DVSAnalytics

Avaya Aura® Communication Manager

Includes:

Application Enablement Services (AES)

Avaya Aura® Contact Center (AACC)

Call Management System (CMS)

Integration Guide

Encore Workforce Optimization Solution Version 9.0 or later

November 21, 2023

encore

For Dealer and Customer Use Only

DVSAnalytics
Phone: (480) 538-2020
Email: info@DVSAnalytics.com
Web: www.DVSAnalytics.com

TABLE OF CONTENTS

Introduction

The Encore system integrates with the Avaya Aura PBX primarily using TSAPI and DMCC, which allows Encore to successfully perform the following functions:

- Audio Collection – Capture the audio that needs to be recorded.
- Recording Control – Receive the necessary events that signal when the Encore must start and stop recording.
- Data Capture – Receive data associated with the call.

The Encore system can record calls on an Avaya system without the TSAPI integration, but the recording controls and data capture are limited; configuration for this integration is not covered in this document.

In addition, and if purchased, Encore can collect additional data from the Avaya Aura Contact Center (AACC).

If subscribed to Encore WFM, Encore can optionally integrate with Avaya Call Management System (CMS) and send data to Encore WFM. The integration does this by receiving real-time adherence information and retrieving historical data from the CMS server. The CMS integration only provides data to the Encore WFM server, no CMS data capture is integrated into the Encore WFO call recording records.

Supported Data Capture

The following is a list of the supported data elements that can be collected with each recording. Not every element is applicable for each call. For a description of each data element, refer to "Appendix 1: Glossary" on page 42.

- ACD Name
- ACD Number
- Agent ID*
- ANI
- Call ID
- Call Direction
- Call Type
- Consultation Call
- Dialed Number
- DNIS
- Extension
- Other Call ID
- Other Party Name
- Other Party Number
- Recorded Party Name
- Recorded Party Number
- Trunk
- Universal Call ID
- User to User Information
- Recorded Party Disconnect

**If using the internal ACD feature of Avaya Communication Manager, CT Gateway must monitor the ACD split or the EAS skill extension in which the agent is logged in to capture this information.*

The Avaya Aura Contact Center (AACC) does not provide recording control but does capture additional data. The following additional data can be captured for the first monitored agent that answers an ACD call and is logged into the AACC system:

- Agent ID
- Agent Name^
- CDN
- Skillset
- AACC Caller ID
- AACC Caller Display

^This is stored in the Recorded Party field; it overwrites the Recorded Party Name that was captured by TSAPI for ACD calls.

Supported Recording Features

The following matrix should be used to determine which audio collection is best for your business needs. If you find that more than one collection method will work for you, talk to your Encore representative about which method is more cost-effective. For a description of each feature, refer to "Appendix 1: Glossary" on page 42. **Note:** Where supported, G.711 Wav recording is the default recording format.

RECORDING FEATURE	AUDIO COLLECTION METHOD						
	STATION-SIDE TDM	TRUNK-SIDE TDM [4]	STATION-SIDE RTP PACKET CAPTURE (PASSIVE INTERFACE) [4]	TRUNK-SIDE SIP PACKET CAPTURE [4]	DMCC SERVICE OBSERVE	DMCC MULTIPLE REGISTRATIONS MONO	DMCC MULTIPLE REGISTRATIONS STEREO
Max. Recording Ports per Server [1]	192	288	500	500	500	500	500
Record External Calls	YES	YES	YES	YES	YES	YES	YES
Record Internal Calls	YES		YES		YES	YES	YES
Record Encrypted Calls	N/A	YES		YES [3]	YES	YES	YES
Suspend/Resume on Hold	YES	YES	YES		YES	YES	YES
ACD Split Recording [2]		YES	YES	YES	YES	YES	YES
Dynamic IP Capture			YES				
Related Call Lookup	YES	YES	YES		YES	YES	YES
AACC Data Collection	YES				YES	YES	YES
Capture User to User Information	YES	YES	YES		YES	YES	YES
Encore Load Balancing					YES		
G.711 Wav Recording	NO [7]	NO [7]	Stereo [5]	NO [7]	Mono [6]	Mono [6]	Stereo [5]

1. *Small Business Servers are limited to 72 ports.*
2. *If more than one audio collection method is used, additional Encore CTGateway instances are required. See* ***Complete for systems using the ACD Split feature*** *on page 22 for more details on other consideration when using this feature.*
3. *If the encryption occurs at the station, Encore can record the encrypted calls. If the encryption occurs at the trunk Encore cannot record encrypted*
4. *Cannot be used if AACC is used to collect additional data.*
5. ***G.711 Wav Recording in stereo*** *stores recorded audio at 16000 bytes/sec.*
6. ***G.711 Wav Recording in mono*** *stores recorded audio at 8000 bytes/sec.*
7. ***Vox mono audio storage only.*** *Encore stores recorded audio using ADPCM 4000 bytes/sec.*

Comparison of DMCC Streaming Recording Methods

The following matrix can be used to help better understand the differences between the DMCC-based recording methods.

	DMCC SERVICE OBSERVE	DMCC MULTIPLE REGISTRATIONS MONO	DMCC MULTIPLE REGISTRATIONS STEREO
Maximum number of active participants in a recorded call	4 – 5 [1]	6	6
Recording warning tone	YES	YES [2]	YES [2]
Additional TDM time slots consumed	1	0	0
Additional logical DSP resource/Media Processors consumed	1	1	2
Available in AE Services / Communication Manager Releases	5.2.x or later	8.0.1 or later	8.0.1 or later
Association between recorded extensions vs quantity of recording devices required. [3]	Many to One	One to One	Two to One
Recorded extension can block recording using the Exclusion feature[4]	YES	NO	NO
Record all audio during Selective Listen Hold (SLH)	YES	NO [5]	NO [5]
Clipped Greeting in Recorded Audio	YES [6]	NO	NO

1. *The maximum number of Service Observers in a call is two. Each Service Observer counts as an active participant. With Encore always recording a call, the maximum active participants will always be reduced to five. If another Service Observer is listening on the call, then the maximum is reduced to four. The DMCC – Multiple Registrations method has no effect on this limit.*
2. *This feature works in release 8.x but does not work in release **10.1**. This is known as Avaya Issue AES-30051 and was resolved in release **10.1.2.0.0**.*
3. *Service Observe recording device requirements are based on the max concurrent recordings that need to be made, regardless of the number of possible recorded extensions. DMCC – MR Stereo needs two recording devices for every recorded extension. DMCC – MR Mono needs one recording device for every recording extension.*
4. *The Exclusion feature, if enabled on an extension allows the user to block unwanted parties from joining the call. The DMCC – Multiple Registrations methods are not affected by this feature, but the DMCC – Service Observe recording method will not be able to record audio*
5. *If Selective Listen Hold is used during a call, the DMCC – Multiple Registrations methods may not receive all audio while the SLH is in effect. SLH may be used by a third-party application to prevent an agent from hearing sensitive information that the customer may be providing to another participant in the call. The DMCC – Multiple Registrations method is provided the same audio data that the agent receives. DMCC – Service Observe is not affected by SLH and will record the audio.*
6. *Recording with DMCC – Service Observe requires a short setup delay (usually less than 2 seconds) before Encore can receive audio from the agent. The DMCC – Multiple Registrations methods do not experience this delay, so no clipping occurs.*

Software Requirements

SYSTEM	SOFTWARE AND LICENSE REQUIREMENTS

Avaya system	• All audio collection methods
	  ○ AES TSAPI Client v6.3.3
	  ○ **TSAPI Basic User Licenses** (VALUE_TSAPI_USERS or VALUE_AES_TSAPI_USERS); to calculate the number needed read below.
	  – If using the Encore feature that allows you to record all agents logged into an ACD skill:
	  • Calculate the number of simultaneous agents logged into the ACD skill. If more than one skill is monitored, then the number of simultaneous agents logged in across all monitored skills.
	  • Calculate the number of supervisors or agents to be recorded that do not log into an ACD skill.
	  – If not using the ACD skill feature, you need one license for each phone used by agents and supervisors to be recorded.
	• Station-side TDM
	  ○ Avaya Aura Communication Manager v5.2.x or later
	  ○ Avaya Aura Application Enablement Services (AES) v5.2.x or later
	  ○ If using AACC, use AACC v6.2 or higher
	• Station-side RTP Packet Capture
	  ○ Avaya Aura Communication Manager v5.2.x or later
	  ○ Avaya Aura Application Enablement Services (AES) v5.2.x or later
	  ○ VoIP phones must use the G.711MU, G.711A, and G.729 codec types
	• DMCC – Service Observe
	  ○ Avaya Aura Communication Manager v5.2.x or later
	  ○ Avaya Aura Application Enablement Services (AES) v5.2.x or later
	  ○ For each concurrent Encore Recording License, you need the following:
	  – 1 DMCC_DMC license or 1 IP_API_A license (Effective with Communication Manager Release 6.0; all new DMCC licenses will be added only to the AE Services license file VALUE_DMCC_DMC field.)
	  – 1 IP_STA license or IP_Soft license
	  – 1 STA license or VALUE_CM_STA license
	  – 1 MedPro resource
	  – 1 TDM slot resource
	  Note: A DMCC Full License includes a DMCC_DMC and IP_Soft license
	  ○ Emulated softphones for the recorded ports must use the G.711 or G.729 codec. The total number of emulated softphones must be equal to or greater than the total number of ports that can be recorded simultaneously.
	  ○ If using AACC, use AACC v6.2 or higher.

SYSTEM	SOFTWARE AND LICENSE REQUIREMENTS
Avaya system	• DMCC - Multiple Registrations Methods ○ Avaya Aura Communication Manager v8.0.1 or later ○ Avaya Aura Application Enablement Services (AES) v8.0.1 or later ○ Recorded VoIP phones must use G.711MU, G.711A, G.729, or G.729A codec types ○ For each concurrent Encore Recording License, you need the following: ○ For DMCC – Multiple Registrations – Stereo: – 2 VALUE_AES_DMCC_DMC licenses or 2 IP_API_A licenses (Effective with Communication Manager Release 6.0; all new DMCC licenses will be added only to the AE Services license file VALUE_AES_DMCC_DMC field.) – 2 IP_STA licenses or IP_Soft licenses ○ For DMCC – Multiple Registrations – Mono – 1 VALUE_AES_DMCC_DMC license or 1 IP_API_A license (Effective with Communication Manager Release 6.0; all new DMCC licenses will be added only to the AE Services license file VALUE_AES_DMCC_DMC field.) – 1 IP_STA license or IP_Soft license **Note**: A DMCC Full License includes a DMCC_DMC and IP_Soft license
Encore system	• If using AACC with a supported recording method, use the following: ○ AACCBridge.exe 1.1 or higher ○ EncoreUtilities.dll v1.2 or higher ○ Log4Dvs.dll v3.0.6.3471 or higher ○ .NET Framework 4.0 or .NET Framework 4.0 Client Profile or higher

Encore WFM Software Requirements

SYSTEM	ENCORE WFM SOFTWARE AND LICENSE REQUIREMENTS
Avaya system	• Avaya Call Management System (CMS) 19.0 or higher. • CMS server **MUST** be configured to use the **Internal Call History Interface (ICHI)**. Encore WFM cannot interface to a CMS system configured to use the External Call History Interface (ECHI). • If the CMS system is configured for Multi-tenant, and Encore WFM will need to ingest data from multiple tenants, please work with your DVSAnalytics Project Manager so we can determine the best way to implement Encore WFM for your use case. Multi-tenant CMS guidance will not be covered in this document. • CMS Real-Time Adherence (RTA) Connector – Generic Real Time Agent – Generic-RTA (rta_gen package) – Configured to use the *xPrta_gen* agent report • Generic RTA license for each configured Generic RTA session. A session is a unique combination of the connector's defined Host, Port, and/or ACD Id. [1] **Note:** An ACD in this context is a Communication Manager. Licenses in WebLM are listed as one or both of the following depending on the customer's environment: – VALUE_ACMS_GENERIC_REAL_TIME – VALUE_ACMS_GENERIC_REAL_TIME_ADDL_SESSIONS • Encore's use of the CMS historical data import requires that enough "Maximum number of CMS ODBC/JDBC sessions" licenses are available to cover all concurrent connections made to the CMS via ODBC/JDBC. Encore's access via ODBC is periodic, usually once every 15 minutes. An understanding of how all ODBC/JDBC apps utilize connections to CMS can help determine the quantity. In WebLM the needed license appears as: – VALUE_CMS_ODBC_JDBC_SUBSCRIPTIONS • Encore's Use of the CMS historical data import requires the customer to provide the 64-bit IBM Informix Windows Client SDK from the CMS server.
Encore system	• Encore 8.3 or later • Customer provided IBM Informix 64-bit ODBC driver

1. *For example, if a customer's system did not have any existing Generic RTA connectors/licenses and they have three Communications Managers(CM), which send data to a CMS server, that Encore must monitor, the CM systems may be defined as ACD Id 1, ACD Id 2 and ACD Id 3. Encore would use three WFM adapters, each listening on a unique TCP port and monitoring data for a unique ACD Id. The Avaya CMS licensing would require:*
   Qty 1 - VALUE_ACMS_GENERIC_REAL_TIME
   Qty 2 - VALUE_ACMS_GENERIC_REAL_TIME_ADDL_SESSIONS
   As Avaya license requirements can be affected by many factors and can change at any time, please consult with your Avaya dealer for current requirements and part numbers.

