



Avaya Solution & Interoperability Test Lab

Application Notes for configuring inContact Call Recording with Avaya IP Office Server Edition and IP Office 500 V2 expansion R9.1 - Issue 1.0

Abstract

These Application Notes describe the configuration steps for configuring inContact Call Recording with Avaya IP Office Server Edition R9.1. inContact Call Recording integrates with Avaya IP Office using both the IP Office DevLink and port mirroring to record VoIP calls.

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 for configuring inContact Call Recording from inContact with Avaya IP Office Server Edition and IP Office 500 V2 expansion R9.1. inContact Call Recording integrates with Avaya IP Office using the IP Office DevLink interface and port mirroring of the Real-time Transport Protocol (RTP) to record VoIP calls. The inContact Call Recording solution is fully integrated into a LAN (Local Area Network) and includes easy-to-use web based applications to retrieve telephone conversations from a comprehensive long-term calls database.

inContact Call Recording is just one part of inContact's Call suite designed to improve the contact center's operational performance. Call recording provides the flexibility, efficiency and strength to handle all recording needs in terms of audio and screen/desktop capture. inContact Call Recording interface allows for simple configurations and flexibility to make changes within the product. The Hybrid recording compatibility with various telephony platforms allows for a seamless integration with the Avaya solution

The DevLink interface is used to start and stop the call recording based upon the telephony event it receives from IP Office. IP Office DevLink is part of the IP Office CTI Link Software Development Kit (SDK).

Note: Due to the nature of the call recording only conversations on IP telephones can be recorded. Therefore all the endpoints listed in **Section 4** will be IP in nature.

Note: The recording of SIP phones is currently not supported.

2. General Test Approach and Test Results

This section describes the compliance testing used to verify interoperability of inContact Call Recording with IP Office and covers the general test approach and the test results. inContact Call Recording records telephone calls using passive station-side VoIP recording with the DevLink connection to IP Office to record both internal and external calls on various IP Office endpoints, listed in **Section 4**.

Passive Station-Side VoIP Recording uses port mirroring to record the RTP from each telephone set. All telephones that are to be recorded are plugged into the Avaya 4548GT-PWR layer 3 switch where all of these particular ports are mirrored to one port where the inContact Call Recording sever is plugged into. All of the RTP information from all of these phone sets will be delivered to the sniffer port on the inContact Call Recording server. An additional Network Interface Card (NIC) is therefore required on the inContact Call Recording Sever. This NIC is not configured to access the IP stack; it will have no IP configuration. This NIC connects into the mirrored port network that allows access to the phone network connection. This is effectively a hub environment. The promiscuous port needs to be on the same physical media path as any telephone endpoint that it is going to record.

Calls were made to and from IP extensions registered to both the IP Office Server Edition (SE) and the IP Office 500 V2 over simulated ISDN and SIP trunks; for compliance both of these links were directed to Avaya Aura® Communication Manager. A number of H323 extensions (listed in **Section 4**) were registered to the IP Office Server Edition and others to the IP Office 500 V2. The ISDN link connected to the IP Office 500 V2 and the SIP trunks were registered to the IP Office Server Edition, allowing for a matrix of calls across both PBX's. Using the DevLink interface on the IP Office Server Edition and the IP Office 500 V2, inContact Call Recording were able to compile a list of call records and using the web based GUI calls were played back using a PC with a sound card and speakers.

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 testing evaluates the ability of inContact Call Recording to record telephone calls using passive station-side VoIP recording using the DevLink interface on IP Office. The types of calls include the following.

- **Inbound/Outbound calls to IP Office SE** – Test call recording for inbound calls to IP Office SE from PSTN callers using both ISDN and SIP trunks.
- **Inbound/Outbound calls to IP Office 500 V2** – Test call recording for outbound calls from IP Office to PSTN callers using both ISDN and SIP trunks.
- **Hold/Transferred calls between IP Office SE and 500V2** – Test call recording for calls transferred to PSTN callers using both ISDN and SIP trunks.
- **Conference calls between IP Office SE and 500V2** – Test call recording for calls in conference between the IP Office and PSTN callers using both ISDN and SIP trunks.
- **Forwarded calls between IP Office SE and 500V2** – Test call recording for calls made to telephones that are forwarded to the PSTN using both ISDN and SIP trunks.
- **Feature calls** – Calls such a Call Park, Call Pickup, Bridged Appearance calls and Hunt Group calls.
- **Serviceability testing** - Observe the behaviour of inContact Call Recording in the event of a LAN failure to the IP Office SE & 500 V2 and the IP Office endpoints along with the LAN failure to the inContact Call Recording server.

2.2 Test Results

All functionality and serviceability test cases were completed successfully with the following issues/observations noted.

1. The outbound call using the bridged appearance button is not recorded.
2. The recording of SIP phones is not supported either the hard phones or the Avaya Communicator for Windows softphone.

2.3 Support

Technical support can be obtained for inContact Call Recording from the website <http://www.uptivity.com/contact> or from the following.

Telephone

Support: 888-922-5526, option 2
Direct/International: 614-340-3346

Email

support@uptivity.com

3. Reference Configuration

The configuration in **Figure 1** is used to compliance test inContact Call Recording with Avaya IP Office 500 V2. The connection between inContact Call Recording and the IP Office solution uses IP Office Devlink interface to allow the inContact Call Recording record calls using Station-Side VoIP passive recording. Port mirroring on the Avaya 4548GT-PWR is used to facilitate the passive VoIP recording.

