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Avaya Solution & Interoperability Test Lab

Application Notes for Calero VeraSMART eCAS with Avaya Aura® Communication Manager – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for the Calero VeraSMART eCAS call accounting software to successfully interoperate with Avaya Aura® Communication Manager.

Calero VeraSMART eCAS is a call accounting software that interoperates with Avaya Aura® Communication Manager over the Avaya Reliable Session Protocol (RSP). Call records can be generated for various types of calls. Calero VeraSMART eCAS collects, and processes the call records.

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.

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1. Introduction

The overall objective of this interoperability compliance testing is to verify that the Calero VeraSMART eCAS call accounting software can interoperate with Avaya Aura® Communication Manager 7.0. Calero VeraSMART eCAS connects to Avaya Aura® Communication Manager over the local or wide area network using a CDR link running on Reliable Session Protocol. Avaya Aura® Communication Manager is configured to send CDR records to Calero VeraSMART eCAS using a specific port.

VeraSMART eCAS Call Accounting provides traditional call collection, rating, and reporting for any size businesses. VeraSMART eCAS Call Accounting can interface with most telephone systems - in particular, with Avaya Aura® Communication Manager - to collect and interpret the detailed records of inbound, outbound, tandem, and internal telephone calls. VeraSMART eCAS Call Accounting then calculates the appropriate charge for local, long distance, international & special calls and allocates them to responsible parties.

During the compliance test, SIP endpoints were included. SIP endpoints registered with Avaya Aura® Session Manager. An assumption is made that Avaya Aura® Session Manager and Avaya Aura® System Manager are already installed and basic configuration have been performed. Only steps relevant to this compliance test will be described in this document.

2. General Test Approach and Test Results

The general test approach was to manually place intra-switch calls, inbound trunk and outbound trunk calls, transfer, conference, and verify that Calero VeraSMART eCAS collects the CDR records, and properly classifies and reports the attributes of the call.

For serviceability testing, physical and logical links were disabled/re-enabled, Avaya Servers were reset and VeraSMART eCAS was restarted.

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly-defined test plan focuses on exercising APIs and/or standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute full product performance or feature testing performed by DevConnect members, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a DevConnect member's solution.

2.1. Interoperability Compliance Testing

The interoperability compliance testing included features and serviceability tests. The focus of the compliance testing was primarily on verifying the interoperability between Calero VeraSMART eCAS and Communication Manager.

2.2. Test Results

All executed test cases passed, except noted below. Calero VeraSMART eCAS successfully collected the CDR records from Communication Manager via a RSP connection for all types of calls generated including intra-switch calls, inbound/outbound PSTN trunk calls, inbound/outbound private IP trunk calls, transferred calls, and conference calls. The following issues were observed.

- For tandem calls VeraSMART reports the ANI number in the "Special Code" field.
- Timing of call record in VeraSMART's report is behind 1 minute than the actual timing of call record is issued by Avaya Aura® Communication Manager.
- VeraSMART collects but discard call records with condition code E and F.
- Call records for SIP endpoint usually generates extra record and incorrect call record in some cases because SIP endpoint registers directly to Avaya Aura® Session Manager it seizes a SIP trunk as making or receiving outgoing/incoming call, in order to correct this issue the "off-pbx-telephone configuration-set" is configured for SIP endpoint needs to be administered and shown in **Section 5.5**.

2.3. Support

Technical support for Calero VeraSMART eCAS can be obtained through the following:
- Phone: (866)-769-5992
- Email: tech.support@calero.com
- Website: http://www.calero.com/clm/call-accounting-and-reporting/