Hardware Requirements

SYSTEM	HARDWARE REQUIREMENTS

Avaya system	• Station-side TDM
	  ○ Must allow Encore to tap at the punchdown block
	• Trunk-side TDM
	  ○ Must allow Encore to tap at the trunk
	• Station-side RTP Packet Capture
	  ○ Span port on network to route all RTP traffic for recorded stations to Encore server
	  ○ DHCP IP address reservation or static IP assignment for each station to be recorded
	• Trunk-side SIP Packet Capture
	  ○ This depends on the customer's environment; see the Note in the "Trunk-side SIP Packet Capture" section on page 19.
	• DMCC – Service Observe
	  ○ Each recording consumes a TDM time slot
	  ○ Each recording consumes a Logical DSP resource/Media Processor
	• DMCC – Multiple Registration – Mono
	  ○ Each recording consumes a Logical DSP resource/Media Processor
	• DMCC – Multiple Registration – Stereo
	  ○ Each recording consumes two Logical DSP resources/Media Processors

Encore system	• Station-side TDM
	  ○ AudioCodes NGX PCIe card
	• Trunk-side TDM
	  ○ AudioCodes DP PCIe card

Compliance Testing

As of January 2020, Encore has been compliance tested and is approved to record using DMCC – Service Observe and the TSAPI interface with the following Avaya equipment and software.

EQUIPMENT	SOFTWARE
Avaya Aura® Communication Manager in Virtual Environment	8.1 (8.1.0.1.1.890.25517)
Avaya G650 Media Gateway	N/A
Avaya Aura® Media Server in Virtual Environment	8.0.1.121
Avaya Aura® Application Enablement Services in Virtual Environment	8.1 (8.1.0.0.0.9-1)
Avaya Aura® Session Manager in Virtual Environment	8.1 (8.1.0.0.810007)
Avaya Aura® System Manager in Virtual Environment	8.1 (8.1.0.0.079814)
Avaya 1608-I IP Deskphone	1.3120
Avaya 9611G IP Deskphone (H.323)	6.8202
Avaya 9641G IP Deskphone (SIP)	7.1.6.1.3
DVSAnalytics Encore on Windows Server 2016 Avaya TSAPI Windows Client (csta32.dll) Avaya DMCC XML	7.1 Standard 8.1.0.9 6.1

As of December 2017, Encore has been compliance tested and is approved to record using DMCC - Service Observe and the TSAPI interface with the following Avaya equipment and software.

EQUIPMENT	SOFTWARE
Avaya Aura® Communication Manager in Virtual Environment	7.1.1 (7.1.1.0.0.532.23985)
Avaya G650 Media Gateway	N/A
Avaya Aura® Media Server in Virtual Environment	7.8.0.333
Avaya Aura® Application Enablement Services in Virtual Environment	7.1.1 (7.1.1.0.0.5-0)
Avaya Aura® Session Manager in Virtual Environment	7.1.1 (7.1.1.0.711008)
Avaya Aura® System Manager in Virtual Environment	7.1 .1 (7.1.1.0.046931)
Avaya 9611G & 9641G IP Deskphone (H.323)	6.6506
Avaya 9621G IP Deskphone (SIP)	7.1.0.1.1
DVSAnalytics Encore on Windows Server 2012 R2 Avaya TSAPI Windows Client (csta32.dll) Avaya DMCC XML	6.0.6 Standard 6.3.3.103 6.1

As of October 2016, Encore has been compliance tested and is approved to record using DMCC - Service Observe and the TSAPI interface with the following Avaya equipment and software.

EQUIPMENT	SOFTWARE
Avaya Aura® Communication Manager in Virtual Environment	7.0.1.1 (7.0.1.1.0.441.23169)
Avaya G650 Media Gateway	N/A
Avaya Aura® Media Server in Virtual Environment	7.7.0.334
Avaya Aura® Application Enablement Services in Virtual Environment	7.0.1 (7.0.1.0.2.15-0)
Avaya Aura® Session Manager in Virtual Environment	7.0 .1 (7.0.1.0.701007)
Avaya Aura® System Manager in Virtual Environment	7.0 .1 (7.0.1.0.064859)
Avaya 9611G & 9641G IP Deskphone (H.323)	6.6229
Avaya 9621G IP Deskphone (SIP)	7.0.1.1.5
DVSAnalytics Encore on Windows Server 2012 R2 Avaya TSAPI Windows Client (csta32.dll) Avaya DMCC XML	6.0.5 Standard 6.3.3.103 6.1

As of March 2014, Encore has been compliance tested and is approved to record using digital station taps or DMCC - Service Observe with the following Avaya Aura® Contact Center equipment and software.

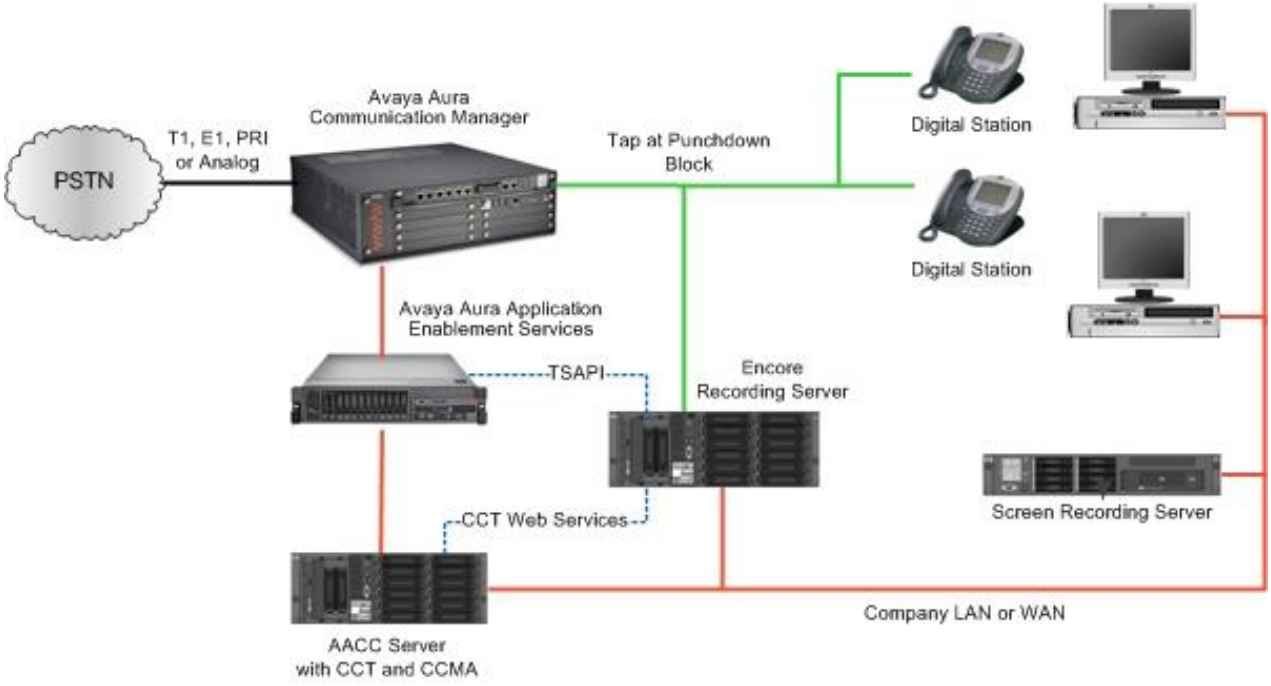
EQUIPMENT	SOFTWARE
Avaya Aura® Communication Manager running on S8800 Server with an Avaya G650 Media Gateway	6.3
Avaya Aura® System Manager running on S8800 Server	6.3
Avaya Aura® Session Manager running on S8800 Server	6.3
Avaya Aura® Application Enablement Services running on S8800 Server	6.3
Avaya Aura® Contact Center running on S8800 Server	6.3
Avaya 9670G IP Deskphone (H.323)	S3.1
Avaya 9608 IP Deskphone (H.323)	6.2313

Overview of Audio Collection Methods

This section provides an overview of each audio collection method. For simplicity sake, the diagrams only display a single Encore server but there can be multiple Encore servers depending on the number of stations to be recorded.

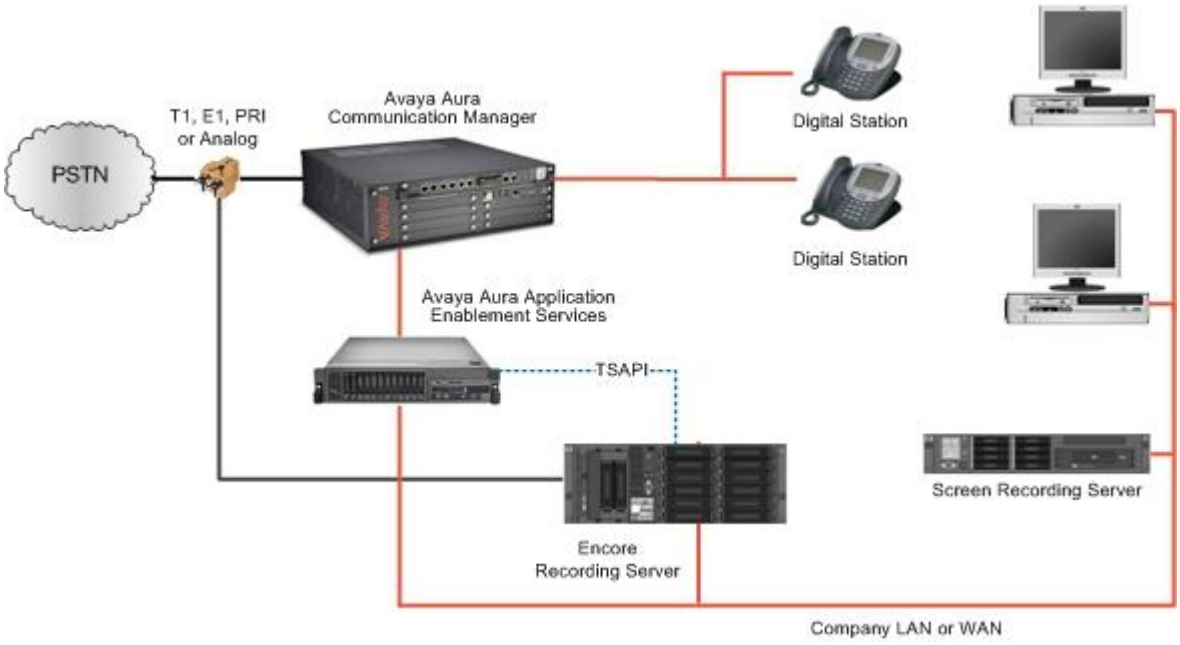
Station-side TDM

The Station-side TDM method uses a passive tap on the phones connected to the Avaya Aura Communication Manager to collect audio. These may be analog or digital phone sets. This passive tap is connected to the recording boards in the Encore server. The Avaya Aura Application Enablement Services monitors events on the Communication Manager and forwards the events to the AES TSAPI client installed on the Encore server. Based on events received from the TSAPI interface, the Encore server starts and stops recording, collects the audio on the recording boards, and collects the data associated with the call.



