



## Avaya Solution & Interoperability Test Lab

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# Application Notes for Carina Recorder R6.5 with Avaya IP Office R11.1 – Issue 1.0

### Abstract

These Application Notes describe the configuration steps for Carina Recorder R6.5 with Avaya IP Office R11.1 by sniffing a dedicated network span port. Carina Recorder is a voice recording solution which can be used to record voice streams for Avaya telephony.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as any 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

The purpose of this document is to describe the compliance testing carried out using sniffing method on Carina Recorder solution with Avaya IP Office. It includes a description of the configuration of both the Avaya and the Carina solutions, a description of the tests that were performed and a summary of the results of those tests.

Carina Recorder used the Telephony Application Programming Interface (TAPI) from Avaya IP Office to monitor agent users and used the port mirroring method to capture media associated with the monitored users for call recording. The TAPI link will then notify the Carina whenever the monitored extensions have initiated or received a call, the call is on hold or transferred or the call has been terminated.

## 2. General Test Approach and Test Results

The feature test cases were performed manually. Each call was placed and handled manually from the agent phones with generation of unique audio content for the recordings. Necessary user actions such as hold and resume were performed from the agent phones to test various call scenarios.

The serviceability test cases were performed manually by disconnecting/reconnecting the Ethernet connection to Carina server.

The verification of tests included use of the Carina logs for proper message exchanges and use of the Carina web playback interface for proper logging and playback of calls.

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.

Avaya recommends our customers implement Avaya solutions using appropriate security and encryption capabilities enabled by our products. The testing referenced in these DevConnect Application Notes included the enablement of supported encryption capabilities in the Avaya products. Readers should consult the appropriate Avaya product documentation for further information regarding security and encryption capabilities supported by those Avaya products.

Support for these security and encryption capabilities in any non-Avaya solution component is the responsibility of each individual vendor. Readers should consult the appropriate vendor-supplied product documentation for more information regarding those products.

For the testing associated with these Application Notes, the interface between Avaya systems and Carina did not include use of any specific encryption features as requested by ComputerTel (subsidiary of Fournet).

## 2.1. Interoperability Compliance Testing

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

The feature functionality testing focused on verifying the following on Carina:

- Handling of TAPI events.
- Proper recording, logging, and playback of calls for scenarios involving inbound, outbound, internal, external, group calls, local hot desking, hold, resume, transfer, conference, multiple calls, multiple agents, long duration, call park/unpark, call forwarding, shuffling, mute/unmute, G.711 Alaw and G.729.

The serviceability testing focused on verifying the ability of Carina recorder server to recover from LAN disconnection and reconnection.

## 2.2. Test Results

All test cases were executed and verified. The following are observations on Carina from the compliance testing.

1. Inbound PSTN call with attended conference with one agent and non-monitored supervisor was not recording after the call is conferenced. This was subsequently fixed with patches of Carina software.
2. There are no call recordings between PSTN to Agent-1 after Agent-2 drops off from conference (blind or attended) for inbound PSTN call. This was fixed subsequently with patches of Carina software.
3. Agent using Hot-Desking from another IP Phone whose port is supposed to be recorded is not showing any call recordings. This was corrected with configuration changes.

*\*For additional details of the patches, contact Carina support as shown in **Section 2.3**.*

## 2.3. Support

Technical support on Carina Recorder can be obtained through the following:

**Phone:** +44 (0) 1474 565749

**Email:** [engineering@computertel.co.uk](mailto:engineering@computertel.co.uk)

**Web :** <https://computertel.co.uk/>

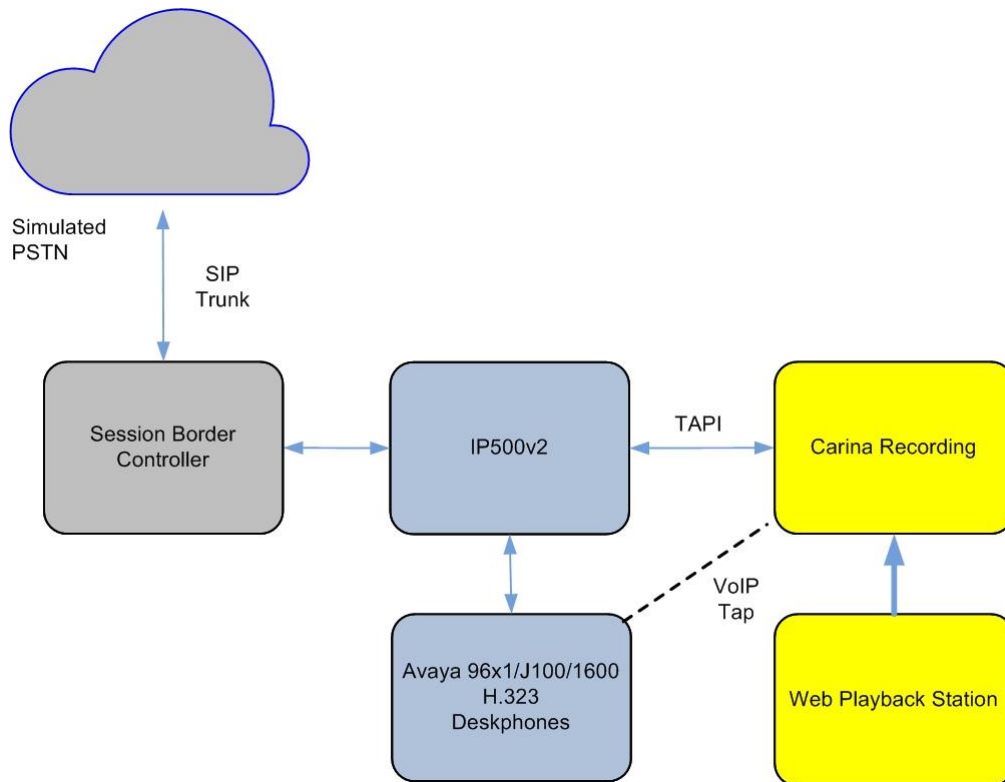
### 3. Reference Configuration

As shown in **Figure 1**, the RTP stream for agents with H.323 IP Deskphones were mirrored from the layer 2 switch and replicated over to the local Carina server.

