



Avaya Solution & Interoperability Test Lab

Application Notes for Integrating Verint ULTRA9 VoIP Call Recording Service With Avaya Interaction Center - Issue 1.1

Abstract

Verint Ultra Intelligent Recording delivers enterprise capabilities to optimize call center quality and performance in call recording. In addition to supporting a traditional circuit interface, Verint also supports VoIP call recording service for the IP Telephony call center. These Application Notes describe the configuration steps to integrate Verint with Avaya Interaction Center. The Verint ULTRA9 server successfully completed interoperability compliance testing for the Avaya Developer*Connection* program. Information in these notes has been obtained through compliance testing and additional technical discussions. Testing was conducted via the Developer*Connection* Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

Verint Ultra Intelligent Call Recording, comprising several system components together, offers a suite of applications to manage call recording service. The Platform server is responsible for storing the “data warehouse” of multimedia interaction and interaction related information. This server defines the business rules to control what to record, what processing to apply, and how to distribute the resulting information. The Application server is an interface between the system’s servers and the desktop applications. This server includes applications such as Web-based IntelliPortal, desktop management applications, agent desktop applications, and remote Internet-based workstations. The VoIP Acquisition Module (VAM) records VoIP audio via a passive network tap with Avaya Communication Manager. The IntelliLink server is the interface between the ULTRA recording system and the contact center switch or middleware software. The IntelliLink server provides CTI capability for retrieval of call-related information, including date, time, dialed number, customer’s phone number, duration of call, and any other information that may be provided via CTI from the customer’s data or telephone systems. This information is tagged to recorded calls, stored in the Contact Database, and used in search operations for retrieval and analysis.

1.1. Integration Overview

Figure 1 depicts an overview of the Verint Voice-over-IP Call Recording integration to Avaya IC. The Verint Connector server is installed in the Avaya Interaction Center Telephony machine to receive telephony events, and is also configured and managed by the Avaya Interaction Center Manager console. In order for the Avaya Interaction Center Manager to manage the Verint server, the customer must provide the “vespidl.pk” file to Verint for modification. Verint then modifies this file to include Verint server parameters. This file must then be copied back to the Core and Telephony servers.

For IP call recording, the call center must support IP Telephony where each agent uses an IP Phone or IP Agent. When incoming call events are directed to the Avaya Interaction Center via a route request, the Verint Connector Server receives the telephony events and passes the events to the Verint IntelliLink Server, which instructs the VAM server to record all H.323 audio sessions setup by the Avaya Communication Manager for the call. The ability to record is made possible by enabling port mirroring on the ports of the LAN switch connected to the MEDPRO and C-LAN cards.

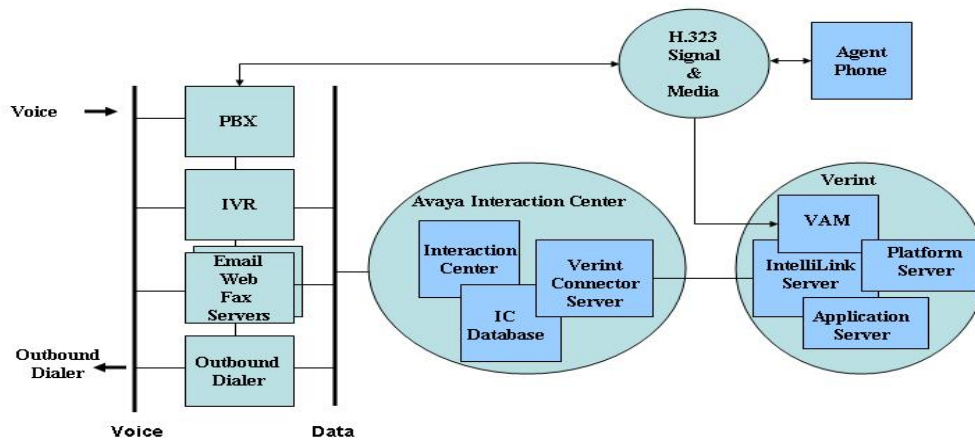


Figure 1: Verint Integration Overview

1.2. Test Configuration

Figure 2 illustrates the configuration used during compliance testing.

