

**NICE**



**UPTIVITY**  
Agile WFO for SMB

## **Customer Guide to Avaya TSAPI Integrations**

# Customer Guide to Avaya TSAPI Integrations

Version: Avaya TSAPI versions 4.2.1-7.1.3 are supported. This guide should be used with NICE Uptivity 16.3 or later.

Copyright: ©2020 NICE inContact, Inc.

Contact: Send suggestions or corrections regarding this guide to [documentationrequests@incontact.com](mailto:documentationrequests@incontact.com).

# Table of Contents

<b>Introduction.....</b>	<b>5</b>
Audience.....	5
Goals.....	5
Assumptions.....	5
Need-to-Knows .....	5
Terminology.....	6
Customer Responsibilities .....	7
<b>Avaya TSAPI Integration Overview.....</b>	<b>8</b>
Known Limitations .....	8
Avaya Requirements .....	9
Hardware .....	9
Software .....	9
Licensing .....	9
NICE Uptivity Requirements .....	10
Customer Configuration Overview .....	10
<b>Customer Integration Tasks.....</b>	<b>11</b>
Configure the CTI Link on the Avaya CM.....	11
Create the CTI User Account on the AES Server.....	13
Verify the TSAPI Link on the AES Server.....	15
Verify TSAPI License Availability.....	17
Optional: Configure UCID.....	18
Customer Guide to Avaya TSAPI Integrations	3

Introduction

**Appendix: TSAPI Integration Examples ..... 19**

Passive Recording Scenarios..... 19

    TDM Station-Side..... 19

    TDM Trunk-Side ..... 20

Active Recording Methods ..... 21

    Service Observe/SSC Trunk Recording (TDM) ..... 21

    Service Observe/SSC DMCC Recording (VoIP) ..... 22

# Introduction

## Audience

This document is written for customers and prospective customers interested in using NICE Uptivity for call recording in an Avaya telephony environment where TSAPI will be used for CTI. Readers who will perform procedures in this guide should have a basic level of familiarity with IP telephony, general networking, the Windows operating system, Avaya telephony, and NICE Uptivity.

## Goals

The goal of this document is to provide knowledge, reference, and procedural information necessary to understand a proposed Avaya/NICE Uptivity integration using TSAPI, and to configure the Avaya equipment to support the integration.

This document is NOT intended as a specific system or network design document. If further clarification is needed, consult with your telephony vendor(s).

## Assumptions

This document assumes the reader has access to an NICE Uptivity Sales Engineer, Project Manager, or other resource to assist in applying this information to the reader's environment.

## Need-to-Knows



To facilitate ease of use, this document takes advantage of PDF bookmarks. By opening the bookmark pane, readers can easily refer to the portion(s) of the guide that are relevant to their needs. For example, the NICE Uptivity application administrator can click on the **Customer Administration Tasks** bookmark to jump directly to that section.

To expand and collapse the bookmark pane, click on the bookmark icon on the left side of the document window.

For questions related to NICE Uptivity configuration, consult the NICE Uptivity installation team.

## Introduction

NICE Uptivity only uses Avaya TSAPI to receive CTI events and metadata. Therefore, TSAPI integration must be paired with a separate audio capture source. In addition, Avaya TSAPI is used as part of a number of other integrations, such as those using service observe or single step conferencing. You may need to refer to other customer guides for audio capture methods or integrations for additional limitations, licensing requirements, and customer integration and administration tasks.

## Terminology

To ensure a common frame of reference, this guide uses the following terms in conjunction with this Avaya integration:

- **AACC** — Avaya Aura Contact Center. AACC is an Avaya contact center product that is common in VoIP environments and in multi-channel call centers due to its support for non-voice interactions.
- **AES** — Application Enablement Services. The AES server in an Avaya contact center hosts software that provides CTI events.
- **Avaya CMS** — Avaya Call Management System. This contact center product is designed for businesses with complex contact center operations and high call volume. Sometimes referred to as Avaya CM.
- **DMCC** — Device Media Call Control. Avaya AES and AACC functionality that provides NICE Uptivity with a means of active recording via VoIP, even for endpoints that are not IP telephones.
- **GEDI** — Graphically-Enhanced DEFINITY Interface. Used by the customer or Avaya vendor to configure the Avaya CMS.
- **MR** — Multiple Registration. Avaya functionality that allows the customer to register up to three devices against a single softphone extension.
- **SO** — Service Observe. Avaya functionality that allows a person or device to listen to a call in progress.
- **SSC** — Single Step Conference. Avaya functionality that can be used to establish a conference between a recording device, the agent's phone and a corresponding softphone on the AES server.
- **TDM** — Formally, Time Division Multiplexing. In the context of this guide, traditional telephony using analog or digital lines (as opposed to VoIP).
- **TSAPI** — Telephone Services Application Programming Interface. Avaya TSAPI is software provides the call control events and metadata to NICE Uptivity.
- **S8300, S8500, S8700** — Common models of Avaya PBX equipment.

## Customer Responsibilities

You are responsible for supplying the physical connection(s), IP connection(s), or both to your telephone system and LAN, and for obtaining and loading any licensing required by Avaya. You are also responsible for configuring Avaya system components to support the recording integration. See the [Customer Integration Tasks](#) section for additional information.

## Avaya TSAPI Integration Overview

The Avaya TSAPI integration allows NICE Uptivity to receive call-related events and metadata from AES. This integration must be paired with an audio capture method to provide an audio source for recordings. NICE Uptivity supports the following audio capture methods in conjunction with TSAPI:

- Passive VoIP
- DMCC (using either SSC, SO, or MR)
- TDM (using Ai-Logix audio capture cards)
- SSC and SO over active T1 trunks
- SIPREC/ACME Packet SBC

For additional details on these audio capture methods, refer to the NICE Uptivity customer guide for the specific audio integration. To see examples of how a recording solution might be designed using TSAPI in various telephony environments, see [Appendix: TSAPI Integration Examples](#).