3. Reference Configuration

Figure 1 illustrates a sample configuration consisting of an Avaya Aura® System Manager, Avaya Aura® Session Manager, Avaya Aura® Communication Manager, and Avaya Aura® Media Server running on Virtualized Environment, Avaya G450 Media Gateway that has PRI/T1 trunk to PSTN, and Calero VeraSMART eCAS server on the Site 1. Avaya IP Office Server Edition running on Virtualized Environment on the Site 2, Session Manager terminates SIP trunks from both sides.
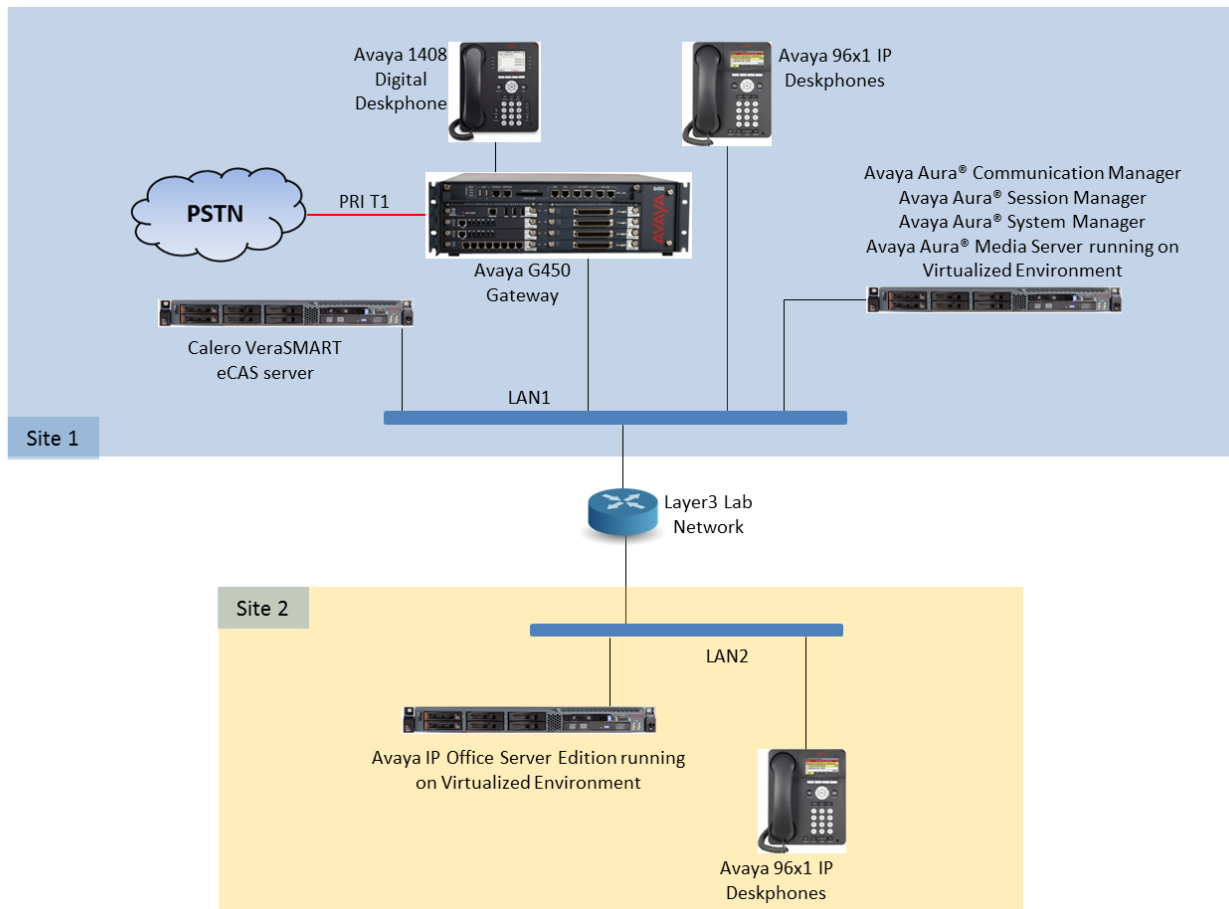

