



## **Avaya Solution & Interoperability Test Lab**

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# **Application Notes for NICE Perform with Avaya Proactive Contact System with CTI - Issue 1.0**

### **Abstract**

These Application Notes describe the configuration steps required for NICE Perform to successfully interoperate with Avaya Proactive Contact with CTI.

NICE Perform delivers enterprise call recording capabilities to optimize call center quality and performance. NICE Perform uses the Telephony Services API (TSAPI) of Avaya Application Enablement Services (AES) to extract agent and call event information. Only trunk side call recording was tested and verified. The test configuration consisted of Avaya S8700 Servers with an MCC1 Media Gateway running Avaya Communication Manager, Avaya Application Enablement Services and Avaya Proactive Contact with CTI.

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

# 1. Introduction

These Application Notes describe the compliance-tested configuration utilizing Avaya Proactive Contact (PC3) 3.0 with computer telephony interface (CTI) and NICE Perform 3.0 (NICE Perform). NICE Perform monitors, records, stores and plays back phone calls for verification and quality assurance.

NICE Perform consists of the NiceLog server and the NiceCLS server. The NiceLog server is a digital voice logging system. NiceLog records and archives audio from multiple sources. Audio is recorded to the hard drive of the NiceLog server for immediate playback capability. The NiceCLS server contains the Avaya Telephony Service API (TSAPI) connector.

NiceCLS uses the TSAPI connector of Avaya Application Enablement Services (AES) to receive events concerning particular stations, agents, and agent ACD/skill groups. NICE uses these events as recording triggers. There are many methods that NICE Perform 3.0 can use for call recording. During the compliance testing, trunk side recording was used. Trunk side recording was performed using an active tap on an E1/T1 connection between the Avaya MCC1 Media Gateway and the simulated Public Network.

There are three possible system deployments of Avaya Proactive Contact 3.0.

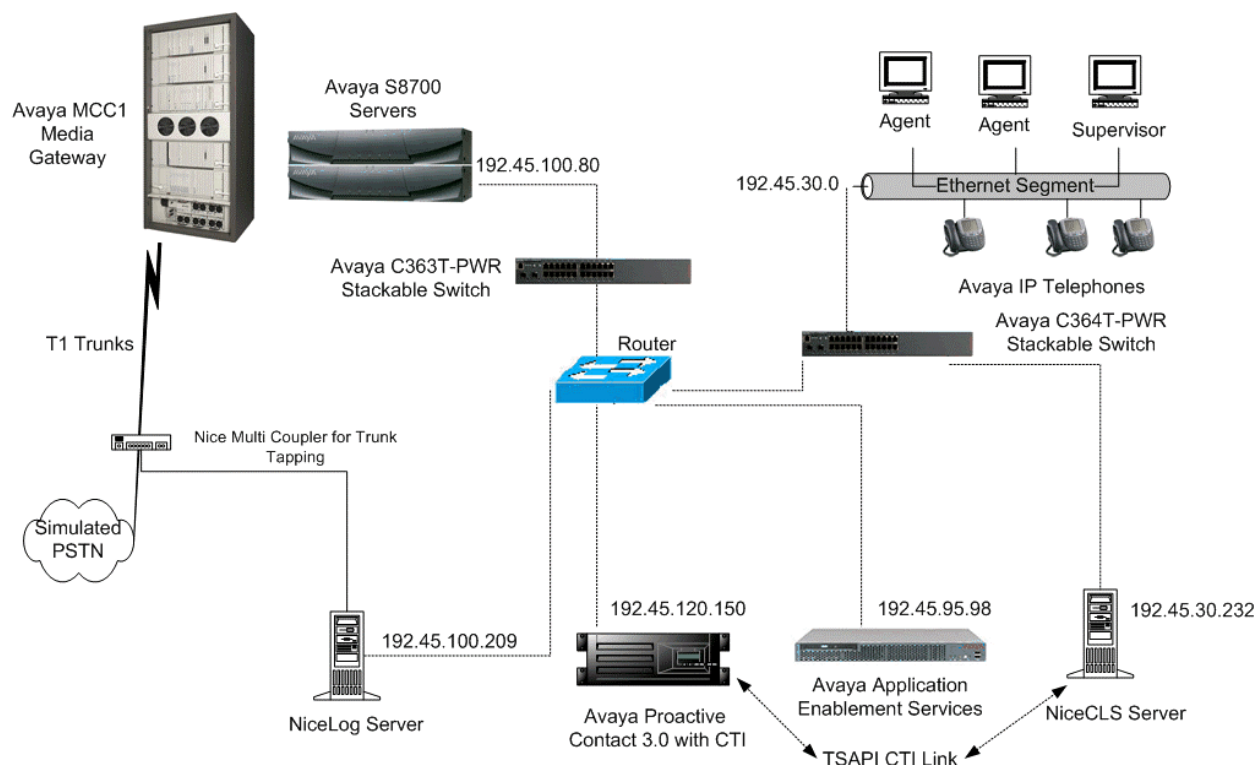
- Avaya Proactive Contact with computer telephony interface (CTI)
- Avaya Proactive Contact with Avaya Proactive Contact Gateway PG230
- Avaya Proactive Contact with the System Cabinet (the System Cabinet contains the PG230)

The compliance testing was configured with Avaya Proactive Contact with CTI.

## 1.1. Integration Overview

**Figure 1** depicts an overview of the NICE Perform 3.0 integration to Avaya Proactive Contact 3.0. The configuration consists of a pair of redundant Avaya S8700 Servers, an Avaya MCC1 Media Gateway, Avaya Application Enablement Services server, Avaya IP Telephones, an Avaya Proactive Contact System with CTI, agent workstations, and NICE servers (NiceCLS and NiceLog servers).

The NiceLog server interfaces the trunk-side digital input using the NICE Active Multi Coupler. The Multi Coupler's PBX port connects to the DS1 board on Avaya MCC1 Media Gateway and the CO port connects to the T1 from the Public Network. The audio is transmitted from the Multi Coupler to the NiceLog server through a cable with a 50-pin Centronics connector.



**Figure 1: Avaya Proactive Contact 3.0 and NICE Perform 3.0 Integration**

## 2. Equipment and Software Validated

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

Equipment	Software
Avaya Proactive Contact System with CTI on the HP C8000 Server	Avaya Proactive Contact 3.0 SP 1, Build 36
Avaya S8700 Servers	Avaya Communication Manager 4.0 (R014x.00.0.730.5)
Avaya MCC1 Media Gateway	
TN464F DS1	Version 16
Avaya Application Enablement Services	4.0, Build 47.3
Avaya 4610SW IP Telephones (H.323)	2.1.3
Avaya C363T-PWR Converged Stackable Switch	4.5.14
Avaya C364T-PWR Converged Stackable Switch	4.5.14
NiceCLS Windows 2003 SP2 Server	Perform 3.0
NiceLog Windows 2003 SP1 Server	Perform 3.0
Nice Multi Coupler for T1	

### 3. Configure Avaya Communication Manager

The Avaya Communication Manager to Avaya Proactive Contact System with CTI and to Avaya Application Enablement Services configurations are outside the scope of these Application Notes and should already be operating successfully [5].

Trunk side monitoring does not require any additional configuration on the T1 trunk, to allow the NiceLog server to monitor the T1 trunk. Details of the DS1, Signaling Group, and Trunk Group configuration are provided for informational purposes.

```
display ds1 3b15                                     Page 1 of 2
                                         DS1 CIRCUIT PACK

      Location: 03B15                               Name: ISDN to PSTN
      Bit Rate: 1.544                               Line Coding: b8zs
Line Compensation: 1                               Framing Mode: esf
      Signaling Mode: isdn-pri
      Connect: pbx                                   Interface: user
      TN-C7 Long Timers? n                           Country Protocol: 1
Interworking Message: PROgress                     Protocol Version: a
Interface Companding: mulaw                       CRC? n
      Idle Code: 11111111
                                         DCP/Analog Bearer Capability: 3.1kHz

                                         T303 Timer(sec): 4

Slip Detection? n                               Near-end CSU Type: other
```

```
display trunk-group 31                               Page 1 of 21
                                         TRUNK GROUP

Group Number: 31                                   Group Type: isdn       CDR Reports: y
  Group Name: ISDN to PSTN                       COR: 1               TN: 1           TAC: 1031
  Direction: two-way                             Outgoing Display? y   Carrier Medium: PRI/BRI
  Dial Access? y                                Busy Threshold: 255   Night Service:
Queue Length: 0
Service Type: tie                               Auth Code? n         TestCall ITC: rest
                                         Far End Test Line No:
TestCall BCC: 4
```

```
display trunk-group 31                               Page 5 of 21
                                         TRUNK GROUP
                                         Administered Members (min/max): 1/4
GROUP MEMBER ASSIGNMENTS                     Total Administered Members: 4

      Port    Code Sfx Name           Night           Sig Grp
1: 03B1501   TN464 F                    31
2: 03B1502   TN464 F                    31
3: 03B1503   TN464 F                    31
4: 03B1504   TN464 F                    31
```

## 4. Configure Avaya Application Enablement Services

The TSAPI link is used by Avaya Proactive Contact 3.0 with CTI to communicate with Avaya Communication Manager for outbound calling, and for inbound calling when the Predictive Agent Blending feature is enabled on Avaya PC3. This administration should have already been completed during the installation of Avaya PC3 along with the creation of a TSAPI user ID [5].

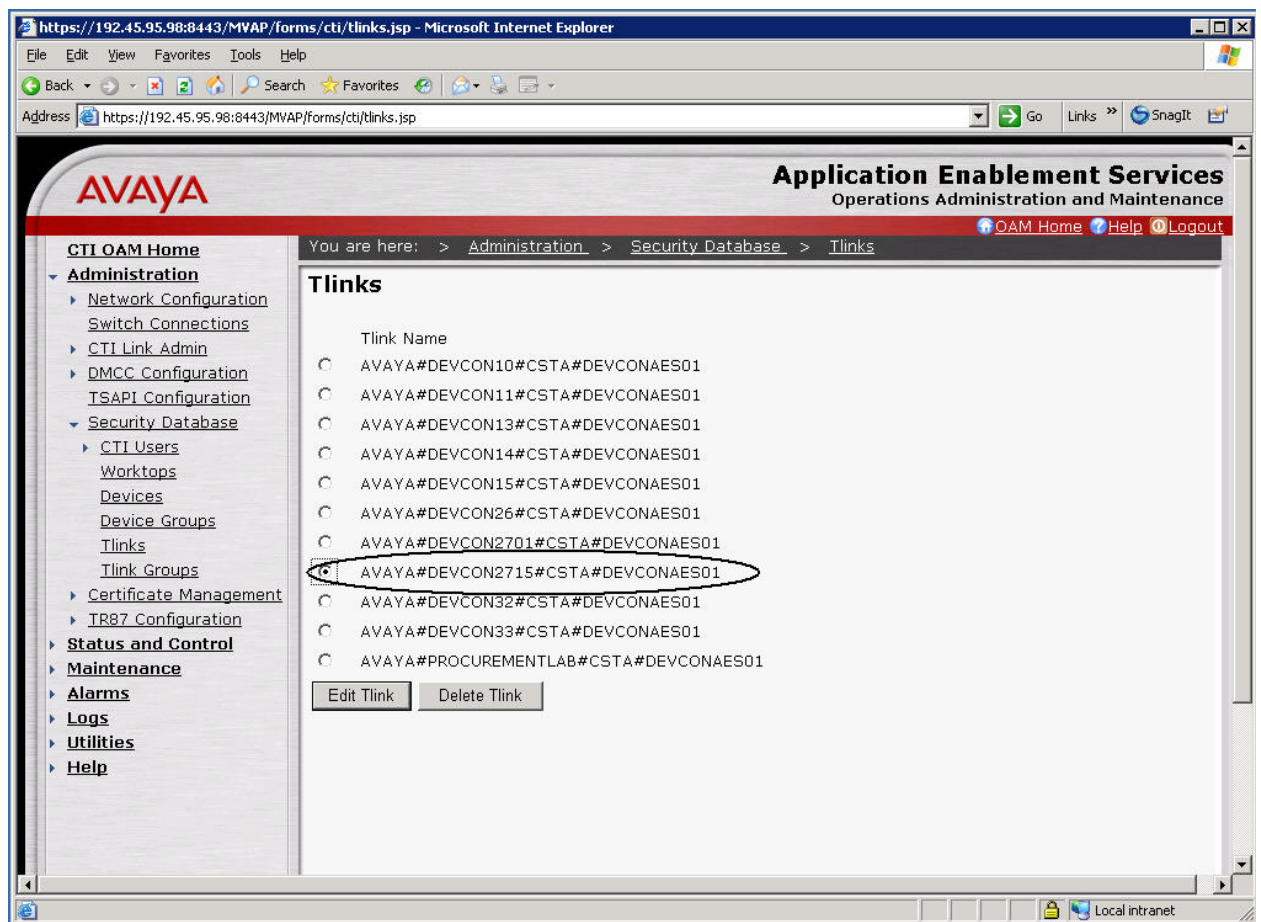
The only additional configuration on AES needed for the NICE solution is the configuration of a new TSAPI CTI user for NICE.

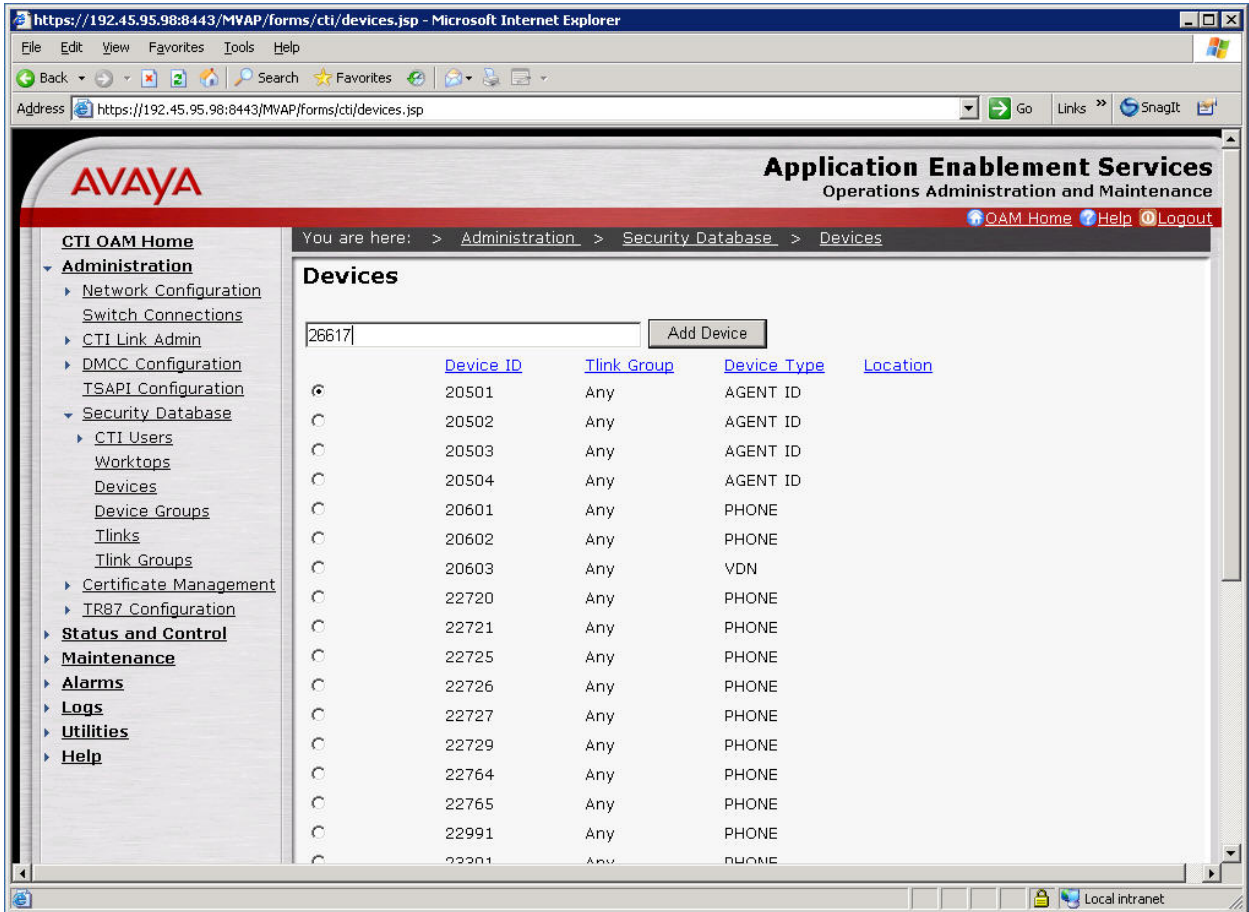
### 4.1. User Management

Step	Description
1.	Launch a web browser, enter <a href="https://&lt;IP address of AES server&gt;:8443/MVAP">https://&lt;IP address of AES server&gt;:8443/MVAP</a> in the URL, and log in with the appropriate credentials for accessing the AES User Management pages.
2.	Click <b>User Management</b> , then <b>User Management</b> → <b>Add User</b> in the left pane. Configure the asterisk fields and set <b>CT User</b> to “Yes”. NiceCLS will use this <b>User Id</b> and <b>User Password</b> to access the AES server. Scroll down to the bottom of the page and click <b>Apply</b> .

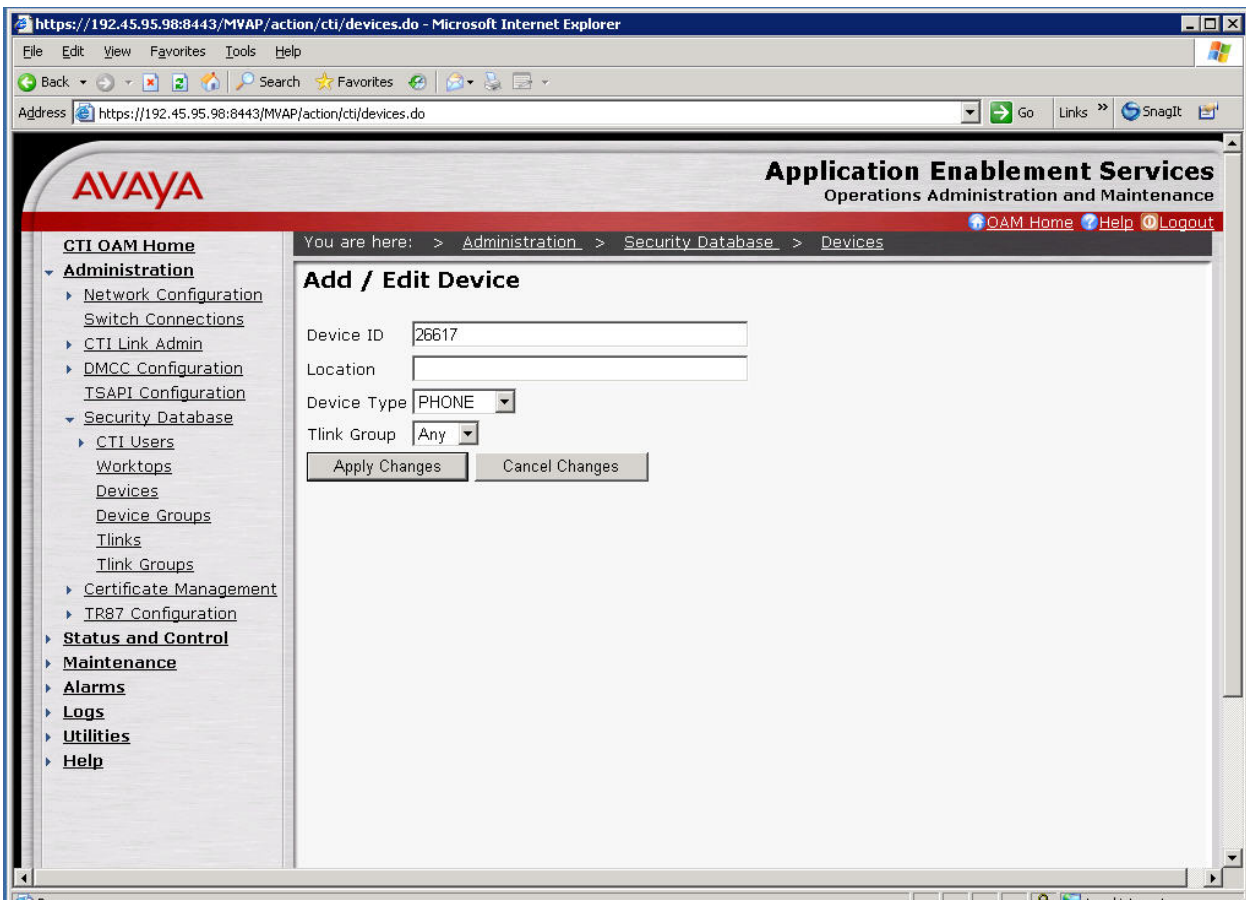
## 4.2. CTI OAM Admin

Step	Description
1.	Launch a web browser, enter <a href="https://&lt;IP address of AES server&gt;:8443/MVAP">https://&lt;IP address of AES server&gt;:8443/MVAP</a> in the URL, and log in with the appropriate credentials for accessing the AES CTI OAM pages.
2.	In the left panel of the CTI OAM Home, click <b>Security Database</b> → <b>Tlinks</b> to view the Tlink names (these names are automatically generated by AES). Make a note of the Tlink that is associated with the Avaya Communication Manager that is being used. This Tlink Name will be used by the NiceCLS server.

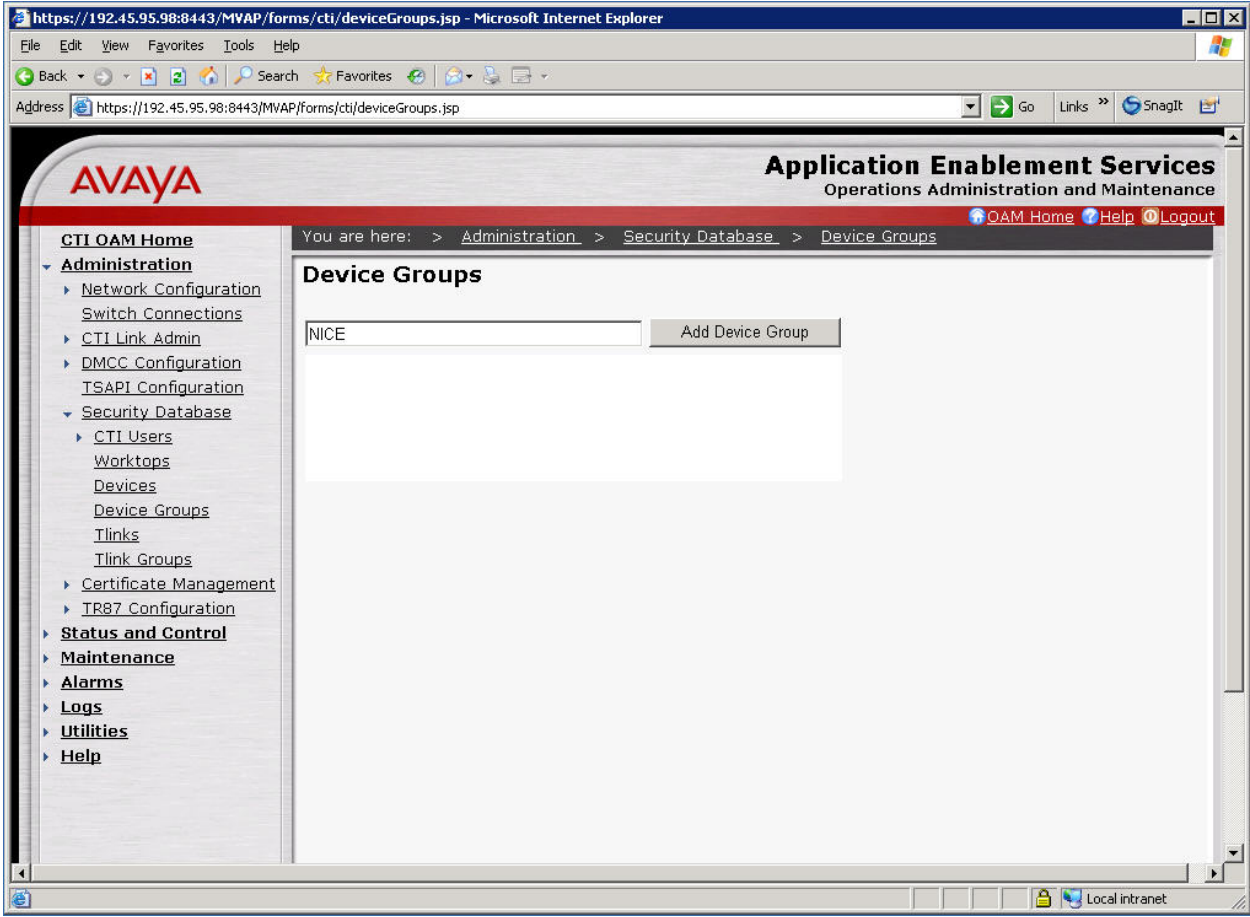


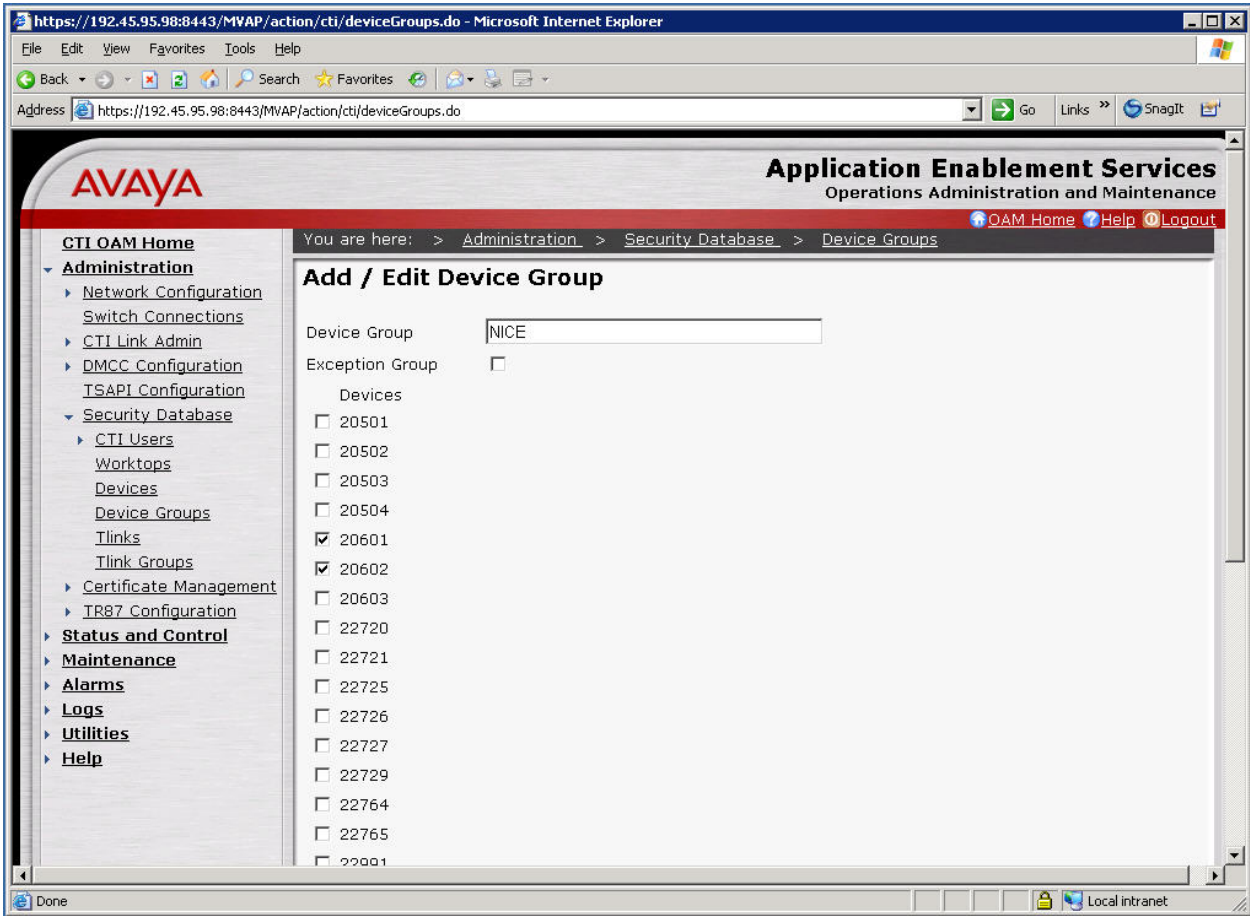
Step	Description
3.	<p>Under <b>Administration</b> in the left pane, click <b>Security Database</b> → <b>Devices</b> to add new Avaya Communication Manager devices (e.g., Phone, VDN, Hunt Group). Enter the <b>Device ID</b> and click <b>Add Device</b>. For the compliance testing, the Device IDs are the agent telephone extensions, VDNs and the hunt groups used for Avaya PC3 Agent Predictive Blending .</p> 

