



Avaya Solution & Interoperability Test Lab

Application Notes for Zeacom Communications Center 5.0 with Avaya AuraTM Communication Manager 5.2.1 Using Avaya AuraTM Application Enablement Services 5.2.2 – Issue 1.2

Abstract

These Application Notes describe the configuration steps required for Zeacom Communications Center 5.0 to interoperate with Avaya AuraTM Communication Manager 5.2.1 using Avaya AuraTM Application Enablement Services 5.2.2. Zeacom Communications Center is a multi-channel and multi-contact solution that can handle voice, fax, web, and email contacts. The compliance testing focused on the voice integration with Avaya AuraTM Communication Manager via Avaya AuraTM Application Enablement Services.

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 the configuration steps required for Zeacom Communications Center 5.0 to interoperate with Avaya Aura™ Communication Manager 5.2.1 using Avaya Aura™ Application Enablement Services 5.2.2. Zeacom Communications Center is a multi-channel and multi-contact solution that can handle voice, fax, web, and email contacts. The compliance testing focused on the voice integration with Avaya Aura™ Communication Manager via Avaya Aura™ Application Enablement Services.

The Zeacom Communications Center server uses the Avaya Aura™ Application Enablement Services Telephony Services Application Programming Interface (TSAPI) service to query and monitor devices such as VDNs and call answering user extensions on Avaya Aura™ Communication Manager. Incoming calls are routed by Zeacom Communications Center using the TSAPI adjunct routing capability.

The call answering users (referred to as agents) have desktop computers running the Zeacom Executive Desktop client software, and are networked to the Zeacom Communications Center server via TCP/IP. Call related actions such as answering of incoming calls can be initiated via the agent telephone, or via the agent desktop by using the TSAPI call control capabilities. The Zeacom Communications Center server populates the answering agent's desktop screen with call related information, by using the received TSAPI event reports for the monitored devices.

Zeacom Communications Center also has a Voicemail application. To support the Voicemail application, there is a physical connection between the Analog Line card on Avaya Aura™ Communication Manager and the Dialogic Analog card on Zeacom Communications Center. Each analog port is administered as an analog station on Avaya Aura™ Communication Manager, with Zeacom Communications Center monitoring these devices via TSAPI. Calls to the Voicemail VDN will be routed by Zeacom Communications Center over an available analog voicemail port. Message waiting lamps are turned on/off by the Zeacom Communications Center utilizing the TSAPI set value capability.

1.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing focused on verifying the following on Zeacom Communications Center:

- Use of TSAPI query service to query device names.
- Use of TSAPI event report service to monitor VDNs, agent extensions, and voicemail stations.
- Use of TSAPI routing service to route incoming calls.
- Use of TSAPI set value service to activate/deactivate call forwarding and message waiting indicator.
- Use of TSAPI call control service to handle inbound calls to the analog voicemail ports, and support of call control actions initiated from the agent desktop.
- Proper handling of call scenarios involving inbound, outbound, ACD, non-ACD, drop, hold/reconnect, voicemail, transfer, conference, call forwarding, and supervisor monitor.

The serviceability testing focused on verifying the ability of Zeacom Communications Center to recover from adverse conditions, such as disconnecting/reconnecting the Ethernet cable to Zeacom Communications Center.

1.2. Support

Technical support on Zeacom Communications Center can be obtained through the following:

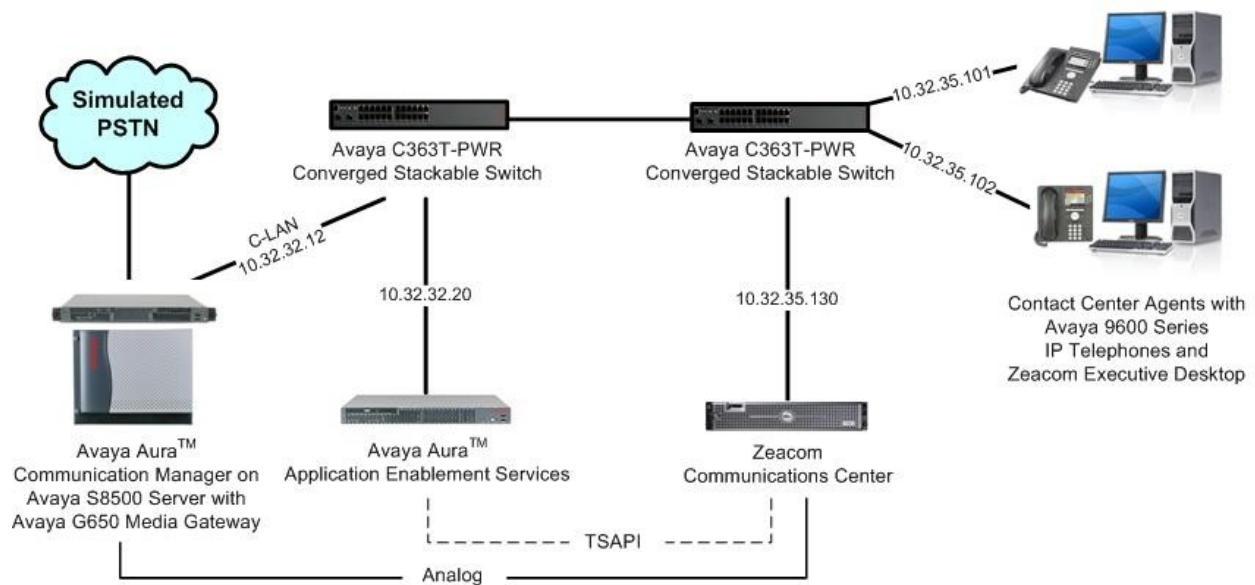
- **Phone:** (800) 513-9002
- **Web:** www.zeacom.com
- **Email:** usasupport@zeacom.com

2. Reference Configuration

The detailed administration of basic connectivity between Avaya Aura™ Communication Manager and Avaya Aura™ Application Enablement Services is not the focus of these Application Notes and will not be described.

The contact center devices used in the compliance testing are shown in the table below.

Device Type	Device Number/Extension
VDNs	65901-8
Vectors	900-905, 908
Agent stations	65001-2
Failure covering station	65000
Voicemail port	65221-2



3. Equipment and Software Validated

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

Equipment	Software
Avaya Aura™ Communication Manager on Avaya S8500 Server	5.2.1 (R015x.02.1.016.4)
Avaya G650 Media Gateway <ul style="list-style-type: none">TN799DP C-LAN Circuit PackTN793CP Analog Line	HW01 FW038 HW04 FW010
Avaya Aura™ Application Enablement Services	5.2.2
Avaya 9600 Series IP Telephones (H.323)	3.1
Zeacom Communications Center <ul style="list-style-type: none">Dialogic 120JCT-LS-Rev Analog CardAvaya TSAPI Windows Client	5.0.40.2100 SP4 6.0 5.2.1.474
Zeacom Executive Desktop	5.0.40.2100 SP4

4. Configure Avaya Aura™ Communication Manager

This section provides the procedures for configuring Avaya Aura™ Communication Manager. The procedures include the following areas:

- Verify Communication Manager license
- Administer CTI link
- Administer vectors and VDNs
- Administer voicemail coverage path
- Administer agents
- Administer voicemail ports

4.1. Verify Communication Manager License

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

display system-parameters customer-options	Page 3 of 11
OPTIONAL FEATURES	
Abbreviated Dialing Enhanced List? y	Audible Message Waiting? n
Access Security Gateway (ASG)? n	Authorization Codes? n
Analog Trunk Incoming Call ID? y	CAS Branch? n
A/D Grp/Sys List Dialing Start at 01? n	CAS Main? n
Answer Supervision by Call Classifier? n	Change COR by FAC? y
ARS? y	Computer Telephony Adjunct Links? y
ARS/AAR Partitioning? y	Cvg Of Calls Redirected Off-net? n
ARS/AAR Dialing without FAC? y	DCS (Basic)? n
ASAI Link Core Capabilities? y	DCS Call Coverage? n
ASAI Link Plus Capabilities? y	DCS with Rerouting? n

Navigate to **Page 6**, and verify that the **Vectoring (Basic)** customer option is set to “y”.

display system-parameters customer-options	Page 6 of 11
CALL CENTER OPTIONAL FEATURES	
Call Center Release: 5.0	
ACD? y	Reason Codes? y
BCMS (Basic)? y	Service Level Maximizer? n
BCMS/VuStats Service Level? n	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
Expert Agent Selection (EAS)? y	Vectoring (G3V4 Enhanced)? y
EAS-PHD? n	Vectoring (3.0 Enhanced)? y

4.2. Administer CTI Link

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.

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

4.3. Administer Vectors and VDNs

Administer a set of vectors and VDNs per Zeacom Communications Center installation documentation [3]. These vectors and VDNs provide general routing and different call treatments to incoming calls. The vectors and VDNs that were used for the compliance testing are shown below.

VDN	Vector	Purpose
65901	901	Ring treatment
65902	902	Music treatment
65903	903	Busy treatment
65904	904	Failure coverage
65905	905	Voicemail routing
65906	900	General routing for the Sales application
65907	900	General routing for the Support application
65908	908	Hold treatment

4.3.1. Failure Coverage

Modify a vector using the “change vector n” command, where “n” is an available vector number. This vector will provide failure coverage and routing to the CTI link defined in **Section 4.2**. Note that the vector **Number** and **route-to number** may vary, and that the **route-to number** is used as the covering point in case of failure from the adjunct routing step. In the compliance testing, an existing station extension of “65000” was used as the covering point. As shown below, use “SC Fail” as the vector **Name**, with the wait treatment and remaining vector steps as specified in the Zeacom Communications Center installation document [3].

```
change vector 904                                     Page 1 of 3
                                                    CALL VECTOR
Number: 904      Name: SC Fail
Multimedia? n      Meet-me Conf? n      Lock? n
Basic? y      EAS? y      G3V4 Enhanced? y      ANI/II-Digits? y      ASAI Routing? y
Prompting? y      LAI? y      G3V4 Adv Route? y      CINFO? y      BSR? n      Holidays? n
Variables? n      3.0 Enhanced? n
01 adjunct      routing link 1
02 wait-time      5 secs hearing silence
03 route-to      number 65000      with cov n if unconditionally
04 stop
05
```

Add a VDN using the “add vdn n” command, where “n” is an available extension. Associate this VDN with the newly added vector from above.

