



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

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# **Application Notes for OAISYS Tracer Station Side Recording with Avaya Aura<sup>™</sup> Communication Manager using Avaya Aura<sup>™</sup> Application Enablement Services – Issue 1.0**

## **Abstract**

These Application Notes describe the configuration steps required for the OAISYS Tracer Station Side Recording application to interoperate with Avaya Aura<sup>™</sup> Communication Manager and Avaya Aura<sup>™</sup> Application Enablement Services. OAISYS Tracer utilizes a hub or switch to monitor network traffic and record VoIP calls. OAISYS Tracer interfaces with Avaya Aura<sup>™</sup> Communication Manager via Avaya Aura<sup>™</sup> Application Enablement Services, using TSAPI to associate VoIP recordings with important data, such as agent extensions/IDs, obtained from CTI events.

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

# 1. Introduction

These Application Notes describe the configuration steps required for the OAISYS Tracer Station Side Recording application to interoperate with Avaya Aura™ Communication Manager and Avaya Aura™ Application Enablement Services. OAISYS Tracer utilizes a hub or switch to monitor IP traffic and record VoIP calls. OAISYS Tracer interfaces with Avaya Aura™ Communication Manager via Avaya Aura™ Application Enablement Services, using TSAPI to associate VoIP recordings with important data, such as agent extensions/IDs, obtained from CTI events.

To ensure Tracer records VoIP calls properly, the network must be configured so that all VoIP packets pass through a device capable of replicating those packets to Tracer, such as a hub or a switch. When using a hub, each hub port repeats every packet transmitted to and from that port to every other port. If all VoIP traffic passes through a hub that Tracer is connected to, then Tracer is capable of capturing all VoIP packets. If a switch is used instead of a hub, the switch will not (by default) repeat every packet from one port to all other ports. Therefore, port mirroring is utilized on a switch to send a copy of network packets seen on one switch port (or an entire VLAN) to a network monitoring connection (such as Tracer) on another switch port.

## 1.1. Interoperability Compliance Testing

The interoperability compliance testing included both feature and serviceability testing.

The feature testing focused on verifying OAISYS Tracer could properly record, log, and playback various calls including: internal enterprise calls, inbound/outbound trunk calls, and calls involving basic telephony features (such as hold, mute, transfer, and conference).

The serviceability testing focused on verifying OAISYS Tracer could properly recover from adverse conditions, such as busying out the CTI link, disconnecting the Ethernet cable from the three servers (OAISYS Tracer, Communication Manager, and Application Enablement Services), and power failures of the three servers.

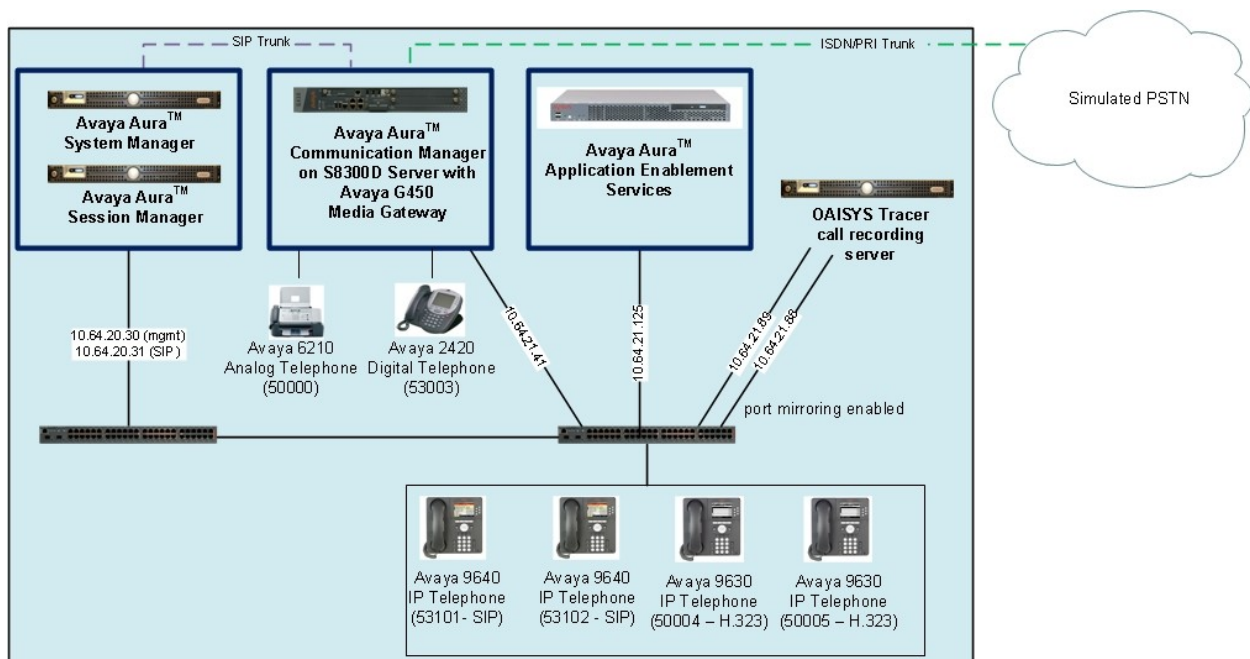
## 1.2. Support

Technical support for OAISYS Tracer can be obtained through the following:

- **Web:** [http://www.oaisys.com/technical\\_support.aspx](http://www.oaisys.com/technical_support.aspx)
- **Phone:** 1-888-496-9040
- **Email:** [support@oaisys.com](mailto:support@oaisys.com)

## 2. Reference Configuration

**Figure 1** illustrates the configuration used during compliance testing as described in these Application Notes. All VoIP traffic was mirrored to a second NIC on the OAISYS Tracer.



**Figure 1: OAISYS Tracer with Avaya Aura™ Communication Manager and Avaya Aura™ Application Enablement Services**

### 3. Equipment and Software Validated

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

Equipment	Software
Avaya S8300D Server with an Avaya G450 Media Gateway	Avaya Aura <sup>TM</sup> Communication Manager 6.0, R016x.00.0.345.0, Update 18444 (Avaya Aura <sup>TM</sup> System Platform: 6.0.1.0.5)
Avaya S8800 Server	Avaya Aura <sup>TM</sup> System Platform : 6.0.1.0.5 Avaya Aura <sup>TM</sup> System Manager : 6.0.7.0
Avaya S8800 Server	Avaya Aura <sup>TM</sup> System Platform : 6.0.1.0.5 Avaya Aura <sup>TM</sup> Session Manager 6.0.0.0.600020
Avaya S8500B Server	Avaya Aura <sup>TM</sup> Application Enablement Services 5.2.2
Avaya 9600 Series IP Telephones: <ul style="list-style-type: none"><li>• H.323</li><li>• SIP</li></ul>	3.1.1 2.6
Avaya 2400 Series Digital Telephones	-
Avaya 6200 Series Analog Telephones	-
OAISYS Tracer Recording Server	6.1 (running on a Windows 7 PC)

## 4. Configure Avaya Aura™ Communication Manager

The detailed administration of Communication Manager and connectivity to Application Enablement Services is not the focus of these Application Notes, and will not be described here. For details regarding that specific administration, refer to the appropriate documentation listed in **Section 10**.

