



## Avaya Solution & Interoperability Test Lab

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# Application Notes for the Amcom XpressDesk with Avaya Aura™ Communication Manager and Avaya Aura™ Application Enablement Services - Issue 1.0

### Abstract

These Application Notes describe a compliance-tested configuration comprised of Avaya Aura™ Communication Manager, Avaya Aura™ Application Enablement Services, Avaya IP and Digital Telephones, and Amcom XpressDesk desktop application.

Amcom XpressDesk allows a user to operate a physical telephone and view call and telephone display information through a graphical user interface (GUI). Amcom XpressDesk integrates with Amcom CTI Layer, which is a middleware between Amcom XpressDesk and Avaya Aura™ Application Enablement Services, to control and monitor phone states. During compliance testing, calls were successfully placed to and from Avaya IP and Digital Telephones that were controlled and monitored by Amcom XpressDesk.

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

# 1. Introduction

These Application Notes describe a compliance-tested configuration comprised of Avaya Aura™ Communication Manager, Avaya Aura™ Application Enablement Services, Avaya IP and Digital Telephones, and Amcom XpressDesk applications.

Amcom XpressDesk is a Windows-based application that allows a user to operate a physical telephone and view call and telephone display information through a graphical user interface (GUI). Amcom XpressDesk integrates with Amcom CTI Layer, which is a middleware between Amcom XpressDesk and Application Enablement Services, to control and monitor phone states.

It is the Amcom CTI Layer service that actually uses the Application Enablement Services Device and Media Control Application Programming Interface (API) to share control of and monitor a physical telephone and receive the same terminal and first party call information received by the physical telephone. Amcom XpressDesk in turn uses the Amcom CTI Layer service to control and monitor a physical telephone. The XpressDesk applications regularly provide the Database server with call and lamp state information concerning the controlled telephones.

## 1.1. Interoperability Compliance Testing

The interoperability compliance test included features and serviceability. The focus of the compliance testing was primarily on verifying the interoperability between Amcom XpressDesk, Application Enablement Services, and Communication Manager.

## 1.2. Support

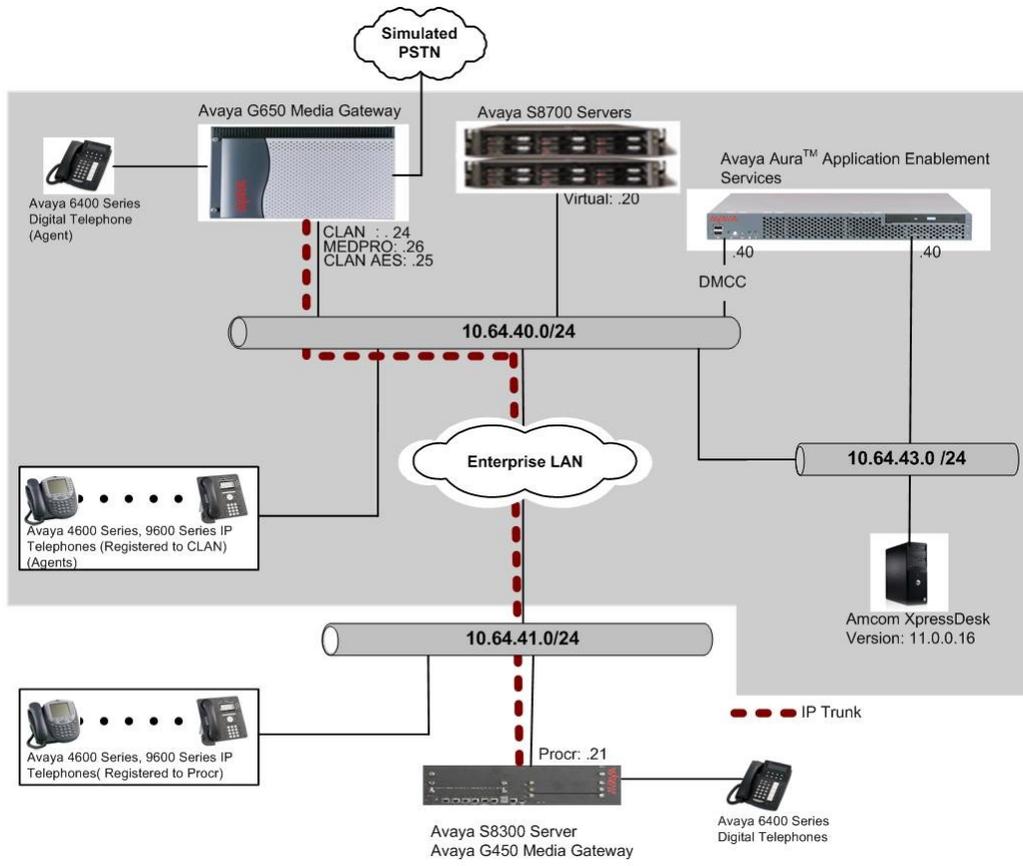
Technical support for the Amcom XpressDesk solution can be obtained by contacting Amcom:

- URL – <https://secure5.inet7.com/amcomsoftware-com/Support/online.aspx>
- Phone – (888) 797-7487

# 2. Reference Configuration

**Figure 1** illustrates the configuration used in these Application Notes. The sample configuration shows an enterprise with an Application Enablement Services server and Avaya S8720 Servers with G650 Media Gateway. The XpressDesk was located in a different VLAN. Endpoints include Avaya 9600 Series H.323 IP Telephones, Avaya 4625 H.323 IP Telephone, and an Avaya 6408D Digital Telephone. An Avaya S8300 Server with an Avaya G450 Media Gateway was included in the test to provide an inter-switch scenario.

**Note:** Basic administration of Application Enablement Services server is assumed. For details, see [2].



**Figure 1: Amcom XpressDesk Test Configuration.**

### 3. Equipment and Software Validated

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

Equipment	Software/Firmware
Avaya S8720 Servers	Avaya Aura™ Communication Manager 5.2.1 (R015x.02.1.016.4)
Avaya G650 Media Gateway	
TN2312BP IP Server Interface	HW12 FW22
TN799DP C-LAN Interface	HW1 FW16
TN2302AP IP Media Processor	HW11 FW107
Avaya S8300 Server with Avaya G450 Media Gateway	Avaya Aura™ Communication Manager 5.2.1 (R015x.02.1.016.4)
Avaya Aura™ Application Enablement Services Server	5.2 (r5-2-0-98-0)
Avaya 4625SW IP Telephone	2.5
Avaya 9600 Series IP Telephones	
9620 (H.323)	3.1
9630 (H.323)	3.1
9650 (H.323)	3.1
Avaya 6424D+ Digital Telephone	-
Amcom XpressDesk	11.0.0.16

## 4. Configure Communication Manager

This section describes the procedure for setting up a Feature Access Codes. Abbreviated dialing, and controlled telephones.

### 4.1. Configure IP Services

Enter the **change node-names ip** command. In the compliance-tested configuration, the CLAN IP address was used for registering H.323 endpoints, and the CLAN-AES IP address was used for connectivity to Application Enablement Services.

```
change node-names ip                                     Page 1 of 1
```

IP NODE NAMES			
Name	IP Address	Name	IP Address
CDR_buffer	192.45 .80 .250		. . .
CLAN	10.64.40.24		. . .
CLAN-AES	10.64.40.25		. . .
G350	10.64.42.21		. . .
MEDPRO	10.64.40.26		. . .
S8300	10.64.41.21		. . .
default	0 .0 .0 .0		. . .

