



# ThinkSmart Hub Configuration Guide for Microsoft Teams Rooms (MTR)



Version 1.1  
08/2020

**Note:** This guide covers software configuration and troubleshooting for Microsoft Teams Rooms. For hardware deployment instructions, please see the “ThinkSmart Hub Hardware Deployment Guide” document. Comprehensive MTR information is located at <https://docs.microsoft.com/en-us/MicrosoftTeams/rooms/rooms-deploy>

# ThinkSmart Hub Configuration Guide for Microsoft Teams Rooms (MTR)

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## Introduction

This document covers Configuration, Testing and Troubleshooting of the ThinkSmart Hub for Microsoft Teams Rooms (MTR). For initial steps to set up hardware, please see the companion document, “ThinkSmart Hub Hardware Deployment Guide”.

The Lenovo ThinkSmart Hub is a certified Microsoft Teams Rooms (MTR) system. As a purpose-built appliance, it runs MTR and Skype Rooms Systems (legacy) software. It’s designed to transform meeting rooms into a rich, collaborative Teams experience. Users will enjoy its familiar interface and IT administrators will appreciate an easily deployed and managed Windows 10 IoT device. MTR is designed to leverage existing equipment like displays and USB cameras for ease of installation.

More information about MTRs is available at <https://docs.microsoft.com/en-us/MicrosoftTeams/rooms/rooms-deploy>

### What About Skype for Business (SfB)?

Teams meetings and Skype for Business (SfB) meetings are supported. **The same software runs both meeting types**, and it knows when to launch the appropriate platform.

Whether your organization is 100% Skype for Business, 100% Teams or somewhere in between, the same software will be installed on your device.

This document will guide you through the settings required for your Teams installation

## 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 (MTR or Zoom Rooms)	-	<b>One</b> 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

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USB Camera	USB 3.0 UC Platform compliant camera	Customer provided
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## Pre-Deployment Guidance

Before deploying Microsoft Teams Rooms for the first time, review this document in its entirety, and refer to the Requirements outlined [here](#) for the latest updates. You will want to establish accounts and have [licensing](#) sorted in advance of the installation date to ensure everything is synchronized.

Refer to this [article](#) to determine what type of Infrastructure deployment you have, and follow the instructions that pertain to your deployment.

- Online Deployment
- On-Premises Deployment
- Hybrid Deployment
  - o Exchange Online with Skype for Business Server on premises
  - o Exchange on premises with Microsoft Teams or Skype for Business Online

Regardless of the type of deployment, each ThinkSmart Hub device must:

- be established as a "device account" in Active Directory, Exchange, and Teams
- have its own Microsoft Office 365 account
- have a cloud-based Exchange mailbox
- have Teams enabled
- be set up as a User Object

**Note:** MTR is intended for use with Microsoft Teams, Skype for Business Online, Skype for Business Server 2019, or Skype for Business Server 2015. Earlier platforms like Lync Server 2013 aren't expected to work with Microsoft Teams Rooms.

## ThinkSmart Hub Windows Accounts

By default, there are two Windows accounts built into the ThinkSmart Hub out of the factory: Teams and Administrator. Once the ThinkSmart Hub is powered on, it will automatically log in as the Teams account and go through the BIOS POST. Then it will boot from the internal SSD to load the Microsoft Windows 10 IoT Enterprise operating system.

### “Teams” Account (Resource Account)

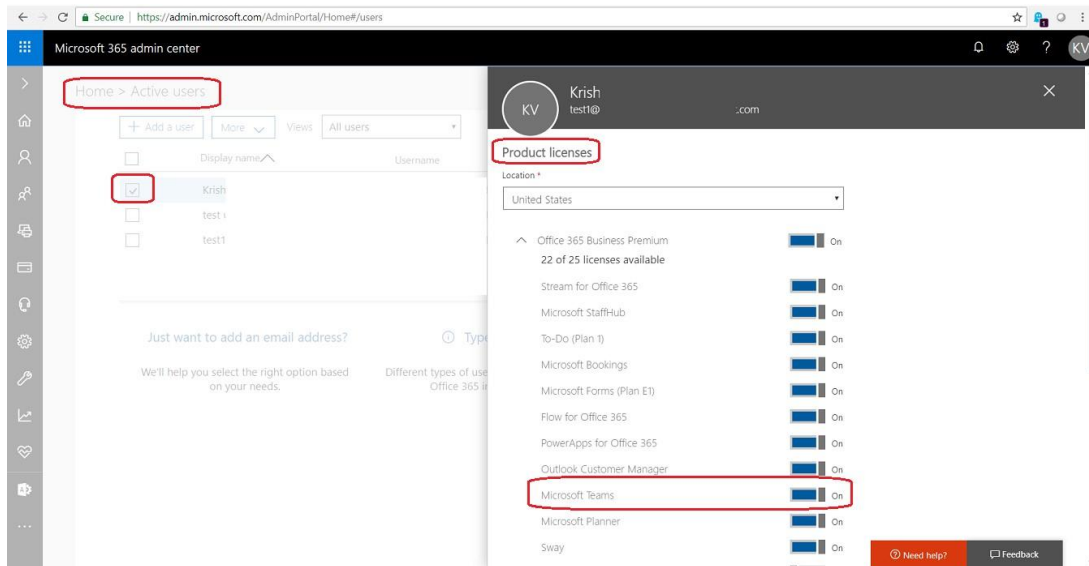
This account is the default recommended account from which to run MTR, and can only run MTR. No administrator privileges are available from this account.

When the Hub boots, it will automatically login into this account and will automatically launch the MTR app. No user intervention required.

### “Administrator” Account

This account is the standard Windows administrator account and provides system-wide privileges. This account is password protected and must be set during initial boot. Since the admin account is used for device management, typical day-to-day usage doesn't require logging in as the

## O365 Licenses



## Microsoft Teams Rooms (MTR) – Meeting Room SKU

Microsoft provides up to date information on licensing required for Teams Rooms deployment. Please see [website](#) for the most updated information on this topic.

## Remote Configuration of Device Using ThinkSmart Manager

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 500. 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\***

**Device Serial Number\***

**Windows Administrator Password**  OR **Device PIN**

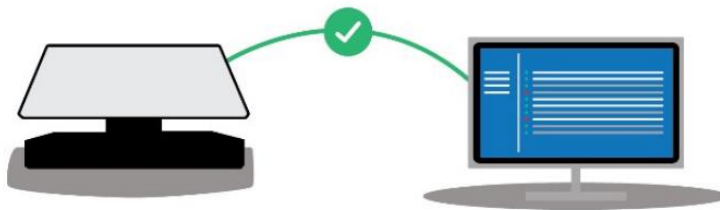
By clicking the Submit button, you agree to Microsoft's Windows 10 IoT Enterprise [License Terms](#).  
If the claiming process is interrupted, wait for at least 5 minutes until the claiming session is expired. Then, you can add the device again.

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

**Add a new device** ✕

## Claim Successful

Configure Device Now



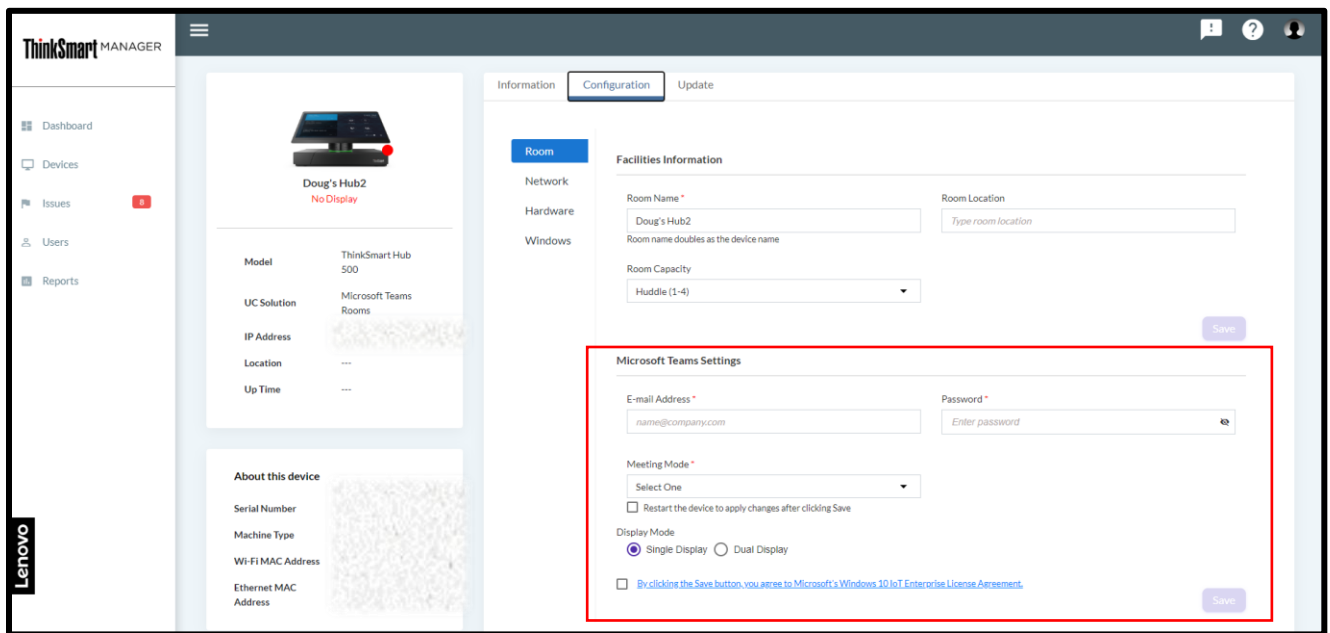
Add Another Device

## Teams Room Configuration During First Run

To manage the deployment and configuration at scale Lenovo’s ThinkSmart Manager software can aid in configuration of the Teams account on the ThinkSmart Hub device.

During first run of the device, following the “Windows Hello” startup and claiming of the device into ThinkSmart Manager, the Local Configuration of Teams will be shown.

