



Avaya Solution & Interoperability Test Lab

Application Notes for Calero VeraSMART eCAS Call Accounting 12.3 with Avaya Aura® Communication Manager 8.0 – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Calero VeraSMART eCAS Call Accounting 12.3 to interoperate with Avaya Aura® Communication Manager 8.0. Calero VeraSMART eCAS Call Accounting is a call accounting and reporting application that uses the Call Detail Recording interface from Avaya Aura® Communication Manager to track phone calls and produce detailed reports.

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

These Application Notes describe the configuration steps required for Calero VeraSMART eCAS Call Accounting (VeraSMART) 12.3 to interoperate with Avaya Aura® Communication Manager 8.0. VeraSMART is a call accounting and reporting application that uses the Call Detail Recording (CDR) interface from Communication Manager to track phone calls and produce detailed reports.

VeraSMART supports the Reliable Session Protocol (RSP) collection method along with several CDR formats including custom. In the compliance testing, the unformatted legacy CDR format was used.

2. General Test Approach and Test Results

The feature test cases were performed manually. Different types of calls were made, along with different actions initiated from the user telephones to verify proper parsing and reporting of CDR records by VeraSMART.

The serviceability test cases were performed manually such as disconnecting/reconnecting the Ethernet connection to the VeraSMART server.

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.

Avaya recommends our customers implement Avaya solutions using appropriate security and encryption capabilities enabled by our products. The testing referenced in these DevConnect Application Notes included the enablement of supported encryption capabilities in the Avaya products. Readers should consult the appropriate Avaya product documentation for further information regarding security and encryption capabilities supported by those Avaya products.

Support for these security and encryption capabilities in any non-Avaya solution component is the responsibility of each individual vendor. Readers should consult the appropriate vendor-supplied product documentation for more information regarding those products.

2.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing focused on verifying the following on VeraSMART:

- Proper parsing of received CDR records.
- Proper reporting of CDR records for call scenarios involving inbound, outbound, internal, intra-switch, tandem, transfer, conference, park/unpark, hunt group, pickup, forward, abandon, account codes, authorization codes, and long duration.

The serviceability testing focused on verifying the ability of VeraSMART to recover from adverse conditions, such as disconnecting/reconnecting the Ethernet connection to VeraSMART.

2.2. Test Results

All test cases were executed, and the following were observations on VeraSMART:

- The “Disconnected by” report parameter did not always report the proper value for outgoing calls from SIP endpoints. As an example, when the outgoing call was to an internal destination, then “Disconnected by” reported “Destination” regardless of which internal party initiated the drop. This only affected the identification of which party initiated the call drop and not on the rest of the call reporting.
- Not all ineffective call attempts were reported by VeraSMART. As an example, when an unsuccessful outbound call was attempted with all trunks busy, a CDR record with condition code of “E” was received but not reported.

2.3. Support

Technical support on VeraSMART can be obtained through the following:

- **Phone:** +1 (866) 769-5992
- **Email:** tech.support@calero.com
- **Web :** <http://www.calero.com/clm/call-accounting-and-reporting/>

3. Reference Configuration

The configuration used for the compliance testing is shown in **Figure 1**. An Avaya IP Office Server Edition was used in the configuration for inter-switch and tandem call scenarios.

