



Avaya Solution & Interoperability Test Lab

Application Notes for Eastcom Systems Telephone Call Accounting & Audit Package Version 8.22 with Avaya Aura® Communication Manager R7.0 - Issue 1.0

Abstract

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

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

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

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

1. Introduction

The objective of this interoperability compliance testing is to verify that Eastcom Systems Telephone Call Accounting & Audit Package (TelCAAP) Version 8.22 can interoperate with Avaya Aura® Communication Manager R7.0. Eastcom TelCAAP interoperates with Avaya Aura® Communication Manager over TCP/IP for the collection of call detail records (CDR). During the compliance testing, CDR collection was verified for two Avaya Aura® Communication Manager Systems:

- A duplex pair of Avaya Aura® Communication Manager
- A standalone Avaya Aura® Communication Manager

2. General Test Approach and Test Results

The general test approach was to manually place intra-switch calls, inter-switch IP Trunk calls, inbound and outbound Public Switched Telephone Network (PSTN) trunk calls to and from telephones on Avaya Aura® Communication Manager Systems, and verify that Eastcom TelCAAP collects the CDR records and reports the correct attributes of the call.

2.1. Interoperability Compliance Testing

The interoperability compliance testing included feature and serviceability testing. CDR links with and without reliable protocol were tested.

For feature testing, the ability of Eastcom TelCAAP to collect and process CDR records for the following:

- Intra-switch calls
- Inter-switch calls
- Inbound PSTN trunk calls
- Outbound PSTN trunk calls
- Hold and Resume
- Call Transfer (blind and warm)
- Conference
- Bridge calls
- Hunt Group calls
- Outbound PSTN calls requiring account codes and authorization codes
- Ineffective call attempts and ringing intervals

For serviceability testing, the following were performed:

- Busied out and released the CDR links on Communication Manager.
- Disconnected and reconnected network connection to the Eastcom TelCAAP server.
- Rebooted the Eastcom TelCAAP server and Communication Manager.

2.2. Test Results

All test cases described in **Section 2.1** passed successfully.

2.3. Support

Technical support for Eastcom TelCAAP can be obtained by contacting Eastcom in the following ways:

- Telephone: +65 63232822
- Email: support@eastcom-systems.com
- Web: <http://www.eastcom-systems.com/support.html>

3. Reference Configuration

Figure 1 illustrates the network configuration used to verify the Eastcom TelCAAP solution. It shows two separate Avaya Aura® Communication Manager Systems - The first system is comprised of duplex Communication Manager and a G430 Media Gateway. This system has Avaya 9600 and 1600 Series IP Telephones; Avaya 1400 and Avaya 9400 Series Digital Telephones; and has connection to the simulated PSTN trunk. The second system is comprised of an Avaya S8300D Server with a G450 Media Gateway. This system has Avaya 9600 Series IP Telephones and Avaya 1400 Series Digital Telephones; and has connection to the first system via an IP trunk. Eastcom TelCAAP will be connected to and will collect CDR records from both systems. The telephones connected to the two systems will be used to generate call traffic on the main and remote Communication Manager. These telephones will be used to generate intra-switch calls (calls between telephones on the same system), outbound/inbound calls to/from the simulated PSTN, and outbound/inbound calls to/from the telephones between the two systems via the IP trunk. In addition, the Avaya Reliable Data Test Tool (RD TT) will be connected to both systems to compare the records received by RD TT with Eastcom TelCAAP.

