



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

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# **Application Notes for dvsAnalytics Encore 7.2 with Avaya IP Office Server Edition 11.1 – Issue 1.0**

### **Abstract**

These Application Notes describe the configuration steps required for dvsAnalytics Encore 7.2 to interoperate with Avaya IP Office Server Edition 11.1. dvsAnalytics Encore is a call recording solution.

In the compliance testing, dvsAnalytics Encore used the TAPI interface 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.

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

These Application Notes describe the configuration steps required for dvsAnalytics Encore 7.2 to interoperate with Avaya IP Office Server Edition 11.1. Encore is a call recording solution.

In the compliance testing, Encore used the TAPI interface from IP Office to monitor agent users and used the port mirroring method to capture media associated with the monitored users for call recording.

The IP Office Server Edition configuration consisted of two IP Office systems, a primary Linux server and an expansion IP500V2 that were connected via Small Community Network (SCN) trunk.

In the compliance testing, two Encore servers were deployed. One Encore server with Database, Encore UI, Encore VoIP Service, and Encore CTGateway Service components was used to interface with the primary IP Office system via TAPI, for centralized storage of recording entries and playback access, and for media capture. Another Encore server with Encore VoIP Service and Encore CTGateway Service components was used to interface with the expansion IP Office system via TAPI and for media capture.

Each Encore server used TAPI to interface with the local IP Office system for monitoring of local agent users. The TAPI events were used to determine when to start/stop call recordings. The port mirroring method was used by each Encore server to capture media associated with local Avaya H.323 IP Deskphones used by agent users. When there is an active call at an agent user, the local Encore server is informed of the call along with the associated phone extension used by the agent. The local Encore server starts the call recording using the replicated media from the phone used by the local answering agent user.

## 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 Encore.

The verification of tests included use of the Encore logs for proper message exchanges and use of the Encore web 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 media between IP Office IP Deskphones and Encore did not include use of encrypted media SRTP as requested by dvsAnalytics.

## 2.1. Interoperability Compliance Testing

The compliance testing included feature and serviceability areas.

The feature testing focused on verifying the following on Encore:

- 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, forwarding, follow me, overflow, and fallback.

The feature testing call flows included calls within the primary IP Office system, calls within the expansion IP Office system, as well as calls between the two IP Office systems.

The serviceability testing focused on verifying the ability of Encore to recover from adverse conditions, such as disconnecting/reconnecting the Ethernet connection to Encore.

## 2.2. Test Results

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

- This release of Encore supports call recording involving hot desking within the same IP Office system but not hot desking across IP Office systems.
- For calls that entered one site, routed to the other site and then back to the entering site with call duration under 45 seconds, the recorder may continue until a subsequent call takes place at the user or when the interval defined in the DefRecTimeout parameter has reached. This observation has no other side effects besides the reported duration being longer than the actual recording file.

## 2.3. Support

Technical support on Encore can be obtained through the following:

- **Phone:** (800) 910-4564
- **Email:** [Support@dvsAnalytics.com](mailto:Support@dvsAnalytics.com)

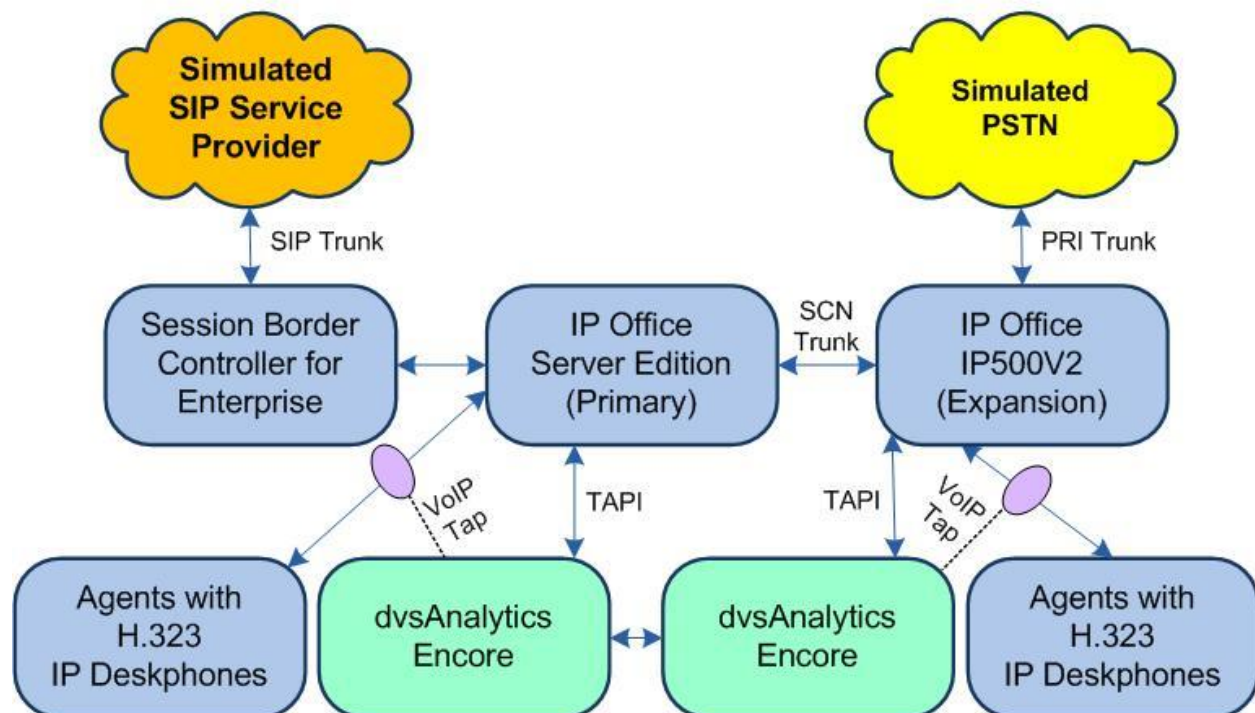
### 3. Reference Configuration

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 Encore 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, each Encore server monitored the local phone extensions used by the agents.

