



Avaya Solution & Interoperability Test Lab

Application Notes for Eastcom Systems Telephone Call Accounting and Audit Package with Avaya Communication Manager - Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Eastcom Systems Telephone Call Accounting and Audit Package (TelCAAP) to interoperate with Avaya Communication Manager.

Eastcom TelCAAP is an enterprise software solution that provides customers with detailed analysis of PABX communication usage. Eastcom TelCAAP interoperates with Avaya Communication Manager over TCP/IP for the collection of call detail records (CDR).

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

The objective of this interoperability compliance testing is to verify that Eastcom Systems Telephone Call Accounting & Audit Package (TelCAAP) 8.0 can interoperate with Avaya Communication Manager 5.1. Eastcom TelCAAP interoperates with Avaya Communication Manager over TCP/IP for the collection of call detail records (CDR). The CDR collection was verified for two Avaya Communication Manager systems running on Avaya S8500 server and Avaya S8300 Server respectively during the compliance testing.

Figure 1 illustrates the network configuration used to verify the Eastcom TelCAAP solution. Site A is comprised of an Avaya S8500 Server and Avaya G650 Media Gateway, and has connections to the following: Avaya 4600 and 9600 Series IP Telephones, Avaya 2400 Series Digital Telephones, and an ISDN-BRI trunk to the PSTN. Eastcom TelCAAP is installed on a server running Microsoft Windows Server 2003 with Service Pack 2. Site B is comprised of an Avaya S8300 Server with Avaya G350 Media Gateway, and has connections to an Avaya 4600 Series IP Telephone and an Avaya 2400 Series Digital Telephone. The Avaya C364T-PWR Converged Stackable Switch provides Ethernet connectivity to the servers and IP telephones and Layer 3 IP routing between the two sites. An H.323 IP trunk is configured between Site A and B for the users to call between the two sites.

