Avaya Solution & Interoperability Test Lab

Application Notes for Eastcom Systems Telephone Call Accounting & Audit Package Version 8.21 with Avaya Aura® Communication Manager R6.3 - 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.

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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 R6.3. 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 S8800 Servers
- Avaya S8300D Server

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. CDR links with and without reliable protocol were tested.

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
- Web: http://www.eastcom-systems.com/support.html

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3. Reference Configuration

Figure 1 illustrates the network configuration used to verify the Eastcom TelCAAP solution. Site A is comprised of a pair of duplex Avaya S8800 Servers and Avaya G650 Media Gateway, and has connections to the following: Avaya 96x1 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 Series IP Telephone and 1400 Series Digital Telephone. 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.

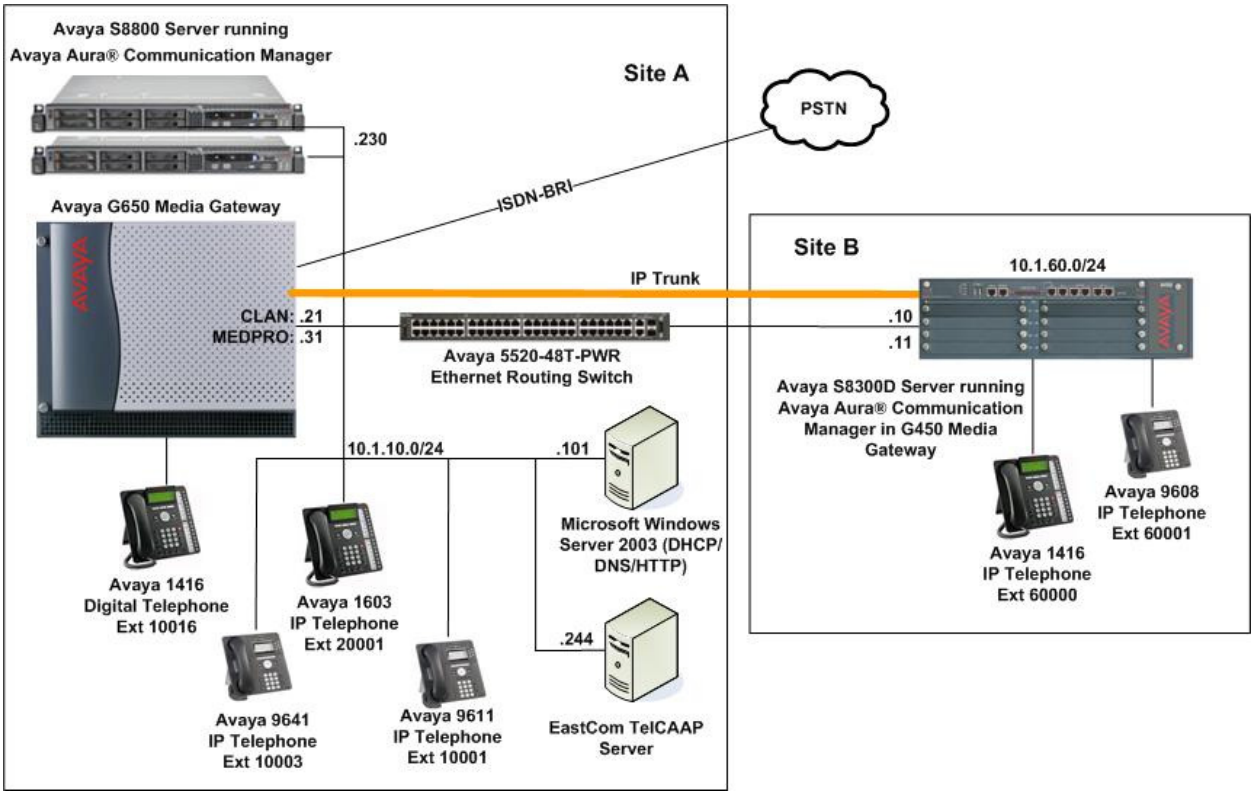

Figure 1: Test configuration for Eastcom TelCAAP Solution

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4. Equipment and Software Validated