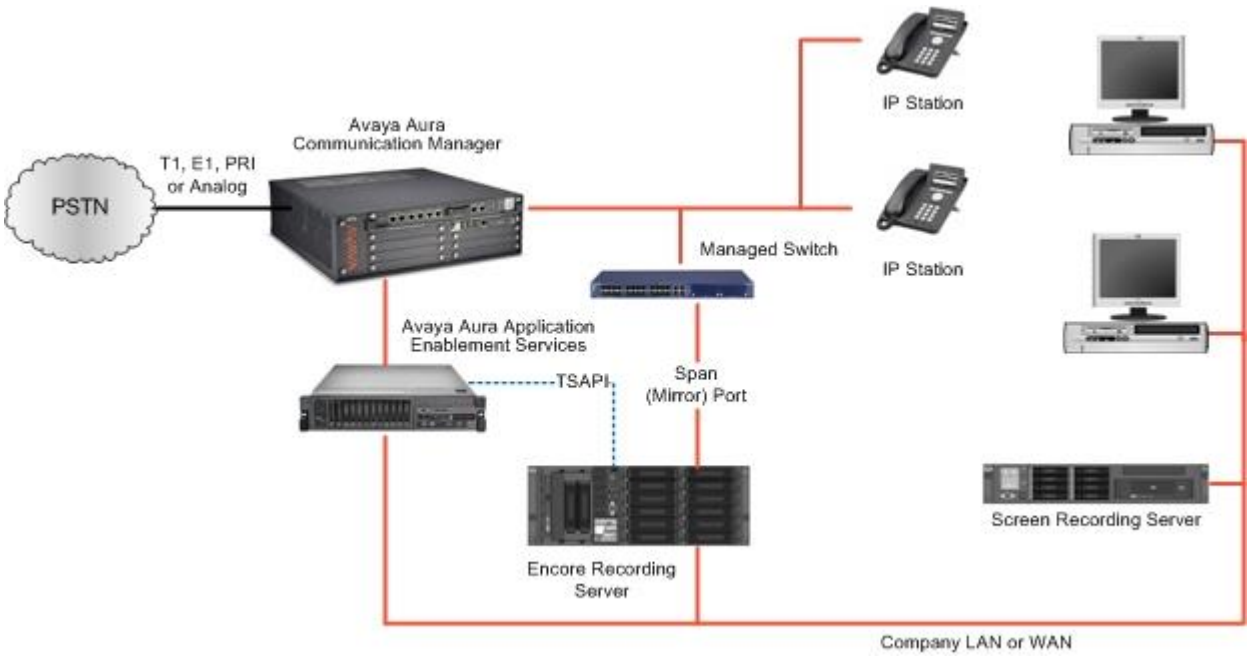
Trunk-side TDM

The Trunk-side TDM method uses a passive tap on the telephony trunks that connect the Avaya Aura Communication Manager to the PSTN. The trunks can be T1, E1, or Analog. This passive tap is connected to the recording boards in the Encore server. The audio is collected via the passive tap. The Avaya Aura Application Enablement Services monitors events on the Communication Manager and forwards the events to the AES TSAPI client installed on the Encore server. Based on events received from the TSAPI interface, the Encore server collects the audio on the recording boards and the data associated with the call.



Station-side RTP Packet Capture

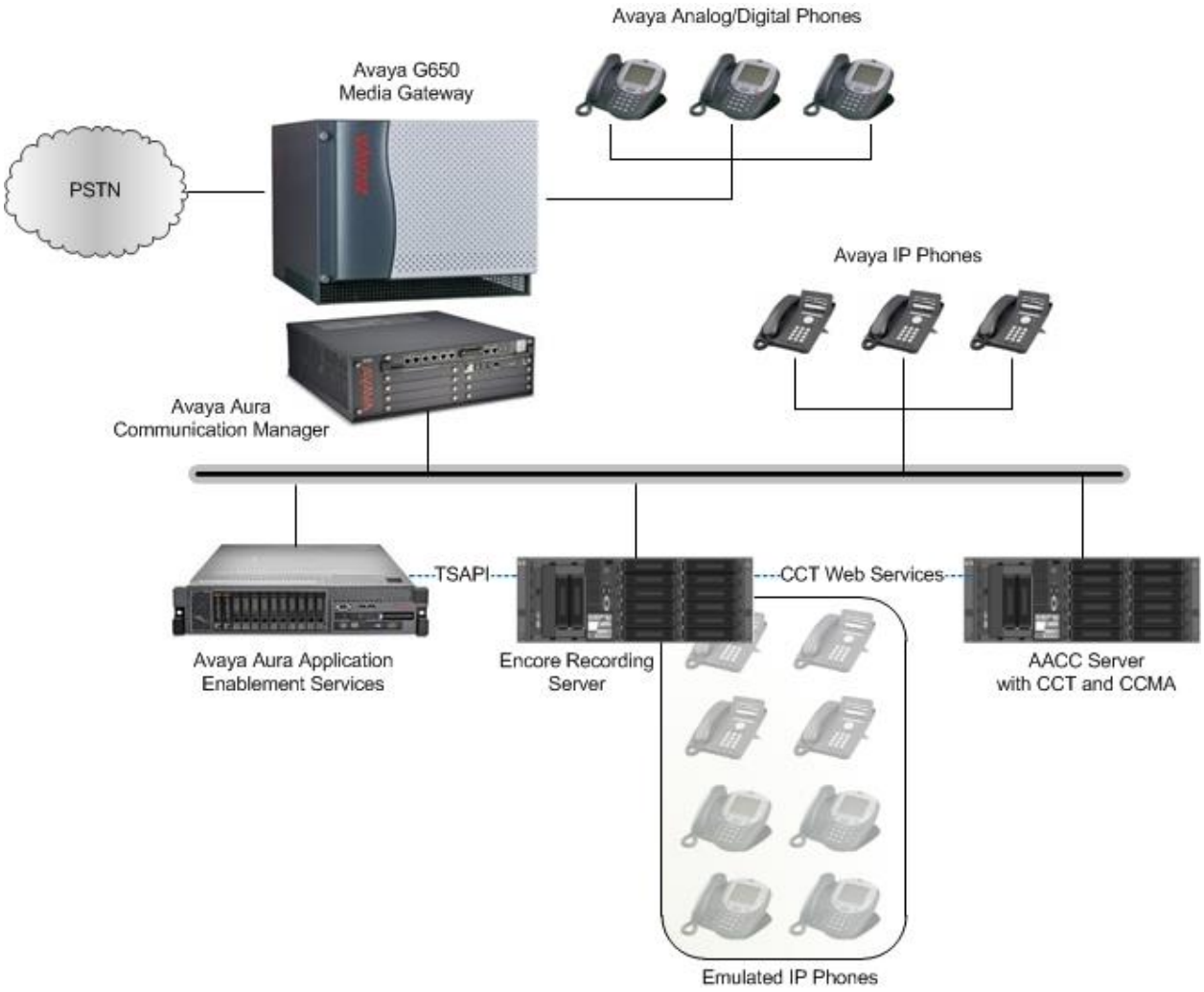
The Station-side RTP Packet Capture method uses a span port to collect the RTP audio packets directly from the network segment that includes the VoIP traffic. The Avaya Aura Application Enablement Services monitors events on the Avaya Aura Communication Manager and forwards the events to the AES TSAPI client installed on the Encore server. Based on events received from the TSAPI interface, the Encore server collects the RTP packets for a specific IP or MAC address and converts the RTP data to an audio recording file. Encore collects data associated with the call from the TSAPI messages. If the Dynamic IP Capture feature will be used, the span port must also collect the station's RTCP packets, which are on odd number UDP ports.



DMCC – Service Observe

Encore uses TSAPI from the Avaya Aura Application Enablement Services to monitor skill groups and agent stations on the Avaya Aura Communication Manager. It also uses the Service Observing feature via the Avaya Aura Application Enablement Services Device, Media, and Call Control (DMCC) interface to capture the audio associated with the monitored stations.

When a call is active on a monitored station, event reports are sent to Encore via TSAPI. Encore starts recording by sending a Service Observing button press from a virtual IP softphone via the DMCC interface to observe the active call and uses the Media Control Events from the DMCC interface to obtain the audio from the virtual IP softphone. The recording stops based on events received from TSAPI.



DMCC – Multiple Registrations (Stereo or Mono)

Encore uses TSAPI from the Avaya Aura Application Enablement Services to monitor skill groups and agent stations on the Avaya Aura Communication Manager. It also uses the Device, Media, and Call Control (DMCC) interface to capture the audio associated with the monitored stations. This is accomplished by sending to Communication Manager (CM), one (Mono) or two (Stereo) additional registrations of the extension to be recorded. When the recorded extension has a call, the CM system sends Encore the same media stream (RTP packets) as the main registered extension receives. When stereo recording is configured, CM sends two media streams, one contains the recorded extension's audio(left channel) and the other contains the combined audio streams from all other call participants(right channel).

When a call is active on a monitored station, event reports are sent to Encore via TSAPI. Encore starts recording and is automatically sent the audio stream(s). The recording stops based on events received from TSAPI.

Avaya License Considerations

Please use the following information to help you make decisions regarding the amount of Avaya licensing when choosing the DMCC Multiple Registrations recording method.

Encore has a feature known as 'ACD Split Recording'. Using this feature, Encore can be configured to record any agent who is a member of an ACD, instead of requiring you to provide and maintain a list of recorded agents in Encore (Recorded IDs). Using the feature in conjunction with DMCC – Multiple Registrations can help you save on your Avaya licensing needs.

Without the ACD Split Recording feature, for every extension that you would like to record (defined Encore Recorded ID), you must have one set of Avaya licenses (Mono) or two sets of certain Avaya licenses (Stereo). For example, if you needed to record 500 total agent extensions, for Stereo, you would need 1000 VALUE_IP_STA or IP_Soft licenses, 1000 IP_API_A or VALUE_DMCC_DMC or VALUE_AES_DMCC_DMC licenses and 500 VALUE_TSAPI_USERS or VALUE_AES_TSAPI_USERS licenses. Those licenses would be required when Encore starts, or as new Recorded IDs are added, as Encore must register itself as an instance of all defined Recorded IDs. This can be a burden if your agents work in shifts and you may only ever have half of the agents logged in at any given time.

With the ACD Split Recording feature, you assign your agents to an ACD. When Encore starts, if no agents are logged into that monitored ACD, no licenses are consumed. When an agent logs into the ACD, the set of needed licenses are allocated as Encore registers its need for that agent extension's events and audio. When that agent logs out of the ACD, Encore deregisters the extension and the licenses are deallocated.

The ACD Split Recording feature can be used in conjunction with scenarios where you may need to define and maintain RecordIDs in Encore for non-ACD extensions or supervisors, etc.. along with ACD agents. In this case, explicitly defined Recorded IDs in Encore's Audio Settings would always have Avaya licenses allocated, but ACD agents for ACD's we're monitoring via the ACD Split Recording feature are only allocated while they are logged into the monitored ACD.

Additional information about license requirements can be found in the Software Requirements – Avaya System section on page 8. Additional information about configuring the Avaya PBX for the ACD Split Recording feature can be found in the Complete for systems using the ACD Split feature section on page 22.

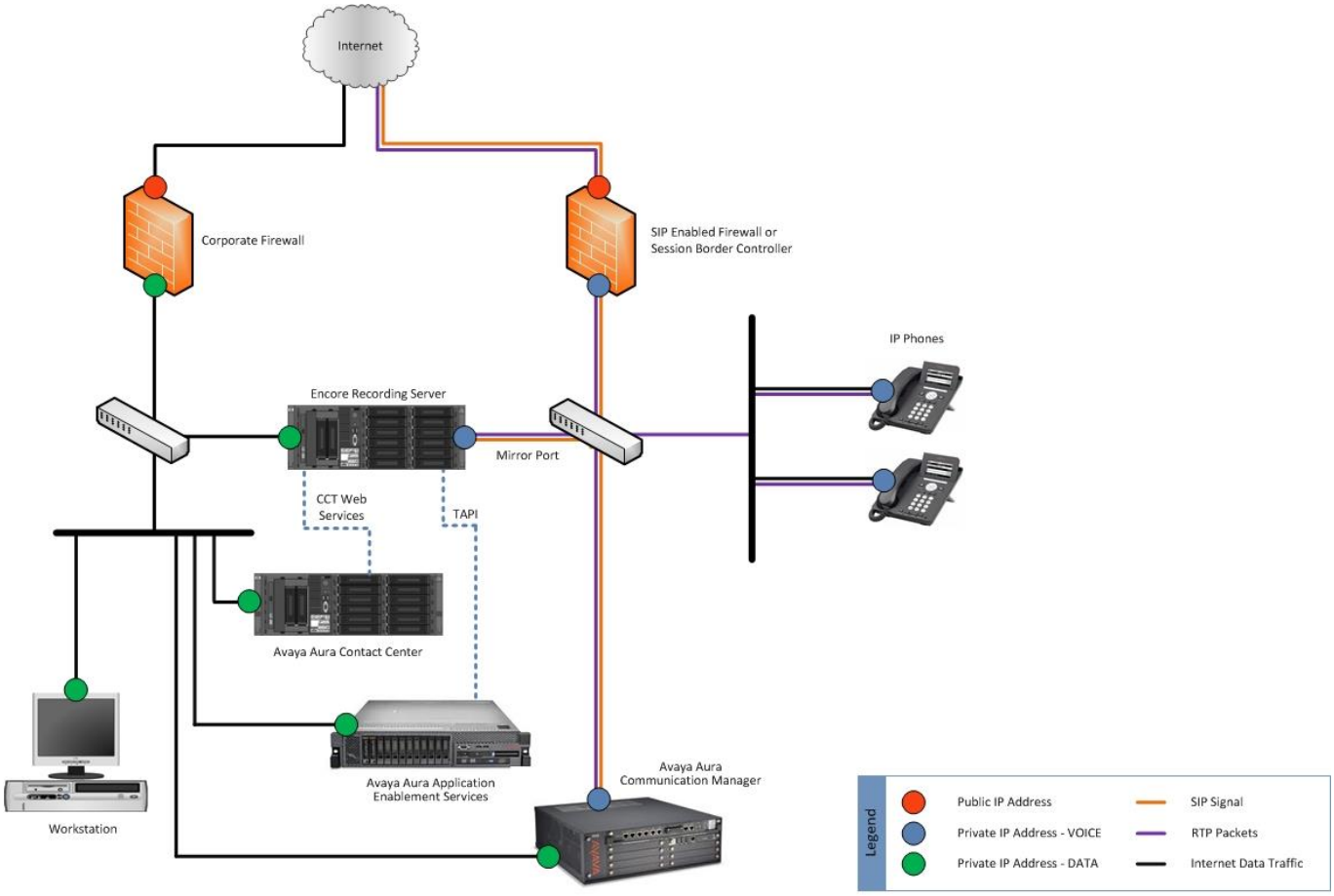
Trunk-side SIP Packet Capture

The Trunk-side SIP Packet Capture method uses a span port to collect the SIP and RTP audio packets directly from the network segment that includes SIP trunk traffic. The Avaya Aura Application Enablement Services (AES) monitors events on the Avaya Aura Communication Manager and forwards the events to the AES TSAPI client installed on the Encore server. Based on events received from SIP signaling and the TSAPI interface, the Encore server collects the RTP packets for a specific SIP trunk call and converts the RTP data to an audio recording file. Encore collects data associated with the call from the TSAPI messages when the call is terminated to a station of interest, or from the SIP signaling when the call is terminated elsewhere on the PBX.

