

ScreenBeam Conference

User Guide

Version: 1.2

Document and Software Copyrights

This ScreenBeam Document and all software offered through or used on this ScreenBeam Document are our property or the property of our suppliers, sponsors, licensors or affiliates (collectively, "Business Partners"), and are protected by United States and international copyright law, trademark law, and trade secret law, as well as other laws, rules and regulations.

We own a copyright in this ScreenBeam Document and in the selection, coordination and arrangement of the content available through this ScreenBeam Document. Except as expressly provided herein, neither we nor our Business Partners grant any rights to you under any patents, copyrights, trademarks or trade secret information. Accordingly, unauthorized use of this ScreenBeam Document or any content available on this ScreenBeam Document may violate patent laws, copyright laws, trademark laws, trade secret laws, and laws pertaining to privacy and publicity rights or other laws or regulations.

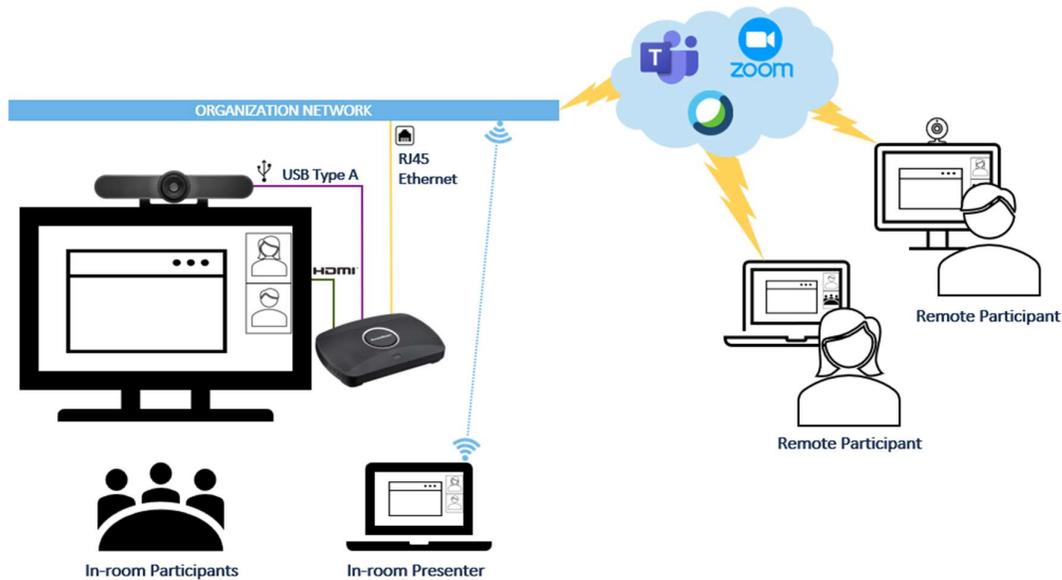
Copyright © 2023 ScreenBeam Inc. All Rights Reserved. ScreenBeam, and the ScreenBeam logo and all page headers, custom graphics and button icons are the service marks, trademarks, and/or trade dress of ScreenBeam ("Trademarks"). All other service marks, trademarks, product names and company names or logos displayed in this ScreenBeam Document are the property of their respective owners. You may not use, copy, reproduce, republish, upload, post, transmit, distribute or modify any of the Trademarks in any way, including in advertising or publicity pertaining to distribution of materials on this ScreenBeam Document, without our prior written consent.

Table of Contents

Part I	Introduction	1
1.1	Features.....	1
1.2	How It Works.....	2
1.3	Related Documents.....	2
Part II	Solution Requirements.....	3
2.1	Device Requirements	3
2.2	User Device System Requirements	3
2.3	PC Hardware Requirements	3
2.4	Network Requirements	4
Part III	Setup Overview	6
3.1	Supported Configuration.....	6
3.2	ScreenBeam Receiver Installation.....	8
3.3	Receiver Feature Settings.....	9
3.4	Software Setup.....	11
Part IV	Conferencing with In-room Equipment.....	12
4.1	Connecting to In-room Equipment	12
4.2	Using the In-room Conference Devices.....	17
4.3	Example of Microsoft Teams Device Settings.....	18
Part V	Known Issues & Limitations	20
5.1	Hardware Setup	20
5.2	Receiver Configuration.....	20
5.3	Software Installation	20
5.4	Audio and Video.....	21
5.5	Feature and performance	21
Part VI	Troubleshooting	22

Part I Introduction

ScreenBeam Conference solution wirelessly connects the presenter's device to the in-room conferencing system for remote collaboration. This brings your own meeting (BYOM) solution allows users to screen share and video conference using a web conferencing application of their choice (e.g., Zoom/Teams/WebEx).



1.1 Features

- Allows BYOM users to use in-room conference equipment in a wireless manner
- Supports Windows 10 version 20H2 (and later) devices and macOS version 10.16 (and later) devices
- Compatible with major web conferencing platforms (such as Teams, Zoom, GoToMeeting, WebEx, Google Meets, etc.)
- One-click connection to in-room equipment
- Verified compatible USB peripheral devices (check the verified peripheral devices [here](#))

Note:

- ScreenBeam 1100 Plus receiver only supports USB Type-A connector.
- USB conference camera or webcam is recommended to be paired with a USB speakerphone for optimal sound quality.

1.2 How It Works

ScreenBeam Conference, together with ScreenBeam 1100 Plus receiver, wirelessly bridges the in-room conference equipment with the BYOM user's device.

- **ScreenBeam 1100 Plus receiver**

The ScreenBeam 1100 Plus receiver is the wireless hub for the room display and camera, microphone, and speakers. User's corporate device could wirelessly connect to share content to the display and utilize the USB room peripherals.

- **ScreenBeam Conference software**

ScreenBeam Conference software is required to run on the user laptop. This application facilitates the connection to the ScreenBeam for wireless display or wireless display with web conferencing.

- **Any web conferencing application**

Users can bring their corporate device with any web conferencing codec and use with the in-room camera, microphone, and speakers, wirelessly!

1.3 Related Documents

To better understand the ScreenBeam features, we recommend you read the following document:

- [ScreenBeam 1100 Plus Wireless Display Receiver User Guide](#)

Part II Solution Requirements

The requirements in this section must be met to ensure that ScreenBeam Conference app and ScreenBeam 1100 Plus receiver can work properly for BYOM conferencing.

