



Avaya Solution & Interoperability Test Lab

Application Notes for Zeacom Contact Center 4.0 with Avaya Communication Manager 3.0 using Avaya Application Enablement Services – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Zeacom Contact Center 4.0 to successfully interoperate with Avaya Communication Manager 3.0 using Avaya Application Enablement Services. Information in these Application Notes has been obtained through compliance testing and additional technical discussions. Testing was conducted via the Developer*Connection* Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

Zeacom Contact Center is a multi-channel and multi-contact solution that can handle voice, web, and email. The Contact Center monitors device activities and makes routing decisions based on device status and telephony information received from Avaya Communication Manager.

The agent clients have their desktop computers networked via TCP/IP to the Contact Center server. Call related actions such as answering of incoming calls are initiated via the desktop interface. As part of Zeacom installation, each agent client desktop locates and executes the Contact Center client desktop software from the shared file system hosted on the Contact Center server, and associates the desktop with a telephone extension.

Zeacom Contact Center provides the following voice functions:

- Intelligent call routing
- Integrated interactive voice response
- Caller customized announcements
- Screen pops
- Callback
- Supervisor assist
- Supervisor monitor
- Voicemail

The compliance testing focused solely on the voice channel, and integration with Avaya Communication Manager is achieved through the Application Enablement Services (AES) Telephony Services Application Programming Interface (TSAPI) service, as illustrated in **Figure 1**.

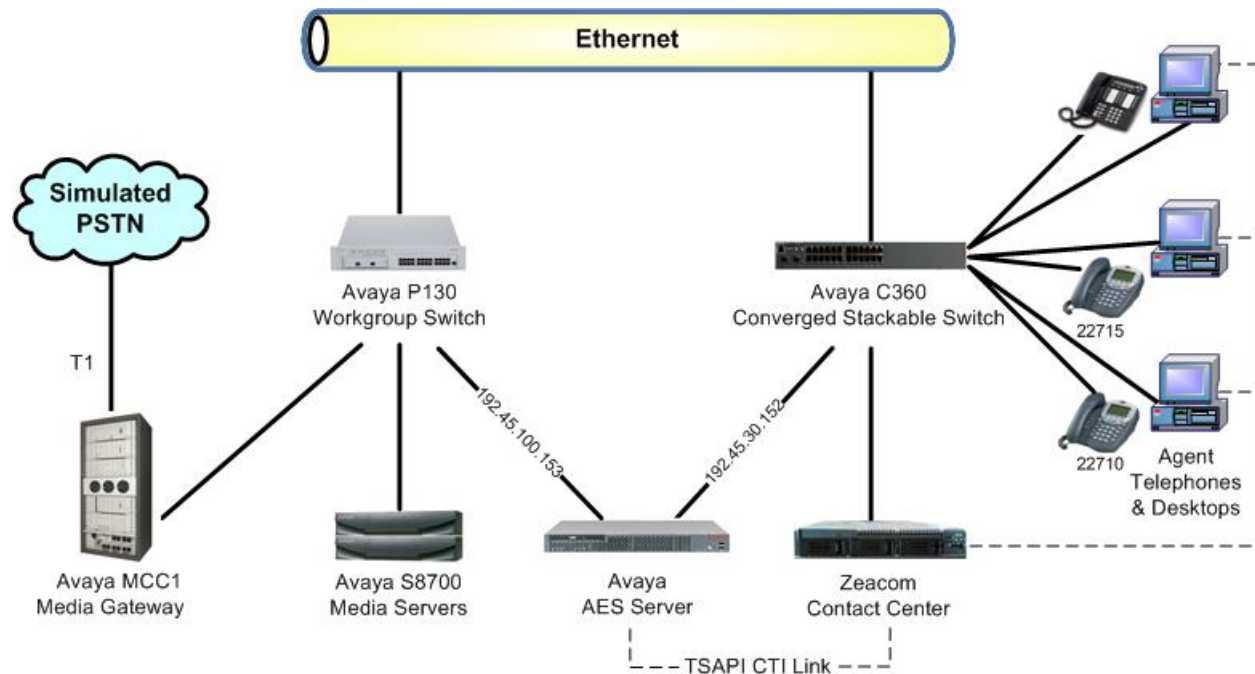


Figure 1: Zeacom Contact Center with Avaya Communication Manager using AES

2. Equipment and Software Validated

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

Equipment	Software
Avaya S8700 Media Servers	Communication Manager 3.0, load 340.3
Avaya MCC1 Media Gateway <ul style="list-style-type: none">TN799DP C-LAN Circuit PackTN2302AP IP Media Processor Circuit Pack	HW01 FW015 HW13 FW095
Avaya Application Enablement Services	3.0, build 46
Avaya P130 Workgroup Switch	2.11.3
Avaya C360 Converged Stackable Switch	4.3.12
Avaya 4600 Series IP Telephones	2.1.3 (4610SW), 1.8.3 (4624SW)
Zeacom Contact Center	4.0.100.201

3. Configure Avaya Communication Manager

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

- Verify Avaya Communication Manager license
- Administer C-LAN for AES connectivity
- Administer transport link for AES connectivity
- Administer CTI link with TSAPI service
- Administer call vectors for adjunct routing

3.1. Verify Avaya Communication Manager License

Log into the System Access Terminal (SAT) to verify that the Avaya Communication Manager license has proper permissions for features illustrated in these Application Notes. Use the “display system-parameters customer-options” command to verify the **Computer Telephony Adjunct Links** customer option is set to “y” on Page 3, as shown in **Figure 2** below. If the **Computer Telephony Adjunct Links** is not set to “y”, then contact the Avaya sales team or business partner for a proper license file. The system license file controls the settings on the customer-options form.

