



ThinkSmart



ThinkSmart Hub Configuration Guide for Zoom Rooms

Version 1.1

8/2020

Note: This guide covers software configuration and troubleshooting for Zoom Rooms. For hardware deployment instructions, please see the “ThinkSmart Hub Deployment Guide for all UC Platforms” document. Comprehensive Zoom Room information is located at <https://support.zoom.us>

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Pre-Deployment Guidance

Account/Licensing Requirements

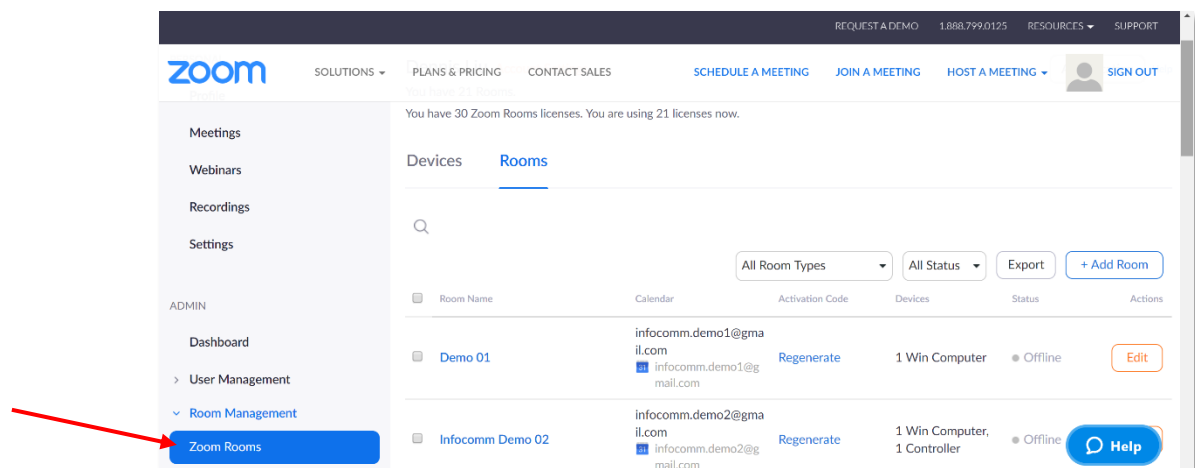
Zoom Room software comes preloaded on all ThinkSmart Hub for Zoom devices. This software differs from end user clients for mobile phones, Macs and PCs. In order to configure your device, you must have a Zoom Rooms room account.

For testing purposes, Zoom allows a free limited function Rooms account to be leveraged to test sending and receiving video and audio. You will not be able to invite participants, record, or share content, but it will ensure that prerequisite steps are completed. More information can be found at

<https://support.zoom.us/hc/en-us/articles/360000163266-Test-Zoom-Room-Setup> where the following topics are covered:

- Setting up a Test Zoom Room
- Starting a Test Meeting
- Joining a Meeting

To procure Room licenses, either visit the admin console and purchase online, or contact your Zoom account representative.



Firewall Requirements

Similar to other Unified Communication platforms, Zoom Rooms requires select port ranges to be opened:

Protocol	Port(s)	Purpose
UDP	3478, 3479, 8801	ZR to Cloud
TCP	8801, 8802, 443	ZR to Cloud
TCP	8888	Client to ZR (Direct Share)
UDP	8889	Client to ZR (Direct Share)

Bandwidth Requirements

ThinkSmart Hub can support up to 2 displays provided the following bandwidth is met:

Type	Recommended Download/Upload
Single Screen	2.0 Mbps / 2.0 Mbps
Dual Screen	2.0 Mbps / 4.0 Mbps

Deployment Components

Type	Recommended	Comments
Lenovo ThinkSmart Hub	-	Included in box
Lenovo ThinkSmart One Cable 6ft		Included in box
ThinkSmart Cable Management Security Box (black block)		Included in box
RJ45 Ethernet Cable	Cabling with external nylon mesh sheathing has better grip and stays in place reliably	Customer Provided
Compatible power adapter	-	Included in box
Windows 10 IoT Enterprise License	-	Pre-installed on device
Unified Communications Software	-	One Platform pre-installed on device
HDMI cable for HDMI Ingest / Direct connect		Customer provided
External HDMI compliant displays (1 or 2)	40"+ HD display with at least 1 HDMI Input; Commercial grade display is recommended	Customer provided
USB Camera	USB 3.0 UC Platform compliant camera	Customer provided

Remote Configuration Using ThinkSmart Manager of Device

ThinkSmart Manager is Lenovo's management console for ThinkSmart Devices. ThinkSmart Manager provides the ability to control, manage and resolve issues within your ThinkSmart Devices. ThinkSmart Manager software is pre-installed on your device from Lenovo and is ready for management in a single pane of glass with your other ThinkSmart devices.

To setup a ThinkSmart Manager organization, please visit: <https://console.thinksmart.lenovo.com>

For more information about ThinkSmart Manager visit:

- Knowledgebase: <https://forums.lenovo.com/forumlist/2913>
- User Guide: <https://support.lenovo.com/us/en/downloads/DS542392>