This section provides the procedures to do the following:

- Verify Communication Manager License
- Administer CTI link for TSAPI Service
- Save translations

### 4.1. Verify Communication Manager License

Log into the System Access Terminal (SAT) to verify that the Communication Manager license has proper permissions for features illustrated in these Application Notes. Use the “display system-parameters customer-options” command to verify that the **Computer Telephony Adjunct Links** is set to “y” on **Page 3**. If this option is not set to “y”, then contact the Avaya sales team or business partner for a proper license file.

```
display system-parameters customer-options                               Page 3 of 11
                                OPTIONAL FEATURES

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

(NOTE: You must logoff & login to effect the permission changes.)

## 4.2. Administer CTI Link for TSAPI Service

Add a CTI link using the “add cti-link n” command, where “n” is an available CTI link number. Enter an available extension number in the **Extension** field. Enter “ADJ-IP” in the **Type** field, and a descriptive name in the **Name** field (optional). Default values may be used in the remaining fields. Submit these changes.

<b>add cti-link 1</b>	Page 1 of 3
CTI LINK	
CTI Link: 1	
Extension: 55001	
Type: ADJ-IP	
	COR: 1
Name: TSAPI link to AES	

## 4.3. Save Avaya Aura™ Communication Manager Provisioning

Enter the *save translation* command to make the changes permanent.

## 5. Configure Avaya Aura™ Application Enablement Services

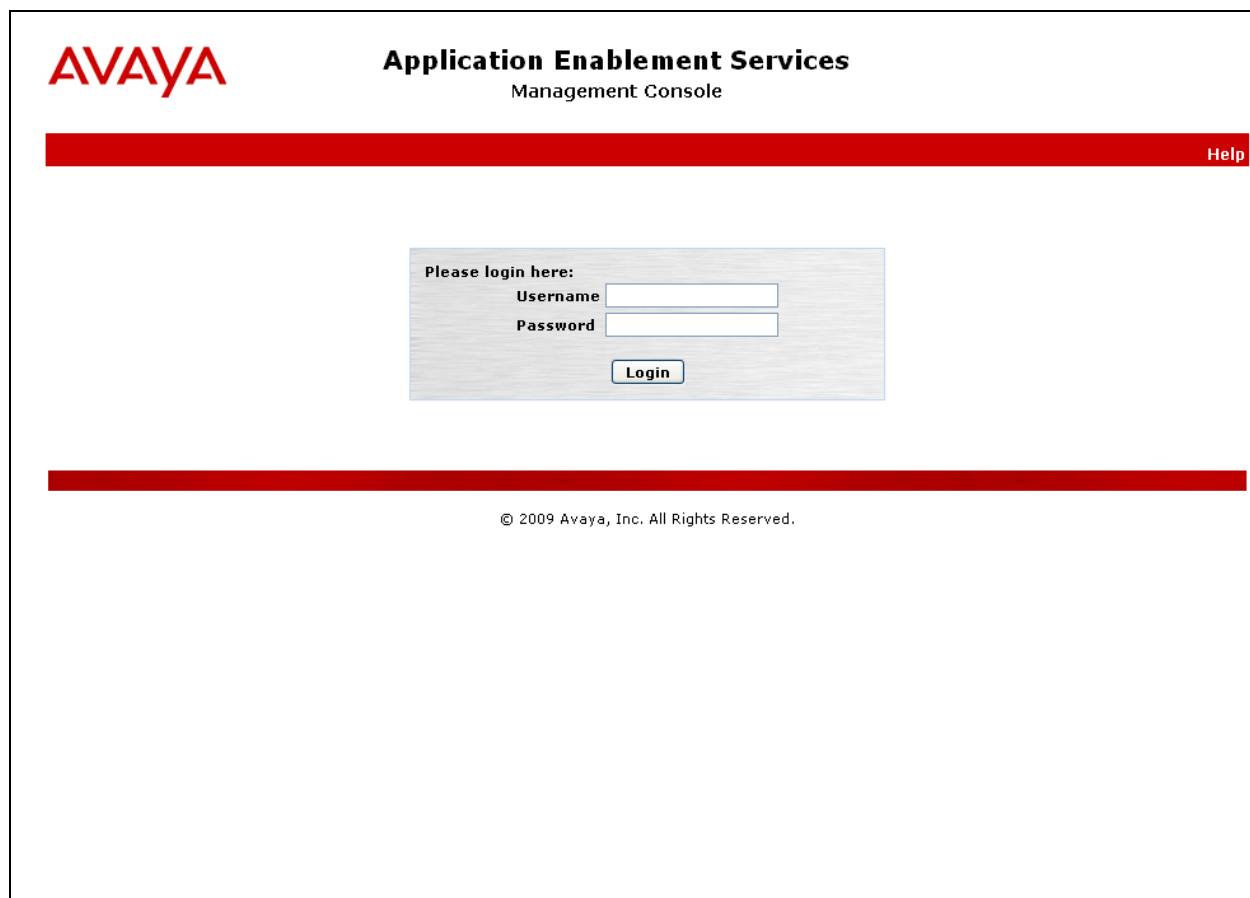
The detailed administration of connectivity between Application Enablement Services and Communication Manager is not the focus of these Application Notes and will not be described here. For details regarding that specific administration, refer to the appropriate documentation listed in **Section 10**.

This section provides the procedures to do the following:

- Verify Application Enablement Services license
- Administer TSAPI link
- Administer Devices
- Administer Device Groups
- Administer OAISYS user
- Edit CTI User
- Restart TSAPI service
- Obtain Tlink Name

## 5.1. Verify Avaya Aura™ Application Enablement Services License

Access the AES OAM web based interface by using the URL “https://ip-address” in an Internet browser window, where “ip-address” is the IP address of the AES server. Click the “Continue to Login” link (not shown). The **Login** screen is displayed as shown below. Log in using appropriate credentials.




The screenshot displays the Avaya Application Enablement Services (AES) Management Console login interface. At the top left is the Avaya logo. To its right, the text "Application Enablement Services" is displayed in a large, bold font, with "Management Console" in a smaller font below it. A red horizontal bar spans the width of the page, containing a "Help" link on the right side. In the center of the page is a light gray rectangular box with a thin border. Inside this box, the text "Please login here:" is followed by two input fields: "Username" and "Password". Below these fields is a "Login" button. At the bottom of the page, another red horizontal bar contains the copyright notice "© 2009 Avaya, Inc. All Rights Reserved."



The **Welcome to OAM** screen is displayed, as shown below. Select **AE Services** from the left pane.

The screenshot shows the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title 'Application Enablement Services Management Console', and user information: 'Welcome: User craft', 'Last login: Tue Oct 19 14:30:32 2010 from 10.64.21.9', 'HostName/IP: AESbundled/10.64.21.125', 'Server Offer Type: TURNKEY', and 'SW Version: r5-2-2-105-0'. A red navigation bar contains 'Home', 'Help', and 'Logout'. On the left, a sidebar lists menu items: 'AE Services', 'Communication Manager Interface', 'Licensing', 'Maintenance', 'Networking', 'Security', 'Status', 'User Management', 'Utilities', and 'Help'. The main content area is titled 'Welcome to OAM' and contains a paragraph: 'The AE Services Operations, Administration, and Management (OAM) Web provides you with tools for managing the AE Server. OAM spans the following administrative domains:'. This is followed by a bulleted list: '• AE Services - Use AE Services to manage all AE Services that you are licensed to use on the AE Server.', '• Communication Manager Interface - Use Communication Manager Interface to manage switch connection and dialplan.', '• Licensing - Use Licensing to manage the license server.', '• Maintenance - Use Maintenance to manage the routine maintenance tasks.', '• Networking - Use Networking to manage the network interfaces and ports.', '• Security - Use Security to manage Linux user accounts, certificate, host authentication and authorization, configure Linux-PAM (Pluggable Authentication Modules for Linux) and so on.', '• Status - Use Status to obtain server status informations.', '• User Management - Use User Management to manage AE Services users and AE Services user-related resources.', '• Utilities - Use Utilities to carry out basic connectivity tests.', and '• Help - Use Help to obtain a few tips for using the OAM Help system'. Below the list, a paragraph states: 'Depending on your business requirements, these administrative domains can be served by one administrator for both domains, or a separate administrator for each domain.' The footer of the page reads '© 2009 Avaya, Inc. All Rights Reserved.'