### Known Limitations

NICE Uptivity does not support using bridged appearances in an Avaya TSAPI-based recording environment due to the way TSAPI handles call notification events for bridged calls. Avaya sends established messages on all CTI monitors which have bridged appearances. Consider this example:

1. Stations A, B, and C all have Bridge Appearance 1 programmed.
2. A call is delivered to Appearance 1.
3. The call rings to Stations A, B, and C on the bridged line.
4. Station A answers the call on Bridged Appearance .1
5. The call begins recording when Station A answers the call.

If Station A remains active for the entire duration of the call, the entire call is recorded. If Station B joins the call and Station A remains in the call, the entire call is recorded. However, if Station A leaves the bridge, recording ends. Further, recording will not resume even if Station A later returns to the bridge and if additional recorded parties enter the established bridge, they will not be recorded.

This limitation applies to any recording integration that uses TSAPI for CTI, and is in addition to limitations specific to the audio acquisition method.

## Avaya Requirements

☞ If you are using Avaya TSAPI in conjunction with another integration, refer to that integration's customer guide as well for additional software and licensing requirements.

### Hardware

- Avaya S8300, S8500, or S8700 PBX

### Software

- Avaya CM v3.1 through 7.0
- Avaya AES with SP 4 or later through 7.0.1
- Avaya TSAPI (or CVCT) Client

	32 bit	64 bit	AES/TSAPI
Windows 2008 R2	X	✓	5.2 or higher
Windows 2012 R2	X	✓	6.3.3 or higher
Windows 2016	X	✓	7.1 or higher

### Licensing

- One (1) TSAPI Basic license for each device or group that will be monitored for events.
- For TSAPI as part of a DMCC-SSC or DT-SSC integration:
  - One (1) additional TSAPI basic license per concurrent recording channel.
  - One (1) additional TSAPI basic license for the recording skill. In most implementations, a skill is created for recording and all agents to be recorded are assigned that skill.

For example, a DMCC-SSC integration recording 800 agents on 600 recording channels would require a total of 1401 TSAPI licenses.

## NICE Uptivity Requirements

NICE Uptivity requirements are outlined in the appropriate NICE Uptivity Customer Guide for your audio capture method.

## Customer Configuration Overview

The following table provides a high-level overview of the customer configuration steps in Avaya TSAPI integrations. Links are provided for tasks that are covered in this guide.

Customer Configuration Steps for Avaya TSAPI Integrations	
1	Complete all necessary physical and IP connections between the recording server(s) and the LAN.
2	Obtain any necessary Avaya software and licensing.
3	<a href="#">Configure the CTI Link on the Avaya CM.</a>
4	<a href="#">Create the CTI User Account on the AES Server.</a>
5	<a href="#">Verify the TSAPI Link on the AES Server.</a>
6	<a href="#">Verify TSAPI License Availability.</a>
7	<a href="#">Optional: Configure UCID.</a>
8	Complete the tasks and procedures detailed in the Customer Guide for your audio acquisition method.

## Customer Integration Tasks

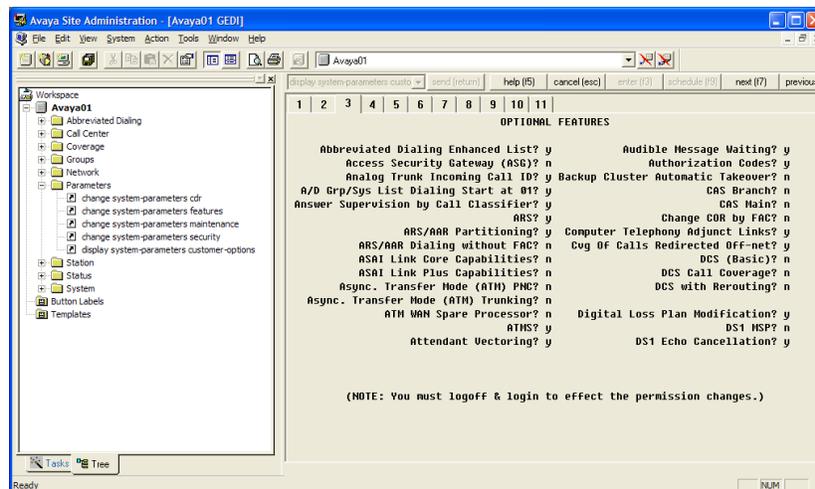
The information in this section is provided for your reference only. Detailed steps for Avaya configuration can be found in Avaya's documentation, which is available on the Avaya website. You should always use the appropriate manuals or guides from Avaya to install and configure Avaya components.

### Configure the CTI Link on the Avaya CM

A CTI Link (also known as a T-Link) between the Avaya Communication Manager and AES is required for communication of events via TSAPI. The Avaya CM can be configured via the Avaya Site Administration tool (GEDI) or through a telnet session.

