



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

---

# **Application Notes for configuring inContact WFO Recording with Avaya IP Office 500 V2 R9.1 - Issue 1.0**

### **Abstract**

These Application Notes describe the configuration steps for configuring inContact WFO Recording with Avaya IP Office 500 V2 R9.1. inContact WFO 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 WFO Recording from inContact with Avaya IP Office 500 V2 R9.1. inContact WFO Recording integrates with Avaya IP Office using both the IP Office DevLink interface and port mirroring of the Real-time Transport Protocol (RTP) to record VoIP calls. The inContact WFO 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. The connection to IP Office uses the IP Office DevLink interface to start and stop the call recording based upon the telephony event it receives from IP Office.

inContact WFO 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**. IP Office DevLink is part of the IP Office CTI Link Software Development Kit. The IP Office CTI Link is available in Lite and Pro versions, which provide run-time interfaces for applications to use. The Software Development Kit (SDK) provides documentation on both Lite and Pro interfaces for software developers.

**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.

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 WFO 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 WFO Recording server. An additional Network Interface Card (NIC) is therefore required on the inContact WFO 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.

## 2. General Test Approach and Test Results

This section describes the compliance testing used to verify interoperability of inContact WFO Recording with IP Office and covers the general test approach and the test results. Calls were made to and from the IP Office over a simulated PSTN link; for compliance testing this was a PRI QSIG ISDN link to an Avaya Aura® Communication Manager. Various Avaya endpoints (listed in **Section 4**) were registered to IP Office and calls were made to and from these Avaya endpoints in order to generate call events and RTP for recording. Using the DevLink interface on IP Office, inContact WFO Recording was 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 WFO 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 calls** – Test call recording for inbound calls to the IP Office from PSTN callers.
- **Outbound calls** – Test call recording for outbound calls from the IP Office to PSTN callers.
- **Hold/Transferred calls** – Test call recording for calls transferred to PSTN callers.
- **Conference calls** – Test call recording for calls in conference between the IP Office and PSTN callers.
- **Forwarded calls** – Test call recording for calls made to telephones that are forwarded to the PSTN.
- **Feature calls** – Calls such a Call Park, Call Pickup, Bridged Appearance calls and Hunt Group calls.

Serviceability testing was also carried out to observe the behaviour of inContact WFO Recording in the event of a LAN failure to the IP office and the IP Office endpoints along with the LAN failure to the inContact WFO Recording server.

## 2.2 Test Results

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

1. The outbound call using the bridged appearance button is not recorded. This is not a fail but just to note that the call was not recorded.
2. The SQL services need to start before the Call Recording services in order for the server to reboot properly.

## 2.3 Support

Technical support can be obtained for inContact WFO 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