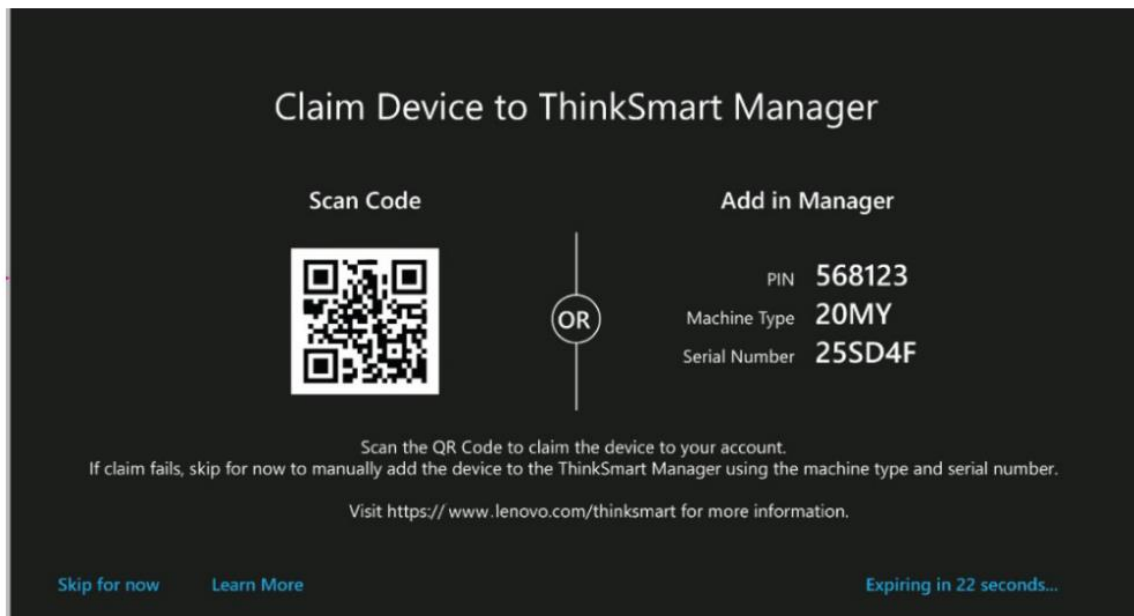
Claiming During First Run

Important Notes:

- This process applies only to ThinkSmart devices preinstalled with ThinkSmart Device Software 1.2.2x and later versions.
- Ensure that the hub is connected to the Internet during the claiming process.

Steps

1. During Windows OOBE, configure the basic Windows settings. Then, the QR code and PIN will be displayed.




2. Do one of the following:
 - a. Claim with the QR code
 - i. Scan the QR code with a mobile device camera app or an app specifically designed to read QR codes. In either case the app will prompt you to go to the provided deep link in the QR code.

Notes:

 - This QR code contains all the information required to add a device to ThinkSmart Manager.
 - The mobile device scanning the QR code must have Internet access at the time of scanning.
 - ii. Follow the on-screen instructions to complete the claiming process. Once the device is claimed successfully using the QR code, it will appear as an “Unconfigured” device in ThinkSmart Manager.
 - b. Claim with the PIN
 - i. Log in to ThinkSmart Manager (<https://console.thinksmart.lenovo.com/>) with your Lenovo ID. See “Log in to ThinkSmart Manager for the first time” on page 3.
 - ii. Click Devices on the left navigation panel and then click Add New Device on the right area. Follow the on-screen instructions to claim the new hub.
 1. Select Hub. Then, click Next.
 2. Select Machine Type. Enter Serial Number and the PIN.

Add a new device

To claim a new device, ensure the device is on and connected to the Internet and fill out the required fields below. Device information can be found on the original packaging or on the label underneath the device.



Machine Type*

Select or Enter Model Type

Device Serial Number*

Enter Serial Number

Windows Administrator Password

Enter Administrator Password

OR

Device PIN

Enter PIN

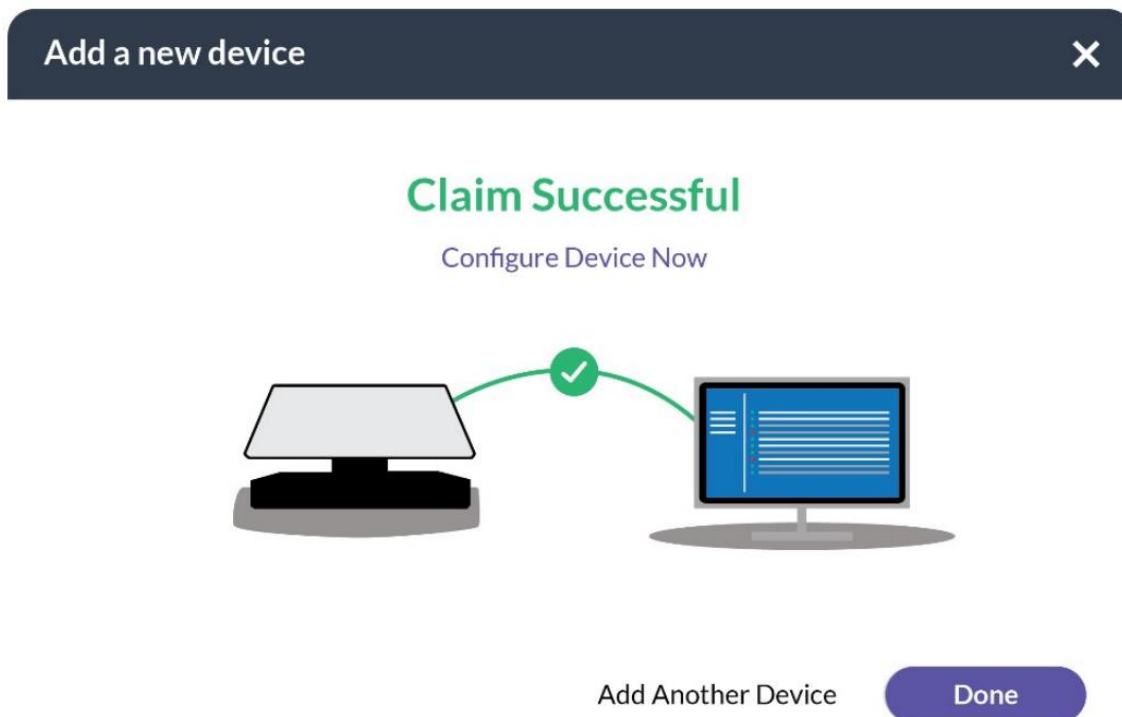
By clicking the Submit button, you agree to Microsoft's Windows 10 IoT Enterprise [License Terms](#).