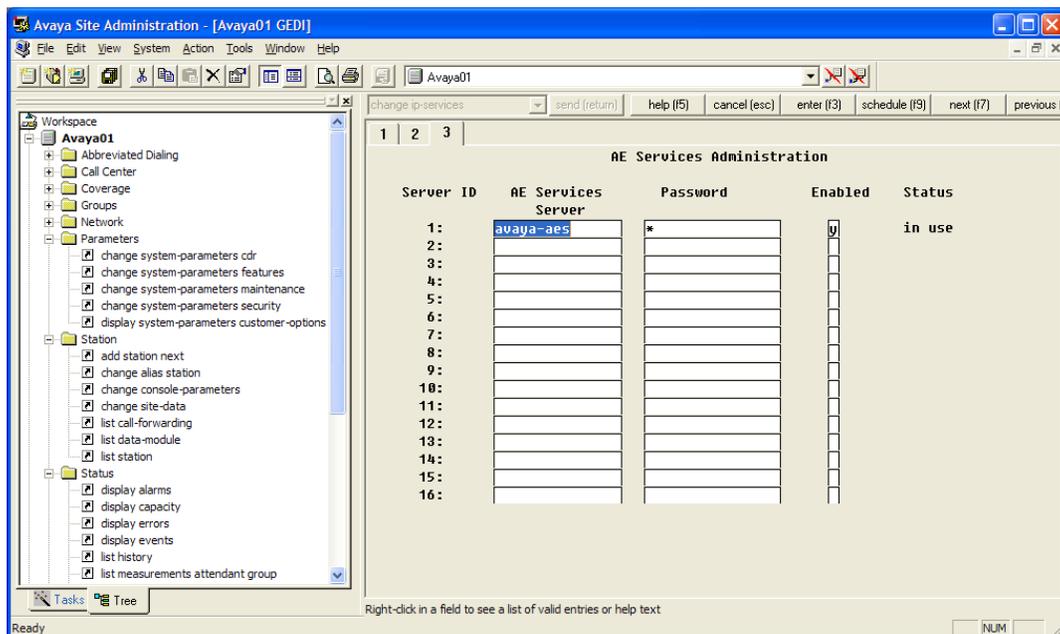
The following instructions use CM 5.2.1. Other software versions may differ.

1. In GEDI, select the **Parameters-> display system-parameters customer-options** command.
2. On page 3 of the display, verify that the **Computer Telephony Adjunct Links** is set to "y". If this parameter is set to "n", contact your Avaya Representative to obtain licensing for this feature.

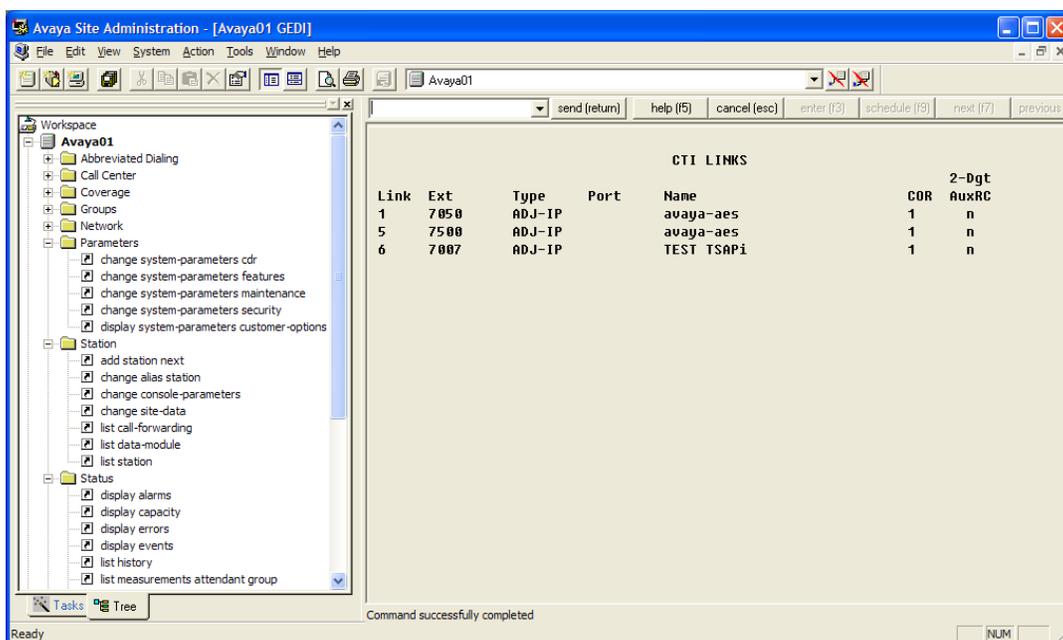


## Customer Integration Tasks

- Enter the **change ip-services** command and go to page 3 of the display. Verify the AE Services Server is configured and enabled.

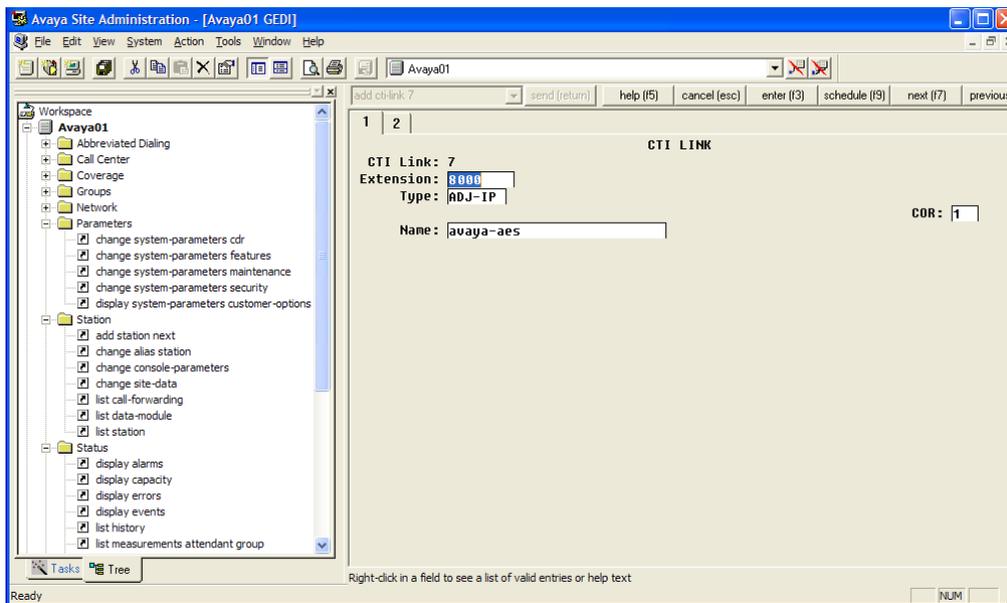


- To view existing CTI links, enter the **list cti-link** command.