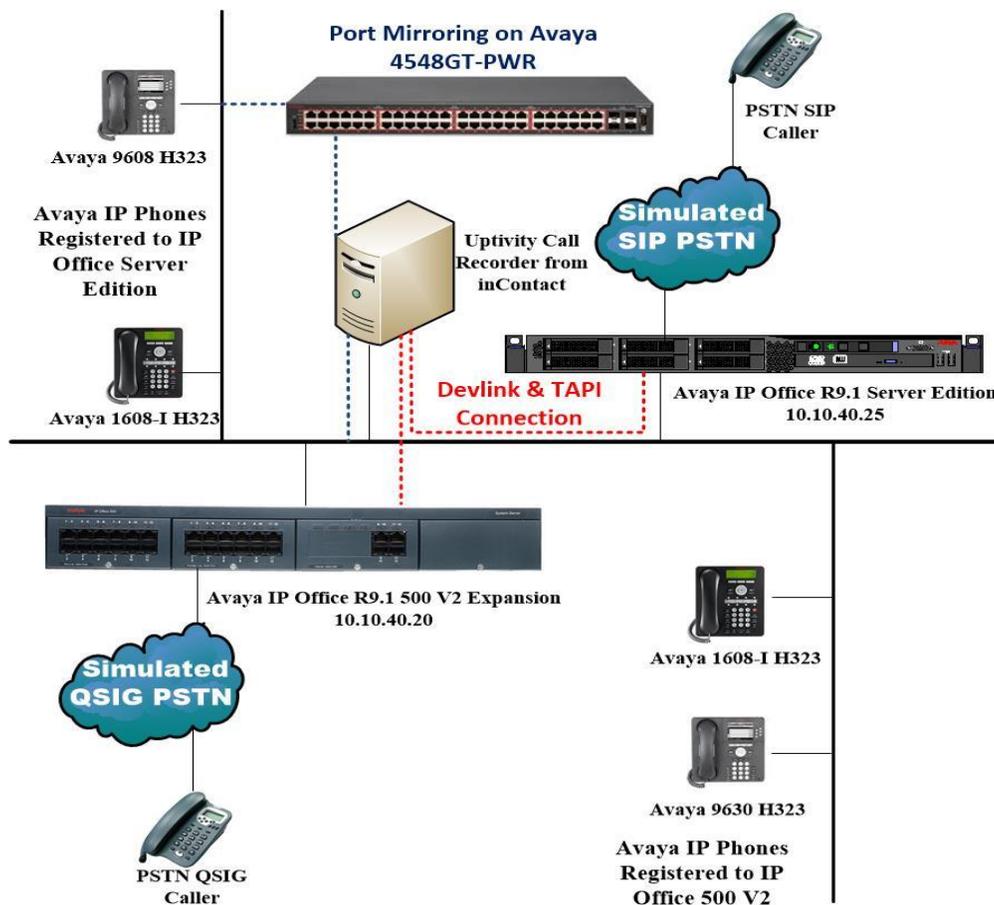


Figure 1: Connection of inContact Call Recording from inContact with Avaya IP Office 500 V2

4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya IP Office Server Edition running on a Virtual Platform	R9.1.6.0 Build 153
Avaya IP Office 500 V2 expansion cabinet	R9.1.6.0 Build 153
Avaya IP Office Manager running on a Windows 7 PC	R9.1.6.0 Build 153
Avaya 1608 I H323 Deskphone	R1608UA1_350B.bin
Avaya 9630 H323 Deskphone	S3.220A
Avaya 9608 H323 Deskphone	R6.6.028
inContact Call Recording running on a an IBM X3350 Server	Windows 2012 Server R2 R16.2

Compliance Testing is applicable when the tested solution is deployed with a standalone IP Office 500 V2 and also when deployed with IP Office Server Edition in all configurations.

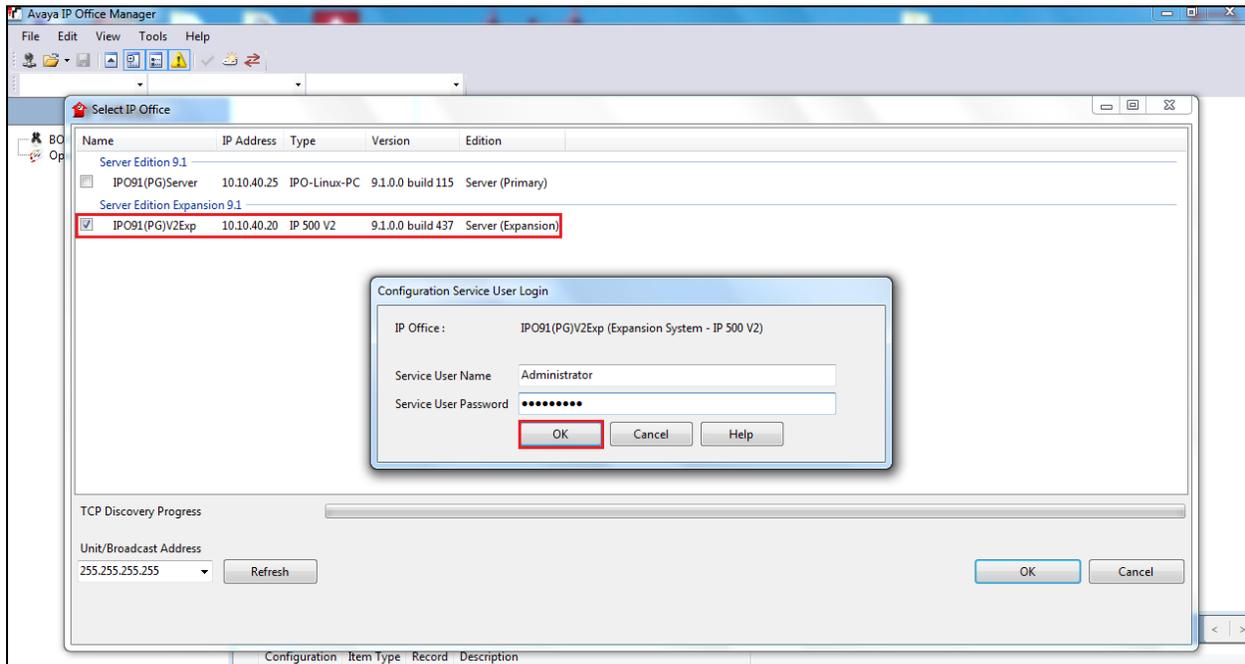
5. Configuration of Avaya IP Office

Configuration and verification operations on IP Office illustrated in this section were all performed using Avaya IP Office Manager. The information provided in this section describes the configuration of the IP Office for this solution. It is implied that a working system is already in place with a PRI fully configured. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 9**. The configuration operations described in this section can be summarized as follows:

- Launch Avaya IP Office Manager.
- Check for CTI Pro Licenses.

5.1 Launch Avaya IP Office Manager

From the Avaya IP Office Manager PC, go to **Start** → **Programs** → **IP Office** → **Manager** to launch the Manager application (not shown). Tick the required server to log in to, this will be the IP Office 500 V2 then log in using the appropriate credentials to receive the configuration.



5.2 Check for CTI Pro Licenses

Click on **License** in the left window and ensure that the **License** tab is selected in the main window. All the licenses should be displayed as shown below.