- **Name:** “SC Fail”
- **Destination:** “Vector Number”
- **Vector Number:** The “SC Fail” vector number from above.

```
add vdn 65904                                     Page 1 of 3
                                                    VECTOR DIRECTORY NUMBER
Extension: 65904
Name*: SC Fail
Destination: Vector Number      904
```


4.3.2. General Routing

Modify a vector using the “change vector n” command, where “n” is an available vector number. This vector will provide general routing to the CTI link defined in **Section 4.2**. Note that the vector **Number** and **route-to number** may vary, and that the **route-to number** is used as the covering point in case of failure from the adjunct routing step. Enter a descriptive name for the vector **Name** field, and configure the remaining vector steps as specified in [3].

```
change vector 900                                     Page 1 of 3
CALL VECTOR
Number: 900      Name: Zeacom User Q
Multimedia? n      Meet-me Conf? n      Lock? n
Basic? y      EAS? y      G3V4 Enhanced? y      ANI/II-Digits? y      ASAI Routing? y
Prompting? y      LAI? y      G3V4 Adv Route? y      CINFO? y      BSR? n      Holidays? n
Variables? n      3.0 Enhanced? n
01 adjunct      routing link 1
02 wait-time      5 secs hearing silence
03 route-to      number 65904      with cov n if unconditionally
04 stop
05
```

For each incoming call application, add a VDN using the “add vdn n” command, where “n” is an available extension. Associate this VDN with the newly added vector from above. For the compliance testing, two VDNs were added, as shown below.

- **Name:** A descriptive name.
- **Destination:** “Vector Number”
- **Vector Number:** The “Zeacom User Q” vector number from above.

```
add vdn 65906                                     Page 1 of 2
VECTOR DIRECTORY NUMBER
Extension: 65906
Name: Zeacom Sales
Destination: Vector Number      900
```

```
add vdn 65907                                     Page 1 of 2
VECTOR DIRECTORY NUMBER
Extension: 65907
Name: Zeacom Support
Destination: Vector Number      900
```

4.3.3. Ring Treatment

Modify a vector using the “change vector n” command, where “n” is an available vector number. This vector will provide ring treatment and routing to the CTI link defined in **Section 4.2**. Note that the vector **Number** and **route-to number** may vary, and that the **route-to number** is used as the covering point in case of failure from the adjunct routing step. Enter a descriptive name for the vector **Name** field, and configure the remaining vector steps as specified in [3].

```
change vector 901                                     Page 1 of 3
                                                    CALL VECTOR

  Number: 901                      Name: SC Ring
Multimedia? n                      Meet-me Conf? n      Lock? n
  Basic? y      EAS? y    G3V4 Enhanced? y    ANI/II-Digits? y    ASAI Routing? y
  Prompting? y   LAI? y   G3V4 Adv Route? y    CINFO? y    BSR? n    Holidays? n
  Variables? n   3.0 Enhanced? n
01 adjunct      routing link 1
02 wait-time    60 secs hearing ringback
03 route-to     number 65904          with cov n if unconditionally
04 stop
05
```

Add a VDN using the “add vdn n” command, where “n” is an available extension. Associate this VDN with the newly added vector from above.

- **Name:** “SC Ring”
- **Destination:** “Vector Number”
- **Vector Number:** The “SC Ring” vector number from above.

```
add vdn 65901                                     Page 1 of 2
                                                    VECTOR DIRECTORY NUMBER

                               Extension: 65901
                               Name: SC Ring
                               Destination: Vector Number          901
```

4.3.4. Music Treatment

Modify a vector using the “change vector n” command, where “n” is an available vector number. This vector will provide music treatment and routing to the CTI link defined in **Section 4.2**. Note that the vector **Number** and **route-to number** may vary, and that the **route-to number** is used as the covering point in case of failure from the adjunct routing step. Enter a descriptive name for the vector **Name** field, and configure the remaining vector steps as specified in [3].

```
change vector 902                                     Page 1 of 3
CALL VECTOR
Number: 902      Name: SC Music
Multimedia? n      Meet-me Conf? n      Lock? n
Basic? y      EAS? y      G3V4 Enhanced? y      ANI/II-Digits? y      ASAI Routing? y
Prompting? y      LAI? y      G3V4 Adv Route? y      CINFO? y      BSR? n      Holidays? n
Variables? n      3.0 Enhanced? n
01 adjunct      routing link 1
02 wait-time      60 secs hearing music
03 route-to      number 65904      with cov n if unconditionally
04 stop
05
```

Add a VDN using the “add vdn n” command, where “n” is an available extension. Associate this VDN with the newly added vector from above.

- **Name:** “SC Music”
- **Destination:** “Vector Number”
- **Vector Number:** The “SC Music” vector number from above.

```
add vdn 65902                                     Page 1 of 2
VECTOR DIRECTORY NUMBER
Extension: 65902
Name: SC Music
Destination: Vector Number      902
```

4.3.5. Busy Treatment

Modify a vector using the “change vector n” command, where “n” is an available vector number. This vector will provide busy treatment and routing to the CTI link defined in **Section 4.2**. Note that the vector **Number** may vary. Enter a descriptive name for the vector **Name** field, and configure the remaining vector steps as specified in [3].

change vector 903	CALL VECTOR		Page	1 of	3
Number: 903	Name: SC Busy				
Multimedia? n	Meet-me Conf? n		Lock? n		
Basic? y	EAS? y	G3V4 Enhanced? y	ANI/II-Digits? y	ASAI Routing? y	
Prompting? y	LAI? y	G3V4 Adv Route? y	CINFO? y	BSR? n	Holidays? n
Variables? n	3.0 Enhanced? n				
01 adjunct	routing link 1				
02 busy					
03					

Add a VDN using the “add vdn n” command, where “n” is an available extension. Associate this VDN with the newly added vector from above.

- **Name:** “SC Busy”
- **Destination:** “Vector Number”
- **Vector Number:** The “SC Busy” vector number from above.

add vdn 65903			Page	1 of	2
	VECTOR DIRECTORY NUMBER				
	Extension: 65903				
	Name: SC Busy				
	Destination: Vector Number		903		

4.3.6. Voicemail Routing

Modify a vector using the “change vector n” command, where “n” is an available vector number. This vector will provide voicemail routing to the CTI link defined in **Section 4.2**. Note that the vector **Number** may vary. Enter a descriptive name for the vector **Name** field, and configure the remaining vector steps as specified in [3].

```
change vector 905                                     Page 1 of 3
CALL VECTOR
Number: 905      Name: Voicemail
Multimedia? n      Meet-me Conf? n      Lock? n
Basic? y      EAS? y      G3V4 Enhanced? y      ANI/II-Digits? y      ASAI Routing? y
Prompting? y      LAI? y      G3V4 Adv Route? y      CINFO? y      BSR? n      Holidays? n
Variables? n      3.0 Enhanced? n
01 adjunct      routing link 1
02 wait-time      120 secs hearing ringback
03 stop
04
```

Add a VDN using the “add vdn n” command, where “n” is an available extension. Associate this VDN with the newly added vector from above.

- **Name:** “Voicemail”
- **Destination:** “Vector Number”
- **Vector Number:** The “Voicemail” vector number from above.

```
add vdn 65905                                     Page 1 of 2
VECTOR DIRECTORY NUMBER
Extension: 65905
Name: Voicemail
Destination: Vector Number      905
```

4.3.7. Hold Treatment

Modify a vector using the “change vector n” command, where “n” is an available vector number. This vector will provide hold treatment and routing to the CTI link defined in **Section 4.2**. Note that the vector **Number** may vary. Enter a descriptive name for the vector **Name** field, and configure the remaining vector steps as specified in [3].

```
change vector 908                                     Page 1 of 3
                                                    CALL VECTOR

  Number: 908                      Name: SC Hold
Multimedia? n                      Meet-me Conf? n      Lock? n
  Basic? y      EAS? y    G3V4 Enhanced? y    ANI/II-Digits? y    ASAI Routing? y
  Prompting? y   LAI? y   G3V4 Adv Route? y    CINFO? y    BSR? n    Holidays? n
  Variables? n   3.0 Enhanced? n
01 adjunct      routing link 1
02 wait-time    60 secs hearing music
03 route-to     number 65904          with cov n if unconditionally
04 stop
05
```

Add a VDN using the “add vdn n” command, where “n” is an available extension. Associate this VDN with the newly added vector from above.

- Name: “SC Hold”
- Destination: “Vector Number”
- Vector Number: The “SC Hold” vector number from above.

```
add vdn 65908                                     Page 1 of 2
                                                    VECTOR DIRECTORY NUMBER

                                Extension: 65908
                                Name: SC Hold
                                Destination: Vector Number          908
```

4.4. Administer Voicemail Coverage Path

Add a coverage path using the “add coverage path n” command, where “n” is an available coverage path number. For the **Point1** field, enter “v65905” to designate the Voicemail VDN from **Section 4.3.6** as the first coverage point.

add coverage path 7		Page 1 of 1	
COVERAGE PATH			
Coverage Path Number: 7			
Cvg Enabled for VDN Route-To Party? n		Hunt after Coverage? n	
Next Path Number:		Linkage	
COVERAGE CRITERIA			
Station/Group Status	Inside Call	Outside Call	
Active?	n	n	
Busy?	y	y	
Don't Answer?	y	y	Number of Rings: 2
All?	n	n	
DND/SAC/Goto Cover?	y	y	
Holiday Coverage?	n	n	
COVERAGE POINTS			
Terminate to Coverage Pts. with Bridged Appearances? n			
Point1: v65905	Rng:	Point2:	
Point3:		Point4:	
Point5:		Point6:	

4.5. Administer Agents

Use the “change station n” command, where “n” is first existing agent extension from **Section 2**. In the **Coverage Path 1** field, enter the Voicemail coverage path number from **Section 4.4**.

```
change station 65001
```

Page 1 of 5

STATION	
Extension: 22991	Lock Messages? n
Type: 1616	Security Code: *
Port: S00000	Coverage Path 1: 7
Name: Zeacom Agent #1	Coverage Path 2:
	Hunt-to Station:
BCC: 0	
TN: 1	
COR: 1	
COS: 1	

STATION OPTIONS

Loss Group: 19	Time of Day Lock Table:
Speakerphone: 2-way	Personalized Ringing Pattern: 1
Display Language: english	Message Lamp Ext: 65001
Survivable GK Node Name:	Mute Button Enabled? y
Survivable COR: internal	Media Complex Ext:
Survivable Trunk Dest? y	IP SoftPhone? n

Repeat this section for all agents. In the compliance testing, two agents were configured as shown below.

```
list station 65001 count 2
```

STATIONS									
Ext/ Hunt-to	Port/ Type	Name/ Surv GK NN	Move	Room/ Data Ext	Cv1/ Cv2	COR/ COS	Cable/ TN Jack		
65001	S00000	Zeacom Agent #1			7	1			
	9630		no			1	1		
65002	S00034	Zeacom Agent #2			7	1			
	9640		no			1	1		

4.6. Administer Voicemail Ports

Add a voicemail port using the “add station n” command, where “n” is an available extension. Enter the following values for the specified fields, and retain the default values for the remaining fields.

