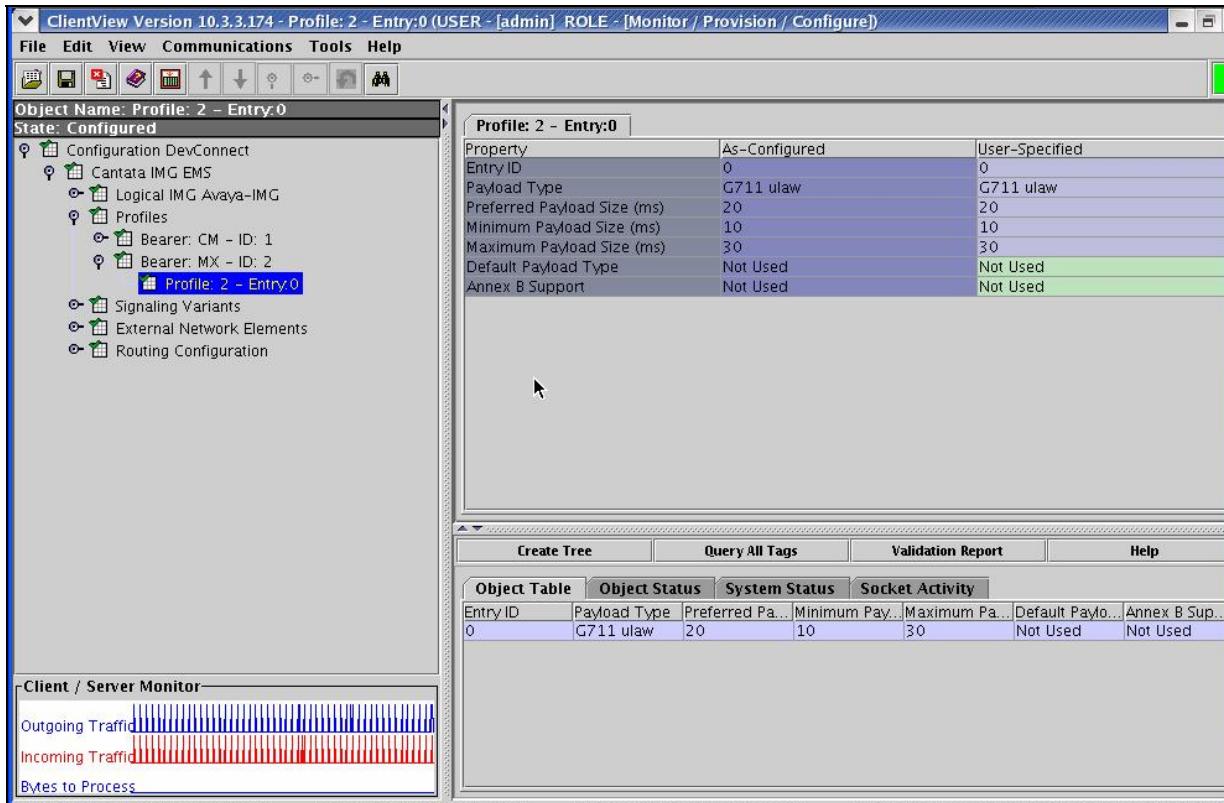
Step	Description																																				
5.1.15	<p>Configure settings for Media as follows:</p> <ul style="list-style-type: none"> Right-click the physical IMG in the Configuration Tree and select New Media. <p>In the Configuration Pane:</p> <ul style="list-style-type: none"> Select the Network File Server (NFS) from the drop down list for the Media Name field. 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="750 897 1525 1235"> <thead> <tr> <th colspan="3">Media IMG0</th> </tr> <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>	Media IMG0			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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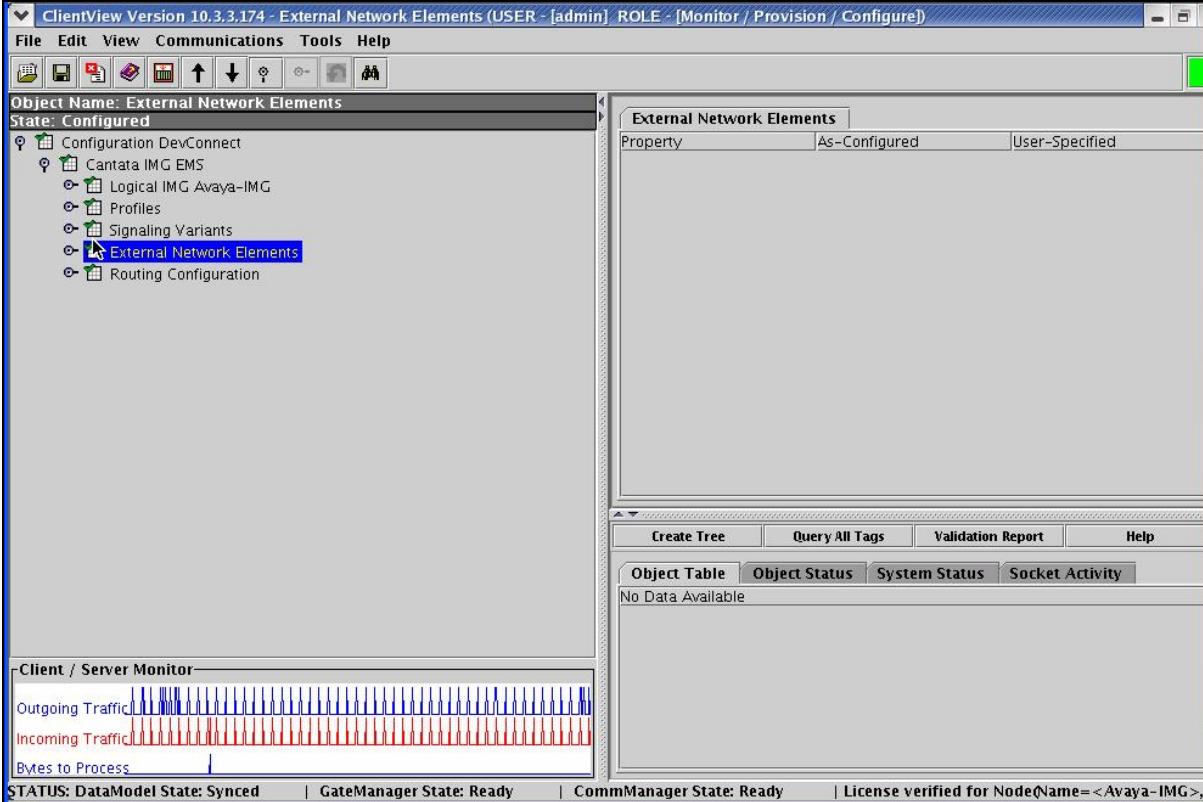
Step	Description												
5.1.16	<p>Create an object for a Media Module as follows:</p> <ul style="list-style-type: none"> Right-click Media IMGO in the Configuration Tree and select New Media Module. Use default settings for all fields. To save the changes, right-click Media Module 0 and select Commit. 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
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Module Interface Id	0	0											
Module Name	On-Board	On-Board											

