AVAYA

Avaya Solution & Interoperability Test Lab

Application Notes for Krisp for Windows with Avaya one-X® Communicator - Issue 1.0

Abstract

These Application Notes describe the configuration steps required to integrate Krisp for Windows with Avaya one-X® Communicator. Krisp is an AI-based, bi-directional noise cancellation application that eliminates background noise from a microphone or speaker to maintain clear audio quality. In addition, it can remove background voices received by the microphone. Krisp sits in front of a communication application, such as Avaya one-X® Communicator, and serves as a hardware driver in front of the actual hardware.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as the observations noted in **Section 2.2**, to ensure that their own use cases are adequately covered by this scope and results.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

JAO; Reviewed:
SPOC 7/13/2022

Solution & Interoperability Test Lab Application Notes
©2022 Avaya Inc. All Rights Reserved.

1 of 14
Krisp-1XC

1. Introduction

These Application Notes describe the configuration steps required to integrate Krisp for Windows with Avaya one-X® Communicator. Krisp is an AI-based, bi-directional noise cancellation application that eliminates background noise from a microphone or speaker to maintain clear audio quality. Examples of background noise that can be removed by Krisp include fan, airplane, rain and thunder, music, lawn mower, keyboard, fireworks, nailing, and drilling. In addition, it can remove background voices received by the microphone. Krisp sits in front of a communication application, such as Avaya one-X® Communicator, and serves as a hardware driver in front of the actual hardware.

2. General Test Approach and Test Results

The interoperability compliance test included feature and serviceability testing. The feature testing focused on establishing calls with one-X Communicator using Krisp and verifying that background noise can be removed in the audio heard by one-X Communicator and the far-end. In addition, removing background voices in the audio received by the far-end was also covered. Calls were established between one-X Communicator, local IP deskphones, and the PSTN.

The serviceability testing focused on verifying the usability of Krisp after restarting the Krisp application, restarting one-X Communicator, and rebooting the desktop PC.

Avaya's formal testing and Declaration of Conformity is provided only on the headsets/handsets that carry the Avaya brand or logo. Avaya may conduct testing of non-Avaya headset/handset to determine interoperability with Avaya phones. However, Avaya does not conduct the testing of non-Avaya headsets/handsets for: Acoustic Pressure, Safety, Hearing Aid Compliance, EMC regulations, or any other tests to ensure conformity with safety, audio quality, long-term reliability or any regulation requirements. As a result, Avaya makes no representations whether a particular non-Avaya headset will work with Avaya's telephones or with a different generation of the same Avaya telephone.

Since there is no industry standard for handset interfaces, different manufacturers utilize different handset/headset interfaces with their telephones. Therefore, any claim made by a headset vendor that its product is compatible with Avaya telephones does not equate to a guarantee that the headset will provide adequate safety protection or audio quality.

Avaya recommends our customers implement Avaya solutions using appropriate security and encryption capabilities enabled by our products. The testing referenced in this DevConnect Application Note 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.

2.1. Interoperability Compliance Testing

Interoperability compliance testing covered the following features and functionality:

- Removing background noise from audio heard by one-X Communicator.
- Removing background noise from audio heard by the far-end (i.e., Avaya IP deskphone).
- Removing background voices from audio heard by the far-end (i.e., Avaya IP deskphone).
- Verifying one-X Communicator can leave voice messages with good audio quality with Krisp noise cancellation enabled.
- Toggling the "Remove Noise" and the "Voice Cancellation" options individually at the microphone and speaker. Enabling these options to the microphone removes background noise from the audio heard by the far-end. Enabling the "Remove Noise" option to the speaker removes background noise from the audio heard on one-X Communicator. Enabling the "Voice Cancellation" option to the microphone removes background voices from the audio heard by the far-end.
- Verifying that Busy tone is heard when a busy phone is called and intercept tone is heard when an invalid number is dialed.

The serviceability testing focused on verifying that Krisp continues to remove background noise and voices after restarting the Krisp application, restarting one-X Communicator, and rebooting the desktop PC.

2.2. Test Results

All test cases passed with the following observations.