- If no valid CTI link is available, enter the **add cti-link m** command, where "m" is a valid link number that is not already in use.
- In the **Extension** field, enter a valid extension number for the link.

7. In the **Type** field, select **ADJ-IP** from the available types.
8. In the **Name** field, enter a descriptive name for the link.



When you have completed this task, return to the [Customer Configuration Overview](#).

## Create the CTI User Account on the AES Server

NICE Uptivity requires a CTI User account with proper permissions in AES in order to connect to the TSAPI service via the CTI Link. You can create and configure this account on the AES Operations Administration & Maintenance (OAM) site.

These instructions use AES 5.2.1. Other software versions may differ.

1. Enter the IP address or hostname of your AES server in a web browser.
2. Log in to the OAM site with a User Admin-level account.

## Customer Integration Tasks

- Expand the **User Management** section in the left menu and click **Add User**.

The screenshot shows the Avaya Application Enablement Services (AES) interface. The main heading is "AVAYA Application Enablement Services Operations Administration and Maintenance". The breadcrumb trail is "User Management > Add User". The left navigation menu is expanded to show "User Management" options: "List All Users", "Add User", "Search Users", "Modify Default User", "Change User Password", "Service Management", and "Help". The "Add User" form is displayed with the following fields and values:

- \* User Id: ctiuser
- \* Common Name: CTI
- \* Surname: USER
- \* User Password: \*\*\*\*\*
- \* Confirm Password: \*\*\*\*\*
- Admin Note: (empty)
- Avaya Role: None (dropdown)
- Business Category: (empty)
- Car License: (empty)
- CM Home: (empty)
- Cms Home: (empty)
- CT User: No (dropdown)
- Department Number: (empty)
- Display Name: (empty)
- Employee Number: (empty)
- Employee Type: (empty)
- Enterprise Handle: (empty)
- Given Name: (empty)
- Home Phone: (empty)
- Home Postal Address: (empty)
- Initials: (empty)
- Labeled URI: (empty)
- Mail: (empty)
- MM Home: (empty)
- Mobile: (empty)
- Organization: (empty)
- Pager: (empty)

- On the **Add User** page, create the NICE Uptivity CTI User by entering information in all required (\*) fields.
- For **CT User**, select **Yes** from the drop-down list.
- Click **Apply**.
- Expand **Administration** in the left menu and click **Security Database**.
- Click **List All**.

User ID	Common Name	Worktop Name	Device ID
<input checked="" type="radio"/> ctiuser	ctiuser	NONE	NONE

Buttons: Edit, List All

9. Select the Nice Uptivity CTI User account and click **Edit** to display the settings.

**Edit CTI User**

User Profile:	User ID	ctiuser
	Common Name	ctiuser
	Worktop Name	NONE ▾
	Unrestricted Access	<input checked="" type="checkbox"/>

---

Call Origination and Termination / Device Status	Any ▾
--------------------------------------------------	-------

---

Call and Device Monitoring:	Device	Any ▾
	Call / Device	Any ▾
	Call	<input checked="" type="checkbox"/>

---

Routing Control:	Allow Routing on Listed Devices	None ▾
------------------	---------------------------------	--------

10. Select the **Unrestricted Access** check box.

If the NICE Uptivity user cannot have permission to monitor all devices (Unrestricted Access), you must ensure that this user account is allowed to monitor all relevant extensions, hunt groups, and VDNs, both initially and on a continuing basis.

11. Click **Apply Changes**.

When you have completed this task, return to the [Customer Configuration Overview](#).

## Verify the TSAPI Link on the AES Server

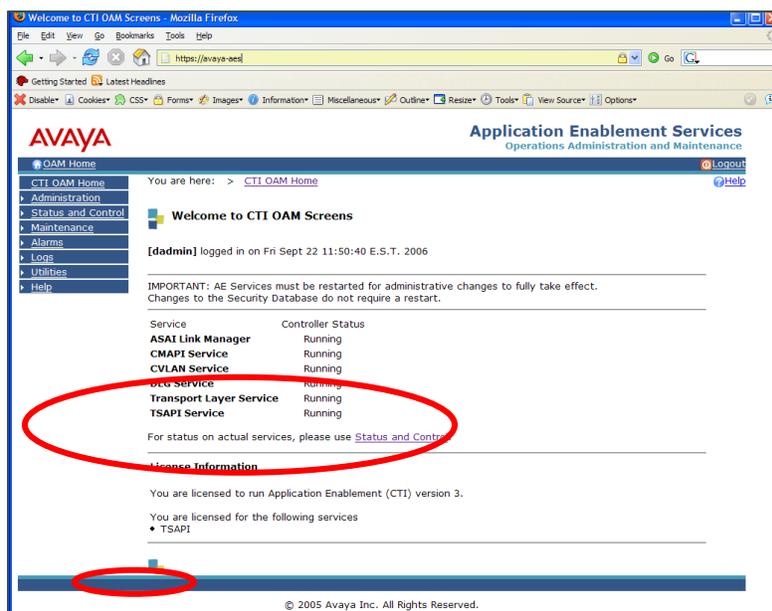
A CTI Link (also known as a T-Link) between the Avaya Communication Manager (CM) and AES is required for communication of events via TSAPI. This link is configured on the Avaya CM. For details, see [Configure the CTI Link on the Avaya CM](#).