Figure 1: Test Configuration Diagram

4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya Aura® Communication Manager running on Virtualized Environment	7.0.1.1.1-FP1SP1 R017x.00.0.441.0
Avaya Aura® System Manager running on Virtualized Environment	7.0.1.1.065378
Avaya Aura® Session Manager running on Virtualized Environment	7.0.1.1.701114
Avaya Aura® Media Server running on Virtualized Environment	7.7.0.395
Avaya G450 Media Gateway	37.39.0
Avaya 96x1 IP Telephones	H323 6.6.29 SIP 7.0.1.2
Avaya 1408 Digital Telephone	R47
Calero VeraSMART eCAS running on Windows Server 2012	11.1 SP3

5. Configure Avaya Aura® Communication Manager

This section describes the procedure for configuring call detail recording (CDR) in Communication Manager. These steps are performed through the System Access Terminal (SAT). Communication Manager will be configured to generate CDR records using RSP over TCP/IP to the IP address of the server running Calero VeraSMART eCAS.

5.1. Configure Node-Names IP

Use the **change node-names ip** command to create a new node name, for example, **VeraSMART**. This node name is associated with the IP Address of the server running the VeraSMART eCAS application. Also, take note of the node name – "procr". It will be used in the next step. The "procr" entry on this form was previously administered

```
change node-names ip                                            Page   1 of   2
                              IP NODE NAMES
    Name              IP Address
AMS1              10.33.1.30
CMS18             10.33.1.20
RDTT              10.10.98.86
VeraSMART         10.10.97.26
default           0.0.0.0
lsp               10.33.1.17
procr             10.33.1.6
procr6            ::
```

5.2. Configure IP Services

Use the **change ip-services** command to define the CDR link to use the RSP over TCP/IP.
To define a primary CDR link, provide the following information:

- **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**: **VeraSMART -** The Remote Node is set to the node name previously defined.
- **Remote Port**: **9000 -** The Remote Port may be set to a value between 5000 and 64500 inclusive, and must match the port configured in theVeraSMART eCAS.

```
change ip-services                                           Page   1 of   4

                              IP SERVICES
 Service      Enabled     Local        Local        Remote        Remote
  Type                    Node         Port         Node          Port
AESVCS        y       procr            8765
CDR1                  procr            0         VeraSMART        9000
CDR2                  procr            0         RDTT             9001
```

On **Page 3** of the ip-services form, enable the Reliable Session Protocol for the CDR link by setting the **Reliable Protocol field** to "y"

```
change ip-services                                           Page   3 of   4

                          SESSION LAYER TIMERS
 Service      Reliable  Packet Resp   Session Connect  SPDU  Connectivity
  Type        Protocol    Timer        Message Cntr    Cntr     Timer

 CDR1            y         30               3            3        60
 CDR2            y         30               3            3        60
```

5.3. Configure System Parameters CDR

Enter the **change system-parameters cdr** command from the SAT to set the parameters for the type of calls to track and the format of the CDR data. The example below shows the settings used during the compliance test. Provide the following information:

- **CDR Date Format**: "month/day"
- **Primary Output Format**: "unformatted"
- **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 to **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?**: "y" **-** Allows CDR formats to use 4.x CDR formats. If the field is set to "y", then CDR formats utilize the 3.x CDR formats.
- **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.
- **Call Account Code Length**: "5" **-** The length may be set to a value between 1 and 15. However, during the compliance test, "5" was used.

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

 Node Number (Local PBX ID):                      CDR Date Format: month/day
        Primary Output Format: unformatted   Primary Output Endpoint: CDR1
      Secondary Output Format: unformatted Secondary Output Endpoint: CDR2
            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? y                   Remove # From Called Number? n
 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? y       Interworking Feat-flag? n
 Force Entry of Acct Code for Calls Marked on Toll Analysis Form? n
                                      Calls to Hunt Group - Record: member-ext
 Record Called Vector Directory Number Instead of Group or Member? y
 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
 Remove '+' from SIP Numbers? y
```

5.4. Configure Intra-Switch CDR

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 subject to call detail records. In the Assigned Members field, enter the specific extensions whose usage will be tracked.

