Deployment and Configuration for Citrix Environments

NUANCE

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Overview

In a Citrix environment, the speech recognition application can be hosted on a Citrix server or virtual desktop. The client end point can be a thick client running a Microsoft Windows operating system, a thin client running a Linux/Microsoft Windows Embedded operating system or a zero client with no operating system. Regardless of your virtualization technology and architecture, you must be able to deliver audio from the client end point to the hosted application; for more information, see Audio channel deployment and configuration.

Application deployment

Applications or desktops that are hosted in a virtualized environment are displayed as a bit map image via a receiver or remote desktop application.

This has the following implications:

- Your speech recognition application is not installed on the client end point, but on the Citrix server/virtual desktop.

- Your speech recognition application is not installed where the microphone is plugged in.

- If your speech recognition application sends recognized text to a target application (for example. clinical documentation program or word processor), the speech recognition application must be installed on the same server or virtual desktop image as the target application to be able to access the target application's text controls.

System configurations

The following system configurations are supported:

- Single hop configuration (described in this guide): Your speech recognition application is hosted on a Citrix XenApp server and streamed to the client end point (for example, a Microsoft Windows PC or thin client).

- Double hop configuration: Your speech recognition application is hosted on a Citrix XenApp server (second hop) and delivered to a Citrix/VMware virtual desktop or Citrix XenApp server (first hop), which is then streamed to the client end point (for example, a Microsoft Windows PC or thin client). For more information, see *Nuance - Double Hop Configuration for Citrix Environments*.

Audio channel deployment and configuration

To deliver audio from the client end point to the hosted application, the following options are available:

- Recommended: Install the Nuance Citrix Client Audio Extension on the client end point (for example, a Microsoft Windows PC or IGEL/Futro Linux thin client). For more information, see: Nuance virtual extensions

- Configure the Citrix native audio channel and device splitting on the client end point (for example, zero clients or Linux thin clients).

- Configure USB redirection on the client end point (for example, zero clients).

  > **Note:** USB redirection requires high bandwidth and is not reliable in certain environments, such as wireless networks. If possible, use device splitting instead of USB redirection.

Nuance virtual extensions

The Nuance Citrix Client Audio Extension and Nuance PowerMic Citrix Client Extension provide custom audio and microphone button channels for the following products:

- Citrix XenApp and XenDesktop

- Microsoft Windows and Windows Embedded operating systems

- Linux thin clients

- The following speech recognition applications:
  Dragon Medical One Desktop Application
  Dragon Medical Direct
  Dragon Case and Care
  Applications based on Dragon Medical SpeechKit (.NET and COM editions)
  Applications based on SpeechMagic SDK

For more information on hardware, software and network requirements, see: Requirements.
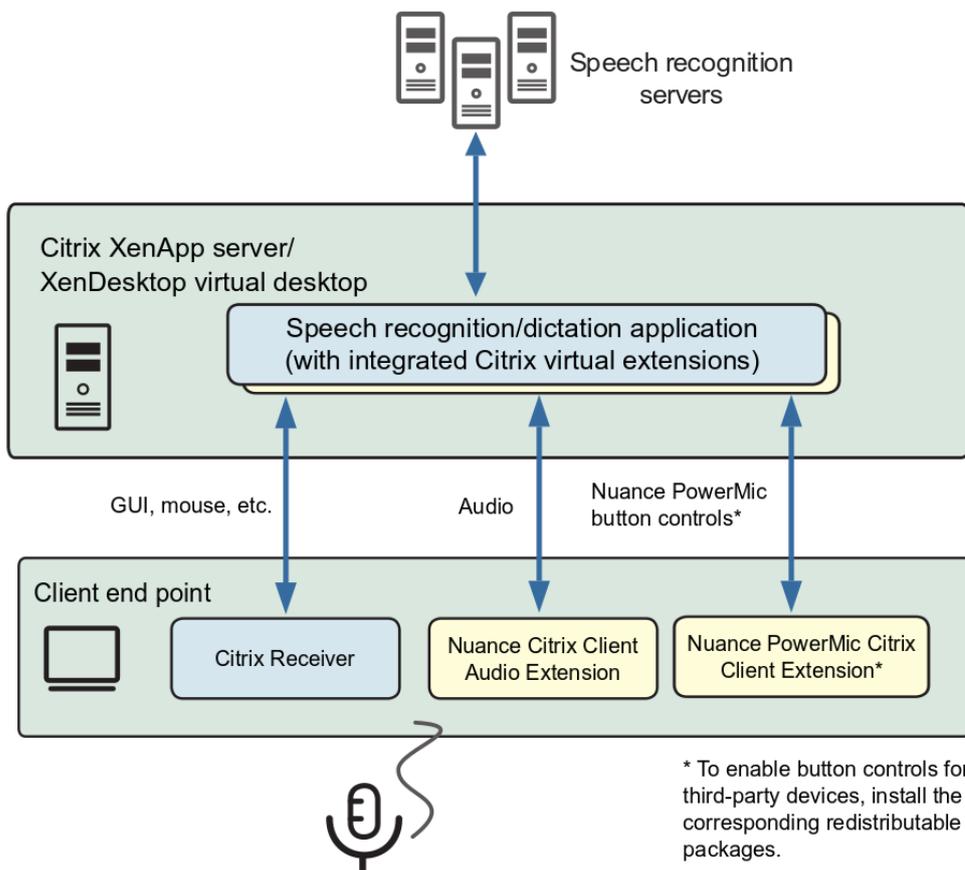
Audio channels