Device Type	Device Number/Extension
Primary IP Office System	
Phone Extensions	21031, 21033 (hot desking)
Agent Users	21031, 21032 (hot desking)
Expansion IP Office System	
Phone Extensions	22031, 22033 (hot desking)
Agent Users	22031, 22032 (hot desking)



**Figure 1: Compliance Testing Configuration**

## 4. Equipment and Software Validated

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

Equipment/Software	Release/Version
<b>Primary</b>	
Avaya IP Office Server Edition (Primary) in Virtual Environment	11.1.0.1.0
Avaya 9611G & J179 IP Deskphones (H.323)	6.8304
dvsAnalytics Encore on Windows 2016 Server Standard <ul style="list-style-type: none"><li>Encore UI</li><li>Database</li><li>Encore VoIP Service</li><li>Encore CTGateway Service<ul style="list-style-type: none"><li>Avaya IP Office TAPI2 Driver (tspi2w_64.tsp)</li></ul></li></ul>	7.2 3.15.21531 2.38.21498 2.38.21558 1.0.0.44
<b>Expansion</b>	
Avaya IP Office on IP500V2 (Expansion)	11.1.0.1.0
Avaya 1608-I IP Deskphone (H.323)	1.3120
Avaya J169 IP Deskphone (H.323)	6.8304
dvsAnalytics Encore on Windows Server 2016 Standard <ul style="list-style-type: none"><li>Encore VoIP Service</li><li>Encore CTGateway Service<ul style="list-style-type: none"><li>Avaya IP Office TAPI2 Driver (tspi2w_64.tsp)</li></ul></li></ul>	7.2 2.38.21498 2.38.21558 1.0.0.44

*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. Configure Avaya IP Office

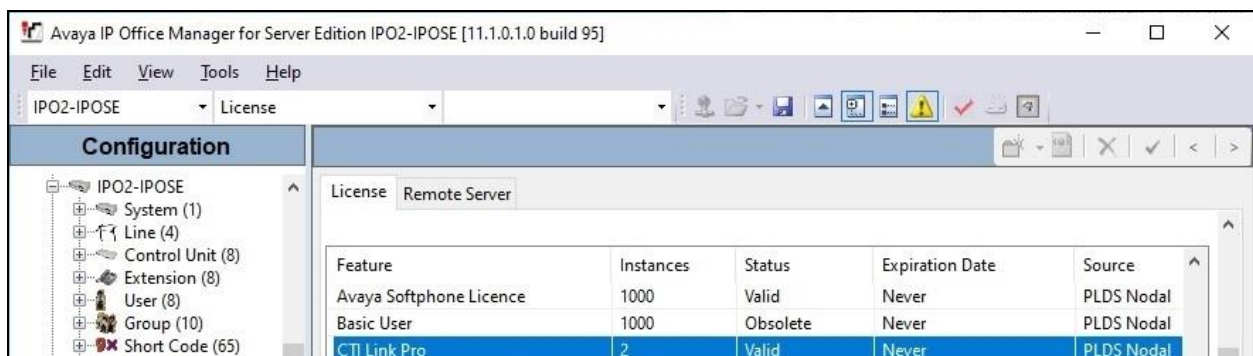
This section provides the procedures for configuring the IP Office systems. The procedures include the following area:

- Verify licenses
- Administer extensions
- Administer security settings
- Obtain phone IP address

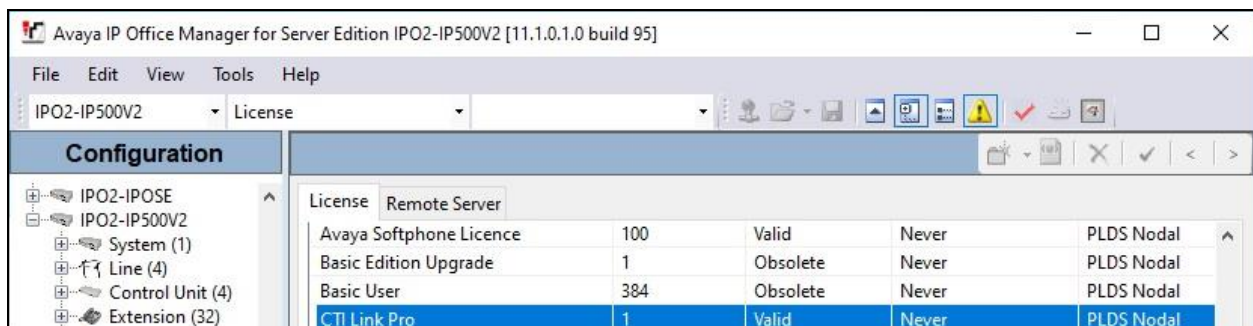
### 5.1. Verify Licenses

From a PC running the IP Office Manager application, select **Start → Programs → IP Office → Manager** to launch the application. Select the proper primary IP Office system, and log in using the appropriate credentials. The **Avaya IP Office Manager for Server Edition IPO2-IPOSE** screen is displayed, where **IPO2-IPOSE** is the name of the primary IP Office system.

From the configuration tree in the left pane, select **License** (not shown) under the primary IP Office system, in this case “IPO2-IPOSE”, 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.



From the configuration tree in the left pane, select the expansion IP Office system, in this case **IPO2-IP500V2**, followed by **License** (not shown) to display licenses in the right pane. Verify that there is a **CTI Link Pro** license, and with the license **Status** being “Valid”, as shown below.