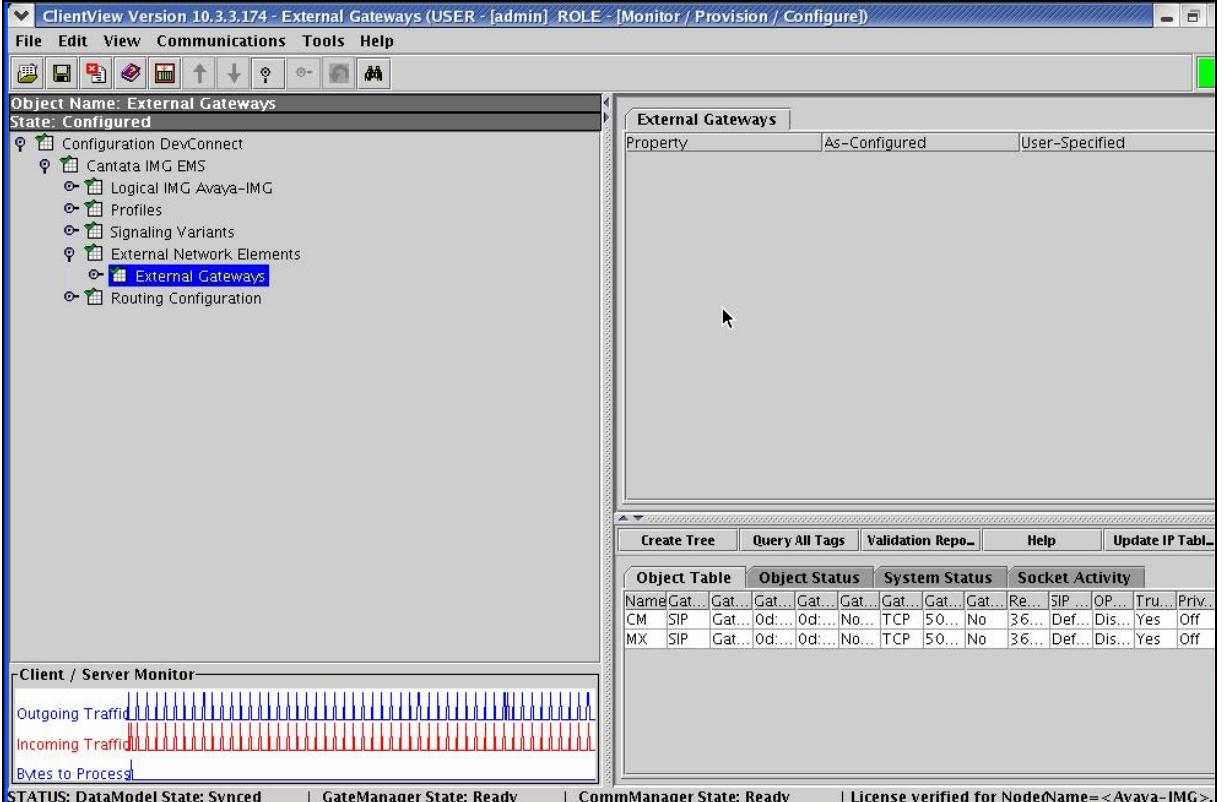
Step	Description																		
5.1.17	<p>Configure the Media Module DSP as follows:</p> <ul style="list-style-type: none"> Right-click the Media Module created in Step 5.1.16 in the Configuration Tree and select New Media DSP. <p>In the Configuration Pane:</p> <ul style="list-style-type: none"> Use 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" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;">Property</th> <th style="text-align: left; padding: 2px;">As-Configured</th> <th style="text-align: left; padding: 2px;">User-Specified</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">DSP Id</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">0</td> </tr> <tr> <td style="padding: 2px;">Receive 0 Configuration</td> <td style="padding: 2px;">ulaw Universal Rcv</td> <td style="padding: 2px;">ulaw Universal Rcv</td> </tr> <tr> <td style="padding: 2px;">Transmit 0 Configuration</td> <td style="padding: 2px;">ulaw Universal Generator</td> <td style="padding: 2px;">ulaw Universal Generator</td> </tr> <tr> <td style="padding: 2px;">Receive 1 Configuration</td> <td style="padding: 2px;">ulaw Universal Rcv</td> <td style="padding: 2px;">ulaw Universal Rcv</td> </tr> <tr> <td style="padding: 2px;">Transmit 1 Configuration</td> <td style="padding: 2px;">ulaw Universal Generator</td> <td style="padding: 2px;">ulaw Universal Generator</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
Property	As-Configured	User-Specified																	
DSP Id	0	0																	
Receive 0 Configuration	ulaw Universal Rcv	ulaw Universal Rcv																	
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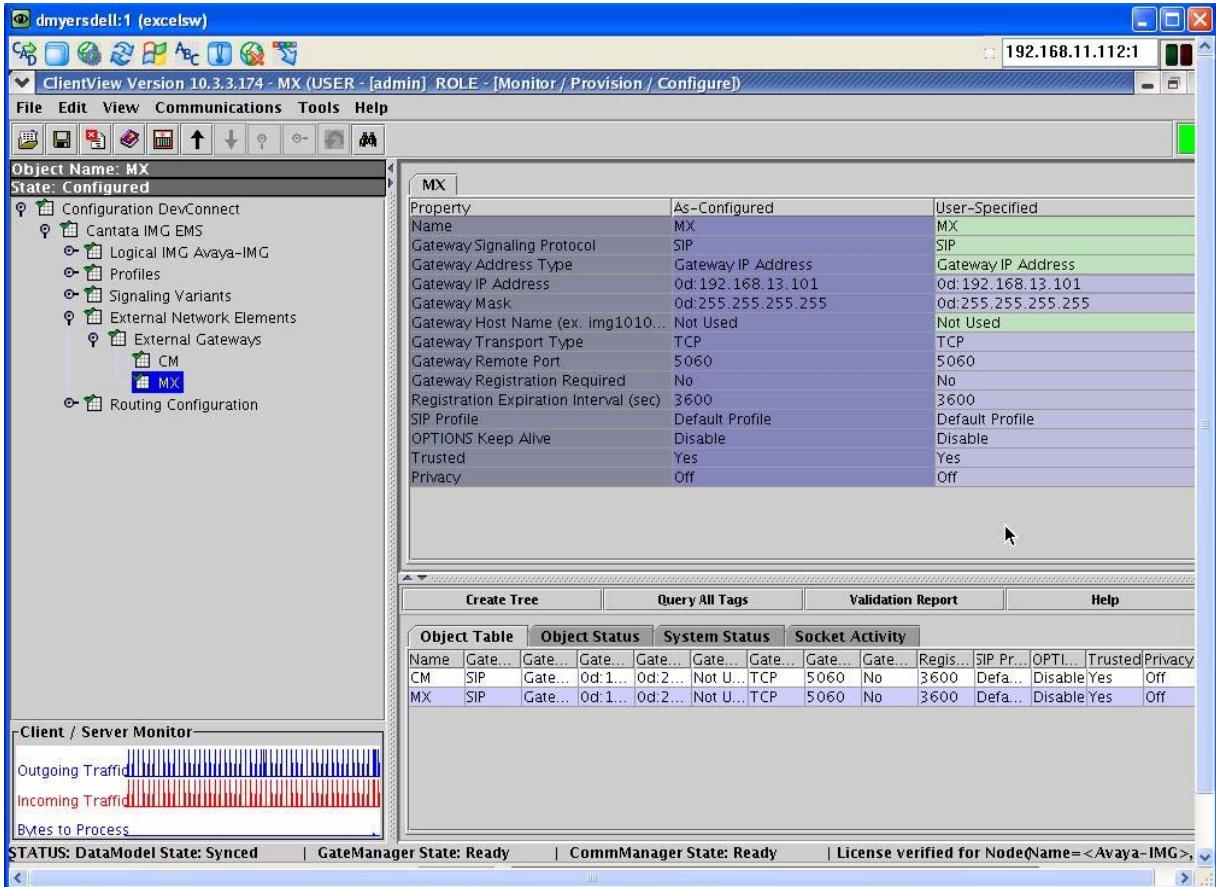
Step	Description
5.1.18	<p>Create an object for Profiles as follows:</p> <ul style="list-style-type: none"> Right-click Cantata IMG EMS in the Configuration Tree and select New Profiles. To save the changes, right-click Profiles and select Commit. The resultant provisioning is shown below. 