NOTE

When recording SIP trunks, DVSAnalytics prefers that all SIP trunk traffic goes through a Session Border Controller (SBC), such as a Cisco CUBE, Ingate SIParator, etc. The SBC's LAN-side port must terminate to a network switch that can provide a SPAN/mirror port to the Encore server.

If an SBC cannot be provided, then the SIP trunk provider must be able to guarantee that a single IP Address will be used for all SIP and RTP media packets for both inbound and outbound calls. The LAN-side port of the device used for SIP trunk traffic must terminate to a network switch that can provide a SPAN/mirror port to the Encore server.



Configure Avaya System

The steps to configure the Avaya system are listed in this section. It is assumed that the reader has a working knowledge of Avaya system and only needs specific configuration assistance. The steps below are showing how to configure individual Avaya components using their direct management interfaces. If a task can be accomplished using System Manager and you are knowledgeable with its operation, you may choose to use System Manager instead.

Some steps and screenshots were taken from the *Application Notes for dvsAnalytics Encore 7.1 with Avaya Aura® Communication Manager 8.1 and Avaya Aura® Application Enablement Services 8.1 using Service Observing* document provided by Avaya Inc.

Verify Licenses

The following configurations assume that you have acquired sufficient licenses based on the guidance above in the Software Requirements – Avaya System section starting on page 8. The license quantities are shown in the following sub-sections:

- All audio collection methods
- DMCC – Service Observe
- DMCC – Multiple Registrations Methods

Configure Avaya Aura Communication Manager

Complete the steps in this section for the audio collection method you are using.

Complete for all systems

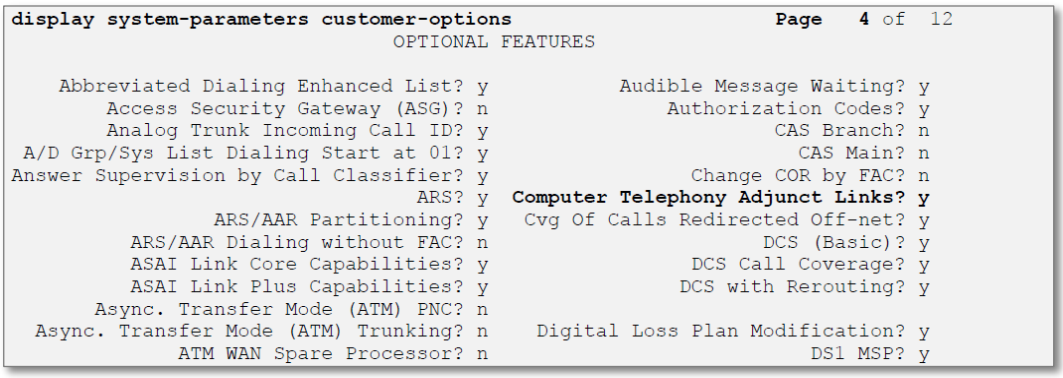
Add a CTI link using the "add cti-link n" command, where "n" is an available CTI link number. Enter an available extension number in the **Extension** field. Note that the CTI link number and extension number may vary. Enter **ADJ-IP** in the **Type** field, and a descriptive name in the **Name** field. Default values may be used in the remaining fields.

```
add cti-link 1                                              Page   1 of   3
                                  CTI LINK
 CTI Link: 1
Extension: 60111
     Type: ADJ-IP
                                                              COR: 1
     Name: AES CTI Link
Unicode Name? n
```

The Universal Call ID (UCID) feature must be enabled so that it is received in the event messages. This feature may have already been enabled, but it is important to check the following settings to verify they have been set correctly to enable this feature:

1. Enter the command "change system-parameters features".
2. Enable the following features (these settings may be spread across several pages):
    - Set **Create Universal Call ID (UCID)** to **y**. This allows a UCID to be generated for each call.
    - Set **UCID network Node ID** to **1** (or any number between 1 and 32767, and that is unique to the switch in the network).
    - Set **Send UCID to ASAI** to **y**. This enables the transmission of UCID information.

3. Enter the command “change trunk-group N”.
4. Enable the **Send UCID** field from **Page 3** for each trunk group that is used to communicate between CM systems. This field specifies whether the trunk should transmit UCIDs. Sending UCIDs in a network of CMs allows an application server that works with all of them to know it has already handled a call when the call is transferred to an agent on another switch.
5. Verify that the Communication Manager license has the proper permissions by using the “display system-parameters customer-options” command to verify that the **Computer Telephony Adjunct Links** option is set to **y** on **Page 4** of the Avaya system. If this option is not set to **y** then contact your Avaya representative for a proper license file.



```
display system-parameters customer-options                    Page   4 of  12
                                OPTIONAL FEATURES

    Abbreviated Dialing Enhanced List? y          Audible Message Waiting? y
        Access Security Gateway (ASG)? n              Authorization Codes? y
        Analog Trunk Incoming Call ID? y                      CAS Branch? n
 A/D Grp/Sys List Dialing Start at 01? y                        CAS Main? n
Answer Supervision by Call Classifier? y                 Change COR by FAC? n
                                ARS? y  Computer Telephony Adjunct Links? y
                ARS/AAR Partitioning? y  Cvg Of Calls Redirected Off-net? y
          ARS/AAR Dialing without FAC? n                      DCS (Basic)? y
          ASAI Link Core Capabilities? y                DCS Call Coverage? y
          ASAI Link Plus Capabilities? y               DCS with Rerouting? y
       Async. Transfer Mode (ATM) PNC? n
  Async. Transfer Mode (ATM) Trunking? n    Digital Loss Plan Modification? y
              ATM WAN Spare Processor? n                          DS1 MSP? y
```

CAUTION

If the UCID feature was enabled while CT Gateway was running, restart CT Gateway.

If using **Station-side** or **Trunk-side TDM** audio collection methods, the Configuration Manager setup is complete. Turn to “Configure Avaya Aura Application Enablement Services” on page 27.

Complete for systems using the ACD Split feature

Encore can be configured to record any agent who is a member of an ACD, instead of requiring you to provide and maintain a list of recorded agents in Encore. This ACD doesn't necessarily need to be an ACD that receives calls but can be one created for the purpose of managing which agents are recorded. If this ACD Split recording feature is to be used and you do not want to use existing ACD's, please create at least one ACD (Hunt Group) that has the **ACD**, **Vector** and **Skill** options set to **Yes**. Assign all agents that must be recorded to this ACD and provide your DVSAnalytics Project Manager or Installation Technician with the Group Extension(s) used for this purpose. If using existing ACD's, that deliver calls to agents that must be recorded, please provide the list of all Group Extension numbers where recorded agents are assigned.

If Group Extension numbers contain a dash in the PBX configuration, provide the extension number without the dash.

If Encore will be using multiple audio collection methods or if the number of logged in ACD agents would exceed the value in the "Max. Recording Ports per Server" from the "Supported Recording Features" above on page 6, please consult with your DVSAnalytics Project Manager or Installation Technician for guidance on how ACD's should be configured.

Complete for Station-side RTP Packet Capture or DMCC – Service Observe

Administer IP codec set

Use the "change ip-codec-set n" command, where "n" is an existing codec set number used for integration with Encore. Enter the desired audio codec types in the **Audio Codec** fields. Encore supports G.711MU, G.711A, and G.729 codecs. If your network uses a combination of G.711 and G.729, Avaya recommends you work with your Avaya reseller to determine the best codec to use based on adequate resources on the Avaya system to manage the work load. Provide the Codec to your Encore installer. If your company will be using the optional Encore Speech Analytics product, using a G.711 codec will allow for more accurate transcriptions.

For customer networks that uses encrypted media, make certain that **none** is included for **Media Encryption**, and that **Encrypted SRTP** is set to **best-effort**, these settings are needed for support of non-encrypted media from the virtual IP softphones used by Encore.

```
change ip-codec-set 1                                          Page   1 of   2

                        IP MEDIA PARAMETERS
    Codec Set: 1

    Audio          Silence      Frames   Packet
    Codec          Suppression  Per Pkt  Size(ms)
 1: G.711MU             n          2        20
 2:
 3:
 4:
 5:
 6:
 7:

     Media Encryption                   Encrypted SRTCP: best-effort
 1: 1-srtp-aescm128-hmac80
 2: aes
 3: none
 4:
```

If using the **Station-side RTP Packet Capture** method, the Configuration Manager setup is complete. Turn to "Configure Avaya Aura Application Enablement Services" on page 27.

Complete for DMCC – Service Observe

Verify service observing

Navigate to **Page 7** and verify that the **Service Observing (Basic)** customer option is set to **y**.

```
display system-parameters customer-options                    Page   7 of  12
                        CALL CENTER OPTIONAL FEATURES

                          Call Center Release: 8.0

                                 ACD? y                        Reason Codes? y
                       BCMS (Basic)? y             Service Level Maximizer? n
          BCMS/VuStats Service Level? y          Service Observing (Basic)? y
  BSR Local Treatment for IP & ISDN? y  Service Observing (Remote/By FAC)? y
                  Business Advocate? n             Service Observing (VDNs)? y
                    Call Work Codes? y                            Timed ACW? y
      DTMF Feedback Signals For VRU? y                  Vectoring (Basic)? y
                    Dynamic Advocate? n                Vectoring (Prompting)? y
```

Set system parameter features

Use the "change system-parameters features" command and navigate to **Page 11**. Set **Service Observing: Warning Tone** to the needed setting per customer requirements, and enable **Allow Two Observers in Same Call**, as shown below.

```
change system-parameters features                             Page  11 of  19
                        FEATURE-RELATED SYSTEM PARAMETERS
CALL CENTER SYSTEM PARAMETERS
  EAS
         Expert Agent Selection (EAS) Enabled? y
        Minimum Agent-LoginID Password Length:
          Direct Agent Announcement Extension:                  Delay:
    Message Waiting Lamp Indicates Status For: station
                          Work Mode On Login: aux
  VECTORING
                    Converse First Data Delay: 0      Second Data Delay: 2
                Converse Signaling Tone(msec): 100          Pause (msec): 70
                     Prompting Timeout(secs): 10
                  Interflow-qpos EWT Threshod: 2
    Reverse Star/Pound Digit For Collect Step? n
          Available Agent Adjustments for BSR? n
                              BSR Tie Strategy: 1st-found
   Store VDN Name in Station's Local Call Log? n
  SERVICE OBSERVING
             Service Observing: Warning Tone? n     or Conference Tone? n
    Allowed with Exclusion: Service Observing? n                 SSC? n
             Allow Two Observers in Same Call? y
```

Service Observe Physical Set – Optional

If the phones to be recorded have bridged call appearances and these bridged call appearances must be recorded, then make this change. Use the "change system special-applications" command and enable **(SA7900) - Service Observe Physical Set** which is located on **page 2**.

```
change system-parameters special-applications                 Page   2 of   9
                            SPECIAL APPLICATIONS

           (SA7710) - Enhanced Display on Redirected Calls? n

  (SA7776) - Display Incoming Digits for ISDN Trunk Groups? n
              (SA7777) - Night Service on DID Trunk Groups? n
                        (SA7778) - Display UUI Information? n
                           (SA7779) - Enhanced DID Routing? n
                (SA7852) - # and * in Vector Collect Step? none

                   (SA7880) - ASAI Internally Measured Data? n
                  (SA7900) - Service Observe Physical Set? y
 (SA7933) - Busy Tone with SAC and No Available Cvg Points? n

                                    (SA7963) - Dial By Name? n
                    (SA7991) - Variable Length Account Code? n
   (SA7994) - Incr Station Busy Ind to 25,000 (Linux only)? n
```

Administer Class of Restriction

Enter the “change cor n” command, where “n” is the class of restriction (COR) number for each of the following station types:

- For **agent stations** that need to be recorded, modify their COR with the **Can Be Service Observed** set to **y**.
- For the **virtual softphone stations** used by Encore to record, modify their COR with the **Can Be A Service Observer** set to **y**.