2.1 Device Requirements

The device requirements below must be met:

- ScreenBeam 1100 Plus receiver (with firmware 11.1.13.0 or later)
- A Display with an available HDMI input
- USB Conference Camera (See Section 3.1 Supported Configuration)

2.2 User Device System Requirements

User devices should meet the following system requirements:

- Supported OS
 - Windows 10 version 20H2 or later
 - macOS version 10.16 or later
- Wireless display method
 - Miracast/Infracast (Windows 10 devices)
 - Airplay mirroring (macOS devices)
- [ScreenBeam Conference software](#)

2.3 PC Hardware Requirements

The hardware requirements below should be met by the user devices:

- Recommended
 - CPU: Intel i7 (8th Gen) 1.8 GHz or better
 - Memory: 8 GB or more
 - Wireless: Intel Dual-Band Wireless AC 82xx or better
- Minimum
 - CPU: Intel i5 (7th Gen) 1.6 GHz
 - Memory: 4 GB
 - Wireless: 802.11ac Dual-Band

2.4 Network Requirements

The network requirements below must be met:

- **ScreenBeam 1100 Plus receiver**
 - Ethernet: 1Gbps (or better) for ScreenBeam receiver
- **ScreenBeam Conference software**
 - Ports:
 - 23030 TCP bidirectional (I2C)
 - 9554 TCP bidirectional (Conference communication)
 - TCP 16669 (Windows service communication)
- **For Windows 10 - Miracast over Infrastructure (Recommended)**
 - Wireless (user device):
 - 802.11ac 5GHz (best performance)
 - -67dBm (or better)
 - Ping response time below 15ms for stable performance
 - Ports
 - 7250 TCP bidirectional (control)
 - 7236 TCP bidirectional (RTSP - video and audio stream)
 - 24030 UDP bidirectional (RTP)
 - 50000 TCP bidirectional (UIBC – touch, mouse, keyboard)
 - Discovery (must support one of the following methods)
 - IP Broadcast in Probe Response Frame (enabled by default)
 - Port: 53 UDP bidirectional (DNS discovery)
 - Port: 5353 UDP bidirectional (mDNS discovery)
- **For Windows 10 – Miracast over Wi-Fi Direct**
 - Wireless (user device):
 - Apply recommended PC hardware requirements
 - Ports
 - 7236 TCP bidirectional (RTSP - video and audio stream)
 - 24030 UDP bidirectional (RTP)
 - 50000 TCP bidirectional (UIBC – touch, mouse, keyboard)
 - Group Policy (Group Policy Management Editor > Policies > Windows Settings > Wireless Network (IEEE 802.11) Policies):
 - Uncheck “Prevent connections to infrastructure networks”
 - Check “Allow everyone to create all user profiles”
 - Uncheck “Don’t allow Wi-Fi Direct groups”
 - View the GPO setting articles [here](#)

- **For macOS – Airplay mirroring**

- Wireless (user device):
 - 802.11ac 5GHz (best performance)
 - -67dBm (or better)
 - Ping response time below 15ms for stable performance
- Ports
 - 7250 TCP bidirectional (control)
 - 7236 TCP bidirectional (RTSP - video and audio stream)
 - 24030 UDP bidirectional (RTP)
- Discovery (must support one of the following methods)
 - Port: 5353 UDP bidirectional (mDNS discovery)

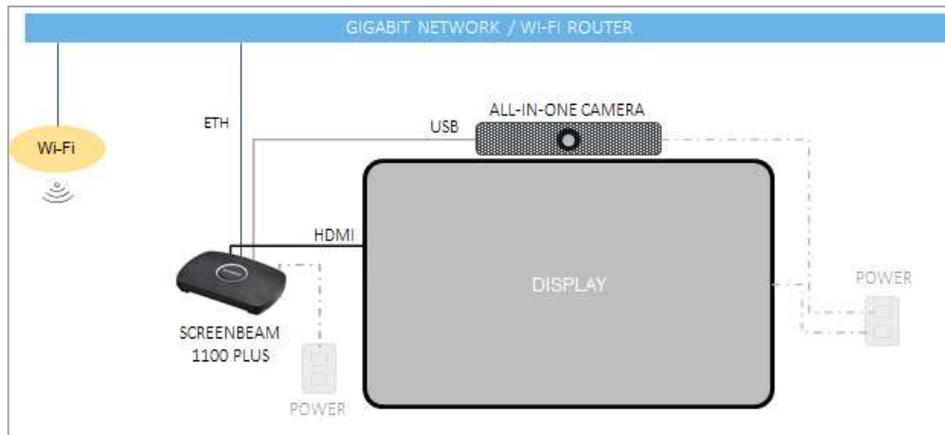
Part III Setup Overview

This section describes the basic setups for the ScreenBeam receiver and the ScreenBeam Conference software.

3.1 Supported Configuration

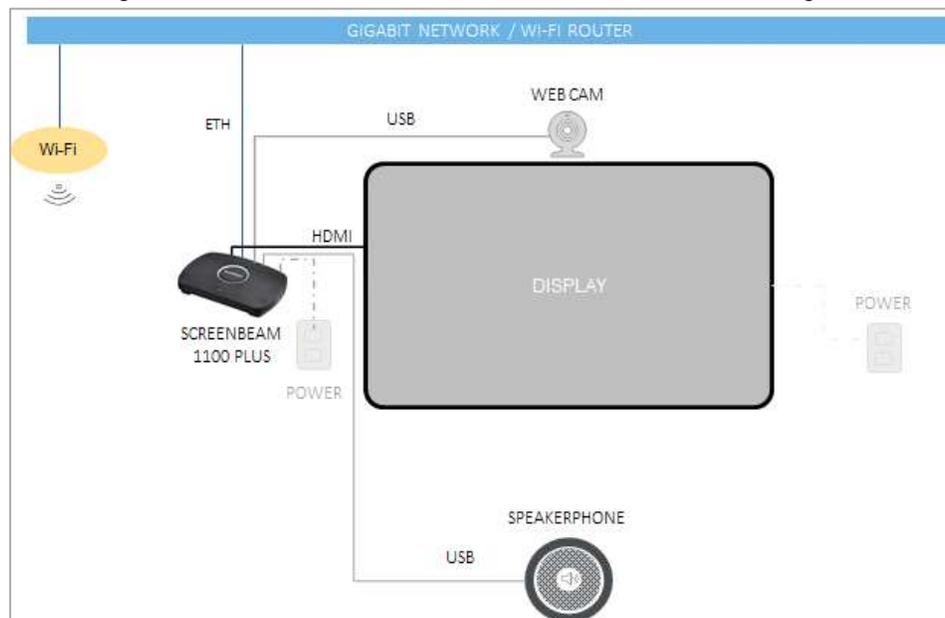
- **All-in-one USB Conference Camera or Video Bar**

This configuration is recommended for huddle to small sized meeting rooms.