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

Figure 2: System Parameters Customer Options Page 3

Also verify that the **Vectoring (Basic)** customer option is set to “y” on Page 6 of the “display system-parameters customer-options” command, as shown in **Figure 3** below.

display system-parameters customer-options		Page 6 of 11
CALL CENTER OPTIONAL FEATURES		
Call Center Release: 3.0		
ACD? y	Reason Codes? y	
BCMS (Basic)? y	Service Level Maximizer? n	
BCMS/VuStats Service Level? y	Service Observing (Basic)? y	
BSR Local Treatment for IP & ISDN? n	Service Observing (Remote/By FAC)? y	
Business Advocate? n	Service Observing (VDNs)? y	
Call Work Codes? y	Timed ACW? y	
DTMF Feedback Signals For VRU? n	Vectoring (Basic)? y	
Dynamic Advocate? n	Vectoring (Prompting)? y	
Expert Agent Selection (EAS)? y	Vectoring (G3V4 Enhanced)? Y	

Figure 3: System Parameters Customer Options Page 6

3.2. Administer C-LAN for AES Connectivity

The C-LAN administration procedure will involve adding an IP node, an IP interface, and a data module. First, add an entry for the C-LAN in the node-names form. Use the “change node-names ip” command, as shown in **Figure 4**. In this case, “clan-1b09” and “192.45.100.87” are entered as **Name** and **IP Address** for the C-LAN that will be used for connectivity to the AES server. The actual node name and IP address may vary. Submit these changes.

```
change node-names ip
```

		IP NODE NAMES			
Name	IP Address				
clan-1b09	192.45 .100.87				
clanP2-1a04	192.168.61 .21				
clanP27-2a03	172.16 .252.200				
clanP7-3a04	192.168.1 .10				
default	0 .0 .0 .0				

Figure 4: IP Node Names

Next, add the C-LAN to the system configuration using the “add ip-interface 1b09” command. Note that the actual slot number may vary. In this case, “1b09” is used as the slot number, as shown in **Figure 5** below. Enter the node name assigned from **Figure 4** above, and the IP address will then be populated automatically.

Enter proper values for the **Subnet Mask** and **Gateway Address** fields. In this case, “255.255.255.0” and “192.45.100.1” are used to correspond to the network configuration in these Application Notes. Set the **Enable Ethernet Port** field to “y”, and use a separate **Network Region** for all CLANs dedicated for AES connectivity. Default values may be used in the remaining fields. Submit these changes.

```
add ip-interface 1b09
```

		IP INTERFACES			
Type:	C-LAN				
Slot:	01B09				
Code/Suffix:	TN799 D				
Node Name:	clan-1b09				
IP Address:	192.45 .100.87				
Subnet Mask:	255.255.255.0				
Gateway Address:	192.45 .100.1				
Enable Ethernet Port?	y				
Network Region:	2				
VLAN:	n				
Number of CLAN Sockets Before Warning: 400					
		ETHERNET OPTIONS			
Auto?	y				

Figure 5: IP Interface

Add a new data module using the “add data-module n” command, where “n” is an available extension. Enter the following values as shown in **Figure 6**:

- **Name:** A descriptive name.
- **Type:** “ethernet”
- **Port:** Same slot number from **Figure 5** and port “17”.
- **Link:** A link number not previously assigned on this switch.

```
add data-module 2001
                                DATA MODULE

Data Extension: 2001           Name: CLAN 1B09 Data Module
      Type: ethernet
      Port: 01B0917
      Link: 11

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

Figure 6: Data Module

3.3. Administer Transport Link for AES Connectivity

Administer the transport link to Avaya Application Enablement Services (AES) with the “change ip-services” command. Add an entry with the following values for fields on Page 1 as shown in **Figure 7** below:

- **Service Type:** “AESVCS”
- **Enabled:** “y”
- **Local Node:** Node name for the C-LAN assigned in **Figure 4**.
- **Local Port** Retain the default of “8765”.

change ip-services					Page 1 of 3
IP SERVICES					
Service Type	Enabled	Local Node	Local Port	Remote Node	Remote Port
SAT	y	clanP27-2a03	5023	any	0
SAT	y	clan-1b04	5023	any	0
AESVCS	y	clan-1b04	8765		
AESVCS	y	clan-1b09	8765		

Figure 7: IP Services Page 1

Go to Page 3 of the IP Services form, and enter the following values as shown in **Figure 8**:

- **AE Services Server:** Name obtained from the AES server, in this case “AES-DevCon2”.
- **Password:** Same password to be administered on the AES server.
- **Enabled:** “y”

Note that the name and password entered for the **AE Services Server** and **Password** fields must match the name and password on the AES server. The administered name for the AES server is created as part of the AES installation, and can be obtained from the AES server by typing “uname -n” at the Linux command prompt. The same password entered in **Figure 8** below will need to be set on the AES server using **Administration > Switch Connections > Edit Connection > Set Password** as shown in **Figure 25**.

change ip-services				Page 3 of 3	
AE Services Administration					
Server ID	AE Services Server	Password	Enabled	Status	
1:	devconaes01	*	y	in use	
2:	AES-DevCon2	*	y		
3:					
4:					
5:					

Figure 8: IP Services Page 3

3.4. Administer CTI Link with TSAPI Service

Add a CTI link and set the values as shown in **Figure 9** below using the “add cti-link n” command, where “n” is an available CTI link number. Enter an available extension number in the **Extension** field. Note that the CTI link number and extension number may vary. Enter “ADJ-IP” in the **Type** field, and a descriptive name in the **Name** field. Default values may be used in the remaining fields. Submit these changes.

add cti-link 4		Page 1 of 2	
CTI LINK			
CTI Link: 4			
Extension: 2204			
Type: ADJ-IP			
			COR: 1
Name: AES-DevCon2 TSAPI/JTAPI			

Figure 9: CTI Link

3.5. Administer Call Vectors for Adjunct Routing

Administer a set of vectors and Vector Directory Numbers (VDNs) per Zeacom Contact Center installation documentation. These vectors and VDNs provide:

- Failure coverage
- General routing
- Ring treatment
- Music treatment
- Busy treatment
- Voicemail

3.5.1. Failure Coverage

Modify a vector to provide failure coverage and routing to the CTI link defined previously in **Figure 9**. Note that the vector **Number** and **route-to number** may vary, and the **route-to number** is used as the covering point in case of failures from adjunct route. As shown in **Figure 10**, use “SC Fail” as the vector **Name** with wait treatment and vector steps as specified by the Zeacom Contact Center installation document.