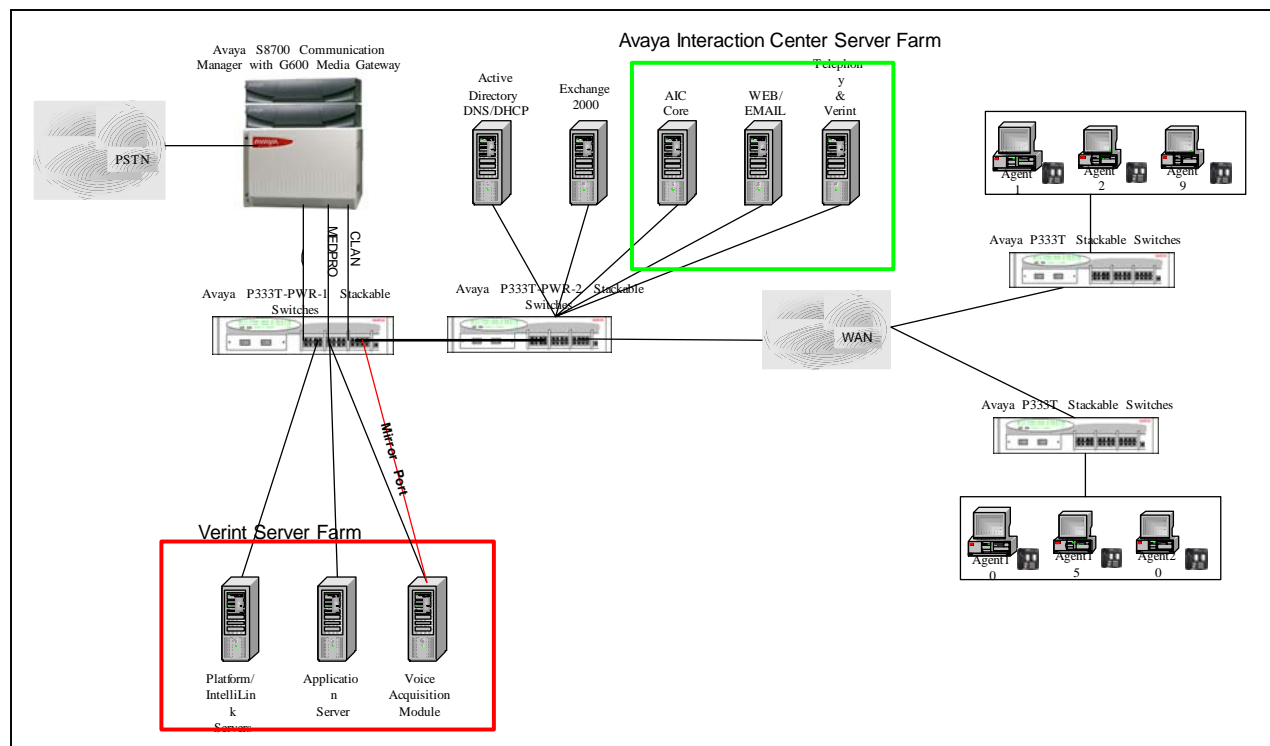


Figure 2: Avaya DeveloperConnection Compliance Test Configuration

1.3. Verint Playback Overview

Verint creates a single call record (wav file) for every call in compressed G.723.1 format (5.3 Kbps) that can be played via the standard Microsoft Media Player on a Windows workstation or streamed over the Web using Microsoft Multimedia Server. If an agent transfers or creates a conference call to another monitored agent, the Verint server will create two records and transaction details for the call. **Figure 3** shows the playback utility provided by Verint to play these wav files.



Figure 3: Verint Playback Player

2. Equipment and Software Validated


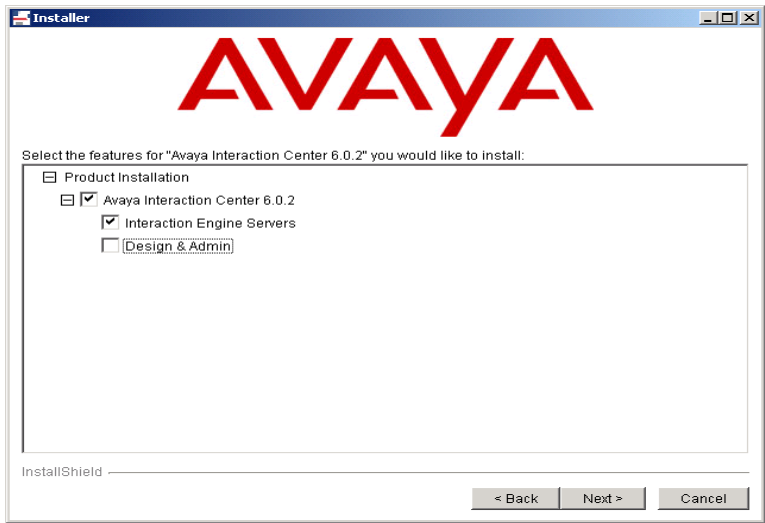
The following equipment and software were used for the sample configuration provided:

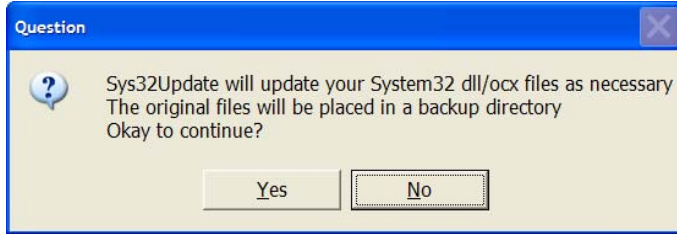

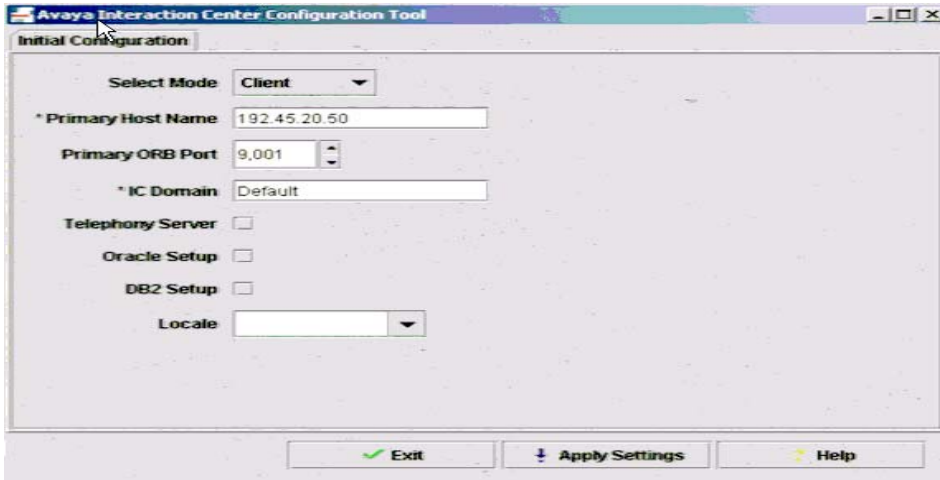
Equipment	Software
Avaya S8700 Media Server	R011x.01.0.060.4 (Avaya Communication Manager 1.2)
Avaya Interaction Center	6.0.2
Avaya 4612 IP Phone	R1.8
Avaya P333T-PWR	3.12
Verint ULTRA	Release 9.2

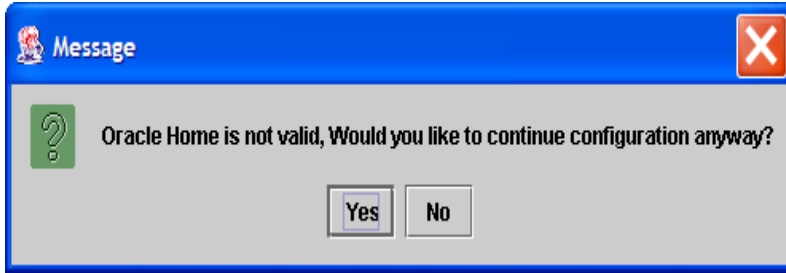
3. Configure the Verint Platform Server

3.1. Installing Avaya Interaction Center Configuration Tool

The Verint Platform Server requires installing Avaya Interaction Center client environment for communicating with the Avaya Interaction Center Telephony Server.