The screen below is for reference. For each COR, only one of the bolded fields should be set to **y**.

```
change cor 2                                                  Page   1 of  43
                              CLASS OF RESTRICTION

               COR Number: 2
          COR Description:

                      FRL: 0                                  APLT? y
  Can Be Service Observed? y          Calling Party Restriction: none
Can Be A Service Observer? y           Called Party Restriction: none
        Time of Day Chart: 1       Forced Entry of Account Codes? n
         Priority Queuing? n                Direct Agent Calling? n
    Restriction Override: none       Facility Access Trunk Test? n
    Restricted Call List? n                 Can Change Coverage? n
```

Administer Agent Stations

Use the “change station n” command, where “n” is an agent station to be recorded. For **COR**, enter the COR number selected from the previous step for stations that are to be recorded.

```
change station 65001                                          Page   1 of   5
                                    STATION

Extension: 65001                       Lock Messages? n              BCC: 0
     Type: 9611                        Security Code: *               TN: 1
     Port: S00103                    Coverage Path 1: 1             COR: 2
     Name: CM7 Station 1             Coverage Path 2:               COS: 1
                                    Hunt-to Station:               Tests? y
```

If the agent station is a SIP station, then navigate to the options page that contains the “SIP FEATURE OPTIONS”. Change the **Type of 3PCC Enabled** option to **Avaya**.

```
change station 51001                                          Page   6 of   6
                                    STATION
SIP FEATURE OPTIONS

     Type of 3PCC Enabled: Avaya    SIP Trunk: aar
 Enable Reachability for Station Domain Control: s
SIP URI:
Primary Session Manager
  IPv4 Address: 172.20.1.106       IPv6 Address:
IPv4 Node Name: sessionmanager     IPv6 Node Name:
```

Repeat this section to administer all agent stations that will be recorded.

Administer Virtual IP Softphones

Add a virtual softphone using the “add station n” command, where “n” is an available extension number. Enter the following values for the specified fields and retain the default values for the remaining fields.

- **Type: 4610**
- **Name:** A description name
- **Security Code:** A desired value
- **COR:** The class of restriction number used for the virtual softphone stations from “Administer Class of Restriction“ on page 24
- **IP Softphone: y**

```
add station 65991                                          Page   1 of   6
                                    STATION

Extension: 65991                       Lock Messages? n              BCC: 0
     Type: 4610                        Security Code: 65991           TN: 1
     Port: IP                            Coverage Path 1:            COR: 1
     Name: Encore Virtual #1           Coverage Path 2:              COS: 1
                                       Hunt-to Station:
STATION OPTIONS
                                            Time of Day Lock Table:
             Loss Group: 19          Personalized Ringing Pattern: 1
                                                Message Lamp Ext: 65991
           Speakerphone: 2-way               Mute Button Enabled? y
        Display Language: english
 Survivable GK Node Name:
          Survivable COR: internal              Media Complex Ext:
   Survivable Trunk Dest? y                          IP SoftPhone? y

                                          IP Video Softphone? n
                              Short/Prefixed Registration Allowed: default

                                          Customizable Labels? y
```

Navigate to **Page 4** and add a **serv-obsrv** button as shown below.

```
change station 65991                                       Page   4 of   6
                                    STATION
 SITE DATA
       Room:                                          Headset? n
       Jack:                                          Speaker? n
      Cable:                                         Mounting: d
      Floor:                                      Cord Length: 0
   Building:                                        Set Color:

ABBREVIATED DIALING
     List1:                    List2:                    List3:

BUTTON ASSIGNMENTS
 1: call-appr                          7:
 2: call-appr                          8:
 3: call-appr                          9:
 4: serv-obsrv                        10:
 5:                                   11:
```

Repeat this section to administer the desired number of virtual softphones, which should meet or exceed the number of simultaneous recordings that Encore is licensed for. If you expect the Encore recorder to be at its licensed capacity often, it is recommended that an additional number of virtual softphones to account for a small interval of 500ms that a softphone would not be available between recordings. The number of additional softphones can vary depending on how often calls are ending and starting at the same time.

Complete for DMCC – Multiple Registrations

Depending on your environment and security needs, using the Multiple Registrations recording method may require you to create a separate Class of Restriction for recorded extensions.

Administer Class of Restriction

Enter the "change cor n" command, where "n" is the class of restriction (COR) number for agent stations that need to be recorded. Modify the COR with:

- **Can Be Service Observed** set to **y**.
- **Can Be A Service Observer** set to **y**.

The screen below is for reference.

```
change cor 2                                                  Page   1 of  43
                            CLASS OF RESTRICTION

              COR Number: 2
         COR Description:

                     FRL: 0                                APLT? y
  Can Be Service Observed? y            Calling Party Restriction: none
Can Be A Service Observer? y             Called Party Restriction: none
        Time of Day Chart: 1       Forced Entry of Account Codes? n
         Priority Queuing? n                  Direct Agent Calling? n
    Restriction Override: none       Facility Access Trunk Test? n
    Restricted Call List? n                  Can Change Coverage? n
```

Administer Agent Stations

Use the "change station n" command, where "n" is the agent station to be recorded.

- For **COR**, enter the COR number selected from the previous step for stations that are to be recorded.
- Verify or set **IP Softphone** to **y**
  Note: IP Softphone is required for all recorded agent stations and not just those using softphones. With DMCC - Multiple Registrations, Encore receives audio by registering a softphone instance of the recorded agent station.

```
Change station 23001                                          Page   1 of   5
                                    STATION

Extension: 23001                       Lock Messages? n              BCC: 0
     Type: 9641                        Security Code:                 TN: 1
     Port: IP                        Coverage Path 1:                COR: 2
     Name:                           Coverage Path 2:                COS: 1
                                     Hunt-to Station:
STATION OPTIONS
                                          Time of Day Lock Table:
             Loss Group: 19          Personalized Ringing Pattern: 1
                                               Message Lamp Ext: 23001
           Speakerphone: 2-way              Mute Button Enabled? y
       Display Language: english                 Button Modules: 0
 Survivable GK Node Name:
         Survivable COR: internal            Media Complex Ext:
   Survivable Trunk Dest? y                        IP SoftPhone? y

                                                      IP Video? n
                                 Short/Prefixed Registration Allowed: default

                                                Customizable Labels? y
```

Repeat this section to administer all agent stations that will be recorded.

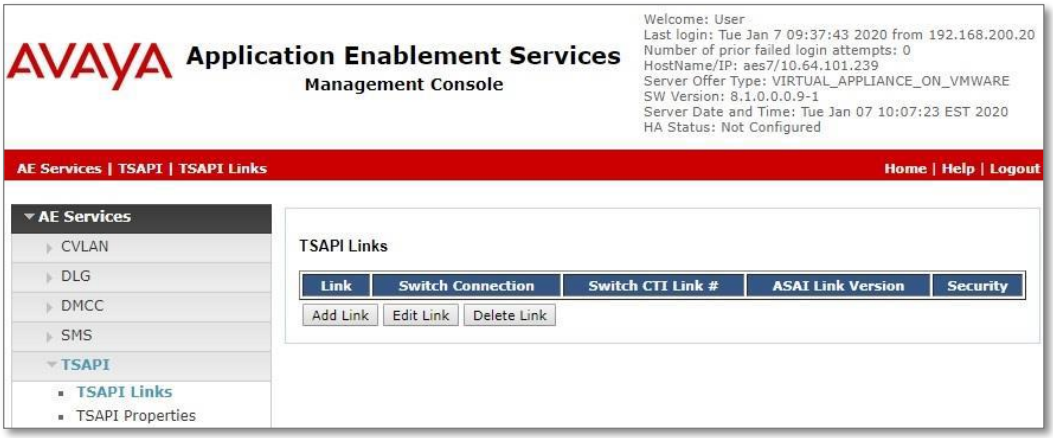
Configure Avaya Aura Application Enablement Services

Step 1: Launch Application Enablement Services Management Console

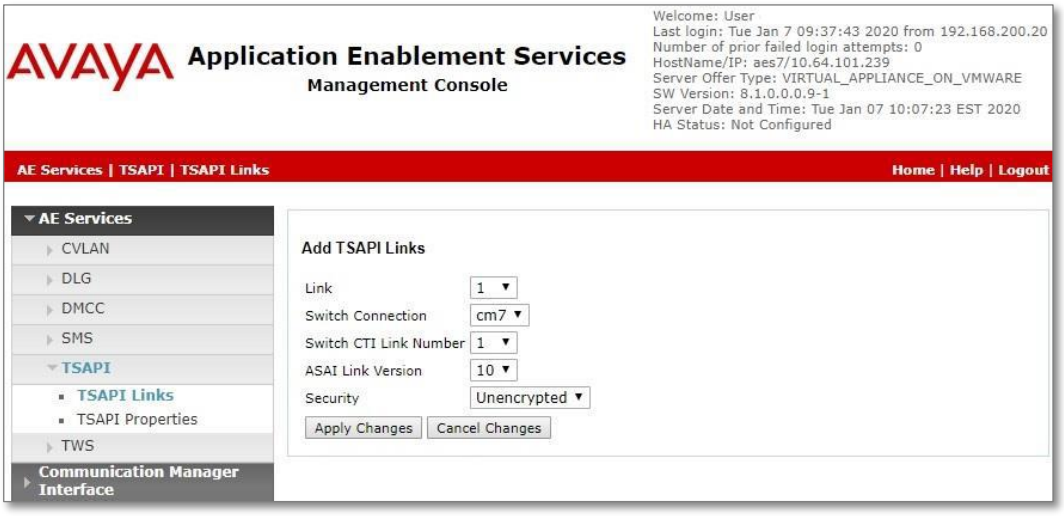
Log into the Application Enablement Services Management Console (Management Console).

Step 2: Administer TSAPI Link

Select **AE Services | TSAPI | TSAPI Links** from the left pane of the **Management Console**. The **TSAPI Links** window opens. Click **Add Link**.



The **Add TSAPI Links** window opens. The **Link** field is only local to the AES server and may be set to any available number. For **Switch Connection**, select the relevant switch connection from the drop-down list. In this example, the existing switch connection **cm7** is selected. For **Switch CTI Link Number**, select the CTI link number set up in "Complete for all systems" on page 20. Retain the default values in the remaining fields and click **Apply Changes**.



Step 3: Administer H.323 Gatekeeper

Select **Communication Manager Interface | Switch Connections** from the left pane. The **Switch Connections** window shows a listing of the existing switch connections.

Locate the **Connection Name** associated with the relevant Communication Manager, in this example **cm7**. Make note of the Connection Name value as you may be requested to provide it to your DVSAnalytics Installation Technician. If requested, provide the exact name as shown. The value is case sensitive and must be entered into the Encore configuration exactly as show here.

Select the corresponding radio button. Click **Edit H.323 Gatekeeper**.

The **Edit H.323 Gatekeeper** window opens. Enter the IP address of a C-LAN circuit pack or the Processor C-LAN on Communication Manager to be used as H.323 gatekeeper, in this example **10.64.101.236** is shown below. Click **Add Name or IP**.

Step 4: Verify Security Database Settings

Select **Security | Security Database | Control** from the left pane to display the **SDB Control for DMCC, TSAPI, JTAPI and Telephony Web Services** which opens in the right pane.