```
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 4
02 wait-time        5 secs hearing silence
03 route-to         number 22720          with cov n if unconditionally
04 stop
05
```

Figure 10: Failure Coverage Vector

Add a VDN with an available extension as shown in **Figure 11** below with the following values:

- **Name:** “SC Fail”
- **Vector Number:** The vector number configured in **Figure 10** above.

```
add vdn 22904                                     Page 1 of 2
                                                    VECTOR DIRECTORY NUMBER

                        Extension: 22904
                        Name: SC Fail
                        Vector Number: 904
```

Figure 11: Failure Coverage VDN

3.5.2. General Routing

Modify a vector to provide general routing to the CTI link defined previously in **Figure 9**. Note that the vector **Number** may vary from **Figure 12** below, and the **route-to number** would be the failure coverage VDN configured in **Figure 11**. Enter a descriptive name for the vector **Name**.

change vector 999		Page 1 of 3	
CALL VECTOR			
Number: 999		Name: Zeacom CC	
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 4		
02 wait-time	5 secs hearing i-silent		
03 route-to	number 22904 with cov n if unconditionally		
04 stop			
05			

Figure 12: General Routing Vector

Add a VDN with an available extension as shown in **Figure 13** below with the following values:

- **Name:** A descriptive name.
- **Vector Number:** The vector number configured in **Figure 12** above.

add vdn 22999		Page 1 of 2	
VECTOR DIRECTORY NUMBER			
Extension: 22999			
Name: Zeacom Contact Center			
Vector Number: 999			

Figure 13: General Routing VDN

3.5.3. Ring Treatment

Modify a vector to provide ring treatment and routing to the CTI link defined previously in **Figure 9**. Note that the vector **Number** may vary from **Figure 14** below, and the **route-to number** would be the failure coverage VDN configured in **Figure 11**. Use “SC Ring” as the vector **Name**.

```
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 4
02 wait-time        60 secs hearing ringback
03 route-to         number 22904          with cov n if unconditionally
04 stop
05
```

Figure 14: Ring Vector

Add a VDN with an available extension as shown in **Figure 15** below with the following values:

- **Name:** “SC Ring”
- **Vector Number:** The vector number configured in **Figure 14** above.

```
add vdn 22901                                     Page 1 of 2
                                                    VECTOR DIRECTORY NUMBER

                                Extension: 22901
                                Name: SC Ring
                                Vector Number: 901
```

Figure 15: Ring VDN

3.5.4. Music Treatment

Modify a vector to provide music treatment and routing to the CTI link defined previously in **Figure 9**. Note that the vector **Number** may vary from **Figure 16** below, and the **route-to number** would be the failure coverage VDN configured in **Figure 11**. Use “SC Music” as the vector **Name**.

```
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 4
02 wait-time    60 secs hearing music
03 route-to     number 22904          with cov n if unconditionally
04 stop
05
```

Figure 16: Music Vector

Add a VDN with an available extension as shown in **Figure 17** below with the following values:

- **Name:** “SC Music”
- **Vector Number:** The vector number configured in **Figure 16** above.

```
add vdn 22902                                     Page 1 of 2
                                           VECTOR DIRECTORY NUMBER

                                           Extension: 22902
                                           Name: SC Music
                                           Vector Number: 902
```

Figure 17: Music VDN

3.5.5. Busy Treatment

Modify a vector to provide busy treatment and routing to the CTI link defined previously in **Figure 9**. Note that the vector **Number** may vary from **Figure 18** below. Use “SC Busy” as the vector **Name**.

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 4		
02 busy			
03			

Figure 18: Busy Vector

Add a VDN with an available extension as shown in **Figure 19** below with the following values:

- **Name:** “SC Busy”
- **Vector Number:** The vector number configured in **Figure 18** above.

add vdn 22903		Page 1 of 2	
VECTOR DIRECTORY NUMBER			
Extension: 22903			
Name: SC Busy			
Vector Number: 903			

Figure 19: Busy VDN

3.5.6. Voicemail

Modify a vector to provide voicemail routing to the CTI link defined previously in **Figure 9**. Note that the vector **Number** may vary from **Figure 20** below. Use “Voicemail” as the vector **Name**, as this name has significance to the Zeacom Contact Center application.

```
change vector 905                                     Page 1 of 3
                                     CALL VECTOR

  Number: 905                Name: Voicemail
Multimedia? n
  Basic? y      EAS? y    G3V4 Enhanced? y    Meet-me Conf? n    Lock? n
  Prompting? y  LAI? y    G3V4 Adv Route? y    ANI/II-Digits? y   ASAI Routing? y
  Variables? n  3.0 Enhanced? n    CINFO? y    BSR? n    Holidays? n
01 adjunct      routing link 4
02 wait-time    120 secs hearing ringback
03 stop
04
```

Figure 20: Voicemail Vector

Add a VDN with an available extension as shown in **Figure 21** below with the following values:

- **Name:** “Voicemail”
- **Vector Number:** The vector number configured in **Figure 20** above.

```
add vdn 22905                                     Page 1 of 2
                                     VECTOR DIRECTORY NUMBER