The screenshot shows the Avaya configuration interface. On the left, a tree view shows various configuration categories, with 'License (33)' highlighted. The main window is titled 'License' and has two tabs: 'License' (selected) and 'Remote Server'. Below the tabs, there are fields for 'License Mode' (License Normal), 'Licensed Version' (9.1), 'Serial Number (ADD)' (1327297258), 'PLDS Host ID' (111327297258), and 'PLDS File Status' (Not Present / Invalid). Below these fields is a table of licenses:

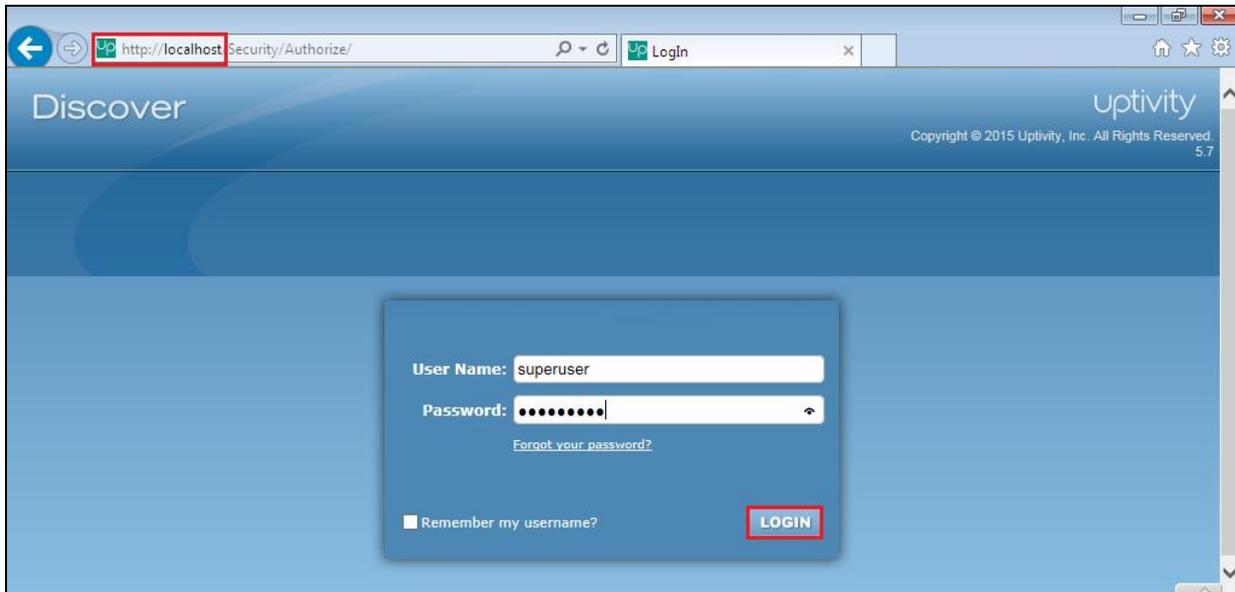
Feature	License Key	Instances	Status	Expiry Date
Avaya IP endpoints	U4u9VvmXds22dorkDubByqr53LFXPF5	255	Valid	Never
Essential Edition Additional Voice...	It1N9PhLvjj04b3C5Qxwx4VphdcOeVe	255	Obsolete	Never
Teleworker	nXD69yBrts_cUDh1wUewL2cksc_OVfle	255	Obsolete	Never
Mobile Worker	IAHz1WB_ASh0Z7FCCle@H4dMwL2NRZW	255	Obsolete	Never
Power User	IvBhsPheAdic57nW5Mu9_q8rO3sEDuuc	255	Valid	Never
Advanced Edition	DXBhsy9cXUINSs45Buer6tZ9MGZzOWb9	255	Obsolete	Never
Office Worker	IXHD9AdxXvFxFI2uJqcb114OV39OKMsx	255	Valid	Never
Essential Edition	AX@wchBCvd3Nb@axHuiG_Abdpwb9IuMB	255	Obsolete	Never
Office Worker Upgrade	4y@M9@vJtdsNqL29YYx1gk_9p6ZpKf@9	255	Valid	Never
VMPro TTS Professional	hha9cvhcvGbe7FuQIc3HBRVvwbUw7Q	255	Obsolete	Never
R8+ Preferred Edition (VM Pro)	GhKY5AacXiiC73ufCxtakV5aZpVR0B	255	Obsolete	Never
CTI Link Pro	OX0c55hxAUdKjdWMPcxsHvFrE39FDMrQ	255	Valid	Never
1600 Series Phones	dTBoV75MvUF2nD_6wWuxweRrNw_IeFz	255	Obsolete	Never
Avaya SIP Softphone	Virtual Avaya Legacy Softphone	254	Valid	Never
Avaya IP endpoints	Virtual Avaya IP Endpoints Local	12	Valid	Never
Server Edition for Russia R9.1	Virtual Server Edition for Russia R9.1	1	Valid	Never

A closer look at this **CTI Link Pro** license shows that there are 255 CTI Link Pro License available and so in theory **255** simultaneous call recordings could be achieved.

Feature	License Key	Instances	Status	Expiry Date
Avaya IP endpoints	U4u9VvmXds22dorkDubByqr53LFXPF5	255	Valid	Never
Essential Edition Additional Voice...	It1N9PhLvjj04b3C5Qxwx4VphdcOeVe	255	Obsolete	Never
Teleworker	nXD69yBrts_cUDh1wUewL2cksc_OVfle	255	Obsolete	Never
Mobile Worker	IAHz1WB_ASh0Z7FCCle@H4dMwL2NRZW	255	Obsolete	Never
Power User	IvBhsPheAdic57nW5Mu9_q8rO3sEDuuc	255	Valid	Never
Advanced Edition	DXBhsy9cXUINSs45Buer6tZ9MGZzOWb9	255	Obsolete	Never
Office Worker	IXHD9AdxXvFxFI2uJqcb114OV39OKMsx	255	Valid	Never
Essential Edition	AX@wchBCvd3Nb@axHuiG_Abdpwb9IuMB	255	Obsolete	Never
Office Worker Upgrade	4y@M9@vJtdsNqL29YYx1gk_9p6ZpKf@9	255	Valid	Never
VMPro TTS Professional	hha9cvhcvGbe7FuQIc3HBRVvwbUw7Q	255	Obsolete	Never
R8+ Preferred Edition (VM Pro)	GhKY5AacXiiC73ufCxtakV5aZpVR0B	255	Obsolete	Never
CTI Link Pro	OX0c55hxAUdKjdWMPcxsHvFrE39FDMrQ	255	Valid	Never
1600 Series Phones	dTBoV75MvUF2nD_6wWuxweRrNw_IeFz	255	Obsolete	Never
Avaya SIP Softphone	Virtual Avaya Legacy Softphone	254	Valid	Never
Avaya IP endpoints	Virtual Avaya IP Endpoints Local	12	Valid	Never
Server Edition for Russia R9.1	Virtual Server Edition for Russia R9.1	1	Valid	Never