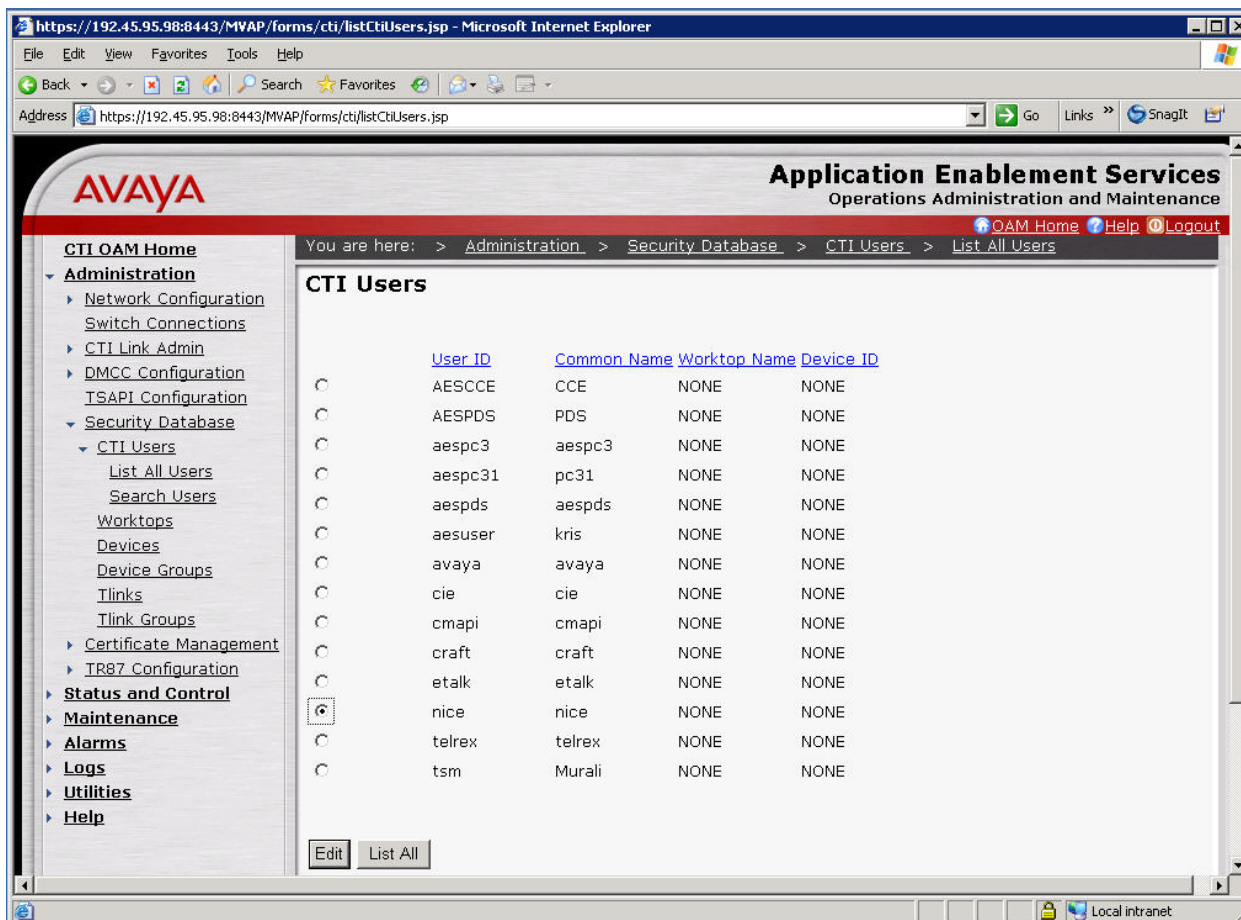


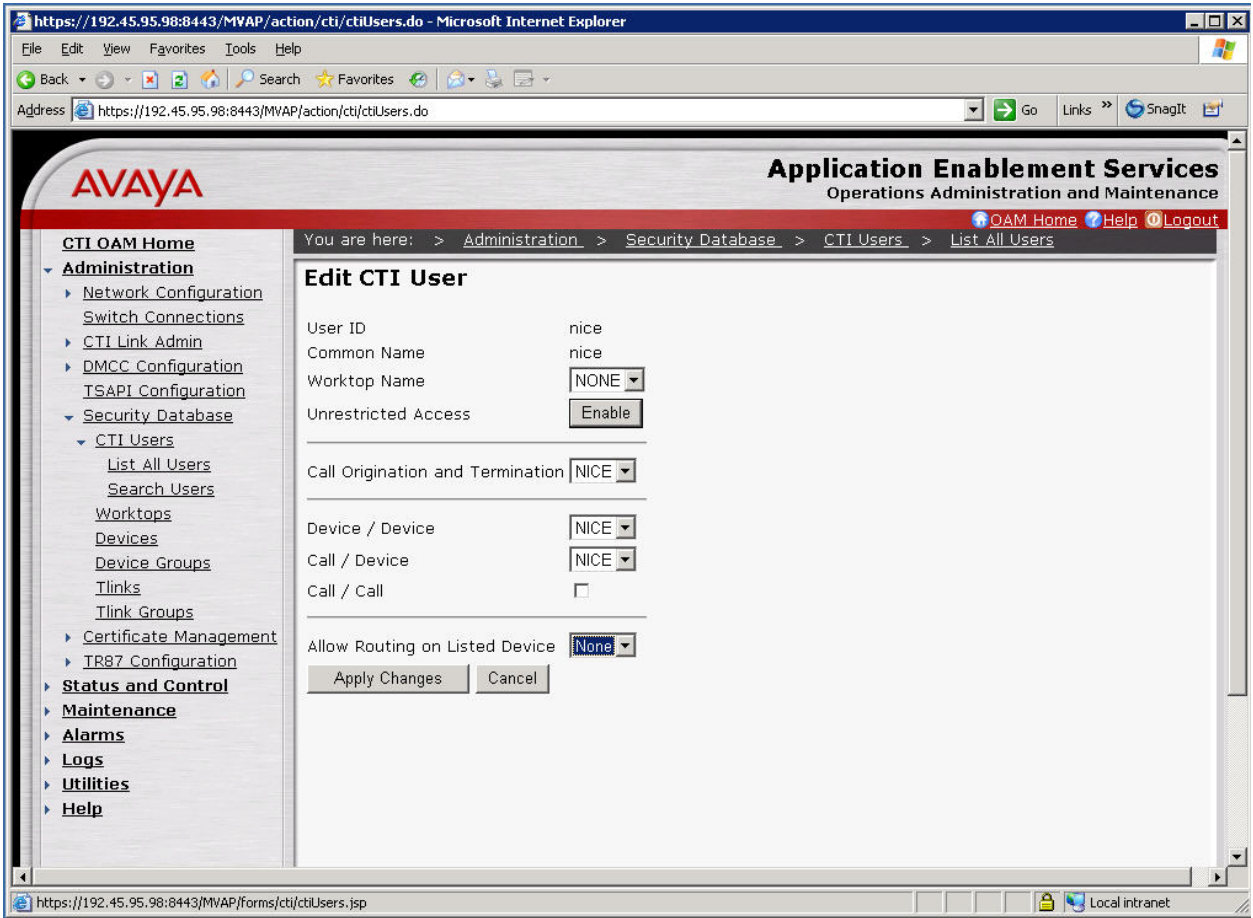
Step	Description
4.	<p>The <b>Add / Edit Device</b> window appears. Select the <b>Device Type</b> and click <b>Apply Changes</b> to finish adding the new device. Click <b>Apply</b> when the <b>Apply Changes to Device Properties</b> window appears.</p> <p>Repeat this step to add additional Phones, VDNs, and Hunt Group Extensions associated with Avaya PC3.</p> 



Step	Description
5.	<p>Under <b>Administration</b> in the left pane, click <b>Security Database</b> → <b>Device Groups</b> to add a new device group. Enter a descriptive name for the device group and click <b>Add Device Group</b>.</p>  <p>The screenshot shows the Avaya Application Enablement Services (AES) web interface. The browser window title is 'https://192.45.95.98:8443/MVAP/forms/cti/deviceGroups.jsp - Microsoft Internet Explorer'. The address bar shows the URL. The page header includes the Avaya logo and 'Application Enablement Services Operations Administration and Maintenance'. A breadcrumb trail indicates the current location: 'You are here: &gt; Administration &gt; Security Database &gt; Device Groups'. The left navigation pane is expanded, showing 'Administration' with sub-items like 'Network Configuration', 'CTI Link Admin', 'DMCC Configuration', 'TSAPI Configuration', 'Security Database', 'CTI Users', 'Worktops', 'Devices', 'Device Groups', 'Tlinks', 'Tlink Groups', 'Certificate Management', 'TR87 Configuration', 'Status and Control', 'Maintenance', 'Alarms', 'Logs', 'Utilities', and 'Help'. The 'Security Database' section is expanded, and 'Device Groups' is selected. The main content area is titled 'Device Groups' and contains a text input field with the value 'NICE' and an 'Add Device Group' button.</p>

Step	Description
6.	<p>The <b>Add / Edit Device Group</b> window appears. Select the <b>Devices</b> associated with Avaya PC3, scroll down and click <b>Apply Changes</b>. Click <b>Apply</b> when the <b>Apply Changes to Device Group Properties</b> window appears.</p> 

Step	Description																																																																											
7.	<p>Under <b>Administration</b> in the left pane, click <b>Security Database</b> → <b>CTI Users</b> → <b>List All Users</b>. Select the <b>User ID</b> created in Section 4.1 Step 2 and click <b>Edit</b>.</p>  <p>The screenshot shows the Avaya Application Enablement Services (AES) web interface. The left navigation pane is expanded to 'Administration' &gt; 'Security Database' &gt; 'CTI Users' &gt; 'List All Users'. The main content area displays a table of CTI Users with columns: User ID, Common Name, Worktop Name, and Device ID. The user 'nice' is selected, indicated by a radio button and a blue highlight. Below the table are 'Edit' and 'List All' buttons.</p> <table><thead><tr><th></th><th>User ID</th><th>Common Name</th><th>Worktop Name</th><th>Device ID</th></tr></thead><tbody><tr><td><input type="radio"/></td><td>AESCCE</td><td>CCE</td><td>NONE</td><td>NONE</td></tr><tr><td><input type="radio"/></td><td>AESPDS</td><td>PDS</td><td>NONE</td><td>NONE</td></tr><tr><td><input type="radio"/></td><td>aespc3</td><td>aespc3</td><td>NONE</td><td>NONE</td></tr><tr><td><input type="radio"/></td><td>aespc31</td><td>pc31</td><td>NONE</td><td>NONE</td></tr><tr><td><input type="radio"/></td><td>aespds</td><td>aespds</td><td>NONE</td><td>NONE</td></tr><tr><td><input type="radio"/></td><td>aesuser</td><td>kris</td><td>NONE</td><td>NONE</td></tr><tr><td><input type="radio"/></td><td>avaya</td><td>avaya</td><td>NONE</td><td>NONE</td></tr><tr><td><input type="radio"/></td><td>cie</td><td>cie</td><td>NONE</td><td>NONE</td></tr><tr><td><input type="radio"/></td><td>cmapi</td><td>cmapi</td><td>NONE</td><td>NONE</td></tr><tr><td><input type="radio"/></td><td>craft</td><td>craft</td><td>NONE</td><td>NONE</td></tr><tr><td><input type="radio"/></td><td>etalk</td><td>etalk</td><td>NONE</td><td>NONE</td></tr><tr><td><input checked="" type="radio"/></td><td>nice</td><td>nice</td><td>NONE</td><td>NONE</td></tr><tr><td><input type="radio"/></td><td>telrex</td><td>telrex</td><td>NONE</td><td>NONE</td></tr><tr><td><input type="radio"/></td><td>tsm</td><td>Murali</td><td>NONE</td><td>NONE</td></tr></tbody></table>		User ID	Common Name	Worktop Name	Device ID	<input type="radio"/>	AESCCE	CCE	NONE	NONE	<input type="radio"/>	AESPDS	PDS	NONE	NONE	<input type="radio"/>	aespc3	aespc3	NONE	NONE	<input type="radio"/>	aespc31	pc31	NONE	NONE	<input type="radio"/>	aespds	aespds	NONE	NONE	<input type="radio"/>	aesuser	kris	NONE	NONE	<input type="radio"/>	avaya	avaya	NONE	NONE	<input type="radio"/>	cie	cie	NONE	NONE	<input type="radio"/>	cmapi	cmapi	NONE	NONE	<input type="radio"/>	craft	craft	NONE	NONE	<input type="radio"/>	etalk	etalk	NONE	NONE	<input checked="" type="radio"/>	nice	nice	NONE	NONE	<input type="radio"/>	telrex	telrex	NONE	NONE	<input type="radio"/>	tsm	Murali	NONE	NONE
	User ID	Common Name	Worktop Name	Device ID																																																																								
<input type="radio"/>	AESCCE	CCE	NONE	NONE																																																																								
<input type="radio"/>	AESPDS	PDS	NONE	NONE																																																																								
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Step	Description
8.	<p>The <b>Edit CTI User</b> window appears. Select the device group created in <b>Step 5</b> for <b>Call Origination and Termination, Device / Device</b>, and <b>Call / Device</b>. Click <b>Apply Changes</b>. Click <b>Apply</b> when the <b>Apply Changes to User</b> window appears.</p> 

## 5. Configure Avaya Proactive Contact 3.0

These Application Notes assume that the interface with Avaya Proactive Contact 3.0, Avaya S8700 Servers, Avaya Communication Manager and Avaya Application Enablement Services has been configured and is operational, and that a calling list has been successfully downloaded to PC3. The following features should have already been configured on Avaya PC3 [5].

- Outbound Calling
- Predictive Agent Blending

## 6. Configure NICE Perform 3.0

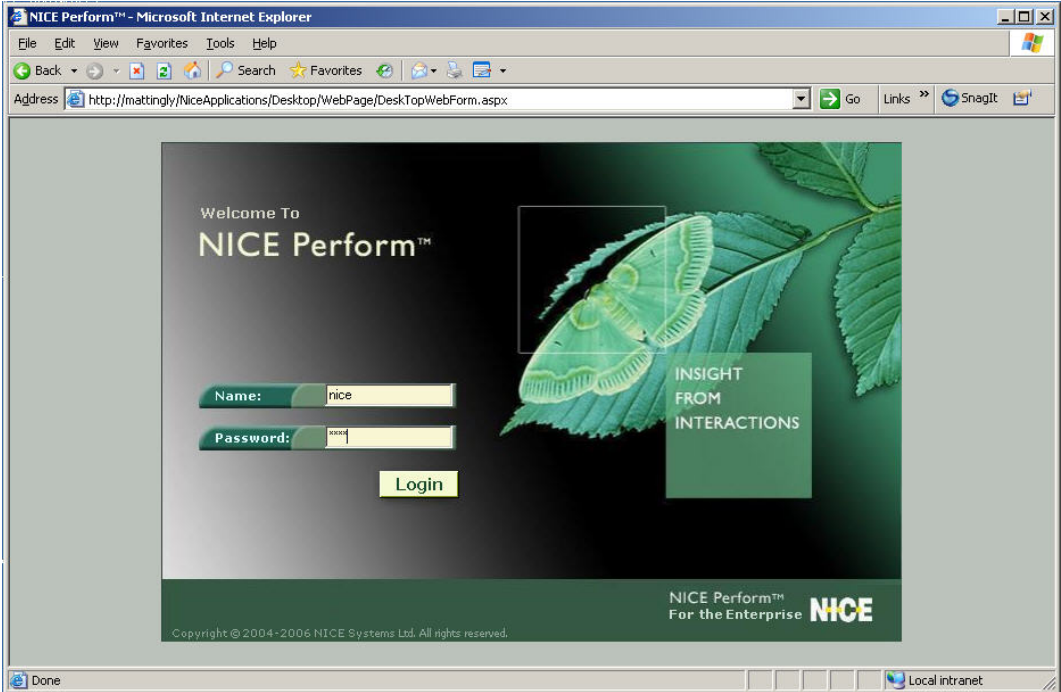
These Application Notes assume the NiceCLS and NiceLog software has been installed successfully. The NiceLog server should be installed and configured with the DS1 parameters from **Section 3**.

The following steps will be performed on the NiceCLS server:

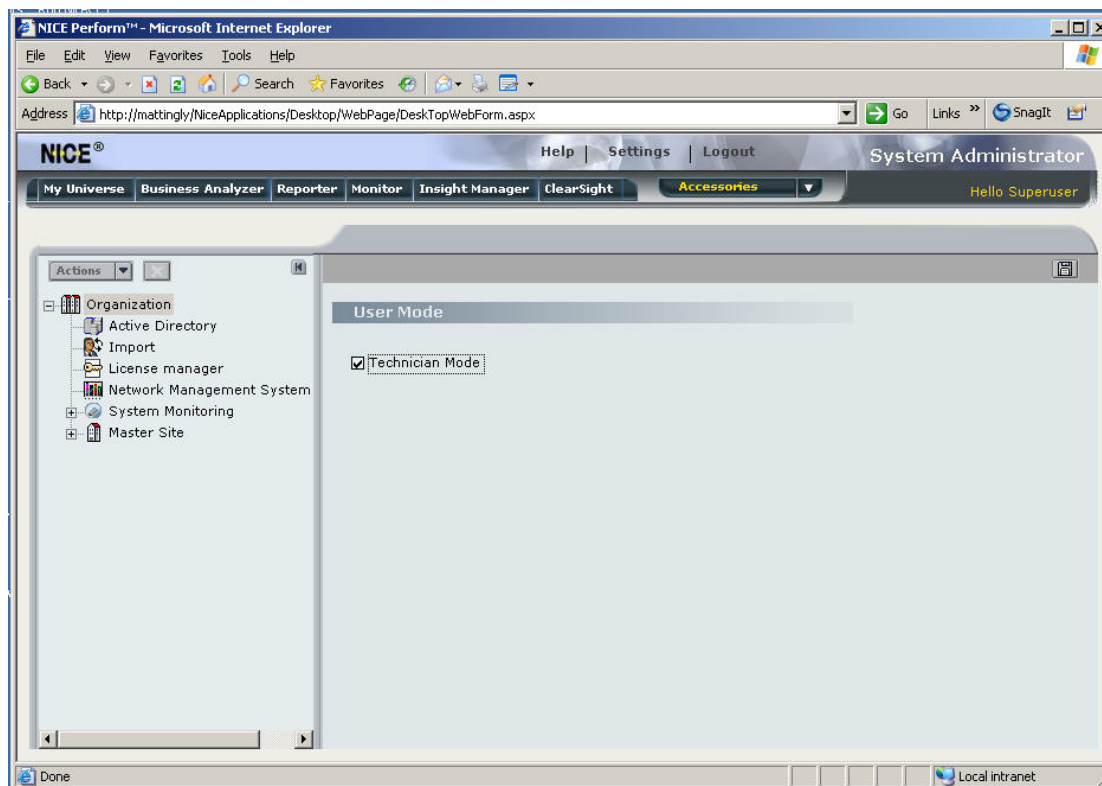
- Define NICE servers
- Configure Avaya TSAPI Driver
- Configure Channel Mapping
- Configure Users

### 6.1. Define NICE Servers

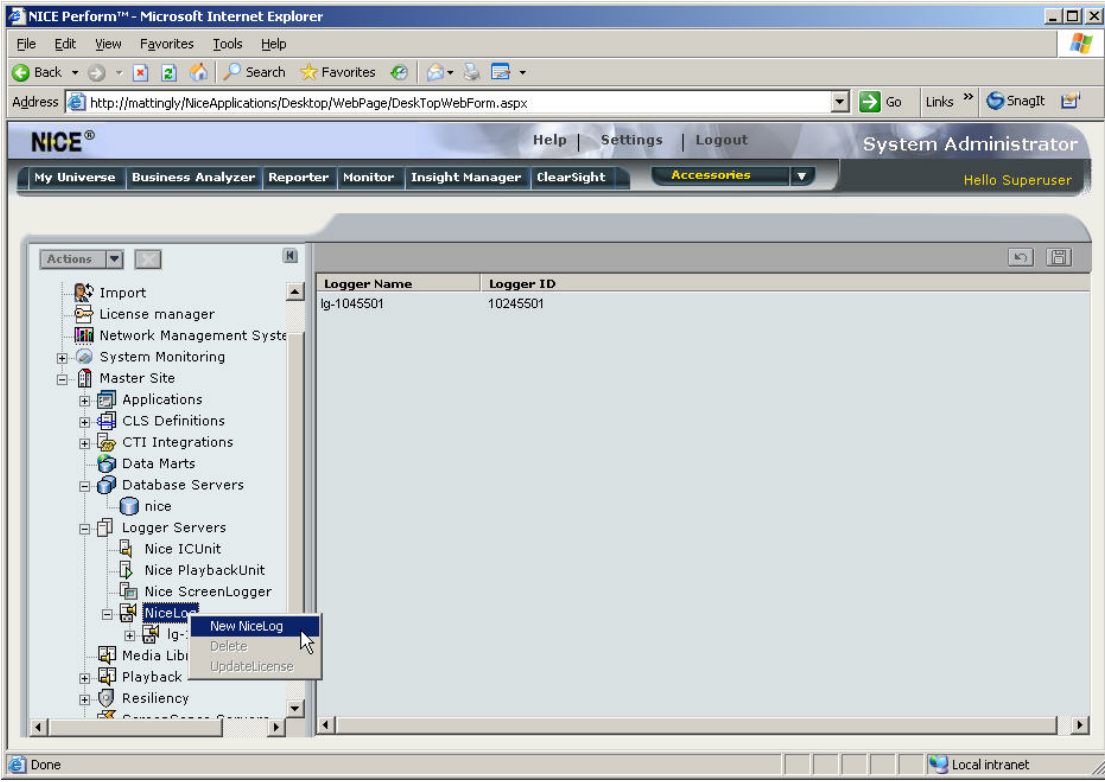

This section provides the procedures for defining the NiceCLS and NiceLog servers at the site.

