



Avaya Solution & Interoperability Test Lab

Application Notes for the Envision Performance Suite 8.2 with Avaya Predictive Dialer System Release 12 – Issue 1.0

Abstract

The Envision Performance Suite 8.2 call recording solution was compliance tested with Avaya Predictive Dialer System 12. The objective of the test was to evaluate interoperability of these products in a call center environment. All test cases completed successfully. Information in these Application Notes has been obtained through compliance testing and additional technical discussions. Testing was conducted via the *DeveloperConnection* Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

These Application Notes describe the configuration used to compliance test the Envision Performance Suite 8.2 solution with Avaya Predictive Dialing System Release 12. **Figure 1** provides the high level topology.

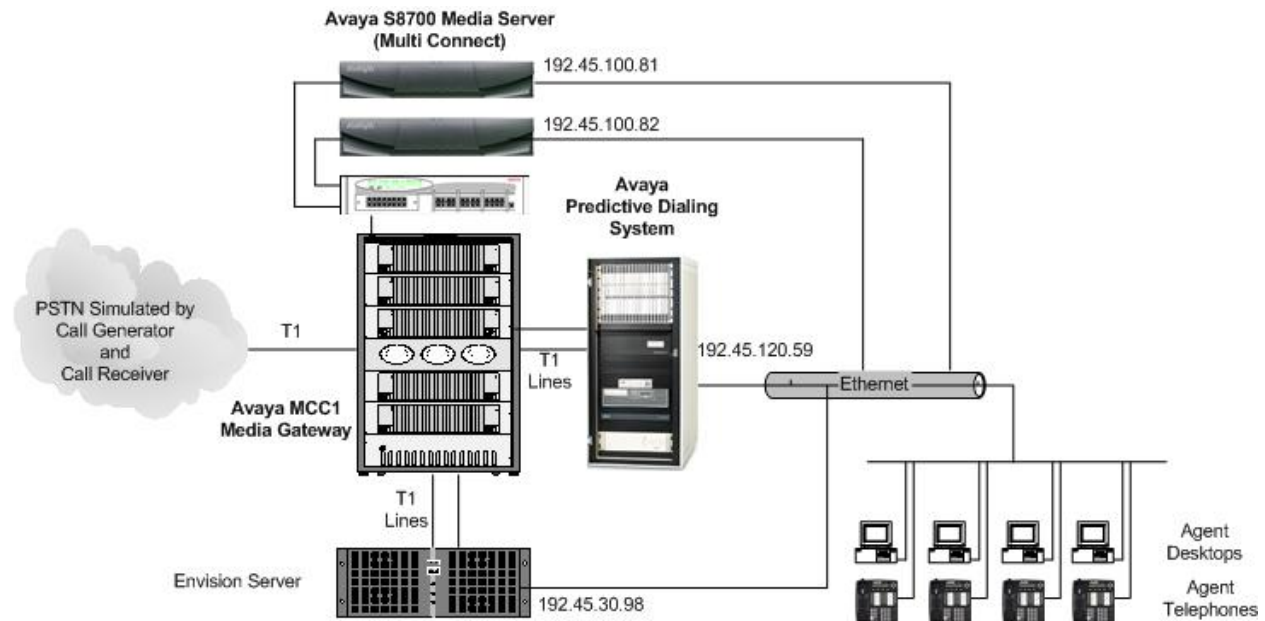


Figure 1: Avaya DeveloperConnection Compliance Test Configuration

The Envision Performance Suite is a hardware and software solution that consists of a Performance Suite Server with on-board telephony interfaces. The Envision Server is supported on Microsoft Windows 2000 Server and Microsoft Windows 2003 Server operating systems.

Envision Performance Suite uses the Event Services interface available on the Avaya Predictive Dialing System (PDS) and T1 lines on the Avaya Media Gateway to record calls arriving at agent telephones. In the test configuration, the Envision Server registered with the PDS for agent and call events such as AGENTONCALL, CALLCONNECTED, and CALLDISCONNECTED. These event types were used to determine when to begin and end recording.

2. Equipment and Software Validated

The following equipment and software were used for the test configuration.

Equipment	Version
Avaya S8700 Media Server with Avaya MCC1 Media Gateway	2.1.1 (R012x.01.1.414.1)
Avaya TN464 DS1 Interface	HW02 FW015
Avaya Predictive Dialing System Model 5000	R12SP3 with Patches: PDS12_571 PDS12_499
Avaya 4600 Series IP Telephones	1.8.2
Envision Performance Suite	8.2 SP1
Intel Dialogic D/240-JCT (T1)	JCT
Intel Dialogic System Software	5.1.1 SP1
Windows 2000 Server	SP4

3. Configure Avaya Communication Manager

These Application Notes address provisioning of Avaya Communication Manager as it relates to integration of Envision Performance Manage Suite. The trunk and station provisioning details are included here. For all other provisioning information, please refer to the Avaya Communication Manager product documentation.