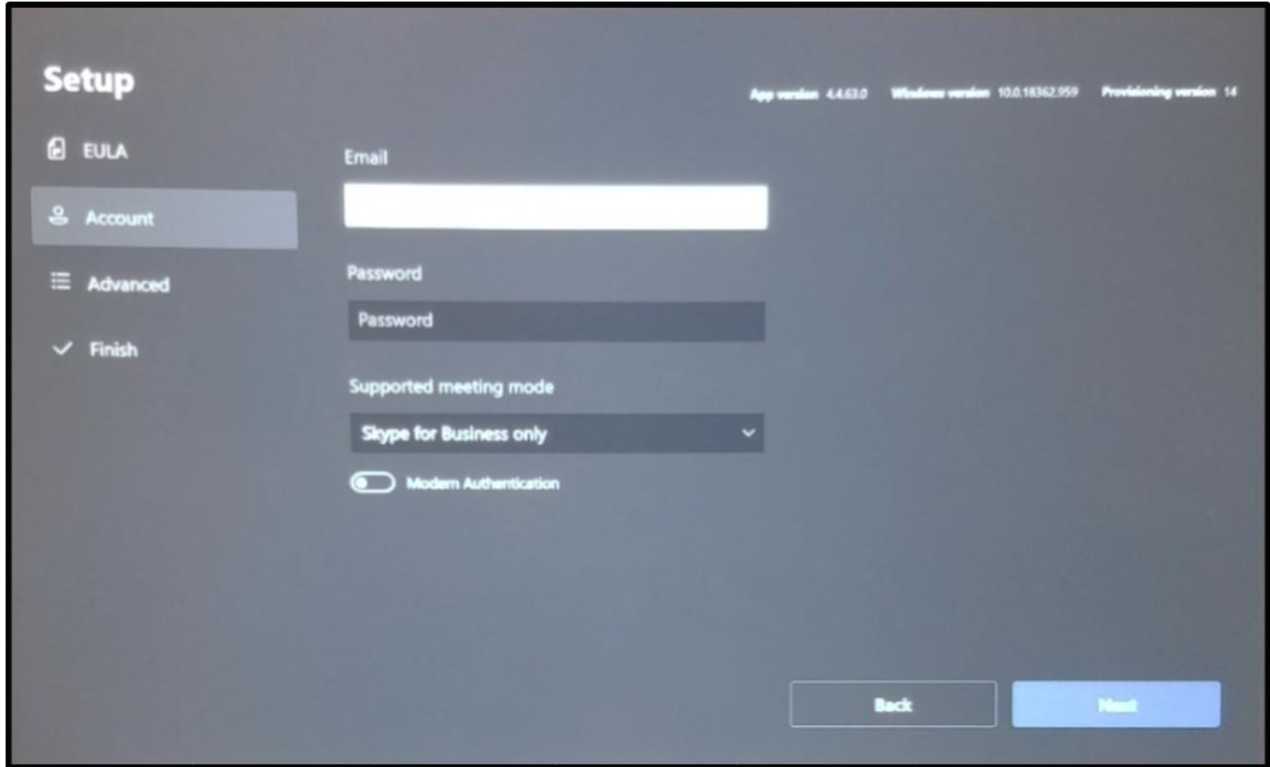
At this stage, no further data entry is required into the Teams devices. The user should configure Teams room using ThinkSmart Manager, under Devices Tab >[Device Name] > Configuration > Room. Enter in the account email, password, meeting mode and display mode, acknowledge the EULA and click “Save”. The device will restart and automatically login to the account.



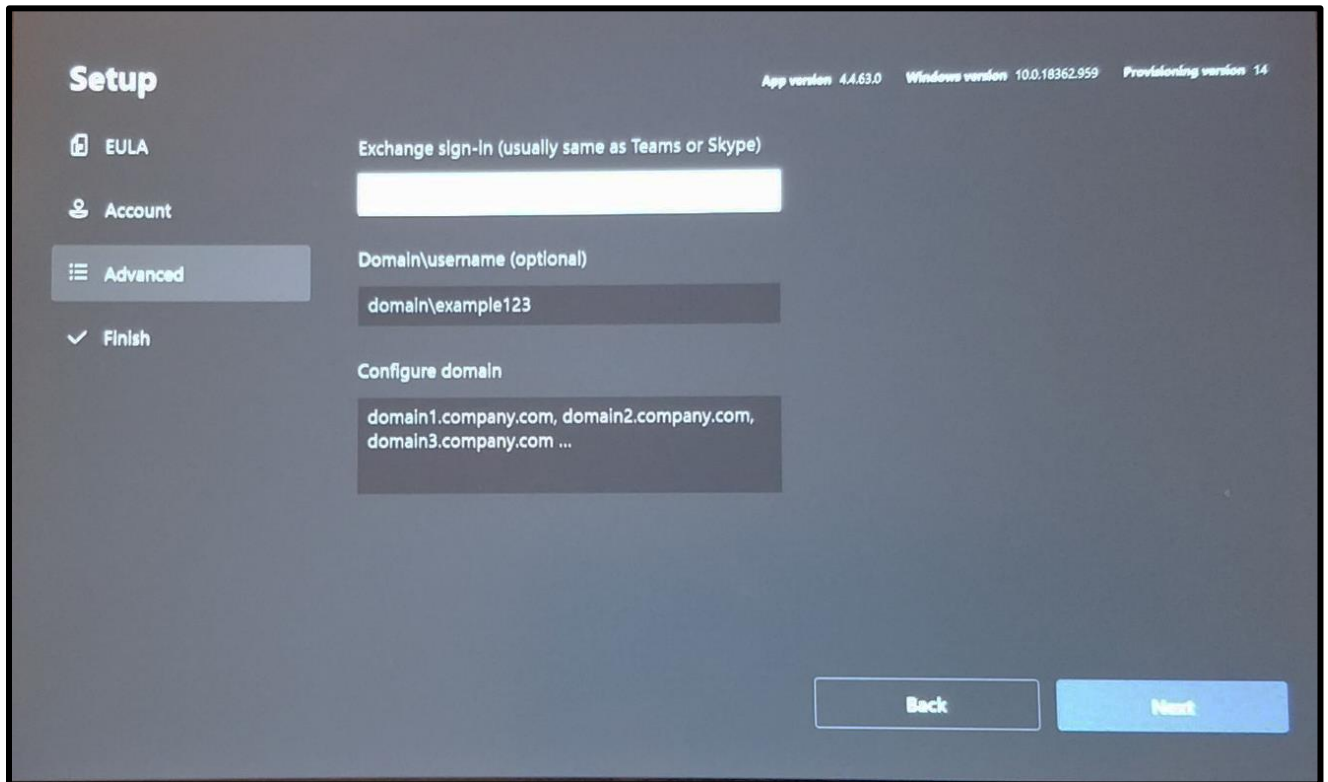
## Local Configuration of Microsoft Teams Device

After Windows is installed, and if device is not configured remotely using ThinkSmart Manager, the Microsoft Teams Rooms console app will go into its initial Setup process. Once setup is complete, it will automatically log in to the configured teams room account and launch the Microsoft Teams Rooms app.

- a. The first screen is the Microsoft license agreement page. Review the statement, to proceed, click Next.
- b. On the next screen, enter the Account credentials for the device. This is the account that will be invited to meetings and scheduled via Outlook. The group that manages room bookings for your company can help provide credentials that comply with the naming convention and account configuration used for room devices.

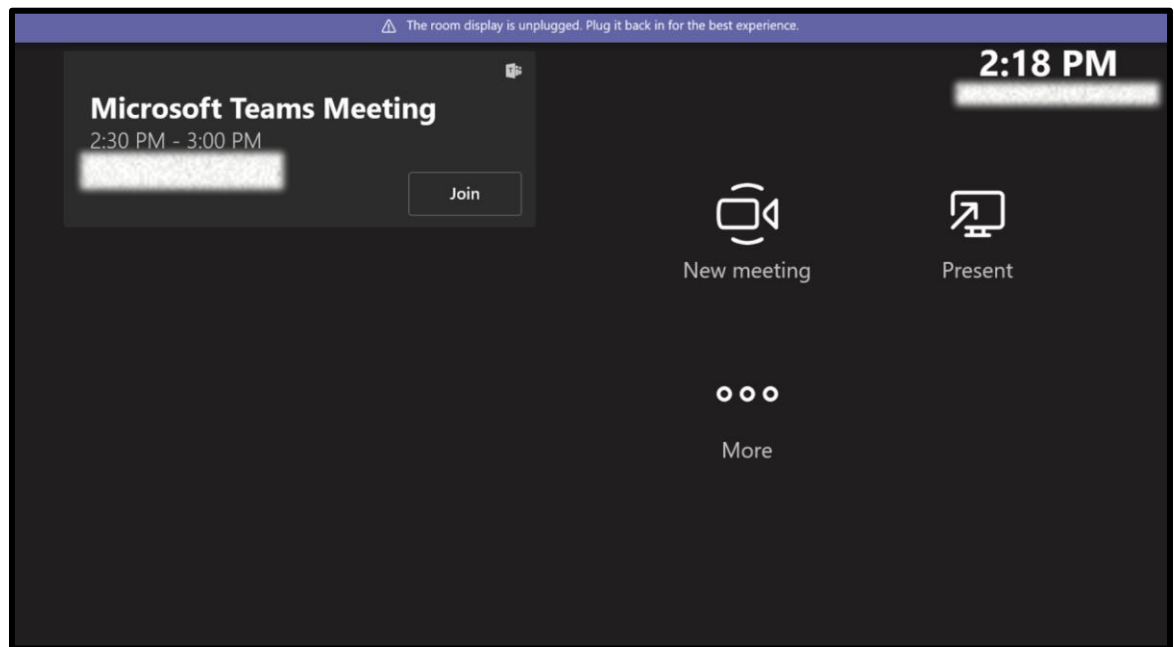


c. Enter the Resource Account credentials and select “Next”.



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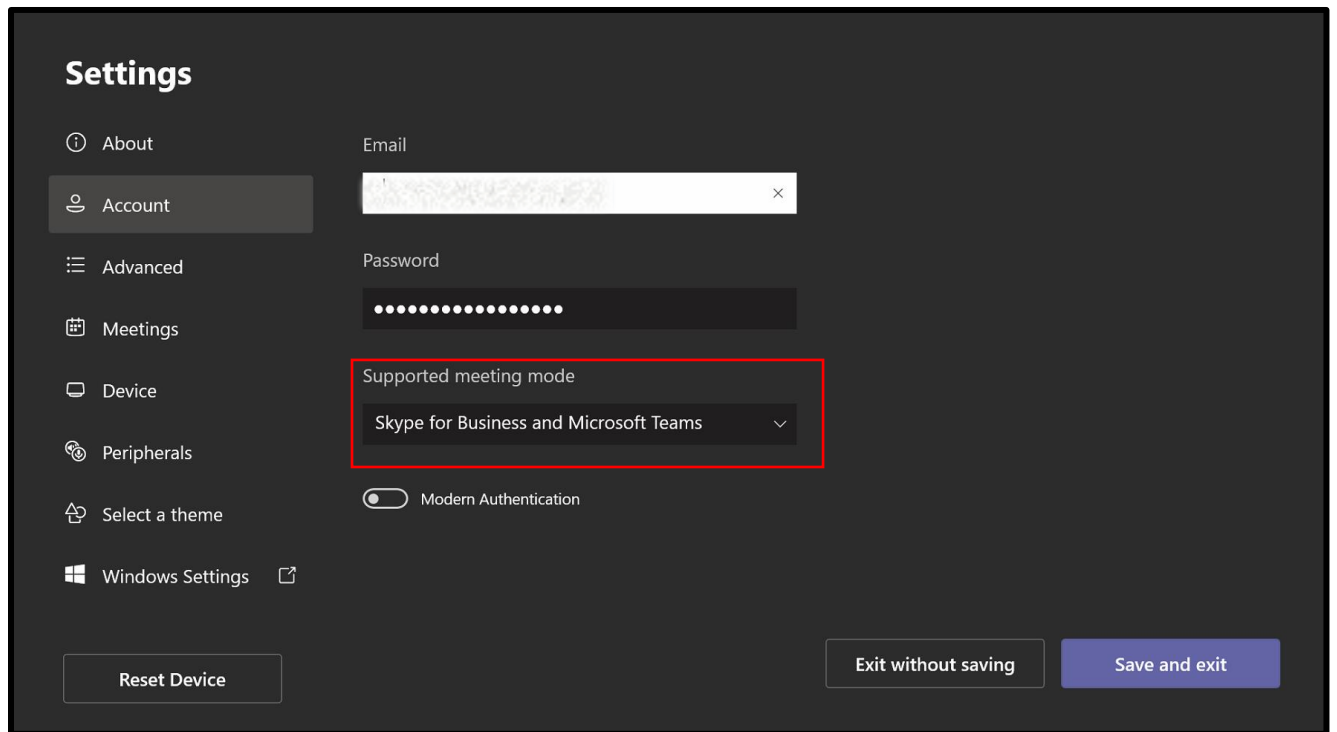
- d. If you have an advanced sign-in or domain configuration, enter details and select “Next” and then “Finish”, device will restart.
- e. At this point, the MTR app will attempt to sign-in with the credentials, and once successfully authenticated, the MTR app will show signed-in state. The current time and Room Name appear in the top-right corner of the screen, and any future meetings for the day will be displayed on the left.