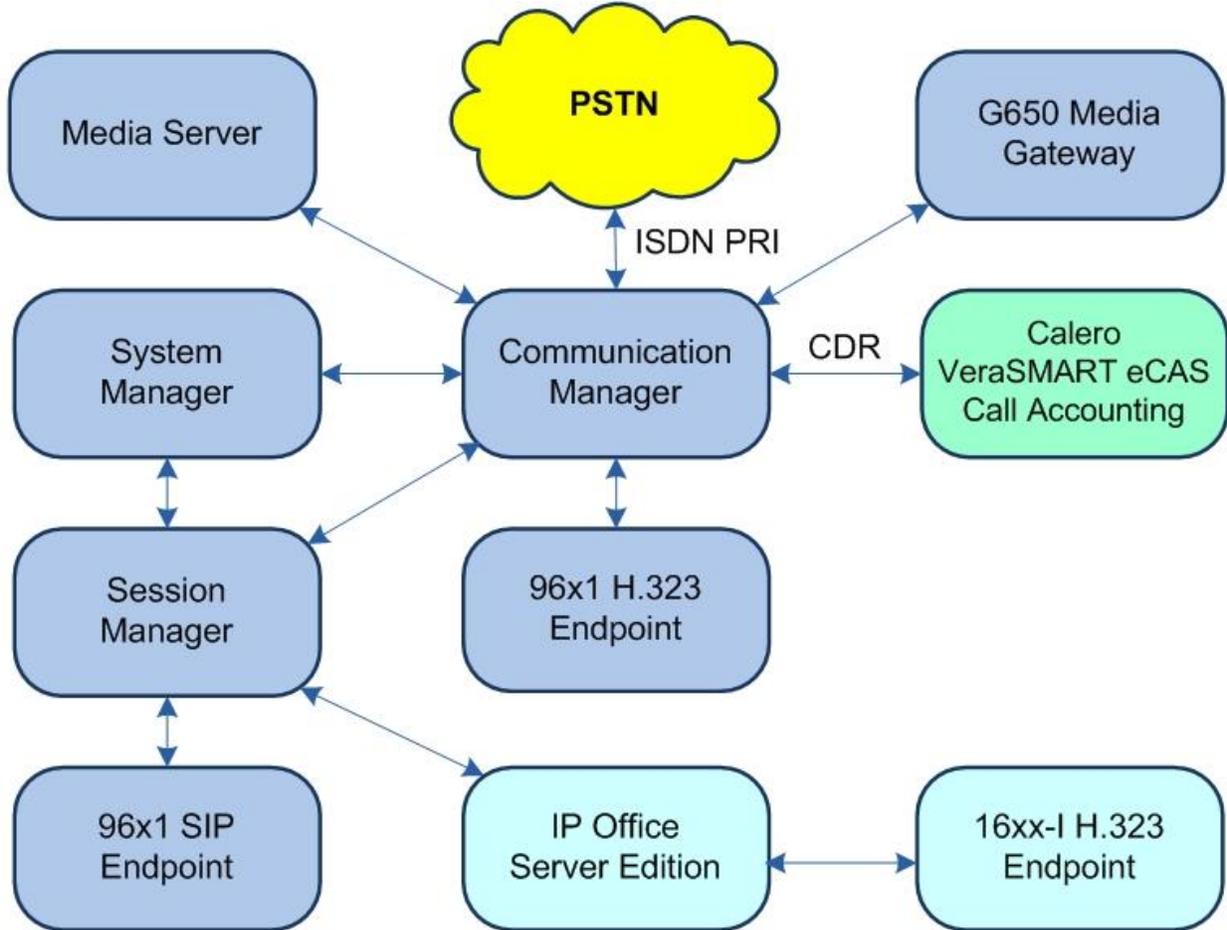


Figure 1: Compliance Testing Configuration

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 in Virtual Environment	8.0.1 (8.0.1.0.0.822.25031)
Avaya G650 Media Gateway	NA
Avaya Aura® Media Server in Virtual Environment	8.0.0.150
Avaya Aura® Session Manager in Virtual Environment	8.0 (8.0.0.0.80035)
Avaya Aura® System Manager in Virtual Environment	8.0 (8.0.0.0.098174)
Avaya 9611G & 9641G IP Deskphone (H.323)	6.6604
Avaya 9641G IP Deskphone (SIP)	7.1.3.0.11
Calero VeraSMART on Windows Server 2016	12.3 SP2 Standard

5. Configure Avaya Aura® Communication Manager

This section provides the procedures for configuring Communication Manager. The procedures include the following areas:

- Administer IP node names
- Administer IP services
- Administer system parameters CDR
- Administer trunk groups
- Administer intra-switch CDR

5.1. Administer IP Node Names

Log in to the System Access Terminal and use the “change node-names ip” command to add an entry for VeraSMART. In this case, “VeraSMART” and “10.64.101.206” are entered as **Name** and **IP Address**.

Make a note of the **Name** and **IP Address** associated with the processor or a CLAN that will be used for CDR connectivity with VeraSMART, in this case “procr” and “10.64.101.236”.

```
change node-names ip                                     Page 1 of 2
```

IP NODE NAMES	
Name	IP Address
G430	192.168.200.43
NJ-IP500V2	20.32.39.34
VM202	10.64.101.202
VeraSMART	10.64.101.206
aes7	10.64.101.239
annc	10.64.125.250
clan	10.64.125.32
default	0.0.0.0
gateway	10.64.125.1
medpro	10.64.125.33
ms7	10.64.101.233
procr	10.64.101.236
procr6	::
sm7-sig	10.64.101.238

5.2. Administer IP Services

Use the “change ip-services” command to add an entry for CDR connectivity to VeraSMART. Enter the following values for the specified fields and retain the default values for the remaining fields.

- **Service Type:** “CDR1”
- **Local Code:** Node name of the noted processor or CLAN from **Section 5.1**.
- **Local Port:** “0”
- **Remote Node:** Node name of the VeraSMART server from **Section 5.1**.
- **Remote Port:** An available port in the range of 5000-64500.

```
change ip-services Page 1 of 4
```

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

Navigate to **Page 3**, locate the automatically created “CDR1” entry, and enter “y” for **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	y	30	3	3	60	

5.3. Administer System Parameters CDR

Enter the “change system-parameters cdr” command to modify CDR related system parameters. Enter the following values for the specified fields and retain the default values for the remaining fields.

- **Primary Output Format:** “unformatted”
- **Primary Output Endpoint:** CDR service type from **Section 5.2.**
- **Intra-switch CDR:** “y”
- **Disconnect Information in Place of FRL:** “y”
- **Inc Trk Call Splitting:** “y”

```
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:
  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? 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? 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: 15
Remove '+' from SIP Numbers? y
```

5.4. Administer Trunk Groups

For every trunk group for which CDR records are desired, enter the “change trunk-group n” command where “n” is the trunk group number. Make certain that **CDR Reports** is enabled, as shown below. Note that “y” is the default value for **CDR Reports**.