High quality audio is required for accurate speech recognition. Regardless of the virtualization technology and architecture, you must be able to deliver audio from the client end point to the application hosted on the server.

Native audio channels can require between 150 kbps and 1 Mbps bandwidth between the client end point and the hosted application. The Nuance Citrix Client Audio Extension reduces the bandwidth requirement to 19.2-27.8 kbps (depending on the sound format).

The corresponding improvements in application responsiveness and performance are critical to the user experience.

Microphone control channels

Microphone buttons, sliders and other controls must be routed separately to the speech recognition application.

To enable this for the Nuance PowerMic in a Citrix XenApp/XenDesktop system, the Nuance PowerMic Citrix Client Extension provides a custom channel for Nuance PowerMic button controls.

For Philips, Grundig and Olympus devices, third party redistributable packages are available.

For third-party devices, configure USB redirection or device splitting. We recommend configuring device splitting on Linux thin clients; configure USB redirection only if the Linux thin client does not support device splitting.

Package contents

Nuance Citrix Client Audio Extension

A virtual audio channel for Citrix XenApp/XenDesktop systems:

- Client component:
  Nuance Citrix Audio and Button Extensions\Client\Client Windows folder, Nuance Citrix Client Audio Extension.exe

For more information on how to install the Nuance Citrix Client Audio Extension, see: Audio channel installation.

Nuance Citrix Client Audio Extension for Linux

- Client component:
  Nuance Citrix Audio and Button Extensions\Client\Client Linux folder

For more information on system requirements, supported audio formats and supported thin clients, see the README file in the Nuance Citrix Audio and Button Extensions\Client\Client Linux folder.

Nuance PowerMic Citrix Client Extension

A virtual channel for Nuance PowerMic button controls in a Citrix XenApp/XenDesktop system:

- Client component (Nuance PowerMic Citrix Client Extension):
  Nuance Citrix Audio and Button Extensions\Client\Client Windows folder, Nuance PowerMic Citrix Client Extension.msi

For more information on how to install the Nuance PowerMic Citrix Client Extension, see: PowerMic control channel installation.

Third-party device drivers

- Redistributable packages for Philips, Grundig and Olympus devices. For more information, see: Supported microphones.

Requirements

Citrix server and virtual desktop

- One of the following operating systems:
  Microsoft Windows 8
  Microsoft Windows 8.1
  Microsoft Windows 10
  Microsoft Windows Server 2012 R2
  Microsoft Windows Server 2016
  Microsoft Windows Server 2019

- One of the following Citrix environments:
  Citrix XenApp 7.15 or higher
  Citrix XenDesktop 7.15 or higher
  Citrix Virtual Apps and Desktops 1808 or higher

Client end point

- Sound card or USB audio device. For more information, see: Supported microphones.