The **AE Services** screen is displayed next. Verify that Application Enablement Services is licensed for the TSAPI and DMCC Services, as shown in the screen below (License Mode = NORMAL MODE). If the TSAPI and DMCC services are not licensed, contact the Avaya sales team or business partner for a proper license file.



**Application Enablement Services**  
Management Console

Welcome: User craft  
Last login: Tue Oct 19 14:30:32 2010 from 10.64.21.9  
HostName/IP: AESbundled/10.64.21.125  
Server Offer Type: TURNKEY  
SW Version: r5-2-2-105-0

**AE Services**
Home | Help | Logout

▼ AE Services

▶ CVLAN
▶ DLG
▶ DMCC
▶ SMS
▶ TSAPI

▶ Communication Manager Interface
▶ 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	ONLINE	Running	NORMAL MODE	N/A
DLG Service	ONLINE	Running	NORMAL MODE	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

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) version 5.0

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## 5.2. Administer TSAPI Link

To administer a TSAPI link, select **AE Services** → **TSAPI** → **TSAPI Links** from the left pane. The **TSAPI Links** screen is displayed, as shown below. Click the **Add Link** button.

The screenshot displays the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title "Application Enablement Services Management Console", and a welcome message for user "craft" with login details. A red navigation bar contains "AE Services | TSAPI | TSAPI Link" and links for "Home | Help | Logout".

The left sidebar shows a tree view with "AE Services" expanded, containing "CVLAN", "DLG", "DMCC", "SMS", "TSAPI" (expanded), "Communication Manager Interface", "Licensing", "Maintenance", "Networking", "Security", "Status", "User Management", "Utilities", and "Help". Under "TSAPI", "TSAPI Links" and "TSAPI Properties" are listed.

The main content area is titled "TSAPI Links" and features a table with the following data:

Link	Switch Connection	Switch CTI Link #	ASAI Link Version	Security
2	G650	1	4	Unencrypted
3	G430	1	4	Unencrypted

Below the table are three buttons: "Add Link", "Edit Link", and "Delete Link".

At the bottom of the console, a copyright notice reads: "© 2009 Avaya, Inc. All Rights Reserved."

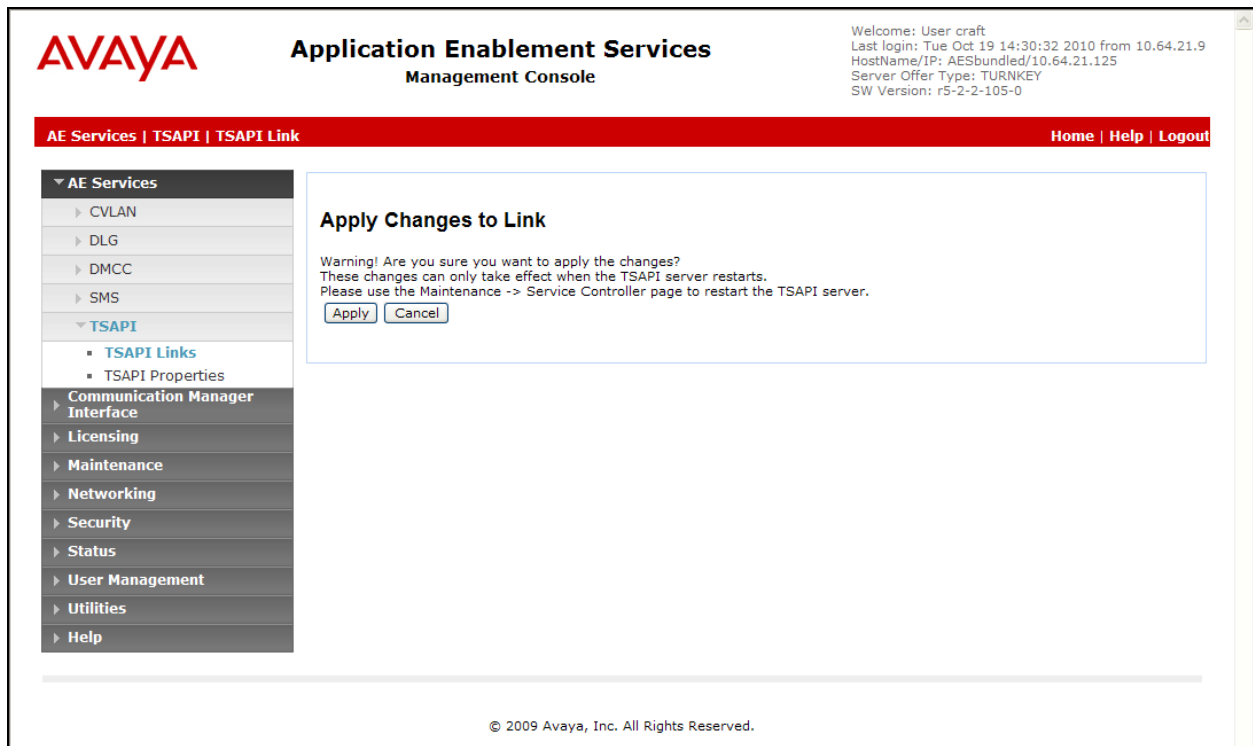
The **Add TSAPI Links** screen is displayed next. The **Link** field may be set to any available number. For **Switch Connection**, select the relevant switch connection from the drop down list. In this case, the existing switch connection “G450” is selected. The “G450” switch connection was configured to establish a connection to the Communication Manager processor Ethernet (IP address 10.64.21.41). For **Switch CTI Link Number**, select the CTI link number configured in **Section 4.2**. Click on **Apply Changes**.

The screenshot displays the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title 'Application Enablement Services Management Console', and a welcome message for user 'craft' with login details. A red navigation bar contains links for 'AE Services | TSAPI | TSAPI Link', 'Home | Help | Logout'. A left sidebar lists various services, with 'TSAPI' expanded to show 'TSAPI Links' and 'TSAPI Properties'. The main content area is titled 'Add TSAPI Links' and contains the following configuration fields:

- Link: 1
- Switch Connection: G450
- Switch CTI Link Number: 1
- ASAI Link Version: 4
- Security: Unencrypted

At the bottom of the configuration area are two buttons: 'Apply Changes' and 'Cancel Changes'. The footer of the console shows the copyright notice: '© 2009 Avaya, Inc. All Rights Reserved.'

The **Apply Changes to Link** screen is displayed. Click on **Apply**.



### 5.3. Administer Devices

Configure devices to be monitored by OAISYS Tracer by navigating to **Security → Security Database → Devices**. Enter a device extension in the text box and click **Add Device**.

The screenshot shows the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title "Application Enablement Services Management Console", and a welcome message for user "craft" with login details. A red navigation bar contains "Security | Security Database | Devices" and links for "Home | Help | Logout".

