



**Avaya Solution & Interoperability Test Lab**

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## **Application Notes for Configuring VoxGrid Call Recording System with Avaya IP Office - Issue 1.0**

### **Abstract**

These Application Notes describe the procedure for configuring VoxGrid Call Recording System to work with Avaya IP Office. Information in these Application Notes has been obtained through compliance testing and additional technical discussions. Testing was conducted via the *DeveloperConnection* Program at the Avaya Solution and Interoperability Test Lab.

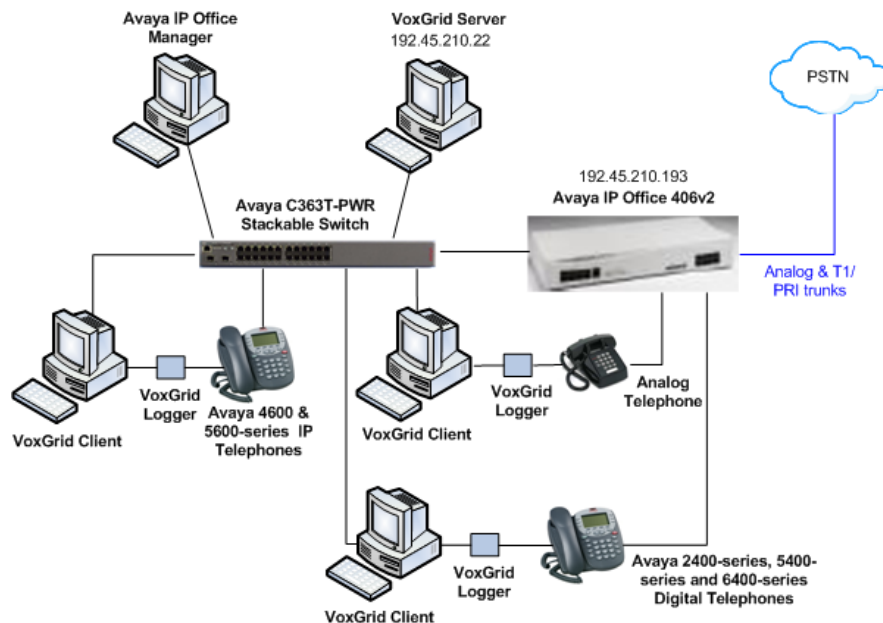
# 1. Introduction

These Application Notes focus on the steps required for configuring VoxGrid Call Recording System to work with Avaya IP Office.

The VoxGrid Call Recording System is a voice activated general recording integrated device. This product enables the user to record telephone calls occurring at his/her extension for later review and retrieval. The information automatically stored with each recording includes Windows username, time of recording and duration<sup>1</sup>. **Note:** This solution will not support / work for speakerphone calls. Calls must take place over the handset.

The tested configuration of **Figure 1** consists of an Avaya IP Office, Avaya IP Office Manager PC, VoxGrid Server, VoxGrid Client PCs, VoxGrid Loggers, Avaya 2400-series, 5400-series and 6400-series digital telephones, Avaya 4600-series and 5600-series IP telephones and analog telephones. Avaya IP Office has T1/PRI and analog trunks to the central office.

Each VoxGrid Logger taps the telephone to which it is connected and sends the audio to the corresponding desktop PC. VoxGrid Client software, running on the desktop PC, receives the audio from the VoxGrid Logger and stores the recording along with the Windows username, timestamp and call duration on the VoxGrid Server. The VoxGrid Server contains a web server to provide password protected web access to call recordings.



**Figure 1 – Network Configuration Diagram**

<sup>1</sup> The VoxGrid Call Recording System interfaces to the telephone handset jacks. It does not have access to called/calling party or other call detail information to store along with the recording. VoxGrid Call Recording System does not interface to the Avaya IP Office TAPI or Devlink interface.