Use this guidance to determine how the Security Database Control should be configured:

When recording using **DMCC – Multiple Registrations**:

Enable SDB for DMCC Service must be enabled

Enable SDB for TSAPI Service, JTAPI and Telephony Web Services may be enabled or disabled

When recording using **DMCC – Service Observe**:

Enable SDB for DMCC Service may be enabled or disabled

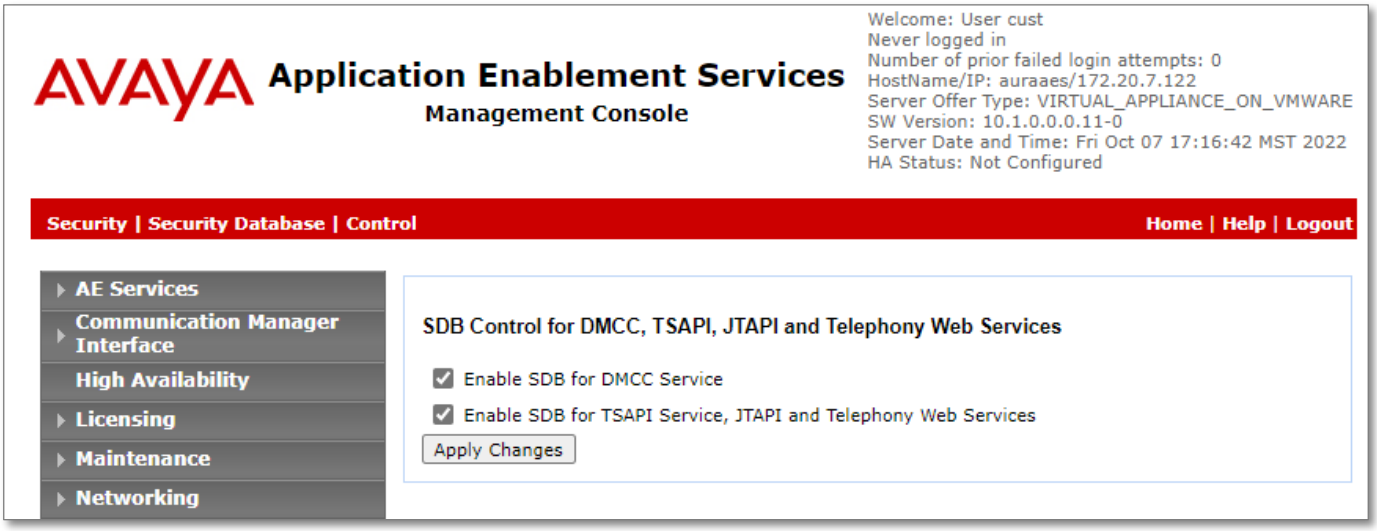
Enable SDB for TSAPI Service, JTAPI and Telephony Web Services may be enabled or disabled

When **Avaya Aura Contact Center (AACC)** is used by Encore:

Enable SDB for DMCC Service should follow the needs of the recording method above

Enable SDB for TSAPI Service, JTAPI and Telephony Web Services must be enabled

If any changes were made to the Security Database Control settings, click **Apply Changes** and then proceed to Step 5: Restart the Services. If no changes were made skip to Step 6: Obtain Tlink name.

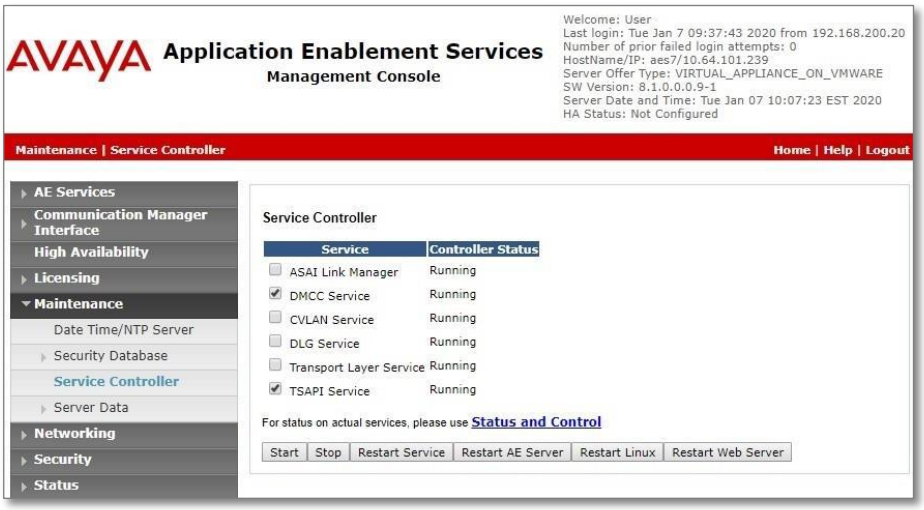


Step 5: Restart the Services

Select **Maintenance | Service Controller** from the left pane, to display the **Service Controller** window in the right pane. Check **DMCC Service** and **TSAPI Service** and click **Restart Service**.

CAUTION

Restarting the services will disrupt any applications that the use DMCC or TSAPI. You may need to do this at a time that will not interfere with other applications.



Step 6: Obtain Tlink name

Select **Security | Security Database | Tlinks** from the left pane. The **Tlinks** window shows a listing of the Tlink names. A new Tlink name is automatically generated for the TSAPI service. Locate the Tlink name associated with the relevant switch connection, which would use the name of the switch connection as part of the Tlink name. Make a note of the associated Tlink name, to be used later for configuring Encore.

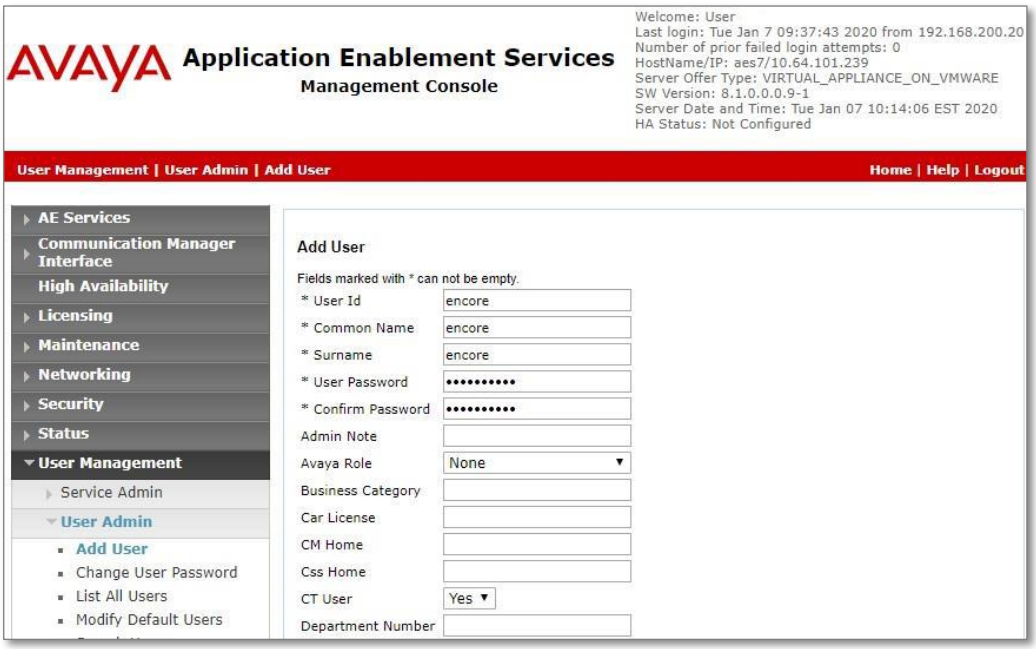
In this example, the associated Tlink name is **AVAYA#CM7#CSTA#AES7**. Note the use of the switch connection **CM7** from "Step 2: Administer TSAPI Link" on page 27.

Step 7: Administer Encore user

Select **User Management | User Admin | Add User** from the left pane, to display the **Add User** window in the right pane.

Enter desired values for **User Id**, **Common Name**, **Surname**, **User Password**, and **Confirm Password**. For **CT User**, select **Yes** from the drop-down list. Retain the default value in the remaining fields. Click **Apply** at the bottom of the window (not shown below).

Your DVSAnalytics Installation Technician will require the User Id and User Password values you created for this user. You must provide these values exactly as entered as they are case sensitive must be entered into the Encore configuration exactly as created in the Avaya system.

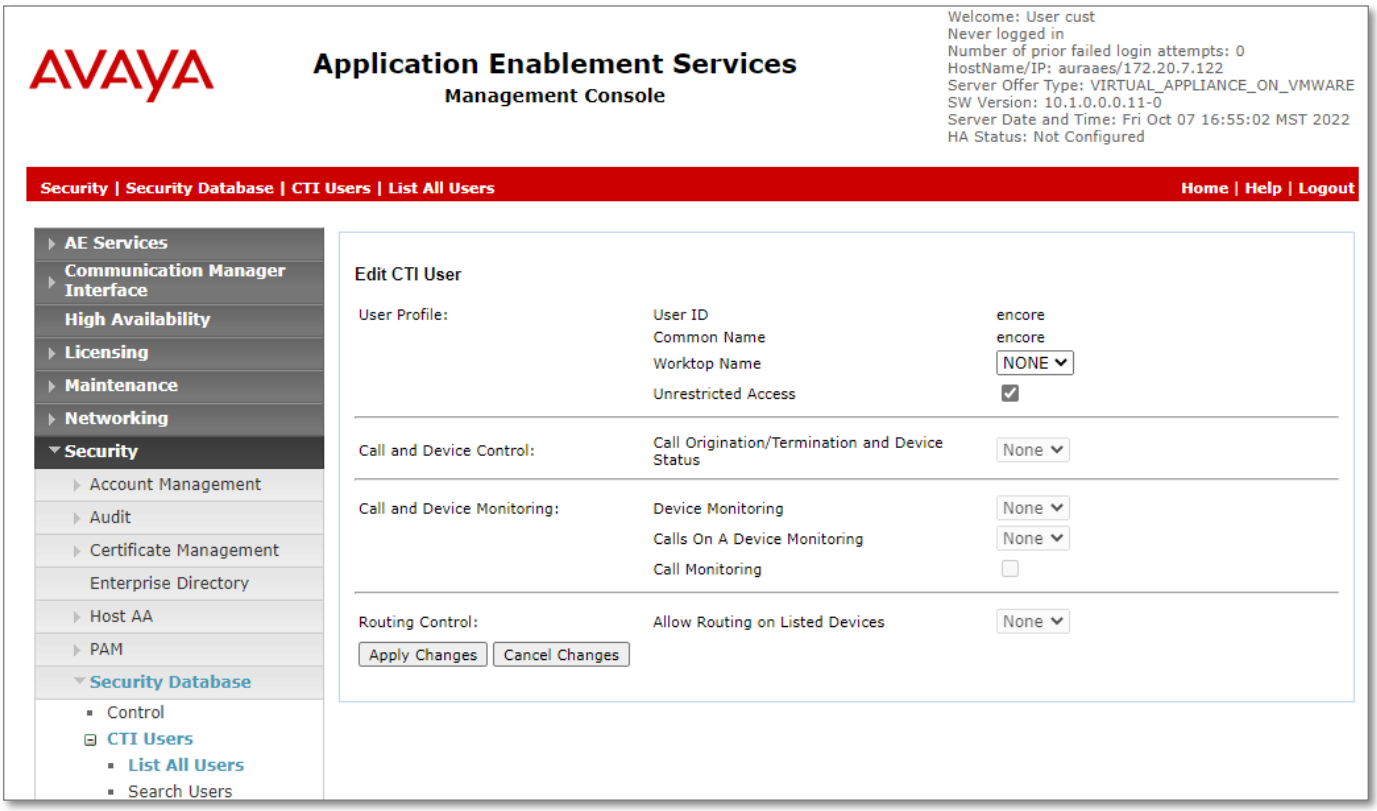


Step 8: Verify security database settings

Select **Security | Security Database | CTI Users | List All Users** from the left pane.

In the **CTI Users** list select the **User ID** that you just created in the previous step and click **Edit**.

In the **User Profile** section, enable the **Unrestricted Access** option and then click **Apply Changes**.



If using the **Station-side TDM**, **Trunk-side TDM**, **Station-side RTP Packet Capture**, or **Trunk-side SIP Packet Capture** method, skip over Step 9 and proceed to the next section.

If using the any **DMCC Streaming** method, follow Step 9: DMCC Server Port on the next page.