If the claiming process is interrupted, wait for at least 5 minutes until the claiming session is expired. Then, you can add the device again.

Cancel

Submit

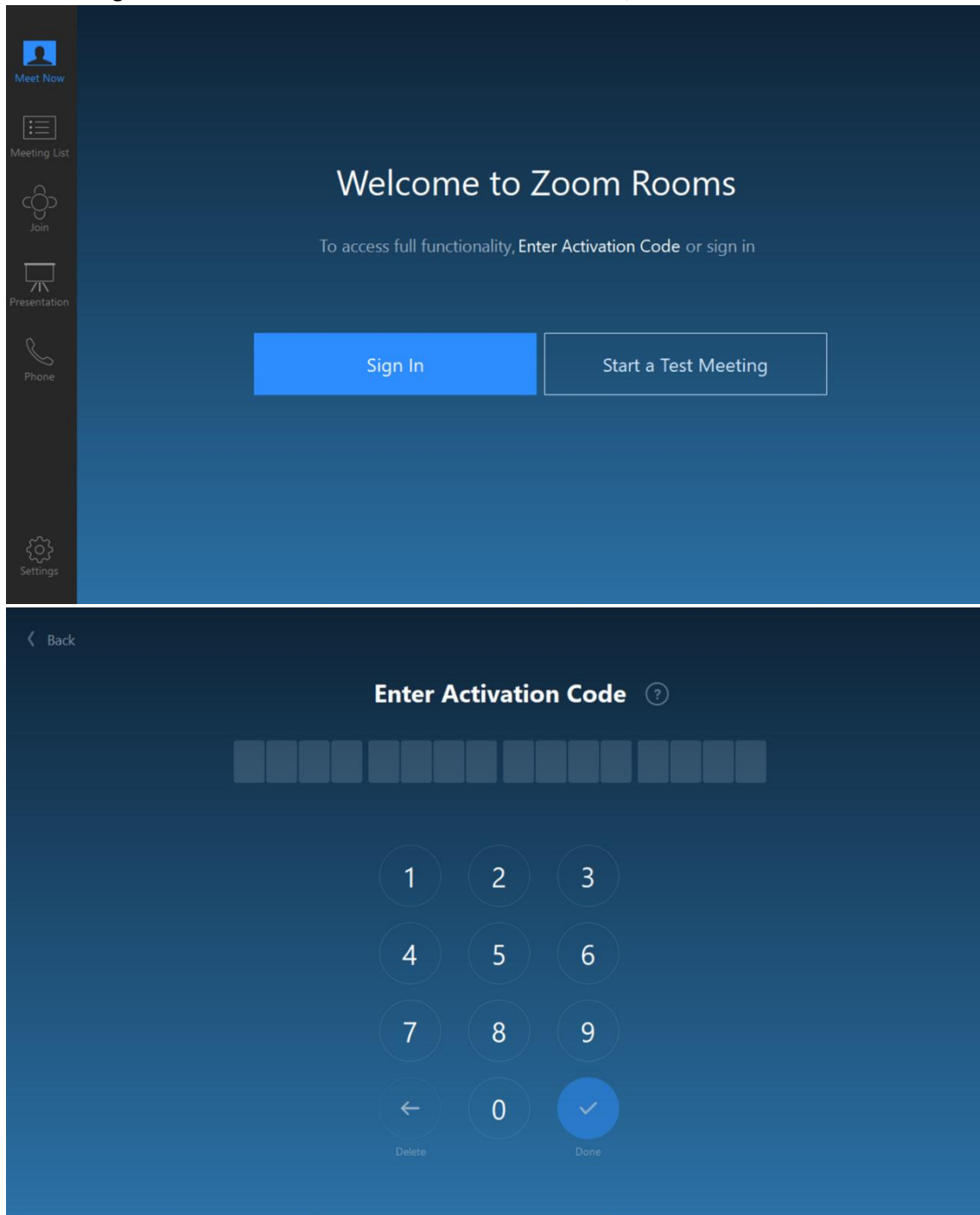
- The following window will be displayed when the claiming process is completed successfully.



First Time Setup

Setting up a Zoom Room with your ThinkSmart Hub:

- Create Zoom Room name in Zoom Admin Console
- Assign a calendar to room
- Install hardware in room (see ThinkSmart Hub Hardware Deployment Guide)
- Log into device with Zoom Administrator Credentials, enter activation code

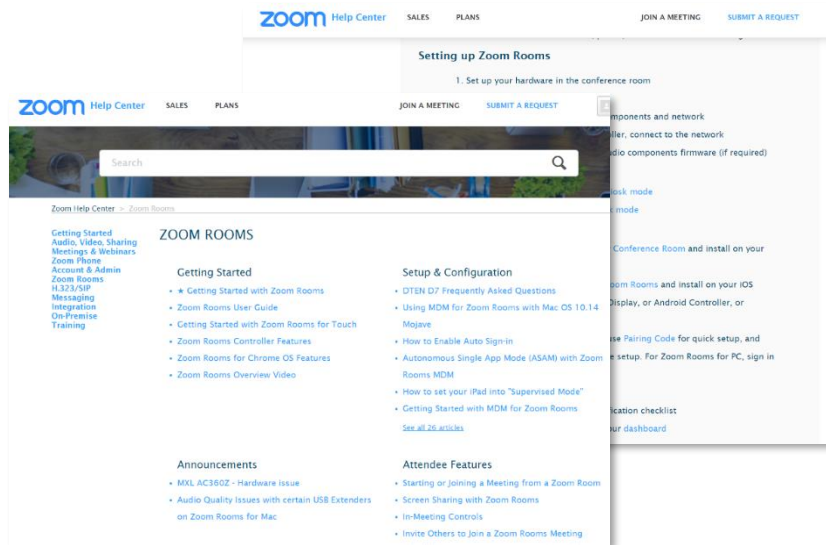


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- Select room name for device
- Conduct Test Call

Zoom Help Center

Zoom.us hosts a robust site of [support](#) articles for Zoom and Zoom Room usage. The most updated information for Zoom Rooms with integrated touch control (like the ThinkSmart Hub) will be found on these pages.