## 2. Equipment and Software Validated

The following equipment and software/firmware were used for the sample configurations provided:

Equipment	Software/Firmware
Avaya IP Office 406v2	3.2(17)
Avaya IP400 Office Phone Module	5.2(17)
Avaya IP Office Manager	5.2(17)
Avaya 2410 Digital Telephones	2.0
Avaya 5400-Series Digital Telephones 5402, 5410 5420	2.0 4.0
Avaya 6408D+, 6416D+M Digital Telephones	-
Avaya 4600-Series IP Telephones 4601, 4602SW, 4610SW, 4620SW 4621SW 4625SW	2.3 2.6 2.5
Avaya 5600-Series IP Telephones 5602SW, 5610SW	2.3
Avaya Analog Telephone	-
VoxGrid Call Recording System VoxGrid Logger VoxGrid Client VoxGrid Server	3.0.0 3.2.0.0 4.0.9-12

**Table 1 – Equipment and Software / Firmware Versions Validated**

## 3. Configure Avaya IP Office

The VoxGrid Call Recording System requires no special configuration on Avaya IP Office.

For provisioning information, such as Avaya IP Office installation, please refer to Avaya IP Office product documentation in reference [1].

## 4. Configure VoxGrid Call Recording System

### 4.1. VoxGrid Server

The VoxGrid Server software runs on a Linux-based operating system. The VoxGrid Server is a turnkey system. It is preconfigured with all that is required including the user login and password information, except for the VoxGrid Server's IP address at a customer site. VoxGrid provides instructions for configuring the VoxGrid Server's IP address.

## 4.2. Configure VoxGrid Logger

1. Select a telephone extension (analog, digital, IP) and its corresponding desktop PC.
2. Disconnect the telephone handset from its base.
3. Connect the VoxGrid Logger to the telephone and desktop PC as follows:




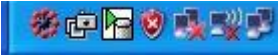
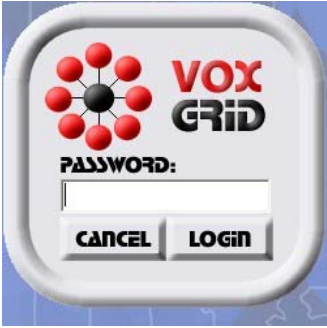
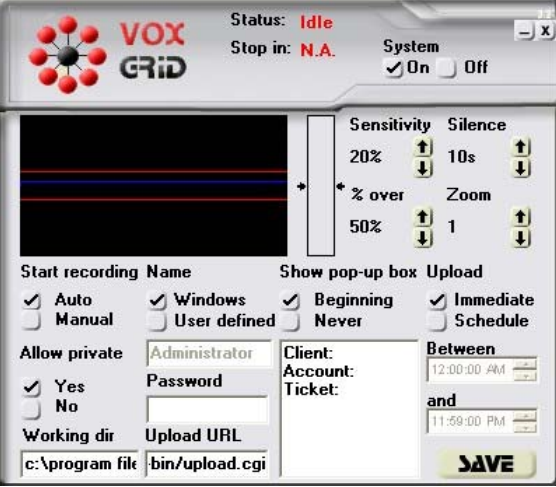
**Figure 2 – VoxGrid Logger picture**

