



Avaya Solution & Interoperability Test Lab

Application Notes for Upstream Works eMedia CT with Avaya Communication Manager using Avaya Application Enablement Services – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for the Upstream Works eMedia CT contact center solution to interoperate with Avaya Communication Manager using Avaya Application Enablement Services. The Upstream Works eMedia CT server uses the Avaya AES Telephony Services Application Programming Interface (TSAPI) service to query and monitor devices such as VDNs, ACD/Skill groups, and agent extensions on Avaya Communication Manager. Depending on the customer's specific application, incoming calls can be routed by Avaya Communication Manager, or by Upstream Works eMedia CT using the TSAPI adjunct routing capabilities.

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

1. Introduction

Upstream Works eMedia CT is a contact center solution that can integrate voice, data, and multimedia messaging services. The compliance testing focused on the voice integration with Avaya Communication Manager via Avaya Application Enablement Services (AES).

The Upstream Works eMedia CT server uses the Avaya AES Telephony Services Application Programming Interface (TSAPI) service to query and monitor devices such as VDNs, ACD/Skill groups, and agent extensions on Avaya Communication Manager. Depending on the customer's specific application, incoming calls can be routed by Avaya Communication Manager, or by Upstream Works eMedia CT using the TSAPI adjunct routing capabilities.

The contact center agents have their desktop computers running the Upstream Works eMedia CT client software, and networked to the Upstream Works eMedia CT server via TCP/IP. Call related actions such as answering of incoming calls can be initiated via the telephone, or via the desktop utilizing the TSAPI call control capabilities. Upstream Works eMedia CT populates the answering agent's desktop screen with call related information, by utilizing the TSAPI event reports received from Avaya Communication Manager on the monitored devices.

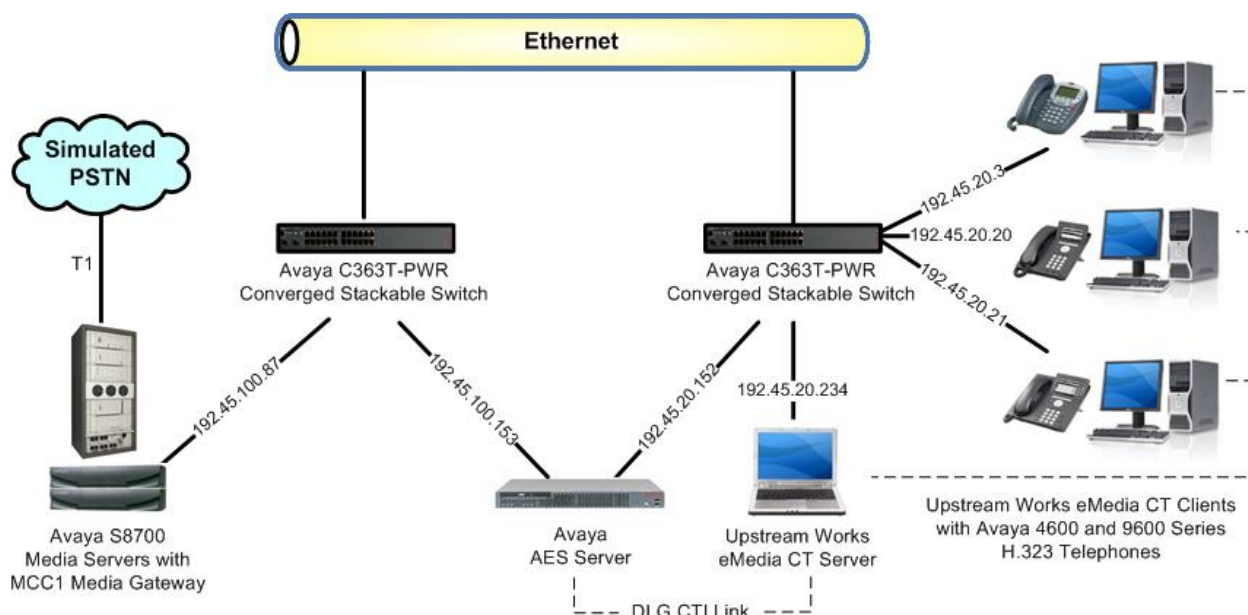


Figure 1: Upstream Works eMedia CT with Avaya Communication Manager using Avaya AES

Upstream Works recommends using the Avaya Site Administration software to capture the administered VDNs, ACD/Skill groups, and agent devices from Avaya Communication Manager. The captured data are exported and loaded onto the Upstream Works eMedia CT server. For alternative methods of capturing the device information, consult with Upstream Works.

2. Equipment and Software Validated

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

| Equipment | Software |
|---|---|
| Avaya S8700 Media Servers | Avaya Communication Manager 3.1.2, R013x.01.2.632.1 |
| Avaya MCC1 Media Gateway <ul style="list-style-type: none">TN799DP C-LAN Circuit PackTN2302AP IP Media Processor | HW01 FW017 HW13 FW111 |
| Avaya Application Enablement Services | 3.1.2, build 46.5 |
| Avaya C363T-PWR Converged Stackable Switches | 4.5.14 |
| Avaya 4610SW IP Telephones (H.323) | 2.30 |
| Avaya 9620 one-X™ Deskphone Edition (H.323) | 1.0 |
| Avaya 9630 one-X™ Deskphone Edition (H.323) | 1.0 |
| Upstream Works eMedia CT Server on Dell Latitude C510/C610 | 7.10.0 Windows XP Professional SP2 |
| Upstream Works eMedia CT Clients and Avaya Site Administration on Dell Precision 380 | 7.10.0 1.12.02 Windows XP Professional SP2 |

3. Configure Avaya Communication Manager

The detailed administration of contact center devices and basic connectivity between Avaya Communication Manager and Avaya AES are not the focus of these Application Notes and will not be described. For administration of contact center devices and basic connectivity to Avaya AES, refer to the appropriate documentation listed in **Section 9**.

This section provides the procedures for the following:

- Verify Avaya Communication Manager License
- Administer TSAPI CTI link
- Administer adjunct routing vector and VDN
- Capture administered devices

3.1. Verify Avaya Communication Manager License

Log into the System Access Terminal (SAT) to verify that the Avaya 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** customer option is set to “y” on **Page 3**.

| | | | | |
|--|---|--|----------|----|
| 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 | Backup Cluster Automatic Takeover? | n | |
| A/D Grp/Sys List Dialing Start at 01? | y | CAS Branch? | n | |
| Answer Supervision by Call Classifier? | y | CAS Main? | n | |
| ARS? | y | Change COR by FAC? | n | |
| ARS/AAR Partitioning? | y | Computer Telephony Adjunct Links? | y | |
| ARS/AAR Dialing without FAC? | y | Cvg Of Calls Redirected Off-net? | y | |
| ASAI Link Core Capabilities? | y | DCS (Basic)? | y | |
| ASAI Link Plus Capabilities? | y | DCS Call Coverage? | y | |

Navigate to **Page 6**, and verify that the **Vectoring (Basic)** customer option is set to “y”. If these options are not set to “y”, then contact the Avaya sales team or business partner for a proper license file.

| | | | | |
|--|---|------------------------------------|----------|----|
| display system-parameters customer-options | | Page | 6 of | 11 |
| CALL CENTER OPTIONAL FEATURES | | | | |
| Call Center Release: 3.0 | | | | |
| ACD? | y | Reason Codes? | y | |
| BCMS (Basic)? | y | Service Level Maximizer? | n | |
| BCMS/VuStats Service Level? | y | Service Observing (Basic)? | y | |
| BSR Local Treatment for IP & ISDN? | n | Service Observing (Remote/By FAC)? | y | |
| Business Advocate? | n | Service Observing (VDNs)? | y | |
| Call Work Codes? | y | Timed ACW? | y | |
| DTMF Feedback Signals For VRU? | n | Vectoring (Basic)? | y | |
| Dynamic Advocate? | n | Vectoring (Prompting)? | y | |

3.2. 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. 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 4 | Page 1 of 2 |
| CTI LINK | |
| CTI Link: 4 | |
| Extension: 2204 | |
| Type: ADJ-IP | |
| COR: 1 | |
| Name: eMedia CT TSAPI Link | |

3.3. Administer Adjunct Routing Vector and VDN

For customers that utilize Upstream Works eMedia CT to make the call routing decisions, administer a vector and a VDN for the adjunct routing feature. Modify a vector using the “change vector n” command, where “n” is an available vector number. The vector will be used to provide adjunct routing to the CTI link defined in **Section 3.2**. Note that the vector **Number**, **Name**, and **wait-time** step may vary.

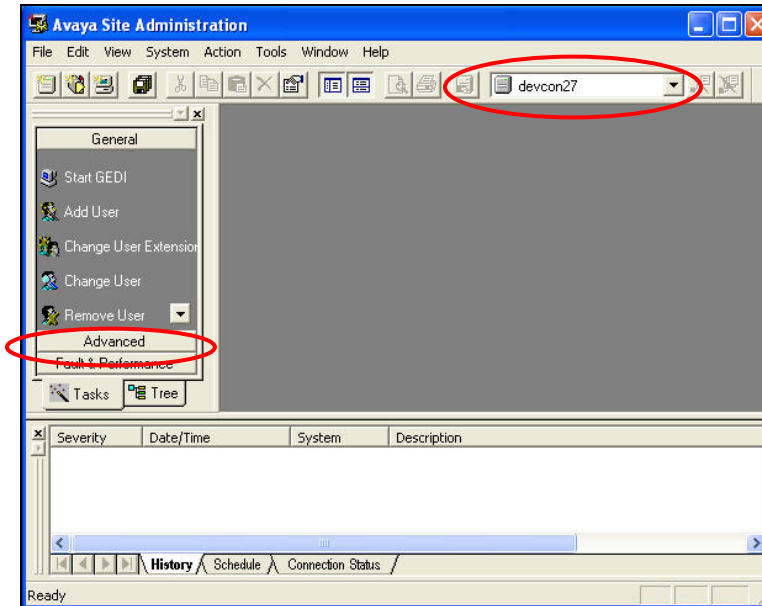
| | |
|-----------------------|---------------------------|
| change vector 999 | Page 1 of 3 |
| CALL VECTOR | |
| Number: 999 | |
| Name: eMedia CT route | |
| Multimedia? n | Meet-me Conf? n |
| Basic? y | EAS? y |
| Prompting? y | LAI? y |
| Variables? n | 3.0 Enhanced? n |
| 01 adjunct | routing link 4 |
| 02 wait-time | 900 secs hearing ringback |
| 03 | |
| 04 | |

Add a VDN using the “add vdn n” command, where “n” is an available extension number. Enter a descriptive name for the **Name** field, and the vector number from above for the **Vector Number** field. Retain the default values for all remaining fields.