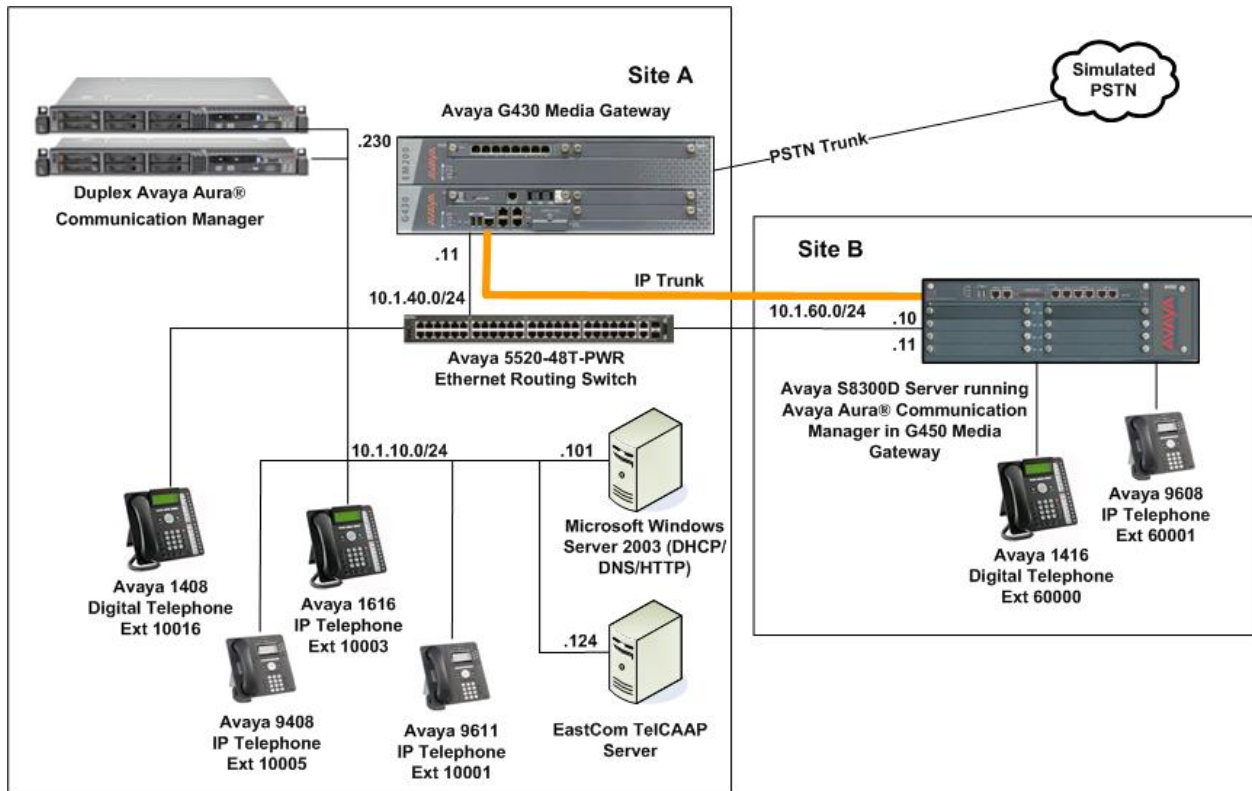


Figure 1: Test configuration for Eastcom TelCAAP Solution

4. Equipment and Software Validated

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

Equipment	Software
Avaya Aura® Communication Manager (Duplex)	R17x.00.0.441.0-23169 (7.0.1.1.0 - FP1 SP1)
Avaya G430 Media Gateway <ul style="list-style-type: none">• MGP• DCP MM712AP	37.39.0 HW4 FW015
Avaya Aura® Communication Manager (S8300D)	R17x.00.0.441.0-23169 (7.0.1.1.0 - FP1 SP1)
Avaya G450 Media Gateway <ul style="list-style-type: none">• MGP• DCP MM717AP	37.39.0 HW03 FW015
Avaya 9600 Series IP Telephones <ul style="list-style-type: none">• 9611• 9608	6.6302 (H.323) 6.6302 (H.323)
Avaya 1600 Series IP Telephones - 1616	1.3100 (H.323)
Avaya 14xx Digital Telephone	R4 SP7
Avaya 9408 Digital Telephone	2.0 SP4 (R15)
Avaya 4548GT-PWR Ethernet Routing Switch	V6.2.4.010
Eastcom TelCAAP running on Microsoft Windows 2012 R2 Server	8.22

**Avaya Aura® Communication Manager (duplex) and Microsoft Windows Server are installed on VMware EsXi 5.x platform. Avaya Aura® Communication Manager (S8300D) is installed on Avaya Virtual Platform.*

