



Avaya Solution & Interoperability Test Lab

Application Notes for NICE Engage Platform R7.3 with Avaya Aura® Communication Manager R10.1 and Avaya Aura® Application Enablement Services R10.1 using DMCC Service Observing and Single Step Conference - Issue 1.0

Abstract

These Application Notes describe the configuration steps for the NICE Engage Platform R7.3 to interoperate with Avaya Aura® Communication Manager R10.1, Avaya Aura® Session Manager R10.1, and Avaya Aura® Application Enablement Services R10.1 using DMCC Service Observing and Single Step Conference to record telephone calls.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as the observations noted in **Section 2.2**, to ensure that their own use cases are adequately covered by this scope and results.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

These Application Notes describe the configuration steps for the NICE Engage Platform R7.3 to interoperate with Avaya Aura® Communication Manager R10.1, Avaya Aura® Session Manager R10.1, and Avaya Aura® Application Enablement Services R10.1. NICE Engage Platform uses either Avaya Aura® Communication Manager Service Observing feature or Single Step Conference feature via the Application Enablement Services (AES) Device, Media, and Call Control (DMCC) interface and the Telephony Services Application Programming Interface (TSAPI) to capture the audio and call details for call recording on various Communication Manager endpoints, listed in **Section 4**.

The TSAPI integration allows NICE Engage Platform to receive call-related events and metadata from AES. This integration must be paired with an audio capture method, in this case DMCC Service Observing feature or Single Step Conference to provide an audio source for recordings.

DMCC works by allowing software vendors to create soft phones, in memory on a recording server, and use them to monitor and record other phones. This is purely a software solution and does not require telephony boards or any wiring beyond a typical network infrastructure. The DMCC API associated with the AES server monitors the digital and VoIP extensions. The application uses the AES DMCC to ‘Observe’ the target extension using Virtual Extensions on Communication Manager to do so. When the target extension joins a call, the application using Service Observing receives the call’s aggregated RTP media stream via the recording device and records the call.

NICE Engage Platform provides the ability to record multi-channel interactions across the organization for regulatory compliance and to utilize these interactions for multiple business applications in order to extract insights and gain value. The platform tightly integrates with the telephony environment via CTI, APIs and SIP and stores the metadata in a single recording platform to ensure regulatory adherence and standardized workforce optimization processes across multiple channels. It provides comprehensive search tools and media retrieval, as well as a wide variety of Real-Time capabilities for PCI compliance and advanced applications.

The NICE Engage Platform uses the Communication Manager Service Observing feature to observe an extension on a call; this way the call is recorded and can be played back at a later time. NICE can also conference into the call and record the call using this method. Both methods of call recording use virtual stations on Communication Manager in order to observe or conference into existing calls to record them.

2. General Test Approach and Test Results

The interoperability compliance testing evaluated the ability of the NICE Engage Platform to carry out call recording in a variety of scenarios using DMCC Service Observation and Single Step Conference with AES and Communication Manager. A range of Avaya endpoints were used in the compliance testing all of which are listed in **Section 4**.

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly defined test plan focuses on exercising APIs and/or standards-based interfaces pertinent to

the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute full product performance or feature testing performed by DevConnect members, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a DevConnect member's solution.

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

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

For the testing associated with these Application Notes, the interface between Avaya systems and NICE Engage Platform did not include use of any specific encryption features as requested by NICE.

2.1. Interoperability Compliance Testing

The interoperability compliance test included both feature functionality and serviceability testing. The feature functionality testing focused on placing and recording calls in different call scenarios with good quality audio recordings and accurate call records. The tests included:

- **Inbound/Outbound calls** – Test call recording for inbound and outbound calls to the Communication Manager to and from PSTN callers
- **Hold/Transferred/Conference calls** – Test call recording for calls transferred to and in conference with PSTN callers.
- **EC500 Calls/Forwarded calls** - Test call recording for calls terminated on Avaya DECT handsets using EC500.
- **Feature calls** - Test call recording for calls that are parked or picked up using Call Park and Call Pickup.
- **Calls to Elite Agents** – Test call recording for calls to Communication Manager agents logged into Avaya Agent for Desktop.
- **Serviceability testing** - The behavior of NICE Engage Platform under different simulated failure conditions.

2.2. Test Results

Most functionality and serviceability test cases were completed successfully. The following observations were noted.

- An issue was observed when a SIP phone made a supervised transfer using all monitored phones where the “Service Observer” was not dropped from the call upon completion of the transfer. The call scenario is A calls B (SIP Phone) and B then transfers A to C. A and C are now talking, when A hangs up the display on C changes to that of the “virtual station” and same if C hangs up first then the display of A shows the “virtual station”. The call is cleared when the second person (A or C) hangs up. This is not the same as if a H.323 makes the transfer. This issue appears when using Service Observation where all extensions are being observed constantly. Avaya investigated the issue and indicated it was working as designed.

2.3. Support

Technical support can be obtained for NICE Engage Platform from the website <https://www.nice.com/contact-us>

3. Reference Configuration

The configuration in **Figure 1** was used to compliance test NICE Engage platform with the Avaya solution using DMCC Service Observing and Single Step Conference to record calls. The NICE Application server is set up for DMCC Service Observe and Single Step Conference mode and connects to AES.

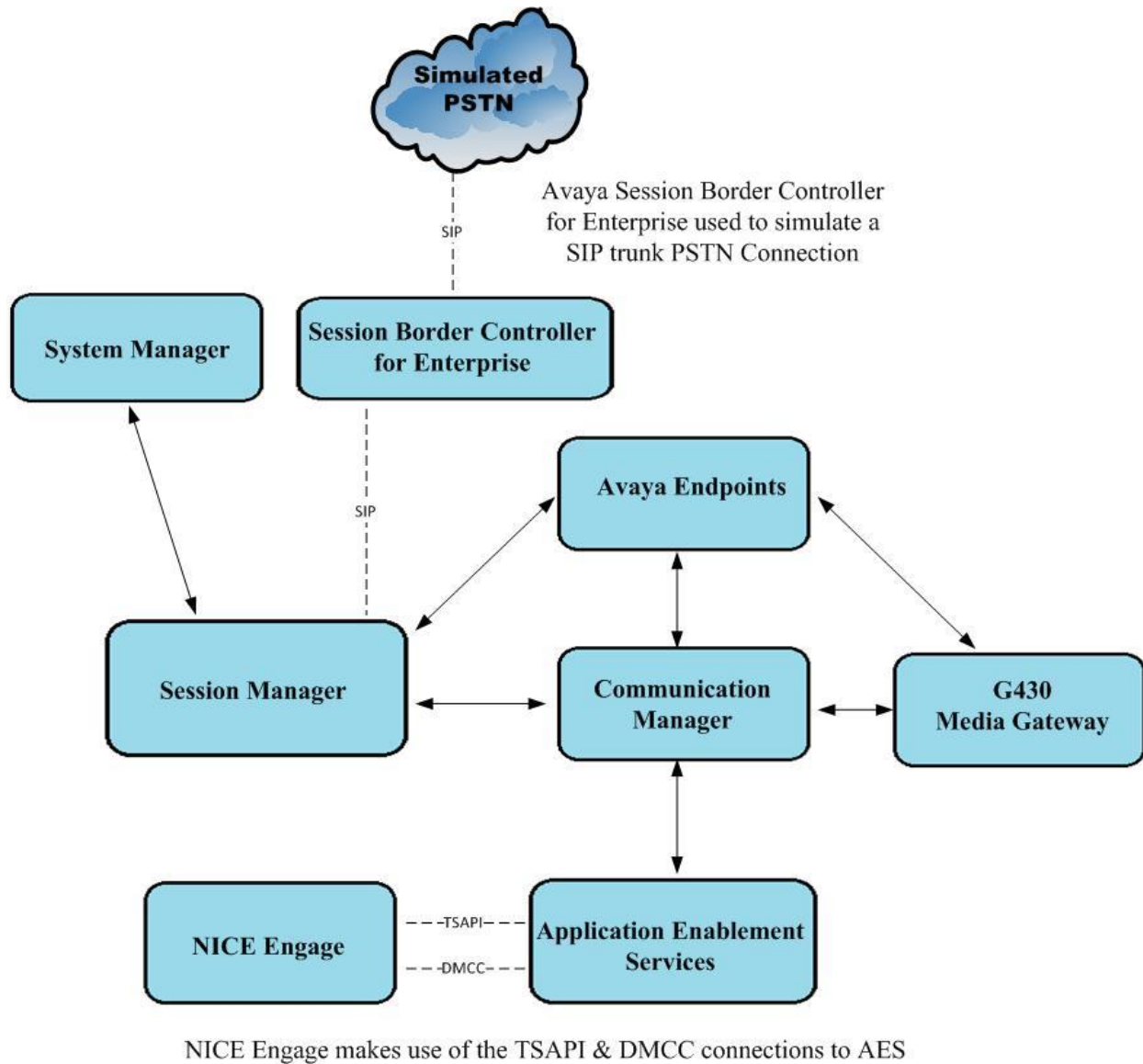


Figure 1: Connection of NICE Engage Platform R7.3 with Avaya Aura® Communication Manager R10.1, Avaya Aura® Session Manager R10.1 and Avaya Aura® Application Enablement Services R10.1

4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya Aura® System Manager	System Manager 10.1.0.2 Build No. – 10.1.0.0.537353 Software Update Revision No: 10.1.0.2.0715160 Service Pack 2
Avaya Aura® Session Manager	Session Manager R10.1 Build No. – 10.1.0.2.1010219
Avaya Aura® Communication Manager	R10.1.0.2.0 – SP2 R020x.01.0.974.0 Update ID 01.0.974.0-27607
Avaya Aura® Application Enablement Services	10.1.0 Build 10.1.0.2.0.12-0
Avaya Aura® Media Server	10.1.0.101
Avaya G430 Media Gateway	42.7.0 /2
Avaya 9404 Digital Phones	17.0
Avaya J100 Series Phones (SIP)	7.1.2.0.14
Avaya J100 Series Phones (H.323)	7.0.14.0.7
Avaya Agent for Desktop (SIP)	2.0.6.23.3005
Avaya Workplace (SIP)	3.26.0.64
Avaya DECT Handsets	3725 DH4 (R3.3.11) 3720 DH3 (R3.3.11)
Avaya Session Border Controller for Enterprise (to facilitate simulated PSTN)	10.1.0
NICE Engage <ul style="list-style-type: none">- NICE Engage Application Server- NICE Advanced Interactions Recording Server- NICE Engage NDM Server	7.3

All equipment is running on virtual servers on VMware.

5. Configure Avaya Aura® Communication Manager

The information provided in this section describes the configuration of Communication Manager relevant to this solution. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 10**.

The configuration illustrated in this section was performed using Communication Manager System Administration Terminal (SAT).

5.1. Verify System Features

Use the **display system-parameters customer-options** command to verify that Communication Manager has permissions for features illustrated in these Application Notes. On **Page 4**, ensure that **Computer Telephony Adjunct Links?** is set to **y** as shown below.

display system-parameters customer-options		Page	4 of 12
OPTIONAL FEATURES			
Abbreviated Dialing Enhanced List?	y	Audible Message Waiting?	y
Access Security Gateway (ASG)?	y	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?	y	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	Digital Loss Plan Modification?	y
Async. Transfer Mode (ATM) Trunking?	n	DS1 MSP?	y
ATM WAN Spare Processor?	n	DS1 Echo Cancellation?	y
ATMS?	y		
Attendant Vectoring?	y		
(NOTE: You must logoff & login to effect the permission changes.)			

5.2. Note procr IP Address for Avaya Aura® Application Enablement Services Connectivity

Display the Communication Manager (procr) IP address by using the command **display node-names ip** and note the IP address for the **procr** and the AES.

display node-names ip		Page	1 of 2
IP NODE NAMES			
Name	IP Address		
SM100	10.10.40.12		
aespri101x	10.10.40.16		
default	0.0.0.0		
g450	10.10.40.15		
procr	10.10.40.13		

5.3. Configure Transport Link for Avaya Aura® Application Enablement Services Connectivity

To administer the transport link to AES, use the **change ip-services** command. On **Page 1** add an entry with the following values:

- **Service Type:** Should be set to **AESVCS**.
- **Enabled:** Set to **y**.
- **Local Node:** Set to the node name assigned for the procr in **Section 5.2**
- **Local Port:** Retain the default value of **8765**.

change ip-services					Page	1 of	4
IP SERVICES							
Service	Enabled	Local	Local	Remote	Remote		
Type		Node	Port	Node	Port		
AESVCS	y	procr	8765				

Go to **Page 4** of the **ip-services** form and enter the following values:

- **AE Services Server:** Name obtained from the AES server, in this case **aespri101x**.
- **Password:** Enter a password to be administered on AES.
- **Enabled:** Set to **y**.

Note: The password entered for **Password** field must match the password on AES in **Section 6.2**. The **AE Services Server** should match the administered name for the AES server; this is created as part of the AES installation and can be obtained from the AES server by typing **uname -n** at the Linux command prompt.

change ip-services				Page 4 of 4
AE Services Administration				
Server ID	AE Services Server	Password	Enabled	Status
1:	aespri101x	*****	y	in use
2:				
3:				

5.4. Configure CTI Link for TSAPI Service

Add a CTI link using the **add cti-link n** command. Enter an available extension number in the **Extension** field. 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: 1990			
Type: ADJ-IP			
		COR: 1	
Name: aespri101x			

5.5. Configure Communication Manager for Service Observing

Type **display cor x**, where x is the COR number in the screen above, to check the existing Class of Restriction. Ensure that **Can be Service Observed** and **Can Be A Service Observer** are set to **y**, if not type **change cor x** to make a change to the Class or Restriction. These values need to be enabled in order for Service Observe to work for call recording.

display cor 1		Page 1 of 23
CLASS OF RESTRICTION		
COR Number: 1		
COR Description:		
FRL: 0	APLT? y	
Can Be Service Observed? y	Calling Party Restriction: all-toll	
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? y	
Restriction Override: all	Facility Access Trunk Test? n	
Restricted Call List? n	Can Change Coverage? n	
Unrestricted Call List: 1		
Access to MCT? y	Fully Restricted Service? n	
Group II Category For MFC: 7	Hear VDN of Origin Annc.? n	
Send ANI for MFE? n	Add/Remove Agent Skills? n	
MF ANI Prefix:	Automatic Charge Display? n	
Hear System Music on Hold? y	PASTE (Display PBX Data on Phone)? n	
	Can Be Picked Up By Directed Call Pickup? y	
	Can Use Directed Call Pickup? y	
	Group Controlled Restriction: inactive	

Type **change system-parameters features**, on **Page 11** ensure that **Allow Two Observes in Same Call** is set to **y**.

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		
VECTURING		
Converse First Data Delay: 0	Second Data Delay: 2	
Converse Signaling Tone (msec): 100	Pause (msec): 70	
Prompting Timeout (secs): 10		
Interflow-qpos EWT Threshold: 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? y	or Conference Tone? n	
Service Observing/SSC Allowed with Exclusion? n		
Allow Two Observers in Same Call? y		

Type **change feature-access-codes** to access the feature codes on Communication Manager. Scroll to **Page 5** in order to view or change the **Service Observing** access codes. Note the **Service Observing Listen Only Access Code** is ***56**; this will be required in **Section 7.1** during the setup of NICE Engage Platform.

change feature-access-codes	Page 5 of 10
FEATURE ACCESS CODE (FAC)	
Call Center Features	
AGENT WORK MODES	
After Call Work Access Code:	#36
Auto-In Access Code:	#38
Aux Work Access Code:	#39
Login Access Code:	#40
Logout Access Code:	#41
Manual-in Access Code:	#42
SERVICE OBSERVING	
Service Observing Listen Only Access Code:	*56
Service Observing Listen/Talk Access Code:	*57
Service Observing No Talk Access Code:	
Service Observing Next Call Listen Only Access Code:	
Service Observing by Location Listen Only Access Code:	
Service Observing by Location Listen/Talk Access Code:	
AACC CONFERENCE MODES	
Restrict First Consult Activation:	Deactivation:
Restrict Second Consult Activation:	Deactivation:

5.6. Configure H.323 Stations for Service Observing

All endpoints that are to be monitored by NICE will need to have the appropriate Class of Restriction which would be that created in **Section Error! Reference source not found.** Ensure that COR is set to the correct number. Note the **Security Code** that may be required in **Section Error! Reference source not found.**

change station x	Page 1 of 6
STATION	
Extension: x	Lock Messages? n
Type: 9608	Security Code: 1234
Port: S00101	Coverage Path 1:
Name: Extension	Coverage Path 2:
	Hunt-to Station:
STATION OPTIONS	
Loss Group: 19	Time of Day Lock Table:
Speakerphone: 2-way	Personalized Ringing Pattern: 1
Display Language: english	Message Lamp Ext: 1591
Survivable GK Node Name:	Mute Button Enabled? y
Survivable COR: internal	Media Complex Ext:
Survivable Trunk Dest? y	IP SoftPhone? y
	IP Video Softphone? n
	Short/Prefixed Registration Allowed: default

5.7. Configure Virtual Stations for Service Observing and Single Step Conference

Add virtual stations to allow NICE Inform Recorder record calls using Service Observing and Single Step Conference. Type **add station x** where x is the extension number of the station to be configured, also note this extension number for configuration required in **Section Error!**

Reference source not found.. Note the **Security Code** and ensure that **IP SoftPhone** is set to **y**.

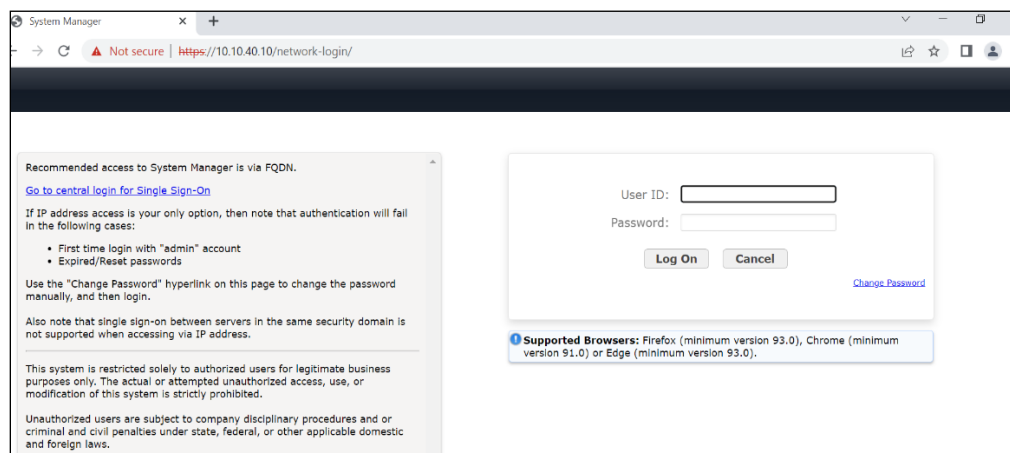
Note also the **COR** for the stations, this will be set to that configured in **Section Error!** Reference source not found..

add station 33001		Page 1 of 6
STATION		
Extension: 33001	Lock Messages? n	BCC: 0
Type: 9620	Security Code: 1234	TN: 1
Port: S00101	Coverage Path 1:	COR: 1
Name: Recorder	Coverage Path 2:	COS: 1
	Hunt-to Station:	
STATION OPTIONS		
Loss Group: 19	Time of Day Lock Table:	
	Personalized Ringing Pattern: 1	
Speakerphone: 2-way	Message Lamp Ext: 33001	
Display Language: english	Mute Button Enabled? y	
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	

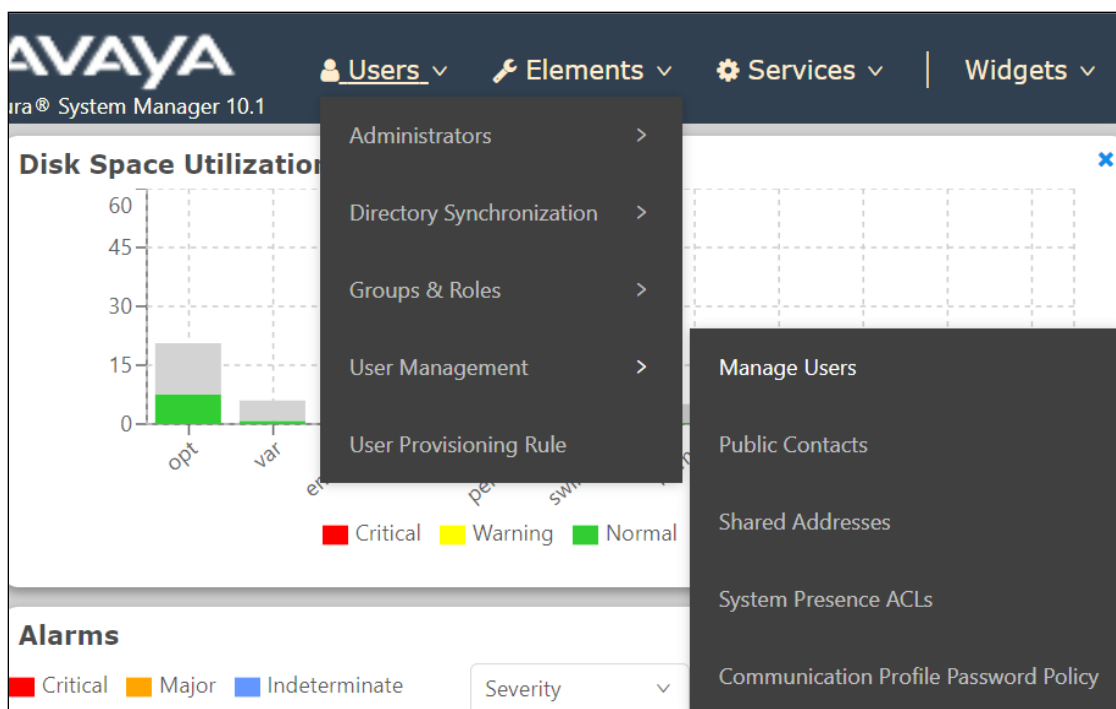
5.8. Configure SIP Stations for Service Observing

Any SIP extension that is to be recorded requires some configuration changes to allow call recording using service observing. Changes of SIP phones on Communication Manager must be carried out from System Manager. Access the System Manager using a web browser by entering **http://<FQDN>/SMGR**, where <FQDN> is the fully qualified domain name of System Manager or **Error! Hyperlink reference not valid. Address >/SMGR**. Log in using appropriate credentials.