- **Type:** “2500”
- **Port:** An available port on the Analog Line card.
- **Name:** A descriptive name.

```
add station 65221
```

Page 1 of 4

STATION

Extension: 65221	Lock Messages? n	BCC: 0
Type: 2500	Security Code:	TN: 1
Port: 01A0901	Coverage Path 1:	COR: 1
Name: Zeacom Voicemail #1	Coverage Path 2:	COS: 1
	Hunt-to Station:	Tests? y

STATION OPTIONS

XOIP Endpoint type: auto	Time of Day Lock Table:
Loss Group: 1	Message Waiting Indicator: none
Off Premises Station? n	

Survivable COR: internal
Survivable Trunk Dest? y
Remote Office Phone? n

Repeat this section to add all voicemail ports. In the compliance testing, two voicemail ports were configured as shown below.

```
list station 65221 count 2
```

STATIONS									
Ext/ Hunt-to	Port/ Type	Name/ Surv GK NN	Move	Room/ Data Ext	Cv1/ Cv2	COR/ COS	Cable/ TN Jack		
65221	01A0901	Zeacom Voicemail #1				1			
	2500		no			1	1		
65222	01A0904	Zeacom Voicemail #2				1			
	2500		no			1	1		

5. Configure Avaya Aura™ Application Enablement Services

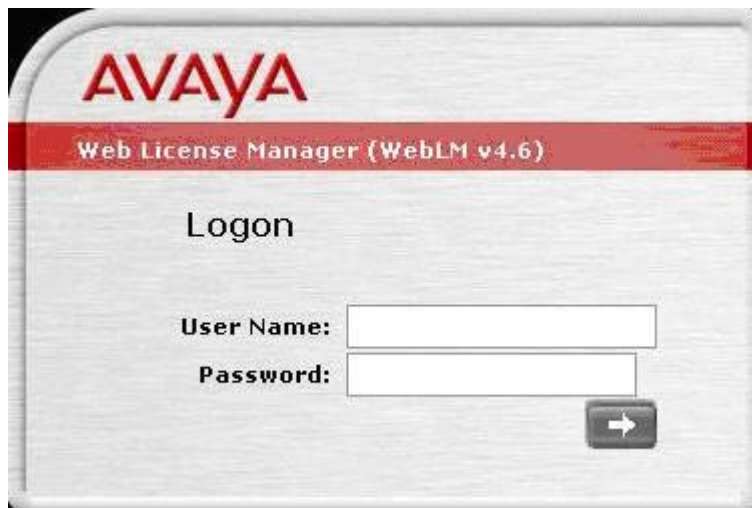
This section provides the procedures for configuring Avaya Aura™ Application Enablement Services. The procedures include the following areas:

- Verify TSAPI license
- Launch OAM interface
- Administer TSAPI link
- Disable security database
- Restart TSAPI service
- Obtain Tlink name
- Administer Zeacom user

5.1. Verify TSAPI License

Access the Web License Manager interface by using the URL “https://ip-address/WebLM/index.jsp” in an Internet browser window, where “ip-address” is the IP address of the Application Enablement Services server.

The **Web License Manager** screen is displayed. Log in using the appropriate credentials.



The **Web License Manager** screen below is displayed. Select **Licensed products > APPL_ENAB > Application_Enablement** in the left pane, to display the **Licensed Features** screen in the right pane.

Verify that there are sufficient licenses for **TSAPI Simultaneous Users**, as shown below. Also verify that there is an applicable advanced switch license, in this case **AES ADVANCED MEDIUM SWITCH** for the Avaya S8500 Server.

AVAYA Web License Manager (WebLM v4.6) [Logoff](#)

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

Licensed Products
 ▾ **APPL_ENAB**
 Application_Enablement

Uninstall License
Change Password
Server Properties
Manage Users
Logout

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

License installed on: Apr 16, 2010 11:27:38 AM EDT

[View Peak Usage](#)

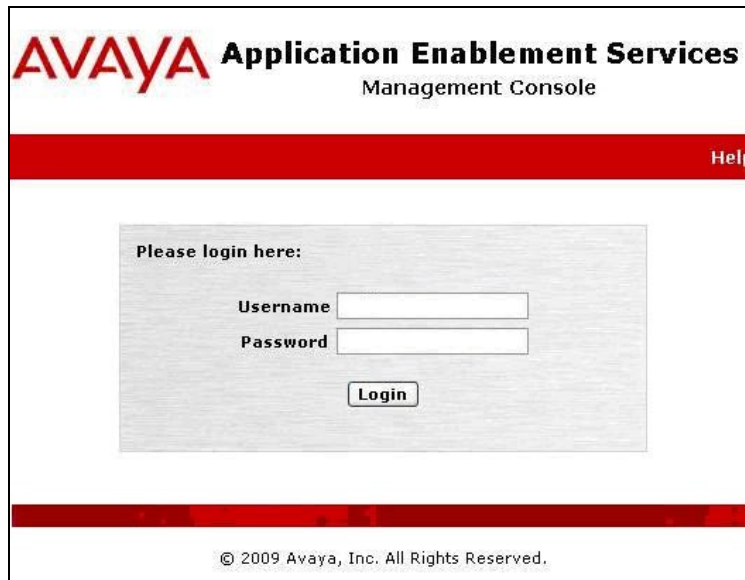
Licensed Features

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	100	0
DLG (VALUE_AES_DLG)	permanent	16	0
CVLAN ASAI (VALUE_AES_CVLAN_ASAI)	permanent	16	2
AES ADVANCED SMALL SWITCH (VALUE_AES_AEC_SMALL_ADVANCED)	permanent	3	0
CVLAN Proprietary Links (VALUE_AES_PROPRIETARY_LINKS)	permanent	16	0
AES ADVANCED LARGE SWITCH (VALUE_AES_AEC_LARGE_ADVANCED)	permanent	3	0
TSAPI Simultaneous Users (VALUE_AES_TSAPI_USERS)	permanent	1000	1000
AES ADVANCED MEDIUM SWITCH (VALUE_AES_AEC_MEDIUM_ADVANCED)	permanent	3	1

5.2. Launch OAM Interface


Access the OAM web-based interface by using the URL “https://ip-address” in an Internet browser window, where “ip-address” is the IP address of the Application Enablement Services server.

The **Please login here** screen is displayed. Log in using the appropriate credentials.



The screenshot shows the login page of the AVAYA Application Enablement Services Management Console. At the top, the AVAYA logo is on the left, and the text "Application Enablement Services Management Console" is on the right. Below this is a red horizontal bar with the word "Help" on the right. The main content area is a light gray box with the text "Please login here:" followed by two input fields labeled "Username" and "Password", and a "Login" button below them. At the bottom of the page, there is a red horizontal bar and the copyright notice "© 2009 Avaya, Inc. All Rights Reserved."

The **Welcome to OAM** screen is displayed next.



The screenshot shows the "Welcome to OAM" screen of the AVAYA Application Enablement Services Management Console. At the top, the AVAYA logo is on the left, and the text "Application Enablement Services Management Console" is on the right. Below this is a red horizontal bar with the word "Home" on the left and "Home | Help | Logout" on the right. The main content area is divided into two sections. On the left is a sidebar with a list of links: "AE Services", "Communication Manager Interface", "Licensing", "Maintenance", "Networking", "Security", "Status", "User Management", "Utilities", and "Help". On the right is the main content area with the heading "Welcome to OAM". Below the heading is a paragraph: "The AE Services Operations, Administration, and Management (OAM) Web provides you with tools for managing the AE Server. OAM spans the following administrative domains:". This is followed by a bulleted list of domains and their functions: "AE Services - Use AE Services to manage all AE Services that you are licensed to use on the AE Server.", "Communication Manager Interface - Use Communication Manager Interface to manage switch connection and dialplan.", "Licensing - Use Licensing to manage the license server.", "Maintenance - Use Maintenance to manage the routine maintenance tasks.", "Networking - Use Networking to manage the network interfaces and ports.", "Security - Use Security to manage Linux user accounts, certificate, host authentication and authorization, configure Linux-PAM (Pluggable Authentication Modules for Linux) and so on.", "Status - Use Status to obtain server status informations.", "User Management - Use User Management to manage AE Services users and AE Services user-related resources.", "Utilities - Use Utilities to carry out basic connectivity tests.", and "Help - Use Help to obtain a few tips for using the OAM Help system". At the bottom of the main content area is a paragraph: "Depending on your business requirements, these administrative domains can be served by one administrator for both domains, or a separate administrator for each domain."

5.3. Administer TSAPI Link

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

The screenshot shows the AVAYA Application Enablement Services Management Console. The top header includes the AVAYA logo, the title "Application Enablement Services Management Console", and a welcome message for user "craft" with login details. The left navigation pane shows "AE Services" expanded, with "TSAPI" selected and "TSAPI Links" highlighted. The main content area is titled "TSAPI Links" and displays a table with one link entry. Below the table are buttons for "Add Link", "Edit Link", and "Delete Link".

Link	Switch Connection	Switch CTI Link #	ASAI Link Version	Security
1	S8500	1	4	Encrypted

The **Add TSAPI Links** screen is displayed next.

The **Link** field is only local to the Application Enablement Services 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 "S8500" is selected. For **Switch CTI Link Number**, select the CTI link number from **Section 4.2**. Retain the default values in the remaining fields, and click **Apply Changes**.

The screenshot shows the "Add TSAPI Links" screen in the AVAYA Application Enablement Services Management Console. The left navigation pane is the same as the previous screenshot. The main content area is titled "Add TSAPI Links" and contains form fields for "Link", "Switch Connection", "Switch CTI Link Number", "ASAI Link Version", and "Security". Each field has a dropdown menu. Below the form are buttons for "Apply Changes" and "Cancel Changes".

Link	Switch Connection	Switch CTI Link Number	ASAI Link Version	Security
1	S8500	1	4	Unencrypted

5.4. Disable Security Database

Select **Security > Security Database > Control** from the left pane, to display the **SDB Control for DMCC and TSAPI** screen in the right pane. Uncheck **Enable SDB TSAPI Service, JTAPI and Telephony Service**, and click **Apply Changes**.