- Ringback tone, call forwarding tone, and message recording beep are not heard by one-X Communicator. The workaround is to disable the "Remove Noise" option for the speaker.
- Voice cancellation may not eliminate background voices. For example, during the compliance test, the Krisp voice cancellation feature was set up using a male voice. Background female voices were mostly removed, but not background male voices.
- When the far-end places the call on hold, Music on Hold is not heard, as expected, when the "Remove Noise" option for the speaker is enabled.

2.3. Support

For technical support and information on Krisp for Windows, contact the Krisp help center at https://help.krisp.ai/hc/en-us or https://help.krisp.ai/hc/en-us/requests/new?

JAO; Reviewed:
SPOC 7/13/2022
Solution & Interoperability Test Lab Application Notes
©2022 Avaya Inc. All Rights Reserved.
3 of 14
Krisp-1XC

3. Reference Configuration

Figure 1 illustrates the test configuration used to verify the Krisp noise-cancelling solution.

- Avaya Aura® Communication Manager.
- Media resources in the Avaya G430 Media Gateway and Avaya Aura® Media Server.
- Avaya Aura® Session Manager connected to Communication Manager via a SIP trunk and acting as a Registrar/Proxy for Avaya SIP deskphones.
- Avaya Aura® System Manager used to configure Session Manager.
- Avaya Messaging serving as the voicemail system.
- Avaya Session Border Controller for Enterprise to provide connectivity to a simulated SIP service provider.
- Avaya 96x1 Series H.323 Deskphones and Avaya J100 Series SIP Deskphones.
- Avaya one-X® Communicator and Krisp for Windows running on a desktop PC.
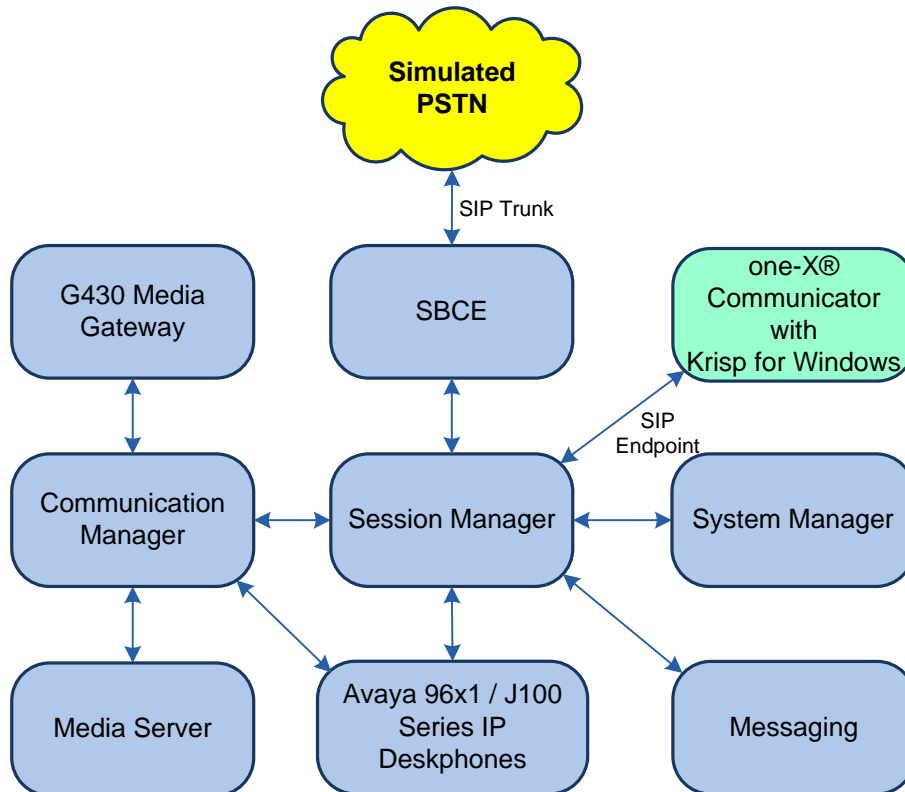
Figure 1: Avaya one-X® Communicator with Krisp for Windows

JAO; Reviewed:
SPOC 7/13/2022

Solution & Interoperability Test Lab Application Notes
©2022 Avaya Inc. All Rights Reserved.