The detailed administration of call center devices is not the focus of these Application Notes and will not be described. In addition, the port mirroring of the layer 2 switches is also outside the scope of these Application Notes and will not be described.

In the compliance testing, Carina monitored the local phone extensions used by the agents.

Device Type	Extension
Phone Extensions	301, 302, 306
Agent Users	301, 302
Supervisor	306



**Figure 1: Carina Recorder Server Configuration with Avaya IP Office**

## 4. Equipment and Software Validated

The following equipment and software were used for the sample configuration as shown in **Figure 1**.

<b>Equipment/Software</b>	<b>Release/Version</b>
IP Office 500 V2	11.1
Carina Recorder	6.5
Carina Web Playback	3.5
Avaya 9621G (H.323)	9.8511
Avaya J179 IP Deskphone (H.323)	9.8511
Avaya 1608-I IP Deskphone (H.323)	1.312

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

## 5. Configure Avaya IP Office

This section provides the procedures for configuring the IP Office systems. The procedures include the following area:

- Verify licenses
- Administer extensions
- Administer security settings
- Create new Service User for TAPI
- Obtain phone IP address

### 5.1. Verify Licenses

From a PC running the IP Office Manager application, select **Start** → **All Programs** → **IP Office** → **Manager** to launch the application. Select the proper IP Office system, and log in using the appropriate credentials. The **Avaya IP Office Manager** screen is displayed.

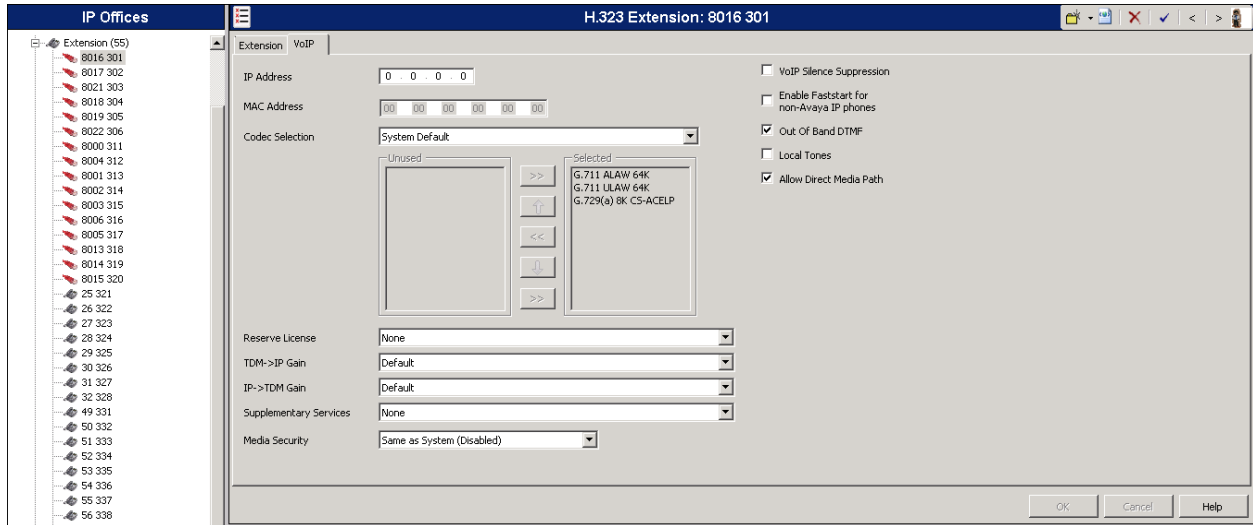
From the configuration tree in the left pane, select **License** under the IP Office system, in this case “SGIP500V2”, and a list of licenses is displayed in the right pane. Verify that there is a license for **CTI Link Pro**, and with license **Status** being “Valid”, as shown below.

Feature	Instances	Status	Expiration Date	Source
Receptionist	4	Valid	Never	PLDS Nodal
Additional Voicemail Pro Ports	150	Valid	Never	PLDS Nodal
VMPro Recordings Administrators	1	Valid	Never	PLDS Nodal
Essential Edition Additional Voicemail ...	4	Valid	Never	PLDS Nodal
VMPro TTS (Generic)	40	Valid	Never	PLDS Nodal
Teleworker	384	Valid	Never	PLDS Nodal
Mobile Worker	384	Valid	Never	PLDS Nodal
Office Worker	384	Valid	Never	PLDS Nodal
Avaya Softphone Licence	100	Valid	Never	PLDS Nodal
VMPro TTS (Scansoft)	40	Valid	Never	PLDS Nodal
VMPro TTS Professional	40	Valid	Never	PLDS Nodal
IPSec Tunneling	1	Valid	Never	PLDS Nodal
Power User	384	Valid	Never	PLDS Nodal
Avaya IP endpoints	384	Valid	Never	PLDS Nodal
IP500 Voice Networking Channels	32	Valid	Never	PLDS Nodal
SIP Trunk Channels	128	Valid	Never	PLDS Nodal
IP500 Universal PRI (Additional chan...	100	Valid	Never	PLDS Nodal
<b>CTI Link Pro</b>	<b>1</b>	<b>Valid</b>	<b>Never</b>	<b>PLDS Nodal</b>
Wave User	16	Valid	Never	PLDS Nodal
3rd Party IP Endpoints	384	Valid	Never	PLDS Nodal
Centralized Endpoints	384	Valid	Never	PLDS Nodal
Feenatal Pribin	1	Valid	Never	PLDS Nodal

## 5.2. Administer Extensions

From the configuration tree in the left pane, under **Extension**, select the first extension under the IP Office system from **Section 3** that will be used by agents, in this case “301”. Select the **VoIP** tab. For **Media Security**, select “Disabled” as shown below.