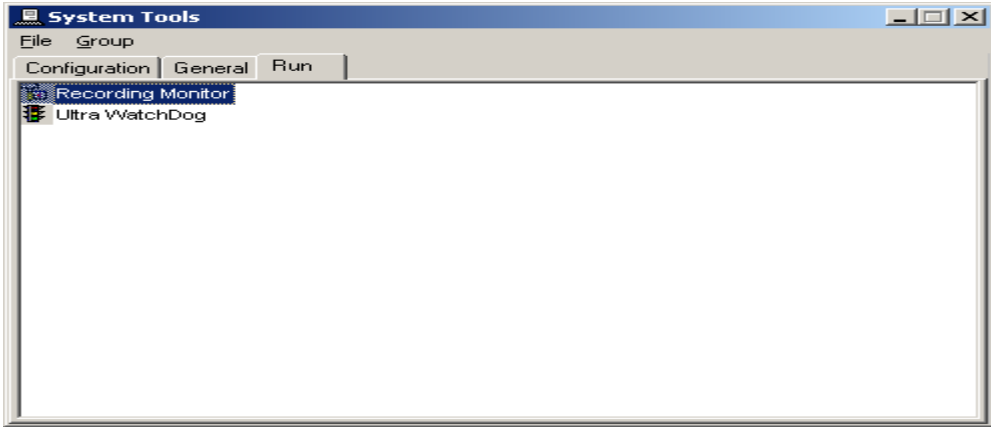
Step	Description
1.	Run the “setup.exe” file from the Avaya Interaction Installation CD.
2.	Select Servers, Design & Administration Tools . 
3.	Accept the License Agreement and click Next .
4.	Click Next in the “Welcome to the InstallShield Wizard for Avaya Interaction Center 6.0.2” screen.
5.	Click Next to install the software in the “C:\Program Files\Avaya”.
6.	Check the Avaya Interaction Center 6.0.2 and Interaction Engine Servers only and click Next . 

7.	Click Next in the “Avaya Interaction Center 6.0.2 will be installed in the following location:” screen.
8.	Click Yes on the “Question” screen.  <p>A dialog box titled "Question" with a question mark icon. The text inside says: "Sys32Update will update your System32 dll/ocx files as necessary. The original files will be placed in a backup directory. Okay to continue?". There are "Yes" and "No" buttons at the bottom.</p>
9.	Select Yes in the “Configuration Tool” screen and click Next .  <p>An "Installer" window for Avaya. It features the Avaya logo at the top. Below it, it says "Please enter the required information". There is a section asking "Do you want to run the Configuration Tool now?" with radio buttons for "Yes" (selected) and "No". At the bottom, there are "Back", "Next >", and "Cancel" buttons.</p>
10.	Check the Overwrite old config? Box. Select Client for Select Mode. Enter the IP address of the Avaya Interaction Center Core server. Leave the default value port. Click Apply Settings .  <p>The "Avaya Interaction Center Configuration Tool" window. The "Initial Configuration" tab is active. It shows a "Select Mode" dropdown set to "Client". Below it, there are input fields for "Primary Host Name" (192.45.20.50), "Primary ORB Port" (9,001), and "IC Domain" (Default). There are checkboxes for "Telephony Server", "Oracle Setup", and "DB2 Setup", all of which are unchecked. A "Locale" dropdown is at the bottom. At the very bottom, there are three buttons: "Exit" (with a green checkmark), "Apply Settings" (with a blue double arrow), and "Help" (with a yellow question mark).</p>

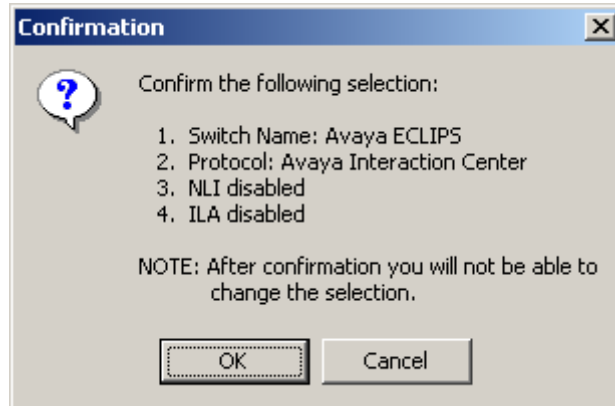
11.	Select Yes to continue the configuration.
	