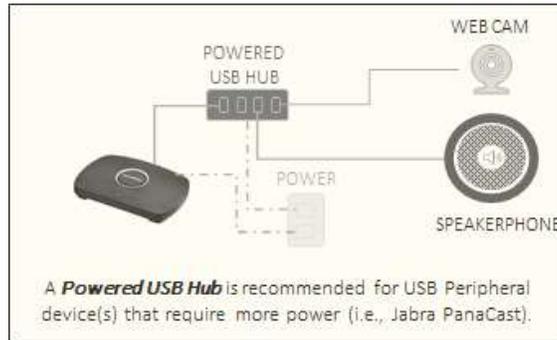
- **USB conference cam and USB speakerphone**

This configuration is recommended for small to medium sized meeting rooms.



Note: Certain USB peripheral devices may draw more power than ScreenBeam 1100

Plus can support. If the device does not come with its own power adapter, a Powered USB Hub is recommended in the setup (see connection diagram below).



3.2 ScreenBeam Receiver Installation

Follow the procedure below to install the ScreenBeam 1100 Plus receiver:

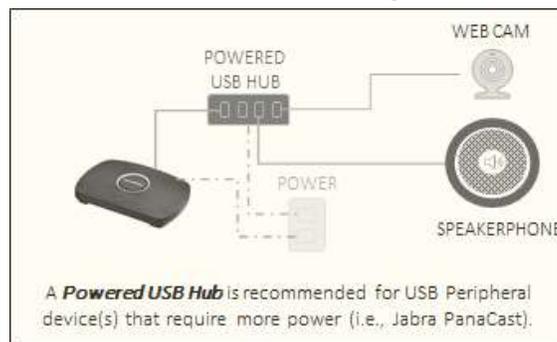
1. Connect the receiver's HDMI OUT port to an HDMI input port on the display with a quality HDMI cable.
2. Connect the receiver's ETHERNET port to a switch port on the network with a quality Ethernet cable.
3. Select a deployment model as suggested in section **3.1 Supported Configuration**.
4. Connect the USB peripheral device or devices (camera or speakerphone) to the receiver's USB 2.0 port(s).



Note:

- All-in-one USB conference camera with external power supply is required to be plugged in and turned on.
- Some USB peripheral devices without an external power supply may require a Powered USB 2.0 Hub. Follow the procedure below to install a powered USB hub:
 - a. Connect the Input USB cable from the USB Hub to a USB 2.0 port on the ScreenBeam receiver.
 - b. Connect the USB cable from the peripheral device to the USB Hub.
 - c. Connect the power to the Powered USB Hub.

The connections should look like this diagram:



5. Place the USB Camera on top or below the TV/Display.
Note: If the configuration includes a USB Camera (Mic) and TV's speaker, the following steps are recommended to mitigate echo:
 - Avoid placing the camera (mic) next to the TV speaker.
 - Set the TV speaker's volume to no higher than 40%.
 - Adjust the laptop's volume to a value that is audible for the room.
6. Power on the ScreenBeam receiver.

Proceed to the next section for the feature configuration.

3.3 Receiver Feature Settings

Follow the procedure below to set up relevant features on the ScreenBeam 1100 Plus receiver:

1. **Log in to ScreenBeam receiver's Local Management Interface (LMI).**

Follow the procedure below to log into the receiver's LMI:

- a) Open a web browser on a PC connected to the same network as the ScreenBeam receiver.
- b) Enter in the IP address of the receiver as shown onscreen (should be the Ethernet IP).
- c) Enter the administrator's username and password (default username is **Administrator** and the password is **screenbeam**).

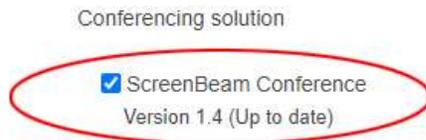
Note: If that does not work, other methods for accessing the management interface can be found in [this article](#).

2. **Enable Miracast over Infrastructure.**

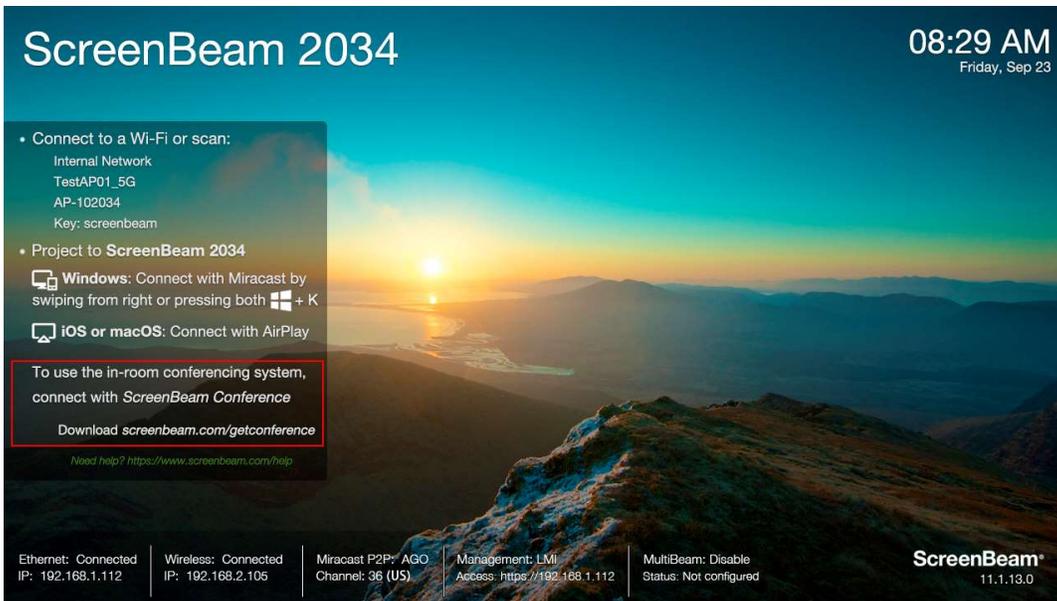
- a) Go to the **Features** tab.
- b) In the **Wireless Display over LAN** section, select **Enable** for **Windows 10**.
- c) Select **Apply** at the bottom of the page and click **OK** in the popup message box.