Enter the **change ip-services** command. On **Page 1**, configure the Service Type field to **AESVCS** and the Enabled field to **y**. The Local Node field should be pointed to the **CLAN-AES** board that was configured previously in the IP NODE NAMES form in this section. During the compliance test, the default port was used for the Local Port field.

```
change ip-services                                     Page 1 of 4
```

IP SERVICES					
Service Type	Enabled	Local Node	Local Port	Remote Node	Remote Port
AESVCS	y	CLAN-AES	8765		

On **Page 4**, enter the hostname of the Application Enablement Services server for the AE Services Server field. The server name may be obtained by logging in to the Application Enablement Services server using ssh, and running the command **uname -a**. Enter an alphanumeric password for the Password field. Set the Enabled field to **y**. The same password will be configured on the Application Enablement Services server in **Section 5.2**.

```
change ip-services                                     Page 4 of 4
```

AE Services Administration				
Server ID	AE Services Server	Password	Enabled	Status
1:	server1	xxxxxxxxxxxxxxxxxxxx	y	idle
2:				
3:				
4:				
5:				

## 4.2. Configure Feature Access Codes (FAC)

Enter the **display feature-access-codes** command. On Page 5 of the **feature-access-codes** form, configure and enable the following access codes:

- After Call Work Access Code
- Auto-In Access Code
- Aux Work Access Code
- Login Access Code
- Logout Access Code

```
display feature-access-codes                                     Page 5 of 9
                    FEATURE ACCESS CODE (FAC)
                    Automatic Call Distribution Features
                    After Call Work Access Code: 120
                    Assist Access Code: 121
                    Auto-In Access Code: 122
                    Aux Work Access Code: 123
                    Login Access Code: 124
                    Logout Access Code: 125
                    Manual-in Access Code: 126
                    Service Observing Listen Only Access Code: 127
                    Service Observing Listen/Talk Access Code: 128
                    Service Observing No Talk Access Code:
                    Add Agent Skill Access Code: 130
                    Remove Agent Skill Access Code: 131
                    Remote Logout of Agent Access Code: 132
```

## 4.3. Configure Abbreviated Dialing

Enter the **add abbreviated-dialing group g** command, where **g** is the number of an available abbreviated dialing group. In the **DIAL CODE** list, enter the Feature Access Codes for ACD Login and Logout from **Section 4.2**.

```
add abbreviated-dialing group 1                               Page 1 of 1
                    ABBREVIATED DIALING LIST
                    Group List: 1          Group Name: Call Center
                    Size (multiple of 5): 5  Program Ext:          Privileged? n
DIAL CODE
11: 124
12: 125
13:
```

## 4.4. Configure Controlled Telephones

Enter the **change station r** command, where **r** is the extension of a registered, physical Avaya IP or Digital telephone. On **Page 1** of the **station** form, enter a phone Type, descriptive name, Security Code and set IP SoftPhone field to **y** to allow the physical station to be controlled by a softphone such as the Amcom XpressDesk application.

```
add station 22001                                     Page 1 of 5
                                                    STATION
Extension: 22001                                     Lock Messages? n          BCC: 0
Type: 4625                                           Security Code: *          TN: 1
Port: S00416                                         Coverage Path 1:         COR: 1
Name: DMCC-1                                         Coverage Path 2:         COS: 1
                                                    Hunt-to Station:
STATION OPTIONS
Loss Group: 19                                       Time of Day Lock Table:
Personalized Ringing Pattern: 1
Message Lamp Ext: 22001
Speakerphone: 2-way                                   Mute Button Enabled? y
Display Language: english                             Expansion Module? n
Survivable GK Node Name:
Survivable COR: internal                               Media Complex Ext:
Survivable Trunk Dest? y                             IP SoftPhone? y
                                                    IP Video Softphone? n
```

On **Page 4** of the station form, for **ABBREVIATED DIALING List 1**, enter the abbreviated dialing group configured in **Section 4.2**. On **Pages 4** and **5** of the station forms, configure the following **BUTTON ASSIGNMENTS** in addition to the call-appr (call appearance) buttons:

- aux-work
- abrv-dial – configure two of these buttons, one for Login and one for Logout, along with the Dial Codes from Abbreviated Dialing **List1** for ACD Login and Logout, respectively.
- after-call
- auto-in (On Page 5)
- release (On Page 5)

```
add station 22001                                     Page 4 of 5
                                                    STATION
SITE DATA
Room:                                                Headset? n
Jack:                                                Speaker? n
Cable:                                               Mounting: d
Floor:                                               Cord Length: 0
Building:                                            Set Color:
ABBREVIATED DIALING
List1: personal 1                                   List2: group 1           List3:
BUTTON ASSIGNMENTS
1: call-appr                                       5: aux-work RC: Grp:
2: call-appr                                       6: abrv-dial List: 2 DC: 11
3: brdg-appr B:1 E:22101                          7: abrv-dial List: 2 DC: 12
4: brdg-appr B:2 E:22101                          8: after-call Grp:
```

```
add station 22001                                     Page 5 of 5
                                                    STATION

FEATURE BUTTON ASSIGNMENTS
9: auto-in      Grp:
10: release
```

Repeat the instructions provided in this section for each physical station that is to be controlled / monitored by an Amcom CTI Layer.

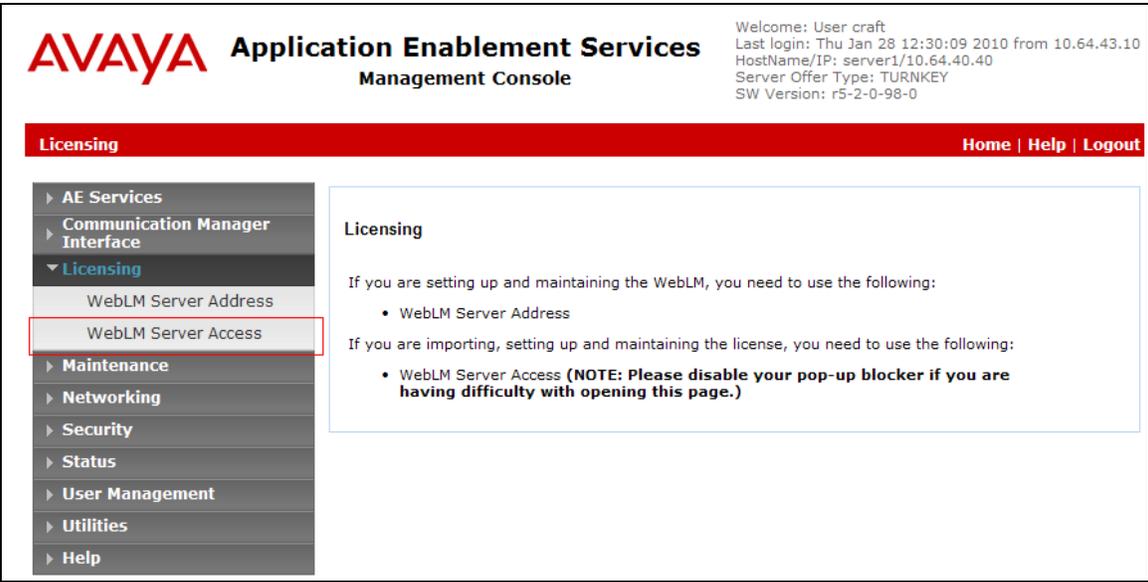
## 5. Configure Application Enablement Services

The Application Enablement Services server enables Computer Telephony Interface (CTI) applications to control and monitor telephony resources on Communication Manager.

This section assumes that installation and basic administration of the Application Enablement Services server has been performed. The steps in this section describe the configuration of a Switch Connection, a CTI user, a CMAPI port.