These instructions use AES 5.2.1. Other software versions may differ.

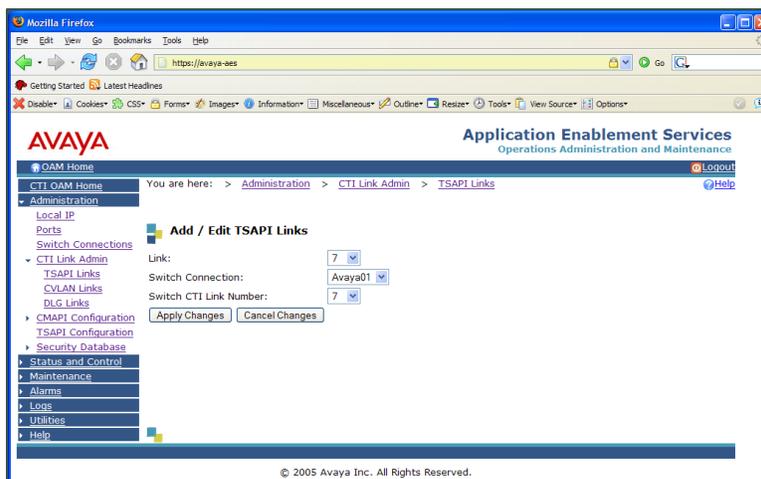
1. Enter the IP address or hostname of your AES server in a web browser.
2. Log in to the OAM site with an admin-level user account.

## Customer Integration Tasks

3. Click **CTI OAM Home** in the left menu.



4. Verify the TSAPI service is listed and the Controller Status reports as **Running**.
5. Under the **License Information** section, verify TSAPI is listed as a licensed service.
6. Expand **Administration** in the left menu and click **CTI Link Admin**.
7. Click **TSAPI Links** to display the **Add/Edit TSAPI Links** page.



8. Verify the appropriate **Link Number** and **Switch Connection** settings for your telephony network are listed and click the **Apply Changes** button.

When you have completed this task, return to the [Customer Configuration Overview](#).

## Verify TSAPI License Availability

You are here: Licensed products > Application Enablement (CTI)

License installed on: Apr 23, 2010 10:36:16 AM EDT

[View Peak Usage](#)

**Licensed Features**

Feature (Keyword)	Expiration Date	Licensed	Acquired
Unified CC API Desktop Edition (VALUE_AES_AEC_UNIFIED_CC_DESKTOP)	2011/04/23	1000	0
Device Media and Call Control (VALUE_AES_DMCC_DMC)	2011/04/23	100	0
DLG (VALUE_AES_DLG)	2011/04/23	16	0
CVLAN ASAI (VALUE_AES_CVLAN_ASAI)	2011/04/23	16	0
AES ADVANCED SMALL SWITCH (VALUE_AES_AEC_SMALL_ADVANCED)	2011/04/23	3	0
CVLAN Proprietary Links (VALUE_AES_PROPRIETARY_LINKS)	2011/04/23	16	0
AES ADVANCED LARGE SWITCH (VALUE_AES_AEC_LARGE_ADVANCED)	2011/04/23	3	0
<b>TSAPI Simultaneous Users (VALUE_AES_TSAPI_USERS)</b>	2011/04/23	1000	3
AES ADVANCED MEDIUM SWITCH (VALUE_AES_AEC_MEDIUM_ADVANCED)	2011/04/23	3	0
Product Notes (VALUE_NOTES)	2011/04/23	SmallServerTypes: s8300c;s8300d;icc;premio;tn8400;laptop MediumServerTypes: ibmx306;ibmx306m;dell1950;xen;hs20;hs20_8832_vm LargeServerTypes: isp2100;ibmx305;dl380g3;dl385g1;dl385g2;unknown TrustedApplications: IPS_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; 1XP_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; 1XM_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; PC_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; CIE_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; OSPC_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; VP_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; SAMETIME_001, VALUE_AES_UNIFIED_CC_DESKTOP,; CCE_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; CSI_T1_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; AVAYAVERINT_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted;	Not counted

**Acquired Licenses**

Feature	Acquired by	Count
VALUE_AES_TSAPI_USERS	TSAPI (avaya-aes521)	3

For this integration, Avaya requires that one TSAPI license be available for every station that NICE Uptivity will monitor for audio. Licensing on the AES is managed through the Web License Manager (WebLM) interface. This site is located at the following address: <http://aes-server/WebLM/>, where "aes-server" is the hostname or IP Address of your AES server.

1. Browse to the WebLM site for your AES server in a web browser and log in with an administrative account.
2. Under the **Licensed Products** menu section, click **Application Enablement**.
3. On the **Licensed Features** table, the **TSAPI Simultaneous Users** entry will list the Licensed (total) and Acquired (used) values for TSAPI licenses.

When you have completed this task, return to the [Customer Configuration Overview](#).

## Optional: Configure UCID

The NICE Uptivity integration with Avaya TSAPI optionally supports Call Segments—functionality that allows users to locate and play separate, related recording files that are part of the same call interaction. If you want to use the Call Segments feature, you must configure the Avaya CM to send the Universal Call ID (UCID) to NICE Uptivity so that it is captured on every call.

