



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

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# **Application Notes for KnoahSoft Harmony with Avaya Communication Manager using Avaya Application Enablement Services – Issue 1.0**

### **Abstract**

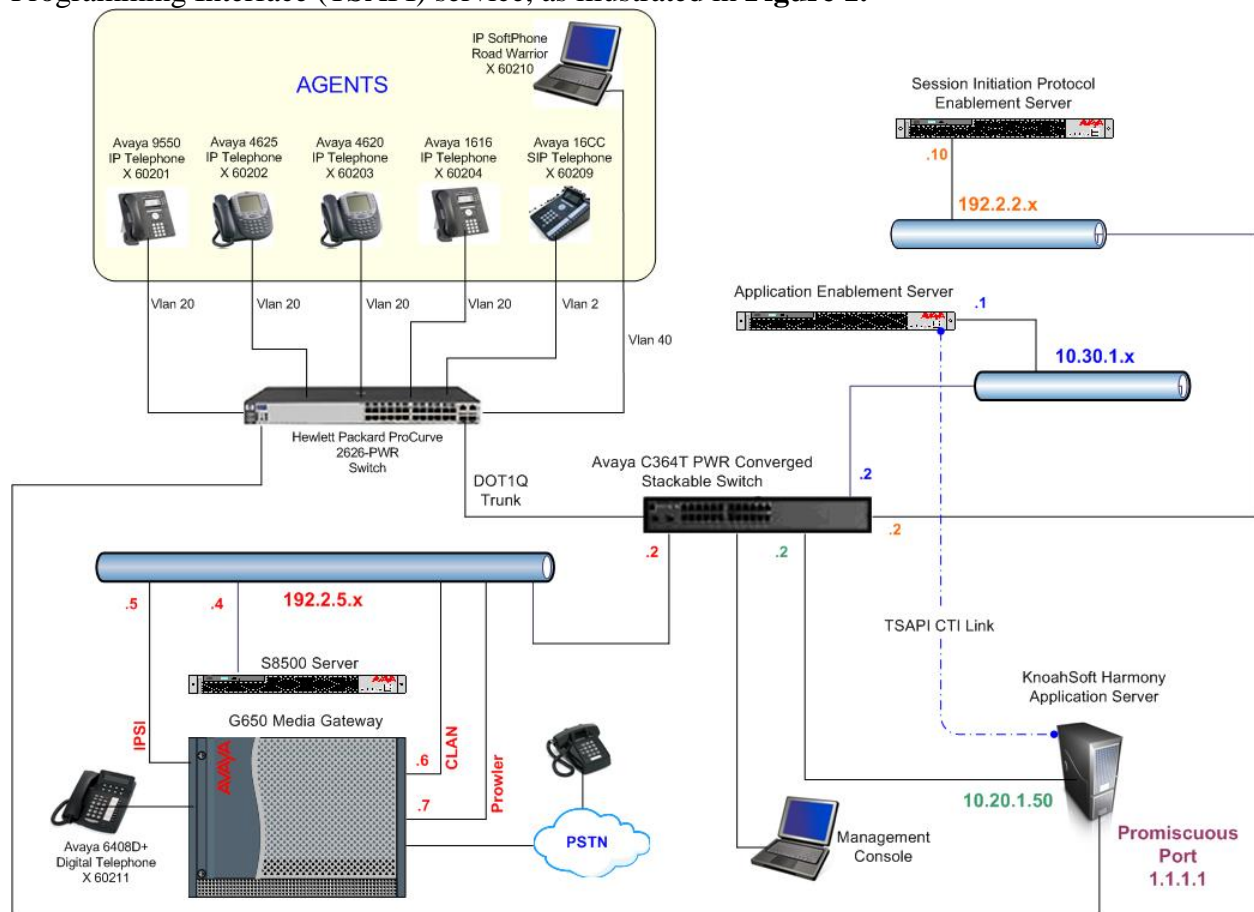
These Application Notes describe the configuration steps required for KnoahSoft Harmony 1.6 to successfully interoperate with Avaya Communication Manager 5.0 using Avaya Application Enablement Services.

Information in these Application Notes was 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

KnoahSoft Harmony is a WEB based call recording and monitoring software application that offers automatic recording and archiving of agent sessions, silent monitoring of an agent's session by an authorized party at any point in the session, and extensive reporting capabilities based on various search parameters. KnoahSoft Harmony utilizes the Computer Telephony Integration (CTI) event reports from Avaya Communication Manager for call monitoring and reporting, and provides automatic call recording and archiving of agent conversations.

The integration of KnoahSoft Harmony with Avaya Communication Manager is achieved through the Avaya Application Enablement Services (AES) Telephony Services Application Programming Interface (TSAPI) service, as illustrated in **Figure 1**.



**Figure 1: KnoahSoft Harmony with Avaya Communication Manager using AES**

The KnoahSoft Harmony server requires integrating at least two NICs (Network Interface Card) into the network infrastructure. One of the NIC's must be integrated into the Avaya Enablement Services Server network and the other NIC must promiscuously sniff the RTP, RTCP media traffic and SIP signaling traffic, preferably via a mirrored port on a Layer 2 switch (not covered within these application notes), or as compliance tested, isolating the telephone devices into a smart switch (see **Figure 1**).

As a side note, digital or analog telephones are not supported with the KnoahSoft Harmony application.

The KnoahSoft Harmony Administrator and User application is a WEB-based interface that can be activated from any computer within the infrastructure with proper access permissions. The KnoahSoft Harmony Administrator application was used only to setup user accounts for each agent extension via the Employee Management interface. The administration functionality for Hierarchy's Organization and Site/Queues, Business Rules for call recording, and User Management's User Access Management were not used in the compliance testing.

The KnoahSoft Harmony User application was mostly used for the compliance test because it focused mainly on the recording, reporting, and silent monitoring functionality of the KnoahSoft Harmony application.

## 2. Equipment and Software Validated

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

Equipment	Software
Avaya S8500 Server	Communication Manager 5.0.0, load 825.4
Avaya G650 Media Gateway <ul style="list-style-type: none"> <li>TN799DP C-LAN Circuit Pack</li> <li>TN2302AP IP Media Processor</li> </ul> Circuit Pack	HW01 FW015 HW13 FW095
Avaya Application Enablement Services	4.1 (31.2.0)
Avaya Session Enablement Services	SES-5.0.0.0-825.31
Avaya C363T-PWR Converged Stackable Switch	4.3.12
Avaya 4610SW IP Telephones	2.3
Avaya 4625 Series IP Telephones	2.8.3
Avaya 9650 IP Telephones	2.21
Avaya 16CC SIP Telephone	1.0.11.2
Avaya 1616 IP Telephones	1.11
KnoahSoft Harmony using Dell Precision 360 with Windows 2003 Server	Release 1.6 Build -KSKA_VOIP_Release_1.6_04212008_00004

### **3. Configure Avaya Communication Manager**

This section provides the procedures for configuring Avaya Communication Manager. The procedures fall into the following areas:

- Administer C-LAN for AES connectivity
- Administer transport link for AES connectivity
- Administer CTI link with TSAPI service

The detailed administration of contact center devices, such as VDN, Skill, Split, Logical Agents and Station Extensions are assumed to be in place and are not covered in these Application Notes.

### 3.1. Administer C-LAN for AES Connectivity

The C-LAN administration procedure will involve adding an IP node name, an IP interface, and a data module.

1. Add an entry for the C-LAN in the node-names form. Use the “change node-names ip” command, as shown in **Figure 2**. In this case, “Clan-1” and “192.2.5.6” are entered as **Name** and **IP Address** for the C-LAN that will be used for connectivity to the AES server. The actual node name and IP address may vary. Submit these changes.

change node-names ip	
IP NODE NAMES	
Name	IP Address
Clan-1	192.2.5.6
Prowler-1	192.2.5.7
default	0.0.0.0
procr	192.2.5.4

**Figure 2: IP Node Names**

2. Add the C-LAN to the system configuration using the “add ip-interface 1a03” command. Note that the actual slot number may vary. In this case, “1a03” is used as the slot number, as shown in **Figure 3** below. Enter the node name assigned from **Figure 2** above into the **Node Name** field, and then the IP address will be populated automatically.

Enter proper values for the **Subnet Mask** and **Gateway Address** fields. In this case, “255.255.255.0” and “192.2.5.2” are used to correspond to the network configuration in these Application Notes. Set the **Enable Ethernet Port** field to “y”, and the **Network Region** for the C-LAN dedicated for AES connectivity. Default values may be used in the remaining fields. Submit these changes.

add ip-interface 01a03	Page 1 of 1
IP INTERFACES	
Type: C-LAN	
Slot: 01A03	
Code/Suffix: TN799 D	
<b>Node Name: Clan-1</b>	
IP Address: 192.2 .5 .6	
Subnet Mask: 255.255.255.0	Link: 1
<b>Gateway Address: 192.2 .5 .2</b>	
Enable Ethernet Port? y	Allow H.323 Endpoints? y
<b>Network Region: 1</b>	Allow H.248 Gateways? y
VLAN: n	Gatekeeper Priority: 5
Target socket load and Warning level: 400	
Receive Buffer TCP Window Size: 8320	
ETHERNET OPTIONS	
Auto? y	Page 1 of 1

**Figure 3: IP Interface**

3. Add a new data module using the “add data-module n” command, where “n” is an available extension. Enter the following values as shown in **Figure 4**:

- **Name:** A descriptive name.
- **Type:** “ethernet”
- **Port:** Same slot number from **Figure 3** and port “17”.
- **Link:** A link number not previously assigned on this switch.

```
add data-module 60000
                                DATA MODULE

Data Extension: 60000           Name: Clan-1
    Type: ethernet
    Port: 01a0317
    Link: 11

Network uses 1's for Broadcast Addresses? y
```

**Figure 4: Data Module**

### 3.2. Administer Transport Link for AES Connectivity

Administer the transport link to Avaya Application Enablement Services (AES) with the “change ip-services” command.

1. Add an entry with the following values for fields on Page 1, as shown in **Figure 5** below:
  - **Service Type:** “AESVCS”
  - **Enabled:** “y”
  - **Local Node:** Node name for the Clan-a assigned in **Figure 2**.
  - **Local Port** Retain the default of “8765”.

change ip-services					Page	1 of	4
IP SERVICES							
Service	Enabled	Local	Local	Remote	Remote		
Type		Node	Port	Node	Port		
CDR1		Clan-1	0	TestSite	9002		
CDR2		Clan-1	0	CDR-2nd	9004		
<b>AESVCS</b>	<b>y</b>	<b>Clan-1</b>	<b>8765</b>				

**Figure 5: IP Services Page 1**

- Go to Page 4 of the IP Services form, and enter the following values as shown in **Figure 6**:

- **AE Services Server:** Name obtained from the AES server, in this case “AES-Test”.
- **Password:** Same password to be administered on the AES server.
- **Enabled:** “y”

Note that the name and password entered for the **AE Services Server** and **Password** fields must match the name and password on the AES server. The administered name for the AES server is created as part of the AES installation, and can be obtained from the AES server by typing “uname -n” at the Linux command prompt. The same password entered in **Figure 6** below will need to be set on the AES server using **Administration > Switch Connections > Edit Connection > Set Password** as shown in **Figure 12**.

change ip-services				Page	3 of	3
AE Services Administration						
Server ID	AE Services Server	Password	Enabled	Status		
1:	AES-Test	***	y			
2:						

**Figure 6: IP Services Page 3**

### 3.3. Administer CTI Link with TSAPI Service

Add a CTI link and set the values as shown in **Figure 7** below using the “add cti-link n” command, where “n” is an available CTI link number.