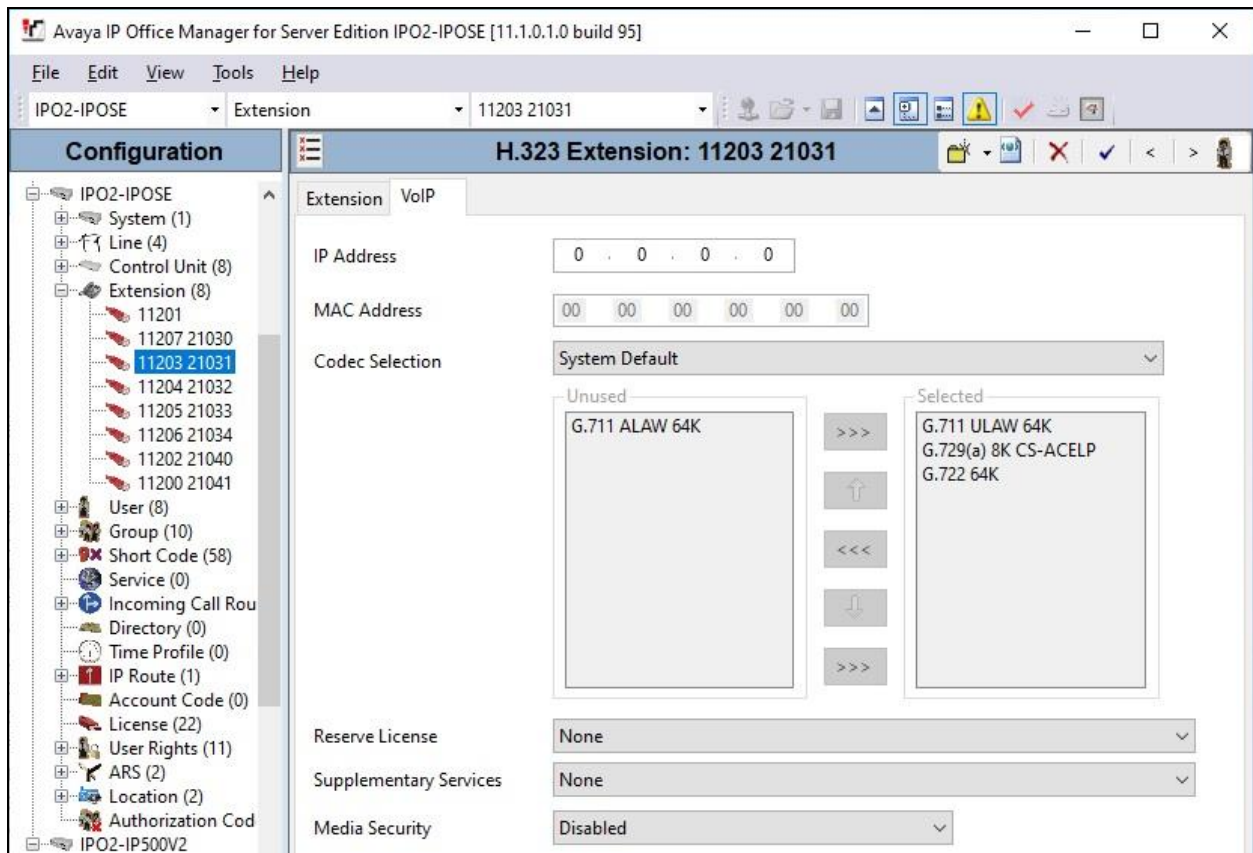


## 5.2. Administer Extensions

From the configuration tree in the left pane, under **Extension**, select the first extension under the primary IP Office system from **Section 3** that will be used by agents, in this case “21031”.

Select the **VoIP** tab. For **Media Security**, select “Disabled” as shown below.

Repeat this section to disable media security for all extensions on both IP Office systems that will be used by agents. In the compliance testing, two extensions on each IP Office system from **Section 3** were configured.