- f. The Hub is signed-in and is ready to use.

### Supported Meeting Mode

- a. You will need to select from one of three options under Supported meeting mode: Skype for Business only; Skype for Business and Microsoft Teams (default); Skype for Business (default) and Microsoft Teams.

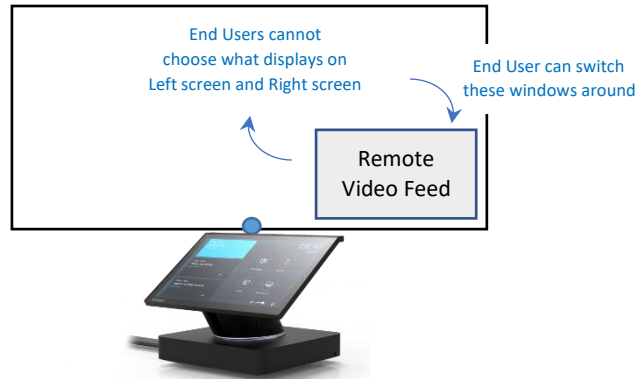


## Frequently Used Features/Settings

### External HDMI Display(s) Views

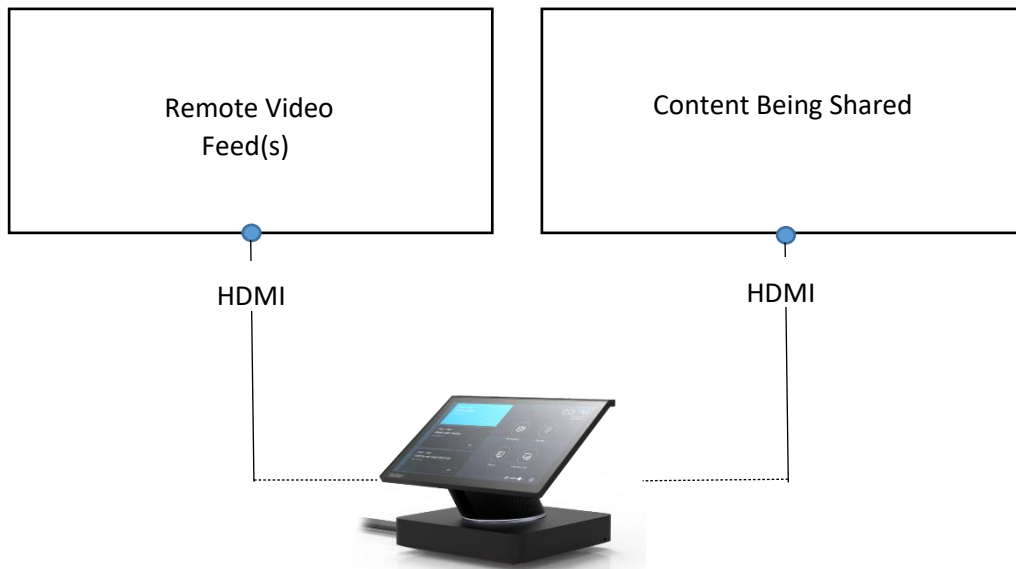
The ThinkSmart Hub has two HDMI ports located on the ThinkSmart One Cable that can drive two external displays up to 4k resolutions. You should plan to connect at least one external display.

#### Single External Display



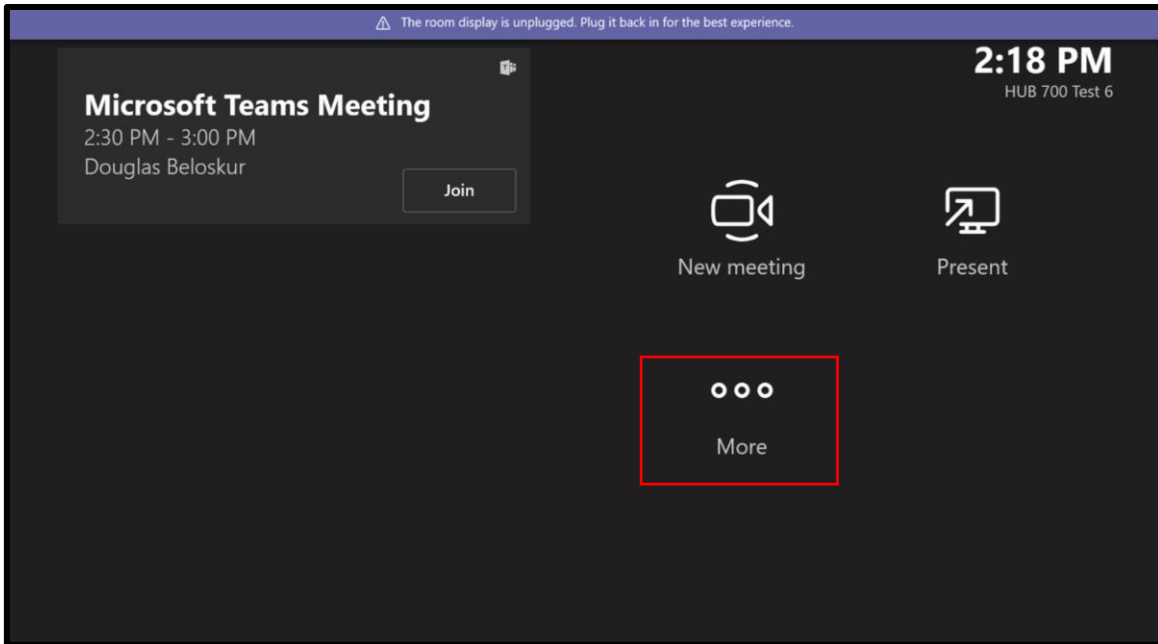
When the Hub is connected to a single external display, the remote participants and remote content will both share the display space. When there are two external displays connected to the Hub, MTR will automatically allocate one display for remote participants and the other for content sharing. Placement on the screens is controlled by the MTR application and cannot be altered.