4 of 14
Krisp-1XC

4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya Aura® Communication Manager	10.1.0.1.0-SP1
Avaya G430 Media Gateway	FW 42.4.0
Avaya Aura® Media Server	v.10.1.0.77
Avaya Aura® System Manager	10.1.0.1 Build No. – 10.1.0.0.537353 Software Update Revision No: 10.1.0.1.0614394 Service Pack 1
Avaya Aura® Session Manager	10.1.0.1.1010105
Avaya Messaging	10.8.2
Avaya one-X® Communicator on Microsoft Windows 10	6.2.14.15-SP14-Patch7
Avaya 96x1 Series IP Deskphones	6.8511 (H.323)
Avaya J100 Series IP Deskphones	4.0.10.3.2 (SIP)
Krisp for Windows	22.Q2.14

JAO; Reviewed:
SPOC 7/13/2022

Solution & Interoperability Test Lab Application Notes
©2022 Avaya Inc. All Rights Reserved.

5 of 14
Krisp-1XC

5. Configure Avaya one-X® Communicator

Prior to configuring one-X Communicator, install the Krisp application on the same desktop PC running one-X Communicator.

Note: It is assumed that a SIP user has already been configured on System Manager and Communication Manager for one-X Communicator.

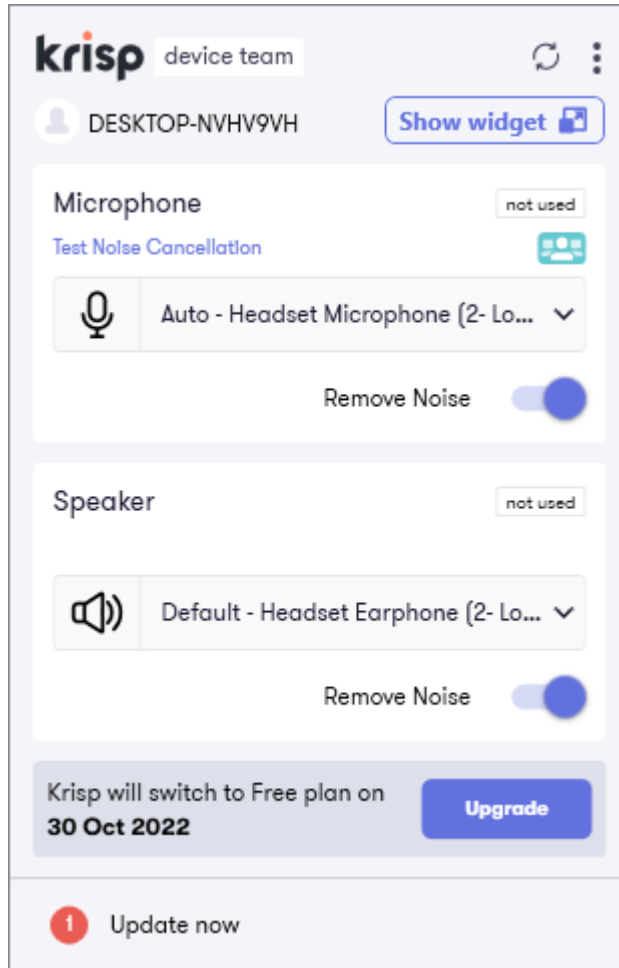After logging into one-X Communicator, click on ⚙ and then select **Settings → General Settings** as shown below.
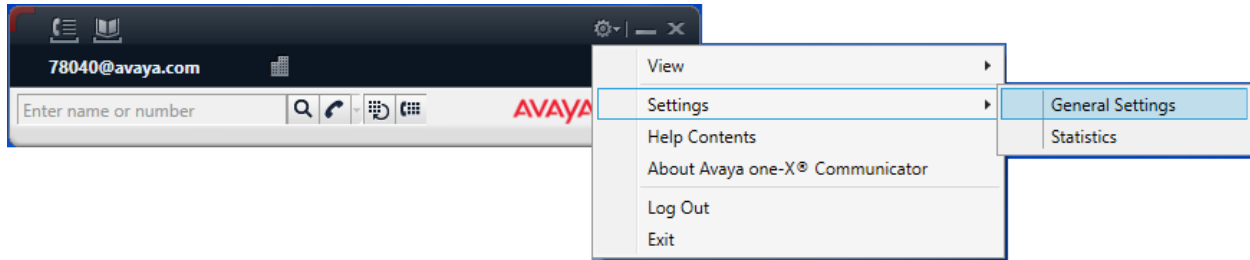
The virtual Krisp Microphone and Krisp Speaker are automatically detected by one-X Communicator when the Krisp application is installed. In the **General Settings** window, navigate to **Devices and Services → Audio** and then select the **Basic** tab as shown below. Set the **Microphone** and **Speaker** fields to *Krisp Microphone (Krisp Audio)* and *Krisp Speaker (Krisp Audio)*, respectively, as shown below. Next, enable *Ring on incoming calls* and select an additional device other than a Krisp virtual device so that one-X Communicator hears ringing for incoming calls.
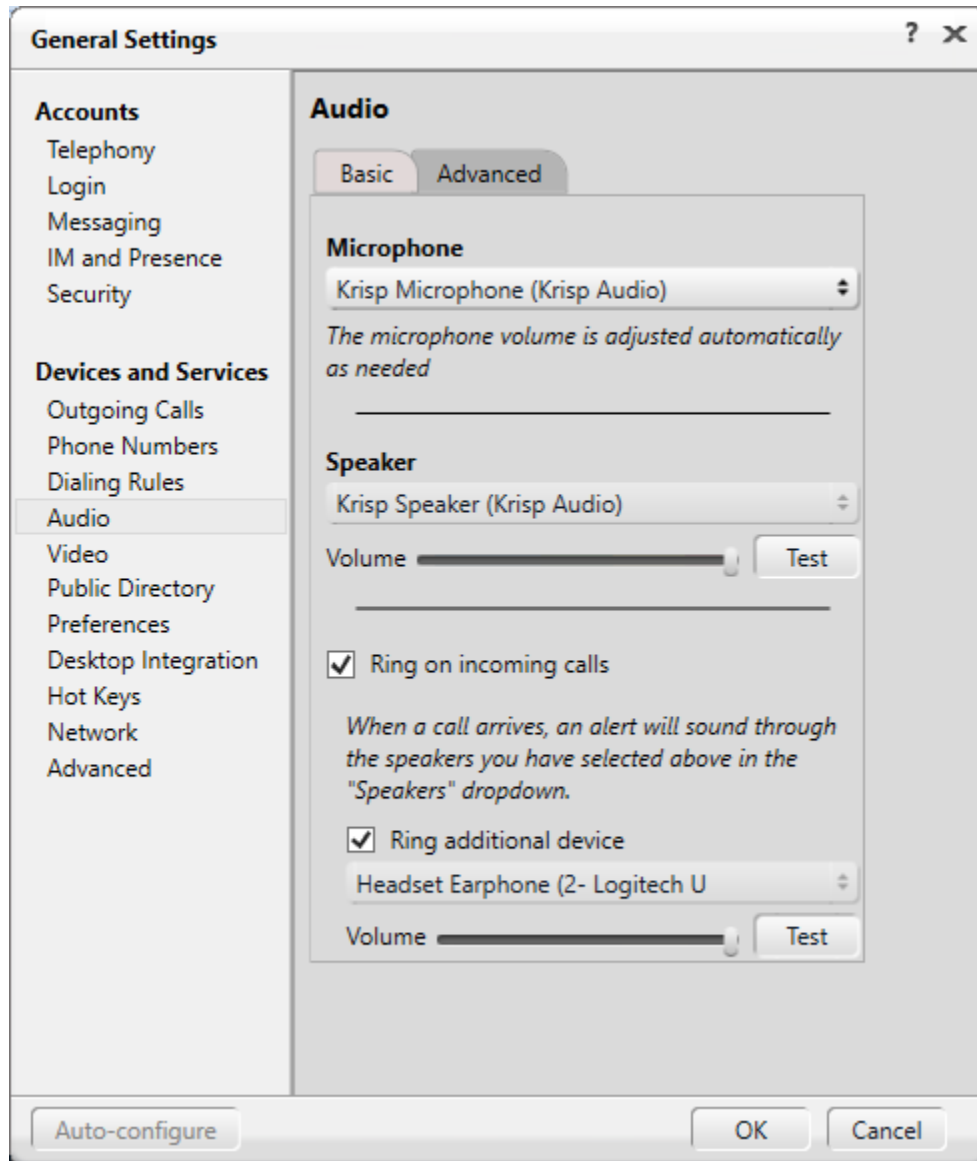
6. Configure Krisp for Windows