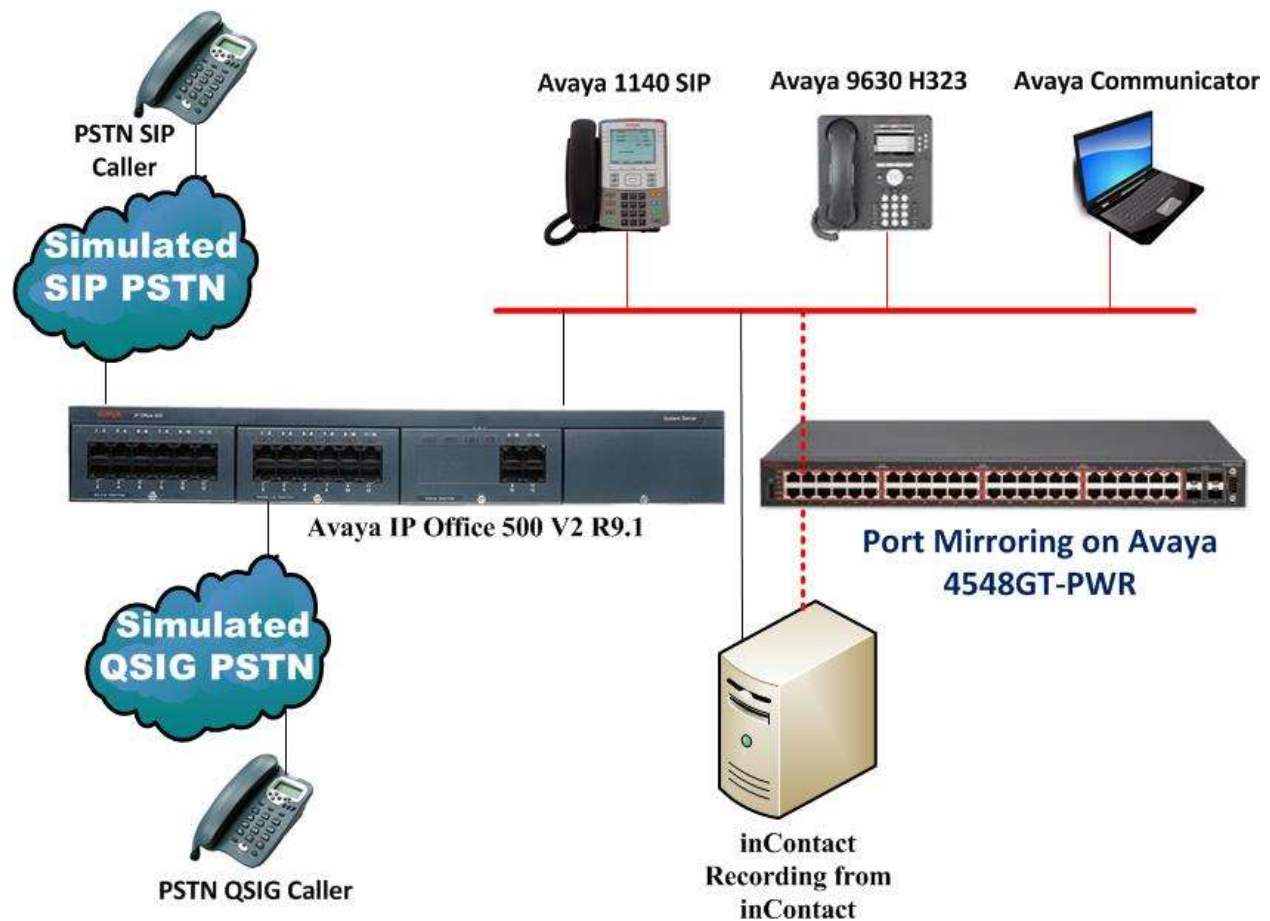
Support: 888-922-5526, option 2

### Email

[support@uptivity.com](mailto:support@uptivity.com)

### 3. Reference Configuration

The configuration in **Figure 1** is used to compliance test inContact WFO Recording with Avaya IP Office 500 V2. The connection between inContact WFO Recording and the IP Office solution uses IP Office Devlink interface to allow the inContact WFO 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 WFO 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 500 V2	R9.1.4.0 Build 137
Avaya IP Office Manager running on a Windows 7 PC	R9.1.4.0 Build 137
Avaya 9630 Deskphone	H.323 Release 6.4014U
Avaya 1140e SIP	R04.03.12.00
Avaya Windows Communication Manager running on a Windows 7 PC	R2.0.3.30
inContact WFO Recording running on a an Dell Poweredge R610 Windows 7 PC	R16.1

Compliance Testing is applicable when the tested solution is deployed with a standalone Avaya IP Office 500 V2 only.

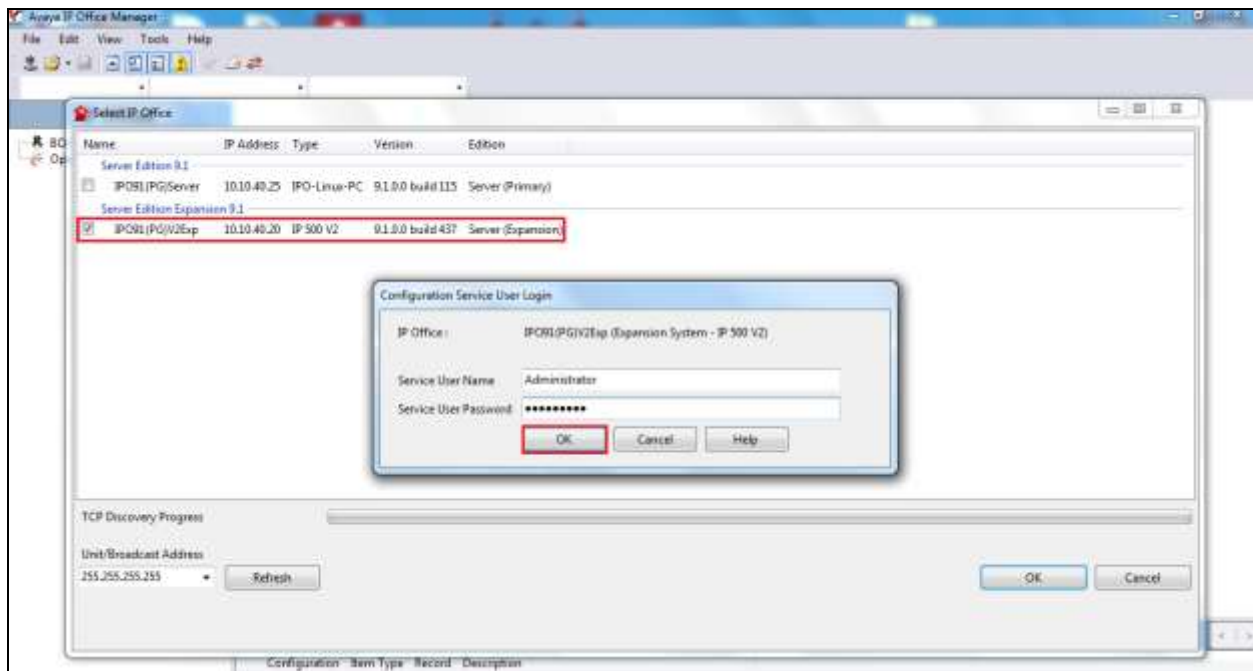
## 5. Configuration of Avaya IP Office

Configuration and verification operations on the 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.

