



# Intel Unite<sup>®</sup> Solution

## Intel Unite<sup>®</sup> Plugin for Ultrasonic Join

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Version 1.0



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# Revision History

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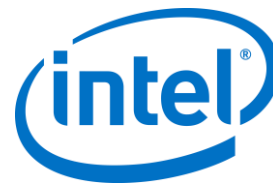
Revision	Date	Notes
0.1	January 8 2018	First Draft with outline and content
1.0	March 2018	First Release



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# 1 Introduction

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Welcome to the guide for the Intel Unite® Plugin for Ultrasonic Join.

This guide contains detailed instructions on installing the plugin for Ultrasonic Join as well as information on the key features of the Intel Unite plugin.

## 1.1 Audience

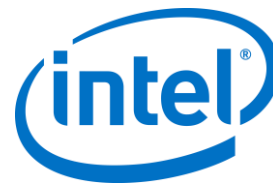
This document is designed for use by IT professionals within a corporate environment, who are responsible for installing the Intel Unite software and adding optional features to the application.

## 1.2 Overview

The plugin for Ultrasonic Join allows users to connect to a hub running the Intel Unite app without manually entering the 6-digit pin. Ultrasonic sound emitted from the hub is detected by the Intel Unite client and automatically connects the user to the hub.

If the Ultrasonic signal is not detected by the client, the user can still connect by entering the 6-digit meeting PIN manually.

There are two components to the Ultrasonic Join plugin. There is a plugin that is installed on the hub that emits the PIN through an ultrasonic signal, and a client-side plugin that detects the signal and initiates a connection to the hub.



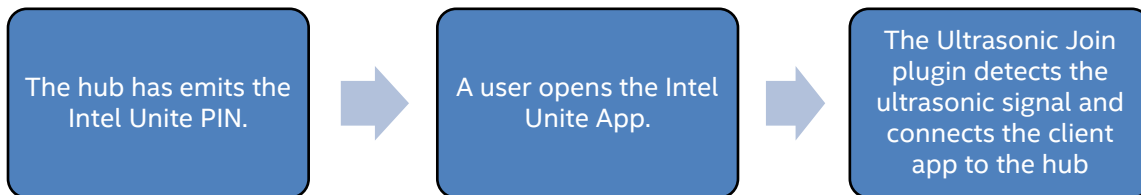
## 2 Plugin Flow

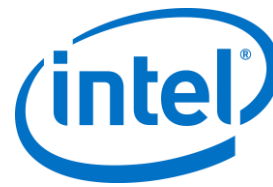
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There are two components for this plugin to function, the hub plugin and the client plugin.

The hub plugin will be loaded when the Intel Unite app on the hub starts. This component will use the default audio device to emit the PIN currently assigned to the hub.

The client plugin will be loaded when the Intel Unite app is started. It detects when the Intel Unite app is in focus, and will begin listening for the ultrasonic PIN being emitted from the hub plugin. Once it hears the PIN, it will automatically enter the PIN for the user.





## 3 Plugin Installation

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### 3.1 Hub Installation

#### 3.1.1 Pre-requisites

The Intel Unite Plugin for Ultrasonic Join will be installed on the hub and has the following requirements.

Refer to the Intel Unite Solution Deployment Guide for detailed instructions on deploying the Intel Unite solution.

#### Software requirements:

- Windows 7, 8.1, or 10 64bit
- Intel Unite® software for the hub, version 3.2 or greater

#### Hardware requirements:

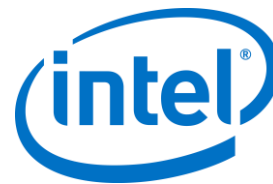
- Speakers (stereo preferred) capable of emitting ultrasonic frequencies

#### 3.1.2 Plugin Installation

On the hub:

1. Close the Intel Unite application
2. Run the installer: **Intel Unite Plugin for Ultrasonic Join Plugin.msi**
3. Launch the Intel Unite application
4. The Intel Unite plugin follows standard MSI installation command line parameters and adds the following options:

Parameter	Values	Description	Default
PCVOLUME	0 – 100	Sets the Windows playback volume for the device emitting the ULTRASONIC JOIN signal	Null (volume will not be set by Ultrasonic Join)
VOLUME	0-100	Sets the amplitude of the ULTRASONIC JOIN signal.	30