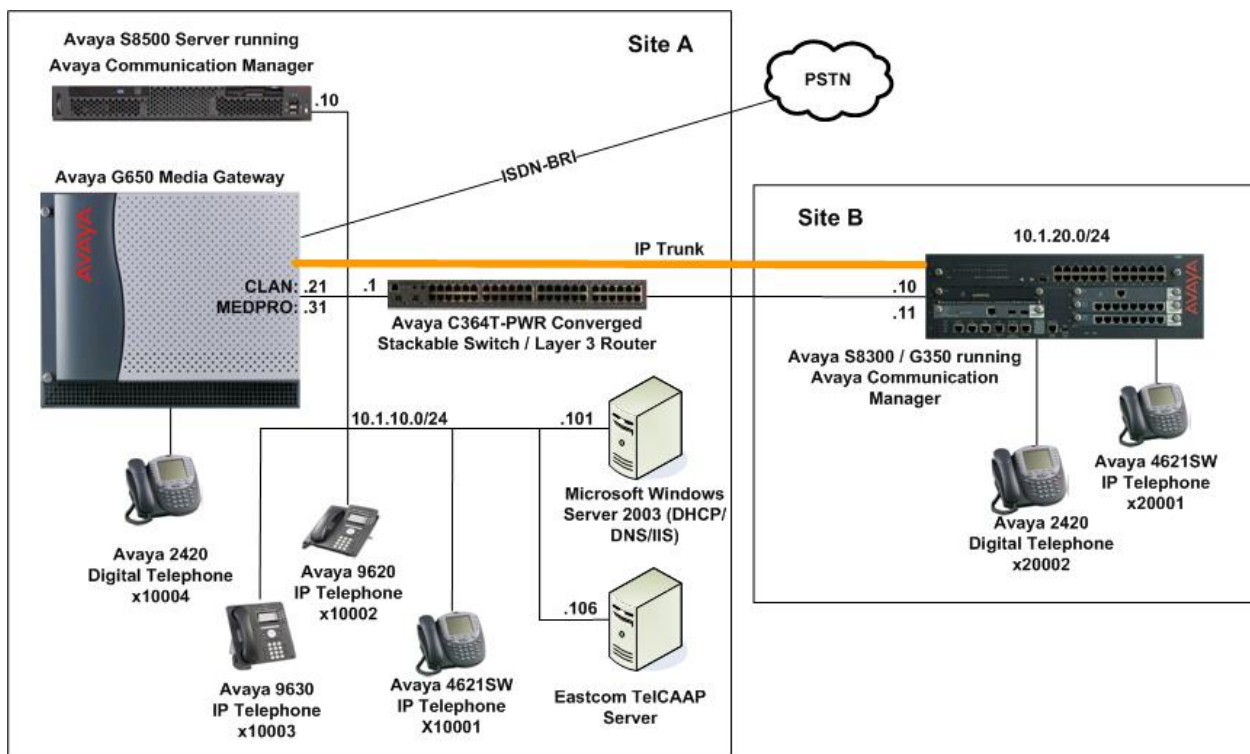


Figure 1: Test configuration

2. Equipment and Software Validated

The following equipment and software were used for the sample configuration provided:

Equipment	Software
Avaya S8500 Server	Avaya Communication Manager 5.1 (Service Pack 01.0.414.3-15962)
Avaya G650 Media Gateway - TN2312BP IP Server Interface - TN799DP C-LAN Interface - TN2302AP IP Media Processor - TN2214CP Digital Line - TN2793B Analog Line	- HW07, FW044 HW01, FW026 HW20, FW117 HW08, FW015 000013
Avaya S8300 Server	Avaya Communication Manager 5.1 (Service Pack 01.0.414.3-15962)
Avaya G350 Media Gateway	28.17.0
Avaya 4600 Series IP Telephones - 4621SW	2.8.8.7 (H.323)
Avaya 9600 Series IP Telephones - 9620 - 9630	1.5 (H.323) 1.5 (H.323)
Avaya 2400 Series Digital Telephone	-
Avaya C364T-PWR Converged Stackable Switch	4.5.18
Eastcom TelCAAP	8.0

3. Avaya Communication Manager

This section provides the procedures for configuring Call Detail Recording (CDR) in Avaya Communication Manager. All configuration changes in Avaya Communication Manager are performed through the System Access Terminal (SAT). These steps describe the procedure used for the Avaya S8500 Server. All steps are the same for the Avaya S8300 Server. An Avaya Communication Manager is configured to generate and send the CDR records to the IP address of the Eastcom TelCAAP server over TCP/IP. For this configuration, the CDR links are configured to originate from the IP addresses of the Avaya S8500 and S8300 Servers (i.e. with node-name – “procr”) and terminates at the IP address of the Eastcom TelCAAP server. The highlights in the following screens indicate the parameter values used during the compliance test.