- One of the following operating systems:
  Microsoft Windows 8
  Microsoft Windows 8.1
  Microsoft Windows 10
  Microsoft Windows Server 2012 R2
  Microsoft Windows Server 2016
  Microsoft Windows Server 2019

- Citrix client:
  Citrix Receiver 4.10.1 or higher

- Linux thin clients: For more information on system requirements, supported audio formats and supported thin clients, see the README file in the Nuance Citrix Audio and Button Extensions\Client\Client Linux folder.

Network requirements

- Minimum Citrix client to Citrix server bandwidth for audio data:
  CELP: 19.2 kbps
  Speex: 28 kbps
  PCM 8 kHz: 128 kbps
  PCM 16 kHz: 256 kbps

- Network latency must not exceed 50 ms.

Nuance audio channel installation

Install the Nuance Citrix Client Audio Extension on the client end point (i.e. on the PC operating system, not the virtual desktop).

Note: Make sure that Citrix Receiver 4.10.1 or higher is already installed on the client end point; see: Requirements. Citrix Receiver must not be running during the installation of the Nuance Citrix Client Audio Extension.

Proceed as follows:

1. Log on to the client end point as an administrator.

2. Open the Nuance Citrix Audio and Button Extensions\Client\Client Windows folder and double-click Nuance Citrix Client Audio Extension.exe.

3. Follow the installation wizard.

4. Make sure the device you want to use is selected as the default recording device on the client end point (Control Panel, **Sound** dialog box, **Recording** tab).

Remarks

- If you upgrade the Citrix client, you must reinstall the Nuance Citrix Client Audio Extension.

- Microphone buttons and other controls require a separate channel. For more information, see: PowerMic control channel installation and Supported microphones.

- The extension does not need to be installed on the server/virtual desktop; the required server binaries are already included in the application folder.

PowerMic control channel installation

To use a microphone with buttons or other controls, install the corresponding device driver/redistributable package with Citrix XenApp/XenDesktop support on the Citrix server/virtual desktop and client end point. See also: Third party microphones.

For Nuance PowerMic, install the Nuance PowerMic Citrix Client Extension on the client end point (i.e. on the PC operating system, not the virtual desktop). This configures a custom channel to route button controls from the Nuance PowerMic to the hosted application.

Note: Make sure that Citrix Receiver 4.10.1 or higher is already installed on the client end point; see: Requirements. Citrix Receiver must not be running during the installation of the Nuance PowerMic Citrix Client Extension.

Proceed as follows:

1. Log on to the client end point as an administrator.

2. Open the Nuance Citrix Audio and Button Extensions\Client\Client Windows folder and double-click Nuance PowerMic Citrix Client Extension.msi.

3. Follow the installation wizard.

Remarks

- The extension does not need to be installed on the server/virtual desktop; the required server binaries are already included in the application folder.

- If you upgrade the Citrix client, you must reinstall the Nuance PowerMic Citrix Client Extension.

- Firmware upgrade is not supported in a Citrix environment.

- In some cases the focus is lost and PowerMic buttons are not recognized if the application is started in the background after a session is reconnected. Press ALT + TAB until the focus is regained.

Configuring the Citrix native audio channel and device splitting - Citrix XenApp

To deliver audio via the Citrix native channel and redirect button controls via device splitting, from the client end point to a XenApp server, do the following:

1. In Citrix Studio:
   Create a policy to allow USB redirection for a specific device and for specific users.
   Create a policy to allow client audio and microphone redirection.

2. Configure device splitting on the client end point.

Creating a policy to allow client audio and microphone redirection

Proceed as follows:

1. On the Delivery Controller for your XenApp system, start Citrix Studio.

2. In the tree view, click **Policies**.

3. Click **Create Policy**.

4. On the **Settings** page, select **All Settings** in the drop-down box.

5. Select the **ICA/AudioSelect** category.

6. Select the **Client audio redirection** setting, click **Allowed** and **OK**.

7. Select the **Client microphone redirection** setting, click **Allowed** and **OK**.

8. Click **Next**, assign the delivery group for the new policy and click **Next**.

9. On the **Summary** page, enter a name for the new policy; for example: *Allow client audio and microphone redirection - delivery group*.