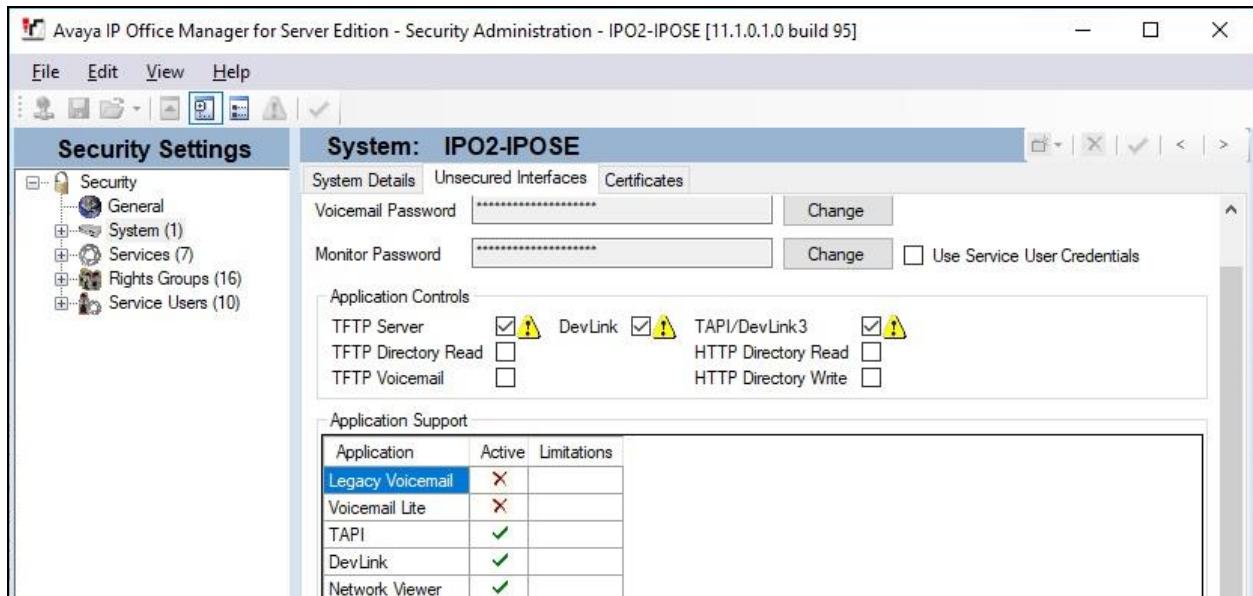




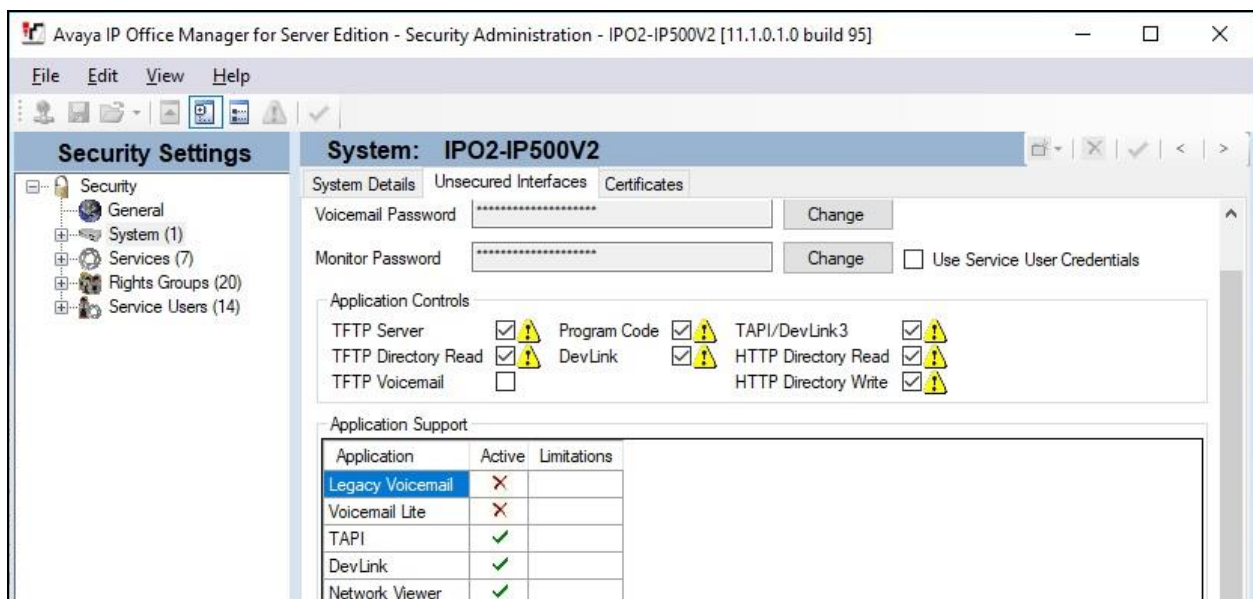
### 5.3. Administer Security Settings

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

The **Avaya IP Office Manager for Server Edition – Security Administration - IPO2-IPOSE** screen is displayed, where **IPO2-IPOSE** is the name of the selected IP Office system. Select **Security → System** to display the **System** screen in the right pane. Select the **Unsecured Interfaces** tab, and check **TAPI/DevLink3** as shown below.

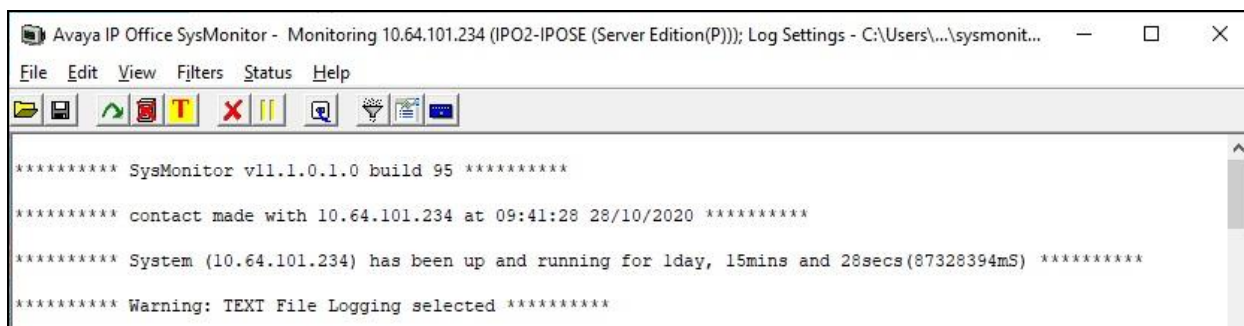


Repeat this section to enable **TAPI/DevLink3** on the expansion IP Office system.

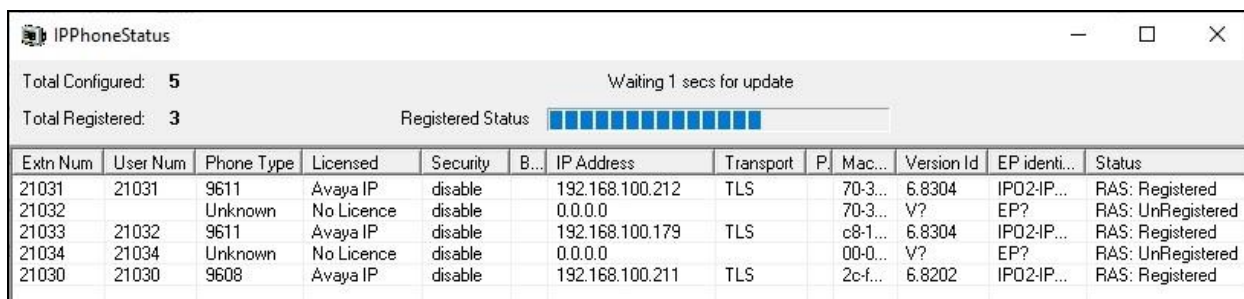


## 5.4. Obtain Phone IP Address

From a PC running the IP Office Monitor application, select **Start → Programs → IP Office → Monitor** to launch the application and connect to the primary IP Office system. The **Avaya IP Office SysMonitor** screen is displayed, as shown below. Select **Status → H323 Phone Status** from the top menu.

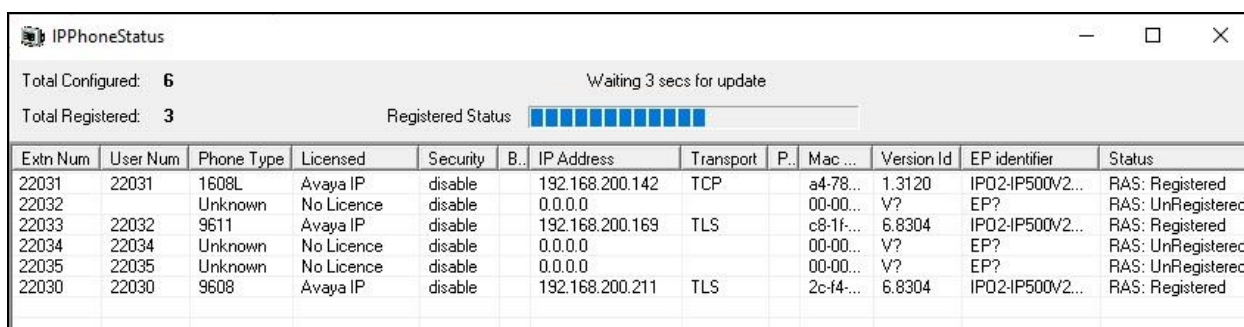


The **IPPhoneStatus** screen is displayed. Make a note of the IP address associated with each phone extension used by agents on the primary IP Office system from **Section 3**, which will be used later to configure Encore. Note that phone extension **21033** is used by the local hot desking agent.