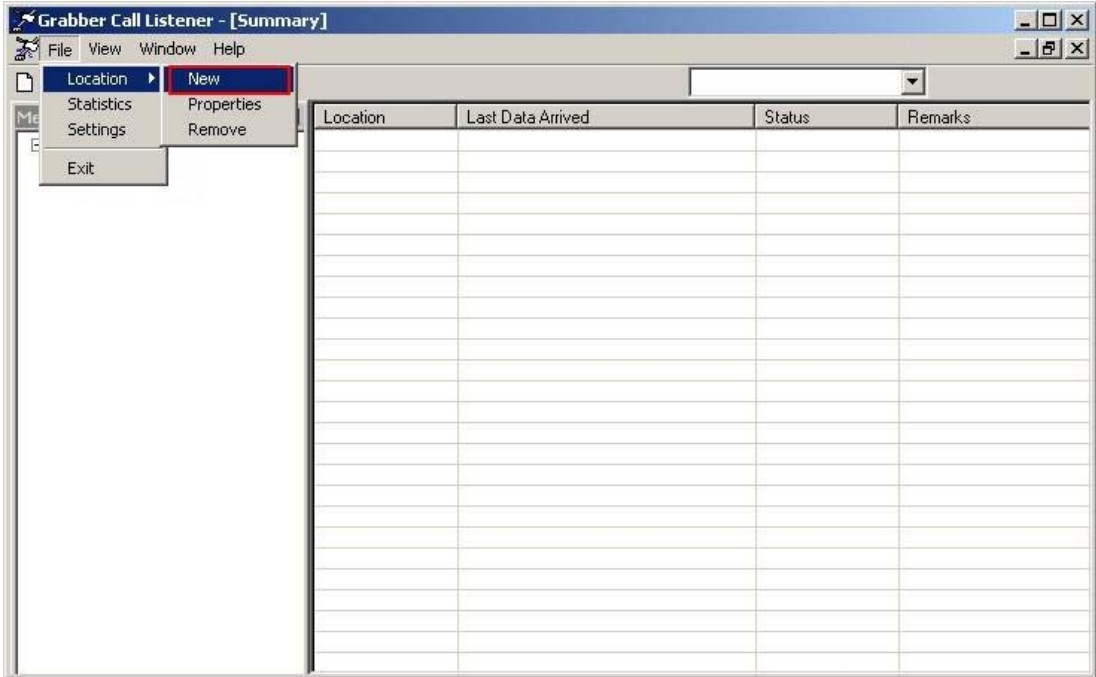
Step	Description																																									
1.	<p>Use the change node-names ip command to add a new node name for the Eastcom TelCAAP server.</p> <pre>change node-names ip Page 1 of 1</pre> <table border="1"> <thead> <tr> <th colspan="2">IP NODE NAMES</th> </tr> <tr> <th>Name</th> <th>IP Address</th> </tr> </thead> <tbody> <tr> <td>default</td> <td>0.0.0.0</td> </tr> <tr> <td>procr</td> <td>10.1.10.10</td> </tr> <tr> <td>TelCAAP</td> <td>10.1.10.106</td> </tr> </tbody> </table>	IP NODE NAMES		Name	IP Address	default	0.0.0.0	procr	10.1.10.10	TelCAAP	10.1.10.106																															
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2.	<p>Use the change ip-services command to define the CDR link. To define a primary CDR link, the following information should be provided:</p> <ul style="list-style-type: none"> • Service Type: CDR1 [If needed, a secondary link can be defined by setting Service Type to CDR2.] • Local Node: procr • Local Port: 0 [The Local Port is fixed to 0 because Avaya Communication Manager initiates the CDR link.] • Remote Node: TelCAAP [The Remote Node is set to the node name previously defined in Step 1.] • Remote Port: 5010 [The Remote Port may be set to a value between 5000 and 64500 inclusive, and must match the port configured in Eastcom TelCAAP server in Section 4. Note that TelCAAP requires a different port number for each Avaya Communication Manager system.] <pre>change ip-services Page 1 of 4</pre> <table border="1"> <thead> <tr> <th colspan="6">IP SERVICES</th> </tr> <tr> <th>Service Type</th> <th>Enabled</th> <th>Local Node</th> <th>Local Port</th> <th>Remote Node</th> <th>Remote Port</th> </tr> </thead> <tbody> <tr> <td>CDR1</td> <td></td> <td>procr</td> <td>0</td> <td>TelCAAP</td> <td>5010</td> </tr> </tbody> </table> <p>On Page 3 of the IP SERVICES form, disable the Reliable Session Protocol (RSP) for the CDR link by setting the Reliable Protocol field to n.</p> <pre>change ip-services Page 3 of 4</pre> <table border="1"> <thead> <tr> <th colspan="7">SESSION LAYER TIMERS</th> </tr> <tr> <th>Service Type</th> <th>Reliable Protocol</th> <th>Packet Timer</th> <th>Resp</th> <th>Session Message</th> <th>Connect Cntr</th> <th>SPDU Cntr</th> <th>Connectivity Timer</th> </tr> </thead> <tbody> <tr> <td>CDR1</td> <td>n</td> <td>30</td> <td></td> <td></td> <td>3</td> <td>3</td> <td>60</td> </tr> </tbody> </table>	IP SERVICES						Service Type	Enabled	Local Node	Local Port	Remote Node	Remote Port	CDR1		procr	0	TelCAAP	5010	SESSION LAYER TIMERS							Service Type	Reliable Protocol	Packet Timer	Resp	Session Message	Connect Cntr	SPDU Cntr	Connectivity Timer	CDR1	n	30			3	3	60
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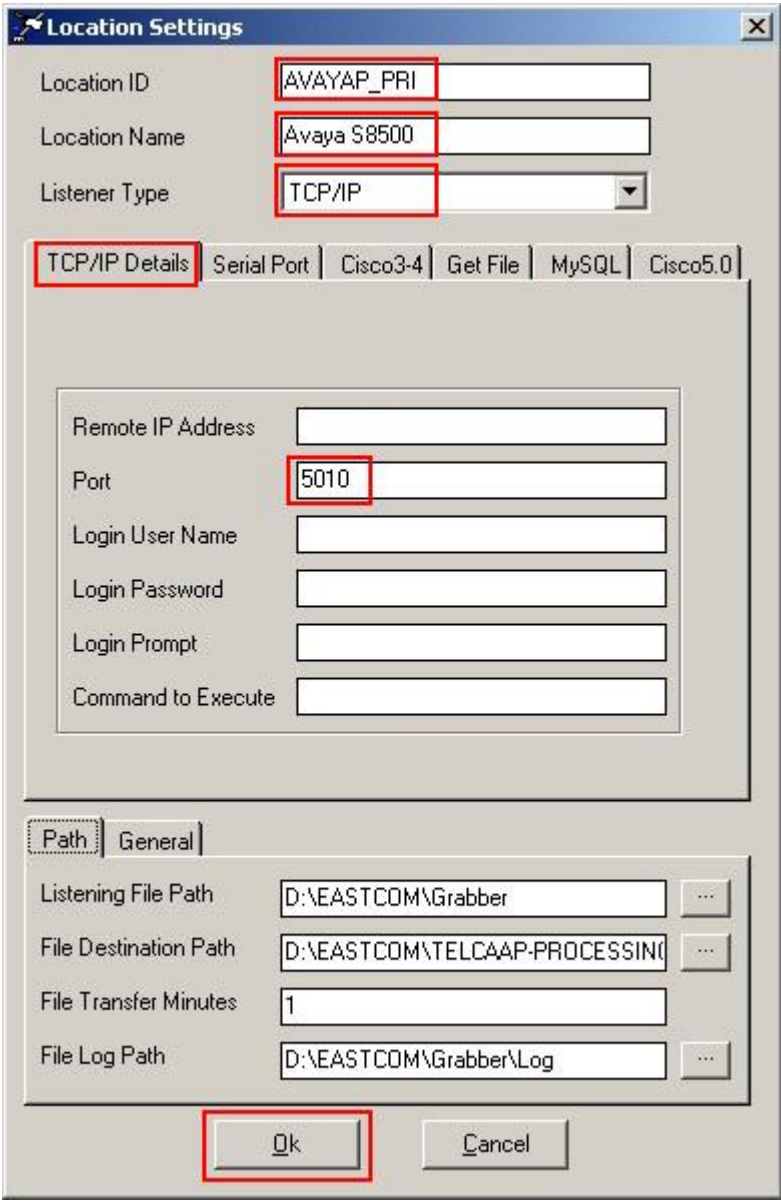
Step	Description
3.	<p>Enter the change system-parameters cdr command to set the parameters for the type of calls to track and the format of the CDR data. The following settings were used during the compliance test.</p> <ul style="list-style-type: none"> • CDR Date Format: month/day • Primary Output Format: customized • Primary Output Endpoint: CDR1 <p>The remaining parameters define the type of calls that will be recorded and what data will be included in the record. See reference [2] for a full explanation of each field. The test configuration used some of the more common fields described below.</p> <ul style="list-style-type: none"> • Use Legacy CDR Formats? n [Specify the use of the new Avaya Communication Manager 4.0.1 and later formats in the CDR records produced by the system.] • Intra-switch CDR: y [Allows call records for internal calls involving specific stations. Those stations must be specified in the INTRA-SWITCH-CDR form.] • Record Outgoing Calls Only? n [Allows incoming trunk calls to appear in the CDR records along with the outgoing trunk calls.] • Outg Trk Call Splitting? y [Allows a separate call record for any portion of an outgoing call that is transferred or conferenced.] • Inc Trk Call Splitting? y [Allows a separate call record for any portion of an incoming call that is transferred or conferenced.]
	<pre> change system-parameters cdr CDR SYSTEM PARAMETERS Page 1 of 2 Node Number (Local PBX ID): 1 CDR Date Format: month/day Primary Output Format: customized Primary Output Endpoint: CDR1 Secondary Output Format: Use ISDN Layouts? n Enable CDR Storage on Disk? n Use Enhanced Formats? n Condition Code 'T' For Redirected Calls? n Use Legacy CDR Formats? n Remove # From Called Number? n Modified Circuit ID Display? y Intra-switch CDR? y Record Outgoing Calls Only? n Outg Trk Call Splitting? y Suppress CDR for Ineffective Call Attempts? y Outg Attd Call Record? y Disconnect Information in Place of FRL? n Interworking Feat-flag? n Force Entry of Acct Code for Calls Marked on Toll Analysis Form? n Calls to Hunt Group - Record: group-ext Record Called Vector Directory Number Instead of Group or Member? n Record Agent ID on Incoming? n Record Agent ID on Outgoing? y Inc Trk Call Splitting? y Inc Attd Call Record? n Record Non-Call-Assoc TSC? n Call Record Handling Option: warning Record Call-Assoc TSC? n Digits to Record for Outgoing Calls: dialed Privacy - Digits to Hide: 0 CDR Account Code Length: 5 </pre>
	<p>On Page 2 of the CDR SYSTEM PARAMETERS form, define the customized CDR format as shown.</p>