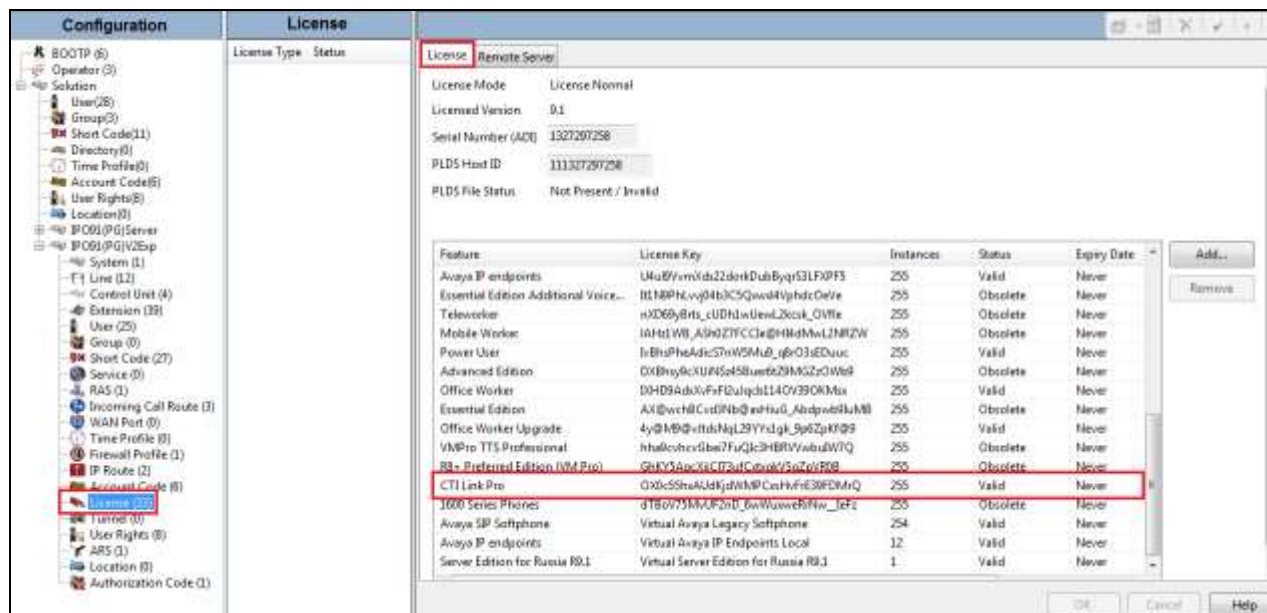
### 5.1 Launch Avaya IP Office Manager

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.

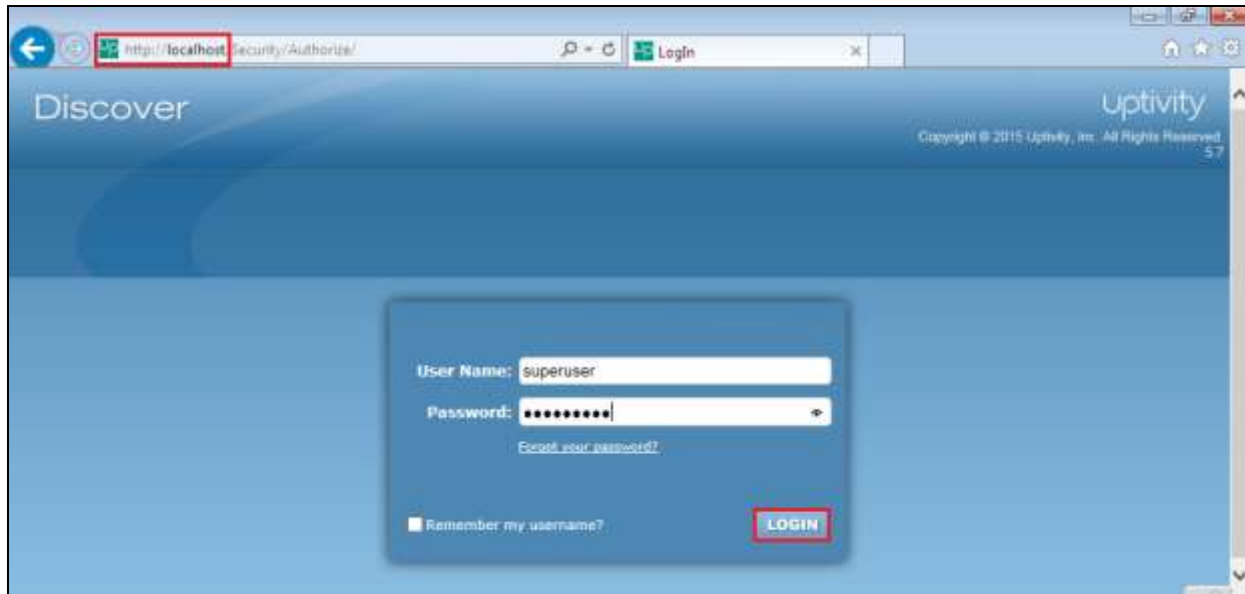


A closer look at this **CTI Link Pro** license shows that there are 255 CTI Link Pro License available and so in theory **255** simultaneous call recordings could be achieved.

