



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

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# **Application Notes for Zeacom Communications Center 5.0 with Avaya Aura™ Communication Manager 5.2.1 Using Avaya Aura™ 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 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.

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:

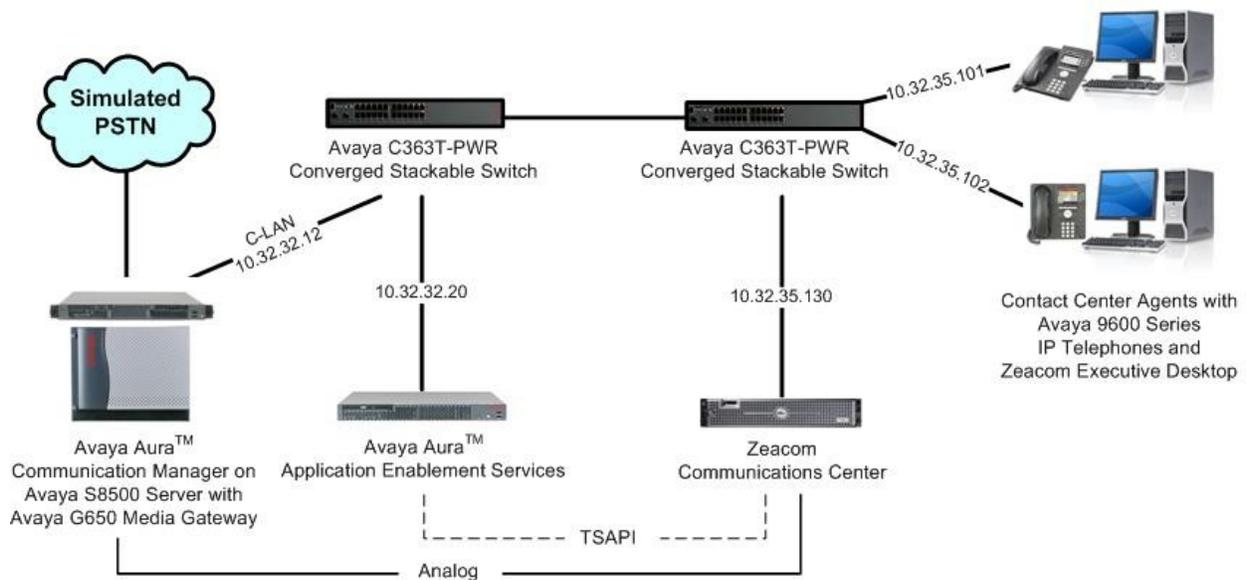
- **Phone:** (800) 513-9002
- **Web:** [www.zeacom.com](http://www.zeacom.com)
- **Email:** [usasupport@zeacom.com](mailto:usasupport@zeacom.com)

## 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"><li>• TN799DP C-LAN Circuit Pack</li><li>• TN793CP Analog Line</li></ul>	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"><li>• Dialogic 120JCT-LS-Rev Analog Card</li><li>• Avaya TSAPI Windows Client</li></ul>	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
                                                                BCMS (Basic)? y
BCMS/VuStats Service Level? n                                     Reason Codes? y
BSR Local Treatment for IP & ISDN? n                             Service Level Maximizer? n
Business Advocate? n                                             Service Observing (Basic)? y
Call Work Codes? y                                              Service Observing (Remote/By FAC)? y
DTMF Feedback Signals For VRU? n                                Service Observing (VDNs)? y
Dynamic Advocate? n                                             Timed ACW? y
Expert Agent Selection (EAS)? y                                  Vectoring (Basic)? y
                                                                EAS-PHD? n
                                                                Vectoring (Prompting)? y
                                                                Vectoring (G3V4 Enhanced)? y
                                                                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.

<b>VDN</b>	<b>Vector</b>	<b>Purpose</b>
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                                     Page 1 of 3
                                                    CALL VECTOR
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          BCC: 0
Type: 1616                                               Security Code: *         TN: 1
Port: S00000                                             Coverage Path 1: 7       COR: 1
Name: Zeacom Agent #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: 65001
Mute Button Enabled? y
Speakerphone: 2-way
Display Language: english
Survivable GK Node Name:
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/      Port/   Name/      Room/      Cv1/  COR/   Cable/
 Hunt-to  Type    Surv GK NN  Move      Data Ext  Cv2  COS TN Jack
65001    S00000  Zeacom Agent #1  no          7      1
          9630
65002    S00034  Zeacom Agent #2  no          7      1      1
          9640
```

## 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/      Port/   Name/      Room/      Cv1/  COR/   Cable/
Hunt-to   Type    Surv GK NN  Move      Data Ext  Cv2  COS 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

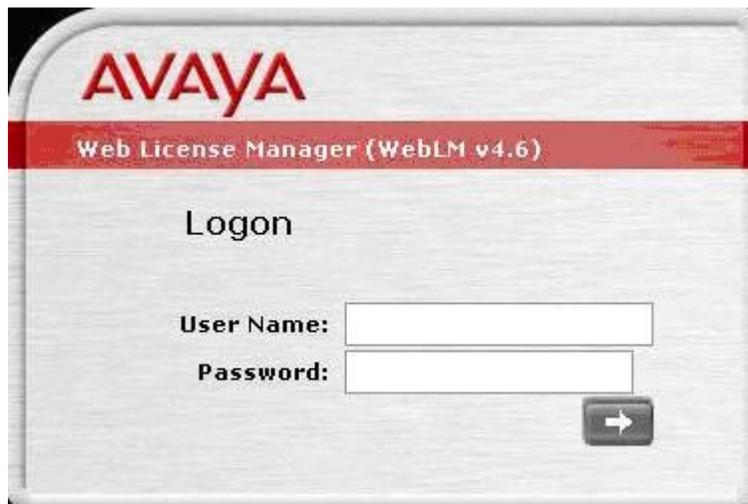
This section provides the procedures for configuring Avaya Aura™ Application Enablement Services. The procedures include the following areas:

- 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 screenshot shows the Avaya Web License Manager (WebLM v4.6) login interface. At the top, the Avaya logo is displayed in red. Below the logo, the text "Web License Manager (WebLM v4.6)" is shown in white on a red background. The main content area is titled "Logon" and contains two input fields: "User Name:" and "Password:". A submit button with a right-pointing arrow is located to the right of the password field.

