



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

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# **Application Notes for Eastcom Systems Telephone Call Accounting & Audit Package Version 8.21 with Avaya Aura® Communication Manager 6.0.1 - 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).

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 8.21 can interoperate with Avaya Aura® Communication Manager 6.0.1. Eastcom TelCAAP interoperates with Avaya Aura® Communication Manager over TCP/IP for the collection of call detail records (CDR). The CDR collection was verified for two Avaya Aura® Communication Manager systems running on Avaya S8800 Server and Avaya S8300D Server respectively during the compliance testing.

## 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 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.

For feature testing, the ability of Eastcom TelCAAP to collect and process CDR records for intra-switch calls, inter-switch calls, inbound and outbound PSTN trunk calls to and from telephones on both Communication Manager systems was evaluated.

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, Avaya S8800 and S8300D Servers.

### 2.2. Test Results

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

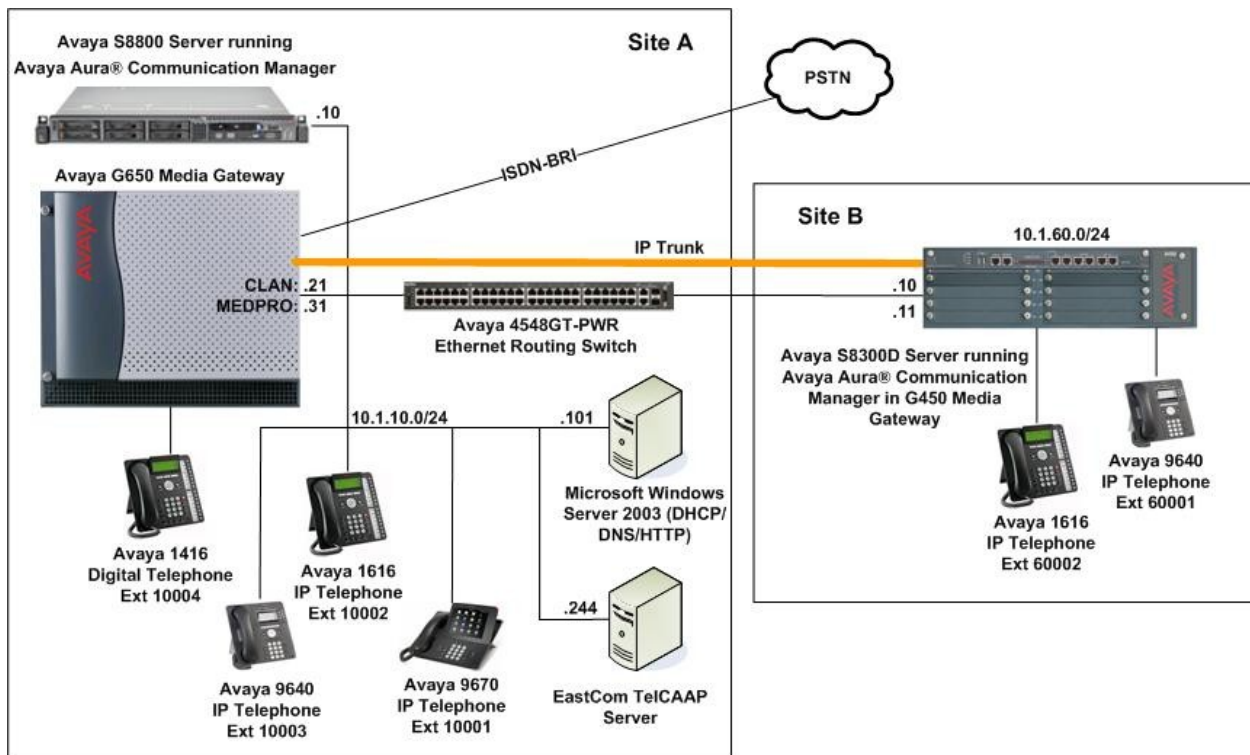
### 2.3. Support

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

- Telephone: +65 63232822
- Email: [support@eastcom-systems.com](mailto: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. Site A is comprised of an Avaya S8800 Server and Avaya G650 Media Gateway, and has connections to the following: Avaya 9600 and 1600 Series IP Telephones, Avaya 1400 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 S8300D Server with Avaya G450 Media Gateway, and has connections to Avaya 9600 and 1600 Series IP Telephones. The Avaya 4548GT-PWR Ethernet Routing 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 for Eastcom TelCAAP Solution**