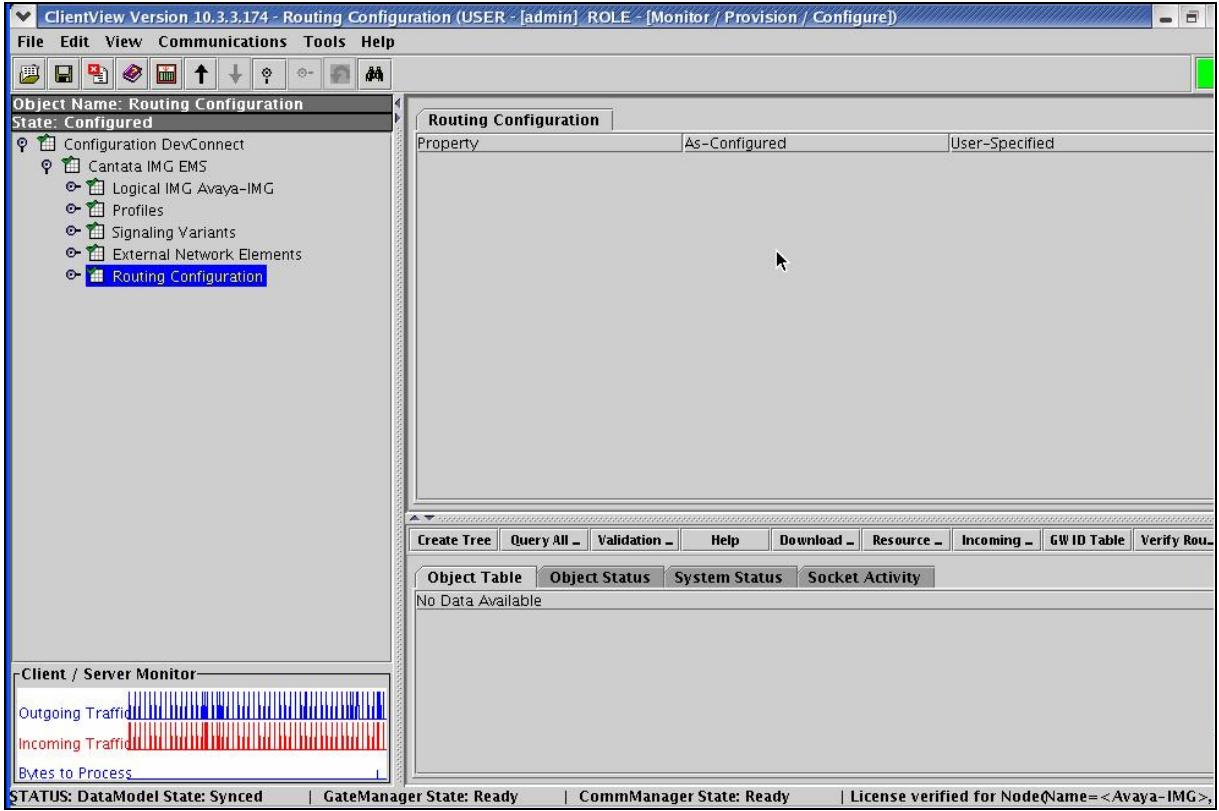
Step	Description
5.1.19	<p>Configure an IP Bearer Profile corresponding to Avaya Meeting Exchange as follows:</p> <ul style="list-style-type: none"> Right-click Profiles in the Configuration Tree and select New IP Bearer Profile. <p>In the Configuration Pane:</p> <ul style="list-style-type: none"> Enter a descriptive name for the IP Bearer Profile in the IP Bearer Profile Name field. Use default settings for remaining fields. <ul style="list-style-type: none"> 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. <p>In the Configuration Pane:</p> <ul style="list-style-type: none"> Select a codec from the drop down list for the Payload Type field that is supported on Avaya Meeting Exchange. 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.  <table border="1" data-bbox="750 781 1517 971"> <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> <table border="1" data-bbox="750 1203 1517 1436"> <thead> <tr> <th>Object Table</th> <th>Object Status</th> <th>System Status</th> <th>Socket Activity</th> </tr> </thead> <tbody> <tr> <td>Entry ID</td> <td>Payload Type</td> <td>Preferred Pa...</td> <td>Minimum Pay...</td> <td>Maximum Pa...</td> <td>Default Paylo...</td> <td>Annex B Sup...</td> </tr> <tr> <td>0</td> <td>G711 ulaw</td> <td>20</td> <td>10</td> <td>30</td> <td>Not Used</td> <td>Not Used</td> </tr> </tbody> </table>	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	Object Table	Object Status	System Status	Socket Activity	Entry ID	Payload Type	Preferred Pa...	Minimum Pay...	Maximum Pa...	Default Paylo...	Annex B Sup...	0	G711 ulaw	20	10	30	Not Used	Not Used
Property	As-Configured	User-Specified																																									
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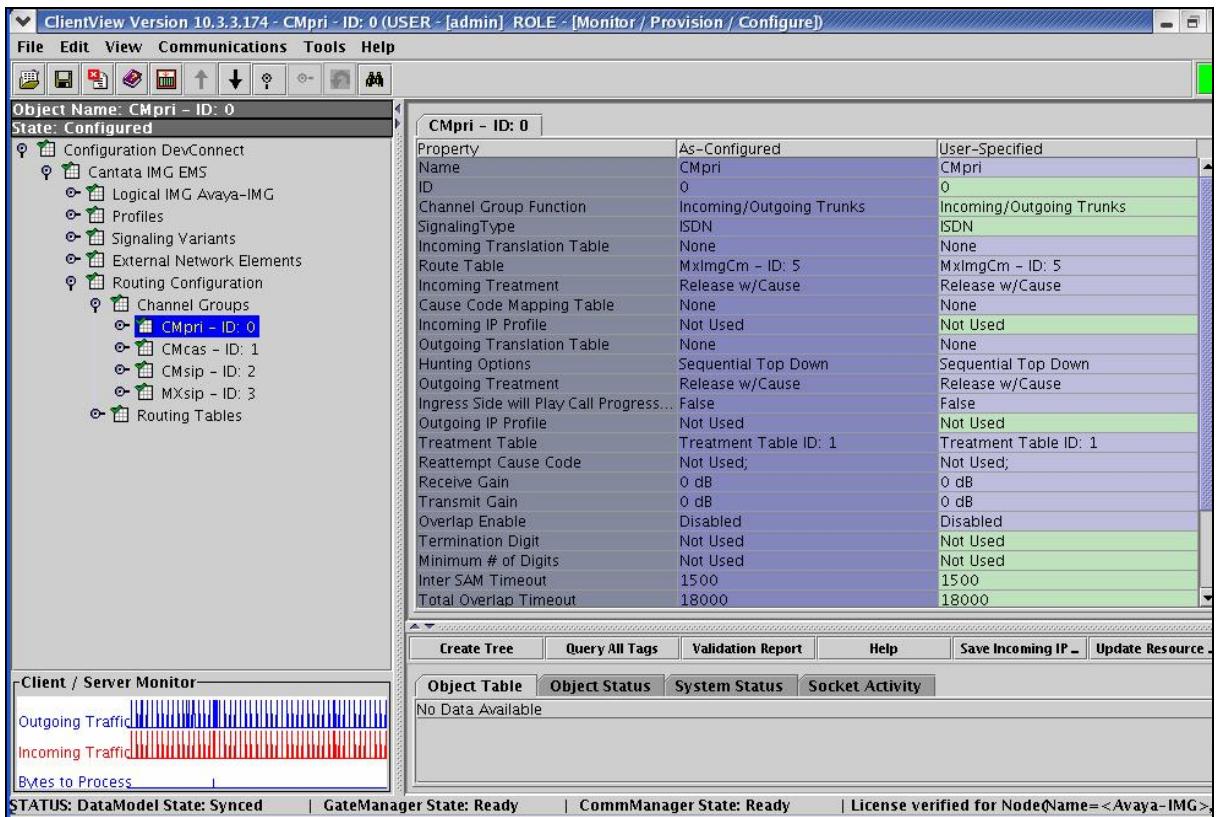
Step	Description
5.1.21	<p>Create an object for External Network Elements as follows:</p> <ul style="list-style-type: none"> Right-click Cantata IMG EMS in the Configuration Tree and select New External Network Elements. To save the changes, right-click External Network Elements and select Commit. The 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...																														
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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. <p>In the Configuration Pane:</p> <ul style="list-style-type: none"> Enter a descriptive name for the IP Bearer Profile in the Name field. 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 4.2.1).</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" data-bbox="714 1051 1498 1347"> <thead> <tr> <th>Property</th> <th>Value</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>Name</td> <td>MX</td> <td>MX</td> </tr> <tr> <td>Gateway Signaling Protocol</td> <td>SIP</td> <td>SIP</td> </tr> <tr> <td>Gateway Address Type</td> <td>Gateway IP Address</td> <td>Gateway IP Address</td> </tr> <tr> <td>Gateway IP Address</td> <td>0d:192.168.13.101</td> <td>0d:192.168.13.101</td> </tr> <tr> <td>Gateway Mask</td> <td>0d:255.255.255.255</td> <td>0d:255.255.255.255</td> </tr> <tr> <td>Gateway Host Name (ex. img1010...)</td> <td>Not Used</td> <td>Not Used</td> </tr> <tr> <td>Gateway Transport Type</td> <td>TCP</td> <td>TCP</td> </tr> <tr> <td>Gateway Remote Port</td> <td>5060</td> <td>5060</td> </tr> <tr> <td>Gateway Registration Required</td> <td>No</td> <td>No</td> </tr> <tr> <td>Registration Expiration Interval (sec)</td> <td>3600</td> <td>3600</td> </tr> <tr> <td>SIP Profile</td> <td>Default Profile</td> <td>Default Profile</td> </tr> <tr> <td>OPTIONS Keep Alive</td> <td>Disable</td> <td>Disable</td> </tr> <tr> <td>Trusted</td> <td>Yes</td> <td>Yes</td> </tr> <tr> <td>Privacy</td> <td>Off</td> <td>Off</td> </tr> </tbody> </table> <table border="1" data-bbox="714 1495 1498 1600"> <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>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> </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> </tr> </tbody> </table>	Property	Value	Notes	Name	MX	MX	Gateway Signaling Protocol	SIP	SIP	Gateway Address Type	Gateway IP Address	Gateway IP Address	Gateway IP Address	0d:192.168.13.101	0d:192.168.13.101	Gateway Mask	0d:255.255.255.255	0d:255.255.255.255	Gateway Host Name (ex. img1010...)	Not Used	Not Used	Gateway Transport Type	TCP	TCP	Gateway Remote Port	5060	5060	Gateway Registration Required	No	No	Registration Expiration Interval (sec)	3600	3600	SIP Profile	Default Profile	Default Profile	OPTIONS Keep Alive	Disable	Disable	Trusted	Yes	Yes	Privacy	Off	Off	Name	Gate...	Regis...	SIP Pr...	OPTI...	Trusted...	Privacy...	CM	SIP	Gate...	0d:1...	0d:2...	Not U...	TCP	5060	No	3600	Defa...	Disable	Yes	MX	SIP	Gate...	0d:1...	0d:2...	Not U...	TCP	5060	No	3600	Defa...	Disable	Yes						
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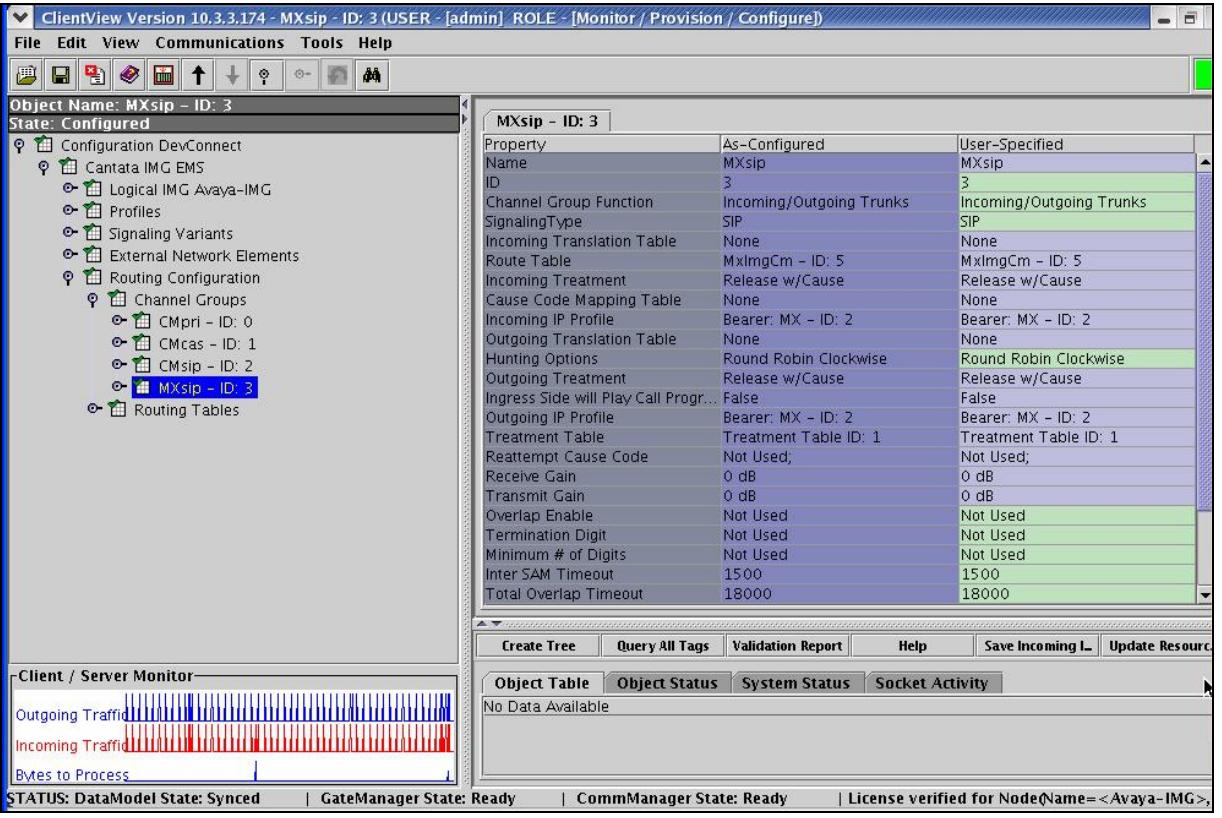
Step	Description
5.1.24	<p>Create an object for Routing Configuration as follows:</p> <ul style="list-style-type: none"> Right-click Cantata IMG EMS in the Configuration Tree and select New Routing Configuration. To save the changes, right-click Routing Configuration and select Commit. The resultant provisioning is shown below. 