On the left is a sidebar menu with categories: AE Services, Communication Manager Interface, Licensing, Maintenance, Networking, Security (expanded), Security Database (expanded), Status, User Management, Utilities, and Help. Under Security Database, "Devices" is selected.

The main content area is titled "Devices" and features a text input field with "53001" and an "Add Device" button. Below this is a table with the following data:

Device ID	Tlink Group	Device Type	Location
<input checked="" type="radio"/> 53002	Any	PHONE	Anywhere
<input type="radio"/> 53003	Any	PHONE	Anywhere
<input type="radio"/> 53004	Any	PHONE	Anywhere
<input type="radio"/> 53021	Any	VDN	Anywhere
<input type="radio"/> 53101	Any	PHONE	Anywhere
<input type="radio"/> 53102	Any	PHONE	Anywhere
<input type="radio"/> 53501	Any	ACD	Anywhere
<input type="radio"/> 54001	Any	AGENT ID	Anywhere

Below the table are "Edit Device" and "Delete Device" buttons. The footer of the console displays "© 2009 Avaya, Inc. All Rights Reserved."

Select the appropriate **Location**, **Device Type**, and **Tlink Group** for the configuration. Click **Apply Changes**.

The screenshot displays the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title 'Application Enablement Services Management Console', and a welcome message for 'User craft' with login details. A red navigation bar contains links for 'Security | Security Database | Devices', 'Home | Help | Logout'. A left sidebar lists various management categories, with 'Security Database' expanded to show 'Devices' selected. The main content area is titled 'Add Device' and contains a form with the following fields: 'Device ID' (text input with value '53001'), 'Location' (text input with value 'Anywhere'), 'Device Type' (dropdown menu with 'PHONE' selected), and 'Tlink Group' (dropdown menu with 'Any' selected). At the bottom of the form are two buttons: 'Apply Changes' and 'Cancel Changes'. The footer of the console shows the copyright notice '© 2009 Avaya, Inc. All Rights Reserved.'

**AVAYA** Application Enablement Services Management Console

Welcome: User craft  
Last login: Tue Oct 19 14:30:32 2010 from 10.64.21.9  
HostName/IP: AESbundled/10.64.21.125  
Server Offer Type: TURNKEY  
SW Version: r5-2-2-105-0

Security | Security Database | Devices Home | Help | Logout

**Add Device**

Device ID: 53001  
Location: Anywhere  
Device Type: PHONE  
Tlink Group: Any

Apply Changes Cancel Changes

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A warning screen will appear. Click **Apply**.

The screenshot displays the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title "Application Enablement Services Management Console", and a welcome message for user "craft" with login details. A red navigation bar contains links for "Security", "Security Database", and "Devices", along with "Home", "Help", and "Logout". A left sidebar lists various management categories, with "Security Database" expanded to show "Devices" selected. The main content area features a dialog box titled "Apply Changes to Device Properties" with the warning: "Warning! Are you sure you want to apply the changes?". The dialog includes "Apply" and "Cancel" buttons. The footer of the console shows the copyright notice "© 2009 Avaya, Inc. All Rights Reserved."



## 5.4. Administer Device Groups

Configure a Device Group for OAISYS Tracer to use. The device group should contain all of the devices that OAISYS Tracer can monitor. Navigate to **Security → Security Database → Device Groups**. Enter a device group name in the text box and click **Add Device Group**.

The screenshot displays the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title "Application Enablement Services Management Console", and a welcome message for user "craft" with login details. A red navigation bar shows the path "Security | Security Database | Device Groups" and links for "Home | Help | Logout".

On the left is a sidebar menu with categories like "AE Services", "Communication Manager Interface", "Licensing", "Maintenance", "Networking", "Security", "Security Database", "Status", "User Management", "Utilities", and "Help". The "Security Database" section is expanded, showing sub-items like "Control", "CTI Users", "Devices", "Device Groups" (highlighted), "Tlinks", "Tlink Groups", "Worktops", "Standard Reserved Ports", and "Tripwire Properties".

The main content area is titled "Device Groups". It features a text input field containing "OAISYS Devices" and an "Add Device Group" button. Below this is a table with two columns: "Device Group" and "Exception Group?".

Device Group	Exception Group?
OAISYS Devices	N

At the bottom of the table area are "Edit Device Group" and "Delete Device Group" buttons. The footer of the console shows the copyright notice "© 2009 Avaya, Inc. All Rights Reserved."