#### Dual External Display

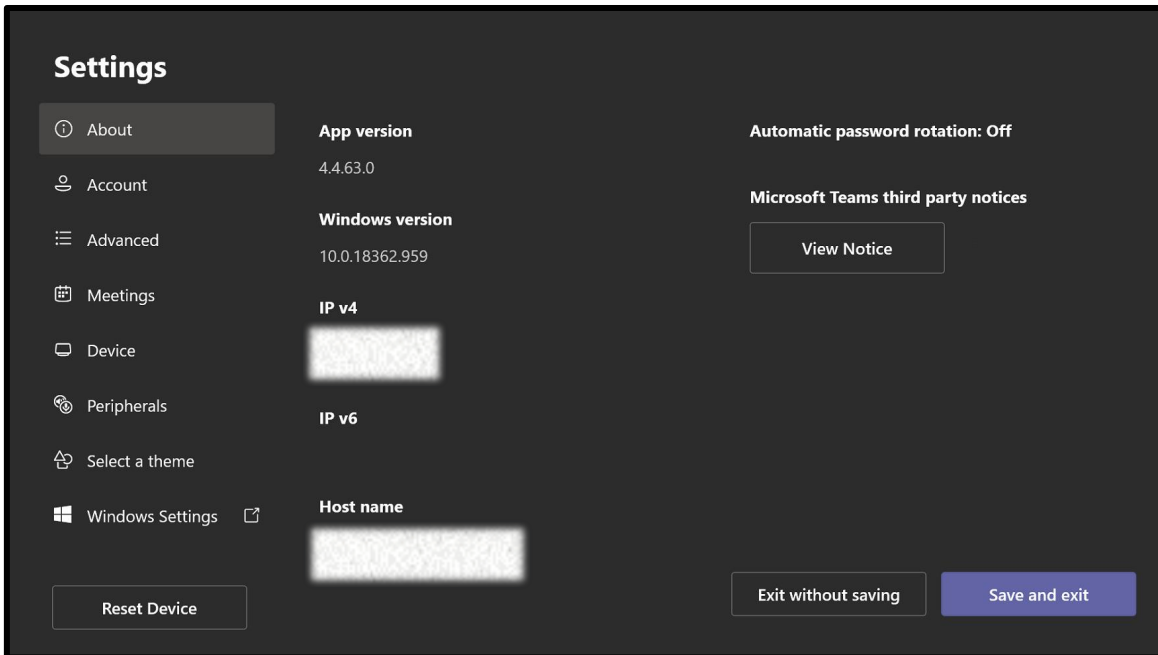


### Changing credentials

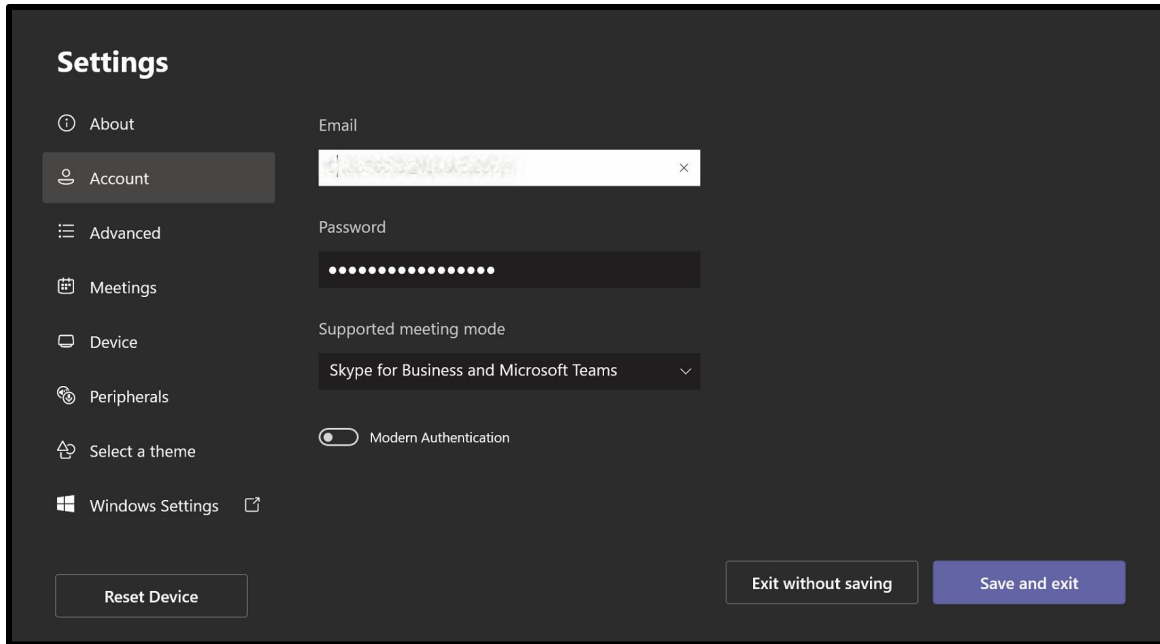
Click on "More" and select "Settings"



Note: This will require local administrative password to adjust settings.



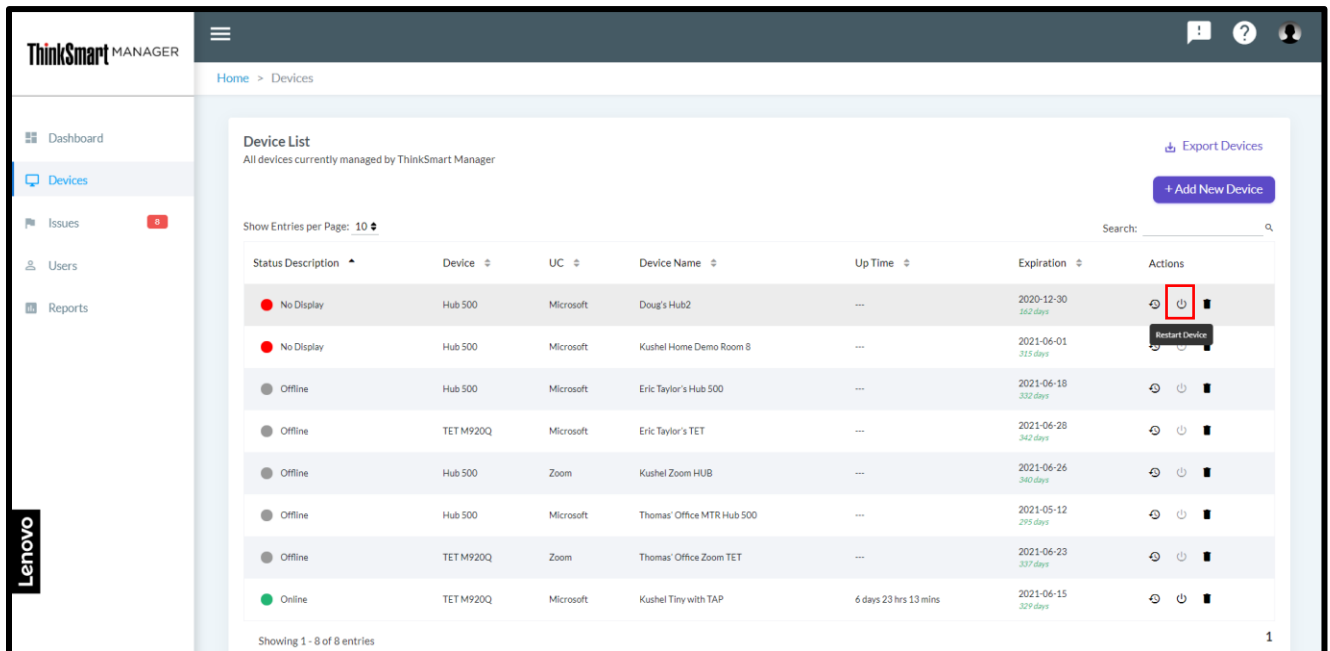
Navigate to “Account”, change the credentials and click on “Save and Exit”. After restart, this will force the MTR app to login with the new credentials.



## Restarting ThinkSmart Hub

### Remote Restart using ThinkSmart Manager

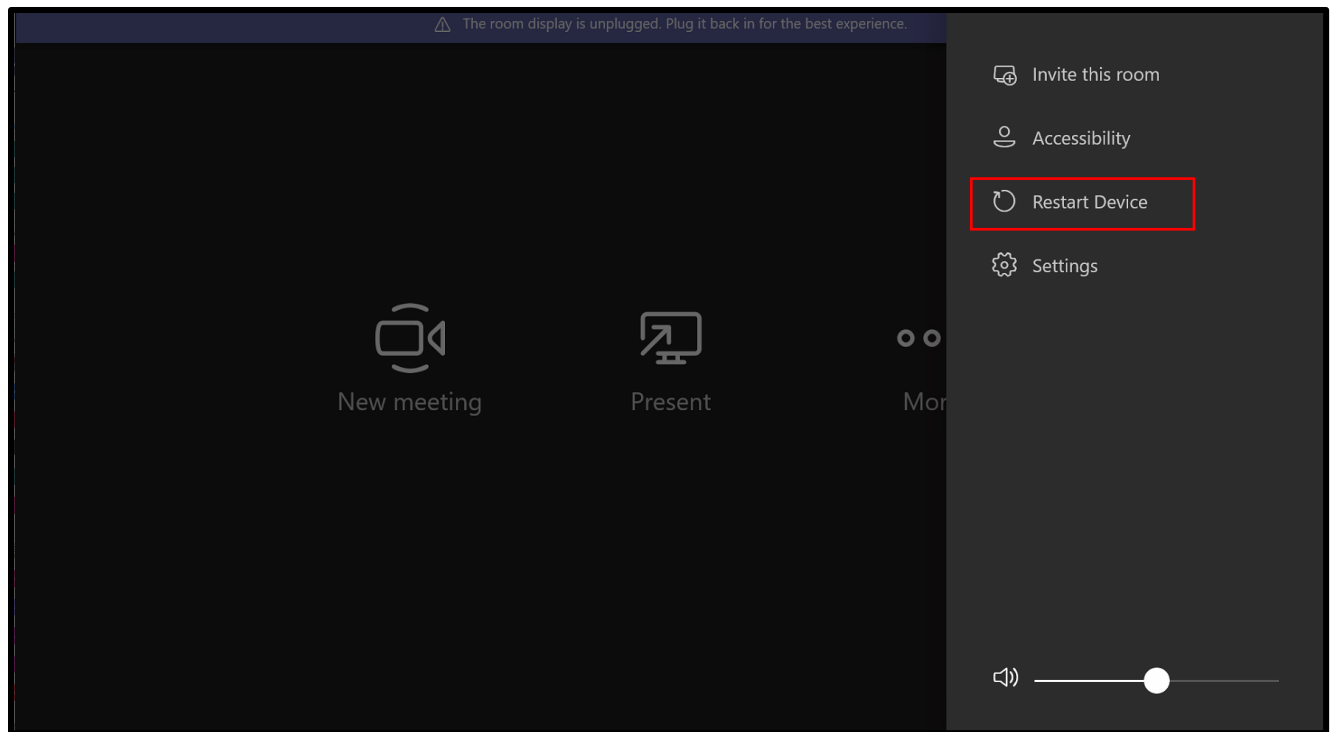
ThinkSmart Manager can reset the ThinkSmart Hub remotely. Simply log-in to your ThinkSmart Manager organization at <https://console.thinksmart.lenovo.com> and find the device which needs to be restarted in the “Devices” tab. Click the restart icon and the device will restart.



### Local Restart

The Hub can be restarted by selecting “More” and clicking on “Restart Device”.