- Enter an available extension number in the **Extension** field. Note that the CTI link number and extension number may vary. Enter “ADJ-IP” in the **Type** field, and a descriptive name in the **Name** field. Default values may be used in the remaining fields. Submit these changes.

add cti-link 1		Page 1 of 3	
CTI LINK			
CTI Link: 1			
Extension: 60100			
Type: ADJ-IP			
		COR: 1	
Name: TSAPI Link			

**Figure 7: CTI Link**

## 4. Configure Avaya Application Enablement Services

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

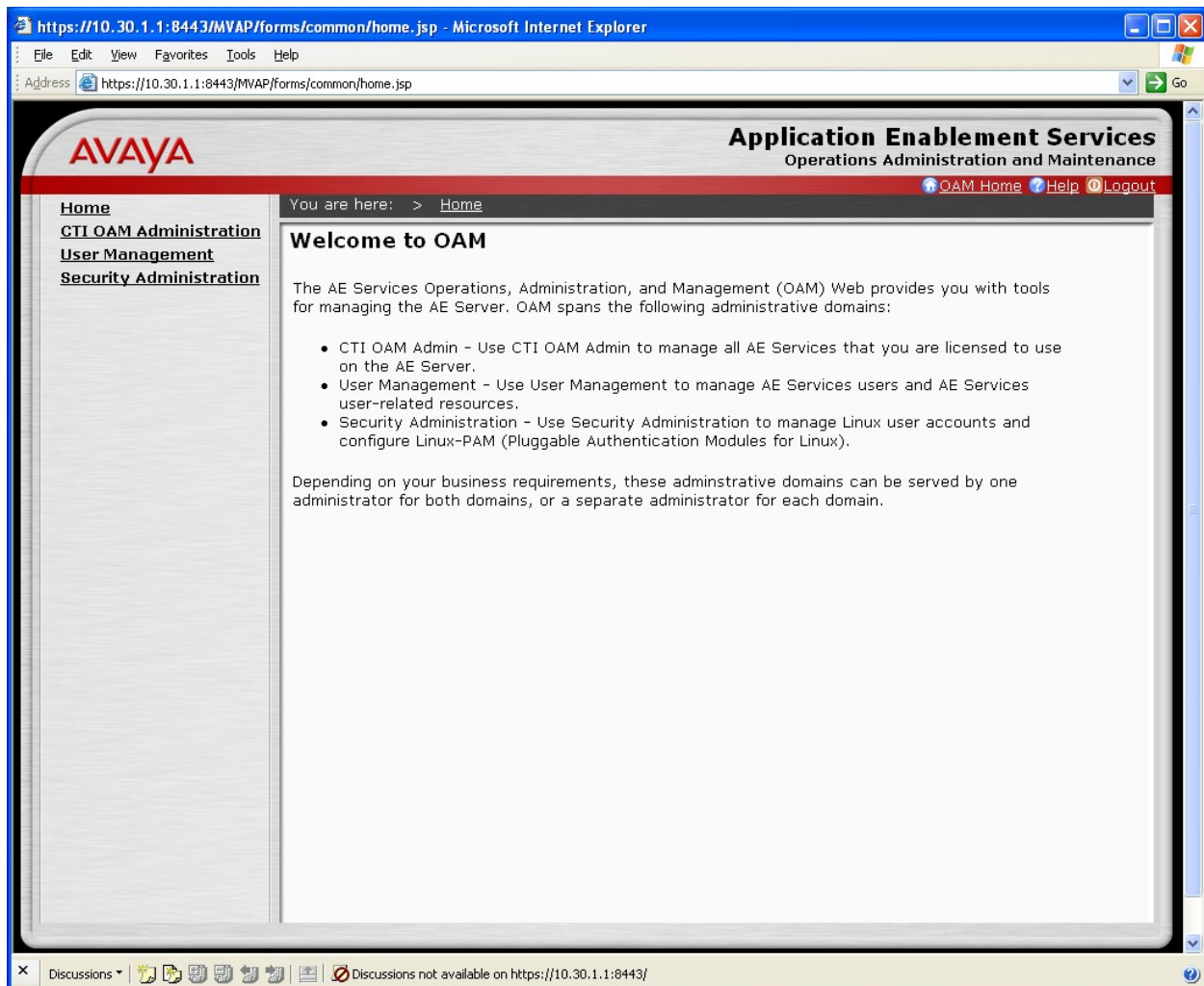
- Verify Avaya Application Enablement Services License
- Administer local IP
- Administer switch connections
- Administer TSAPI link
- Administer security database
- Administer KnoahSoft Harmony user

### 4.1. Verify Avaya Application Enablement Services License

From the WEB browser, enter the IP address of the AES. For example enter <http://10.30.1.1>. The Avaya Application Enablement Services screen should display. At this point, either the **AE Server Administration** or the **WebLM Administration** can be selected (not shown). Select **AE Server Administration** and log into AES with the correct credentials.

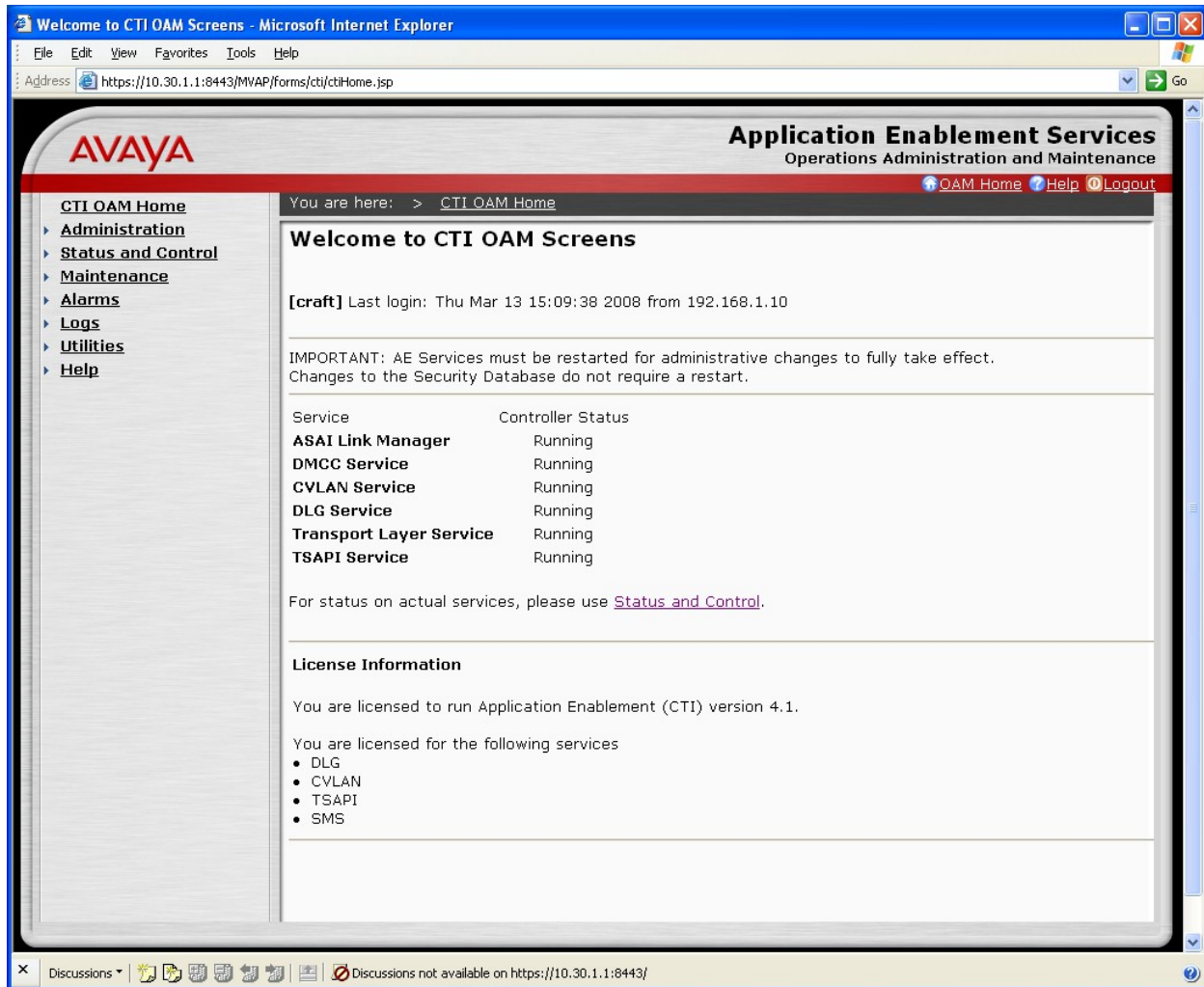


1. The **Welcome to OAM** screen will be displayed as shown in **Figure 8**. From the right panel, initially select **CTI OAM Administration**. **Note: User Management** is covered in a later step.



**Figure 8: Welcome to OAM**

2. The **License Information** must be visible as displayed in the **Welcome to CTI OAM Screens** as in **Figure 9**. Verify that the Avaya Application Enablement Services license has proper permissions for the features illustrated in these Application Notes by ensuring the TSAPI service is licensed. If the TSAPI service is not licensed, then contact the Avaya sales team or business partner for a proper license file.



**Figure 9: Welcome to CTI OAM Screens**

## 4.2. Administer Local IP

From the menu column, select **Administration** → **Network Configuration** → **Local IP**.

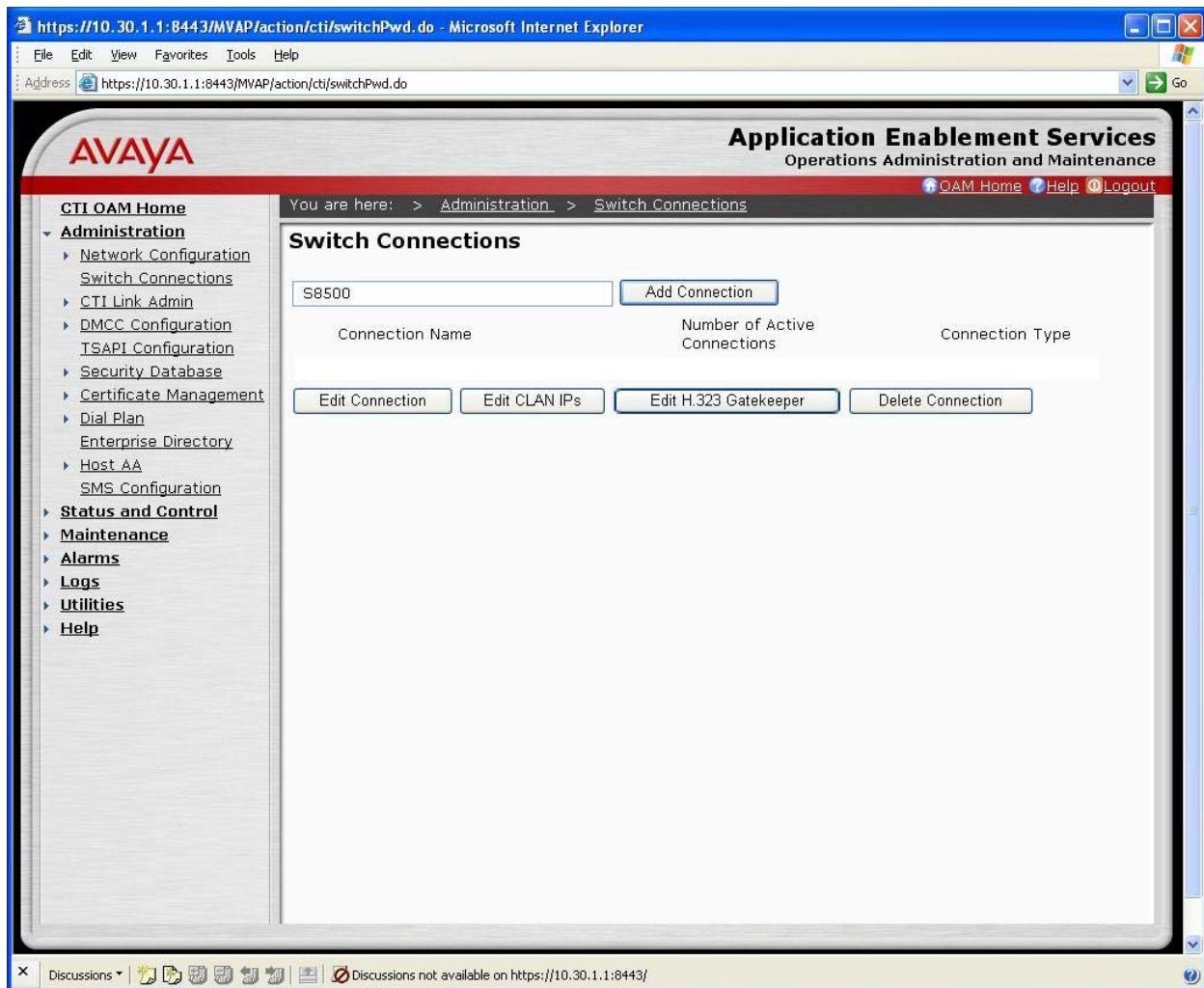
1. As shown in Figure 10, in the **Client Connectivity** field, select the AES server IP address that will be used to connect to KnoahSoft Harmony. In the **Switch Connectivity** field, select the AES server IP address that will be used to connect to Avaya Communication Manager. Click on **Apply Changes**.