10. Enable the policy and click **Finish**.

11. Rank the new policy higher than the *Allow USB redirection - delivery group* policy.

12. Click **Finish**.

Configuring device splitting

Proceed as follows:

1. On the client end point, make sure the audio device is connected and switched on.

2. Copy the `CitrixBase.admx` and `receiver.admx` files from `C:\Program Files (x86)\Citrix\ICA Client\Configuration\` to `C:\Windows\PolicyDefinitions\`.

3. Copy the `CitrixBase.adml` and `receiver.adml` files from `C:\Program Files (x86)\Citrix\ICA Client\Configuration\en-US` to `C:\Windows\PolicyDefinitions\en-US`.

4. In the Group Policy Editor, browse for `Computer Configuration\Administrative Templates\Citrix Components\Citrix Receiver\Remoting Client Devices\Generic USB Remoting` and double-click **SplitDevices**. Enable this setting.

5. Connect the microphone/control device to the client end point.

6. Connect to the XenApp server and start your application.

7. Right-click the Citrix Receiver/Workspace icon in the notification area, open **Citrix Connection Center** and click **Devices**.

8. Select the microphone/control device and click **HID Device**.
    Note: For the buttons to work, you must select the **HID device** every time you start a session.

Remarks

- For more information about configuring device splitting for zero clients, contact your vendor.

- In case of issues during playback (for example, when there are gaps in playback or the playback speed is faster than normal), disable the **Audio over UDP real-time transport** policy in Citrix Studio (see: Audio policy settings). For more information about the Citrix audio features, see: https://docs.citrix.com/en-us/xenapp-and-xendesktop/7-15-ltsr/multimedia/audio.html

Configuring USB redirection - Citrix XenApp

To configure USB redirection from the client end point to a XenApp server (for example, if you use a server operating system such as Microsoft Windows Server as a virtual desktop), do the following:

1. In Citrix Studio, create a policy to allow USB redirection for a specific device and for specific users.

2. Configure USB redirection on the client end point and XenApp server.

Creating a USB redirection policy

Proceed as follows:

1. On the Delivery Controller for your XenApp system, start Citrix Studio.

2. In the tree view, click **Policies**.

3. Click **Create Policy**.

4. On the **Settings** page, select **(All Versions)** and **USB Devices** in the two drop-down lists.

5. Select **Client USB device redirection** and click **Select**. The corresponding dialog box is displayed.

6. Select **Allowed** and click **OK**.

7. Select **Client USB device redirection rules** and click **Select**. The corresponding dialog box is displayed.

8. Enter the device ID as follows (PowerMic II example): *ALLOW: VID0554 PID1001*. Click **OK**.
   For a list of USB devices and their corresponding IDs, see: Device IDs.

9. Click **Next**.

10. On the **Users and Machines** page, assign the delivery group for the new policy and click **Next**.

11. On the **Summary** page, enter a name for the new policy; for example: *Allow USB redirection - delivery group*

12. Click **Finish**.

Configuring USB redirection

For information on configuring USB redirection for Linux thin clients, see the documentation delivered with the product.

To configure USB redirection (for example, for Microsoft Windows clients), do the following:

1. On the client end point, make sure the audio device is connected and switched on.

2. Create a new registry setting (example for PowerMic II):
   Key (64-bit Windows): `HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Citrix\ICA Client\GenericUSB\Devices\VID0554 PID1001`
   Key (32-bit Windows): `HKEY_LOCAL_MACHINE\SOFTWARE\Citrix\ICA Client\GenericUSB\Devices\VID0554 PID1001`
   DWORD value: `AutoRedirect = 1`

3. Copy the `CitrixBase.admx` and `receiver.admx` files from `C:\Program Files (x86)\Citrix\ICA Client\Configuration\` to `C:\Windows\PolicyDefinitions\` and the `CitrixBase.adml` and `receiver.adml` files from `C:\Program Files (x86)\Citrix\ICA Client\Configuration\en-US` to `C:\Windows\PolicyDefinitions\en-US`.

4. In the Group Policy Editor, browse for `Computer Configuration\Administrative Templates\Citrix Components\Citrix Receiver Workspace\User experience` and double-click **Audio through Generic USB Redirection**. Enable this setting.