Feature	License Key	Instances	Status	Expiry Date
Avaya IP endpoints	U4u9VvmXds22dorkDubByqrS3LFXPF5	255	Valid	Never
Essential Edition Additional Voice...	It1N9PhLvjj04b3C5Qxw4VphdcOeVe	255	Obsolete	Never
Teleworker	nXD69yBrts_cUDh1wUewL2kcsk_OVfle	255	Obsolete	Never
Mobile Worker	IAH21WB_ASh0Z7FCCle@H4dMwL2NRZW	255	Obsolete	Never
Power User	IvBhsPheAdicS7nW5Mu9_q8rO3sEDuuc	255	Valid	Never
Advanced Edition	DXBhsy9cXUINsZ45Buer6tZ9MGZzOWb9	255	Obsolete	Never
Office Worker	IXHD9AdxXvFxFI2uJqcb114OV39OKMsx	255	Valid	Never
Essential Edition	AX@wchBCvd3Nb@axHiuG_Abdpwb9IuMB	255	Obsolete	Never
Office Worker Upgrade	4y@M9@vJtdsNqL29YYx1gk_9p6ZpKf@9	255	Valid	Never
VMPro TTS Professional	hha9cvhcvGbei7FuQIc3HBRVvwbUw7Q	255	Obsolete	Never
R8+ Preferred Edition (VM Pro)	GhKY5AacXiiC73ufCxtxakVSqZpVR0B	255	Obsolete	Never
<b>CTI Link Pro</b>	<b>OX0c55hxAUdKjdWMP CxsHvFrE39FDMrQ</b>	<b>255</b>	<b>Valid</b>	<b>Never</b>
1600 Series Phones	dTB0V75MvUF2nD_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 WFO Recording

Either from the inContact WFO Recording server or from another PC open a web session to the inContact WFO 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.

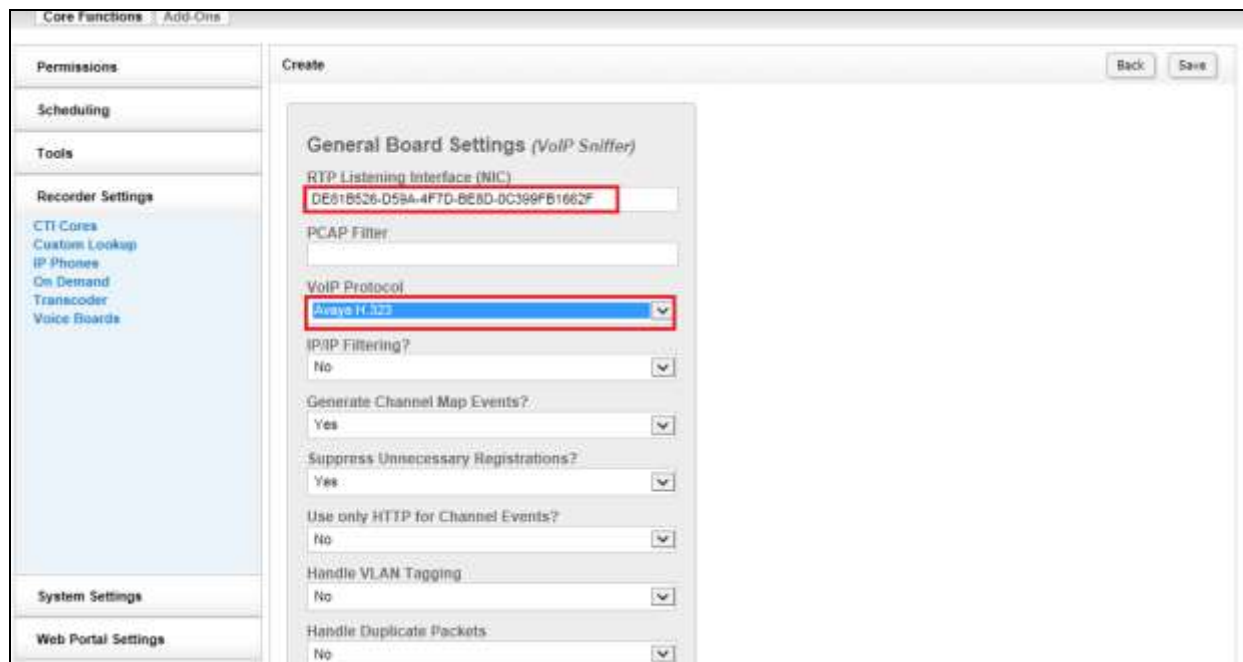




Select **CallCopy VoIP Sniffer** as the **Hardware Type**.



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 WFO 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. 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 Avaya IP Office configuration interface. At the top, the 'PBX Addresses' section has an 'Add' button. Below it, the 'Address' field contains '10.10.40.20' and a 'Remove' button. The 'UNC Paths' section has an 'Add' button and 'Local' and 'Remote' tabs. The 'Channels' section shows 'Number of Channels to Add: 6' and an 'Add' button. Below this is a table with columns: Channel ID, Assign, Assign Val, Name, and a Delete button. The table contains five rows, all with 'Record Anything' in the 'Assign' column. The first four rows have 'Channel ID' values of -1, -2, -3, and -4. The fifth row has 'Channel ID' -5 and is highlighted with a blue background. A red rectangle highlights the first five rows of the table.

Channel ID	Assign	Assign Val	Name	Delete
-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.