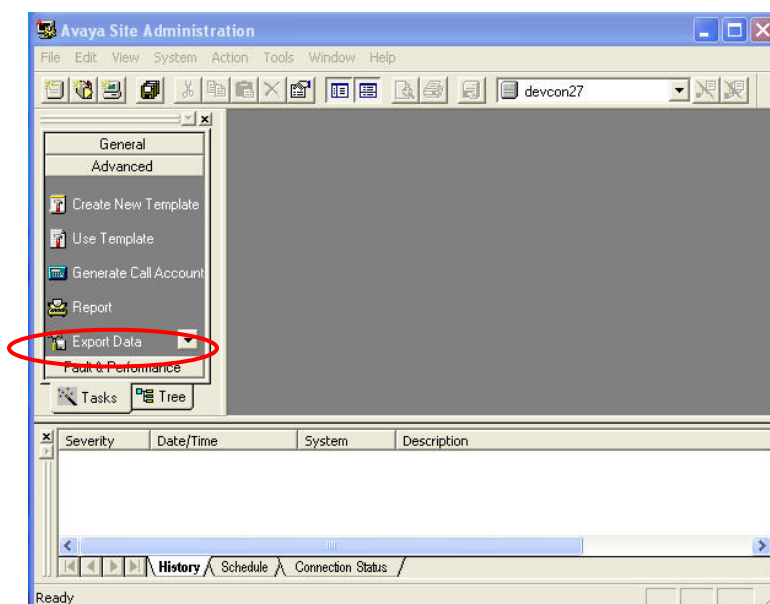
| | |
|-----------------------------|-------------|
| add vdn 27999 | Page 1 of 2 |
| VECTOR DIRECTORY NUMBER | |
| Extension: 27999 | |
| Name: eMedia CT routing VDN | |
| Vector Number: 999 | |

3.4. Capture Administered Devices

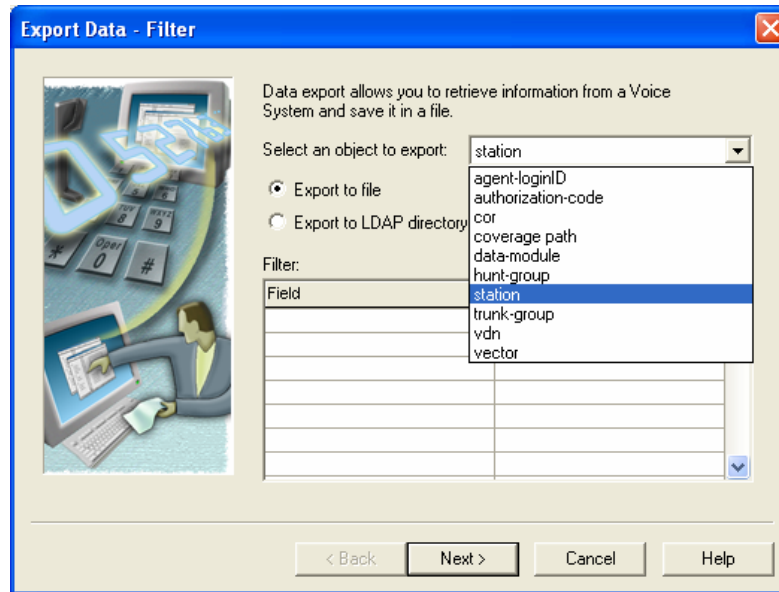
From a networked PC with Avaya Site Administration installed, select **Start > All Programs > Avaya > Site Administration**. In the **Avaya Site Administration** screen below, select the relevant Avaya Communication Manager from the drop down list (in this case, “devcon27”). Click on the **Advanced** tab in the left pane to expand it. These Application Notes assume the Avaya Site Administration has been installed with configuration in place to connect to Avaya Communication Manager.



In the updated **Avaya Site Administration** screen below, click on **Export Data** under **Advanced** in the left pane.



The **Export Data – Filter** screen is displayed. Select “station” from the **Select an object to export** drop down list, and retain the radio button for **Export to file**. Note that the “station” object corresponds to the agent physical telephones, the “hunt-group” object corresponds to ACD/Skill groups, and the “vdn” object corresponds to VDNs.



Export Data - Filter

Data export allows you to retrieve information from a Voice System and save it in a file.

Select an object to export: **station**

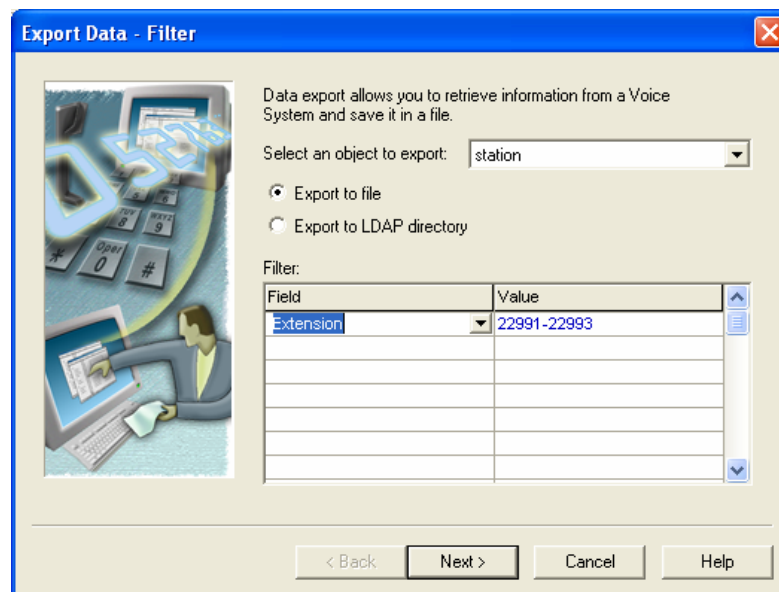
☒ Export to file
☐ Export to LDAP directory

Filter:

| Field | |
|-------------|--|
| station | |
| trunk-group | |
| vdn | |
| vector | |

< Back Next > Cancel Help

In the **Filter** table below, click on an empty row under **Field**, and select “Extension” from the drop down list. In the associated **Value** column, enter a range of agent extensions to capture. Note that the customer can either apply the necessary filter here to only capture those extensions desired to be monitored, or to capture all extensions now and remove the unnecessary ones via the Upstream Works eMedia CT server later. For the compliance testing, three agents were administered with extensions values from 22991 to 22993. Click on **Next** to proceed.



Export Data - Filter

Data export allows you to retrieve information from a Voice System and save it in a file.

Select an object to export: **station**

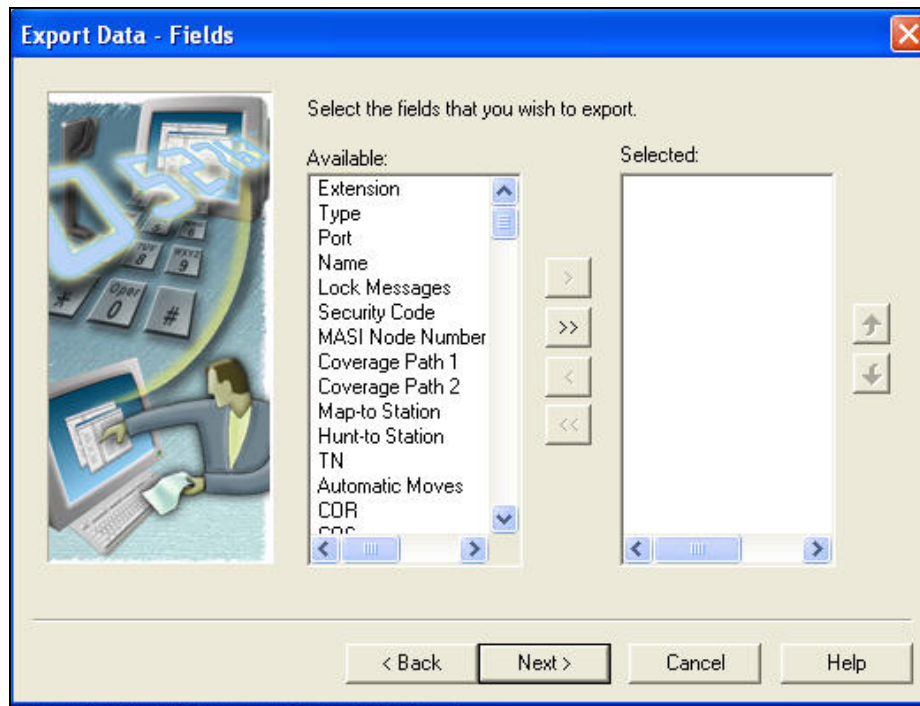
☒ Export to file
☐ Export to LDAP directory

Filter:

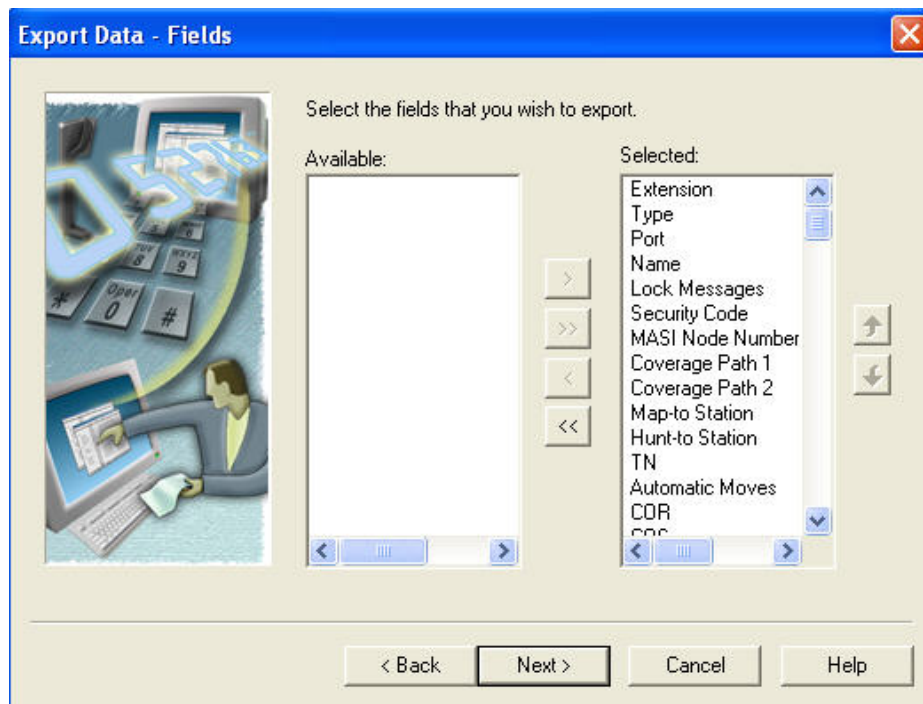
| Field | Value |
|-----------|-------------|
| Extension | 22991-22993 |
| | |
| | |
| | |

< Back Next > Cancel Help

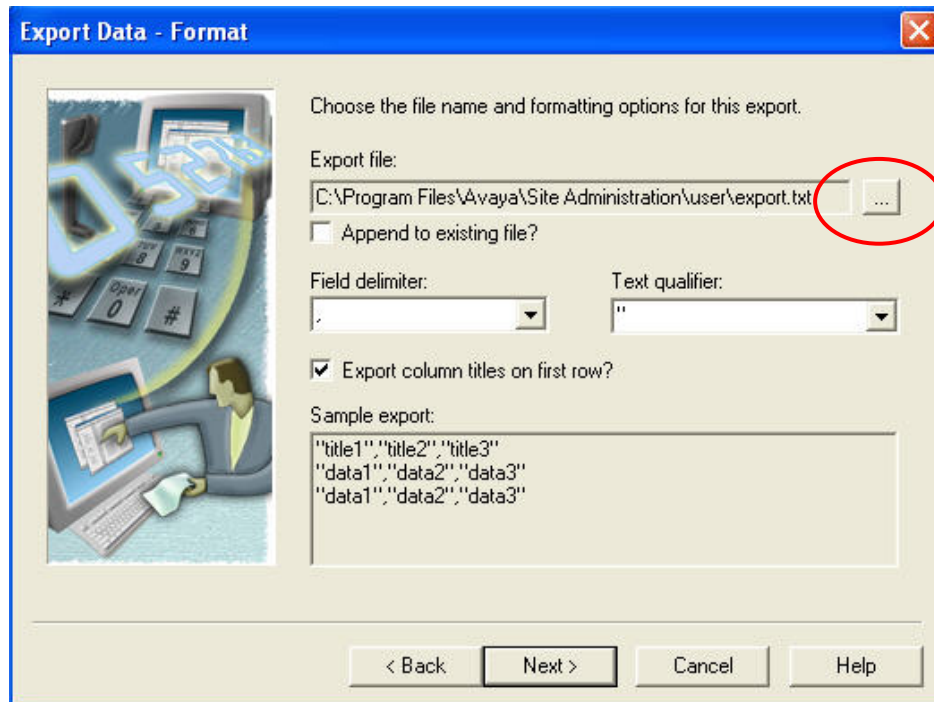
The **Export Data – Fields** screen is displayed. Select all fields under **Available** in the left pane, and use the double-arrow icon to move them under **Selected** in the right pane.



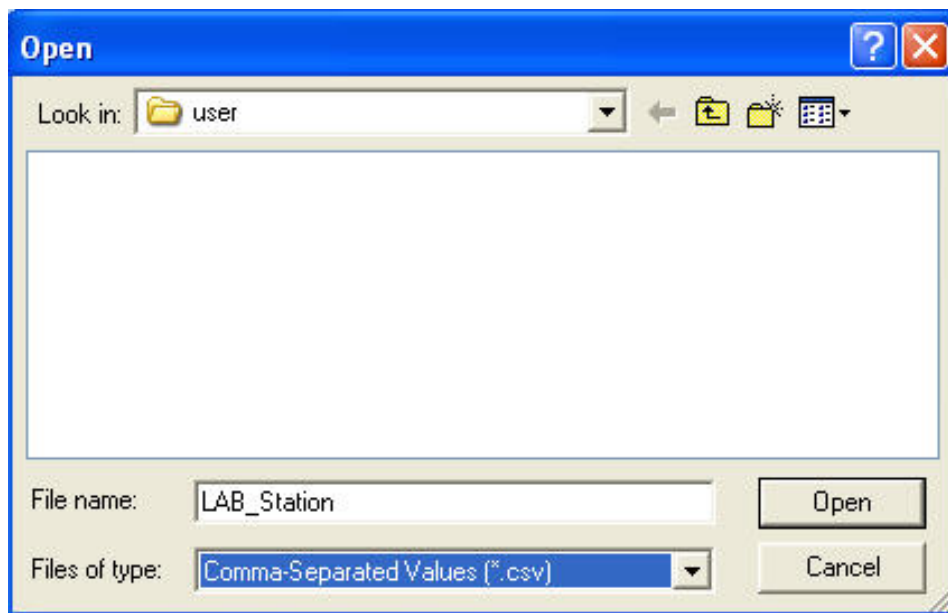
The resultant screen from the move is displayed below. Click on **Next** to proceed with the capturing.



The **Export Data – Format** screen is displayed next. Click on the browse icon for **Export file**.



An **Open** dialog box is displayed. Enter a descriptive name into **File name**, and select “Comma-Separated Values (*.csv)” from the **Files of type** drop down list. This file type separates the fields by the comma character, and separates the records by the newline delimiter. Click **Open**.



The **Export Data – Format** screen is displayed again, and updated with the entered **Export file** name. Click **Next** to proceed.

Export Data - Format

Choose the file name and formatting options for this export.

Export file:
C:\Program Files\Avaya\Site Administration\user\LAB_Station.

☐ Append to existing file?

Field delimiter: , Text qualifier: "

☒ Export column titles on first row?

Sample export:

```
"title1","title2","title3"  
"data1","data2","data3"  
"data1","data2","data3"
```

< Back Next > Cancel Help

The **Export Data – Schedule** screen is displayed next. Enter a descriptive name for **Name**, and maintain the check in **Run Now**. Click **Next**.

Export Data - Schedule

Give this task a name or description.

Name: Agent phone devices

When you schedule or run this task, look for the name above in the Schedule Window. If you save this task, look for this name in the navigation tree.

Run, Schedule or Save:

☒ Run Now

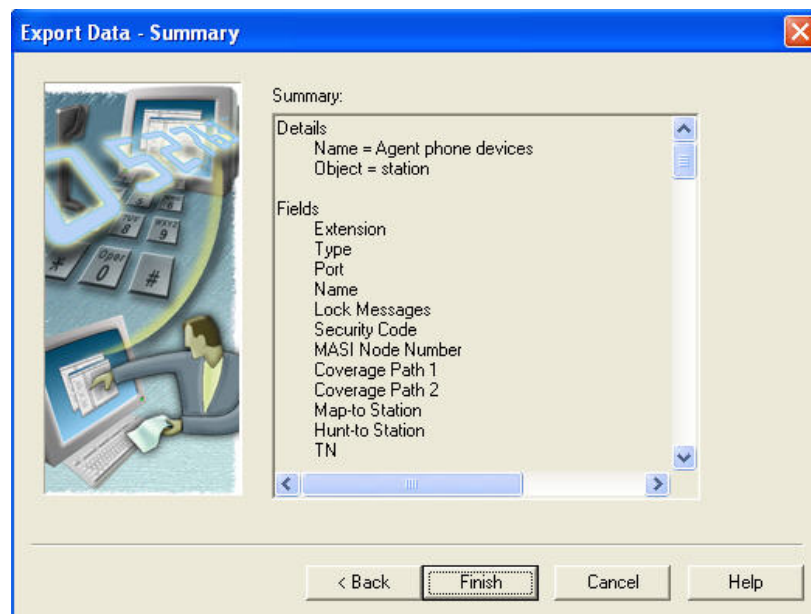
☐ Schedule this task to run

☐ Save information in tree

Schedule...

< Back Next > Cancel Help

In the **Export Data – Summary** screen, click **Finish** to complete the capture.