5. Start Citrix Receiver/Workspace and connect to the XenApp server.

6. Start your application and click the message displayed in the notification area; a dialog box opens.

7. Select the device you want to use and click **Connect**.

8. Right-click the Citrix Receiver/Workspace icon in the notification area and open **Citrix Connection Center**.

9. In the **Citrix Connection Center** dialog box, click **Preferences**.

10. Open the **Devices** tab to make sure the device you want to use is listed.

11. Click **Switch to generic** (if this option is displayed in the **Virtual Channel** column) to make sure the device is redirected to the XenApp server. The device drivers are installed on the XenApp server.

12. Open the **Connections** tab and select **When a session starts, connect devices automatically** and **When a new device is connected while a session is running, connect the device automatically**.

13. Disconnect from the XenApp server, restart Citrix Receiver/Workspace and reconnect to the XenApp server.

> **Note:** If the client end point is a 32-bit operating system, the audio redirection might not be supported, but the device buttons work properly.

Device IDs

The following device IDs are used when creating a USB redirection policy:

Microphone	ID
Nuance PowerMic II	VID0554 PID1001
Nuance PowerMic III	VID0554 PID1001
Nuance PowerMic II with barcode scanner	VID0554 PID1002
Philips SpeechMike Air	VID0911 PID0BB8
Philips SpeechMike Premium	VID0911 PID0C1C
Philips SpeechMike II	VID0911 PID149A
Philips SpeechMike II with barcode scanner	VID0911 PID14A4
Philips SpeechMike III	VID0911 PID0C1C
Foot control	**ID**
VEC foot controls	VID05F3 PID00FF
Philips Foot Control FSW2320	VID0911 PID0910
Philips Foot Control FSW2330	VID0911 PID091A

Silent setup

Installation

You can install the Nuance Citrix Client Audio Extension and Nuance PowerMic Citrix Client Extension via the command line. For example:

- Nuance Citrix Client Audio Extension

  `"<path>\Nuance Citrix Client Audio Extension.exe" -i -q -l log.txt`

- Nuance PowerMic Citrix Client Extension

  `msiexec /i "<path>\Nuance PowerMic Citrix Client Extension.msi" /qn /l*v log.txt`

Remarks

- The `l` option enables logging. If you enable logging, you must specify a log file name (`log.txt` in these examples).

- By default, Nuance Citrix Client Audio Extension cannot be installed on Windows Server operating systems. To enforce its installation, use the `SKIP_OSCHECK=1` parameter.

Uninstalling

You can uninstall the Nuance Citrix Client Audio Extension and Nuance PowerMic Citrix Client Extension via the command line. For example:

- Nuance Citrix Client Audio Extension

  `"<path>\Nuance Citrix Client Audio Extension.exe" /uninstall -i -q -l log.txt`

- Nuance PowerMic Citrix Client Extension

  `msiexec /x "<path>\Nuance PowerMic Citrix Client Extension.msi" /qn /l*v log.txt`

Supported microphones

	Citrix XenApp		Citrix XenDesktop	
	Audio	Controls	Audio	Controls
Nuance PowerMic II	yes	yes*	yes	yes*
Nuance PowerMic II with barcode scanner	yes	yes*	yes	yes*
Nuance PowerMic III	yes	yes*	yes	yes*
Philips SpeechMike Air	yes	yes**	yes	yes**
Philips SpeechMike Premium	yes	yes**	yes	yes**
Philips SpeechMike III	yes	yes**	yes	yes**
Grundig Digta SonicMic II	yes	yes**	yes	yes**
Grundig Digta SonicMic II (US edition)	yes	yes**	yes	yes**
Grundig Digta SonicMic 3	yes	yes**	yes	yes**
Olympus DirectRec	yes	yes**	yes	no

* To enable Nuance PowerMic controls, install the Nuance PowerMic Citrix Client Extension.

** To enable button controls for third-party devices, install the corresponding redistributable packages.

Third-party microphones

The Nuance 3rd party device drivers folder contains redistributable packages for Philips, Grundig and Olympus devices.

Install the redistributables on the Citrix server/virtual desktop where your application is hosted and on the client end point. For more information, see the documentation delivered with the redistributable package.

Note: The quality of third-party device drivers is the responsibility of the device vendor. Nuance does not guarantee that third-party drivers are error free and suitable for your requirements. Redistributed drivers might not be the most recent versions; contact your vendor for up-to-date drivers that support your speech recognition system.