**Figure 10: Local IP**

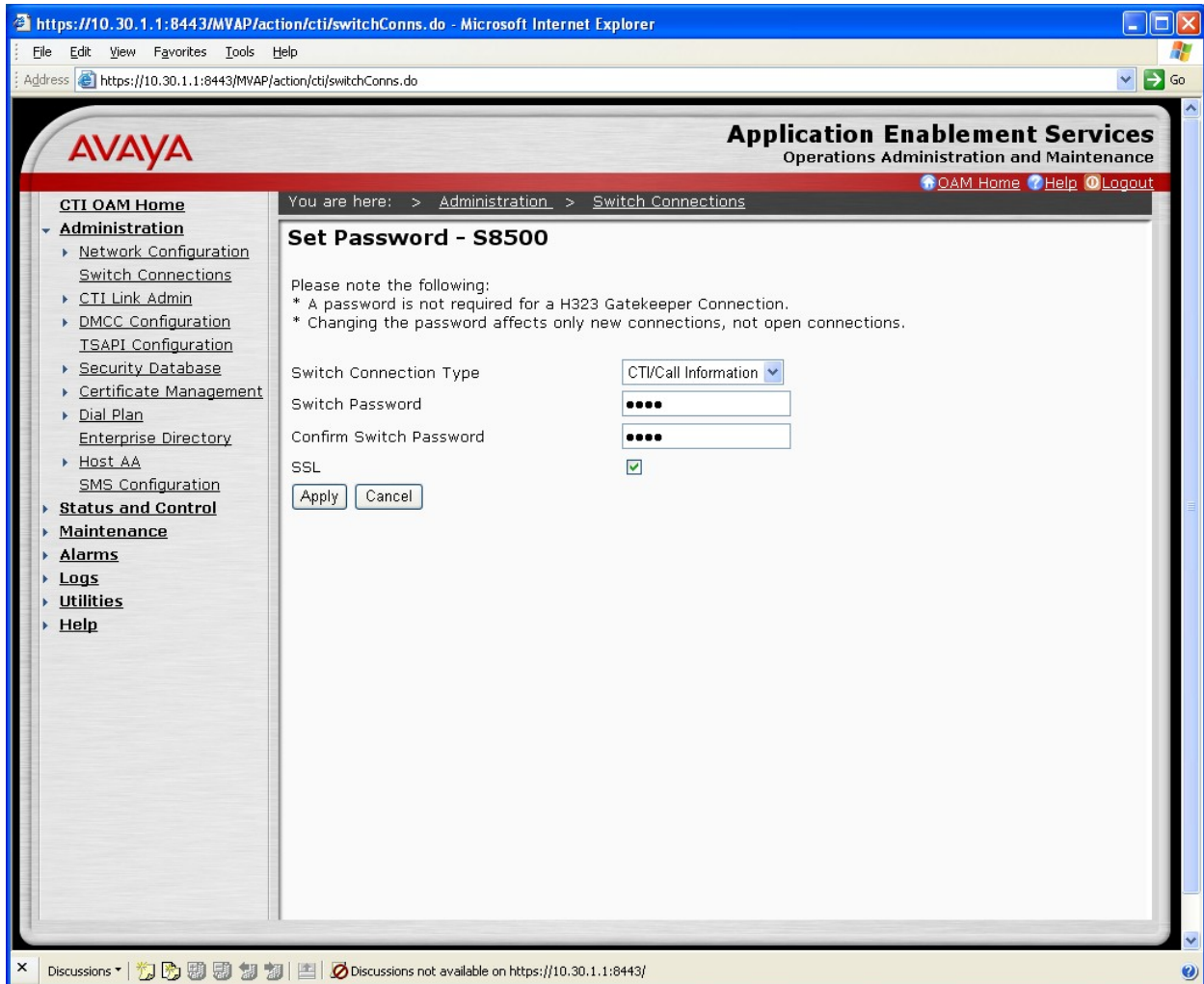
### 4.3. Administer Switch Connections

1. From the CTI OAM Home menu, select **Administration** → **Switch Connections**. As shown in **Figure 11**, enter a descriptive name for the switch connection and click on **Add Connection**. In this case, the name **S8500** is used, and the actual switch connection name will vary.



**Figure 11: Switch Connections**

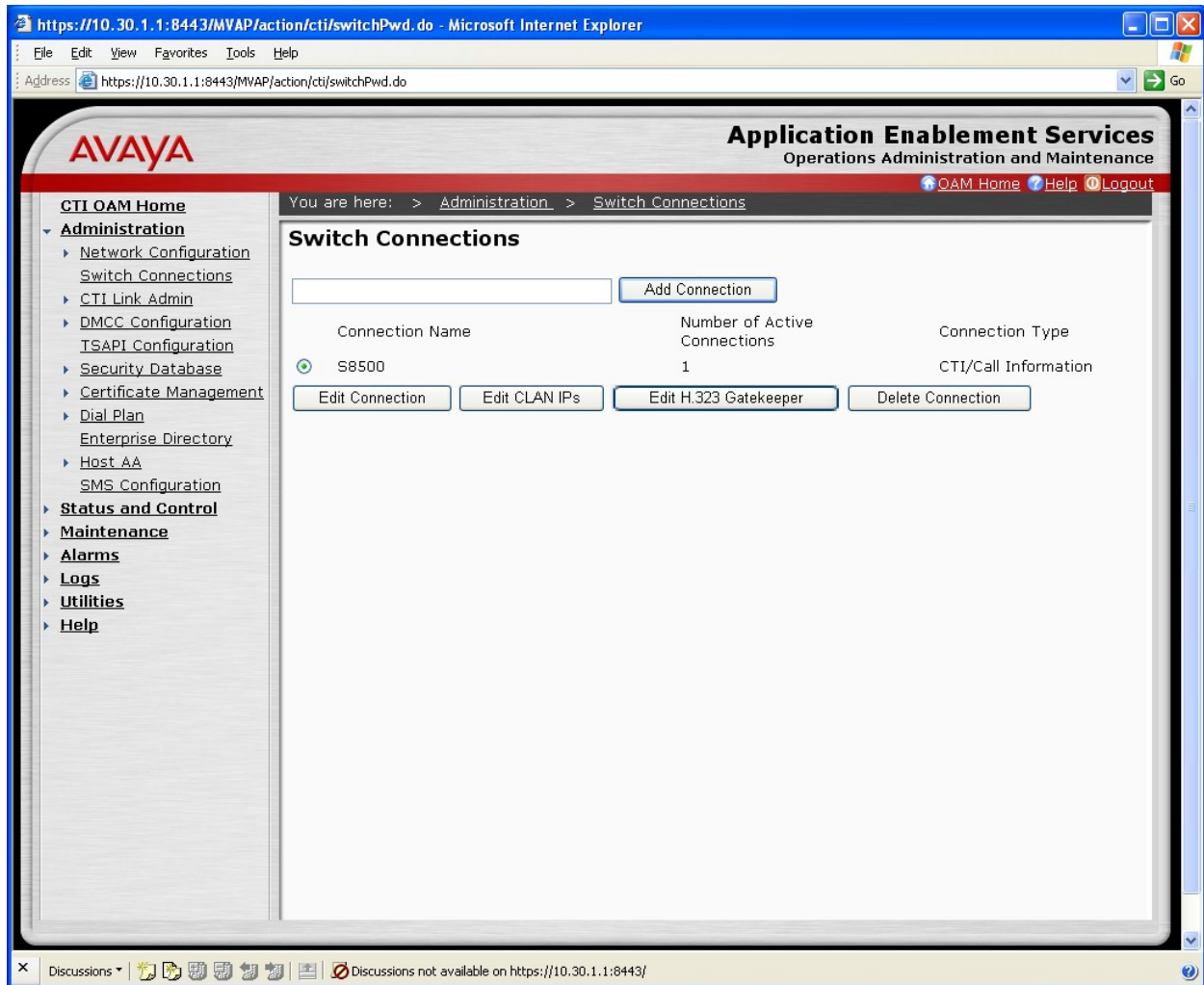
2. The **Set Password** screen is displayed. As shown in **Figure 12**, enter the same password that was administered in Avaya Communication Manager using the IP Services form in **Figure 6**. Re-enter the same password in the **Confirm Switch Password** field. Note that the default value of checked may be retained for the **SSL** field. Had the switch been an Avaya DEFINITY Server G3csi, the **SSL** field would need to be unchecked. Click on **Apply**.



**Figure 12: Set Password**

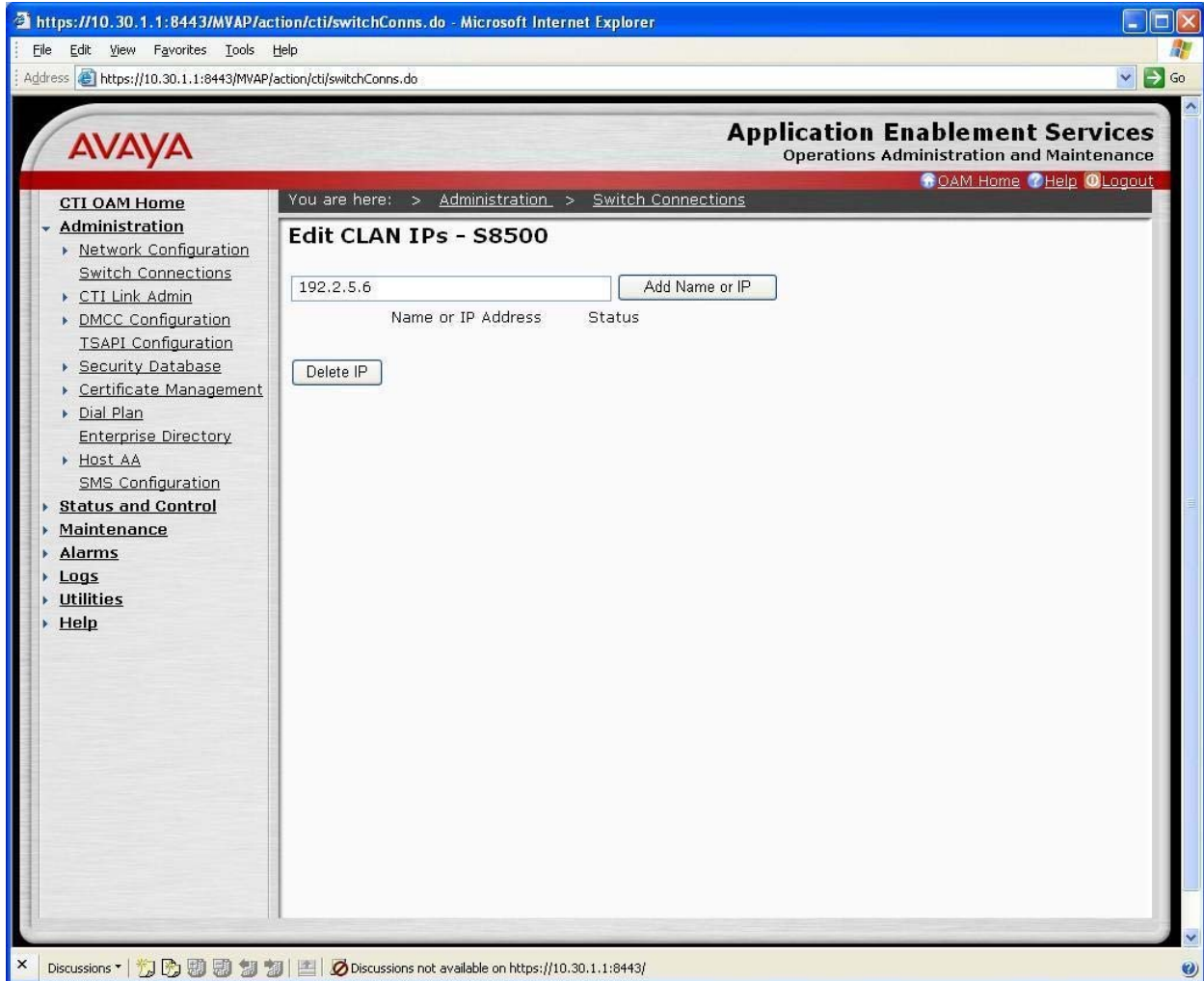


- The S8500 entry is created as shown in **Figure 13**. Click on **Edit CLAN IPs** if you need to change the password.



**Figure 13: Configured Switch Connections**

4. In the Edit CLAN IPs – S8500 screen, enter the host name or IP address of the C-LAN used for AES connectivity as shown in Figure 14. In this case, 192.2.5.6 is used, which corresponds to the C-LAN administered on Avaya Communication Manager in Figure 2. Click on Add Name or IP.



**Figure 14: Edit CLAN IPs**

## 4.4. Administer TSAPI Service

1. To administer a TSAPI link on AES, select **Administration > CTI Link Admin > TSAPI Links** from the CTI OAM Home menu as shown in **Figure 15** below. Click on **Add Link**.