The screenshot shows the Avaya Application Enablement Services Management Console. The left navigation pane has 'Security' expanded, with 'Security Database' and 'Control' selected. The main content area is titled 'SDB Control for DMCC and TSAPI'. It contains two checkboxes: 'Enable SDB for DMCC Service' (checked) and 'Enable SDB TSAPI Service, JTAPI and Telephony Service' (unchecked). Below the checkboxes is an 'Apply Changes' button. The top right of the console displays user information: 'Welcome: User craft', 'Last login: Thu Aug 26 15:21:54 2010 from 10.32.35.10', 'HostName/IP: AES-Test/10.32.32.20', 'Server Offer Type: TURNKEY', and 'SW Version: r5-2-2-105-0'. The top navigation bar shows 'Security | Security Database | Control' and links for 'Home | Help | Logout'.

5.5. Restart TSAPI Service

Select **Maintenance > Service Controller** from the left pane, to display the **Service Controller** screen in the right pane. Check the **TSAPI Service**, and click **Restart Service**.

The screenshot shows the Avaya Application Enablement Services Management Console. The left navigation pane has 'Maintenance' expanded, with 'Service Controller' selected. The main content area is titled 'Service Controller'. It contains a table with two columns: 'Service' and 'Controller Status'. The table lists several services, with 'TSAPI Service' checked. Below the table is a note: 'For status on actual services, please use [Status and Control](#)'. At the bottom are buttons for 'Start', 'Stop', 'Restart Service', 'Restart AE Server', 'Restart Linux', and 'Restart Web Server'. The top right of the console displays user information: 'Welcome: User craft', 'Last login: Thu Aug 26 15:21:54 2010 from 10.32.35.10', 'HostName/IP: AES-Test/10.32.32.20', 'Server Offer Type: TURNKEY', and 'SW Version: r5-2-2-105-0'. The top navigation bar shows 'Maintenance | Service Controller' and links for 'Home | Help | Logout'.

Service	Controller Status
<input type="checkbox"/> ASAI Link Manager	Running
<input type="checkbox"/> DMCC Service	Running
<input type="checkbox"/> CVLAN Service	Running
<input type="checkbox"/> DLG Service	Running
<input type="checkbox"/> Transport Layer Service	Running
<input checked="" type="checkbox"/> TSAPI Service	Running

5.6. Obtain Tlink Name

Select **Security > Security Database > Tlinks** from the left pane. The **Tlinks** screen shows a listing of the Tlink names. Locate the Tlink names associated with the relevant switch connection, which would use the name of the switch connection as part of the Tlink name. Make a note of the associated Tlink name for the non-encrypted TSAPI link, to be used later for configuring Zeacom. Note that the encrypted TSAPI link is used by Avaya Proactive Contact.

In this case, the associated Tlink name is “AVAYA#S8500#CSTA#AES-TEST”. Note the use of the switch connection “S8500” from **Section 5.3** as part of the Tlink name.

The screenshot displays the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title "Application Enablement Services Management Console", and a welcome message for user "craft" with login details. A red navigation bar contains "Security | Security Database | Tlinks" and links for "Home | Help | Logout". The left sidebar shows a tree view with categories like "AE Services", "Security", and "Security Database". The "Security Database" category is expanded, showing "CTI Users", "Devices", "Device Groups", and "Tlinks". The main content area, titled "Tlinks", shows a list of Tlink names with radio buttons. The first option, "AVAYA#S8500#CSTA#AES-TEST", is selected. Below the list are "Edit Tlink" and "Delete Tlink" buttons.

AVAYA Application Enablement Services Management Console

Welcome: User craft
Last login: Thu Aug 26 15:21:54 2010 from 10.32.35.10
HostName/IP: AES-Test/10.32.32.20
Server Offer Type: TURNKEY
SW Version: r5-2-2-105-0

Security | Security Database | Tlinks Home | Help | Logout

Tlinks

Tlink Name

☒ AVAYA#S8500#CSTA#AES-TEST

☐ AVAYA#S8500#CSTA-S#AES-TEST

Edit Tlink Delete Tlink

5.7. Administer Zeacom User

Select **User Management > User Admin > Add User** from the left pane, to display the **Add User** screen in the right pane.

Enter desired values for **User Id**, **Common Name**, **Surname**, **User Password**, and **Confirm Password**. For **CT User**, select “Yes” from the drop-down list. Retain the default value in the remaining fields. Click **Apply** at the bottom of the screen (not shown below).

AVAYA **Application Enablement Services**
Management Console

Welcome: User craft
Last login: Thu Aug 26 15:21:54 2010 from 10.32.35.10
HostName/IP: AES-Test/10.32.32.20
Server Offer Type: TURNKEY
SW Version: r5-2-2-105-0

User Management | User Admin | Add UserHome | Help | Logout

▶ AE Services

▶ Communication Manager Interface

▶ Licensing

▶ Maintenance

▶ Networking

▶ Security

▶ Status

▼ User Management

▶ Service Admin

▼ User Admin

▪ Add User

▪ Change User Password

▪ List All Users

▪ Modify Default Users

▪ Search Users

▶ Utilities

▶ Help

Add User

Fields marked with * can not be empty.

* User Id	<input type="text" value="Zeacom"/>
* Common Name	<input type="text" value="Zeacom"/>
* Surname	<input type="text" value="Zeacom"/>
* 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"/>

6. Configure Zeacom Communications Center

This section provides the procedures for configuring the Zeacom Communications Center server. The procedures include the following areas:

- Launch Administrator
- Verify license
- Administer PBX
- Administer queues
- Administer agents
- Administer mailboxes

The configuration of Zeacom Communications Center is typically performed by Zeacom installation technicians or third party resellers. The procedural steps are presented in these Application Notes for informational purposes.

6.1. Launch Administrator

From the Zeacom Communications Center server, launch the Administrator application by double-clicking the **Administrator** icon shown below, which was created as part of installation.



The **administrator** login screen is displayed. Enter the administrator credentials.

The login screen has a blue gradient background. At the top, the word 'administrator' is written in white. In the center is a white circle containing the Zeacom logo, which consists of a stylized blue 'Z' above the word 'zeacom' and 'communications center' below it. To the left of the circle is the text 'unified communications' and to the right is 'connect. as one'. At the bottom, there are two input fields: 'Login Name:' and 'PIN:'. Below the 'Login Name:' field is a checkbox labeled 'Remember me next time'. At the bottom right are three buttons: 'OK', 'Cancel', and 'Help'.

6.2. Verify License

The **Zeacom Administrator** screen is displayed. Select **General > Licenses** from the left pane, to display **All Licenses** in the right pane. Verify that the following licenses are in place: **Agent Desktop**, **CT Control**, **DefinityPBX**, **Executive Desktop**, and **UCUL (UC User Licenses)**.

Zeacom Administrator - [Licenses]

File Edit Window Help

Language: English

Voice Messaging

Console

Queuing

Announce

General

Companies

Holidays

Licenses

Security

Lines

Phonebook

System Queues

System Prompts

Dialing Rules

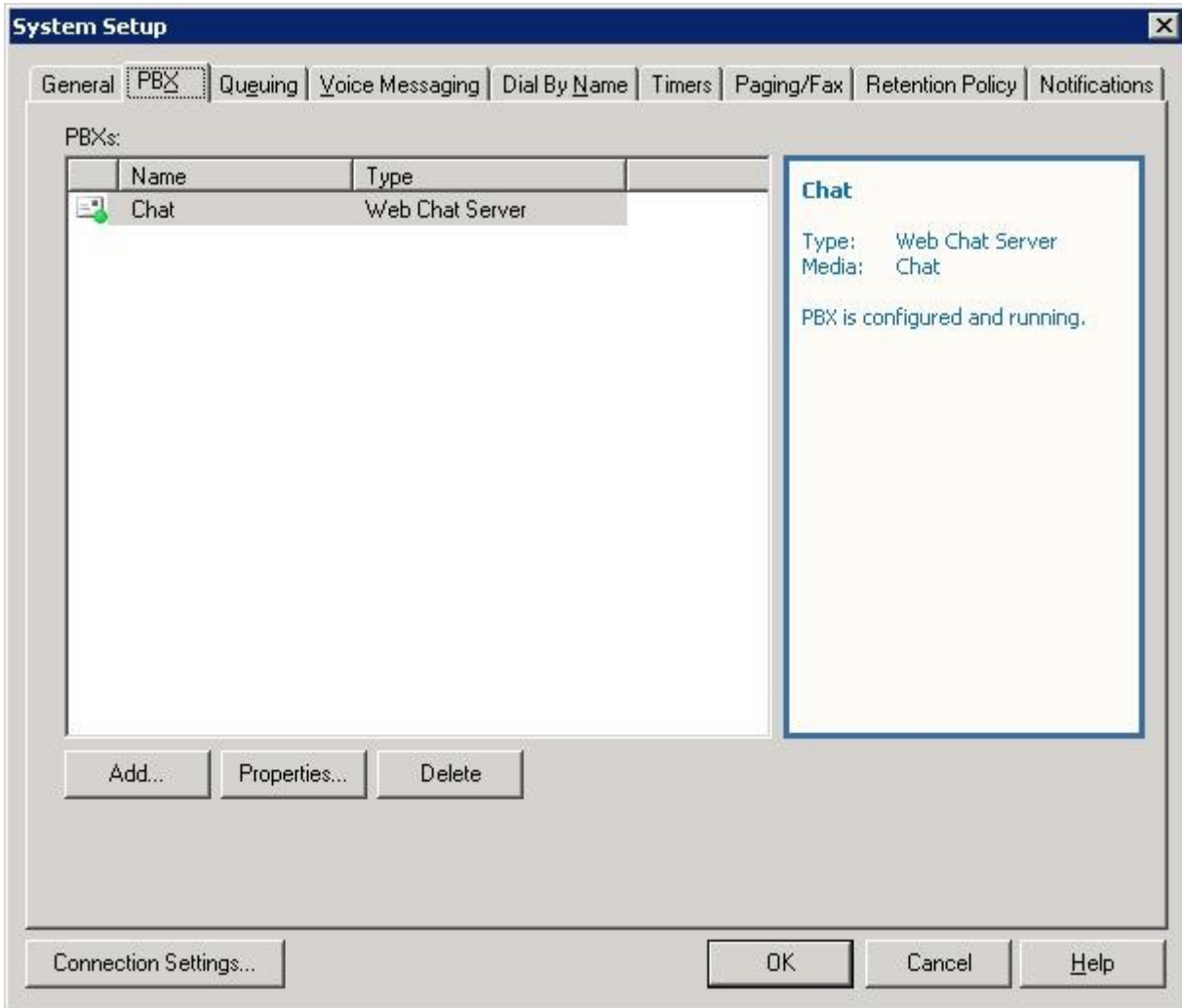
All Licenses Import/Register Licenses... Product Key: JKBN-MXDE-IE2X-LBFI-J18J