## 4. Equipment and Software Validated

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

Equipment	Software
Avaya S8800 Server	Avaya Aura® Communication Manager 6.0.1 (Service Pack 4 00.1.510.1-19100)
Avaya G650 Media Gateway <ul style="list-style-type: none"> <li>• TN2312BP IP Server Interface</li> <li>• TN799DP C-LAN Interface</li> <li>• TN2302AP IP Media Processor</li> <li>• TN2602AP IP Media Processor</li> <li>• TN2214CP Digital Line</li> </ul>	- HW07, FW054 HW01, FW040 HW20, FW121 HW02, FW059 HW08, FW015
Avaya S8300D Server	Avaya Aura® Communication Manager 6.0.1 (Service Pack 4 00.1.510.1-19100)
Avaya G450 Media Gateway	31.19.2
Avaya 9600 Series IP Telephones - 9670 - 9640	3.1 SP2 (H.323) 3.1 SP2 (H.323)
Avaya 1600 Series IP Telephones - 1616	1.300B (H.323)
Avaya 1416 Digital Telephone	-
Avaya 4548GT-PWR Ethernet Routing Switch	V5.4.0.008
Eastcom TelCAAP	8.21

## 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 Avaya S8800 Server. All steps are the same for the Avaya S8300D Server. 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 S8800 and S8300D 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 <b>change node-names ip</b> command to add a new node name for the Eastcom TelCAAP server.</p> <pre> change node-names ip                                     Page 1 of 1                                      IP NODE NAMES Name          IP Address default       0.0.0.0 procr         10.1.10.10 <b>TelCAAP     10.1.10.244</b> </pre>
2.	<p>Use the <b>change ip-services</b> 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"> <li>• <b>Service Type: CDR1</b> [If needed, a secondary link can be defined by setting Service Type to CDR2.]</li> <li>• <b>Local Node: procr</b></li> <li>• <b>Local Port: 0</b> [The Local Port is fixed to 0 because Communication Manager initiates the CDR link.]</li> <li>• <b>Remote Node: TelCAAP</b> [The Remote Node is set to the node name previously defined in <b>Step 1</b>.]</li> <li>• <b>Remote Port: 5010</b> [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 <b>Section 6</b>. Note that TelCAAP requires a different port number for each Communication Manager system.]</li> </ul> <pre> change ip-services                                     Page 1 of 4                                      IP SERVICES Service      Enabled   Local   Local   Remote   Remote Type         Type      Node    Port    Node     Port <b>CDR1       procr    0       TelCAAP 5010</b> </pre>