In the compliance testing, all trunk groups were enabled for CDR records.

```
change trunk-group 13                                     Page 1 of 21
                                     TRUNK GROUP
Group Number: 13          Group Type: isdn          CDR Reports: y
  Group Name: PSTN          COR: 1          TN: 1          TAC: 113
  Direction: two-way      Outgoing Display? n      Carrier Medium: PRI/BRI
  Dial Access? n          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
```

5.5. Administer Intra-Switch CDR

The CDR feature generally records calls originating or terminating outside of Communication Manager. To record calls between local users on Communication Manager, use the “change intra-switch-cdr” command and add an entry for each local user extension desired to be recorded. In the compliance testing, calls to and from four existing local user extensions shown below were recorded.

```
change intra-switch-cdr                                     Page 1 of 3
                                     INTRA-SWITCH CDR
                                     Assigned Members: 0 of 5000 administered
Extension      Extension      Extension      Extension
65000
65001
66003
66006
```

6. Configure Calero VeraSMART eCAS Call Accounting

This section provides the procedures for configuring VeraSMART. The procedures include the following areas:

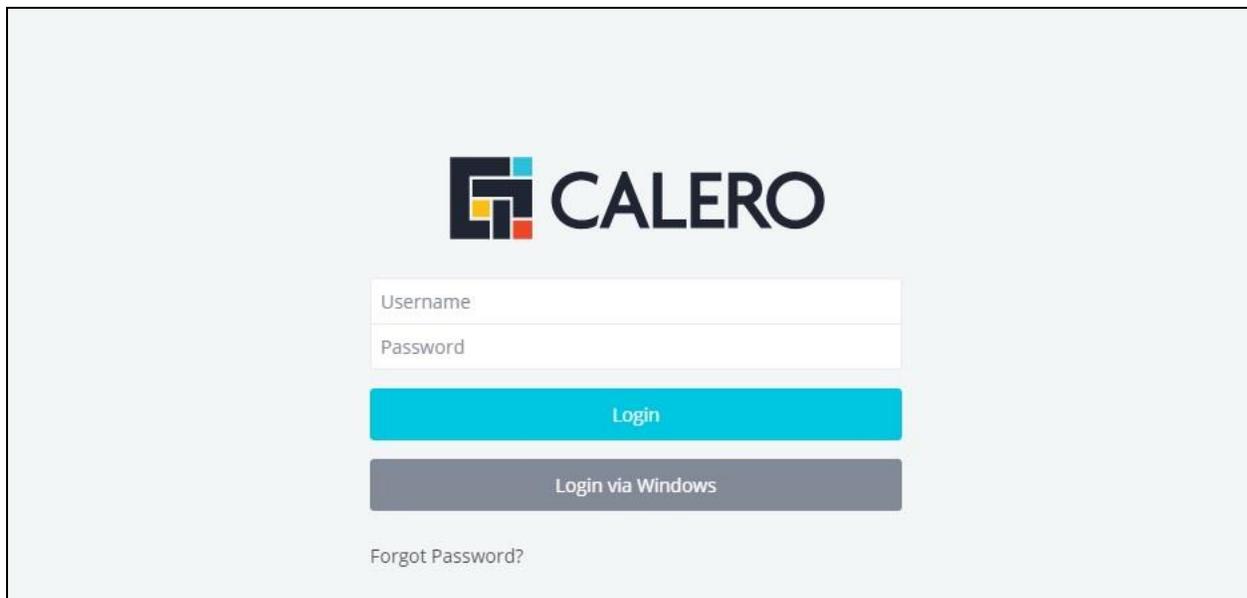
- Launch Web interface
- Administer CDR source
- Enable rating status

The configuration of VeraSMART is typically performed by Calero implementation analysts. The procedural steps are presented in these Application Notes for information purposes.

Prior to configuration, make and complete a couple of calls on Communication Manager.

6.1. Launch Web Interface

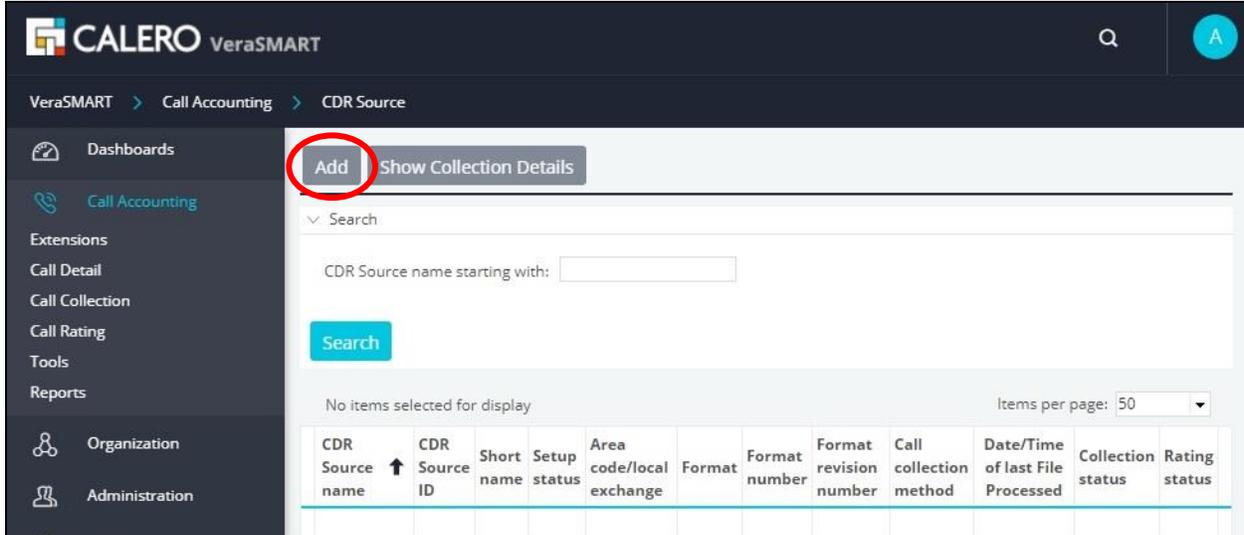
Access the VeraSMART web interface by using the URL “http://ip-address” in an Internet browser window, where “ip-address” is the IP address of VeraSMART. The screen below is displayed. Log in using the appropriate credentials.