Note: The following shows changes a SIP extension and assumes that the SIP extension has been programmed correctly and is fully functioning.



From the home page click on **Users → User Management → Manage Users** as highlighted below.



Select the station to be edited and click on **Edit**. The example below shows that SIP extension **3101** is selected.

Home	User Management x	Home / UsersR / Manage Users	Help ?
User Management	Manage Users	Search	
Public Contacts		View Edit New Duplicate Delete More Actions Options	
Shared Addresses		First Name Surname Display Name Login Name SIP Handle	
System Presence ACLs		<input checked="" type="checkbox"/> Agent One Workspaces Agent One Workspaces 3101@greanep.sil6.ava ya.com 3101	
Communication Profile ...		<input type="checkbox"/> Ascom DECT_3181 DECT_3181, Ascom 3181@greanep.sil6.ava ya.com 3181	
		<input type="checkbox"/> Ascom DECT_3182 DECT_3182, Ascom 3182@greanep.sil6.ava ya.com 3182	
		<input type="checkbox"/> admin admin Default Administrator admin	
		<input type="checkbox"/> J179 H323 H323, J179 3001@greanep.sil6.ava ya.com	
		<input type="checkbox"/> Vantage01 K175 K175, Vantage01 3115@greanep.sil6.ava ya.com 3115	
		<input type="checkbox"/> Paul Greaney Paul Greaney paul@greanep.sil6.ava ya.com	
		<input type="checkbox"/> AAFD SIP SIP, AAFD 3111@greanep.sil6.ava ya.com 3111	

Click on the **CM Endpoint Profile** tab in the left window. Click on **Endpoint Editor** to make changes to the SIP station.

Home / Users / Manage Users

Help ?

User Profile | Edit | 3101@greanep.sil6.avaya.com

Commit & Continue

Commit

Cancel

Identity

Communication Profile

Membership

Contacts

Communication Profile Password

PROFILE SET : Primary

Communication Address

PROFILES

Session Manager Profile

Avaya Breeze® Profile

CM Endpoint Profile

* System :cm101x

Use Existing Endpoints :☐

Template :Start typing...

Security Code :Enter Security Code

Voice Mail Number :6667

Calculate Route Pattern :☐

* Profile Type :Endpoint

* Extension :3101

* Set Type :9641SIPCC

Port :S000003

Preferred Handle :Select

Sip Trunk :aar

Editor

PG; Reviewed:

SPOC 4/13/2023

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NICE73AES101SO

In the **General Options** tab ensure that **Class of Restriction** is set correctly. Set **Type of 3PCC Enabled** to **Avaya**. Click on **Done**, at the bottom of the screen once this is set, (not shown).

System	cm101x	Extension	3101
Template	Select	Set Type	9641SIPCC
Port	S000003	Security Code	
Name	Agent One Workspaces		

General Options (G) *	Feature Options (F)	Site Data (S)	Abbreviated Call Dialing (A)	Enhanced Call Fwd (E)
Button Assignment (B)	Profile Settings (P)	Group Membership (M)		

* Class of Restriction (COR)	1	* Class Of Service (COS)	1
* Emergency Location Ext	3101	* Message Lamp Ext.	3101
* Tenant Number	1		
* SIP Trunk	aar	Type of 3PCC Enabled	Avaya
Coverage Path 1		Coverage Path 2	
Lock Message	<input type="checkbox"/>	Localized Display Name	Agent One Workspaces
Multibyte Language	Not Applicable	Enable Reachability for Station Domain Control	system

SIP URI

Primary Session Manager

IPv4:	10.10.40.12	IPv6:	
--------------	-------------	--------------	--

Click on **Commit** once this is done to save the changes.

User Profile | Edit | 3101@greanep.sil6.avaya.com

Commit & Continue Commit Cancel

Identity Communication Profile Membership Contacts

Communication Profile Password

PROFILE SET: Primary

Communication Address

PROFILES

Session Manager Profile ☒

Avaya Breeze® Profile ☐

CM Endpoint Profile ☒

* System	cm101x	* Profile Type	Endpoint
Use Existing Endpoints	<input type="checkbox"/>	* Extension	3101
Template	Start typing...	* Set Type	9641SIPCC
Security Code	Enter Security Code	Port	S000003
Voice Mail Number	6667	Preferred Handle	Select
Calculate Route Pattern	<input type="checkbox"/>	Sip Trunk	aar

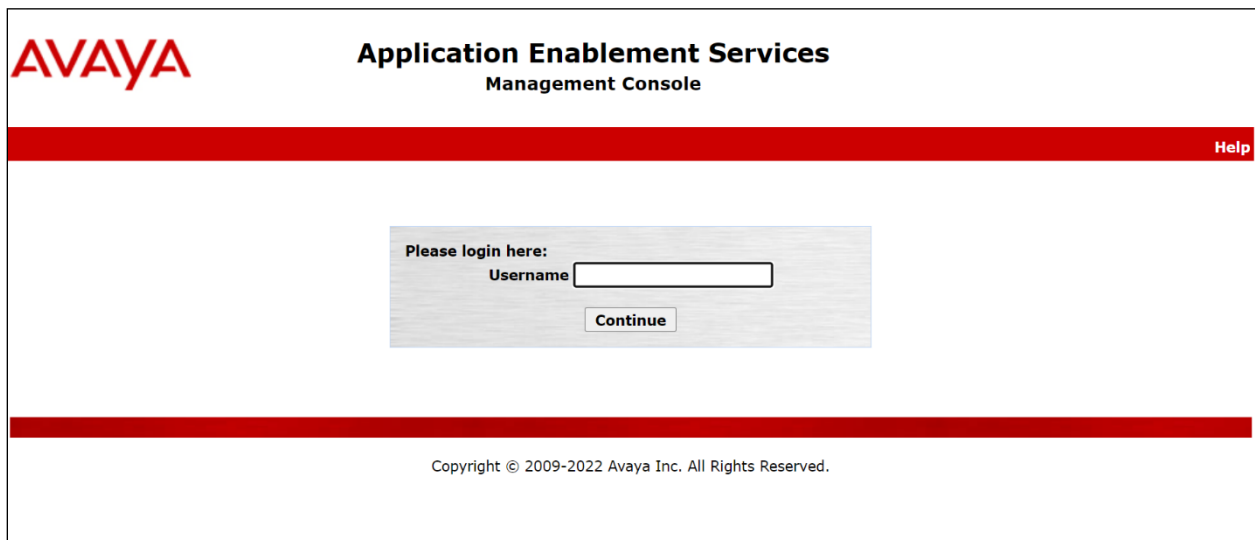
6. Configure Avaya Aura® Application Enablement Services

This section provides the procedures for configuring Application Enablement Services. The procedures fall into the following areas:

- Verify Licensing
- Create Switch Connection
- Administer TSAPI Link
- Identify Tlinks
- Configure Networking Ports
- Create CTI User
- Configure Security
- Restart AE Server


6.1. Verify Licensing

To access the AES Management Console, enter **https://<ip-addr>** as the URL in an Internet browser, where <ip-addr> is the IP address of AES. At the login screen displayed, log in with the appropriate credentials and then select the **Login** button.



The screenshot shows the Avaya Application Enablement Services Management Console login interface. At the top left is the Avaya logo. To its right, the text "Application Enablement Services" and "Management Console" is displayed. A red horizontal bar spans the width of the page, with a "Help" link on the right. Below this bar is a login box with the text "Please login here:" followed by a "Username" label and a text input field. A "Continue" button is positioned below the input field. At the bottom of the page, a red horizontal bar is followed by the copyright notice: "Copyright © 2009-2022 Avaya Inc. All Rights Reserved."

The Application Enablement Services Management Console appears displaying the **Welcome to OAM** screen (not shown). Select **AE Services** and verify that the **TSAPI Service** and **DMCC Service** are licensed by ensuring that the **License Mode** is showing **NORMAL MODE**. If not, contact an Avaya support representative to acquire the proper license for your solution.



Application Enablement Services
 Management Console

Welcome: User cust
 Last login: Fri Nov 30 10:52:21 2018 from 10.10.40.241
 Number of prior failed login attempts: 0
 HostName/IP: aes80vmppg/10.10.40.56
 Server Offer Type: VIRTUAL_APPLIANCE_ON_VMWARE
 SW Version: 8.0.0.0.6-0
 Server Date and Time: Fri Dec 07 10:13:22 GMT 2018
 HA Status: Not Configured

AE Services
Home | Help | Logout

▼ AE Services

▶ CVLAN

▶ DLG

▶ DMCC

▶ SMS

▶ TSAPI

▶ TWS

▶ Communication Manager Interface

▶ High Availability

▶ Licensing

▶ Maintenance

▶ Networking

▶ Security

▶ Status

▶ User Management

▶ Utilities

▶ Help

AE Services

IMPORTANT: AE Services must be restarted for administrative changes to fully take effect. Changes to the Security Database do not require a restart.

Service	Status	State	License Mode	Cause*
ASAI Link Manager	N/A	Running	N/A	N/A
CVLAN Service	OFFLINE	Running	N/A	N/A
DLG Service	OFFLINE	Running	N/A	N/A
DMCC Service	ONLINE	Running	NORMAL MODE	N/A
TSAPI Service	ONLINE	Running	NORMAL MODE	N/A
Transport Layer Service	N/A	Running	N/A	N/A
AE Services HA	Not Configured	N/A	N/A	N/A

For status on actual services, please use [Status and Control](#)

* -- For more detail, please mouse over the Cause, you'll see the tooltip, or go to help page.

License Information
 You are licensed to run Application Enablement (CTI) release 8.x

The TSAPI and DMCC licenses are user licenses issued by the Web License Manager to which the Application Enablement Services server is pointed to. From the left window open **Licensing** and click on **WebLM Server Access** as shown below.

Licensing

▶ AE Services

▶ Communication Manager Interface

▶ High Availability

▼ Licensing

WebLM Server Address

WebLM Server Access

Reserved Licenses

▶ Maintenance

▶ Networking

▶ Security

▶ Status

▶ User Management

▶ Utilities

▶ Help

Licensing

If you are setting up and maintaining the WebLM, you need to use the following:

- WebLM Server Address

If you are importing, setting up and maintaining the license, you need to use the following:

- WebLM Server Access

If you want to administer TSAPI Reserved Licenses or DMCC Reserved Licenses, you need to use the following:

- Reserved Licenses

NOTE: Please disable your pop-up blocker if you are having difficulty with opening this page

The following screen shows the available licenses for **TSAPI** and **DMCC** users.

▼ Application_Enablement

View license capacity

View peak usage

ASBCE

▶ Session_Border_Controller_E_AE

AVAYA_OCEANA

▶ Avaya_Oceana

CCTR

▶ ContactCenter

CE

▶ COLLABORATION_ENVIRONMENT

COLLABORATION_DESIGNER

▶ Collaboration_Designer

COLLABORATIVE_BROWSING_SNAP-IN

▶ Collaborative_Browsing_Snap_In


COMMUNICATION_MANAGER

▶ Call_Center

▶ Communication_Manager

License File Host IDs:

Licensed Features

10 Items  Show

All ▼

Feature (License Keyword)	Expiration date	Licensed capacity
Unified CC API Desktop Edition VALUE_AES_AEC_UNIFIED_CC_DESKTOP	permanent	44
CVLAN ASAI VALUE_AES_CVLAN_ASAI	permanent	44
Device Media and Call Control VALUE_AES_DMCC_DMC	permanent	44
AES ADVANCED SMALL SWITCH VALUE_AES_AEC_SMALL_ADVANCED	permanent	4
DLG VALUE_AES_DLG	permanent	44
TSAPI Simultaneous Users VALUE_AES_TSAPI_USERS	permanent	44
AES ADVANCED LARGE SWITCH VALUE_AES_AEC_LARGE_ADVANCED	permanent	4
CVLAN Proprietary Links VALUE_AES_PROPRIETARY_LINKS	permanent	44

6.2. Create Switch Connection

From the AES Management Console navigate to **Communication Manager Interface** → **Switch Connections** to set up a switch connection. Enter a name for the Switch Connection to be added and click the **Add Connection** button.

Application Enablement Services

Management Console

Welcome: User cust
Last login: Fri Sep 9 17:54:25 2022 from 192.168.40.240
Number of prior failed login attempts: 0
HostName/IP: aespri101x/10.10.40.16
Server Offer Type: VIRTUAL_APPLIANCE_ON_VMWARE
SW Version: 10.1.0.1.0.7-0
Server Date and Time: Tue Sep 20 15:52:43 IST 2022
HA Status: Not Configured

Communication Manager Interface | Switch Connections
Home | Help | Logout

AE Services

Communication Manager Interface

Switch Connections

Dial Plan

High Availability

Licensing

Maintenance

Networking

Switch Connections

Connection Name	Processor Ethernet	Msg Period	Number of Active Connections
<input checked="" type="radio"/> cm101x	Yes	30	1

In the resulting screen enter the **Switch Password**; the Switch Password must be the same as that entered into Communication Manager AE Services Administration screen via the **change ip-services** command, described in **Section 5.3**. Default values may be accepted for the remaining fields. Click **Apply** to save changes.

Communication Manager Interface | Switch Connections

AE Services
Communication Manager Interface
Switch Connections
 Dial Plan
High Availability
 Licensing
 Maintenance
 Networking
 Security
 Status
 User Management

Connection Details - cm101x

Switch Password: [password field]
 Confirm Switch Password: [password field]
 Msg Period: 30 Minutes (1 - 72)
 Provide AE Services certificate to switch: ☒
 Secure H323 Connection: ☐
 Processor Ethernet: ☒
 Enable TLS Certificate Validation: ☐
 Apply Cancel

From the **Switch Connections** screen, select the radio button for the recently added switch connection and select the **Edit PE/CLAN IPs** button. In the resulting screen, enter the IP address of the procr as shown in **Section 5.2** that will be used for the AES connection and select the **Add/Edit Name or IP** button.

Communication Manager Interface | Switch Connections Home | Help | Logout

AE Services
Communication Manager Interface
Switch Connections
 Dial Plan
High Availability
 Licensing
 Maintenance


Edit Processor Ethernet IP - cm101x

10.10.40.13 Add/Edit Name or IP

Name or IP Address	Status
10.10.40.13	In Use

Back

Clicking on **Edit Signaling Details** below brings up the H.323 Gatekeeper page.



Application Enablement Services
Management Console

Welcome: User cust
Last login: Fri Sep 9 17:54:25 2022 from 192.168.40.240
Number of prior failed login attempts: 0
HostName/IP: aespri101x/10.10.40.16
Server Offer Type: VIRTUAL_APPLIANCE_ON_VMWARE
SW Version: 10.1.0.1.0.7-0
Server Date and Time: Tue Sep 20 15:52:43 IST 2022
HA Status: Not Configured

Communication Manager Interface | Switch ConnectionsHome | Help | Logout

▶ AE Services

▼ Communication Manager Interface

Switch Connections

▶ Dial Plan

High Availability

▶ Licensing

▶ Maintenance

▶ Networking

Switch Connections

Connection Name	Processor Ethernet	Msg Period	Number of Active Connections
<input checked="" type="radio"/> cm101x	Yes	30	1

The IP address of Communication Manager is set for the **H.323 Gatekeeper**, as shown below.

Communication Manager Interface | Switch Connections

▶ AE Services

▼ Communication Manager Interface

Switch Connections

▶ Dial Plan

High Availability

▶ Licensing

▶ Maintenance

▶ Networking

Switch Connections

Edit H.323 Gatekeeper - cm101x

Name or IP Address

☒ 10.10.40.13

6.3. Administer TSAPI link

From the Application Enablement Services Management Console, select **AE Services** → **TSAPI** → **TSAPI Links**. Select **Add Link** button as shown in the screen below.



On the **Add TSAPI Links** screen (or the **Edit TSAPI Links** screen to edit a previously configured TSAPI Link as shown below), enter the following values:

- **Link:** Use the drop-down list to select an unused link number.
- **Switch Connection:** Choose the switch connection **cm101x**, which has already been configured in **Section 6.2** from the drop-down list.
- **Switch CTI Link Number:** Corresponding CTI link number configured in **Section 5.4** which is **1**.
- **ASAI Link Version:** Version **12** was used for compliance testing but the latest version available can be chosen.
- **Security:** This can be left at the default value of **both**. An unencrypted TSAPI link was used.

Once completed, select **Apply Changes**.

AE Services | TSAPI | TSAPI Links

▼ **AE Services**

▶ CVLAN

▶ DLG

▶ DMCC

▶ SMS

▼ **TSAPI**

▪ **TSAPI Links**

▪ TSAPI Properties

▶ TWS

▶ **Communication Manager Interface**

Edit TSAPI Links

Link1

Switch Connectioncm101x ▼

Switch CTI Link Number1 ▼

ASAI Link Version12 ▼


SecurityBoth ▼

Apply ChangesCancel ChangesAdvanced Settings

Another screen appears for confirmation of the changes made. Choose **Apply**.

Apply Changes to Link

Warning! Are you sure you want to apply the changes?
These changes can only take effect when the TSAPI server restarts.

 **Please use the Maintenance -> Service Controller page to restart the TSAPI server.**

When the TSAPI Link is completed, it should resemble the screen below.

TSAPI Links				
Link	Switch Connection	Switch CTI Link #	ASAI Link Version	Security
<input checked="" type="radio"/> 1	cm101x	1	12	Both
<input type="button" value="Add Link"/> <input type="button" value="Edit Link"/> <input type="button" value="Delete Link"/>				

6.4. Identify Tlinks

Navigate to **Security** → **Security Database** → **Tlinks**. Verify the value of the **Tlink Name**. This will be needed to configure the NICE Engage Platform in **Section 7.1**. The Tlink for the unencrypted TSAPI link was used.

Security | Security Database | Tlinks

▶ **AE Services**

▶ **Communication Manager Interface**

High Availability

▶ **Licensing**

▶ **Maintenance**

▶ **Networking**

▼ **Security**

▶ Account Management

▶ Audit

▶ Certificate Management

Enterprise Directory

▶ Host AA

▶ PAM

▼ **Security Database**

▪ Control

⊕ CTI Users

▪ Devices

▪ Device Groups

▪ **Tlinks**

▪ Tlink Groups

▪ Worktops

Tlinks

Tlink Name

☒ AVAYA#CM101X#CSTA#AESPRI101X

☐ AVAYA#CM101X#CSTA-S#AESPRI101X

Delete Tlink

6.5. Configure Networking Ports

To ensure that TSAPI ports are enabled, navigate to **Networking → Ports**. Ensure that the TSAPI ports are set to **Enabled** as shown below. Ensure that the **DMCC Server Ports** are also **Enabled** and take note of the **Unencrypted Port 4721** which will be used later in **Section 7.1**.