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

Equipment	Software
Avaya S8800 Server Duplex Server	Avaya Aura® Communication Manager 6.3 SP1
Avaya G650 Media Gateway • TN2312BP IP Server Interface • TN799DP C-LAN Interface • TN2302AP IP Media Processor • TN2602AP IP Media Processor • TN2214CP Digital Line	- HW07, FW057 HW01, FW040 HW20, FW121 HW02, FW063 HW08, FW015
Avaya S8300D Server	Avaya Aura® Communication Manager 6.3 SP1
Avaya G450 Media Gateway	33.13.0
Avaya 9600 Series IP Telephones • 9641 • 9611 • 9608	 6.3 (H.323) 6.3 (H.323) 6.3 (H.323)
Avaya 1600 Series IP Telephones - 1616	 1.34 (H.323)
Avaya 1416 Digital Telephone	R4 SP2
Avaya 4548GT-PWR Ethernet Routing Switch	V6.2.4.010
Eastcom TelCAAP	8.21

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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.	Use the **change node-names ip** command to add a new node name for the Eastcom TelCAAP server.
	`change node-names ip` Page 1 of 1 IP NODE NAMES Name IP Address default 0.0.0.0 procr 10.1.10.10 **TelCAAP 10.1.10.244**
2.	Use the **change ip-services** command to define the CDR link. To define a primary CDR link, the following information should be provided: • **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 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]
	`change ip-services` Page 1 of 4 IP SERVICES Service Type / Enabled / Local Node / Local Port / Remote Node / Remote Port **CDR1 procr 0 TelCAAP 5010**

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Step	Description
	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.

	`change ip-services` `Page 3 of 4`
	
	`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.	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. • **CDR Date Format**: **month/day** • **Primary Output Format**: **customized** • **Primary Output Endpoint**: **CDR1** 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. • **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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Step	Description

```
change system-parameters cdr                                    Page   1 of   2
                            CDR SYSTEM PARAMETERS

 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? y
       Use Enhanced Formats? n      Condition Code 'T' For Redirected Calls? n
      Use Legacy CDR Formats? n                  Remove # From Called Number? y
Modified Circuit ID Display? n                               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: outpulsed
   Privacy - Digits to Hide: 0             CDR Account Code Length: 7
Remove '+' from SIP Numbers? y
```

On Page 2 of the CDR SYSTEM PARAMETERS form, define the customized CDR format as shown.

```
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
```

4. 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.

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Step	Description
	change intra-switch-cdr Page 1 of 3 INTRA-SWITCH CDR Assigned Members: 4 of 5000 administered Extension Extension Extension Extension 10001 10003 10016 20001
5.	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.
	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

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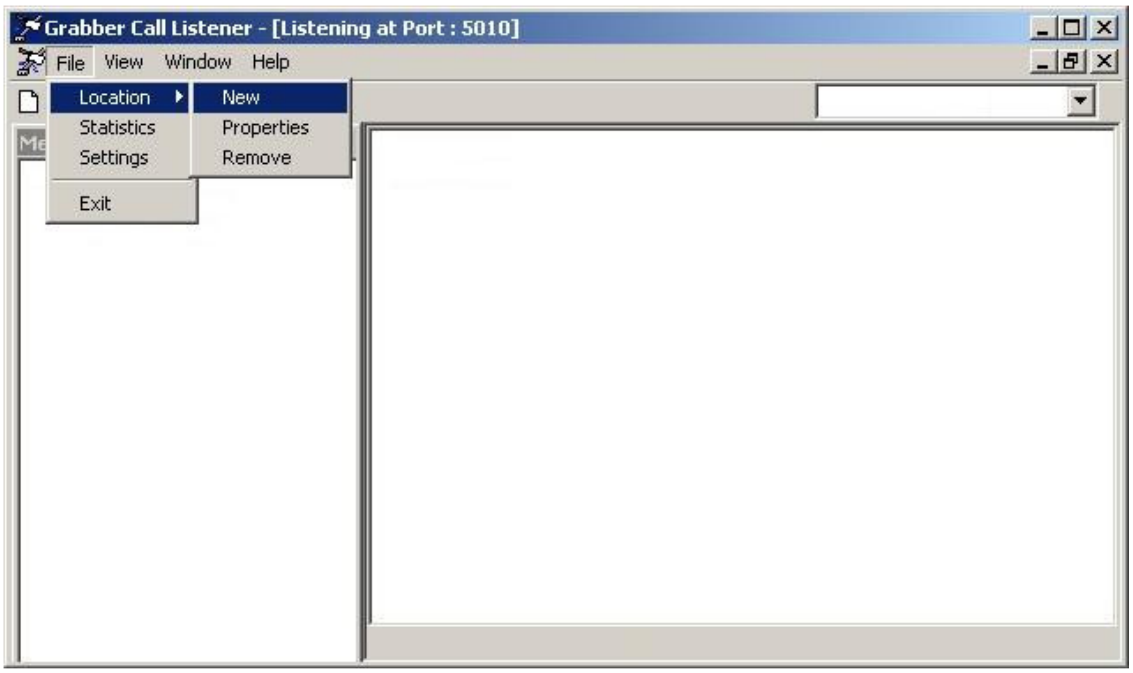
6. Configure Eastcom Systems TelCAAP

This section describes the configuration of Eastcom TelCAAP.