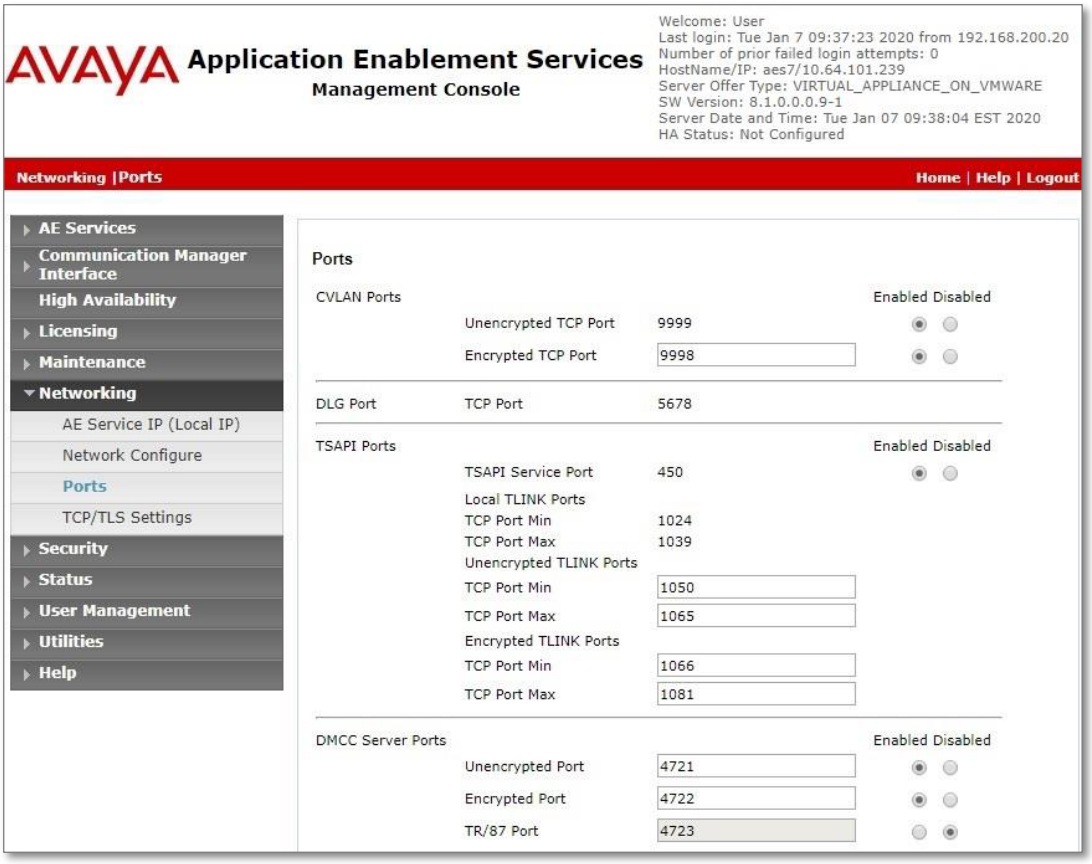
Step 9: DMCC Server Port

*Only complete this step if using one of the **DMCC Streaming** methods. If not using these methods, skip this step.*

Provide your dealer or DVSAnalytics installation tech with the following information:

- DMCC Server Port number
- DMCC Server Port type – Encrypted or Unencrypted

To find this information, select **Networking | Ports** from the left pane to display the **Ports** window in the right pane.



Verify AACC Settings and Obtain Required Information

Only complete these steps if you are using AACC to capture additional ACD data.

Available licenses

In AACC, open the Contact Center Licensing and select the **Real Time Usage** page. Verify the SIP Call Recording license **LM_CONTACTRECN** is available. This listing corresponds to the license string **LM_CONTACTRECN** in the physical license file.

Also verify that the CCT Web Services are available; this is listed as **Open Interface Open Networking** on the **Real Time Usage** page. The listing corresponds to the license string **LM_OIN** in the physical license file.

Obtain information needed for the AACC integration

Provide your dealer or DVSAnalytics installation tech with the following information:

- CCT Server Name
- CCT Web Service Port, see below for instructions
- CCT User Name and Password
- AACC SIP Domain
- CCMA Server Name
- CCMA Web Service Port (Defaults to port **80**)
- CCMA User and Password (Use the default of **WebAdmin**, otherwise the provided account must have permission to list the properties of all agents configured on the system.)
- A list of the extensions used by recorded agents.
- List of extensions used by recorded agents; see the next page for instructions on how to obtain this list

CCT Web Service Port

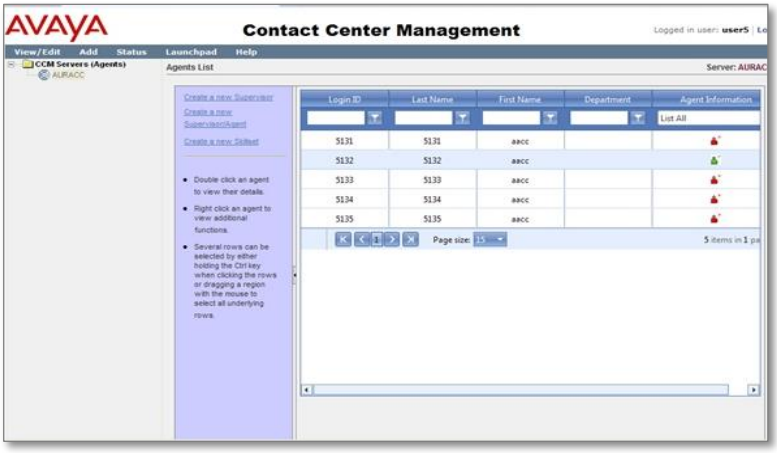
To obtain the CCT Web Service port, complete these steps:

1. Navigate to the AACC Web Services main page; it should be at **http://<*CCT Server Name*>:9090**.
2. Click the **Open Interface Splash Page** link.
3. Scroll to the bottom of the page that opens and click **UserService**.
4. The CCT web services port can be found in the **Wsdl Location**. In the sample below, the CCT web services port is 9084.

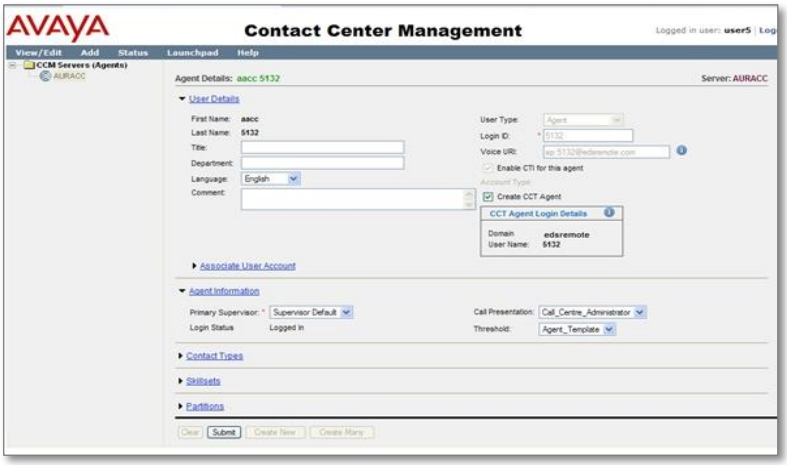
List of Extensions Used by Agents

To obtain the list of extensions used by agents, complete these steps:

1. Log into the Avaya Contact Center Manager, using the URL **http://<*CCMA Server Name*>**.
2. Select **Contact Center Management**.
3. Select **View/Edit** and select **Agents** from the drop-down menu.
4. In the tree view on the left select your Aura CC server. A list of agents opens.



5. Double-click a recorded agent.



6. The extension is shown in the **Voice URI** field. This parameter uses this format:

   sip:<*extension*>@<*SIPDomain*>

NOTE
The domain should be the same as the AACC SIP Domain already obtained.

7. Return to the agent list by selecting your Aura CC server in the tree view on the left.
8. Repeat Steps 5−7 until all the extensions have been gathered for the agents that need to be recorded.

Prepare Avaya CMS for Encore WFM (optional)

Follow these steps if you have subscribed to Encore WFM and will be integrating with an Avaya CMS server. These steps will help you prepare the Avaya CMS system for integration with Encore WFM and will guide you in gathering the information needed for a successful installation.

WARNING

Do not proceed with this section until you have verified which Call History Interface the CMS system is configured to use.

Encore WFM can only retrieve historical data via the **Internal Call History Interface (ICHI)**. If your CMS system is configured to use the External Call History Interface (ECHI), do not proceed, and contact your DVSAnalytics Project Manager.

Verify Licenses

Before proceeding, please verify that your Avaya CMS system is licensed for the following:

- CMS Real-Time Adherence (RTA) Connector
- Appropriate number of licenses to support the maximum number of Generic Real-Time Adherence sessions that need to be created.

Gather CMS System information

Prior to starting the Generic RTA Adapter session configuration below in Configure the Generic RTA Adapter, and to aid DVSAnalytics' Encore WFM configuration efforts, the customer/dealer and the DVSAnalytics Project Manager or Installation Tech should have a discussion regarding the CMS environment so DVSAnalytics can install and configure the appropriate number of Encore WFM CMS Adapter Service instances.

In addition, please provide your DVSAnalytics Project Manager or Installation Tech the following CMS information:

- IP address or FQDN of the CMS server
- The CMS server's hostname. This is required for the ODBC connection.
- The numeric ACD ID of all Communication Managers that are connected to the CMS server, for which Encore WFM will need to use in forecasting.
- Any CMS Tenant ID that Encore WFM will need to use in forecasting.

Gather VDN, Split/Skill and Agent information

For a successful Encore WFM installation, please provide your DVSAnalytics Project Manager or Installation Tech a list of the following items that Encore WFM must use for forecasting:

- List of all VDNs that Encore WFM may use for forecasting.
- List of all Split/Skills that Encore WFM may use for forecasting.
- List of all Agent Login IDs that Encore WFM must use for adherence reporting. These are found on the CM "Agent LoginID" screen's "Login ID" field for each agent.

Gather the Aux Reason codes

For accurate adherence reporting, Encore WFM needs a complete list of Aux Reason codes that agents might select when they enter the AUX work mode. Your DVSAnalytics Project Manager or Installation Tech will need the numeric Aux Reason codes as well as their descriptions, so that they make the appropriate activity mappings in Encore WFM.

Acquire the ODBC Driver for DVSAnalytics Use

For a successful Encore WFM installation, your DVSAnalytics Installation Technician will need access to the **64-bit IBM Informix Windows Client SDK** from the CMS server. Using this Client SDK package, your DVSAnalytics Installation Technician will be able install the ODBC driver required for Historical data access. Guidance on how to retrieve the package from the CMS server can be found in the Avaya document *Using ODBC and JDBC with Avaya Call Management System* in the "Installing ODBC on a Windows client" chapter. Note, your technician only needs access to the package, they will perform the installation of the ODBC driver during the installation of the Encore WFM software.

If the ODBC service is not listening on the default port of 50001, provide your DVSAnalytics Project Manager or Installation Tech with the correct port number.

Create a User for ODBC Access

A user must be created on the CMS system for the exclusive use of Encore WFM. We recommend the username of **encoreWFM**, but this can be any username you wish. Once the user has been created it must be assigned to the **dbaccess** group. This assignment takes place in a Linux shell of the CMS server.

Once complete, provide the **username** and **password** to your DVSAnalytics Project Manager or Installation Tech.

CM and CMS Configuration

In a typical Avaya CMS implementation for WFM, Avaya Professional Services is engaged to assist with the needed configuration on the Communication Manager(CM) and CMS systems. Only high-level guidance is being provided here so that certain Encore requirements are met.

Intrahour Interval

Encore WFM supports intervals of 15 minutes or 30 minutes. 15 minutes is the recommended interval as it provides a more precise forecast. See "About modifying the intrahour interval" in the *Administering Avaya Call Management System* documentation for further details about what effect a change of this interval can have on the CMS system.

VDN Configuration

For any VDN's that Encore WFM may use for forecasting, be sure the **Measured** field is set to either **Both** or **External**.

VDN Call Profile

For any VDN Call Profiles that Encore WFM may use for forecasting, be sure a value is set for the **Acceptable service level** field.

Hunt Group Configuration

For any Split/Skill hunt group that Encore WFM may use for forecasting, be sure the **Measured** field is set to either **Both** or **External**.

Split/Skill Call Profile Configuration

For any Split/Skill Call Profile that Encore WFM may use for forecasting, be sure a value is set for the **Acceptable service level** field.

Obtain information from DVSAnalytics to prior to the Generic RTA Adapter configuration

Using information that you provided to DVSAnalytics above, your DVSAnalytics Project Manager or Installation Tech will provide you with information that you will need to complete the configuration of the Generic RTA Adapter. Depending on your company's needs, DVSAnalytics will provide one or more sets of information that include the Encore server's FQDN/IP address, the TCP Port number of its listening WFM adapter and the ACD ID that the adapter is configured to collect data for.

Encore WFM will run one adapter service/instance for each ACD where receive real-time data retrieval is needed. Typically, each of these adapters will be running on the same Encore server but will use a unique TCP port to receive data for the configured session's ACD. Both the Encore configuration and the CMS configuration must match their unique combinations of Host/Port/ACD values.

Configure the Generic RTA Adapter

When Avaya Professional Services configures the sessions used to send real-time data to Encore WFM, the following guidance will be helpful in aiding the configuration.

Encore WFM will run one adapter service/instance for each ACD where receive real-time data retrieval is needed. Typically, each of these adapters will be running on the same Encore server but will use a unique TCP port to receive data for the configured session's ACD.

PARAMETER IN THE RTA.CONF	CONFIGURED VALUE	DESCRIPTION
HOST	<FQDN or IP address>	The FQDN or IP address of the Encore server where the Encore WfmAdapterCMS Service is running.
PORT	<TCP Port>	The Encore WfmAdapterCMS Service instance's listening TCP port. Default for the first instance is 7101.
ACD	<ACD being monitored>	ACD number of the ACD providing the real-time data.
REPORT	xPrta_gen	The xPrta_gen report is required.
MONITOR_LIST	1-8000	Skills to monitor
REFRESH	5	Refresh rate of the report, in seconds.
ENCRYPTED	no	Encore only supports an unencrypted connection.