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**  
 You are here: Licensed products > Application Enablement (CTI)  
 Application\_Enablement 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 for the AVAYA Application Enablement Services Management Console. At the top left is the AVAYA logo. To its right, the text reads "Application Enablement Services Management Console". A red horizontal bar contains a "Help" link on the right side. The main content area is a light gray box with the heading "Please login here:". Below this heading are two input fields: "Username" and "Password". A "Login" button is positioned below the password field. At the bottom of the page, a copyright notice states "© 2009 Avaya, Inc. All Rights Reserved."

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



The screenshot displays the "Welcome to OAM" screen. At the top left is the AVAYA logo. To its right, the text reads "Application Enablement Services Management Console". In the top right corner, there is a welcome message: "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". A red horizontal bar contains "Home" on the left and "Home | Help | Logout" on the right. On the left side, there is a vertical navigation menu with the following items: "AE Services", "Communication Manager Interface", "Licensing", "Maintenance", "Networking", "Security", "Status", "User Management", "Utilities", and "Help". The main content area has the heading "Welcome to OAM" and 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:". Below this paragraph is a bulleted list of administrative 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, a note 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."

### 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 navigation bar includes "AE Services | TSAPI | TSAPI Link" and "Home | Help | Logout". The left sidebar shows a tree view with "AE Services" expanded to "TSAPI Links". The main content area is titled "TSAPI Links" and contains a table with the following data:

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

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

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 AVAYA Application Enablement Services Management Console with the "Add TSAPI Links" screen. The left sidebar shows a tree view with "AE Services" expanded to "TSAPI Links". The main content area is titled "Add TSAPI Links" and contains the following form fields:

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

At the bottom of the form are two buttons: "Apply Changes" and "Cancel Changes".

## 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 top navigation bar includes the Avaya logo, the title "Application Enablement Services Management Console", and a welcome message: "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". The main navigation pane on the left is expanded to "Security Database > Control". The main content area displays the "SDB Control for DMCC and TSAPI" screen with two unchecked checkboxes: "Enable SDB for DMCC Service" and "Enable SDB TSAPI Service, JTAPI and Telephony Service". An "Apply Changes" button is visible below the checkboxes.

## 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 top navigation bar includes the Avaya logo, the title "Application Enablement Services Management Console", and the same welcome message as in the previous screenshot. The main navigation pane on the left is expanded to "Maintenance > Service Controller". The main content area displays the "Service Controller" screen with a table of services and their controller status:

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

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

## 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 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". A red navigation bar contains "Security | Security Database | Tlinks" and "Home | Help | Logout". The left sidebar shows a tree view with categories like "AE Services", "Communication Manager Interface", "Licensing", "Maintenance", "Networking", "Security", and "Security Database". Under "Security Database", "Tlinks" is selected. The main content area, titled "Tlinks", shows two radio button options for "Tlink Name": "AVAYA#S8500#CSTA#AES-TEST" (selected) and "AVAYA#S8500#CSTA-S#AES-TEST". Below these are "Edit Tlink" and "Delete Tlink" buttons.

## 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).

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: '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'. A red navigation bar contains 'User Management | User Admin | Add User' and 'Home | Help | Logout'. The left sidebar shows a tree view with 'User Management' expanded to 'User Admin', where 'Add User' is selected. The main content area is titled 'Add User' and contains a form with the following fields: '\* User Id' (text input, value: Zeacom), '\* Common Name' (text input, value: Zeacom), '\* Surname' (text input, value: Zeacom), '\* User Password' (password input, masked with dots), '\* Confirm Password' (password input, masked with dots), 'Admin Note' (text input), 'Avaya Role' (dropdown menu, value: None), 'Business Category' (text input), 'Car License' (text input), 'CM Home' (text input), 'Css Home' (text input), 'CT User' (dropdown menu, value: Yes), 'Department Number' (text input), and 'Display Name' (text input). A note above the form states: 'Fields marked with \* can not be empty.'