12.	Click Next to complete the configuration.
13.	Select Yes, restart my system.
14.	Click Finish.

3.2. Configure the Intellilink

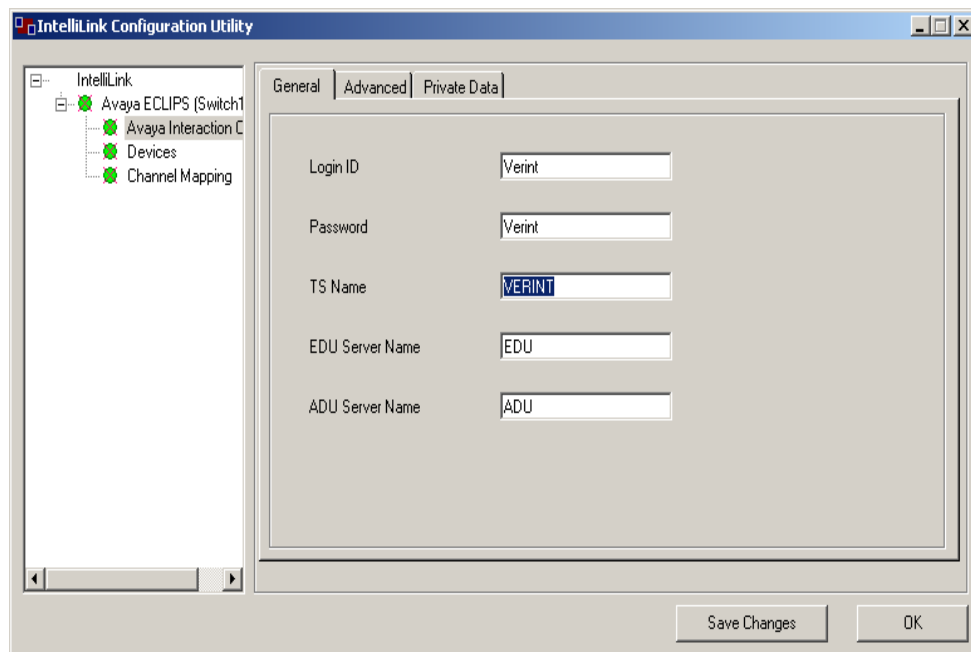
IntelliLink is the interface between the ULTRA recording system and the contact center switch. IntelliLink provides CTI capability to retrieve call information that is tagged to the recorded call. The following steps describe how to configure the IntelliLink to communicate with the Avaya Interaction Center.

Step	Description
1.	Run System Tools from Desktop. 
2.	Double Click on IntelliLink .
3.	Right Click on IntelliLink and select ADD .
4.	Select Avaya ECLIPS . Click Next .
5.	Select Avaya Interaction Center . Click Next .

6. Click **OK** on the confirmation screen.

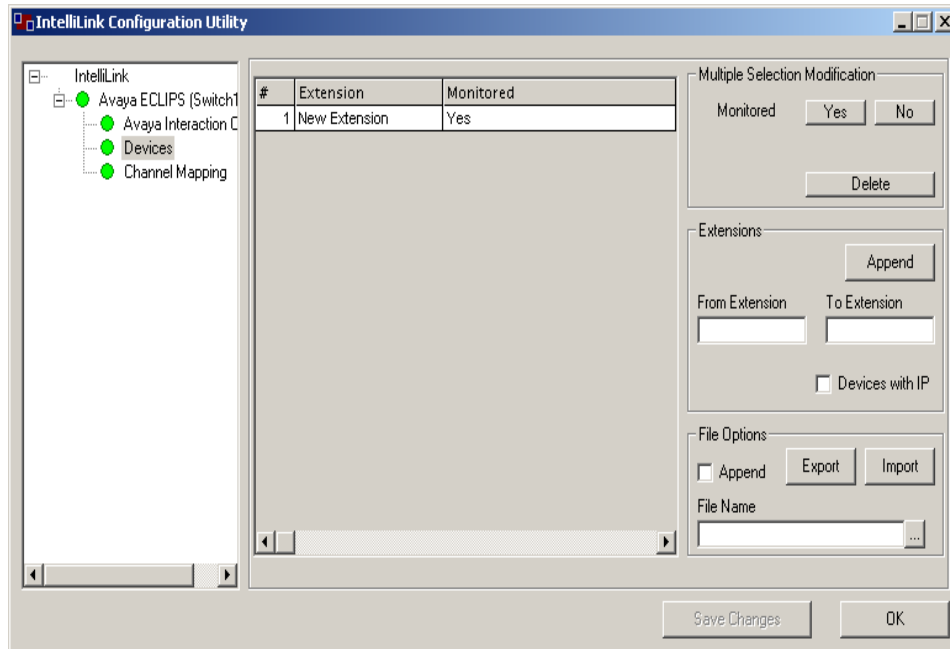


7. Select **Avaya IC**.
Enter the login and password of the operator agent.
Enter the Verint server Name as it appears in the IC Manager.

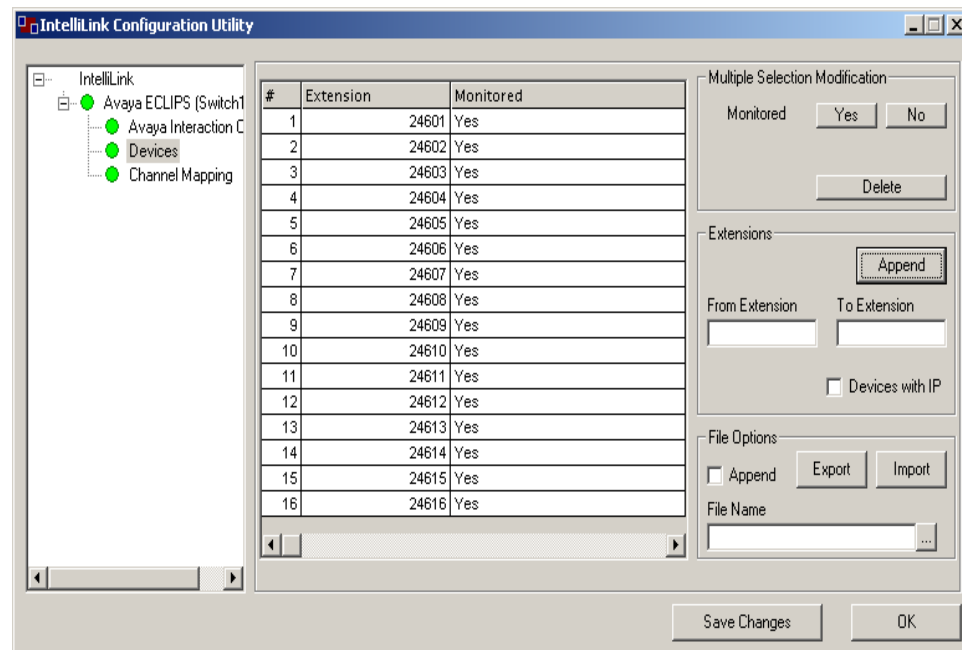


Click **Save Changes**.