```
change intra-switch-cdr                                        Page   1 of   3
                            INTRA-SWITCH CDR

                               Assigned Members:   15   of 5000    administered
   Extension          Extension          Extension          Extension
   3301
   3302
   3303
   3402
   3403
Use 'list intra-switch-cdr' to see all members, 'add intra-switch-cdr' to add
new members and 'change intra-switch-cdr <ext>' to change/remove other members
```

5.5. Configure Off-PBX-Telephone Configuration Set

SIP endpoints and off-pbx-telephone stations will be automatically created in Communication manager when SIP endpoints were created in Session Manager. However, the off-pbx-telephone configuration-set form needs to be modified in order to call records of SIP endpoint are generated correctly. Enter **change off-pbx-telephone configuration-set** and set **CDR or Origination** to "none" and disable the **CDR for Calls to EC500 Destination?** to "n".

```
change off-pbx-telephone configuration-set 1                   Page   1 of   1

                            CONFIGURATION SET: 1

                       Configuration Set Description:
                              Calling Number Style: network
                              CDR for Origination: none
                   CDR for Calls to EC500 Destination? n
                       Fast Connect on Origination? n
                       Post Connect Dialing Options: dtmf
                       Cellular Voice Mail Detection: timed  (seconds): 4
                                    Barge-in Tone? n
                           Calling Number Verification? y
              Call Appearance Selection for Origination: primary-first
                                 Confirmed Answer? n


 Use Shared Voice Connections for Second Call Answered? n
Use Shared Voice Connections for Second Call Initiated? n
            Provide Forced Local Ringback for EC500? n
                     Apply Ringback upon Receipt of: Call-Proceeding

             Location to Route Incoming Overlap Calls: station-location-if-set
```

5.6. Enable CDR in Trunk Group

Enter the command **change trunk-group <id>** which the <id> is the trunk number that needs to be modified. Set **CDR Reports** field to "y" to enable call record for calls going in and out from this trunk group. Note that this field is set to "y" by default.

```
change trunk-group 1                                             Page   1 of  21
                              TRUNK GROUP

Group Number: 1                       Group Type: sip          CDR Reports: y
  Group Name: For-Private                    COR: 1       TN: 1        TAC: #01
   Direction: two-way         Outgoing Display? n
 Dial Access? n                                      Night Service:
Queue Length: 0
Service Type: tie                      Auth Code? n
                                               Member Assignment Method: auto
                                                        Signaling Group: 1
                                                      Number of Members: 14
```

6. Configure Calero VeraSMART eCAS

This section describes the configuration of Calero VeraSMART eCAS to receive CDR data from Communication Manager. To configure VeraSMART eCAS, launch a web browser, enter http://<ipaddress of VeraSMART>/VeraSMART/Login.aspx as URL, and log in with the appropriate credentials.

From the Main menu, navigate to **Call Accounting → Call Collection → CDR Source** link.
Click **Add**.

In the CDR Source Wizard window, provide the Time Zone of the CDR source and click on the
Next tab.

In the CDR Source Wizard window, provide needed information for **CDR Source name**, **Area Code**, **Local exchange** and keep other values at default and click **Next** button.

Select **Avaya** in the **Manufacturer** dropdown menu and click **Next**.

In the Select the call record format page, select the format number **175** and click **Next**.

In the **Select the call collection method** page, select the **Realtime RSP** method.
Click on the **next** link.

In the **Switch IP address** – Enter the IP address of Communication Manager's **Procr** IP address.

VeraSMART is trying to establish connection to Communication Manager and retrieving call records.

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If VeraSMART is able to connect successfully to Communication and the call records will be retrieved and shown up. Click **Next** to go to next step.

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Click **Finish** button to complete the configuration for Communication Manager.

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7. Verification Steps

The following steps may be used to verify the configuration:

- Check the CDR status, by running the **status cdr-link** command in Communication Manager. The status should be **up** for the primary CDR.