Extn Num	User Num	Phone Type	Licensed	Security	B...	IP Address	Transport	P...	Mac...	Version Id	EP identi...	Status
21031	21031	9611	Avaya IP	disable		192.168.100.212	TLS		70-3...	6.8304	IP02-IP...	RAS: Registered
21032		Unknown	No Licence	disable		0.0.0.0			70-3...	V?	EP?	RAS: UnRegistered
21033	21032	9611	Avaya IP	disable		192.168.100.179	TLS		c8-1...	6.8304	IP02-IP...	RAS: Registered
21034	21034	Unknown	No Licence	disable		0.0.0.0			00-0...	V?	EP?	RAS: UnRegistered
21030	21030	9608	Avaya IP	disable		192.168.100.211	TLS		2c-f...	6.8202	IP02-IP...	RAS: Registered

Repeat this section to obtain IP address associated with each phone extension used by agents on expansion IP Office system from **Section 3**. Note that phone extension **22033** is used by the local hot desking agent.



Extn Num	User Num	Phone Type	Licensed	Security	B...	IP Address	Transport	P...	Mac ...	Version Id	EP identifier	Status
22031	22031	1608L	Avaya IP	disable		192.168.200.142	TCP		a4-78...	1.3120	IP02-IP500V2...	RAS: Registered
22032		Unknown	No Licence	disable		0.0.0.0			00-00...	V?	EP?	RAS: UnRegistered
22033	22032	9611	Avaya IP	disable		192.168.200.169	TLS		c8-1f...	6.8304	IP02-IP500V2...	RAS: Registered
22034	22034	Unknown	No Licence	disable		0.0.0.0			00-00...	V?	EP?	RAS: UnRegistered
22035	22035	Unknown	No Licence	disable		0.0.0.0			00-00...	V?	EP?	RAS: UnRegistered
22030	22030	9608	Avaya IP	disable		192.168.200.211	TLS		2c-f4...	6.8304	IP02-IP500V2...	RAS: Registered

## 6. Configure dvsAnalytics Encore

This section provides the procedures for configuring Encore. The procedures include the following areas:

- Administer TAPI driver
- Launch web interface
- Administer audio settings
- Administer users

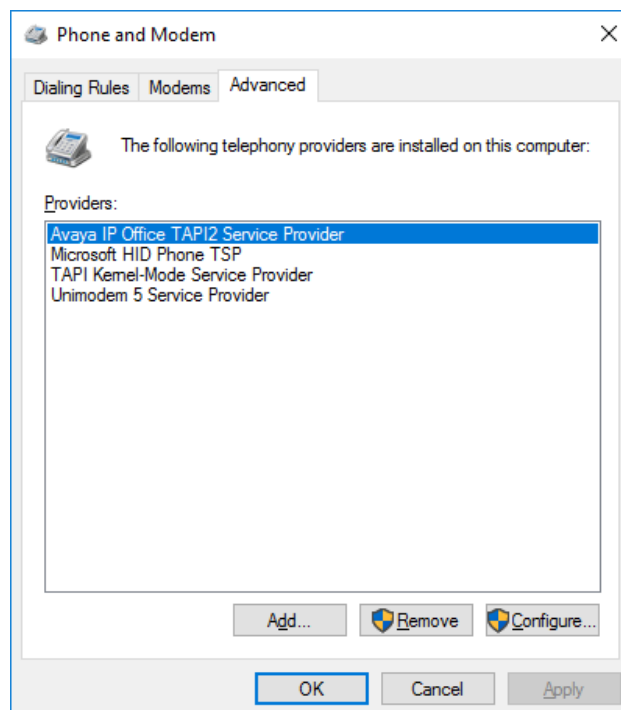
The configuration of Encore is performed by dvsAnalytics installers and dealers. The procedural steps are presented in these Application Notes for informational purposes.

The creation of pertinent site, team, and recording profiles were pre-configured and will not be described.

### 6.1. Administer TAPI Driver

From the first Encore 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 left screenshot below. For **Switch IP Address**, enter the IP address of the primary IP Office system. Select the radio button for **Third Party** and enter the system password of the primary IP Office system into the **Switch Password** field. Reboot the Encore server.

Repeat the procedures in this section for the second Encore server and use the IP address of the expansion IP Office system as shown in the right screenshot below.

The image displays two side-by-side screenshots of the 'Avaya TAPI2 configuration' dialog box. Both windows have a title bar with the text 'Avaya TAPI2 configuration' and a close button (X). The left window shows the 'Switch IP Address' field with the value '10.64.101.234'. The right window shows the 'Switch IP Address' field with the value '192.168.200.234'. Both windows have an 'OK' button and a 'Cancel' button. The 'Single User' radio button is unselected, and the 'Third Party' radio button is selected. Below the radio buttons, there are fields for 'User Name' and 'User Password'. Below these, there is a 'Switch Password' field with a masked password 'XXXXXXXXXX'. Underneath the 'Switch Password' field, there are three checkboxes: 'Ex Directory Users', 'WAV Users', and 'ACD Queues', all of which are unchecked. At the bottom, there is an 'Advanced settings' section with a 'Ping Timeout (5 to 420 seconds)' field set to '5'.

## 6.2. Launch Web Interface

Access the Encore web interface by using the URL “http://ip-address/encore” in an Internet Explorer browser window, where “ip-address” is the IP address of the Encore server with the Encore UI component. The **encore** screen below is displayed. Click **Login** and log in using the appropriate credentials.