8. Select **Devices**.



9. Enter the station extension range and click **Append**.



10. Click **Save Changes**.

11. Click **OK**.

4. Configure Avaya Interaction Center

This section explains the file modification required to support the Verint server. It also describes how to configure the Avaya Interaction Center Manager to add the Verint server, and how to create an operator agent used by Verint server.

4.1. Copy files to Avaya Interaction Center Servers

Some files must be modified on the Verint/Avaya IC Core server. The customer must provide Verint with the Vespidl.pk file from the Interaction Center Core server (located in the “C:\Program Files\Avaya\IC60\etc” directory). Verint then modifies the Vespidl.pk file to enable Avaya Interaction Center to recognize the Verint server.

Step	Description
1.	Copy the Vespidl.pk file modified by Verint to the “C:\Program Files\Avaya\IC60\etc” directory where Avaya Interaction Center is installed. In this configuration, the Verint server is installed in the Avaya Interaction Center Telephony Server machine.
2.	On the Telephony Server machine, copy the following files to the “C:\Program Files\Avaya\IC60\bin” directory where Avaya Interaction Center is installed. Verint provides these files. VICSrv.exe AvayaICUtils.dll

4.2. Add the Verint server to IC

The following steps add the Verint server to Avaya Interaction Center.

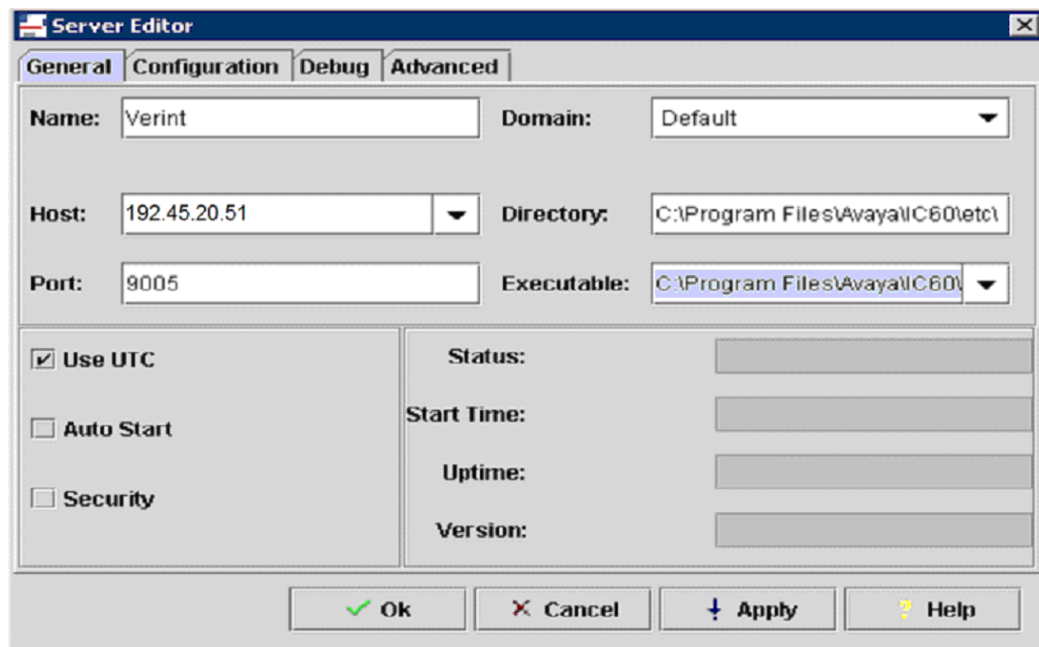
Step	Description
1.	Launch the Avaya Interaction Center Manager.
2.	Select the Server tab.
3.	In the Server menu select New

4. In Server Type enter **VERINT** as shown.

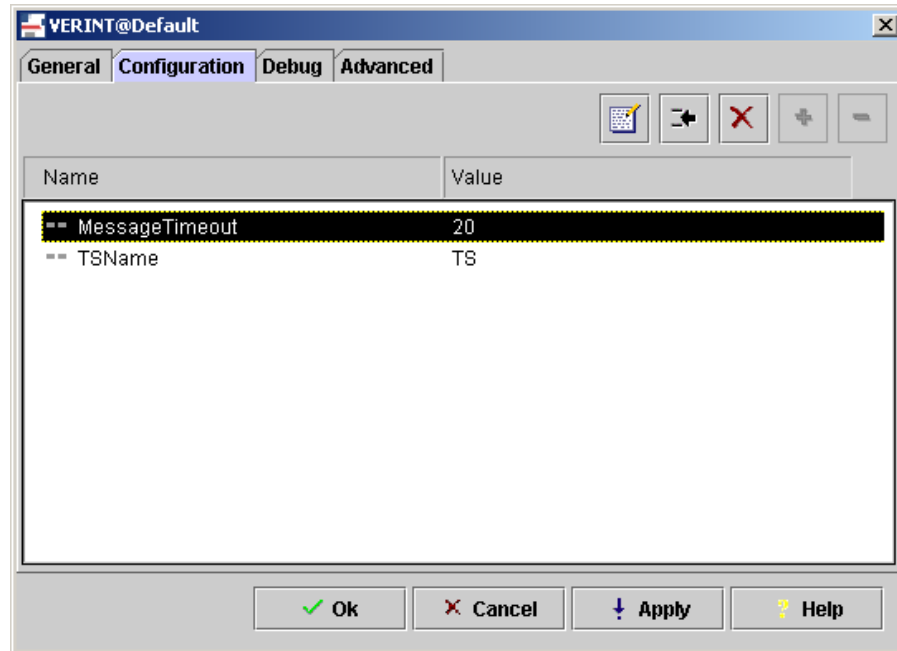


Press **OK**.