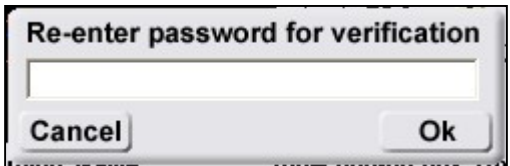

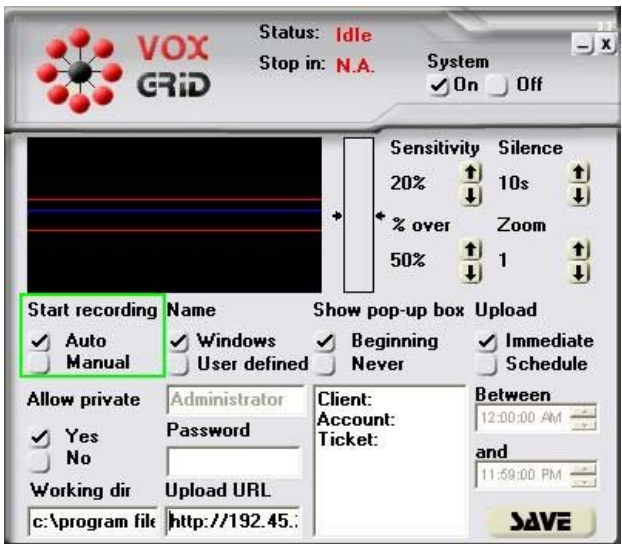
- Connect the telephone handset to the VoxGrid Logger in **Figure 2** where the square (■) is pictured.
  - Connect the VoxGrid Logger microphone plug, located where the circle (●) is pictured in **Figure 2**, to the microphone input on the desktop PC sound card.
  - Connect the VoxGrid Logger telephone plug, located where the rectangle (■) is pictured in **Figure 2**, to the telephone base.
4. Repeat Steps 1 – 3 for each telephone extension where recordings are desired. For the purposes of these Application Notes, VoxGrid Loggers were connected to an analog telephone, a digital telephone, and an IP telephone as well as three desktop PCs. **Note:** The specific Avaya digital and IP telephones used for this compliance test are listed in **Table 1**.

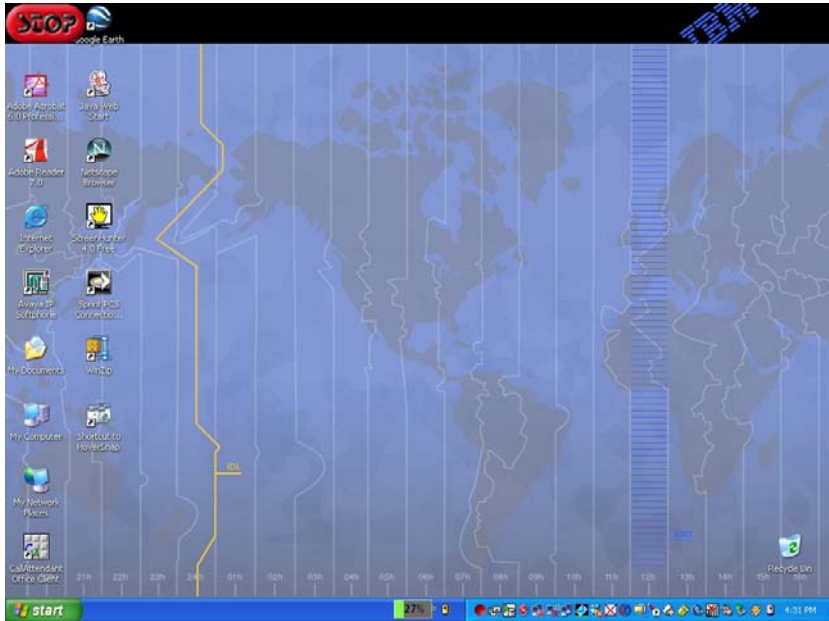
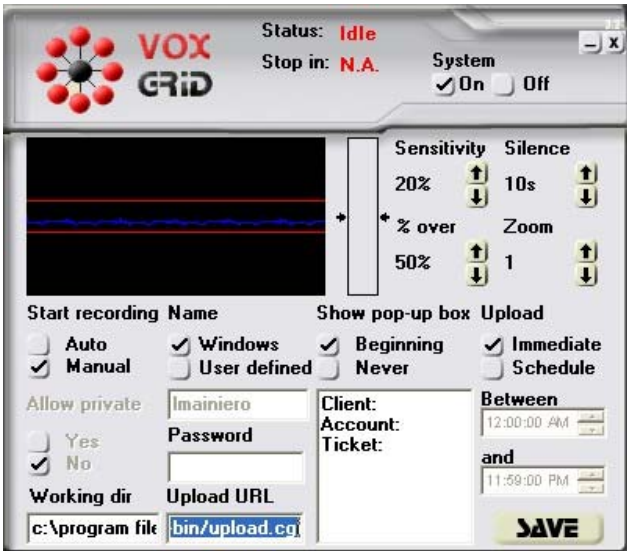
### 4.3. Configure VoxGrid Client