The Avaya Communication Manager to Avaya PDS configuration is outside the scope of these Application Notes. It is assumed that this integration has been properly configured and is operating successfully.

3.1. Service Observe

The Envision Server uses Communication Manager's Service Observe feature to record calls on agent telephones. Implementation of the required Service Observe feature on Avaya Communication Manager can be achieved using the following series of steps. These steps are performed through the System Access Terminal (SAT) interface. The Avaya Site Administration program can be used to access the SAT interface via a Telnet session.

Step	Description
1.	<p>Verify that the Service Observing (Basic) and Service Observing (Remote/By FAC) fields are set to “y” on the “display system-parameters customer-options” form. If they are not set to “y”, contact your Avaya sales team or business partner. A system license file controls the settings on the customer-options form.</p> <div data-bbox="358 506 1474 1073" style="border: 1px solid black; padding: 10px;"> <pre> display system-parameters customer-options Page 6 of 11 CALL CENTER OPTIONAL FEATURES Call Center Release: 12.0 ACD? y PASTE (Display PBX Data on Phone)? y BCMS (Basic)? y Reason Codes? y BCMS/VuStats Service Level? y Service Level Maximizer? n BSR Local Treatment for IP & ISDN? n Service Observing (Basic)? y Business Advocate? n Service Observing (Remote/By FAC)? y Call Work Codes? y Service Observing (VDNs)? y DTMF Feedback Signals For VRU? n Timed ACW? y Dynamic Advocate? n Vectoring (Basic)? y Expert Agent Selection (EAS)? y Vectoring (Prompting)? y EAS-PHD? y Vectoring (G3V4 Enhanced)? y Forced ACD Calls? n Vectoring (ANI/II-Digits Routing)? y Least Occupied Agent? n Vectoring (G3V4 Advanced Routing)? y Lookahead Interflow (LAI)? y Vectoring (CINFO)? y Multiple Call Handling (On Request)? y Vectoring (Best Service Routing)? n Multiple Call Handling (Forced)? y Vectoring (Holidays)? n Vectoring (Variables)? n (NOTE: You must logoff & login to effect the permission changes.) </pre> </div>
2.	<p>Add a feature access code for Service Observing Listen Only. Enter *05 or a feature access code that conforms to the local dial plan in the Service Observing Listen Only Access Code field. Submit these changes.</p> <div data-bbox="358 1293 1474 1734" style="border: 1px solid black; padding: 10px;"> <pre> change feature-access-codes Page 5 of 8 FEATURE ACCESS CODE (FAC) Automatic Call Distribution Features After Call Work Access Code: *13 Assist Access Code: Auto-In Access Code: *15 Aux Work Access Code: *16 Login Access Code: *17 Logout Access Code: *20 Manual-in Access Code: *12 Service Observing Listen Only Access Code: *05 Service Observing Listen/Talk Access Code: *06 Add Agent Skill Access Code: Remove Agent Skill Access Code: Remote Logout of Agent Access Code: </pre> </div>

3.2. DS1FD Lines from the MCC1 Media Gateway to the Envision Performance Suite Server

The Envision Server uses T1¹ or E1 lines² configured as DS1FD stations to record telephone calls. Implementation of the required DS1FD stations on Avaya Communication Manager can be achieved using the following series of steps. These steps are performed through the System Access Terminal (SAT) interface. The Avaya Site Administration program can be used to access the SAT interface via a Telnet session.

Step	Description
1.	<p data-bbox="277 583 1458 688">Add a DS1 circuit pack to the system. Enter a descriptive name in the Name field. Set the Line Coding, Framing Mode, and Signaling Mode fields as shown. The rest of the values may be left at their defaults.</p> <div data-bbox="354 716 1471 1190" style="border: 1px solid black; padding: 10px;"><pre data-bbox="370 722 1243 1150">add ds1 1a17 DS1 CIRCUIT PACK Location: 01A17 Name: Envision Bit Rate: 1.544 Line Coding: ami-zcs Line Compensation: 1 Framing Mode: d4 Signaling Mode: robbed-bit Interface Companding: mulaw Idle Code: 11111111 Slip Detection? n Near-end CSU Type: other</pre></div>

¹ In the test configuration, T1 lines were used.

² Analog lines may be used instead of, or in conjunction with, T1/E1 lines.