Content Sharing (Screen Sharing)

Using Zoom Rooms on the ThinkSmart Hub allows multiple [methods](#) for sharing screen content:

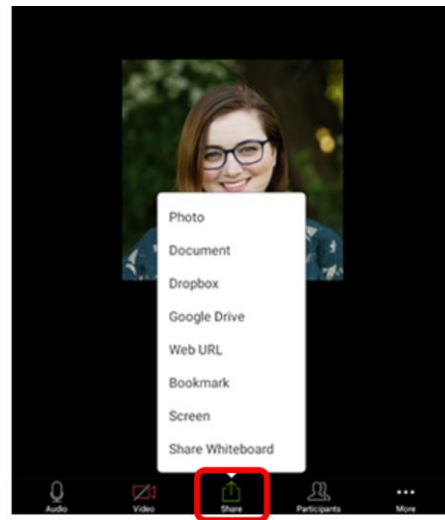
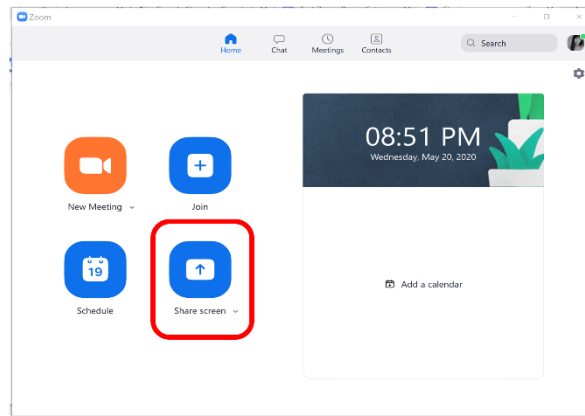
- 1) Connect the **HDMI** cable from the Hub and to the PC or Mac from which you will share. Please note that the HDMI port within the Base is capable of showing content on the in-room screen and into the Zoom Rooms meeting.



- 2) Install **Zoom client** onto the **PC** or **Mac**; Select 'Share Screen' and follow the onscreen prompts.

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- 3) Install **Zoom client** onto **Android** or **iOS** mobile device; Select 'Share' icon from the bottom row and follow the onscreen prompts.



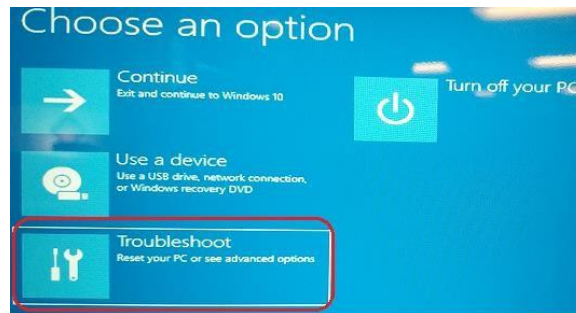
Push Button Reset (PBR) – Factory Reset

Lenovo ThinkSmart Hub supports Windows Push Button Reset (PBR) functionality. This feature restores the Hub to its factory state.

To reset the ThinkSmart Hub to factory state,

1. Connect an external keyboard to the ThinkSmart Hub via one of the USB ports
2. Restart the Hub or power-off and power-on the Hub, at the beginning of the boot process keep tapping on the F11 key on the keyboard. This will open the Windows Recovery Environment.
3. Select "Troubleshoot"

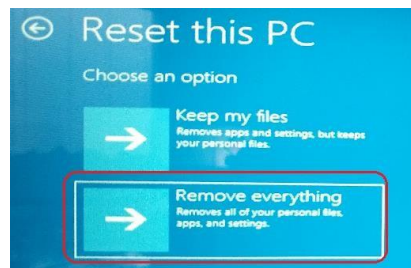
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4. Select "Reset this PC"



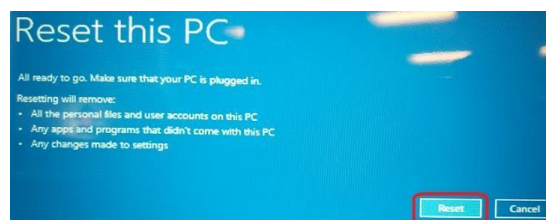
5. Select "Remove everything"
Note: Recovery via "Keep my files" is not supported.



6. Select "Just remove my files"

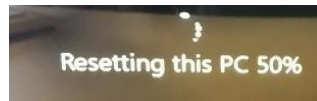


7. Click on "Reset"



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At this point, the process of resetting the ThinkSmart Hub to its factory state will begin. Please do not power off or restart the Hub.