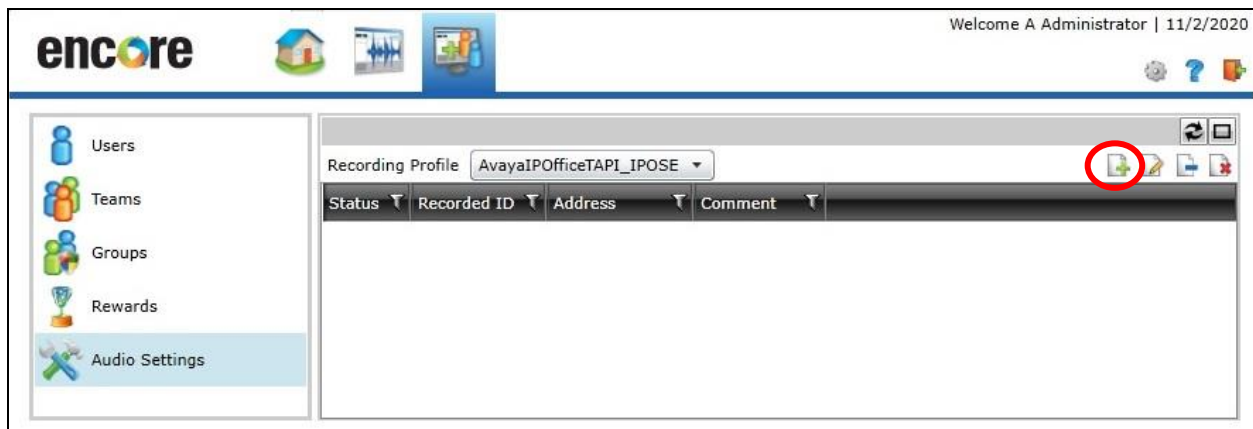


## 6.3. Administer Audio Settings

The **encore** screen below is displayed. Select the **User and System Configuration** icon from the top menu, followed by **Audio Settings** in the left pane to display the **Recording Profile** screen.

For **Recording Profile**, select the pre-configured profile to be used with the primary IP Office system, in this case “AvayaIPOfficeTAPI\_IPOSE”.

Select the **Add recorded ID** icon shown below.



The **Add Recorded ID** pop-up box is displayed. Retain the default value and click **OK**.

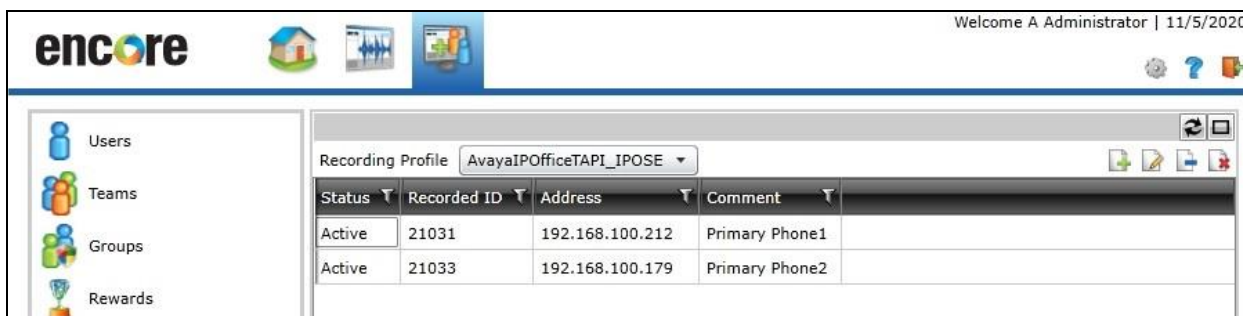


The **Recorded ID** pop-up box is displayed next. Enter the following values for the specified fields and retain the default values for the remaining fields.

- **Status:** “Active”
- **Recorded ID:** The first phone extension of the primary IP Office system from **Section 3**.
- **IP Address:** The IP address associated with this phone extension from **Section 5.4**.
- **Comment:** An optional comment.



Repeat this section to add all phone extensions for the primary IP Office system from **Section 3**. In the compliance testing, two entries were created as shown below.

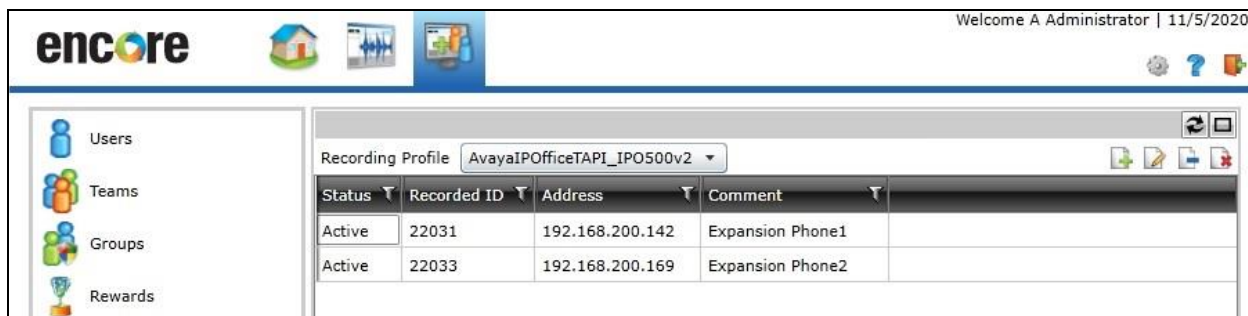




Repeat the procedures in this section to add all phone extensions for the expansion IP Office system from **Section 3**.