                                     Extension: 22905
                                     Name: Voicemail
                                     Vector Number: 905
```

Figure 21: Voicemail VDN

4. Configure Avaya Application Enablement Services

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

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

4.1. Verify Avaya Application Enablement Services License

Log into the AES OAM web interface to verify that the Avaya Application Enablement Services license has proper permissions for features illustrated in these Application Notes. Select **CTI OAM Admin** and check to make sure the TSAPI service is licensed as shown in **Figure 22** below. If the TSAPI service is not licensed, then contact the Avaya sales team or business partner for a proper license file.

The screenshot shows the AVAYA OAM Home interface. On the left is a navigation menu with links: OAM Home, CTI OAM Home, Administration, Status and Control, Maintenance, Logs, Utilities, Help, and Logout. The main content area displays 'Welcome to CTI OAM Screens' and a login message for '[craft]' on Thu Oct 2 17:51:56 E.S.T. 2005. Below this is a table of services and their controller status:

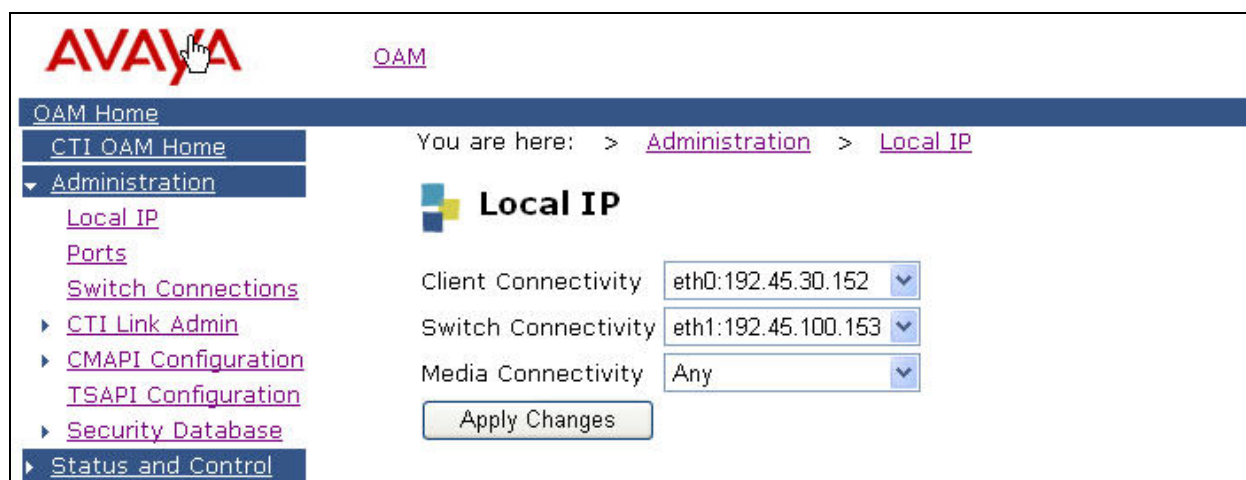
Service	Controller Status
ASAI Link Manager	Running
CMAPI Service	Running
CVLAN Service	Running
DLG Service	Running
Transport Layer Service	Running
TSAPI Service	Running

Below the table, it states: 'For status on actual services, please use [Status and Control](#).' An important notice follows: 'IMPORTANT: AE Services must be restarted for administrative changes to fully take effect. Changes to the Security Database do not require a restart.' The 'License Information' section indicates the user is licensed to run Application Enablement (CTI) version 3.0 and lists the following services: DLG, CVLAN, and TSAPI.

Figure 22: OAM Home License

4.2. Administer Local IP

From the CTI OAM Admin menu, select **Administration > Local IP**. As shown in **Figure 23**, in the **Client Connectivity** field, select the AES server IP address that will be used to connect to the Zeacom Contact Center server. In the **Switch Connectivity** field, select the AES server IP address that will be used to connect to Avaya Communication Manager. Click on **Apply Changes**.




The screenshot shows the Avaya OAM web interface. The top navigation bar includes the Avaya logo and a 'QAM' link. Below it, a breadcrumb trail reads 'You are here: > Administration > Local IP'. The left sidebar contains a tree view with 'Administration' expanded, showing sub-items like 'Local IP', 'Ports', 'Switch Connections', 'CTI Link Admin', 'CMAPI Configuration', 'TSAPI Configuration', 'Security Database', and 'Status and Control'. The main content area is titled 'Local IP' and contains three dropdown menus: 'Client Connectivity' (set to 'eth0:192.45.30.152'), 'Switch Connectivity' (set to 'eth1:192.45.100.153'), and 'Media Connectivity' (set to 'Any'). An 'Apply Changes' button is located at the bottom of the form.

Figure 23: Local IP

4.3. Administer Switch Connections

From the CTI OAM Admin menu, select **Administration > Switch Connections**, as shown in **Figure 24**. Enter a descriptive name for the switch connection and click on **Add Connection**. In this case, “devcon27S8700” is used, and the actual switch connection name may vary.



The screenshot shows the Avaya OAM web interface for 'Switch Connections'. The breadcrumb trail is 'You are here: > Administration > Switch Connections'. The left sidebar is identical to Figure 23, with 'Switch Connections' selected. The main content area is titled 'Switch Connections' and features a text input field containing 'devcon27S8700' and an 'Add Connection' button. Below this, a table lists existing connections. The table has two columns: 'Connection Name' and 'Number of Active Connections'. One connection is listed: 'devcon35S8710' with 0 active connections. Below the table are four buttons: 'Edit Connection', 'Edit CLAN IPs', 'Edit H.323 Gatekeeper', and 'Delete Connection'.