Step	Description
2.	<p>List class of restriction information using the “list cor” command. Determine a class of restriction number that will be assigned to the DS1FD channels. In this case, COR 5 is used.</p> <pre data-bbox="342 390 1458 961"> list cor Page 1 CLASS OF RESTRICTION INFORMATION COR COR Description 0 1 2 3 4 5 Envision Server 6 7 8 9 10 11 12 13 14 press CANCEL to quit -- press NEXT PAGE to continue </pre>
3.	<p>Use the “change cor 5” command and enter a description in the COR Description field. Set the Can Be a Service Observer field to “y”. Submit these changes.</p> <pre data-bbox="342 1136 1458 1709"> change cor 5 Page 1 of 4 CLASS OF RESTRICTION COR Number: 5 COR Description: Envision Server FRL: 7 APLT? y Can Be Service Observed? n Calling Party Restriction: none Can Be A Service Observer? y Called Party Restriction: none Time of Day Chart: 1 Forced Entry of Account Codes? n Priority Queuing? n Direct Agent Calling? n Restriction Override: all Facility Access Trunk Test? n Restricted Call List? y Can Change Coverage? n Access to MCT? y Fully Restricted Service? n Group II Category For MFC: 7 Hear VDN of Origin Annc.? n Send ANI for MFE? n Add/Remove Agent Skills? n MF ANI Prefix: Automatic Charge Display? n Hear System Music on Hold? y PASTE (Display PBX Data on Phone)? n Can Be Picked Up By Directed Call Pickup? n Can Use Directed Call Pickup? n Group Controlled Restriction: inactive </pre>

Step	Description
4.	<p>Add a station for each channel on the DS1 board and set the Type field to “DS1FD”. Note that the port number represents a channel on the DS1 board. Set the COR field to the class of restriction modified in Step 3. After the first station is added, it can be used as a template for the rest of the channels. Enter duplicate station nnnn, where <i>nnnn</i> is the extension number of the channel to duplicate.</p> <pre data-bbox="342 491 1458 835"> add station 22261 Page 1 of 3 STATION Extension: 22261 Lock Messages? n BCC: 0 Type: DS1FD Security Code: TN: 1 Port: 01A1701 Coverage Path 1: COR: 5 Name: CR Port 1 Coverage Path 2: COS: 1 Hunt-to Station: Tests? y STATION OPTIONS Loss Group: 4 Off Premises Station? y R Balance Network? n </pre>
5.	<p>Set the Data Restriction, Call Waiting Indication, Att. Call Waiting Indication, Distinctive Audible Alert, and Switchhook Flash fields to “n”. The rest of the values on the station form can be left at their defaults.</p> <pre data-bbox="342 1031 1458 1556"> add station 22261 Page 2 of 3 STATION FEATURE OPTIONS LWC Reception: none LWC Activation? n LWC Log External Calls? n CDR Privacy? n Redirect Notification? n Per Button Ring Control? n Switchhook Flash? n Ignore Rotary Digits? n H.320 Conversion? n Service Link Mode: as-needed Multimedia Mode: basic MWI Served User Type: AUDIX Name: Emergency Location Ext: 22261 Coverage Msg Retrieval? n Auto Answer: none Data Restriction? n Call Waiting Indication? n Att. Call Waiting Indication? n Distinctive Audible Alert? n Adjunct Supervision? y Per Station CPN - Send Calling Number? Audible Message Waiting? n Coverage After Forwarding? s Multimedia Early Answer? n </pre>

4. Configure the Envision Performance Suite System

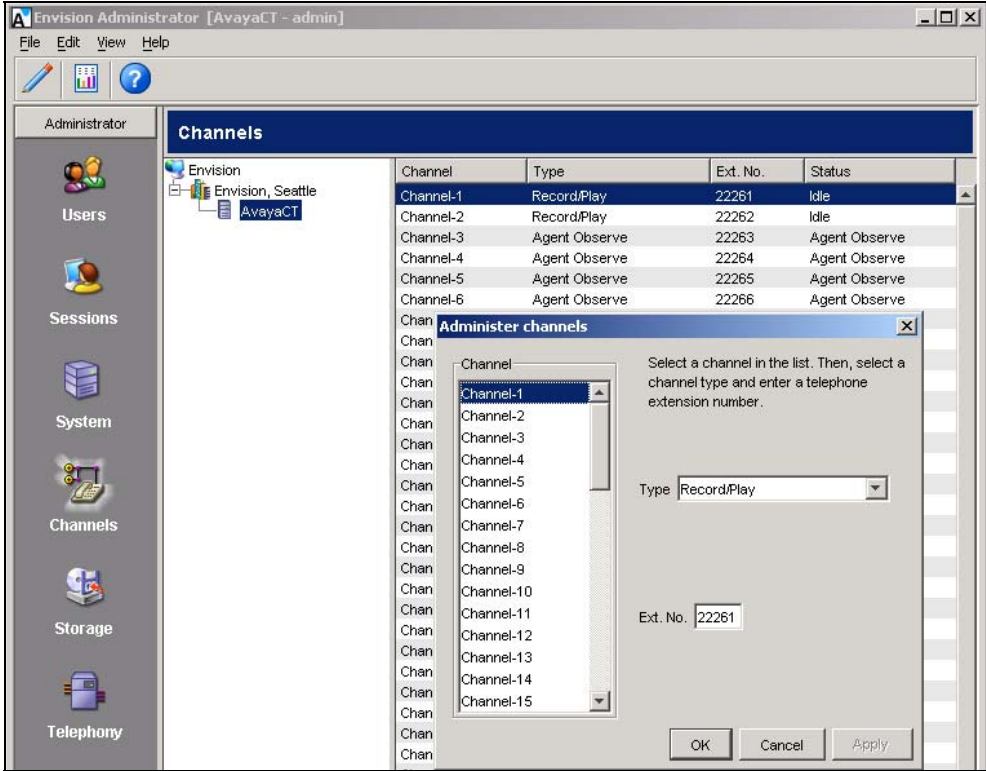
Initial provisioning of the Envision Performance Suite Server is done by Envision on behalf of their customers. The following section provides an overview of the configuration steps necessary for the Telephony Interface, PDS link, and agent IDs for Envision Performance Suite 8.2.