Description	Licenses	Units	Start Date	End Date	Days Left
Agent Desktop	5	User	6/2/2010	6/2/2011	277
Alert Notification	1	site	6/2/2010	6/2/2011	277
Callback	1	Site	6/2/2010	6/2/2011	277
Console	1	User	6/2/2010	6/2/2011	277
CT Control	5	User	6/2/2010	6/2/2011	277
Custom Announce	12	Port	6/2/2010	6/2/2011	277
Custom Reporting	1	Single	6/2/2010	6/2/2011	277
Dashboard	5	User	6/2/2010	6/2/2011	277
DefinityPBX	1	Single	6/2/2010	6/2/2011	277
Email Queuing Desktop SMTP	5	User	6/2/2010	6/2/2011	277
Executive Conference	8	units	6/2/2010	6/2/2011	277
Executive Desktop	5	User	6/2/2010	6/2/2011	277
Executive Insight	5	user	6/2/2010	6/2/2011	277
Executive Mobile	5	units	6/2/2010	6/2/2011	277
Fax Messaging	4	Port	6/2/2010	6/2/2011	277
Fax Queuing	5	User	6/2/2010	6/2/2011	277
IPOfficePBX	1	Single	6/2/2010	6/2/2011	277
IPOfficeTAPIWave	2	Port	6/2/2010	6/2/2011	277
UCUL (UC User License)	1	units	6/2/2010	6/2/2011	277
UCUL (UC User License)	9	units	6/2/2010	6/2/2011	277
Unified Messaging for Excha...	5	User	6/2/2010	6/2/2011	277
Web Callback Queuing	5	User	6/2/2010	6/2/2011	277
Web Chat Queuing	5	User	6/2/2010	6/2/2011	277

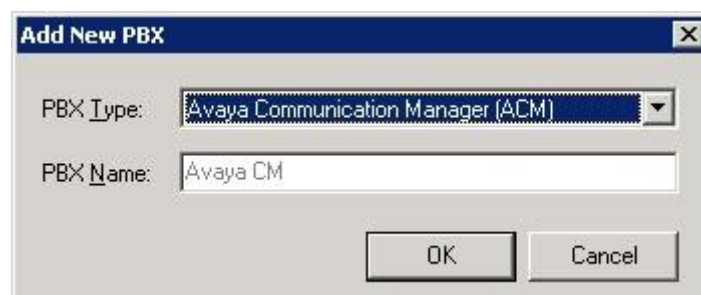
Licenses: 23/1

6.3. Administer PBX

From the **Zeacom Administrator** screen shown in **Section 6.2**, select **File > System Setup** from the top menu to display the **System Setup** screen below. Select the **PBX** tab, and click **Add**.



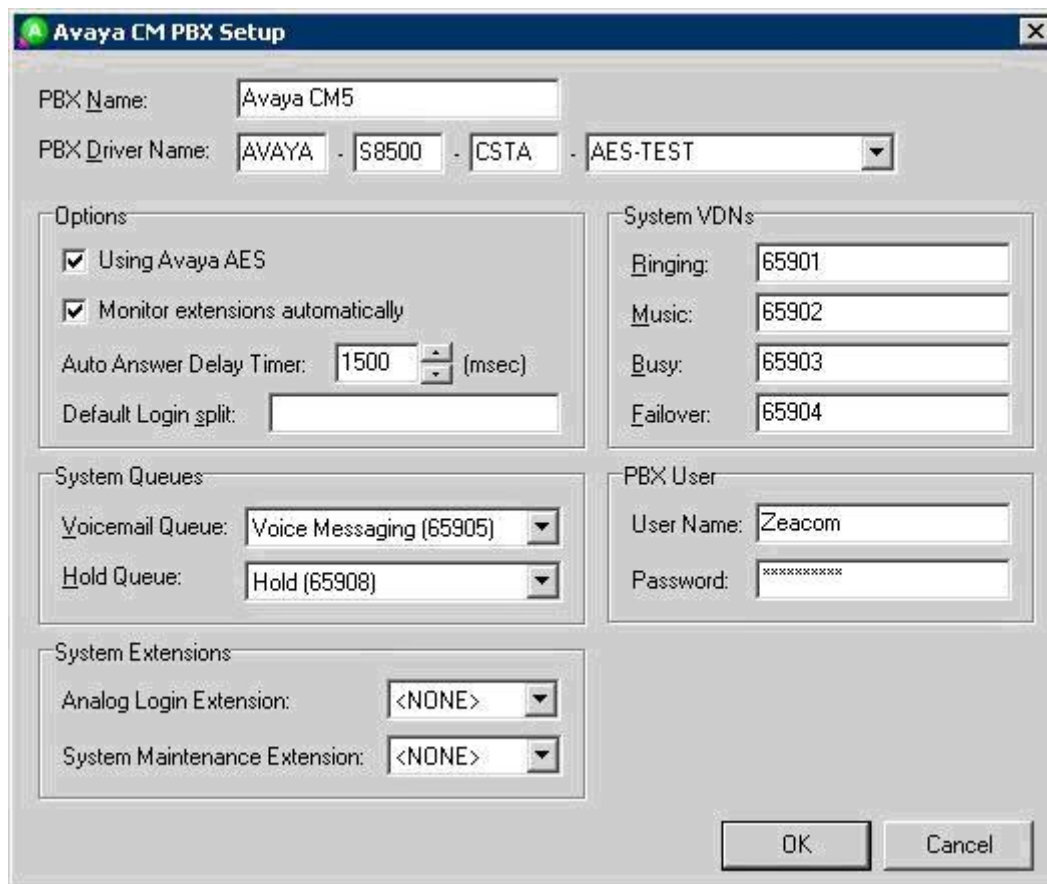
The **Add New PBX** screen is displayed. For **PBX Type**, select “Avaya Communication Manager (ACM)” from the drop-down list.



Follow the **Avaya CM PBX Setup Wizard** in the subsequent screens (not shown) to configure the new PBX. The screen below shows the PBX settings used in the compliance testing.

- **PBX Name:** A descriptive name.
- **PBX Driver Name:** The Tlink name from **Section 5.6**.
- **Voicemail Queue:** Select the Voicemail VDN from **Section 4.3.6**.
- **Hold Queue:** Select the SC Hold VDN from **Section 4.3.7**.
- **Ringin**g: The SC Ring VDN from **Section 4.3.3**.
- **Music:** The SC Music VDN from **Section 4.3.4**.
- **Busy:** The SC Busy VDN from **Section 4.3.5**.
- **Fai**lover: The SC Fail VDN from **Section 4.3.1**.
- **User Name:** The Zeacom user credential from **Section 5.7**.
- **Password:** The Zeacom user credential from **Section 5.7**.

Enable the **Using Avaya AES** and **Monitor extensions automatically** options, as shown below.

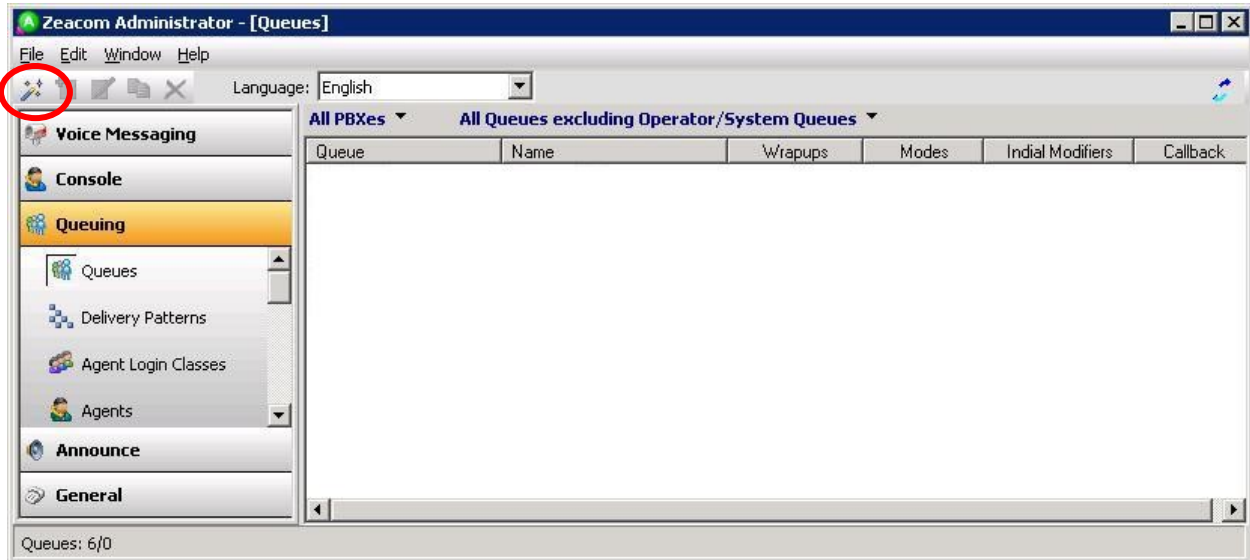


The image shows the 'Avaya CM PBX Setup' dialog box. It contains several sections for configuring the PBX settings. The 'PBX Name' is 'Avaya CM5'. The 'PBX Driver Name' is 'AVAYA - S8500 - CSTA - AES-TEST'. The 'Options' section has two checked boxes: 'Using Avaya AES' and 'Monitor extensions automatically'. The 'Auto Answer Delay Timer' is set to 1500 msec. The 'Default Login split' is empty. The 'System VDNs' section has four fields: 'Ringin'g' (65901), 'Music' (65902), 'Busy' (65903), and 'Failover' (65904). The 'System Queues' section has two dropdowns: 'Voicemail Queue' (Voice Messaging (65905)) and 'Hold Queue' (Hold (65908)). The 'System Extensions' section has two dropdowns: 'Analog Login Extension' (<NONE>) and 'System Maintenance Extension' (<NONE>). The 'PBX User' section has two fields: 'User Name' (Zeacom) and 'Password' (masked with asterisks). The 'OK' and 'Cancel' buttons are at the bottom right.