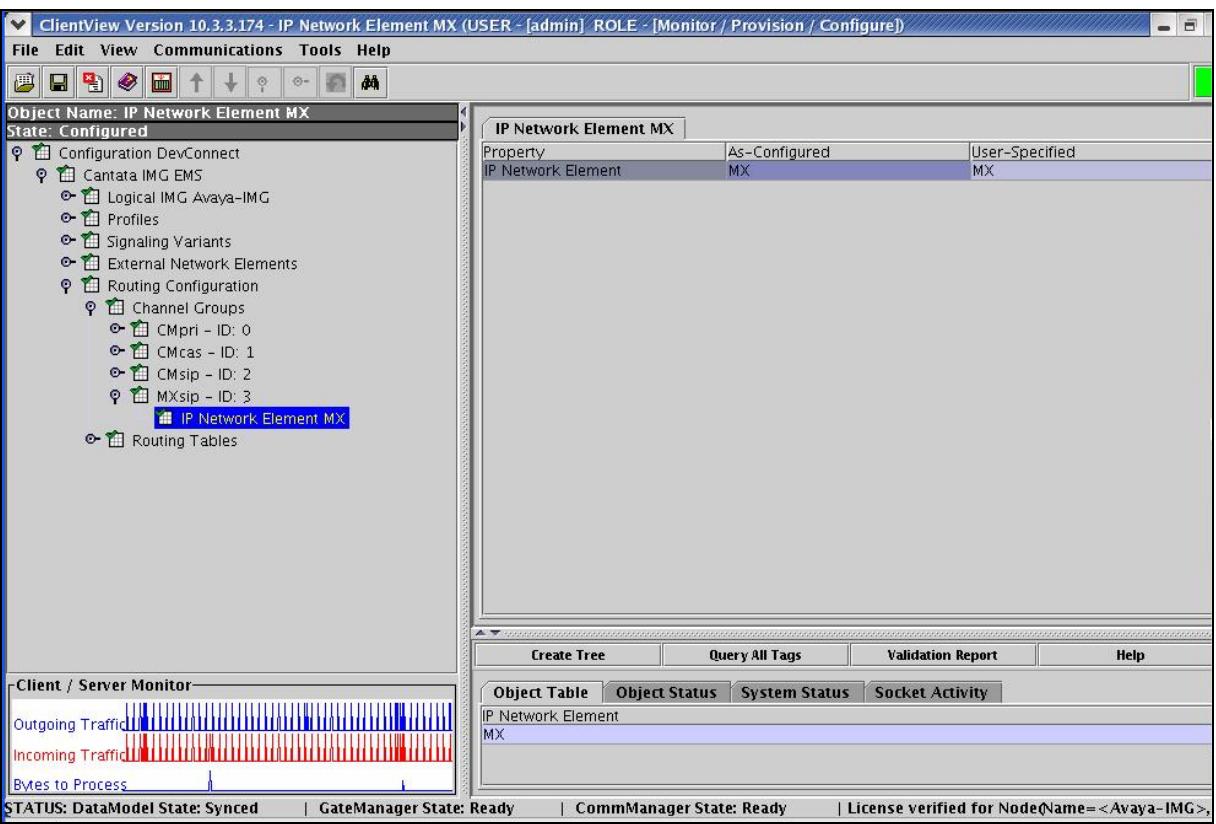
Step	Description
5.1.25	<p>Create an object for Channel Groups as follows:</p> <ul style="list-style-type: none"> Right-click Routing Configuration in the Configuration Tree and select New Channel Groups. To save the changes, right-click Channel Groups and select Commit. The resultant provisioning is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