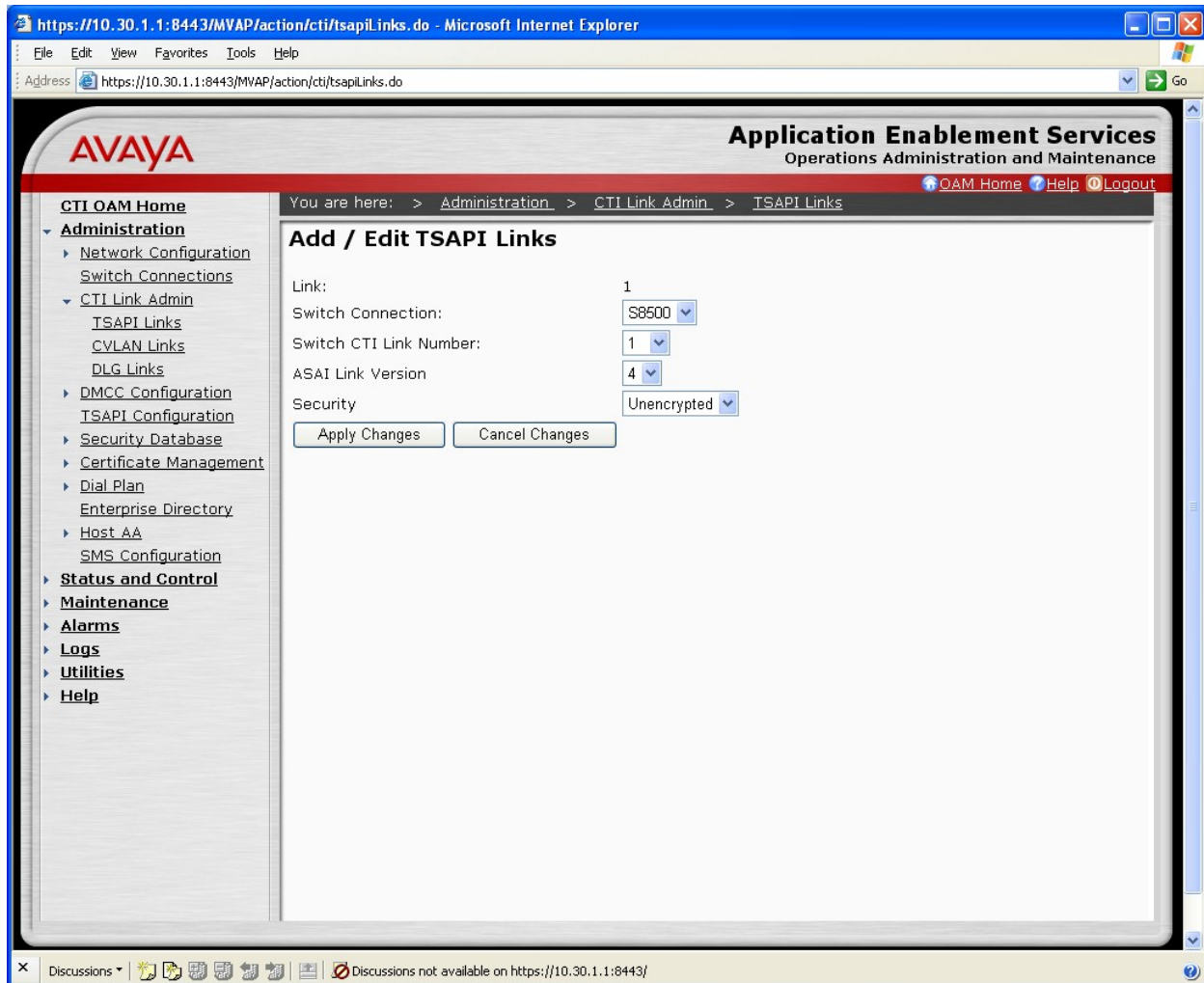
**Figure 15: TSAPI Links**



2. In the Add/Edit TSAPI Links screen, select the following values as shown in **Figure 16**:

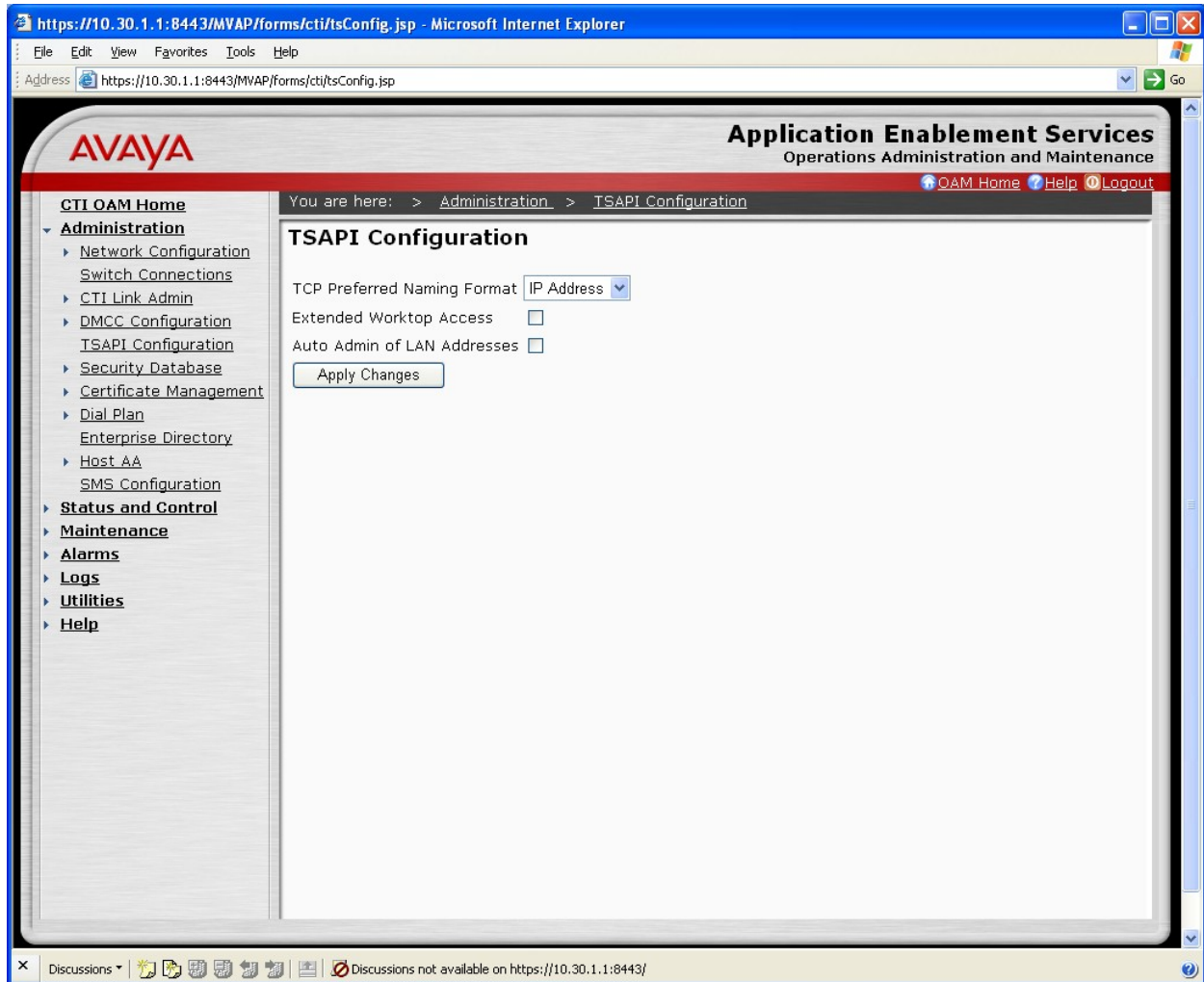
- **Switch Connection:** Administered switch connection configured in **Figure 11**.
- **Switch CTI Link Number:** Corresponding CTI link number configured in **Figure 7**.

**Note:** The actual values for both fields may vary. Click on **Apply Changes**.



**Figure 16: Add/Edit TSAPI Links**

3. Enable the security database on AES, as this functionality is utilized by KnochSoft Harmony. From the CTI OAM Home menu, select **Administration > TSAPI Configuration** to display the TS Configuration screen shown in **Figure 17** below. For **TCP Preferred Naming Format** select **IP Address** followed by **Apply Changes**.



**Figure 17: TSAPI Configuration**

4. Navigate to the Tlinks screen by selecting **Administration > Security Database > Tlinks** from the CTI OAM Home menu. Note the value of the **Tlink Name**, as this will be needed for configuring KnoahSoft Harmony.

In this case, the **Tlink Name** is **AVAYA#S8500#CSTA#AES-TEST**, which is automatically created by the AES server and shown in **Figure 18**.

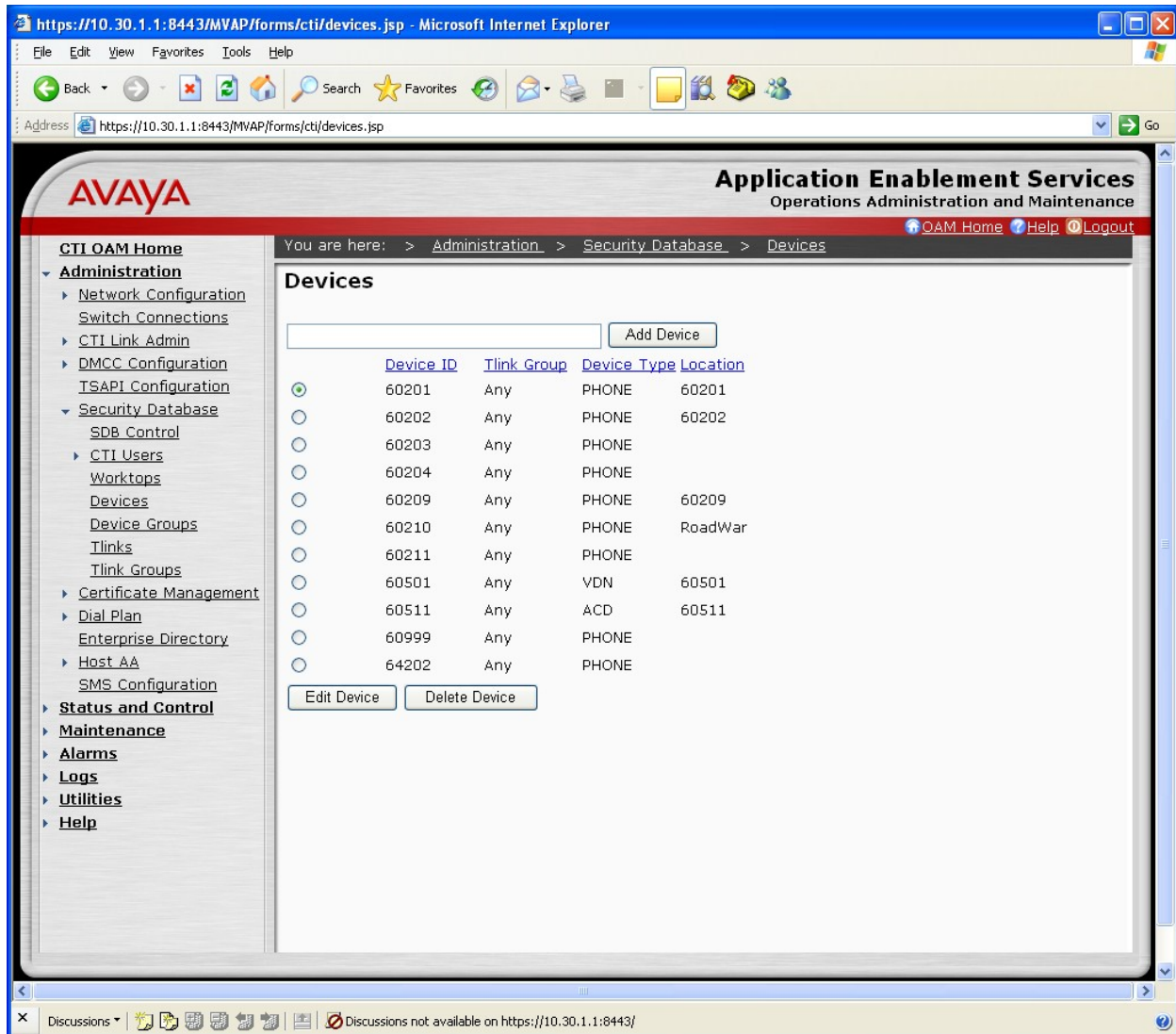


**Figure 18: Tlinks**

## 4.5. Administer Security Database

All devices that are monitored by KnoahSoft Harmony need to be configured in the AES security database.