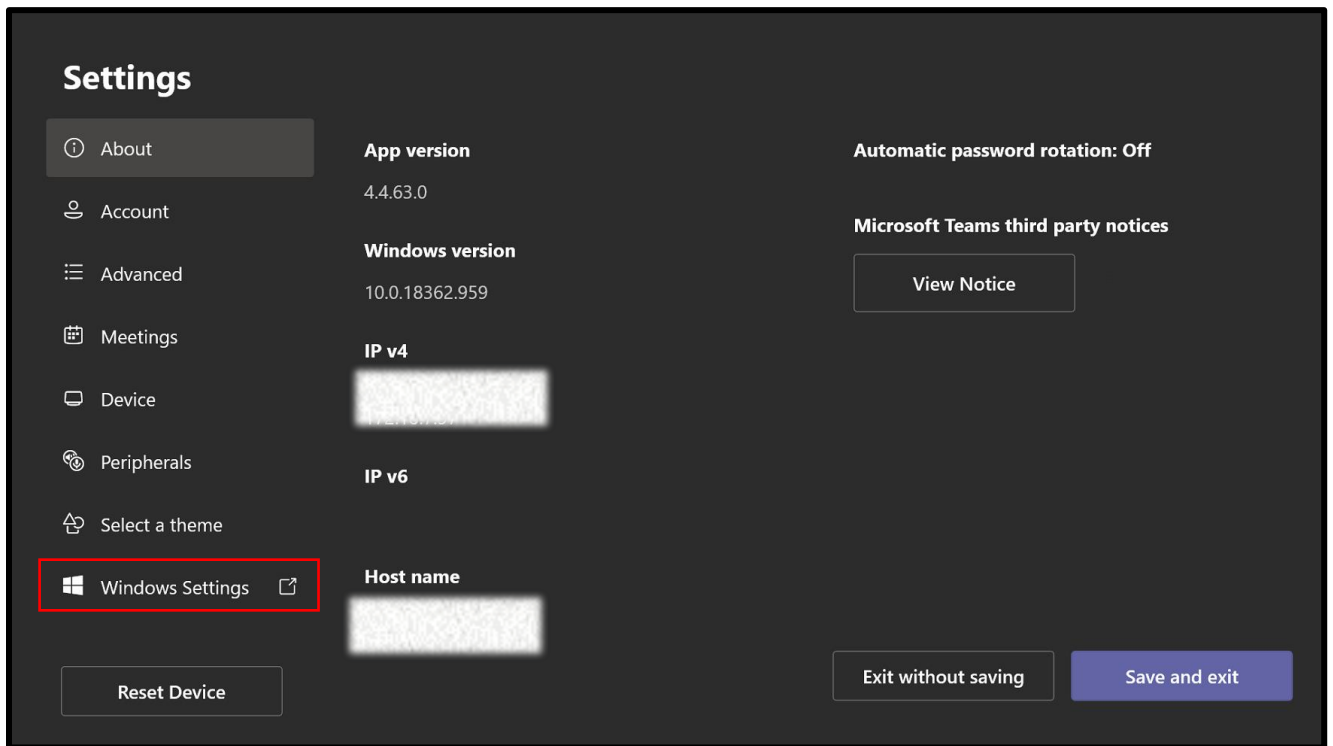
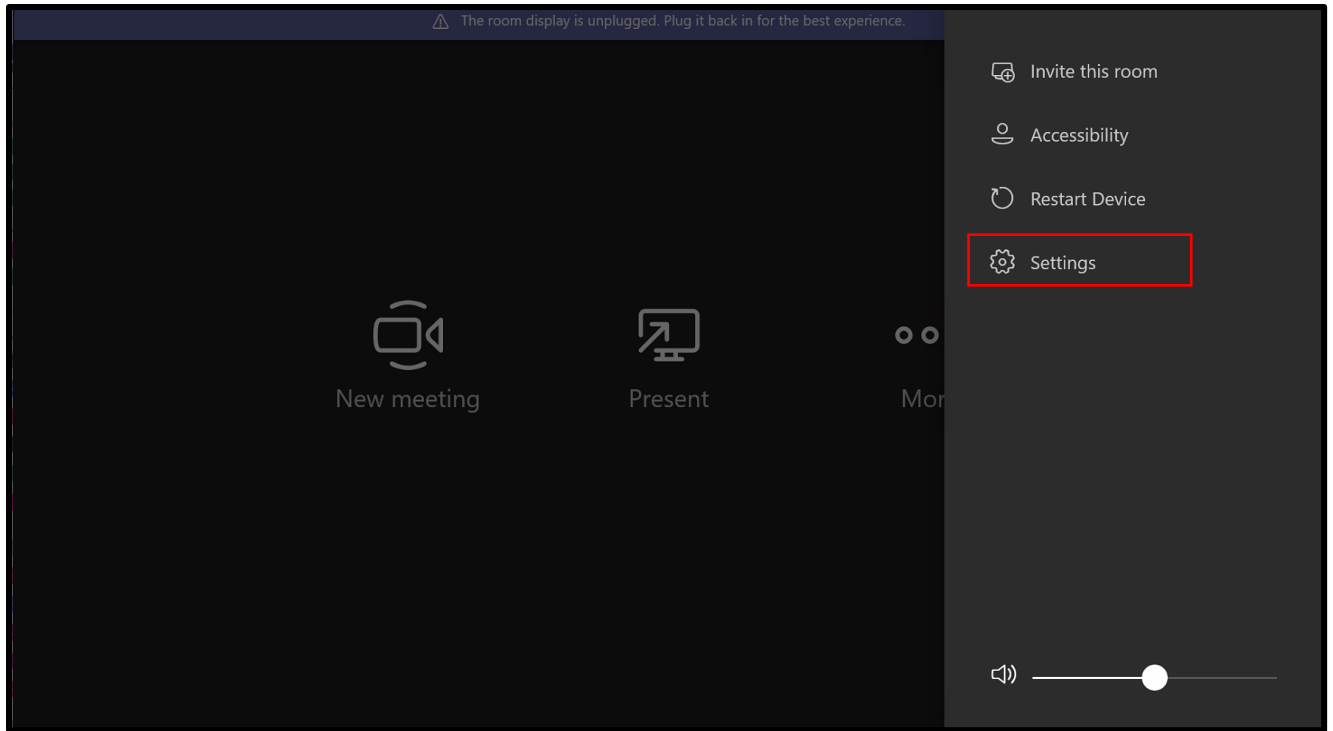


On restarting the Hub will automatically login to the “Skype” account and will launch the MTR app. If credentials were previously entered, it will automatically sign-in.

### Windows 10 IoT Administrator login

The administrator account provides system-wide administration capabilities and is password protected. To login as administrator, click on “More”, select “Settings” then “Windows Settings” then click on “Go to Admin Sign-in”. On successfully entering Admin credentials, one can manage the device.

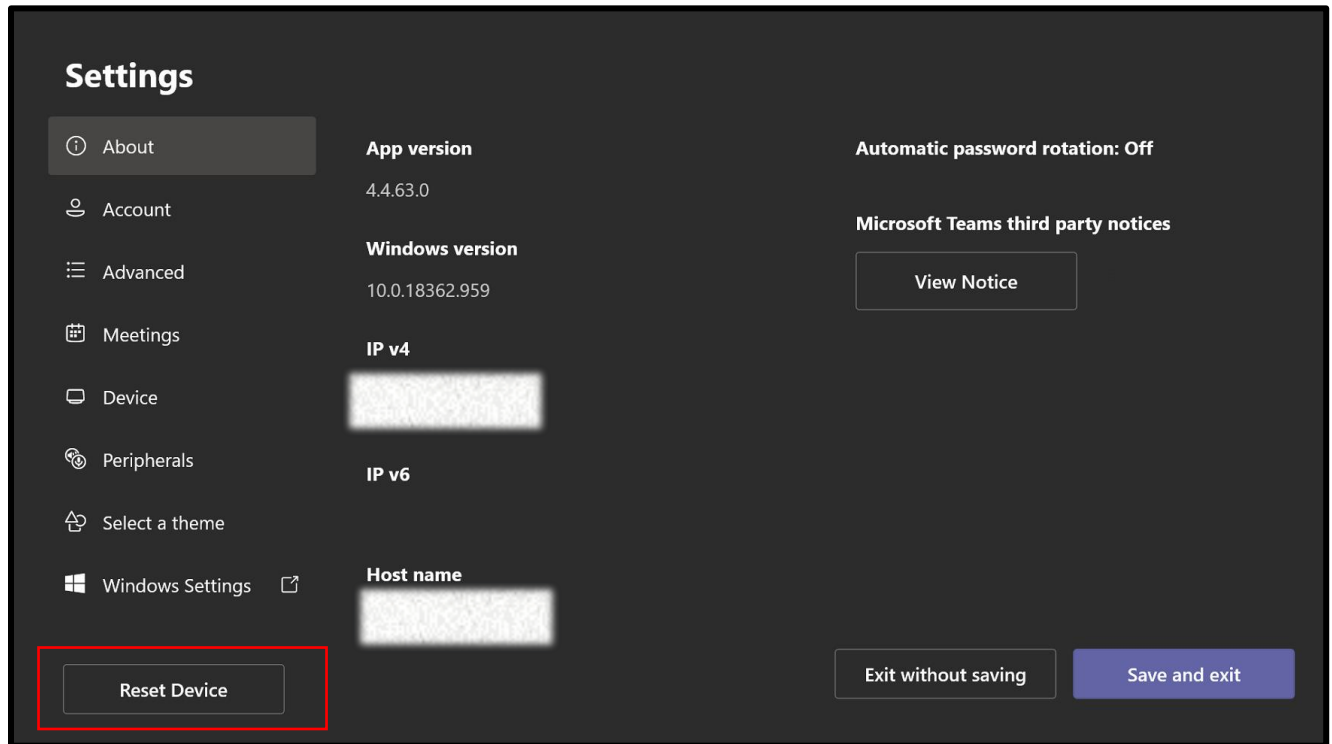
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### Deleting Credentials

To delete the credentials from the Hub,

1. Click on “More”
2. Click on “Settings”
3. Enter the admin password
4. Click on “Reset Device”

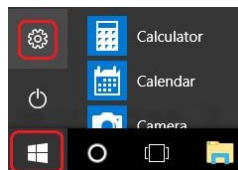


This will prompt confirmation, once confirmed the MTR app will be reset.

## Change Microsoft Teams Rooms Language

To change the Microsoft Teams Rooms app display language,

1. Click on “More” and then “Settings”
2. Input the admin password
3. Select “Windows Settings”
4. Select “Administrator” account and put in the admin password
5. Click on Windows logo on the bottom left of the task bar and select “Settings”



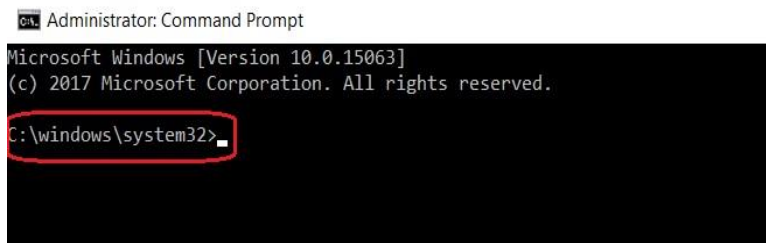
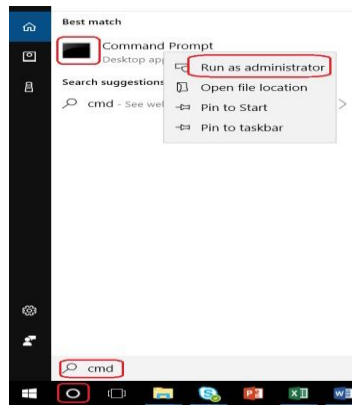
6. Select “Time & language”




7. Select “Region & language” and click on “Add a language”
8. Select the language of your choice and once listed, click on it and make it default

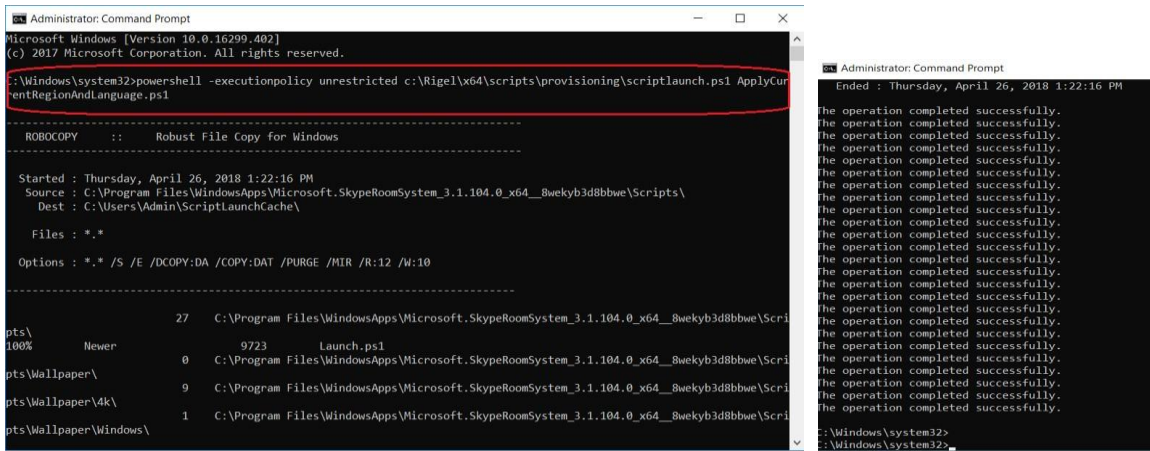


9. From Windows Search, search for “cmd” , right-click on “Command Prompt” and click on “Run as administrator”



10. Type the following command and hit on **Enter** from the external keyboard or if using onscreen keyboard, click on  twice

```
powershell -executionpolicy unrestricted  
c:\Rigel\x64\scripts\provisioning\scriptlaunch.ps1 ApplyCurrentRegionAndLanguage.ps1
```