Step	Description
1.	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. 

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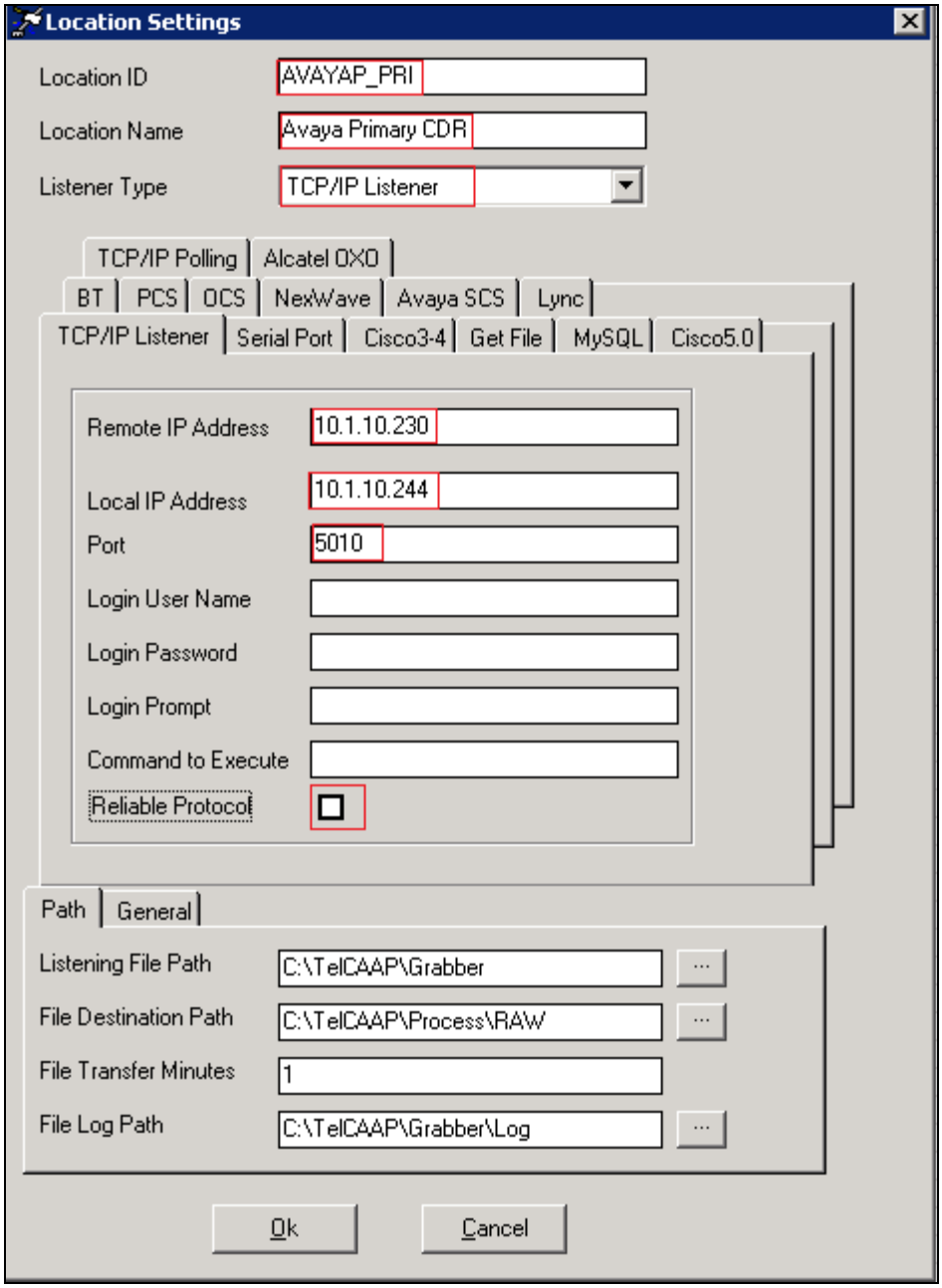
Step	Description
2.	From the Location Settings window, specify a descriptive value for **Location ID** and **Location Name** and select **TCP/IP** for **Listener Type**. In the **TCP/IP Details** tab, set **Remote IP Address** to the IP address of the Avaya S8800 or S8300D Server, set **Local IP Address** 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** below has to be ticked. Click **Ok**.