Troubleshooting audio

This section deals with problems related to the Citrix virtual audio channel. For problems with button controls on Nuance PowerMic devices, see: Troubleshooting PowerMic controls.

See also: Enabling logging and Contacting support.

Common issues

In case of problems, make sure of the following:

- The Nuance Citrix Client Audio Extension is correctly installed. For more information, see: Verifying the installation.

- The Nuance Citrix Server & Virtual Desktop Audio Extension setup is uninstalled unless it is used by other products.

- The Nuance Citrix Client Audio Extension was installed after Citrix Receiver. If Citrix Receiver is reinstalled, the Nuance Citrix Client Audio Extension must also be reinstalled. If Citrix Receiver is updated manually or automatically, the Nuance Citrix Client Audio Extension does not need to be reinstalled.

- USB redirection is disabled:

  You cannot use USB redirection together with the Nuance Citrix Client Audio Extension. USB redirection removes the audio device from the client and adds a virtual audio device on the server. For more information, see: Record/playback not working.

  Note: You can use the Citrix built-in virtual channel together with the Nuance Citrix Client Audio Extension.

- The audio device you want to use is listed as the default audio device on the client end point, and this device is also available to the application hosted on the server. For more information, see: Microphone unavailable.

Verifying the installation

Citrix client

To verify that the Nuance Citrix Client Audio Extension is correctly installed on the client end point, do the following:

1. On the client end point, open the Control Panel and click **Programs and Features**.

2. Check that **Nuance Citrix Client Audio Extension** is listed.

3. Check that the version number corresponds to your download.

4. Go to C:\Program Files (x86)\Citrix\ICA Client folder (64-bit Windows) and check that the following files exist:

   NcaAudiodev.dll
   SmCAudio.dll
   SmCMixer.dll
   NuCaAudioCtxClnt.dll
   NuCaMixerCtxClnt.dll

5. Open the Registry Editor.

6. Browse for (64-bit Windows):

HKEY_LOCAL_
MACHINE\SOFTWARE\Wow6432Node\Citrix\ICA Client\Engine\Configuration\Advanced\Modul
es\ICA 3.0

Check that the `VirtualDriverEx` value contains the following:

PspSbExtCtx
PspMixerCtx

Note: The `VirtualDriverEx` value can have multiple values, separated by a comma.

7. Browse for (64-bit Windows):

HKEY_LOCAL_
MACHINE\SOFTWARE\Wow6432Node\Citrix\ICA Client\Engine\Configuration\Advanced\Modul
es\PspSbExtCtx

Check the following values:

DriverNameWin32 = SmCAudio.dll
DriverName = Unsupported
DriverNameWin16 = Unsupported

8. Browse for (64-bit Windows):

HKEY_LOCAL_
MACHINE\SOFTWARE\Wow6432Node\Citrix\ICA Client\Engine\Configuration\Advanced\Modul
es\PspMixerCtx

Check the following values:

DriverNameWin32 = SmCMixer.dll
DriverName = Unsupported
DriverNameWin16 = Unsupported

Citrix client does not start

- After you install the Nuance Citrix Client Audio Extension, the Citrix client does not start.

  Make sure the Nuance Citrix Audio Extension is correctly installed; for more information, see: Verifying the installation.

Microphone unavailable

- The audio device is not available to the speech recognition application. Proceed as follows:

  1. Make sure the audio device is switched on and connected to the client end point.

  2. Make sure your system fulfills the Requirements.

  3. Make sure the speech recognition application has permission to use the audio device.

  4. Make sure the Nuance Citrix Audio Extension is correctly installed; for more information, see: Verifying the installation.

- Your speech recognition application lists an audio device, but not the one you want to use.

  The Nuance Citrix Client Audio Extension always uses the default device on the client end point. To verify/set the default audio device, do the following:

  1. Make sure the audio device is switched on and connected to the client end point.

  2. On the client end point, open the Control Panel and click **Sound**.

3. Open the **Recording** tab and make sure the device you want to use is set as the default device.

4. Open the **Playback** tab and make sure the device you want to use is set as the default device.

Record/playback does not work

- Recording and playing back audio work at first, but a failure occurs during record or playback.

  See: Application performance and stability issues.

- Recording and playing back audio do not work.