11. Restart Windows and when the ThinkSmart Hub reboots, the chosen language will be used in Microsoft Teams Rooms app.

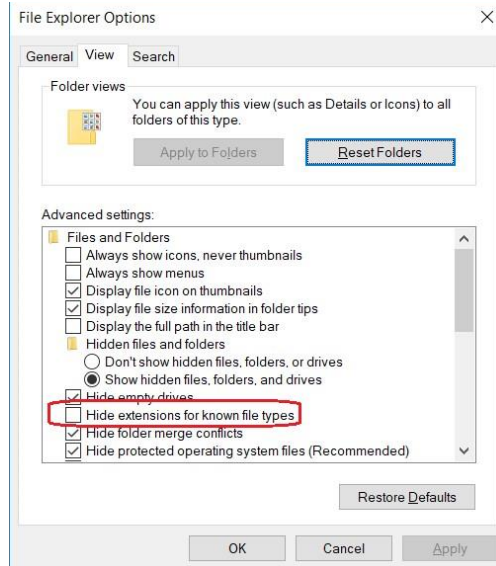
## Set a Custom Theme

The Microsoft Teams Rooms app that is running on the ThinkSmart Hub supports setting custom theme. When the SRS app starts after a system reboot, the app looks for “SkypeSettings.xml” file in **C:\Users\Skype\AppData\Local\Packages\Microsoft.SkypeRoomSystem\_8wekyb3d8bbwe\LocalState** location. If the file exists, the settings from the xml file will be read and applied to the SRS app and the “SkypeSettings.xml” file will be deleted. If the file does not exist, the values that are already configured in the SRS app will be applied, please refer [First Time Configuration](#).

**Note:** If the **C:\Users\Skype\AppData\Local\Packages\Microsoft.SkypeRoomSystem\_8wekyb3d8bbwe\LocalState** directory is unavailable, then please run SRS app once. The directory will be generated only when the SRS app is run at least once.

To set a custom theme,

1. Login as administrator, refer [Administrator Login](#)
2. Open File Explorer and go to, **C:\Users\Skype\AppData\Local\Packages\Microsoft.SkypeRoomSystem\_8wekyb3d8bbwe\LocalState**
3. Go to File Explorer Options and ensure the “Hide extensions for known file types” checkbox is unchecked.



4. Create a new file and name it “SkypeSettings.xml”
5. Open the newly created xml file and add the following content,

```
<SkypeSettings>
  <Theming>
    <ThemeName>Custom</ThemeName>
    <CustomThemeImageUrl>img.png</CustomThemeImageUrl>
    <CustomThemeColor>
      <RedComponent>100</RedComponent>
      <GreenComponent>100</GreenComponent>
      <BlueComponent>100</BlueComponent>
    </CustomThemeColor>
  </Theming>
</SkypeSettings>
```

**Note 1:** **img.png** is the filename of the image that is located in the same directory as the “SkypeSettings.xml” which is  
C:\Users\Skype\AppData\Local\Packages\Microsoft.SkypeRoomSystem\_8wekyb3d8bbwe\Local State

**Note 2:** The image file resolution **MUST be 3840X1080 pixels** and must be one of the following file formats: jpg, jpeg, png and bmp.

6. Save “SkypeSettings.xml” and restart the ThinkSmart Hub.

When the hub reboots, the new theme will be applied as the SRS theme.

## Power Management

The ThinkSmart Hub comes equipped with an IR based human proximity sensor, which detects motion directly in the line of sight of the sensor and a portion of surrounding areas. The sensor is placed in the middle of the speaker grill, which is located underneath the integrated display.



The operating range of the sensor is 3 meters minimum and covers +/- 45-degree angle.

When the IR sensor does not detect any motion, the ThinkSmart Hub will put the integrated display and any external display (if connected) into a **supported standby** mode. When the sensor detects motion, the Hub will wake up the integrated display and any external displays that are connected to the Hub via HDMI. Double-tap on the integrated display will also wake up the Hub and external displays if they are in standby mode.

The MTR app runs 24/7 in the background even if the integrated display is in standby mode.

The ThinkSmart Hub does support HDMI CEC when used with ThinkSmart One Cable

## Content Sharing

The ThinkSmart Hub supports two modes of content sharing, Teams/Skype for Business session based content share and wired HDMI based content share.

### Teams content sharing

Teams or Skype for Business clients running from client devices such as smartphones, tablets, PCs, etc can share their content and screen share through the Teams or Skype for Business session. When such content is being shared, the ThinkSmart Hub will show the content on the external display that is connected via HDMI to the Hub.

**Note:** This shared data is transient and the Hub does not store any user data on a permanent basis.

### Wired HDMI content sharing

The HDMI IN port on the back of the ThinkSmart Hub provides the HDMI Ingest capability. Connecting an HDMI cable to the HDMI IN port on the Hub and connecting the other end to the PC or other client device will instantly show the content of the client device onto the connected external large display. This essentially is duplicating (or extending) the screen of the client device onto the large screen.



## Power Off

The ThinkSmart Hub can be powered off by pressing and holding the power button for 4 seconds.

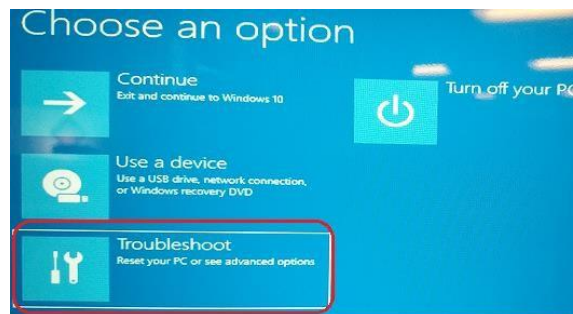


## Push Button Reset (PBR) – Factory Reset

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”

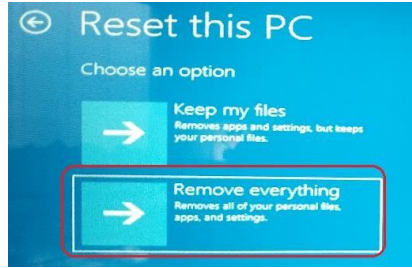


4. Select “Reset this PC”

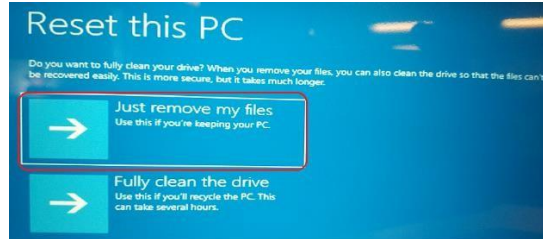


5. Select “Remove everything”  
**Note:** Recovery via “Keep my files” is not supported.

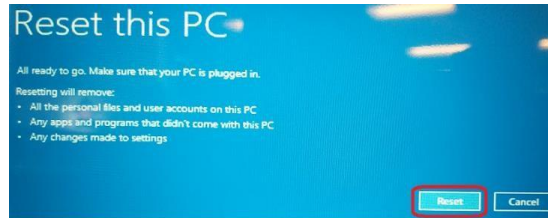




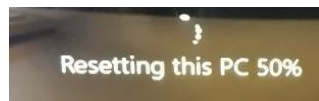
6. Select “Just remove my files”



7. Click on “Reset”



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. Please refer [Initial Setup](#).

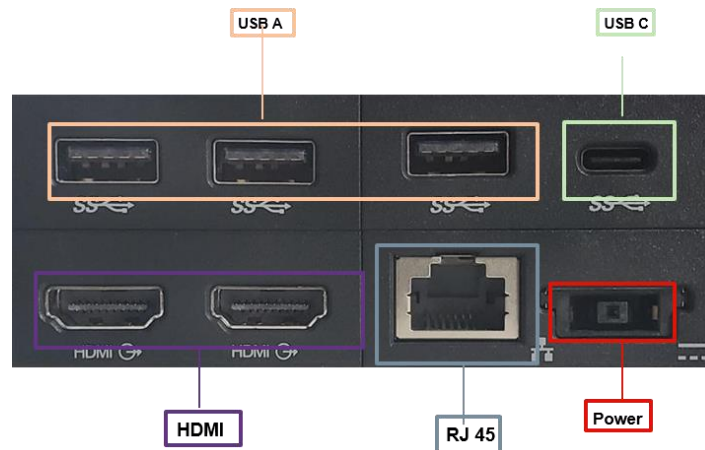
## Troubleshooting

### Issue: No display on the integrated touch screen

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

### Issue: No display on the external (front of room) display

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



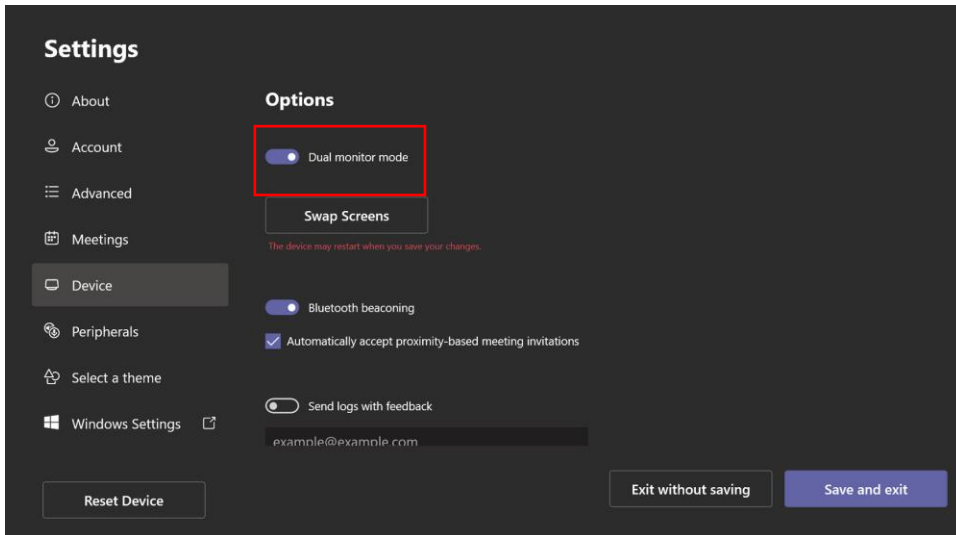
- b) Ensure the HDMI cable is not faulty or loose
- c) Ensure the external display Video source is set to the correct source HDMI port
- d) Try to connect the HDMI cable to another HDMI OUT port in the back of the Hub
- e) Try another HDMI cable
- f) Try restarting the Hub