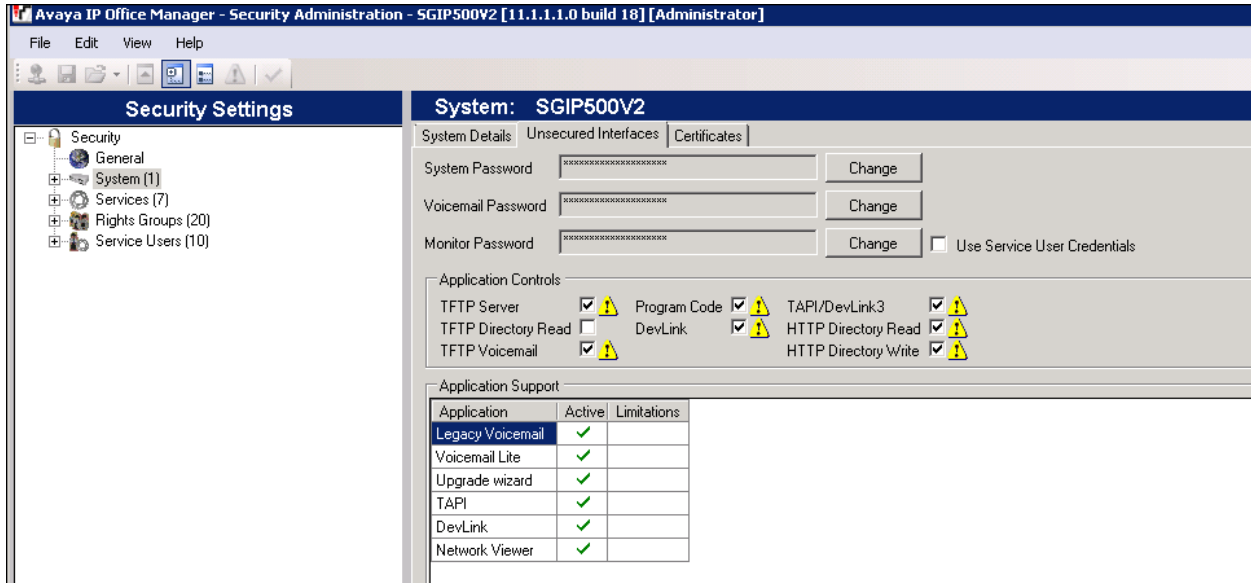
Repeat this section to disable media security for all extensions that be used by agents and supervisor. In the compliance testing, three extensions on IP Office system from **Section 3** were configured.



### 5.3. Administer Security Settings

From the configuration tree in the left pane, select the IP Office system, followed by **File** → **Advanced** → **Security Settings** from the top menu.

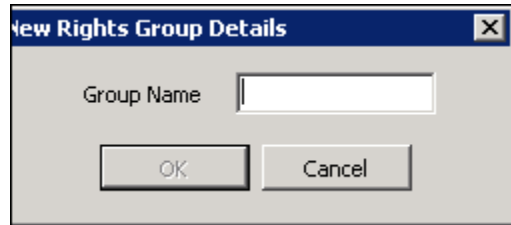
The **Avaya IP Office Manager – Security Administration** screen is displayed. Select **Security** → **System** to display the System screen in the right pane. Select the **Unsecured Interfaces** tab, and check **TAPI/DevLink3** as shown below.



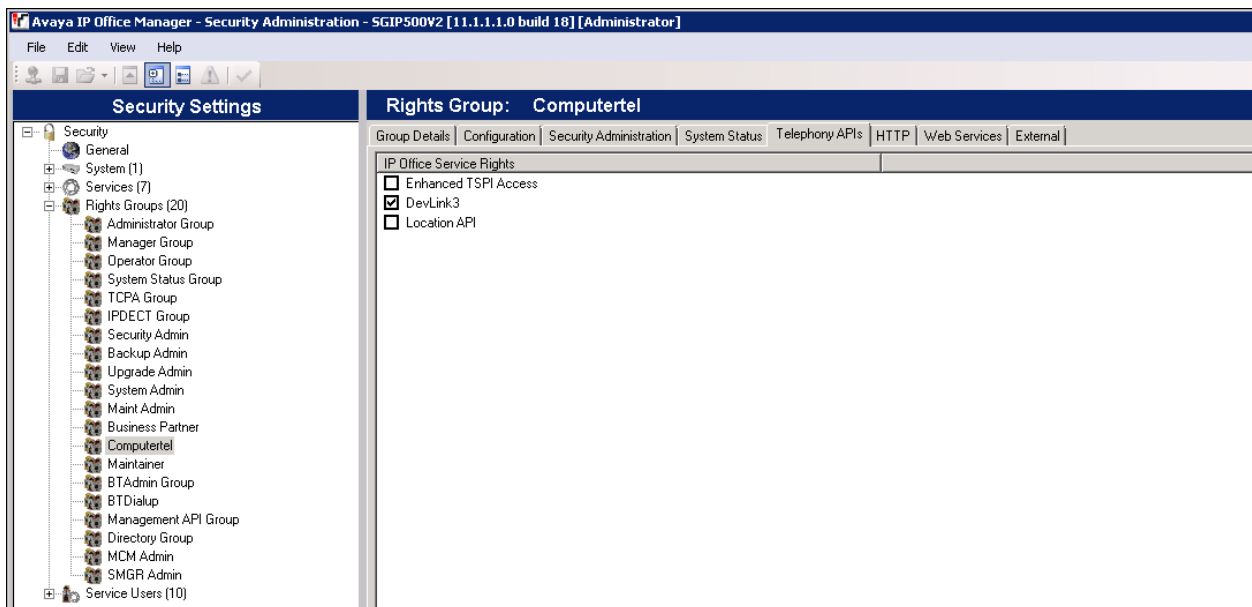


## 5.4. Create new Service User for TAPI

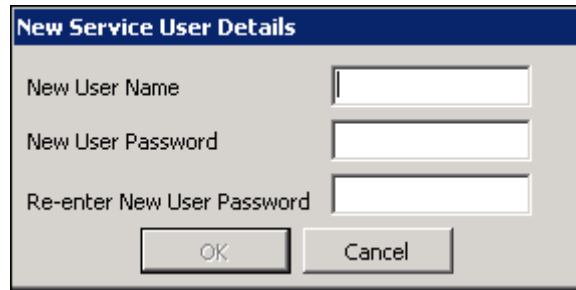
Continue from previous screen, select **Security** → **Rights Groups** and right click **New**. Enter appropriate **Group Name**.