5. In the Name field type **Verint**
Select the domain.
Enter the IP address where Verint Connector is installed.
In the Port field, enter available port.
In Executable field, enter **%AVAYA_HOME%\IC60\bin\VICSrv.exe** (replace %AVAYA_HOME% with the correct directory for this machine)



6. Click the Configuration tab add the following couples:
 - a. Name: MessageTimeout, Value: 20
 - b. Name: TSName, Value: TS



4.3. Update the IC ORB Server

On the “Server” tab of IC Manager, select the primary ORB servers. Right click, and select “Update”. This will generate a new version of the implementation file, which must be copied to all IC clients and servers.

4.4. Copying Server Implementation and Interface Files

Copy the “Vesp.imp” (implementation file) and “Vespidl.pk” (interface file) files to the Verint Platform and Avaya IC Telephony servers. These files must be copied from the “C:\Program Files\Avaya\IC60\etc” directory of the Avaya IC Core server.

4.5. Add Verint Agent

To start the monitoring service, Verint must login to the Avaya Interaction Center as an operator. The following steps explain how to create an operator account used by Verint.

Step	Description
1	Click on the Agent tab.
2	Select Administrator .

3 Select **Agent** and Select **New**.

The screenshot shows the 'General' tab of the 'verint@Default' dialog. It contains fields for 'Title', 'First Name' (filled with 'Verint'), 'Middle Name', and 'Last Name' (filled with 'Verint'). Below these are 'Preferred Name' (filled with 'Verint'), 'Manager' (with a browse button), 'Employee Id', and 'Is Manager' (checkbox). A row of icons for 'Agent', 'Email', 'Phone', 'Address', 'Notes', and 'History' is present. The 'System Information' section includes 'Login Id' (filled with 'verint'), 'Options' (with a browse button), 'Task Load' (set to 1), and 'Task Ceiling' (set to 1). The 'Membership Information' section includes 'Domain' (set to 'Default'), 'Workgroup' (with a browse button), and 'Site' (set to 'DefaultSite'). At the bottom are 'Ok', 'Cancel', 'Apply', and 'Help' buttons.

4 Click on **Security** tab.

5 Select **Operator**.

The screenshot shows the 'Security' tab of the 'verint@Default' dialog. It features 'Password' and 'Confirm' fields, both masked with asterisks. Below these are two unchecked checkboxes: 'Force password change on login' and 'Disable login'. A 'Roles' section contains a list of roles with checkboxes: 'Administrator', 'Postmaster', 'Agent', 'Support', 'Supervisor', 'Operator' (which is checked), 'Clerk', and 'Editor'. At the bottom are 'Ok', 'Cancel', 'Apply', and 'Help' buttons.

Click **OK**

4.6. Start the Verint server

The Avaya Interaction Center Telephony server must be started. When the IntelliLink service on the Verint Platform server starts, the Verint Connector server will start automatically.

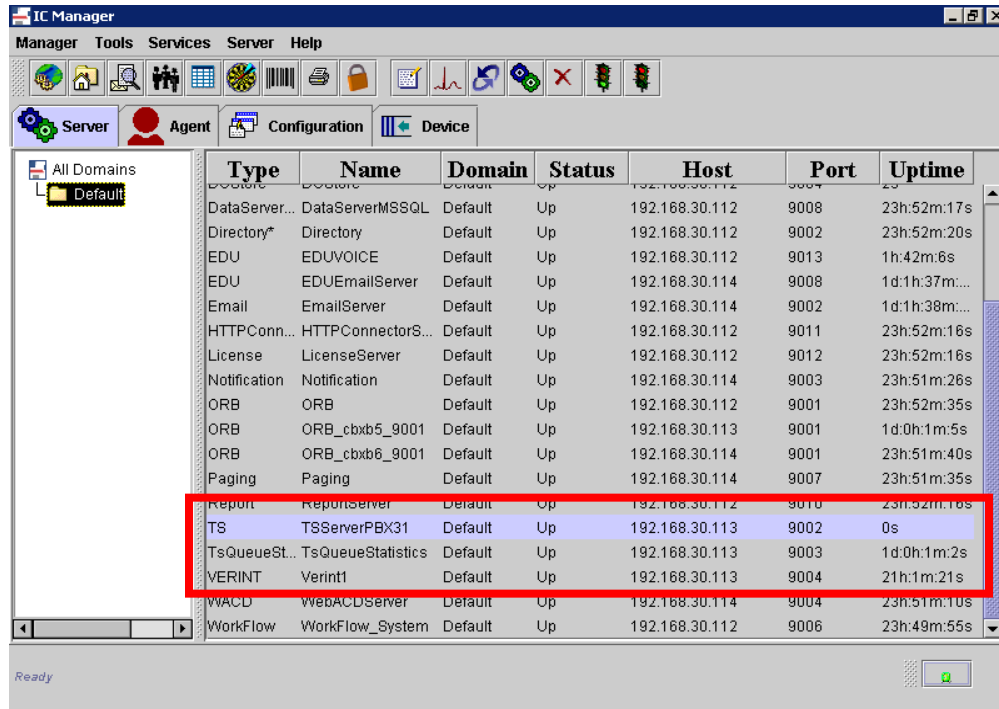


Figure 4: Avaya Interaction Center Manager

5. Configure Agent Phone

In order to support VoIP call recording, the agent's phone must be an IP station. The Direct IP-IP Audio Connections and IP Audio Hairpinning features on the station must be set to NO.