Networking Ports				
<ul style="list-style-type: none"> ▶ AE Services ▶ Communication Manager Interface High Availability ▶ Licensing ▶ Maintenance ▼ Networking AE Service IP (Local IP) Network Configure Ports TCP/TLS Settings ▶ Security ▶ Status ▶ User Management ▶ Utilities ▶ Help 	Ports			
	CVLAN Ports			Enabled Disabled
		Unencrypted TCP Port	9999	<input checked="" type="radio"/> <input type="radio"/>
		Encrypted TCP Port	<input type="text" value="9998"/>	<input checked="" type="radio"/> <input type="radio"/>
	<hr/>			
	DLG Port	TCP Port	5678	
	<hr/>			
	TSAPI Ports			Enabled Disabled
		TSAPI Service Port	450	<input checked="" type="radio"/> <input type="radio"/>
		Local TLINK Ports		
	TCP Port Min	1024		
	TCP Port Max	1039		
	Unencrypted TLINK Ports			
	TCP Port Min	<input type="text" value="1050"/>		
	TCP Port Max	<input type="text" value="1065"/>		
	Encrypted TLINK Ports			
	TCP Port Min	<input type="text" value="1066"/>		
	TCP Port Max	<input type="text" value="1081"/>		
<hr/>				
DMCC Server Ports			Enabled Disabled	
	Unencrypted Port	<input type="text" value="4721"/>	<input checked="" type="radio"/> <input type="radio"/>	
	Encrypted Port	<input type="text" value="4722"/>	<input checked="" type="radio"/> <input type="radio"/>	
	TR/87 Port	<input type="text" value="4723"/>	<input checked="" type="radio"/> <input type="radio"/>	
<hr/>				
H.323 Ports				
	TCP Port Min	<input type="text" value="20000"/>		
	TCP Port Max	<input type="text" value="29999"/>		
	Local UDP Port Min	<input type="text" value="20000"/>		
	Local UDP Port Max	<input type="text" value="29999"/>		
			Enabled Disabled	
	Server Media		<input checked="" type="radio"/> <input type="radio"/>	

6.6. Create CTI User

A User ID and password needs to be configured for the NICE Engage Platform to communicate with the Application Enablement Services server. Navigate to the **User Management** → **User Admin** screen then choose the **Add User** option.

The screenshot displays the 'User Management | User Admin' interface. On the left is a navigation sidebar with a red header bar. The sidebar contains the following menu items: 'AE Services', 'Communication Manager Interface', 'High Availability', 'Licensing', 'Maintenance', 'Networking', 'Security', 'Status', 'User Management' (expanded), 'Service Admin', 'User Admin' (selected), 'Add User', 'Change User Password', 'List All Users', 'Modify Default Users', 'Search Users', 'Utilities', and 'Help'. The main content area on the right is titled 'User Admin' and contains the text: 'User Admin provides you with the following options for managing AE Services users:'. Below this text is a bulleted list of options: 'Add User', 'Change User Password', 'List All Users', 'Modify Default User', and 'Search Users'.

User Management User Admin	
<ul style="list-style-type: none">▶ AE Services▶ Communication Manager InterfaceHigh Availability▶ Licensing▶ Maintenance▶ Networking▶ Security▶ Status▼ User Management<ul style="list-style-type: none">▶ Service Admin▼ User Admin<ul style="list-style-type: none">▪ Add User▪ Change User Password▪ List All Users▪ Modify Default Users▪ Search Users▶ Utilities▶ Help	<h3>User Admin</h3> <p>User Admin provides you with the following options for managing AE Services users:</p> <ul style="list-style-type: none">• Add User• Change User Password• List All Users• Modify Default User• Search Users

In the **Add User** screen shown below, enter the following values:

- **User Id** - This will be used by the NICE Engage Platform setup in **Section 7.1**.
- **Common Name** and **Surname** - Descriptive names need to be entered.
- **User Password** and **Confirm Password** - This will be used with NICE Engage Platform setup in **Section 7.1**.
- **CT User** - Select **Yes** from the drop-down menu.

High Availability	* User Id	nice1
▶ Licensing	* Common Name	nice1
▶ Maintenance	* Surname	nice1
▶ Networking	User Password
▶ Security	Confirm Password
▶ Status	Admin Note	
▼ User Management	Avaya Role	None ▼
▶ Service Admin	Business Category	
▼ User Admin	Car License	
▪ Add User	CM Home	
▪ Change User Password	Css Home	
▪ List All Users	CT User	Yes ▼
▪ Modify Default Users	Department Number	
▪ Search Users	Display Name	
▶ Utilities	Employee Number	
▶ Help	Employee Type	
	Enterprise Handle	

Scroll down and click on **Apply Changes** (not shown).

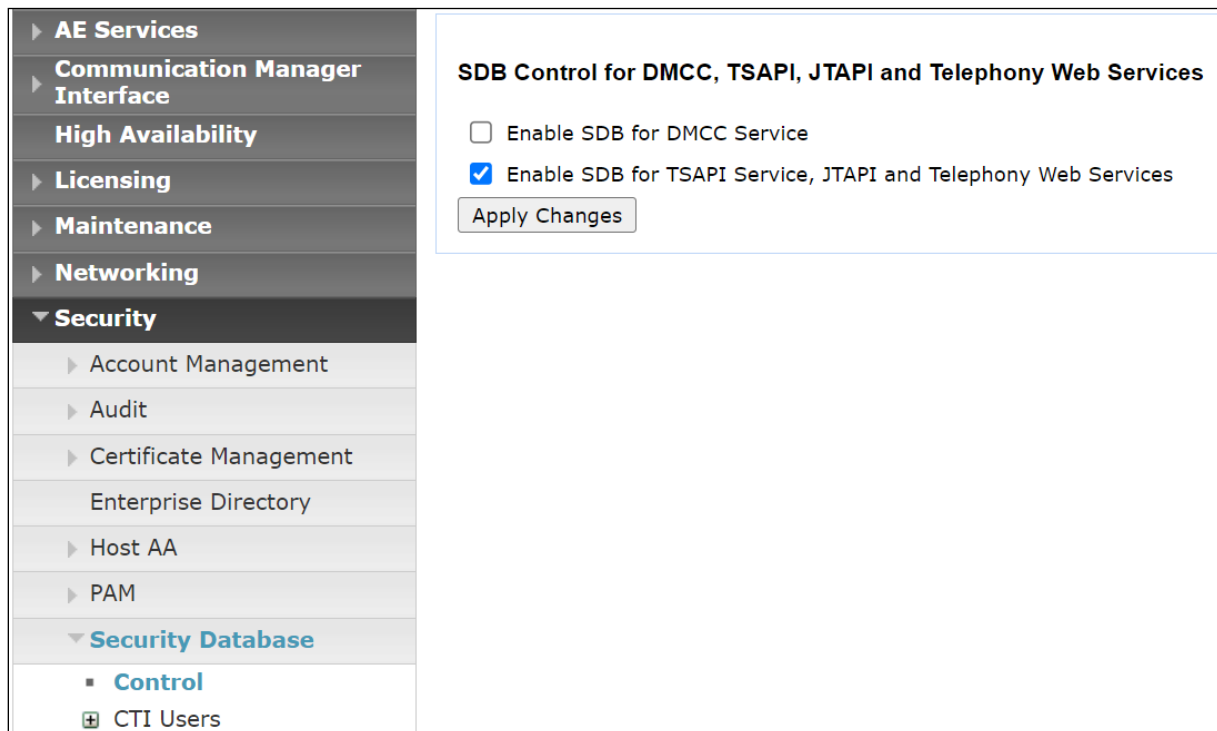
6.7. Configure Security

The CTI user permissions and the database security are set under **Security Database**.

6.7.1. Configure Database Control

The security database can be set differently depending on the requirements of the customer in question. For compliance testing, the DevConnect lab was setup as shown below, however this may be changed by opening **Control** and ticking the boxes shown.

Note: Since the CTI user was given unrestricted access, as per **Section Error! Reference source not found.**, these values set here do not impact the overall setup.



The screenshot shows a web-based configuration interface. On the left is a navigation menu with the following items: AE Services, Communication Manager Interface, High Availability, Licensing, Maintenance, Networking, Security (expanded), Account Management, Audit, Certificate Management, Enterprise Directory, Host AA, PAM, Security Database (expanded), Control (selected), and CTI Users. The main content area is titled 'SDB Control for DMCC, TSAPI, JTAPI and Telephony Web Services'. It contains two checkboxes: 'Enable SDB for DMCC Service' (unchecked) and 'Enable SDB for TSAPI Service, JTAPI and Telephony Web Services' (checked). Below the checkboxes is an 'Apply Changes' button.

Note: The AES Security Database (SDB) provides the ability to control a user's access privileges. The SDB stores information about Computer Telephony (CT) users and the devices they control. The DMCC service, the TSAPI service, and Telephony Web Services use this information for permission checking. Please look to **Section Error! Reference source not found.** for more information on this.

6.7.2. Associate Devices with CTI User

Navigate to **Security** → **Security Database** → **CTI Users** → **List All Users**. Select the CTI user added in **Section 6.6** and click on **Edit Users**.

User ID	Common Name	Worktop Name	Device ID
<input checked="" type="radio"/> nice1	nice1	NONE	NONE
<input type="radio"/> paul1	paul1	NONE	NONE
<input type="radio"/> paul2	paul2	NONE	NONE
<input type="radio"/> sytel	Sytel	NONE	NONE

[Edit](#) [List All](#)

In the main window ensure that **Unrestricted Access** is ticked. Once this is done click on **Apply Changes**.

Edit CTI User

User Profile:

User ID: nice1
Common Name: nice1
Worktop Name: NONE ▾
Unrestricted Access: ☒

Call and Device Control:

Call Origination/Termination and Device Status: None ▾

Call and Device Monitoring:

Device Monitoring: None ▾
Calls On A Device Monitoring: None ▾
Call Monitoring: ☐

Routing Control:

Allow Routing on Listed Devices: None ▾

[Apply Changes](#) [Cancel Changes](#)

6.8. Restart AE Server

Once everything is configured correctly, it is best practice to restart AE Server (if possible), this will ensure that the new connections are brought up correctly. Click on the **Restart AE Server** button at the bottom of the screen.

Maintenance | Service Controller

▶ AE Services

▶ Communication Manager Interface

High Availability

▶ Licensing

▼ Maintenance

Date Time/NTP Server

▶ Security Database

Service Controller

▶ Server Data

▶ Networking

▶ Security

▶ Status

Service Controller

Service	Controller Status
<input type="checkbox"/> ASAI Link Manager	Running
<input type="checkbox"/> DMCC Service	Running
<input type="checkbox"/> CVLAN Service	Running
<input type="checkbox"/> DLG Service	Running
<input type="checkbox"/> Transport Layer Service	Running
<input type="checkbox"/> TSAPI Service	Running

For status on actual services, please use [Status and Control](#)

Start

Stop

Restart Service

Restart AE Server

Restart Linux

Restart Web Server

A message confirming the restart will appear, click on **Restart** to proceed.

Maintenance | Service Controller

▶ AE Services

▶ Communication Manager Interface

High Availability

▶ Licensing

▼ Maintenance

Date Time/NTP Server

▶ Security Database

Service Controller

▶ Server Data

Restart AE Server

Warning! Are you sure you want to restart?
Restarting will cause all existing connections to be dropped and associations lost.

Restart

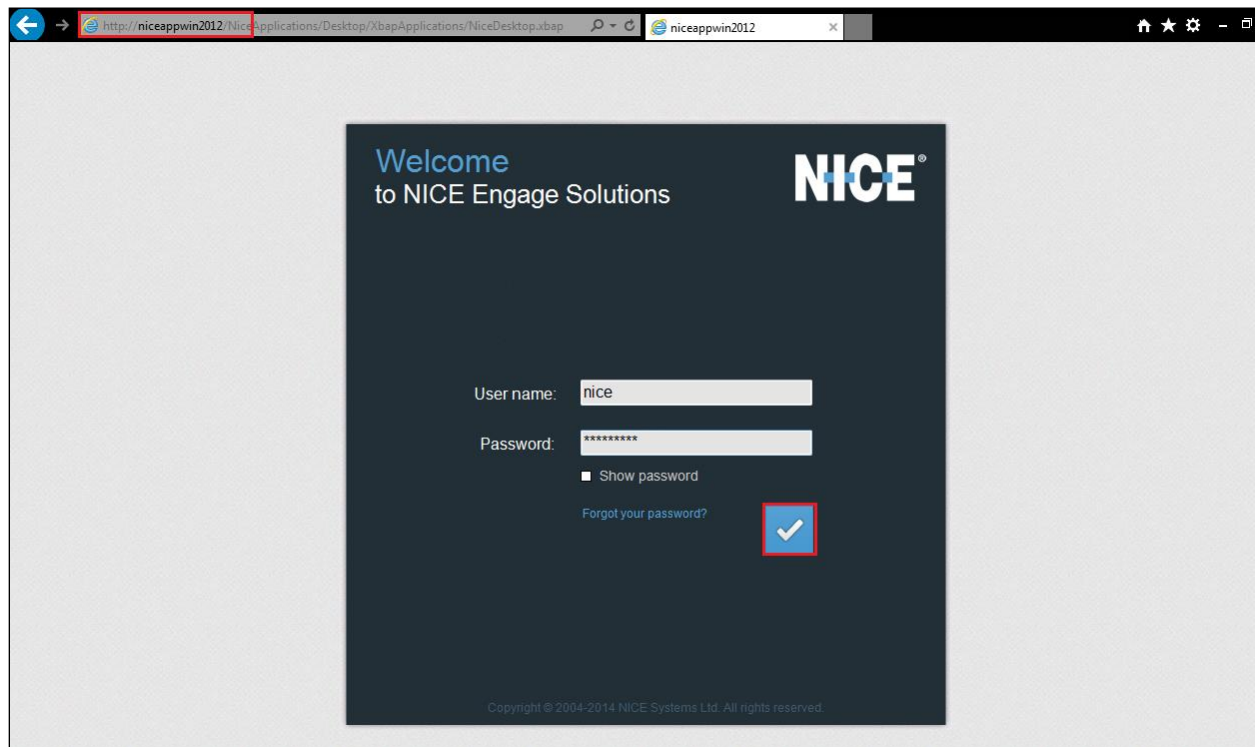
Cancel

7. Configure NICE Engage Platform

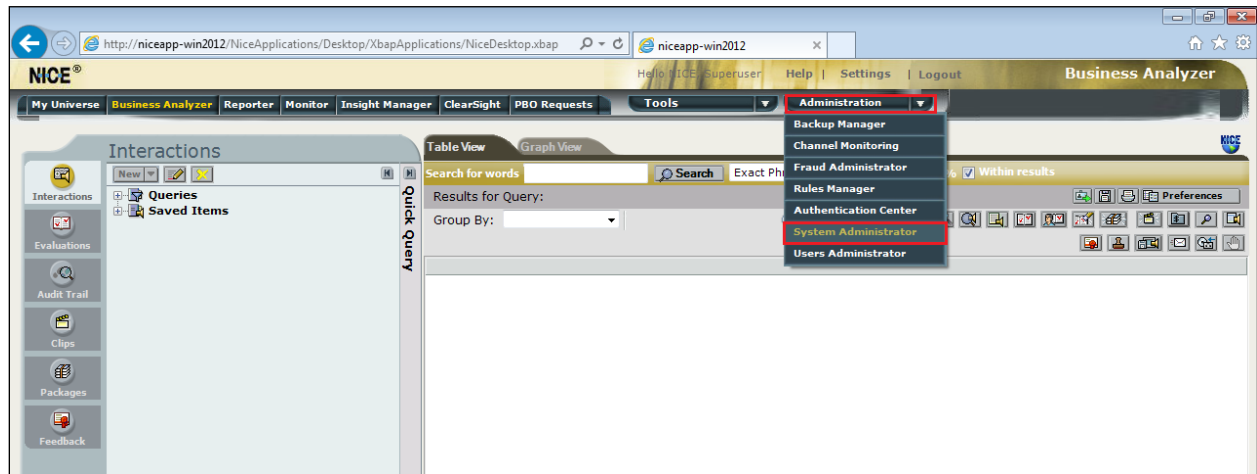
The installation of NICE Engage Platform is usually carried out by an engineer from NICE and is outside the scope of these Application Notes. For information on the installation of the NICE Engage Platform contact NICE as per the information provided in **Section 2.3**.

The following sections will outline the process involved in connecting the NICE Engage Platform to the Avaya Solution. All configuration of the NICE Engage Platform for connection with the AES is performed using a web browser connecting to the NICE Engage Application Server. Open a web browser as shown navigate to

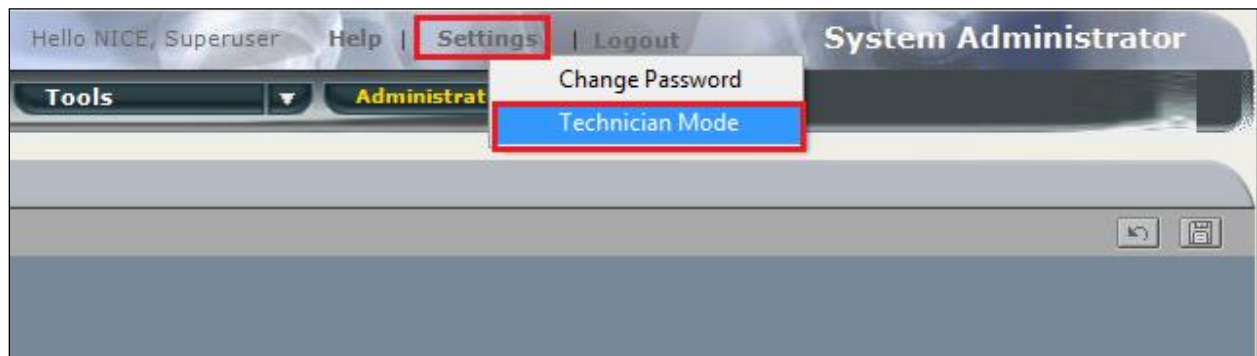
http://<NICEEngageApplicationServerIP>/Nice as shown below and enter the proper credentials and click on **Login**.



Once logged in, expand the **Administration** dropdown menu and click on **System Administrator** as highlighted.

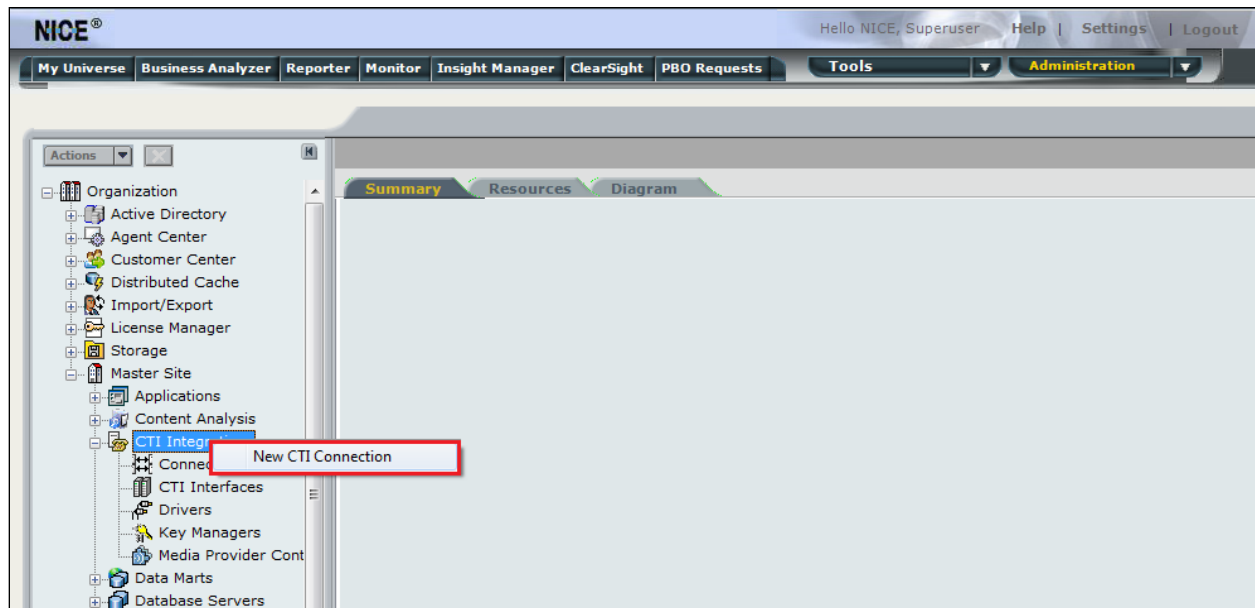


Before any changes can be made, switch to **Technician Mode** by clicking into **Settings** at the top of the screen as shown below.