The screenshot shows the Calero VeraSMART web interface login page. At the top center is the Calero logo, which consists of a stylized 'C' made of four colored squares (black, blue, yellow, red) followed by the word 'CALERO' in a bold, sans-serif font. Below the logo are two input fields: 'Username' and 'Password'. Underneath these fields are two buttons: a blue button labeled 'Login' and a grey button labeled 'Login via Windows'. At the bottom left of the login area is a link that says 'Forgot Password?'.

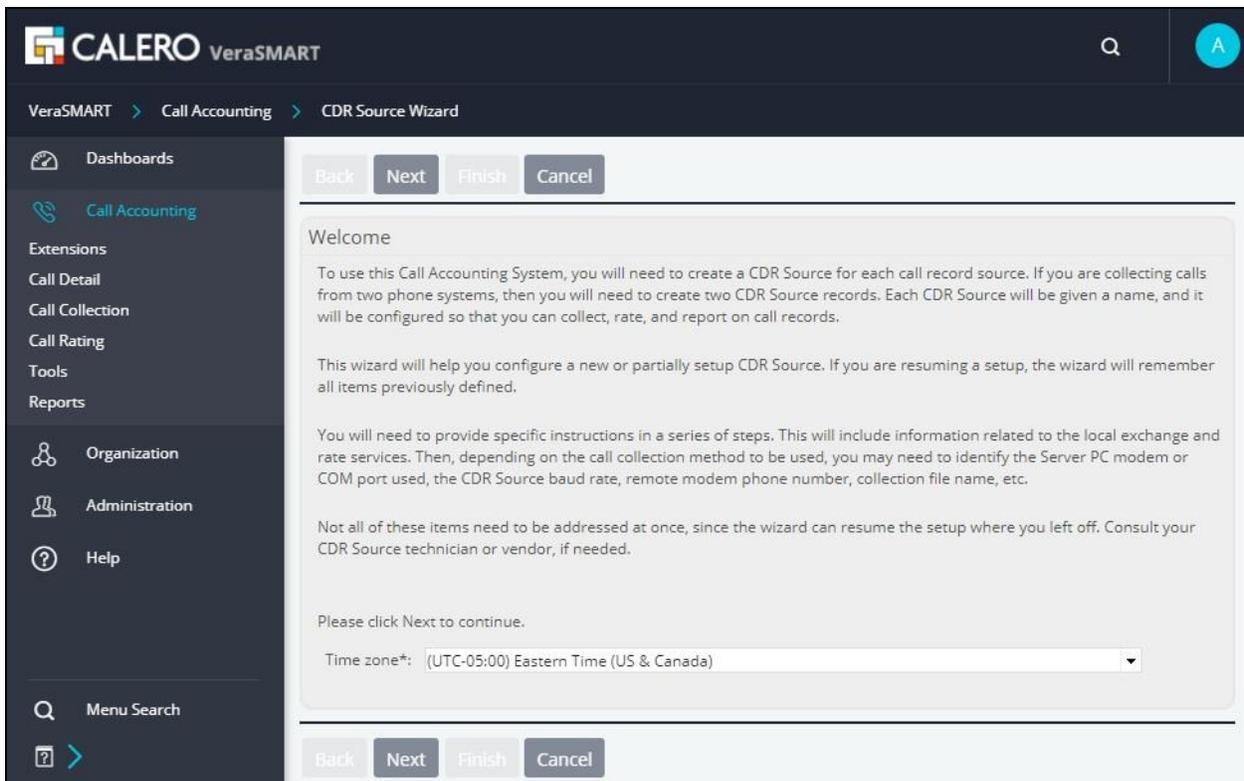
6.2. Administer CDR Source

In the subsequent screen, select **Call Accounting** → **Call Collection** → **CDR Source** from the left pane to display the screen below. Click **Add** to add a new CDR source.