**Issue: Dialpad not visible**

- a) For on-prem Skype for Business Server credentials, ensure PSTN capability is enabled on the credentials used in the Hub.
- b) If Office 365 credentials are used then ensure they are E1 or E3 with Enterprise Voice enabled

**Issue: No content shown on the second front of room display**

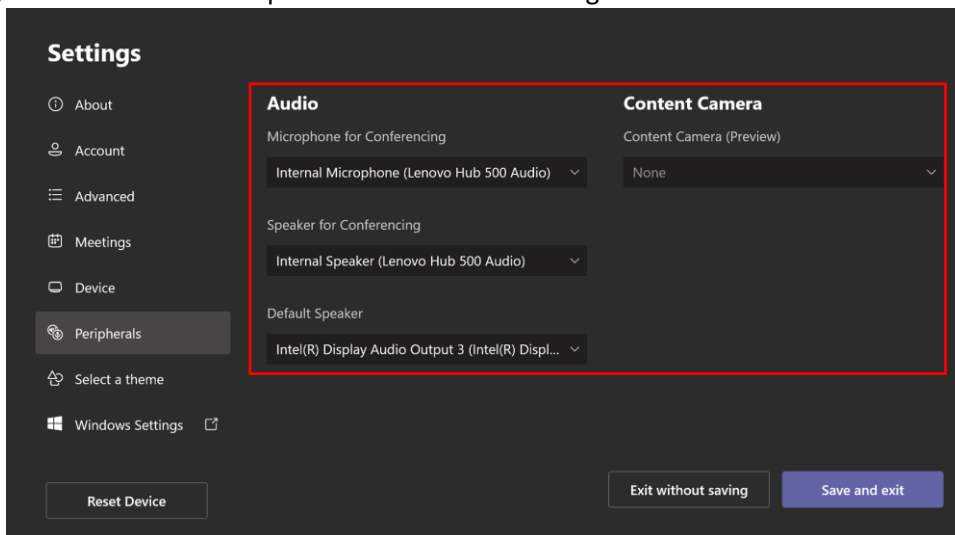
- a) Ensure both displays are properly connected to HDMI OUT 1 and HDMI OUT 2 on the back of the hub
- b) Ensure the Dual Monitor mode is turned on in settings



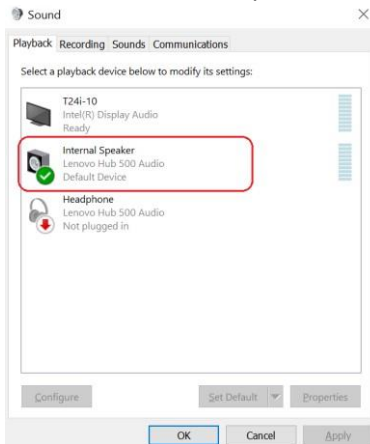
For further troubleshooting, follow steps outlined in **No display on the external display.**

**Issue: No audio from the internal speakers**

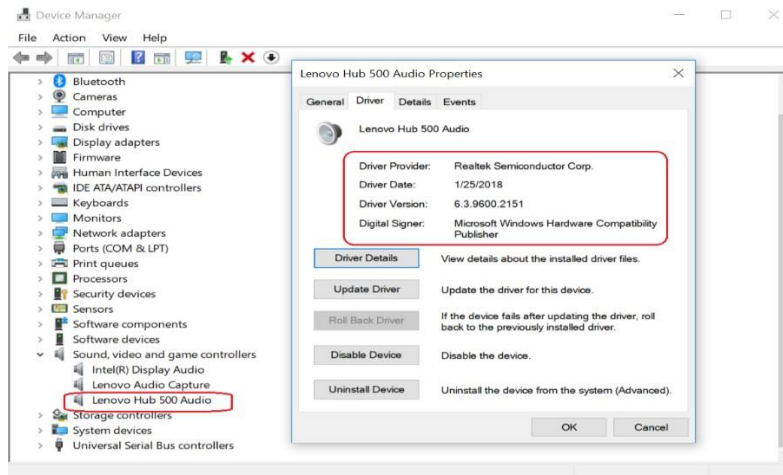
- a) Ensure the correct speaker is selected in Settings



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

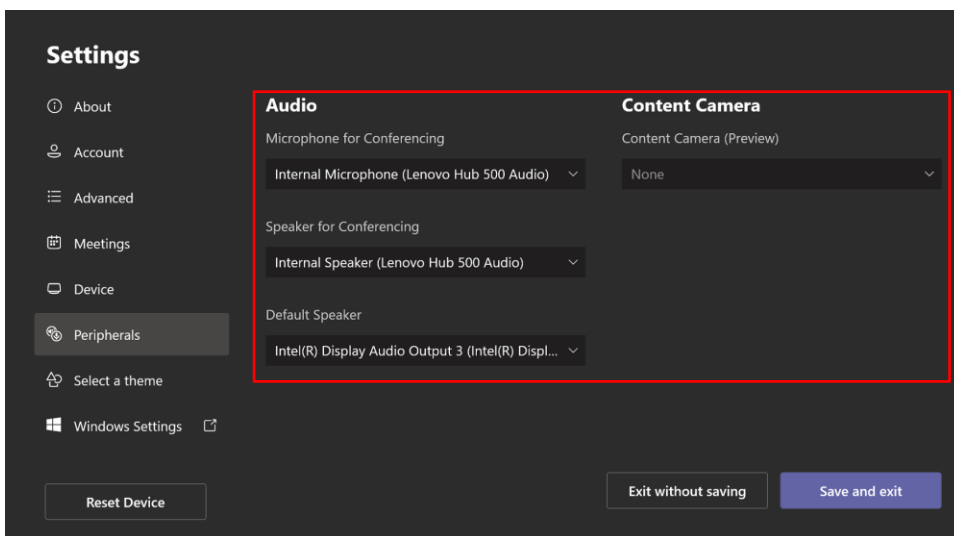


c) Open Device Manager and ensure the audio driver is installed properly.



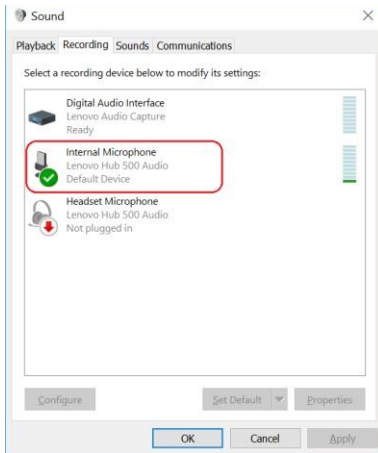
Issue: Internal microphone is not working

a) Ensure the correct microphone is selected in the TeamsSettings UI

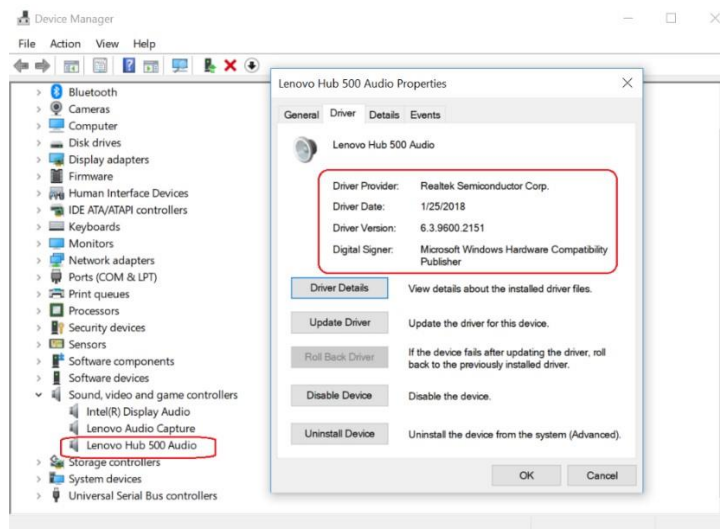


b) Ensure the Internal Microphone is selected as **default** device in Sound Recording properties