5. Configure Avaya Aura® Communication Manager

This section provides the procedures for configuring Call Detail Recording (CDR) in Communication Manager. All configuration changes in Communication Manager are performed through the System Access Terminal (SAT). These steps describe the procedure used for the duplex Communication Manager. All steps are the same for the Avaya S8300D Communication Manager. 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 Communication Manager (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> IP NODE NAMES Name IP Address CLAN2a02 10.1.50.21 CLAN2a03 10.1.50.22 ESS 10.1.10.239 Gateway001 10.1.10.1 Gateway002 10.1.50.1 IPOffice 10.1.10.121 Medpro2a07 10.1.50.23 Medpro2a08 10.1.50.24 PC1 10.1.10.151 PC2 10.1.10.152 TelCAAP 10.1.10.125 VAL2a11 10.1.50.26 </pre>
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 • Local Node: procr • Local Port: 0 [The Local Port is fixed to 0 because 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 6. Note that TelCAAP requires a different port number for each Communication Manager system regardless if they are survivable or separate systems]

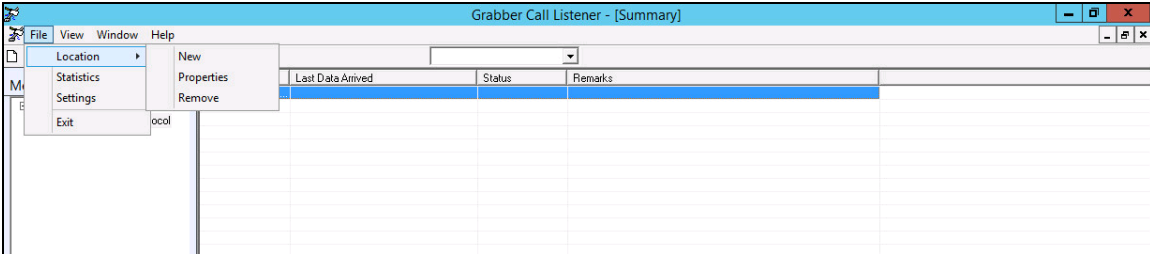
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	<p>change ip-services Page 1 of 4</p> <table border="1"> <thead> <tr> <th colspan="7">IP SERVICES</th> </tr> <tr> <th>Service Type</th> <th>Enabled</th> <th>Local Node</th> <th>Local Port</th> <th>Remote Node</th> <th>Remote Port</th> <th></th> </tr> </thead> <tbody> <tr> <td>AESVCS</td> <td>y</td> <td>procr</td> <td>8765</td> <td></td> <td></td> <td></td> </tr> <tr style="border: 2px solid red;"> <td>CDR1</td> <td></td> <td>procr</td> <td>0</td> <td>TelCAAP</td> <td>5010</td> <td></td> </tr> </tbody> </table> <p>On Page 3 of the IP SERVICES form, enable or disable the Reliable Session Protocol (RSP) for the CDR link by setting the Reliable Protocol field to y or n respectively depending on the parameter setup for location properties for Reliable protocol in TelCAAP configuration in Section 6.2. In this compliance testing, CDR is tested with and without reliable protocol.</p> <p>change ip-services Page 3 of 4</p> <table border="1"> <thead> <tr> <th colspan="7">SESSION LAYER TIMERS</th> </tr> <tr> <th>Service Type</th> <th>Reliable Protocol</th> <th>Packet Resp Timer</th> <th>Session Connect Message Cntr</th> <th>SPDU Cntr</th> <th>Connectivity Timer</th> <th></th> </tr> </thead> <tbody> <tr> <td>CDR1</td> <td style="border: 1px solid red;">n</td> <td>30</td> <td>3</td> <td>3</td> <td>60</td> <td></td> </tr> </tbody> </table>	IP SERVICES							Service Type	Enabled	Local Node	Local Port	Remote Node	Remote Port		AESVCS	y	procr	8765				CDR1		procr	0	TelCAAP	5010		SESSION LAYER TIMERS							Service Type	Reliable Protocol	Packet Resp Timer	Session Connect Message Cntr	SPDU Cntr	Connectivity Timer		CDR1	n	30	3	3	60	
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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 Communication Manager 4.0.1 and later formats in the CDR records produced by the system.] • Remove # From Called Number? y [The system will remove the pound sign (#) from the Dialed Number field of the call detail record.] • 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.] 																																																	