## 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 for the Zeacom Administrator application. It 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 text "zeacom" and "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:" and "PIN:". Below the "Login Name:" field is a checkbox labeled "Remember me next time". At the bottom right, there 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

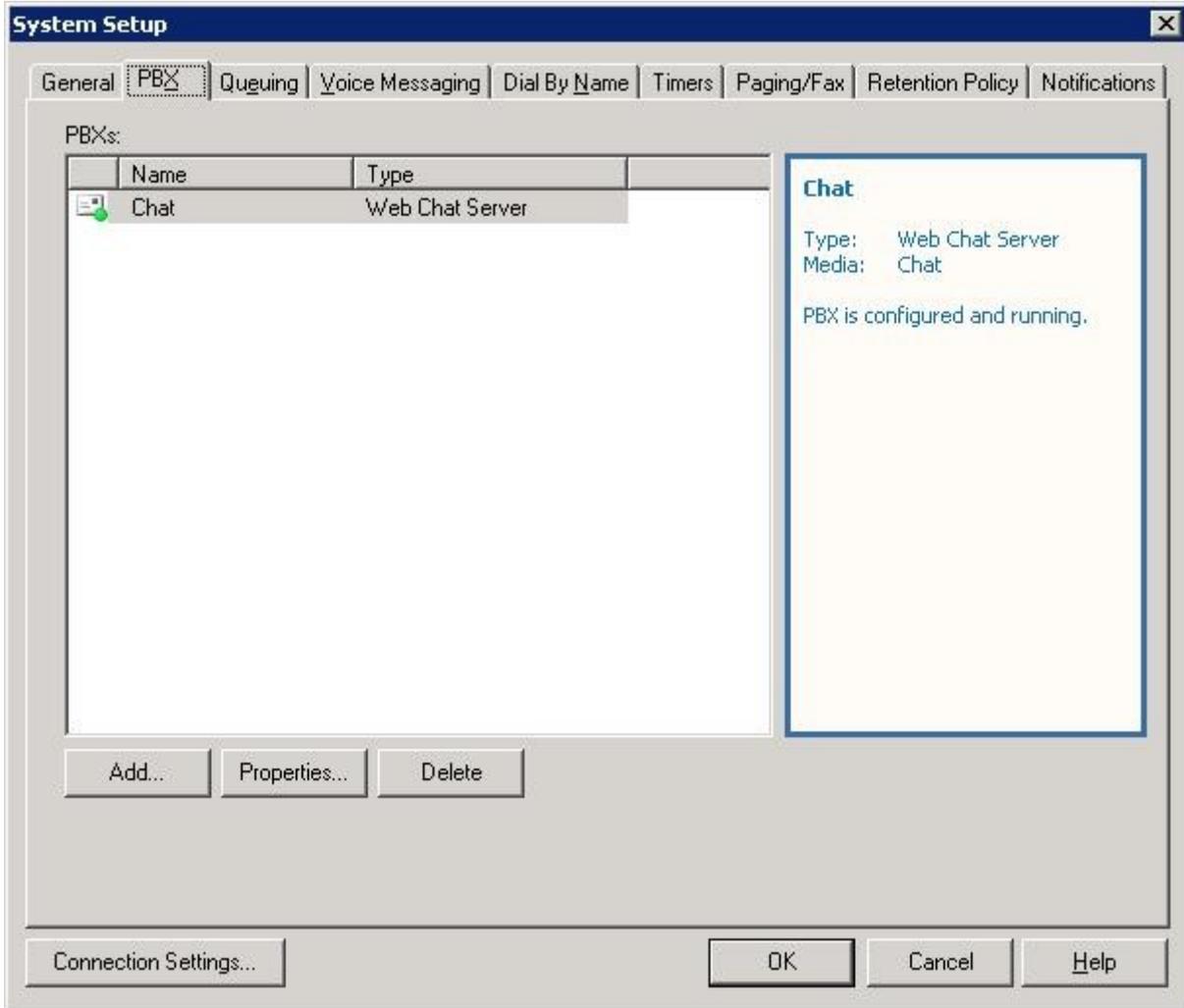
Product Key: JKBN-MXDE-IE2X-LBFI-J18J

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			
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**.
- **Failover:** 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.