The screenshot shows the CALERO VeraSMART interface. The breadcrumb trail is VeraSMART > Call Accounting > CDR Source. The left sidebar contains navigation options: Dashboards, Call Accounting, Extensions, Call Detail, Call Collection, Call Rating, Tools, Reports, Organization, and Administration. The main content area has a header with 'Add' and 'Show Collection Details' buttons. Below this is a search section with a dropdown arrow, a search box containing 'CDR Source name starting with:', and a 'Search' button. Below the search section, it says 'No items selected for display' and 'Items per page: 50'. At the bottom, there is a table with the following columns: CDR Source name, CDR Source ID, Short name, Setup status, Area code/local exchange, Format, Format number, Format revision number, Call collection method, Date/Time of last File Processed, Collection status, and Rating status.

The CDR Source Wizard is launched and the **Welcome** screen is displayed next. Select the pertinent **Time zone** as shown below.



The screenshot shows the CALERO VeraSMART interface with the CDR Source Wizard. The breadcrumb trail is VeraSMART > Call Accounting > CDR Source Wizard. The left sidebar contains navigation options: Dashboards, Call Accounting, Extensions, Call Detail, Call Collection, Call Rating, Tools, Reports, Organization, Administration, and Help. The main content area has a header with 'Back', 'Next', 'Finish', and 'Cancel' buttons. Below this is a 'Welcome' section with the following text: 'To use this Call Accounting System, you will need to create a CDR Source for each call record source. If you are collecting calls from two phone systems, then you will need to create two CDR Source records. Each CDR Source will be given a name, and it will be configured so that you can collect, rate, and report on call records. This wizard will help you configure a new or partially setup CDR Source. If you are resuming a setup, the wizard will remember all items previously defined. You will need to provide specific instructions in a series of steps. This will include information related to the local exchange and rate services. Then, depending on the call collection method to be used, you may need to identify the Server PC modem or COM port used, the CDR Source baud rate, remote modem phone number, collection file name, etc. Not all of these items need to be addressed at once, since the wizard can resume the setup where you left off. Consult your CDR Source technician or vendor, if needed. Please click Next to continue.' Below the text is a 'Time zone*' dropdown menu with the selected value '(UTC-05:00) Eastern Time (US & Canada)'. At the bottom, there are 'Back', 'Next', 'Finish', and 'Cancel' buttons.

The **Identify the source of call records** screen is displayed. Enter the following values for the specified fields and retain the default values for the remaining fields.

- **CDR Source name:** A descriptive name.
- **Area code:** The pertinent area code.
- **Local exchange:** The pertinent local exchange.

The screenshot shows the 'Identify the source of call records' screen in the CALERO VeraSMART interface. The breadcrumb navigation is 'VeraSMART > Call Accounting > CDR Source Wizard'. The left sidebar contains navigation options: Dashboards, Call Accounting, Extensions, Call Detail, Call Collection, Call Rating, Tools, Reports, Organization, Administration, and Help. The main content area has a title bar with 'Back', 'Next', 'Finish', and 'Cancel' buttons. Below the title bar, the screen displays the following text: 'Identify the source of call records. Create a CDR Source name. Use up to 25 alphanumeric characters for a unique name (this can be anything that makes sense to you to reference this CDR Source - for example: East Coast, New York Office, Main CDR Source). Enter the CDR Source area code, local exchange, and local rating method (this depends on the rate service used locally - for example: measured, message, flat, etc.).' The form fields are: 'CDR Source name*:' with the value 'Avaya CM 8'; 'Area code*:' with the value '303'; 'Local exchange*:' with the value '536'; 'Local rate method:' with a dropdown menu set to 'Measured'; and a checkbox for 'Save call data for sending to another call accounting system:' which is unchecked. Below the form, there is a question: 'Do you want to discard the following types of calls for this CDR Source? These choices can be changed later through the 'edit' CDR Source function.' The options are: 'Internal: Store Discard' and 'Incoming: Store Discard'. At the bottom of the screen, there are 'Back', 'Next', 'Finish', and 'Cancel' buttons.

The **Select the CDR Source manufacturer** screen is displayed next. For **Manufacturer**, select “Avaya”.

The screenshot shows the 'Select the CDR Source manufacturer' screen in the CALERO VeraSMART interface. The breadcrumb navigation is 'VeraSMART > Call Accounting > CDR Source Wizard'. The left sidebar contains navigation options: Dashboards, Call Accounting, Extensions, Call Detail, Call Collection, Call Rating, Tools, Reports, Organization, and Administration. The main content area has a title bar with 'Back', 'Next', 'Finish', and 'Cancel' buttons. Below the title bar, the screen displays the following text: 'Select the CDR Source manufacturer. Every telephone system produces call records in a specific format. The system uses "format" software to interpret call record data. From the list, select the manufacturer of the CDR Source, or if collecting call records from another call accounting system select "Call Accounting System", then click Next to continue.' The form fields are: 'Currently assigned Format:' with the value 'None'; and 'Manufacturer:' with a dropdown menu set to 'Avaya'. At the bottom of the screen, there are 'Back', 'Next', 'Finish', and 'Cancel' buttons.

In the subsequent screen, scroll the right pane as necessary to locate and select the entry with **Format name** of “CM Aura/DEFINITY systems” and **Format number** of “175”, as shown below.