3. **Enable the ScreenBeam Conference service.**

- a) Go to the **Video Conferencing** tab.
- b) Under **Conferencing solution** > **ScreenBeam Conference**, check the **ScreenBeam Conference** checkbox.



- c) Click on **Apply** to save any other changes made to the page, then press **OK** in the popup message box.



ScreenBeam Conference is now enabled. Proceed to the next section to install the ScreenBeam [Conference](#) Application on the user device.

Important

- Only one conferencing solution can be enabled at a time.
- ScreenBeam Conference works only in Single view display and Landscape mode.
- If ScreenBeam receiver is configured for Multi-view or Quick Switch, it will switch to Single view mode when the ScreenBeam Conference service is enabled.

3.4 Software Setup

Follow the procedure below to set up the ScreenBeam Conference software:

1. Go to screenbeam.com/getconference and download the latest version of ScreenBeam Conference software.
2. Before installing, exit any web conference applications (e.g., Teams, Zoom, etc.).
3. Right click on the ScreenBeam Conference installer and select Run as Administrator.
4. Follow the prompts in the Setup window to complete the installation.

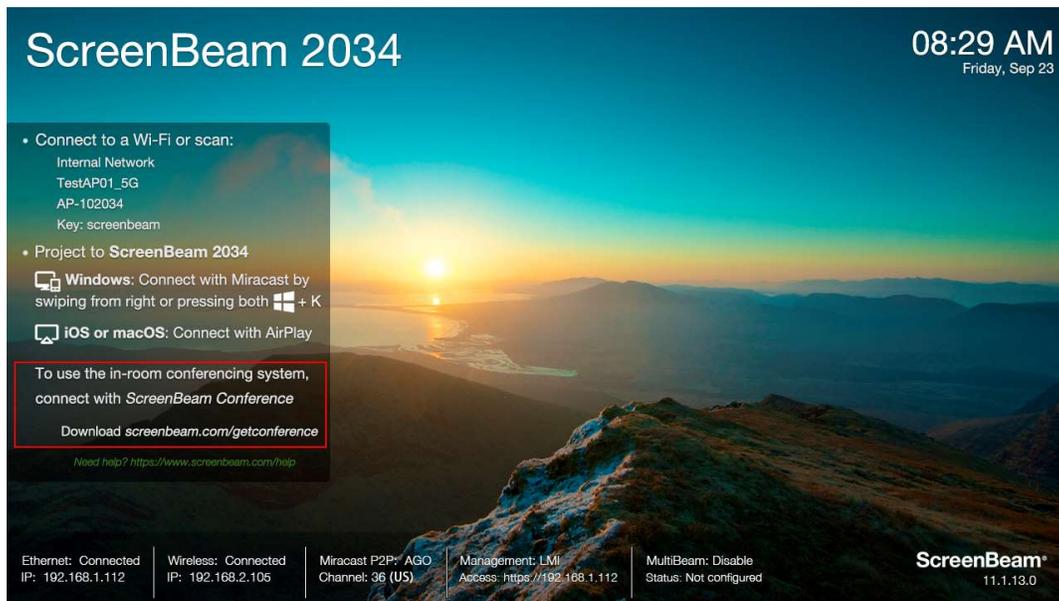
Part IV Conferencing with In-room Equipment

This section describes the steps to connect your BYOM device to the in-room equipment and start a meeting with these devices.

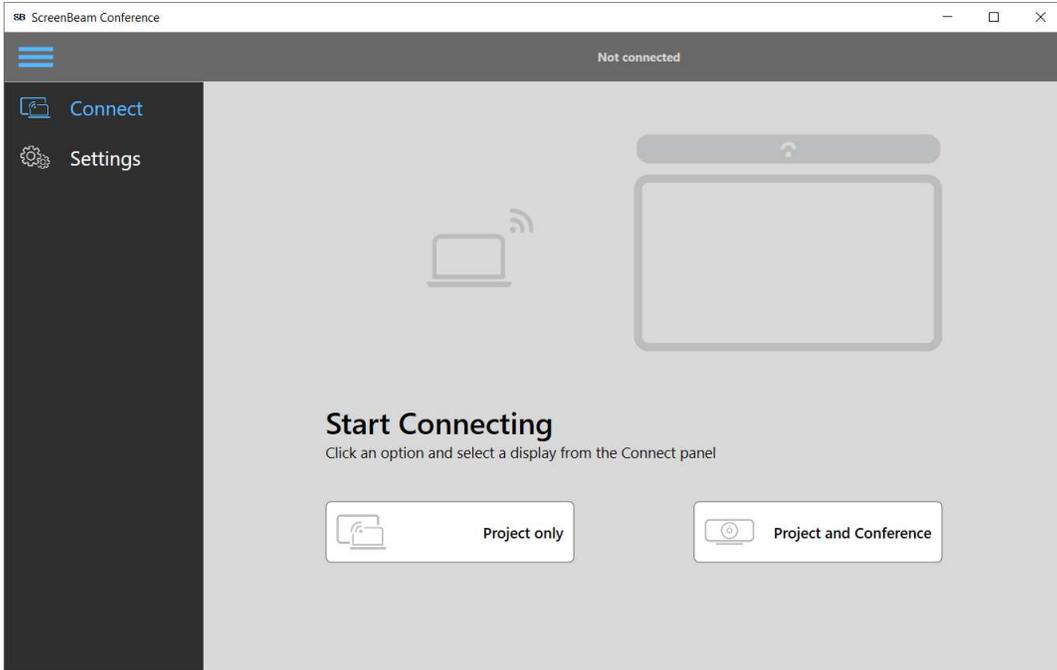
4.1 Connecting to In-room Equipment

Follow the procedure below to connect your BYOM device to the in-room conferencing equipment:

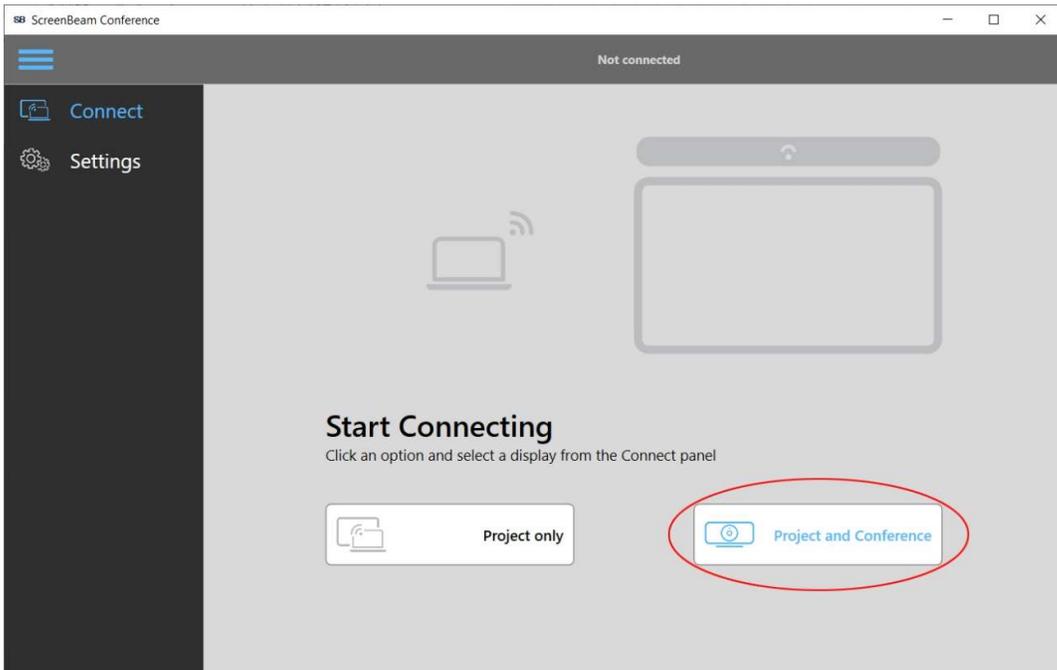
1. On the TV display, verify ScreenBeam receiver is ready and the ScreenBeam Conference service is enabled.



2. On the BYOM device, start the ScreenBeam Conference application.

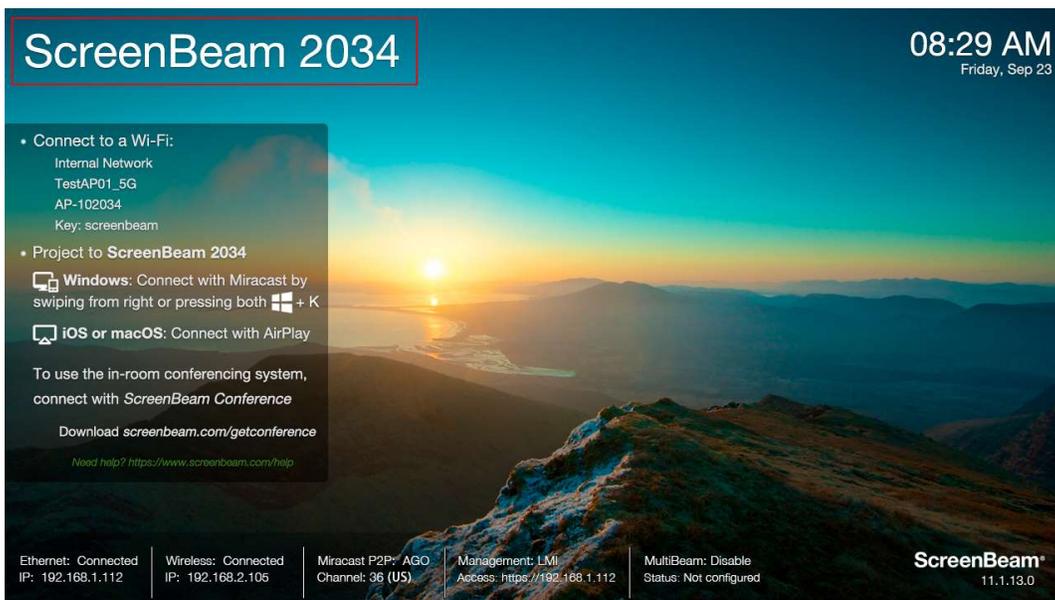
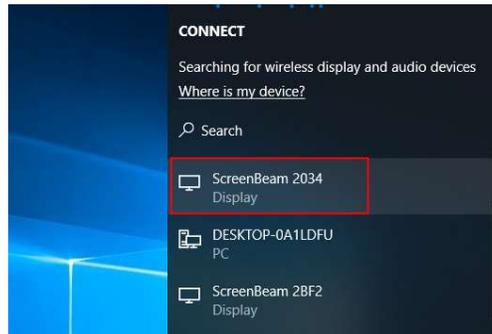


3. Select the **Project and Conference** option.



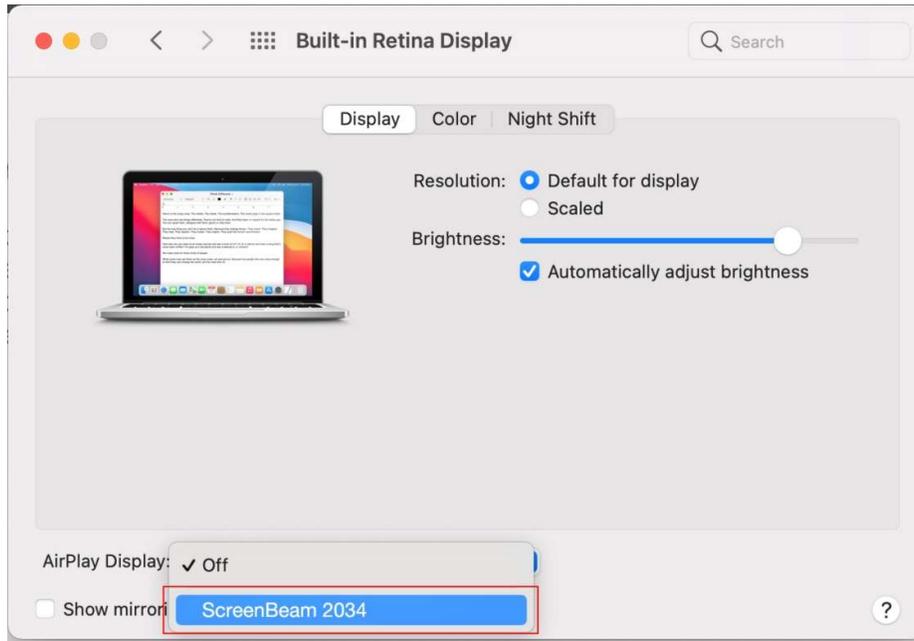
4. Windows or Mac device

- On a Windows 10 device, the **CONNECT** panel will appear showing a list of available devices. Select the device that matches the ScreenBeam receiver's name as shown on the display.