Step	Description
	<pre> change system-parameters cdr Page 2 of 2 CDR SYSTEM PARAMETERS Data Item - Length Data Item - Length Data Item - Length 1: date - 6 17: calling-num - 15 33: - 2: space - 1 18: space - 1 34: - 3: time - 4 19: auth-code - 7 35: - 4: space - 1 20: space - 1 36: - 5: duration - 4 21: in-crt-id - 3 37: - 6: space - 1 22: space - 1 38: - 7: sec-dur - 5 23: out-crt-id - 3 39: - 8: space - 1 24: space - 1 40: - 9: cond-code - 1 25: acct-code - 7 41: - 10: space - 1 26: space - 1 42: - 11: code-used - 4 27: in-trk-code - 4 43: - 12: space - 1 28: space - 1 44: - 13: code-dial - 4 29: frl - 1 45: - 14: space - 1 30: space - 1 46: - 15: dialed-num - 23 31: return - 1 47: - 16: space - 1 32: line-feed - 1 48: - Record length = 108 </pre>
4.	<p>If the Intra-switch CDR field is set to y on Page 1 of the CDR SYSTEM PARAMETERS form, then use the change intra-switch-cdr command to define the extensions that will be subjected to call detail records. In the Extension column, enter the specific extensions whose usage will be tracked with the CDR records.</p>
	<pre> change intra-switch-cdr Page 1 of 3 INTRA-SWITCH CDR Assigned Members: 4 of 5000 administered Extension Extension Extension Extension 10001 10002 10003 10004 </pre>
5.	<p>For each trunk group for which CDR records are desired, verify that CDR reporting is enabled. Use the change trunk-group n command, where n is the trunk group number, to verify that the CDR Reports field is set to y. This applies to all types of trunk groups.</p>
	<pre> change trunk-group 2 Page 1 of 21 TRUNK GROUP Group Number: 2 Group Type: isdn CDR Reports: y Group Name: Singtel BRI Line 2 COR: 95 TN: 1 TAC: 702 Direction: two-way Outgoing Display? n Carrier Medium: PRI/BRI Dial Access? y Busy Threshold: 255 Night Service: 10004 Queue Length: 0 Service Type: public-ntwrk Auth Code? n TestCall ITC: rest Far End Test Line No: TestCall BCC: 4 </pre>