Step	Description
1.	<p>Access the NICE administration interface by using the URL <a href="http://&lt;server name&gt;/nice">http://&lt;server name&gt;/nice</a> in an Internet browser window. Enter the <b>Name</b> and <b>Password</b> supplied by NICE. Click <b>Login</b>.</p> 

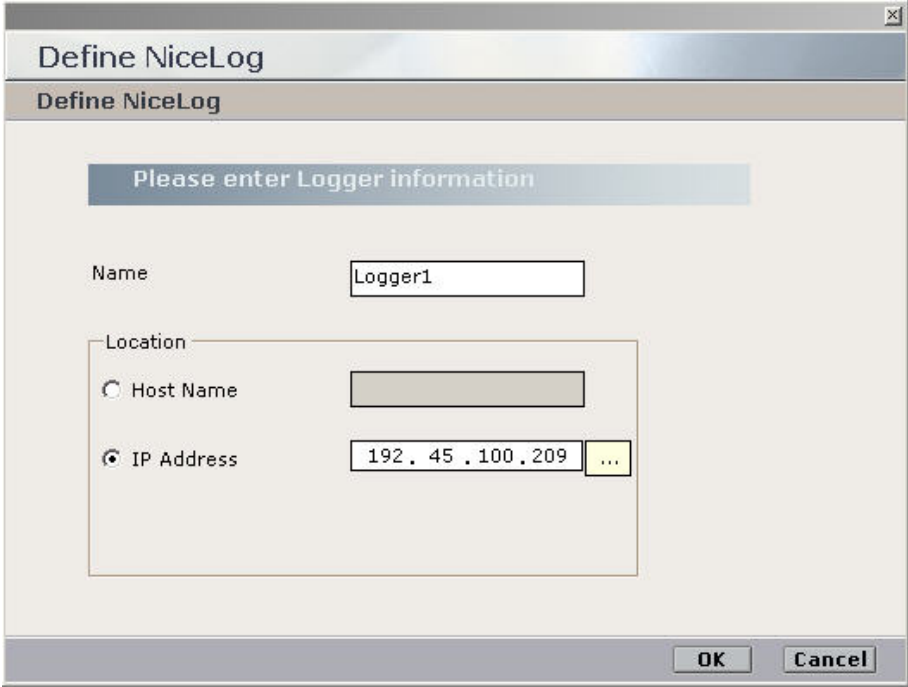
Step	Description
2.	<p>In the <b>NICE Users Administrator</b> window (not shown), select <b>Accessories</b> → <b>System Administrator</b>. In the <b>System Administrator</b> window, check the checkbox for <b>Technician Mode</b>.</p>

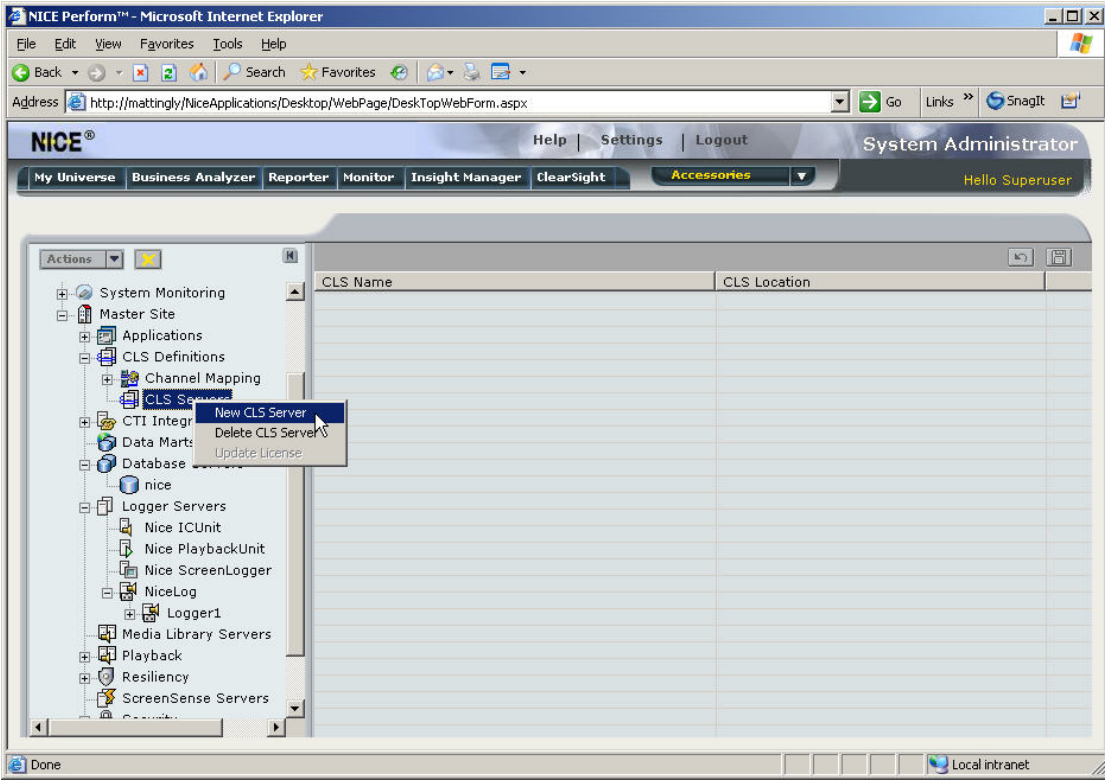
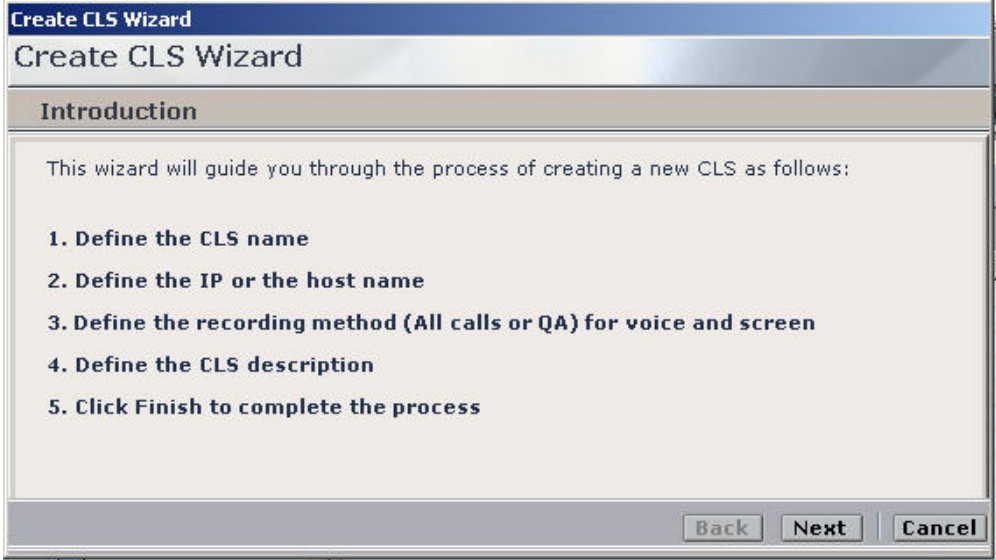


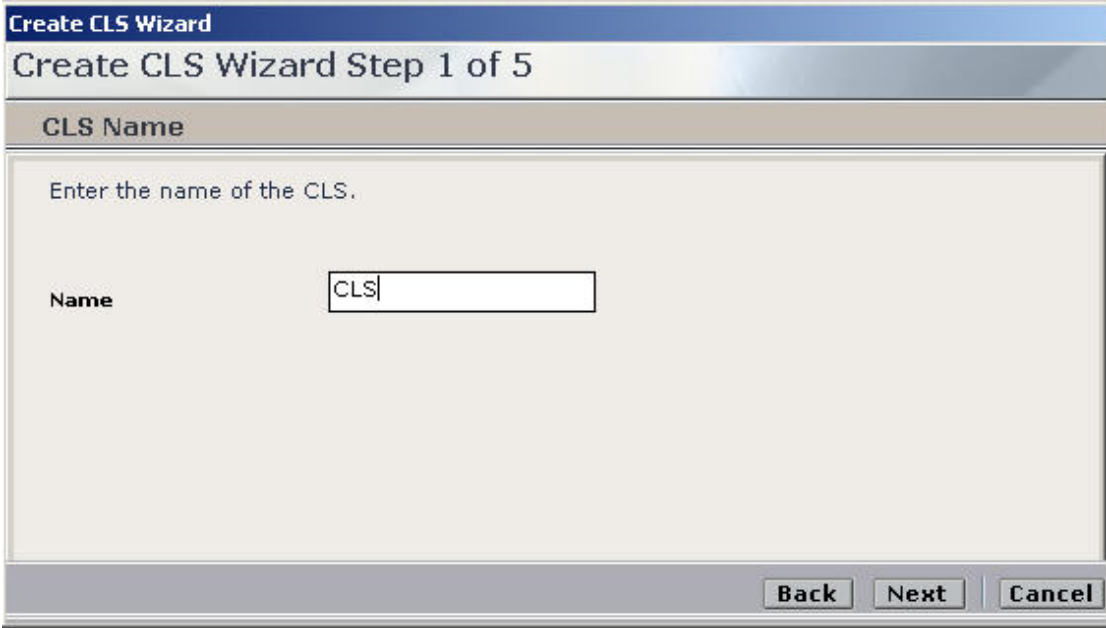



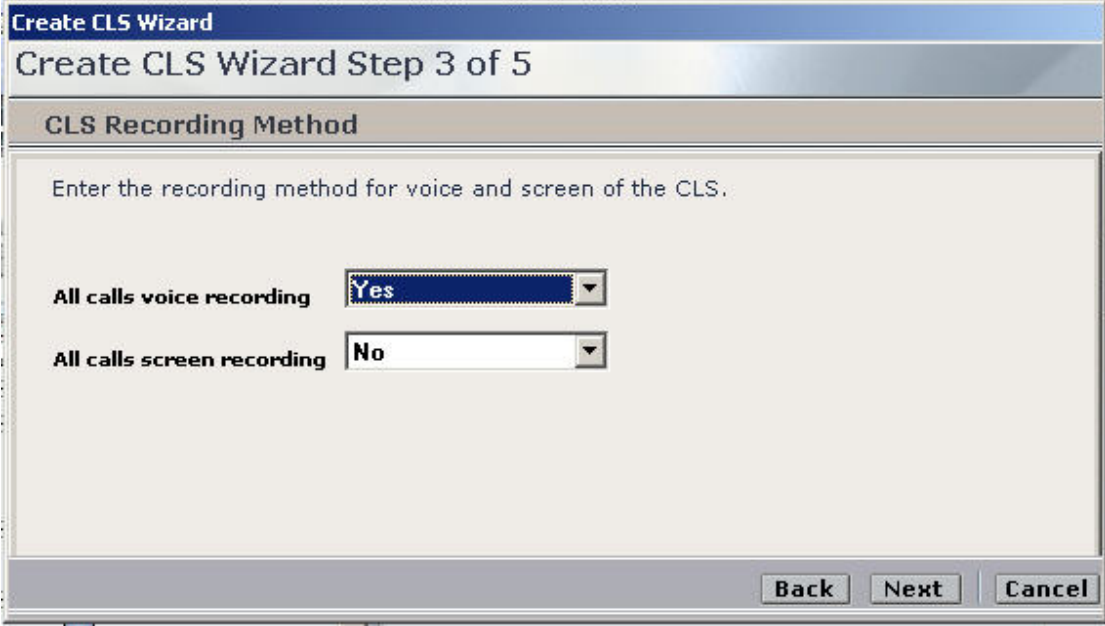
Step	Description
3.	<p>In the left pane, select <b>Logger Servers</b> → <b>NiceLog</b>. Right click and select <b>New NiceLog</b>.</p> 
4.	<p>Enter the <b>Serial Number</b> and <b>License Key</b> provided by NICE. Click <b>OK</b>.</p> 

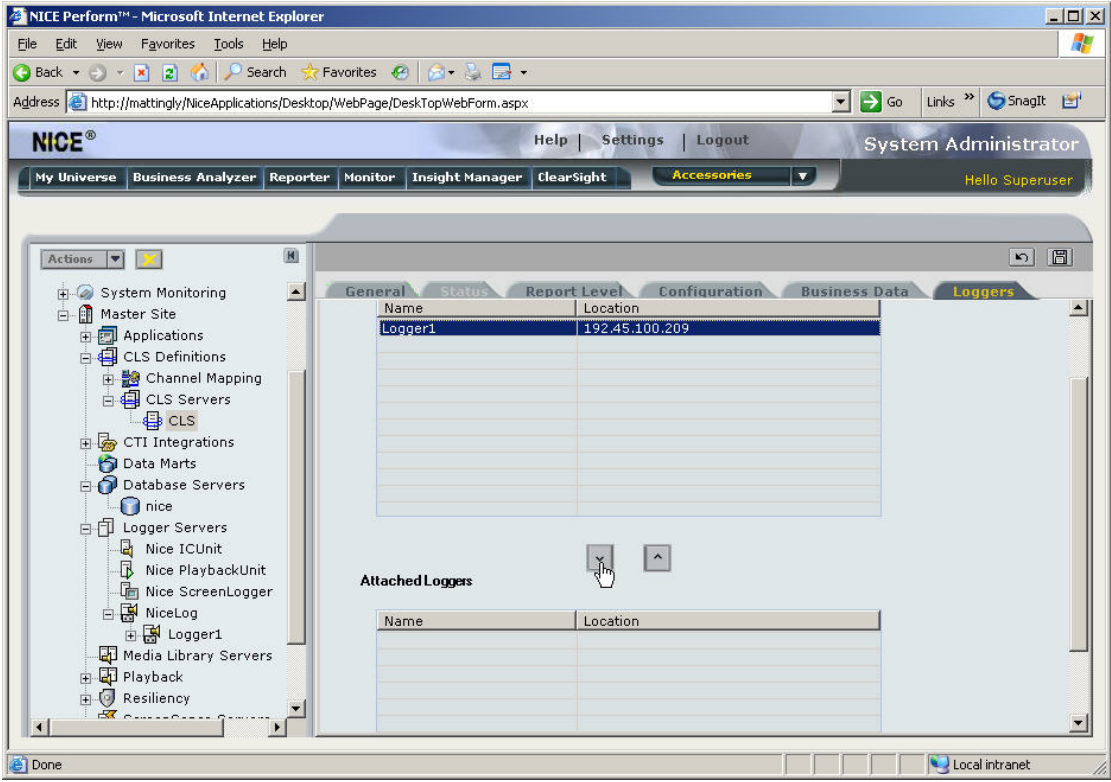


Step	Description
5.	<p>In the <b>Define NiceLog</b> window, configure the following.</p> <ul style="list-style-type: none"> <li>• <b>Name</b> – set to any unique name.</li> <li>• <b>IP Address</b> – set to the IP address of the NiceLog Server.</li> </ul> <p>Click <b>OK</b>. Click <b>Save</b>.</p> 

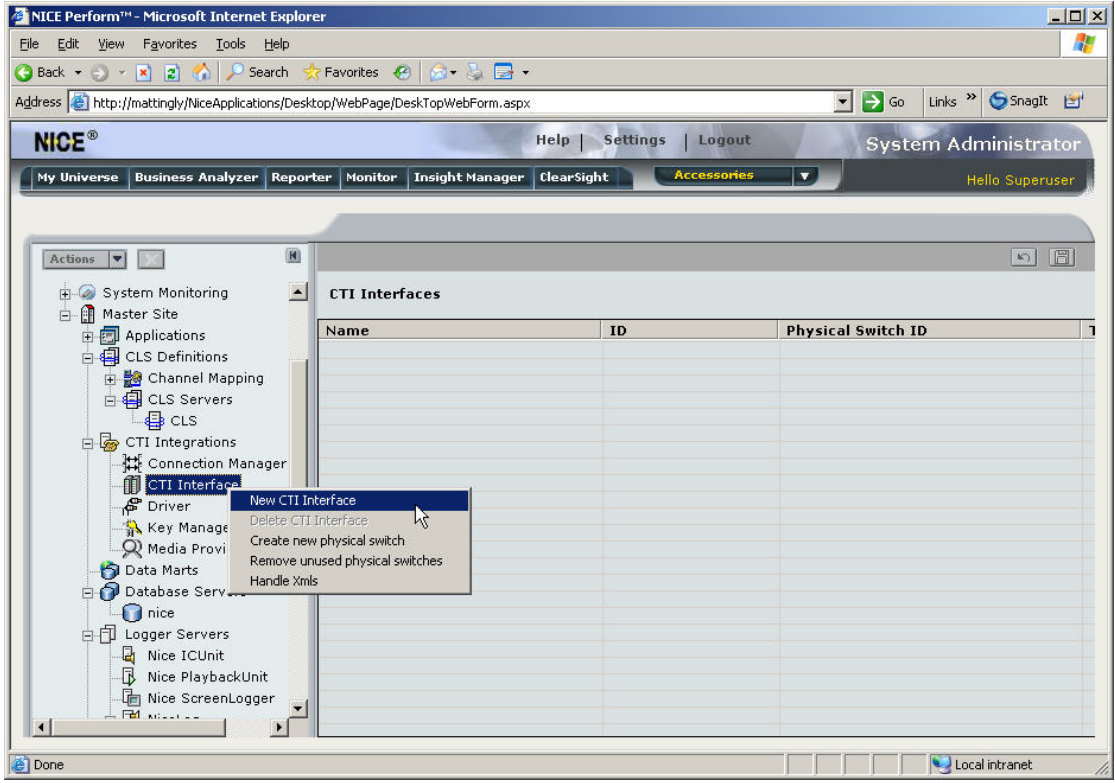
Step	Description
6.	<p>In the left pane, select <b>CLS Definitions</b> → <b>CLS Server</b>. Right click and select <b>New Nice CLS Server</b>.</p>  <p>The screenshot shows the NICE Perform web application in a Microsoft Internet Explorer browser. The address bar shows the URL: http://mattingly/NiceApplications/Desktop/WebPage/DesktopWebForm.aspx. The application header includes 'NICE®', 'Help', 'Settings', 'Logout', and 'System Administrator'. Below the header is a navigation bar with tabs: 'My Universe', 'Business Analyzer', 'Reporter', 'Monitor', 'Insight Manager', 'ClearSight', and 'Accessories'. The main content area is divided into a left pane and a right pane. The left pane shows a tree view of the system hierarchy. Under 'CLS Definitions', 'CLS Server' is selected, and a context menu is open with the option 'New CLS Server' highlighted. The right pane shows a table with columns 'CLS Name' and 'CLS Location'.</p>
7.	<p>The <b>Create CLS Wizard</b> window is displayed. Click <b>Next</b>.</p>  <p>The screenshot shows the 'Create CLS Wizard' window. The title bar says 'Create CLS Wizard'. The main window has a title 'Create CLS Wizard' and a section 'Introduction'. The text in the introduction says: 'This wizard will guide you through the process of creating a new CLS as follows:'. Below this is a list of five steps: 1. Define the CLS name, 2. Define the IP or the host name, 3. Define the recording method (All calls or QA) for voice and screen, 4. Define the CLS description, and 5. Click Finish to complete the process. At the bottom of the window are three buttons: 'Back', 'Next', and 'Cancel'.</p>

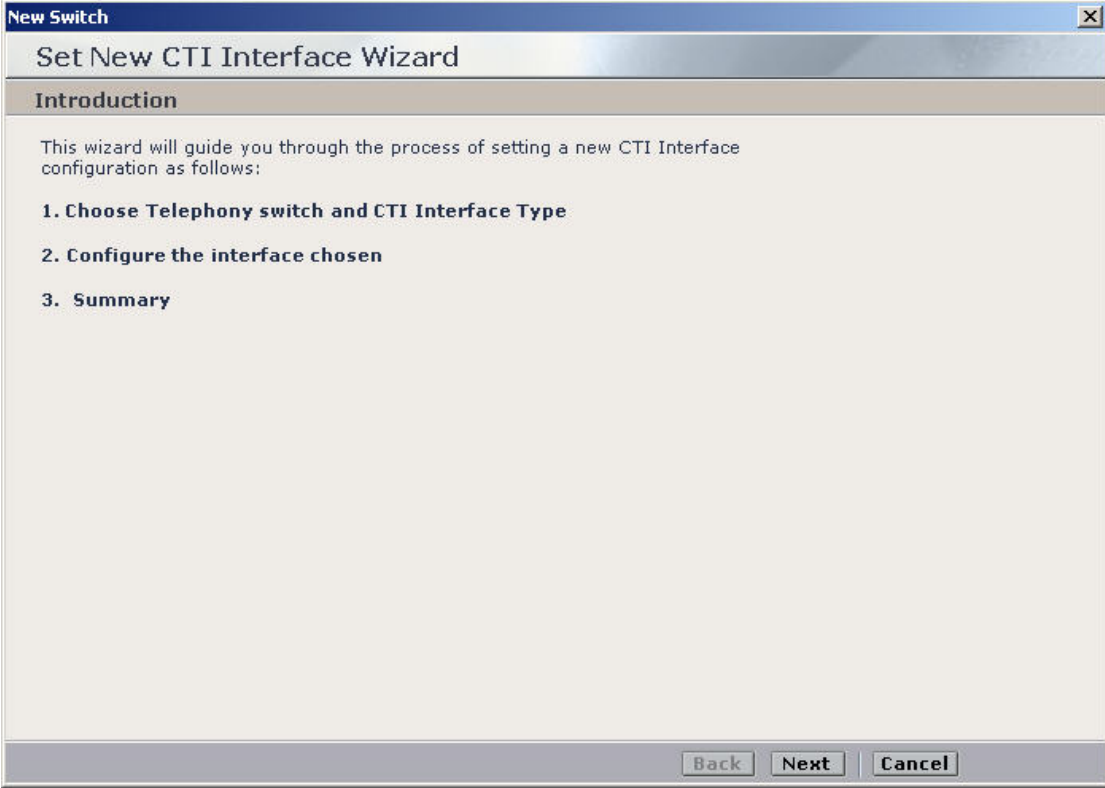
Step	Description
8.	<p>Set the <b>Name</b> field to any unique name. Click <b>Next</b>.</p> 
9.	<p>Set the <b>IP Address</b> field to the IP address of the NiceCLS Server. Click <b>Next</b>.</p> 

Step	Description
10.	<p>Configure the following.</p> <ul style="list-style-type: none"> <li>• <b>All calls voice recording</b> – set to Yes.</li> <li>• <b>All calls screen recording</b> – this is optional for screen recording.</li> </ul> <p>Click <b>Next</b>. Then click <b>Next</b> on <b>Step 4</b> and <b>Finish</b> on <b>Step 5</b> in the Wizard. Click <b>Save</b>.</p> 

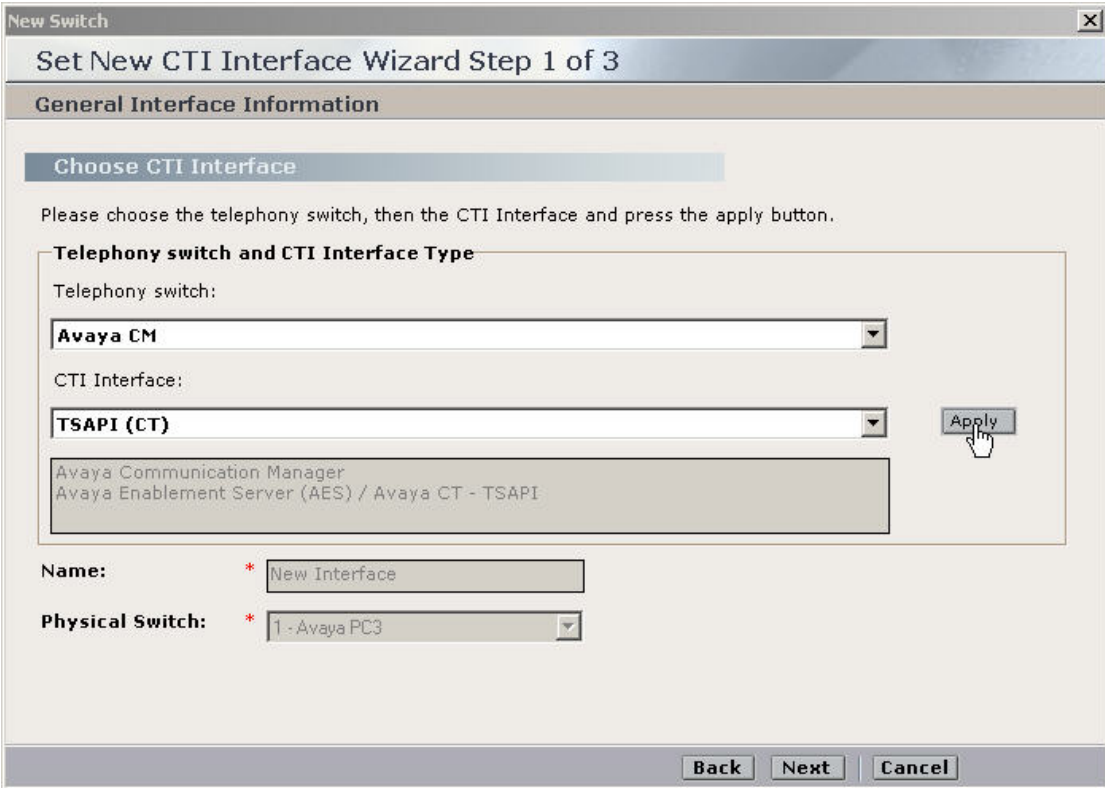
Step	Description
11.	<p>In the <b>Loggers</b> tab, highlight the Logger that was created in <b>Step 5</b>. Select the down-arrow button to attach this Logger to the CLS. Click <b>Save</b>.</p> 