### 5.1. Device and Media Control API Station Licenses

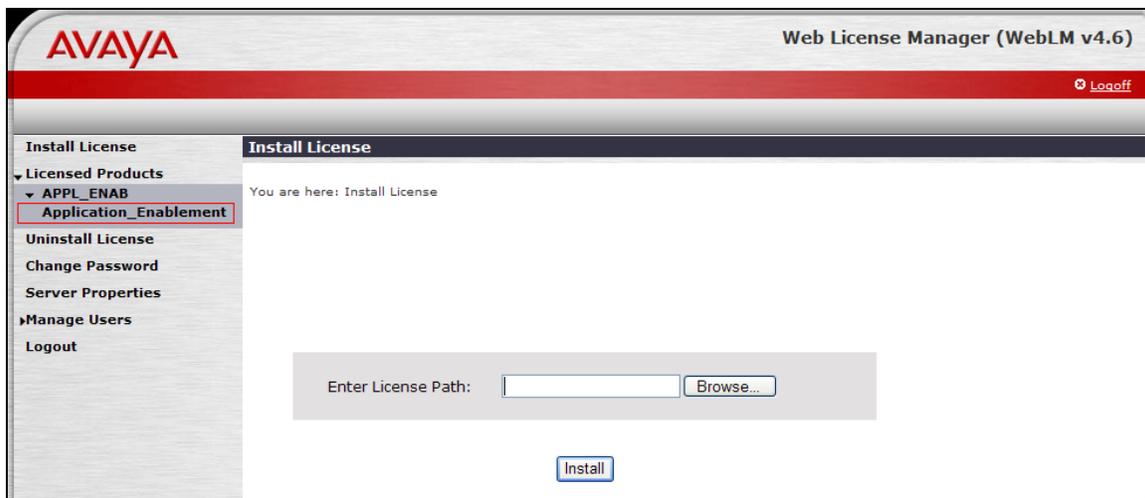
The Amcom XpressDesk instances appear as “virtual” stations/softphones to Communication Manager. Each of these virtual stations, hereafter called Device and Media Control API station, requires a license. Note that this is separate and independent of Avaya IP Softphone licenses, which are required for Avaya IP Softphones but not required for Device and Media Control API stations. To check and verify that there are sufficient DMCC licenses, log in to <https://<IP address of the Application Enablement Services server>/index.jsp>, and enter appropriate login credentials to access the Application Enablement Services Management Console page. Select the **Licensing** → **WebLM Server Access** link from the left pane of the window.



Provide appropriate login credentials to access the Web License Manager page.



On the Install License page, select **License Products** → **Application\_Enablement** link from the left pane of the window.



On the Licensed Features page, verify that there are sufficient DMCC licenses.

**AVAYA** Web License Manager (WebLM v4)

**Application Enablement (CTI) - Release: 5 - SID: 10503000 (Standard License File)**

You are here: Licensed products > Application Enablement (CTI)

License installed on: 2009. 12. 11 오후 3시 36분 39초 EST

[View Peak Usage](#)

Feature (Keyword)	Expiration Date	Licensed	Acquired
Unified CC API Desktop Edition (VALUE_AES_AEC_UNIFIED_CC_DESKTOP)	permanent	1000	0
Device Media and Call Control (VALUE_AES_DMCC_DMC)	permanent	13	0
DLG (VALUE_AES_DLG)	permanent	13	0
CVLAN ASA1 (VALUE_AES_CVLAN_ASA1)	permanent	13	0
AES ADVANCED SMALL SWITCH (VALUE_AES_AEC_SMALL_ADVANCED)	permanent	3	0
CVLAN Proprietary Links (VALUE_AES_PROPRIETARY_LINKS)	permanent	13	0
AES ADVANCED LARGE SWITCH (VALUE_AES_AEC_LARGE_ADVANCED)	permanent	3	0
TSAPI Simultaneous Users (VALUE_AES_TSAPI_USERS)	permanent	1000	0
AES ADVANCED MEDIUM SWITCH (VALUE_AES_AEC_MEDIUM_ADVANCED)	permanent	3	0

SmallServerTypes: s8300c;s8300d;icc;premio;tn8400;laptop  
 MediumServerTypes: ibmx306;ibmx306m;dell1950;xen;hs20;hs20\_8832\_vm  
 LargeServerTypes: isp2100;ibmx305;d1380g3;d1385g1;d1385g2;unknown  
 TrustedApplications: IPS\_001, BasicUnrestricted, AdvancedUnrestricted, DMCCUnrestricted; 1XP\_001, BasicUnrestricted, AdvancedUnrestricted, DMCCUnrestricted; 1XM\_001, BasicUnrestricted, AdvancedUnrestricted, DMCCUnrestricted; PC\_001,

## 5.2. Configure Switch Connection

Launch a web browser, enter <https://<IP address of the Application Enablement Services server>> in the address field, and log in with the appropriate credentials for accessing the Application Enablement Services Management Console pages.