Here **Computertel** Rights Groups is created as below. Click on **Telephony APIs** tab on the right pane. Check **DevLink3**.

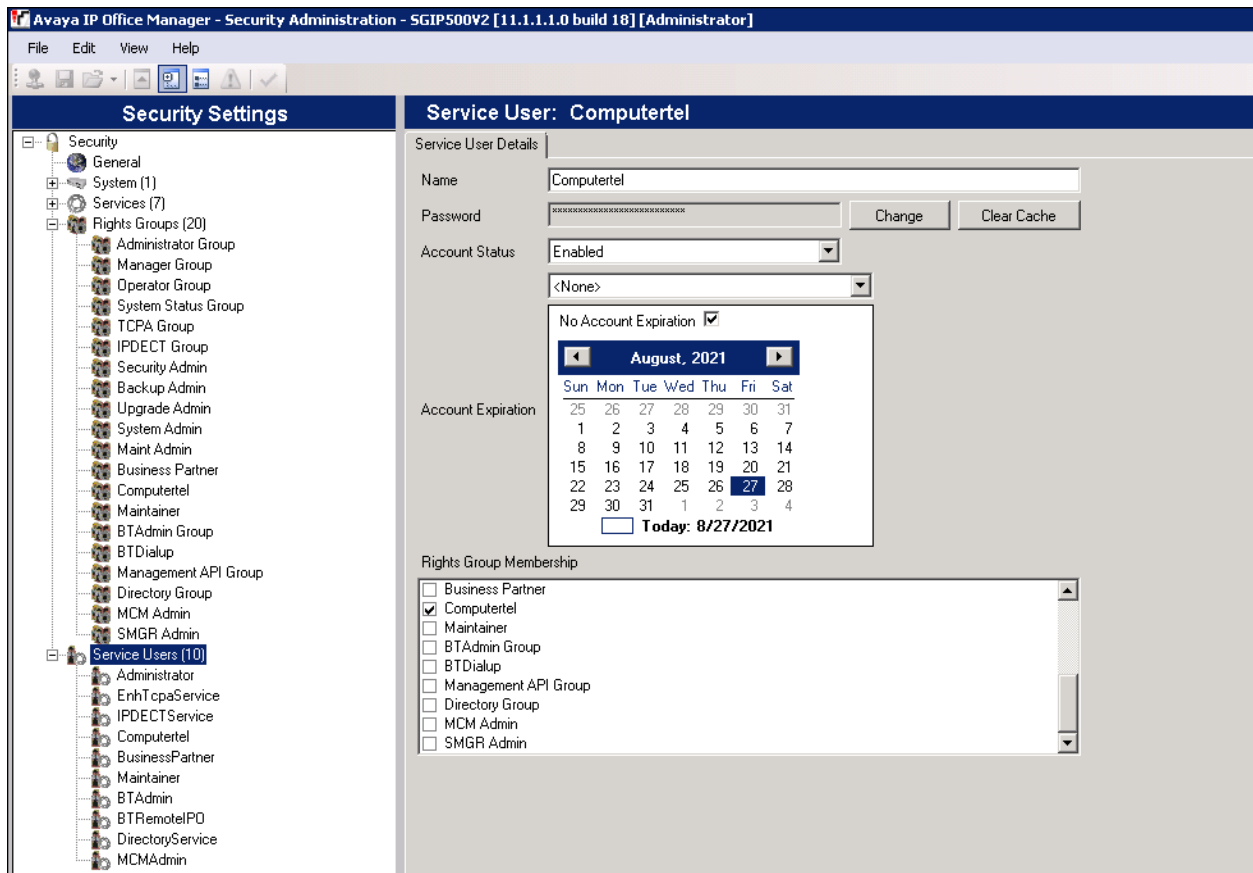


Next, select **Security** → **Service Users** and right click **New**. Enter appropriate **New User Name**, **New User Password** and **Re-enter New User Password**.



The dialog box titled "New Service User Details" contains three input fields: "New User Name", "New User Password", and "Re-enter New User Password". At the bottom, there are "OK" and "Cancel" buttons.

Under the **Rights Group Membership**, ensure the **Rights Groups** created previously, "Computertel" is checked.




The screenshot shows the "Service User: Computertel" configuration window. The "Rights Group Membership" section is expanded, showing a list of groups with checkboxes. The "Computertel" group is checked, while others like "Business Partner", "Maintainer", "BTAdmin Group", "BTDialup", "Management API Group", "Directory Group", "MCM Admin", and "SMGR Admin" are unchecked.

Other visible settings include:
 

- Name: Computertel
- Password: [Redacted]
- Account Status: Enabled
- Account Expiration: No Account Expiration (checked)
- Calendar: August 2021 (Today: 8/27/2021)

## 5.5. Obtain Phone IP Address

From a PC running the IP Office System Status application, select **Start** → **All Programs** → **IP Office** → **System Status** to launch the application and connect to the IP Office system. Log in with an appropriate credentials.



The screenshot shows the Avaya IP Office System Status application window. The title bar reads "Avaya IP Office System Status". The main window features the Avaya logo on the left and the text "IP Office System Status" on the right. Below the logo is a menu bar with "Help", "Exit", and "About". A central area contains a "Logon" dialog box with the following fields and options:

- Control Unit Address:** 10.1.30.10
- SCN Gateway Address:** <None>
- Services Base TCP Port:** 50804
- User Name:** Administrator
- Password:** (empty field)
- Auto reconnect
- Secure connection
- Websocket connection
- Logon** button

The Avaya IP Office System Status screen is displayed, as shown below. Select **Extensions** → **301** from the side pane.