Step	Description																					
	<p>On Page 3 of the IP SERVICES form, disable the Reliable Session Protocol (RSP) for the CDR link by setting the <b>Reliable Protocol</b> field to <b>n</b>.</p> <pre>change ip-services</pre> <p style="text-align: right;">Page 3 of 4</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="7" style="text-align: center;">SESSION LAYER TIMERS</th> </tr> <tr> <th style="text-align: center;">Service Type</th> <th style="text-align: center;">Reliable Protocol</th> <th style="text-align: center;">Packet Resp Timer</th> <th style="text-align: center;">Session Connect Message Cntr</th> <th style="text-align: center;">SPDU Cntr</th> <th style="text-align: center;">Connectivity Timer</th> <th></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">CDR1</td> <td style="text-align: center; border: 1px solid red;">n</td> <td style="text-align: center;">30</td> <td style="text-align: center;">3</td> <td style="text-align: center;">3</td> <td style="text-align: center;">60</td> <td></td> </tr> </tbody> </table>	SESSION LAYER TIMERS							Service Type	Reliable Protocol	Packet Resp Timer	Session Connect Message Cntr	SPDU Cntr	Connectivity Timer		CDR1	n	30	3	3	60	
SESSION LAYER TIMERS																						
Service Type	Reliable Protocol	Packet Resp Timer	Session Connect Message Cntr	SPDU Cntr	Connectivity Timer																	
CDR1	n	30	3	3	60																	
3.	<p>Enter the <b>change system-parameters cdr</b> 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"> <li>• <b>CDR Date Format: month/day</b></li> <li>• <b>Primary Output Format: customized</b></li> <li>• <b>Primary Output Endpoint: CDR1</b></li> </ul> <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"> <li>• <b>Use Legacy CDR Formats? n</b> [Specify the use of the new Communication Manager 4.0.1 and later formats in the CDR records produced by the system.]</li> <li>• <b>Remove # From Called Number? y</b> [The system will remove the pound sign (#) from the Dialed Number field of the call detail record.]</li> <li>• <b>Intra-switch CDR: y</b> [Allows call records for internal calls involving specific stations. Those stations must be specified in the INTRA-SWITCH-CDR form.]</li> <li>• <b>Record Outgoing Calls Only? n</b> [Allows incoming trunk calls to appear in the CDR records along with the outgoing trunk calls.]</li> <li>• <b>Outg Trk Call Splitting? y</b> [Allows a separate call record for any portion of an outgoing call that is transferred or conferenced.]</li> <li>• <b>Inc Trk Call Splitting? y</b> [Allows a separate call record for any portion of an incoming call that is transferred or conferenced.]</li> </ul>																					