# Application Enablement Services Management Console

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**Please login here:**

Username

Password

Click on **Communication Manager Interface** → **Switch Connection** in the left pane to invoke the Switch Connections page.

The screenshot shows the Avaya Application Enablement Services Management Console. At the top left is the Avaya logo and the title "Application Enablement Services Management Console". At the top right, there is a user information block: "Welcome: User craft", "Last login: Tue Jan 26 11:34:52 2010 from 10.64.43.10", "HostName/IP: server1/10.64.40.40", "Server Offer Type: TURNKEY", and "SW Version: r5-2-0-98-0". Below this is a red navigation bar with "Home" on the left and "Home | Help | Logout" on the right. On the left side, there is a vertical menu with the following items: "AE Services", "Communication Manager Interface", "Licensing", "Maintenance", "Networking", "Security", "Status", "User Management", "Utilities", and "Help". The "Communication Manager Interface" item is highlighted. The main content area is titled "Welcome to OAM" and contains the following text: "The AE Services Operations, Administration, and Management (OAM) Web provides you with tools for managing the AE Server. OAM spans the following administrative domains:" 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 infomations.", "• 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.", "• Help - Use Help to obtain a few tips for using the OAM Help system". Below the list, it 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."

A Switch Connection defines a connection between the Application Enablement Services server and Communication Manager. Enter a descriptive name for the switch connection and click on **Add Connection**.

Welcome: User craft  
Last login: Fri Dec 11 17:36:53 2009 from 10.32.11.10  
HostName/IP: server1/10.32.8.40  
Server Offer Type: TURNKEY  
SW Version: r5-2-0-98-0

Communication Manager Interface | Switch Connections Home | Help | Logout

Switch Connections

S8720G650 Add Connection

Connection Name	Processor Ethernet	Msg Period	Number of Active Connections
S8300G450	No	30	1

Edit Connection Edit PE/CLAN IPs Edit H.323 Gatekeeper Delete Connection

The next window that appears prompts for the Switch Connection password. Enter the same password that was administered in Communication Manager in **Section 4.1**. Click on **Apply**.

Welcome: User craft  
Last login: Fri Dec 11 17:36:53 2009 from 10.32.11.10  
HostName/IP: server1/10.32.8.40  
Server Offer Type: TURNKEY  
SW Version: r5-2-0-98-0

Communication Manager Interface | Switch Connections Home | Help | Logout

Connection Details - S8720G650

Switch Password [REDACTED]

Confirm Switch Password [REDACTED]

Msg Period 30 Minutes (1 - 72)

SSL

Processor Ethernet

Apply Cancel

After returning to the Switch Connections page, select the radio button corresponding to the switch connection added previously, and click on the **Edit H.323 Gatekeeper** button for DMCC call control and monitor.

**AVAYA Application Enablement Services Management Console**

Welcome: User craft  
 Last login: Fri Dec 11 17:36:53 2009 from 10.32.11.10  
 HostName/IP: server1/10.32.8.40  
 Server Offer Type: TURNKEY  
 SW Version: r5-2-0-98-0

Communication Manager Interface | Switch Connections Home | Help | Logout

Switch Connections

Connection Name	Processor Ethernet	Msg Period	Number of Active Connections
<input type="radio"/> S8300G450	No	30	1
<input checked="" type="radio"/> S8720G650	No	30	0

On the **Edit H.323 Gatekeeper – S8720G650** page, enter the C-LAN IP address which will be used for the DMCC service. Click on **Add Name or IP**. Repeat this step as necessary to add other C-LAN boards enabled with Application Enablement Services.