The screenshot displays the Avaya IP Office System Status web interface. The title bar indicates the system is 'SGIP500V2 (10.1.30.10) - IP500 V2 11.1.1.1.0 build 18'. The main content area is titled 'Extension Status' and provides the following details for extension 301:

- Extension Number: 301
- IP address: 10.1.10.164
- MAC address: B4-B0-17-5B-7C-12
- Standard Location: None
- Gatekeeper: Primary
- Telephone Type: 9621
- Firmware Version: 6.8511
- Media Stream: RTP
- Layer 4 Protocol: TCP
- Current User Extension Number: 301
- Current User Name: Extn301
- Forwarding: Off
- Twinning: Off
- Do Not Disturb: Off
- Message Waiting: Off
- Number of New Messages: 0
- Phone Manager Type: None
- Licensed: Yes
- License Reserved: No
- Last Date and Time License Allocated: 8/26/2021 5:28:14 PM
- Packet Loss Fraction: Connection Type:
- Jitter: Codec:
- Round Trip Delay: Remote Media Address:

At the bottom of the interface, there is a table showing call logs:

Button Number	Button Type	Call Ref	Current State	Time In State	Calling Number or Called Number	Direction	Other Party on Call
1	CA		Idle	01:47:25			
2	CA		Idle				
3	CA		Idle				

Make a note of the IP addresses associated with each phone extension used by agents and Supervisor on the IP Office system from **Section 3**, which will be used later to configure Carina.

## 6. Configuration of Carina Recorder

The configuration of Carina is typically performed by ComputerTel installation technicians. The procedural steps are presented in these Application Notes for informational purposes.

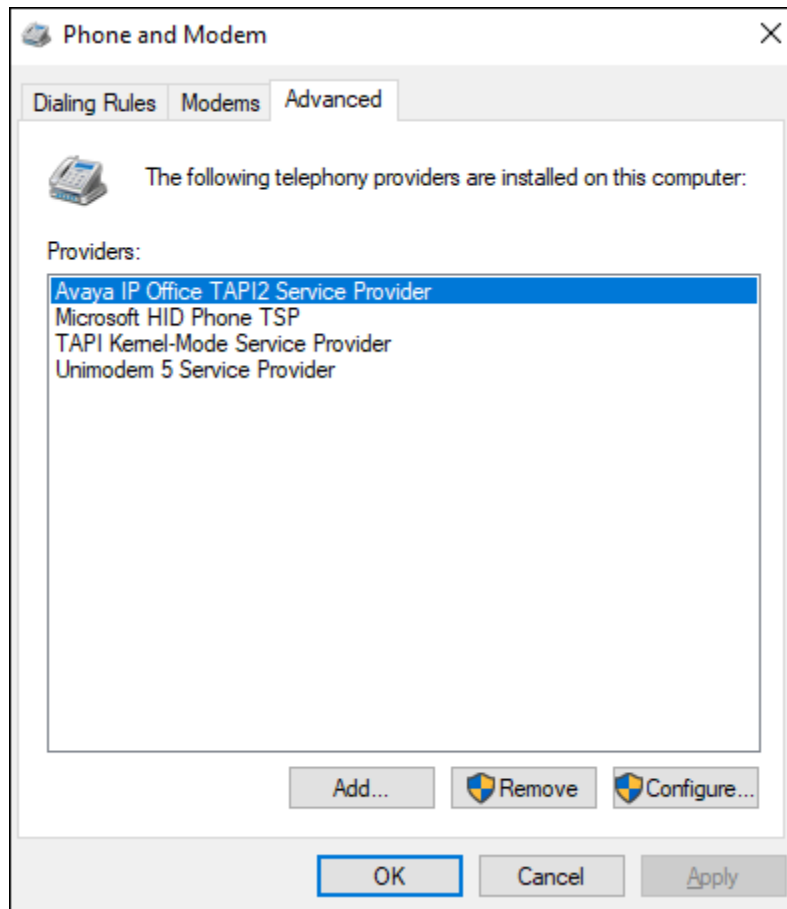
This section provides procedures for the following on configuring Carina Recorder server. The procedures include the following:

- Administer TAPI driver
- Launch Carina Web Playback
- Verify the server configuration
- Verify stations, agents and hunt groups extensions administered

### 6.1. Administer TAPI driver

From the Carina server, select **Start** → **Control Panel**, and click on the **Phone and Modem** icon (not shown).

In the displayed **Phone and Modem** screen, select the **Advanced** tab. Select the **Avaya IP Office TAPI2 Service Provider** entry and click **Configure**.



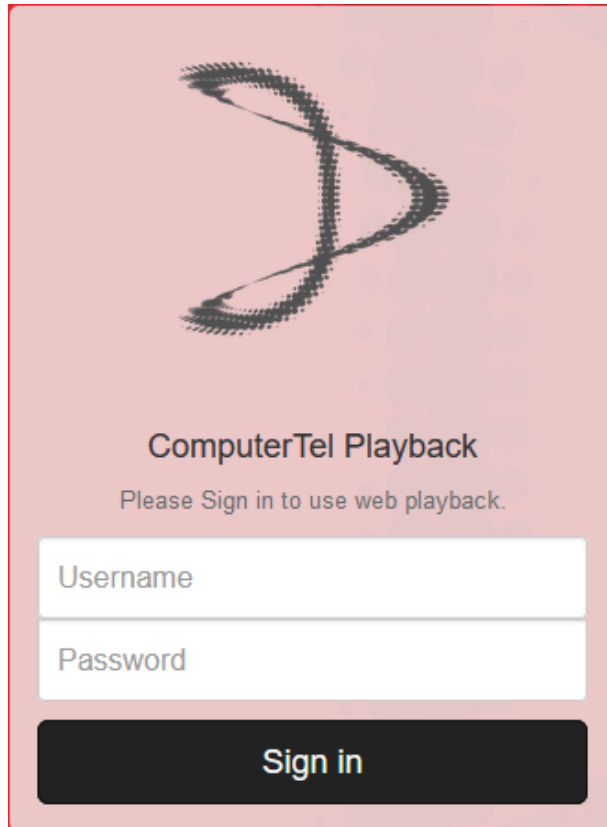
The **Avaya TAPI2 configuration** screen is displayed in the screenshot below. For **Switch IP Address**, enter the IP address of the IP Office system. Select the radio button for **Third Party** and **ACD Queues** enter the ComputerTel password of the IP Office system provisioned in IP Office **Section 5.4** into the **Switch Password** field. Reboot the Carina server.