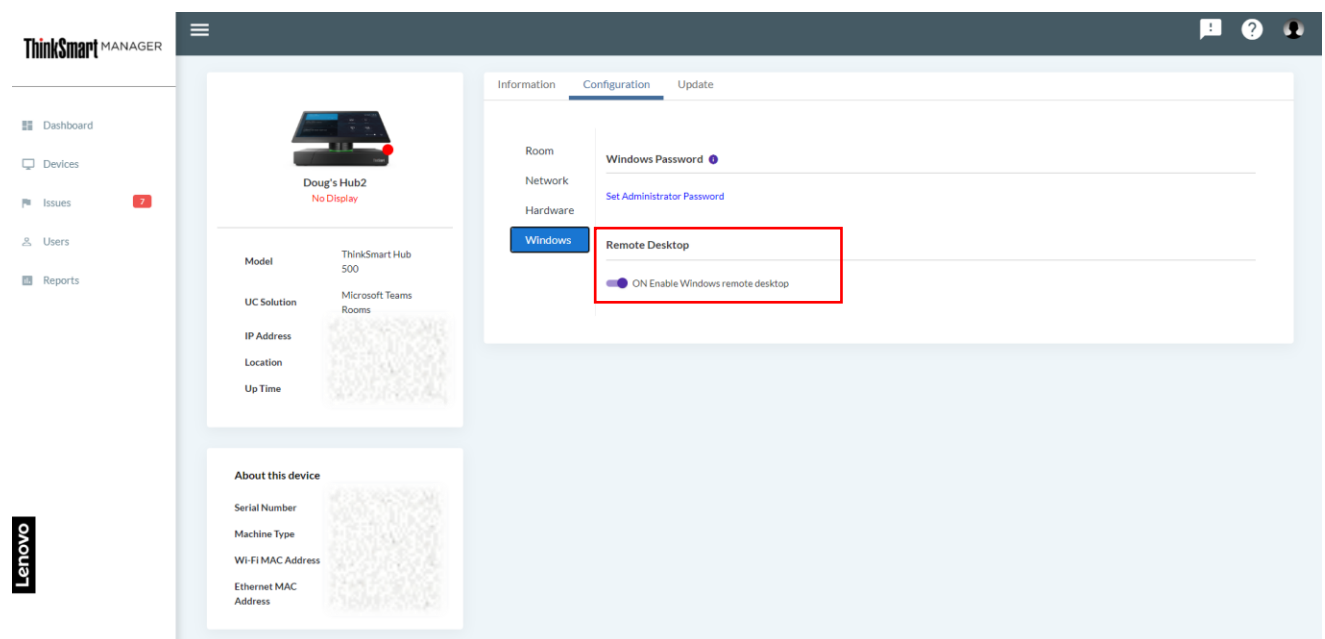
The entire process may take a few hours. Once complete, the Hub will be restored to its original factory state.

ThinkSmart Hub Management

The ThinkSmart Hub is designed to be managed using ThinkSmart Manager. All the software required to use ThinkSmart Manager is preloaded on the ThinkSmart Hub device. To establish an organization and start management using ThinkSmart Manager visit <https://console.thinksmart.lenovo.com>.

Windows Remote Desktop Enable/Disable using ThinkSmart Manager

For security reasons by default remote desktop capabilities of this Windows device is not enabled. ThinkSmart Manager provides remote policy control capabilities for remote desktop allowing the administrator to establish a remote desktop session with the ThinkSmart Hub without having to locally visit the device. To enable, this functionality using ThinkSmart Manager go to Devices Tab > [Device Name] > Configuration > Windows, “enable windows remote desktop”. With toggle “ON” device will allow remote desktop connection.



FAQ

Question	Answer								
Does the ThinkSmart Hub come with the UC software preloaded?	Yes, the ThinkSmart Hub comes with factory-imaged Windows 10 IoT and installed with the UC software.								
How are the drivers, software, BIOS updates delivered?	<p>All driver updates are delivered via Windows Update. BIOS updates are manually downloaded from the Lenovo E-support portal.</p> <p>The Zoom Room software on the Hub is managed either from the Hub screen or the Administrator Console. See ThinkSmart Hub Management for more information.</p>								
Do I need to install an antivirus on the ThinkSmart Hub?	By default, Windows 10 IoT is secured via Windows Defender. Organizations should choose security software based on their requirements.								
Does the ThinkSmart Hub support PXE boot?	Yes, the ThinkSmart Hub supports PXE boot								
How are external cables secured in the Hub?	The Hub offers the ThinkSmart One Cable, cable management solution. This solution keeps cables such as Ethernet, HDMI, USB and Power securely connected to the unit on the tabletop.								
What are the supported external cable diameters/types?	<p>We recommend HDMI/USB cables with an external nylon mesh sheathing because they have better grip and will stay securely in place.</p> <table><tr><th>Cable Type</th><th>Supported Diameter Range</th></tr><tr><td>HDMI</td><td>5mm to 7.5mm</td></tr><tr><td>USB</td><td>3.5mm to 6mm</td></tr><tr><td>Power</td><td>3.5mm to 4.5mm</td></tr></table>	Cable Type	Supported Diameter Range	HDMI	5mm to 7.5mm	USB	3.5mm to 6mm	Power	3.5mm to 4.5mm
Cable Type	Supported Diameter Range								
HDMI	5mm to 7.5mm								
USB	3.5mm to 6mm								
Power	3.5mm to 4.5mm								
Is there Lenovo-specific software installed on the ThinkSmart Hub?	Yes, ThinkSmart Manager software is pre-installed from Lenovo factory. ThinkSmart Manager is Lenovo's solution for management at scale for ThinkSmart devices.								
Can the ThinkSmart Hub work with HDMI extenders via Ethernet?	Yes, the ThinkSmart Hub is a standard HDMI compliant device and has been tested to work with products like AMX DXLink HDMI transmitters and receivers.								
Does the ThinkSmart Hub support network boot?	Yes, the Hub supports network boot via Ethernet (RJ45). Restart the Hub and during the boot press F12 multiple times to load the Startup Device Menu. Based on your infrastructure select the IPv4 or IPv6 option to initiate the network boot.								
Does the ThinkSmart Hub support USB boot?	Yes, the ThinkSmart Hub supports USB boot. Insert a USB key in one of the USB ports, then restart the Hub. During the boot press F12 multiple times to load the Startup Device Menu. Based on your infrastructure select the IPv4 or IPv6 option to initiate the network boot.								