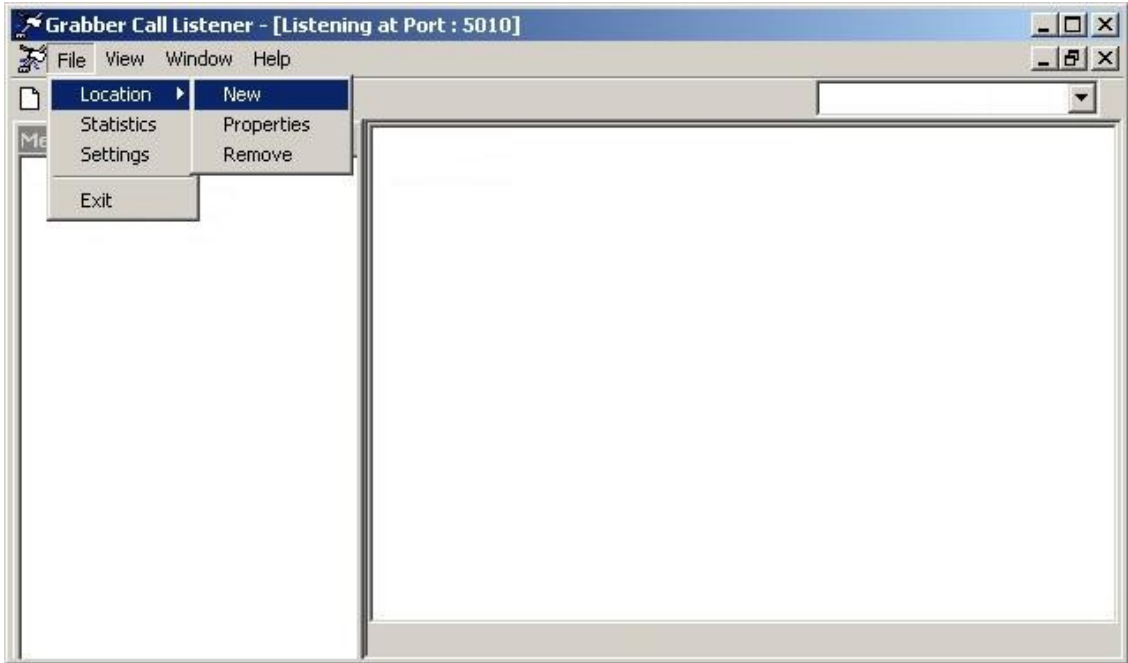
Step	Description
	<p>change system-parameters cdr <span style="float: right;">Page 1 of 2</span>  CDR SYSTEM PARAMETERS</p> <p>Node Number (Local PBX ID): 1 <span style="float: right;"><b>CDR Date Format: month/day</b></span>  <b>Primary Output Format: customized</b> <span style="float: right;"><b>Primary Output Endpoint: CDR1</b></span></p> <p>Secondary Output Format:  Use ISDN Layouts? n <span style="float: right;">Enable CDR Storage on Disk? y</span>  Use Enhanced Formats? n <span style="float: right;">Condition Code 'T' For Redirected Calls? n</span>  <b>Use Legacy CDR Formats? n</b> <span style="float: right;"><b>Remove # From Called Number? y</b></span></p> <p>Modified Circuit ID Display? n <span style="float: right;">Intra-switch CDR? y</span>  <b>Record Outgoing Calls Only? n</b> <span style="float: right;"><b>Outg Trk Call Splitting? y</b></span></p> <p>Suppress CDR for Ineffective Call Attempts? y <span style="float: right;">Outg Attd Call Record? y</span>  Disconnect Information in Place of FRL? n <span style="float: right;">Interworking Feat-flag? n</span>  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  Record Agent ID on Incoming? n <span style="float: right;">Record Agent ID on Outgoing? y</span>  <b>Inc Trk Call Splitting? y</b> <span style="float: right;">Inc Attd Call Record? n</span></p> <p>Record Non-Call-Assoc TSC? n <span style="float: right;">Call Record Handling Option: warning</span>  Record Call-Assoc TSC? n <span style="float: right;">Digits to Record for Outgoing Calls: outpulsed</span>  Privacy - Digits to Hide: 0 <span style="float: right;"><b>CDR Account Code Length: 7</b></span></p> <p>change system-parameters cdr <span style="float: right;">Page 1 of 2</span>  CDR SYSTEM PARAMETERS</p> <p>Node Number (Local PBX ID): 1 <span style="float: right;"><b>CDR Date Format: month/day</b></span>  <b>Primary Output Format: customized</b> <span style="float: right;"><b>Primary Output Endpoint: CDR1</b></span></p> <p>Secondary Output Format:  Use ISDN Layouts? n <span style="float: right;">Enable CDR Storage on Disk? n</span>  Use Enhanced Formats? n <span style="float: right;">Condition Code 'T' For Redirected Calls? n</span>  <b>Use Legacy CDR Formats? n</b> <span style="float: right;">Remove # From Called Number? n</span></p> <p>Modified Circuit ID Display? y <span style="float: right;">Intra-switch CDR? y</span>  <b>Record Outgoing Calls Only? n</b> <span style="float: right;"><b>Outg Trk Call Splitting? y</b></span></p> <p>Suppress CDR for Ineffective Call Attempts? y <span style="float: right;">Outg Attd Call Record? y</span>  Disconnect Information in Place of FRL? n <span style="float: right;">Interworking Feat-flag? n</span>  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  Record Agent ID on Incoming? n <span style="float: right;">Record Agent ID on Outgoing? y</span>  <b>Inc Trk Call Splitting? y</b> <span style="float: right;">Inc Attd Call Record? n</span></p> <p>Record Non-Call-Assoc TSC? n <span style="float: right;">Call Record Handling Option: warning</span>  Record Call-Assoc TSC? n <span style="float: right;">Digits to Record for Outgoing Calls: dialed</span>  Privacy - Digits to Hide: 0 <span style="float: right;">CDR Account Code Length: 5</span></p>
	<p>On Page 2 of the CDR SYSTEM PARAMETERS form, define the customized CDR format as shown.</p>

