



Avaya Solution & Interoperability Test Lab

Application Notes for Invision Interaction Recording System Version 5.0 with Avaya Aura® Communication Manager Release 6.3 – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Invision Interaction Recording System (I-Record) Version 5.0 to interoperate with Avaya Aura® Communication Manager Release 6.3. Invision I-Record captures Avaya 9600 series H323 Deskphones and 1600 Series H.323 Deskphones voice conversation and presents the recordings in a report accessible via web.

Readers should pay attention to section 2, in particular the scope of testing as outlined in Section 2.1 as well as the observations noted in Section 2.2, to ensure that their own use cases are adequately covered by this scope and results.

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 Invision Interaction Recording System (I-Record) Version 5.0 to interoperate with Avaya Aura® Communication Manager Release 6.3. Invision I-Record (hereafter refer to as I-Record) captures Avaya 9600 series H323 Deskphones and 1600 Series H.323 Deskphones voice conversation by receiving network traffic from mirroring the ports of these H.323 IP endpoints in Managed Ethernet Switches. In our compliance test, Avaya Managed Ethernet Switch is used for testing.

2. General Test Approach and Test Results

The feature test cases were performed manually. Each call was handled manually at the user with generation of unique audio content for the recordings. Necessary user actions such as hold and reconnect, call park and unpark, transfer and conference were performed from the user telephone to test the various call scenarios.

The serviceability test cases were performed manually by disconnecting and reconnecting the Ethernet cable to the server, disabling and enabling the database.

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly-defined test plan focuses on exercising APIs and/or standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute full product performance or feature testing performed by DevConnect members, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a DevConnect member's solution.

2.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing focused on verifying the following from I-Record:

- Handling, reporting, and playback of call recording for various call scenarios including internal, external, inbound, outbound, drop, hold/reconnect, blind/attended transfer, blind/attended conference, hunt group, park/unpark simultaneous users, simultaneous calls and outbound calls which require authorization codes.

The serviceability testing focused on verifying the ability of I-Record to recover from adverse conditions, such as disconnecting and reconnecting the Ethernet cable and disabling the database.

2.2. Test Results

All test cases were executed and verified. The following were observations on I-Record from the compliance testing.

- Direct IP to IP Audio Connections need to be turned off for IP stations in order to record internal calls as well.
- Disconnecting and reconnecting of Ethernet cable to the server requires to restart the services manually for call recording to work again.

2.3. Support

Technical support on I-Record can be obtained through the following:

- **Phone:** +62-81-1101109
- **Web:** support@invision-ap.com

The configuration used for the compliance testing is shown below. The setup includes a duplex pair of Communication Managers with G430 and G650 Media Gateway; 9600 and 1600 Series H.323 Deskphones and I-Record server is installed with the necessary software with two LAN connections. One of the LAN connections (highlighted) is to receive the monitored network traffic from the Avaya managed switch. Microsoft SQL Server 2008 database is also installed on the same server for testing though it is recommended to be installed on a separate server for traffic purpose. In the compliance testing, I-Record captures call recordings of users from mirroring the switch ports of the H.323 Deskphones.



4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya Aura® Communication Manager S8800 Duplex Server	R6.3.7 Build R016x.03.0.124.0
Avaya G650 Media Gateway <ul style="list-style-type: none">TN2312BP IP Server InterfaceTN799DP C-LAN InterfaceTN2302AP IP Media ProcessorTN2602AP IP Media Processor	HW07, FW058 HW01, FW044 HW20, FW121 HW02, FW066
Avaya G450 Media Gateway	36.7.0
Avaya Ethernet Routing Switch 5520-48T-PWR <ul style="list-style-type: none">HardwareFirmwareSoftware	36 6.0.0.6 v6.2.4.010
Avaya 96x1 Series IP Deskphones (H.323)	6.4014
Avaya 96x0 Series IP Deskphones (H.323)	3.220A
Avaya 16xx Series IP Deskphones (H.323)	1.360A
Microsoft SQL Server running on Windows 7 Professional SP1	2008 R2 SP2
IHCUSYS running on Windows 7 Professional SP1	5.0
IMFCUSYS running on Windows 7 Professional SP1	5.0
Web Server running on Windows 7 Professional SP1	5.0

5. Configure Avaya Aura® Communication Manager

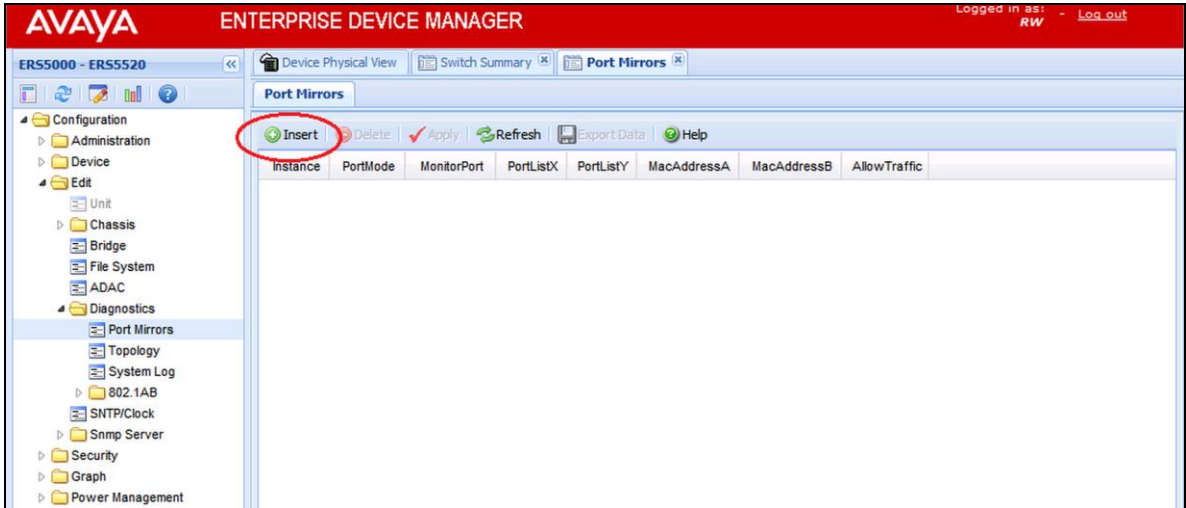
This section covers the station configuration for Avaya one-X® Agent. The configuration is performed via the System Access Terminal (SAT) on Communication Manager.