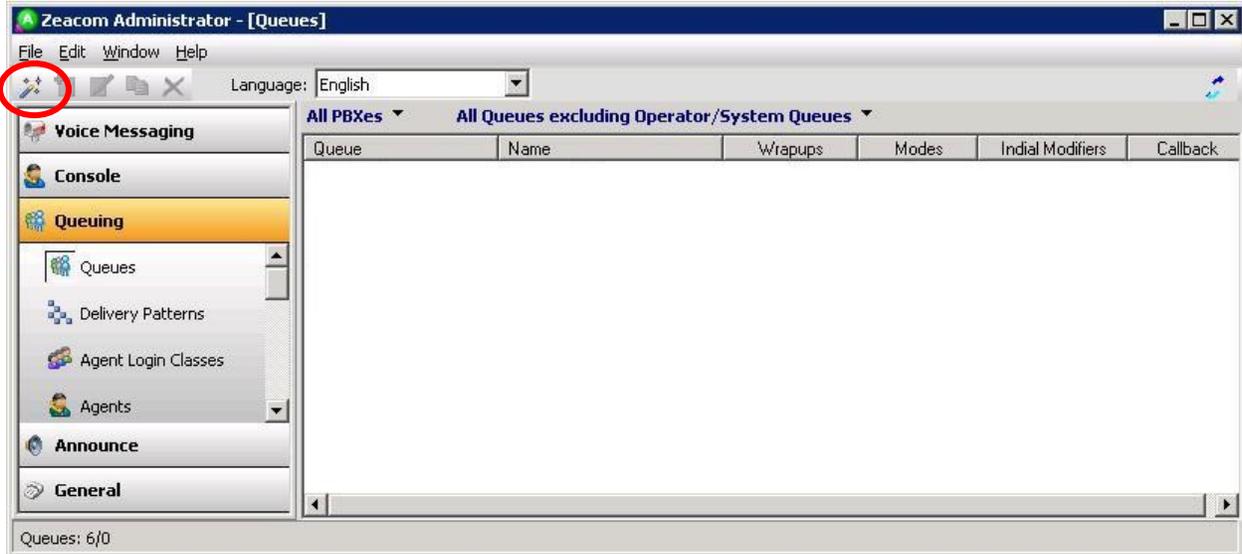
The screenshot shows the 'Avaya CM PBX Setup' window with the following settings:

- PBX Name:** Avaya CM5
- PBX Driver Name:** AVAYA - S8500 - CSTA - AES-TEST
- Options:**
  - Using Avaya AES
  - Monitor extensions automatically
  - Auto Answer Delay Timer: 1500 (msec)
  - Default Login split: [empty]
- 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: [masked]

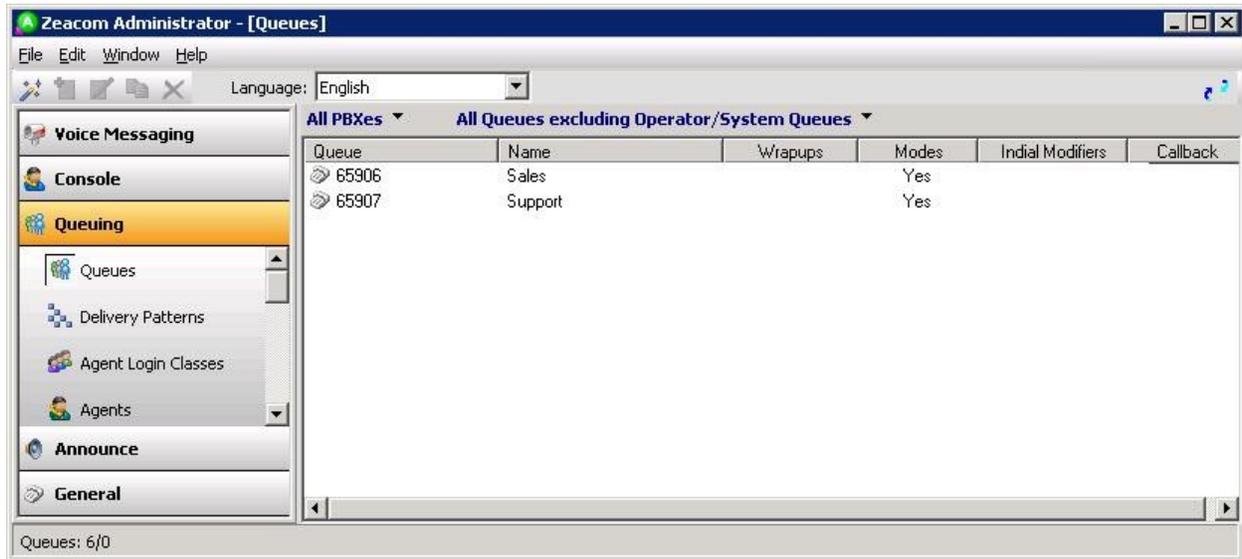
Buttons: OK, Cancel

## 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.

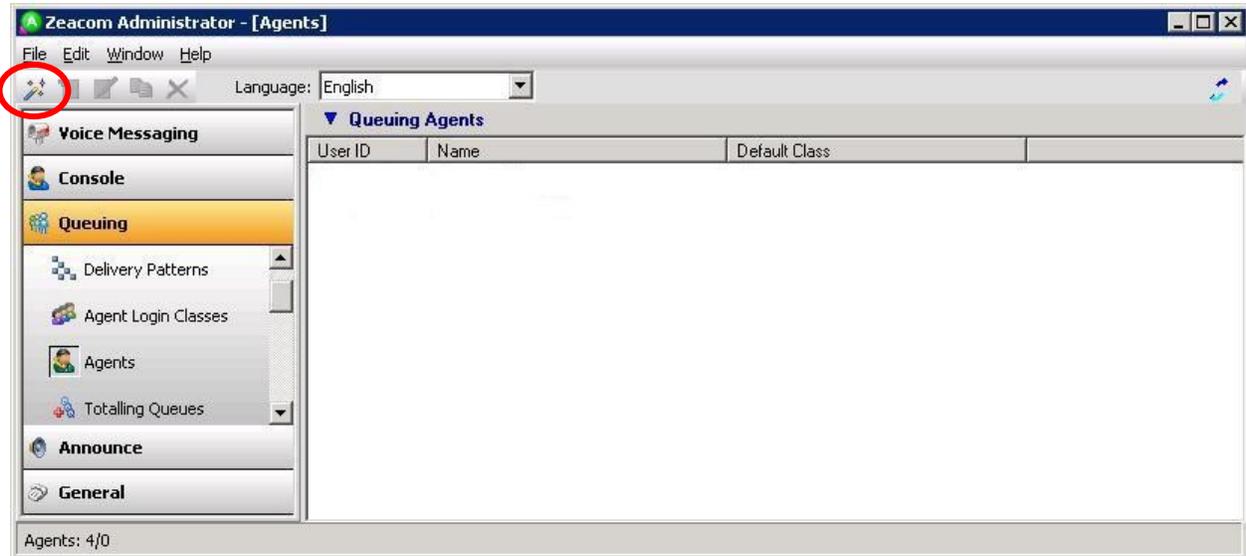


Follow the **Adding a New Queue Wizard** in the subsequent screens (not shown) to configure a new queue for each General Routing VDN in **Section 4.3.2**. In the compliance testing, two queues were created as shown below.