PLAYBACKDEVICE	Valid playback devices	Sets the playback device that the Ultrasonic Join signal is emitted. This is the string of the playback device as seen in the Sound control panel applet. See the <i>Specify Playback Device</i> section in this guide.	Default Windows Playback device
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### 3.1.3 Specifying Playback Device

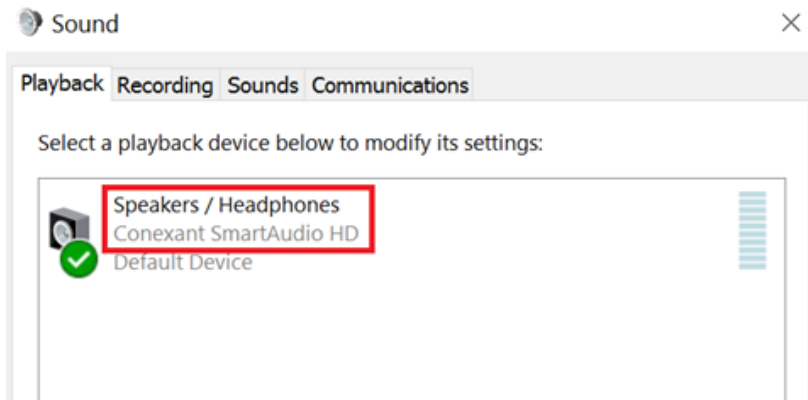
To specify **PLAYBACKDEVICE** during installation, you need to know the name of the playback device. To get this:

- Open Control Panel
- Open the Sound control panel applet
- Select the "Playback" tab

The value you will use will be the name as it's listed in this applet.

#### Example:

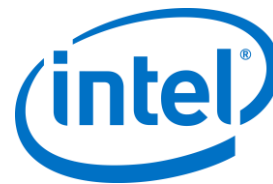
The string identified is "*Speakers / Headphones Conexant SmartAudio HD*"



#### Example Command Line Install Syntax:

```
msiexec.exe /i UltrasonicJoinHub.msi /qb PCVOLUME="50" VOLUME="30"  
PLAYBACKDEVICE="Speakers/Headphones (Realtek High Definition Audio)"
```





## 3.2 Client Installation

### 3.1.1 Pre-requisites

The Intel Unite Plugin for Ultrasonic Join will be installed on the client and has the following requirements.

#### Software requirements:

- Windows 7, 8.1, or 10 64bit
- Intel Unite® app for clients, version 3.2 or greater

#### Hardware requirements:

- A microphone capable of recording ultrasonic frequencies

### 3.1.2 Plugin Installation

On an Intel Unite client:

1. Run the installer: **Intel Unite Plugin for Ultrasonic Join Client.msi**

## 3.3 Admin Portal Settings

By default, the Intel Unite solution will require you to add the certificate hash value of the plugin to the admin portal. This ensures that only trusted plugins are enabled.

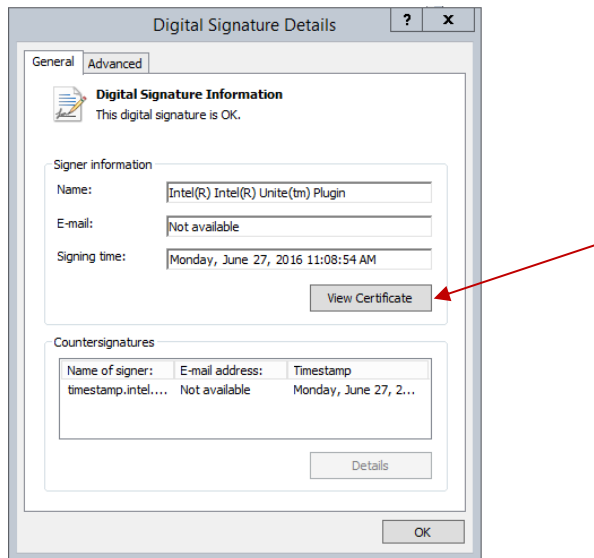
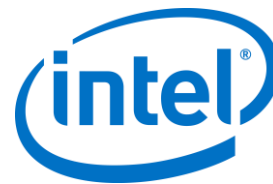
**Important Note:** The certificate hash for the client must be added to the **Default** profile for the client plugin to work.