Select all of the devices that OAISYS Tracer should be able to monitor. Tracer will not be able to monitor any devices not selected. Click **Apply Changes**.

The screenshot displays the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title 'Application Enablement Services Management Console', and a welcome message for 'User craft' with login details. A red navigation bar contains links for 'Security', 'Security Database', 'Device Groups', 'Home', 'Help', and 'Logout'. The left sidebar shows a tree view of the application's features, with 'Security Database' expanded to show 'Device Groups' selected. The main content area is titled 'Add Device Group' and contains a form with the following fields: 'Device Group' (set to 'OAISYS Devices'), 'Exception Group' (unchecked), and a list of 'Devices' with checkboxes. The devices listed are 53001, 53002, 53003, 53004, 53021, 53101, 53102, 53501, and 54001, all of which are checked. At the bottom of the form are four buttons: 'Apply Changes', 'Select All', 'Deselect All', and 'Cancel Changes'. The footer of the console shows the copyright notice '© 2009 Avaya, Inc. All Rights Reserved.'

**AVAYA** Application Enablement Services Management Console

Welcome: User craft  
Last login: Tue Oct 19 14:30:32 2010 from 10.64.21.9  
HostName/IP: AESbundled/10.64.21.125  
Server Offer Type: TURNKEY  
SW Version: r5-2-2-105-0

Security | Security Database | Device Groups Home | Help | Logout

AE Services  
Communication Manager Interface  
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  
Standard Reserved Ports  
Tripwire Properties  
Status  
User Management  
Utilities  
Help

### Add Device Group

Device Group

Exception Group ☐

Devices

- ☒ 53001
- ☒ 53002
- ☒ 53003
- ☒ 53004
- ☒ 53021
- ☒ 53101
- ☒ 53102
- ☒ 53501
- ☒ 54001

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## 5.5. Administer OAISYS User

Administer a user account for OAISYS Tracer. Select **User Management** → **User Admin** → **Add User** from the left pane. The **Add User** screen is displayed, as shown below. Enter descriptive values for the **User Id**, **Common Name**, and **Surname**. Enter appropriate values for the **User Password** and **Confirm Password** fields. Retain the default value of “None” for **Avaya Role**, and select “Yes” from the **CT User** drop down list. Click on **Apply** at the bottom of the screen (not shown).

The screenshot displays the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title 'Application Enablement Services Management Console', and a welcome message for 'User craft' with login details. A red navigation bar contains 'User Management | User Admin | Add User' and links for 'Home | Help | Logout'. The left sidebar shows a tree view with categories like AE Services, Communication Manager Interface, Licensing, Maintenance, Networking, Security, Status, User Management (expanded), Service Admin, User Admin (expanded), Utilities, and Help. Under 'User Admin', 'Add User' is selected. The main content area is titled 'Add User' and contains a form with various fields. Fields marked with an asterisk (\*) are required. The 'Avaya Role' dropdown is set to 'None' and the 'CT User' dropdown is set to 'Yes'. The form includes fields for User Id, Common Name, Surname, User Password, Confirm Password, Admin Note, Business Category, Car License, CM Home, Cms Home, Department Number, Display Name, Employee Number, Employee Type, Enterprise Handle, Given Name, Home Phone, Home Postal Address, Initials, Labeled URI, Mail, MM Home, and Mobile.

**AVAYA** Application Enablement Services Management Console

Welcome: User craft  
Last login: Tue Oct 19 14:30:32 2010 from 10.64.21.9  
HostName/IP: AESbundled/10.64.21.125  
Server Offer Type: TURNKEY  
SW Version: r5-2-2-105-0

User Management | User Admin | Add User Home | Help | Logout

AE Services  
Communication Manager Interface  
Licensing  
Maintenance  
Networking  
Security  
Status  
User Management  
Service Admin  
User Admin  
Add User  
Change User Password  
List All Users  
Modify Default Users  
Search Users  
Utilities  
Help

**Add User**

Fields marked with \* can not be empty.

\* User Id oaisys  
\* Common Name oaisys  
\* Surname oaisys  
\* User Password .....  
\* Confirm Password .....  
Admin Note  
Avaya Role None  
Business Category  
Car License  
CM Home  
Cms Home  
CT User Yes  
Department Number  
Display Name  
Employee Number  
Employee Type  
Enterprise Handle  
Given Name  
Home Phone  
Home Postal Address  
Initials  
Labeled URI  
Mail  
MM Home  
Mobile

Select **Security** → **Security Database** → **CTI Users** → **List All Users** to get a listing of all CTI users, as shown below. Select the user ID created for OAISYS, and click the **Edit** button.