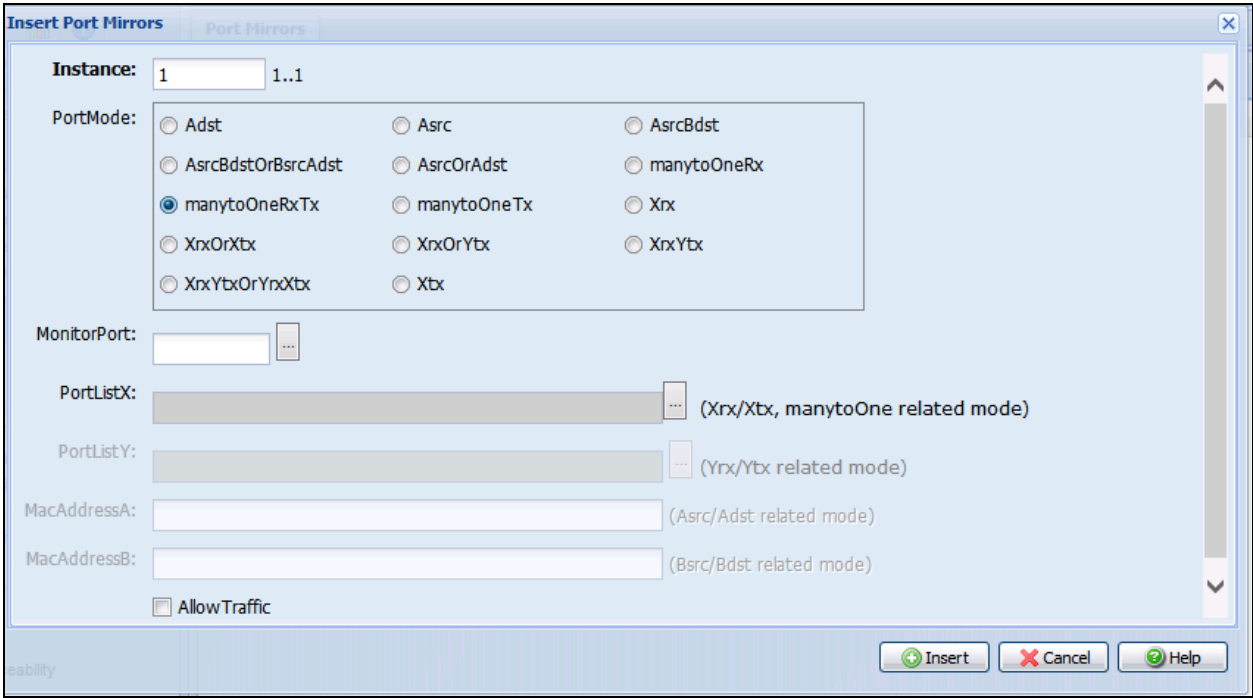
Administration of the IP endpoints is assumed to be in place. Enter **change station 10001** command and go to page 2. Set the **Direct IP-IP Audio Connections** field to **n**. This is to disable shuffling of the IP endpoint so that traffic can be captured for internal calls between stations.

change station 10001		Page 2 of 5
FEATURE OPTIONS		STATION
LWC Reception: spe	Auto Select Any Idle Appearance? n	
LWC Activation? y	Coverage Msg Retrieval? y	
LWC Log External Calls? n	Auto Answer: none	
CDR Privacy? n	Data Restriction? n	
Redirect Notification? y	Idle Appearance Preference? n	
Per Button Ring Control? n	Bridged Idle Line Preference? n	
Bridged Call Alerting? y	Restrict Last Appearance? y	
Active Station Ringing: single	EMU Login Allowed? n	
H.320 Conversion? n	Per Station CPN - Send Calling Number?	
Service Link Mode: as-needed	EC500 State: enabled	
Multimedia Mode: enhanced	Audible Message Waiting? n	
MWI Served User Type: sip-adjunct	Display Client Redirection? n	
	Select Last Used Appearance? n	
	Coverage After Forwarding? s	
	Multimedia Early Answer? n	
Remote Softphone Emergency Calls: as-on-local	Direct IP-IP Audio Connections? n	
Emergency Location Ext: 10001	Always Use? n IP Audio Hairpinning? n	

6. Configure Avaya Ethernet Routing Switch

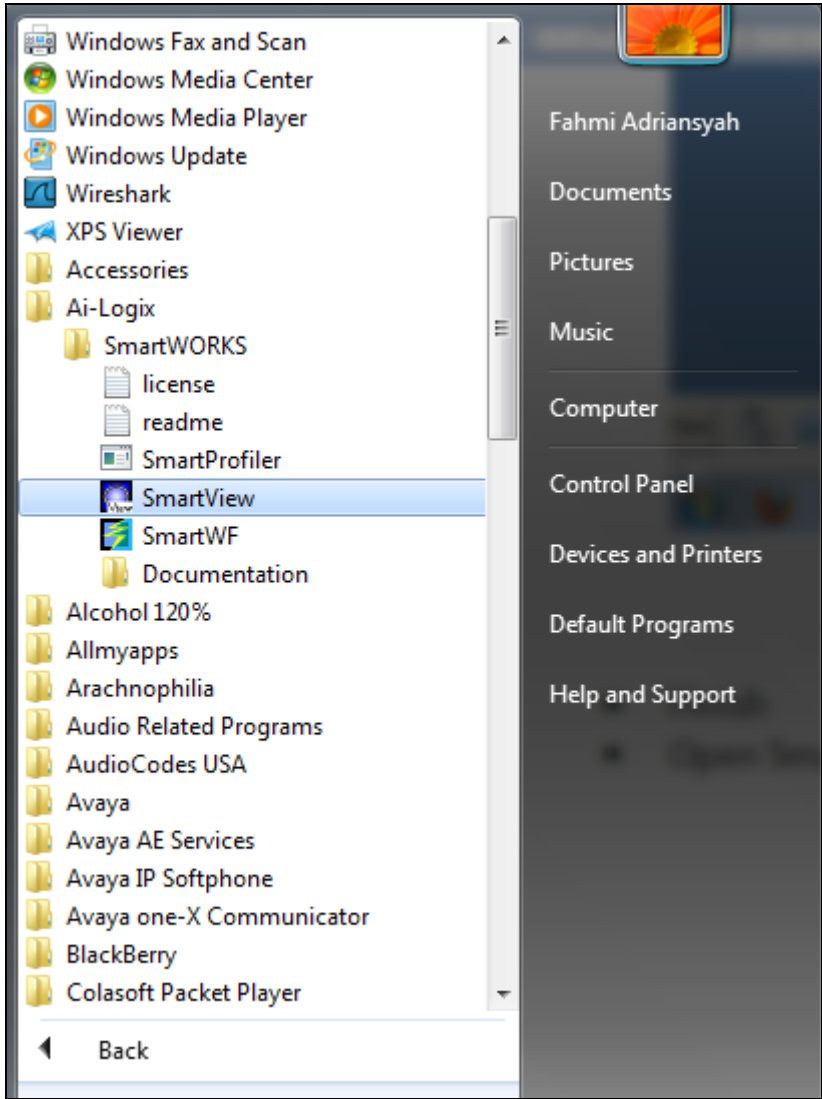
Avaya Managed Switch is use in this Compliance Testing. Managed switches from other brands can be used as long as port mirroring or spanning can be configured. Check the network traffic with trace tool such as Wireshark.