This section describes how to enable this.

### 3.1.1 Obtaining the Certificate Hash Value

After installation of the plugin on the hub or client plugin:

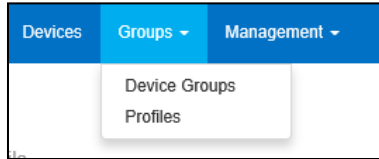
1. Open Explorer and navigate to the Intel Unite app installation directory (the default directory is C:\Program Files (x86)\Intel\Intel Unite\).
2. In the *Hub\Plugins* or *Client\Plugins* folder, right click on the **Ultrasonic Join.dll** file and choose **Properties**.
3. When the plugin **Properties** window opens, open the **Digital Signatures** tab.
4. Select **Intel Unite Plugin** and click on **Details**.
5. On the **Digital Signatures Details** window, click on **View Certificate**.



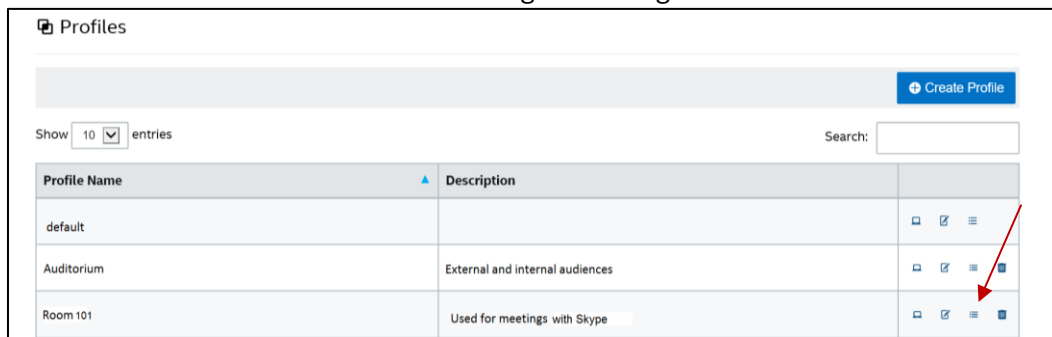
6. In the **Certificate** window, select the **Details** tab and scroll down until you see **Thumbprint**.
7. Select **Thumbprint**. Once the value is displayed, copy and paste it into a notepad or a text file, remove the spaces and save it.
8. This information will be used when you create the Profile for your plugin on the Admin Web Portal. The key value can also be created and entered after the profile has been created.

### 3.1.2 Admin Portal – Update Profile

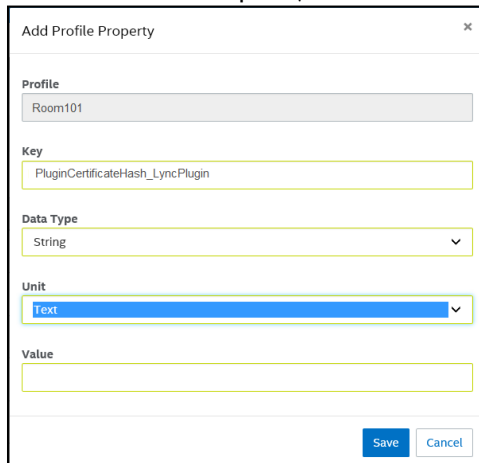
1. Go to the Admin Web Portal, under **Groups**, select **Profiles**.



2. Under the **Profile Name** list, find the Profile where you want to create the new key and click on the **View Details** icon (located on the last column on the right), alternatively, you may want to create a new Profile instead of using an existing one.