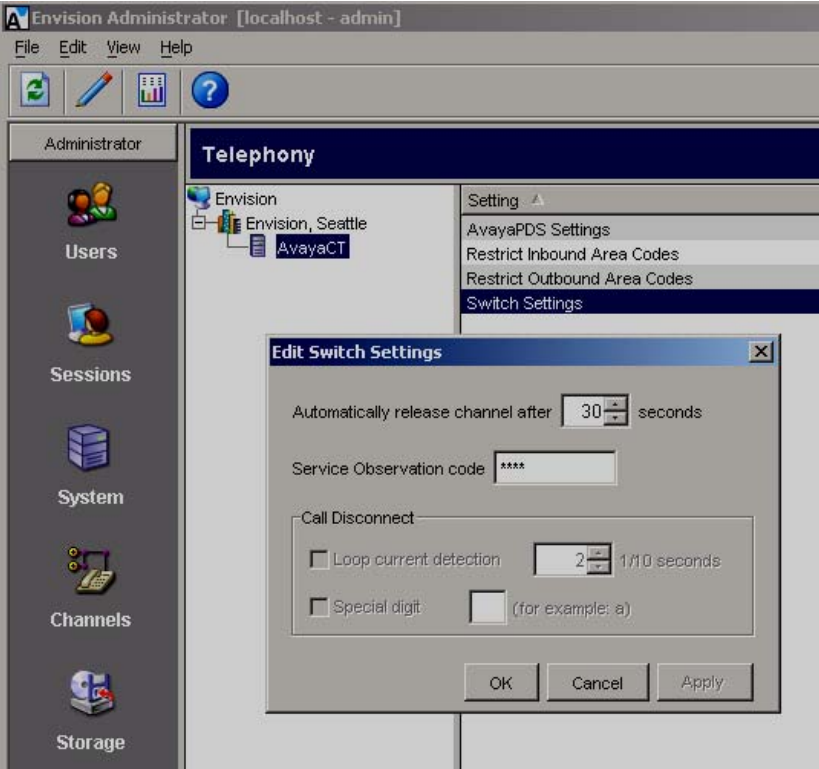
The following steps are performed by Envision prior to delivery/installation of the system.

4.1. Programming the Telephony Interface Boards

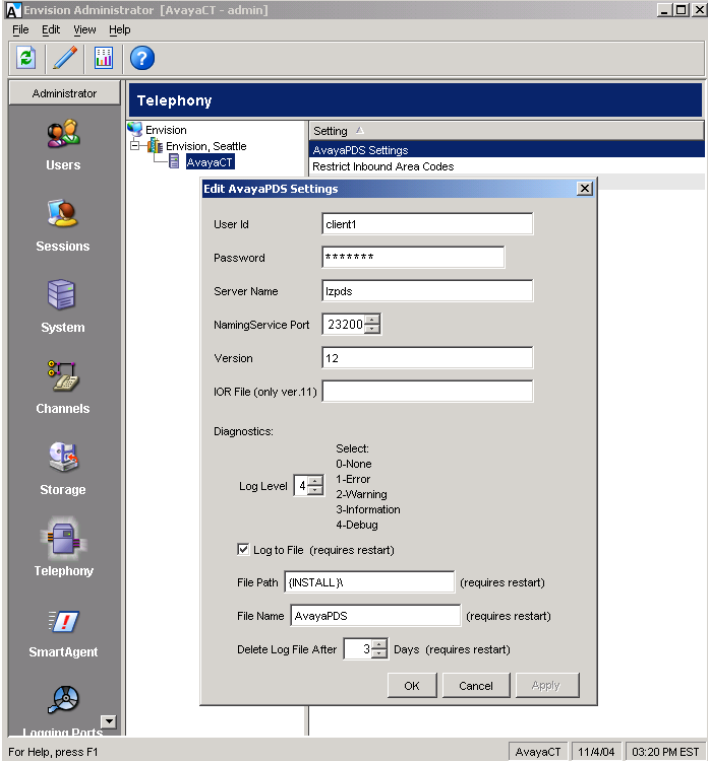
Step	Description
1.	Supported Intel Dialogic boards are installed in the Envision Server.
2.	Each board is given a specific ID, selected by the dial on each board. This ID determines the order of boards/channels in the Envision Server configuration.
3.	Each board is linked via a CT Bus cable.
4.	Intel Dialogic Drivers are installed on the system.
5.	The user logs onto the server and runs the Intel Dialogic Configuration Manager (DCM). <div data-bbox="586 989 1252 1425" data-label="Image"> </div>
6.	DCM auto-detects the boards installed. The user then sets the drivers to start automatically.
7.	Envision Server uses the default settings assigned to all detected boards.
8.	T1/E1/Analog lines are connected to the boards, while noting which lines are connected to which card. For example, T1 board #1 is connected to Avaya TN464 in slot 1A17 of the PBX.
9.	Envision sets the number of channel licenses for the Envision Server to match the customer's specification. (Normally, this is the total number of telephony channels detected by DCM).