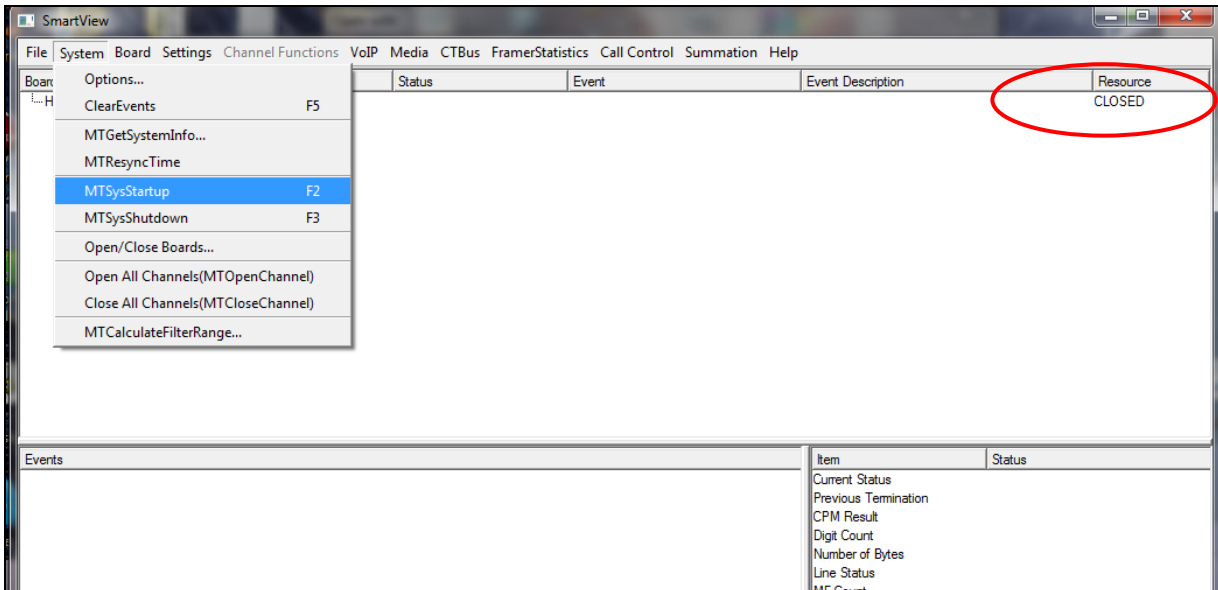
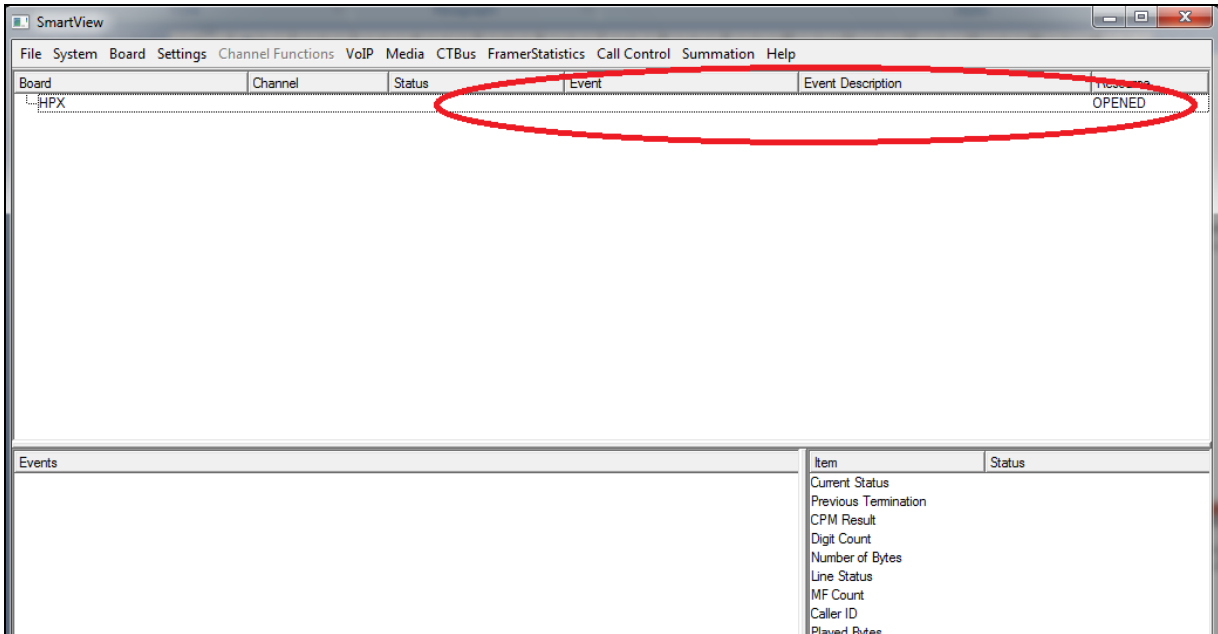
Step	Description
1.	<p>Open a web browser and access the Ethernet switch web interface at <i>http://<IP address>/login.html</i>. Log in with the appropriate credentials.</p> 
2.	<p>From the Home Menu, on the left panel click Configuration → Edit → Diagnostics → Port Mirrors. Click Insert as below.</p> 