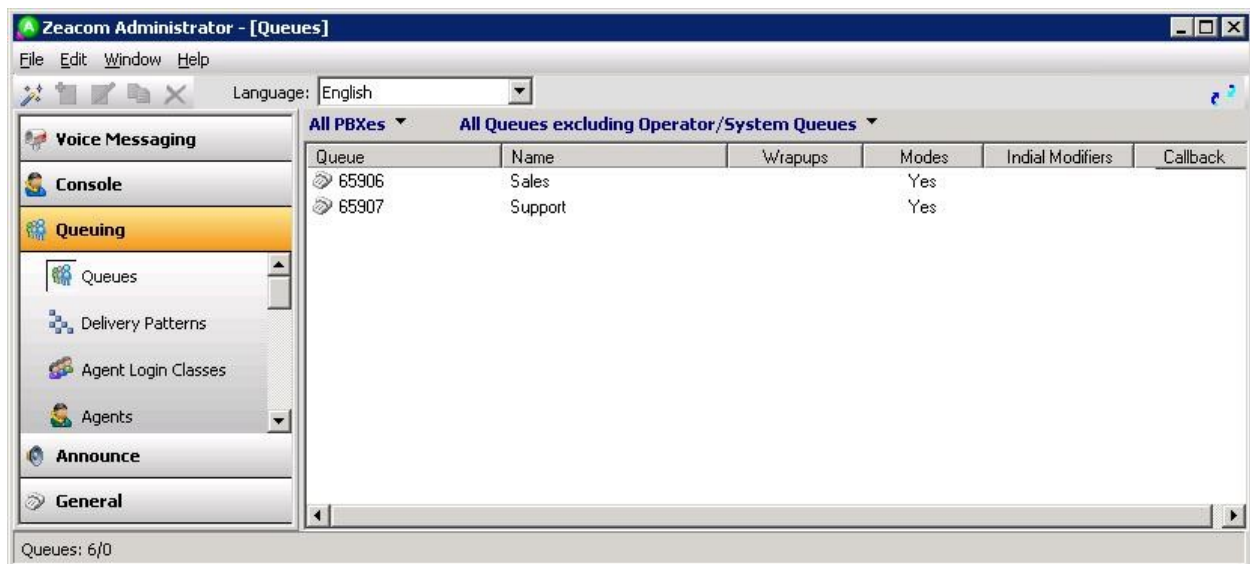
Section	Field	Value
PBX Information	PBX Name	Avaya CM5
	PBX Driver Name	AVAYA - S8500 - CSTA - AES-TEST
Options	Using Avaya AES	<input checked="" type="checkbox"/>
	Monitor extensions automatically	<input checked="" type="checkbox"/>
	Auto Answer Delay Timer	1500 (msec)
	Default Login split	
System VDNs	Ringin'g	65901
	Music	65902
	Busy	65903
	Failover	65904
System Queues	Voicemail Queue	Voice Messaging (65905)
	Hold Queue	Hold (65908)
System Extensions	Analog Login Extension	<NONE>
	System Maintenance Extension	<NONE>
PBX User	User Name	Zeacom
	Password	*****

6.4. Administer Queues

The **Zeacom Administrator** screen is displayed again. Select **Queuing > Queues** from the left pane, followed by the **Add Wizard** icon located at the upper left of the screen.

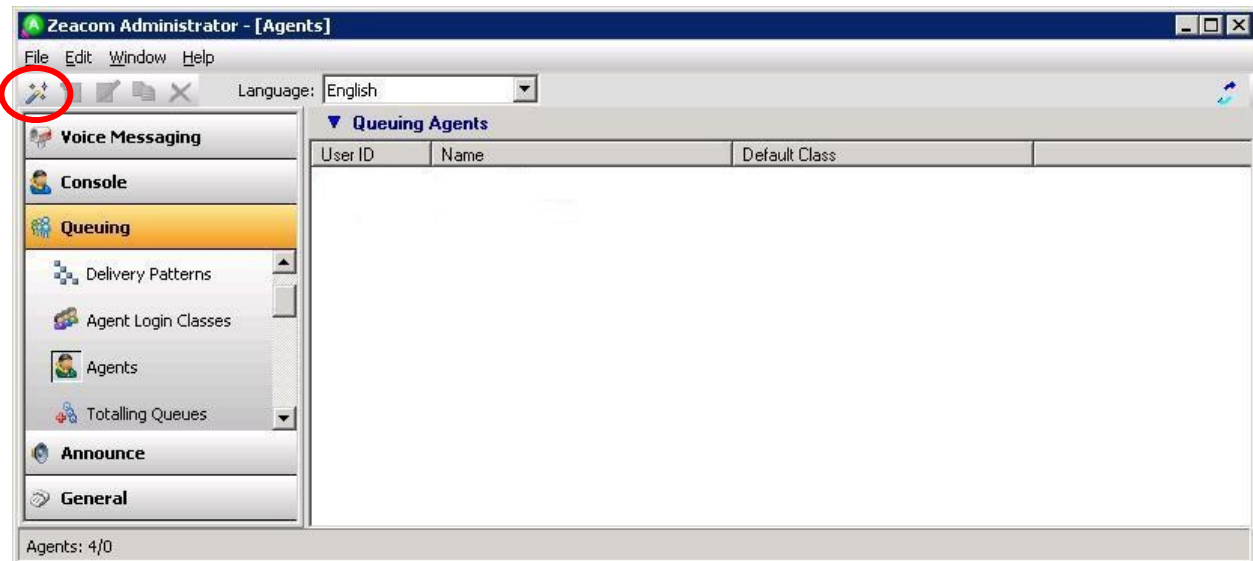


Follow the **Adding a New Queue Wizard** in the subsequent screens (not shown) to configure a new queue for each General Routing VDN in **Section 4.3.2**. In the compliance testing, two queues were created as shown below.



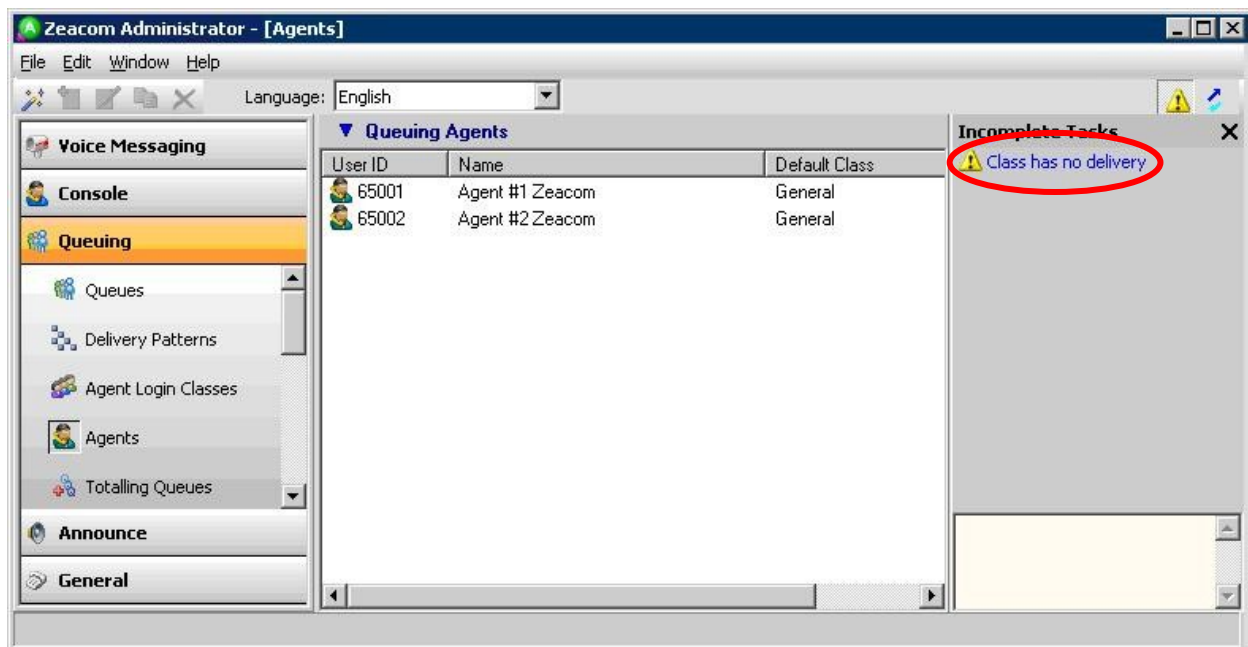
6.5. Administer Agents

The **Zeacom Administrator** screen is displayed again. Select **Queuing > Agents** from the left pane, followed by the **Add Wizard** icon located at the upper left corner of the screen.

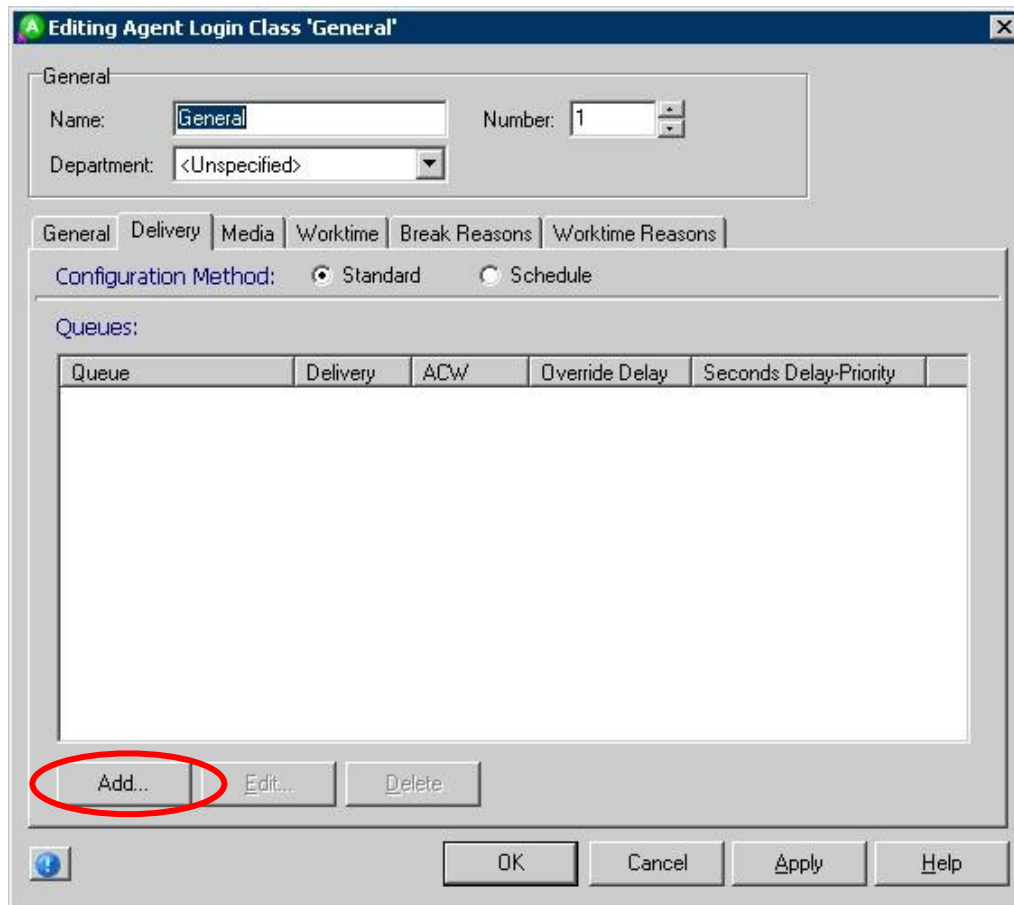


Follow the **Agent Wizard** in the subsequent screens (not shown) to configure a corresponding entry for each agent in **Section 4.5**. In the compliance testing, two agents were created as shown below.