3. Create a Key for the Ultrasonic Join Certificate Hash by clicking on **Add Profile Property**, when the window opens, enter the following:



Add Profile Property

Profile: Room101

Key: PluginCertificateHash\_LyncPlugin

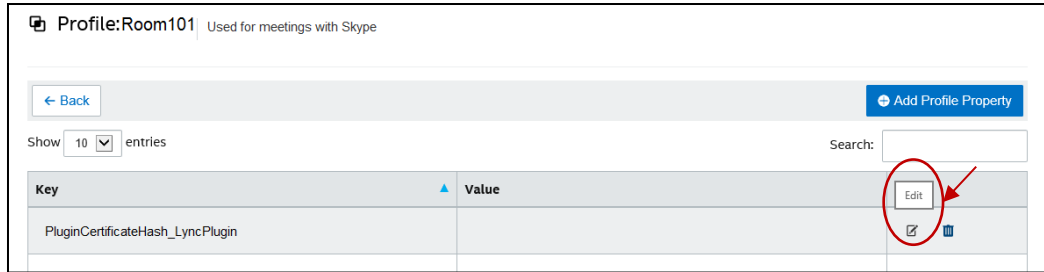
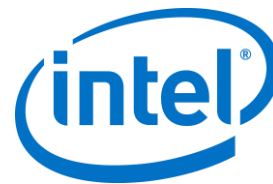
Data Type: String

Unit: Text

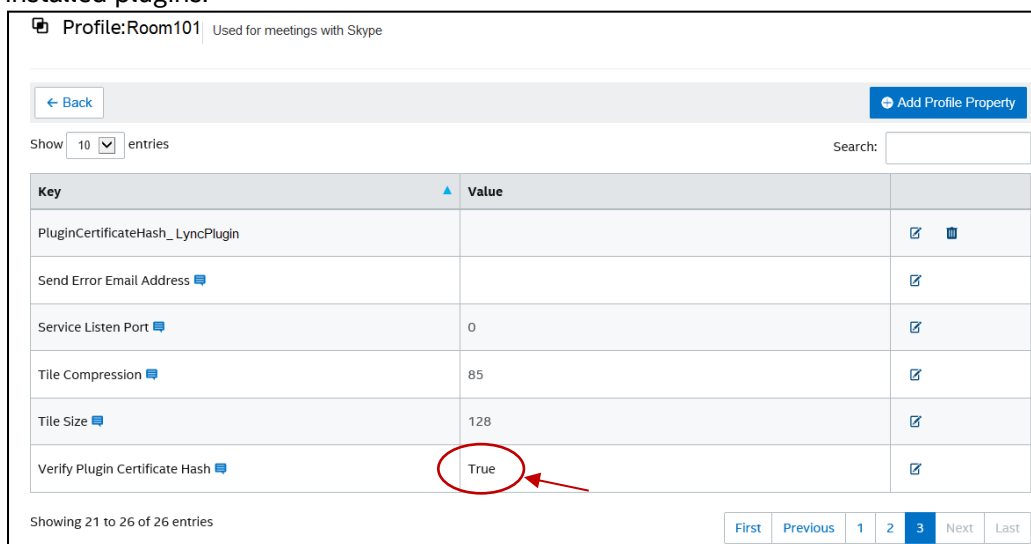
Value: [Empty field]

Save Cancel

- **Key:** PluginCertificateHash\_Ultrasonic JoinPlugin  
(The format is PluginCertificateHash\_XXXX, where X is the name you are giving the plugin)
  - **Data Type:** String
  - **Unit:** Text
  - **Value:** Paste the value saved in the notepad or text file (Thumbprint value). This data can also be entered after creating the key.
4. Click on **Save**.
  5. In the **Profile** window, you will see the new plugin key, you can click on **Edit** to enter its value (if you haven't added it) or to edit this key.



6. You must also ensure the **Verify Plugin Certificate Hash** key is set to **True**, if you want it enabled. If the value is set to **False**, the hub will not check the signing certificate of the installed plugins.



**NOTE:** For a test environment you could disable the certificate check, in a production environment, the recommendation is to set the value to **True**.

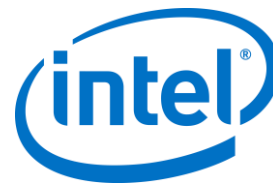
7. Once the profile has been updated with the Skype for Business plugin data, remember to assign it to the hub devices where you want it enabled.

### 3.5 Customizing Your Installation

This plugin allows you to customize the available parameters.

If you need to change the **PCVOLUME**, **VOLUME**, or **PlaybackDevice** values you have 2 options:

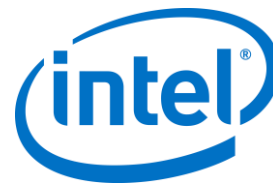
1. Uninstall and reinstall the plugin, using the command line with the parameters mentioned above.
2. Modify the parameters in the registry key: HKCU\software\intel\WPC



### 3.1.3 Registry Keys

The following keys apply to the hub plugin.