Repeat the same procedures in this section to capture ACD/Skill group and VDN data. The following table lists the contact center device types, the associated object in Avaya Site Administration, and the created file name for the captured data from the compliance testing. The file names may vary, and they are used to administer the Upstream Works eMedia CT server in **Section 5.1**.

| Device Type | Object Name | File Name |
|------------------|-------------|-------------------|
| Agent extensions | station | LAB_Station.csv |
| VDN | vdn | LAB_vdn.csv |
| ACD/Skill groups | hunt-group | LAB_HuntGroup.csv |

4. Configure Avaya Application Enablement Services

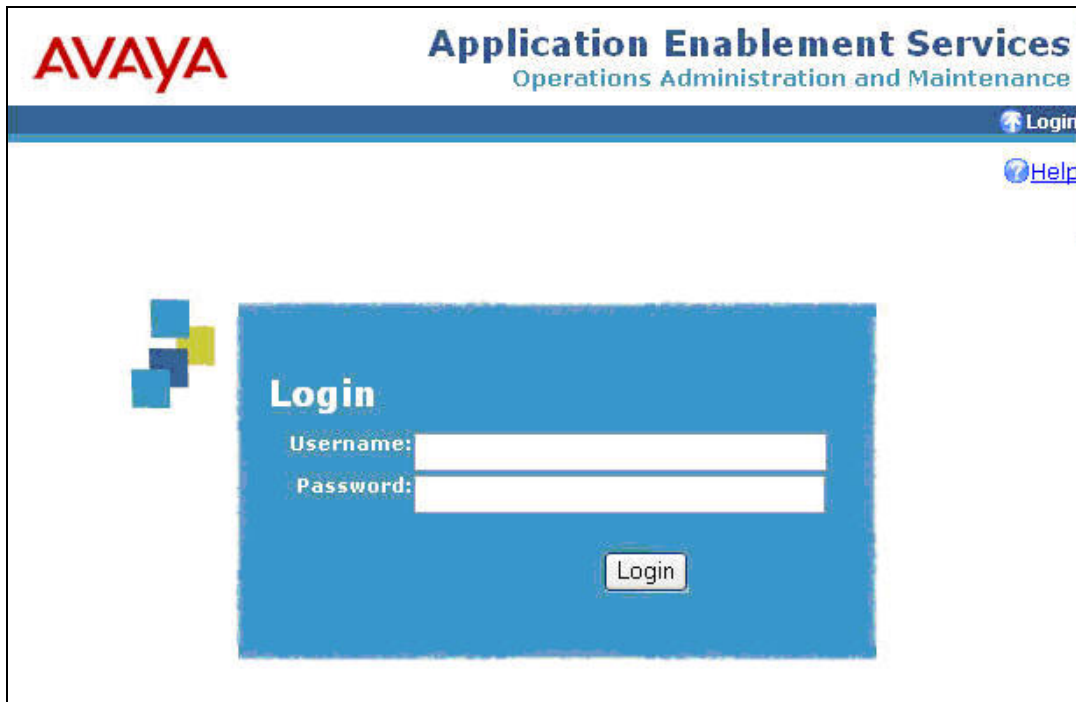
The detailed administration of connectivity between Avaya Application Enablement Services (AES) and Avaya Communication Manager is not the focus of these Application Notes and will not be described. For administration of basic connectivity to Avaya Communication Manager, refer to the appropriate documentation listed in **Section 9**.

This section provides the procedures for the following areas:

- Verify Avaya Application Enablement Services license
- Administer TSAPI link
- Administer eMedia CT user
- Restart TSAPI service

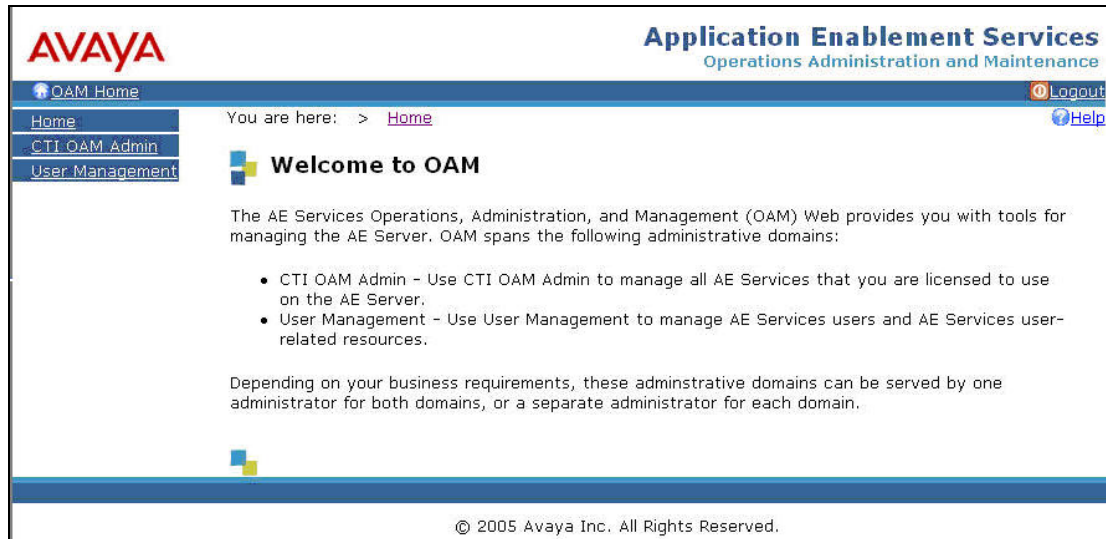
4.1. Verify Avaya Application Enablement Services License

Access the AES OAM web based interface by using the URL “https://ip-address:8443/MVAP” in an Internet browser window, where “ip-address” is the IP address of the AES server. The **Login** screen is displayed as shown below. Note that the AES OAM includes two separate administrative accounts, one to access CTI OAM Admin and a separate one to access User Management. Log in using the CTI OAM Admin user name and password.

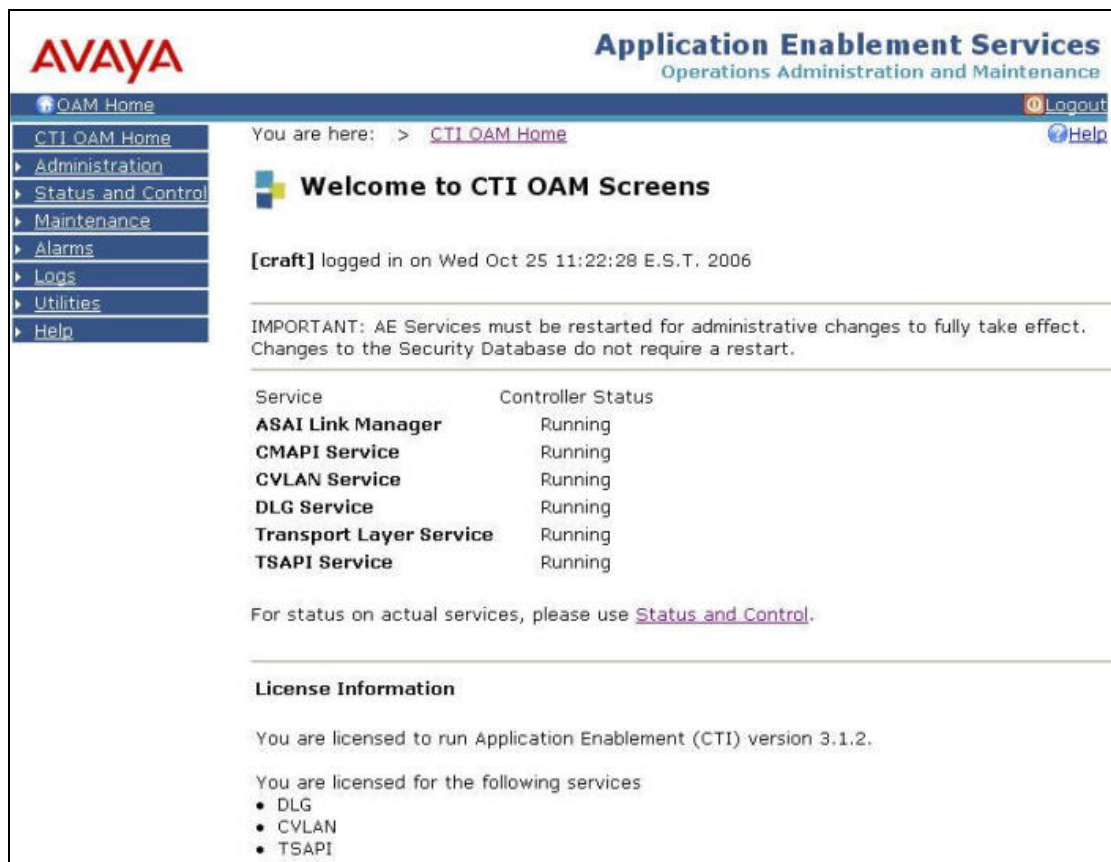


The screenshot shows the Avaya Application Enablement Services (AES) Operations Administration and Maintenance (OAM) interface. At the top left is the Avaya logo. To its right, the text "Application Enablement Services" is displayed in a large blue font, with "Operations Administration and Maintenance" in a smaller blue font below it. In the top right corner, there are two links: "Login" and "Help". The main content area features a blue rectangular box with the word "Login" in white. Inside this box, there are two input fields: "Username:" and "Password:". Below these fields is a "Login" button. To the left of the login box, there is a small graphic consisting of several colored squares (blue, yellow, and green) arranged in a cluster.

The **Welcome To OAM** screen is displayed, as shown below. Select **CTI OAM Admin** from the left pane.



The **Welcome to CTI OAM Screens** is displayed next. Verify that AES is licensed for the TSAPI service, as shown in the bottom of the screen below. If the TSAPI service is not licensed, contact the Avaya sales team or business partner for a proper license file.



4.2. Administer TSAPI Link

To administer a TSAPI link, select **Administration > CTI Link Admin > TSAPI Links** from the left pane. The **TSAPI Links** screen is displayed, as shown below. Click on **Add Link**.

The screenshot shows the AVAYA Application Enablement Services (AES) interface. The top navigation bar includes "OAM Home", "CTI OAM Home", and "Administration". The left sidebar lists various configuration options, with "CTI Link Admin" selected. The main content area displays the "TSAPI Links" screen. It features a table with columns: "Link", "Switch Connection", "Switch CTI Link #", and "ASAI Link Version". A single row is visible with values: "3", "devcon31S8700", "7", and "4". Below the table are buttons for "Add Link", "Edit Link", and "Delete Link".

The **Add / Edit TSAPI Links** screen is displayed next. The **Link** field is only local to the AES server, and 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 "devcon27S8700" is selected. For **Switch CTI Link Number**, select the CTI link number from Section 3.2. Click on **Apply Changes**.