4. Configure Eastcom TelCAAP

This section describes the configuration of Eastcom TelCAAP.

Step	Description
1.	<p>From the Eastcom TelCAAP server, click Start > Run and launch the TelCAAP Grabber application Grabber.exe located in the folder D:\EASTCOM\Grabber\. Select File > Location > New to define the settings for a new Avaya Communication Manager system.</p>  <p>The screenshot shows the 'Grabber Call Listener - [Summary]' application window. The menu bar includes 'File', 'View', 'Window', and 'Help'. The 'File' menu is open, showing 'Location', 'Statistics', 'Settings', and 'Exit'. The 'Location' menu is further expanded to show 'New', 'Properties', and 'Remove'. The main area of the application is a table with the following columns: 'Location', 'Last Data Arrived', 'Status', and 'Remarks'. The table is currently empty.</p>

Step	Description
2.	<p>From the Location Settings window, specify a value for Location ID and Location Name and select TCP/IP for Listener Type. In the TCP/IP Details tab, set the Port field to correspond to the Remote Port field configured in Section 3 Step 2. Click Ok.</p> 
3.	<p>Repeat Steps 1 and 2 to add a new location for the second Avaya Communication Manager. This completes the configuration of Eastcom TelCAAP.</p>

5. Interoperability Compliance Testing

The interoperability compliance testing included feature and serviceability testing. The feature testing evaluated the ability of Eastcom TelCAAP to collect and process CDR records for

various types of calls. The serviceability test introduced failure scenarios to see if Eastcom TelCAAP can resume CDR collection after failure recovery.