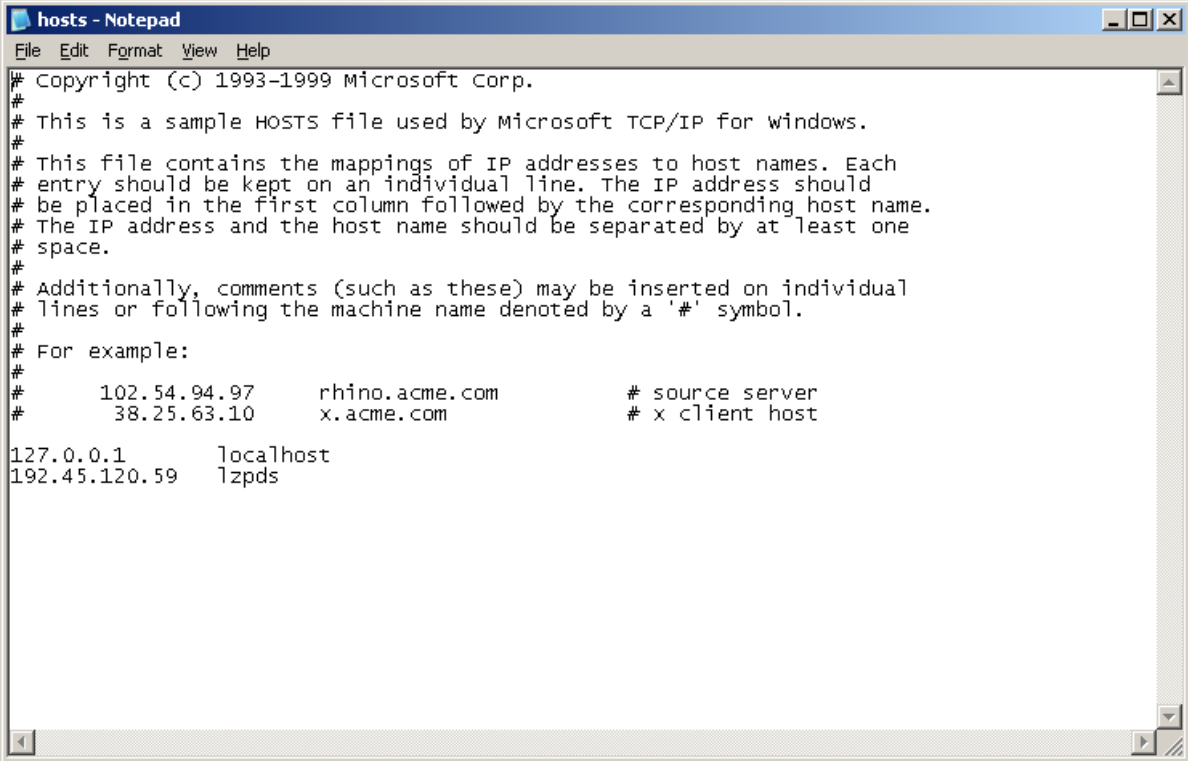
4.2. Programming Envision Server Channels