Call Handling Scenarios

This section explains how different call scenarios are displayed in Encore's UI. The samples in this section are from a station-side recording system and it is assumed that all stations involved in the calls are configured to be recorded.

Certain situations affect how recordings are created and how they can be located using the Related Call Lookup feature:

- Hold – When a call is put on hold, the recording is suspended. When the call is retrieved, the audio is appended to the recording to create one audio recording.
- Consultation Call – If an agent is on a call and then places a consultation call, the first call is put on hold and the recording is suspended. Assuming the called party is also using a recorded phone, the consultation call is recorded as two separate recordings – one for each extension. When the agent hangs up the consultation call and retrieves the caller, the two recordings end and the first recording resumes; the second portion of the recording is appended to the first portion. All three recordings have different Segment IDs (SID) and share the same Related ID (RID).
- Blind Transfer – When a call is blind transferred (also called an unannounced transfer), the first recording ends after the agent presses the transfer button and hangs up the handset. The second recording begins when the second agent answers the transferred call. The second recording ends when the second agent hangs up the call. A separate SID is associated with each recording and they usually share the same RID. If the call is transferred to an ACD queue or Hunt Group, it may not be possible to show the relationship between the recordings and the same RID may not be associated with both recordings.
- Conference Call – When an agent decides to bring a third party into a current call, the agent usually puts the caller on hold to first consult with the third party. The first recording of the agent and the outside caller suspends during the consultation call. Assuming the third party is using a recorded phone, the consultation call creates two recordings – one for the agent and another for the third party. After the consultation call ends and the three parties are joined into the conference, the first recording resumes and it ends when the agent hangs up. The recording of the third party continues until the third party hangs up.
- Internal Call – If both extensions are monitored by Encore, two recordings are created – one for each extension. The party who initiates the call is treated as the agent for data collection purposes.

External Inbound Call

Recordings: 1 | SID: 1 | RID: 1

Extension 5002 receives an external inbound call with SID 1 and hangs up when the call is complete. This call creates one recording and one RID even though no other calls are associated with it.

External Inbound Call with Supervised Transfer

Recordings: 3 | SID: 3 | RID: 1

1. Extension 5002 receives an external inbound call. Recording 1 begins with SID 1.
2. The agent presses the transfer button which puts the caller on hold and suspends Recording 1. The agent then makes a consultation call to extension 5025. Recording 2 for extension 5002 begins with SID 2 and Recording 3 begins for extension 5025 with SID 3. When extension 5002 hangs up to complete the transfer, Recordings 1 and 2 end.
3. Now the caller is transferred to the agent at extension 5025. Recording 3 continues.
4. When the agent at extension 5025 hangs up, Recording 3 ends.

The same RID is associated with all recordings to show they are related.

External Inbound Call to ACD

Recordings: 1 | SID: 1 | RID: 1

Extension 5002 answers an external ACD call. A recording with SID 1 begins and, when the call ends, the recording stops. The ACD number, ACD name, and Agent Login ID are associated with the recording.

External Outbound Call

Recordings: 1 | SID: 1 | RID: 1

Extension 5002 makes an external outbound call with SID 1 and hangs up when the call is complete. This call creates one recording and one RID even though no other calls are associated with it. The Call Direction for the recording shows as Outgoing. The dialed number is stored in the DNIS and Other Party Number fields.

Internal Call

Recordings: 2 | SID: 2 | RID: 1

Extension 5002 makes an internal call to extension 5009 (both extensions are monitored by Encore). A recording is created for each monitored extension and each recording is assigned a different SID. Both recordings are assigned the same RID to show they are related to each other.

External Inbound Call with Blind or Unannounced Transfer

Recordings: 2 | SID: 2 | RID: 1

1. Extension 5002 receives an external inbound call which starts Recording 1 with SID 1.
2. The agent transfers the caller to extension 5009 without consulting the agent at extension 5009. Recording 1 ends when 5002 hangs up his phone.
3. Recording 2 with SID 2 begins when 5009 answers the call. It ends when the agent hangs up her phone.

The same RID is associated with each recording to show they are related.

Consultation Call

Recordings: 3 | SID: 3 | RID: 1

1. Extension 5002 receives an external inbound call which starts Recording 1 with SID 1.
2. The agent puts the caller on hold, suspending Recording 1, and makes a consultation call to extension 5025 which starts Recording 2 with SID 2 to record extension 5002. This also starts Recording 3 with SID 3 to record extension 5025 in the consultation call.
3. When the agent at 5002 hangs up the consultation call, Recording 2 ends. When the agent at 5025 hangs up, Recording 3 ends.
4. The agent at extension 5002 then retrieves the original call and Recording 1 with SID 1 resumes.
5. When extension 5002 hangs up with the caller, Recording 1 ends.

The same RID is associated with all recordings to show they are related.

Conference Call

Recordings: 3 | SID: 3 | RID: 1

1. Extension 5010 receives an external inbound call which starts Recording 1 with SID 1.
2. The agent at extension 5010 puts the caller on hold and makes a consultation call to bring a supervisor at extension 5008 into the call. This suspends Recording 1. Recording 2 with SID 2 begins to record extension 5010 on the consultation call and starts Recording 3 with SID 3 to record the supervisor at extension 5008.
3. When the agent at extension 5010 joins the caller and the supervisor at extension 5008 into a three-party conference, Recording 2 ends. Recording 1 resumes and appends the audio to the first portion of the recording. Recording 3 continues.
4. When the supervisor at extension 5008 hangs up the call, Recording 3 ends.
5. When the agent at extension 5010 hangs up the call, Recording 1 ends.

The same RID is associated with all recordings to show they are related.

Appendix 1: Glossary

AACC data collection

The Avaya Aura Contact Center (AACC) does not provide recording control but does capture additional data. To see the data captured, turn to "Supported data capture" on page 5.

abandoned call

An incoming call which is answered by the ACD but terminated by the caller before it is answered by an agent.

ACD (for CMS / WFM)

In this document, in the context of Avaya CMS or Encore WFM, when the documentation refers to ACD, it is actually referring to an Avaya Communication Manager system.

ACD

Automatic Call Distributor. An application that answers calls and directs them to a predetermined queue, or line, of waiting calls. In most cases, the ACD ensures that the first call in is the first call answered. It also determines which agent receives a call based on predetermined criteria such as idle time or availability and generates reports on call volume and distribution.

ACD name

The ACD split name for the call.

ACD number

The ACD split number for the call.

ACD split

If the customer needs to control recording using an ACD split, every agent that needs to be recorded must be assigned to one or more ACD splits. Encore monitors the agents as they log into or out of the ACD. If the agent is a member of an ACD split that should be recorded, Encore records the conversation. No calls are required to be processed by the ACD split for recording to occur.

AE Services (AES)

Application Enablement Services provides connectivity between client applications and Communication Manager. AE Services includes the DMCC and TSAPI services, both used in the client-side, IP call recording methods.

agent

A person who handles phone calls. Other variations include operator, attendant, representative, customer service representative (CSR), telemarketer, phone sales representative (TSR), and so on. In Avaya's context, a user that is log into to the ACD.

agent ID

The number assigned to an agent to identify the agent in the system. CT Gateway must monitor the ACD split or the EAS skill extension in which the agent is logged into to capture this information.

ANI

Automatic Number Identification. For inbound calls, this is the phone number from which the customer is calling (may not be supported by the trunk). For outbound calls, this is the dialed number. For a recording of a "Barge-In" call, the ANI will be incorrect.

Avaya Aura Application Enablement Services

See AE Services (AES)

Avaya Aura Communication Manager

See Communication Manager

call direction

The direction is either incoming (inbound) or outgoing (outbound).

call record

An entry in a database that holds the data associated with a call.

call type

The call type is either internal, external, or conference.

CCMA

Contact Center Manager Administration

CCT

Communication Control Toolkit

CMS

Avaya Call Management System

Codec

A codec (coder/decoder) provides the means by which audio is compressed. Some of the codecs supported by Communication Manager include G.711, G.722, G.723, and G.729.

Communication Manager (CM)

Avaya Aura Communication Manager is an open, scalable, highly reliable and secure IP telephony platform, which provides user and system management functionality, intelligent call routing, application integration and extensibility, and enterprise communications networking

consultation call

A call that is made while the customer (original call) is on hold. In the database, the **Consultation Call** field shows **Yes** when the recording is a consultation call.

Control Directory Number (CDN)

This is a special directory number not associated with any physical phone or equipment. The CDN specifies a destination ACD queue to which incoming calls are directed. Multiple CDNs can place calls into the same ACD queue. The parameters of the CDN, not those of the ACD queue, determine call treatment.

dialed number

Captured for outbound calls and is stored in the ANI field.

DMCC device

A “virtual” device registered on Communication Manager using the AE Services DMCC service. A DMCC device may be registered as a standalone IP endpoint or at the target extension. DMCC devices are used to provide first-party device and media control functionality

DMCC Streaming

This refers to any of the following DMCC-based recording methods: DMCC – Service Observe, DMCC – Multiple Registrations Stereo, DMCC – Multiple Registrations Mono.

DNIS

Dialed Number Identification Service. For inbound calls, this is the number the customer dialed or the agent's extension number (may not be supported by the trunk). For a recording of a "Barge-In" call, the DNIS will be incorrect.

encrypted calls

Calls that have the audio RTP packets encrypted. This prevents 3rd party applications, such as the Encore system, from using the RTP packets for recording.

extension

An extension is a Communication Manager station that has been provisioned with an extension number and other attributes so that calls can be made to and from it. Extension and station are sometimes used interchangeably.

external calls

In these calls, the calling or called parties are outside the PBX.

full-time recording

This method uses the Recording Engine to record all conversations for the defined endpoints.

hold duration capture

The sum of all hold durations that occurred during the recording.

inbound

Calls which are received/answered by a recorded party.

internal calls

Calls made between extensions on the same PBX.

obtain agent name from SIS

This feature is helpful in a free-seating environment where the extension name defined in the PBX is different than the agent name. Using the extension, Encore queries EIS/SIS to locate the agent's name and then attaches the agent name to the recording. If the customer is using this feature, every recorded agent must be setup with a Recording Account in Encore 3.

outbound

Calls which are initialed/placed by a recorded party.

other call ID

This is the Universal Call ID of related calls.

other party name

If the other party is logged into the internal ACD, this field contains the agent name defined in the Encore database. If the other party is logged into the AACC, this field contains the name associated with the monitored extension as defined in the PBX. For internal calls, this data is only available if the other party is also a recorded extension. This data is not available for external calls.

other party number

Number of the other party on the line with the person being recorded; if external and incoming call, this is an ANI.

pause/resume on hold

A method that pauses the recording of audio and screen when a call is placed on hold, and resumes recording when the hold is taken off.

PBX (PABX)

Private (Automated) Branch Exchange. The phone system to which the office phones are connected.

recorded party name

If the other party is logged into the internal ACD, this field contains the agent name defined in the Encore database. If the other party is logged into the AACC, this field contains the name associated with the monitored extension as defined in the PBX.

This data is only received when Encore begins monitoring the extension during startup or when a device is added to the ctisetup.ini file and the **Update Device List** option is used to update CT Gateway.

recorded party number

The extension of the monitored phone.

recorded party disconnect

If the recorded party disconnects the call, this field is set to 1. If the other party disconnects, this field is set to 0.

recording

The audio recording, screen recording, and database record associated with a single phone call or conversation.

recording device

A DMCC device registered in client media mode for the purpose of recording calls. The recording device can be a standalone IP endpoint (Service Observing) or registered at the extension at which calls are to be recorded (Multiple Registrations)

recorded extension

A extension that that is configured to be recorded by Encore

RTP

Real-time Transport Protocol. RTP is a standardized packet format for delivering audio and video over a packet network

skill-based routing

A skillset is a label applied to a collection of abilities or knowledge required to process a request, such as language preference, product knowledge, or department knowledge. In skill-based routing, agents are assigned skillsets, and contacts are presented to available agents who have the skillset to serve the customer request.

skillset

A skillset is a group of abilities necessary to answer a specific type of contact. Skillsets are the basic building blocks of skill-based routing.

station

A phone connected to the PBX.

targeted extension

The extension at which calls are to be recorded

target Device

The physical set (softphone or “hard” phone) registered at the target extension

TSAPI

Telephony Server Application Programming Interface. This is an API that enables programmers to build telephony and CTI applications. Encore uses TSAPI as its primary means to monitor call events and capture call data.

trunk

The connection between the phone company and the PBX that carries incoming calls.

Universal Call ID

A unique identifier used by the database to locate each recording. The call identifier for a recording can be viewed in Encore.

user

A person that is using an extension to take calls

User to User Information

The User to User Information (UUI) is obtained from the Delivered or Established event in the TSAPI message. Encore stores the data in a field in the call record as ASCII text.

WFM

Workforce Management is a set of tools and processes used to forecast labor requirements and create and manage agent schedules.