Krisp Microphone and Krisp Speaker are virtual devices, created on the desktop PC when Krisp is installed. Open the Krisp application and choose the physical microphone and speaker to be used. Enable the **Remove Noise** options for the microphone and speaker.
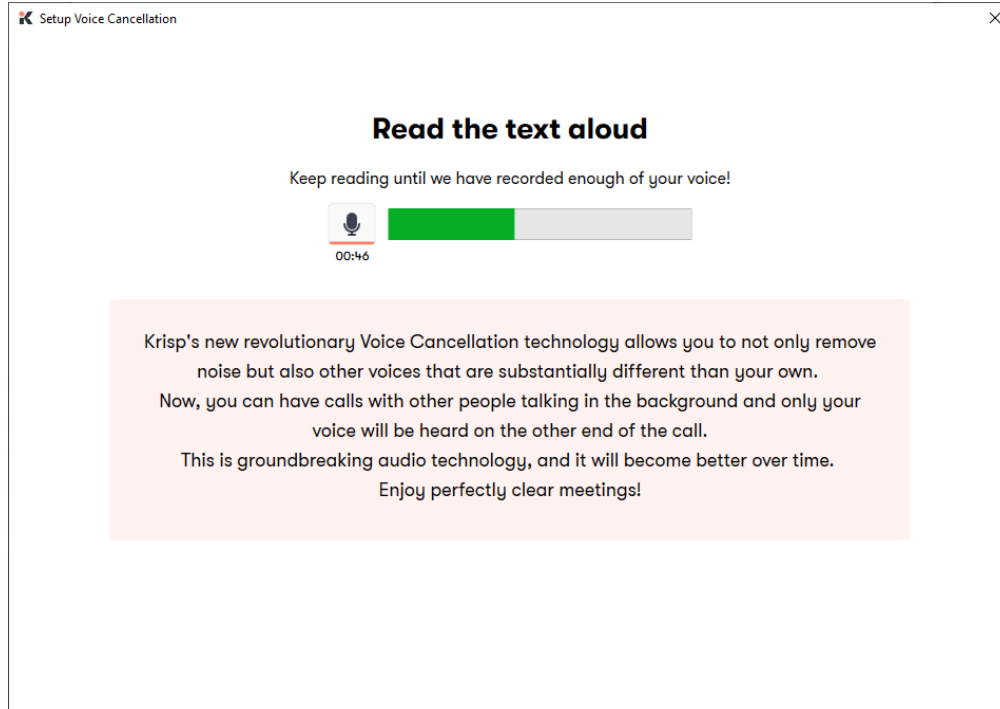
JAO; Reviewed:
SPOC 7/13/2022

Solution & Interoperability Test Lab Application Notes
©2022 Avaya Inc. All Rights Reserved.