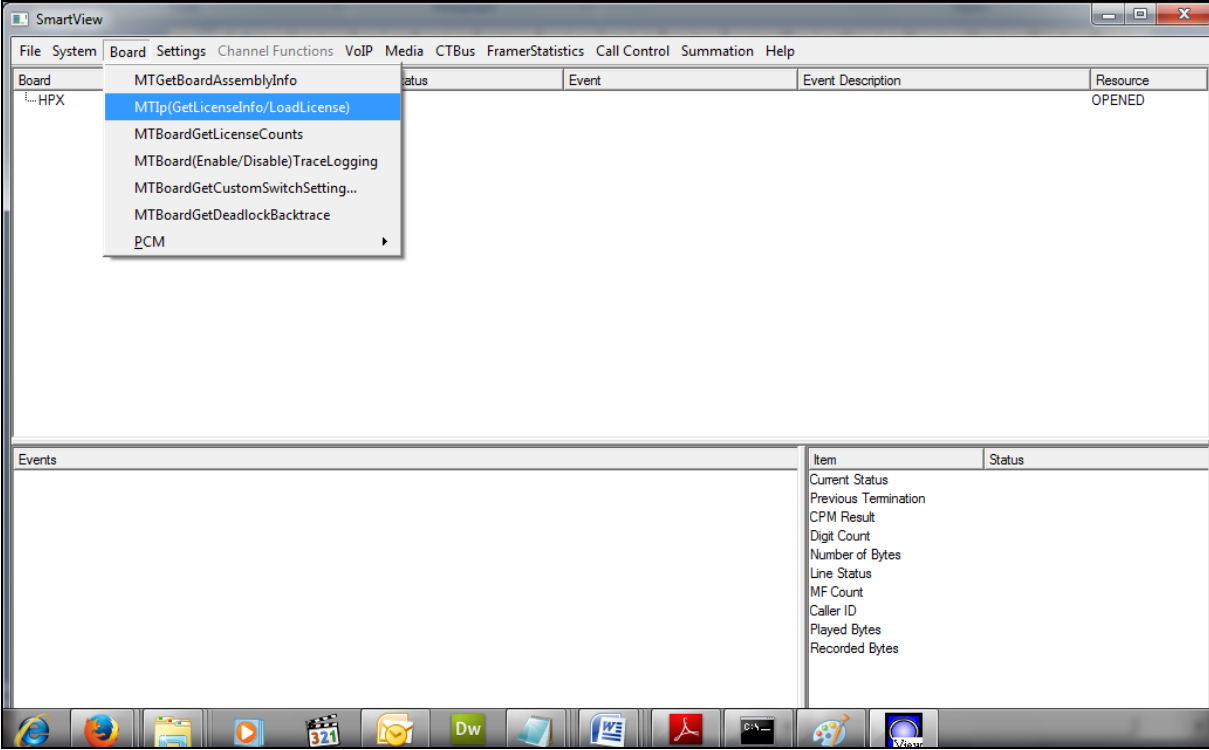
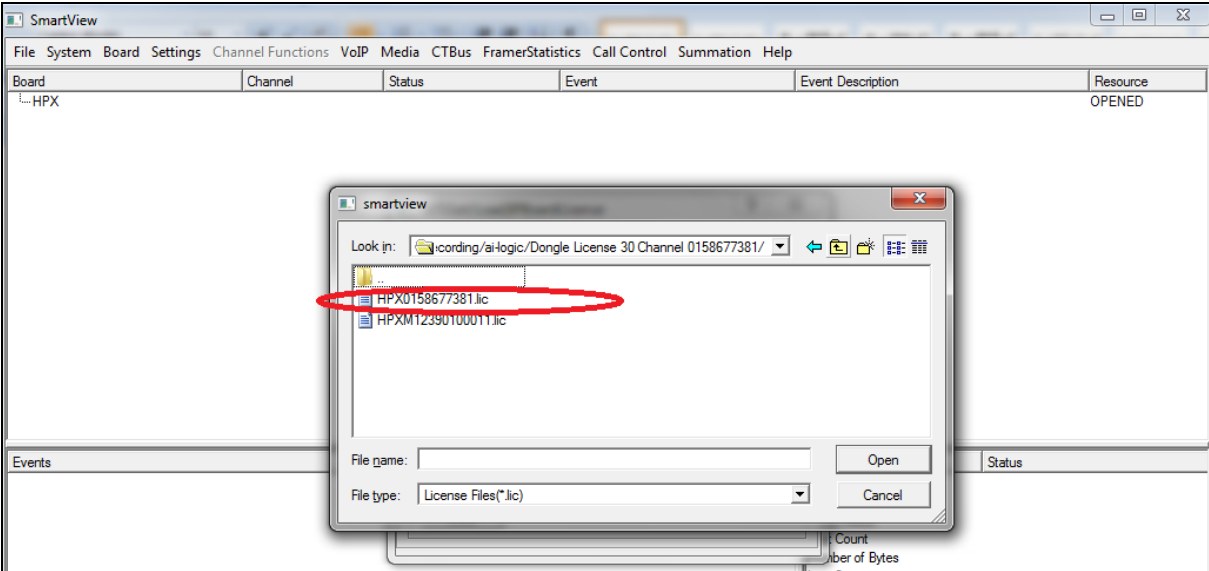
Step	Description
3.	<p>Enter the appropriate parameters below:</p> <ul style="list-style-type: none"> ➤ Instance: Leave the auto-generated instance number as default. ➤ PortMode: <i>manytoOneRxTx</i> (all received and transmit traffic of many ports). ➤ MonitorPort: Selected port connected to the I-Record server where all the mirrored IP Endpoints network traffic is collected. ➤ PortListX: Ports list of all the IP Endpoints ➤ Allow Traffic: Uncheck this as bi-direction monitor port is not required. 

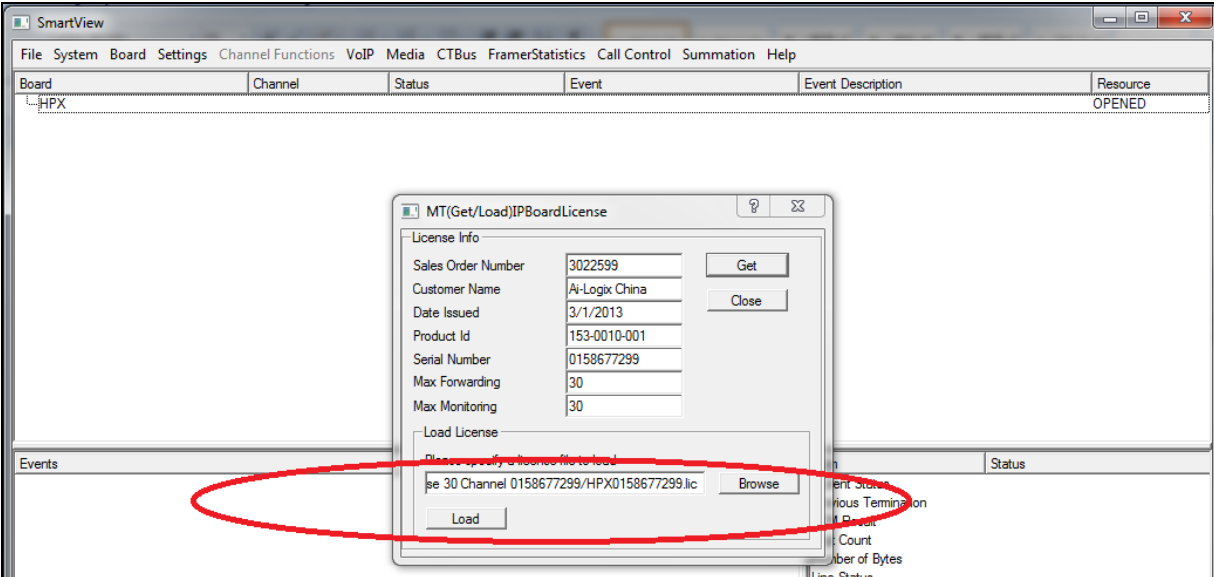
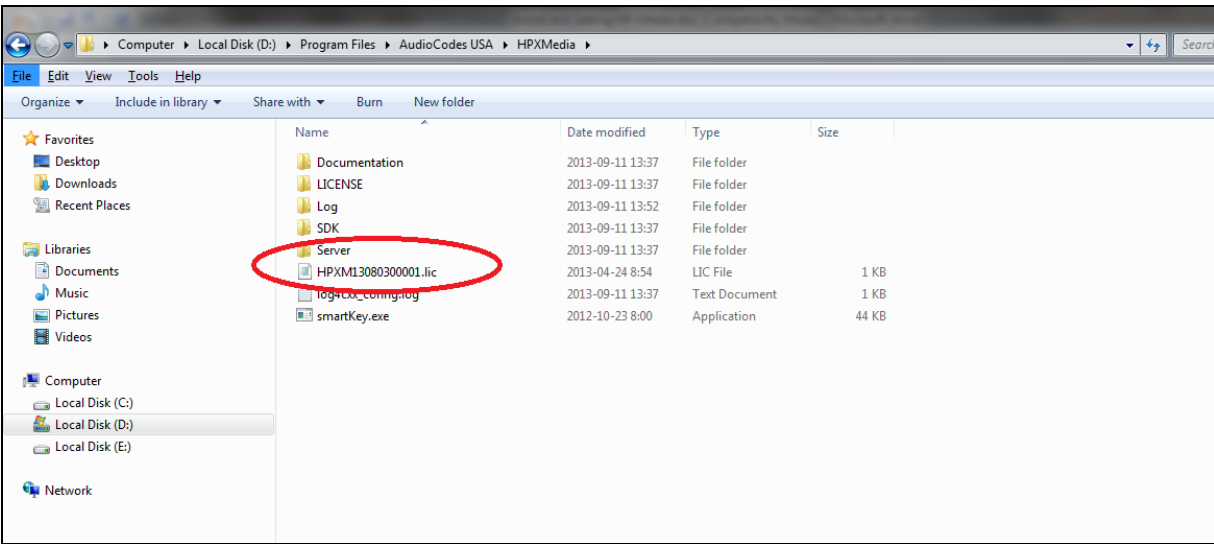
7. Configure I-Record