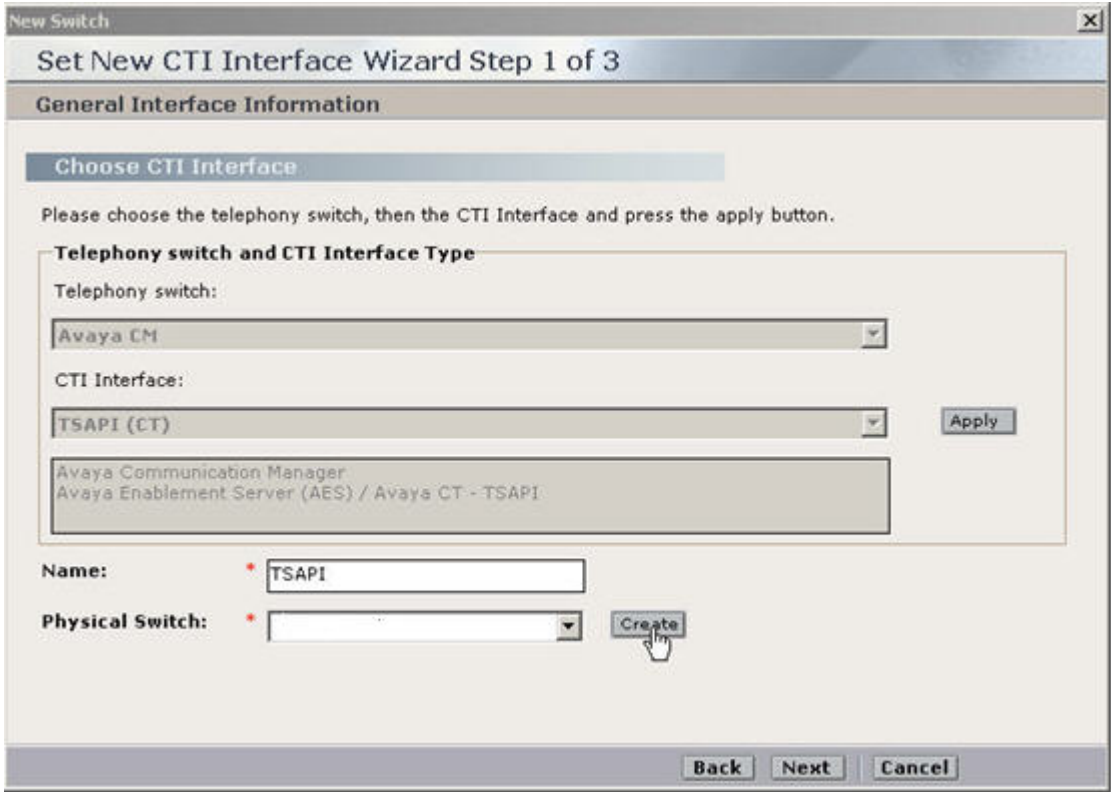
## 6.2. Configure Avaya TSAPI Driver

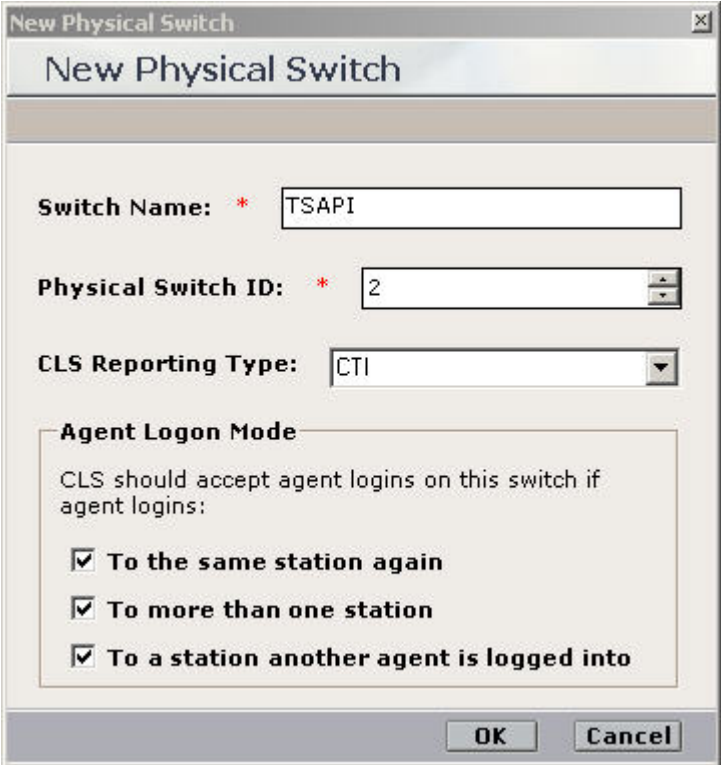
Step	Description
1.	<p>In the left pane, select <b>CTI Integrations</b> → <b>CTI Interface</b>. Right click and select <b>New CTI Interface</b>.</p> 

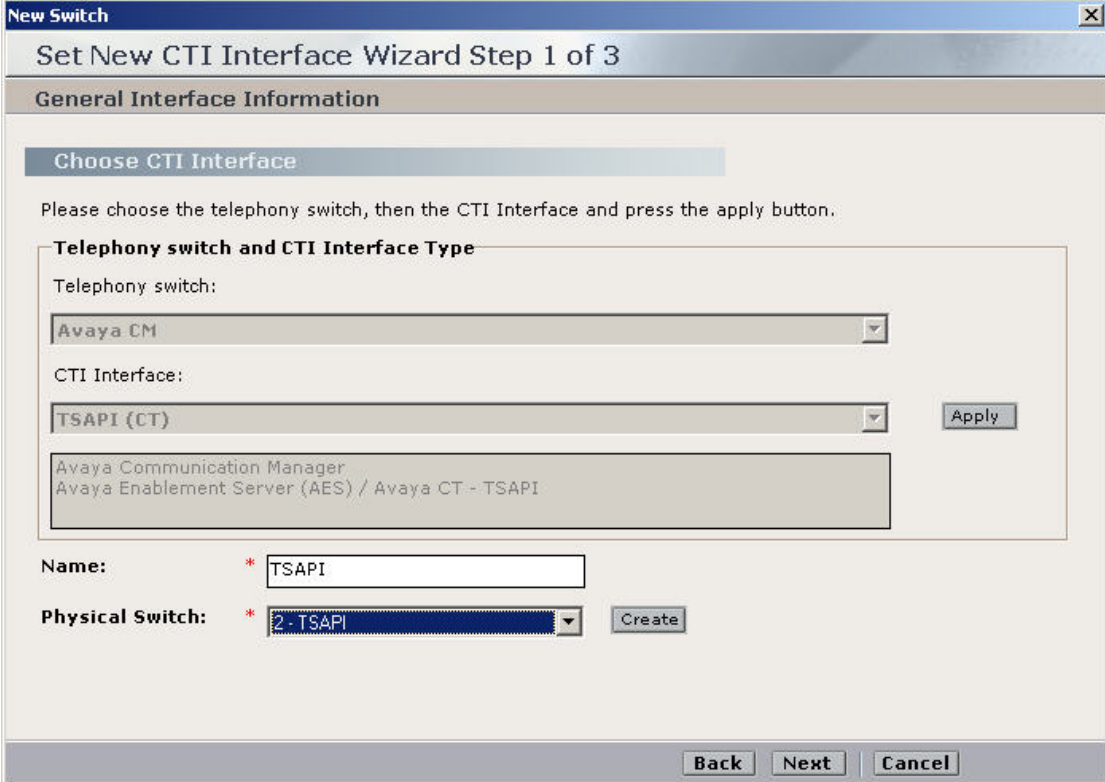
Step	Description
2.	<p>The <b>Set New CTI Interface Wizard</b> window will appear. Click <b>Next</b>.</p> 

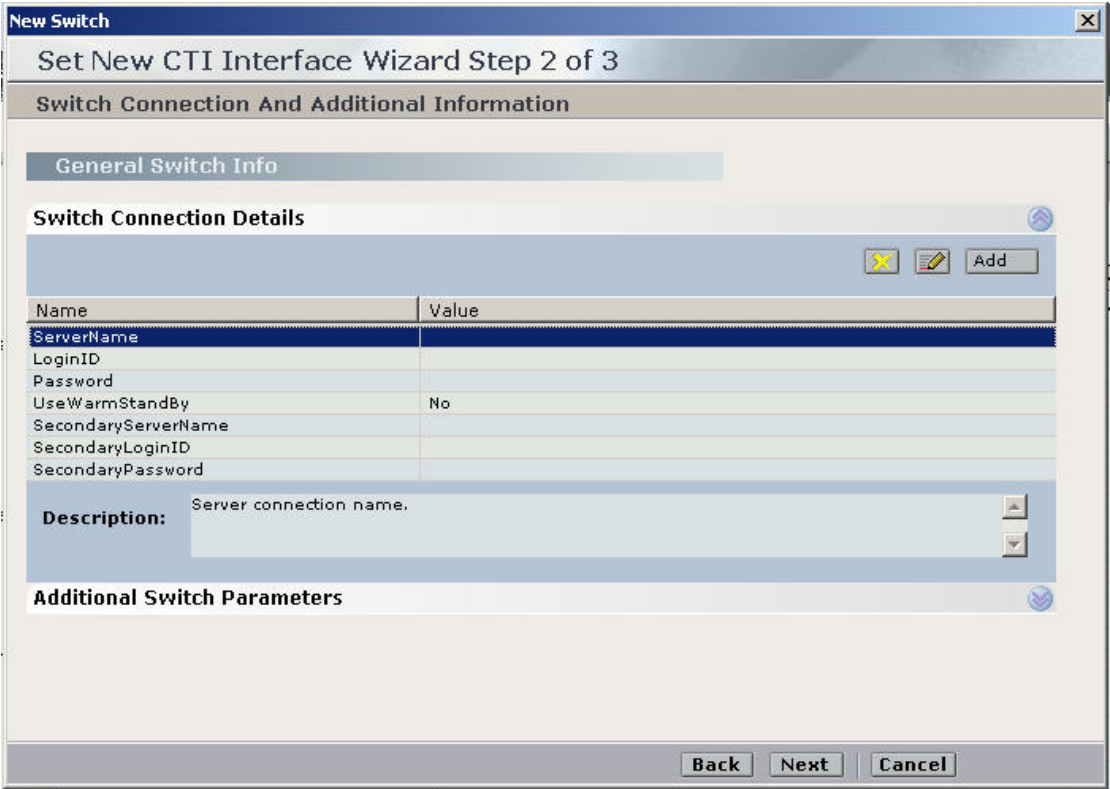



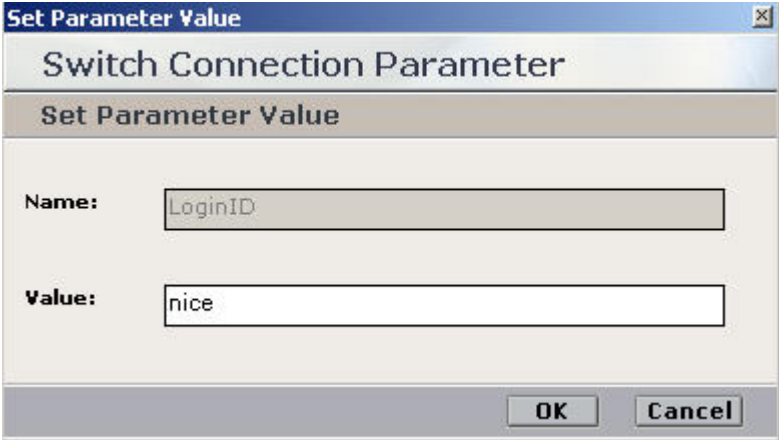

Step	Description
3.	<p>Configure the following.</p> <ul style="list-style-type: none"> <li>• <b>Telephony switch</b> – select “Avaya CM” from the drop down list.</li> <li>• <b>CTI Interface</b> – select “TSAPI (CT)” from the drop down list.</li> </ul> <p>Click <b>Apply</b>.</p> 

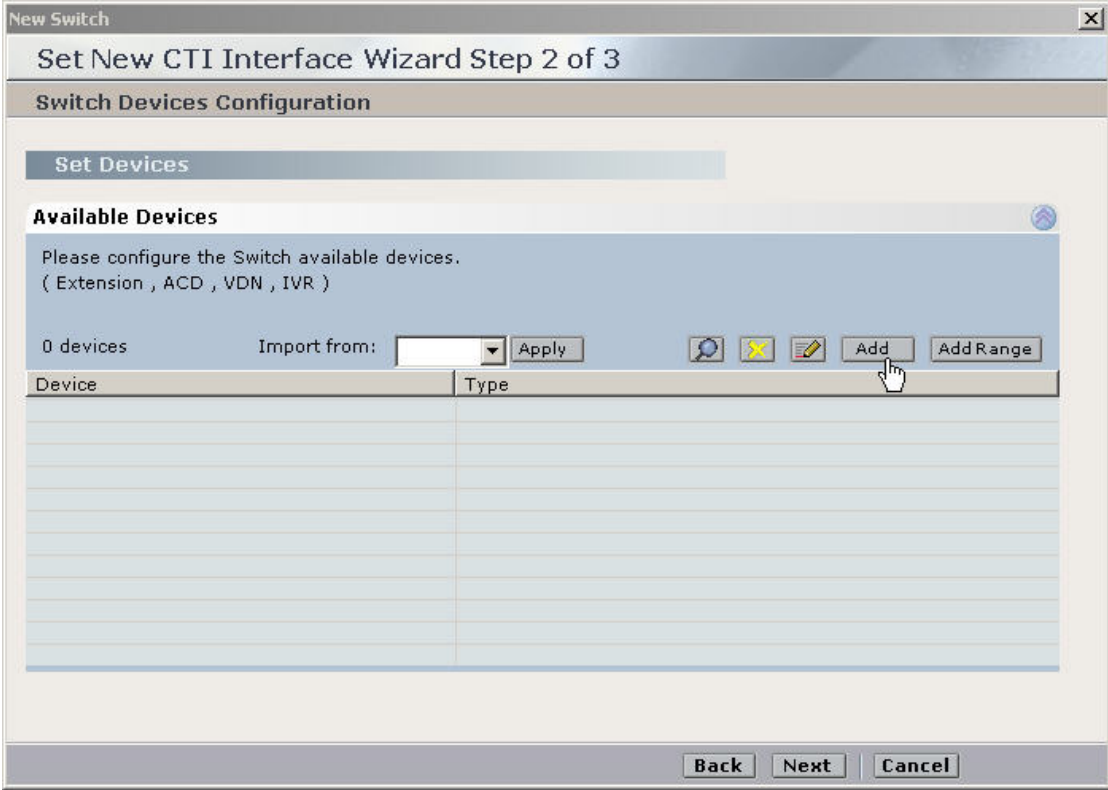
Step	Description
4.	<p>Set the <b>Name</b> field to any unique name. Click <b>Create</b>.</p> 

Step	Description
5.	<p>Configure the following.</p> <ul style="list-style-type: none"> <li>• <b>Switch Name</b> – set to any unique name.</li> <li>• <b>Physical Switch ID</b> - set to any unused number.</li> <li>• <b>CLS Reporting Type</b> – set to “CTI” from the dropdown list.</li> <li>• <b>Agent Logon Mode</b> – check all the checkboxes.</li> </ul> <p>Click <b>OK</b>.</p> 

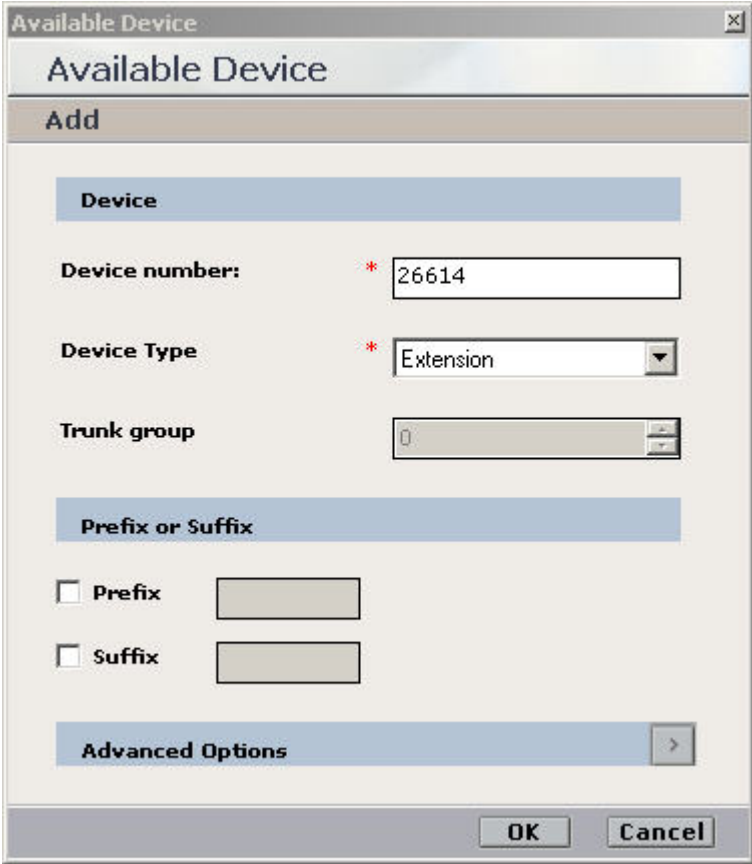
Step	Description
6.	<p>Set the <b>Physical Switch</b> field to the switch created in the previous step. Click <b>Next</b>.</p> 

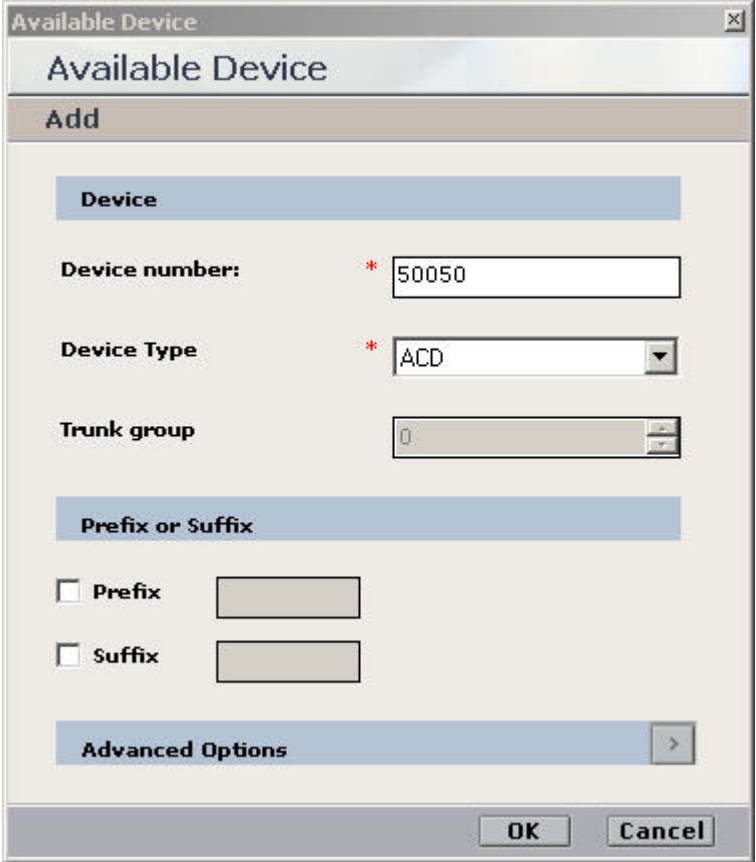
Step	Description
7.	<p>On the <b>Switch Connection Details</b> section, double click each field to configure it. The following <b>Steps 8 through 10</b> describe the values that need to be configured.</p> 
8.	<p>Double click on the <b>ServerName</b> field. Set the <b>Value</b> field to the Tlink Name from <b>Section 4.2 Step 2</b>. Click <b>OK</b>.</p> 

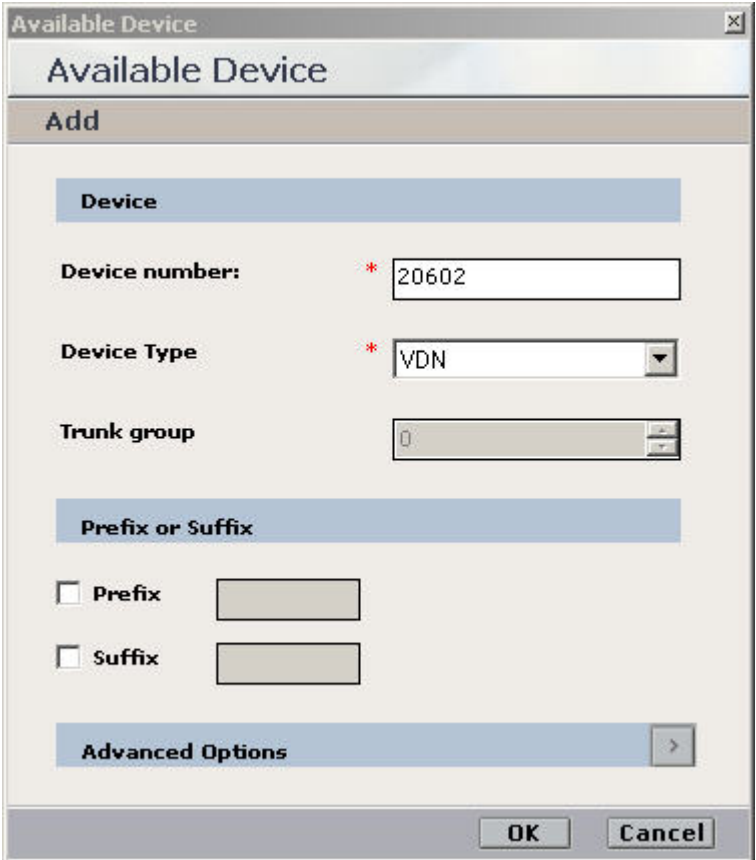
Step	Description
9.	<p>Double click on the <b>LoginID</b> field. Set the <b>Value</b> field with the TSAPI User ID created in <b>Section 4.1 Step 2</b>. Click <b>OK</b>.</p> 
10.	<p>Double click on the <b>Password</b> field. Set the <b>Value</b> field with the TSAPI User Password created in <b>Section 4.1 Step2</b>. Click <b>OK</b>. Then click <b>Next</b>.</p> 

Step	Description
11.	<p>In the <b>Available Devices</b> section, click <b>Add</b>.</p> 

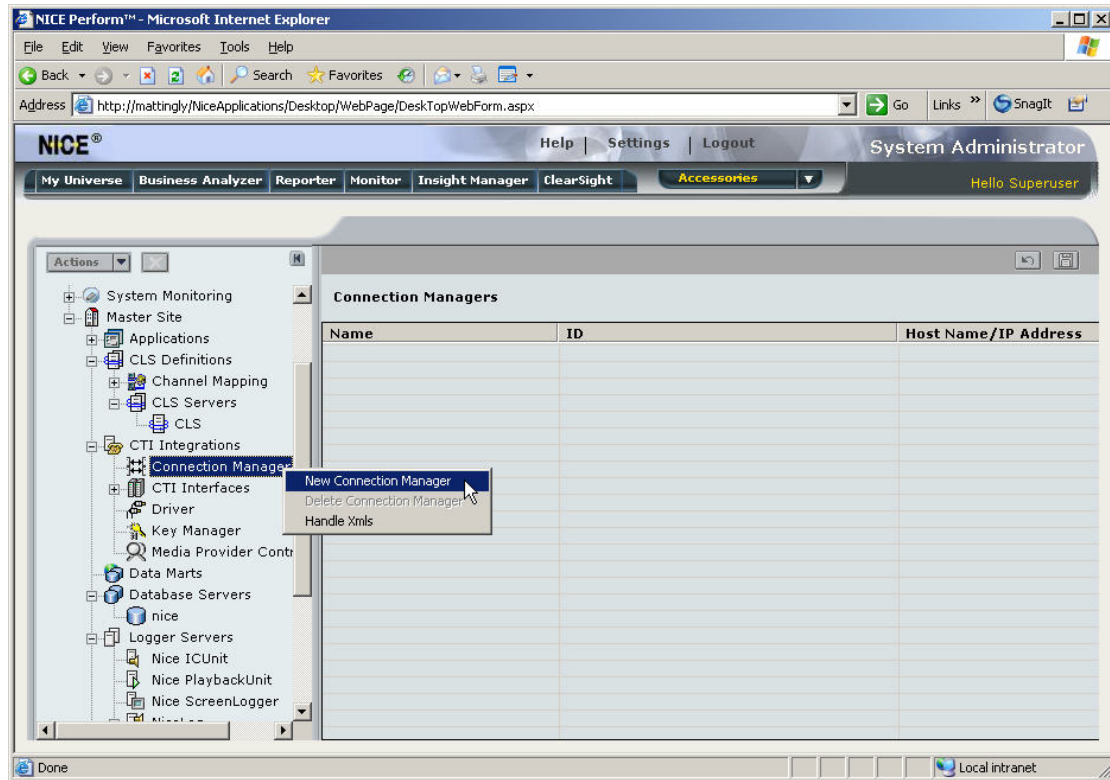



Step	Description
12.	<p>Set the <b>Device number</b> field to the extension of the physical phone that should be monitored. Set the <b>Device Type</b> to “Extension”. Click <b>OK</b>.</p> <p>Repeat <b>Steps 11</b> and <b>12</b> to add additional extensions.</p> 