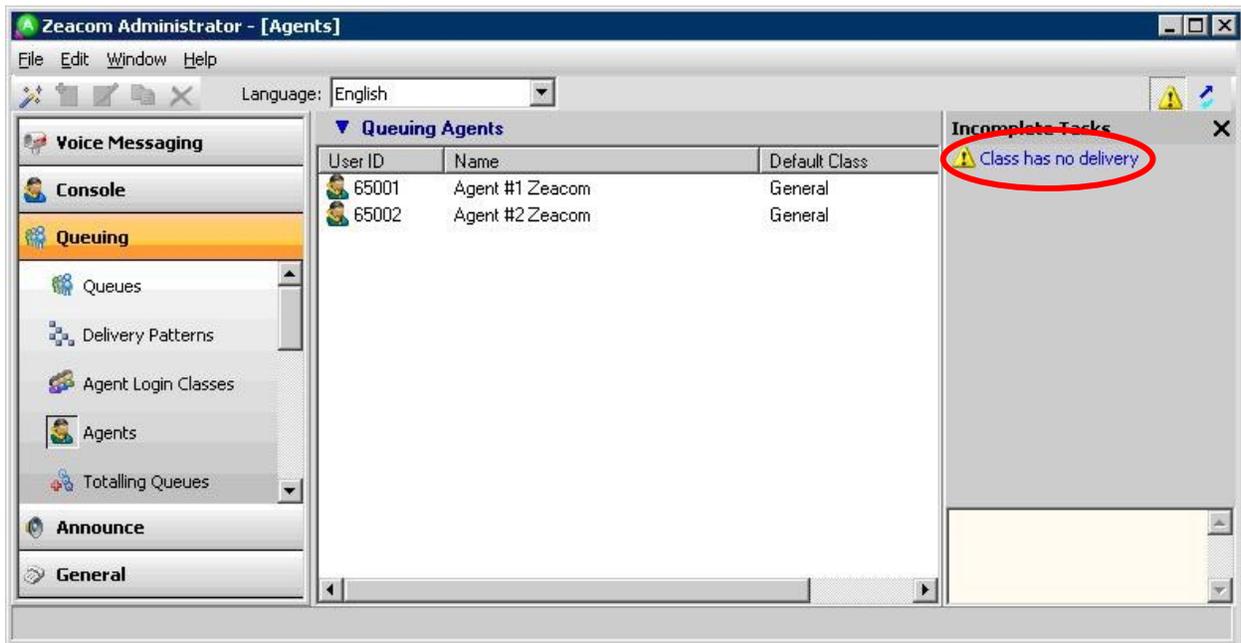
## 6.5. Administer Agents

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.

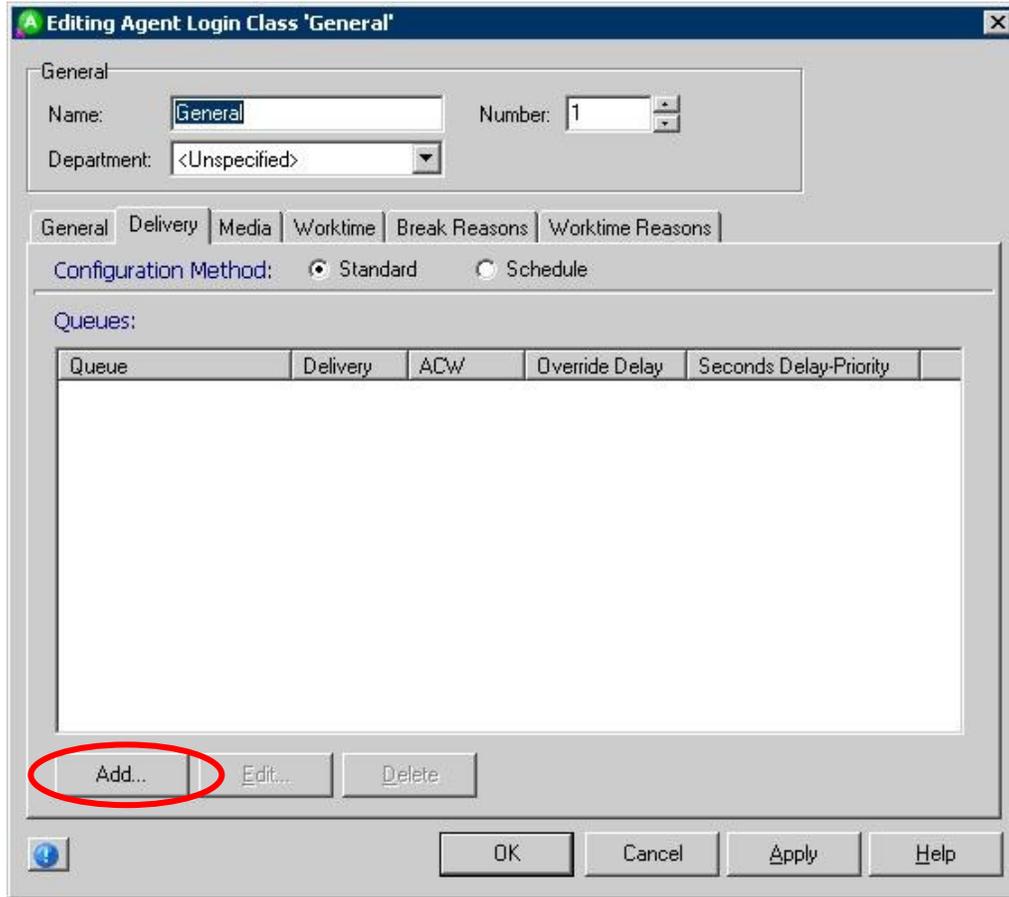


Follow the **Agent Wizard** in the subsequent screens (not shown) to configure a corresponding entry for each agent in **Section 4.5**. In the compliance testing, two agents were created as shown below.