  Proceed as follows:

  1. Make sure the audio device is switched on and connected to the client end point.

  2. Make sure your system fulfills the Requirements.

  3. Make sure the Nuance Citrix Audio Extension is correctly installed; for more information, see: Verifying the installation.

- Recording and playing back audio do not work, even though the audio device appears available to your speech recognition application.

  Proceed as follows:

  1. Make sure the audio device is switched on and connected to the client end point.

  2. On the client end point, open the Control Panel and click **Sound**.

  3. Open the **Recording** tab.

  If the device is not listed, you have USB redirection enabled and the device is redirected to the Citrix server (bypassing the Nuance Citrix Audio Extension). To use the device with the Nuance Citrix Audio Extension, disable USB redirection.

- Recording does not start; a **Device in use** error is displayed.

  The audio device is in use by another process.

  Make sure that other processes are not using the recording device when you start to record.

- Half-duplex devices (e.g. Philips SpeechMike with firmware lower than version 1.25): Recording does not start; a **Device in use** error is displayed.

  Another application might be playing audio.

  Upgrade the device firmware, and/or make sure that different devices are selected as default devices for recording and playing back audio.

- Nuance PowerMic: Recording or playing back audio does not work, but the LED on the device comes on when you try to record.

  This is likely to be a problem with the audio channel and not the device. Proceed as follows:

  1. Make sure your system fulfills the Requirements.

  2. Make sure the Nuance Citrix Audio Extension is correctly installed; for more information, see: Verifying the installation.

- Nuance PowerMic: Recording and playing back audio work via the application GUI but not via the buttons on the device.

  There is a problem with the Nuance PowerMic Citrix Client Extension. See Troubleshooting PowerMic controls.

Application performance and stability issues

- Your speech recognition application reacts slowly in general.

  This can be caused by low network bandwidth or high latency. Make sure that your network fulfills the network requirements.

  This can be caused by your server architecture. Microsoft Windows Server has a longer thread quantum than desktop PCs; this means that foreground applications are not prioritized as much.

  By default, applications on a Citrix server get 100% CPU on launch. Therefore, applications that share a core with a newly-launched application are blocked for a short time.

- Your speech recognition application launches slowly or reacts slowly to record/playback start/stop.

  This can be caused by low network bandwidth or high latency. Make sure that your network fulfills the network requirements.

  Make sure your Citrix client is up-to-date. The Citrix client application typically handles approximately 30 channels, including the GUI, mouse, and audio channels. Each of these channels can delay all other channels if there is a delay in returning from the client channel callback. For example, Citrix Online Client version 12 or older can cause such issues.

- Your speech recognition application stops with an error during recording.

  This can be caused by low network bandwidth or high latency. Make sure that your network fulfills the network requirements.

  This can be caused by latency peaks. Monitor your network performance over a long enough timeframe to detect latency peaks.

  This can be caused by the audio device or the USB port on the client end point. Make sure you have the latest firmware installed. Do a longer recording on the client end point using a different application (e.g. Sound Recorder) to try to replicate the issue.

  File-based recording: Make sure that the sound file is located on the server and not on a network share.

Enabling logging

Nuance Citrix Client Audio Extension

1. On the client end point, browse for the `C:\Program Files (x86)\Citrix\ICA Client` folder.

2. Open `SmCAudio.ini`, `SmCMixer.ini`, `NuCaAudioCtxClnt.ini` and `NuCaMixerCtxClnt.ini` in a text editor.

3. In each file, change the `Enable` line to: `Enable=yes`

4. In each file, change the `File` line to define an output folder and file name for logs. You must have write access to this folder.

Citrix Server & Virtual Desktop

1. On the Citrix server/virtual desktop, browse for the application folder.

2. Open `ncaaudiodev.ini` in a text editor.

3. Change the `Enable` line to: `Enable=yes`

4. Change the `File` line to define an output folder and file name for logs. You must have write access to this folder.

Speech recognition application

Applications based on SpeechMagic SDK or the SmAudio SDK from Capture Services:

1. Open the SpeechMagic.AudioFull or SpeechMagic.AudioMinimum folder of your application.

2. Rename smxlog.ini.template to: smxlog.ini

3. Open smxlog.ini and change the LogDirectory line to define an output folder for logs. You must have write access to this folder. The default folder is: C:\TEMP\SpeechMagic\SMXLOG

Contacting support

When you request support for Citrix-related problems, provide the following information:

- The troubleshooting steps you have already carried out and your results.