The screenshot shows the "Add / Edit TSAPI Links" screen. It contains three input fields: "Link" (set to 1), "Switch Connection" (set to devcon27S8700), and "Switch CTI Link Number" (set to 4). Below these fields are buttons for "Apply Changes" and "Cancel Changes".

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

The screenshot shows the "Apply Changes to Link" screen. It displays a warning message: "Warning! Are you sure you want to apply the changes? These changes can only take effect when the TSAPI server restarts. Please use the Maintenance -> Service Controller page to restart the TSAPI server." Below the message are buttons for "Apply" and "Cancel".

4.3. Administer eMedia CT User

Administer a user account for the Upstream Works eMedia CT server. Follow the login procedure in **Section 4.1**, and log in with the User Management user name and password. The **Welcome to the User Management home page** screen is displayed, as shown below.

AVAYA Application Enablement Services
Operations Administration and Maintenance

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

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

[User Management Home](#)
▶ [User Management](#)
▶ [Service Management](#)
▶ [Help](#)

Welcome to the User Management home page

User Management provides you with the following tools for managing user-related information for AE Services:

- User Management -- Use the User Management tools to manage all AE Services users (add, change or delete users).
- Service Management -- Use the Service Management tools for managing the User Management service itself (for example, synchronizing events between the AE Services user database and the Security database).

Select **User Management > Add User** from the left pane. In the **Add User** screen shown below, enter descriptive values for the **User Id**, **Common Name**, **Surname**, **User Password**, and **Confirm Password** fields to create a user account for the Upstream Works eMedia CT server. 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 below).

AVAYA Application Enablement Services
Operations Administration and Maintenance

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

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

[User Management Home](#)
▶ [User Management](#)
 [List All Users](#)
 [Add User](#)
 [Search Users](#)
 [Modify Default User](#)
 [Change User Password](#)
▶ [Service Management](#)
▶ [Help](#)

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

Css Home

CT User

Follow the login procedure in **Section 4.1**, and log in with the CTI OAM Admin user name and password. Select **Administration > Security Database > CTI Users > List All Users** to get a listing of all CTI users, as shown below. Select the user ID created for the Upstream Works eMedia CT server, and click on **Edit**.

AVAYA Application Enablement Services
Operations Administration and Maintenance

QAM Home Logout

You are here: > [Administration](#) > [Security Database](#) > [CTI Users](#) > [List All Users](#) Help

CTI Users

| User ID | Common Name | Worktop Name | Device ID |
|----------|-------------|--------------|-----------|
| emediact | emediact | NONE | NONE |

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

The **Edit CTI User** screen is displayed, as shown below. Click on **Enable** next to **Unrestricted Access**, followed by **Apply Changes**. This will provide the user with unrestricted access.

AVAYA Application Enablement Services
Operations Administration and Maintenance

QAM Home Logout

You are here: > [Administration](#) > [Security Database](#) > [CTI Users](#) > [List All Users](#) Help

Edit CTI User

User ID: emediact
Common Name: emediact
Worktop Name: NONE
Unrestricted Access: ☒ Enable
Call Origination and Termination: None
Device / Device: None
Call / Device: None
Call / Call: ☐
Allow Routing on Listed Device: None

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

4.4. Restart TSAPI Service

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

AVAYA Application Enablement Services
Operations Administration and Maintenance

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

You are here: > [Maintenance](#) > [Service Controller](#) [Help](#)

Service Controller

| Service | Controller Status |
|---|-------------------|
| <input type="checkbox"/> ASAI Link Manager | Running |
| <input type="checkbox"/> CMAPI 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 |

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

[Start](#) [Stop](#) [Restart Service](#) [Restart AE Server](#) [Restart Linux](#)

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

AVAYA Application Enablement Services
Operations Administration and Maintenance

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

You are here: > [Maintenance](#) > [Service Controller](#) [Help](#)

Restart Service

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

[Restart](#) [Cancel](#)

5. Configure Upstream Works eMedia CT

This section provides the procedures for configuring the Upstream Works eMedia CT server. The procedures include the following areas:

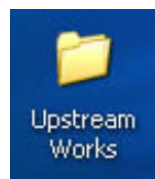
- Load switch devices
- Enable agent devices
- Enable VDN and ACD/Skill devices
- Administer agent workstations
- Administer agent logins
- Save configuration changes

Note that there is no configuration necessary on the Upstream Works eMedia CT client, as all agent workstation login name and password are administered on the server.

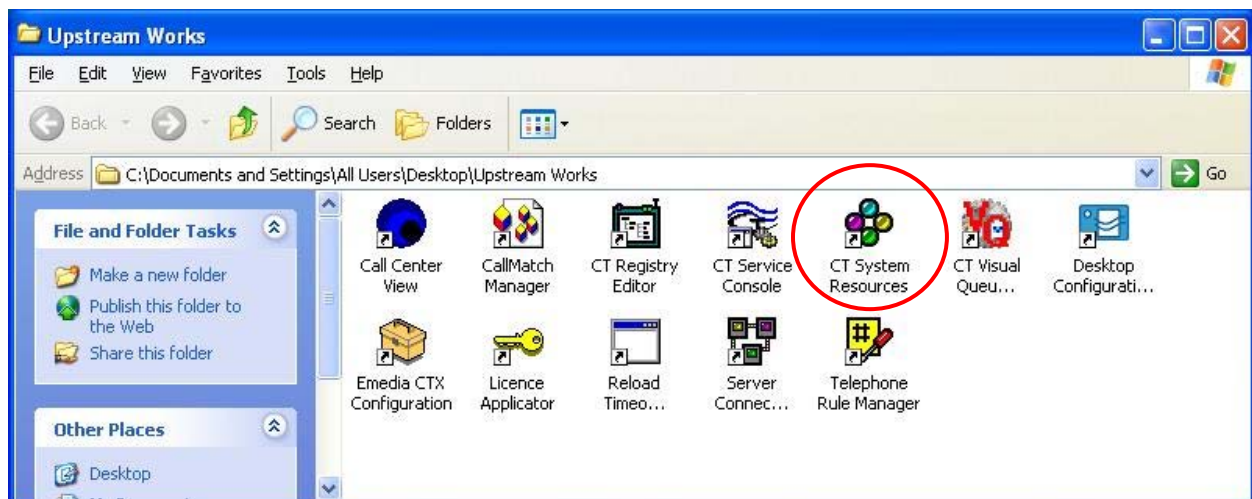
Prior to any configuration, copy the captured files from Avaya Communication Manager in **Section 3.4** to a directory on the Upstream Works eMedia CT server.

5.1. Load Switch Devices

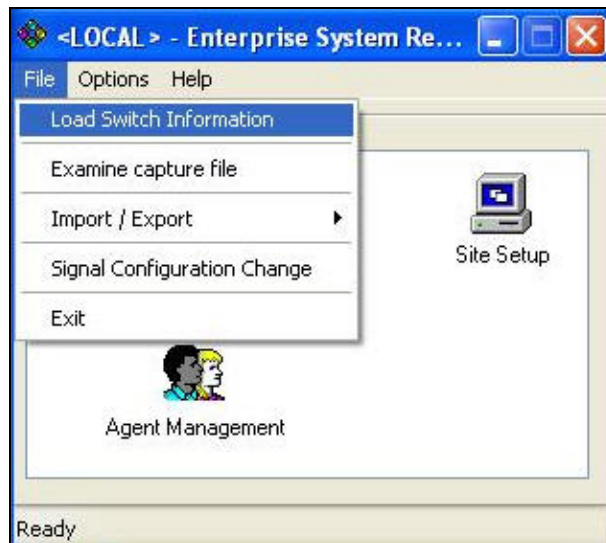
From the Upstream Works eMedia CT server, double-click on the Upstream Works icon shown below. This icon is created as part of the Upstream Works eMedia CT server installation.



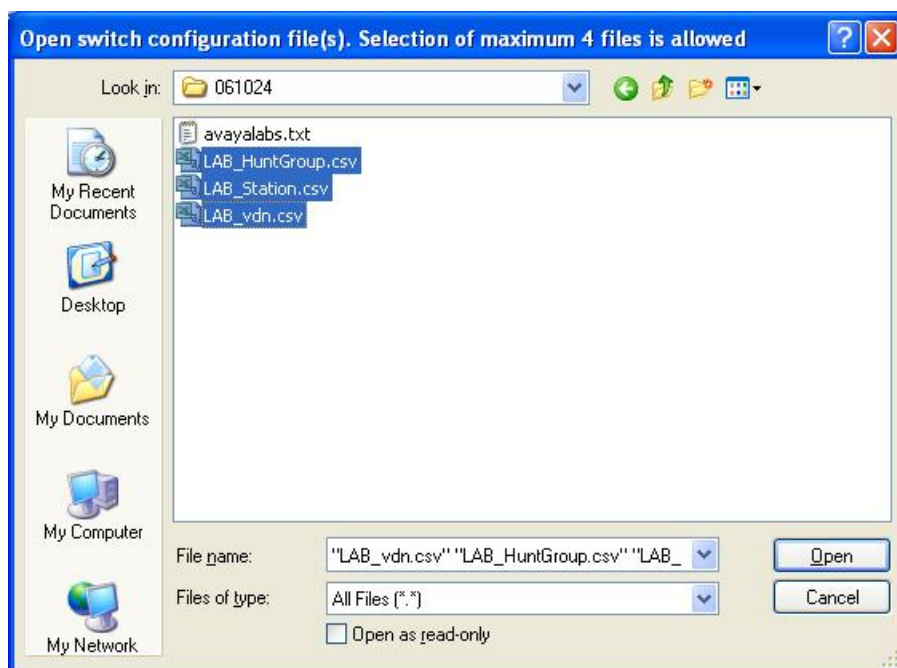
The screen below is displayed. Double-click on **CT System Resources**.



The **Enterprise System Resources** screen is displayed. Select **File > Load Switch Information** as shown below, to load all switch device information captured from **Section 3.4**.