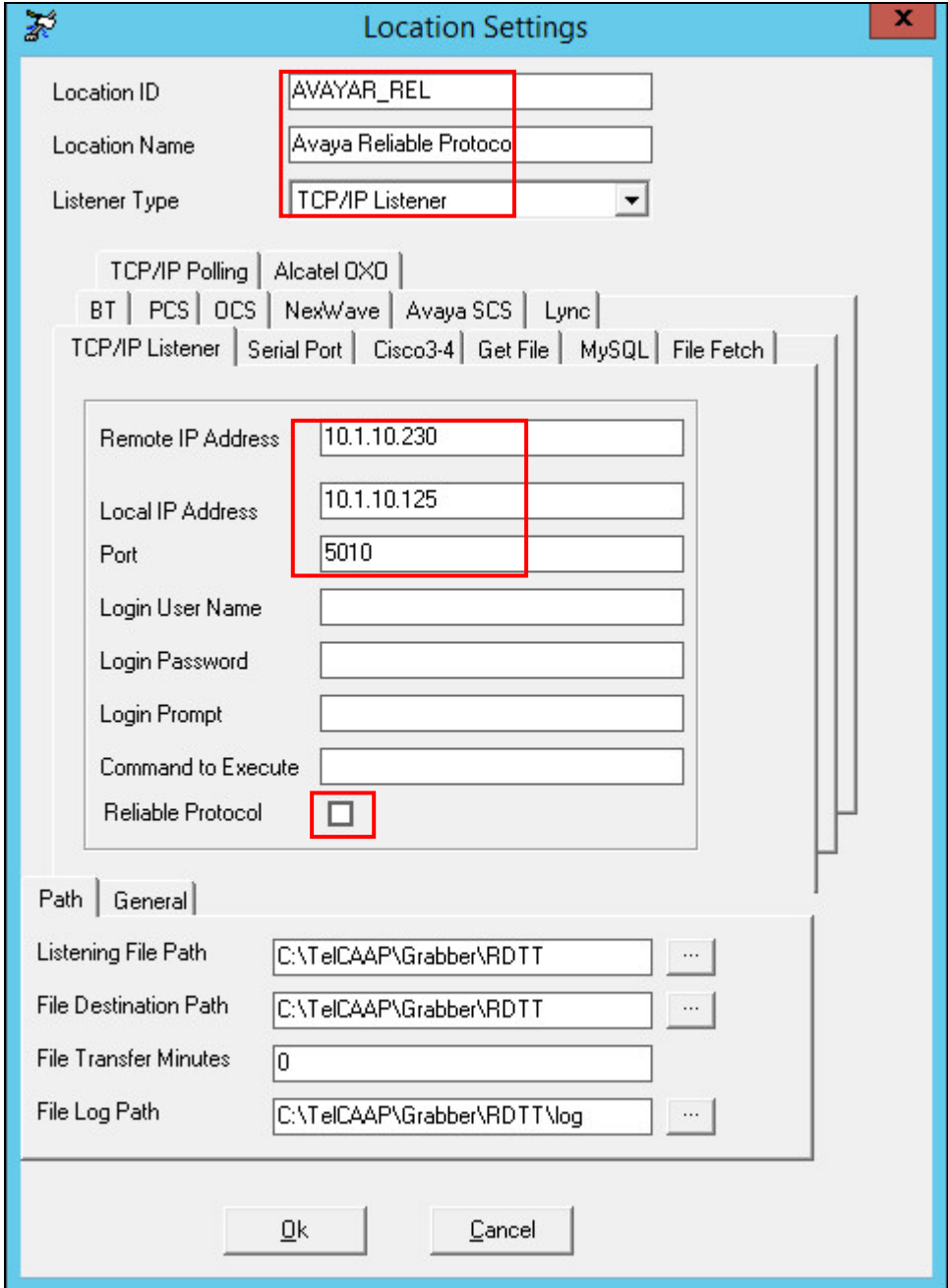
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	<p>change system-parameters cdr Page 1 of 2</p> <p style="text-align: center;">CDR SYSTEM PARAMETERS</p> <p>Node Number (Local PBX ID): 1 CDR Date Format: month/day</p> <p>Primary Output Format: customized Primary Output Endpoint: CDR1</p> <p>Secondary Output Format:</p> <p>Use ISDN Layouts? n Enable CDR Storage on Disk? y</p> <p>Use Enhanced Formats? n Condition Code 'T' For Redirected Calls? n</p> <p>Use Legacy CDR Formats? n Remove # From Called Number? y</p> <p>Modified Circuit ID Display? n Intra-switch CDR? y</p> <p>Record Outgoing Calls Only? n Outg Trk Call Splitting? y</p> <p>Suppress CDR for Ineffective Call Attempts? y Outg Attd Call Record? y</p> <p>Disconnect Information in Place of FRL? n Interworking Feat-flag? n</p> <p>Force Entry of Acct Code for Calls Marked on Toll Analysis Form? n Calls to Hunt Group - Record: group-ext</p> <p>Record Called Vector Directory Number Instead of Group or Member? n</p> <p>Record Agent ID on Incoming? n Record Agent ID on Outgoing? y</p> <p>Inc Trk Call Splitting? y Inc Attd Call Record? n</p> <p>Record Non-Call-Assoc TSC? n Call Record Handling Option: warning</p> <p>Record Call-Assoc TSC? n Digits to Record for Outgoing Calls: outpulsed</p> <p>Privacy - Digits to Hide: 0 CDR Account Code Length: 7</p> <p>Remove '+' from SIP Numbers? y</p>																																																			
	<p>On Page 2 of the system-parameters cdr form, define the customized CDR format as shown.</p>																																																			