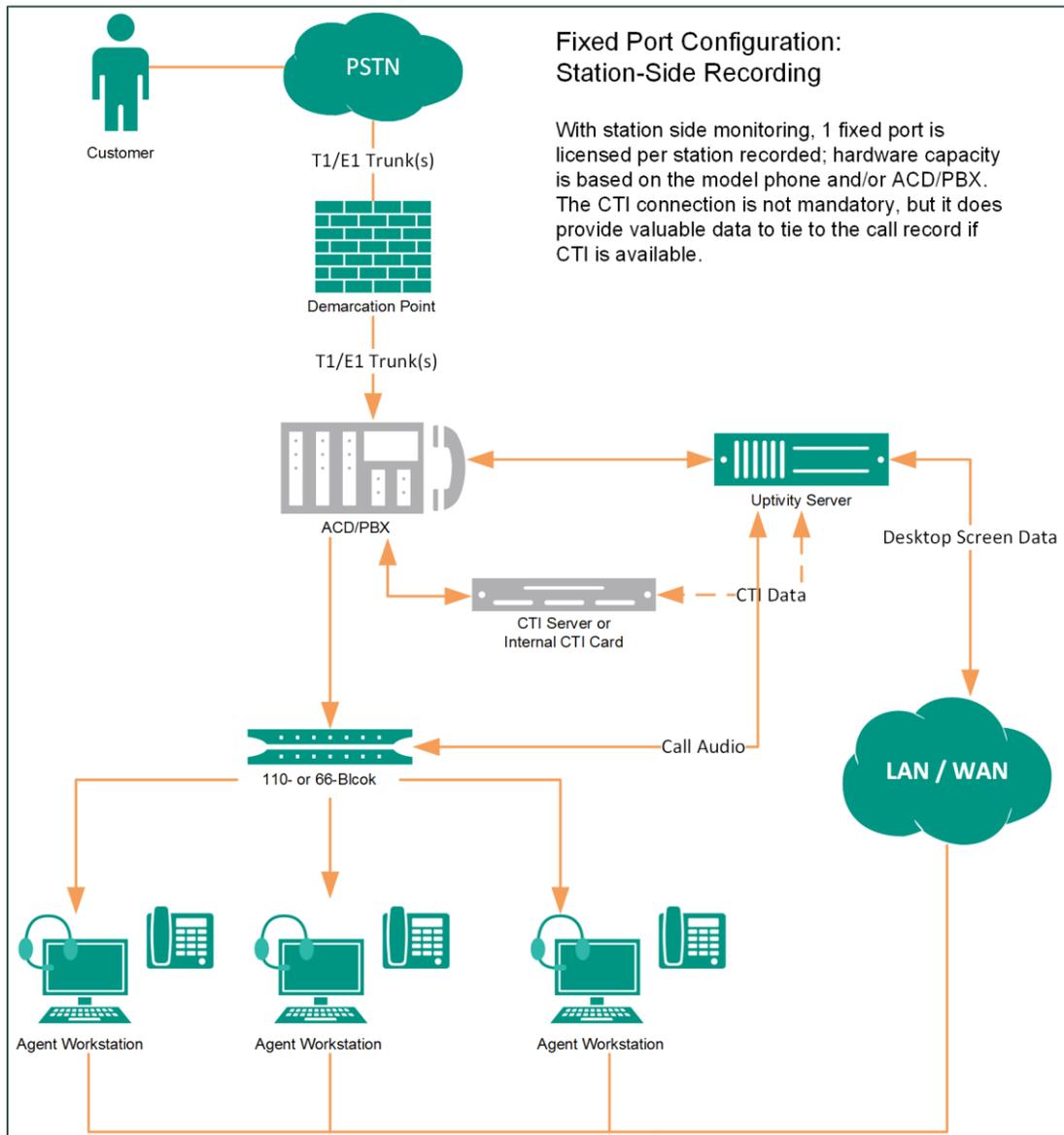
1. Log into the Avaya CM.
2. Run the following command: change system-parameters features.
3. On screen 5 of Feature-Related System Parameters, set **Create Universal Call ID (UCID)?** to **Y**.
4. On screen 5 of Feature-Related System Parameters, enter a value in the **UCID Network Node ID** field (the system may not save changes if this field is blank).
5. On screen 13 of Feature-Related System Parameters, set **Send UCID to ASAI?** to **Y**.

When you have completed this task, return to the [Customer Configuration Overview](#).