Click on **Class has no delivery**.



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

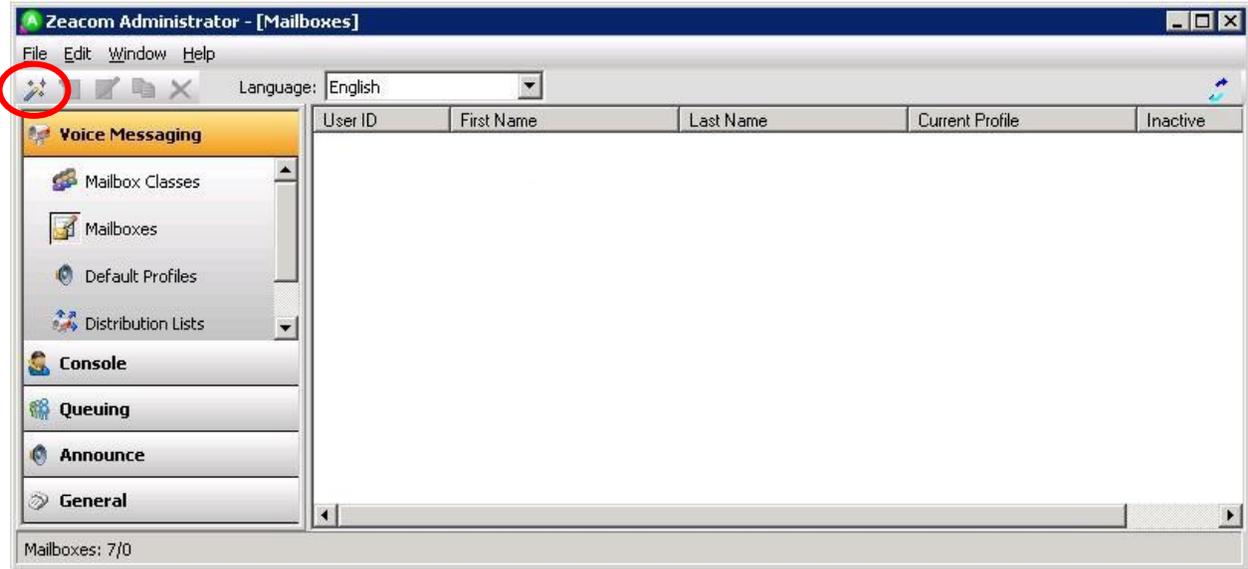


The **Add Queues** screen is displayed next. Check the entries corresponding to the general routing VDNs from **Section 4.3.2**, to enable calls to these VDNs to be delivered to the agents.