The **Open switch configuration file(s)** dialog box is displayed next. Navigate to the directory where the captured contact center device information from Avaya Communication Manager is stored. Select these files and click **Open**.



5.2. Enable Agent Devices

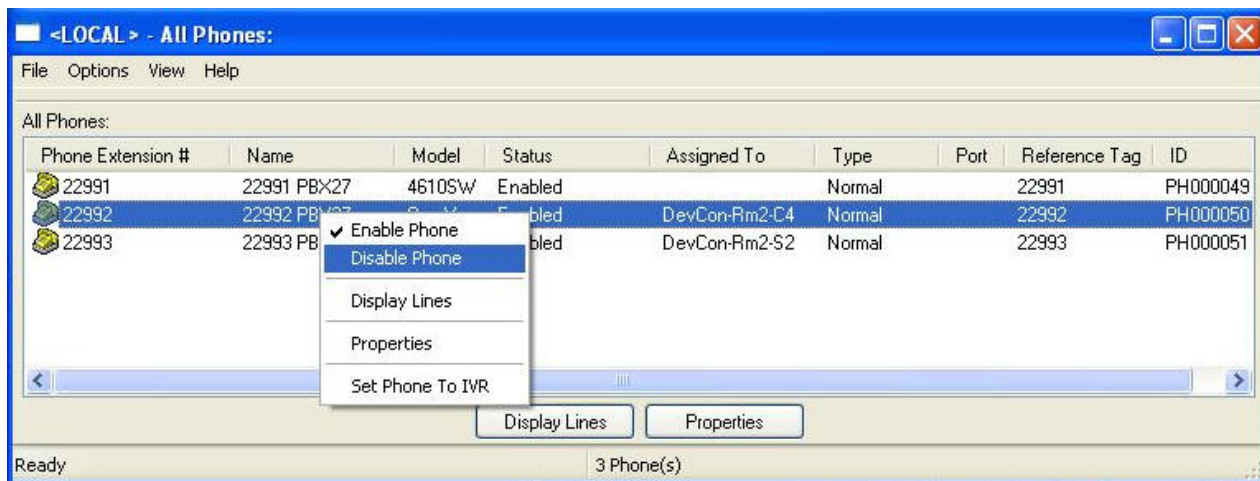
The **Enterprise System Resources** screen is displayed again. Double-click on **Phone System**.



The **Phone System** screen is displayed next. Double-click on **Phones** to review all agent device information.

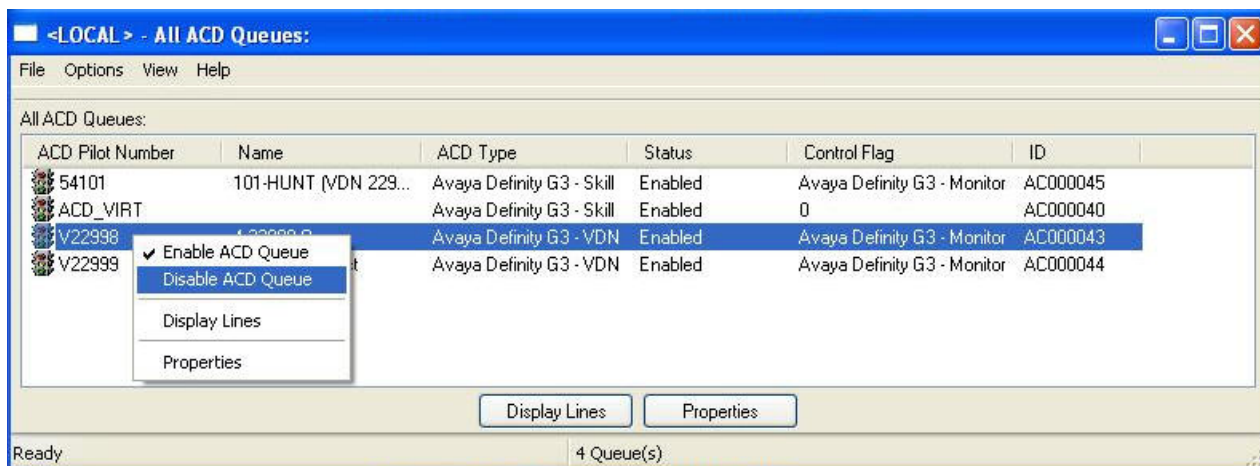


The **All Phones** screen is displayed, and filled in with agent device information captured from Avaya Communication Manager. By default, all agent devices will be enabled for monitoring, as indicated by the “Enabled” value in the **Status** column. Review the list of agent phone devices, and disable any device that does not need to be monitored. Monitoring can be enabled or disabled by right-clicking on the device **Phone Extension #**, and selecting the appropriate action from the drop down list. After making all necessary changes, close the screen by clicking on the **X** icon in the top right corner of the screen.



5.3. Enable VDN and ACD/Skill Devices

The **Phone System** screen from **Section 5.2** is displayed again. Double-click on **ACD Queues** to review all VDN and ACD/Skill device information. The **All ACD Queues** screen is displayed, and filled in with VDN and ACD/Skill information captured from Avaya Communication Manager. Review the list and follow the procedure in **Section 5.2** to disable any device that does not need to be monitored. Note that the “ACD_VIRT” entry is automatically created and needed by the Upstream Works eMedia CT server. After making all necessary changes, close the screen by clicking on the **X** icon in the top right corner of the screen.

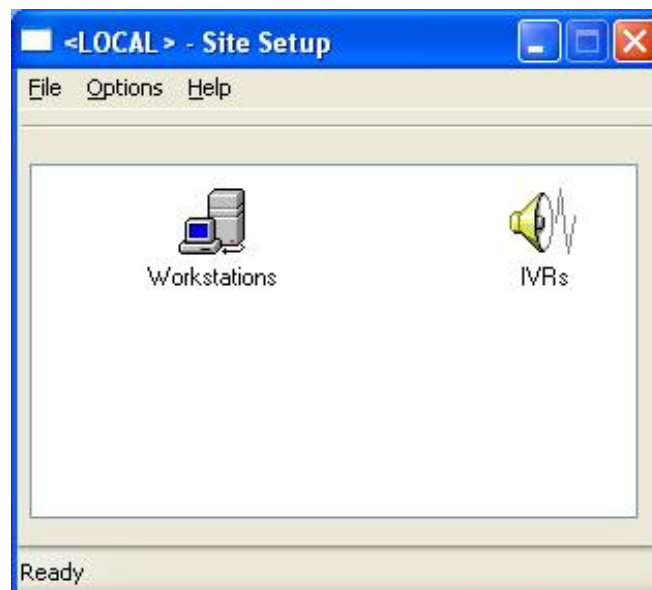


5.4. Administer Agent Workstation

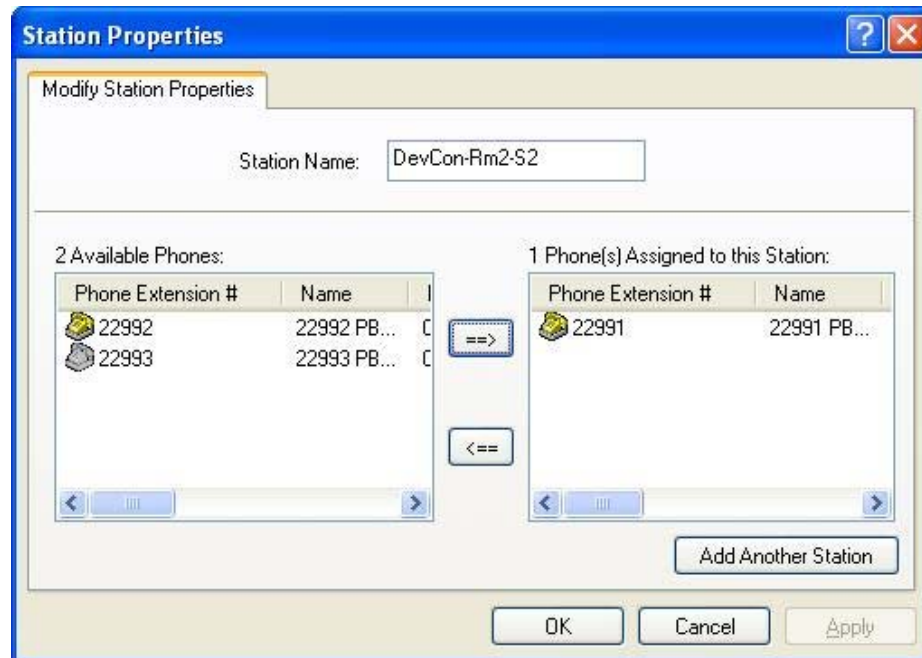
The **Phone System** screen from **Section 5.2** is displayed again, close the screen by clicking on the **X** icon in the top right corner. The **Enterprise System Resource** screen is displayed next, as shown below. Double-click on **Site Setup**.



In the **Site Setup** screen, double-click on **Workstations** to administer agent workstations.



The **Station Properties** screen is displayed next. For each agent workstation, enter the host name of the computer in **Station Name**. In this case, the computer host name is “DevCon-Rm2-S2”. Select the physical phone extension associated with this agent from the left pane, and use the right arrow icon to move the extension to the right pane. In this case, “22991” is the associated extension, as shown below. Click on **Add Another Station** and repeat this procedure to add all necessary agent workstations. After adding all workstations, click on **OK**.