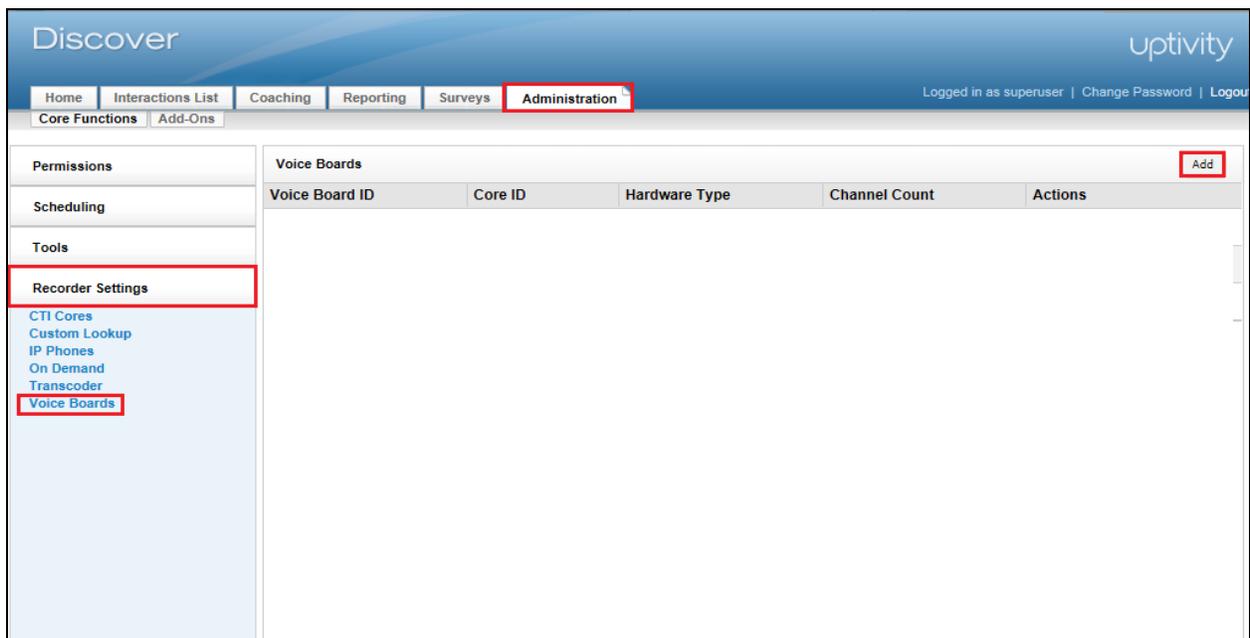
6. Configure inContact Call Recording

Either from the inContact Call Recording server or from another PC open a web session to the inContact Call Recording server's IP address, enter the proper credentials and click on **LOGIN**.

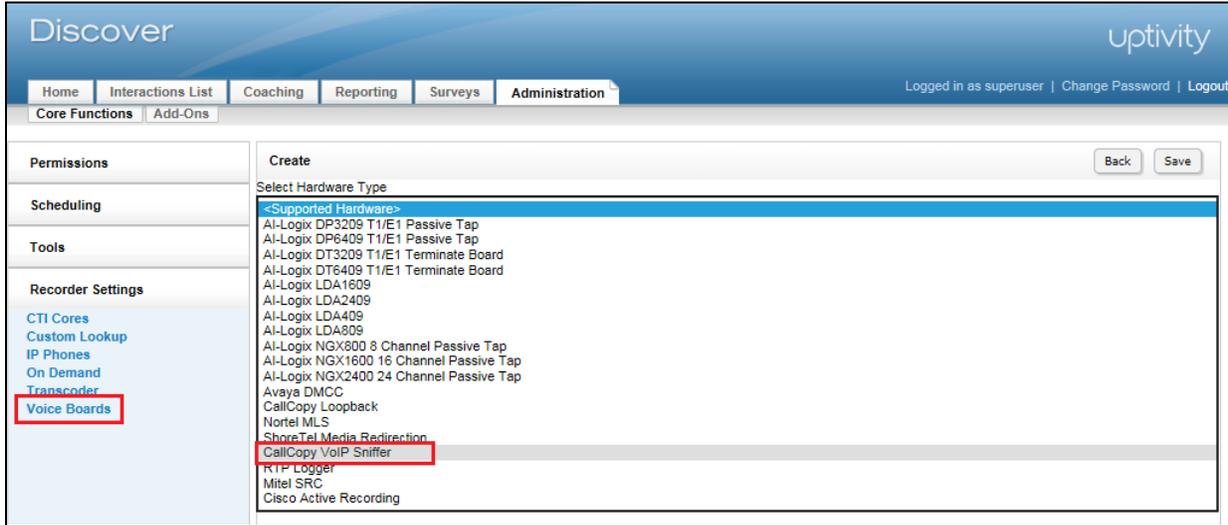


6.1 Create Voice Board

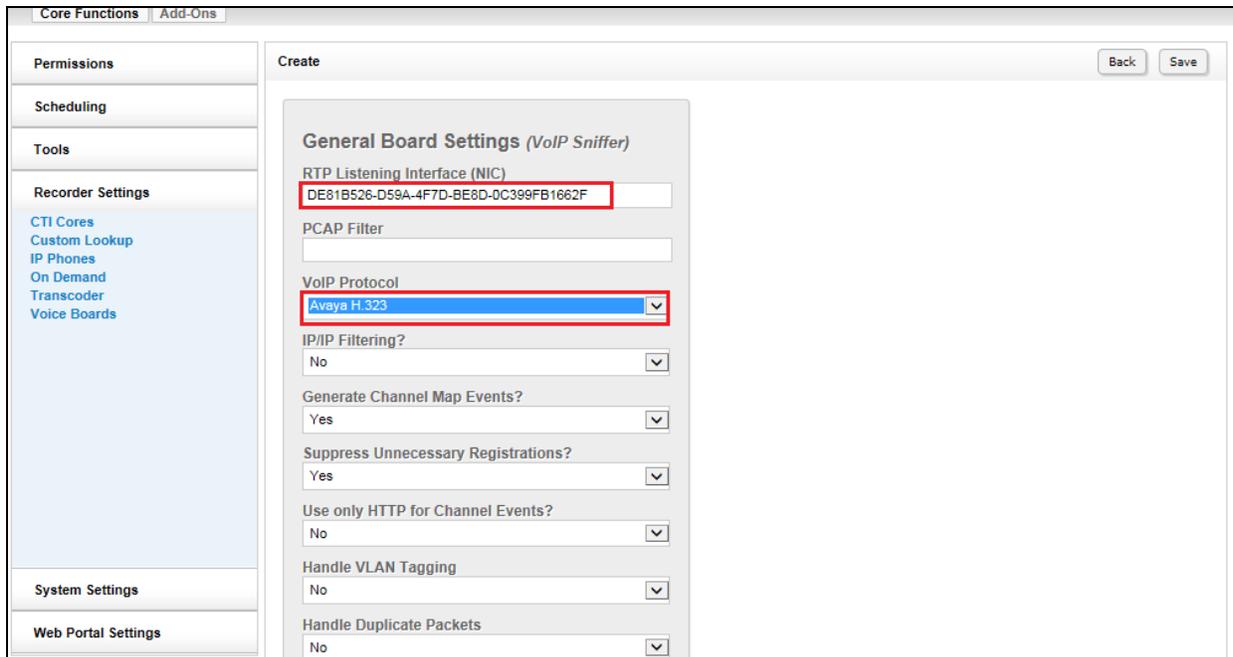
Click on the **Administration** tab and select **Recorder Settings** → **Voice Boards** in the left window, click on **Add** at the top right of the main window.