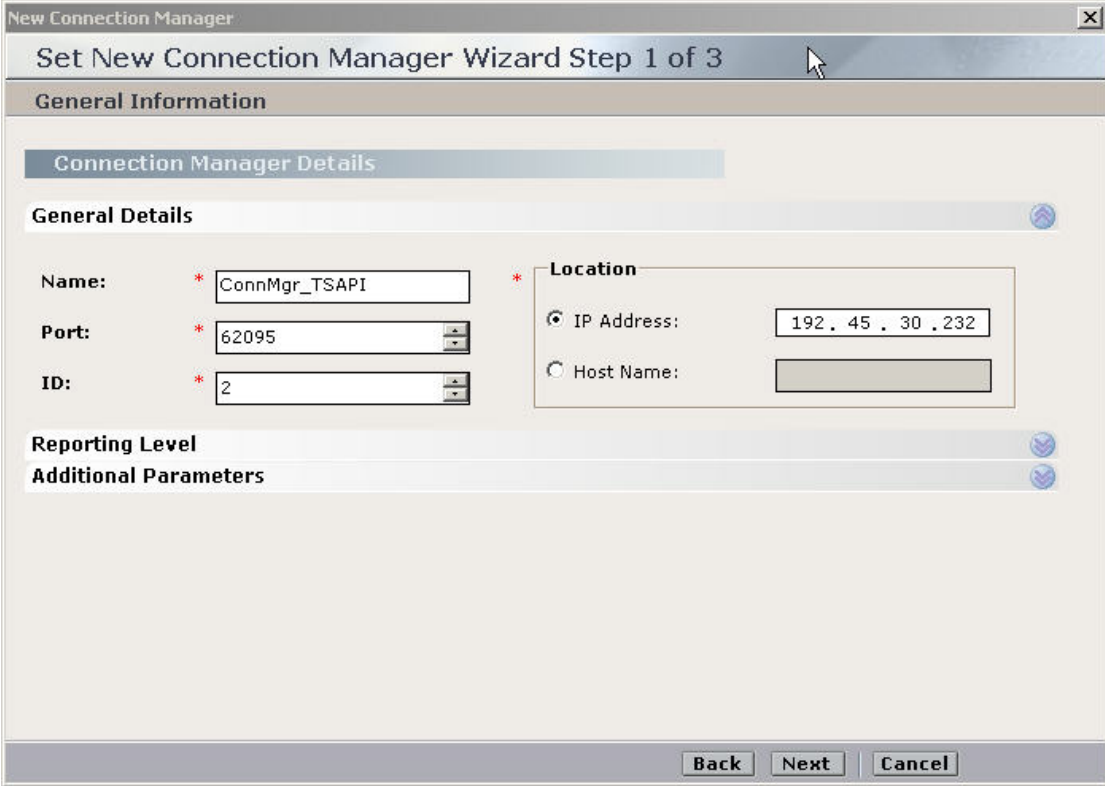
Step	Description
13.	<p>In the <b>Available Devices</b> section, click <b>Add</b>. Set the <b>Device number</b> field to the extension of the ACD Hunt Group that should be monitored. Set the <b>Device Type</b> to “ACD”. Click <b>OK</b>.</p> <p>Repeat <b>Steps 11</b> and <b>13</b> to add additional ACD Hunt Groups.</p> 

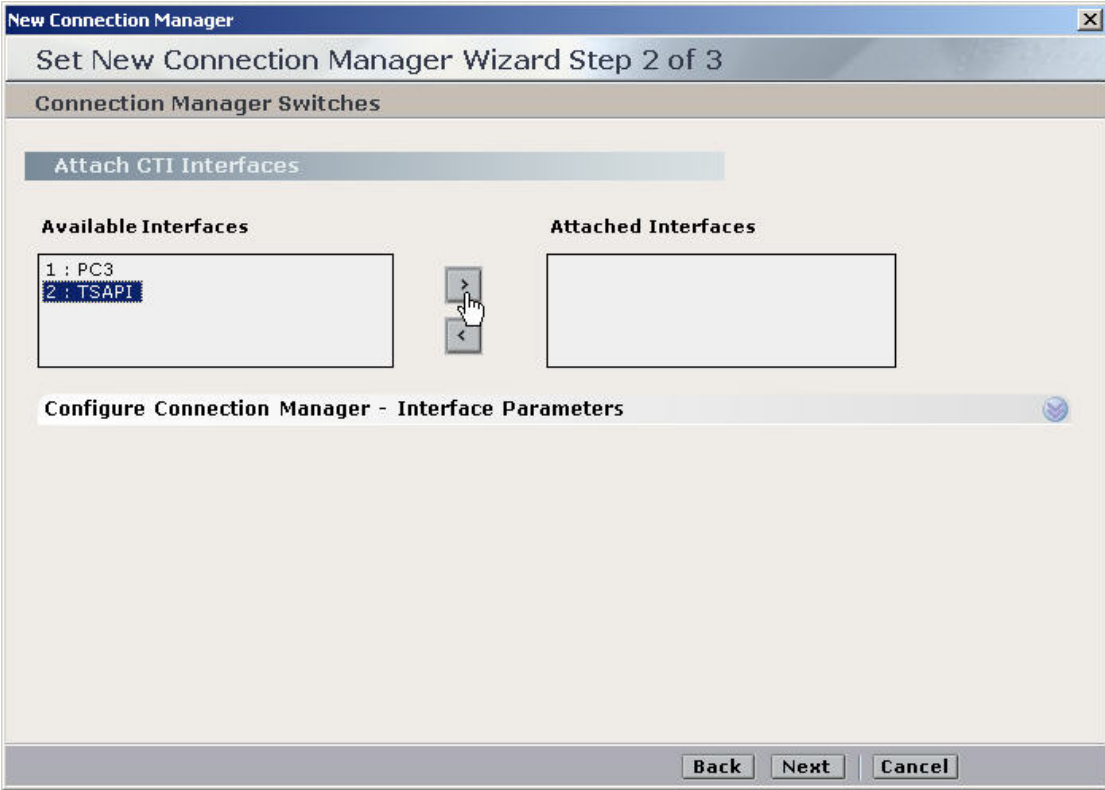
Step	Description
14.	<p>In the <b>Available Devices</b> section, click <b>Add</b>. Set the <b>Device number</b> field to the VDN number that should be monitored. Set the <b>Device Type</b> to “VDN”. Click <b>OK</b>.</p> <p>Repeat <b>Steps 11</b> and <b>14</b> to add additional VDNs. Click <b>Next</b> then click <b>Finish</b> on the <b>Wizard</b>.</p> 

Step	Description
15.	In the left pane, select <b>CTI Integrations</b> → <b>Connection Manager</b> . Right click and select <b>New Connection Manager</b> .

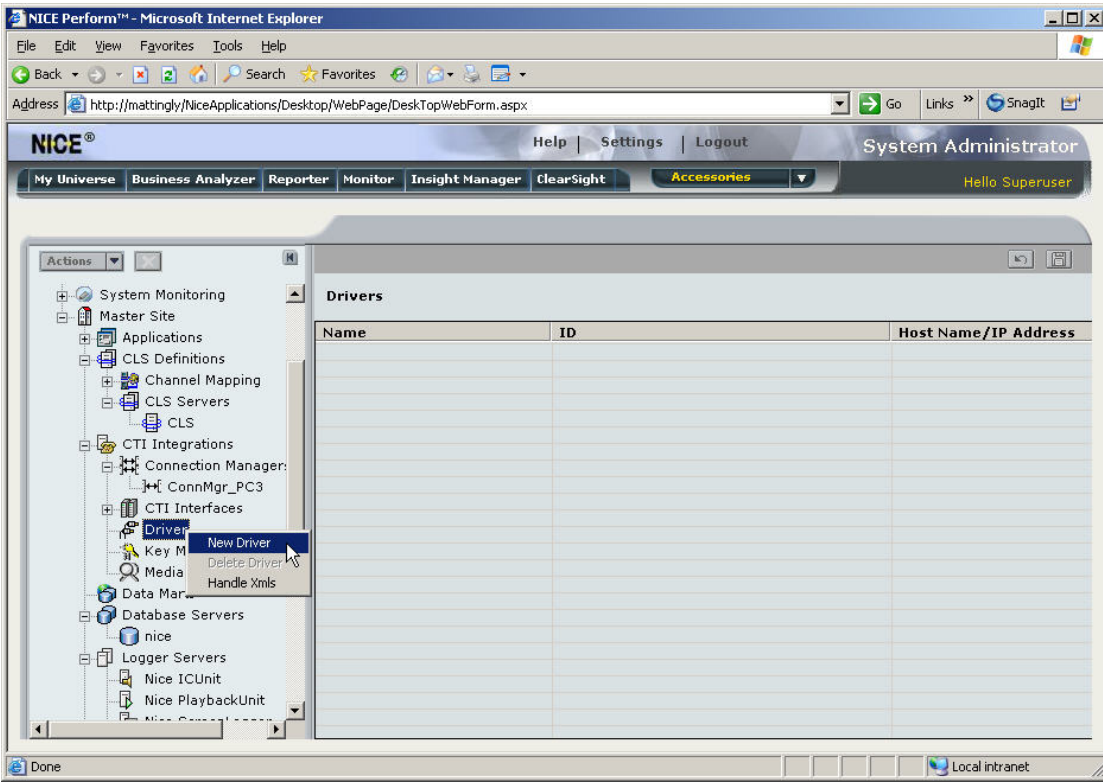


Step	Description
16.	<p>The <b>Set New Connection Manager Wizard</b> window is displayed. Click <b>Next</b>.</p> 

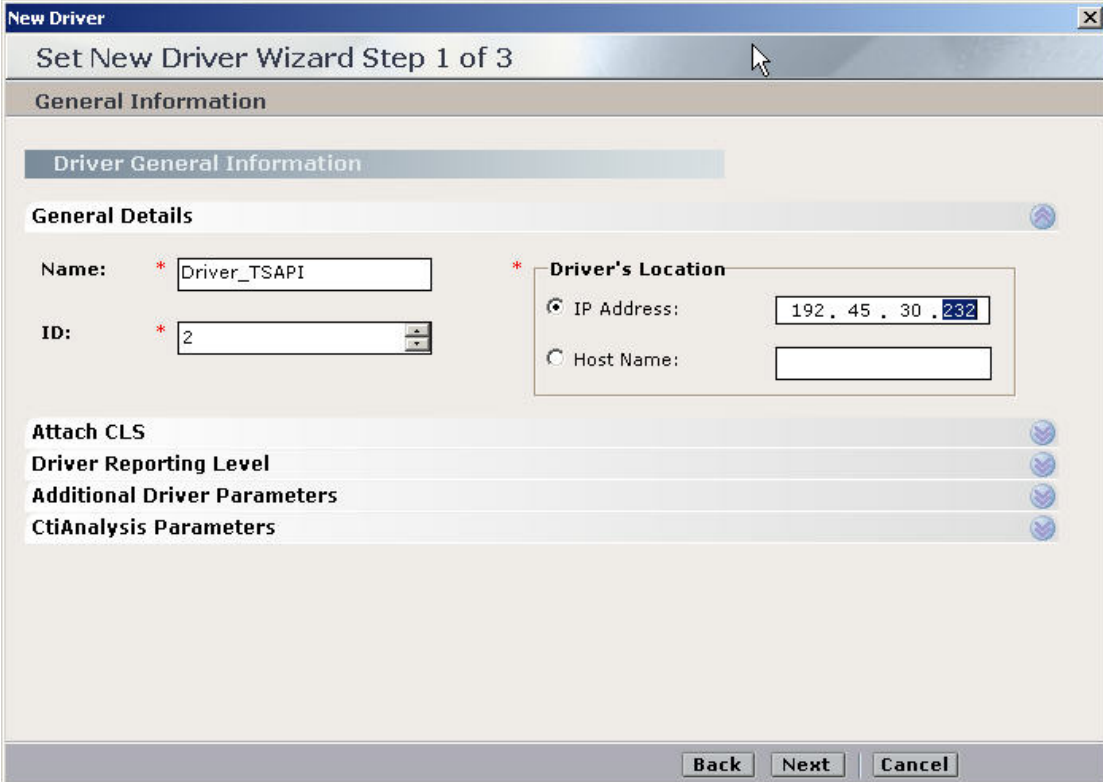
Step	Description
17.	<p>Configure the following.</p> <ul style="list-style-type: none"> <li>• <b>Name</b> – set to any unique name</li> <li>• <b>Port</b> – set to “62095”</li> <li>• <b>ID</b> - set to any unused number.</li> <li>• <b>IP Address</b> - set to the IP address of the NiceCLS server.</li> </ul> <p>Click <b>Next</b>.</p> 

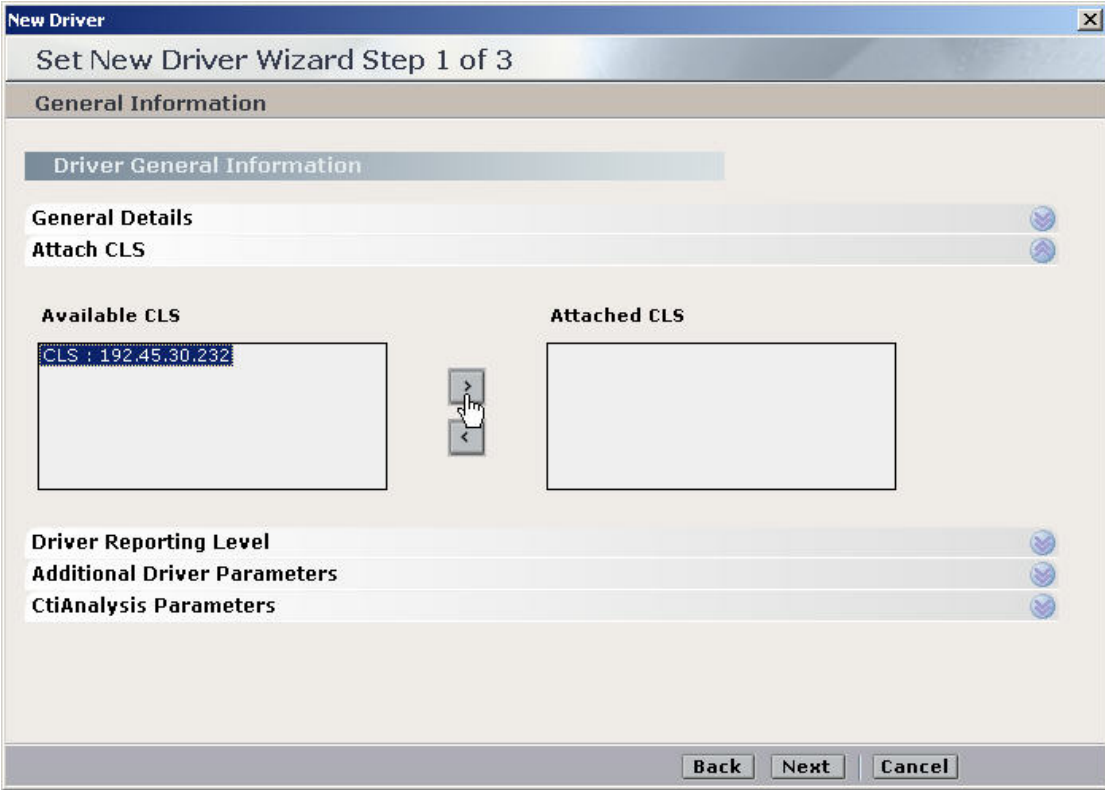
Step	Description
18.	<p>Highlight “TSAPI” from the <b>Available Interface</b> list, use the right arrow button to move it to the <b>Attached Interfaces</b> list. Click <b>Next</b> then click <b>Finish</b>.</p> 

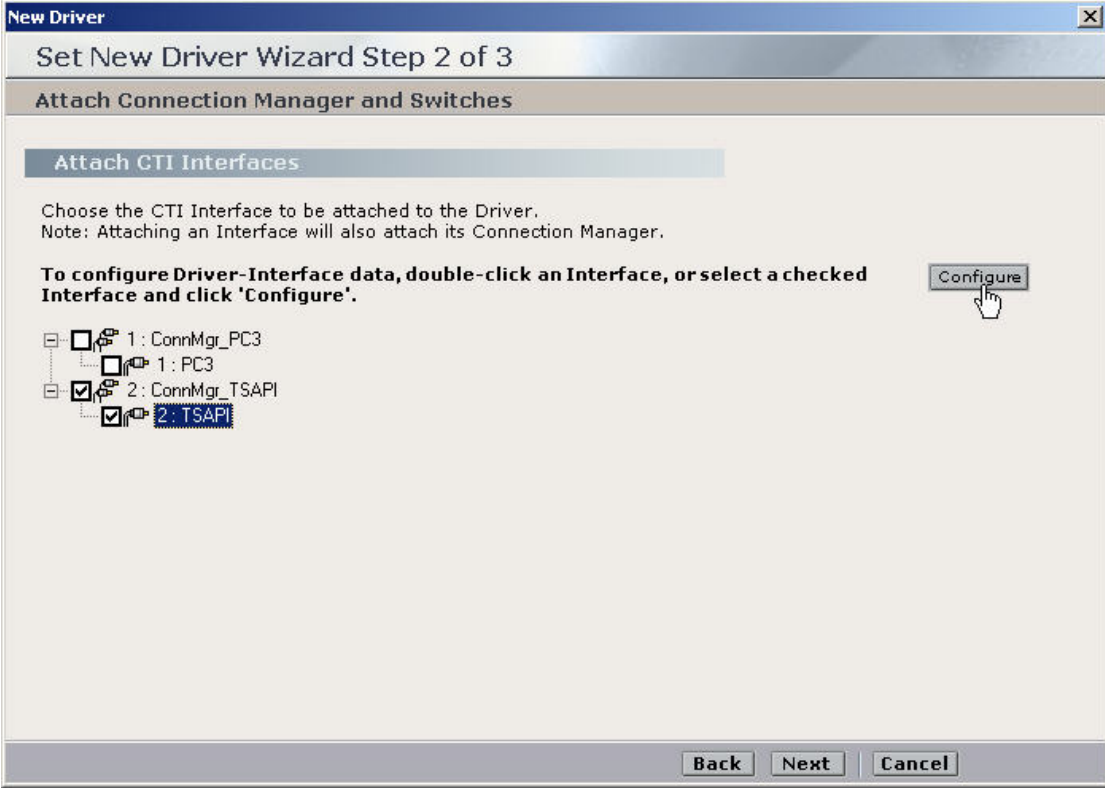


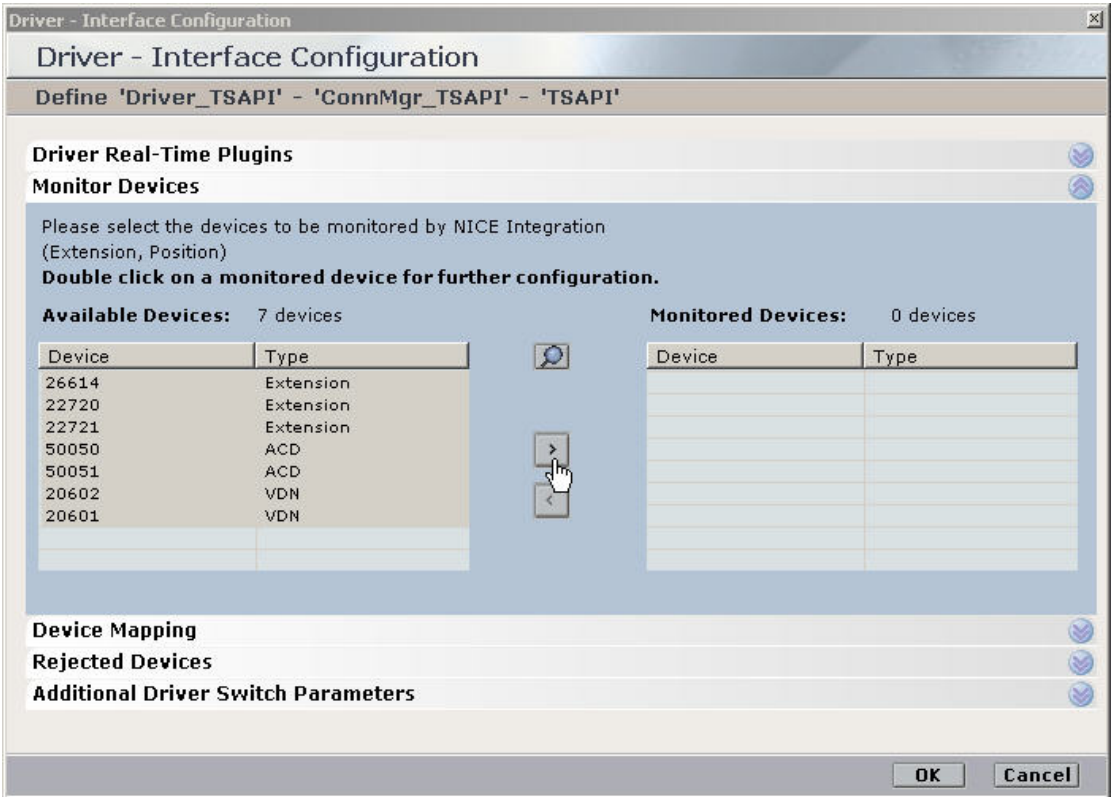
Step	Description
19.	<p>In the left pane, select <b>CTI Integrations</b> → <b>CTI Interfaces</b> → <b>Drivers</b>. Right click and select <b>New Driver</b>.</p> 

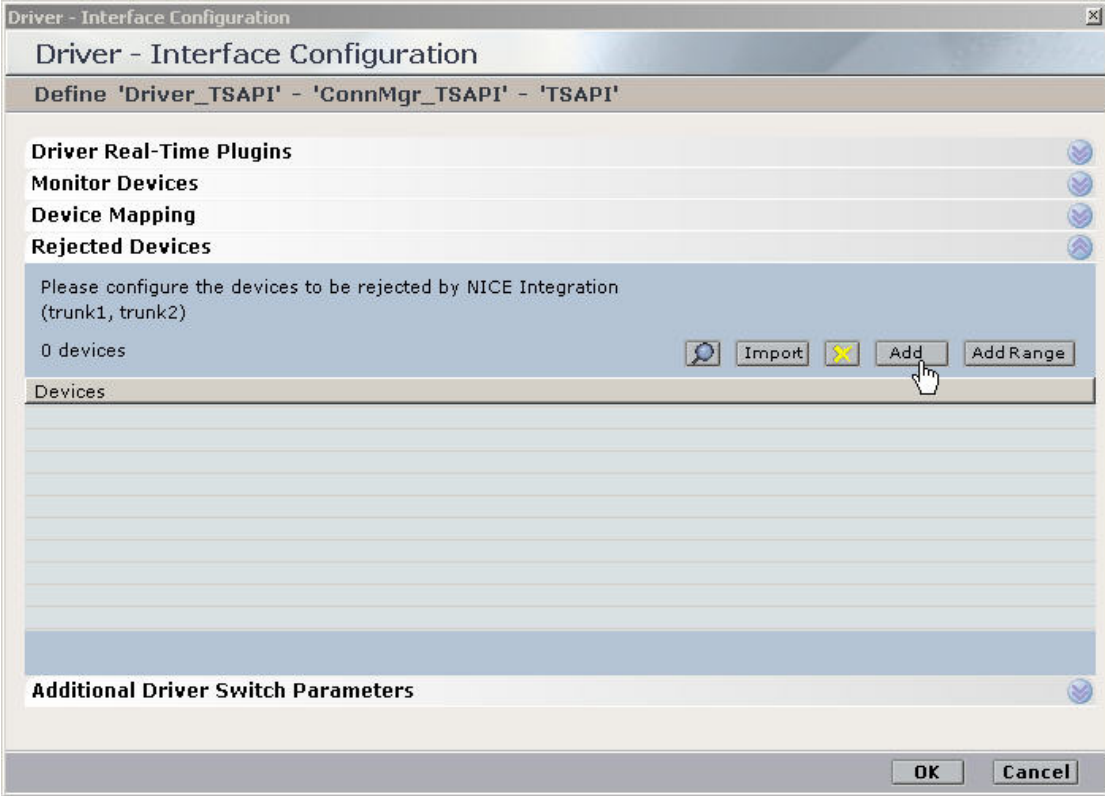
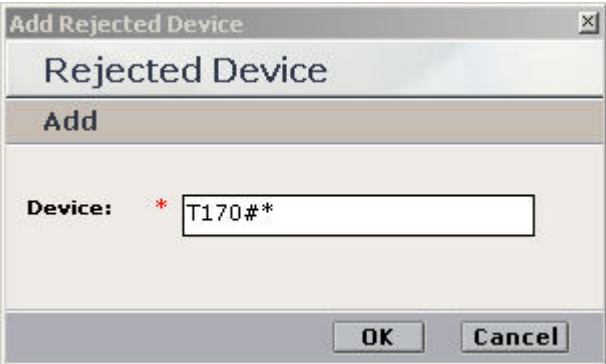
Step	Description
20.	<p>The <b>Set New Driver Wizard</b> window is displayed. Click <b>Next</b>.</p> 