Connection Name	Number of Active Connections
devcon35S8710	0

Figure 24: Switch Connections

Next, the Set Password screen will be displayed, as shown in **Figure 25**. Enter the same password that was administered on Avaya Communication Manager on the IP Services form in **Figure 8**. Re-enter the same password in the **Confirm Switch Password** field. Note that the default value of checked may be retained for the **SSL** field. Had the switch been an Avaya DFINITY Server G3csi, the **SSL** field would need to be unchecked. Click on **Apply**.

AVAYA OAM

OAM Home

CTI OAM Home

Administration

Local IP

Ports

Switch Connections

CTI Link Admin

CMAPI Configuration

TSAPI Configuration

Security Database

Status and Control

Maintenance

You are here: > Administration > Switch Connections

Set Password - devcon27S8700

Switch Password: [password field]

Confirm Switch Password: [password field]

SSL: ☒

Please note that changing the password affects only new connections, not open connections.

Apply Cancel

Figure 25: Set Password

From the Switch Connections page shown in **Figure 26**, select the newly added switch connection name and click on **Edit CLAN IPs**.

AVAYA OAM

OAM Home

CTI OAM Home

Administration

Local IP

Ports

Switch Connections

CTI Link Admin

CMAPI Configuration

TSAPI Configuration

Security Database

Status and Control

Maintenance

You are here: > Administration > Switch Connections

Switch Connections

[text field] Add Connection

	Connection Name	Number of Active Connections
<input checked="" type="radio"/>	devcon27S8700	0
<input type="radio"/>	devcon35S8710	0

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

Figure 26: Switch Connections

On the Edit CLAN IPs page, enter the host name or IP address of the C-LAN used for AES connectivity as shown in **Figure 27**. In this case, “192.45.100.87” is used, which corresponds to the C-LAN administered on Avaya Communication Manager in **Figure 4**. Click on **Add Name or IP**.

AVAYA OAM

OAM Home

CTI OAM Home

Administration

Local IP

Ports

Switch Connections

CTI Link Admin

CMAPI Configuration

TSAPI Configuration

Security Database

You are here: > Administration > Switch Connections

Edit CLAN IPs - devcon27S8700

192.45.100.87

Add Name or IP

Name or IP Address Status

Delete IP

Figure 27: Edit CLAN IPs

4.4. Administer TSAPI Service

To administer a TSAPI link on AES, select **Administration > CTI Link Admin > TSAPI Links** from the CTI OAM Admin menu as shown in **Figure 28** below. Click on **Add Link**.

AVAYA OAM

OAM Home

CTI OAM Home

Administration

Local IP

Ports

Switch Connections

CTI Link Admin

TSAPI Links

CVLAN Links

DLG Links

CMAPI Configuration

You are here: > Administration > CTI Link Admin > TSAPI Links

TSAPI Links

Link	Switch Connection	Switch CTI Link #	ASAI Link Version
2	devcon35S8700	10	4

Add Link Edit Link Delete Link

Figure 28: TSAPI Links

In the Add/Edit TSAPI Links screen, select the following values as shown in **Figure 29**:

- **Switch Connection:** Administered switch connection configured in **Figure 24**.
- **Switch CTI Link Number:** Corresponding CTI link number configured in **Figure 9**.

Note that the actual values for both fields may vary. Click on **Apply Changes**.

AVAYA OAM

OAM Home
CTI OAM Home
Administration
Local IP
Ports
Switch Connections
CTI Link Admin
TSAPI Links
CVLAN Links
DLG Links
CMAPI Configuration
TSAPI Configuration
Security Database

You are here: > Administration > CTI Link Admin > TSAPI Links

Add / Edit TSAPI Links

Link: 1

Switch Connection: devcon27S8700

Switch CTI Link Number: 4

Apply Changes Cancel Changes

Figure 29: Add/Edit TSAPI Links

Next, enable the security database on AES, as this functionality is utilized by Zeacom Contact Center. Select **Administration > TSAPI Configuration** to bring up the TS Configuration screen shown in **Figure 30** below. Click on **Enable SDB**, followed by **Apply Changes**.

AVAYA OAM

OAM Home
CTI OAM Home
Administration
Local IP
Ports
Switch Connections
CTI Link Admin
CMAPI Configuration
TSAPI Configuration
Security Database
Status and Control