Step	Description																												
1.	Envision engineers and the customer determine the number of channels to be used for recording and the number of channels to be used for playback.																												
2.	The CTI features require that each channel on the Envision Server be programmed to match its extension connected at the PBX side.																												
3.	Initial programming is performed by Envision; however, the customer can reconfigure the purpose of any channel as business needs change.																												
4.	<p>All configuration of the Envision Server is performed via the Envision Administrator client. Envision's installation includes training administrators in the use of this client.</p>  <p>The screenshot shows the Envision Administrator [AvayaCT - admin] window. The main area displays a table of channels:</p> <table border="1"> <thead> <tr> <th>Channel</th> <th>Type</th> <th>Ext. No.</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td>Channel-1</td> <td>Record/Play</td> <td>22261</td> <td>Idle</td> </tr> <tr> <td>Channel-2</td> <td>Record/Play</td> <td>22262</td> <td>Idle</td> </tr> <tr> <td>Channel-3</td> <td>Agent Observe</td> <td>22263</td> <td>Agent Observe</td> </tr> <tr> <td>Channel-4</td> <td>Agent Observe</td> <td>22264</td> <td>Agent Observe</td> </tr> <tr> <td>Channel-5</td> <td>Agent Observe</td> <td>22265</td> <td>Agent Observe</td> </tr> <tr> <td>Channel-6</td> <td>Agent Observe</td> <td>22266</td> <td>Agent Observe</td> </tr> </tbody> </table> <p>An 'Administer channels' dialog box is open, showing a list of channels (Channel-1 to Channel-15) and a 'Type' dropdown menu set to 'Record/Play'. The 'Ext. No.' field contains '22261'. The dialog also includes 'OK', 'Cancel', and 'Apply' buttons.</p>	Channel	Type	Ext. No.	Status	Channel-1	Record/Play	22261	Idle	Channel-2	Record/Play	22262	Idle	Channel-3	Agent Observe	22263	Agent Observe	Channel-4	Agent Observe	22264	Agent Observe	Channel-5	Agent Observe	22265	Agent Observe	Channel-6	Agent Observe	22266	Agent Observe
Channel	Type	Ext. No.	Status																										
Channel-1	Record/Play	22261	Idle																										
Channel-2	Record/Play	22262	Idle																										
Channel-3	Agent Observe	22263	Agent Observe																										
Channel-4	Agent Observe	22264	Agent Observe																										
Channel-5	Agent Observe	22265	Agent Observe																										
Channel-6	Agent Observe	22266	Agent Observe																										

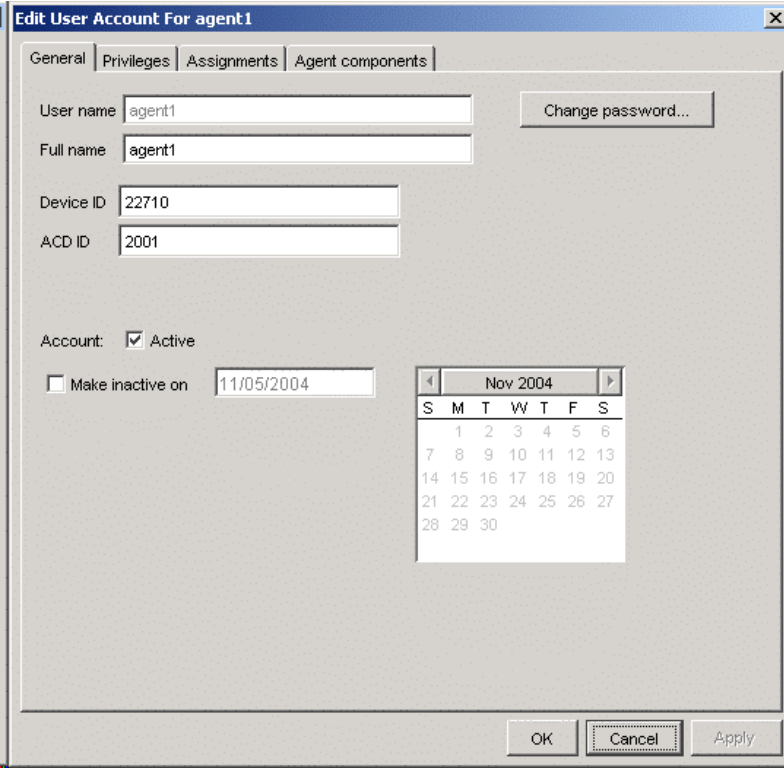
Step	Description
5.	<p>The feature access code for the Service Observe feature is entered in the “Switch Settings” dialog box in the Telephony module of Envision Administrator.</p>  <p>The screenshot shows the Envision Administrator interface. The main window is titled 'Envision Administrator [localhost - admin]' and has a menu bar with 'File', 'Edit', 'View', and 'Help'. Below the menu bar is a toolbar with icons for refresh, edit, view, and help. The left sidebar contains a tree view with 'Administrator' at the top, followed by 'Users', 'Sessions', 'System', 'Channels', and 'Storage'. The main area is titled 'Telephony' and shows a tree view with 'Envision' expanded to 'Envision, Seattle' and 'AvayaCT' selected. A context menu is open over 'AvayaCT' with options: 'Setting...', 'AvayaPDS Settings', 'Restrict Inbound Area Codes', 'Restrict Outbound Area Codes', and 'Switch Settings'. The 'Switch Settings' option is highlighted. A dialog box titled 'Edit Switch Settings' is open in the foreground. It contains the following fields and options: <ul style="list-style-type: none"> 'Automatically release channel after' with a spin box set to '30' and the unit 'seconds'. 'Service Observation code' with a text box containing '****'. 'Call Disconnect' section with two options: <ul style="list-style-type: none"> 'Loop current detection' with a spin box set to '2' and the unit '1/10 seconds'. 'Special digit' with a text box containing '(for example: a)'. At the bottom of the dialog box are three buttons: 'OK', 'Cancel', and 'Apply'. </p>