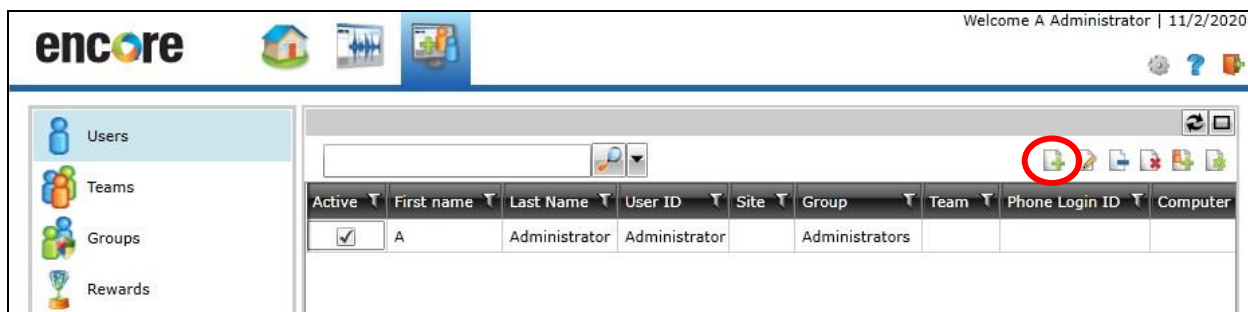
In **Recording Profile**, select the pre-configured profile to be used with the expansion IP Office system, in this case “AvayaIPOfficeTAPI\_IPO500v2”.

In the compliance testing, two entries were created as shown below.

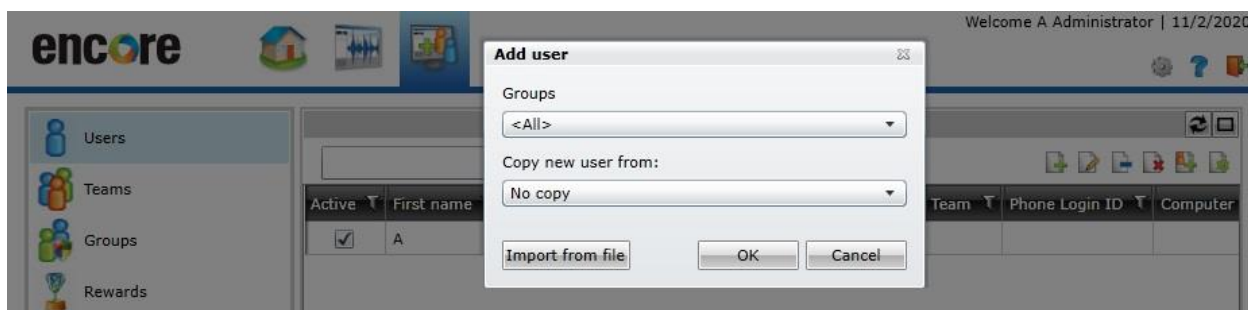


## 6.4. Administer Users

Select **Users** from the left pane to display a list of users. Select the **Add user** icon shown below.



The **Add user** pop-up box is displayed. Retain the default values and click **OK**.



The **User - New** pop-up box is displayed next. Enter the following values for the specified fields and retain the default values for the remaining fields.

- **Full name:** The full name for the agent.
- **Recording account (agent):** Check this field.
- **Phone login ID:** The first agent user number from **Section 3**.
- **Computer login ID:** Required to be configured but not used in the integration.
- **Site:** Select the pertinent site that was pre-configured.
- **Team:** Select the pertinent team that was pre-configured.

Repeat this section to add all agent users from **Section 3**. In the compliance testing, four users were created as shown below.

Active	First name	Last Name	User ID	Site	Group	Team	Phone Login ID	Computer Login ID
<input checked="" type="checkbox"/>	A	Administrator	Administrator		Administrators			
<input checked="" type="checkbox"/>	Agent1	Expansion		Site 1		TeamIPO	22031	22031
<input checked="" type="checkbox"/>	Agent2	Expansion		Site 1		TeamIPO	22032	22032
<input checked="" type="checkbox"/>	Agent1	Primary		Site 1		TeamIPO	21031	21031
<input checked="" type="checkbox"/>	Agent2	Primary		Site 1		TeamIPO	21032	21032



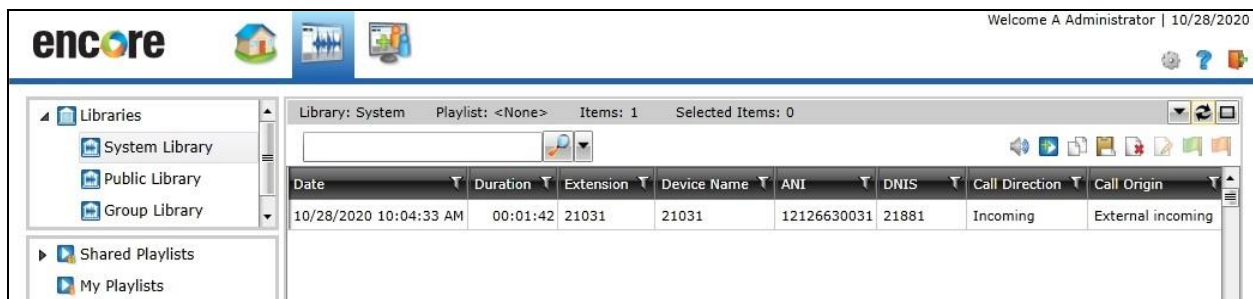
## 7. Verification Steps

This section provides the tests that can be performed to verify proper configuration of IP Office and Encore.

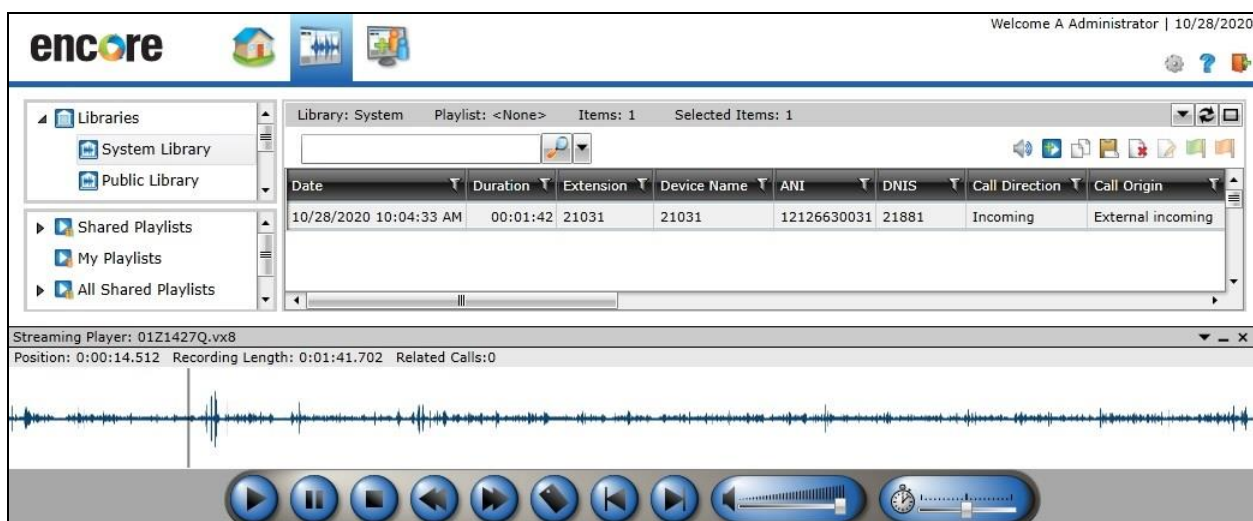
### 7.1. Verify Recording of Primary Agent