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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 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: 2013/10/09 16:00:10         0000/00/00 00:00:00
  Forward Seq. No: 6                           0
 Backward Seq. No: 0                           0
CDR Buffer % Full:   0.00                        0.00
      Reason Code: OK
```


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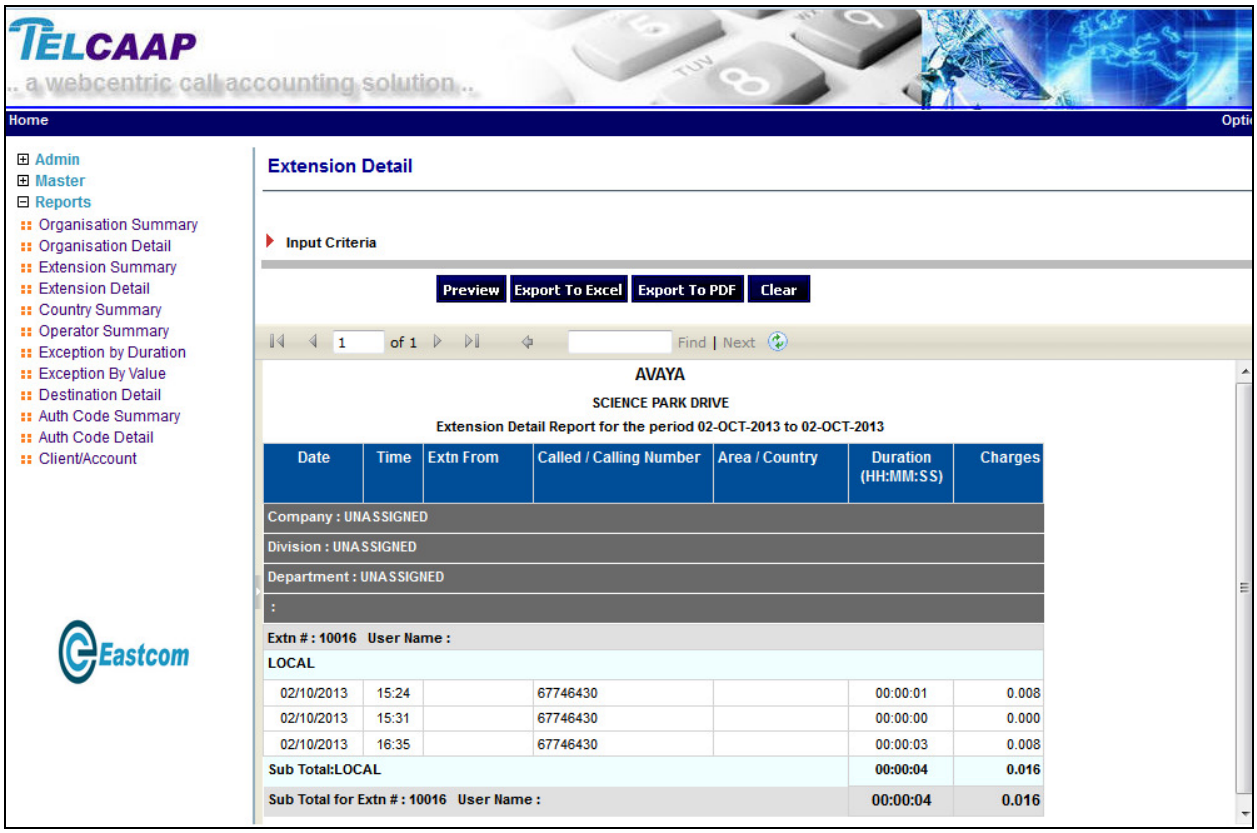
- Place an outgoing PSTN trunk call and verify that Eastcom TelCAAP receives the CDR record for the call. Login to Eastcom TelCAAP using a browser (shown below) and compare the values of data fields in the CDR record with the expected values and verify that they match.



- 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.

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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 6.3, May 2013, Document Number 03-300509, Issue 8.0.
[2] *Avaya Aura® Communication Manager Feature Description and Implementation,* Release 6.3, May 2013, Document Number 555-245-205, Issue 10.0.

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