Click on **Class has no delivery**.



The **Editing Agent Login Class** screen is displayed. Select the **Delivery** tab, and click **Add**.



The dialog box titled "Editing Agent Login Class 'General'" has a "General" tab selected. It contains fields for "Name" (set to "General"), "Number" (set to "1"), and "Department" (set to "<Unspecified>"). Below these are tabs for "General", "Delivery", "Media", "Worktime", "Break Reasons", and "Worktime Reasons". The "Delivery" tab is active, showing a "Configuration Method" section with "Standard" selected and "Schedule" unselected. Below this is a "Queues" section with a table header: "Queue", "Delivery", "ACW", "Override Delay", "Seconds Delay-Priority", and "Seconds Delay-Priority". At the bottom of the "Queues" section are three buttons: "Add...", "Edit...", and "Delete". The "Add..." button is circled in red. At the very bottom of the dialog are "OK", "Cancel", "Apply", and "Help" buttons.

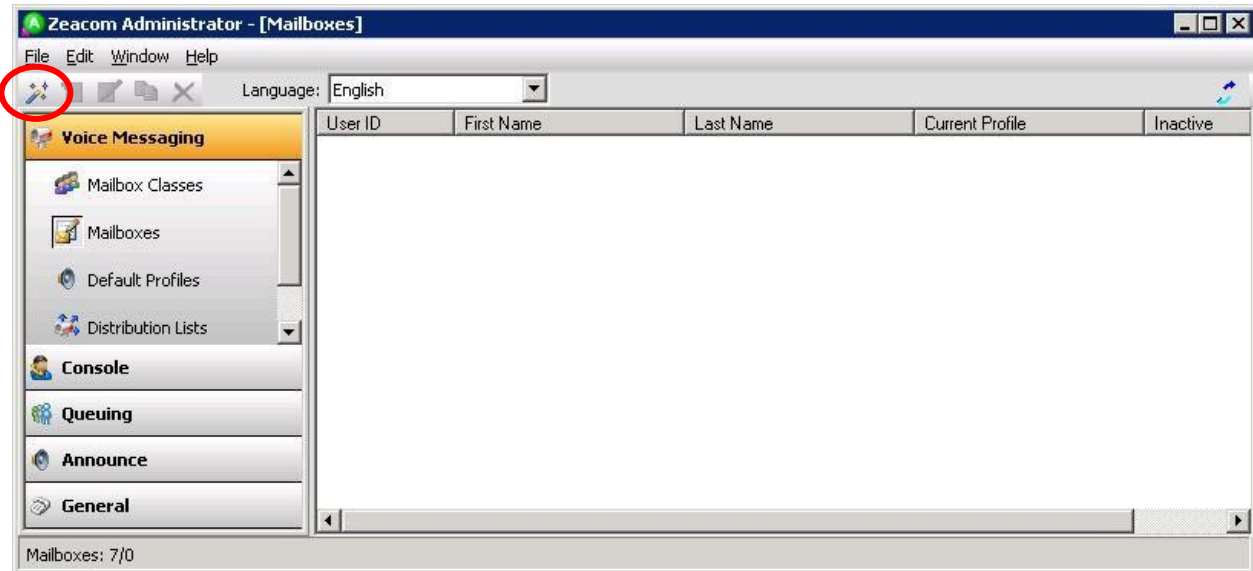
The **Add Queues** screen is displayed next. Check the entries corresponding to the general routing VDNs from **Section 4.3.2**, to enable calls to these VDNs to be delivered to the agents.



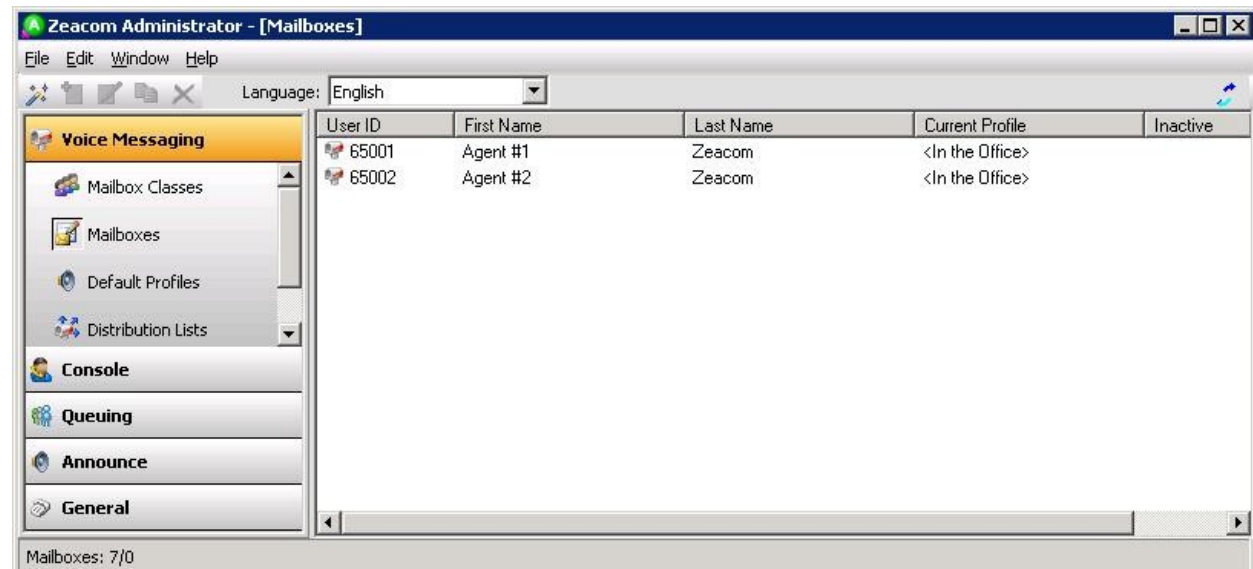
The dialog box titled "Add Queues" has a "Select Queues to add..." section. It contains a table with two columns: "Number" and "Name". The table lists four entries: "65907 Support", "65905 Voice Messaging", "65908 Hold", and "65906 Sales". The checkboxes for "65907 Support" and "65906 Sales" are checked. At the bottom of the dialog are five buttons: "Select All", "Deselect All", "OK", "Cancel", and "Help".

6.6. Administer Mailboxes

The **Zeacom Administrator** screen is displayed again. Select **Voice Messaging > Mailboxes** from the left pane, followed by the **Add Wizard** icon located at the upper left corner of the screen.



Follow the **Add Mailboxes Wizard** in the subsequent screens (not shown) to configure a corresponding mailbox for each agent in **Section 6.5**. The screen below shows the two agent mailboxes that were created.



7. General Test Approach and Test Results

The feature test cases were performed both automatically and manually. Upon start of the Zeacom Communications Center application, the application automatically queries Avaya AuraTM Communication Manager for device name and requests monitoring.

For the manual part of the testing, incoming calls were made to the general routing VDNs. The Zeacom Communications Center server used the query results and event reports to track agent states, and specified calls to be routed to available agents. Manual call controls from both the agent telephones and the agent desktop computers were exercised to verify remaining features such as answering and transferring of calls.

Voicemail was tested by not answering the calls at the agents, and have the calls cover to the Zeacom Voicemail application with proper activation of the agent message waiting lamps. Manual calls were then made from the agent to the Voicemail VDN to retrieve the voice messages and verify proper deactivation of the message waiting lamps.

The serviceability test cases were performed manually by disconnecting and reconnecting the Ethernet cable to the Zeacom Communications Center server.

The verification of tests included human checking of proper states at the telephone sets, and of capturing and analyzing the TSAPI message traces from the Zeacom Communications Center server.

All test cases were executed and verified.

There was one observation from the compliance testing. When the LAN cable for the Zeacom Communications Center server was disconnected and then reconnected, the Zeacom Communications server did not re-establish the monitoring associations. The instruction to the agents are to call for Zeacom technical support whenever the “Phone is out of service” message is displayed in the lower left corner of the agent screen.

8. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Avaya Aura™ Communication Manager, Avaya Aura™ Application Enablement Services, and Zeacom Communications Center.