The configuration information provided in this section describes the steps required to configure the VoxGrid Client to work with Avaya IP Office for this solution.





For provisioning information, such as VoxGrid Client installation, please refer to the product documentation in reference [2].

Step	Description
	The information provided below was obtained following compliance testing.
1.	Log into a VoxGrid Client PC with the appropriate credentials. Go to <b>Start</b> → <b>Programs</b> → <b>VoxGrid</b> → <b>VoxGrid</b> to launch the VoxGrid Client.
2.	Right click the (  ) icon that appears in the system tray at the bottom of the screen. 
3.	In the VoxGrid password window that appears, enter the Windows password of the VoxGrid Client PC and click <b>login</b> . 
4.	In the VoxGrid window that appears, set <b>Upload URL</b> to the cgi-script to be used for uploading the call recordings to the VoxGrid Server ( <a href="http://192.45.210.22/cgi-bin/upload.cgi">http://192.45.210.22/cgi-bin/upload.cgi</a> ) and click <b>save</b> . 

Step	Description
5.	<p>In the Re-enter password for verification popup that appears, enter the Windows password of the VoxGrid Client PC and click <b>Ok</b>.</p>  <p>A small dialog box titled "Re-enter password for verification" with a text input field and "Cancel" and "Ok" buttons.</p>
6.	<p>In the Settings saved popup that appears, click <b>OK</b>.</p>  <p>A small dialog box titled "Settings saved" with a close button (X) and the text "Settings successfully saved" and an "OK" button.</p>
<b>To Configure Automatic Recording</b>	
7.	<p>Repeat Steps 2 – 3 to return to the VoxGrid window. In the VoxGrid window, verify <b>Auto</b> is checked for <b>Start recording</b> on the left side of the window.</p>  <p>The main VoxGrid window interface. It includes a status bar at the top showing "Status: Idle" and "Stop in: N.A.". Below this is a large black area with red and blue horizontal lines. To the right of this area are controls for "Sensitivity" (20%, 50%), "Silence" (10s), and "Zoom" (1). At the bottom, there are several sections: "Start recording" with "Auto" checked, "Name" with "Windows" checked, "Show pop-up box" with "Beginning" checked, and "Upload" with "Immediate" checked. Other fields include "Allow private" (Yes), "Working dir" (c:\program files), "Password", "Upload URL" (http://192.45.), "Client: Account:", "Ticket:", and a time range "Between 12:00:00 AM and 11:59:00 PM". A "SAVE" button is at the bottom right.</p>