8 of 14
Krisp-1XC

To enable **Voice Cancellation**, open the **Krisp Preferences** and select **Voice** from the left pane. This option will remove background noises received by the microphone used by one-X Communicator. Next, click on the **Setup Voice Cancellation** button to start the voice analysis. This allows Krisp to detect voices other than the one being recorded in this process.
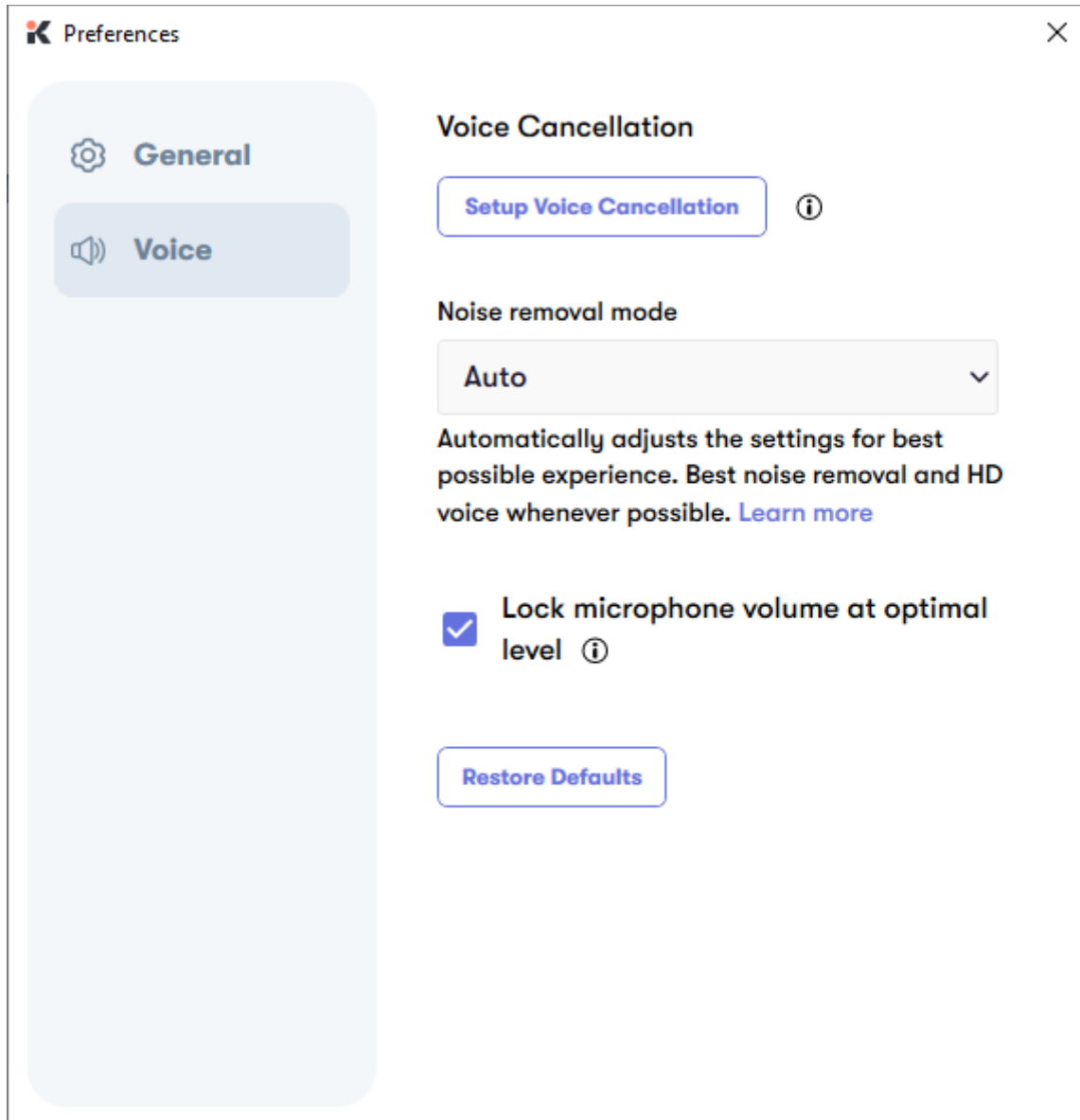
Follow the prompts until the **Read the text aloud** window is displayed as shown below, and then press **Start Recording**.

JAO; Reviewed:
SPOC 7/13/2022

Solution & Interoperability Test Lab Application Notes
©2022 Avaya Inc. All Rights Reserved.