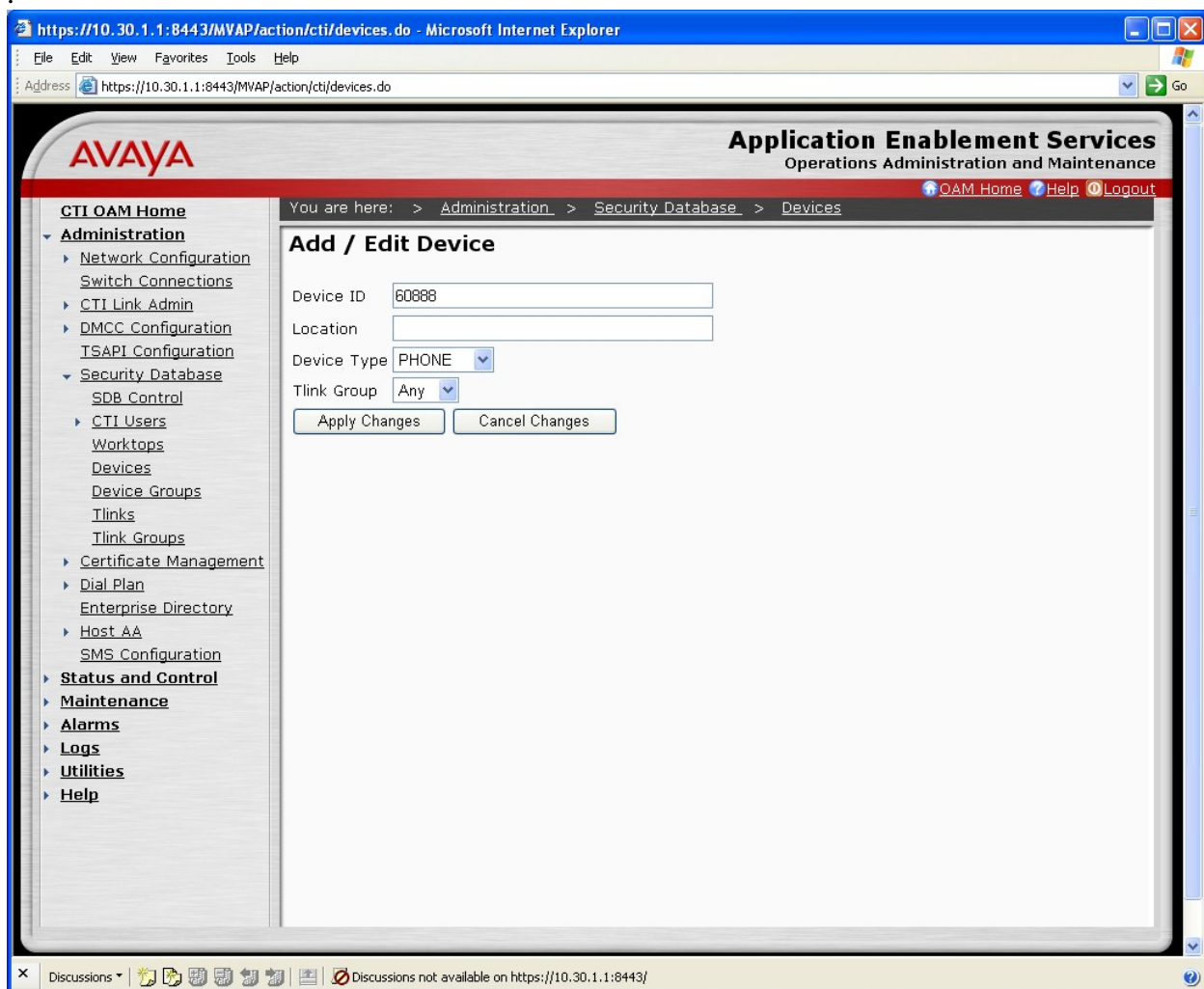
1. From the CTI OAM Home menu, select **Administration > Security Database -> Devices**, and add each device by entering the device extension and clicking on **Add Device**. A sample listing of the configured devices used for compliance testing is shown in **Figure 19**. Note that the total number of devices may vary, as this depends on the number of extensions to be recorded and monitored.



**Figure 19: Devices**

The associated field values for each device are entered in the **Add / Edit Device** screen shown in **Figure 20**. The following is a description of the device types that can be monitored by KnoahSoft Harmony:

- **PHONE:** Station extensions.
- **VDN:** Vector Directory Number extensions.
- **AGENT ID:** Logical agent extensions.
- **ACD:** ACD split or Skill group extensions



**Figure 20: Add/Edit Devices**

#### **4.6. Administer An AES KnoahSoft Harmony User**

Select **OAM Home -> User Management** to display the AES login screen. Log in using the User Management user name and password, and the same “Welcome To OAM” screen shown in **Figure 8** is displayed.



1. To create the KnoahSoft user on AES, select **OAM Home > User Management > Add User** from the User Management Home menu. In the **Add User** screen shown in **Figure 21**, enter the following values:

- **User Id:** A meaningful user id.
- **Common Name:** A descriptive name.
- **Surname:** A descriptive surname.
- **User Password:** Password for the KnoahSoft user.
- **Confirm Password:** Re-enter the same password for the KnoahSoft user.
- **Avaya Role:** Retain the default of “None”.
- **CT User:** Select “Yes” from the dropdown menu.

Click on **Apply** at the bottom of the screen (not shown in **Figure 21**).

**Add User - Microsoft Internet Explorer**

File Edit View Favorites Tools Help

Address <https://10.30.1.1:8443/MVAP/action/user/precreateuser.do> Go

**AVAYA** **Application Enablement Services**  
Operations Administration and Maintenance

[OAM Home](#) [Help](#) [Logout](#)

**User Management Home**

- ▼ **User Management**
  - [List All Users](#)
  - [Add User](#)
  - [Search Users](#)
  - [Modify Default User](#)
  - [Change User Password](#)
- **Service Management**
- **Help**

You are here: > [User Management](#) > [Add User](#)

**Add User**

Fields marked with \* can not be empty.

\* User Id

\* Common Name

\* Surname

\* User Password

\* Confirm Password

Admin Note

Avaya Role

Business Category

Car License

CM Home

Ciss Home

CT User

Department Number

Display Name

Employee Number

Employee Type

Enterprise Handle

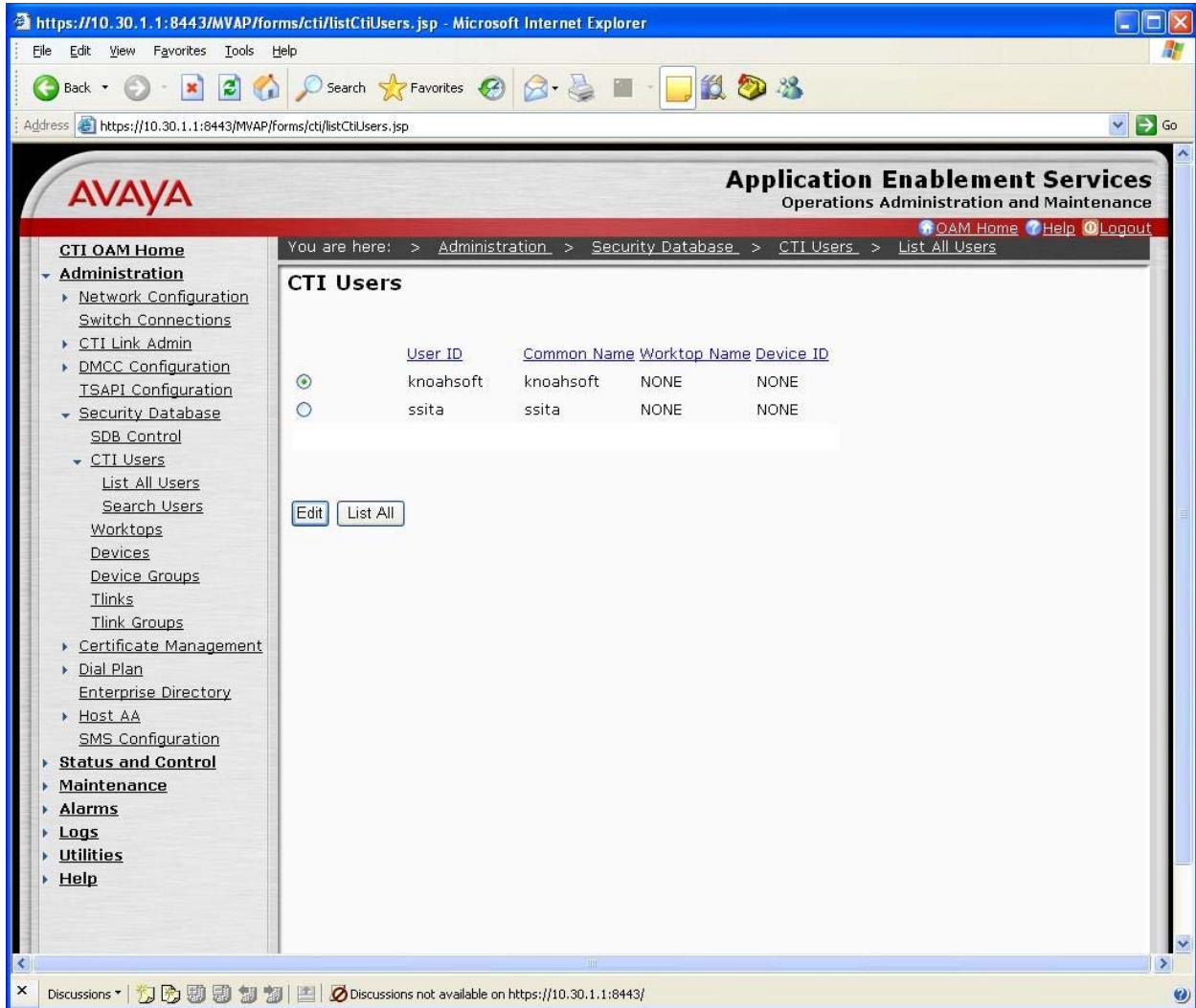
Given Name

Home Phone

Discussions not available on <https://10.30.1.1:8443/>

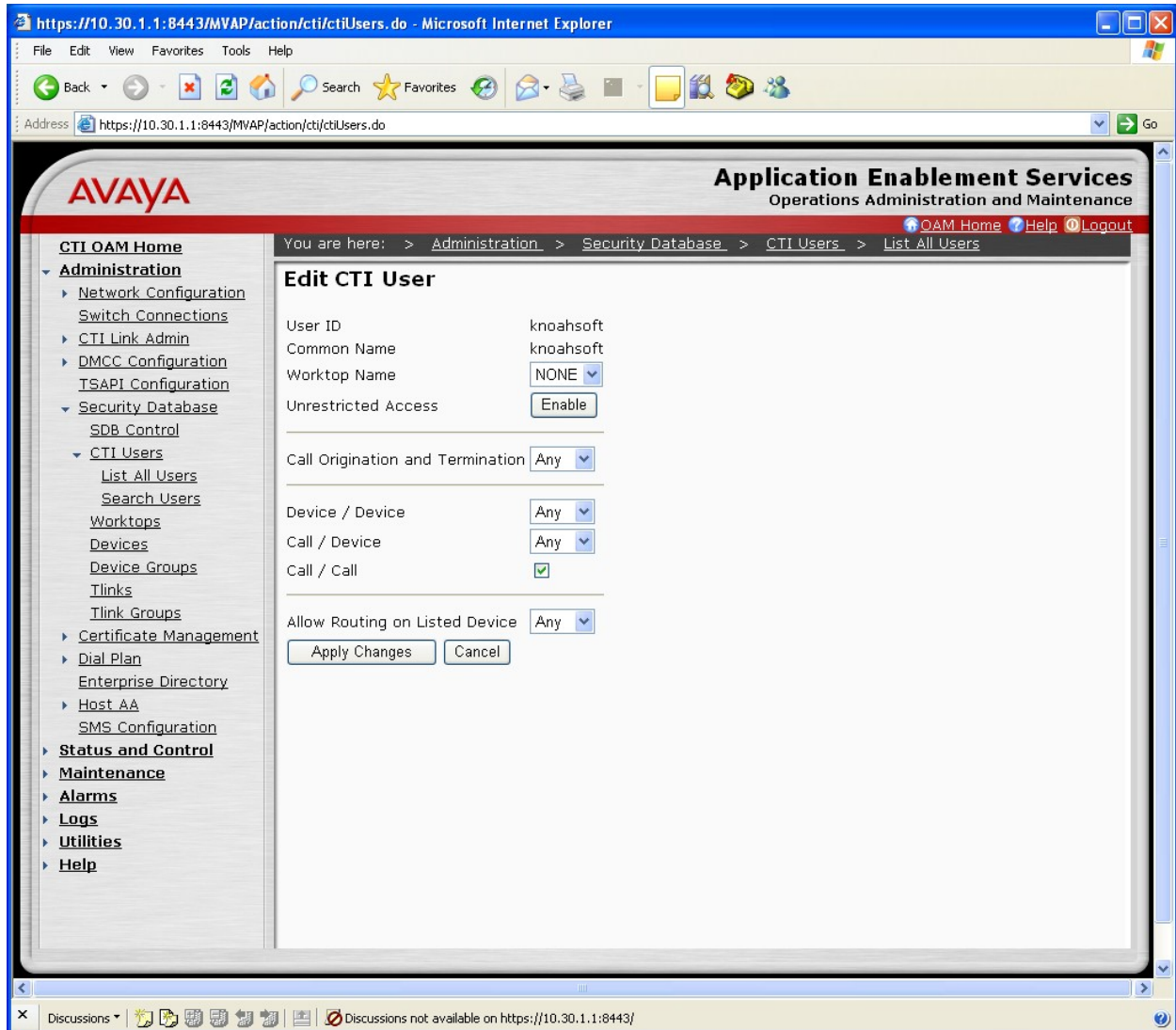
**Figure 21: Add User**

2. Select **OAM Home** then **CTI OAM Administration** from the Home menu. From the CTI OAM Home menu, select **Administration** → **Security Database** → **CTI Users** → **List All Users** to get a listing of all CTI users, as shown in **Figure 22**. Select the “knoahsoft” user created in **Figure 21** and click on **Edit**.