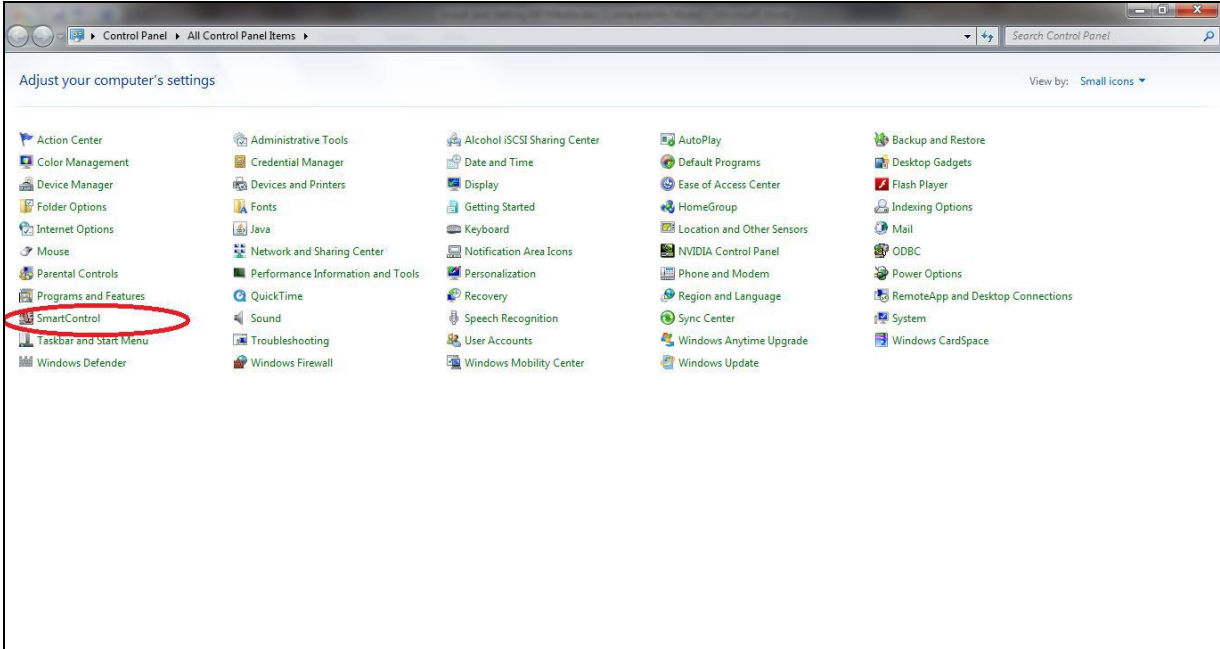
This section provides the procedures for configuring I-Record which include licensing. Installation of the HPXMedia and SmartWORKS software including database will be done by the member technical staff which will not be detailed here.

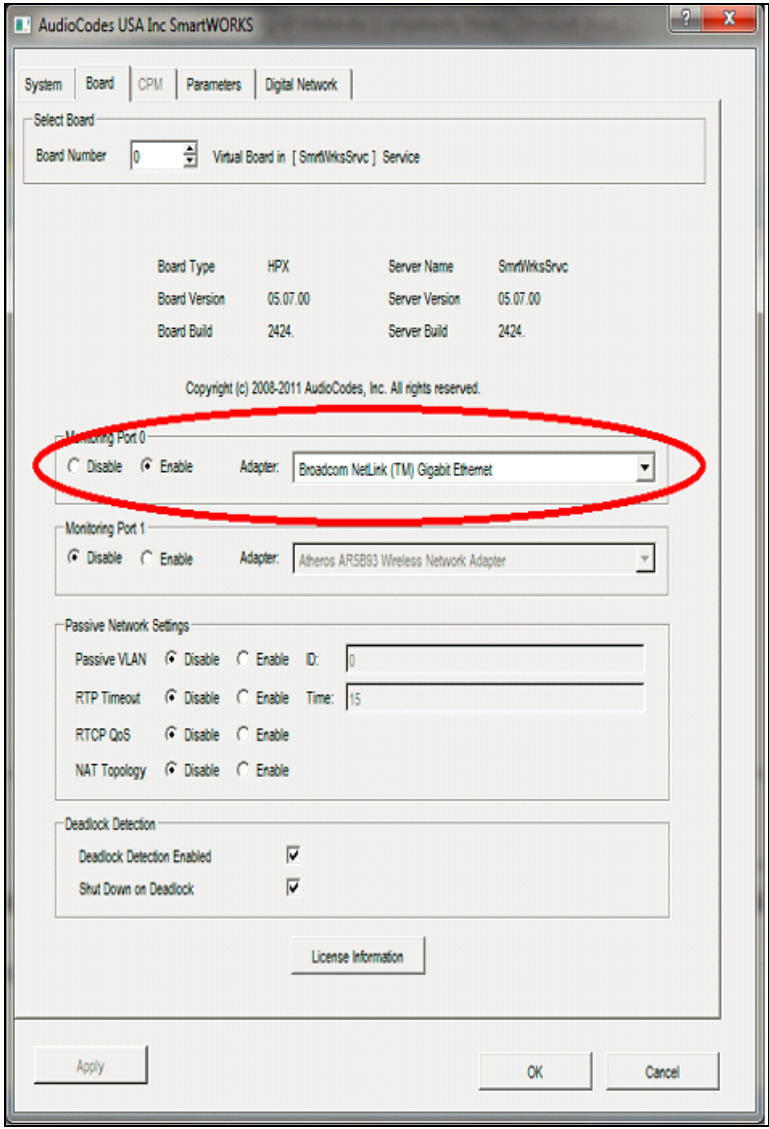
Step	Description
1.	<p>On the Windows server, navigate to Starts Menu → All Programs → Ai-Logix → SmartWORKS → SmartView.</p>  <p>The screenshot shows the Windows Start menu with the 'All Programs' list expanded. The path 'All Programs → Ai-Logix → SmartWORKS → SmartView' is highlighted. The 'SmartView' application is selected. The right side of the Start menu shows the user's profile 'Fahmi Adriansyah' and various system links like 'Documents', 'Pictures', 'Music', 'Computer', 'Control Panel', 'Devices and Printers', 'Default Programs', and 'Help and Support'.</p>