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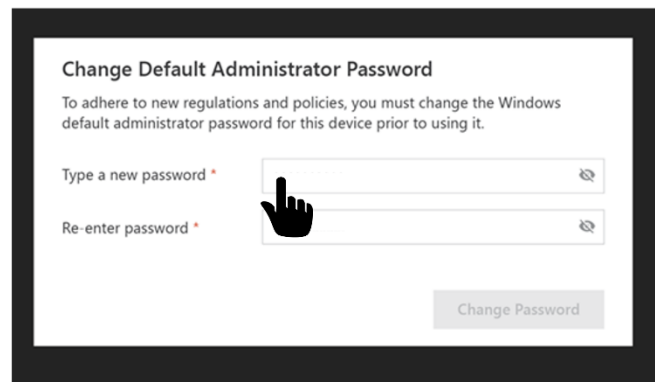
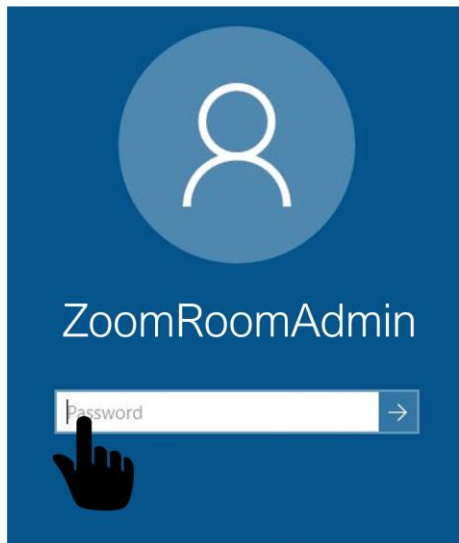
Does the ThinkSmart Hub support any other UC platforms?	The ThinkSmart Hub is available for different UC platforms, but will only support one UC platform at a time .												
How do I update to the latest audio drivers?	Audio driver updates are delivered via Windows Update. They can also be manually downloaded from the Lenovo E-support portal.												
Does the ThinkSmart Hub support Wi-Fi connection?	A wired Ethernet connection is required for initial setup, and it is a Zoom best practice to keep a hard-wired connection. WIFI is supported in the HW when logged in as Admin, but should not be used for production calls.												
Is the ThinkSmart Hub compatible with Apple OSX?	The ThinkSmart Hub is a purpose-built appliance that runs Unified Communications software on a Windows 10 IoT Enterprise OS. Most UC software providers offer clients for Windows, Android, Apple OSX and iOS. The HDMI Ingest to share content via the ThinkSmart Hub supports all the OS mentioned above.												
Can I store my presentations or other materials in the Hub for sharing?	No, all content sharing happens in real-time through client devices that are connected to the Hub. It does not support storing any user data for sharing during meetings.												
What are the account or licensing requirements?	The only customer requirement is a Zoom Rooms license (different from a Zoom User license). Zoom Rooms licenses are purchased via the Zoom admin console or directly from a Zoom account representative.												
Does the Hub support Consumer Electronics Control (CEC)?	ThinkSmart Hub supports CEC when used with ThinkSmart One Cable												
What are the network bandwidth requirements to have an optimal audio and video performance?	<table border="1"> <thead> <tr> <th>Type</th><th>Recommended Download/Upload</th></tr> </thead> <tbody> <tr> <td>Single Screen</td><td>2.0 Mbps / 2.0 Mbps</td></tr> <tr> <td>Dual Screen</td><td>2.0 Mbps / 4.0 Mbps</td></tr> <tr> <td>Triple Screen</td><td>2.0 Mbps / 6.0 Mbps</td></tr> <tr> <td>Screen Share only</td><td>150-300 kbps</td></tr> <tr> <td>Audio only</td><td>60-80 kbps</td></tr> </tbody> </table>	Type	Recommended Download/Upload	Single Screen	2.0 Mbps / 2.0 Mbps	Dual Screen	2.0 Mbps / 4.0 Mbps	Triple Screen	2.0 Mbps / 6.0 Mbps	Screen Share only	150-300 kbps	Audio only	60-80 kbps
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Is there a list of supported peripherals like cameras, extended microphones/speakers?	https://support.zoom.us/hc/en-us/articles/11ThinkSmart-Hub5840283-Suggested-Hardware-for-Zoom-Rooms												
Does the ThinkSmart Hub support wireless display?	At this time, wireless display is not natively supported.												
Can I use the ThinkSmart Hub as a PC?	No, this is a single-purpose device that is meant to load directly into Zoom Rooms software.												
Can I store my presentations or other materials in the Hub for sharing?	No, this is not a feature supported by the device.												

What are the TCP/IP ports that must be opened in the infrastructure for Zoom Rooms?	<table><tr><th>Protocol</th><th>Port(s)</th><th>Purpose</th></tr><tr><td>UDP</td><td>3478, 3479, 8801</td><td>ZR to Cloud</td></tr><tr><td>TCP</td><td>8801, 8802, 443</td><td>ZR to Cloud</td></tr><tr><td>TCP</td><td>8888</td><td>Client to ZR (Direct Share)</td></tr><tr><td>UDP</td><td>8889</td><td>Client to ZR (Direct Share)</td></tr></table>	Protocol	Port(s)	Purpose	UDP	3478, 3479, 8801	ZR to Cloud	TCP	8801, 8802, 443	ZR to Cloud	TCP	8888	Client to ZR (Direct Share)	UDP	8889	Client to ZR (Direct Share)
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UDP	8889	Client to ZR (Direct Share)														
How does one configure the network proxy for the ThinkSmart Hub with Zoom Rooms?	The Proxy configurations are outlined here, https://support.zoom.us/hc/en-us/articles/201362683-Network-Firewall-or-Proxy-Server-Settings-for-Zoom															
Where can I find the user guide, readme and (device side) software download for ThinkSmart Manager?	https://support.lenovo.com/us/en/downloads/DS542392															

Troubleshooting

Onscreen Keyboard (OSK) does not appear

- If the Onscreen Keyboard does not appear, and opening it from the Windows taskbar isn't an option, press and hold in the input area as shown below.
- The onscreen keyboard will appear after a short duration.