The screenshot shows a dialog box titled "Avaya TAPI2 configuration" with a close button (X) in the top right corner. The dialog contains the following fields and options:

- Switch IP Address:** A text input field containing "10.1.30.10".
- Buttons:** "OK" and "Cancel" buttons are located to the right of the IP address field.
- Single User:** A radio button option that is currently unselected.
- User Name:** A text input field, currently empty.
- User Password:** A text input field, currently empty.
- Third Party:** A radio button option that is currently selected.
- Switch Password:** A text input field containing "\*\*\*\*\*".
- Options:** Three checkboxes are located below the Switch Password field:
  - Ex Directory Users
  - WAV Users
  - ACD Queues
- Advanced settings:** A section containing a text input field for "Ping Timeout (5 to 420 seconds)" with the value "5".

## 6.2. Launch Carina Web Playback

The web interface is used to configure the extensions. Use **https://<server IP>/webav3/login.html** to access the **ComputerTel Playback Sign In** screen as shown below. Log in with an appropriate credentials.



ComputerTel Playback

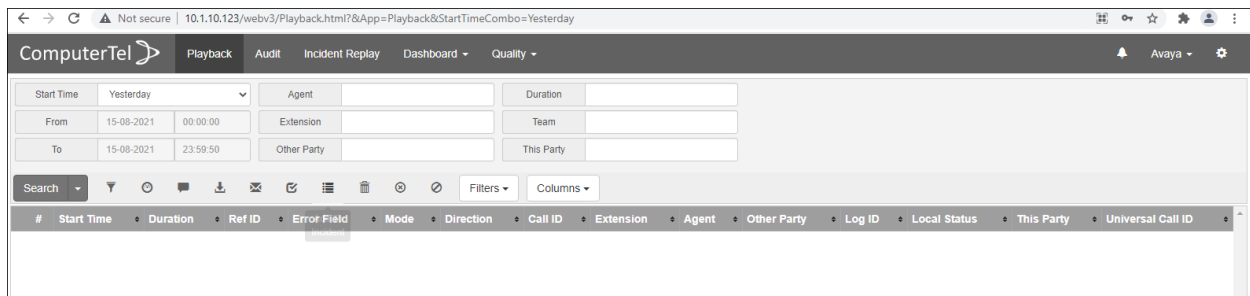
Please Sign in to use web playback.

Username

Password

Sign in

The following screen is displayed with the **Playback** tab selected as default.



ComputerTel Playback Audit Incident Replay Dashboard Quality

Start Time Yesterday Agent Duration

From 15-08-2021 00:00:00 Extension Team

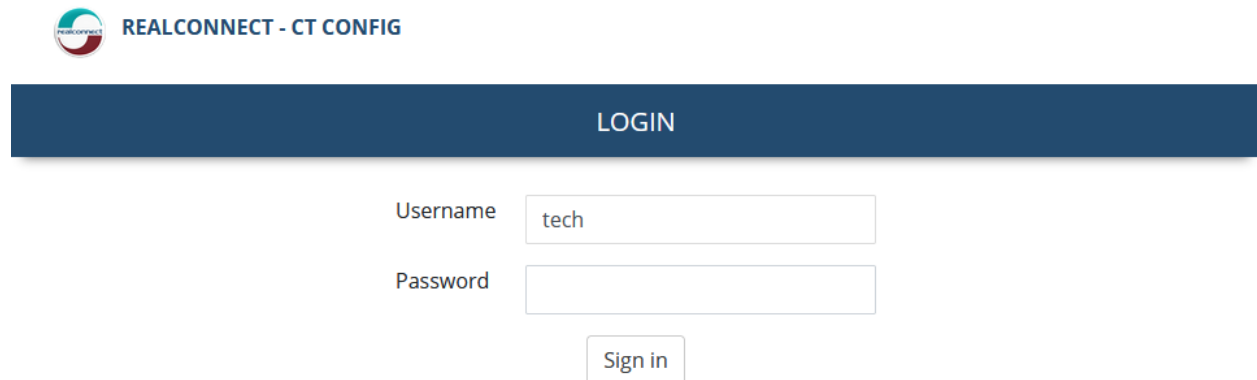
To 15-08-2021 23:59:50 Other Party This Party

Search Filters Columns

# Start Time Duration Ref ID Error Field Mode Direction Call ID Extension Agent Other Party Log ID Local Status This Party Universal Call ID

### 6.3. Launch the Carina Web Configurator

The web interface is a GUI that can be used as an alternative to editing the configuration files of the Main Server and Recording Controller manually. Use **https://<server IP>:8084/ct\_web/app/ctconfigurator/login.html** to access the Carina **CT Config Login** screen as shown below. Login with the appropriate credentials.