# Appendix: TSAPI Integration Examples

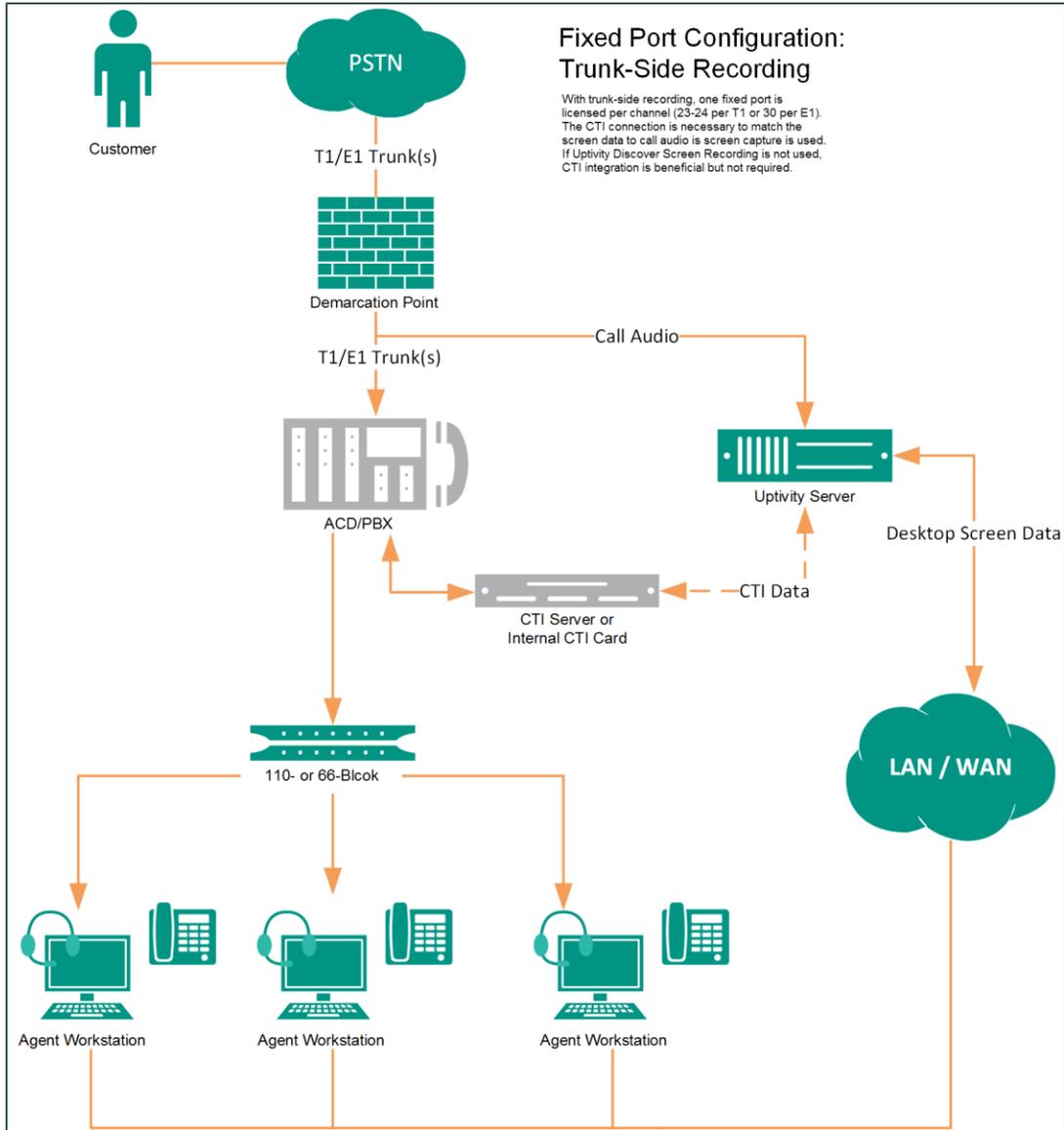
## Passive Recording Scenarios

### TDM Station-Side



In station-side recording, NICE Uptivity acquires audio from the agent station side of the conversation. Physical audio capture cards installed in the NICE Uptivity recording server have a wired connection to each recorded phone. A CTI connection using TSAPI can provide tighter call control and additional metadata for each call.