8.1. Verify Avaya Aura™ Communication Manager


On Communication Manager, verify the status of the administered CTI link by using the “status aesvcs cti-link” command. Verify that the **Service State** is “established” for the CTI link number administered in **Section 4.2**, as shown below.

```
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	151	87
2	4	no	AES-Test	restarted	30	15

8.2. Verify Avaya Aura™ Application Enablement Services

On Application Enablement Services, verify the status of the TSAPI link by selecting **Status > Status and Control > TSAPI Service Summary** from the left pane. The **TSAPI Link Details** screen is displayed. Verify the **Status** is “Talking” for the TSAPI link administered in **Section 5.3**, as shown below.

**Application Enablement Services**
Management Console

Welcome: User craft
Last login: Tue Aug 31 12:09:52 2010 from 10.32.35.10
HostName/IP: AES-Test/10.32.32.20
Server Offer Type: TURNKEY
SW Version: r5-2-2-105-0

Status | Status and Control | TSAPI Service Summary

Home | Help | Logout

▶ AE Services

▶ Communication Manager Interface

▶ Licensing

▶ Maintenance

▶ Networking

▶ Security

▼ Status

Alarm Viewer

▶ Logs

▼ Status and Control

▪ CVLAN Service Summary

▪ DLG Services Summary


▪ DMCC Service Summary

▪ Switch Conn Summary

▪ **TSAPI Service Summary**

TSAPI Link Details

☐ Enable page refresh every 60 seconds

	Link	Switch Name	Switch CTI Link ID	Status	Since	State	Switch Version	Associations	Msgs to Switch	Msgs from Switch	Msgs Period
	1	S8500	1	Talking	Tue Aug 31 11:01:40 2010	Online	15	8	84	141	30

Online Offline

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

TSAPI Service Status TLink Status User Status

8.3. Verify Zeacom Communications Center

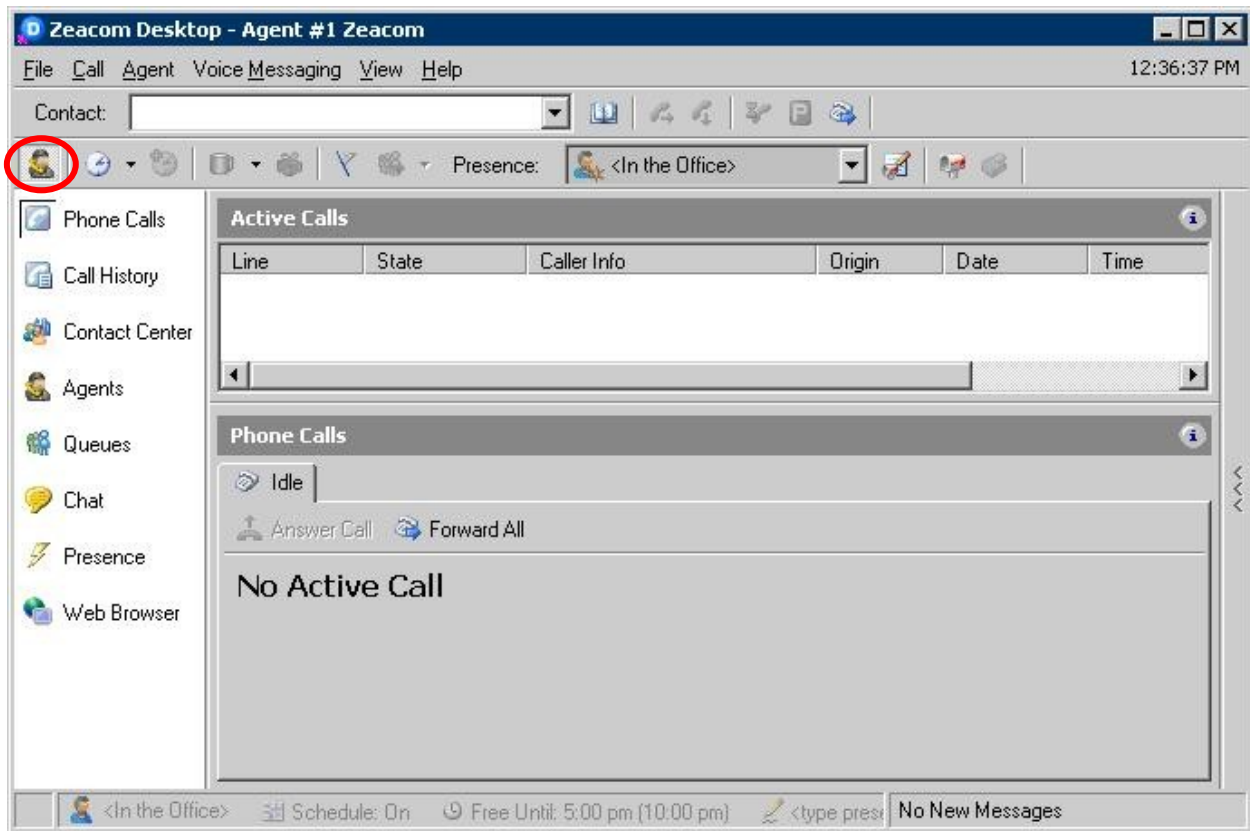
From the agent desktop running the Zeacom Executive Desktop client software, double-click on the **Desktop** icon shown below, which was created as part of installation.



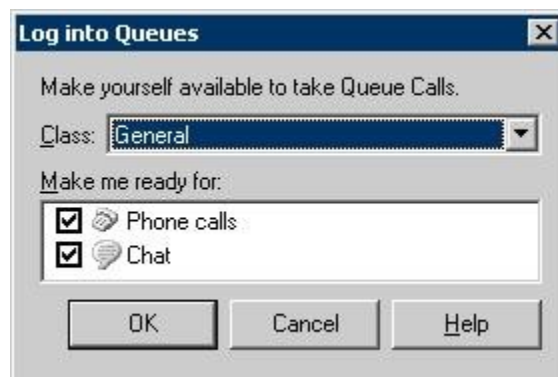
The **desktop** login screen is displayed. Enter a valid login name from **Section 6.5**, and use the generic default PIN value from Zeacom. Retain the default value in the remaining fields.

The login screen has a blue background with horizontal stripes. At the top, the word 'desktop' is written in white. In the center is a white circle containing the Zeacom logo, which consists of a stylized 'Z' and the text 'zeacom communications center'. To the left of the circle is the text 'unified communications' and to the right is 'connect. as one'. At the bottom, there are two input fields: 'Login Name:' with the text 'agent #1 Zeacom' and 'PIN:' with the text 'xxxxxx'. Below the 'Login Name' field is a checkbox labeled 'Remember me next time'. At the bottom right are three buttons: 'OK', 'Cancel', and 'Help'.

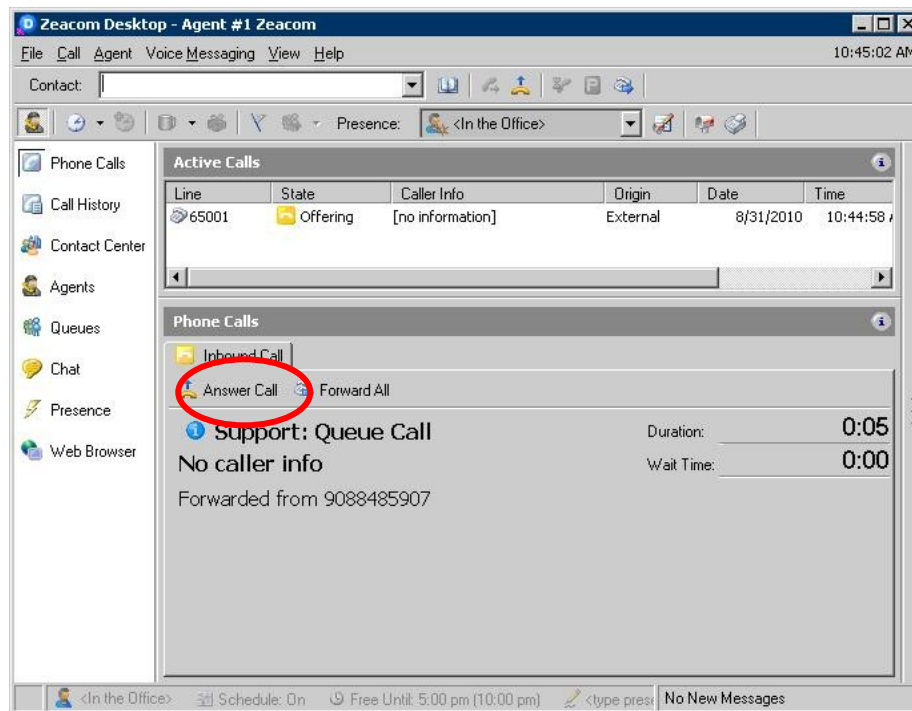
The **Zeacom Desktop** screen is displayed. Click the **Log into Queues** icon, as shown below.



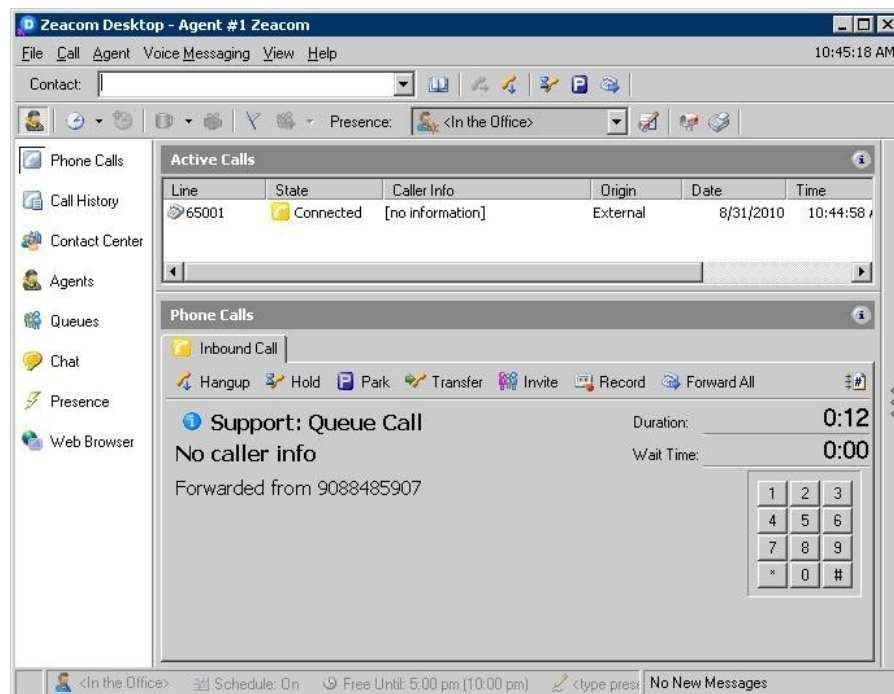
The **Log into Queues** dialog box is displayed next. Retain all default values.



Make an incoming call to the Zeacom Support application, with available agent “65001”. Verify that the agent desktop is populated with a voice call entry, as shown below. Verify that the **State** is “Offering”. Click on **Answer Call**.



Verify that the **State** is updated to “Connected”, and that the agent is connected to the caller with two-way talk paths.



9. Conclusion

These Application Notes describe the configuration steps required for Zeacom Communications Center 5.0 to successfully interoperate with Avaya Aura™ Communication Manager 5.2.1 using Avaya Aura™ Application Enablement Services 5.2.2. All feature and serviceability test cases were completed with an observation noted in **Section 7**.

10. Additional References

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

1. *Administrator Guide for Avaya Aura™ Communication Manager*, Document 03-300509, Issue 5.0, Release 5.2, May 2009, available at <http://support.avaya.com>.
2. *Avaya Aura™ Application Enablement Services Administration and Maintenance Guide*, Release 5.2, Document ID 02-300357, Issue 11, November 2009, available at <http://support.avaya.com>.
3. *Definity Installation Manual*, Zeacom Library Version 5.0, available via Definity training course provided by Zeacom.

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