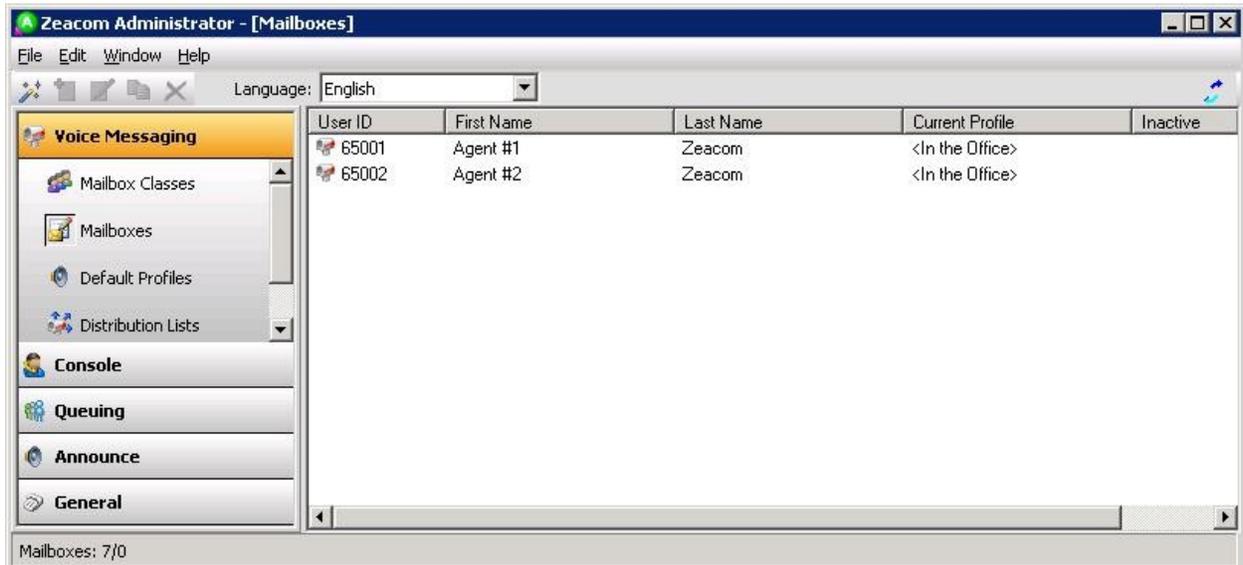


## 6.6. Administer Mailboxes

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 Aura™ 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.

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  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

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

### 8.3. Verify Zeacom Communications Center

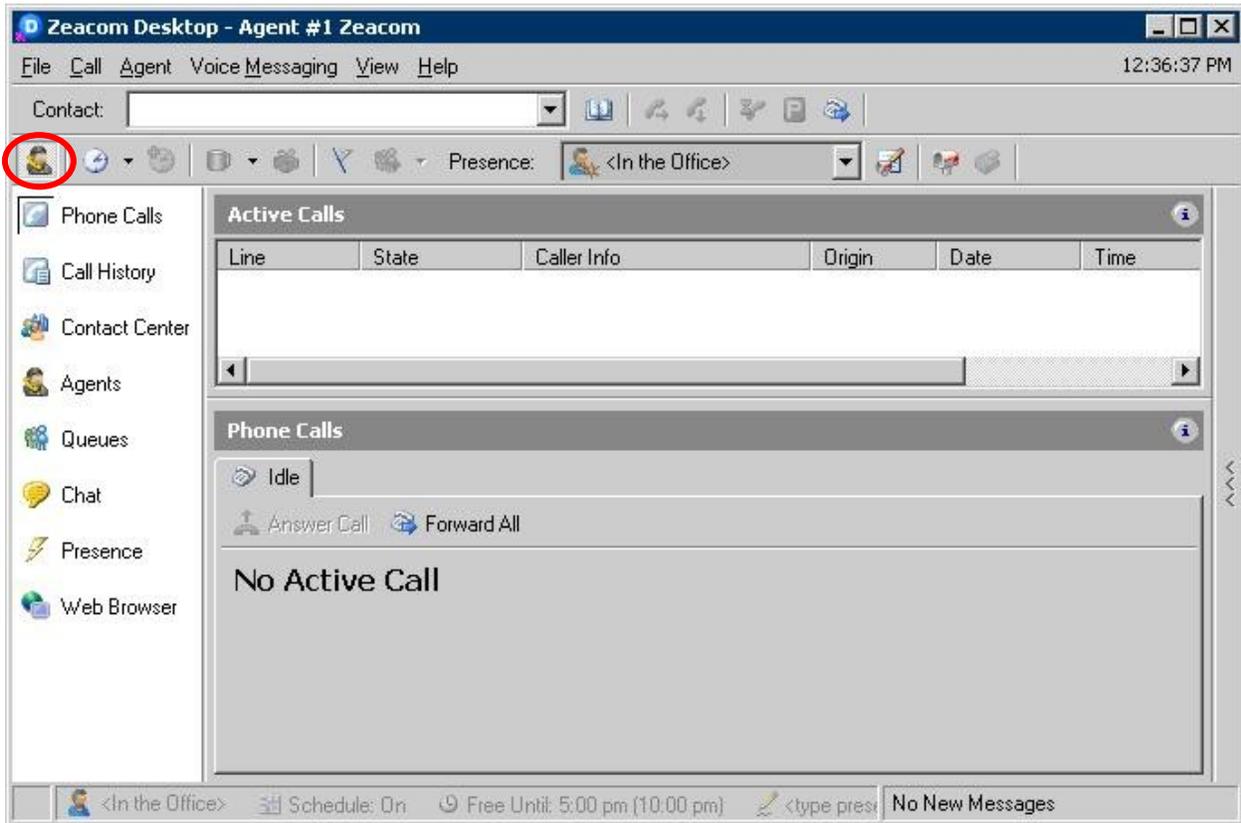
From the agent desktop running the Zeacom Executive Desktop client software, double-click on the **Desktop** icon shown below, which was created as part of installation.