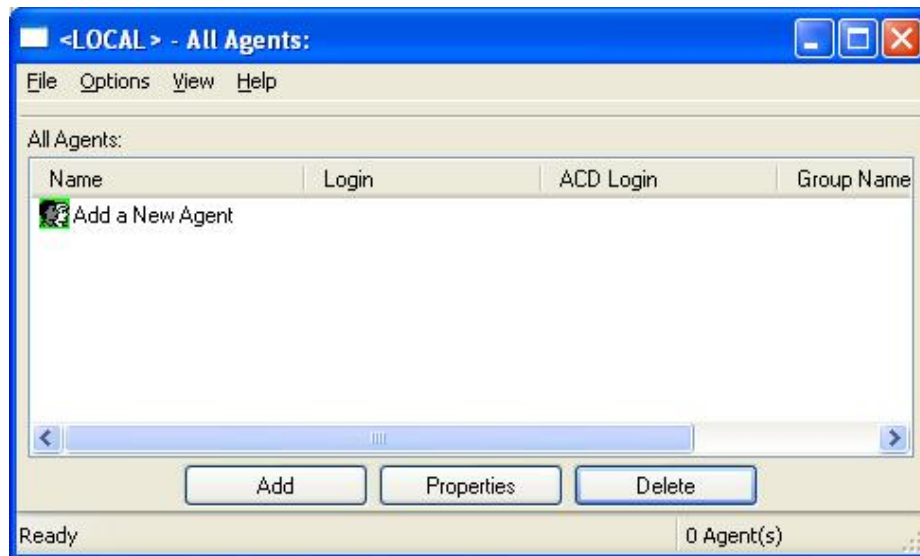


5.5. Administer Agent Logins

Navigate back to the **Enterprise System Resources** screen shown in **Section 5.4**, and double-click on **Agent Management**. In the **Agent Management** screen shown below, double-click on **Agents**.



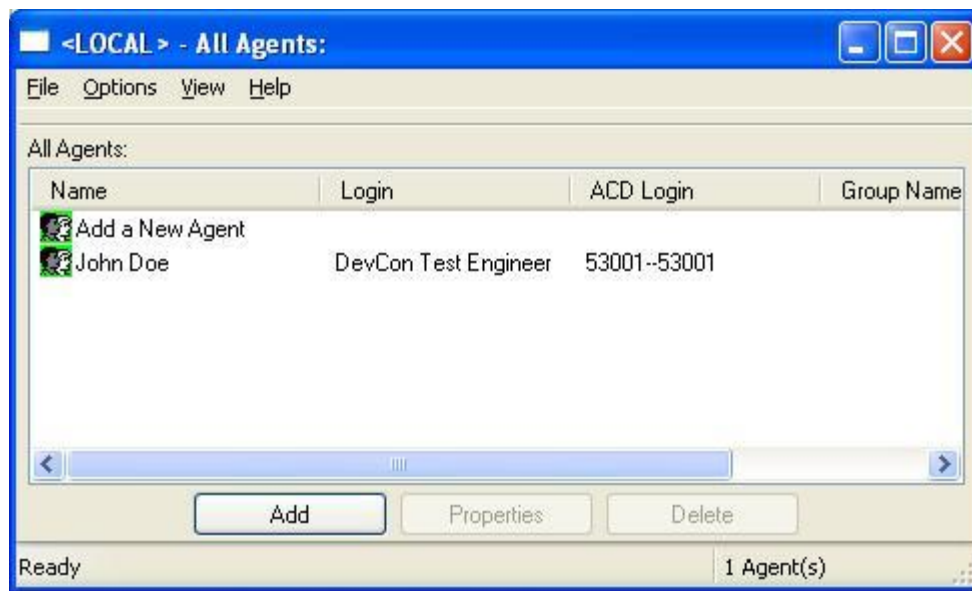
The **All Agents** screen is displayed. Click on **Add** to add an agent.



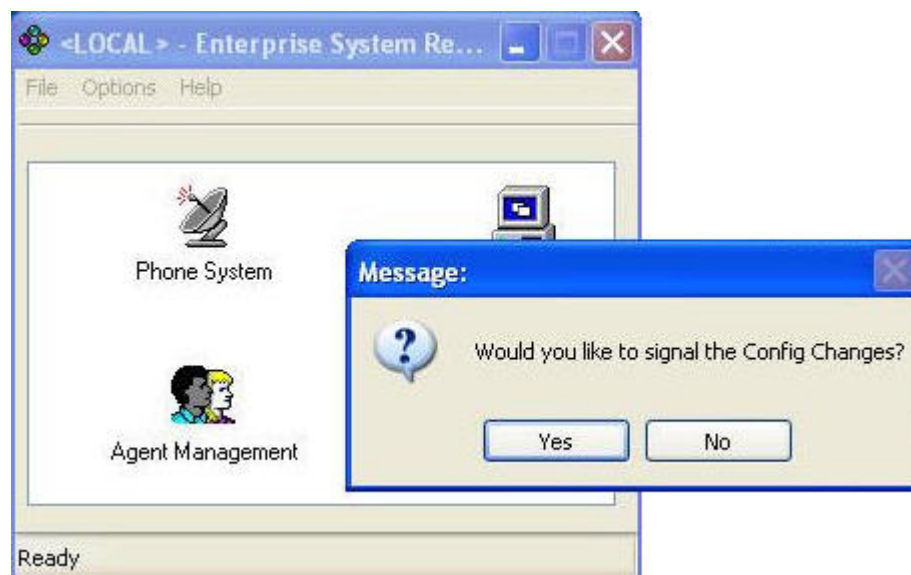
In the **Agent Properties** screen, enter a descriptive name for **Agent Name**. For **Login ID**, enter the Windows login name that the agent uses to log into the computer. For agents in an Expert Agent Selection (EAS) environment, enter “<logical agent extension>--<logical agent password>” into the **ACD Login ID** field. In this case, “53001” is the logical agent extension, and “53001” is the logical agent password. Note that the two dashes between the extension and password must be maintained. For agents in a non-EAS environment, enter “<physical agent extension>-<ACD group extension>-<physical agent password>” into the **ACD Login ID** field. Click **OK**.



The **All Agents** screen is displayed and updated with the newly added agent, as shown below. Repeat the same procedure to add all remaining agents. After adding all agents, close the screen by clicking on the **X** icon in the top right corner.



Navigate back to the **Enterprise System Resources** screen, and close the screen by clicking on the **X** icon in the top right corner. A **Message** dialog box is displayed, as shown below. Click on **Yes** to activate the configuration changes.



6. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing focused on verifying Upstream Works eMedia CT handling of TSAPI messages in the areas of routing, call control, event notification, value query, and set value. Testing also included rainy day scenarios to verify handling of negative acknowledgements.

The serviceability testing focused on verifying the ability of Upstream Works eMedia CT 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

The feature test cases were performed both automatically and manually. Upon start of the Upstream Works eMedia CT application, the application automatically queries Avaya Communication Manager for device status and requests monitoring and routing.

For the manual part of the testing, incoming calls were made to the adjunct routing VDN. The Upstream Works eMedia CT specifies where to route each call, based on agent status information that the application keeps track of from the TSAPI event reports received from Avaya Communication Manager. Manual call controls from both the agent desktop and the agent telephones were exercised to verify call control and event reports associated with remaining features such as conferencing and transferring of calls.

The serviceability test cases were performed manually by busying out and releasing the CTI link, and by disconnecting and reconnecting the LAN cables between Upstream Works eMedia CT and Avaya AES, and between Avaya AES and Avaya Communication Manager.

The verification of all tests included checking of proper states at the agent telephones and workstations, and of capturing and checking the TSAPI message traces from the Upstream Works eMedia CT server.

6.2. Test Results

All feature test cases were executed and passed.

7. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Avaya Application Enablement Services, and Upstream Works eMedia CT.

7.1. Verify Avaya Application Enablement Services

On Avaya AES, verify the status of the switch connection by selecting **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 “devcon27S8700”.

AVAYA Application Enablement Services
Operations Administration and Maintenance

OAM Home CTI OAM Home Administration Status and Control Switch Conn Summary Services Summary Maintenance Alarms Logs Utilities Help

You are here: > Status and Control > Switch Conn Summary

Switch Connections Summary

| Switch Conn | Conn State | Since | Online/Offline | Active CLANs/ Admin'd CLANs | # of TCI Conns | Msgs To Switch | Msgs From Switch | Msg Period |
|---------------|------------|-----------------------|----------------|--------------------------------|----------------|----------------|------------------|------------|
| devcon27S8700 | Talking | 2006-10-24 15:31:37.0 | Online | 1 / 1 | 4 | 262 | 299 | 30 |
| devcon31S8700 | Talking | 2006-10-24 15:31:37.0 | Online | 1 / 1 | 2 | 195 | 210 | 30 |

Online Offline Message Period Switch Connection Details
Per Service Switch Connections Details

Verify the status of the TSAPI link by selecting **Status and Control > Services Summary** from the left pane. Click on **TSAPI Service**, followed by **Details** (not shown below). The **TSAPI Link Details** screen is displayed. Verify the **Conn Status** is “Talking” for the TSAPI link administered in **Section 4.2**, as shown below.

AVAYA Application Enablement Services
Operations Administration and Maintenance

OAM Home CTI OAM Home Administration Status and Control Switch Conn Summary Services Summary Maintenance Alarms Logs Utilities Help

You are here: > Status and Control > Services Summary

TSAPI Link Details

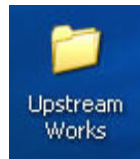
| Link | Switch Conn Name | Switch CTI Link Number | Conn Status | Since | Service State | Switch Version | Number of Associations | ASAI Message Rate |
|------|------------------|------------------------|-------------|-----------------------|---------------|----------------|------------------------|-------------------|
| 1 | devcon27S8700 | 4 | Talking | 2006-10-24 15:39:28.0 | Online | 13 | 6 | 51 |
| 2 | devcon31S8700 | 7 | Talking | 2006-10-24 15:31:41.0 | Online | 13 | 0 | 15 |

Online Offline

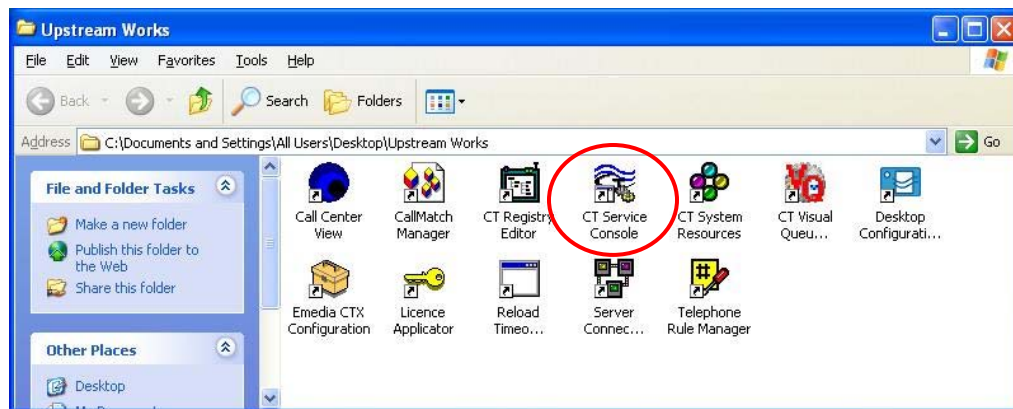
For service-wide information, choose one of the following:
TSAPI Service Status TLink Status User Status

7.2. Verify Upstream Works eMedia CT

From the Upstream Works eMedia CT server, double-click on the **Upstream Works** folder icon.