	<p>change system-parameters cdr Page 2 of 2</p> <p style="text-align: center;">CDR SYSTEM PARAMETERS</p> <table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Data Item - Length</th> <th style="text-align: left;">Data Item - Length</th> <th style="text-align: left;">Data Item - Length</th> </tr> </thead> <tbody> <tr><td>1: date - 6</td><td>17: calling-num - 15</td><td>33: -</td></tr> <tr><td>2: space - 1</td><td>18: space - 1</td><td>34: -</td></tr> <tr><td>3: time - 4</td><td>19: auth-code - 7</td><td>35: -</td></tr> <tr><td>4: space - 1</td><td>20: space - 1</td><td>36: -</td></tr> <tr><td>5: duration - 4</td><td>21: in-crt-id - 3</td><td>37: -</td></tr> <tr><td>6: space - 1</td><td>22: space - 1</td><td>38: -</td></tr> <tr><td>7: sec-dur - 5</td><td>23: out-crt-id - 3</td><td>39: -</td></tr> <tr><td>8: space - 1</td><td>24: space - 1</td><td>40: -</td></tr> <tr><td>9: cond-code - 1</td><td>25: acct-code - 7</td><td>41: -</td></tr> <tr><td>10: space - 1</td><td>26: space - 1</td><td>42: -</td></tr> <tr><td>11: code-used - 4</td><td>27: in-trk-code - 4</td><td>43: -</td></tr> <tr><td>12: space - 1</td><td>28: space - 1</td><td>44: -</td></tr> <tr><td>13: code-dial - 4</td><td>29: frl - 1</td><td>45: -</td></tr> <tr><td>14: space - 1</td><td>30: space - 1</td><td>46: -</td></tr> <tr><td>15: dialed-num - 23</td><td>31: return - 1</td><td>47: -</td></tr> <tr><td>16: space - 1</td><td>32: line-feed - 1</td><td>48: -</td></tr> </tbody> </table> <p style="text-align: center;">Record length = 108</p>	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: -
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4.	<p>If the Intra-switch CDR field is set to y on Page 1 of the system-parameters cdr 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>																																																			