	Format name	Format description	CDR Source software release	Format number	Format revision number
<input type="radio"/>	CM Aura/DEFINITY systems	For customized CDR format; supports standard RSP and legacy CDR output to serial port	G3FD112	158	1.255.1
<input checked="" type="radio"/>	CM Aura/DEFINITY systems	For standard RSP and legacy CDR output to local file	1.1	175	7.186.34
<input type="radio"/>	CM Aura/DEFINITY systems	For Survivable CDR for media gateway (via SFTP) only	1.0	176	6.186.34
<input type="radio"/>	Avaya Aura Session Manager 6.1, 6.2 FP1	SIP data collection from Avaya Aura Session Manager 6.1, 6.2 FP1 and legacy SM systems.	1.0	200	2.190.14
<input type="radio"/>	IP Office 3.2 to 4.2	CDR output (unformatted), direct over IP - no Delta Server	IP Office 3.1	335	8.186.34

The **Select the call collection method** screen is displayed next. Select the entry with **Call collection method name** of “Realtime RSP”.

Back Next Finish Cancel

Select the call collection method.

This page contains a list of call collection methods. Select the method that best describes the way your calls will be collected. Then click Next to continue.

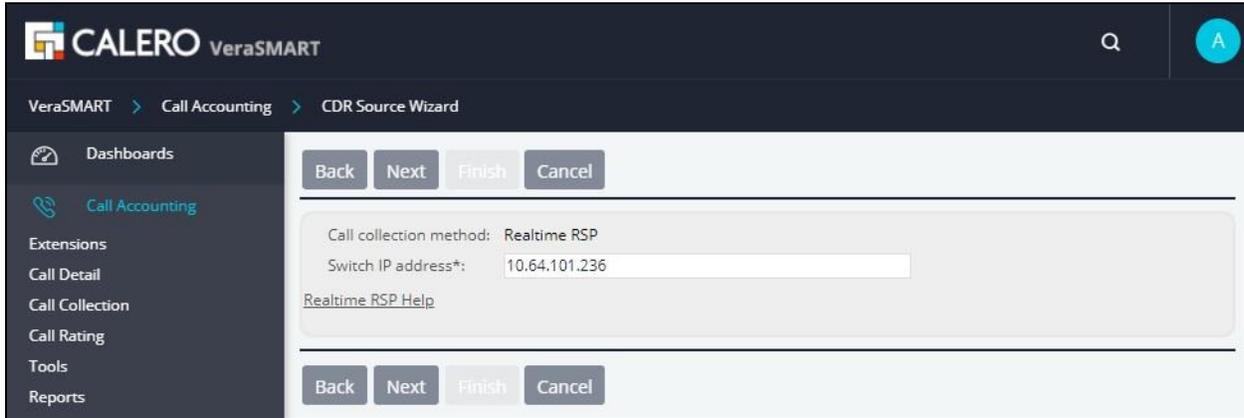
Displaying 1 to 5 of 5 Items per page: 50

	Call collection method name	Call collection method description
<input type="radio"/>	Collect From File (Local)	Calls are processed from file on the local hard drive.
<input type="radio"/>	Collect From File (Remote)	Calls are processed from file on a remote hard drive.
<input type="radio"/>	Direct Connect over IP	Calls are processed over an IP network connection.
<input checked="" type="radio"/>	Realtime RSP	Processes calls coming from an RSP switch in realtime.
<input type="radio"/>	SFTP	Calls are collected using Secure File Transfer Protocol (SFTP).

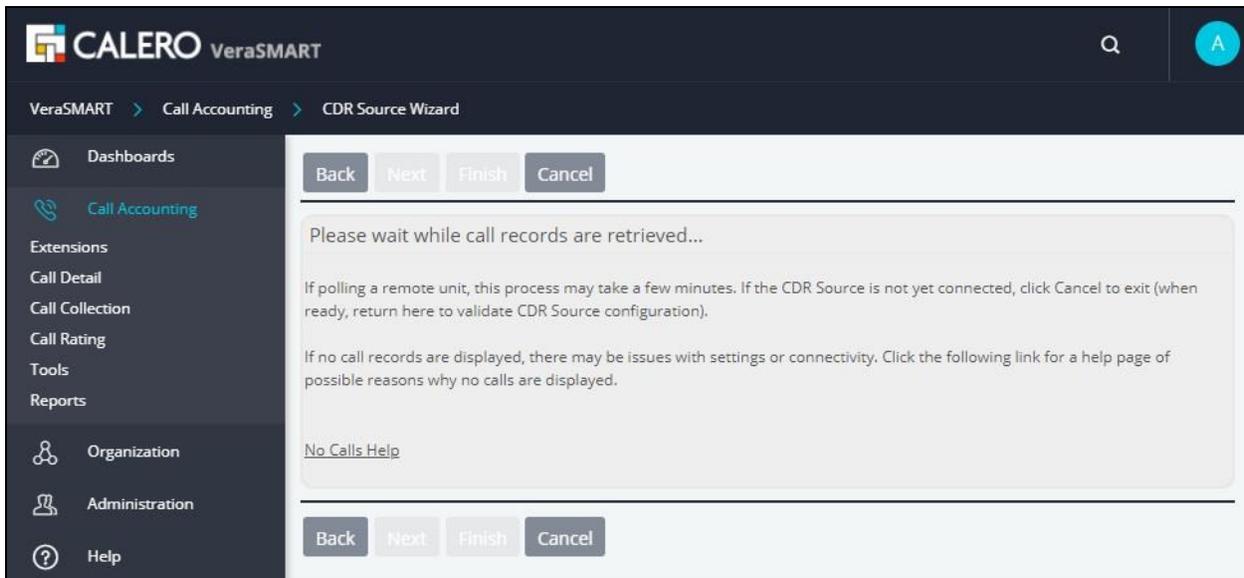
Displaying 1 to 5 of 5 Items per page: 50