5.1. General Test Approach

The general test approach was to manually place intra-switch calls, inter-switch calls, inbound and outbound PSTN trunk calls to and from telephones on Avaya Communication Manager systems, and verify that Eastcom TelCAAP collects the CDR records and reports the correct attributes of the call. For serviceability testing, the CDR links on Avaya Communication Manager systems were disabled and re-enabled and the Avaya S8500 and S8300 servers were also rebooted.

5.2. Test Results

All feature tests passed. Eastcom TelCAAP successfully captured and processed call records from Avaya Communication Manager. Eastcom TelCAAP also successfully processed the CDR data, and produced call accounting reports. The types of calls generated during the compliance test include intra-switch calls, inbound/outbound PSTN trunk calls, inbound/outbound inter-switch IP trunk calls, transferred calls and conference calls.

For serviceability testing, the following observations were made.

- Eastcom TelCAAP does not use the Avaya RSP. As such, CDR records are lost when the Eastcom TelCAAP PC is disconnected from the LAN.

6. Verification Steps

The following steps may be used to verify the configuration:

- Use the **ping** utility on the Eastcom TelCAAP server to verify the IP connectivity to the Avaya S8500 and S8300 Servers.
- On the SAT of each Avaya S8500 and S8300 Server, enter the **status cdr-link** command and verify that the **Link State** shows **up**.

```
status cdr-link
                                CDR LINK STATUS
                                Primary                Secondary
                                Link State: up          CDR not administered
                                Date & Time: 2008/8 /19 9 :40:34    0 /0 /0 0 :0 :0
                                Forward Seq. No: 134                0
                                Backward Seq. No: 325                0
                                CDR Buffer % Full: 0.00              0.00
                                Reason Code: OK
```

- Place a call and verify that Eastcom TelCAAP receives the CDR record for the call. Login to Eastcom TelCAAP using a browser (shown below) and compare the values of data fields in the CDR record with the expected values and verify that they match.

AVAYA SINGAPORE
Extension Detail
Extension Detail Report for the period 01-AUG-2008 To 19-AUG-2008
Report Run Date and Time : 19-AUG-2008 1:13:32 PM

Extension No. : 10001 User Name :
Location : UNASSIGNED-UNASSIGNED OPERATION UNIT : -

Date	Time	From Extn	Called No	Area / Country	Duration	Charges	Remarks
18/08/2008	15:30		20001		00:00:14	0.000	
Total Incoming Calls 1					00:01:29	0.00	
17/08/2008	23:27		68728643		00:00:20	0.007	
18/08/2008	14:38		68728643		00:00:17	0.007	Personal
18/08/2008	14:49		68723040		00:00:00	0.000	
18/08/2008	17:32		68728643		00:00:26	0.007	
Total Local Calls 4					00:01:03	0.02	
18/08/2008	14:26		10002		00:00:03	0.000	
Total Internal In Calls 1					00:00:03	0.00	
18/08/2008	17:31		10002		00:00:04	0.000	

- Place internal, inbound trunk, and outbound trunk calls to and from various telephones, generate an appropriate report in Eastcom TelCAAP and verify the report's accuracy.

7. Support

Technical support for Eastcom TelCAAP can be obtained by contacting Eastcom's Support Desk at +65 63232822, or sending an e-mail to support@eastcom-systems.com.

8. Conclusion

These Application Notes describe the procedures for configuring the Eastcom TelCAAP to collect call detail records from Avaya Communication Manager. Eastcom TelCAAP successfully passed the compliance testing.

9. Additional References

This section references the Avaya documentation that is relevant to these Application Notes.

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

[1] *Feature Description and Implementation For Avaya Communication Manager*, Release 5.0, Issue 6, January 2008, Document Number 555-245-205.

[2] *Administrator Guide for Avaya Communication Manager*, Release 5.0, Issue 4.0, January 2008, Document Number 03-300509.

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