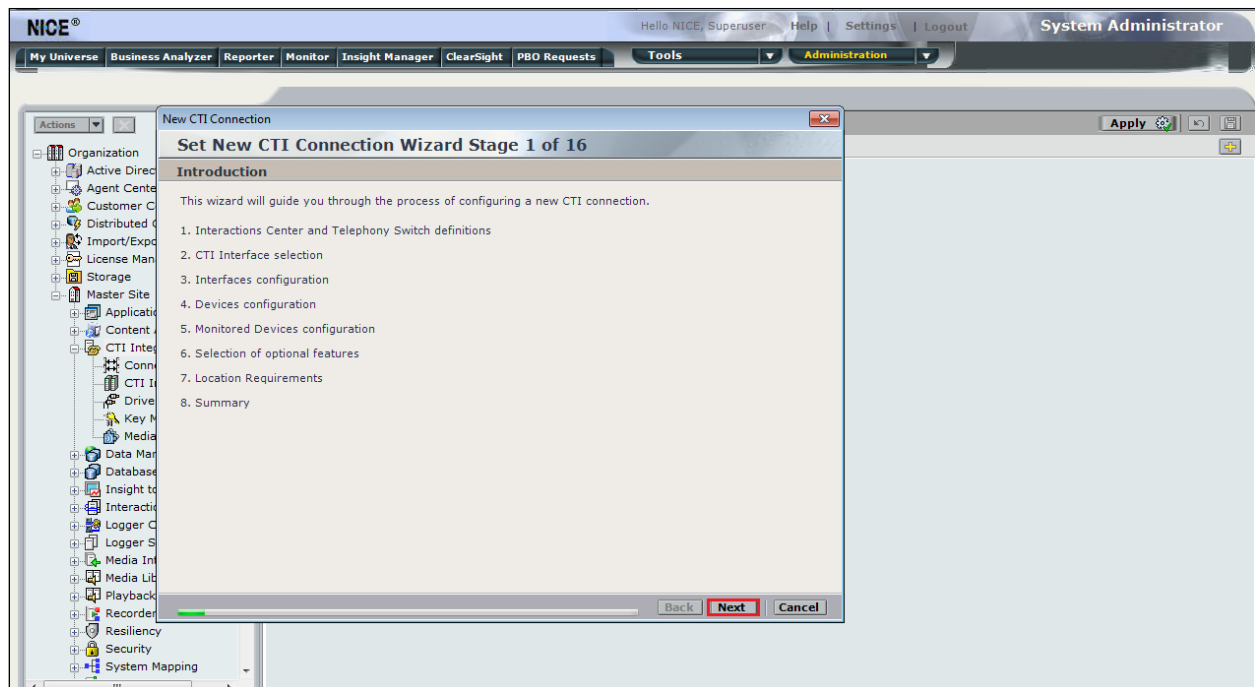


7.1. New CTI Connection

Navigate to **Master Site** → **CTI Integration** in the left window then right-click on CTI Integration and select **New CTI Connection** as shown below.



The **New CTI Connection Wizard** is opened, and this will go through the 16 steps required to set up the connection to the AES for DMCC Service Observe and Single Step Conference type of call recording. Click on **Next** to continue.



The value for **Regular Interactions Center (IC)** is a value that was already created during the installation of the NICE Engage platform. This value is therefore pre-chosen for the CTI connection being created below.

The **Telephony Switch** must be selected, and this will be **Avaya CM**. Enter a suitable name for this **Switch Name**. Click on **Next** to continue.

New CTI Connection

Set New CTI Connection Wizard Stage 2 of 16

Interactions Center Switch

Attach CTI to Interactions Center Server:

☒ Regular Interactions Center: IC

☐ Interactions Center Cluster:

☐ Use existing Telephony Switch:

☒ Define new Telephony Switch:

Switch Type: Avaya CM

Switch Name: DevConnectCM

Advanced >>

Back Next Cancel

Select **AES TSAPI** for the **Avaya CM CTI Interface**, ensure that **Active Recording** is ticked and select the **DMCC (Advanced integration Recorder)** from the dropdown menu. Click on **Next** to continue.

New CTI Connection

Set New CTI Connection Wizard Stage 3 of 16

Interface Type

CTI Interface Type

Avaya CM CTI Interface: AES TSAPI

Avaya Communication Manager
Avaya Application Enablement Services (AES) / Avaya CT - TSAPI

☐ VoIP Mapping: AES SMS

☐ Additional VoIP Mapping: Generic SIP Mapper

☒ Active Recording: DMCC (Advanced Interaction Recorder)

Avaya Communication Manager
Device Media and Call Control

Back Next Cancel

Each of the values below must be filled in. Double-click on each **Parameter** to enter a value for that parameter.

New CTI Connection

Set New CTI Connection Wizard Stage 4 of 16

Interface Parameters

CTI Interface Details

Interface Connection Details

Mandatory fields are marked in bold

Parameter	Value
ServerName	
LoginID	
Password	
UseWarmStandBy	No

Description: Server connection name.

Additional Interface Parameters

Back Next Cancel

Double-click on **ServerName** and enter the TSAPI Tlink **Value** from **Section 6.4**.

New CTI Connection

Set New CTI Connection Wizard Stage 4 of 16

Interface Parameters

CTI Interface Details

Interface Connection Details

Mandatory fields are marked in bold

Set Parameter Value

Parameter

ServerName

LoginID

Password

UseWarmStandBy

Description: Server connection name.

Additional Interface Parameters

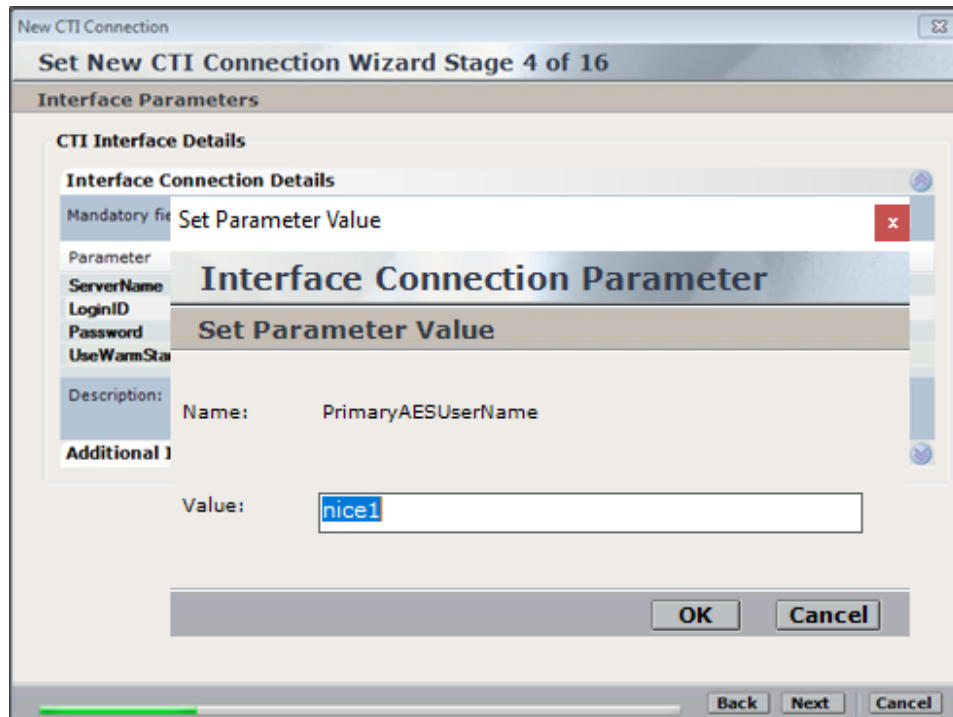
Name: ServerName

Value: AVAYA#CM101X#CSTA#AESPRI101X

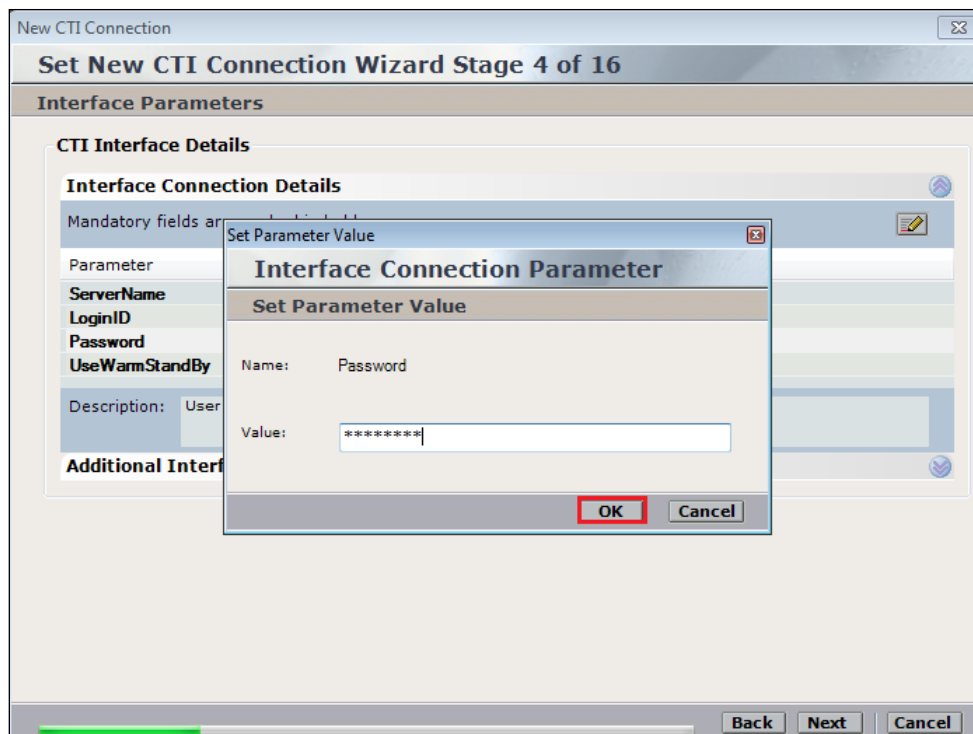
OK Cancel

Back Next Cancel

Double-click on **LoginID** and enter the username that was created in **Section 6.6**. Click on **OK**.



Double-click on password and enter the value for the password that was created in **Section 6.6**.



Click on **Next** once these values are all filled in.

General Interface Info

Interface Connection Details

☐ Display Read Only Information Mandatory fields are marked in bold [X] [Pencil] [Add]

Parameter	Value
ServerName	AVAYA#CM101X#CSTA#AESPRI101X
LoginID	nice1
Password
UseWarmStandBy	No

Description: Server connection name.

Additional Interface Parameters

The values below must be filled in by double-clicking on each **Parameter**.

New CTI Connection

Set New CTI Connection Wizard Stage 8 of 16

Active Recording

Active Recording Interface Details

Interface Connection Details

Mandatory fields are marked in bold

Parameter	Value
PrimaryAESServerAddress	
PrimaryAESDMCCPort	
PrimaryAESUserName	
PrimaryAESPPassword	
PrimaryAESServerAddress	10.10.10.10

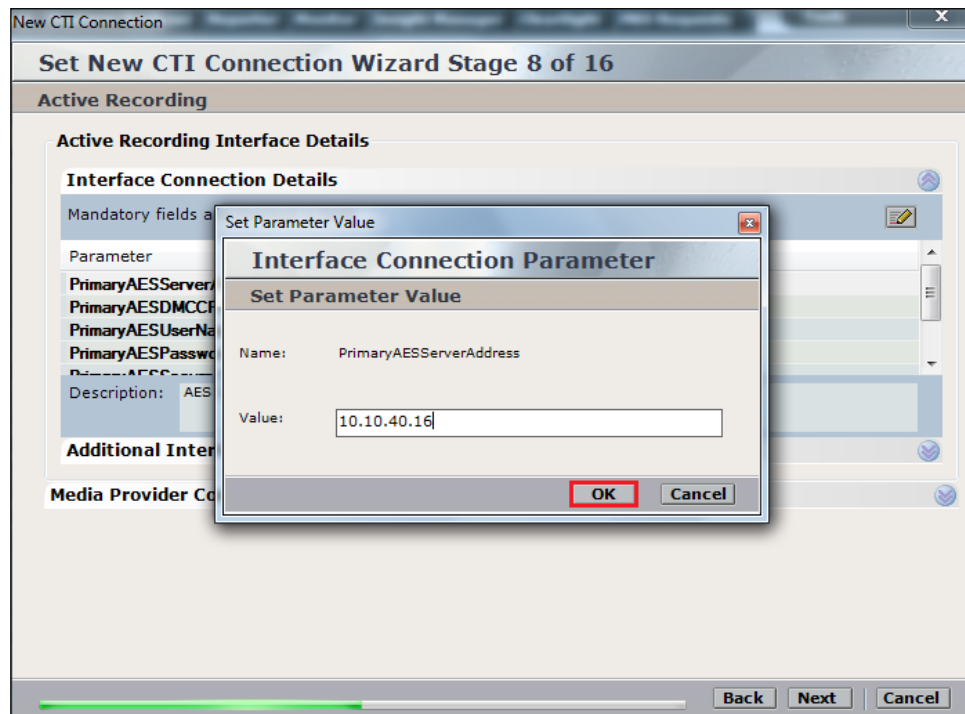
Description:

Additional Interface Parameters

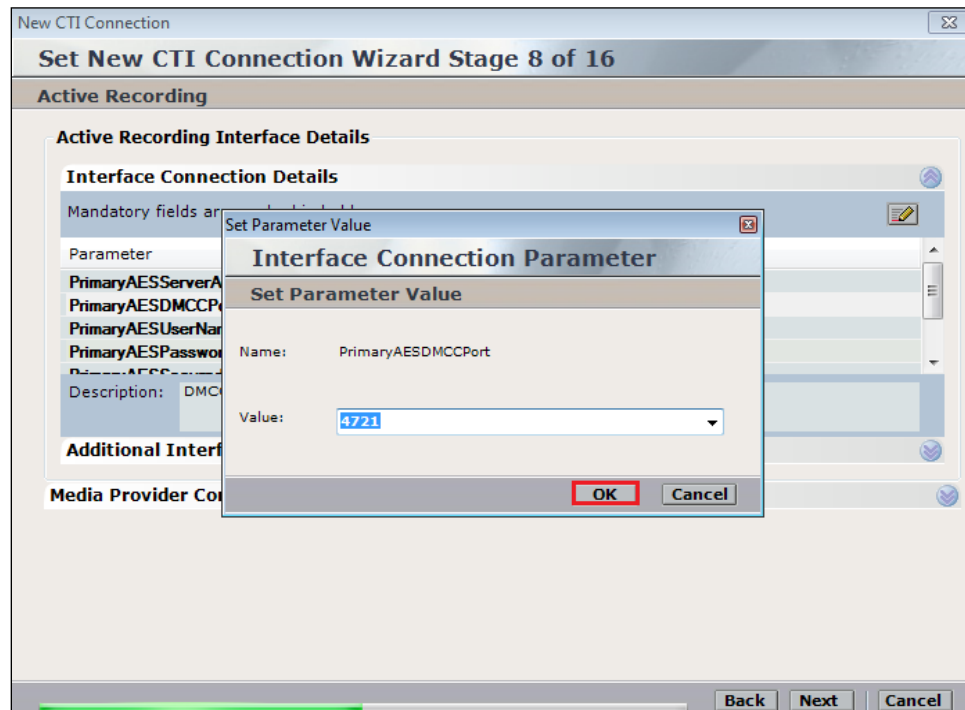
Media Provider Controllers - Location

[Back] [Next] [Cancel]

Enter the **Value** for the **AESServerAddress**, note this is the IP address of the AES server as per **Section 5.2**. Click on **OK**.



Enter the **Value** for the **PrimaryAESDMCCPort**, note this will be the same port that was configured in **Section 6.5**. In **this** example the unencrypted port **4721** is entered.



As before, enter the username that was created in **Section 6.6** and click on **OK**.

New CTI Connection

Set New CTI Connection Wizard Stage 8 of 16

Active Recording

Active Recording Interface Details

Interface Connection Details

Mandatory fields are:

Parameter

- PrimaryAESDMCCP
- PrimaryAESUserName
- PrimaryAESPassword
- PrimaryAESSecure
- UseAESNameClass

Description: User

Additional Interf

Media Provider Co

Value: nice1

OK Cancel

Back Next Cancel

Enter the password that was created in **Section 6.6** and click on **OK**.

New CTI Connection

Set New CTI Connection Wizard Stage 8 of 16

Active Recording

Active Recording Interface Details

Interface Connection Details

Mandatory fields are:

Parameter

- PrimaryAESDMCCP
- PrimaryAESUserName
- PrimaryAESPassword
- PrimaryAESSecure
- UseAESNameClass

Description: Pass

Additional Interf

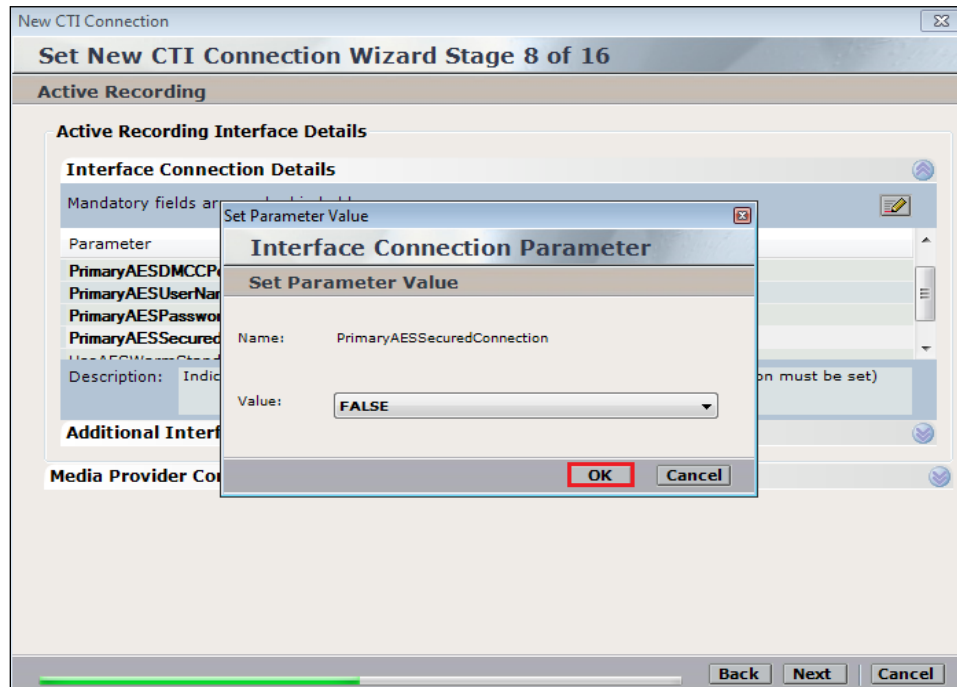
Media Provider Co

Value: *****

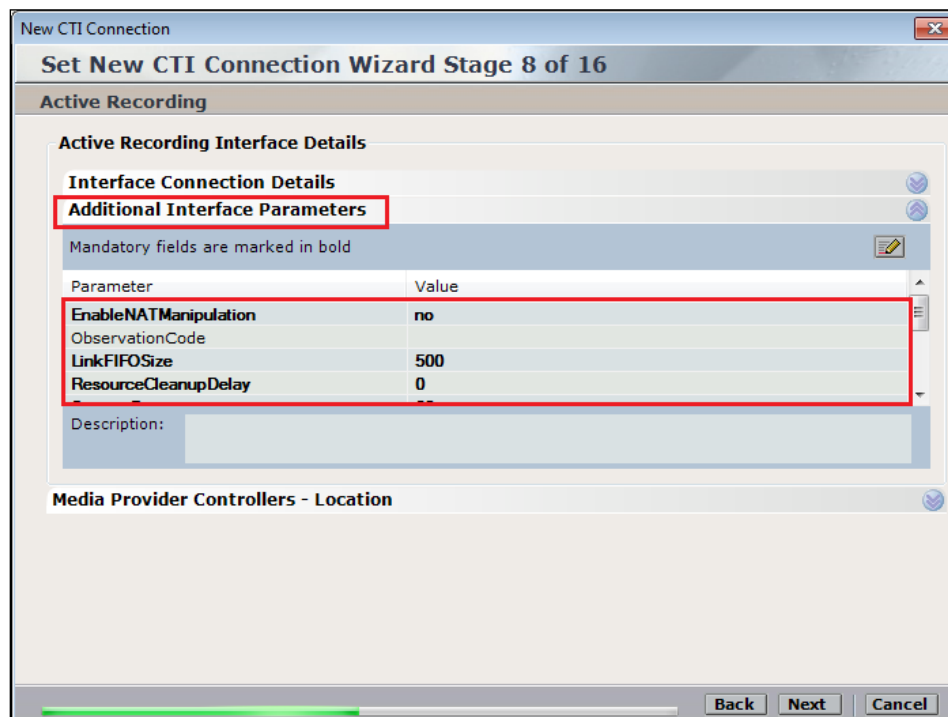
OK Cancel

Back Next Cancel

Because the unencrypted port was chosen, select **False** for the **PrimaryAESSecuredConnection**. Click on **OK** and then **Next** (not shown) to continue.



Click on **Additional Interface Parameters**, to change the Service Observing Code double-click on **ObservationCode**.