The screenshot displays the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title 'Application Enablement Services Management Console', and a welcome message for 'User craft' with login details. A red navigation bar contains the breadcrumb 'Security | Security Database | CTI Users | List All Users' and links for 'Home | Help | Logout'.

The left sidebar shows a tree view of the application's features. Under 'Security', 'Security Database' is expanded, and 'CTI Users' is selected, with 'List All Users' highlighted.

The main content area, titled 'CTI Users', contains a table with the following data:

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

Below the table are two buttons: 'Edit' and 'List All'.

The **Edit CTI User** screen is displayed, as shown below. Verify the **Unrestricted Access** checkbox is not checked. Set the following values for the specified fields:

- **Call Origination and Termination / Device Status** - “Any”
- **Call and Device Monitoring**
  - **Device** – Select the OASYS device group administered in **Section 5.4**.
  - **Call / Device** – Select “Any”.
  - **Call** – Check this box.

Default values may be used for the remaining fields. Click **Apply Changes**.

**AVAYA** Application Enablement Services Management Console

Welcome: User craft  
Last login: Tue Oct 19 14:30:32 2010 from 10.64.21.9  
HostName/IP: AESbundled/10.64.21.125  
Server Offer Type: TURNKEY  
SW Version: r5-2-2-105-0

Security | Security Database | CTI Users | List All Users Home | Help | Logout

**Edit CTI User**

User Profile:

User ID	oaisys
Common Name	oaisys
Worktop Name	NONE
Unrestricted Access	<input type="checkbox"/>

---

Call Origination and Termination / Device Status

Any

---

Call and Device Monitoring:

Device	OASYS Devices
Call / Device	Any
Call	<input checked="" type="checkbox"/>

---

Routing Control:

Allow Routing on Listed Devices

None

Apply Changes Cancel Changes

## 5.6. Restart TSAPI Service

Select **Maintenance** → **Service Controller**. The **Service Controller** screen shows a listing of the services and their associated status. Check the **TSAPI Service**, and click on **Restart Service**.

The screenshot displays the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title "Application Enablement Services Management Console", and a welcome message for user "craft" with login details. A red navigation bar contains "Maintenance | Service Controller" and links for "Home | Help | Logout".

On the left, a sidebar menu lists various system components, with "Maintenance" expanded to show "Service Controller" as the selected option.

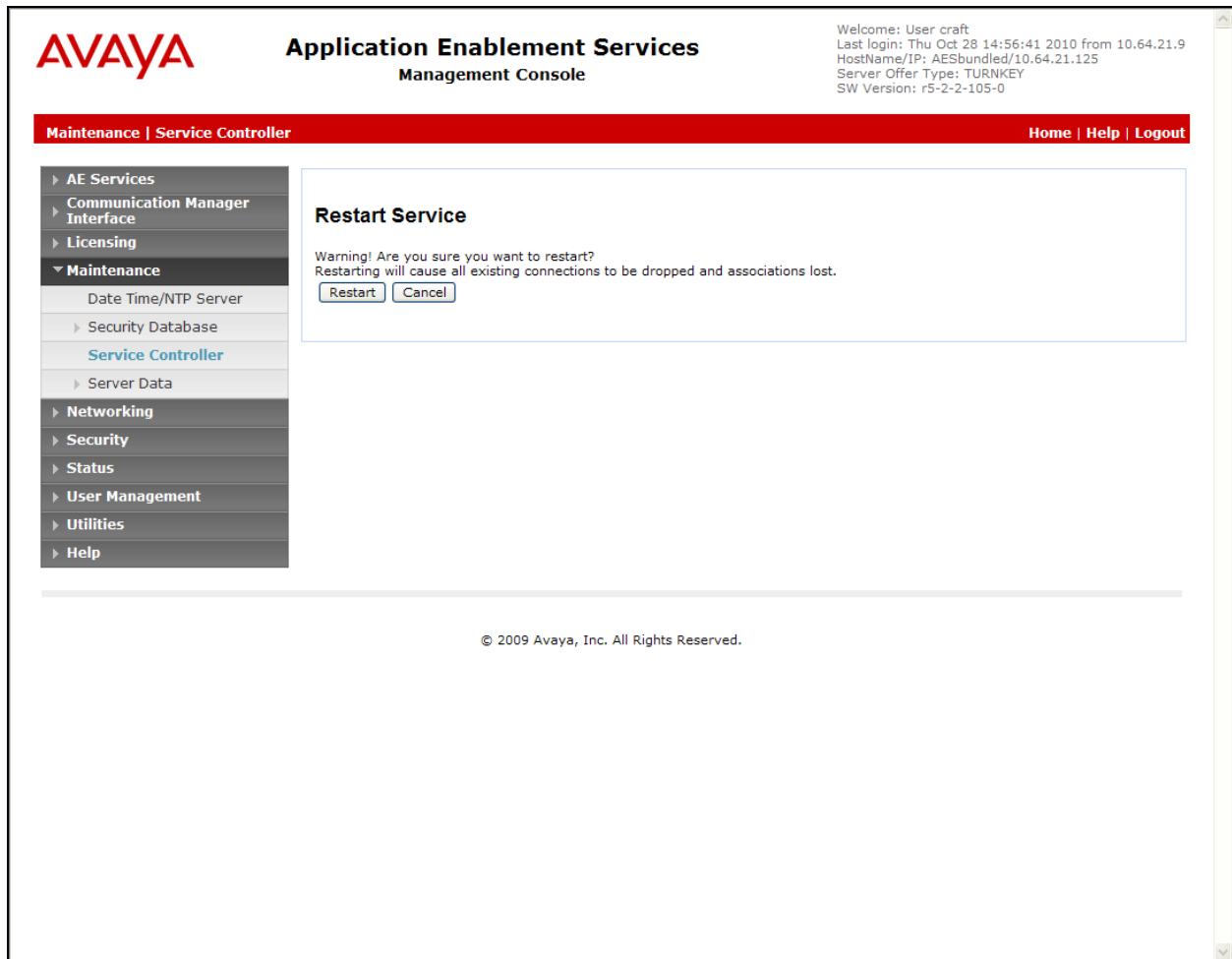
The main content area, titled "Service Controller", features a table listing services and their controller status:

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 checked="" type="checkbox"/> TSAPI Service	Running

Below the table, a note states: "For status on actual services, please use [Status and Control](#)". At the bottom of the main area, there are six buttons: "Start", "Stop", "Restart Service", "Restart AE Server", "Restart Linux", and "Restart Web Server".

The footer of the page contains the copyright notice: "© 2009 Avaya, Inc. All Rights Reserved."

The following **Restart Service** screen is displayed. Click on **Restart** to confirm.



## 5.7. Obtain Tlink Name

Select **Security** → **Security Database** → **Tlinks**. Note the name of the Tlink to be used by OAISYS Tracer.

The screenshot displays the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title "Application Enablement Services Management Console", and a welcome message for user "craft" with login details. A red navigation bar contains "Security | Security Database | Tlinks" and links for "Home | Help | Logout".

The left sidebar shows a tree view of the application's structure. Under "Security", the "Security Database" is expanded, and "Tlinks" is selected. The main content area, titled "Tlinks", lists three Tlink entries:

- ☐ AVAYA#G430#CSTA#AESBUNDLED
- ☒ AVAYA#G450#CSTA#AESBUNDLED
- ☐ AVAYA#G650#CSTA#AESBUNDLED

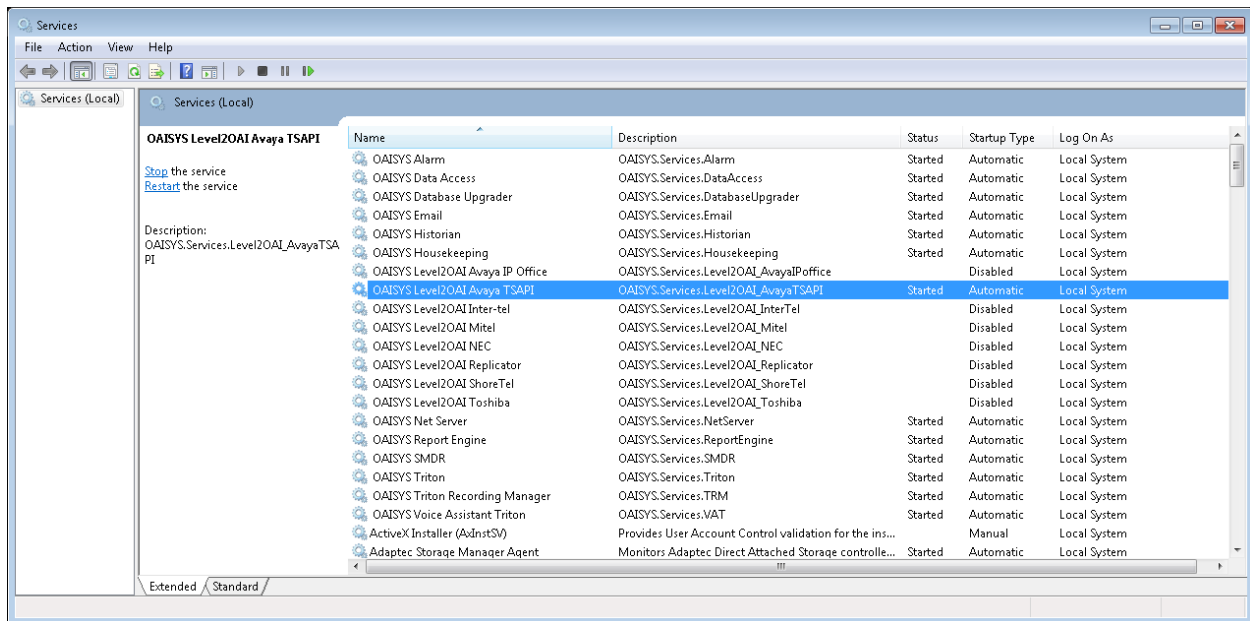
Below the list are two buttons: "Edit Tlink" and "Delete Tlink". The footer of the console indicates "© 2009 Avaya, Inc. All Rights Reserved."



## 6. Configure OAISYS Tracer

This section provides the procedures for configuring OAISYS Tracer.

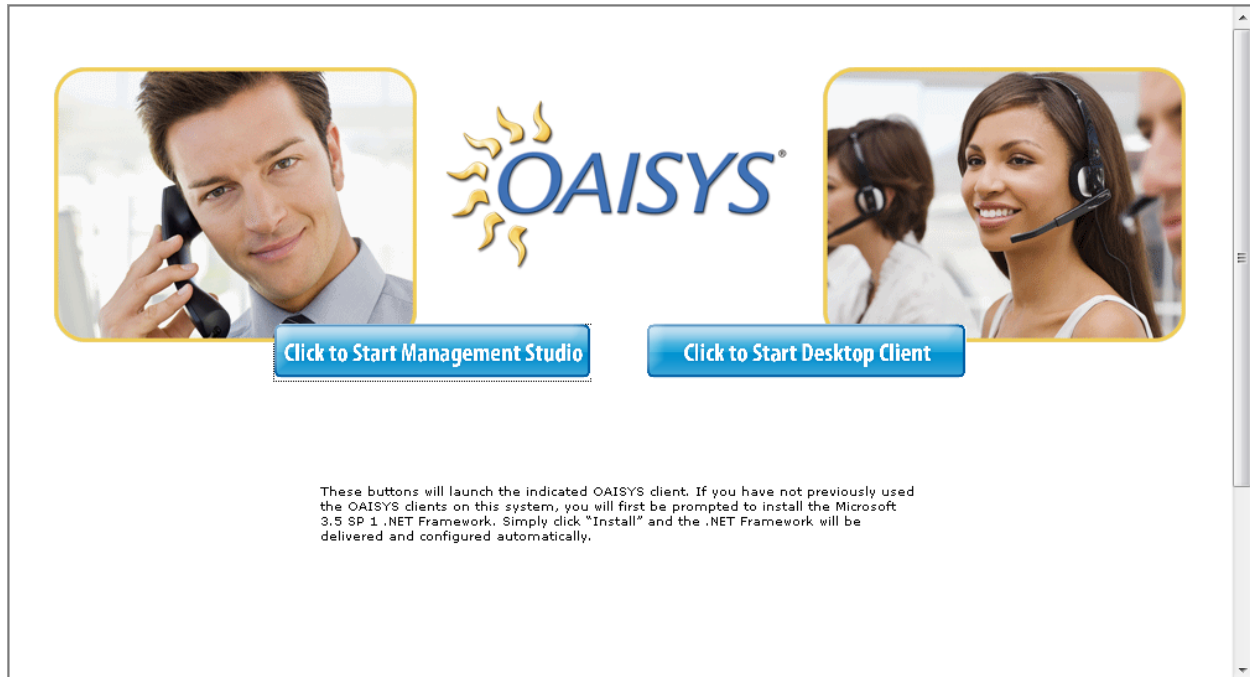
Navigate to the Services window of the Windows PC where OAISYS Tracer is installed. Set the **OAISYSLevel2OAI Avaya TSAPI** service **Startup Type** to “Automatic”.



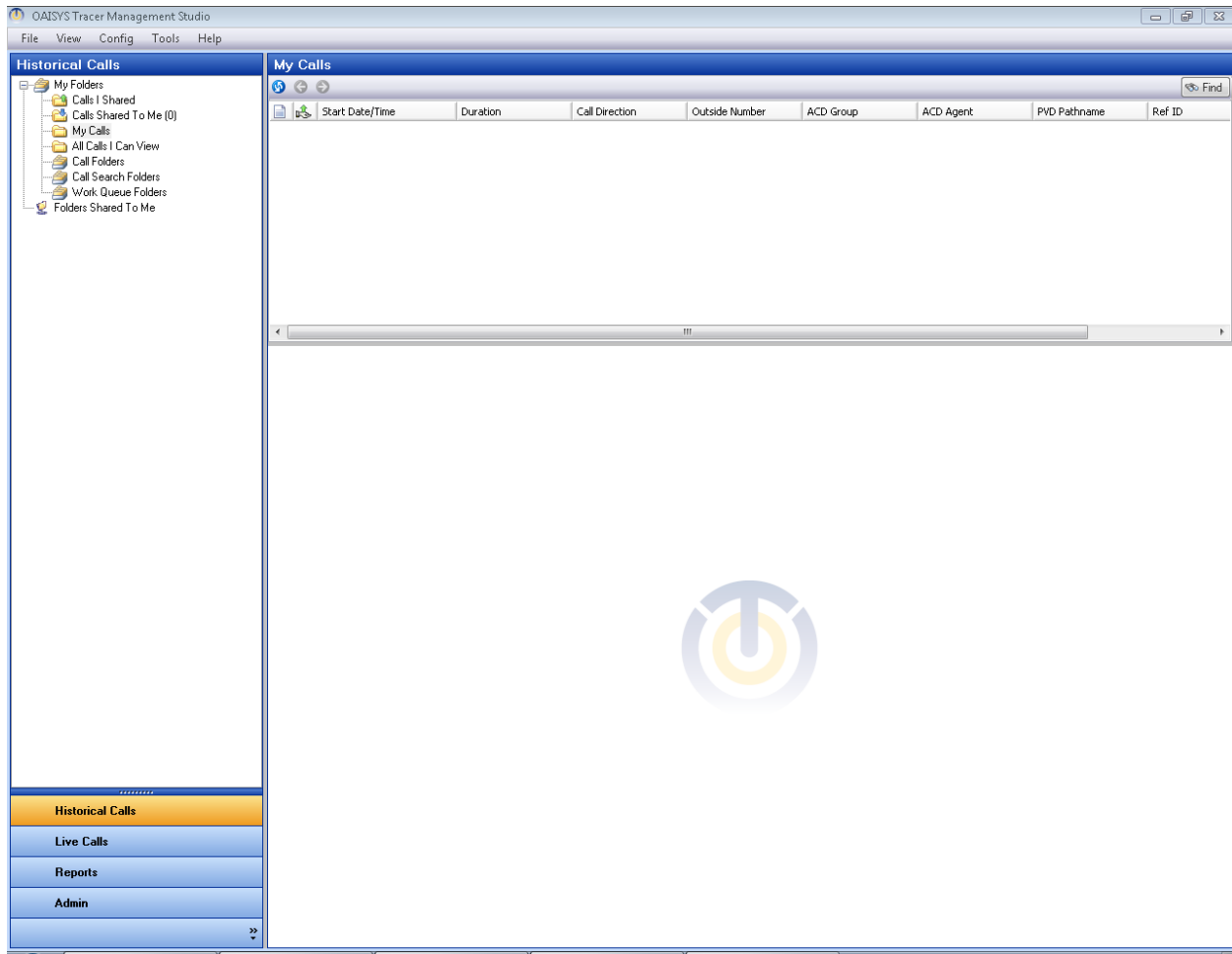
Open a browser to the main page of the OAISYS server's default website by entering the following URL:

[http://\\$TracerServerName\\$](http://$TracerServerName$) or <http://localhost> (if logged into the server locally)

Click the **Click to Start Management Studio** button.



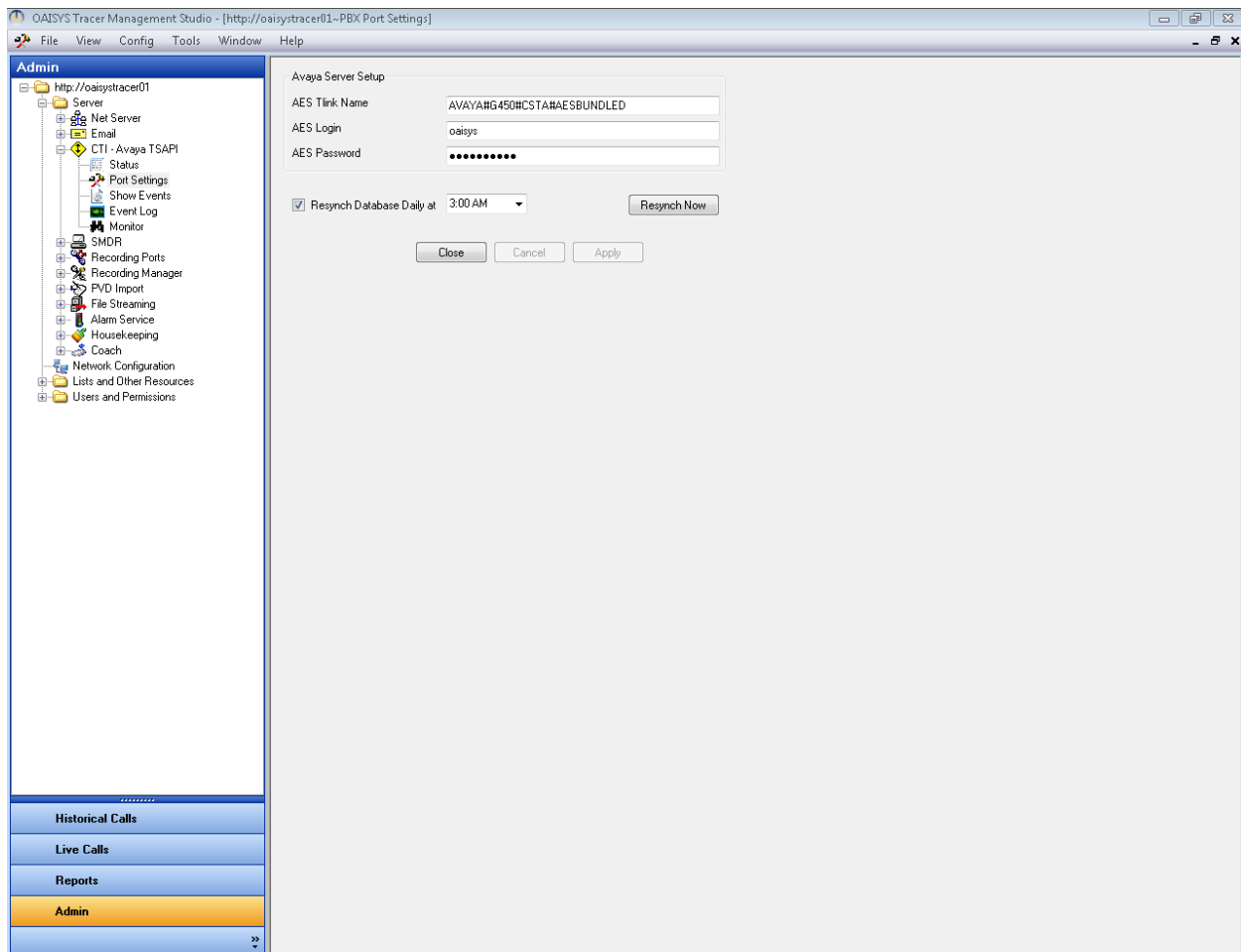
The screen below is displayed.



Click the **Admin** tab on the bottom left and select **CTI – Avaya TSAPI → Port Settings** from the navigation pane on the left. Enter the following values for the specified fields:

- **AES Tlink Name:** Enter the Tlink name obtained in **Section 5.7**.
- **AES Login:** Enter the username created in **Section 5.5**.
- **AES Password:** Enter the password created in **Section 5.5**.

Default values may be used for the remaining fields. Click **Apply**. Note that the **Apply** button shown below is not enabled because the screen capture was taken after the changes were already applied.



Select **Recording Ports** → **Port** from the menu on the left. Enter the following values for the specified fields:

- **Port:** Select valid port number.
- **Enabled:** Check this box.
- **Port Type:** Select **VoIP**.
- **Trunk Type:** Select **VoIP Tap**.
- **Extension:** Enter a device from **Section 5.3**.
- **VoIP Tap Type:** Select **RTP Capture**.
- **VoIP Device Static IP Address:** Enter IP Address of **Extension**.

Default values may be used for the remaining fields. Click **Apply**.

The screenshot displays the OAISYS Tracer Management Studio web interface. The left sidebar shows a tree view with 'Admin' selected. The main panel shows the configuration for a 'Port' with the following settings:

- Port: 47 (dropdown), IDLE (status)
- ☒ Enabled
- Port Settings:
  - Port Type: VoIP (dropdown)
  - Trunk Type: VoIP Tap (dropdown)
  - Extension: 53001 (text box)
  - VoIP Tap Type: RTP Capture (dropdown)
- VoIP Settings:
  - VoIP Device Static IP Address: ☒ 10.64.21.73 (radio button and text box)
  - MAC Address: ☐ (radio button and text box)
- ☐ VDK Tap
- Seconds Packet Loss Detection:
- ☐ Predictive Dialer Tap
- ☐ Dynamic License

At the bottom right of the configuration panel are 'Save' and 'Refresh' buttons. The bottom of the interface has a navigation bar with 'Historical Calls', 'Live Calls', 'Reports', and 'Admin' (highlighted).



## **7. General Test Approach and Test Results**

The interoperability compliance testing included feature and serviceability testing.

The feature testing focused on verifying OAISYS Tracer could properly record, log, and playback various calls including: internal enterprise calls, inbound/outbound trunk calls, and calls involving basic telephony features (such as hold, mute, transfer, and conference).

All calls were placed manually. After each call, the data records and recordings were verified.

The serviceability testing focused on verifying OAISYS Tracer could properly recover from adverse conditions, such as busying out the CTI link, disconnecting the Ethernet cable from the three servers (OAISYS Tracer, Communication Manager, and Application Enablement Services), and power failures of the three servers.

All test cases were executed and passed.

## 8. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Application Enablement Services, Communication Manager, and OAISYS Tracer.

### 8.1. Verify Avaya Application Enablement Services

On Application Enablement Services, verify the status of the switch connection by selecting **Status → Status and Control → Switch Conn Summary** from the left pane. Verify that the **Conn State** is “Talking” for the relevant switch connection. In this case, the switch connection is “G450”.

The screenshot displays the Avaya Application Enablement Services Management Console. The left navigation pane shows the hierarchy: AE Services > Communication Manager Interface > Licensing > Maintenance > Networking > Security > Status. Under Status, the 'Status and Control' section is expanded, showing 'Switch Conn Summary' as the selected option. The main content area, titled 'Switch Connections Summary', includes a checkbox for 'Enable page refresh every 60 seconds'. Below this is a table with columns: Switch Conn, Conn State, Since, Online/Offline, Active/Admin'd AEP Conns, Num of TCI Conns, SSL, Msgs To Switch, Msgs From Switch, and Msg Period. The table lists three connections: G430, G450, and G650. G450 is highlighted with a green circle, indicating it is the target of the verification. Below the table are buttons for 'Online', 'Offline', 'Connection Details', and 'Per Service Connections Details'. The footer of the console shows the copyright notice: © 2009 Avaya, Inc. All Rights Reserved.

	Switch Conn	Conn State	Since	Online/Offline	Active/Admin'd AEP Conns	Num of TCI Conns	SSL	Msgs To Switch	Msgs From Switch	Msg Period
<input type="radio"/>	G430	Talking	Thu Oct 21 16:34:35 2010	Online	1 / 1	2	Enabled	615	630	30