## ThinkSmart Hub Configuration Guide for Microsoft Teams Rooms (MTR)



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

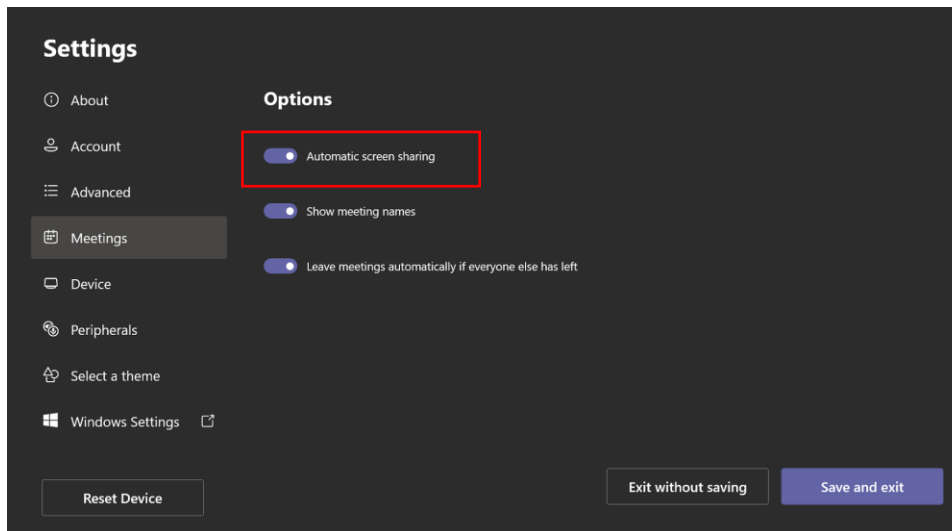


### Issue: Content not presenting automatically when connected via HDMI cable

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



- b) Ensure the Auto Screen Sharing is enabled in the Teams Settings UI



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

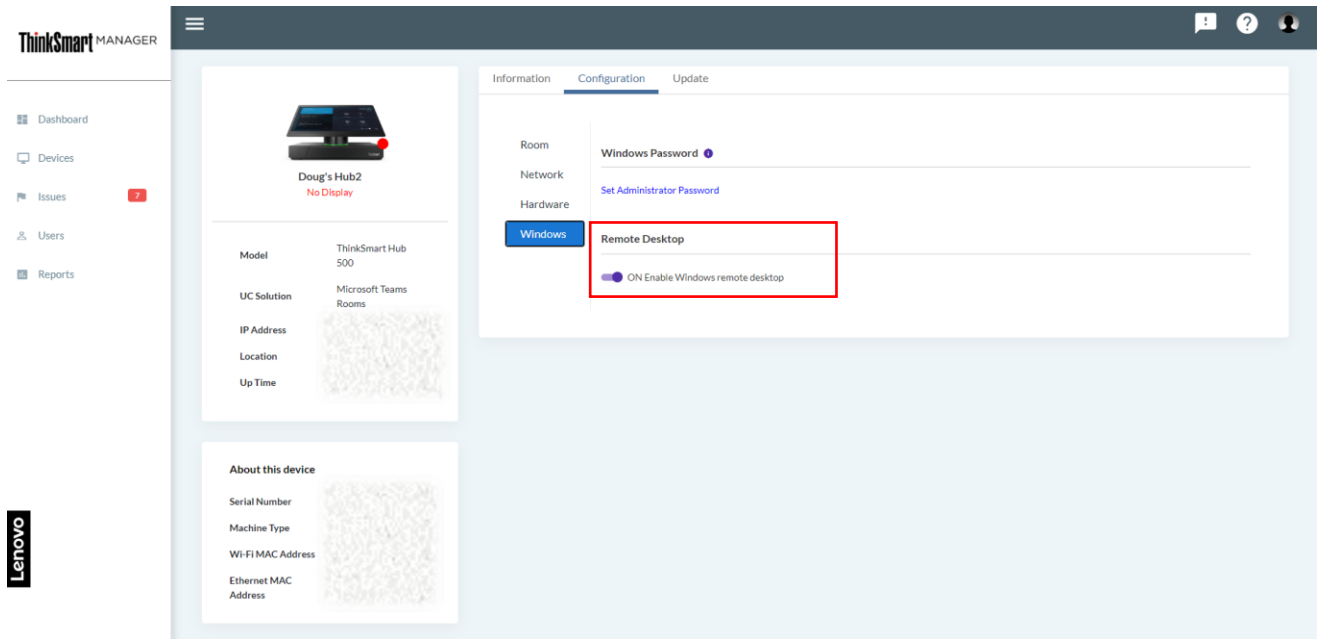
## ThinkSmart Hub Management

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.

**ThinkSmart Hub Configuration Guide for Microsoft Teams Rooms (MTR)**



**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?	All software updates and driver updates are delivered via Windows Update. BIOS updates are manually downloaded from the Lenovo E-support portal.
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.
Can I manage the ThinkSmart Hub via Microsoft Operations Management Suite (OMS)?	Please refer to <a href="https://technet.microsoft.com/en-us/library/mt797749.aspx">https://technet.microsoft.com/en-us/library/mt797749.aspx</a>
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 a cable management solution in the back of the unit. This solution keeps cables such as Ethernet, HDMI, USB and Power securely connected to the unit.
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 border="1" data-bbox="771 338 1081 436"> <thead> <tr> <th>Cable Type</th> <th>Supported Diameter Range</th> </tr> </thead> <tbody> <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> </tbody> </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								
<p>Is there Lenovo specific software installed on the ThinkSmart Hub?</p>	<p>Yes, ThinkSmart Manager software is pre-installed from Lenovo factory. ThinkSmart Manager is Lenovo’s solution for management at scale for ThinkSmart devices.</p>								
<p>Can the ThinkSmart Hub work with HDMI extenders via Ethernet?</p>	<p>Yes, the ThinkSmart Hub is a standard HDMI complaint device and has been tested to work with products like AMX DXLink HDMI transmitters and receivers.</p>								
<p>Does the ThinkSmart Hub support network boot?</p>	<p>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.</p>								
<p>Does the ThinkSmart Hub support USB boot?</p>	<p>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.</p>								
<p>Does the ThinkSmart Hub support any other UC platforms?</p>	<p>The Hub500 is available for different UC platforms, but will only support one UC platform <b>at a time</b>.</p>								
<p>How do I update to the latest audio drivers?</p>	<p>Audio driver updates are delivered via Windows Update. They can also be manually downloaded from the Lenovo E-support portal.</p>								
<p>Does the ThinkSmart Hub support Wi-Fi connection?</p>	<p>A wired Ethernet connection is required to connect to the network from the Microsoft Teams account. Wifi is supported in the HW when logged in as Admin, but it cannot be used in place of a wired connection.</p>								
<p>Is the ThinkSmart Hub compatible with Apple OSX?</p>	<p>The ThinkSmart ThinkSmart Hub is a PC that runs Unified Communications software on a Windows 10 IoT Enterprise OS. Most UC software providers offer clients for Windows, Android, Apple OSX and and iOS. The HDMI Ingest to share content via the ThinkSmart Hub supports all the OS mentioned above.</p>								
<p>Can I store my presentations or other materials in the Hub for sharing?</p>	<p>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.</p>								



<p>What are the account or licensing requirements?</p>	<p>The only customer requirement is Microsoft Teams (or Skype for Business) credentials to run on the Hub. Please refer ThinkSmart Hub Requirements.</p>										
<p>Does the Hub support Consumer Electronics Control (CEC)?</p>	<p>The ThinkSmart Hub does support CEC; when used with One Cable. The external display is awakened through proximity sensor or the touch panel of the 500. The HDMI will send signal to front of room display if one is attached.</p>										
<p>What are the network bandwidth requirements to have an optimal audio and video performance?</p>	<table border="1" data-bbox="784 516 1356 642"> <thead> <tr> <th>Type</th> <th>Recommended Download / Upload</th> </tr> </thead> <tbody> <tr> <td>Calling</td> <td>100kbps / 100kbps</td> </tr> <tr> <td>Video Calling / Screen sharing</td> <td>300kbps/300kbps</td> </tr> <tr> <td>Video</td> <td>1.5Mbps/1.5Mbps</td> </tr> <tr> <td>Group Video (3+ participants)</td> <td>Greater than 2Mbps/1.5Mbps</td> </tr> </tbody> </table>	Type	Recommended Download / Upload	Calling	100kbps / 100kbps	Video Calling / Screen sharing	300kbps/300kbps	Video	1.5Mbps/1.5Mbps	Group Video (3+ participants)	Greater than 2Mbps/1.5Mbps
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<p>What are the list of supported peripherals like cameras, extended microphones/speakers?</p>	<p>The ThinkSmart Hub has four USB 3.0 ports and supports any Skype for Business Certified Audio/Video peripherals. For more information on Microsoft certified devices, please visit <a href="https://products.office.com/en-us/microsoft-teams/across-devices/devices">https://products.office.com/en-us/microsoft-teams/across-devices/devices</a> <a href="https://technet.microsoft.com/en-us/library/mt790552.aspx">https://technet.microsoft.com/en-us/library/mt790552.aspx</a></p>										
<p>Does the ThinkSmart Hub use Microsoft Surface Pro tablet?</p>	<p>A Surface tablet is not used. The ThinkSmart Hub has an integrated 10.1" touch panel and compute, so doesn't need a Surface tablet.</p>										
<p>Does the ThinkSmart Hub support wireless display?</p>	<p>No, the Hub does not currently support in room wireless displays. You can share wirelessly through the Teams app on your computer or phone by joining a meeting</p>										
<p>Can I use the ThinkSmart Hub as a PC?</p>	<p>No, the ThinkSmart Hub is an appliance and is designed to be a meeting space-based tabletop conference room AV device.</p>										
<p>Does the ThinkSmart Hub support deployment via SCCM?</p>	<p>Yes, the details are available here <a href="https://docs.microsoft.com/en-us/microsoftteams/room-systems/room-systems-scale">https://docs.microsoft.com/en-us/microsoftteams/room-systems/room-systems-scale</a></p>										

<p>What are the TCP/IP ports that must be opened in the infrastructure?</p>	<table border="1" data-bbox="776 210 1205 365"> <tr> <td>Signaling packets</td> <td>TCP 443</td> </tr> <tr> <td>Audio/Video packets</td> <td>TCP 443 UDP 3478, TCP/UDP 50,000-59,999</td> </tr> <tr> <td>Desktop Sharing</td> <td>TCP 443, TCP/UDP 50,000-59,999</td> </tr> <tr> <td>Http/https</td> <td>TCP 80 and 443</td> </tr> </table> <p>These are the basic default ports MTR will need, there may be other requirements based on your environment. See links for more information: Firewall Proxy Host Name/Port Examples section of: <a href="https://docs.microsoft.com/en-us/microsoftteams/room-systems/srs-v2-prep">https://docs.microsoft.com/en-us/microsoftteams/room-systems/srs-v2-prep</a> <a href="https://support.office.com/en-us/article/Office-365-URLs-and-IP-address-ranges-8548a211-3fe7-47cb-abb1-355ea5aa88a2?ui=en-US&amp;rs=en-US&amp;ad=US#BKMK_Identity">https://support.office.com/en-us/article/Office-365-URLs-and-IP-address-ranges-8548a211-3fe7-47cb-abb1-355ea5aa88a2?ui=en-US&amp;rs=en-US&amp;ad=US#BKMK_Identity</a></p>	Signaling packets	TCP 443	Audio/Video packets	TCP 443 UDP 3478, TCP/UDP 50,000-59,999	Desktop Sharing	TCP 443, TCP/UDP 50,000-59,999	Http/https	TCP 80 and 443
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Desktop Sharing	TCP 443, TCP/UDP 50,000-59,999								
Http/https	TCP 80 and 443								
<p>How does one configure the network proxy for the ThinkSmart Hub?</p> <p>Where can I find the user guide, readme and (device side) software download for ThinkSmart Manager?</p>	<p>The Proxy configurations are outlined here, <a href="https://docs.microsoft.com/en-us/microsoftteams/proxy-servers-for-skype-for-business-online">https://docs.microsoft.com/en-us/microsoftteams/proxy-servers-for-skype-for-business-online</a></p> <p><a href="https://support.lenovo.com/us/en/downloads/DS542392">https://support.lenovo.com/us/en/downloads/DS542392</a></p>								

## Useful links

- <https://docs.microsoft.com/en-us/microsoftteams/room-systems/>
- <https://technet.microsoft.com/en-us/library/mt790549.aspx>
- <https://docs.microsoft.com/en-us/MicrosoftTeams/room-systems/skype-room-systems-v2-0>
- <https://docs.microsoft.com/en-us/MicrosoftTeams/room-systems/requirements>
- <https://docs.microsoft.com/en-us/microsoftteams/room-systems/room-systems-v2-configure-accounts>
- <https://docs.microsoft.com/en-us/microsoftteams/room-systems/console#Initial>
- <http://thinkdeploy.blogspot.com/2018/04/preparing-thinksmart-hub-for-skype-room.html>

## Microsoft Support Site

Microsoft hosts [full documentation](#) on all steps for MTR, and provides regular updates online. Full list of topics covered listed here:

## Version History

Date	Version	Comments
08/2019	V0.1	<ul style="list-style-type: none"><li>First pass at splitting out Deploy from Configuration</li></ul>
		-