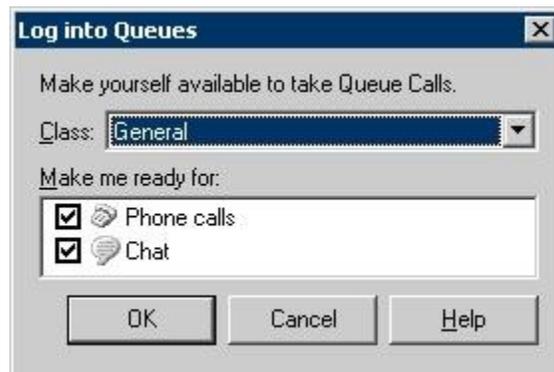
The **desktop** login screen is displayed. Enter a valid login name from **Section 6.5**, and use the generic default PIN value from Zeacom. Retain the default value in the remaining fields.

The login screen features 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 logo 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 'xxxxx'. Below the 'Login Name' field is a checked checkbox labeled 'Remember me next time'. At the bottom right are three buttons: 'OK', 'Cancel', and 'Help'.

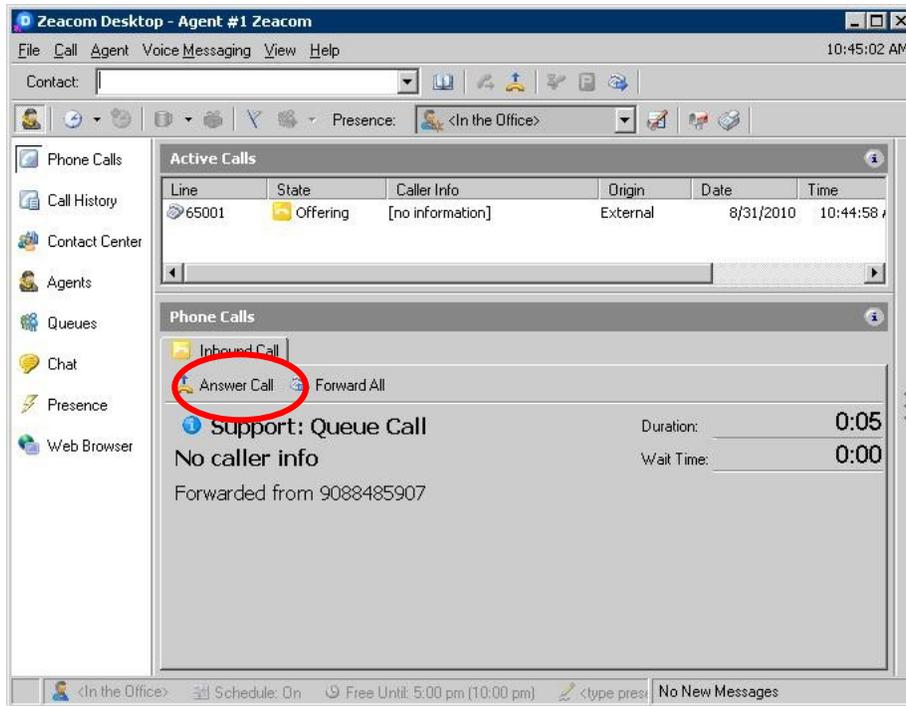
The **Zeacom Desktop** screen is displayed. Click the **Log into Queues** icon, as shown below.



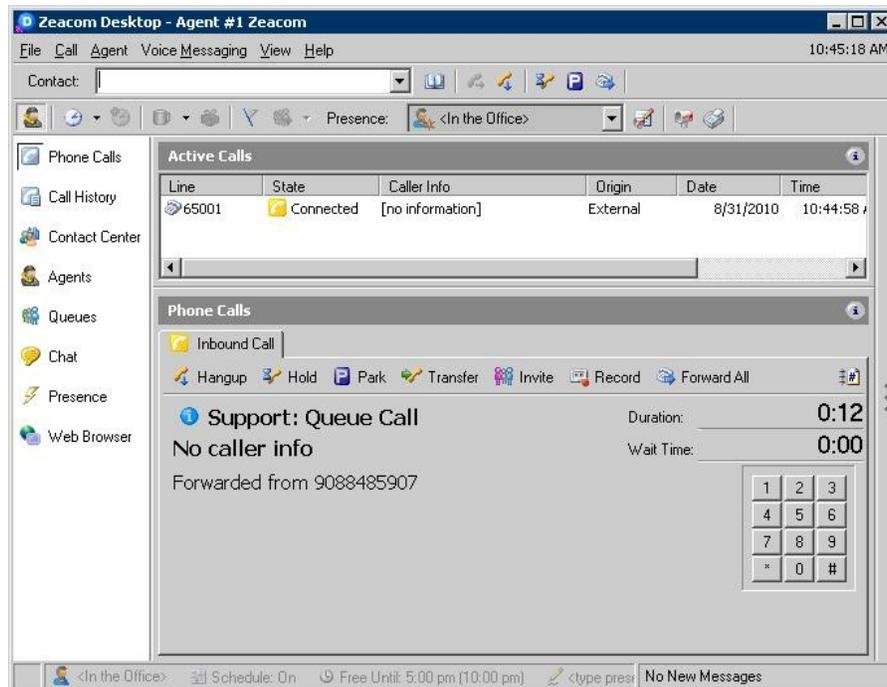
The **Log into Queues** dialog box is displayed next. Retain all default values.



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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