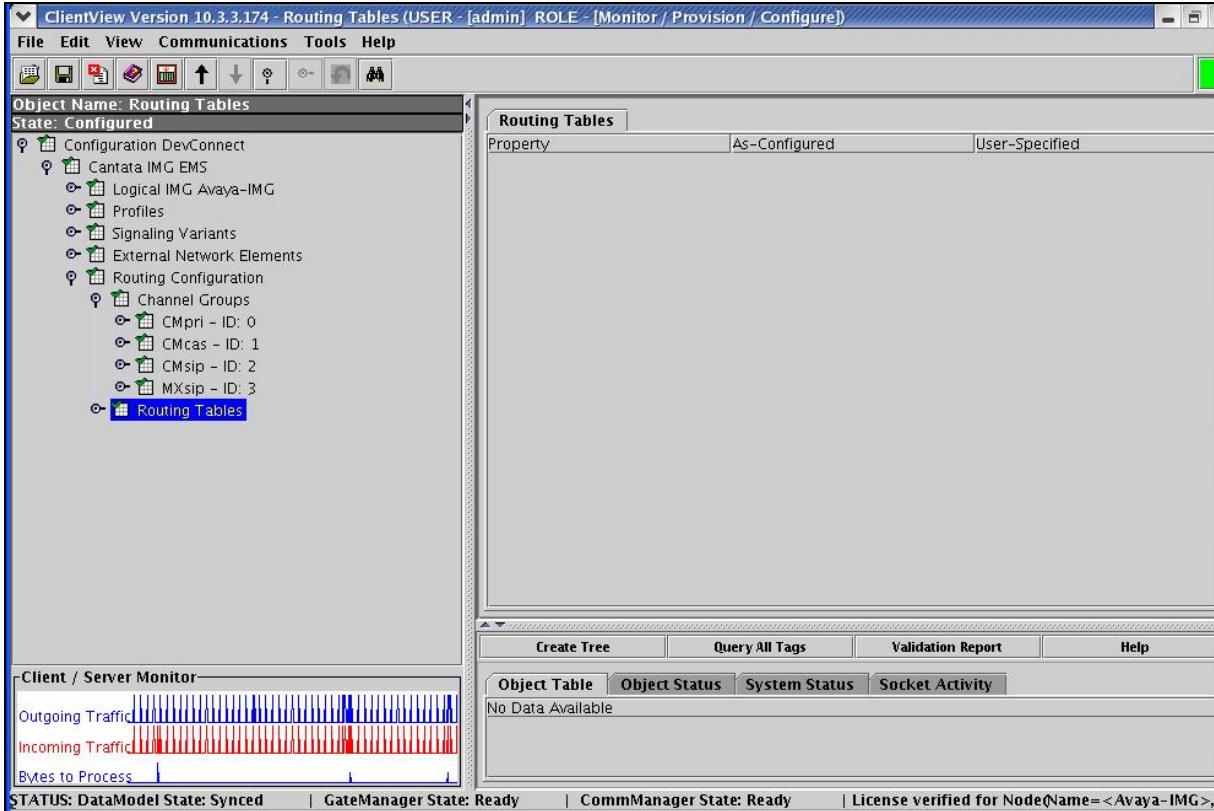
Step	Description
5.1.26	<p>Configure a Channel Group corresponding to Avaya Communication Manager as follows:</p> <ul style="list-style-type: none"> Right-click Channel Groups in the Configuration Tree and select New Channel Group. <p>In the Configuration Pane:</p> <ul style="list-style-type: none"> Enter a descriptive name for the Channel Group in the Name field. 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. 