REALCONNECT - CT CONFIG

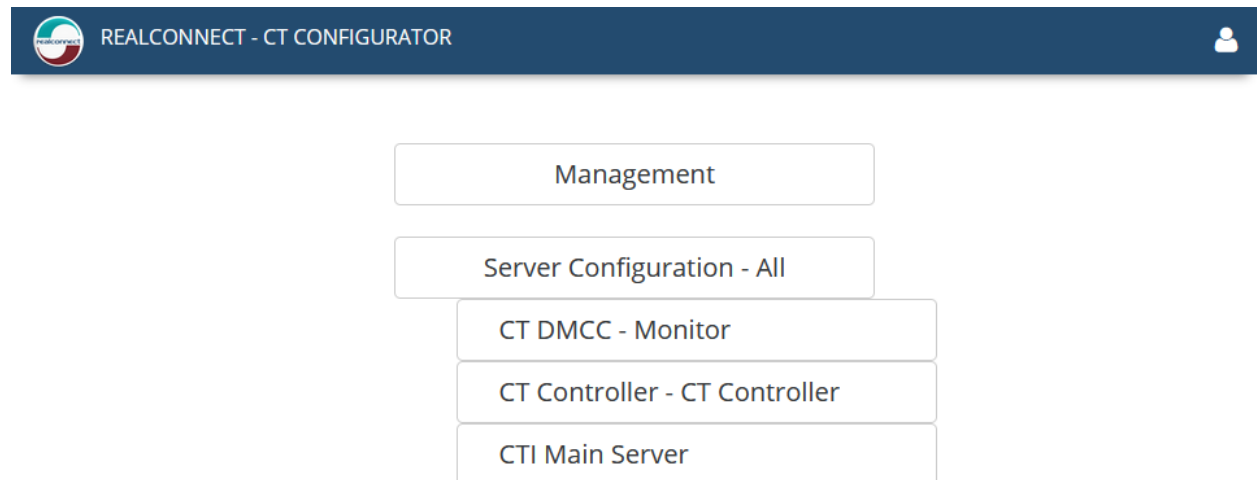
LOGIN

Username

Password

Sign in

The CT Configurator screen shown below is loaded and the user can select to edit the configuration of the **CT Controller** or **CTI Main Server** from the menu options as shown.



REALCONNECT - CT CONFIGURATOR

Management

Server Configuration - All

CT DMCC - Monitor

CT Controller - CT Controller

CTI Main Server



## 6.4. Verify the Server Configuration

### 6.4.1. Main Server Configuration

The Main Server connects to the TAPI Driver to receive TAPI events.

Locate the configuration file “Config.cfg” at “C:\Program Files (x86)\RealConnect\CT Main Server IP Office\” on the Windows server. Verify the parameters below:

Under **CTI**:

- **ServerIP** – IP address of the server running the TAPI Driver, i.e., 127.0.0.1.

```
[CTI]
ServerIP=127.0.0.1
ServerPort=8800
CTIMode=CTI_TAPI_F
CTISimulateTrunks=YES
```

The Carina Configurator can also be used to set the same settings in **CTI Main Server** → **General** below.

The screenshot displays the 'REALCONNECT - CT CONFIG' application window. The title bar includes a logo, the text 'REALCONNECT - CT CONFIG', and navigation icons (checkmark, back, user). The left sidebar shows 'CTI Main Server' and 'General' (selected). The main content area is titled 'General' and contains the following configuration fields:

CTI	
RCA File	c:\program files\realconnect\CT Me
Server IP Address	127.0.0.1
Server Port	8800
CTI Mode	CTI_TAPI_F

Logs	
Alarm Server IP	127.0.0.1
Log Level	0

## 6.4.2. H.323 Protocol Processor

The H323 Protocol Processor decodes the spanned H323 messages for hot desking events.

Locate the configuration file “Voip.ini” at “C:\Program Files (x86)\RealConnect\HDVoIPProcessor” on the Windows server.

Under **H323**:

- **UseIP** - Set to “YES” to report IP Addresses instead of MAC addresses of the extensions
- **Ip** - IP Address of the SWITCH IP Address i.e., 10.1.30.10.
- **Port** – H.323 protocol port as default.
- **UseInfoLevel** - Sets the decoding mode for IP Office H.323 extensions

```
[H323]
UseIP=YES
ip=10.1.30.10
port=1720
UseInfoLevel=2
```

## 6.4.3. Recording Controller Configuration

The Recording Controller receives the processed TAPI events from the Main Server and the H323 events from the H323 Protocol Processor and controls and tags recordings accordingly.

Locate the configuration file “Configp\_newController.cfg” at “C:\Program Files (x86)\RealConnect\CT RCController IP Office\” on the Windows server. Under **CHANNEL MAPPING TO TRUNKS**, note the extensions and IP address entered below.

```
; CHANNEL MAPPING TO TRUNKS
;
; Format is RecorderID:RecChannel:PABXTrunk:Extension:USER:SMDRTrunk:DefaultMacAddress:DefaultIPAddress
;

RecorderChannel=1:1:0:301:::10.1.10.164
RecorderChannel=1:2:0:302:::10.1.10.159
RecorderChannel=1:3:0:306:::10.1.10.168
```

The Carina Configurator can also be used to change the channel mapping to trunks as described in **CT Controller** → **Channels** below.

The screenshot shows the 'REALCONNECT - CT CONFIG' interface. On the left, a sidebar contains 'CT Controller', 'Server', and 'Channels' (highlighted). The main area is titled 'Channels' and displays a table of 'Recorder Channels'. A '+' button is visible next to the table header.

Recorder Channels	
1:1:0:301:::10.1.10.164	-
1:2:0:302:::10.1.10.159	-
1:3:0:306:::10.1.10.168	-

The screenshot shows the 'REALCONNECT - CT CONFIG' interface. On the left, a sidebar contains 'CT Controller', 'Server' (highlighted), and 'Channels'. The main area is titled 'Server' and displays configuration fields for 'CTI', 'General', and 'Database'.