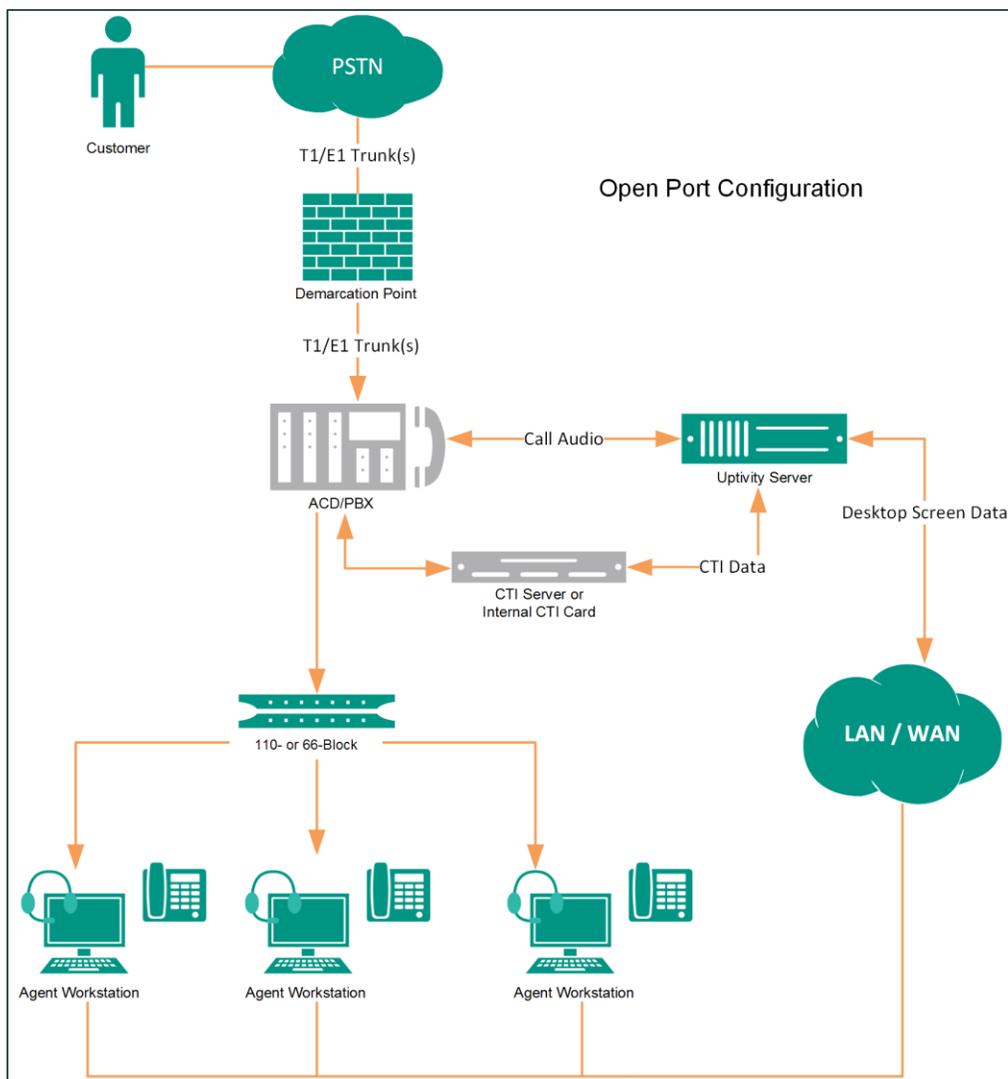
TDM Trunk-Side



In trunk-side recording, physical audio capture cards installed in the NICE Uptivity recording server have a wired connection to each T1/E1 trunk to be recorded, and record from the trunk side of the conversation. A CTI connection using TSAPI can provide events on which to base recording decisions as well as additional metadata for each call.

## Active Recording Methods

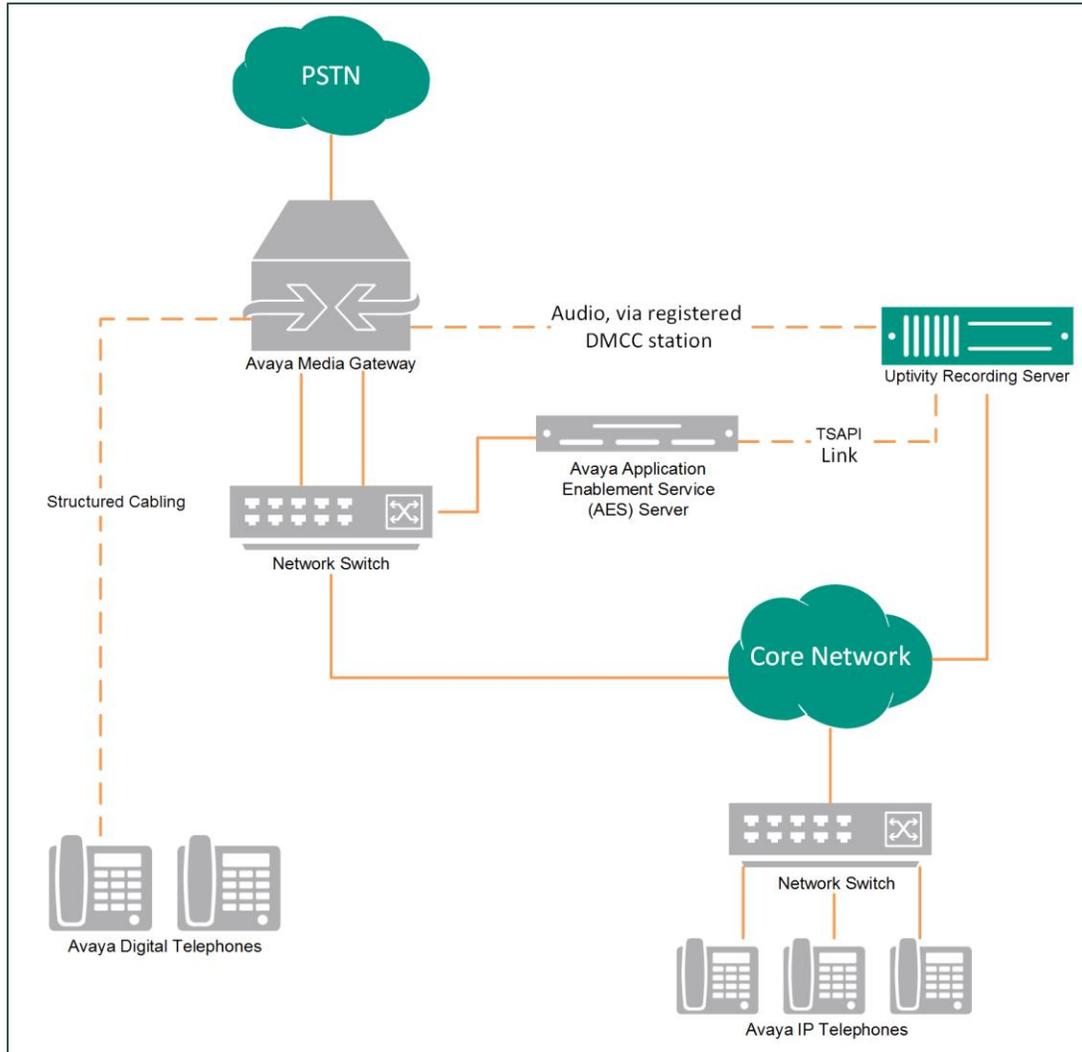
### Service Observe/SSC Trunk Recording (TDM)



In Open Port/Service Observe recording, NICE Uptivity uses the Avaya Service Observe or Single Step Conference feature to record. Audio capture cards in the recording server are connected to the Avaya PBX through a T1/E1 tie line or through direct analog lines. With appropriate ACD/PBX permissions, these ports can record any device in the system. Since these channels have dial tone at the PBX level, they can also be used to play audio back to specified devices.

This method has some limitations. The preferred method for recording open ports is single step conferencing. A CTI connection using TSAPI provides events to trigger recording and call control, as well as additional metadata for each call.

Service Observe/SSC DMCC Recording (VoIP)



DMCC recording uses media redirection from Avaya to record calls without the use of physical connections to the NICE Uptivity recording server (other than standard network connections). NICE Uptivity supports DMCC using Service Observe (SO), single step conference (SSC), and multiple registration (MR). TSAPI is used in all DMCC recording integrations for call control, messaging, and metadata.