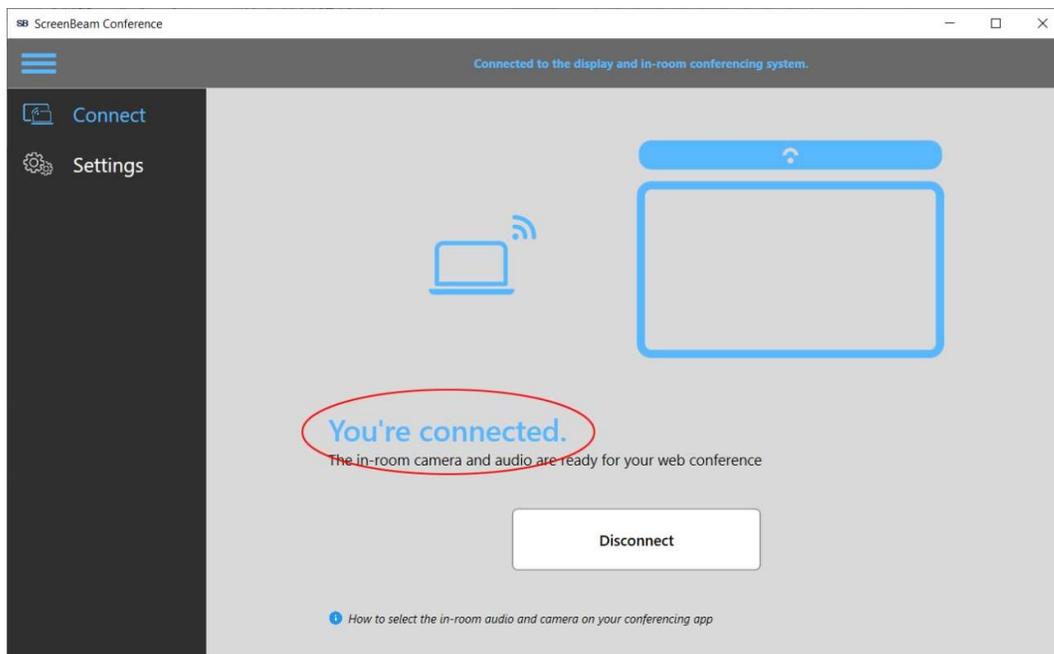
- On a Mac device, the Display window will appear. Click the Airplay Display

dropdown box and select the device that matches the ScreenBeam receiver's name as shown on TV.



Users can also connect to the ScreenBeam receiver using **Screen Mirroring** in the **Control Center**.

5. The laptop will proceed and connect to ScreenBeam receiver.
6. Enter the PIN code to connect (the PIN is shown on the TV screen).
7. Once connected, the app will display the connection status (you may see the tutorial guide if it is the first connection).



The laptop is now connected to the USB peripheral devices and in-room display when the

connection status is changed to “You’re connected”.

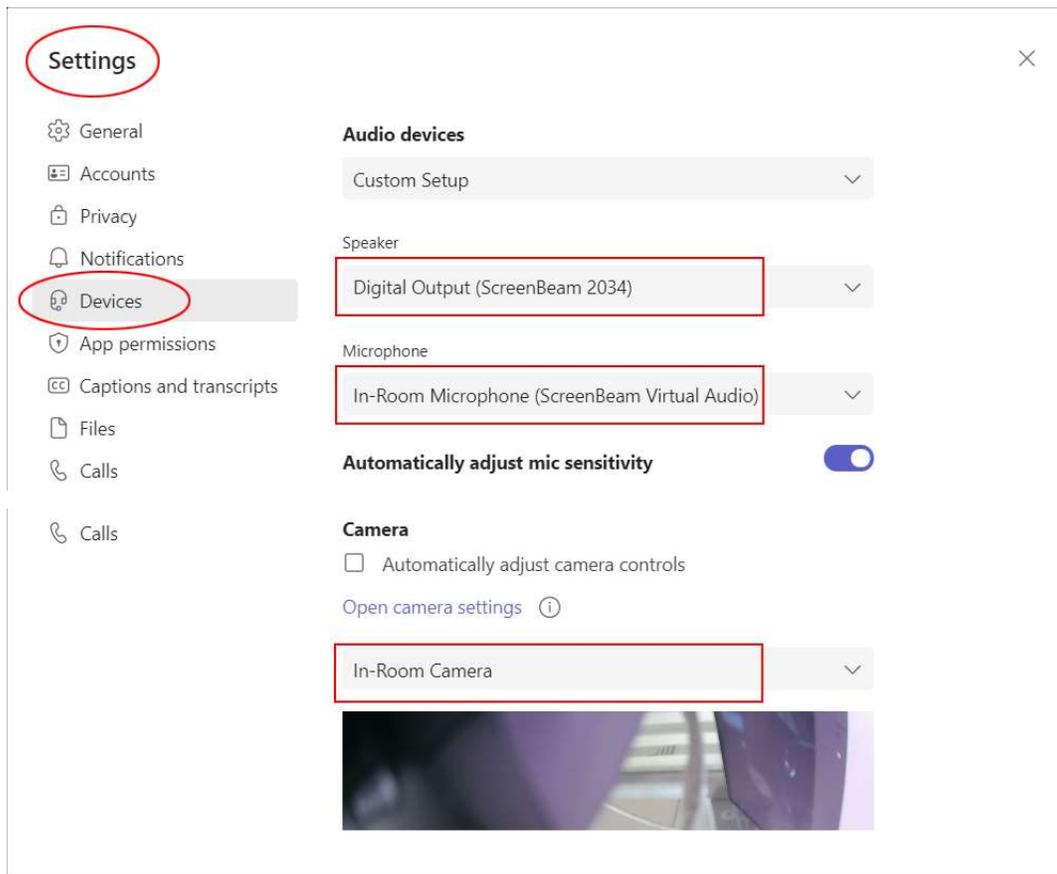
Note

The in-room conference audio and camera devices may not be the default for the meeting. The user may need to manually select the mic/speaker/camera in their web meeting app.