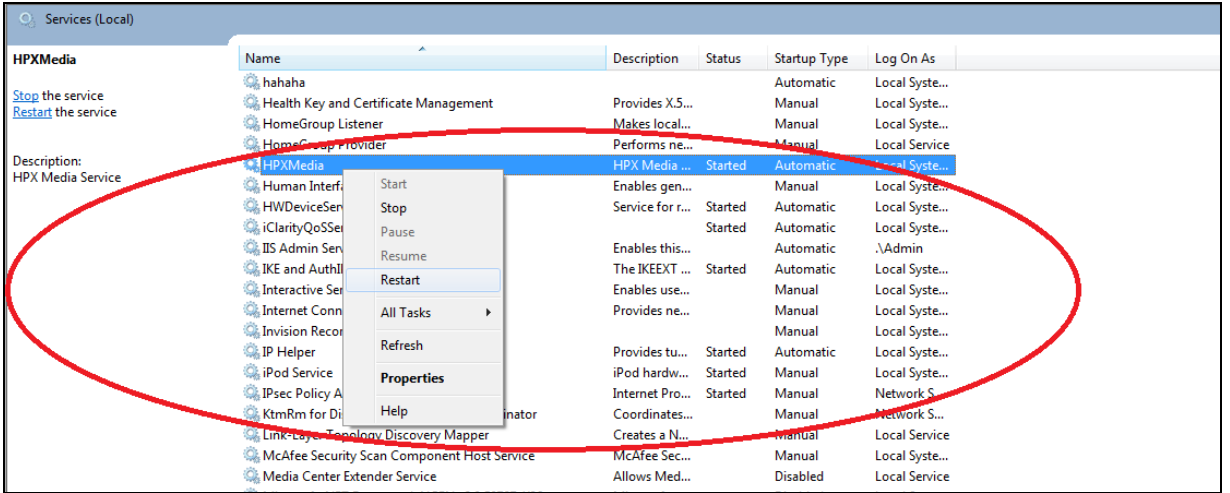
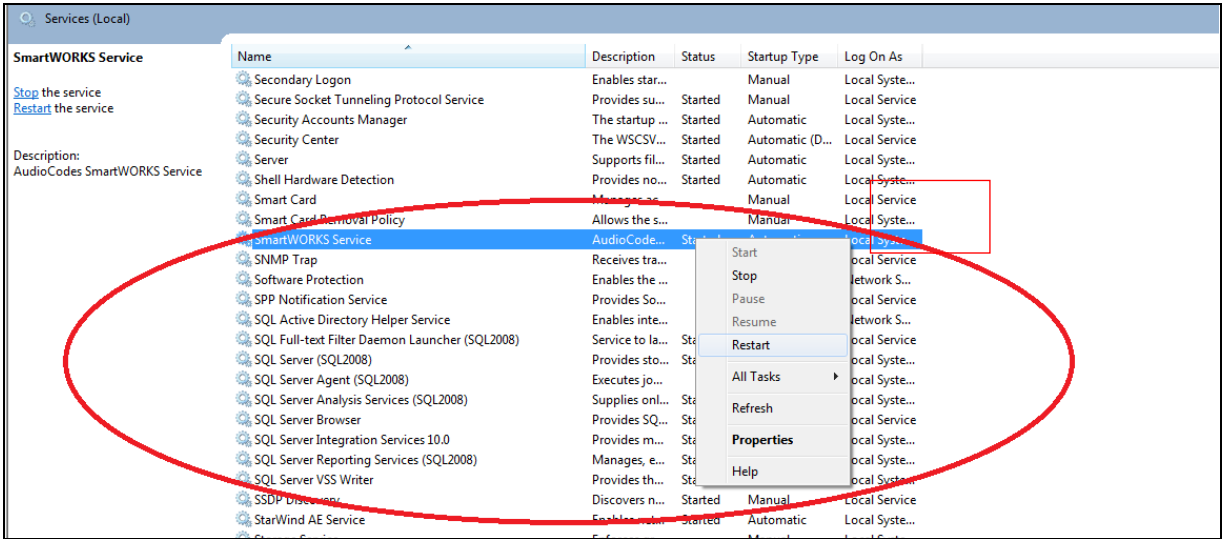
Step	Description
2.	<p>On the Home Menu, if Resource is in CLOSED state, select System → MTSysStartup from the drop down menu and Resource will be OPENED.</p>  <p>The screenshot shows the SmartView application window. The 'System' menu is open, displaying options like 'Options...', 'ClearEvents', 'MTGetSystemInfo...', 'MTResyncTime', 'MTSysStartup' (highlighted), 'MTSysShutdown', 'Open/Close Boards...', 'Open All Channels(MTOpenChannel)', 'Close All Channels(MTCloseChannel)', and 'MTCalculateFilterRange...'. The 'Resource' status is 'CLOSED'.</p>
3.	<p>Now, the resource is OPENED.</p>  <p>The screenshot shows the SmartView application window. The 'Resource' status is now 'OPENED'. The 'System' menu is no longer open.</p>

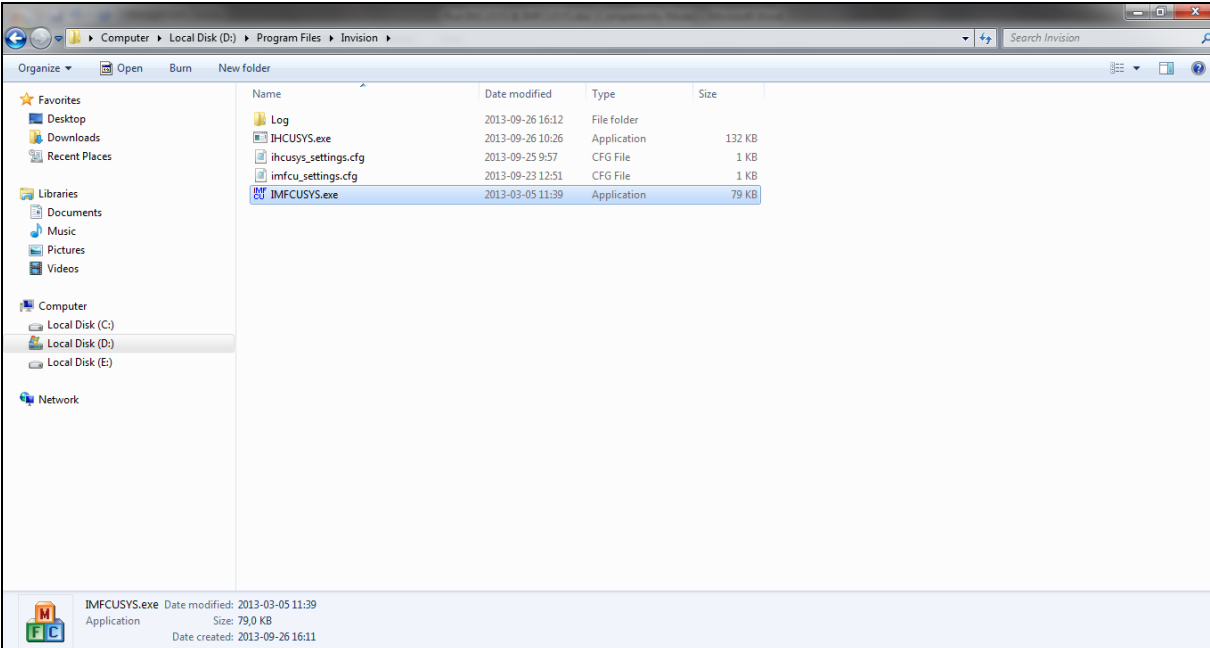
Step	Description
4.	<p>Register the license by navigating to drop down menu Board → MTIp(GetLicenseInfo/LoadLicense).</p>  <p>The screenshot shows the SmartView application window. The 'Board' menu is open, displaying several options. The option 'MTIp(GetLicenseInfo/LoadLicense)' is highlighted in blue. Other visible options include 'MTGetBoardAssemblyInfo', 'MTBoardGetLicenseCounts', 'MTBoard(Enable/Disable)TraceLogging', 'MTBoardGetCustomSwitchSetting...', 'MTBoardGetDeadlockBacktrace', and 'PCM'. The background shows a table with columns for 'Board', 'Channel', 'Status', 'Event', 'Event Description', and 'Resource'. The 'Board' column shows 'HPX' and the 'Resource' column shows 'OPENED'.</p>
5.	<p>Click Browse (not shown) and navigate to where the license file (HPXxxxxxx.lic) is located and click Open.</p>  <p>The screenshot shows the SmartView application window with a file selection dialog box open in the foreground. The dialog box has a 'Look in:' field showing a path. Below it, a list of files is displayed, with 'HPX0158677381.lic' and 'HPXM12390100011.lic' visible. The file 'HPX0158677381.lic' is circled in red. The dialog box also has fields for 'File name:' and 'File type:' (set to 'License Files (*.lic)'), and 'Open' and 'Cancel' buttons. The background shows the same SmartView window as in the previous step.</p>