```
status cdr-link
                              CDR LINK STATUS
                  Primary                         Secondary

      Link State: up                              up

     Date & Time: 2016/11/11 10:38:03             2016/11/11 10:38:03
 Forward Seq. No: 11                              11
Backward Seq. No: 0                               0
CDR Buffer % Full:   0.00                           0.00
     Reason Code: OK                              OK
```

- Make several different types of calls such as between local stations, outgoing call via SIP trunk, and incoming call via PSTN and verify that call records were collected from Calero VeraSMART eCAS and shown up in the report and shown up in the report.

Welcome, admin (Change Password | Preferences | Logout)   Avaya VeraSMART Call Accounting

Call Accounting | Organization | Administration

Extensions Call Detail Call Collection Call Rating Tools Reports Help

View Call Records

⊙ Search

Personnel:		Extension Used:		Dialed/CLI number:	
Inventory ID:		Call direction:	All		
Start date:	Yesterday	From	11/10/2016 12:00:00 AM	To 11/10/2016 11:59:59 PM

Search

Displaying 1 to 25 of 32   Page 1 of 2   Items per page: 25

Start date	Duration	Extension Used	Dialed/CLI number	Call destination	Call direction	Call type	Trunk	Tandem Trunk	Cost	Special Code	Account Code	Authorization Code
11/10/2016 10:57:00 AM	00:00:00	3302	3402		INTERNAL	Internal			$0.00			
11/10/2016 1:53:54 PM	00:00:06	3403	4321		INCOMING	Incoming	#01001		$0.00			
11/10/2016 1:53:54 PM	00:00:06	3402	4321		INCOMING	Incoming	#01001		$0.00			
11/10/2016 2:10:48 PM	00:00:12	3302	4321		INCOMING	Incoming	#01001		$0.00			
11/10/2016 2:10:54 PM	00:00:06	3301	4300		INCOMING	Incoming	#01001		$0.00			
11/10/2016 2:11:48 PM	00:00:12	3302	614-967-4300	OH	INCOMING	Incoming	#04001		$0.00			
11/10/2016 2:11:54 PM	00:00:06	3303	4602		OUTGOING	Unknown	#01002		$0.00			
11/10/2016 2:12:30 PM	00:07:30	3301	614-967-4321	OH	OUTGOING	National	#04002		$0.38			1111
11/10/2016 2:12:48 PM	00:00:12	3302	4689		INCOMING	Incoming	#01001		$0.00			
11/10/2016 2:19:48 PM	00:00:12	3301	423-468-4602	CHATTNOOGA, TN	OUTGOING	National	#03002		$0.01		12345	
11/10/2016 2:20:30 PM	00:00:30	3301	4602		INCOMING	Incoming	#01001		$0.00			
11/10/2016 2:20:42 PM	00:00:18	3302	4602		INCOMING	Incoming	#01001		$0.00			
11/10/2016 2:26:54 PM	00:00:06	3301	4321		OUTGOING	Unknown	#01003		$0.00			
11/10/2016 2:31:48 PM	00:00:12	3301	4602		OUTGOING	Unknown	#01004		$0.00			
11/10/2016 2:32:54 PM	00:00:06	3301	3303		INTERNAL	Internal			$0.00			
11/10/2016 2:33:30 PM	00:00:30	3301	4300		INCOMING	Incoming	#01001		$0.00			
11/10/2016 2:34:54 PM	00:00:06	3301	4300		INCOMING	Incoming	#01001		$0.00			
11/10/2016 2:40:54 PM	00:00:06	3301	4300		INCOMING	Incoming	#01001		$0.00			

8. Conclusion

These Application Notes describe the procedures for configuring Calero VeraSMART eCAS call accounting with Avaya Aura® Communication Manager. Testing was successful with some observations noted in Test Result section; refer to **Section 2.2** for details.

9. Additional References

This section references the Avaya and Veramark documentation that are relevant to these Application Notes.

[1] *Administering Avaya Aura® Communication Manager*, Document 03-300509, Issue 7.0, Release 7.0, July 2016, available at http://support.avaya.com.

[2] *Avaya Aura® Communication Manager Feature Description and Implementation*, Document 555-245-205, Issue 9.0, Release 7.0, July 2016

The VeraSMART Solution and Product information is available from Veramark. Visit http://www.veramark.com/Call-Accounting/eCAS/