Back Next Finish Cancel

The screen below is displayed. For **Switch IP address**, enter the IP address of the noted processor or CLAN from **Section 5.1**.



The **Please wait while call records are retrieved** screen is displayed next, with VermaSMART establishing connectivity with Communication Manager and retrieving CDR records.



Upon successful connection with Communication Manager, the **Raw Call Record Viewer** screen is displayed along with a list of collected CDR records for the day, as shown below.

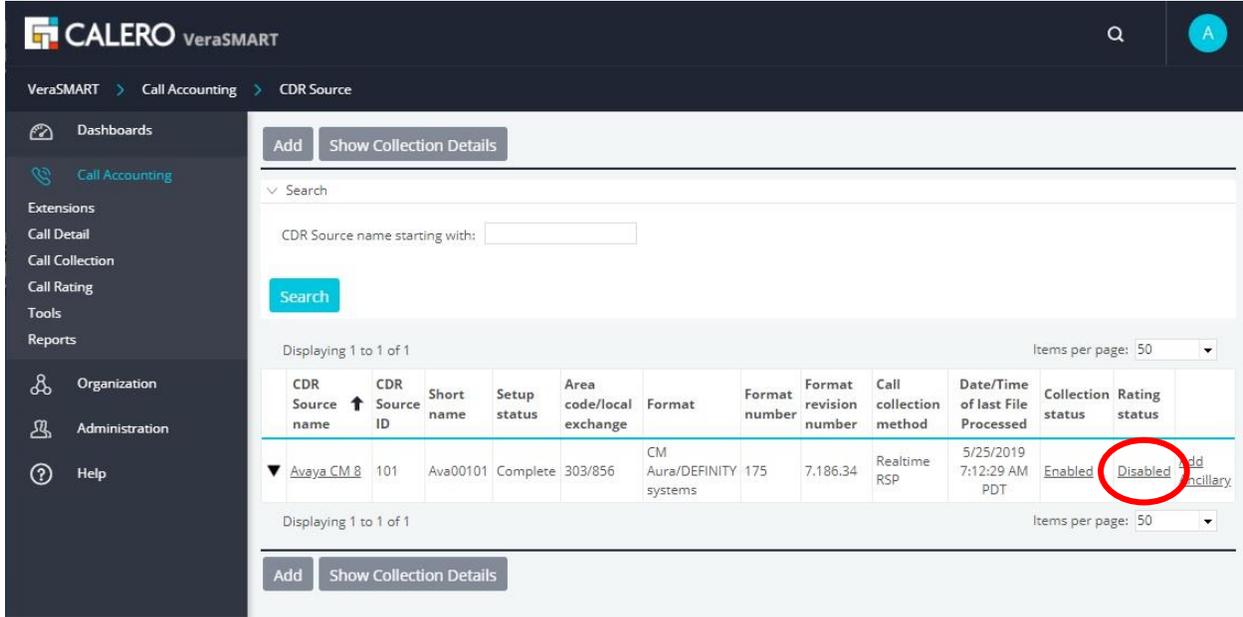
Continue to complete the CDR Source Wizard.

The screenshot shows the 'Raw Call Record Viewer' screen in the CALERO VeraSMART application. The interface includes a navigation sidebar on the left with categories like Dashboards, Call Accounting, Extensions, Tools, Reports, Organization, Administration, and Help. The main content area has a title 'Raw Call Record Viewer' and a brief instruction: 'This page contains a list of 'raw' (unformatted) call records coming from the CDR Source. Check the lines of data under the header row and determine if they look valid, without 'garbage' characters. If valid, click Next to continue. Otherwise, click Back to return to the call collection method page, change the settings, and return to the test viewers again.' Below this is a 'Raw call data' section with a table of call records. The table has 10 columns labeled 1 through 10. The first row of data is '081900020' followed by '66006' and '65001'. The second row of data is '08:20 06/25'. Navigation buttons 'Back', 'Next', 'Finish', and 'Cancel' are located at the top and bottom of the main content area.