10 of 14
Krisp-1XC
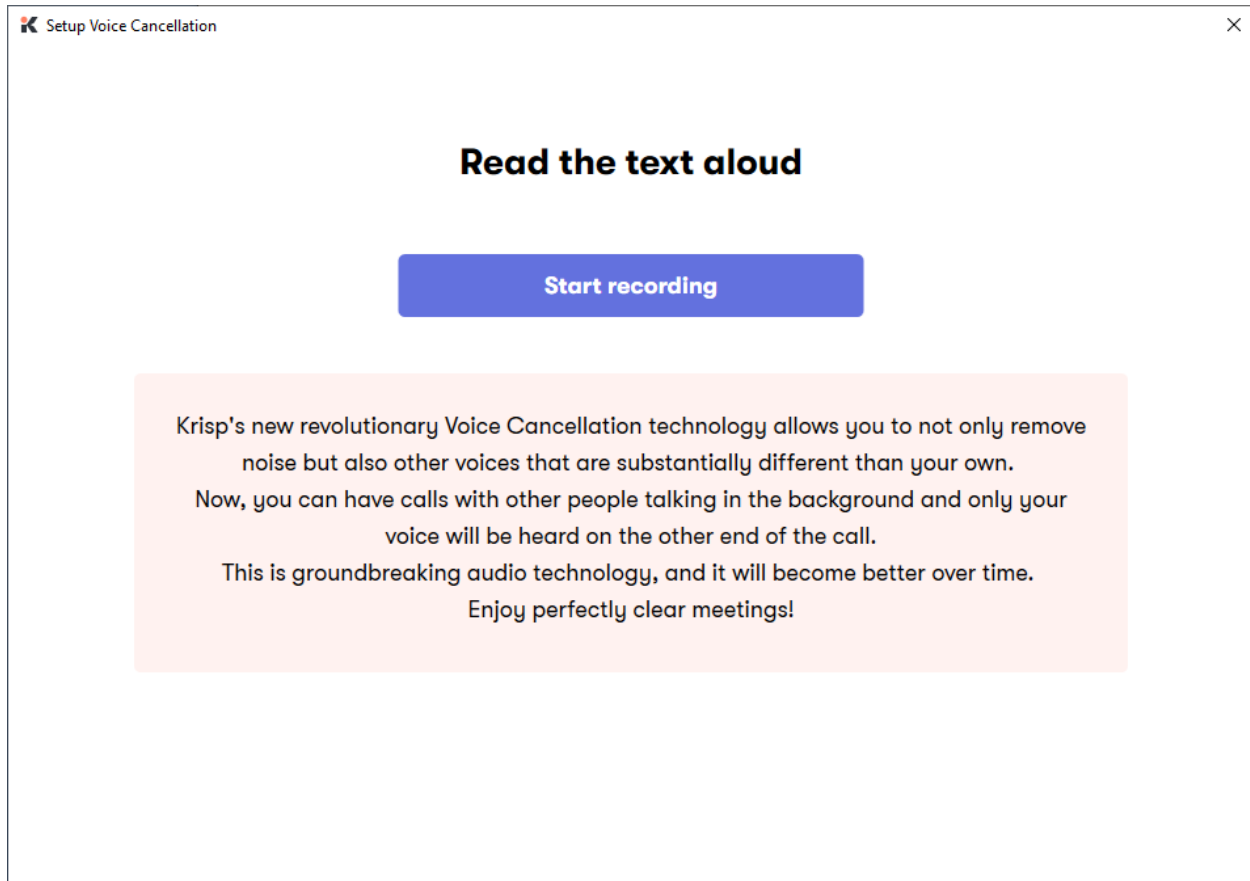
Continue speaking the text aloud into the microphone until enough voice has been recorded.

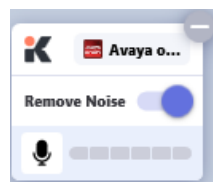Wait until Krisp completes the voice analysis and the setup is complete.
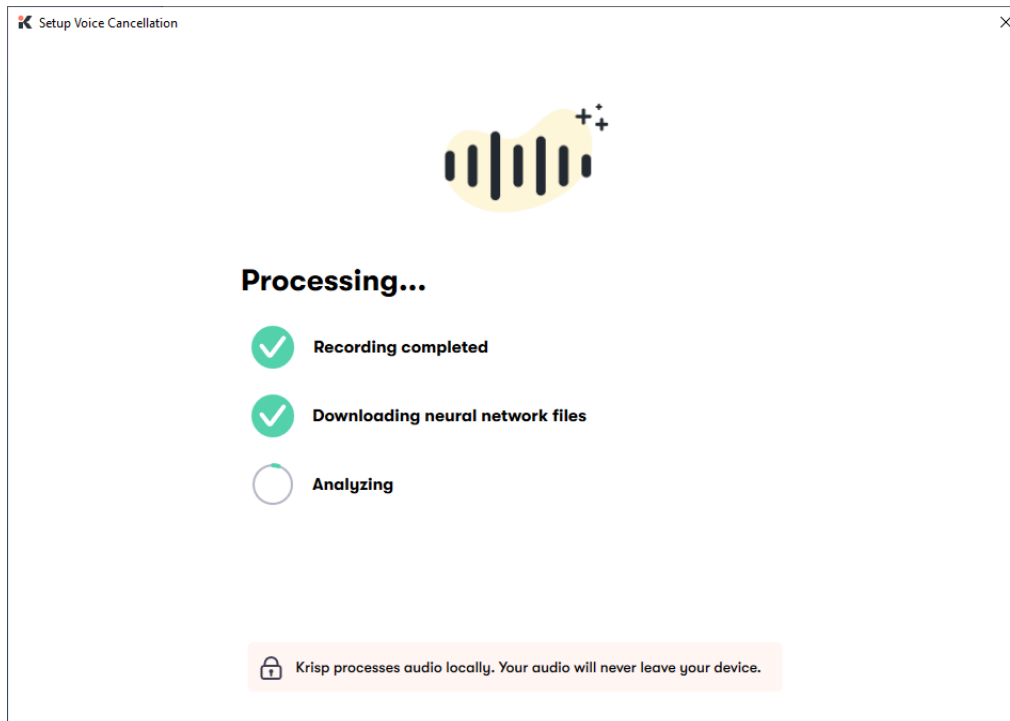
7. Verification Steps