4.2 Using the In-room Conference Devices

Follow the procedure below to use the in-room conference devices:

1. Ensure that the ScreenBeam Conference app has connected to the ScreenBeam 1100 Plus receiver, as shown in the last step of the previous section.
2. Launch a web conferencing app of choice (e.g., Teams, Zoom, etc.), and check the web conference audio and camera device settings. Go to **Settings** and verify the audio and camera devices are set as followed:
 - Speaker: Digital Output (Name of ScreenBeam receiver)
 - Microphone: In-Room Microphone (ScreenBeam Virtual Audio)
 - Camera: In-Room Camera

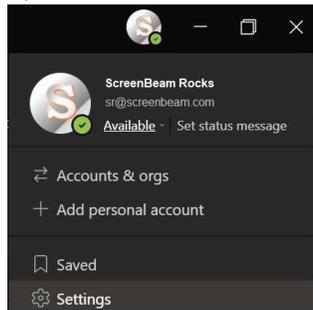


3. Make changes to the settings that are not in accordance with the above descriptions.
4. Start using your web conferencing app!

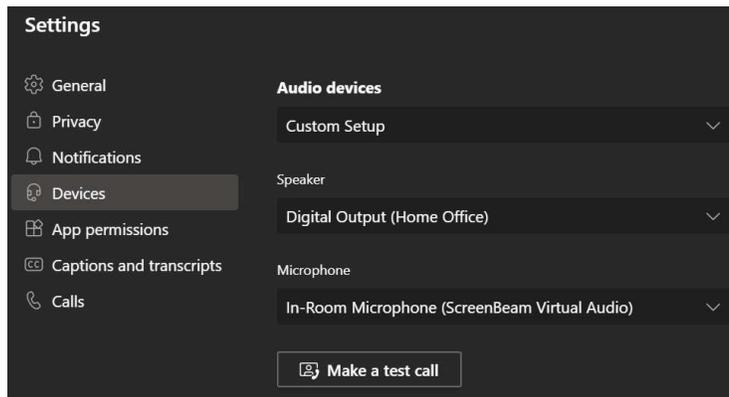
4.3 Example of Microsoft Teams Device Settings

This section describes an example of setting up Microsoft Teams for conference using the ScreenBeam and the in-room equipment.

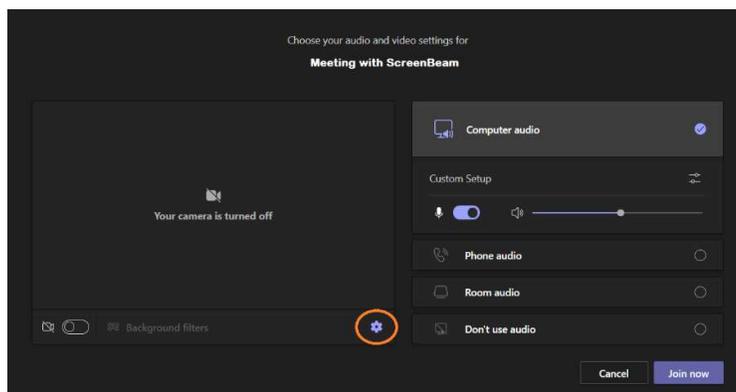
- Prior to the web conference
 - a) Click on the Profile icon (or the three dots) and then click on **Settings**.



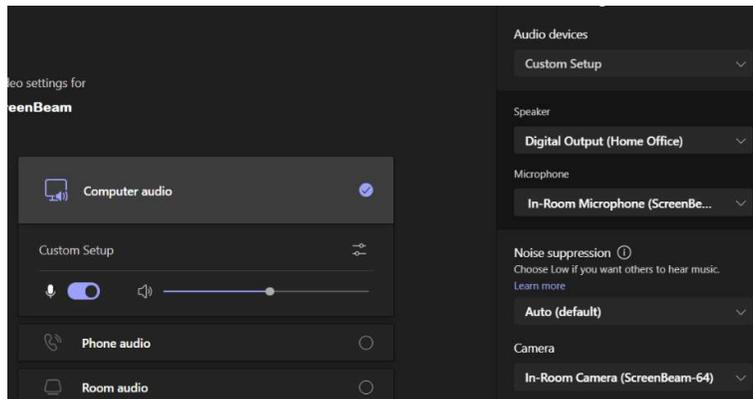
- b) Locate the **Speaker**, **Microphone** and **Camera** options.



- Start of the web conference
 - a) Click on the gear icon.

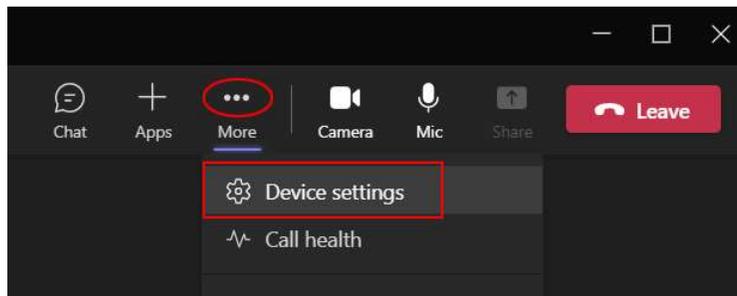


b) Locate the **Speaker**, **Microphone** and **Camera** options.

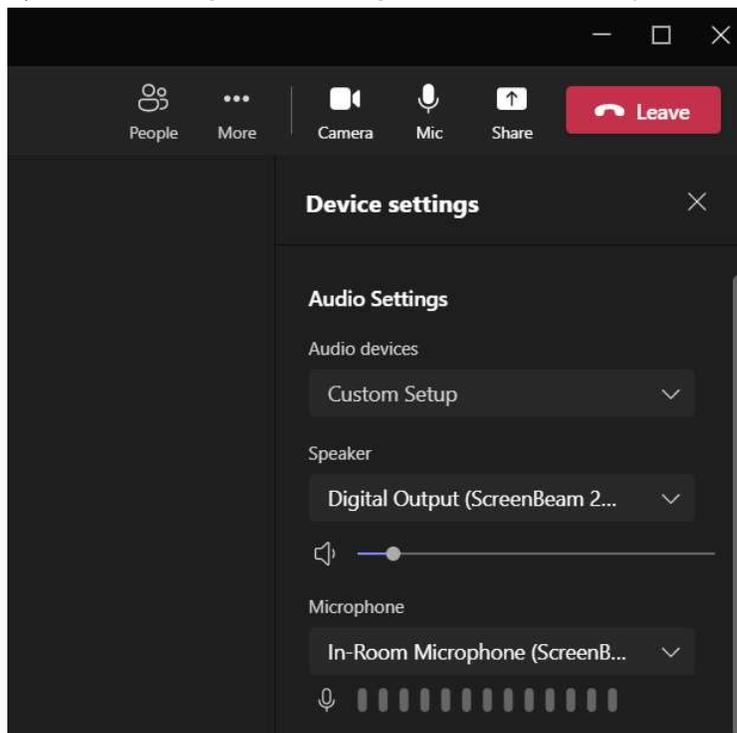


● During the web conference

a) Click on the three dots on top of Teams for more options and select **Device settings**.



b) Locate the **Speaker**, **Microphone** and **Camera** options.