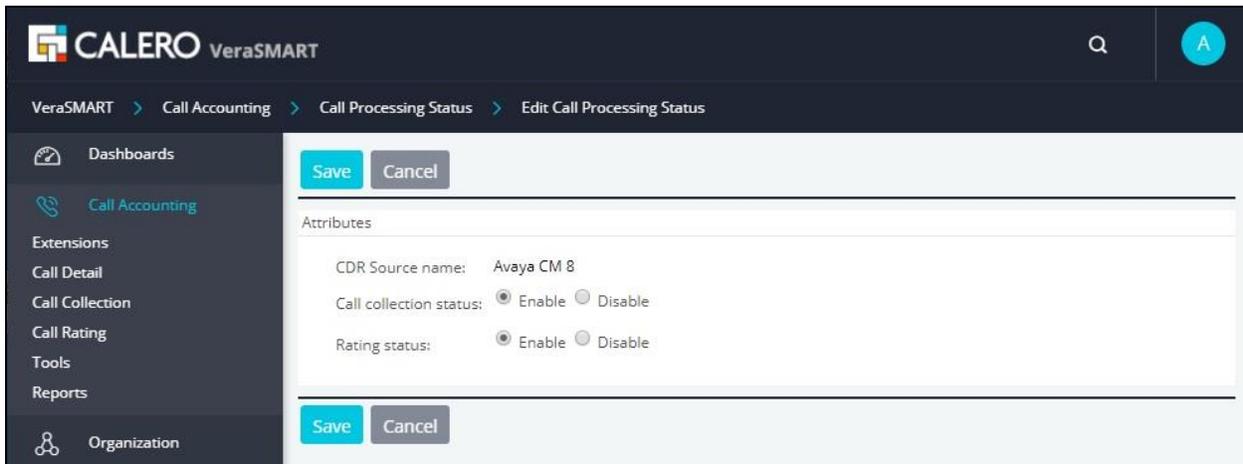
1	2	3	4	5	6	7	8	9	10
1234567890123456789012345678901234567890123456789012345678901234567890									
081900020		66006	65001						
08:20 06/25									

6.3. Enable Rating Status

Upon completing the CDR Source Wizard, the screen below is displayed showing the newly created CDR source. Click on the **Rating status** associated with the new entry.



The **Attributes** screen is displayed next. For **Rating status**, select **Enable** as shown below.



7. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Communication Manager and VeraSMART.

7.1. Verify Avaya Aura® Communication Manager

On Communication Manager, verify the status of the CDR link by using the “status cdr-link” command. Verify that the **Link State** of the **Primary** CDR link is “up”, as shown below.

```
status cdr-link
                                CDR LINK STATUS
                                Primary                               Secondary
                                Link State: up                       CDR not administered
                                Date & Time: 2019/06/25 10:10:13    0 /0 /0 0 :0 :0
                                Forward Seq. No: 11                  0
                                Backward Seq. No: 0                  0
                                CDR Buffer % Full: 0.00              0.00
                                Reason Code: OK
```

7.2. Verify Calero VeraSMART eCAS Call Accounting

Make and complete a few calls, including internal, inbound from PSTN, outbound to PSTN, and tandem calls.

From the VeraSMART web interface, select **Call Accounting** → **Call Detail** → **View Call Records** (not shown), and verify proper reported entries as shown below.

Search

Personnel: Extension Used: Dialed/CLI number:

Inventory ID: Call direction:

Start date: From To

Displaying 1 to 6 of 6 Items per page: 50

	Start date ↑	Duration	Extension Used	Dialed/CLI number	Call destination	Call direction	Call type	Trunk	Account Code	Authorization Code	Conference	Disconnected by	Auth Code Call	Base Cost	Cost
▼	6/26/2019 7:42:36 AM	00:01:24	3035365001	908-953-2103	BERNARDSVL, NJ	INCOMING	Incoming	113000				Originating	No	\$0.00	\$0.00
▼	6/26/2019 7:43:42 AM	00:01:18	66006	732-888-3754	KEYPORT, NJ	OUTGOING	National	113000	88888			Originating	No	\$0.07	\$0.07
▼	6/26/2019 7:43:42 AM	00:01:18	113	303-536-6006	HUDSON, CO	INCOMING	Incoming	1066000	88888			Destination	No	\$0.00	\$0.00
▼	6/26/2019 7:45:00 AM	00:01:00		303-532-1031	LONGMONT, CO	TANDEM	Local	1066000					No	\$0.03	\$0.03
▼	6/26/2019 7:45:42 AM	00:01:18	65001	66006		INTERNAL	Internal					Destination	No	\$0.00	\$0.00
▼	6/26/2019 7:47:00 AM	00:01:00		908-953-2103	BERNARDSVL, NJ	TANDEM	National	113000					No	\$0.05	\$0.05

Displaying 1 to 6 of 6 Items per page: 50

8. Conclusion

These Application Notes describe the configuration steps required for Calero VeraSMART eCAS Call Accounting 12.3 to successfully interoperate with Avaya Aura® Communication Manager 8.0. All feature and serviceability test cases were completed with observations noted in **Section 2.2**.

9. Additional References

This section references the product documentation relevant to these Application Notes.

1. *Administering Avaya Aura® Communication Manager*, Release 8.0, Issue 2.1, November 2018, available at <http://support.avaya.com>.
2. *Avaya CM Aura RSP Interface Setup*, available upon request to Calero implementation team.

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