You are here: > Administration > TSAPI Configuration

TS Configuration

TCP Preferred Naming Format: IP Address

Extended Worktop Access: ☐

Auto Admin of LAN Addresses: ☐

Enable SDB: ☒

Apply Changes

Figure 30: TS Configuration

Navigate to the Tlinks screen by selecting **Administration > Security Database > Tlinks**. Note the value of the **Tlink Name**, as this will be needed for configuring the Zeacom Contact Center.

In this case, the **Tlink Name** is “AVAYA#DEVCON27S8700#CSTA#AES-DEVCON2 “, which is automatically created by the AES server and shown in **Figure 31**.



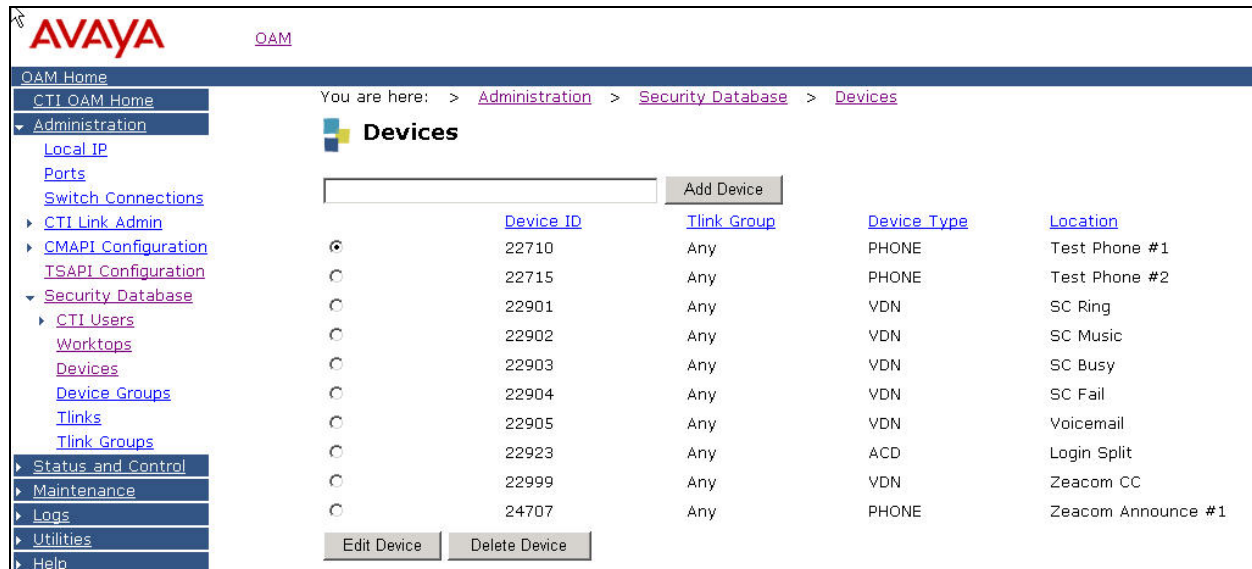
Figure 31: Tlinks

4.5. Administer Security Database

All devices that are monitored and controlled by Zeacom Contact Center need to be configured in the AES security database. Select **Administration > Security Database -> Devices**, and add each device by entering the device extension and click on **Add Device**. A listing of the configured devices is shown in **Figure 32**.

The associated field values with each device are entered in the **Add/Edit Device** screen shown in **Figure 33**. Note that the total number of devices may vary, as it depends on the number of extensions to be monitored and controlled. The following is a description of each **Device Type** utilized by Zeacom Contact Center:

- **PHONE:** Agent phone extensions and analog announcement extensions.
- **VDN:** VDN extensions that were configured in **Section 3.4**.
- **ACD:** ACD split extensions (for any end user application that require ACD splits).



AVAYA OAM

OAM Home

CTI OAM Home

You are here: > Administration > Security Database > Devices

Devices

Add Device

	Device ID	Tlink Group	Device Type	Location
<input checked="" type="radio"/>	22710	Any	PHONE	Test Phone #1
<input type="radio"/>	22715	Any	PHONE	Test Phone #2
<input type="radio"/>	22901	Any	VDN	SC Ring
<input type="radio"/>	22902	Any	VDN	SC Music
<input type="radio"/>	22903	Any	VDN	SC Busy
<input type="radio"/>	22904	Any	VDN	SC Fail
<input type="radio"/>	22905	Any	VDN	Voicemail
<input type="radio"/>	22923	Any	ACD	Login Split
<input type="radio"/>	22999	Any	VDN	Zeacom CC
<input type="radio"/>	24707	Any	PHONE	Zeacom Announce #1

Edit Device Delete Device

Figure 32: Devices

AVAYA [OAM](#)

[OAM Home](#) [CTI OAM Home](#) [Administration](#) [Local IP](#) [Ports](#) [Switch Connections](#) [CTI Link Admin](#) [CMAPI Configuration](#) [TSAPI Configuration](#) [Security Database](#) [CTI Users](#) [Worktops](#) [Devices](#)

You are here: > [Administration](#) > [Security Database](#) > [Devices](#)

Add / Edit Device

Device ID

Location

Device Type

Tlink Group

Figure 33: Add/Edit Devices

4.6. Administer Zeacom User

To administer a Zeacom user on AES, select **OAM Home > User Management > Add User**. Note that the user will be prompted with the User Management user name and password, as AES OAM maintains two separate administrative accounts to manage the User Management and CTI OAM Admin.

In the **Add User** screen shown in **Figure 34**, enter the following values:

- **User Id:** “zeacom”
- **Common Name:** A descriptive name.
- **Surname:** A descriptive surname.
- **Avaya Role:** Select “userservice.useradmin” from the dropdown menu.
- **CT User:** Select “Yes” from the dropdown menu.

AVAYA OAM

OAM Home
User Management Home
User Management
List All Users
Add User
Search Users
Modify Default User
Change User Password
Service Management
Help
Logout

You are here: > User Management > Add User

Add User

Fields marked with * can not be empty.

* User Id

* Common Name

* Surname

* User Password

* Confirm Password

Admin Note

Avaya Role

Business Category

Car License

CM Home

Ciss Home

CT User

Figure 34: Add User

5. Configure Zeacom Contact Center

This section provides the procedures for configuring the Zeacom Contact Center server. Bring up the Administrator Application by double clicking on the **Administrator** icon shown in **Figure 35**.

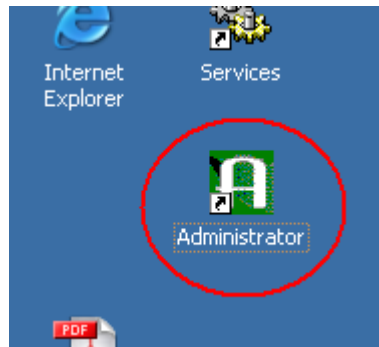


Figure 35: Administrator Icon