- Detailed steps describing how to reproduce the problem.

- The version number of the Nuance Citrix Client Audio Extension.

- The audio devices used.

- The type and operating system versions of thin clients used.

- The Citrix XenApp/XenDesktop version used on your system.

- The Citrix settings in use: Desktop or Application publishing.

- The Citrix Receiver version used.

- The Citrix server operating system.

- Any special configurations in use; for example, Citrix Provisioning, combined XenApp and XenDesktop installation.

Troubleshooting PowerMic controls

This section deals with problems related to the button controls on the Nuance PowerMic. For audio problems, see: Troubleshooting audio.

See also: Enabling logging and Contacting support.

Common issues

In case of problems, check the following:

- The Nuance PowerMic Citrix Client Extension is correctly installed. For more information, see: Verifying the installation.

- The Nuance PowerMic Citrix Server & Virtual Desktop Extension setup is uninstalled unless it is used by other products.

- The Nuance PowerMic Citrix Client Extension was installed after Citrix Receiver. If Citrix Receiver is reinstalled, the Nuance PowerMic Citrix Client Extension must also be reinstalled. If Citrix Receiver is updated manually or automatically, the Nuance PowerMic Citrix Client Extension does not need to be reinstalled.

- USB redirection is disabled:

  You cannot use USB redirection together with the Nuance PowerMic Citrix Client Extension. USB redirection removes the audio device from the client and adds a virtual audio device on the server. For more information, see: Troubleshooting audio.

Verifying the installation

Citrix client

To verify that the Nuance PowerMic Citrix Client Extension is correctly installed on the client end point, do the following:

1. On the client end point, open the Control Panel and click **Programs and Features**.

2. Check that **Nuance PowerMic Citrix Client Extension** is listed.

3. Open the C:\Program Files (x86)\Citrix\ICA Client folder (64-bit Microsoft Windows) and check that the following files exist:

   PowerMicVcClient.dll
   PowerMicLog.dll

4. Open the C:\Program Files (x86)\Common Files\Nuance\PowerMic folder and check that the following files exist:

   PowerMicCtrl.dll
   PowerMicHid.dll
   PowerMicLog.dll

5. Open the Registry Editor.

6. Browse for (64-bit Microsoft Windows):

   HKEY_LOCAL_
   MACHINE\Software\Wow6432Node\Citrix\ICA Client\Engine\Configuration\Advanced\Modules\
   ICA 3.0

   Check that the VirtualDriverEx value contains: PowerMicVcClient

   Note: The VirtualDriverEx value can have multiple values, separated by a comma.

7. Browse for (64-bit Microsoft Windows):

   HKEY_LOCAL_
   MACHINE\Software\Wow6432Node\Citrix\ICA Client\Engine\Configuration\Advanced\Modules\
   PowerMicVcClient

   Check that `DriverNameWin32` is set to: `PowerMicVcClient.dll`

Enabling logging

To enable logging, do the following:

1. Open the `Log` folder of the PowerMic SDK.

2. Rename powermiclog.ini.template to: powermiclog.ini

3. Copy powermiclog.ini to the following folders:

   - On the Citrix server/virtual desktop where your application is hosted:

     <ApplicationFolder>\Nuance.PowerMic

   - On the client end point:

     C:\Program Files (x86)\Common Files\Nuance\PowerMic
     C:\Program Files (x86)\Citrix\ICA Client

4. The default log output is `C:\temp`. To change this, open powermiclog.ini in a text editor and change the `LogDirectory` value.

Contacting support

When you request support for Citrix-related problems, please provide the following information:

- The troubleshooting steps you have already carried out and your results.

- Detailed steps describing how to reproduce the problem.

- The version number of the Nuance PowerMic Citrix Client Extension.

- The type and operating system versions of thin clients used.

- The Citrix XenApp/XenDesktop version used on your system.

- The Citrix settings in use: Desktop or Application publishing.

- The Citrix Receiver version used.

- The Citrix server operating system.

- Any special configurations in use; for example, Citrix Provisioning, combined XenApp and XenDesktop installation.