<input checked="" type="radio"/>	G450	Talking	Thu Oct 21 16:34:30 2010	Online	1 / 1	4	Enabled	644	676	30
<input type="radio"/>	G650	Talking	Thu Oct 21 17:39:37 2010	Online	1 / 1	2	Enabled	617	632	30



Verify the status of the TSAPI link by selecting **Status → Status and Control → TSAPI Service Summary** from the left pane. The **TSAPI Link Details** screen is displayed. Verify the **Status** is “Talking” for the TSAPI link administered in **Section 4.2**, as shown below.

**Application Enablement Services**  
Management Console

Welcome: User craft  
Last login: Tue Oct 19 14:30:32 2010 from 10.64.21.9  
HostName/IP: AESbundled/10.64.21.125  
Server Offer Type: TURNKEY  
SW Version: r5-2-2-105-0

Status | Status and Control | TSAPI Service Summary

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

### TSAPI Link Details

☐ Enable page refresh every  seconds

	Link	Switch Name	Switch CTI Link ID	Status	Since	State	Switch Version	Associations	Msgs to Switch	Msgs from Switch	Msgs Period
<input checked="" type="radio"/>	1	G450	1	Talking	Thu Oct 28 14:49:00 2010	Online	16	0	15	15	30
<input type="radio"/>	2	G650	1	Talking	Wed Oct 27 19:04:18 2010	Online	15	0	15	15	30
<input type="radio"/>	3	G430	1	Talking	Wed Oct 27 19:07:44 2010	Online	16	0	15	15	30

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

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## 8.2. Verify OAISYS Tracer

Place several calls to and from devices monitored by OAISYS Tracer. Click the **Historical Calls** tab, and open the **All Calls I can View** folder. Verify there is a recording for each call placed. Play each recording to verify the entire call has been recorded with good voice quality.

The screenshot displays the OAISYS Tracer Management Studio interface. The top menu bar includes File, View, Config, Tools, and Help. The left sidebar shows a tree view of folders: My Folders, Calls I Shared, Calls Shared To Me (0), My Calls, All Calls I can View (selected), Call Folders, Call Search Folders, Work Queue Folders, and Folders Shared To Me. The main window is titled 'All Calls I can View' and shows a list of calls with columns: Start Date/Time, Duration, Call Direction, ACD Group, ACD Agent, PVD Pathname, Ref ID, and Save. Below the list, there are buttons for Graphical and Grid views. The 'Selected Call' section shows details for a call on 10/19/2010 at 2:56 PM, duration 0:20. The 'Detailed View' section shows a timeline of the call with various extensions (xT4M2, x53004, x23001, x53101) and their states (Connected, Holding).

Start Date/Time	Duration	Call Direction	ACD Group	ACD Agent	PVD Pathname	Ref ID
10/19/2010 2:57:04 PM	0:03	IC			C:\Recordings\Empt...	219aa443-de3d-455...
10/19/2010 2:56:55 PM	0:20	IC			C:\Recordings\49\0...	a4a83af1-7567-4de...
10/19/2010 2:55:46 PM	0:12	IC			C:\Recordings\Empt...	9be0f09b-441f-4a7...
10/19/2010 2:55:31 PM	0:49	IC			C:\Recordings\49\0...	4330d2f4-d6f9-46b...
10/19/2010 2:54:13 PM	0:09	IC			C:\Recordings\50\0...	f8344632-e4a5-437...
10/19/2010 2:39:57 PM	0:10	Inbound			C:\Recordings\22\0...	a330b779-646a-45a...
10/19/2010 2:32:13 PM	0:10	Inbound			C:\Recordings\21\0...	71007da0-c249-431...
10/19/2010 12:21:14 PM	0:10	Inbound			C:\Recordings\20\0...	b2a10e24-132c-470...
10/19/2010 12:09:31 PM	0:09	Inbound			C:\Recordings\19\0...	ff4bb1fe-b28a-46a1...
10/19/2010 11:59:36 AM	0:09	Inbound	53501	54001	C:\Recordings\18\0...	e8cb95d3-c605-4da...
10/19/2010 11:53:23 AM	0:36	Inbound	53501	54001	C:\Recordings\16\0...	2bdb8da9-5d5f-43f...

## 9. Conclusion

These Application Notes describe the configuration steps required for the OAISYS Tracer station side recording application to interoperate with Avaya Aura<sup>TM</sup> Communication Manager using Avaya Aura<sup>TM</sup> Application Enablement Services. All feature and serviceability test cases were completed successfully.

## 10. Additional References

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

- *Administering Avaya Aura™ Communication Manager*, Document 03-300509, Release 6.0, Issue 6.0, June 2010, available at <http://support.avaya.com>
- *Avaya Aura™ Application Enablement Services Administration and Maintenance Guide*, Document ID 02-300357, Release 5.2, Issue 11, November 2009, available at <http://support.avaya.com>.
- *OAISYS Tracer with AVAYA AES Installation Guide*, Release 6.1, August 21, 2010, available at <http://www.oaisys.com>
- *OAISYS Tracer Administrator Guide*, Release 6.1, August 26, 2010, available at <http://www.oaisys.com>
- *OAISYS Management Studio User Guide*, Release 6.1, August 23, 2010, available at <http://www.oaisys.com>
- *OAISYS Tracer VoIP Recording Info*, 2006, available at <http://www.oaisys.com>
- *OAISYS Installation Troubleshooting Guide*, Release 6.1, April 20, 2010, available at <http://www.oaisys.com>

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