Part V Known Issues & Limitations

This section describes the known issues and limitations that the ScreenBeam deployment currently has.

5.1 Hardware Setup

- USB camera, microphone or speaker should be connected to the USB 2.0 port on ScreenBeam receiver.
- For an All-in-one USB Conference Camera or video bar with external power, power adapter must be plugged in. ScreenBeam USB port will not be able to power All-in-one devices.
- A Powered USB Hub is required for any All-in-one USB Conference Cameras that do not have a dedicated power supply OR certain USB Cameras that require additional power (e.g., Jabra Panacast).
- In the scenario where two or more USB Peripheral Devices (e.g., Camera + Speakerphone) are connected to the receiver and either device isn't working reliably, a Powered USB Hub is recommended.
- When deploying a Powered USB Hub, it's recommended to connect the hub to the USB 2.0 port on ScreenBeam receiver. The Powered USB Hub can be 2.0 or 3.0 (i.e., Amazon Basics 4 Port USB to USB 3.0 Hub with 5V/2.5A Power Adapter).
- ScreenBeam 1100 Plus receiver's USB 3.0 port can be used for touchscreen display, but normally shall not be used for USB camera, microphone, or speaker – pls note that some USB camera/mic/speaker may need to be connected to USB 3.0 port, so try to use USB3.0 port if connecting to USB2.0 port has issue.
- Deployment configuration that includes an USB webcam and the TV speakers (internal or external) is currently not supported. Since the TV speakers and microphone are not from one device, the setup is likely to produce audio echo to the remote participants.

5.2 Receiver Configuration

- ScreenBeam Conference service only works when the receiver is in the following configurations:
 - Standard Wireless Display
 - Single View display mode
 - Landscape orientation

5.3 Software Installation

- Windows Defender SmartScreen may try to prevent the ScreenBeam Conference software installation. Click on **More Info** and select **Run Anyway**.

- Expect Windows installer to automatically terminate web conferencing application to complete the installation. User will be prompted before the installer terminates the application(s).
- Expect Windows uninstaller to automatically terminate ScreenBeam Conference application and any apps or browser is holding the in-room microphone or camera device. User will be prompted before the uninstaller terminates the application(s).
- Uninstaller cannot proceed if Windows Sound Settings is using the in-room microphone. User needs to manually change the in-room mic to the system mic for the uninstallation to proceed.

5.4 Audio and Video

- Windows 10 Miracast/Infracast max resolution is 1080p30 when ScreenBeam Conference is enabled.
- When both an USB webcam and an USB speakerphone are detected, only the Mic on the USB speakerphone will be functional.
- All audio will output through the USB speaker if an All-in-one USB video bar or a USB speakerphone is connected to ScreenBeam.
- After the software installation is complete, the system's audio and or camera setting may default to the In-room (ScreenBeam) device.

5.5 Feature and performance

- Upon connecting to ScreenBeam Conference, the web conferencing application may not select the correct microphone, speakers, or camera for the meeting. Be sure to check the device selection in the web conference application settings. Help text and screenshots are provided in ScreenBeam Conference.
- Upon disconnecting from ScreenBeam Conference, the web conferencing application does not return to the system's microphone, speakers, or camera. Be sure to check the device selection in the web conference application settings for your next meeting, and a help message is displayed after each meeting in ScreenBeam Conference.
- Removal and reconnect (hot plug) of the USB Peripheral Device is not recommended during a conference session. This could result to ScreenBeam failing to recognize the device and a restart is necessary.
- A 150-250ms audio delay is expected from the participants using ScreenBeam Conference.

Part VI Troubleshooting

This section describes how to troubleshoot some common issues.

- The web conference audio and/or video is not outputting to the in-room devices.
 1. Check the in-room equipment and make sure it is powered on.
 2. Check the ScreenBeam Conference connection from the laptop to ScreenBeam receiver and verify that Conference mode is enabled.
 3. Check the device settings in your web conferencing application.
 4. Check the output volume setting from the laptop.

- The in-room audio or video stops working in the middle of a web conference meeting.
 1. Check the device settings in your web conferencing application.
 2. Check the on-screen message from ScreenBeam receiver.
 3. Try reconnecting from ScreenBeam Conference application.
 4. Restart ScreenBeam receiver and reconnect if the issue persists.

- The web conferencing audio and or video quality through the in-room equipment is not smooth.
 1. Make sure the system meets the minimum hardware requirements.
 2. Make sure the system CPU resource is not overloaded by other applications.
 3. If using Wi-Fi Miracast for connection, make sure to select a clear wireless channel for Wi-Fi Direct P2P.
 4. If using Wi-Fi Miracast over Infrastructure, make sure the laptop has a solid Wi-Fi signal strength of 85% or better, connection to an AP on a 5GHz channel is strongly recommended.
 5. Restart ScreenBeam receiver and reconnect if the issue persists.

- The ScreenBeam Conference and/or mirroring randomly disconnect.
 1. Make sure your operating system receives the latest updates.
 2. If using Wi-Fi Miracast over Infrastructure, make sure the laptop maintains a solid Wi-Fi connection and does not fluctuate or roam between APs. Windows may falsely detect the system/user is walking away and trigger an auto-disconnect.
 3. If the issue persists, contact your Microsoft representative, and voice the opinion about Windows native screen mirroring.

- The remote participants hear echo of their own voice when speaking
 - If the deployment configuration consists of the USB camera and the TV speakers, then this is expected. ScreenBeam Conference does not support this model currently.
 - If this deployment configuration is temporary for testing, the following steps could apply:
 - a) Avoid placing the camera (with microphone) or microphone next to the speaker.

- b) Avoid facing the camera (with microphone) or microphone towards the speaker.
 - c) Adjust the TV speaker or sound bar volume to 40% or less.
 - d) Adjust the user device laptop volume to 80% or less.
 - e) Reduce the microphone volume from 100% if needed.
- The microphone volume, from the USB camera or USB speaker, is too low.
 1. Verify the microphone in the OS audio settings is not muted.
 2. Increase the microphone volume in the OS audio setting if necessary.
 3. Check the device's microphone alone by connecting it directly to the PC to verify the issue is not hardware specific.
 4. Check the device's manufacturer website for the latest firmware and update it.