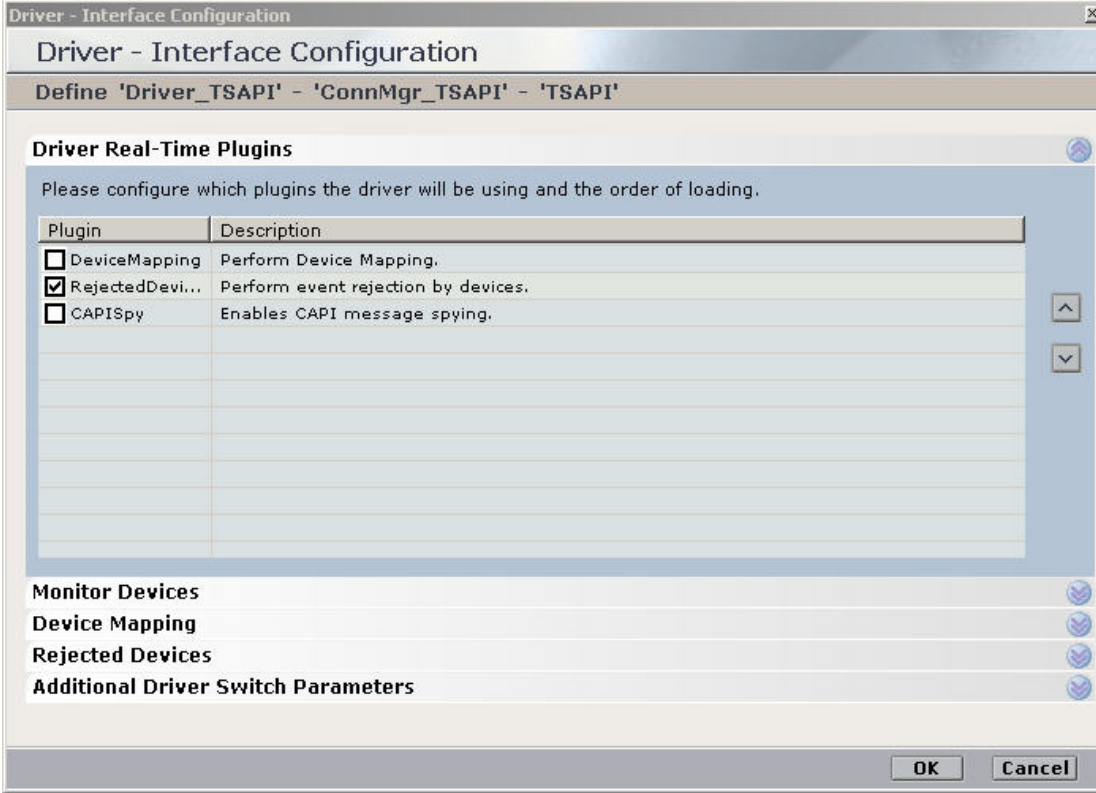
Step	Description
21.	<p>Configure the following.</p> <ul style="list-style-type: none"> <li>• <b>Name</b> – set to any unique name</li> <li>• <b>ID</b> - set to any unused number.</li> <li>• <b>IP Address</b> - set to the IP address of the NiceCLS server.</li> </ul> <p>Open the <b>Attach CLS</b> section.</p> 

Step	Description
22.	<p>Highlight the CLS server from the <b>Available CLS</b> list, use the right arrow button to move it to the <b>Attached CLS</b> list. Click <b>Next</b>.</p> 

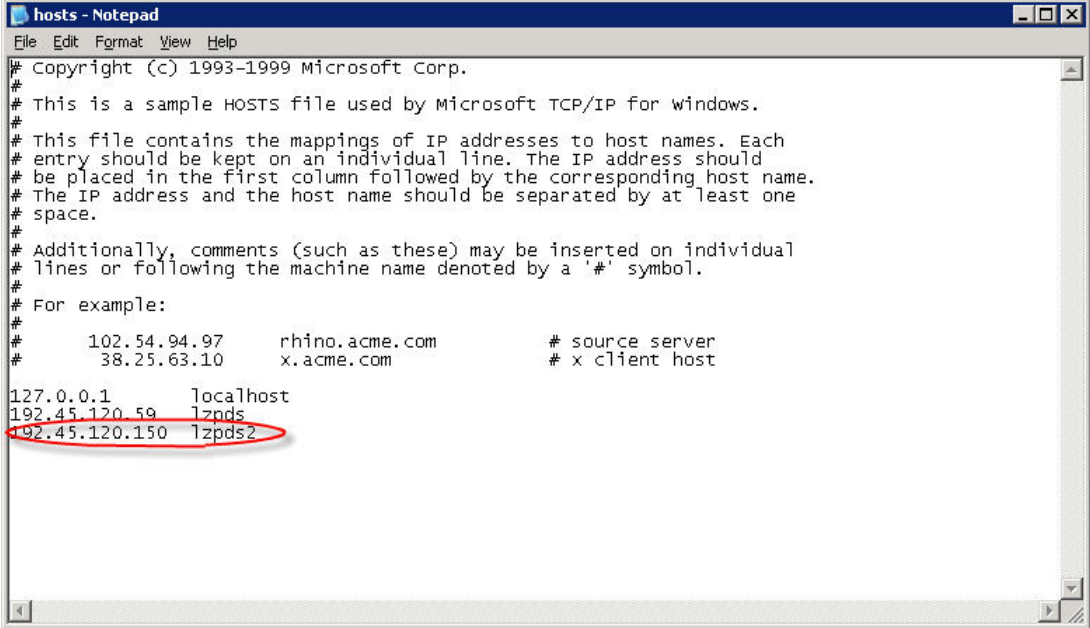
Step	Description
23.	<p>Check the checkboxes for <b>ConnMgr_TSAPI</b>. Click <b>Configure</b>.</p>  <p>The screenshot shows a Windows-style dialog box titled "New Driver" with a close button (X) in the top right corner. Below the title bar is a subtitle bar that reads "Set New Driver Wizard Step 2 of 3". The main content area has a header "Attach Connection Manager and Switches" and a sub-header "Attach CTI Interfaces". Below this, there is instructional text: "Choose the CTI Interface to be attached to the Driver. Note: Attaching an Interface will also attach its Connection Manager." followed by a bold instruction: "To configure Driver-Interface data, double-click an Interface, or select a checked Interface and click 'Configure'." To the right of this text is a "Configure" button with a mouse cursor pointing at it. Below the text is a tree view showing a hierarchy of interfaces. The tree has two main branches, each with a folder icon and a checkbox. The first branch is "1: ConnMgr_PC3" (checkbox unchecked) containing "1: PC3" (checkbox unchecked). The second branch is "2: ConnMgr_TSAPI" (checkbox checked) containing "2: TSAPI" (checkbox checked). At the bottom of the dialog are three buttons: "Back", "Next", and "Cancel".</p>

Step	Description																																
24.	<p>In the <b>Monitor Devices</b> section, select the devices that should be monitored in the <b>Available Devices</b> list and move them to the <b>Monitored Devices</b> list by using the right arrow button. Click <b>OK</b>.</p>  <p><b>Driver - Interface Configuration</b></p> <p>Define 'Driver_TSAPI' - 'ConnMgr_TSAPI' - 'TSAPI'</p> <p><b>Driver Real-Time Plugins</b></p> <p><b>Monitor Devices</b></p> <p>Please select the devices to be monitored by NICE Integration (Extension, Position)  <b>Double click on a monitored device for further configuration.</b></p> <p><b>Available Devices:</b> 7 devices</p> <table border="1"> <thead> <tr> <th>Device</th><th>Type</th></tr> </thead> <tbody> <tr><td>26614</td><td>Extension</td></tr> <tr><td>22720</td><td>Extension</td></tr> <tr><td>22721</td><td>Extension</td></tr> <tr><td>50050</td><td>ACD</td></tr> <tr><td>50051</td><td>ACD</td></tr> <tr><td>20602</td><td>VDN</td></tr> <tr><td>20601</td><td>VDN</td></tr> </tbody> </table> <p><b>Monitored Devices:</b> 0 devices</p> <table border="1"> <thead> <tr> <th>Device</th><th>Type</th></tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table> <p><b>Device Mapping</b></p> <p><b>Rejected Devices</b></p> <p><b>Additional Driver Switch Parameters</b></p> <p>OK Cancel</p>	Device	Type	26614	Extension	22720	Extension	22721	Extension	50050	ACD	50051	ACD	20602	VDN	20601	VDN	Device	Type														
Device	Type																																
26614	Extension																																
22720	Extension																																
22721	Extension																																
50050	ACD																																
50051	ACD																																
20602	VDN																																
20601	VDN																																
Device	Type																																

Step	Description
25.	<p>For Avaya PC3 with CTI, the driver configuration is now complete, click <b>Next</b> and then <b>Finish</b>. Click <b>Save</b>.</p> <p>If the Avaya Proactive Contact with the Avaya Proactive Contact Gateway PG230 is being used, follow <b>Steps 25</b> and <b>26</b>. Expand the <b>Rejected Devices</b> section. Add the trunk group number from Avaya Communication Manager that is being used when the agents logs in to Avaya PC3. This configuration will reject any calls on that trunk group. NICE does not want to record the calls that are created when agents login to Avaya PC3.</p> <p>Set the <b>Rejected Device</b> to “T&lt;trunk group #&gt;#*”. Click <b>OK</b>.</p>  

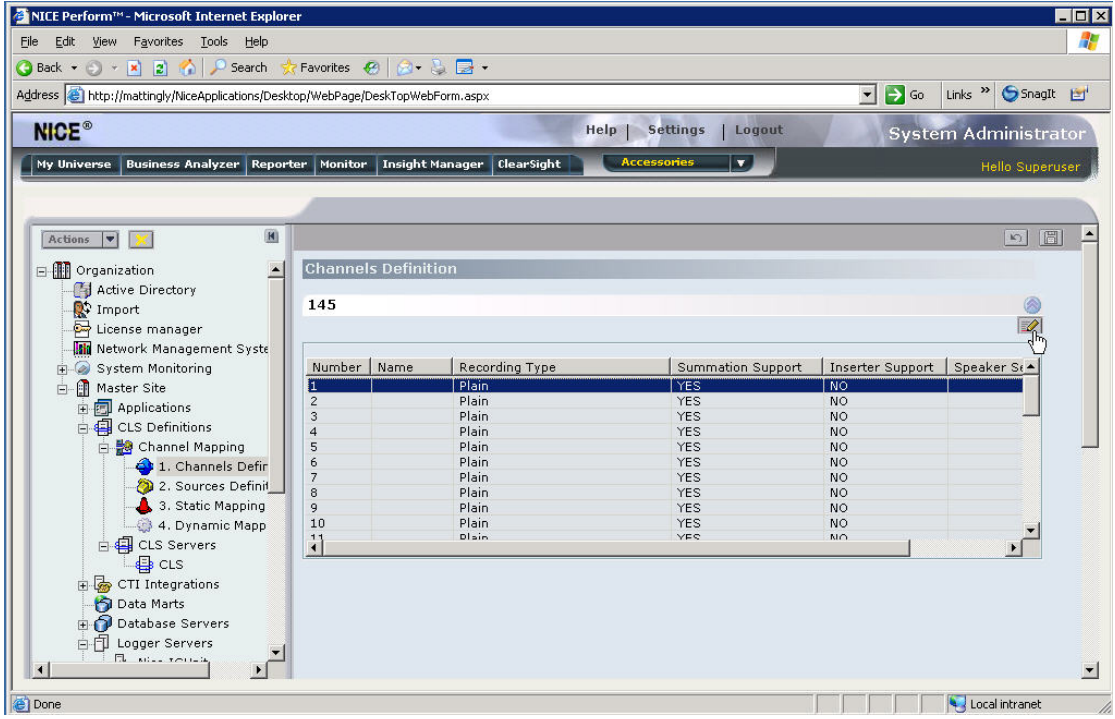
Step	Description
26.	<p>Expand the <b>Driver Real-Time Plugins</b> section, check the checkbox for <b>RejectedDevices</b>. Click <b>OK</b>.</p> <p>Click <b>Next</b> and then <b>Finish</b>. Click <b>Save</b>.</p> 

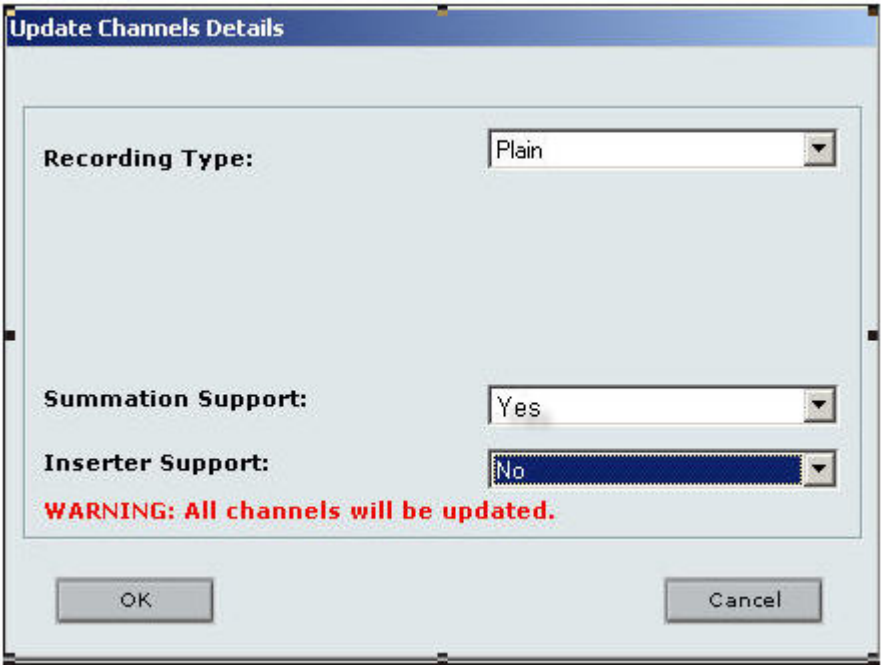


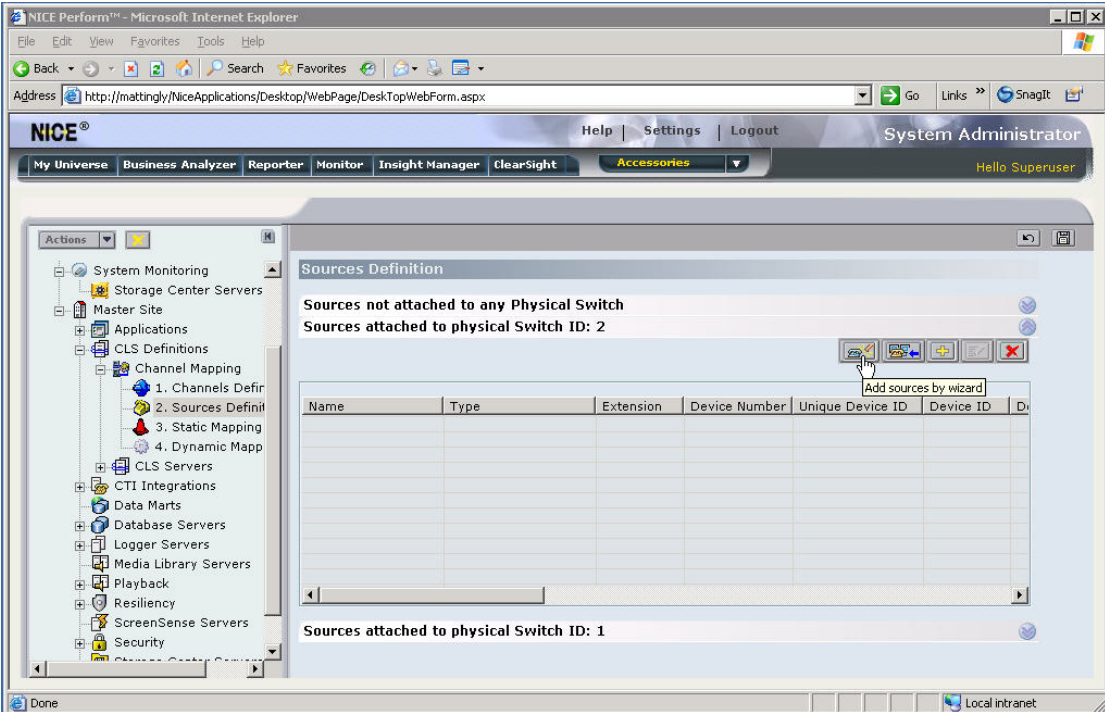
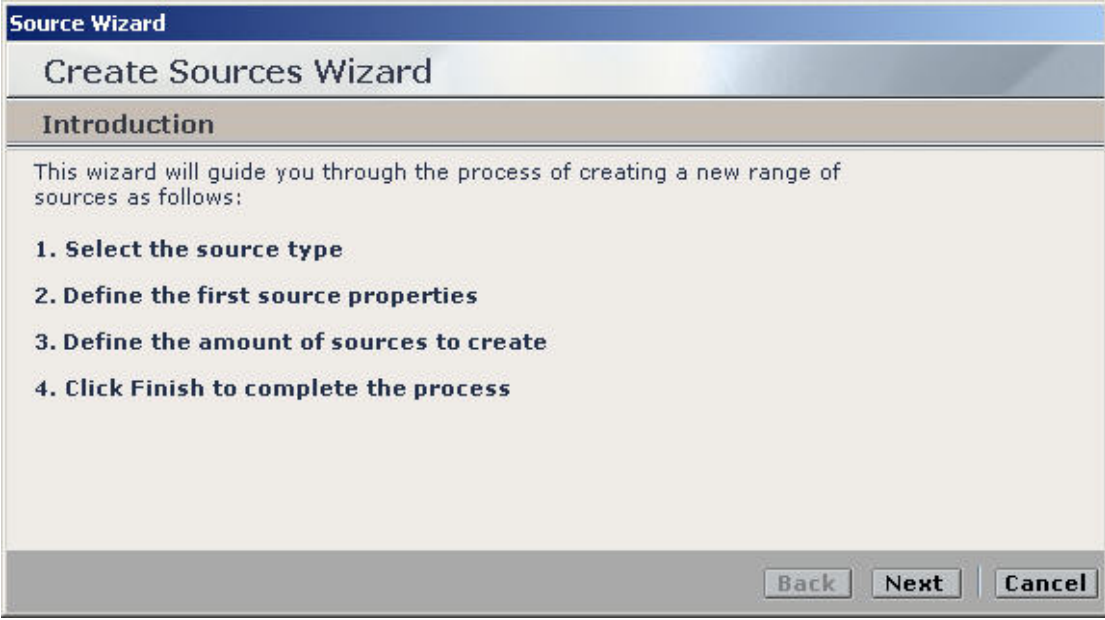
Step	Description
27.	<p>On the NiceCLS server, navigate to the <b>hosts</b> file located at:  <b>C:\WINDOWS\system32\drivers\etc</b> (Note: the etc file may be located in a different directory based on the windows installation). Enter the IP address and host name of Avaya PC3 with CTI.</p>  <pre> # Copyright (c) 1993-1999 Microsoft Corp. # # This is a sample HOSTS file used by Microsoft TCP/IP for Windows. # # This file contains the mappings of IP addresses to host names. Each # entry should be kept on an individual line. The IP address should # be placed in the first column followed by the corresponding host name. # The IP address and the host name should be separated by at least one # space. # # Additionally, comments (such as these) may be inserted on individual # lines or following the machine name denoted by a '#' symbol. # # For example: # #       102.54.94.97       rhino.acme.com           # source server #       38.25.63.10       x.acme.com               # x client host 127.0.0.1       localhost 192.45.120.59   lzpds 192.45.120.150  lzpds2 </pre>

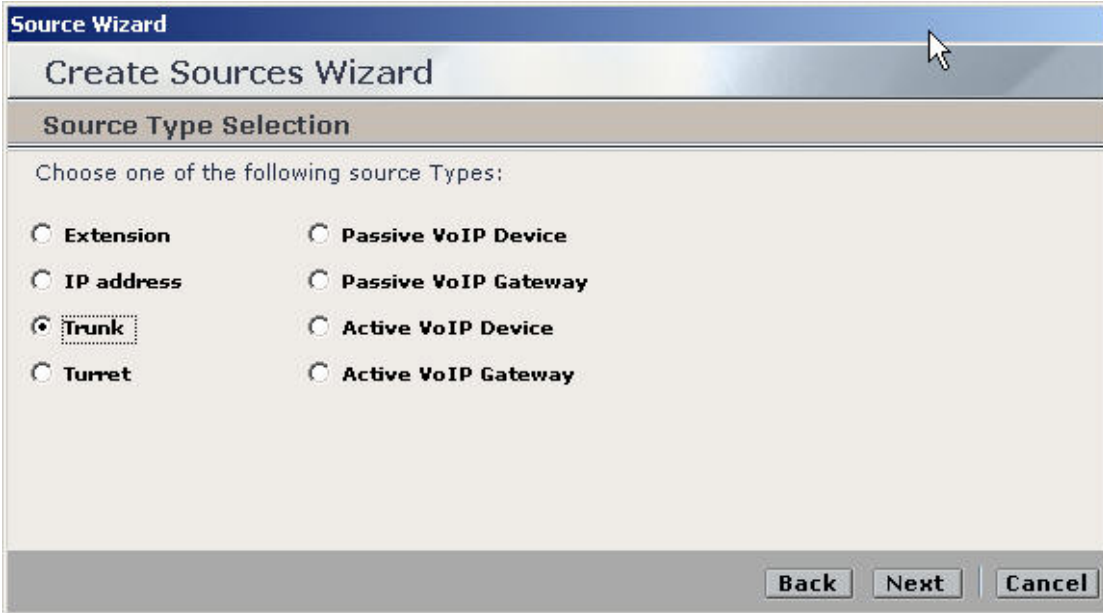

## 6.3. Configure Channel Mapping

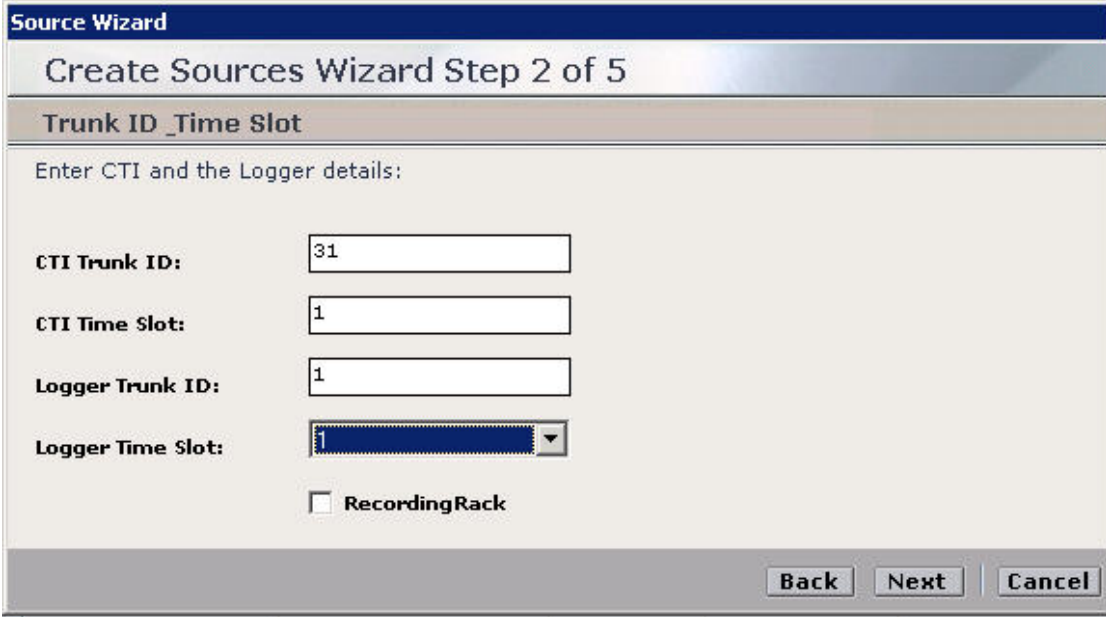
To record data sent from the T1 trunk to the NiceLog server, the Logger channels must be defined and mapped to sources of data between Avaya Communication Manager and Avaya Proactive Contact 3.0.