Step	Description
1.	<p>From the SAT terminal session, enter add station 24601 Enter the station type of an IP Phone (e.g. 4612). Enter a name for this station.</p> <pre> add station 24601 Extension: 24601 Type: 4612 Port: X Name: Agent1 STATION Lock Messages? n Security Code: Coverage Path 1: Coverage Path 2: Hunt-to Station: STATION OPTIONS Loss Group: 2 Data Module? n Speakerphone: 2-way Display Language: english Personalized Ringing Pattern: 1 Message Lamp Ext: 24601 Mute Button Enabled? y Media Complex Ext: IP SoftPhone? n </pre>

2.	<p>Set the Direct IP-IP Audio Connections? field to n. Set the IP Audio Hairpinning? field to n.</p> <pre> add station 24601 Page 2 of 4 STATION FEATURE OPTIONS LWC Reception: spe Auto Select Any Idle Appearance? n LWC Activation? y Coverage Msg Retrieval? y LWC Log External Calls? n Auto Answer: none CDR Privacy? n Data Restriction? n Redirect Notification? y Idle Appearance Preference? n Per Button Ring Control? n Restrict Last Appearance? y Bridged Call Alerting? n Active Station Ringing: single H.320 Conversion? n Per Station CPN - Send Calling Number? Service Link Mode: as-needed Multimedia Mode: basic AUDIX Name: Display Client Redirection? n Messaging Server Name: Select Last Used Appearance? n Coverage After Forwarding? s Emergency Location Ext: 24601 Direct IP-IP Audio Connections? n IP Audio Hairpinning? n </pre>
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6. Configure the Avaya P333T-PWR Switches

Configuration of the LAN switches is necessary for Verint to capture all the IP traffic with the Avaya Communication Manager. Port 1 of the P333T-PWR-1 and port 1 of the P333T-PWR-2 are connected via a cross over cable and both ports are assigned with a default VLAN 1. The Verint's VAM is connected to port 24 of the P333T-PWR-1. Port 24 of the P333T-PWR-1 is assigned to mirror port 1 of the P333T-PWR-1 switch. As a result, port 24 of the P333T-PWR-1 will capture all the IP signaling and media traffic.

6.1. Configure the Avaya P333T-PWR-1

Login in to the P333T-PWR-1 and enter configuration mode.

Step	Description
1.	Assign all the ports to default VLAN 1 and configure port mirroring. P330-1(configure)# set port vlan 1 1/1-24
2.	P330-1(configure)# set port mirror source-port 1/1 mirror-port 1/24 sampling always direction both

6.2. Configure the Avaya P333T-PWR-2

Login in to the P333T-PWR-2 and enter configuration mode.

Step	Description
1.	Assign all the ports to a default VLAN 1. P330-2(configure)# set port vlan 1 1/1-24

7. Interoperability Compliance Testing

7.1. General Test Approach

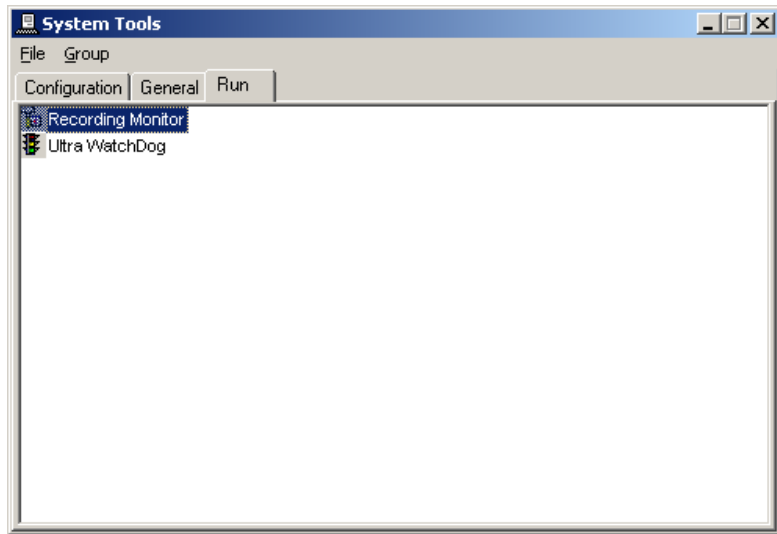
The interoperability compliance test verified the ability for Verint to record queued calls to agents. Basic call scenarios include a simple call answer, transfer, consult transfer, conference, conference transfer, and blind transfer. The compliance test also included a load test using a call generator and automated scripting tools to simulate agent behavior.

7.2. Test Results

Verint successfully passed the feature functionality and load tests. The Verint solution successfully recorded all VoIP calls delivered to agents in the call center. For Agents using the IP Agent configuration, the “Road Warrior” mode should be selected for VoIP support. The “Telecommuter” mode does not support VoIP recording. In addition, all agents’ phone stations must disable “IP Direct Call” parameter.

8. Verification Steps

The following steps verify that the Verint solution successfully monitors and records the agents’ station and playback the recorded sessions.

Step	Description
1.	Run the VMRM from the System Tool in the VAM Server and double click on Recording Monitor .  The screenshot shows a window titled "System Tools" with a menu bar containing "File" and "Group". Below the menu bar are three tabs: "Configuration", "General", and "Run". The "Configuration" tab is selected, and within it, the "Recording Monitor" icon is highlighted. Below the icon, the text "Ultra WatchDog" is visible.
2.	Expand the Ultra Recording Monitor .
3.	Expand the VoIP module.

4. Make a call between agent1 and agent2. If agent1 and agent2 are assigned to line 1 and line 2 respectively, then the Ultra Recording Monitor will display the call events for channel 1 and 2 as shown.