The Welcome to Administrator screen is displayed. Log in using the “Administrator” account as shown in **Figure 36** below.



Figure 36: Welcome to Administrator

Next, the Administrator Application displays the Administrator screen. Select **File > System Setup** as shown in **Figure 37**.

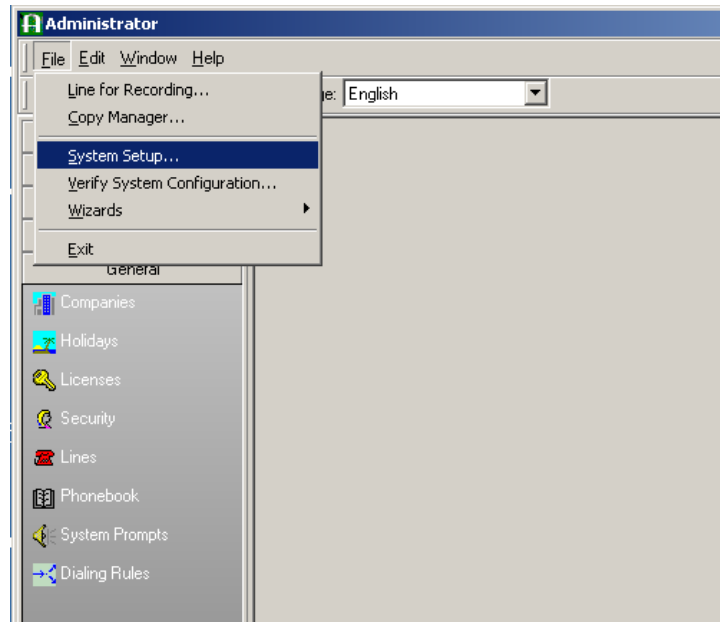


Figure 37: Administrator

In the System Setup screen, select the **PBX** tab as shown in **Figure 38**. Select “Definity” from the list and click on **OK**.

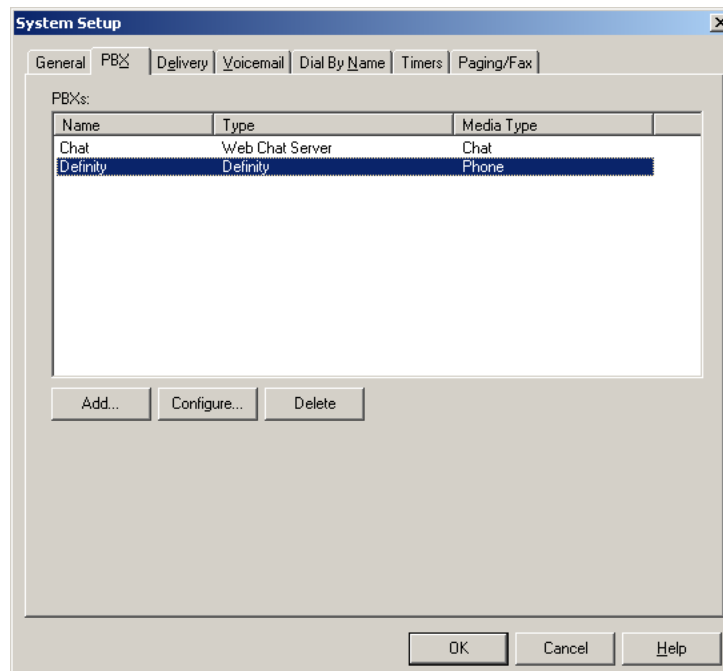


Figure 38: System Setup

Enter the following values in the **Definity PBX Setup** screen shown in **Figure 39** below:

- **PBX Driver Name:** Complete Tlink name obtained from **Figure 31**.
- **Ringin**g: Extension of Ring VDN configured in **Figure 15**.
- **Music:** Extension of Music VDN configured in **Figure 17**.
- **Busy:** Extension of Busy VDN configured in **Figure 19**.
- **Failover:** Extension of Failure Coverage VDN configured in **Figure 11**.

Default values may be used in the remaining fields. Click on the **OK** button to start up the Zeacom Contact Center application.

The screenshot shows the 'Definity PBX Setup' window. The 'PBX Name' field contains 'Definity'. The 'PBX Driver Name' field contains 'AVAYA#DEVCON27S870'. The 'Voicemail Queue' and 'Hold Queue' are set to '<NONE>'. The 'Default Login split' field is empty. The 'System Route Points' section shows 'Ringin'g' as 22901, 'Music' as 22902, 'Busy' as 22903, and 'Failover' as 22904. The 'System Extensions' section shows 'Analog Login Extension' and 'System Maintenance Extension' both set to '<NONE>'. The 'Monitor extensions automatically' checkbox is checked. The 'OK' and 'Cancel' buttons are at the bottom right.

Figure 39: Definity PBX Setup Before Application Start Up

Note that the Zeacom Contact Center will automatically pick up the Voicemail VDN configured in **Figure 21**. This is accomplished by synching up device information with AES and querying device status with Avaya Communication Manager upon start up of the application. When a device type of VDN with the name “Voicemail” is detected, the application automatically uses it to set the **Voicemail Queue** in the Definity PBX Setup screen. **Figure 40** below is a recapture of the Definity PBX Setup screen after start up of the Zeacom Contact Center application.

Definity PBX Setup

PBX Name: Definity

PBX Driver Name: AVAYA#DEVCON27S870

Voicemail Queue: Voicemail (22905)

Hold Queue: <NONE>

Default Login split:

System Route Points

Ringing: 22901

Music: 22902

Busy: 22903

Failover: 22904

System Extensions

Analog Login Extension: <NONE>

System Maintenance Extension: <NONE>

☒ Monitor extensions automatically

OK Cancel

Figure 40: Definity PBX Setup After Application Start Up

6. Interoperability Compliance Testing

The Interoperability compliance test included both feature functionality and serviceability testing.

The feature functionality testing focused on verifying Zeacom Contact Center handling of TSAPI messages in the areas of routing, call control, event notification, value query, request feature, and set value. Testing also included rainy day scenarios to verify successful handling of negative acknowledgements.

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

6.1. General Test Approach

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

For the manual part of the testing, incoming PSTN calls were made to the general routing VDN. The Zeacom Contact Center specifies where to route each call and hence what call treatments to provide, based on agent status information that the application tracks based on CTI device query results and event reports received from Avaya Communication Manager. Manual call controls from both the agent telephones and the agent desktop computers were exercised to verify remaining feature functionalities such as answering and transferring of calls.

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

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

6.2. Test Results

All test cases passed with an observation noted in **Section 8** on security database updates.