Nothing showing on Integrated Display

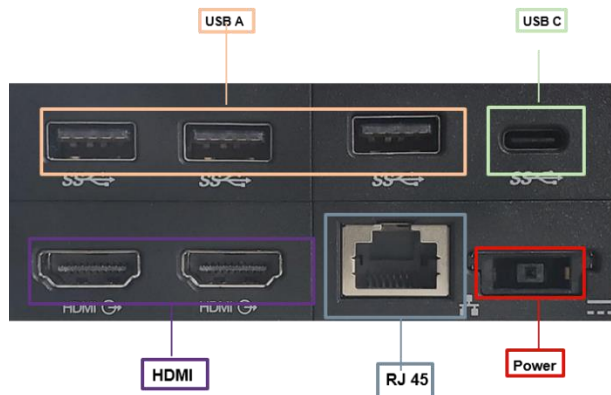
- Check if the Hub is powered on by ensuring the power button has the LED on.
- Ensure the LED ring below the speaker grill is lit (white for Idle, red for mute, green for in-call)
- Double-tap on the integrated screen to wake up, if the Hub is sleeping, this will wake it up
- Unplug any USB or HDMI cables that are connected to the Hub
- Shutdown the Hub by pressing and holding the power button for 4 seconds

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- f) Connect an external keyboard via a USB port
- g) Power-on the hub by pressing the power button
 - a. Immediately after the power button repeatedly keep tapping the F1 key
 - b. Do you see the BIOS on the integrated screen?
 - i. If Yes, there is no display hardware problem. Turn off the Hub by pressing the power button and turn it back on normally. If there is still no display, follow the steps outlined in [PBR](#) to restore Windows.
 - ii. If No, contact support or representative.

Nothing Showing on External (in-room) Display

- a) Ensure an HDMI cable is properly connected to one of the HDMI OUT ports on the back of the Hub



- b) Ensure the HDMI cable is not faulty or loose
- c) Ensure the external display Video source is set to the correct source HDMI port
- d) Try to connect the HDMI cable to another HDMI OUT port in the back of the Hub
- e) Try another HDMI cable
- f) Try restarting the Hub

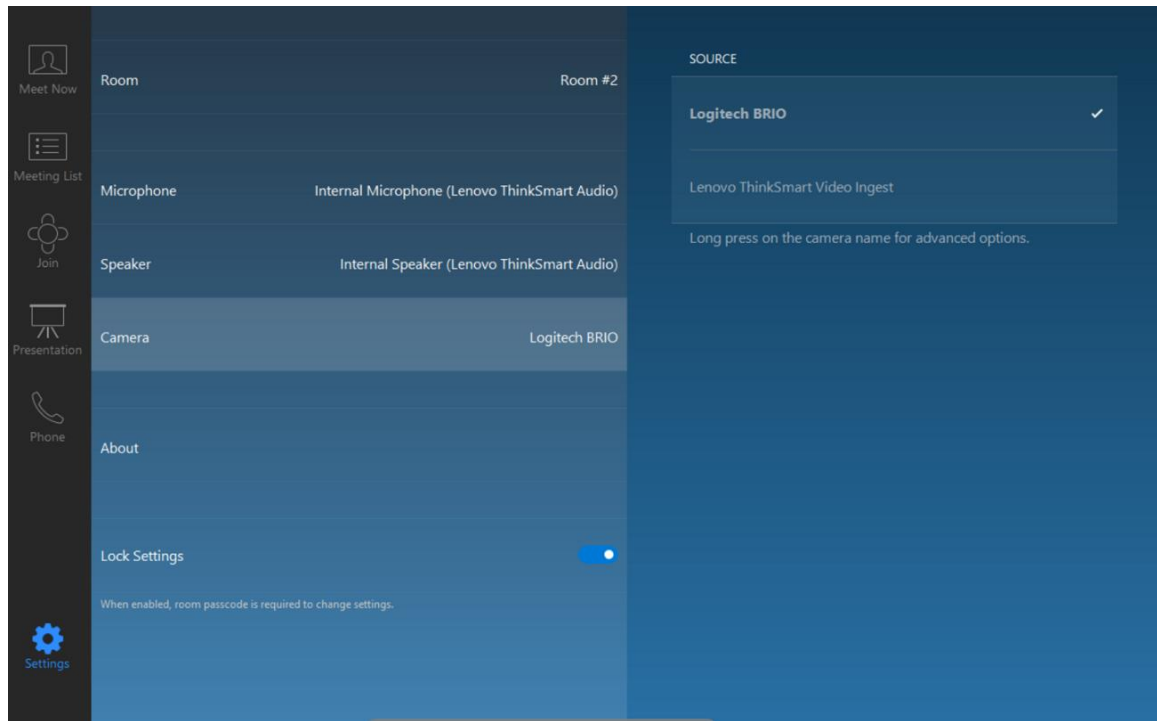
No Content on Second Display

- a) Ensure both displays are properly connected to HDMI OUT 1 and HDMI OUT 2 on the far end of the ThinkSmart One Cable

No audio from the internal speakers

- a) Ensure the correct speaker is selected in Settings

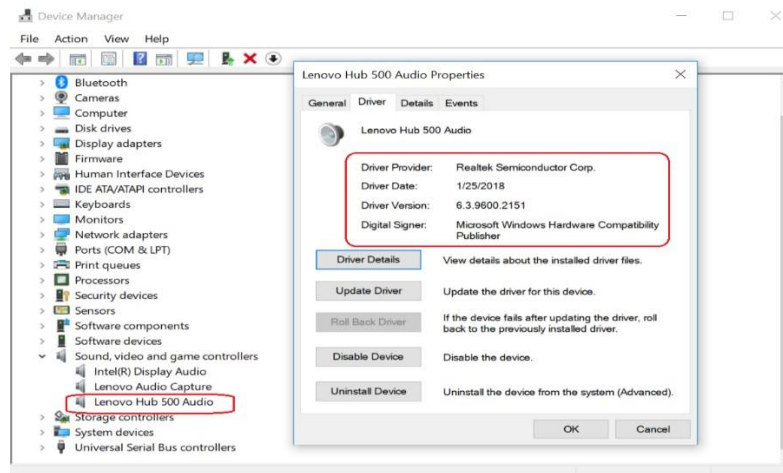
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- b) Ensure the Internal Speaker is selected as **default** device in Sound Playback properties