**Figure 22: CTI Users**

3. The Edit CTI User screen is displayed, as shown in **Figure 23**. Select **Any** from the drop down menu for the **Call Origination and Termination, Device / Device, Call / Device,** and **Allow Routing on Listed Device** fields. Enable the **Call / Call**, followed by **Apply Changes**.



**Figure 23: Edit CTI User**



## 5. Configure KnoahSoft Harmony

This section provides the procedures for configuring an extension or agent into the KnoahSoft Harmony application and database. It is assumed that the KnoahSoft Harmony application software has been installed on a Windows 2003 Server, has been properly administered, and is operational.

Please consult **Reference [1], [2], and [3]** when installing and administering KnoahSoft Harmony.

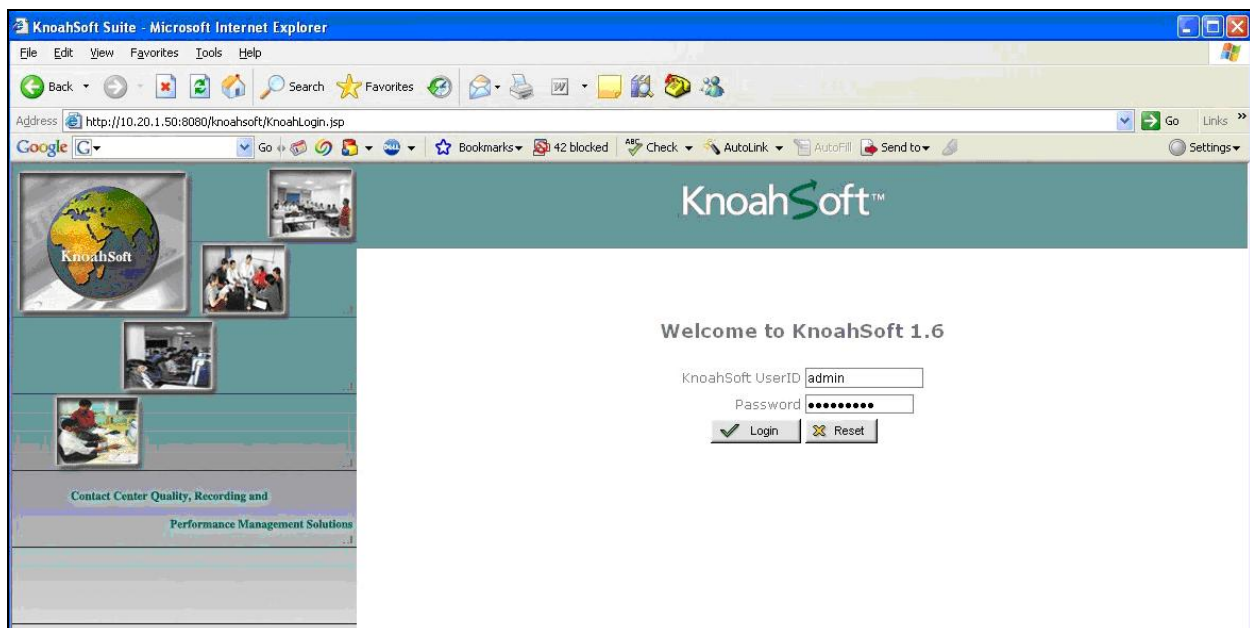
### 5.1. KnoahSoft Harmony Account Login

1. During the installation process, an administrator account and password is setup by default. On a PC within the infrastructure, enter the following URL:

**http://< IP Address KnoahSoft Server>:8080/**

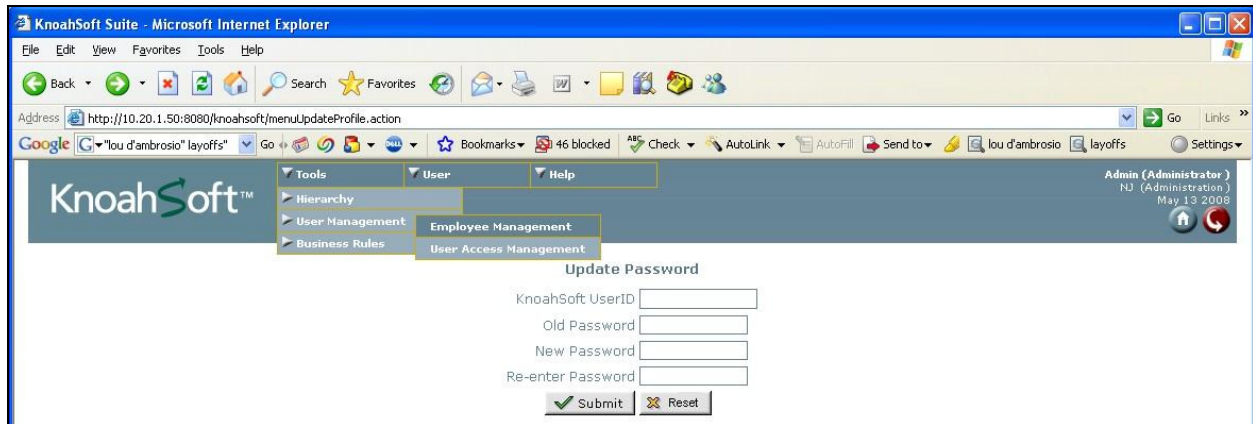
The IP address of the KnoahSoft Harmony server will vary. When the following screen is displayed, enter the administrative **KnoahSoft UserID** and **Password**, and then click **Login**.

**Note:** A pre-designated group of system permissions given to Administrators, Operators, Managers, and other business related entities is called a **Department**, under the **Reporting Profile**. Setting up the **Department** access permissions was not part of the compliance test; however it is normally performed by KnoahSoft Harmony administrators.



**Figure 24: KnoahSoft Login Screen**

- Following the login, **Figure 25** is displayed. Select **Tools → User Management → Employee Management**.



**Figure 25: Employee Management Screen**

- The **Personal Profile** fields are displayed when the **Add New** button is clicked, as shown in **Figure 26**.

**Figure 26: Personal Profile**

## 5.2. KnoahSoft Harmony Administration Account

1. The screen displayed as in **Figure 27** is an example of an Administration account. The Required Fields are indicated by the **red** asterisk however the **Department** pull down menu determines the permissions (or access) lever of the account being created. In this case, an administration account is created.

Please consult **Reference [2]** and **[3]** for administering KnoahSoft Harmony **Department** permissions.

**Note:** The **Network ID** name is the name used for logon purposes. Click **Reset Password** for a default password. Click **Submit** when done.

The screenshot shows the 'KnoahSoft Suite - Microsoft Internet Explorer' window. The address bar displays the URL: `http://10.20.1.50:8080/knoahsoft/searchEmployeeTrackingSummary.action?method=getSkillListInfo`. The browser's toolbar includes buttons for Back, Forward, Stop, Home, Search, Favorites, and a Google search bar. The page title is 'KnoahSoft™'. The main content area is divided into several sections:

- Personal Profile** (Required Fields):
  - \*Emp Code: 1
  - \*Emp Name: Admin
  - \*Corporate eMail: admin@mycompany.com
  - \*Hire Date: 03/23/2008
  - \*Date Of Birth: 04/23/1991
  - \*Employee Status: Active
- Reporting Profile**:
  - \*Company/Vendor: AVAYA
  - \*Department: Administration
  - Transaction Type: Pick One
  - Supervisor: Pick One
  - \*Site: NJ
  - \*Designation: Administrator
  - Queue: Pick One
- Systems Profile**:
  - \*Network ID: admin
  - Network Domain: mycompany.com
  - VOIP Phone Extension (if any):
  - VoiceLink PIN:
  - \*Comments:

At the bottom of the form, there is a 'KnoahSoft License Status - 9/150' and three buttons: 'Reset Password', 'Submit', and 'Reset'.

**Figure 27: Administration Account Example**

### 5.3. KnoahSoft Harmony Operator Account

1. The Required Fields are indicated by the **red** asterisk however the **Department** pull down menu determines the permissions (or access) lever of the account being created. In this case, an operator account is created.

**KnoahSoft Suite - Microsoft Internet Explorer**

Address: <http://10.20.1.50:8080/knoahsoft/searchEmployeeTrackingSummary.action?method=getSkillListInfo>

**KnoahSoft™**

Admin (Administrator)  
NJ (Administration)  
May 14 2008

**Personal Profile** \* Required Fields

\*Emp Code: 60207  
Alias: lcal  
\*Unique Identifier: lcal  
\*Employee Status: Active  
\*Emp Name: Supervisor  
\*Corporate eMail: lcal@avaya.com  
\*Hire Date: 04/23/2008  
Date Of Birth:   
Termination/Resignation Date:   
Upload Image:   
Browse...

**Reporting Profile**

\*Company/Vendor: AVAYA  
\*Department: Operations  
Transaction Type: CS (Voice)  
Supervisor: Pick One  
\*Site: NJ  
\*Designation: Servers  
Queue: Pick One

**Systems Profile**

\*Network ID: 60527  
Network Domain:   
VOIP Phone Extension (if any): 60527  
VoiceLink PIN:   
\*Comments: 60527 - Not active

KnoahSoft License Status - 10/150

Reset Password Submit Reset

**Figure 28: Operator Account Example**

## 5.4. KnoahSoft Harmony Users Account

1. Same as previously performed in **Section 5.2, Step 1** but group permissions set for the agent. When completed click **Submit**.

The screenshot shows the KnoahSoft Suite web application in a Microsoft Internet Explorer browser. The address bar shows the URL: <http://10.20.1.50:8080/knoahsoft/searchEmployeeTrackingSummary.action?method=getSkillListInfo>. The page title is "KnoahSoft Suite - Microsoft Internet Explorer". The browser's address bar shows the URL: <http://10.20.1.50:8080/knoahsoft/searchEmployeeTrackingSummary.action?method=getSkillListInfo>. The page has a navigation bar with "Tools", "User", and "Help" tabs. The main content area is divided into several sections:

- Personal Profile**: Contains fields for Emp Code (60201), Emp Name (60201), Corporate eMail (dduck@avaya.com), Unique Identifier (dduck), Employee Status (Active), Hire Date (04/23/2008), Date Of Birth, and Termination/Resignation Date. There is an "Upload Image" button and a "Browse..." button.
- Reporting Profile**: Contains fields for Company/Vendor (AVAYA), Department (Operations), Transaction Type (CS (Voice)), Supervisor (Supervisor (SVR)), Site (NJ), Designation (sparky), and Queue (Pick One).
- Systems Profile**: Contains fields for Network ID (60521), Network Domain, VOIP Phone Extension (if any) (60521), VoiceLink PIN, and a text area for Comments (Agent 60521).

At the bottom of the form, there is a "KnoahSoft License Status - 10/150" indicator and buttons for "Reset Password", "Submit", and "Reset".

On the left side of the page, there is a "New Employee" button and a "Search Employee" section. The search results table is as follows:

Emp Code	Employee Name
60201	60201
60202	60202
60203	60203
60204	60204
60209	60209
60210	60210
60211	60211
60212	60212
1	Admin
2	Sals
60207	Supervisor

Figure 29: Extension Example

2. Repeat for all extension/agents.

## 6. Interoperability Compliance Testing

The Interoperability compliance test included selected feature functionality, load, and serviceability testing.

The feature functionality testing focused on verifying KnoahSoft Harmony voice recording and archiving of simple telephone conversations, along with more complicated conversations that involved transferring, conferencing, and being placed on hold. The ability to listen in on a conversation at any point, called **Silent Monitoring**, was functionally tested. In addition, reporting of all conversations as archived in the KnoahSoft database was continually used during

the compliance test, to verify the previous or current telephone conversation. Monitoring the **Current State**, **Caller/Called Number**, and the **Call Type** was also part of the feature functionality test.

The load testing focused on verifying the ability of KnoahSoft Harmony to record conversation to four (4) user extensions over a period of time from a moderate traffic load.

The serviceability testing focused on verifying the ability of KnoahSoft Harmony to recover from adverse conditions, such as busying out the CTI link and disconnecting the Ethernet cable for the CTI link.

## 6.1. General Test Approach

Compliance testing took on a three phase approach that was comprised of the following:

- Installation and configuration of the KnoahSoft Harmony solution
- Interoperability feature test cases between KnoahSoft Harmony and Avaya Communication Manager
- Serviceability and performance tests of the KnoahSoft Harmony solution

The installation process includes the installation of the KnoahSoft Harmony product solution onto a qualified server platform, and to configure the appropriate system parameters to operate with the Avaya Application Enablement Services.