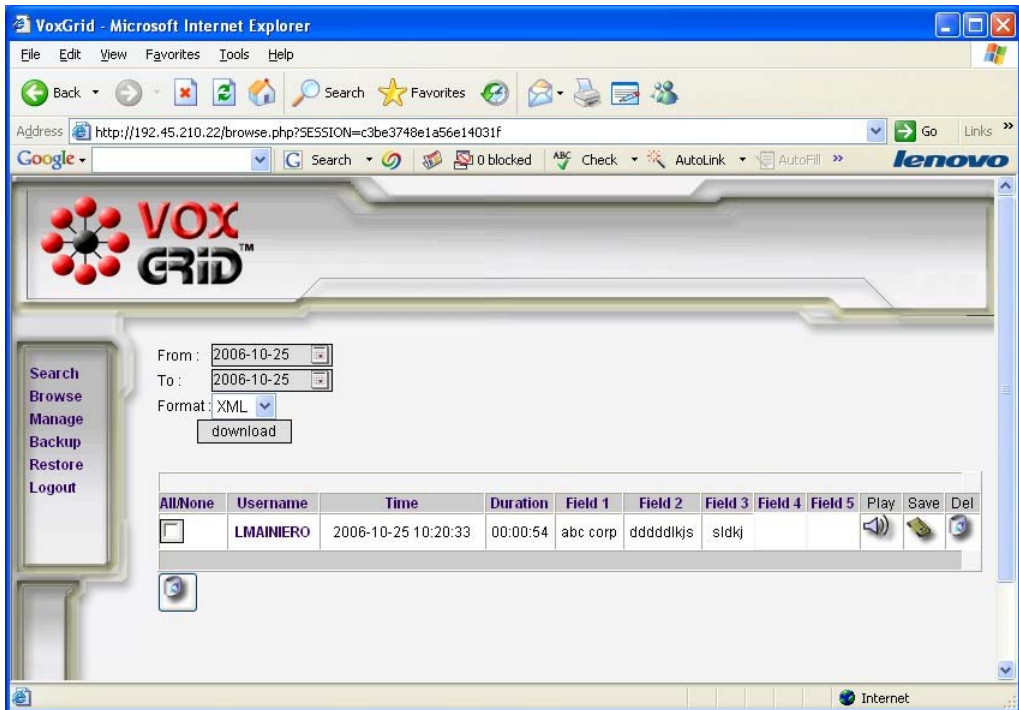
Step	Description
	<b>To do an Automatic Recording</b>
8.	<p>Lift the telephone handset. When the telephone handset goes off-hook, the VoxGrid Client starts recording and the stop (STOP) icon appears on the top left corner of the desktop. Place a call from the telephone. The stop icon will remain on the desktop until it is clicked or the silence interval has elapsed.</p> 
	<b>To Configure Manual Recording</b>
9.	<p>Repeat Steps 2 – 3 to return to the VoxGrid window. In the VoxGrid window, verify <b>Manual</b> is checked for <b>Start recording</b> on the left side of the window.</p> 



Step	Description
	<b>To do a Manual Recording</b>
10.	<p>Lift the telephone handset. When the telephone handset goes off-hook, the VoxGrid Client record/don't record icon (  ) appears on the desktop. Click <b>record</b> to start the recording.</p> 
11.	<p>Once recording begins, the VoxGrid Client stop (  ) icon appears on the top left corner of the desktop as it occurs in Step 8. The stop icon will remain on the desktop until it is clicked or the configured silence interval has elapsed</p>
	<b>To retrieve / review recordings</b>
12.	<p>Browse to the VoxGrid Server IP address ( <a href="http://192.45.210.22">http://192.45.210.22</a> ). In the VoxGrid login page that appears, login using the appropriate login credentials.</p>
13.	<p>In the VoxGrid web page that appears, click <b>Browse</b> to view a list of recent recordings.</p> 



Step	Description
14.	<p>In the page that appears, the recordings are listed. For the purposes of these Application Notes, a single call recording is listed for playback. The information stored with the recording includes the user’s Windows user name, time stamp of the call and call duration. Note: Additional, optional, information can be stored with the recording in the Field n columns. Please refer to product documentation in reference [2] for more information.</p>



AllNone	Username	Time	Duration	Field 1	Field 2	Field 3	Field 4	Field 5	Play	Save	Del
<input type="checkbox"/>	LMAINERO	2006-10-25 10:20:33	00:00:54	abc corp	dddddlkjs	sldkj					

## 5. Interoperability Compliance Testing

Interoperability compliance testing examined the ability of the VoxGrid Call Recording System to work with Avaya IP Office. The following VoxGrid Call Recording System features were tested with Avaya IP Office: automatic and manual recording.