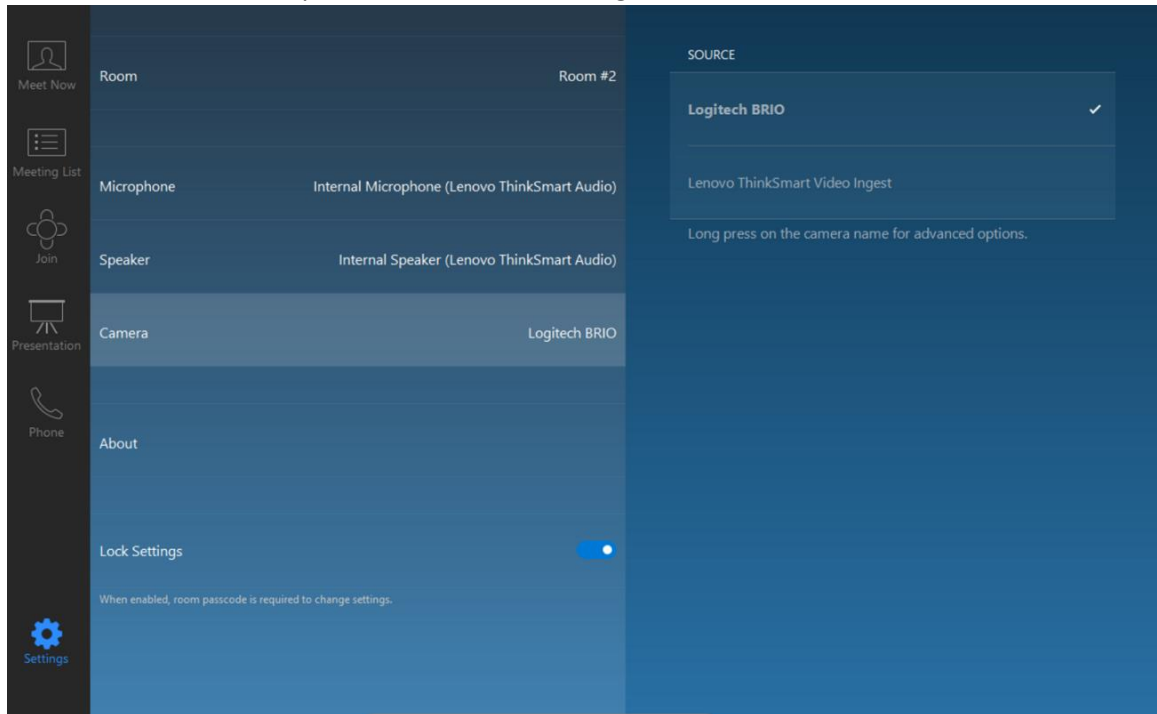


- c) Open Device Manager and ensure the audio driver is installed properly.

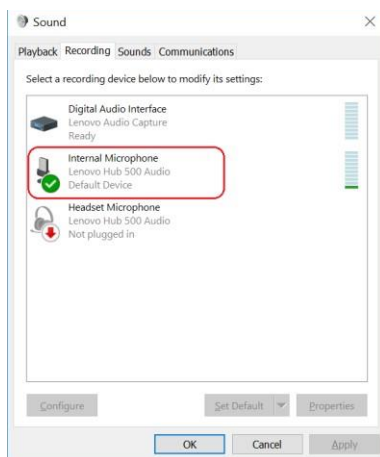


ThinkSmart Hub Microphone Not Working

- a) Ensure the correct microphone is selected in Settings

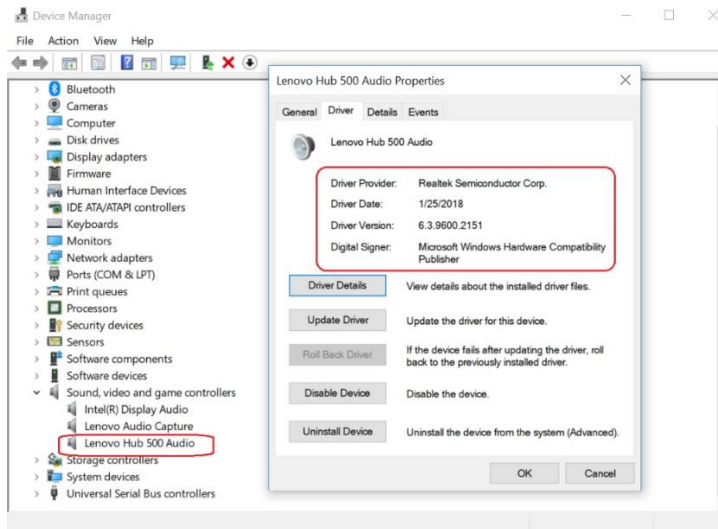


- b) Ensure the Internal Microphone is selected as **default** device in Sound Recording properties



- c) Open Device Manager and ensure the audio driver is installed properly.

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Hub does not present automatically when connected to a laptop/client device

- a) Ensure the HDMI IN port is properly connected in the back of the Hub with a compliant HDMI Cable



- b) Ensure the HDMI Cable is not faulty
- c) Ensure the laptop/device connected has a functional HDMI port and appropriate video drivers installed.

Version History

Date	Version	By	Comments
8/2020	v <u>1.1</u>	vgeondeff	<ul style="list-style-type: none">Prelaunch updates