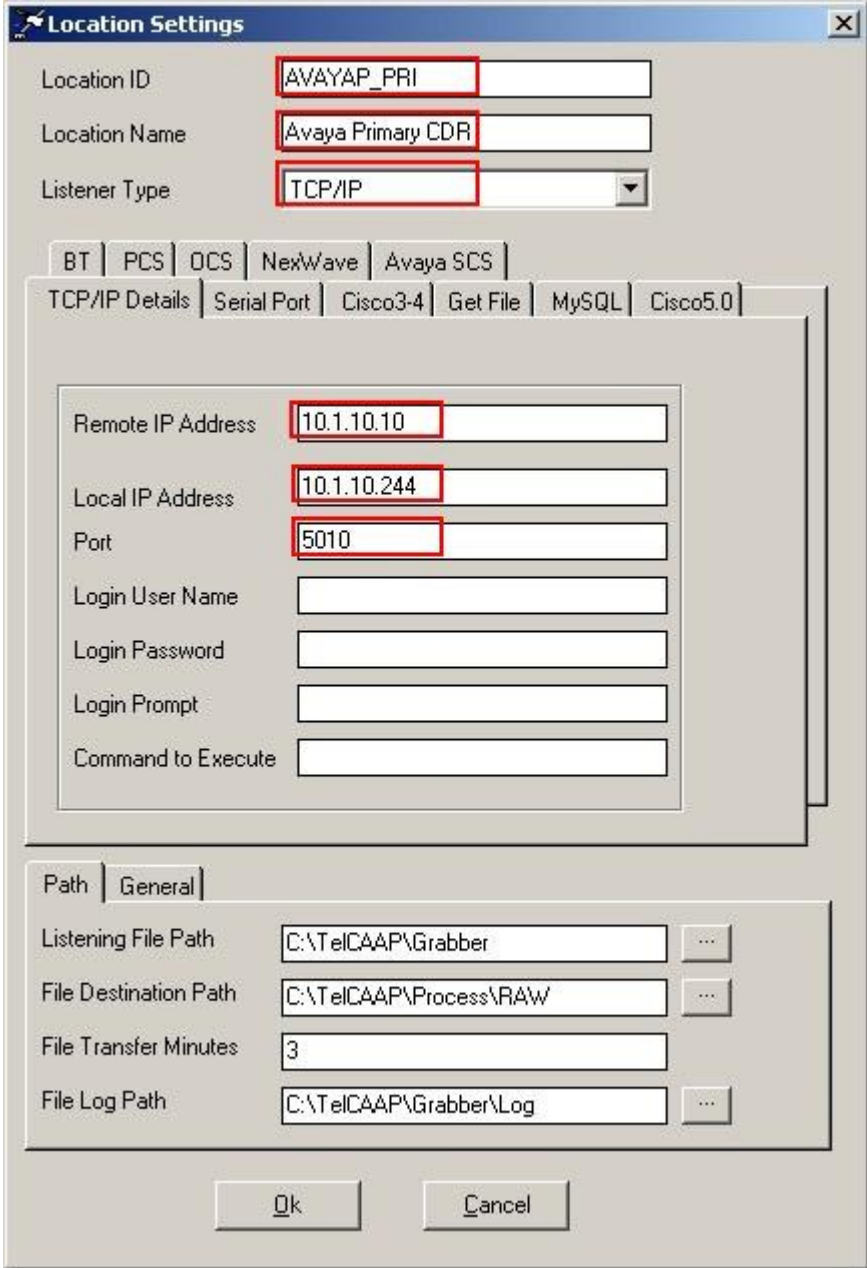
Step	Description
	<pre> change system-parameters cdr                                 Page 2 of 2                                 CDR SYSTEM PARAMETERS  Data Item - Length           Data Item - Length           Data Item - Length 1: date - 6                   17: calling-num - 15         33: - 2: space - 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 <b>Intra-switch CDR</b> field is set to <b>y</b> on Page 1 of the CDR SYSTEM PARAMETERS form, then use the <b>change intra-switch-cdr</b> command to define the extensions that will be subjected to call detail records. In the <b>Extension</b> 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 <b>change trunk-group n</b> command, where <b>n</b> is the trunk group number, to verify that the <b>CDR Reports</b> field is set to <b>y</b>. This applies to all types of trunk groups.</p>
	<pre> change trunk-group 1                                 Page 1 of 21                                 TRUNK GROUP  Group Number: 1                Group Type: isdn             CDR Reports: y Group Name: PSTN - BRI          COR: 95                      TN: 1          TAC: #01 Direction: two-way             Outgoing Display? n          Carrier Medium: PRI/BRI Dial Access? y                 Busy Threshold: 255          Night Service: Queue Length: 0 Service Type: public-ntwrk      Auth Code? n                 TestCall ITC: rest Far End Test Line No: TestCall BCC: 4 </pre>