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. <p>In the Configuration Pane:</p> <ul style="list-style-type: none"> 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. <table border="1"> <thead> <tr> <th>Property</th> <th>As-Configured</th> <th>User-Specified</th> </tr> </thead> <tbody> <tr> <td>ISDN D channel</td> <td>IMG:0 - Bearer - ID:0- Chan:23</td> <td>IMG:0 - Bearer - ID:0- Chan:23</td> </tr> <tr> <td>Network Type</td> <td>Do Not Include Network-Specific...</td> <td>Do Not Include Network-Specific...</td> </tr> <tr> <td>Bearer Capabilities Allowed</td> <td>Voice,3.1 KHz Audio;</td> <td>Voice,3.1 KHz Audio;</td> </tr> <tr> <td>Discard Privacy Info</td> <td>Display Only</td> <td>Display Only</td> </tr> </tbody> </table>	Property	As-Configured	User-Specified	ISDN D channel	IMG:0 - Bearer - ID:0- Chan:23	IMG:0 - Bearer - ID:0- Chan:23	Network Type	Do Not Include Network-Specific...	Do Not Include Network-Specific...	Bearer Capabilities Allowed	Voice,3.1 KHz Audio;	Voice,3.1 KHz Audio;	Discard Privacy Info	Display Only	Display Only
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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. <p>In the Configuration Pane:</p> <ul style="list-style-type: none"> 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" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="5">B Channels: Bearer-0</th> </tr> <tr> <th>Property</th> <th>As-Configured</th> <th>User-Specified</th> <th colspan="2"></th> </tr> </thead> <tbody> <tr> <td>IMG Interface</td> <td>Bearer</td> <td>Bearer</td> <td colspan="2"></td> </tr> <tr> <td>Start Interface Offset</td> <td>0</td> <td>0</td> <td colspan="2"></td> </tr> <tr> <td>Start Channel</td> <td>0</td> <td>0</td> <td colspan="2"></td> </tr> <tr> <td>End Interface Offset</td> <td>0</td> <td>0</td> <td colspan="2"></td> </tr> <tr> <td>End Channel</td> <td>22</td> <td>22</td> <td colspan="2"></td> </tr> <tr> <td>Start Facility Number</td> <td>0</td> <td>0</td> <td colspan="2"></td> </tr> <tr> <td>Trunk Type</td> <td>T1</td> <td></td> <td colspan="2"></td> </tr> <tr> <td>B Channel Count</td> <td>23</td> <td></td> <td colspan="2"></td> </tr> <tr> <td>Channel Count</td> <td>23</td> <td></td> <td colspan="2"></td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="5">Client / Server Monitor</th> </tr> <tr> <th colspan="5">Outgoing Traffic</th> </tr> <tr> <th colspan="5">Incoming Traffic</th> </tr> <tr> <th colspan="5">Bytes to Process</th> </tr> </thead> <tbody> <tr> <td colspan="5">STATUS: DataModel State: Synced GateManager State: Ready CommManager State: Ready License verified for NodeName= <Avaya-IMG></td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="5">Object Table</th> <th colspan="2">Object Status</th> <th colspan="2">System Status</th> <th colspan="2">Socket Activity</th> </tr> <tr> <th>IMG Interface</th> <th>Interface offset</th> <th>Channel</th> <th>Facility</th> <th>Status</th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>Bearer</td> <td>0</td> <td>0</td> <td>0</td> <td>In Service</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Bearer</td> <td>0</td> <td>1</td> <td>0</td> <td>In Service</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Bearer</td> <td>0</td> <td>2</td> <td>0</td> <td>In Service</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	B Channels: Bearer-0					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				Client / Server Monitor					Outgoing Traffic					Incoming Traffic					Bytes to Process					STATUS: DataModel State: Synced GateManager State: Ready CommManager State: Ready License verified for NodeName= <Avaya-IMG>					Object Table					Object Status		System Status		Socket Activity		IMG Interface	Interface offset	Channel	Facility	Status						Bearer	0	0	0	In Service						Bearer	0	1	0	In Service						Bearer	0	2	0	In Service					
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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. <p>In the Configuration Pane:</p> <ul style="list-style-type: none"> Enter a descriptive name for the Channel Group in the Name field. 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. 