Complete a call from the PSTN to a distributed group with answering agent user on the primary IP Office system. From the Encore web interface, select the **Recorded Contacts** icon from the top menu, to display a listing of recordings.

Verify that there is an entry in the right pane reflecting the last call, with proper values in the relevant fields. In this case, **DNIS** contained the distributed group extension “21881”, **Extension** contained the agent user number “21031”, and **Device Name** contained the phone extension “21031” used by the answering agent on the primary IP Office system.



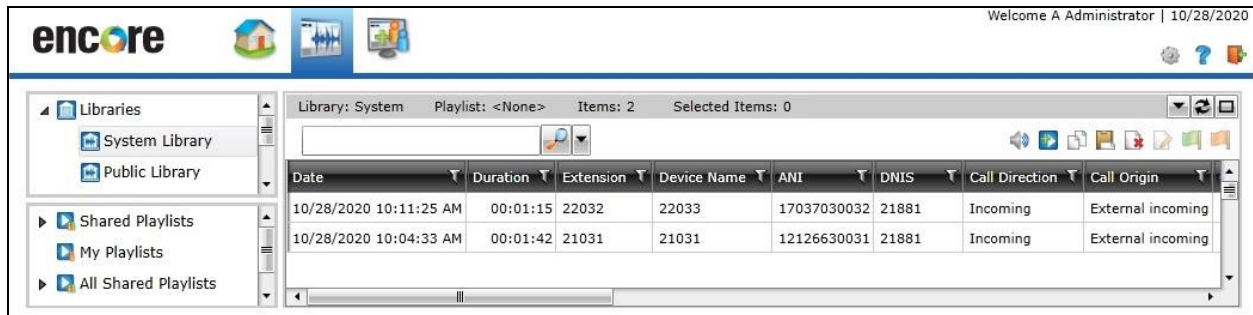
Right click on the entry and select **Play** to listen to the playback. Verify that the screen is updated and that the call recording can be played back.



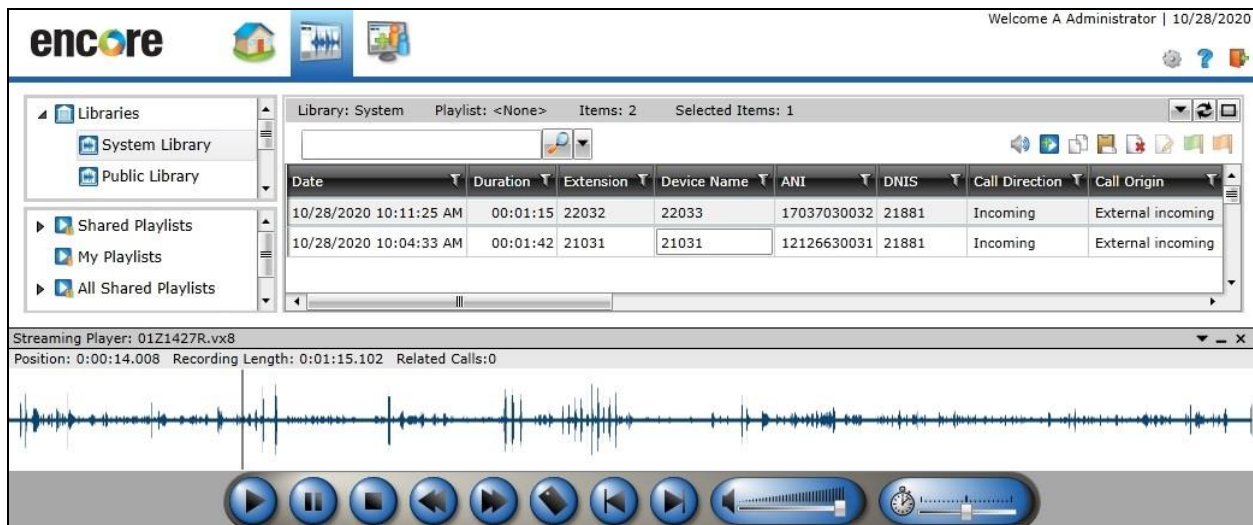
## 7.2. Verify Recording of Expansion Agent

Complete a call from the PSTN to a distributed group with answering user on the expansion IP Office system. From the Encore web interface, verify that there is an entry in the right pane reflecting the last call, with proper values in the relevant fields.

In this case, **DNIS** contained the distributed group extension “21881”, **Extension** contained the agent user number “22032”, and **Device Name** contained the phone extension “22033” used by the answering agent on the expansion IP Office system.



Right click on the entry and select **Play** to listen to the playback. Verify that the screen is updated and that the call recording can be played back.



## 8. Conclusion

These Application Notes describe the configuration steps required for dvsAnalytics Encore 7.2 to successfully interoperate with Avaya IP Office Server Edition 11.1. All feature and serviceability test cases were completed with observations noted in **Section 2.2**.

## 9. Additional References

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

1. *Administering Avaya IP Office™ Platform with Manager*, Release 11.1, Issue 1, April 2020, available at <http://support.avaya.com>.
2. *Avaya IP Office TAPI and ACCS Installation Addendum*, Version 7.2, September 23, 2020, available from dvsAnalytics Support.
3. *Avaya IP Office TAPI and ACCS Integration Guide*, Version 7.0, November 8, 2018, available from dvsAnalytics Support.

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