This section provides the tests that can be performed to verify proper installation and configuration of Krisp for Windows with one-X Communicator.

1. Start one-X Communicator.
2. Establish a call between one-X Communicator and an Avaya IP deskphone.
3. Verify that Krisp is being used by one-X Communicator as indicated by *Used by Avaya one-X® Communicator* shown below.
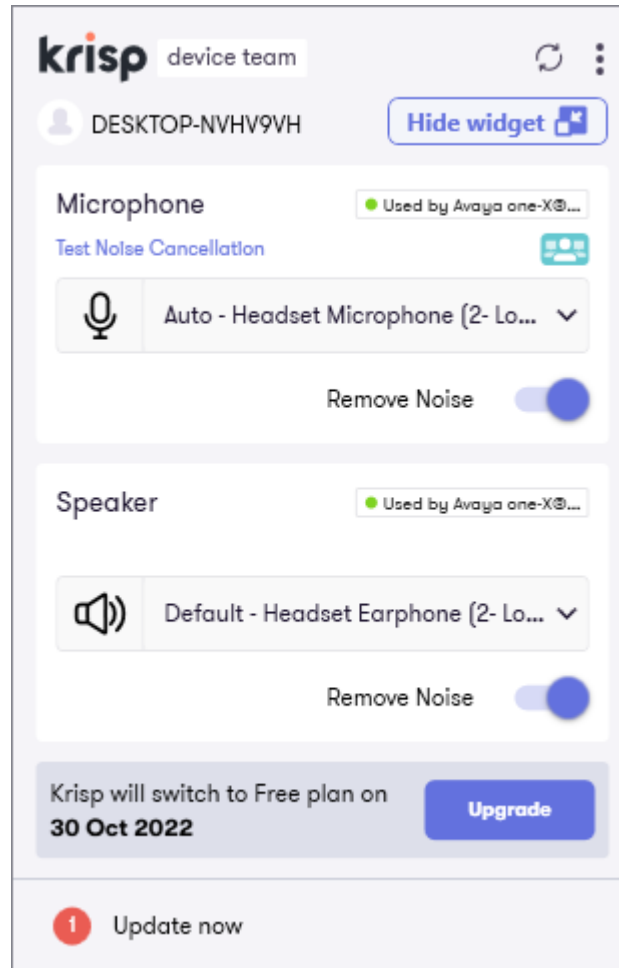
In addition, verify that the following dialog box is displayed while the call is active that allows the user to toggle the **Remove Noise** option and view the microphone sound level.

JAO; Reviewed:
SPOC 7/13/2022
Solution & Interoperability Test Lab Application Notes
©2022 Avaya Inc. All Rights Reserved.
12 of 14
Krisp-1XC

4. Generate background noise at each end, such as typing on keyboard or playing music, and verify that the background noise is eliminated in the audio at both ends.

8. Conclusion

These Application Notes describe the configuration steps required to integrate Krisp for Windows with Avaya one-X® Communicator. Background noise was removed from the audio at both ends of the call. All test cases were completed successfully with observations noted in **Section 2.2**.

9. Additional References

This section references the Avaya documentation that are relevant to these Application Notes.

[1] *Implementing Avaya one-X® Communicator*, Release 6.2 Feature Pack 10, November 2015, available at http://support.avaya.com.
[2] *Administering Avaya one-X® Communicator*, Release 6.2 Feature Pack 10, November 2015, available at http://support.avaya.com.