Step	Description
	<pre> change intra-switch-cdr Page 1 of 3 INTRA-SWITCH CDR Assigned Members: 4 of 5000 administered Extension Extension Extension Extension 10001 10003 10005 10016 </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 1 Page 1 of 22 TRUNK GROUP Group Number: 1 Group Type: co CDR Reports: y Group Name: 68722698 COR: 1 TN: 1 TAC: #01 Direction: two-way Outgoing Display? n Dial Access? y Busy Threshold: 255 Night Service: Queue Length: 0 Country: 6 Incoming Destination: 10016 Comm Type: voice Auth Code? n Digit Absorption List: Prefix-1? n Trunk Flash? n Toll Restricted? y Trunk Type: loop-start </pre>

6. Configure Eastcom Systems 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 C:\TelCAAP\Grabber\ (not shown). Select File > Location > New to define the settings for a new Communication Manager system.</p>  <p>The screenshot shows the 'Grabber Call Listener - [Summary]' application window. The 'File' menu is open, and the 'Location' option is selected, which has opened a sub-menu. In this sub-menu, the 'New' option is highlighted. The main window contains a table with columns for 'Last Data Arrived', 'Status', and 'Remarks'.</p>

Step	Description
2.	<p>From the Location Settings window, specify a descriptive value for Location ID and Location Name and select TCP/IP for Listener Type. In the TCP/IP Listener tab, set Remote IP Address to the IP address of the Communication Manager, set Local IP Address to the IP address of the TelCAAP server and set Port to correspond to the Remote Port field configured in Section 5 Step 2. If reliable protocol is configured in Section 5.2 for Communication Manager, the Reliable Protocol box below has to be checked. Click Ok.</p> 

Step	Description
3.	Repeat Steps 1 and 2 to add a new location for the second Communication Manager system. This completes the configuration of Eastcom TelCAAP.

7. 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 Communication Manager.
- On the SAT of each Communication Manager, 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: 2016/10/17 15:11:25  0000/00/00 00:00:00
Forward Seq. No: 0                  0
Backward Seq. No: 0                 0
CDR Buffer % Full: 0.00              0.00
Reason Code: OK

```

- Place an outgoing PSTN trunk 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 from Avaya RDTT and verify that they match.

The screenshot shows the 'Auth Code Detail' report in the TelCAAP application. The report is for 'AVAYA Primary' and covers the period from 17-OCT-2016 to 18-OCT-2016. The data is as follows:

Date	Time	Extn From	Called / Calling Number	Area / Country	Duration (HH:MM:SS)	Charges
Company : UNASSIGNED						
Division : UNASSIGNED						
Department : UNASSIGNED						
Account / IDD Pin : 1111111 - User Name : - Extn # : 10001						
LOCAL						
17/10/2016	10:23	10001	68728396		00:00:14	0.008
17/10/2016	10:31	10001	68728396		00:00:07	0.008
17/10/2016	10:34	10001	68728396		00:01:01	0.024
17/10/2016	10:47	10001	68728396		00:00:19	0.008
Sub Total:LOCAL					00:01:41	0.048
Sub Total for Account / IDD Pin : 1111111 - User Name : - Extn # : 10001					00:01:41	0.048

- 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 with Avaya RDTT.

8. Conclusion

These Application Notes describe the procedures for configuring Eastcom Systems Telephone Call Accounting & Audit Package (TelCAAP) to collect call detail records from Avaya Aura® Communication Manager. All test cases were successfully completed.

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] *Administering Avaya Aura® Communication Manager*, Release 7.0.1, August 2016, Document Number 03-300509, Issue 2.1.
- [2] *Avaya Aura® Communication Manager Feature Description and Implementation*, Release 7.0.1, October 2016, Document Number 555-245-205, Issue 3.1.

The following documentation can be obtained from member.

- [3] *TelCAAP Web based Call Accounting System User Guide*, Version 8.22.

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