Select **CallCopy VoIP Sniffer** as the **Hardware Type**.



Enter the **Listening Interface** information for the NIC associated with capturing the RTP from the data switch. The Avaya data switch was setup to mirror a number of ports connected to the VoIP phones to one port connected to the Network Interface Card (NIC) on the inContact Call Recording server. Select **Avaya H.323** as the **VoIP Protocol**. All other values can be left as default, scroll down to the end.



Scroll down to **PBX Addresses** and enter the IP Address of the IP Office and click on **Add**. Repeat this procedure for the IP Office Server Edition, which is **10.10.40.25** below and for the IP Office 500 V2, which is **10.10.40.20**. Enter the **Number of Channels to Add**, this will determine the number of simultaneous calls that can be recorded and this will also depend on the licenses available on IP Office. For compliance testing **6** was chosen and **Record Anything** was chosen for all 6 channels which recorded all calls on those channels.

The screenshot displays the configuration interface for IP Office. It is divided into several sections:

- PBX Addresses:** A section with an "Add" button. Below it, two IP addresses are listed: "10.10.40.20" and "10.10.40.25", each with a "Remove" button.
- UNC Paths:** A section with an "Add" button and two radio buttons labeled "Local" and "Remote".
- Channels:** A section with a "Number of Channels to Add:" field containing the value "6" and an "Add" button.
- Channel Configuration Table:** A table with columns for Channel ID, Assign, Assign Val, and Name. It contains five rows, each with a "Delete" button. The "Assign" column for all rows is set to "Record Anything".

Channel ID	Assign	Assign Val	Name	
-1	Record Anything			Delete
-2	Record Anything			Delete
-3	Record Anything			Delete
-4	Record Anything			Delete
-5	Record Anything			Delete

Scroll back up to the top again and click on **Save**, as highlighted below.

The screenshot shows a web interface for creating a board. On the left is a navigation menu with categories: Permissions, Scheduling, Tools, and Recorder Settings. Under Recorder Settings, there are links for CTI Cores, Custom Lookup, IP Phones, On Demand, Transcoder, and Voice Boards. The main content area is titled 'Create' and contains 'General Board Settings (VoIP Sniffer)'. The settings include: RTP Listening Interface (NIC) with a text input containing 'DE81B526-D59A-4F7D-BE8D-0C399FB1662F'; PCAP Filter with an empty text input; VoIP Protocol set to 'Avaya H.323'; IP/IP Filtering? set to 'No'; Generate Channel Map Events? set to 'Yes'; Suppress Unnecessary Registrations? set to 'Yes'; and Use only HTTP for Channel Events? set to 'No'. At the top right of the 'Create' section, there are 'Back' and 'Save' buttons, with the 'Save' button highlighted by a red box.

6.2 Create Schedule

Still under the **Administration** tab and select **Scheduling** → **Create Schedule** in the left window, click on **Create a Custom Schedule (Advanced)** in the main window.

The screenshot shows the 'Discover' page with the 'Administration' tab selected. The navigation menu on the left includes 'Permissions', 'Scheduling', and 'Create Schedule'. The 'Scheduling' menu item is highlighted with a red box. The main content area is titled 'Schedule Wizard' and lists three options: 1. Record All Calls For An Agent During A Time Range; 2. Create A Custom Schedule (Advanced); 3. Record The Next N Calls For An Agent. The second option, 'Create A Custom Schedule (Advanced)', is highlighted with a red box.

Enter a suitable name for the schedule and for compliance testing the following were set,

- **Type** Set to **Percentage**
- **Target Percent** Set to **100**
- **Direction** Set to **both**
- **Schedule Requirements** **Voice Port Not Equal To 0**

The other values can be left as default and click on **Save Schedule** to save this.

The screenshot shows the 'New Schedule' configuration page. The left sidebar contains navigation options: 'Permissions', 'Scheduling' (with sub-options 'Create Schedule', 'Timed Schedules', 'Find Schedule'), 'Tools', 'Recorder Settings', 'System Settings', and 'Web Portal Settings'. The main configuration area includes the following fields:

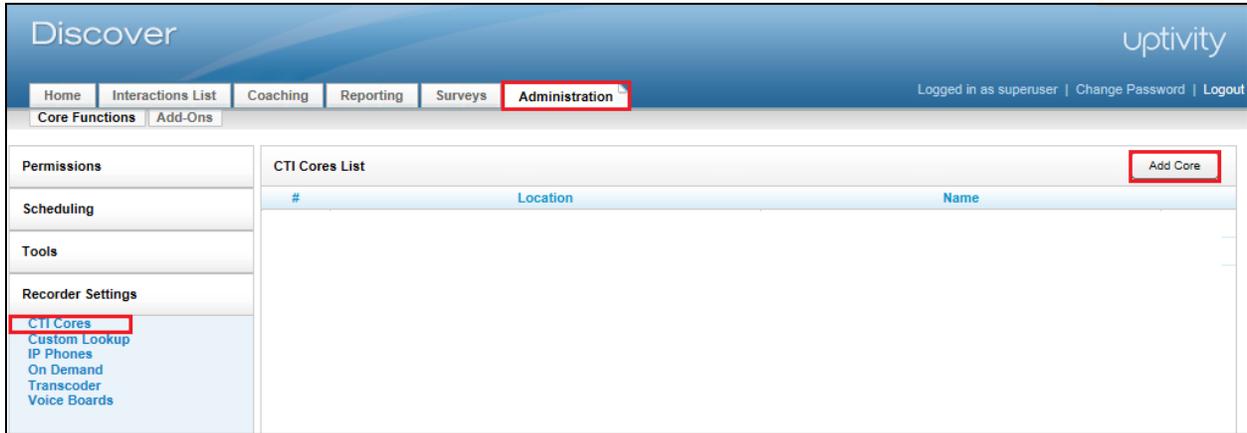
- Name: Avaya
- Description: [Empty]
- Owner: CallCopy Admin
- Never Expire:
- Type: Percentage (highlighted)
- Target Percent: 100 (highlighted)
- Random Probability: [Empty]
- Direction: both (highlighted)
- Priority: 50
- Min Record Length (Sec): 5
- Max Record Length (Sec): 6000
- Screen capture wrap length (Sec): 0
- Stop screen capture wrap on call start: No
- Max Record Silence(Sec): 600
- Retention Days: 365
- Archive Action: Purge
- Audio Capture: Yes
- Speech Analytics: Yes
- Disk Location: C:\Recordings
- Screen Capture: No
- Comparison: AND
- Blackout Remote Audio:

The 'Schedule Requirements' section contains a table with the following data:

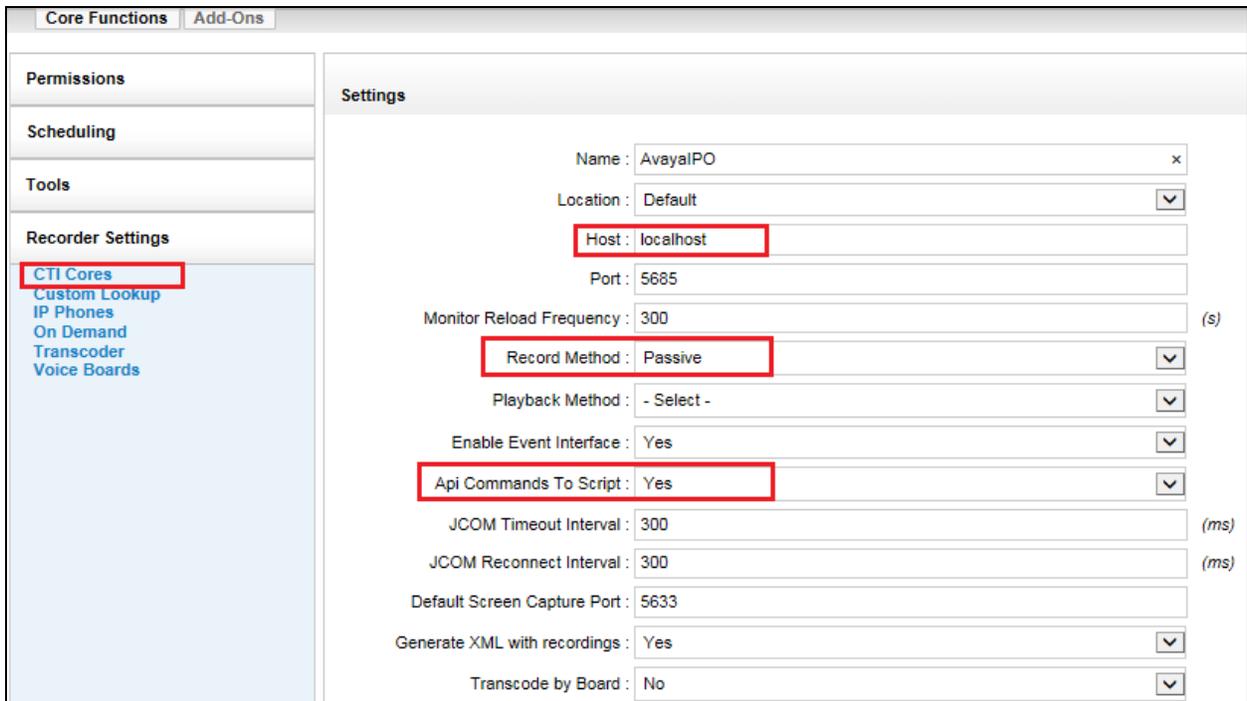
	Value Type	Comparison	Value	Case Sensitive
1	Voice Port	Not Equal To	0	<input type="checkbox"/>
2				<input type="checkbox"/>

6.3 Create Core

Still under the **Administration** tab and select **Recorder Settings** → **CTI Cores** in the left window, click on **Add Core** at the top right of the main window.



Enter a suitable **Name** and the **Host** must be set to that of the inContact Call Recording server, in the case below this was the **localhost**. The **Record Method** should be set to **Passive** and the **Api Commands To Script** should be set to **Yes**. All other fields can be left as default. Scroll down to the bottom of the page.

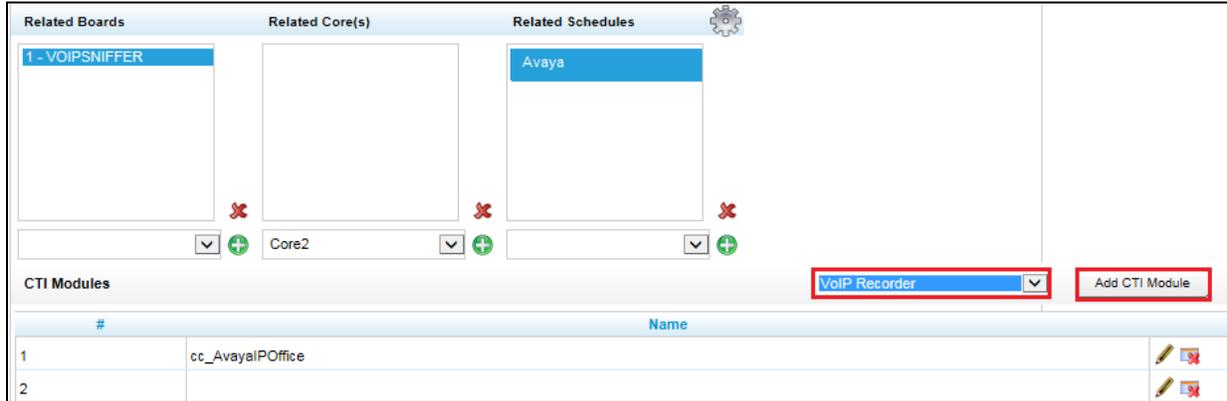


Select the **Related Boards** and the **Related Schedules** as is shown below by clicking on the add icon.

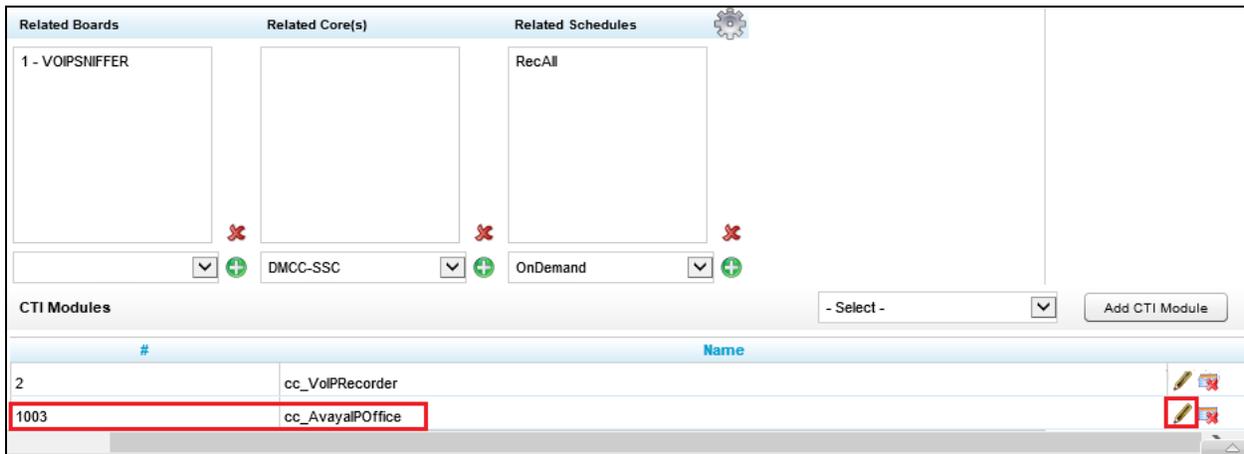
With the Board and Schedule selected click on the drop down menu highlighted and select **Avaya IP Office**, with this selected click on **Add CTI Module**.