Core Functions | Add-Ons

Permissions

Scheduling

Tools

Recorder Settings

CTI Cores

Custom Lookup

IP Phones

On Demand

Transcoder

Voice Boards

Create

Back Save

General Board Settings (VoIP Sniffer)

RTP Listening Interface (NIC)

DE81B526-D59A-4F7D-BE5D-0C389FB1662F

PCAP Filter

VoIP Protocol

Avaya H323

IP/IP Filtering?

No

Generate Channel Map Events?

Yes

Suppress Unnecessary Registrations?

Yes

Use only HTTP for Channel Events?

No

## 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.

Discover

uptivity

Home Interactions List Coaching Reporting Surveys Administration

Logged in as supervisor | Change Password | Logout

Core Functions | Add-Ons

Permissions

Scheduling

Create Schedule

Timed Schedules

Find Schedule

Schedule Wizard

- 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

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.

Core Functions Add-Ons

Permissions

Scheduling

Create Schedule  
Timed Schedules  
Find Schedule

Tools

Recorder Settings

System Settings

Web Portal Settings

New Schedule Save Schedule

Name : Avaya Description :

Owner : CallCopy Admin

Never Expires ☒

Type : Percentage  Target Percent : 100

Random Probability :

Direction : both  Priority : 50

Min Record Length (Sec) : 5 Max Record Silence (Sec) : 600

Max Record Length (Sec) : 8000 Retention Days : 365

Screen capture wrap length (Sec) : 0 Archive Action : Purge

Stop screen capture wrap on call start : No

Audio Capture : Yes  Screen Capture : No

Speech Analysis : Yes

Disk Location : C:\Recordings Comparison : AND

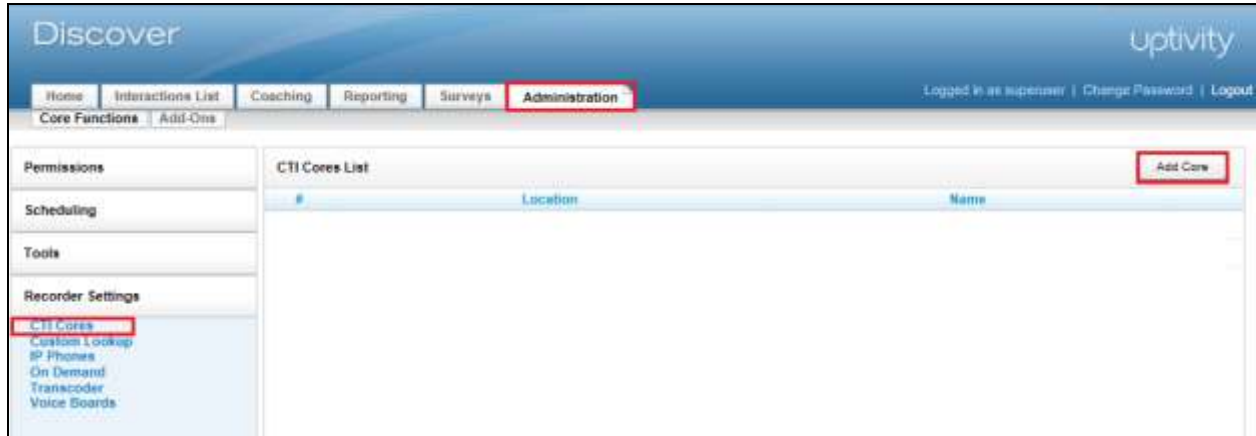
Blackout Remote Audio : ☐

Schedule Requirements

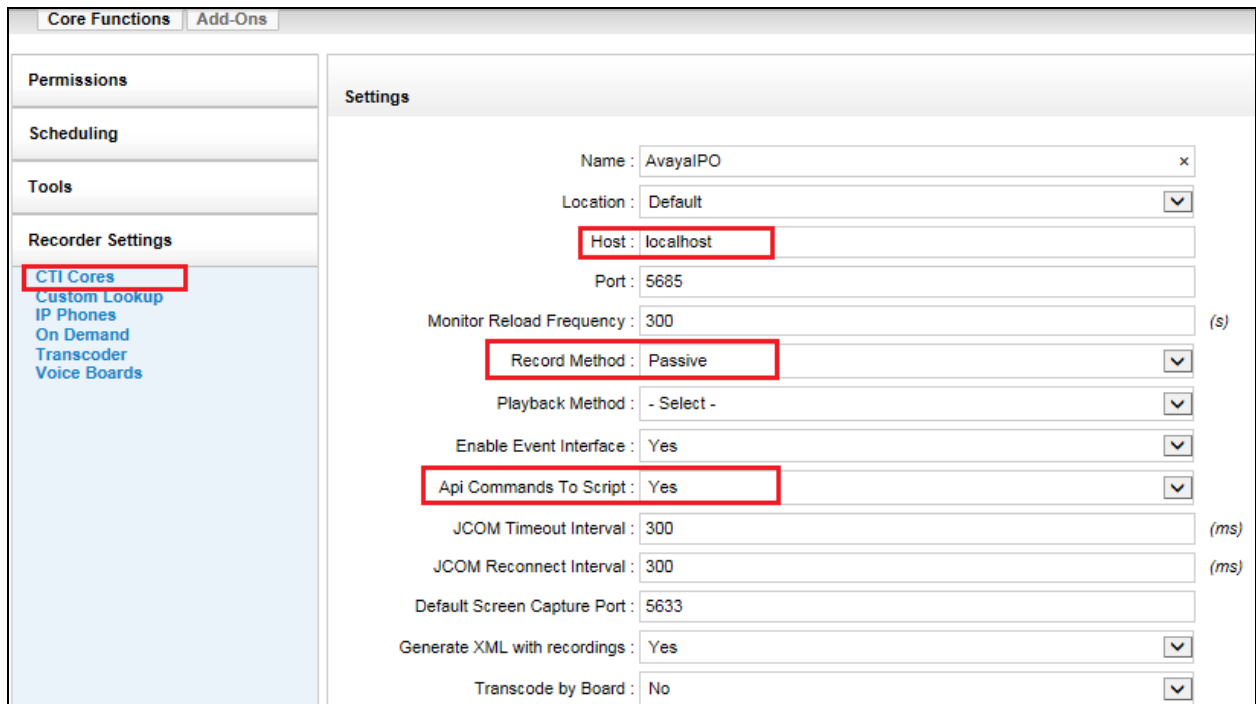
	Value Type	Comparison	Value	Case Sensitive
1	Voice Port	Not Equal To	0	<input type="checkbox"/>
2				<input type="checkbox"/>