**CTI**

- Switch Type: IPOFFICE
- IP Address: 127.0.0.1
- Mode: CTI\_ANY\_F

**General**

- SMDR Server IP: 0.0.0.0
- Monitor Lines: +
- Pin User:
- Do Local Record:
- Recorder Mode: REC\_CTL\_E
- Notify Win User:
- Open SIP Monitor:

**Database**

- Server Type: MYSQL
- Server: 127.0.0.1
- Database: rc\_db
- Alias: CTUsers
- Username: Avaya
- Password: ●●●●●●

## 6.5. Verify the Agents and Supervisor Extensions

From **Section 6.2** web playback screen, click on the **Settings** cog wheel on the top right corner. It shows the agents and supervisor extensions in **Section 3** that are administered for monitoring.

Configurations of these extensions on Carina Recorder will not be detailed here and can be found in the reference [2].

ComputerTel														
Playback Audit Incident Replay Dashboard Quality														
Users														
Users	UserName	User TSRID	User ID	User Level	Level Name	Default Group	Extension	PinCode	Auto Record	Auto Stop	Allow Mute	PABX Name	Link ID	De
Teams	Agent 11002	Agent 11002	7	2	Agent			11002	✓	✓	✓			
Team Users	Agent 11003	Agent 11003	6	2	Agent			11003	✓	✓	✓			
Rights Template	Agent 11004	Agent 11004	8	2	Agent			11004	✓	✓	✓			
Levels Template	Avaya	Avaya	2	8	Manager				✓	✓	✓			
Tag Groups	Ext 10002	Ext 10002	4	2	Agent				✓	✓	✓			
	Ext 10003	Ext 10003	3	2	Agent				✓	✓	✓			
	Ext 10053	Ext 10053	5	2	Agent				✓	✓	✓			
	Skillset HG	Skillset HG	10	2	Agent				✓	✓	✓			
	Skillset HG1	Skillset HG1	11	2	Agent				✓	✓	✓			
	Supervisor	Supervisor	14	2	Agent		306		✓	✓	✓			
	Tech	Tech	0	100	Technician				✓	✓	✓			Default
	Unknown	Unknown	1	2	Agent				✓	✓	✗			Default
	User 1	User 1	12	2	Agent		301		✓	✓	✓			
	User 2	User 2	13	2	Agent		302		✓	✓	✓			

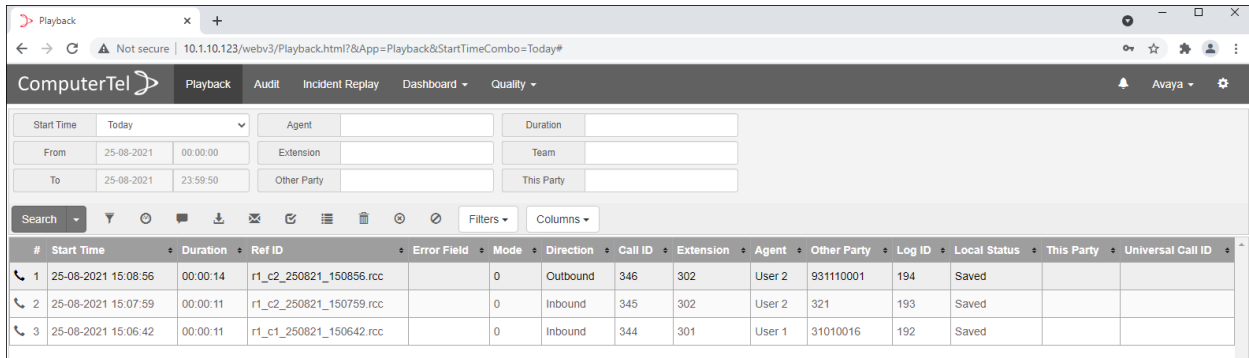
## 7. Verification Steps

The following steps can be performed to verify the basic operation of the system components. Make an inbound call to one of the recorded stations.

Complete a call from the PSTN to a distributed group with answering agent user on the IP Office system. From the Carina web playback interface, select the **Playback** tab from the top menu and enter the **Start Time**, **From** and **To** parameters to begin search.

In the record **#3** below, verify that there is an entry in the pane below reflecting the incoming PSTN call, with proper values in the relevant fields. In this case, **Extension** contained the agent user number “302”, and **Other Party** contained the PSTN number “31010016” used by the answering agent on the IP Office system.

Repeat to check the outbound and internal call with the records similar to display **#1** and **#2** below.



The screenshot shows the ComputerTel Playback interface. At the top, there is a navigation bar with 'Playback', 'Audit', 'Incident Replay', 'Dashboard', and 'Quality' tabs. Below this is a search form with fields for Start Time (Today), Agent, Duration, From (25-08-2021 00:00:00), Extension, Team, To (25-08-2021 23:59:50), Other Party, and This Party. Below the search form is a table of call records. The table has columns for #, Start Time, Duration, Ref ID, Error Field, Mode, Direction, Call ID, Extension, Agent, Other Party, Log ID, Local Status, This Party, and Universal Call ID. Three records are displayed:

#	Start Time	Duration	Ref ID	Error Field	Mode	Direction	Call ID	Extension	Agent	Other Party	Log ID	Local Status	This Party	Universal Call ID
1	25-08-2021 15:08:56	00:00:14	r1_c2_250821_150856.rcc		0	Outbound	346	302	User 2	931110001	194	Saved		
2	25-08-2021 15:07:59	00:00:11	r1_c2_250821_150759.rcc		0	Inbound	345	302	User 2	321	193	Saved		
3	25-08-2021 15:06:42	00:00:11	r1_c1_250821_150642.rcc		0	Inbound	344	301	User 1	31010016	192	Saved		

## 8. Conclusion

These Application Notes describe the configuration steps required for the Carina Recorder R6.5 to successfully interoperate with Avaya IP Office R11.1. All feature and serviceability test cases were completed with observations noted in **Section 2.2**.

## 9. Additional References

Product documentation for Avaya products may be found at <http://support.avaya.com>

[1] *Administering Avaya IP Office™ Platform with Manager, Release 11.1.1, Issue 28.1.1, June 2021.*

Product documentation for Carina recorder can be obtained from ComputerTel from information provide in **Section 2.3**.

[2] *Carina User Manual for version 6.5.0.3.*

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