#	Name
1	
2	

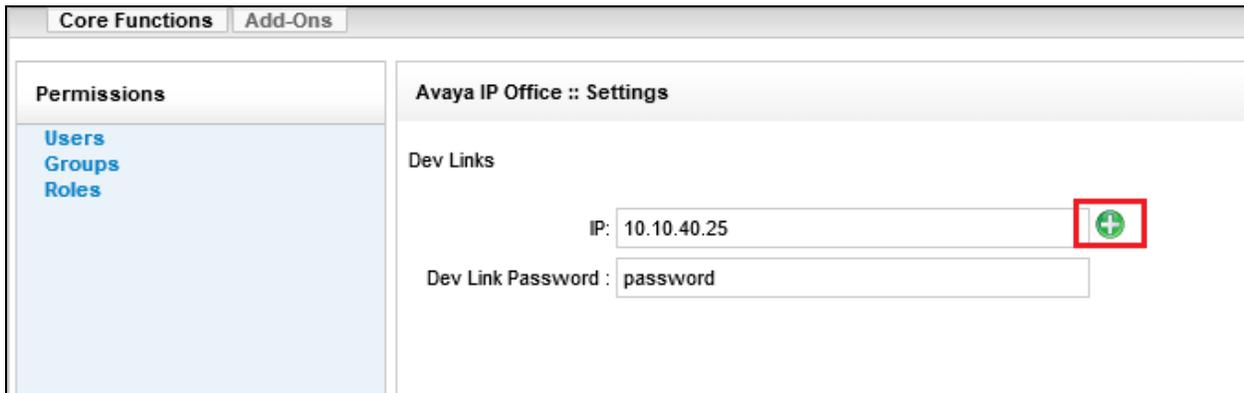
From the drop down menu select **VoIP Recorder** and click on **Add CTI Module**.



Edit the IP Office module by clicking on the edit icon opposite the module as shown below.



Enter the **IP** address for the IP Office Server Edition and the **Dev Link Password**.



Do the same for the IP Office 500 V2, with both IP Office IP Addresses added, click on **Save** at the top of the screen as shown below, this will close this window and return to the previous window.

The screenshot shows the 'Avaya IP Office :: Settings' page in the inContact WFO Administration interface. The 'Dev Links' section contains an IP field with the value '10.10.40.20' and a 'Save' button highlighted in red. Below the IP field is a 'Dev Link Password' field with the value 'password'. A table below the password field shows a list of Dev Links with columns for ID, IP, and Password.

ID	IP	Password
1	10.10.40.25	password

Scroll up to the top of the page and click on **Save**.

The screenshot shows the 'Settings' page in the inContact WFO Administration interface. The 'Save' button is highlighted in red. The settings are as follows:

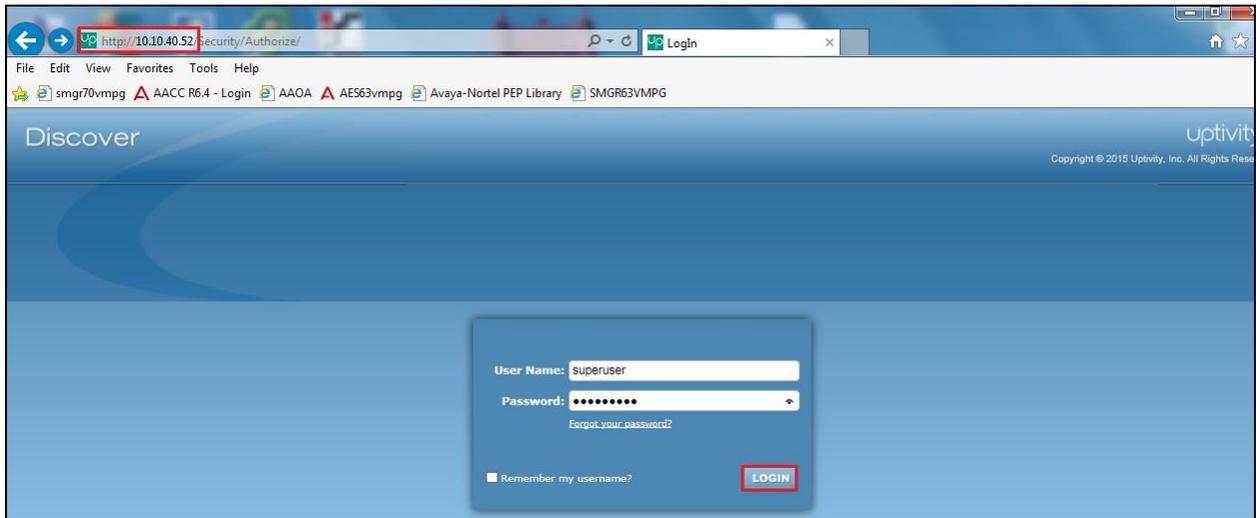
- Name: NewCore
- Location: Default
- Host: localhost
- Port: 5685
- Monitor Reload Frequency: 300 (s)
- Record Method: Passive
- Playback Method: - Select -
- Enable Event Interface: Yes
- Api Commands To Script: Yes
- JCOM Timeout Interval: 300 (ms)
- JCOM Reconnect Interval: 300 (ms)
- Default Screen Capture Port: 5633
- Generate XML with recordings: Yes
- Transcode by Board: No
- Channel Selection: First Available
- Local Data Directory: c:\temp
- Use Media Server: No

7. Verification Steps

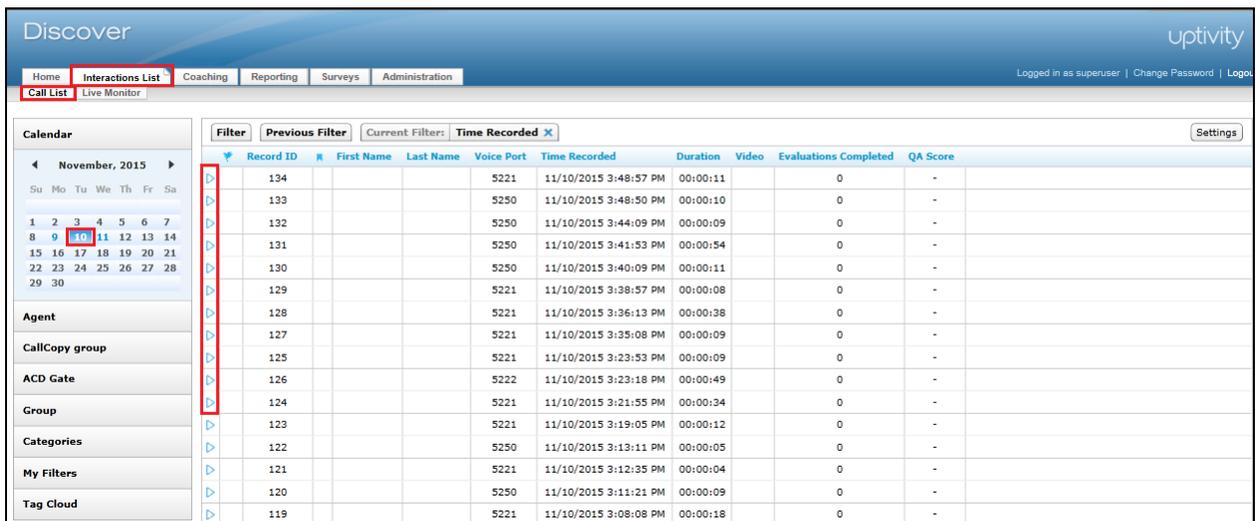
This section illustrates the steps necessary to verify that the inContact Call Recording is configured correctly to play back call recordings.