Enter the **Value** that was created in **Section 5.5**. This was the Service Observing Listen Only Access Code ***56**. Click on **OK** to continue.

New CTI Connection

Set New CTI Connection Wizard Stage 8 of 16

Active Recording

Active Recording Interface Details

Interface Connection Details

Additional Interface Parameters

Mandatory fields are marked in bold

Parameter

Value

EnableNATManipulation no

ObservationCode

LinkFIFOSize 500

ResourceCleanupDelay 0

Description:

Media Provider

Value: *56

OK Cancel

Back Next Cancel

Click on **Media Provider Controllers – Location** to expand this.

New CTI Connection

Set New CTI Connection Wizard Stage 8 of 16

Active Recording

Active Recording Interface Details

Interface Connection Details

Additional Interface Parameters

Mandatory fields are marked in bold

Parameter

Value

EnableNATManipulation no

ObservationCode

LinkFIFOSize 500

ResourceCleanupDelay 0

Description:

Media Provider Controllers - Location

Back Next Cancel

Enter the **IP/Hostname** of the Nice Advanced Interactions Server, then click on the + icon to add this.

New CTI Connection

Set New CTI Connection Wizard Stage 8 of 16

Active Recording

Active Recording Interface Details

Interface Connection Details

Additional Interface Parameters

Media Provider Controllers - Location

Media Provider Location

Server IP/Hostname: NICEActive2012

Connection Manager Port: 62094

Media Provider Controllers:

IP/Hostname	CM Port

Back Next Cancel

Click on **Next** to continue.

New CTI Connection

Set New CTI Connection Wizard Stage 8 of 16

Active Recording

Active Recording Interface Details

Interface Connection Details

Additional Interface Parameters

Media Provider Controllers - Location

Media Provider Location

Server IP/Hostname

Connection Manager Port: 62094

Media Provider Controllers:

IP/Hostname	CM Port
NICEActive2012	62094

Back Next Cancel

On the following screen, click on **Add**, to add the Communication Manager devices.

New CTI Connection

Set New CTI Connection Wizard Stage 10 of 16

Devices

Available Devices

Provide telephony switch available devices

0 devices

Device Number/IP	CTI Trunk ID	Type

The **Device Type** should be **Extension** and insert the extension number of a phoneset that is to be recorded the example below showing extension **3001**. Expand **Advanced Device Parameters** and ensure that the **Value** for **Observation Type** is set to **Resourced-Based**. Click on **OK** to continue.

New CTI Connection

Set New CTI Connection Wizard Stage 10 of 16

Devices

Available Devices

Provide telephony switch available devices

0 devices

Device Number/IP	CTI Trunk ID	Type

Add Device

Name:

Device Type:

Device Number:

IP:

Advanced Device Parameters

☐ Display Read Only Information

Name	Value
Observation Type	Resource-Based

Description: Observation Type. Non-Resource-Based - can be recorded without the

For Service Observe and Single Step Conference virtual extensions need to be added. These are the virtual extensions that were created in **Section 5.8**. Ensure that **Device Type** is set to **Virtual Extension** and add the correct extension for **Device Number**. Each of the **Parameters** highlighted at the bottom of the screen need to be configured and these are done by double-clicking on each parameter.

Edit

Name

Device Type: *

Device Number: *

Advanced Device Parameters

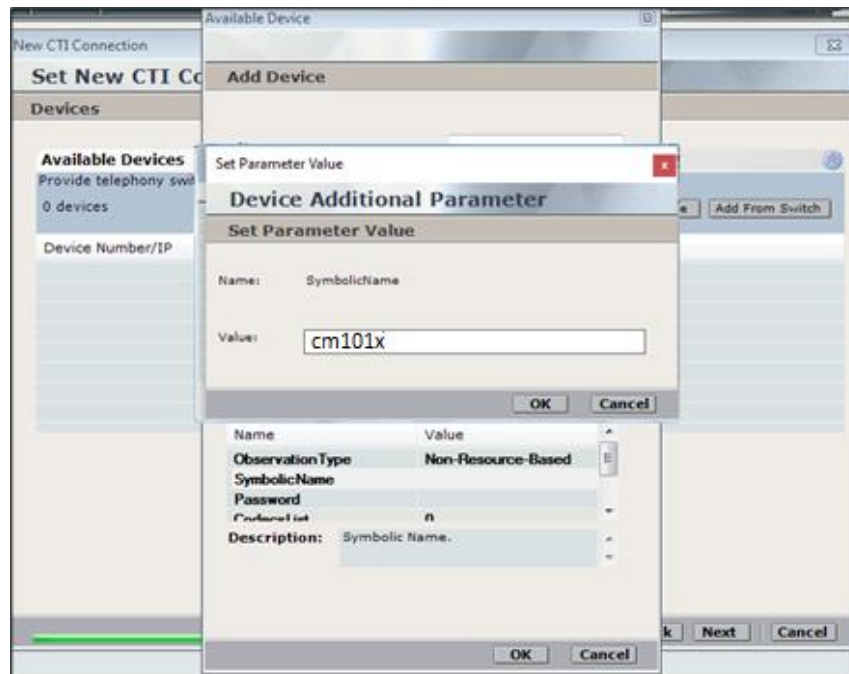
☐ Display Read Only Information

Name	Value
ObservationType	None
SymbolicName	cm101x
Password	****
CodecsList	31
FncAlnList	7

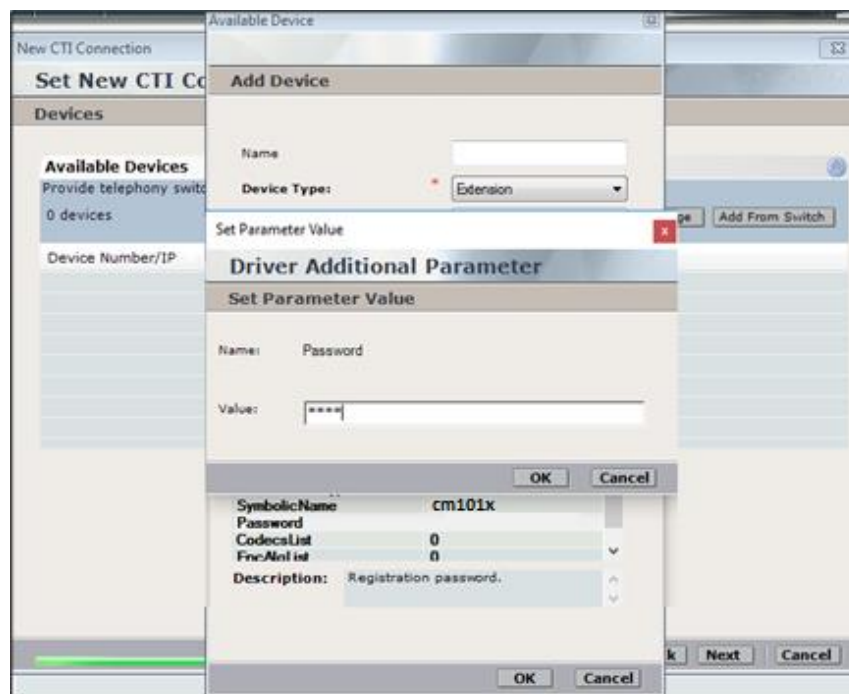
Description:

OK Cancel

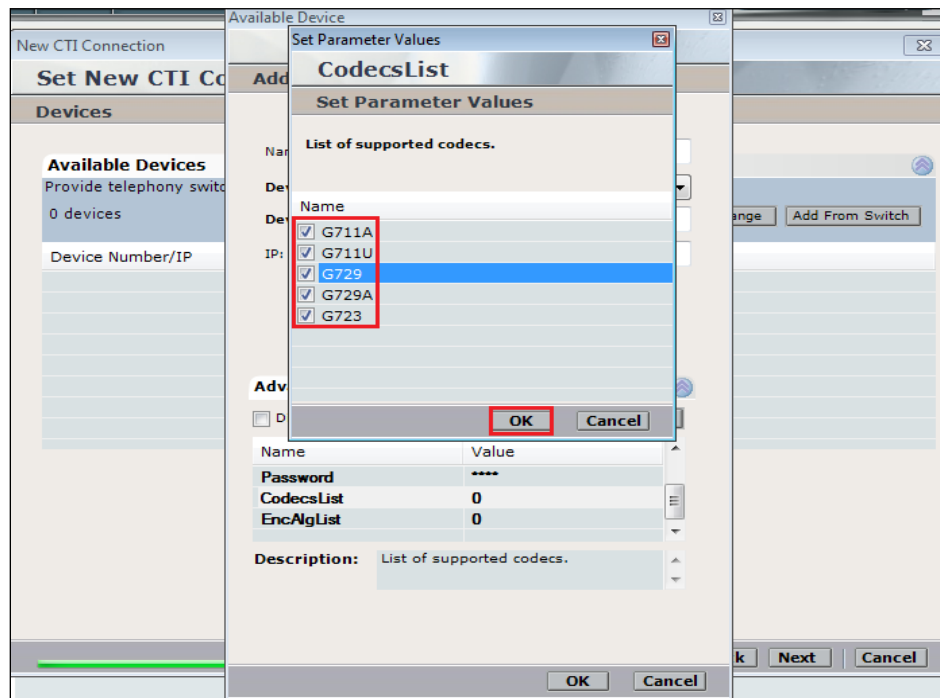
Enter the correct **Value** for **SymbolicName**. Double-click on **SymbolicName** to set the value. This should be the same as the switch name entered in **Section 6.2**.



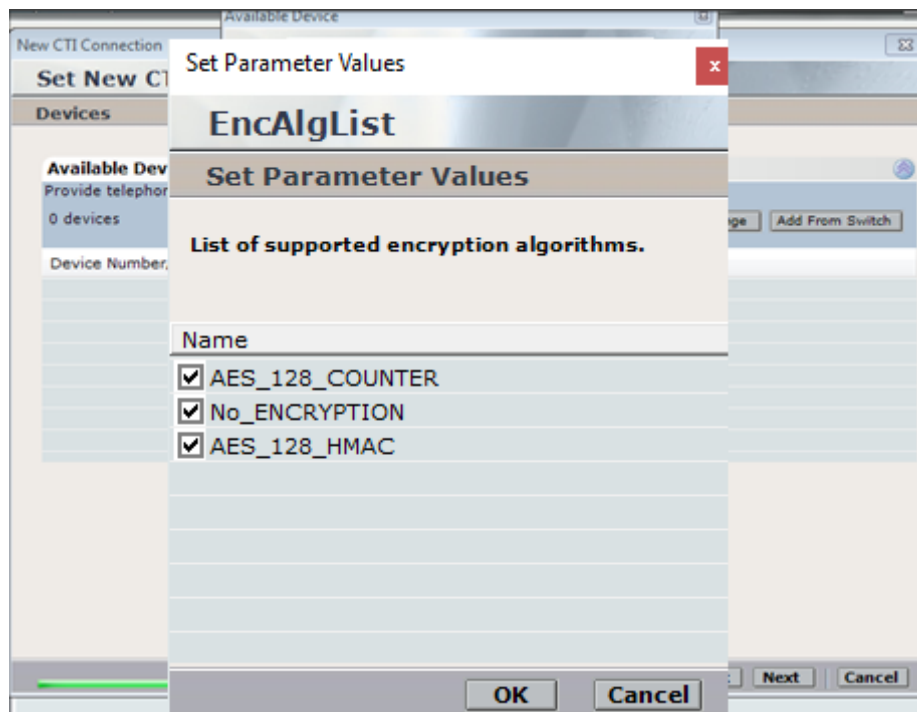
Enter the correct **Password** and note this is the password for the extension that is being added here. This is the station password which was entered during the creation of the station. A printout of an extension can be found in **Section 5.6** of these Application Notes.



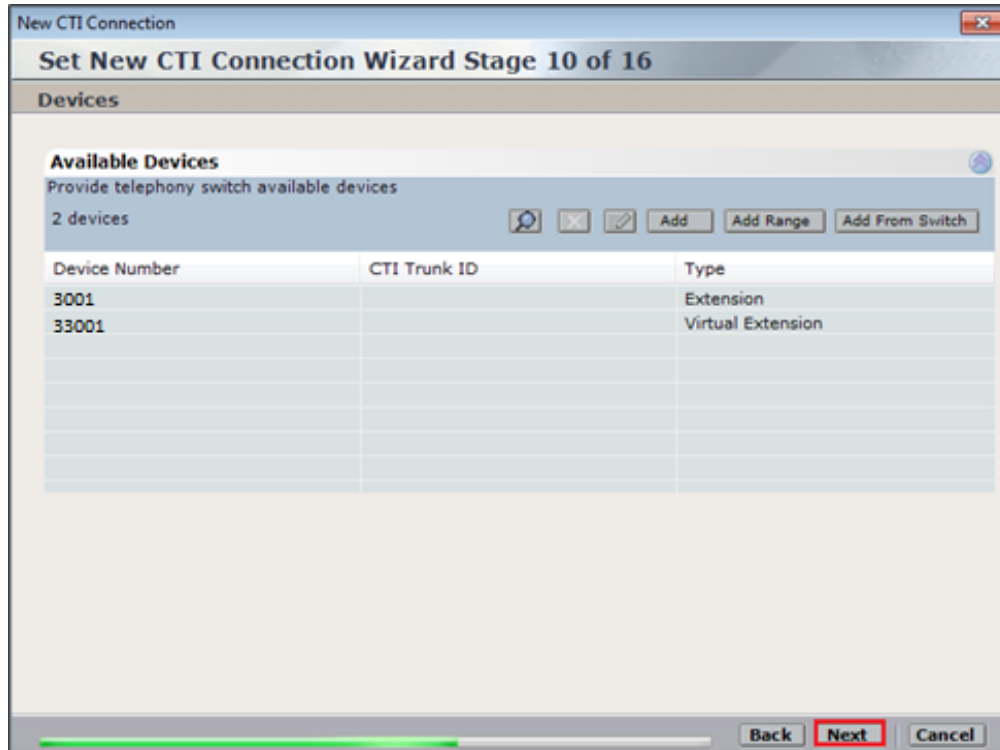
Double-click on **CodecsList** and ensure that all the values are ticked as shown below. Click on **OK** to continue.



Double-click on **EncAlgList**. To cover all options, all types of encryptions were ticked. Click on **OK** to continue.



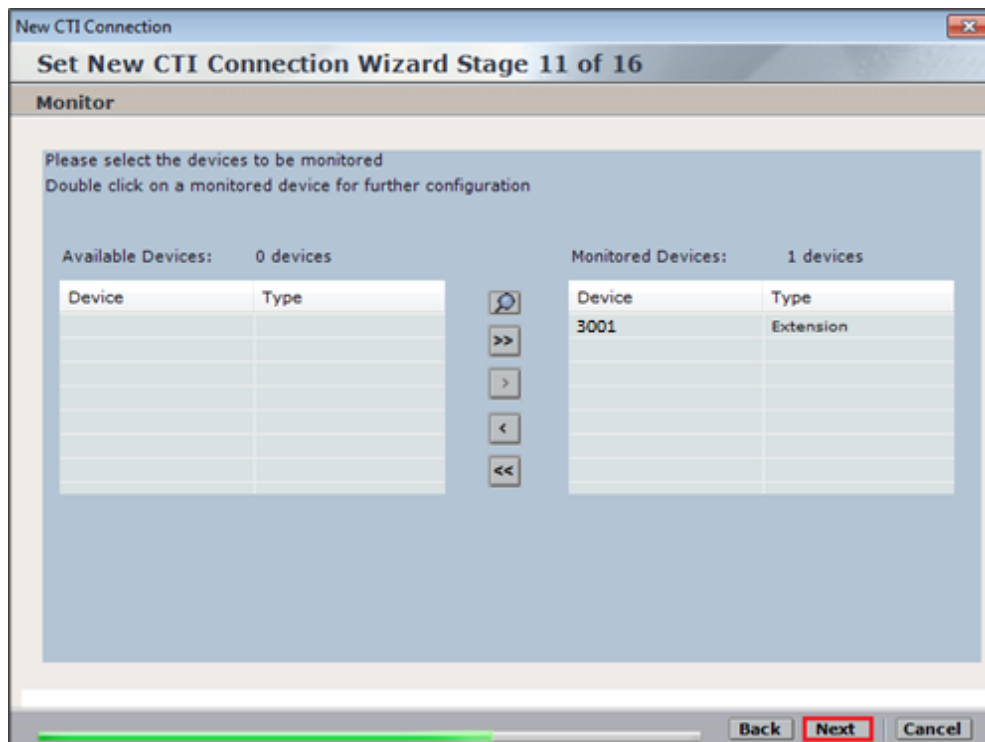
Click on **Next** to continue.



The screenshot shows the 'Set New CTI Connection Wizard Stage 10 of 16: Devices' window. It features a section titled 'Available Devices' with the instruction 'Provide telephony switch available devices' and a count of '2 devices'. Below this is a table with columns 'Device Number', 'CTI Trunk ID', and 'Type'. The table contains two rows: '3001' (Extension) and '33001' (Virtual Extension). To the right of the table are buttons for 'Add', 'Add Range', and 'Add From Switch'. At the bottom right are 'Back', 'Next', and 'Cancel' buttons, with 'Next' highlighted in red.

Device Number	CTI Trunk ID	Type
3001		Extension
33001		Virtual Extension

Select the new extension and click on the >> icon as shown. Click on **Next** to continue.



The screenshot shows the 'Set New CTI Connection Wizard Stage 11 of 16: Monitor' window. It features a section titled 'Monitor' with the instruction 'Please select the devices to be monitored' and 'Double click on a monitored device for further configuration'. Below this are two tables: 'Available Devices' (0 devices) and 'Monitored Devices' (1 device). The 'Monitored Devices' table contains one row: '3001' (Extension). Between the tables are buttons for '>>', '>', '<', and '<<'. At the bottom right are 'Back', 'Next', and 'Cancel' buttons, with 'Next' highlighted in red.

Device	Type
3001	Extension

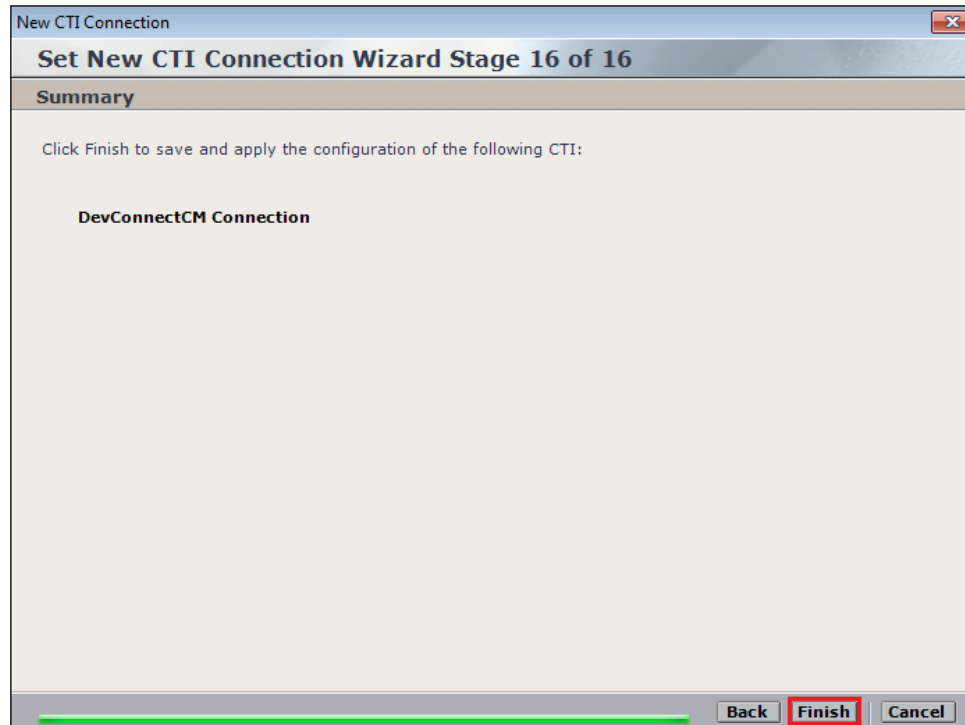
It is optional, but for better analysis tick on **Call Flow Analysis** and click on **Next** to continue.

The screenshot shows a window titled "New CTI Connection" with a subtitle "Set New CTI Connection Wizard Stage 12 of 16". The main section is labeled "Optional" and contains the text "Select optional features relevant to integration. Some options may require further configuration." Below this text are four checkboxes: "SIP Trunk Correlation", "Rejected Devices", "Filter Calls", and "Call Flow Analysis". The "Call Flow Analysis" checkbox is checked and highlighted with a red rectangle. At the bottom of the window, there are three buttons: "Back", "Next" (highlighted with a red rectangle), and "Cancel". A progress bar at the bottom indicates the current stage.