7. Verification Steps

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

7.1. Verify Avaya Communication Manager

Verify the status of the administered CTI link by using the “status aesvcs cti-link” command as shown in **Figure 41**.

status aesvcs cti-link						
AE SERVICES CTI LINK STATUS						
CTI Link	Version	Mnt Busy	AE Services Server	Service State	Msgs Sent	Msgs Rcvd
1		no		down	0	0
2	4	no	AES-DevCon2	restarted	27	16
3	4	no	AES-DevCon2	restarted	27	15
4	4	no	AES-DevCon2	established	17	20
15	4	no	devconaes01	established	18	18
16		no		down	0	0

Figure 41: Status Aesvcs CTI-link

7.2. Verify Avaya Enablement Services

From the AES OAM Admin menu, verify the status of the switch connection by selecting **Status and Control > Switch Conn Summary**, as shown in **Figure 42**.

Switch Conn	Conn State	Since	Online/Offline	Active CLANs/ Admin'd CLANs	# of MCI Conns	Msgs To Switch	Msgs From Switch	Msg Period
devcon27S8700	Talking	2005-11-02 10:00:42.0	Online	1 / 1	4	65	70	30
devcon35S8710	TCP Down	2005-11-02 10:00:41.0	Online	0 / 1	4	0	0	30

Figure 42: Switch Connections Summary

Verify the status of the TSAPI link by selecting **Status and Control > Services Summary**. Click on **TSAPI Service**, followed by **Details**. The TSAPI Link Details screen is displayed as shown in **Figure 43**.

Link	Switch Conn Name	Switch CTI Link Number	Conn Status	Since	Service State	Switch Version	Number of Associations	ASAI Message Rate
1	devcon27S8700	4	Talking	2005-11-02 10:00:42.0	Online	13	0	72
2	devcon35S8710	10	CM Down	2005-11-02 10:00:41.0	Online	13	0	72

Figure 43: TSAPI Link Details

7.3. Verify Zeacom Contact Center

To verify the status of the administered CTI link, bring up the Application Manager by double clicking on the **Application Manager** icon shown in **Figure 44**.

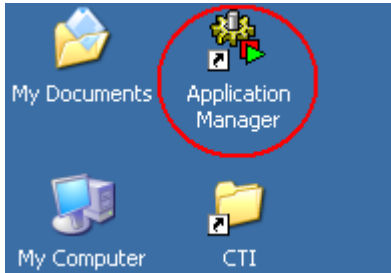


Figure 44: Application Manager Icon

The Welcome to Application Manager screen is displayed next. Log in using the “Administrator” account as shown in **Figure 45**.

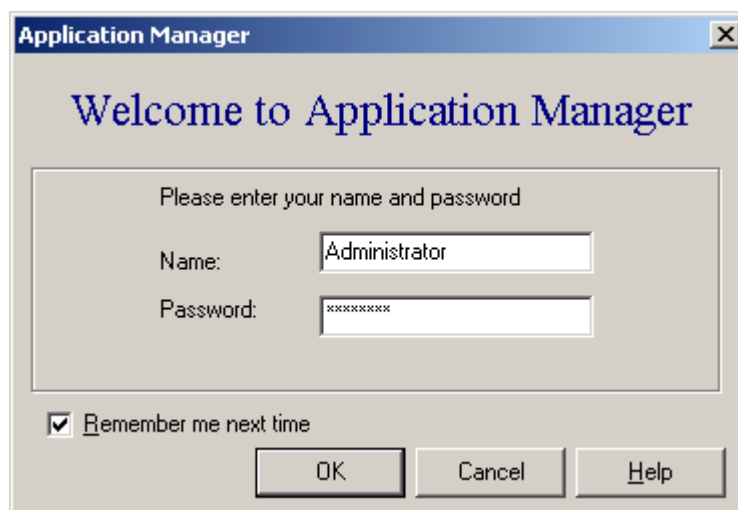


Figure 45: Welcome to Application Manager

In the Application Manager screen, check the status of the CTI link by viewing the symbol to the left of the “Definity PBX” Application. When the application is up, the symbol displayed would be a green triangle as shown in **Figure 46**.

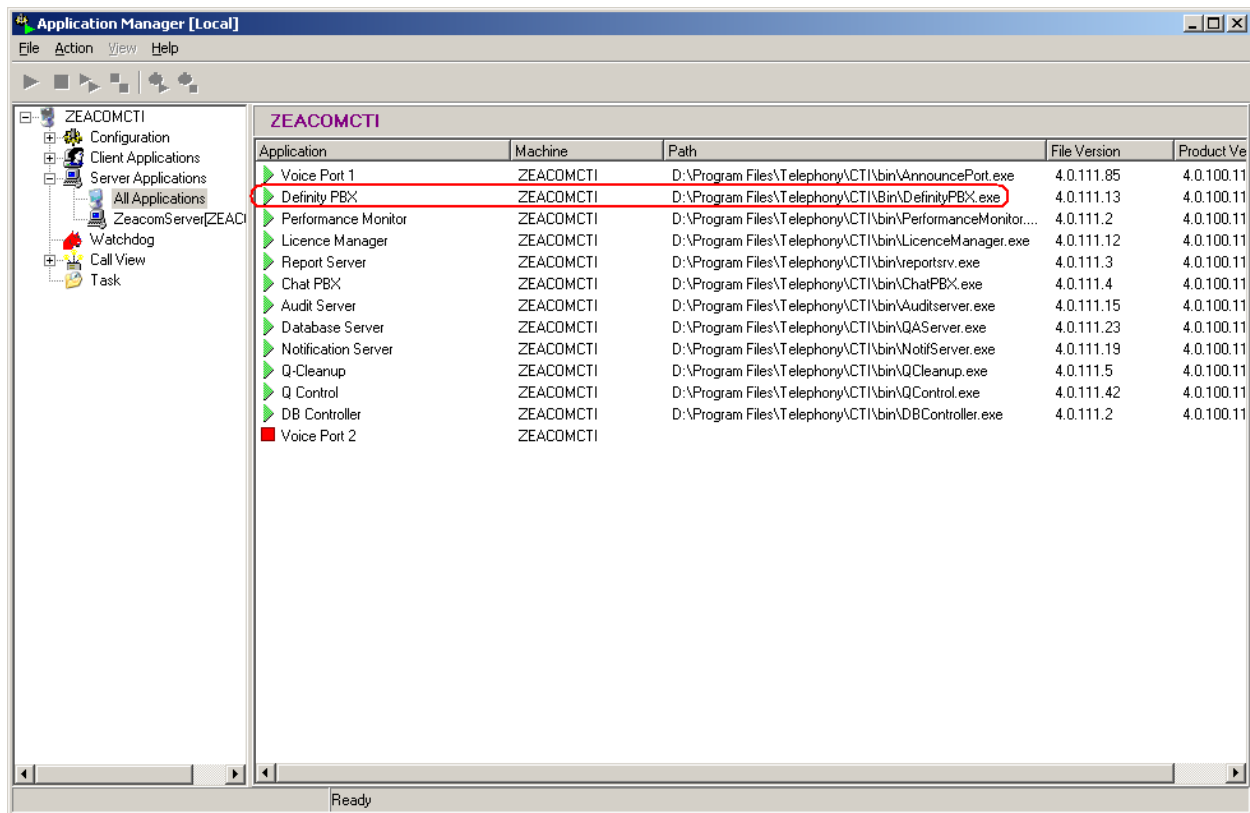


Figure 46: Status Definity PBX Application

8. Support

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

- Call the Zeacom support center at (800) 513-2810.
- Email the Zeacom support center via usasupport@zeacom.com.
- Contact via the Zeacom web site at www.zeacom.com. Click on **Contact Us** and select Email Your Request, Chat Online, or Request a Callback.

9. Conclusion

These Application Notes describe the configuration steps required for Zeacom Contact Center 4.0 to successfully interoperate with Avaya Communication Manager 3.0 using Avaya Application Enablement Services. All feature functionality and serviceability test cases were completed successfully.

The one observation from the interoperability testing is that with Avaya Computer Telephony 1.3, the Zeacom Contact Center application could make automatic additions and modifications to devices in the security database. With the new OAM interface in Avaya Application Enablement Services 3.0, the administrator must make device additions and modifications manually.

10. Additional References

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

- *Avaya Application Enablement Services 3.0 Administration and Maintenance Guide*, Document ID 02-300357, Issue 1, June 2005, available at <http://support.avaya.com>
- *Definity Installation Manual*, Zeacom Library Version 4, available via Definity training course provided by Zeacom.

10.1. Glossary

Technical Term	Definition as it pertains to this document.
AES	Application Enablement Services
ASAI	Adjunct Switch Application Interface
CTI	Computer Telephony Integration
PSTN	Public Switched Telephone Network
VDN	Vector Directory Number

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