### 5.1. General Test Approach

Feature functionality testing was performed manually. Internal extension calls, as well as calls through analog and T1/PRI trunks, were placed to extensions on Avaya IP Office. Outbound calls from the VoxGrid tapped extensions were also placed. For manual recording, while a call was in progress, the call was recorded by clicking the Record button on the VoxGrid Client. Upon completion of the call, verification of the call recording was performed to confirm the call was properly recorded. For automatic recordings, after automatic recording was configured at a VoxGrid Client desktop, calls were made to/from the extension and the call recordings were verified. All call recordings were verified through a browser interface to the VoxGrid Server's web server and logging in using the appropriate login credentials.

Automated load testing of the solution was not possible for this solution. Please refer to Section 5.2 for details.

## 5.2. Test Results

All executed test cases were completed successfully except for the load test and headset issues described below.

- **Automated load test of compliance-tested configuration not feasible** – An automated load test was initially attempted using a call generator to place calls to Avaya IP Office and play wave files when the calls were answered. An automated test tool was used to cause Avaya IP Office Phone Manager Pro to automatically answer the incoming calls. However, when the calls were automatically answered using Avaya IP Office Phone Manager Pro, the calls went to the telephone speaker not the handset, thereby preventing the VoxGrid Logger and VoxGrid Client from recording the call. This scenario, as configured, was not feasible for load testing this solution. *It is recommended that anyone considering this solution for configurations involving multiple VoxGrid Clients, additional testing should be performed before deploying to a production environment.*
- **Headsets are not recommended for use with this solution** – Issues were experienced with IP Office while attempting to build a configuration using headsets. It was not possible to further investigate this during the compliance test. Therefore, until the issues are resolved, this solution is not recommended for use with headsets.

### Other Observations:

- **This solution will not support speakerphone calls** – Since the VoxGrid Logger taps the telephone handset, any calls occurring through the telephone speaker will not be recorded.
- **Call Recording quality will vary from desktop to desktop** – The call recording quality of this solution is a function of the sound card used, the drivers used on the desktop PC and the playback settings configured. Quality will vary. The VoxGrid Client has some ability for fine-tuning to get the best recording for the scenario. The initial call recordings sounded as if they were muffled. Upon further investigation, it was determined that the Mic Booster (microphone booster) was checked for the microphone on the laptop being used and this was impacting the recordings. When the Mic Booster was unchecked, call recording quality improved.
- **Recordings begin about 1 – 2 seconds after recording initiated** – When either a manual or automatic call recording is initiated, there is about a 1 – 2 second delay before the recording begins. VoxGrid believes this interval might be shortened with additional fine-tuning of the VoxGrid client. Due to time constraints, this was not verified in the lab.

## 6. Verification Steps

The following steps may be used to verify the configuration:

- Verify each VoxGrid Logger is connected to its telephone handset, telephone base and desktop PC as described in Section 4.2.
- Verify each VoxGrid Client is configured as described in Section 4.3.
- To verify network connectivity, ping all the devices depicted in **Figure 1** from the VoxGrid Server and each VoxGrid Client PC.
- To verify the VoxGrid Client is properly recording calls, place a call to or from a VoxGrid Client extension. While the call is in progress, click the Record button on the VoxGrid Client. After completing the call, play back the recording through the VoxGrid Server browser interface as described in Section 4.3.

## 7. Support

For technical support on the VoxGrid Call Recording System, consult VoxGrid at <http://www.voxgrid.com> or contact VoxGrid Technical Support at:

- Phone: 973-220-1478
- E-mail: [info@voxgrid.com](mailto:info@voxgrid.com)

## 8. Conclusion

These Application Notes describe the steps for configuring VoxGrid Call Recording System to work with Avaya IP Office.

## 9. Additional References

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

[1] “Avaya IP Office Manager, Issue 18g”, 28<sup>th</sup> June 2006

Product documentation for VoxGrid Call Recording System is provided on the Installation CD.

[2] VoxGrid Help File

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