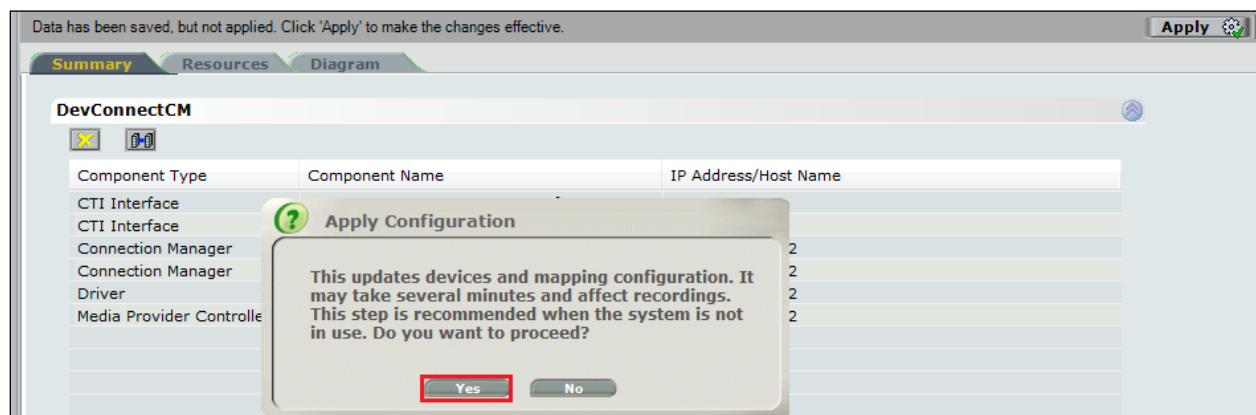
Select a different **Port** number as shown below **62095** is chosen simply because **62094** was already in use.

The screenshot shows a window titled "New CTI Connection" with a subtitle "Set New CTI Connection Wizard Stage 15 of 16". The main section is labeled "Requirements" and contains the text "The Interactions Center server selected already has a Connection Manager. Create a new Connection Manager, or select an existing one." Below this text are two radio buttons: "Create a new Connection Manager" (selected and highlighted with a red rectangle) and "Select available Connection Manager". Under "Create a new Connection Manager", there is a "Port:" label and a text box containing "62095", which is also highlighted with a red rectangle. Under "Select available Connection Manager", there is a "Ports in use:" label and a text box containing "62094". At the bottom of the window, there are three buttons: "Back", "Next" (highlighted with a red rectangle), and "Cancel". A progress bar at the bottom indicates the current stage.

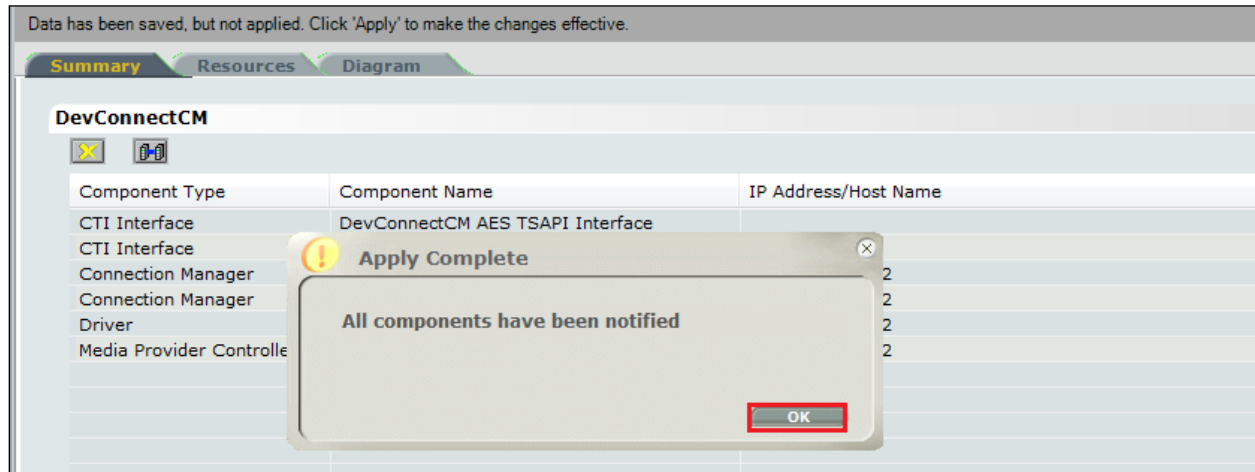
Click on **Finish** to complete the New CTI Wizard.



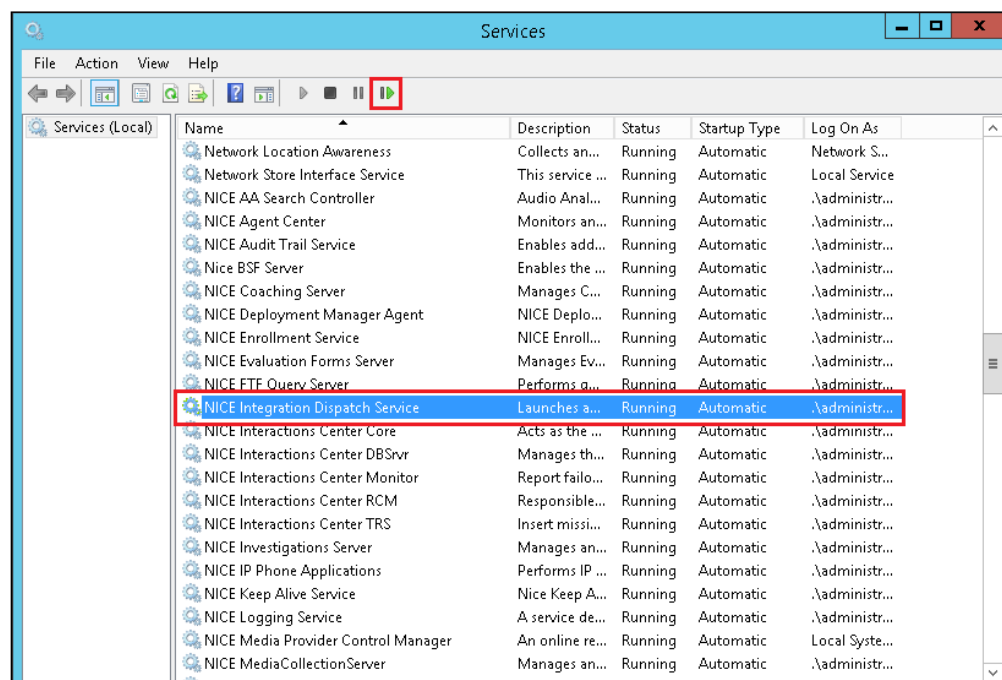
Click on **Apply** at the top right of the screen to save the new connection and click on **Yes** to proceed



The following shows that the save was successful. Click on **OK** to continue.

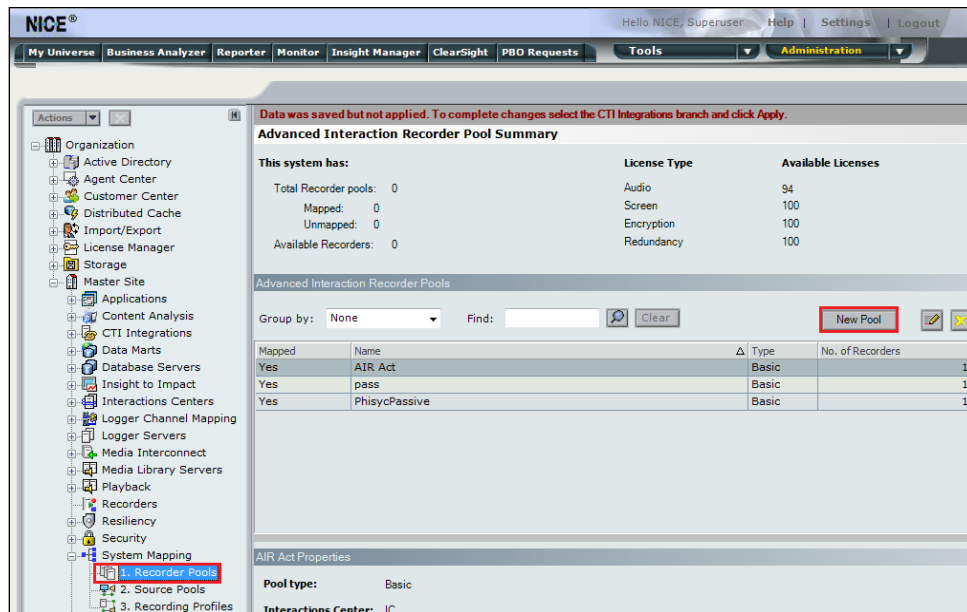


From the NICE Application Server, open **Services** and restart the **NICE Integration Dispatch Service**.

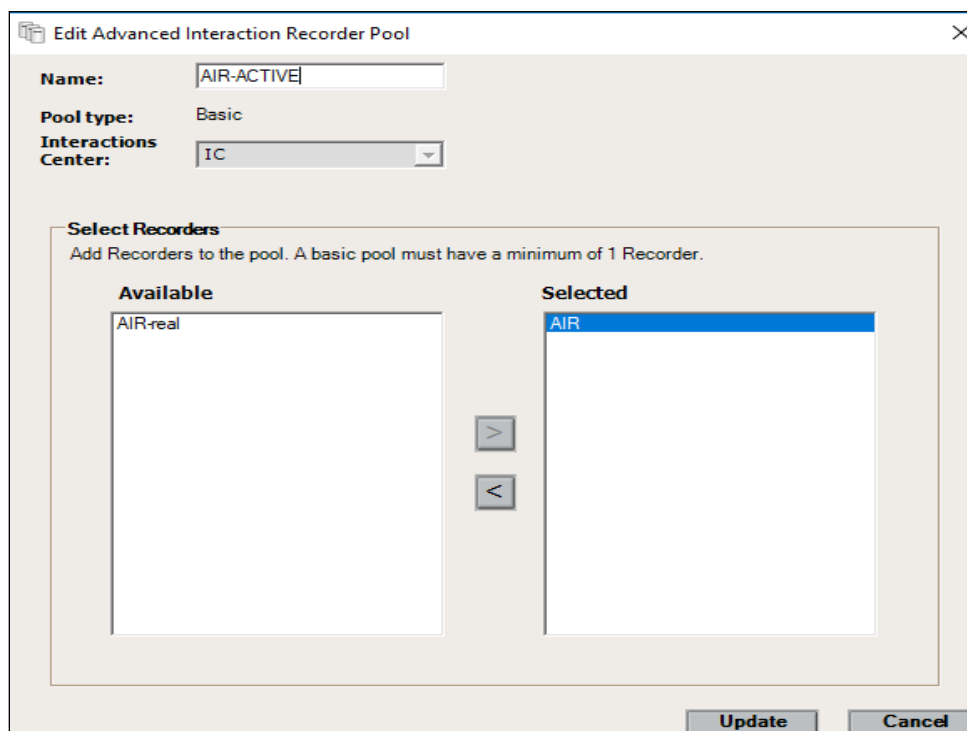


7.2. System Mapping

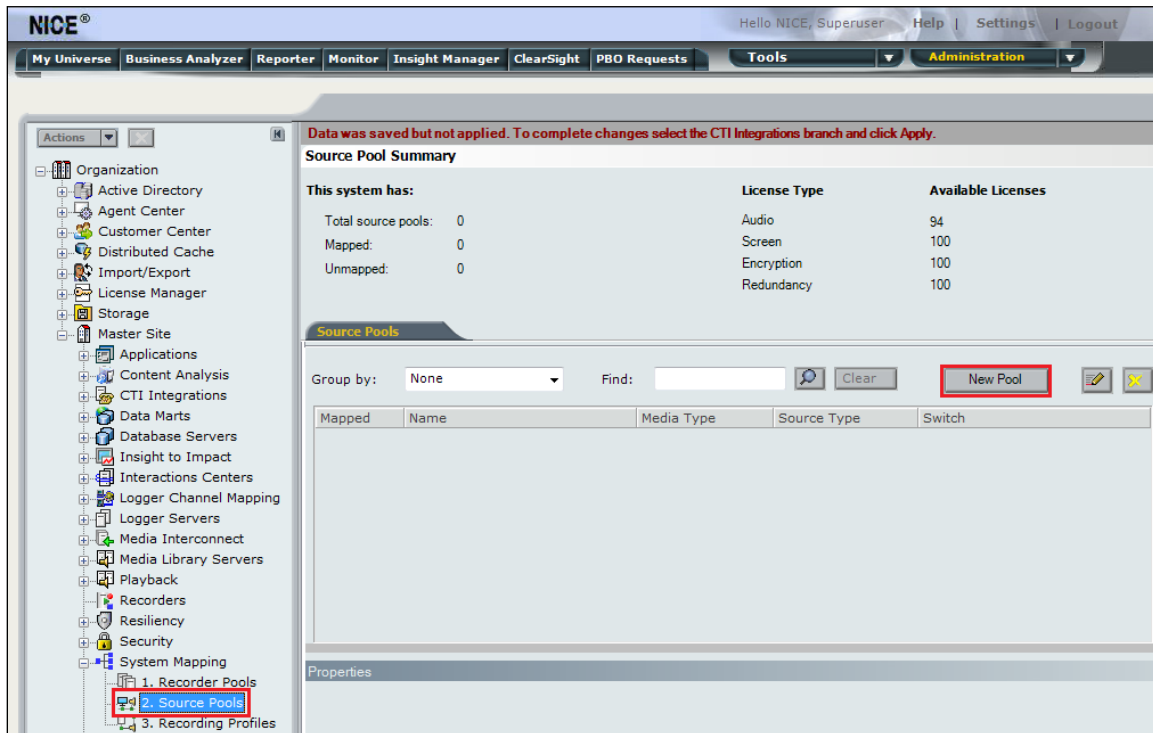
From the web browser navigate to **Master Site** → **System Mapping** → **Recorder Pools**. In the main window click on **New Pool**.



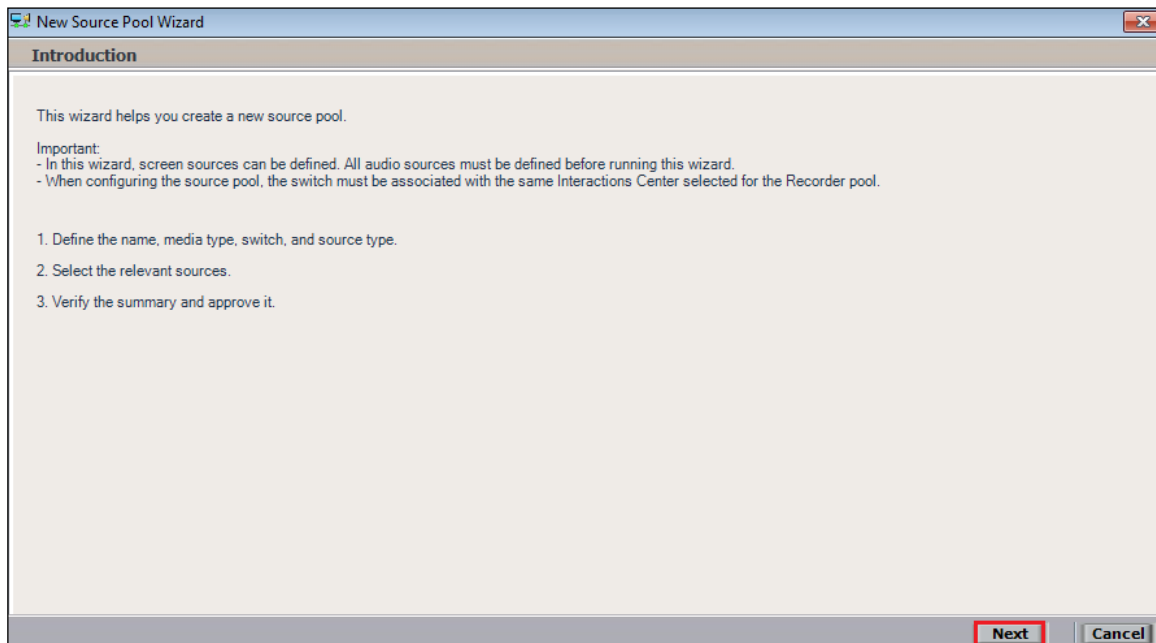
Enter a suitable **Name** for the **Recorder Pool** and select the **AIR** from the list of **Available Recorders** and click on **Update** to continue.



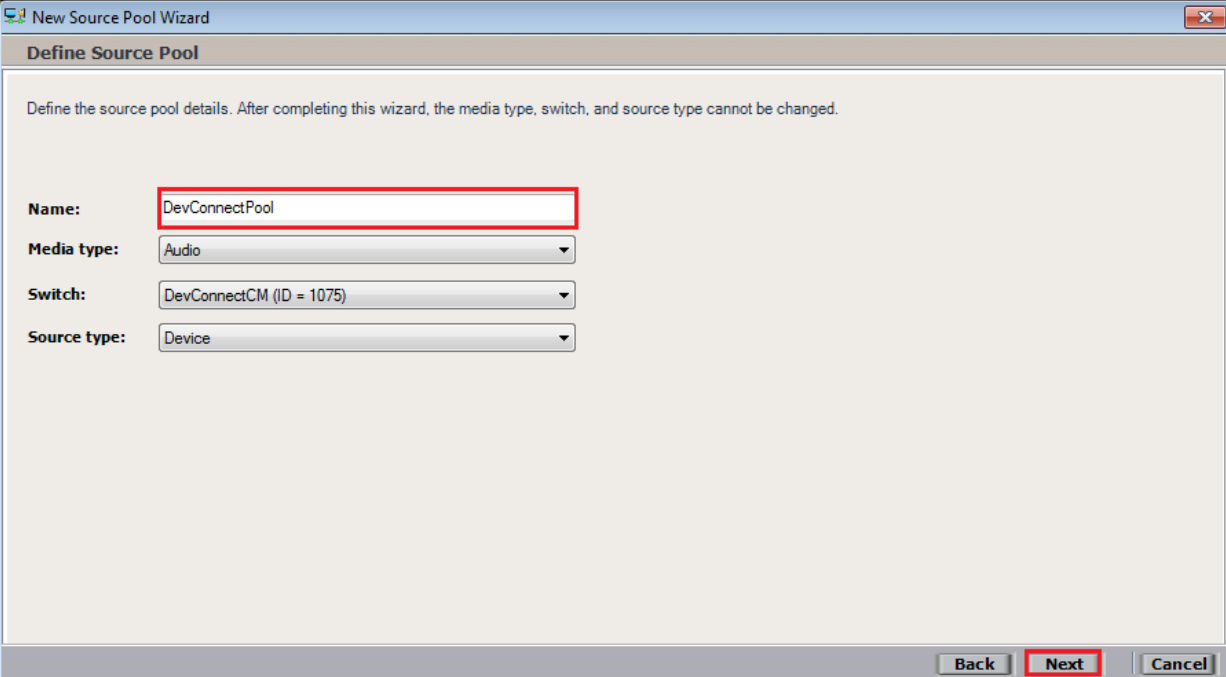
From the left navigation window select **Source Pools** and from the main window click on **New Pool**.



Click on **Next** to continue to add a new **Source Pool**.



Enter a suitable **Name** and the other values were left as default. Click on **Next** to continue.



The screenshot shows the 'Define Source Pool' step of the 'New Source Pool Wizard'. The window title is 'New Source Pool Wizard'. The main heading is 'Define Source Pool'. Below the heading is a note: 'Define the source pool details. After completing this wizard, the media type, switch, and source type cannot be changed.' There are four input fields: 'Name' with the value 'DevConnectPool', 'Media type' with the value 'Audio', 'Switch' with the value 'DevConnectCM (ID = 1075)', and 'Source type' with the value 'Device'. At the bottom right, there are three buttons: 'Back', 'Next', and 'Cancel'. The 'Next' button is highlighted with a red border.