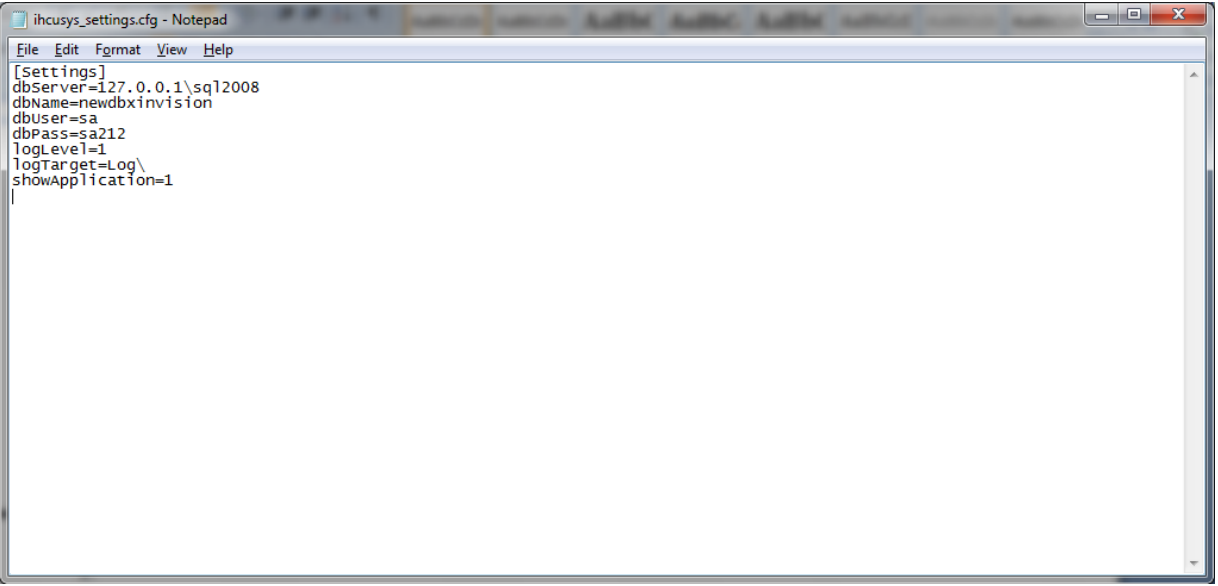
Step	Description
6.	<p>Click Load and verify validity of license and then click Get.</p> 
7.	<p>Copy also the license file of HPXMedia in the name format of HPXMxxxxxxx.lic as shown below into the folder default location at “Program Files\AudioCodes USA\HPXMedia”.</p> 


Step	Description
8.	<p>Go to Control Panel in Windows. Double Click to open SmartControl.</p>  <p>The screenshot shows the Windows Control Panel window titled 'Control Panel - All Control Panel Items'. The address bar shows 'Control Panel' and 'All Control Panel Items'. The main content area is titled 'Adjust your computer's settings' and displays a grid of icons for various system settings. The 'SmartControl' icon is circled in red. The icons are arranged in five columns and several rows. The first column includes Action Center, Color Management, Device Manager, Folder Options, Internet Options, Mouse, Parental Controls, Programs and Features, SmartControl (circled), Taskbar and Start Menu, and Windows Defender. The second column includes Administrative Tools, Credential Manager, Devices and Printers, Fonts, Java, Network and Sharing Center, Performance Information and Tools, QuickTime, Sound, Troubleshooting, and Windows Firewall. The third column includes Alcohol iSCSI Sharing Center, Date and Time, Display, Getting Started, Keyboard, Notification Area Icons, Personalization, Recovery, Speech Recognition, User Accounts, and Windows Mobility Center. The fourth column includes AutoPlay, Default Programs, Ease of Access Center, HomeGroup, Location and Other Sensors, NVIDIA Control Panel, Phone and Modem, Region and Language, Sync Center, Windows Anytime Upgrade, and Windows Update. The fifth column includes Backup and Restore, Desktop Gadgets, Flash Player, Indexing Options, Mail, ODBC, Power Options, RemoteApp and Desktop Connections, System, and Windows CardSpace.</p>

Step	Description
9.	<p>Click on the Board tab, set Monitoring Port 0 to enable and choose the relevant adapter on the server as the port that received the monitoring port network traffic from the managed switch and click OK.</p> 

Step	Description
10.	<p>Run the Services.msc from the Windows Start Menu and check the HPXMedia and SmartWORKS Services are started. Otherwise, start them.</p>  