7.1 Verify inContact Call Recording

From any PC that has a sound card and speakers, open a browser session and browse to the IP address of the inContact Call Recording server, enter the proper credentials and click on **LOGIN**.



Select the **Interactions List** tab and within that tab select the **Call List** tab. Select the required date from the **Calendar** as shown below and this will display all the call recordings that were recorded on that particular date. By selecting any of the play icons highlighted will play back that particular recording.



In the example below a recording number **132** is played back to the user.

The screenshot displays a call center interface with a recording list and a playback player. The recording list is filtered by 'Time Recorded' and shows the following data:

Record ID	First Name	Last Name	Voice Port	Time Recorded	Duration	Video	Evaluations Completed	QA Score
134			5221	11/10/2015 3:48:57 PM	00:00:11		0	-
133			5250	11/10/2015 3:48:50 PM	00:00:10		0	-
132			5250	11/10/2015 3:44:09 PM	00:00:09		0	-
131			5250	11/10/2015 3:41:53 PM	00:00:54		0	-
130			5250	11/10/2015 3:40:09 PM	00:00:11		0	-
129			5221	11/10/2015 3:38:57 PM	00:00:08		0	-
128			5221	11/10/2015 3:36:13 PM	00:00:38		0	-
127			5221	11/10/2015 3:35:08 PM	00:00:09		0	-
125			5221	11/10/2015 3:23:53 PM	00:00:09		0	-
126			5222	11/10/2015 3:23:18 PM	00:00:49		0	-
124			5221	11/10/2015 3:21:55 PM	00:00:34		0	-
123			5221	11/10/2015 3:19:05 PM	00:00:12		0	-

The 'Web Player' section includes a 'Layer Details' table with columns for ID, Start, Stop, Type, and Info. Below it is a 'Playback Details' window showing a play button, a progress bar at 0:05 / 0:09, a volume control, and a waveform visualization.

8. Conclusion

These Application Notes describe the configuration steps for configuring inContact Call Recording from inContact with Avaya IP Office 500 V2 R9.1. inContact Call Recording integrates with Avaya IP Office Server Edition and IP Office 500 V2 expansion using DevLink interface and port mirroring to record VoIP calls. All feature functionality and serviceability test cases were completed successfully with any issues and observations noted in **Section 2.2**.

9. Additional References

This section references the Avaya and inContact product documentation that are relevant to these Application Notes. Product documentation for Avaya products may be found at <http://support.avaya.com>

[1] *Avaya IP Office R9.1 Manager 10.1, Document Number 15-601011*

[2] *Avaya IP Office R9.1 Doc library*

Technical support can be obtained for inContact Call Recording from the website <http://www.uptivity.com/contact> or from the following.

Telephone

Toll-free: 888-922-5526

Direct/International: 614-340-3346

Fax: 614-340-4840

Support: 888-922-5526, option 2

Email

support@uptivity.com

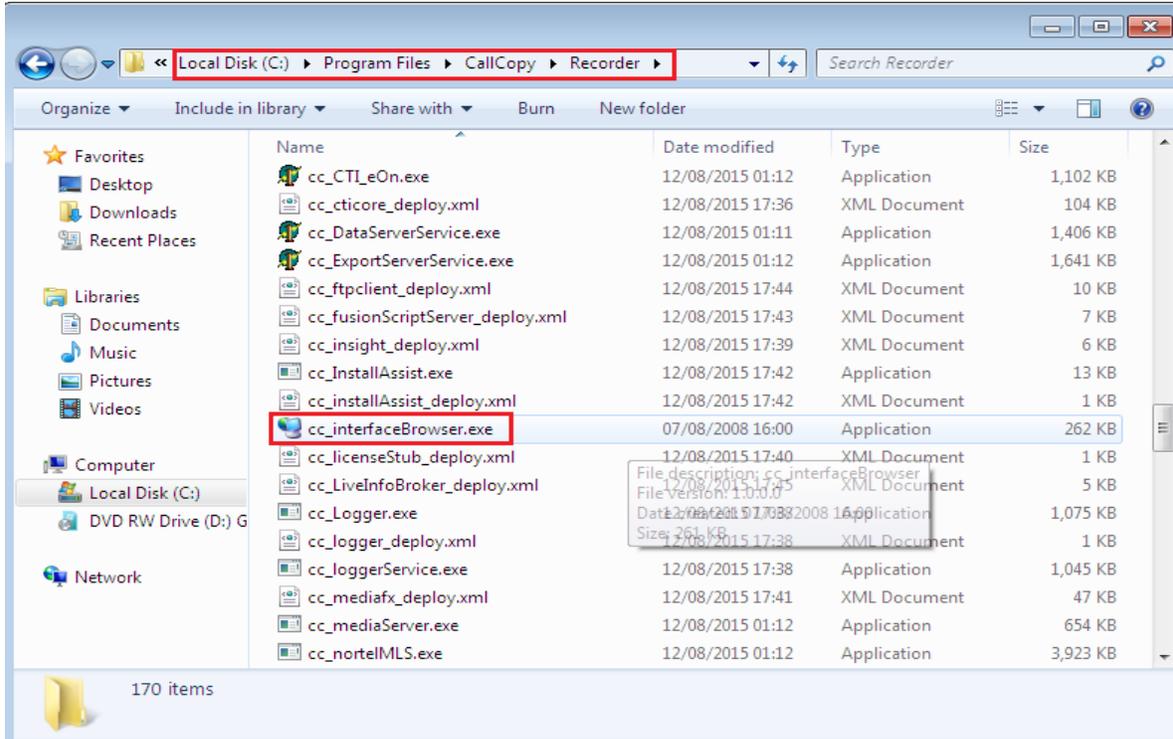
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Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya DevConnect Program at devconnect@avaya.com.

Appendix

Open the application called **cc_interfaceBrowser.exe**, this should be located in **Program Files** → **CallCopy** → **Recorder** folder.



Select the correct Network Interface which is used to capture the RTP from the data switch. The **Listening Interface** should then be populated and this is used for the setup of the inContact Call Recording server in **Section 6**.