## 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 WFO 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**.

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

Related Boards		Related Core(s)		Related Schedules	
1 - VOIPSNIFFER				Avaya	
		Core2			

CTI Modules	
#	Name
1	cc_AvayaIPOffice
2	

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

Settings

Back Save

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

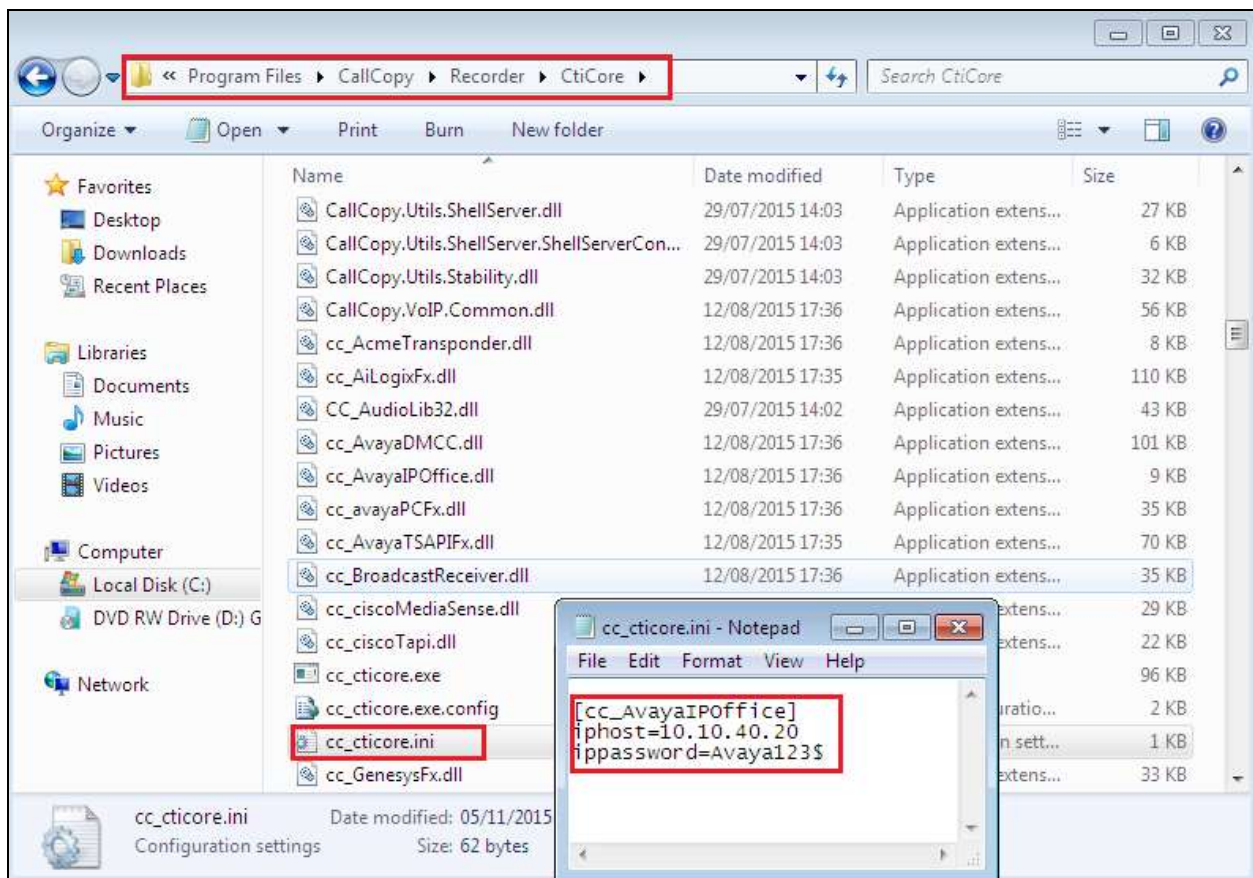
Local Data Directory : c:\temp

Use Media Server : No

## 6.4 Amend cc\_cticore.ini

The IP address of the Avaya IP Office along with the DevLink password needs to be added to the cc\_cticore.ini file. This file is located in **Program Files → CallCopy → Recorder → CtiCore**. Add the following:

- iphost = “IP address of the IP Office”
- ippassword = “Password associated with the system user for DevLink”



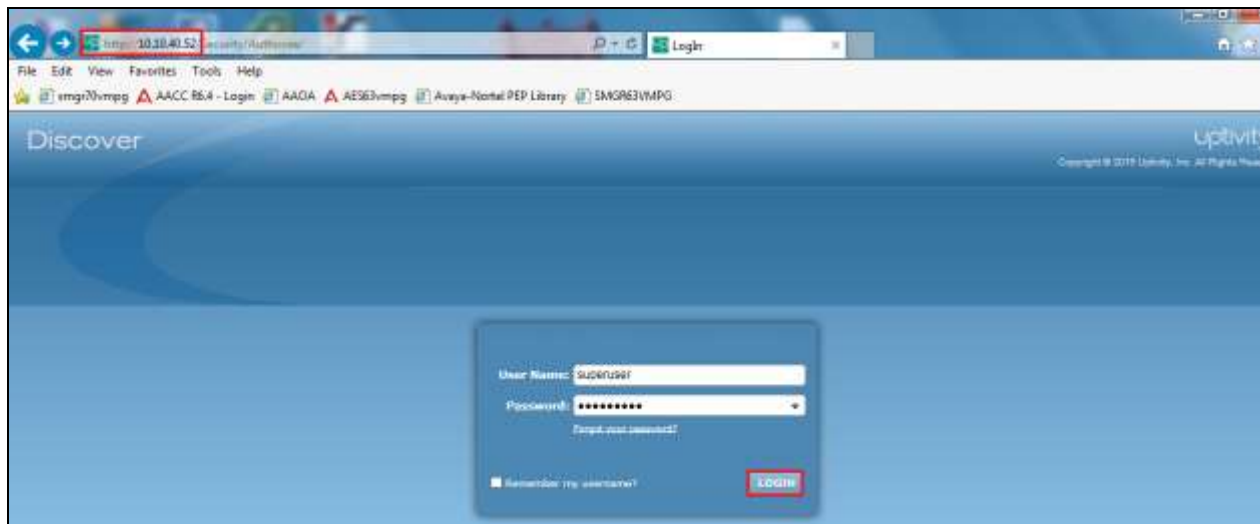


## 7. Verification Steps

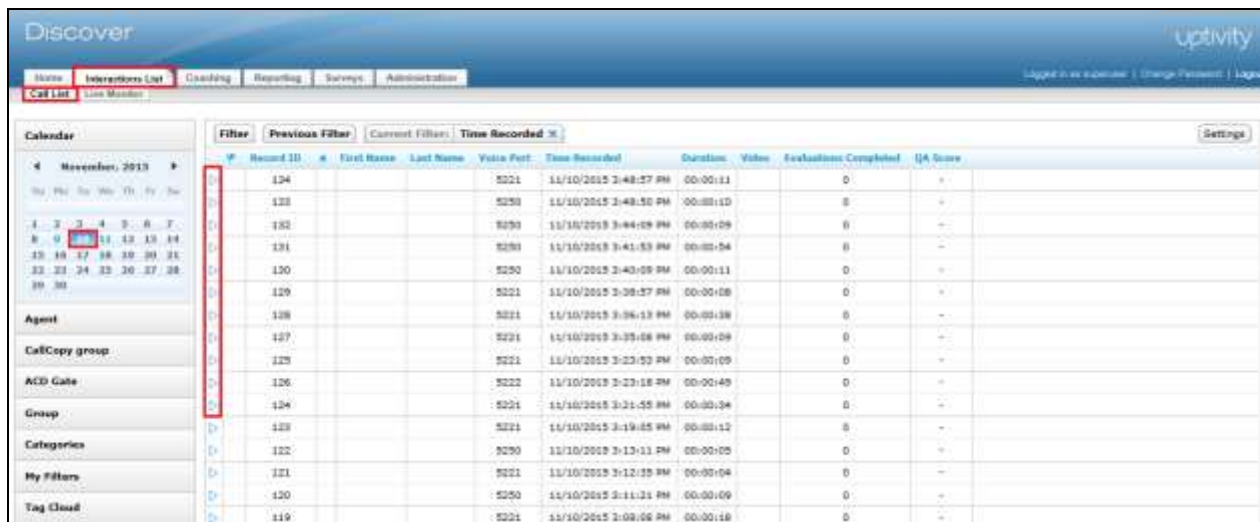
This section illustrates the steps necessary to verify that the inContact WFO Recording is configured correctly to play back call recordings.

### 7.1 Verify inContact WFO Recording

From any PC that has a sound card and speakers, open a browser session and browse to the IP address of the inContact WFO 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 web application interface for managing recordings. On the left is a sidebar with navigation options: Calendar, Agent, CallCopy group, ACD Gate, Group, Categories, My Filters, and Tag Cloud. The main area features a table of recordings with columns: Record ID, First Name, Last Name, Work Pool, Time Recorded, Duration, Value, Evaluation Completed, and QA Score. Record 132 is highlighted in green. Below the table is a 'Web Player' section with a 'Layer Details' tab and a 'Playback Details' tab. The 'Playback Details' tab shows a progress bar and a red box highlighting the playback controls.