Step	Description																																
11.	<p>Go to where the Log folder resides for recordings and locate IMFCUSYS.exe and IHCUSYS.exe. Both executables provides the logging of I-Record.</p>  <p>The screenshot shows a Windows Explorer window with the address bar set to 'Computer > Local Disk (D:) > Program Files > Invision'. The left sidebar shows the 'Computer' section with 'Local Disk (D:)' selected. The main pane displays a list of files and folders:</p> <table><tr><th>Name</th><th>Date modified</th><th>Type</th><th>Size</th></tr><tr><td>Log</td><td>2013-09-26 16:12</td><td>File folder</td><td></td></tr><tr><td>IHCUSYS.exe</td><td>2013-09-26 10:26</td><td>Application</td><td>132 KB</td></tr><tr><td>ihcusys_settings.cfg</td><td>2013-09-25 9:57</td><td>CFG File</td><td>1 KB</td></tr><tr><td>imfcu_settings.cfg</td><td>2013-09-23 12:51</td><td>CFG File</td><td>1 KB</td></tr><tr><td>IMFCUSYS.exe</td><td>2013-03-05 11:39</td><td>Application</td><td>79 KB</td></tr></table> <p>The 'IMFCUSYS.exe' file is selected, and its details are shown at the bottom of the window:</p> <table><tr><th>File Name</th><th>Date modified</th><th>Size</th><th>Date created</th></tr><tr><td>IMFCUSYS.exe</td><td>2013-03-05 11:39</td><td>79.0 KB</td><td>2013-09-26 16:11</td></tr></table>	Name	Date modified	Type	Size	Log	2013-09-26 16:12	File folder		IHCUSYS.exe	2013-09-26 10:26	Application	132 KB	ihcusys_settings.cfg	2013-09-25 9:57	CFG File	1 KB	imfcu_settings.cfg	2013-09-23 12:51	CFG File	1 KB	IMFCUSYS.exe	2013-03-05 11:39	Application	79 KB	File Name	Date modified	Size	Date created	IMFCUSYS.exe	2013-03-05 11:39	79.0 KB	2013-09-26 16:11
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imfcu_settings.cfg	2013-09-23 12:51	CFG File	1 KB																														
IMFCUSYS.exe	2013-03-05 11:39	Application	79 KB																														
File Name	Date modified	Size	Date created																														
IMFCUSYS.exe	2013-03-05 11:39	79.0 KB	2013-09-26 16:11																														

Step	Description
12.	<p>Open ihcusys_settings.cfg and verify the setup field with the description of the parameters below.</p> <ul style="list-style-type: none"> ➤ dbServer is Server Name of SQL Server ➤ dbName is database which we was restore before ➤ dbUser is Username to login to SQL Server ➤ dbPass is Password to login to SQL Server ➤ logLevel is Level log (1 is debug, 0 is info) ➤ logTarget is destination of log file ➤ how Application is the show or hide the application (1 is show, 0 is hide)  <pre> [Settings] dbServer=127.0.0.1\sql2008 dbName=newdbxinvasion dbUser=sa dbPass=sa212 logLevel=1 logTarget=Log\ showApplication=1 </pre>

Step	Description
13.	<p>Open imfcu_settings.cfg and verify the setup field with the description of the parameters below and then double click the <i>IHCUSYS.exe</i> and <i>IMFCUSYS.exe</i> executable program located as in STEP 11 to start recordings.</p> <ul style="list-style-type: none"> ➤ dbproduct is database we use ➤ dbServer is Server Name of SQL Server ➤ dblogin is Username to login to SQL Server ➤ dbpassword is Password to login to SQL Server ➤ dbinstance is Server Name of SQL Server ➤ logTarget is destination of log file 

8. Verification Steps

This section provides the tests to verify proper integration between Communication Manager and I-Record. Prior to verification, place an incoming trunk call to any user. Answer the call at the user, and generate unique audio content for the call prior to hanging up.

Access the I-Record Login web-based interface below from the server. The **Login** screen is displayed as shown below. Log in using the appropriate admin credentials.



The screenshot displays the I-Record Login web-based interface. In the top left corner, the logo for 'invision' is shown, with the text 'Interaction Recording System Version 6.0' underneath. On the right side, there are two input fields labeled 'User Name' and 'Password'. Below the 'User Name' field is a checkbox labeled 'Keep me Login'. To the right of the 'Password' field is a 'Login' button with a red arrow icon. The background of the interface features a blue and white geometric pattern. At the bottom center, a small copyright notice reads: '© Invision © 2012 :: Designed for IE, Firefox, Safari, Chrome :: All Rights Reserved ::'.

The screen below is displayed current records of voice capture in the Home Menu. Click on the rows which display the call.

The screenshot shows the Invision Interaction Recording System Version 6.0 interface. The top navigation bar includes links for Home, Channels, Archive, BackUp, Channels, Chart, User Management, Monitor Application, and Time Stamp. The main content area displays a table of voice capture records with columns: ID, Extension, Agent Name, Voice File, Date, Duration, Party, Call Status, Acd Login ID, and Cust Phone Number. The table lists 10 records, with the first record (ID 1769) selected. Below the table, there is a 'Page 1 of 2 (24 items)' indicator and a 'Download Voice File' button. A 'DiskSpace' section on the left shows 'Used Space (GB): 189' and 'Free Space (GB): 216'.

ID	Extension	Agent Name	Voice File	Date	Duration	Party	Call Status	Acd Login ID	Cust Phone Number
1769	10002		0_2014-10-27_12-31-42.wav	10/27/2014 12:31:42 PM	0:00:12	01			
1768	10001		0_2014-10-27_12-30-26.wav	10/27/2014 12:30:26 PM	0:00:13	67746430			
1767	10001		0_2014-10-27_12-26-44.wav	10/27/2014 12:26:44 PM	0:00:44	01			
1766	10001		1_2014-10-27_12-1-22.wav	10/27/2014 12:01:22 PM	0:00:17	96032310002			
1765	10002		0_2014-10-27_12-1-18.wav	10/27/2014 12:01:18 PM	0:00:21	10001			
1764	10002		1_2014-10-27_12-0-19.wav	10/27/2014 12:00:19 PM	0:00:21	10001			
1763	10001		0_2014-10-27_12-0-15.wav	10/27/2014 12:00:15 PM	0:00:25	96032310002			
1762	10001		0_2014-10-27_10-59-40.wav	10/27/2014 10:59:40 AM	0:00:10	10005			
1761	10004		0_2014-10-27_10-57-11.wav	10/27/2014 10:57:11 AM	0:00:18	10005			

The following display the recorded conversation and can be played back. Verify the conversation, time and length of recordings is correct and accurate.

The screenshot shows the Mozilla Firefox browser displaying the voice file player interface. The address bar shows the URL: localhost/WebBTPNSRecording/player.aspx?id=1769&ds=. The page title is 'Download Voice File'. The main content area displays a waveform and the text 'Playing '0_2014-10-27_12-31-42': 13 K bits/second 00:02'. Below the waveform is a playback control bar with buttons for play, stop, previous, next, and volume. A 'Remark' section with a text input field and a 'Save' button is also visible.

9. Conclusion

These Application Notes describe the configuration steps required for I-Record to successfully interoperate with Avaya Aura® Communication Manager. All feature and serviceability test cases were completed with observations noted in **Section 2.2**.

10. Additional References

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

The following Avaya product documentation can be found at <http://support.avaya.com>.

- [1] *Administering Avaya Aura™ Communication Manager*, Release 6.3, Issue 10.0, June 2014, Document Number 03-300509.
- [2] *Configuration — System Monitoring Avaya Ethernet Routing Switch 5000 Series*, Release 6.2, December 2010, Document Number NN47200-505 06.03.

Product documentation can be obtained from Invision.

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