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. <p>In the Configuration Pane:</p> <ul style="list-style-type: none"> 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. In the Configuration Pane: <ul style="list-style-type: none"> Enter a descriptive name for the Route Table in the Name field. 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.

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:
 - DNIS direct call branding (without participant-access-code)
 - SCAN call branding (with participant-access-code)
- Outbound calling from Avaya Meeting Exchange to telephones registered to either Avaya Communication Manager or Avaya SIP Enablement Services via the Cantata IMG 1010:
 - Auto/manual blast dial
 - Originator dial-out
 - Operator fast dial
- The following feature testing was executed:
 - Operator dial-out (Audio Path)
 - Operator dial-in (Audio Path)
 - Dial-out to a Flexible Digital Auxiliary Port Interface (FDAPI) channel for audio recording
 - Line Transfer initiated from Avaya Bridge Talk
 - Conference Transfer initiated from Avaya Bridge Talk
 - Moderator/participant conferencing features provided by Avaya Meeting Exchange
- The following sub-set of the SIPPING-19 supplementary features was verified:
 - Call hold
 - Attended/unattended call transfer
 - Call forward
 - Three-way conference
- The following transport methods for signaling were tested between Avaya Meeting Exchange and the Cantata IMG 1010:
 - TCP
 - UDP
- The following transport methods for signaling/media were tested between Avaya Communication Manager and the Cantata IMG 1010:
 - T1 ISDN-PRI
- The following CODECS were tested:
 - G711MU
- Voice quality was subjectively verified using endpoints participating in a Conference.
- DTMF transmission was verified.