Name: DevConnectPool

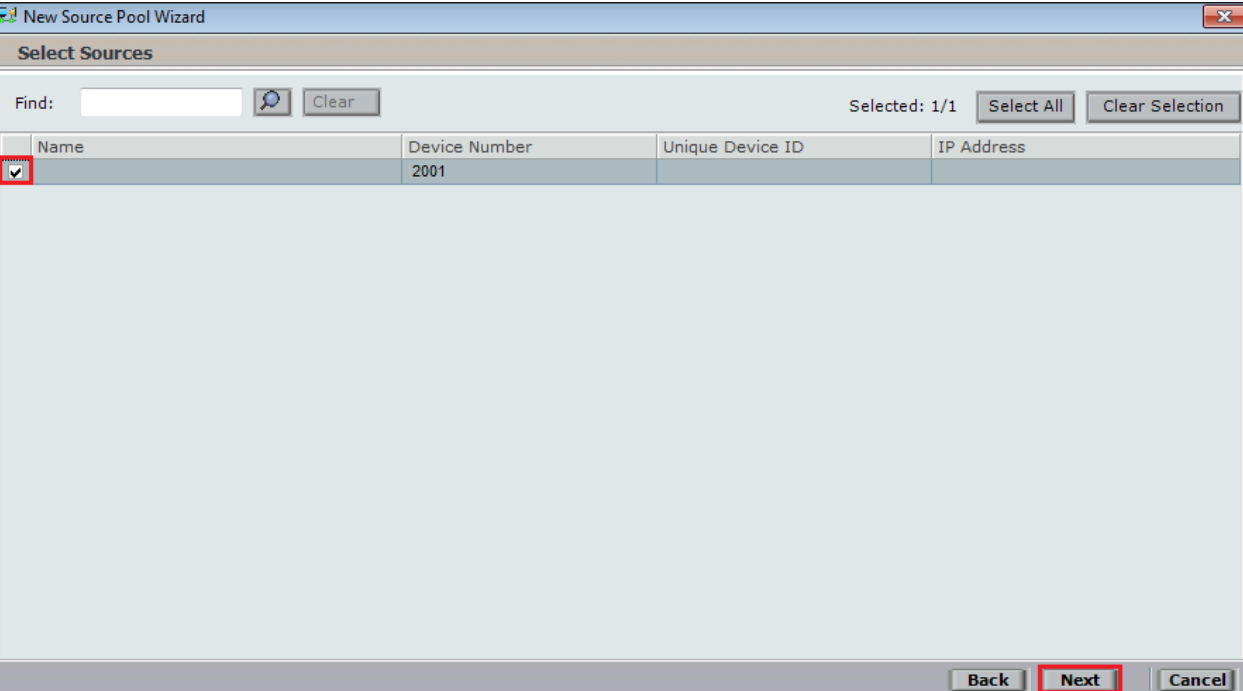
Media type: Audio

Switch: DevConnectCM (ID = 1075)

Source type: Device

Back Next Cancel

Select the extensions that were created in **Section 7.1**, note only one extension number is shown in the example below but this is not typical. Click on **Next** to continue.



The screenshot shows the 'Select Sources' step of the 'New Source Pool Wizard'. The window title is 'New Source Pool Wizard'. The main heading is 'Select Sources'. There is a 'Find:' search bar with a magnifying glass icon and a 'Clear' button. To the right, it says 'Selected: 1/1' with 'Select All' and 'Clear Selection' buttons. Below this is a table with four columns: 'Name', 'Device Number', 'Unique Device ID', and 'IP Address'. The first row has a checked checkbox in the 'Name' column, and the 'Device Number' is '2001'. At the bottom right, there are three buttons: 'Back', 'Next', and 'Cancel'. The 'Next' button is highlighted with a red border.

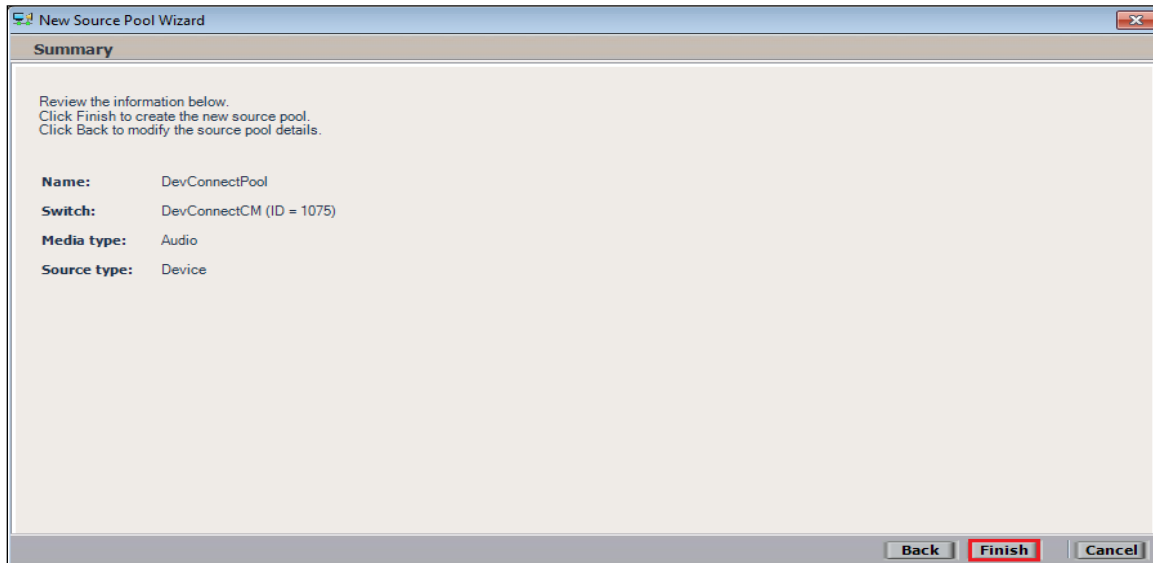
Find: [Search Bar] Clear

Selected: 1/1 Select All Clear Selection

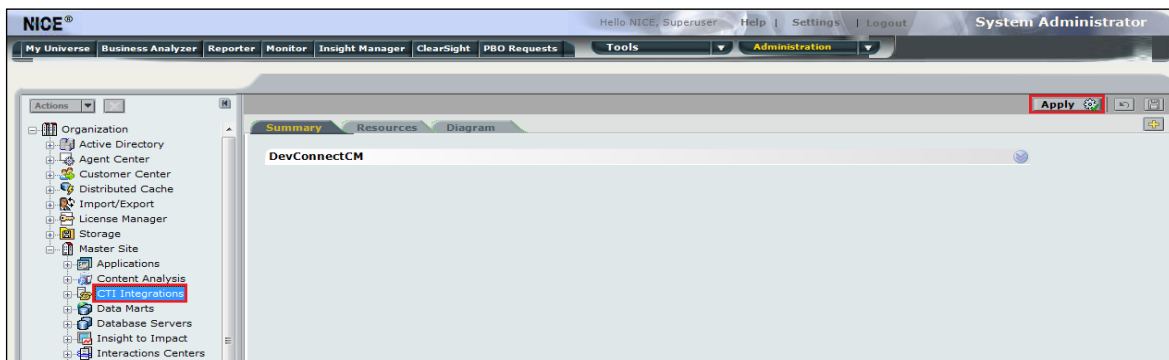
Name	Device Number	Unique Device ID	IP Address
<input checked="" type="checkbox"/>	2001		

Back Next Cancel

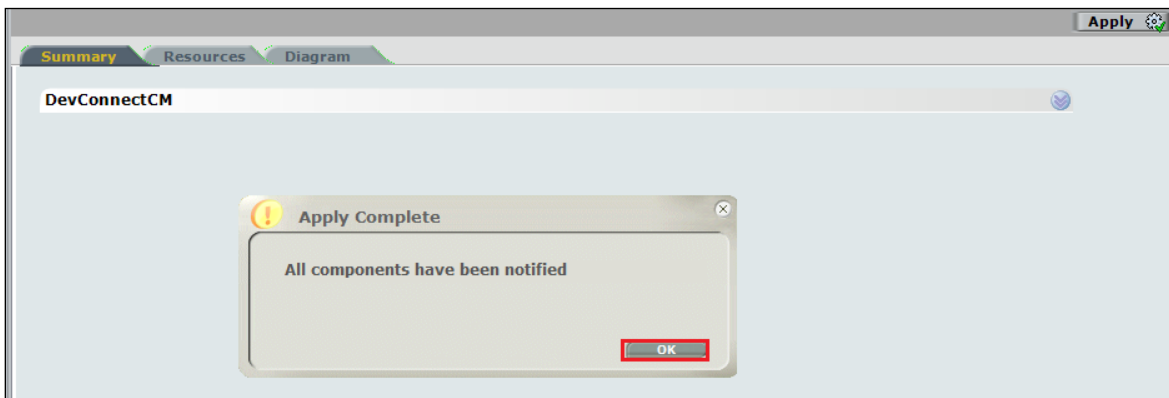
Click on **Finish** to complete the New Source Pool Wizard.



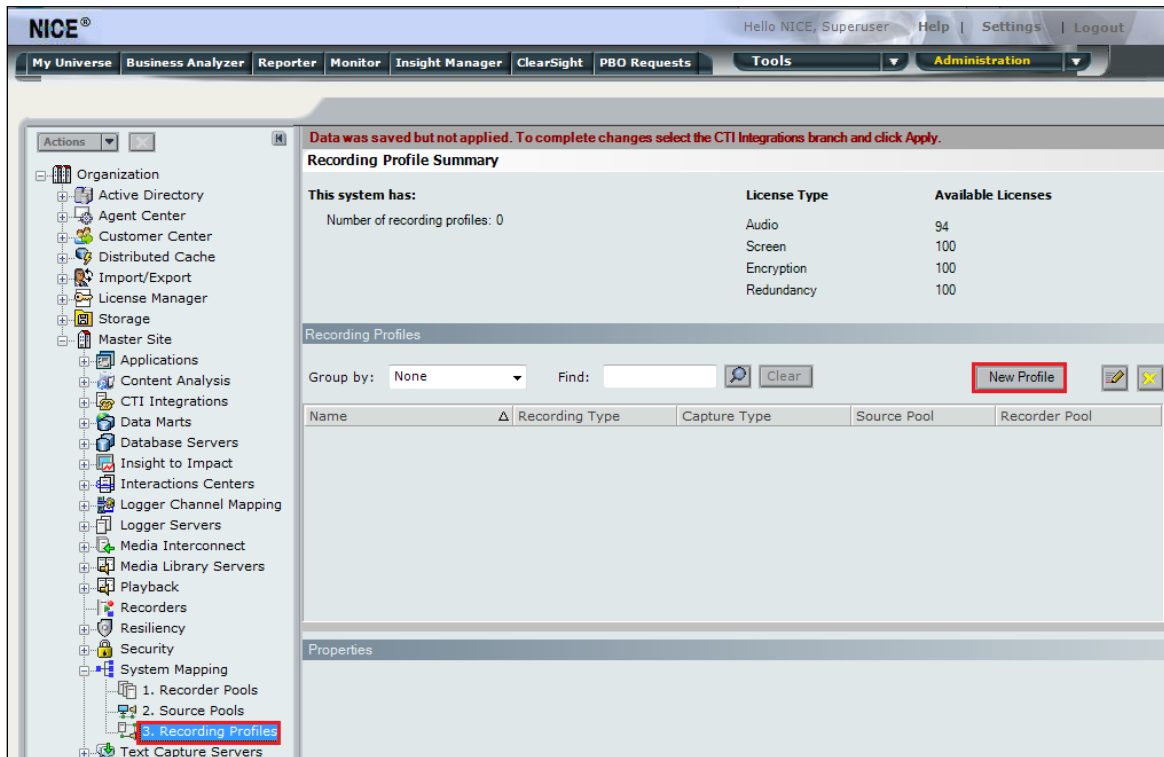
To implement these new changes, navigate to **Master Site → CTI Integrations** in the left window and in the main window click on **Apply** at the top right of the window.



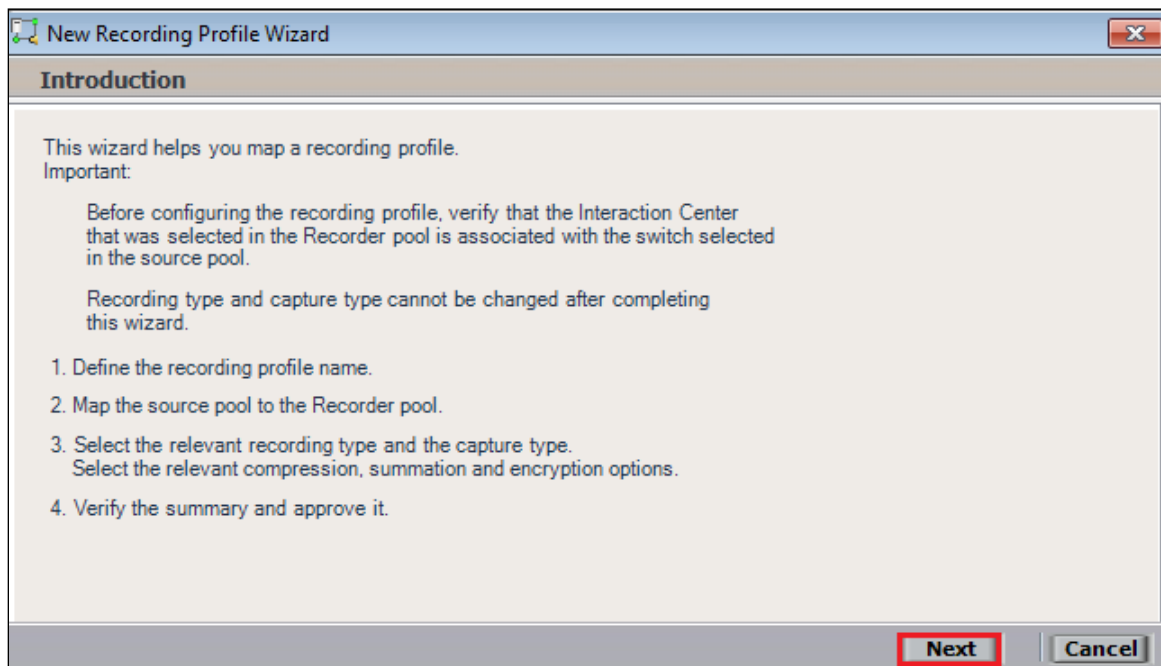
The following screen shows the changes were saved correctly. Click on **OK** to continue.



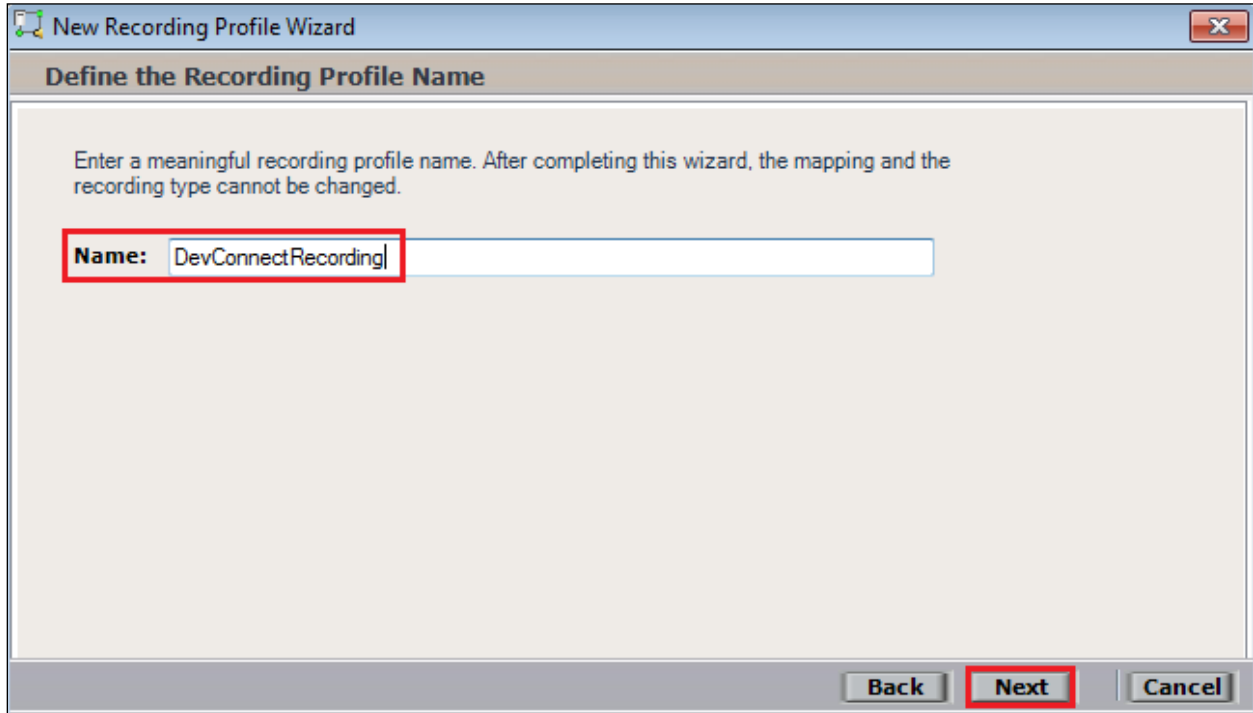
From the left window navigate to **Master Site** → **System Mapping** → **Recording Profiles** and in the main window click on **New Profile**.



Click on **Next** to continue with the **New Recording Profile Wizard**.



Enter a suitable **Name** for the Recording profile.



The screenshot shows the 'New Recording Profile Wizard' window with the 'Define the Recording Profile Name' step. The window has a title bar with a close button. The main area contains a text box for the profile name, which is currently 'DevConnectRecording'. The 'Name:' label is to the left of the text box. Below the text box are three buttons: 'Back', 'Next', and 'Cancel'. The 'Next' button is highlighted with a red border.

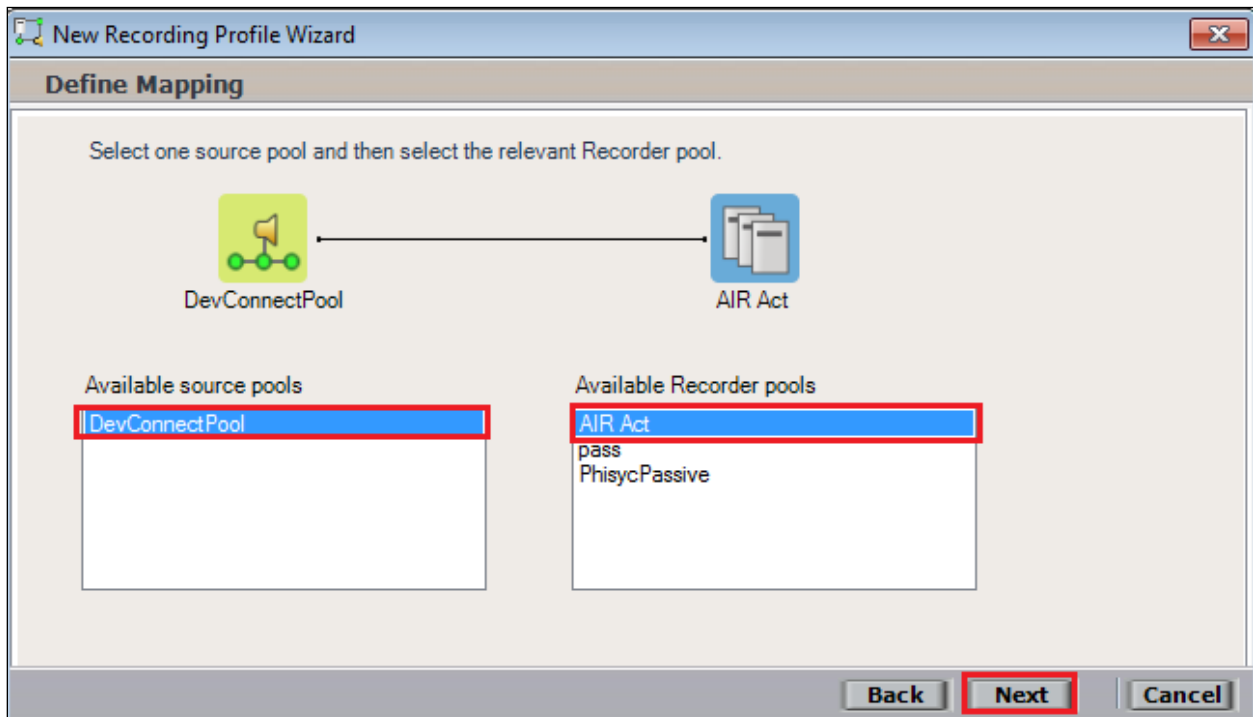
Define the Recording Profile Name

Enter a meaningful recording profile name. After completing this wizard, the mapping and the recording type cannot be changed.

Name: DevConnectRecording

Back Next Cancel

Select the correct **source pool** and **Recorder pool**, and then click **Next** to continue.



The screenshot shows the 'New Recording Profile Wizard' window with the 'Define Mapping' step. The window has a title bar with a close button. The main area contains a diagram showing a mapping from 'DevConnectPool' to 'AIR Act'. Below the diagram are two lists: 'Available source pools' and 'Available Recorder pools'. The 'Available source pools' list contains 'DevConnectPool'. The 'Available Recorder pools' list contains 'AIR Act', 'pass', and 'PhisycPassive'. The 'Next' button is highlighted with a red border.

Define Mapping

Select one source pool and then select the relevant Recorder pool.