4.3. Programming Avaya PDS Link Parameters for the Envision Server

Step	Description
1.	Envision will install and configure the Envision Server to interface with the customer's existing Avaya PDS.
2.	<p>The connection information for the Avaya PDS is entered in the "AvayaPDS Settings" dialog box in the Telephony module of Envision Administrator. The PDS administrator should provide the correct values to be entered into the User ID, Password, and NamingServicePort fields.</p> 

Step	Description
3.	<p>Verify that the server name entered into the Server Name field in Step 2 is defined in the DNS server or the local hosts file typically located in C:\WINDOWS\SYSTEM32\DRIVERS\ETC\HOSTS. If DNS is not available or if DNS is not resolving the server name, verify that the server name is entered in the hosts file of the Envision Server.</p>  <pre> hosts - Notepad File Edit Format View Help # Copyright (c) 1993-1999 Microsoft Corp. # # This is a sample HOSTS file used by Microsoft TCP/IP for Windows. # # This file contains the mappings of IP addresses to host names. Each # entry should be kept on an individual line. The IP address should # be placed in the first column followed by the corresponding host name. # The IP address and the host name should be separated by at least one # space. # # Additionally, comments (such as these) may be inserted on individual # lines or following the machine name denoted by a '#' symbol. # # For example: # # 102.54.94.97 rhino.acme.com # source server # 38.25.63.10 x.acme.com # x client host 127.0.0.1 localhost 192.45.120.59 lzpds </pre>

4.4. Administering Agents in Envision Performance Suite

Step	Description
1.	<p>Agents are administered by entry in the User module of Envision Administrator. Device ID refers to the physical phone extension. ACD ID refers to the agent ID on the PDS. ACD ID's must be unique – two accounts may not share the same ACD ID.</p> 

5. Interoperability Compliance Testing

This Interoperability Compliance Test included load and serviceability testing. Serviceability tests included recoverability after link outages. Basic feature functionality was exercised as part of the load test scenarios. Performance measurements were collected from the Avaya S8700 Media Server and the Envision Performance Suite.

5.1. General Test Approach

Serviceability and basic functionality test cases were performed manually. During the manual tests, outbound calls were made by the PDS to a simulated Public Switched Telephone Network and answered calls were delivered to agent telephones. Audio of recorded calls was retrieved using Envision's Quality Monitoring client and Envision's web-based Agent Desktop client.

During the load testing, agents were logged in and joined to a PDS job. The PDS delivered answered calls to agents for sustained periods.

5.2. Test Results

All test cases passed successfully. No errors were detected.