## 6. Configure Eastcom Systems TelCAAP

This section describes the configuration of Eastcom TelCAAP.

Step	Description
1.	<p>From the Eastcom TelCAAP server, click <b>Start &gt; Run</b> and launch the TelCAAP Grabber application <b>Grabber.exe</b> located in the folder <b>C:\TelCAAP\Grabber\</b> (<b>not shown</b>). Select <b>File &gt; Location &gt; New</b> to define the settings for a new Communication Manager system.</p>  <p>The screenshot shows the 'Grabber Call Listener' application window. The title bar reads 'Grabber Call Listener - [Listening at Port : 5010]'. The menu bar includes 'File', 'View', 'Window', and 'Help'. The 'File' menu is open, showing options: 'Location', 'Statistics', 'Settings', and 'Exit'. The 'Location' menu is further open, showing 'New', 'Properties', and 'Remove'.</p>

Step	Description
2.	<p>From the Location Settings window, specify a descriptive value for <b>Location ID</b> and <b>Location Name</b> and select <b>TCP/IP</b> for <b>Listener Type</b>. In the <b>TCP/IP Details</b> tab, set <b>Remote IP Address</b> to the IP address of the Avaya S8800 or S8300D Server, set <b>Local IP Address</b> to the IP address of the TelCAAP server and set <b>Port</b> to correspond to the <b>Remote Port</b> field configured in <b>Section 5 Step 2</b>. Click <b>Ok</b>.</p> 
3.	<p>Repeat <b>Steps 1</b> and <b>2</b> to add a new location for the second Communication Manager system. This completes the configuration of Eastcom TelCAAP.</p>

## 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 Avaya S8800 and S8300D Servers.
- On the SAT of each Avaya S8800 and S8300D 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: 2011/10/10 17:21:33                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 and verify that they match.

**AVAYA**  
SCIENCE PARK DRIVE  
Detail Report for the period 14-OCT-2011 to 14-OCT-2011

Date	Time	Extn From	Called Number	Area / Country	Duration (HH:MM:SS)	Charges
Company : UNASSIGNED						
Division : UNASSIGNED						
Department : UNASSIGNED						
Extn # : 10001 User Name :						
Intercom						
14/10/2011	14:49		68728643		00:00:54	0.000
<b>Sub Total:Intercom</b>					<b>00:00:54</b>	<b>0.000</b>
<b>Sub Total for Extn # : 10001 User Name :</b>					<b>00:00:54</b>	<b>0.000</b>

- 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.

## 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. 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] *Administering Avaya Aura® Communication Manager*, Release 6.0, June 2010, Document Number 03-300509, Issue 6.0.
- [2] *Avaya Aura® Communication Manager Feature Description and Implementation*, Release 6.0, June 2010, Document Number 555-245-205, Issue 8.0.

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