The verification of all interoperability feature test cases included manually checking proper states at the telephone sets, and monitoring the report logs on the KnoahSoft Harmony user application.

The performance test cases were performed by generating ~ 440 calls over a 60 minute period to 4 available agents, and by verify accuracy of various real-time and historical analysis reports using the KnoahSoft Harmony user application.

The serviceability test cases were performed manually by busying out and releasing the CTI link, and by disconnecting and reconnecting the LAN cables.

## 6.2. Test Results

The installation process was challenging and needed to be completed by the KnoahSoft's development staff. The KnoahSoft engineering staff is working on rectifying the challenging aspects of the installation and configuration process. Therefore it is recommended that a qualified KnoahSoft installation engineer perform the product installation.

Due to the promiscuitive port sniffing of the KnoahSoft Harmony solution, Digital telephones / agents are not supported and were not part of the compliance tested.

All test cases have passed successfully.

## 7. Verification Steps

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

### 7.1. Verify Avaya Communication Manager

Verify the status of the administered CTI link by using the **status aesvcs cti-link** command as shown in **Figure 30**.

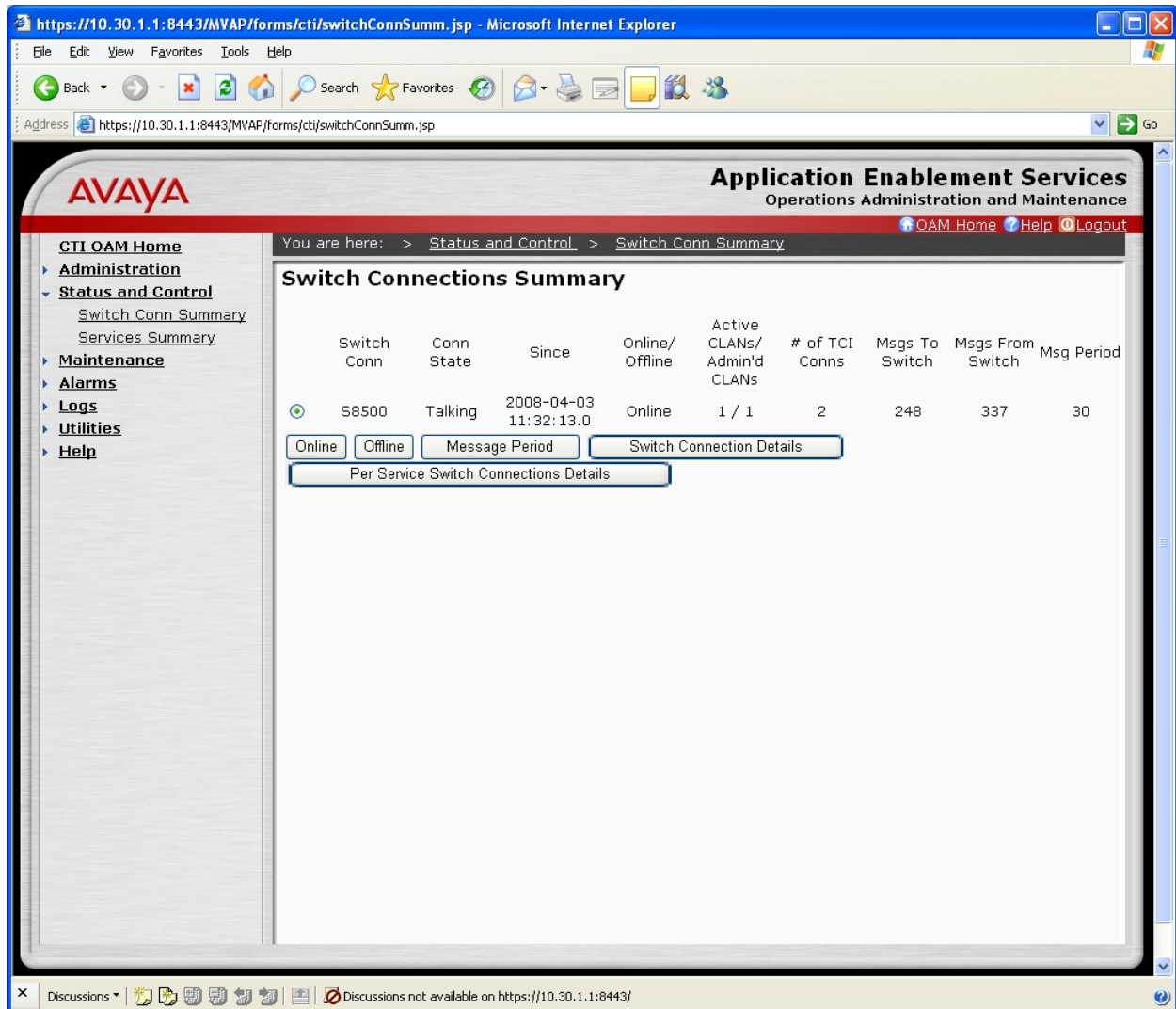
status aesvcs cti-link						
AE SERVICES CTI LINK STATUS						
CTI Link	Version	Mnt Busy	AE Services Server	Service State	Msgs Sent	Msgs Rcvd
1	4	no	AES-Test	established	186	48

**Figure 30: Status Aesvcs CTI-link**



## 7.2. Verify Avaya Enablement Services

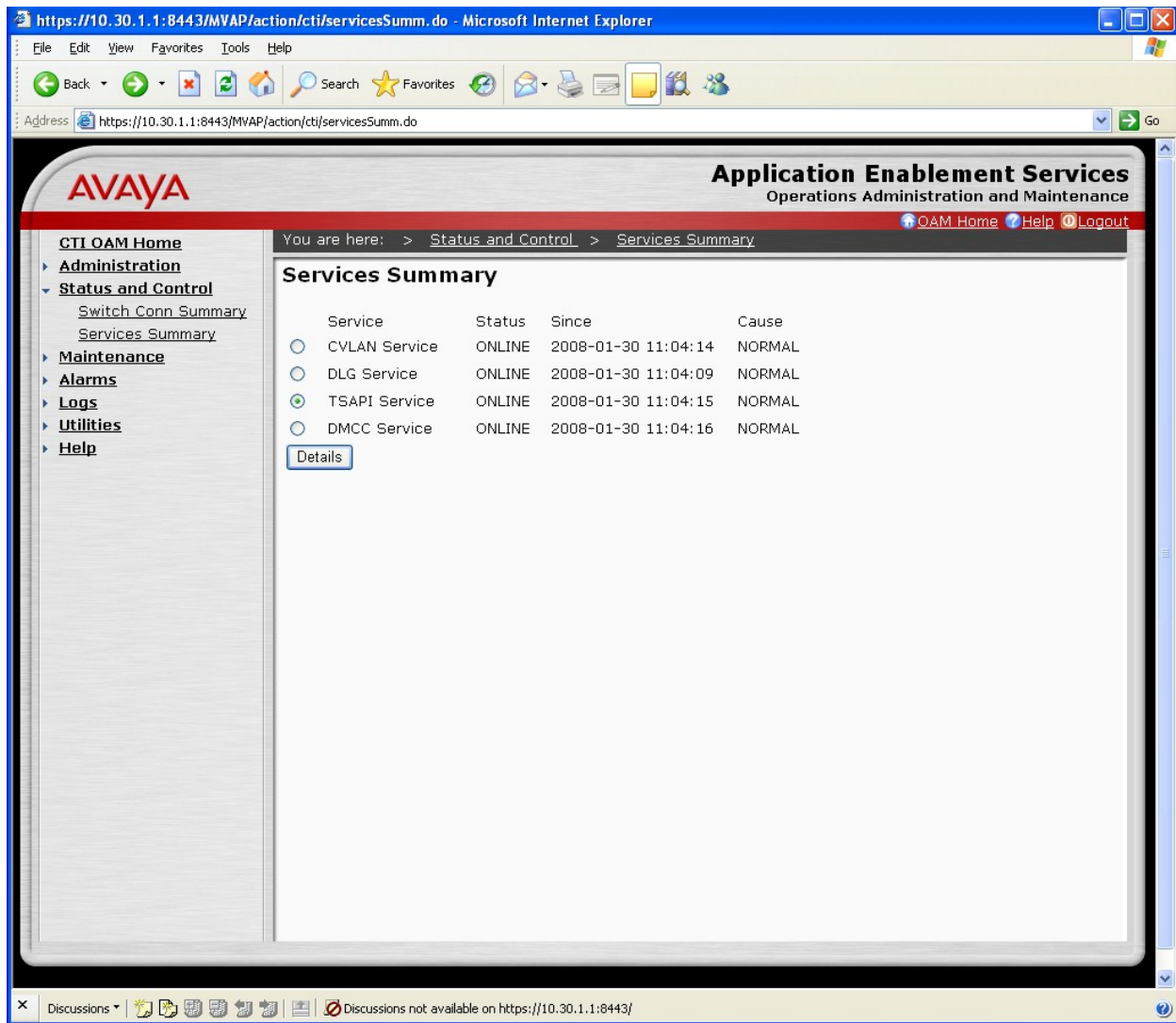
1. From the Avaya Application Enablement Services **CTI OAM Home** menu, verify the status of the switch connection by selecting **Status and Control > Switch Conn Summary**, as shown in **Figure 31**.



**Figure 31: Switch Connections Summary**



2. Verify the status of the TSAPI link by selecting **Status and Control > Services Summary** from the Avaya Application Enablement Services **CTI OAM Home** menu shown in **Figure 32**. Click on **TSAPI Service**, followed by **Details**.



**Figure 32: Services Summary**

3. The TSAPI Link Details screen is displayed, as shown in **Figure 33**.

The screenshot shows a web browser window titled "https://10.30.1.1:8443/MVAP/action/cti/servicesSumm.do - Microsoft Internet Explorer". The browser's address bar shows the URL. The page header includes the Avaya logo and the text "Application Enablement Services Operations Administration and Maintenance". A navigation bar at the top right contains links for "OAM Home", "Help", and "Logout". A breadcrumb trail indicates the current location: "You are here: > Status and Control > Services Summary".

The main content area is titled "TSAPI Link Details" and contains a table with the following data:

Link	Switch Conn Name	Switch CTI Link Number	Conn Status	Since	Service State	Switch Version	Number of Associations	ASAI Message Rate
1	S8500	1	Talking	2008-04-03 11:32:13.0	Online	15	8	15

Below the table, there are two buttons: "Online" and "Offline". Further down, a section titled "For service-wide information, choose one of the following:" contains three buttons: "TSAPI Service Status", "TLink Status", and "User Status".

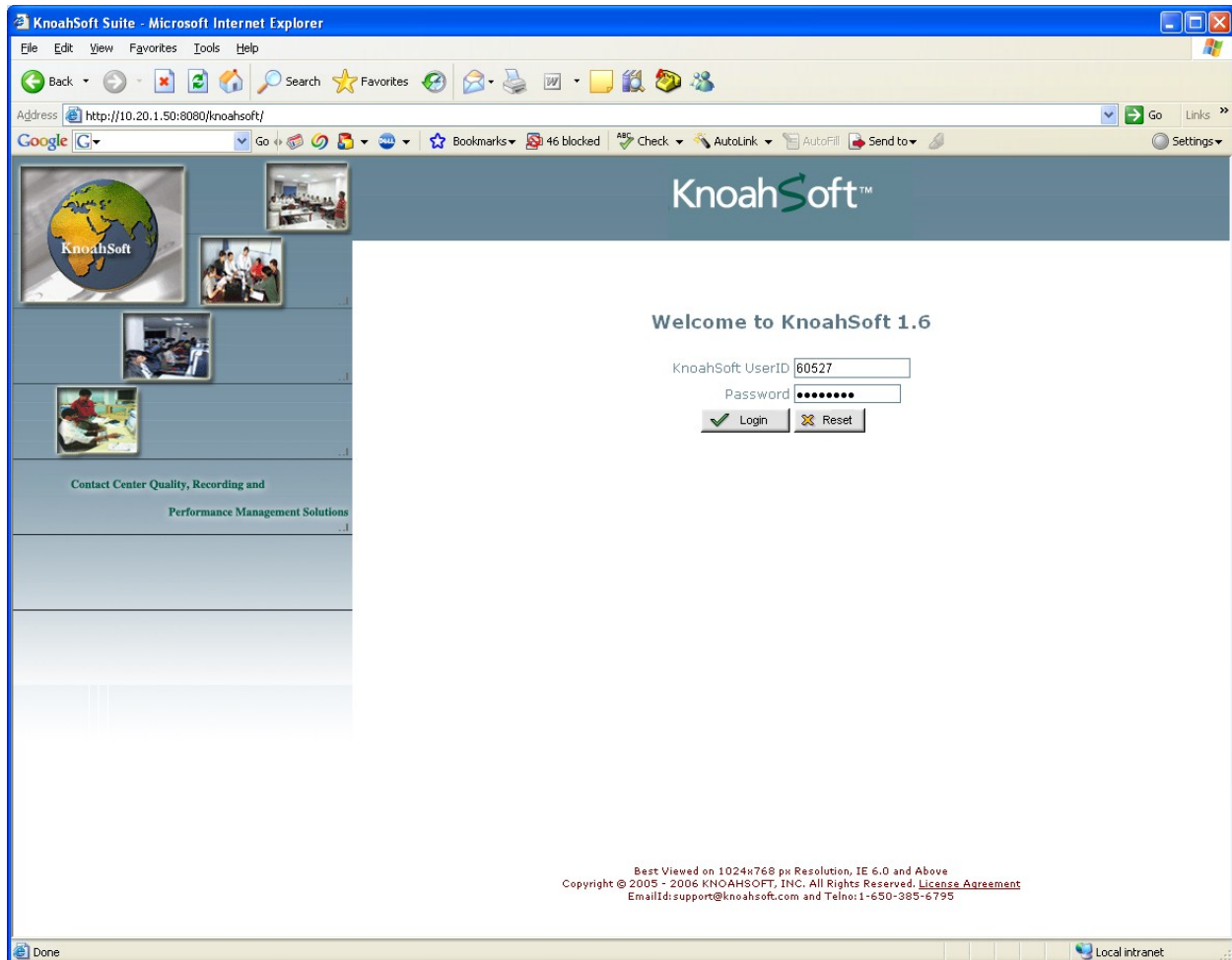
**Figure 33: TSAPI Link Details**

### 7.3. Verify KnoahSoft Harmony Server

1. To quickly verify the status of the KnoahSoft Harmony server application, bring up the Task Manager on the Windows 2003 server and verify the Recorder.exe process is running.