The **Upstream Works** screen is displayed. Double-click on **CT Service Console**.

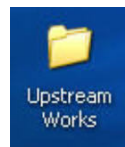


In the **CT Service Console** screen, enter the command “dcmd tsif dump 31” to display the status of the TSAPI link. Verify that the status is “TSAPI Link fully UP”, as shown below.

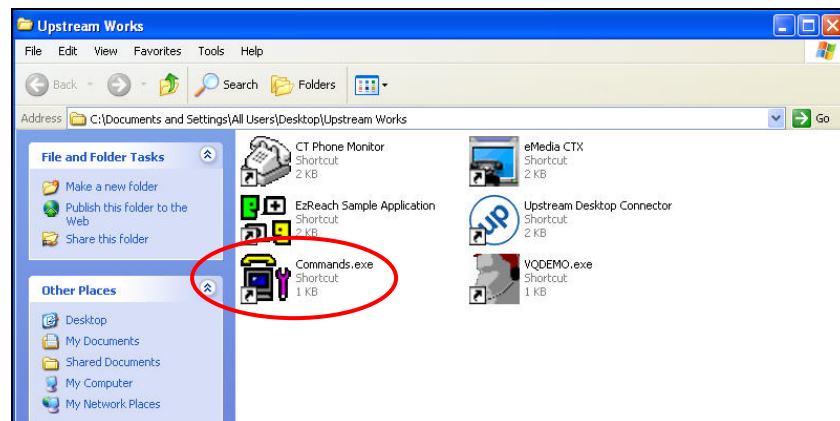
Enter the command “dcmd tsif dump 33” to display a summary of the monitored devices. As shown in the screen below, two agents are shown to be monitored in the **Line info** line, two VDNs shown in the **VDN info** line, and one ACD/Skill group shown in the **HuntGrp info** line.

```
CT Service Console - Upstream Works CT Server
CTISERU>
CTISERU>
CTISERU>
CTISERU> dcmd tsif dump 31
CTISERU> TSAPI Link Status: 4:'TSAPI Link fully UP'
+ TSAPI Connected Advertised Service: 'AUAYA#DEUCON27S8700#CSTA#AES-DEUCON2'
+ TSAPI apiVer:ST2, libVer:ACT3.1, tsrvVer:3.1, drvrVer:3.1.02 build 221
+ TSAPI Private Data Vendor:ECS, ver:7
+ Term: NO, Pend Connect: NO, Connected: YES
TSAPI Link Activity : 75.624 secs since last msg was received from TSERVER
CTISERU>
CTISERU>
CTISERU>
CTISERU> dcmd tsif dump 33
CTISERU> Line info : Total=2 Mon=2 Fail=[Congest=0 BadNum=0 MonLimit=0 Other=0]
VDN info : Total=2 Mon=2 Fail=[Congest=0 BadNum=0 MonLimit=0 Other=0]
HuntGrp info: Total=1 Mon=1 Fail=[Congest=0 BadNum=0 MonLimit=0 Other=0]
RegInfo : PendWI 0 PendReqRq 0 Succ 5 Err 0 Congest 0
CTISERU>
CTISERU>
CTISERU>
```

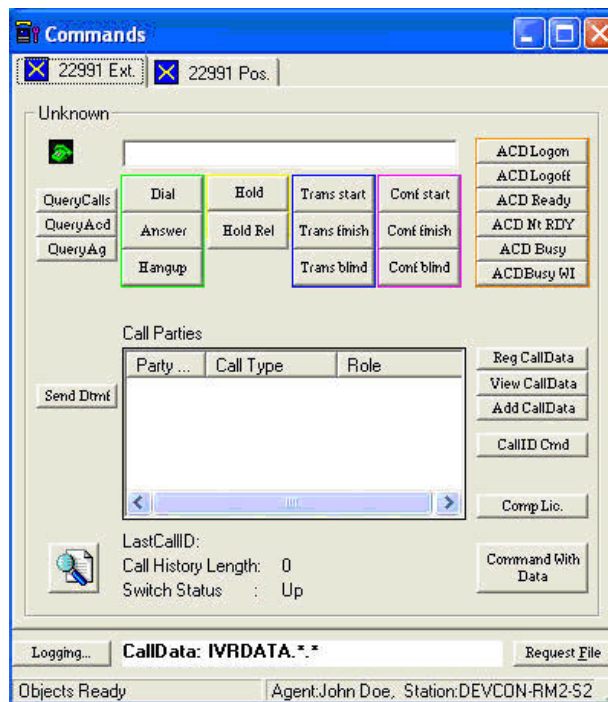
From the Upstream Works eMedia CT client, double-click on the **Upstream Works** folder icon shown below. Note that this icon is created as part of the Upstream Works eMedia CT client installation.



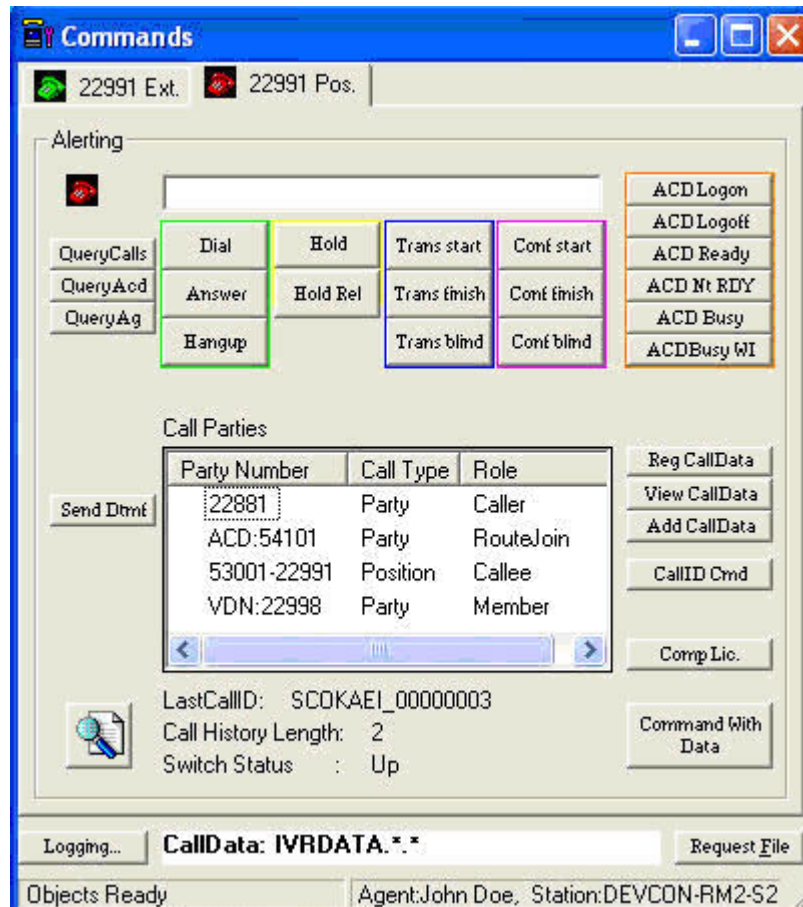
The **Upstream Works** screen is displayed. Double-click on **Commands.exe** to log into the application.



The **Commands** screen is displayed next.



Make an incoming call to the routing VDN. Verify that the call is delivered to an available agent's telephone as specified by Upstream Works eMedia CT. Also verify that the **Call Parties** section in the middle of the available agent's **Commands** screen is automatically populated with calling and called information associated with the call.



8. Conclusion

These Application Notes describe the configuration steps required for Upstream Works eMedia CT 7.10.0 to interoperate with Avaya Communication Manager 3.1.2 using Avaya Application Enablement Services 3.1.2. All feature and serviceability test cases were completed successfully.

9. Additional References

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

- *Administrator Guide for Avaya Communication Manager*, Document 03-300509, Issue 2.1, May 2006, available at <http://support.avaya.com>.
- *Avaya MultiVantage Application Enablement Services Administration and Maintenance Guide Release 3.1.2*, Document ID 02-300357, Issue 4, September 2006, available at <http://support.avaya.com>.
- *Upstream Works eMedia CT Installation Workbook*, Version 1.6, available from the Upstream Works eMedia CT 7.10.0 installation CD.
- *Upstream Works eMedia CT Administration and Maintenance*, Version 2.0, available from the Upstream Works eMedia CT 7.10.0 installation CD.

©2006 Avaya Inc. All Rights Reserved.

Avaya and the Avaya Logo are trademarks of Avaya Inc. All trademarks identified by ® and ™ are registered trademarks or trademarks, respectively, of Avaya Inc. All other trademarks are the property of their respective owners. The information provided in these Application Notes is subject to change without notice. The configurations, technical data, and recommendations provided in these Application Notes are believed to be accurate and dependable, but are presented without express or implied warranty. Users are responsible for their application of any products specified in these Application Notes.

Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya Developer*Connection* Program at devconnect@avaya.com.