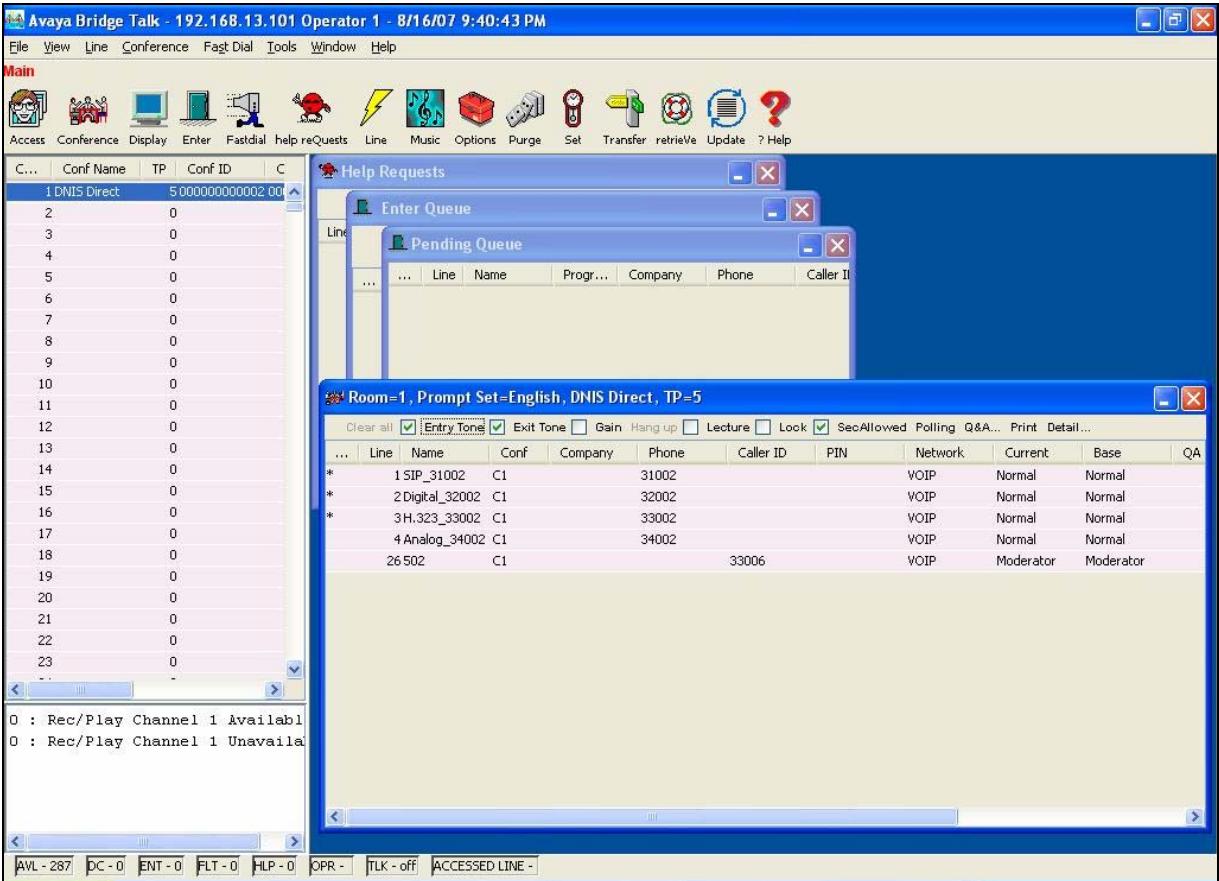
6.2. Test Results

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 telephone registered to either Avaya Communication Manager, or Avaya SIP Enablement Services, dial 502 to enter the conference provisioned in Section 4.4 as moderator via the call branding for a direct call flow provisioned in Step 4.3.2. <p><i>Note: The trace below shows a station (33006) that dialed (502) and utilized the call routing provisioned in Section 3.3 to route the call to Avaya Meeting Exchange. This step may be repeated to verify signaling and media connectivity for outbound calls from Avaya Meeting Exchange to Avaya Communication Manager via the IMG.</i></p> <pre>list trace tac 106</pre> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: right;">Page</td> <td style="text-align: center;">1</td> </tr> </table> <pre>LIST TRACE</pre> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: left;">time</th> <th style="text-align: left;">data</th> </tr> </thead> <tbody> <tr> <td>13:50:59</td> <td>dial 502 route:AAR</td> </tr> <tr> <td>13:50:59</td> <td>term trunk-group 6 cid 0x2f1</td> </tr> <tr> <td>13:50:59</td> <td>dial 502 route:AAR</td> </tr> <tr> <td>13:50:59</td> <td>route-pattern 6 preference 1 cid 0x2f1</td> </tr> <tr> <td>13:50:59</td> <td>seize trunk-group 6 member 23 cid 0x2f1</td> </tr> <tr> <td>13:50:59</td> <td>Calling Number & Name 33006 H.323 33006 V</td> </tr> <tr> <td>13:50:59</td> <td>Proceed trunk-group 6 member 23 cid 0x2f1</td> </tr> <tr> <td>13:50:59</td> <td>active trunk-group 6 member 23 cid 0x2f1</td> </tr> </tbody> </table>	Page	1	time	data	13:50:59	dial 502 route:AAR	13:50:59	term trunk-group 6 cid 0x2f1	13:50:59	dial 502 route:AAR	13:50:59	route-pattern 6 preference 1 cid 0x2f1	13:50:59	seize trunk-group 6 member 23 cid 0x2f1	13:50:59	Calling Number & Name 33006 H.323 33006 V	13:50:59	Proceed trunk-group 6 member 23 cid 0x2f1	13:50:59	active trunk-group 6 member 23 cid 0x2f1
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Step	Description
7.1.3	<p>Verify that calls to and from Avaya Meeting Exchange are managed correctly, e.g., participants are added/removed from conferences. This is accomplished by utilizing the Avaya Bridge Talk application.</p> <ul style="list-style-type: none"> From a telephone registered to either Avaya Communication Manager, or Avaya SIP Enablement Services, dial 502 to enter a conference as Moderator (without passcode) while simultaneously invoking the associated auto blast dial feature for this conference (see Step 4.4.2). If not already logged on, log in to the Avaya Bridge Talk application with the appropriate credentials. From the Conference Navigator, double-click the appropriate entry to open the corresponding Conference Room. Verify conference participants are added/removed from conferences by observing the Conference Navigator and/or Conference Room windows.  <p>The screenshot shows the Avaya Bridge Talk interface. The main window displays a list of conferences. A 'Help Requests' dialog is open, showing an 'Enter Queue' screen. A 'Pending Queue' dialog is also visible. The bottom right window is titled 'Room=1, Prompt Set=English, DNIS Direct, TP=5' and lists participants with columns for Line, Name, Conf, Company, Phone, Caller ID, PIN, Network, Current, Base, and QA. Participants include SIP_31002, Digital_32002, H.323_33002, Analog_34002, and 26502, all listed as C1.</p>

8. Conclusion

These Application Notes present a compliance-tested solution comprised of Avaya Communication Manager, the Avaya Meeting Exchange S6200 Conferencing Server and the Cantata Technology Integrated Media Gateway 1010. This solution enables connectivity between Avaya Communication Manager and the Avaya Meeting Exchange S6200 Conferencing Server via the Cantata Technology Integrated Media Gateway 1010 utilizing standards based SIP and ISDN-PRI connectivity.

9. Additional References

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

- [1] *Administrator Guide for Avaya Communication Manager*, Issue 3.1, Doc ID: 03-300509, February 2007.
- [2] *Administration for Network Connectivity for Avaya Communication Manager*, Issue 12, Doc ID: 555-233-504, February 2007.
- [3] *Meeting Exchange 4.1 Administration and Maintenance S6200/S6800 Media Server*, Issue 1, Doc ID 04-601168, July 2006.
- [4] *Meeting Exchange 4.1 Configuring S6200, S6500 and S6800 Conferencing Servers*, Issue 1, Doc ID 04-601338, July 2006.
- [5] *Avaya Meeting Exchange Groupware Edition Version 4.1 User's Guide for Bridge Talk*, Doc ID 04-600878, Issue 2, July 2006.

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

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