- **PlaybackDevice** (String Value)  
Overrides playback from the default audio speakers to the provided driver name; "Endpoint\_Name (Driver Name)".  
  
Example: PlaybackDevice="Speakers (High Definition Audio)"
- **PCVolume** (String Value)  
Overrides the system volume.  
  
Example: PCVolume="30"
- **LogEnable** (DWORD)  
Set to 1 to enable logging; set to 0 disables logging.
- **LogPath** (String)  
Overrides the default Logging Path



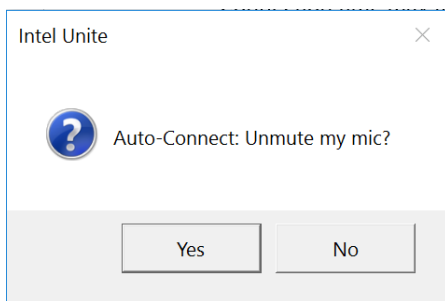
## 4 Connecting with Ultrasonic Join

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The plugin running on the client will only attempt a connection if the Intel Unite client app is running and has focus.

Open the Intel Unite client in a room equipped with a hub running the Intel Unite app and the Ultrasonic Join hub plugin. Connection time may take up to 6 seconds depending on your platform.

If your system microphone is muted when Ultrasonic Join attempts to connect, you will be prompted to Unmute your microphone with the following dialog:



### Privacy Note:

User's privacy is important to Intel. Ultrasonic Join applies a filter on every recording immediately as the data is passed to the radio algorithms. This ensures no audible data is stored or analyzed by the program.

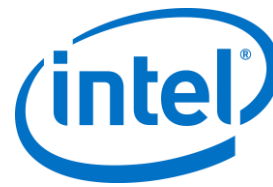
If Ultrasonic Join is unable to detect a signal, a PIN can still be manually entered.

### 4.1 Joining A Different Room

A user may be in a room, but may want to connect to a different room using a PIN. In this instance, the Intel Unite client will immediately join the room the user is in. The user should click **Disconnect** in the Intel Unite app.

Ultrasonic Join will wait 20 seconds after the initial connection before attempting to rejoin the in room Intel Unite hub. The 20 second window can be modified by the following registry key on the client:

HKCU\Software\Intel\WPC **ConnectionTimeOut** (DWORD) – Represents the number of seconds to wait after the initial connection before retrying. The default value is 20 seconds.



## Appendix A. Troubleshooting

This section describes problems that may occur and troubleshooting steps.

Issue	Possible Issues	Resolution Steps
My client does not connect to an Ultrasonic Join enabled hub	<p>Your client microphone is muted</p> <p>The Ultrasonic Join plugin is not installed or is not loaded on the hub</p> <p>The audio path for the Ultrasonic Join signal is not complete</p> <p>The Ultrasonic Join service is not running on your client</p>	<p>Ultrasonic Join detects if your microphone is muted and ask you to unmute the microphone. If you replied no, then it will not be able to detect the ultrasonic signal.</p> <p>The Ultrasonic Join plugin must be running on the hub. Ensure that it is installed and the hub logs shows it as being loaded.</p> <p>Open the Windows playback device control panel on the hub and verify that the playback device selected for the Ultrasonic Join signal is able to play audio. Right click on the device and select "test". You should hear a test noise generated by Windows.</p> <p>Open task manager and verify that the Ultrasonic Join service.exe is present. If it is not present, restart the service.</p>
A clicking or other audible noise is coming from the speaker connected to the hub	<p>The speaker volume is set too high.</p>	<p>There are 3 "volume" settings that can be adjusted.</p> <p>PC Volume: Open the Windows volume mixer and reduce the volume of the playback device that you have selected for Ultrasonic Join. Ultrasonic Join playback device is always the default playback device unless a playback device was specified in the registry</p> <p>Ultrasonic Join Amplitude: The Ultrasonic Join amplitude can be reduced during install or using the Windows registry.</p> <p>Physical speaker volume: Displays and speakers have their own volume adjustment and the speaker volume may need to be turned up or down</p>