6. Verification Steps

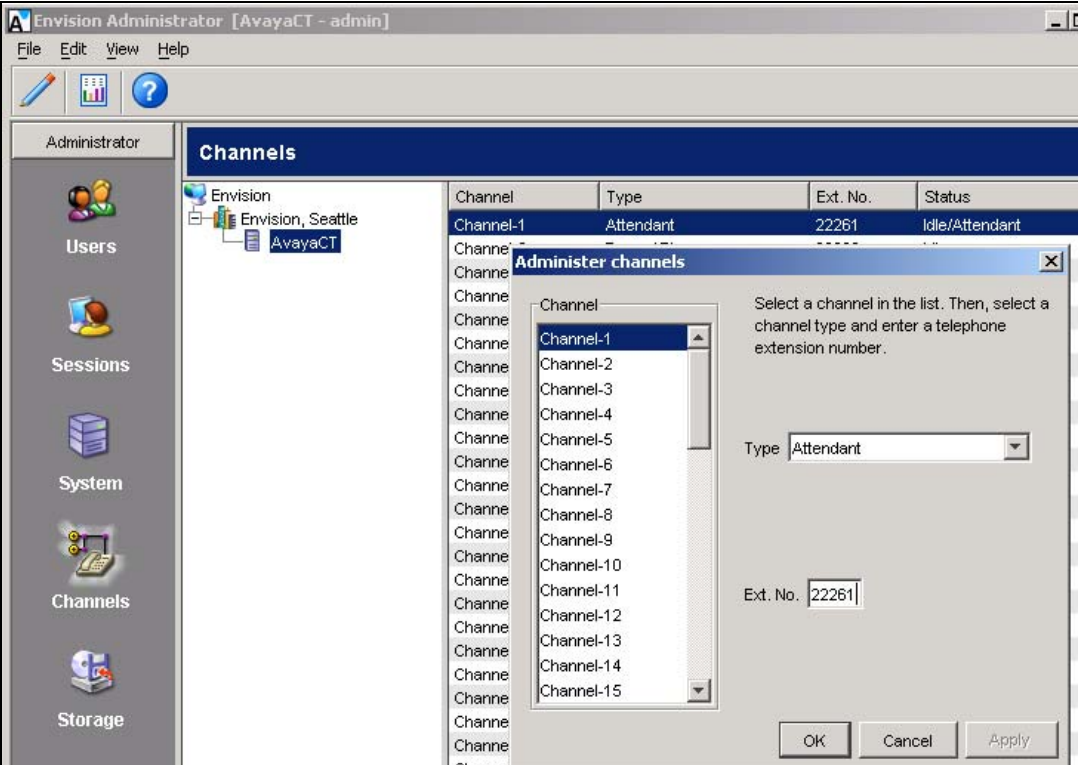
6.1. DS1FD Stations via the SAT

The T1 line(s) from the MCC1 Media Gateway to the Envision Server can be verified through the SAT administration interface. The Avaya Site Administration program can be used to access the SAT administration interface via a Telnet session.

Step	Description
1.	<p>Run the test board command on the DS1 circuit pack assigned in Step 1 of Section 3.2. Verify that tests 138 through 146 and tests 312 and 36 for each channel, all pass. Note that an abort on test 1227 is expected for this configuration.</p> <pre>test board 1a17 Page 1 TEST RESULTS Port Maintenance Name Alt. Name Test No. Result Error Code 01A17 UDS1-BD 138 PASS 01A17 UDS1-BD 139 PASS 01A17 UDS1-BD 140 PASS 01A17 UDS1-BD 141 PASS 01A17 UDS1-BD 142 PASS 01A17 UDS1-BD 143 PASS 01A17 UDS1-BD 144 PASS 01A17 UDS1-BD 145 PASS 01A17 UDS1-BD 146 PASS 01A17 UDS1-BD 1227 ABORT 1951 01A1701 OPS-LINE 22261 312 PASS 01A1701 OPS-LINE 22261 36 PASS 01A1702 OPS-LINE 22262 312 PASS 01A1702 OPS-LINE 22262 36 PASS 01A1703 OPS-LINE 22263 312 PASS</pre>

6.2. DS1FD Stations via the Envision Server

The T1 line(s) from the MCC1 Media Gateway to the Envision Performance Suite Server can also be verified through the Envision Server.

Step	Description
1.	<p>Run the Envision Administrator and select Channel 1. Set the Type field to “Attendant”. Click OK.</p> 
2.	<p>From any telephone on the system, dial the extension associated with Channel 1. In this case, extension 22261 is assigned to channel 1 and was administered in Step 4 of Section 3.2. Verify that the Envision Server plays back “Thank you for calling. You have been connected to Envision Telephony’s Soundbite Enterprise System.”</p>

7. Support

For technical support on Envision Performance Suite, contact Envision Customer Support at (206) 225-0800 x600 or via e-mail at help@envisioninc.com. Technical support is also available at the Envision web site on <http://www.envisioninc.com>

8. Conclusion

Envision Performance Suite Version 8.2 call recording solution was compliance tested with Avaya Communication Manager 2.1.1. All feature functionality and load test cases completed successfully.

9. Additional References

The following documents can be found at <http://support.avaya.com>:

Administrator's Guide for Avaya Communication Manager, Issue 8, June 2004; Doc ID: 555-233-506

Feature Description and Implementation for Avaya Communication Manager, Issue 1, June 2004; Doc ID: 555-245-205

Administration for Network Connectivity for Avaya Communication Manager, Issue 8, June 2004; Doc ID: 555-233-504

The following document is available on the Event Services SDK 2.0 CD ROM:

Avaya Predictive Dialing System, SDK – DRAFT VERSION ONLY, June 2002

The following document is available from Envision:

Envision Administrator User Guide, Version 8.2

9.1. Glossary

Technical Term	Definition as it pertains to this document.
ANI	Automatic Number Identification
CTI	Computer Telephony Integration
DNS	Domain Name Service
DNIS	Dialed Number Identification Service
DS1FD	DS1 Forward Disconnect Station Type
PSTN	Public Switched Telephone Network
VDN	Vector Directory Number

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