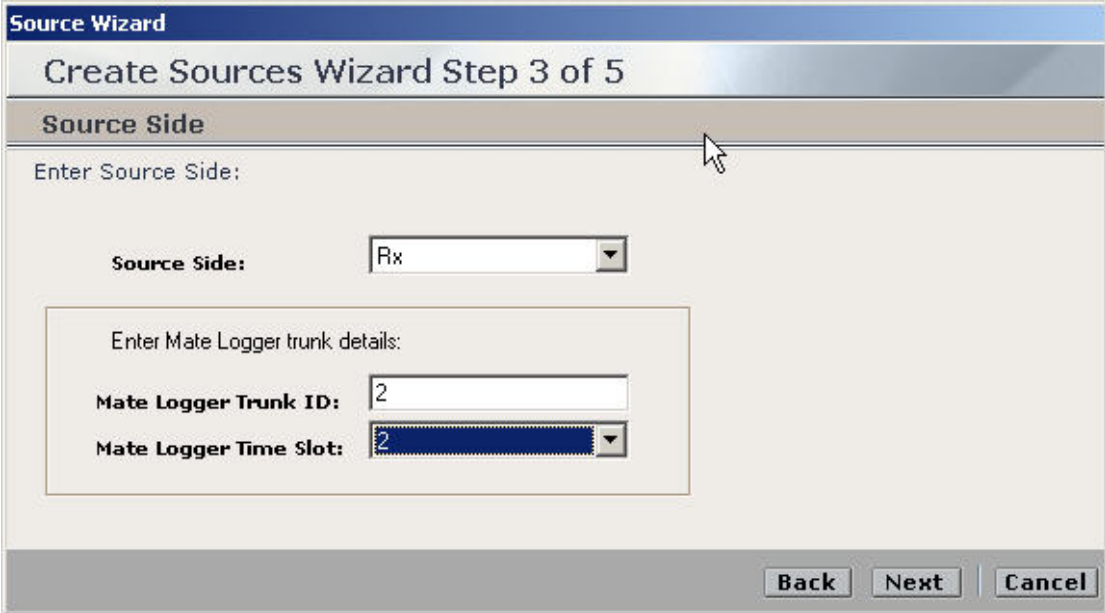
Step	Description
1.	<p>In the left pane, select <b>CLS Definitions → Channel Mapping → Channel Definition</b>. Click “145” to expand the <b>Channel Definition</b> section. Click <b>Edit Channel Properties</b>.</p> 

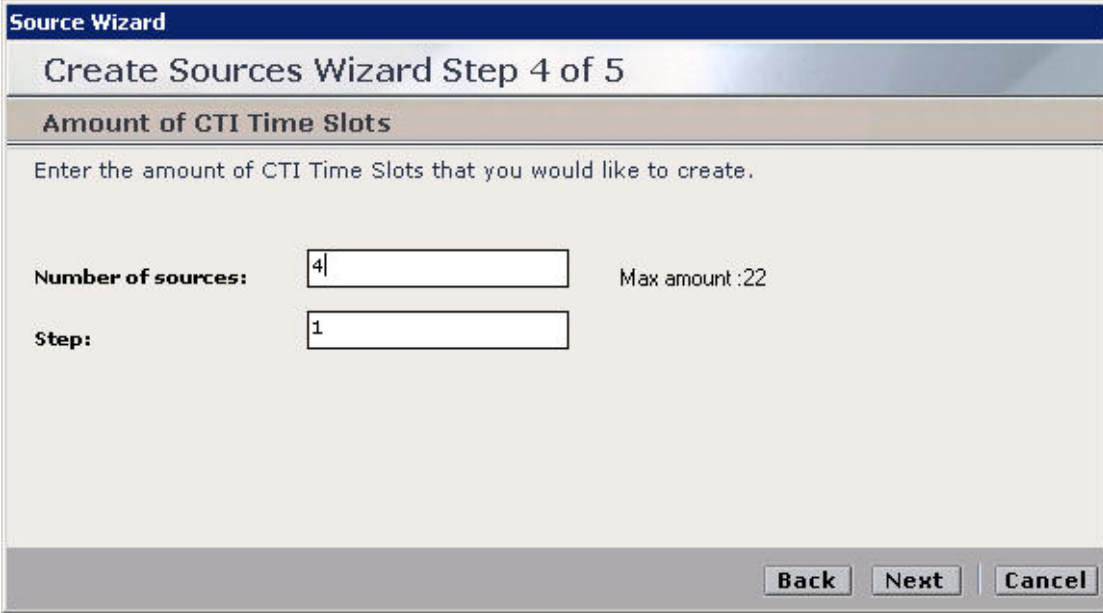
Step	Description
2.	<p>Configure the following.</p> <ul style="list-style-type: none"> <li>• <b>Recording Type</b> – set to “Plain”</li> <li>• <b>Summation Support</b> – set to “Yes” from the drop down list.</li> <li>• <b>Inserter Support</b> – set to “No” from the drop down list.</li> </ul> <p>Click <b>OK</b>. Click <b>Save</b>.</p> 

Step	Description
3.	<p>In the left pane, select <b>CLS Definitions</b> → <b>Channel Mapping</b> → <b>Sources Definition</b>. Click the <b>Add sources by wizard</b> button.</p> 
4.	<p>The <b>Create Sources Wizard</b> window is displayed. Click <b>Next</b>.</p> 

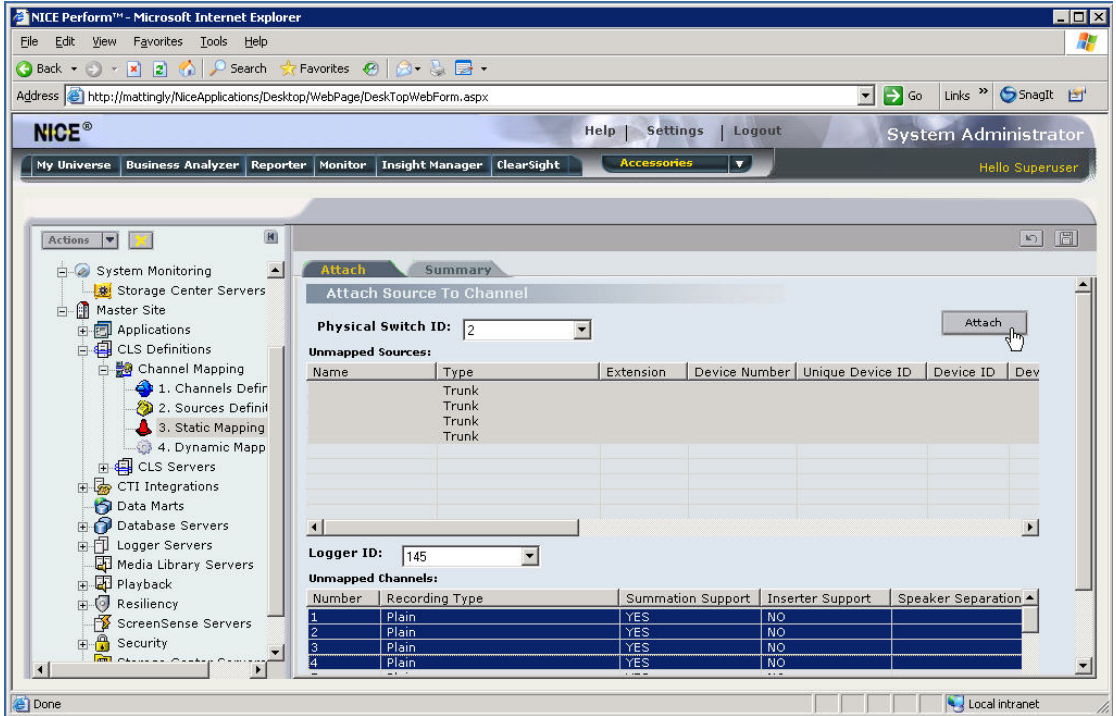
Step	Description
5.	<p>Select <b>Trunk</b>. Click <b>Next</b>.</p>  <p>The screenshot shows a window titled 'Source Wizard' with a subtitle 'Create Sources Wizard'. Below this is a section titled 'Source Type Selection' with the instruction 'Choose one of the following source Types:'. There are eight radio button options arranged in two columns: 'Extension', 'IP address', 'Trunk' (which is selected and has a dotted border), 'Turret', 'Passive VoIP Device', 'Passive VoIP Gateway', 'Active VoIP Device', and 'Active VoIP Gateway'. At the bottom right are three buttons: 'Back', 'Next', and 'Cancel'.</p>
6.	<p>Configure the following.</p> <ul style="list-style-type: none"> <li>• <b>Logger ID</b> – set to the Logger ID shown in <b>Section 6.3 Step 1</b>.</li> <li>• <b>Trunk Type</b> – set to “T1” from the drop down list.</li> <li>• <b>CTI Details Type</b> – select “Decimal”</li> </ul> <p>Click <b>Next</b>.</p>  <p>The screenshot shows a window titled 'Source Wizard' with a subtitle 'Create Sources Wizard Step 1 of 5'. Below this is a section titled 'Trunk type' with the instruction 'Enter the type of the Trunk and the type of the Trunk ID'. There are three fields: 'Logger ID:' with a text box containing '145' and a dropdown arrow; 'Trunk Type:' with a dropdown menu showing 'T1'; and 'CTI Details Type:' with two radio button options: 'Decimal' (which is selected) and 'Hexadecimal'. At the bottom right are three buttons: 'Back', 'Next', and 'Cancel'.</p>

Step	Description
7.	<p>Configure the following.</p> <ul style="list-style-type: none"> <li>• <b>CTI Trunk ID</b> – set to the trunk group number from <b>Section 3</b>.</li> <li>• <b>CTI Time Slot</b> - set to “1”.</li> <li>• <b>Logger Trunk ID</b> - set to “1”.</li> <li>• <b>Logger Time Slot</b> – set to “1”.</li> </ul> <p>Click <b>Next</b>.</p> 

Step	Description
8.	<p>Configure the following.</p> <ul style="list-style-type: none"> <li>• <b>Source Side</b> – set to “Rx” from the drop down list..</li> <li>• <b>Mate Logger Trunk ID</b> – set to “2”.</li> <li>• <b>Mate Logger Time Slots</b> – set to “2” from the drop down list.</li> </ul> <p>Click <b>Next</b>.</p> 

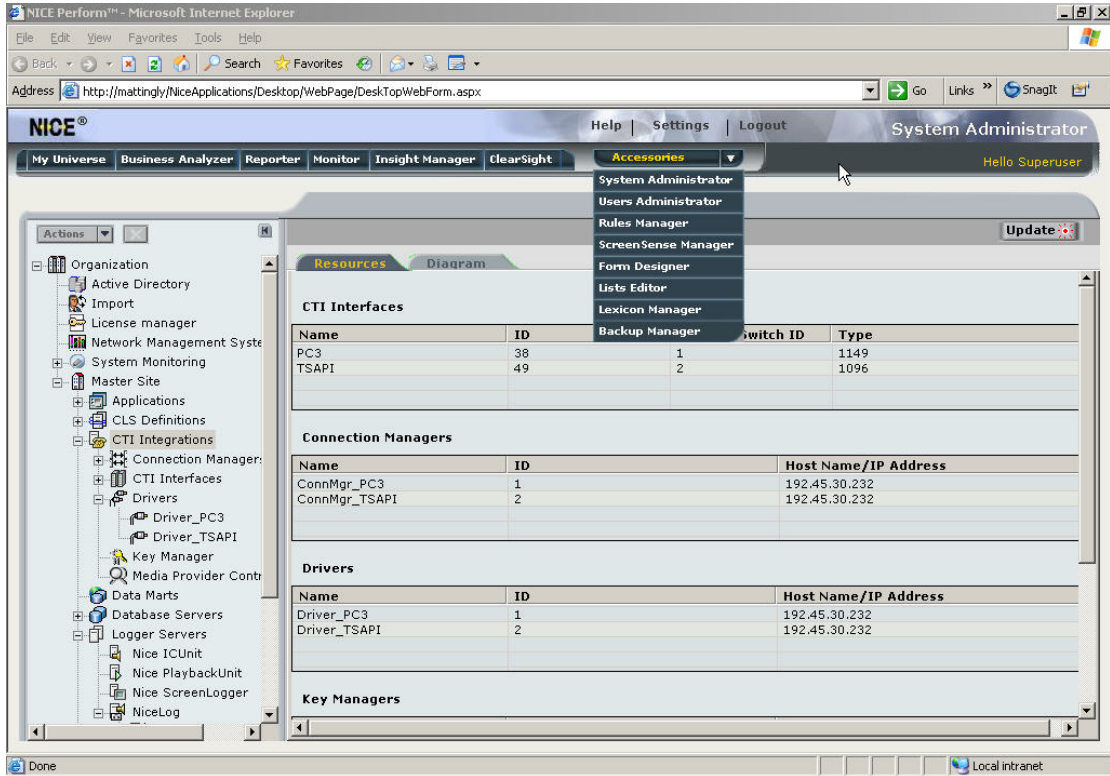
Step	Description
9.	<p>Configure the following.</p> <ul style="list-style-type: none"> <li>• <b>Number of sources</b> – set to the number of trunks in the trunk group as shown in <b>Section 3</b>.</li> <li>• <b>Step</b> – set to “1”.</li> </ul> <p>Click <b>Next</b>. Then click <b>Finish</b>. Click <b>Save</b>.</p> 

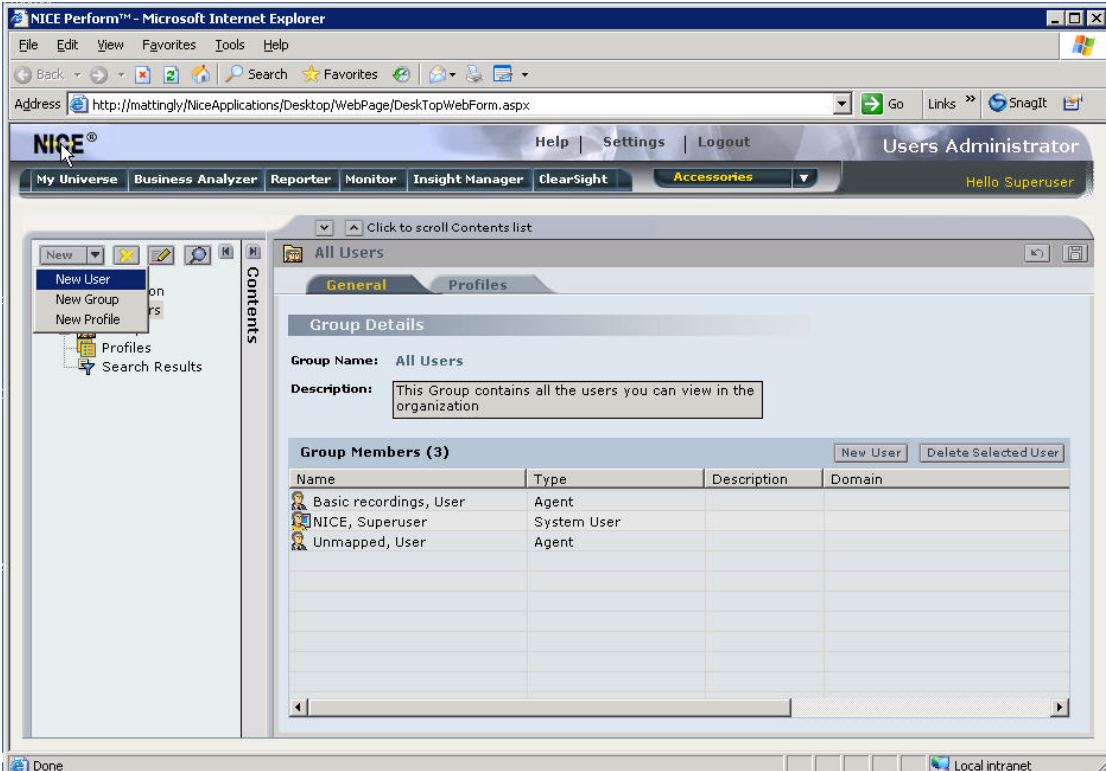


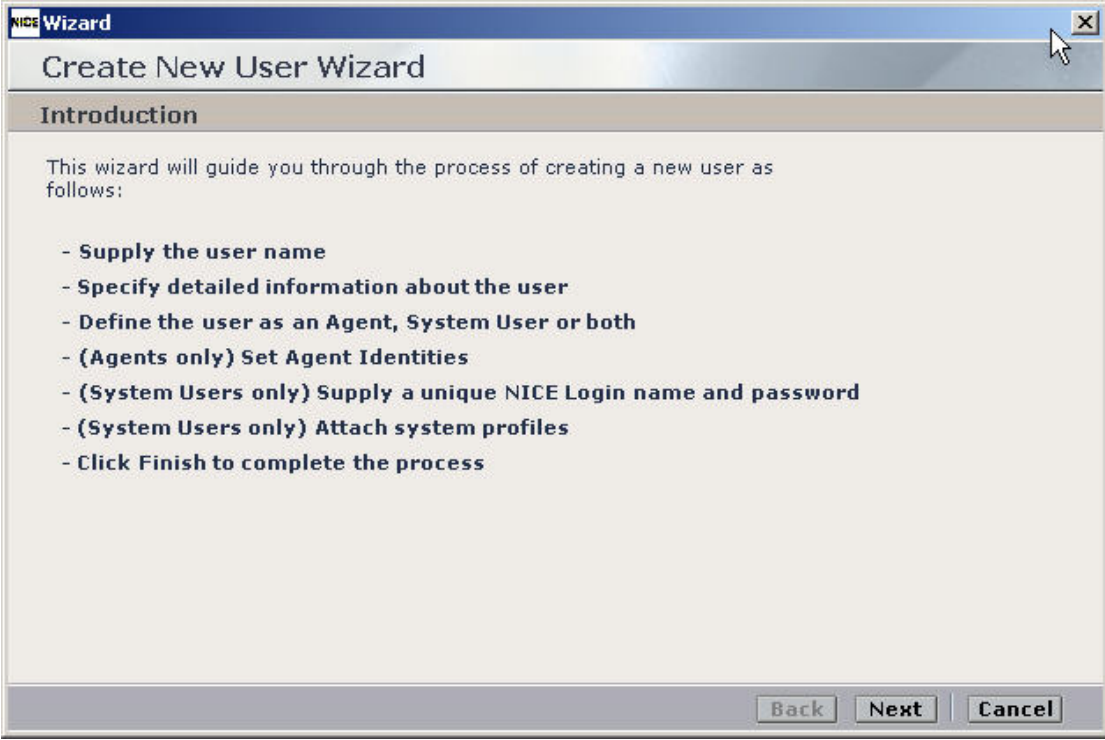
Step	Description
10.	<p>Select the <b>Physical Switch ID</b> from the drop down list as configured in <b>Section 6.2 Step 5</b>. Highlight all the trunks. Select the <b>Logger ID</b> from the drop down list as configured in <b>Section 6.3 Step 1</b>. Highlight the same number of trunks as above. Click <b>Attach</b>. Click <b>Save</b>.</p>  <p>The screenshot shows the NICE Perform web application in Microsoft Internet Explorer. The address bar shows the URL: http://mattingly/NiceApplications/Desktop/WebPage/DesktopWebForm.aspx. The application has a top navigation bar with tabs: My Universe, Business Analyzer, Reporter, Monitor, Insight Manager, ClearSight, Accessories, and a user profile 'Hello Superuser'. The left sidebar contains a tree view with categories like System Monitoring, Storage Center Servers, Master Site, Applications, CLS Definitions, Channel Mapping, CLS Servers, CTI Integrations, Data Marts, Database Servers, Logger Servers, Media Library Servers, Playback, Resiliency, ScreenSense Servers, and Security. The main content area is titled 'Attach Source To Channel' and contains the following elements:</p> <ul style="list-style-type: none"> <li><b>Physical Switch ID:</b> A dropdown menu with '2' selected.</li> <li><b>Attach</b> button.</li> <li><b>Unmapped Sources:</b> A table with columns: Name, Type, Extension, Device Number, Unique Device ID, Device ID, Dev. It contains three rows, all with 'Trunk' in the Type column.</li> <li><b>Logger ID:</b> A dropdown menu with '145' selected.</li> <li><b>Unmapped Channels:</b> A table with columns: Number, Recording Type, Summation Support, Inserter Support, Speaker Separation. It contains four rows, all with 'Plain' in the Recording Type column.</li> </ul>

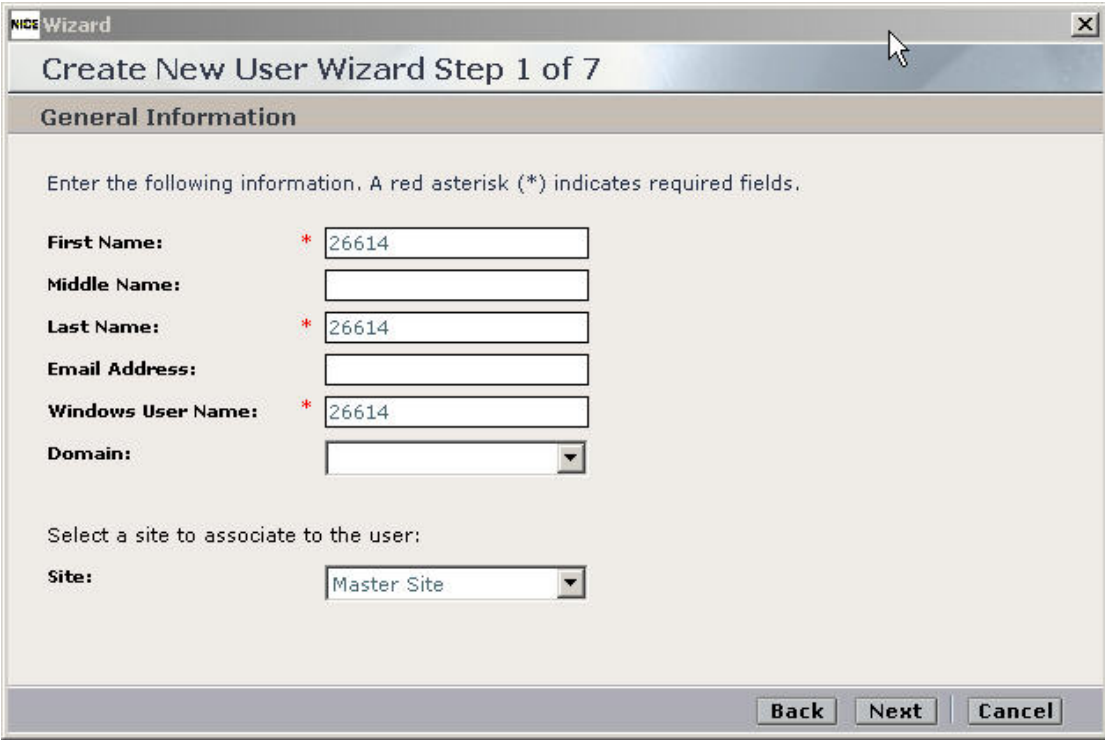
## 6.4. Configure Users


This section is used to administer Avaya PC3 agents on the NiceCLS server. Any agent whose interactions need to be recorded should be administered as a user. There are two types of users that can be administered; outbound user and ACD user. The outbound user is administered with the extension of their physical phone. The ACD user is administered with the ACD agent ID configured on Avaya Communication Manager. When the Predictive Agent Blending feature is used on Avaya PC3, both types of users need to be administered for the agent in order to record the outbound and inbound calls.

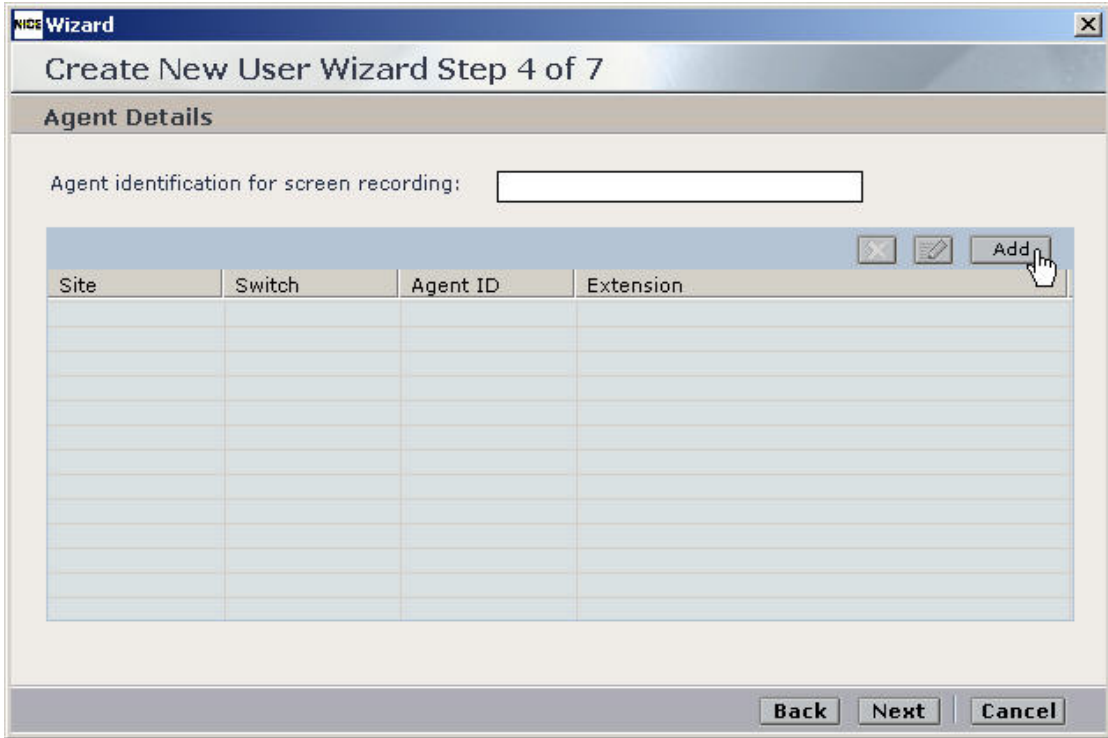
Step	Description
1.	<p>In the <b>NICE System Administrator</b> window, select <b>Accessories → Users Administrator</b>.</p> 