DevConnectPool AIR Act

Available source pools

DevConnectPool

Available Recorder pools

AIR Act
pass
PhisycPassive

Back Next Cancel

For total recording i.e., the recording of all calls, select **Total** as the **Recording type**. For **Capture type** ensure that **Active DMCC VE** and **By Device** is selected from the drop-down box. **Audio Compression** is selected as default and can be left like this. Click on **Next** to continue.

New Recording Profile Wizard

Define Recording Profile

Define the recording profile details. After completing this wizard, the recording type and capture type cannot be changed.

Recording type: Total

Allocated licenses: Determined by the number of sources in the source pool

Capture type: Active DMCC VE ☐ By Call ☒ By Device

☐ Secondary capture type:

Allocated Virtual extensions: Determined by the number of sources in the source pool

Select all applicable options:

- ☒ Audio Compression
- ☐ Audio Summation
- ☐ Encryption
- ☐ Audio Loss Detection

Back Next Cancel

Note: The only difference in the setup for Single Step Conference is with both the choice of **Recording type** which is set to **Interaction-based** and **Capture type** which will be **Active DMCC VE** and **By Call** as shown below.

New Recording Profile Wizard

Define Recording Profile

Define the recording profile details. After completing this wizard, the recording type and capture type cannot be changed.

Recording type: Interaction-based

Allocated licenses: 5 Depending on number of virtual extensions added

Capture type: Active DMCC VE ☒ By Call ☐ By Device

☐ Secondary capture type:


Allocated Virtual extensions: Determined by the number of sources in the source pool

Select all applicable options:

- ☒ Audio Compression
- ☐ Audio Summation
- ☐ Encryption
- ☐ Audio Loss Detection

Back Next Cancel

Click on **Finish** to complete the **New Recording Profile Wizard**. The screen below shows that for Service Observe.



The image shows a 'New Recording Profile Wizard' window with a 'Summary' tab. The window title is 'New Recording Profile Wizard'. The summary text reads: 'Review the mapping information below. Click Finish to create the new recording profile. Click Back to modify the recording profile details.' The configuration details are as follows:

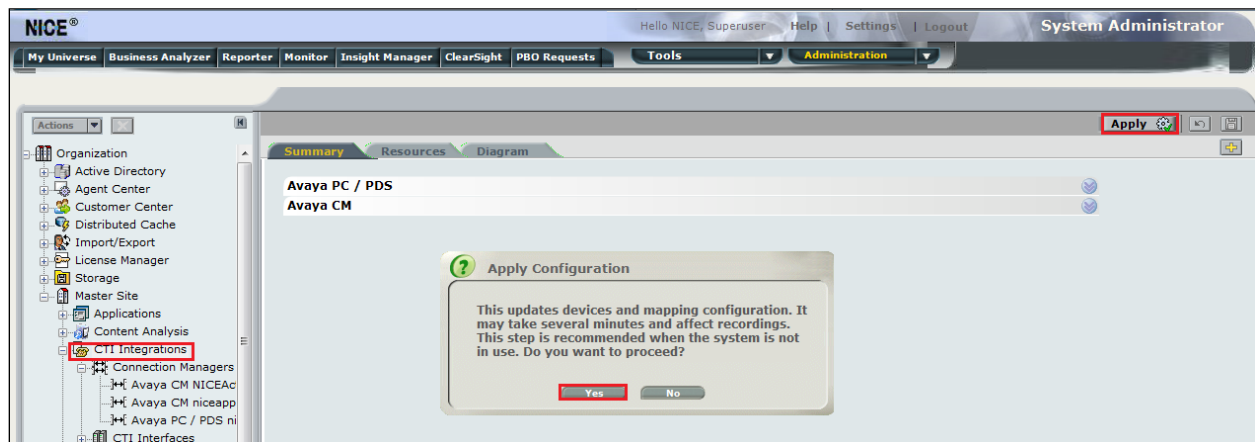
Name:	DevConnectRecording
Source pool:	DEV-POOL
Recorder pool:	AIR-ACTIVE
Recording type:	Interaction-based
Capture type:	Active DMCC VE By Call
Allocated licenses:	5
Allocated Virtual extensions :	5

Below the table, there are four checkboxes:

- ☒ Audio Compression
- ☐ Audio Summation
- ☐ Encryption
- ☐ Audio Loss Detection

At the bottom right, there are three buttons: 'Back', 'Finish' (highlighted with a red box), and 'Cancel'.

Navigate to **Master Site** → **CTI Integrations** and from the main window click on **Apply**. Click on **Yes** to proceed.



This concludes the setup of the NICE Application Server for DMCC Service Observe and Single Step Conference recording.

8. Verification Steps

This section provides the steps that can be taken to verify correct configuration of the NICE Engage Platform, Avaya Aura® Communication Manager, and Avaya Aura® Application Enablement Services.

8.1. Verify Avaya Aura® Communication Manager CTI Service State

Before the connection between the NICE Engage Platform and the AES is checked, check the connection between Communication Manager and AES to ensure it is functioning correctly. Check the AESVCS link status by using the command **status aesvcs cti-link**. Verify the **Service State** of the CTI link is **established**.

status aesvcs cti-link						
AE SERVICES CTI LINK STATUS						
CTI Link	Version	Mnt Busy	AE Services Server	Service State	Msgs Sent	Msgs Rcvd
1	12	no	aespri101x	established	865	865

8.2. Verify TSAPI Link

On the AES Management Console verify the status of the TSAPI link by selecting **Status → Status and Control → TSAPI Service Summary** to display the **TSAPI Link Details** screen. Verify the status of the TSAPI link by checking that the **Status** is **Talking** and the **State** is **Online**.

Status | Status and Control | TSAPI Service Summary

Home | Help | Logout

AE Services

Communication Manager Interface

High Availability

Licensing

Maintenance

Networking

Security

Status

Alarm Viewer

Logs

Log Manager

Status and Control

CVLAN Service Summary

DLG Services Summary

DMCC Service Summary

Switch Conn Summary

TSAPI Service Summary

TSAPI Link Details

☐ Enable page refresh every 60 seconds

Link	Switch Name	Switch CTI Link ID	Status	Since	State	Switch Version	Associations	Msgs to Switch	Msgs from Switch	Msgs Period
1	cm101x	1	Talking	Wed Sep 14 18:19:00 2022	Online	20	6	21	23	30

Online Offline

For service-wide information, choose one of the following:

TSAPI Service Status TLink Status User Status

Clicking on **User Status** from the screen on the previous page should display something similar to that shown below, where the NICE user and corresponding **Tlink Name** are shown.

CTI User Status

☐ Enable page refresh every seconds

CTI Users

Open Streams 3
 Closed Streams 24

Open Streams

Name	Time Opened	Time Closed	Tlink Name
DMCCLCSUserDoNotModify	Fri 09 Sep 2022 06:27:34 PM IST		AVAYA#CM101X#CSTA#AESPRI101X
DMCCLCSUserDoNotModify	Fri 09 Sep 2022 06:27:34 PM IST		AVAYA#CM101X#CSTA#AESPRI101X
nice1	Wed 14 Sep 2022 06:26:31 PM IST		AVAYA#CM101X#CSTA#AESPRI101X

8.3. Verify DMCC link on AES

Verify the status of the DMCC link by selecting **Status → Status and Control → DMCC Service Summary** to display the **DMCC Service Summary – Session Summary** screen. The screen below shows that the user **NICE** is connected from the IP address **10.10.40.126**, which is the NICE Application server.

Status | Status and Control | DMCC Service Summary
 Home | Help | Logout

AE Services
 Communication Manager
 Interface
 High Availability
 Licensing
 Maintenance
 Networking
 Security
 Status
 Alarm Viewer
 Logs
 Log Manager
 Status and Control
 CVLAN Service Summary
 DLG Services Summary
 DMCC Service Summary
 Switch Conn Summary
 TSAPI Service Summary
 User Management
 Utilities
 Help

DMCC Service Summary - Session Summary
 Please do not use back button
☐ Enable page refresh every seconds
 Session Summary **Device Summary**
 Generated on Wed Feb 08 18:22:56 GMT 2023
 Service Uptime: 5 days, 23 hours 7 minutes
 Number of Active Sessions: 1
 Number of Sessions Created Since Service Boot: 2
 Number of Existing Devices: 10
 Number of Devices Created Since Service Boot: 316

	Session ID	User	Application	Far-end Identifier	Connection Type	# of Associated Devices
<input type="checkbox"/>	36EC35B84917CF010 3E3957E5DD007DC-1	nice1		10.10.40.126	XML Unencrypted	10

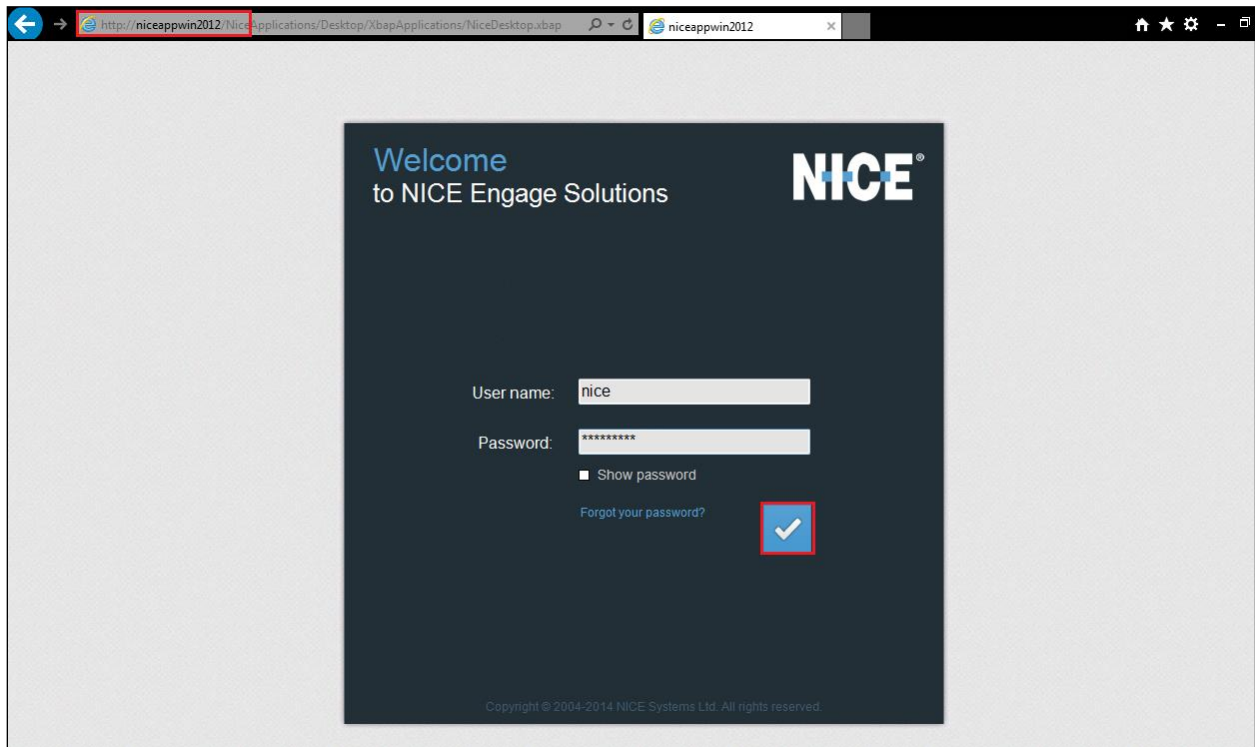
Terminate Sessions
 Show Terminated Sessions

Item 1-1 of 1
 Go

8.4. Verify calls are being recorded

From any of the monitored Avaya endpoints make a series of inbound and outbound calls. Once these calls are completed, they should be available for playback through a web browser to the NICE Application Server.

Open a browser session to the NICE Application Server as is shown below. Enter the proper credentials and click on **Login**.



Results for Query: Complete - Last 24 hours

Group By: None
25 Records found

Type	Flag	Full Name	Complete ID	Complete Start Time	Complete Stop Time	Complete Dur...	Comple...	Direction Ty...	HangUp Side Description	Participant Phone Number
		SIP, 3101	719784897616864969	08/02/2023 18:10:15	08/02/2023 18:11:22	00:01:08	2	Outgoing	CUSTOMER	35391847001
		H323, 3001	7197848568146755843	08/02/2023 18:08:43	08/02/2023 18:10:00	00:01:17	2	Outgoing	AGENT	35391847001
		Workplace, 3110	7197847215230257598	08/02/2023 18:03:22	08/02/2023 18:03:44	00:00:21	2	Outgoing	CUSTOMER	35391847001
		H323, 3001	7197847069203169522	08/02/2023 18:02:56	08/02/2023 18:03:33	00:00:37	2	Outgoing	CUSTOMER	5321
		SIP, 3101	7197847090678006060	08/02/2023 18:02:56	08/02/2023 18:03:31	00:00:36	2	Outgoing	CUSTOMER	5350
		Workplace, 3110	7197846596756766959	08/02/2023 18:00:58	08/02/2023 18:01:10	00:00:13	2	Outgoing	AGENT	35391847001
		SIP, 3101	7197846437842977004	08/02/2023 18:00:25	08/02/2023 18:00:41	00:00:16	2	Outgoing	AGENT	35391847001
		H323, 3001	7197846339058729193	08/02/2023 18:00:02	08/02/2023 18:00:17	00:00:15	2	Outgoing	AGENT	35391847001
		H323, 3001	7197845862317359333	08/02/2023 17:58:09	08/02/2023 17:58:23	00:00:14	2	Incoming	AGENT	35391847001
		SIP, 3101	7197845793597882595	08/02/2023 17:57:50	08/02/2023 17:58:00	00:00:10	2	Incoming	AGENT	35391847001
		Workplace, 3110	7197845793597882595	08/02/2023 17:57:50	08/02/2023 17:58:00	00:00:10	2	Incoming	AGENT	35391847001
		Workplace, 3110	7197845793597882595	08/02/2023 17:57:50	08/02/2023 17:58:00	00:00:10	2	Incoming	AGENT	35391847001
		SIP, 3101	7197845793597882595	08/02/2023 17:57:50	08/02/2023 17:58:00	00:00:10	2	Incoming	AGENT	35391847001
		H323, 3001	7197845793597882595	08/02/2023 17:57:50	08/02/2023 17:58:00	00:00:10	2	Incoming	AGENT	35391847001
		SIP, 3101	7197845793597882595	08/02/2023 17:57:50	08/02/2023 17:58:00	00:00:10	2	Incoming	AGENT	35391847001
		H323, 3001	7197845793597882595	08/02/2023 17:57:50	08/02/2023 17:58:00	00:00:10	2	Incoming	AGENT	35391847001
		SIP, 3101	7197845793597882595	08/02/2023 17:57:50	08/02/2023 17:58:00	00:00:10	2	Incoming	AGENT	35391847001
		Workplace, 3110	7197845793597882595	08/02/2023 17:57:50	08/02/2023 17:58:00	00:00:10	2	Incoming	AGENT	35391847001
		SIP, 3101	7197845793597882595	08/02/2023 17:57:50	08/02/2023 17:58:00	00:00:10	2	Incoming	AGENT	35391847001
		H323, 3001	7197845793597882595	08/02/2023 17:57:50	08/02/2023 17:58:00	00:00:10	2	Incoming	AGENT	35391847001
		SIP, 3101	7197845793597882595	08/02/2023 17:57:50	08/02/2023 17:58:00	00:00:10	2	Incoming	AGENT	35391847001
		Workplace, 3110	7197845793597882595	08/02/2023 17:57:50	08/02/2023 17:58:00	00:00:10	2	Incoming	AGENT	35391847001
		SIP, 3101	7197845793597882595	08/02/2023 17:57:50	08/02/2023 17:58:00	00:00:10	2	Incoming	AGENT	35391847001
		H323, 3001	7197845793597882595	08/02/2023 17:57:50	08/02/2023 17:58:00	00:00:10	2	Incoming	AGENT	35391847001

NICE

Status: Stop

Output allocated: playing to sound card

Start: 08/02/2023 18:10:15

End: 08/02/2023 18:11:22

Add

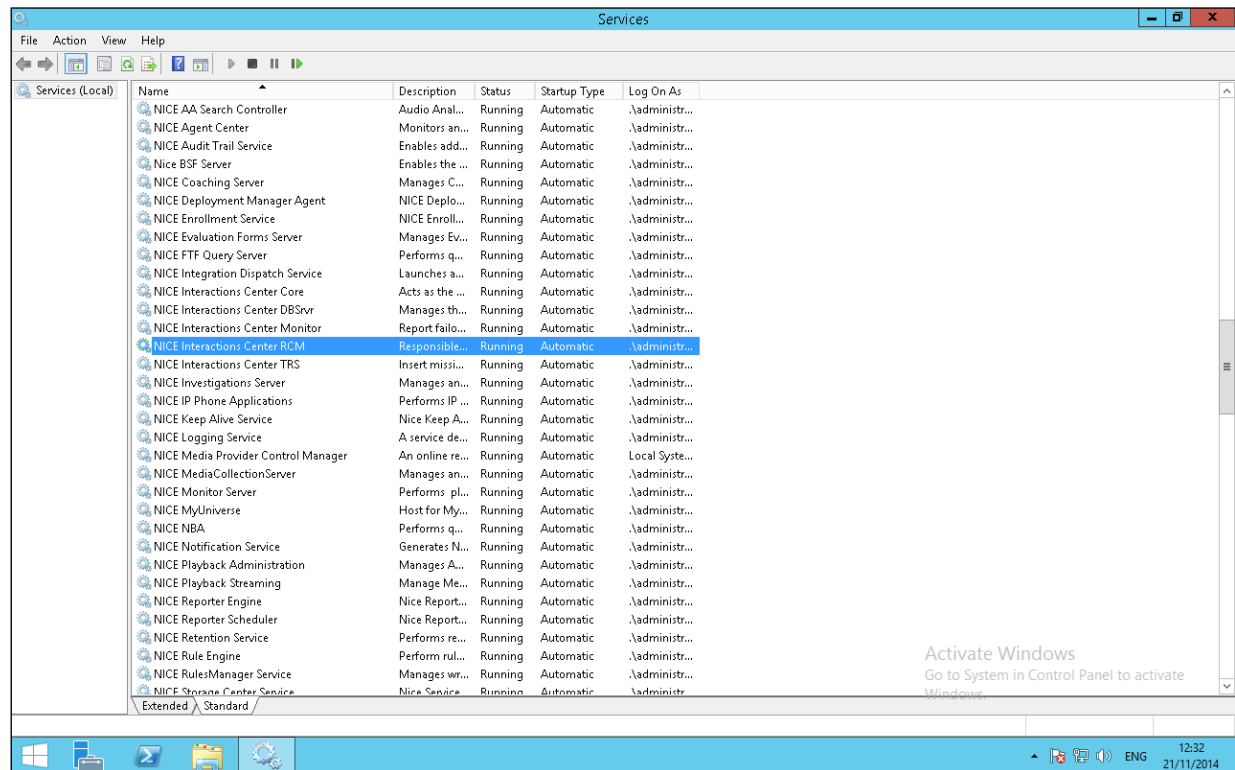
00:00:00/00:01:07

Elapsed Time

0 00:10 00:20 00:30 00:40 00:50 01:00

8.5. Verify NICE Services

If these recordings are not present or cannot be played back, the NICE services may not be running or may need to be restarted. There are two separate servers as a part of this NICE Engage Platform. The NICE Application Server and the NICE Advanced Interactions Server can be logged into and checked to ensure all services beginning with NICE are running correctly. As a last resort both servers may need a reboot after the initial configuration.



9. Conclusion

These Application Notes describe the configuration steps required for NICE Engage Platform R7.3 to successfully interoperate with Avaya Aura® Communication Manager R10.1 using Avaya Aura® Application Enablement Services R10.1 to connect to using DMCC Service Observation and Single Step Conference to record calls. All feature functionality and serviceability test cases were completed successfully with some issues and observations noted in **Section 2.2**.

10. Additional References

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

Product documentation for Avaya products may be found at <http://support.avaya.com>.

- [1] *Administering Avaya Aura® System Manager*. Release 10.1.x, Issue 6, June 2022.
- [2] *Administering Avaya Aura® Session Manager*. Release 10.1.x, Issue 3, April 2022.
- [3] *Administering Avaya Aura® Communication Manager*. Release 10.1, Issue 1, December 2021.
- [4] *Administering Avaya Aura® Application Enablement Services*. Release 10.1.x, Issue 4, April 2022.
- [5] *Implementing and Administering Avaya Aura® Media Server*. Release 10.1.x, Issue 2, July 2022.
- [6] *RFC 3261 SIP: Session Initiation Protocol*, <http://www.ietf.org/>
- [7] *RFC 2833 RTP Payload for DTMF Digits, Telephony Tones and Telephony Signals*, <http://www.ietf.org/>

Product documentation for NICE products may be found at: <http://www.extranice.com/>

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