*Note: Avaya recommends using a CLAN board for phone registration, and another CLAN board for H.323 Gatekeeper.*

**AVAYA Application Enablement Services Management Console**

Welcome: User craft  
 Last login: Tue Jan 26 13:40:05 2010 from 10.64.43.10  
 HostName/IP: server1/10.64.40.40  
 Server Offer Type: TURNKEY  
 SW Version: r5-2-0-98-0

Communication Manager Interface | Switch Connections Home | Help | Logout

Switch Connections

**Edit H.323 Gatekeeper - S8720G650**

Name or IP Address

### 5.3. Configure the CTI Users

Navigate to **User Management** → **User Admin** → **Add User** link from the left pane of the window. On the Add User page, provide the following information:

- User Id
- Common Name
- Surname
- User Password
- Confirm Password

The above information (User ID and User Password) must match with the information configured in the Amcom XpressDesk Configuration page in **Section 6**.

Select **Yes** using the drop down menu on the CT User field. This enables the user as a CTI user. Default values may be used in the remaining fields. Click the **Apply** button (not shown) at the bottom of the screen to complete the process.

**AVAYA Application Enablement Services Management Console**

Welcome: User craft  
Last login: Thu Jan 28 16:35:23 2010 from 10.64.43.10  
HostName/IP: server1/10.64.40.40  
Server Offer Type: TURNKEY  
SW Version: r5-2-0-98-0

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

**Add User**

Fields marked with \* can not be empty.

* User Id	<input type="text" value="Amcom"/>
* Common Name	<input type="text" value="Amcom"/>
* Surname	<input type="text" value="Amcom123&amp;"/>
* User Password	<input type="password" value="••••••••"/>
* Confirm Password	<input type="password" value="••••••••"/>
Admin Note	<input type="text"/>
Avaya Role	<input type="text" value="None"/>
Business Category	<input type="text"/>
Car License	<input type="text"/>
CM Home	<input type="text"/>
Css Home	<input type="text"/>
CT User	<input type="text" value="Yes"/>
Department Number	<input type="text"/>
Display Name	<input type="text"/>
Employee Number	<input type="text"/>

Once the user is created, navigate to the **Security** → **Security Database** → **CTI Users** → **List All Users** link from the left pane of the window. Select the User ID created previously, and click the **Edit** button to set the permission of the user.

The screenshot shows the Avaya Application Enablement Services Management Console interface. At the top, the Avaya logo and title are on the left, and system information (Welcome: User craft, Last login: Thu Jan 28 16:35:23 2010 from 10.64.43.10, HostName/IP: server1/10.64.40.40, Server Offer Type: TURNKEY, SW Version: r5-2-0-98-0) is on the right. A red navigation bar contains the breadcrumb 'Security | Security Database | CTI Users | List All Users' and links for 'Home | Help | Logout'.

The left sidebar contains a tree view of the application's structure. Under the 'Security Database' section, the 'CTI Users' folder is expanded, and the 'List All Users' link is highlighted with a red box.

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

User ID	Common Name	Worktop Name	Device ID
Amcom	Amcom	NONE	NONE

Below the table, there are two buttons: 'Edit' and 'List All', both of which are highlighted with red boxes.

Provide the user with unrestricted access privileges by checking the **Unrestricted Access** button. Click on the **Apply Changes** button.

**AVAYA Application Enablement Services Management Console**

Welcome: User craft  
Last login: Thu Jan 28 16:35:23 2010 from 10.64.43.10  
HostName/IP: server1/10.64.40.40  
Server Offer Type: TURNKEY  
SW Version: r5-2-0-98-0

Security | Security Database | CTI Users | List All Users 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**
      - List All Users**
      - Search Users
    - Devices
    - Device Groups
    - Tlinks
    - Tlink Groups
    - Worktops

**Edit CTI User**

User Profile:                      User ID                      Amcom  
Common Name                      Amcom  
Worktop Name                      NONE ▾  
**Unrestricted Access**                     

---

Call Origination and Termination / Device Status                      None ▾

---

Call and Device Monitoring:    Device                      None ▾  
Call / Device                      None ▾  
Call                     

---

Routing Control:                      Allow Routing on Listed Devices                      None ▾

**Apply Changes**    **Cancel Changes**

## 5.4. Configure the CTI Port

Navigate to the **Networking** → **Ports** link, from the left pane of the window, to set the DMCC server port. During the compliance test, the default port values were utilized. The following screen displays the default port values. Since the unencrypted port was utilized during the compliance test, set the Unencrypted Port field to **Enabled**. Default values may be used in the remaining fields. Click the **Apply Changes** button (not shown) at the bottom of the screen to complete the process.