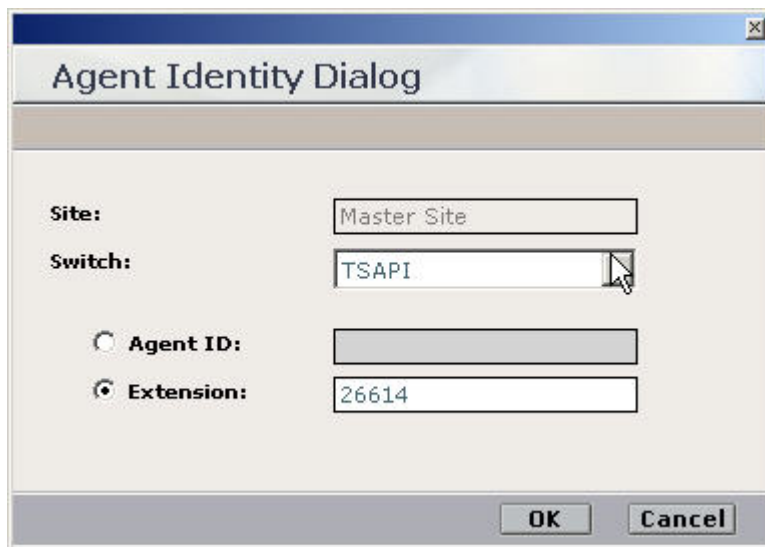
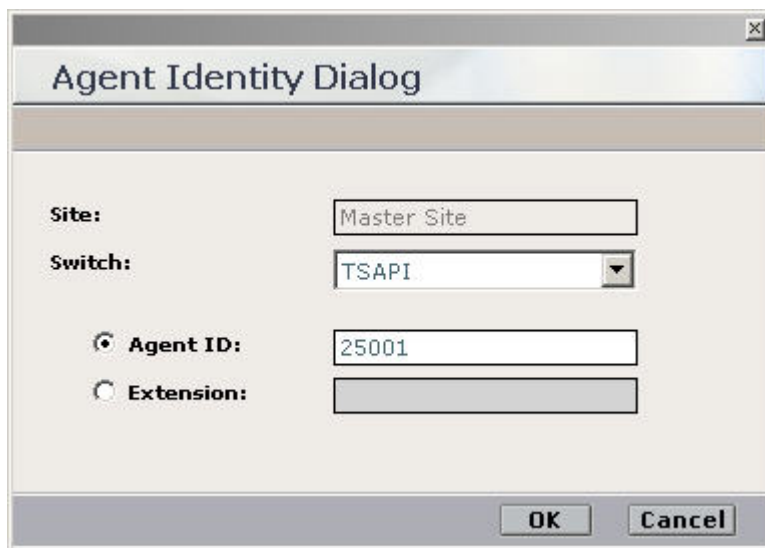
Step	Description																
2.	<p>In the <b>NICE Users Administrator</b> window, select <b>New → New User</b> from the left pane.</p>  <p>The screenshot shows the NICE Perform™ web application running in Microsoft Internet Explorer. The browser's address bar displays <code>http://mattingly/NiceApplications/Desktop/WebPage/DesktopWebForm.aspx</code>. The application's navigation bar includes links for <b>Help</b>, <b>Settings</b>, and <b>Logout</b>, along with a <b>Users Administrator</b> header. Below this is a menu with <b>My Universe</b>, <b>Business Analyzer</b>, <b>Reporter</b>, <b>Monitor</b>, <b>Insight Manager</b>, <b>ClearSight</b>, and <b>Accessories</b>. The main content area is titled <b>All Users</b> and features a <b>General</b> tab. Under <b>Group Details</b>, the <b>Group Name</b> is <b>All Users</b> and the <b>Description</b> is "This Group contains all the users you can view in the organization". Below this is a <b>Group Members (3)</b> section with a table listing users.</p> <table border="1" data-bbox="602 800 1377 1045"> <thead> <tr> <th>Name</th> <th>Type</th> <th>Description</th> <th>Domain</th> </tr> </thead> <tbody> <tr> <td>Basic recordings, User</td> <td>Agent</td> <td></td> <td></td> </tr> <tr> <td>NICE, Superuser</td> <td>System User</td> <td></td> <td></td> </tr> <tr> <td>Unmapped, User</td> <td>Agent</td> <td></td> <td></td> </tr> </tbody> </table>	Name	Type	Description	Domain	Basic recordings, User	Agent			NICE, Superuser	System User			Unmapped, User	Agent		
Name	Type	Description	Domain														
Basic recordings, User	Agent																
NICE, Superuser	System User																
Unmapped, User	Agent																

Step	Description
3.	<p>The <b>Create New User Wizard</b> window is displayed. Click <b>Next</b>.</p> 

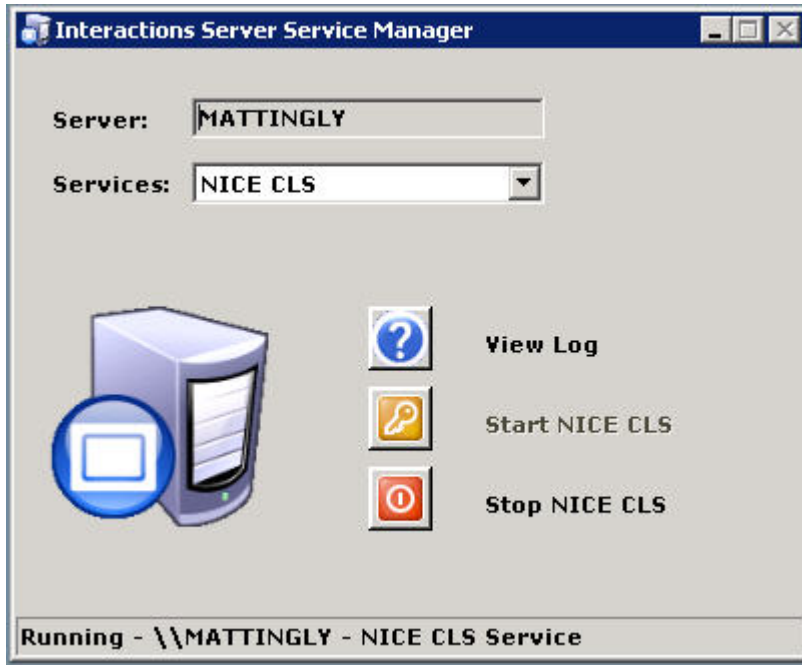
Step	Description
4.	<p>Enter any unique name for the <b>First Name</b>, <b>Last Name</b> and <b>Windows User Name</b> fields. Click <b>Next</b>. Click <b>Next</b> on <b>Step 2</b> of the Wizard.</p> 

Step	Description
5.	<p>Check the checkbox for <b>Agent (User interactions will be recorded/monitored)</b>. Click <b>Next</b>.</p>  <p>The screenshot shows a 'NICE Wizard' window titled 'Create New User Wizard Step 3 of 7'. The 'User Type' section contains the instruction 'Choose one or both user types:'. There are two checkboxes: the first is checked and labeled 'Agent (User interactions will be recorded/monitored)', and the second is unchecked and labeled 'System User (User will log into NICE applications)'. At the bottom right, there are three buttons: 'Back', 'Next' (which is highlighted), and 'Cancel'.</p>

Step	Description
6.	<p>Click <b>Add</b>.</p> 

Step	Description
7.	<p>For Outbound Users: Set the <b>Switch</b> field to “TSAPI” from the dropdown list. Set the <b>Extension</b> field to the extension of the agent’s physical phone. Click <b>OK</b>. Click <b>Next</b> and then click <b>Finish</b>.</p> <div data-bbox="479 441 1239 984" data-label="Form">  <p>The screenshot shows the 'Agent Identity Dialog' window. The 'Site' field is set to 'Master Site'. The 'Switch' dropdown menu is open, showing 'TSAPI' as the selected option. The 'Agent ID' radio button is unselected, and the 'Extension' radio button is selected, with the value '26614' entered in the adjacent text field. The 'OK' and 'Cancel' buttons are at the bottom right.</p> </div> <p>For Inbound ACD Users: Set the <b>Switch</b> field to “TSAPI” from the dropdown list. Set the <b>Agent ID</b> field to the ACD Agent ID configured on Avaya Communication Manager. Click <b>OK</b>. Click <b>Next</b> and then click <b>Finish</b>.</p> <div data-bbox="479 1201 1239 1745" data-label="Form">  <p>The screenshot shows the 'Agent Identity Dialog' window. The 'Site' field is set to 'Master Site'. The 'Switch' dropdown menu is open, showing 'TSAPI' as the selected option. The 'Agent ID' radio button is selected, with the value '25001' entered in the adjacent text field. The 'Extension' radio button is unselected. The 'OK' and 'Cancel' buttons are at the bottom right.</p> </div> <p>Repeat <b>Step 2</b> to create a new user account for additional Avaya PC3 agents. Click <b>Save</b>.</p>



Step	Description
8.	<p>From the NiceCLS server, go to <b>Start → Programs → Nice CLS Server → CLS Server Manager</b>. Click the button for <b>Start NICE CLS</b> to start the NICE services.</p> 

## 7. Interoperability Compliance Testing

This interoperability compliance testing covered feature functionality, serviceability and basic load testing. Feature functionality focused on verifying that NICE Perform 3.0 could successfully record calls when using events from Avaya AES TSAPI CTI link. Serviceability testing verified that the NiceCLS and NiceLog servers recovered from adverse conditions, such as rebooting, power failure and network disconnect. Basic load testing verified that NICE could successfully record calls for an extended period of time.

### 7.1. General Test Approach

All feature functionality test cases were performed manually to verify proper operation. The general test approach entailed:

- Establishing connectivity between NICE and Avaya AES using TSAPI.
- Verifying calls could be recorded using the T1 Trunk tapping method.
- Verifying call recording using basic telephony operations such as answer, hold/retrieve, transfer, consult, conference, and disconnect.
- Verifying call recording with outbound calls.
- Verifying inbound call recording with the Predictive Agent Blending Feature on Avaya PC3.

The basic load testing was automated with outbound calls delivered to agents from Avaya PC3. The Avaya PC3 executed a calling list which delivered answered calls to agents.

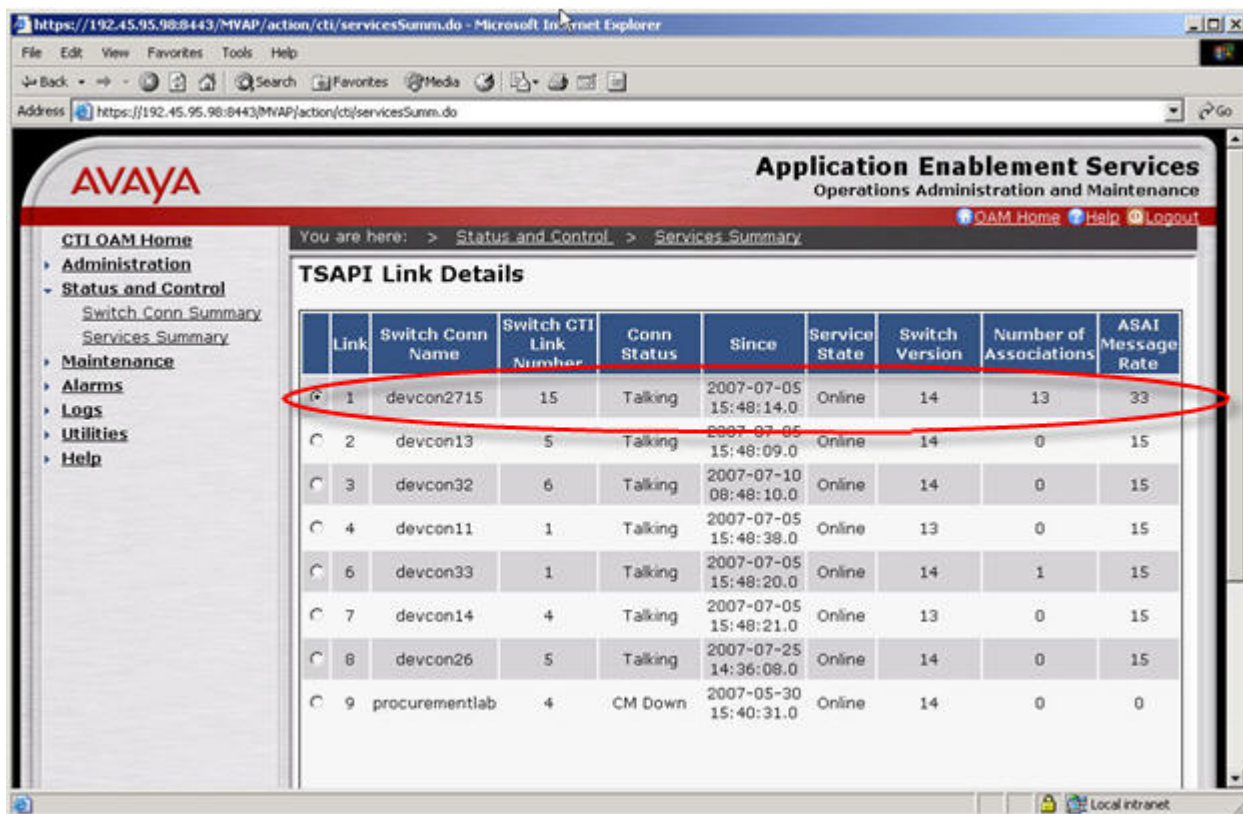
## 7.2. Test Results

All feature and performance tests passed. The NICE Perform 3.0 successfully recorded, displayed and replayed the recordings of agents. For serviceability testing, NICE was able to resume call recording after restoration of connectivity to the PC3 server, to the AES server, from network disconnect/re-connect, and NICE server resets. For performance testing, NICE successfully recorded calls for a sustained period of time.

## 8. Verification Steps

### 8.1. Avaya Verification

From the AES OAM page, click **Status and Control** → **Services Summary**. Select **TSAPI Service** and click **Details**. This summary gives the status of the connection between Avaya Communication Manager and the AES Server. Verify that the **Conn Status** indicates “Talking” and the **Service State** indicates “Online”.

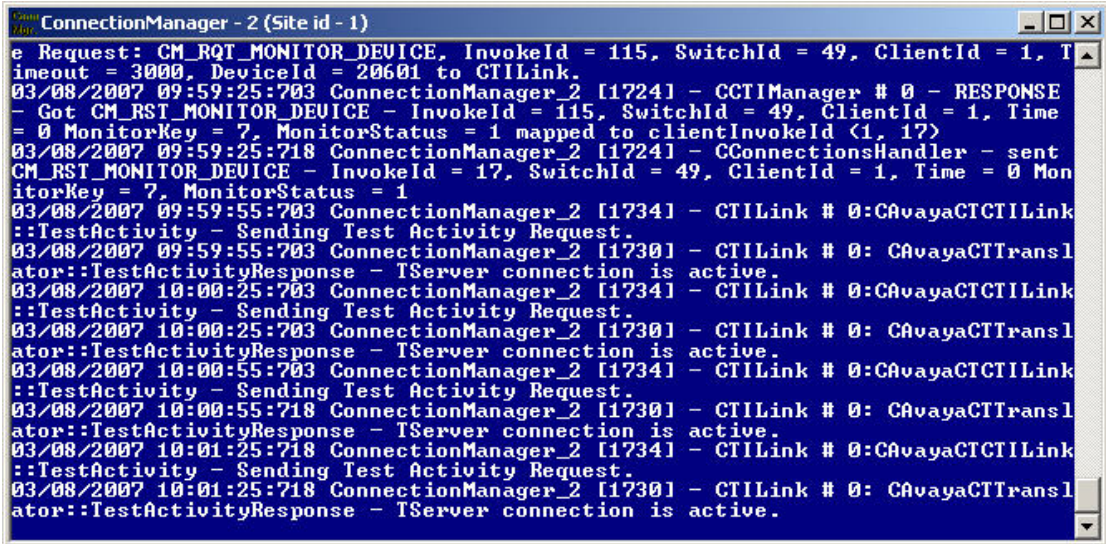
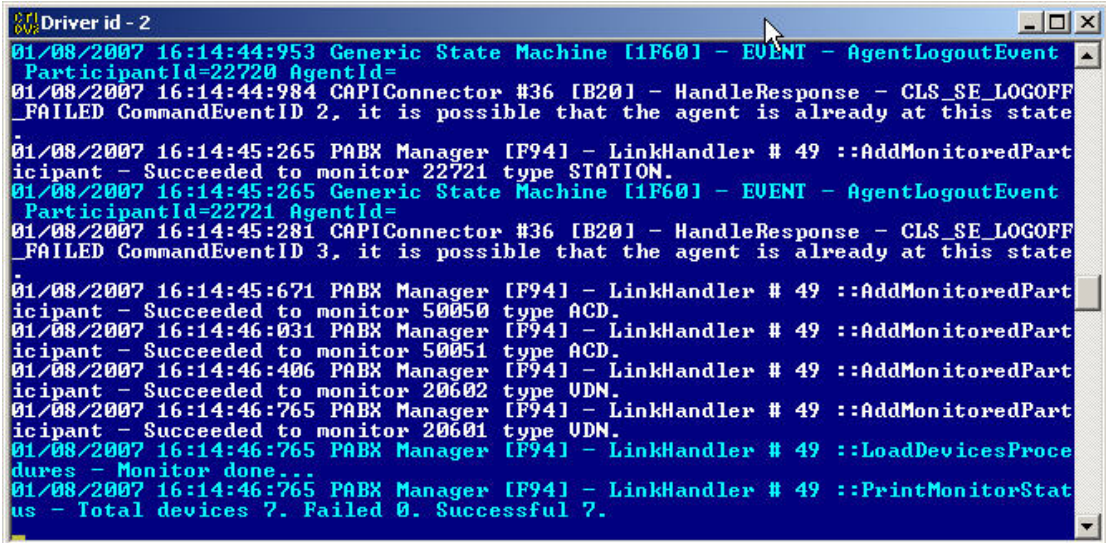


The screenshot shows the Avaya Application Enablement Services (AES) OAM page. The breadcrumb navigation indicates the path: **You are here: > Status and Control > Services Summary**. The table below displays the **TSAPI Link Details**.

Link	Switch Conn Name	Switch CTI Link Number	Conn Status	Since	Service State	Switch Version	Number of Associations	ASA1 Message Rate
1	devcon2715	15	Talking	2007-07-05 15:48:14.0	Online	14	13	33
2	devcon13	5	Talking	2007-07-05 15:48:09.0	Online	14	0	15
3	devcon32	6	Talking	2007-07-10 08:48:10.0	Online	14	0	15
4	devcon11	1	Talking	2007-07-05 15:48:38.0	Online	13	0	15
6	devcon33	1	Talking	2007-07-05 15:48:20.0	Online	14	1	15
7	devcon14	4	Talking	2007-07-05 15:48:21.0	Online	13	0	15
8	devcon26	5	Talking	2007-07-25 14:36:08.0	Online	14	0	15
9	procurementlab	4	CM Down	2007-05-30 15:40:31.0	Online	14	0	0

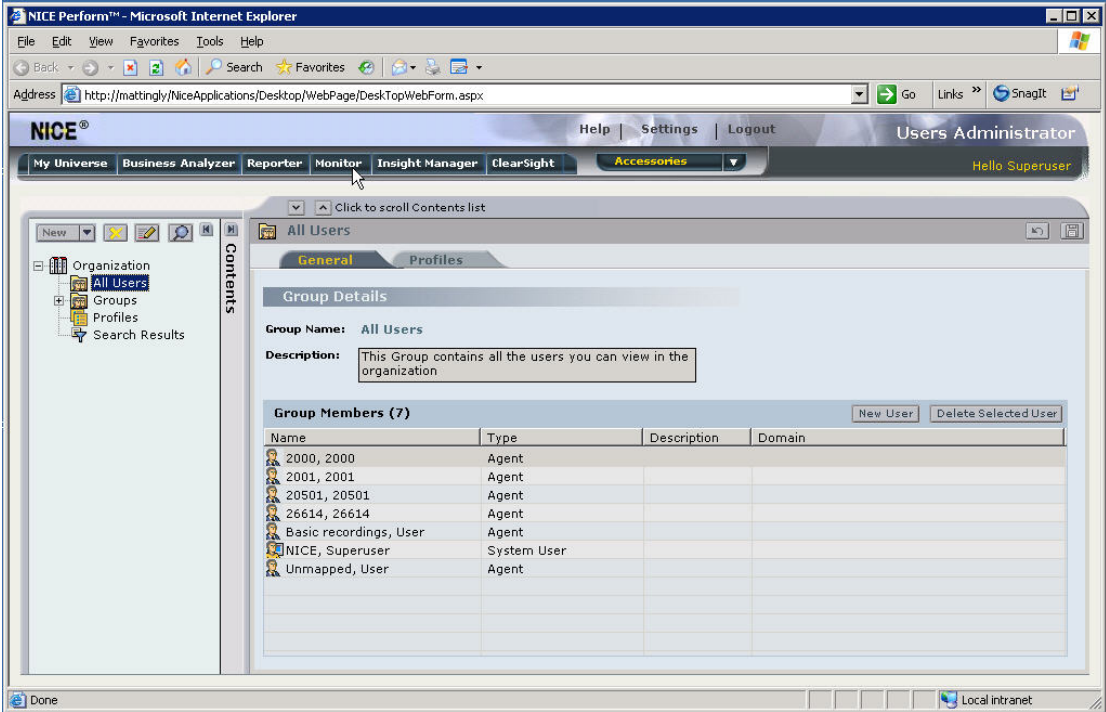
## 8.2. Nice Verification

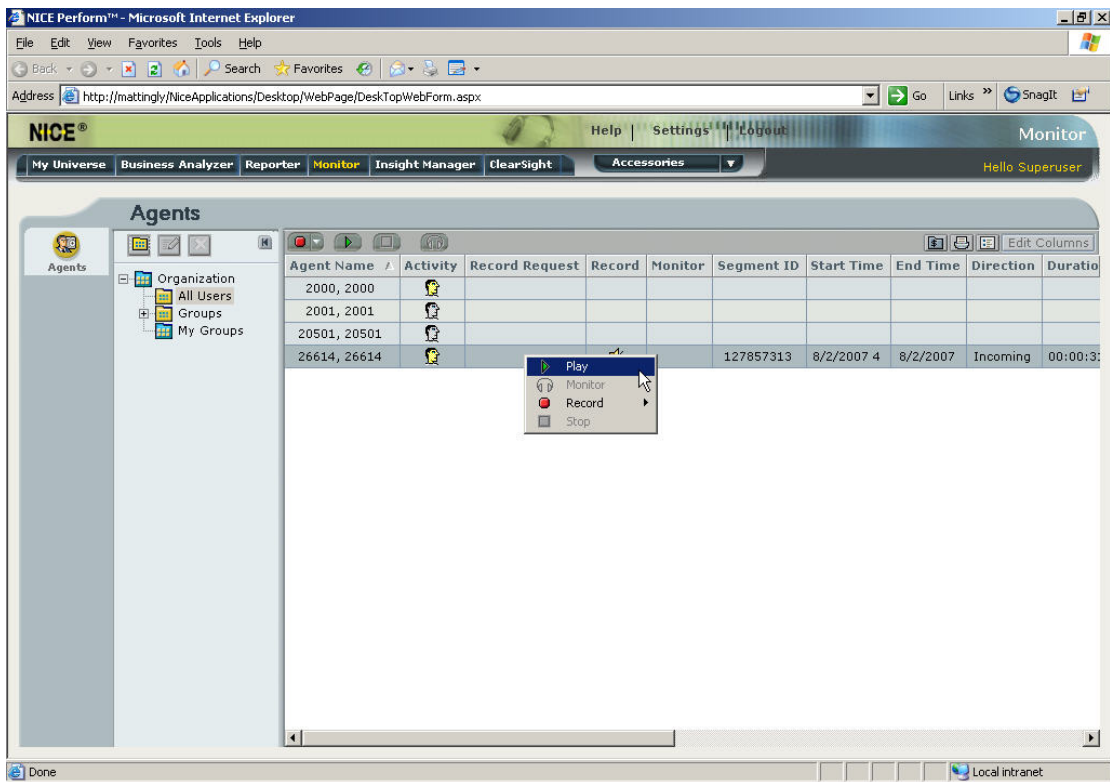
The following steps can ensure that the communication between NICE, Avaya Application Enablement Services, and Avaya Proactive Contract 3.0 is working.

Step	Description
1.	On the NiceCLS server, when the processes start, the <b>ConnectionManager</b> and <b>Driver id</b> windows will automatically appear.
2.	<p>In the <b>ConnectionManager</b> window, verify the following message is displayed “TServer connection is active”.</p> 
3.	<p>In the <b>Driver id</b> window, verify the following message is displayed “Total devices 7. Failed 0. Successful 0.” The <b>Total devices</b> are the phone extensions, ACD hunt groups and VDNs that are being monitored.</p> 



## 8.3. Replaying the Voice Recordings

Step	Description
1.	<p>On the NiceCLS server, select the <b>Monitor</b> tab.</p> 

Step	Description
2.	<p>Select an agent, then right click and select <b>Play</b>. Verify the agent's call recording can be heard from the server's speakers.</p> 

## 9. Support

If technical support is required for the NICE Perform 3.0 solution, then contact NICE Technical Support. Full details are available at <https://www.extranice.com>.

## 10. Conclusion

These Application Notes describe the required configuration steps for NICE Perform 3.0 to successfully interoperate with Avaya Proactive Contact 3.0 with CTI for outbound and inbound call recording. NICE Perform 3.0 used the Telephony Services API of Avaya Application Enablement Services to extract agent and call event information, and the T1 Trunk Tapping method to perform the recording. Functionality and performance were successfully validated. The configuration described in these Application Notes has been successfully compliance tested.

## 11. Additional References

The following documents may be found at <http://support.avaya.com>:

- [1] *Administrator Guide for Avaya Communication Manager*, Document ID: 03-300509, Issue 3.0, February 2007
- [2] *Avaya Proactive Contact 3.0 Installation and Configuration*, Doc ID 07-300491, November 2005
- [3] *Avaya Proactive Contact 3.0 Administration (UNIX-based)*, Doc ID 07-300488, October 2005
- [4] *Avaya MultiVantage Application Enablement Services Administration and Maintenance Guide*, Document ID 02-300357, Issue 7.0, July 2007

The following document may be found at <http://devconnect.avaya.com>.

- [5] *Sample Avaya Proactive Contact 3.0 (PC3) with CTI Installation and Configuration*, Issue 1.0, Avaya Solution and Interoperability Test Lab

NICE product documentation is available on request from <https://www.extranice.com>.

- [6] *NiceCLS Installation Guide 8.9 – Rev. A2*

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