Record ID	First Name	Last Name	Work Pool	Time Recorded	Duration	Value	Evaluation Completed	QA Score
134			5221	11/10/2015 3:42:37 PM	00:00:11		E	-
133			5230	11/10/2015 3:44:50 PM	00:00:10		E	-
132			5250	11/10/2015 3:44:59 PM	00:00:09		E	-
131			5250	11/10/2015 3:41:52 PM	00:00:54		O	-
130			5250	11/10/2015 3:40:09 PM	00:00:11		E	-
129			5221	11/10/2015 3:38:57 PM	00:00:08		E	-
128			5221	11/10/2015 3:36:13 PM	00:00:30		O	-
127			5221	11/10/2015 3:35:08 PM	00:00:09		E	-
125			5221	11/10/2015 3:23:12 PM	00:00:08		E	-
126			5222	11/10/2015 3:23:18 PM	00:00:46		E	-
124			5221	11/10/2015 3:21:35 PM	00:00:34		O	-
123			5221	11/10/2015 3:19:08 PM	00:00:12		O	-

Pages: 1 2 3 4 > 22 Items Per Page Go To Page: 1 of 4 OK

Web Player

Layer Details

ID Start Stop Type Info

Playback Details

0:05 / 0:00

## 8. Conclusion

These Application Notes describe the configuration steps for configuring inContact WFO Recording from inContact with Avaya IP Office 500 V2 R9.1. inContact WFO Recording integrates with Avaya IP Office using both the IP Office 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 WFO 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](mailto:support@uptivity.com)

---

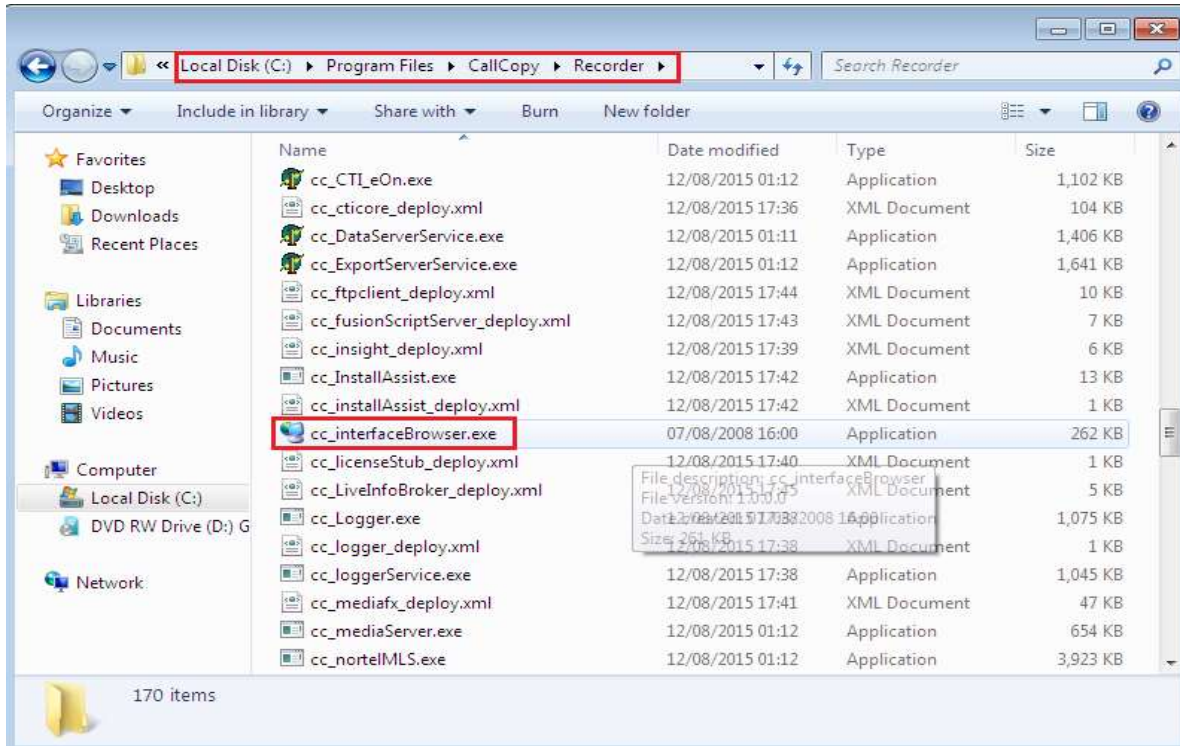
**©2016 Avaya Inc. All Rights Reserved.**

Avaya and the Avaya Logo are trademarks of Avaya Inc. All trademarks identified by ® and ™ are registered trademarks or trademarks, respectively, of Avaya Inc. All other trademarks are the property of their respective owners. The information provided in these Application Notes is subject to change without notice. The configurations, technical data, and recommendations provided in these Application Notes are believed to be accurate and dependable, but are presented without express or implied warranty. Users are responsible for their application of any products specified in these Application Notes.

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](mailto: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 WFO Recording server in **Section 6**.