The screenshot shows the Avaya Application Enablement Services Management Console. The left navigation pane is expanded to 'Networking' > 'Ports'. The main content area is titled 'Ports' and contains the following configuration sections:

- CVLAN Ports**: Unencrypted TCP Port (9999, Enabled), Encrypted TCP Port (9998, Disabled).
- DLG Port**: TCP Port (5678).
- TSAPI Ports**: TSAPI Service Port (450, Enabled), Local TLINK Ports (TCP Port Min: 1024, TCP Port Max: 1039), Unencrypted TLINK Ports (TCP Port Min: 1050, TCP Port Max: 1065), Encrypted TLINK Ports (TCP Port Min: 1066, TCP Port Max: 1081).
- DMCC Server Ports**: Unencrypted Port (4721, Enabled), Encrypted Port (4722, Disabled), TR/87 Port (4723, Disabled).

The 'Unencrypted Port' field in the DMCC Server Ports section is highlighted with a red box, and its 'Enabled' radio button is selected.

## 6. Configure Amcom XpressDesk

Amcom installs, configures, and customizes the XpressDesk application for their end customers.

## 7. General Test Approach and Test Results

The general approach was to exercise basic telephone and call operations on Avaya IP and Digital telephones using the aforementioned Amcom desktop application. The main objectives were to verify that:

- The user may successfully use XpressDesk to perform off-hook, on-hook, dial, answer, hold, retrieve, transfer, conference, and release operations on the physical telephone.
- The agent user may successfully use XpressDesk to log into and out of an ACD, and move between agent work modes.
- Manual operations performed on the physical telephone are correctly reflected in the XpressDesk GUI.

- XpressDesk and manual telephone operations may be used interchangeably; for example, go off-hook using XpressDesk and manually dial digits.
- Display and call information on the physical telephone is accurately reflected in the XpressDesk GUI.
- Call states are consistent between XpressDesk and the physical telephone.

The objectives of **Section 7** were verified. For serviceability testing, Amcom XpressDesk was able to regain control of the physical telephone after restarts of Amcom XpressDesk, the computer on which it runs, and the Application Enablement Services server. In addition, after Amcom XpressDesk lost network connectivity to the Application Enablement Services server, it was able to recover the existing session to the Application Enablement Services server when network connectivity was restored before the session expired, and establish a new session when network connectivity was restored after the previous session expired.

## 8. Verification Steps

The following steps may be used to verify the configuration:

- From the Amcom client computers, ping IP interfaces, in particular the Application Enablement Services server, and verify connectivity.
- For the physical IP telephones, verify that the physical telephones are registered by using the **list registered-ip-stations** command on the SAT. For the physical Digital telephones, verify that the telephones are attached to the correct ports.
- Go off-hook and on-hook on the controlled telephones manually and using XpressDesk, and verify consistency.
- Place and answer calls from the controlled telephones manually and using XpressDesk, and verify consistency.

## 9. Conclusion

These Application Notes described a compliance-tested configuration comprised of Communication Manager, Application Enablement Services, Avaya IP and Digital Telephones, and the Amcom XpressDesk application. Amcom XpressDesk allows a user to operate a physical telephone and view call and telephone display information through a graphical user interface (GUI). During compliance testing, calls were successfully placed to and from Avaya IP and Digital Telephones that were controlled and monitored by the Amcom XpressDesk application.

## 10. Additional References

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

[1] *Administering Avaya Aura™ Communication Manager*, Issue 5.0, May 2009, Document Number 03-300509

[2] *Avaya Aura™ Application Enablement Services Administration and Maintenance Guide*, Issue 11, November 2009, Document Number 02-300357

Product information for Amcom products may be found at <http://www.amcomsoft.com/products.cfm>.

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