Channel Number	Channel Status	Contact Duration	Last Contact	Total	Average Duration	IP	Compression	Pla
Channel 1	Recording + Vox	00:00:00	18:49:28 29/08/2003	1	00:00:00	192.45.20.151	U-Law	No
Channel 2	Recording + Vox	00:00:00	18:49:37 29/08/2003	1	00:00:00	192.45.20.152	U-Law	No
Channel 3	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 4	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 5	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 6	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 7	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 8	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 9	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 10	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 11	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 12	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 13	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 14	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 15	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 16	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 17	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 18	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 19	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 20	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 21	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 22	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 23	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 24	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 25	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 26	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 27	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 28	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 29	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 30	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 31	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 32	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 33	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 34	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 35	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 36	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No
Channel 37	Not Recording	--:--:--	--:--:--	0	00:00:00	0.0.0.0	Unknown	No

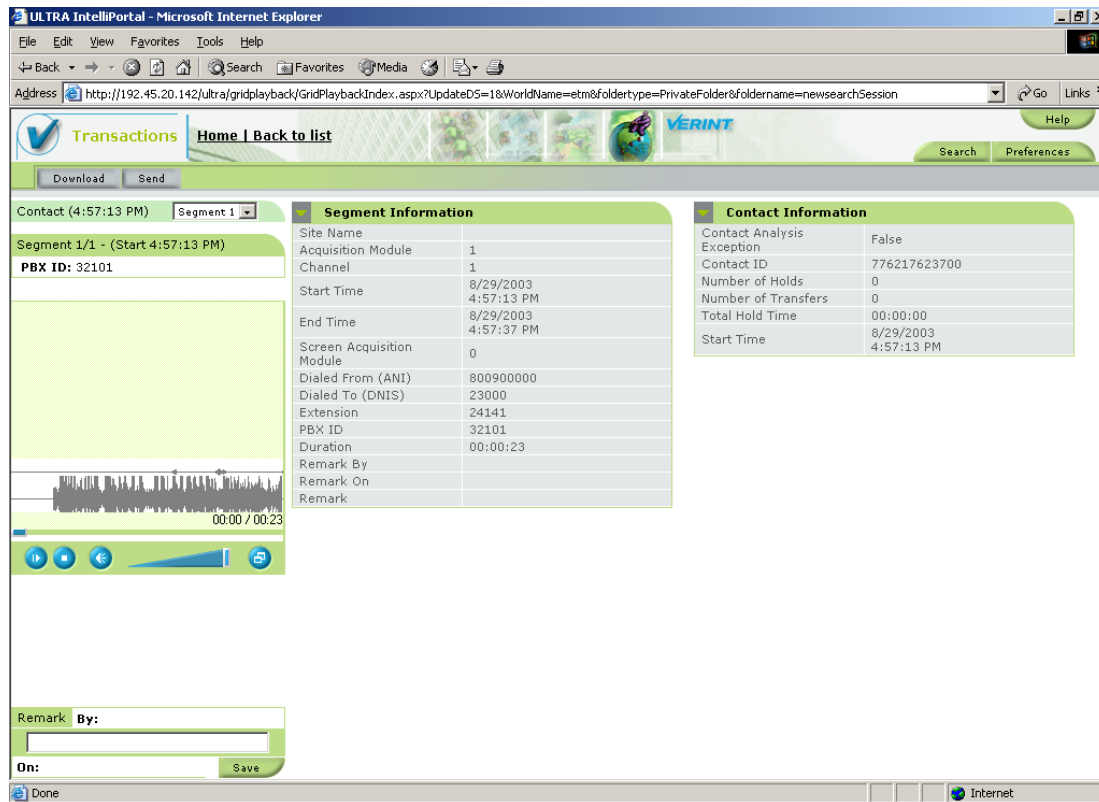
5. To replay the recording session of agent1 and agent2, access the Application server website from a PC with a sound card and speaker.

6. Click on **Execute Search**.

7. Search for the phone extension of agent1 and click on the record in the start time column.

Start Time	Play	Duration	Agent	Dialed From (ANI)	Dialed To (DNIS)	Extension	Data	Direction
8/27/2003 10:54:33.0 PM		00:00:23		7325001205	23000	24601		
8/27/2003 10:54:32.0 PM		00:00:23		7325001205	23000	24603		
8/27/2003 10:54:27.4 PM		00:00:23		7325001205	23000	24608		
8/27/2003 10:54:25.7 PM		00:00:23		7325001205	23000	24606		
8/27/2003 10:54:19.0 PM		00:00:23		7325001205	23000	24605		
8/27/2003 10:54:15.7 PM		00:00:23		7325001205	23000	24604		
8/27/2003 10:54:13.1 PM		00:00:23		7325001205	23000	24609		
8/27/2003 10:54:08.9 PM		00:00:24		7325001205	23000	24602		
8/27/2003 10:54:08.0 PM		00:00:23		7325001205	23000	24145		
8/27/2003 10:54:05.9 PM		00:00:23		7325001205	23000	24607		
8/27/2003 10:54:02.9 PM		00:00:23		7325001205	23000	24608		
8/27/2003 10:54:00.0 PM		00:00:23		7325001205	23000	24601		
8/27/2003 10:53:58.4 PM		00:00:23		7325001205	23000	24603		
8/27/2003 10:53:52.0 PM		00:00:23		7325001205	23000	24606		
8/27/2003 10:53:48.7 PM		00:00:23		7325001205	23000	24609		
8/27/2003 10:53:45.2 PM		00:00:23		7325001205	23000	24605		
8/27/2003 10:53:41.7 PM		00:00:23		7325001205	23000	24604		
8/27/2003 10:53:38.3 PM		00:00:23		7325001205	23000	24608		
8/27/2003 10:53:35.3 PM		00:00:23		7325001205	23000	24602		
8/27/2003 10:53:34.6 PM		00:00:23		7325001205	23000	24145		

8. Press the play button, and the system will play the recorded session.



9. Support

Verint provides a toll free technical support number. For technical support call 1-800-4-VERINT.

10. Conclusion

This compliance test verified that the Verint Ultra Call Recording solution successfully integrated with Avaya Interaction Center. By integrating with Avaya Interaction Center, Verint has enabled its server to be managed by Avaya Interaction Center Manager. Verint Ultra supports call recording using a traditional telephony interface as well as VoIP using H.323 protocol. These Application Notes focus on the VoIP configuration.

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