### 7.4. KnoahSoft Harmony Silent Monitoring

1. To verify real-time Silent Monitoring, logon into the KnoahSoft Harmony application with an operator (60527) **KnoahSoft UserID**, and **Password** and click **Login** as in **Figure 34**.




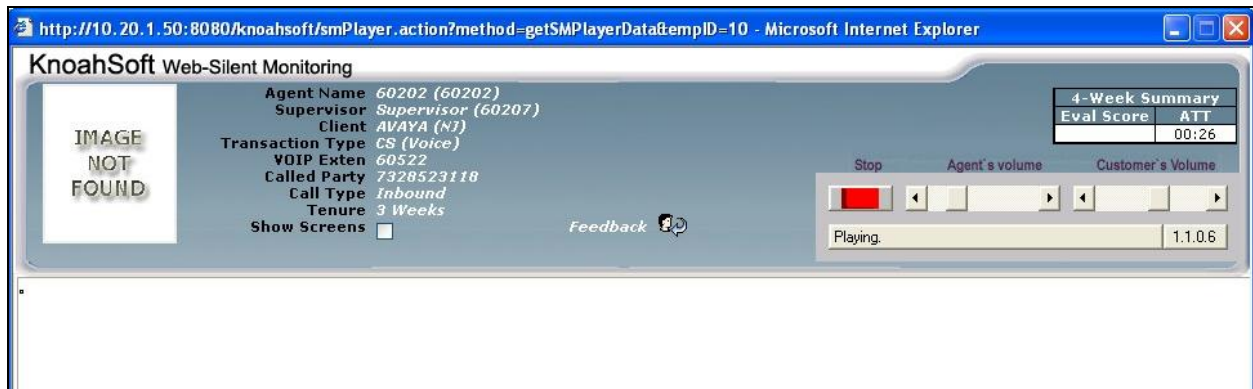
**Figure 34: KnoahSoft Harmony User Application**

- From the **Tools** pull down menu select **Silent Monitoring** (not shown), and select Supervisor (tcac) from the **Supervisor** pull down menu as shown in **Figure 35**. Call monitoring features are displayed in the figure in this example, and two Inbound calls are described under the **Call Type** column. The **Caller/Called Number** column indicates the incoming number and the **Current State** column indicates the present state of the call. The **Call Duration hh:mm:ss** column indicates the time the current conversation duration and the **Call State Duration hh:mm:ss** indicates the time the extension / agent has been idle.

Play	Name	Supervisor	VOIP Extn	Queue	Agent Tenure (Wk)	Call Duration hh:mm:ss	Current State Duration hh:mm:ss	Current State	Hold Count	Caller/Called Number	Call Type
1	Supervisor (SVR)	-	60527	-	3	N/A	N/A	Not Handling Call	0	-	-
2	60201 (SPK)	Supervisor (SVR)	60521	-	3	N/A	19:35:57	Not Handling Call	0	-	-
3	60202 (SPK)	Supervisor (SVR)	60522	N/A	3	00:00:12	00:00:02	On Hold	1	7328523118	Inbound
4	60203 (SPK)	Supervisor (SVR)	60523	-	3	N/A	20:09:42	Not Handling Call	0	-	-
5	60204 (SPK)	Supervisor (SVR)	60524	N/A	3	N/A	21:20:38	Not Handling Call	0	-	-
6	60209 (SPK)	Supervisor (SVR)	60209	N/A	3	00:00:23	00:00:23	Talking	0	64202	Inbound
7	60210 (SPK)	Supervisor (SVR)	60530	N/A	3	N/A	22:14:49	Not Handling Call	0	-	-
8	60211 (SPK)	Supervisor (SVR)	60528	N/A	3	N/A	N/A	Not Handling Call	0	-	-

**Figure 35: Call Monitoring**

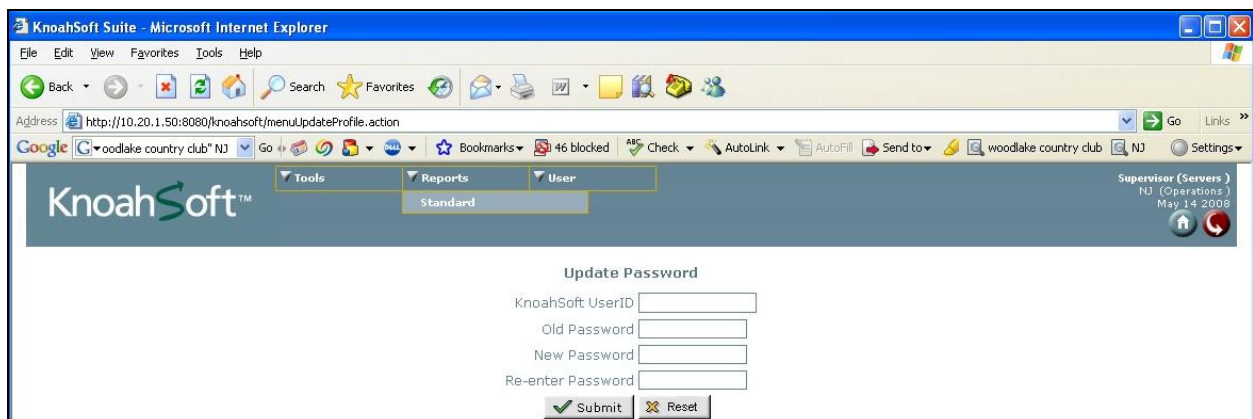
- As a call is in progress, an authorized user may click the  button shown in **Figure 35**. **Figure 36** is displayed and the current conversation can non-intrusively be heard.



**Figure 36: Silent Monitoring**

## 7.5. KnoahSoft Harmony Reports

- From the operator login, click on **Reports** → **Standard** as displayed in **Figure 37**.



**Figure 37: Reports**

2. Select a **Transaction Type**, **Supervisor**, and select a specific **Agent** from the pull down menus as displayed in example screen **Figure 38**.

Standard Reports - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://10.20.1.50:8080/knoahsoft/findMapping.action?id=QualityToolMapping&from=Standard%20Reports&reportType=Voice%20Sessions

Google woodlake country club NJ

KnoahSoft™

Tools Reports User

Supervisor (Servers )  
NJ (Operations )  
May 14 2008

Standard Reports Voice Sessions

Basic Search

Transaction Type CS[Voice ]

From Date (EST) 05/07/2008

To Date (EST) 05/14/2008

Supervisor Supervisor [tcal]


Agent 60202 [gape]

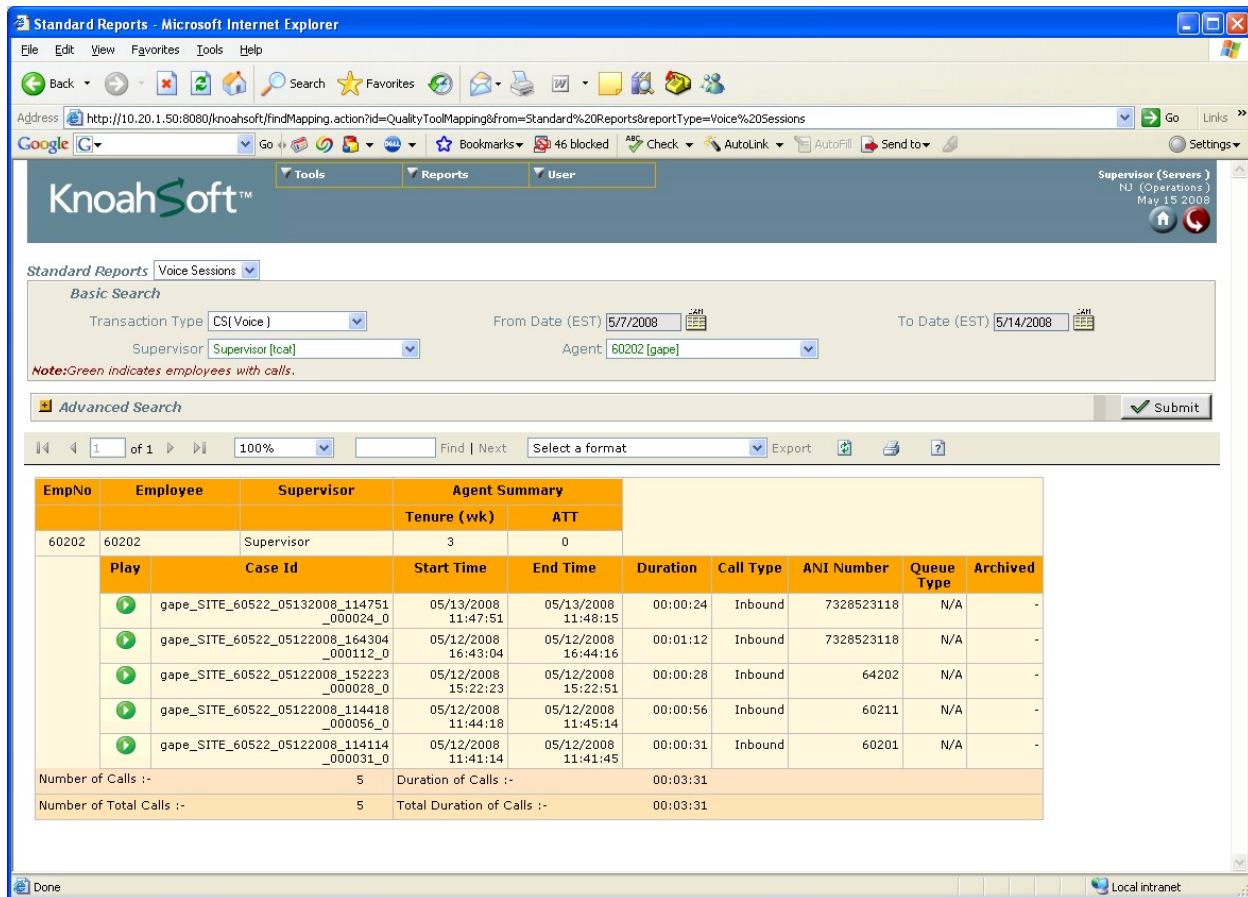
Note: Green indicates employees with calls.

Advanced Search Submit

**Figure 38: Voice Report on Specific Agent**



- A historical report of the extension's activity during the dates selected in the **From Date** to **To Date**. Any conversation listed can be replayed by clicking the  button as displayed in **Figure 39**.



**Figure 39: Historical Voice Report List for a Specific Agent**

## 8. Support

Technical support on KnochSoft Contact can be obtained through the following:

- Call the KnochSoft technical support at 1(650) 385-6795.
- Submit a questionnaire to KnochSoft technical support at [support@knochsoft.com](mailto:support@knochsoft.com).
- For more information visit <http://www.knochsoft.com/>.

## 9. Conclusion

These Application Notes describe the configuration steps required for KnochSoft Harmony 1.6 to successfully interoperate with Avaya Communication Manager 5.0.0 using Avaya Application Enablement Services 4.1. All feature functionality and serviceability test cases were completed successfully.

## 10. Additional References

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

[1] *KnoahSoft Installation Document 1.6*. Documentation installed during the installation process.

[2] *KnoahSoft System Administration Guide v1.5.2*. Documentation installed during the installation process.

[3] *KnoahSoft Users Guide v1.5.2*. Documentation installed during the installation process.



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