Lenovo ThinkSmart Hub 500 Deployment Guide

Version 0.21

09/07/2018

Lenovo Smart Office

Disclaimer: This guide is only to be used for informational purposes only and is not intended as a definitive resource.

Lenovo ThinkSmart Hub 500
Deployment Guide

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Introduction

Lenovo ThinkSmart Hub 500 is a Microsoft Skype Room Systems based conference room device. The hardware is designed by Lenovo and the software is from Microsoft.

The Hub 500 is an all-in-one integrated unit with a 11.6" touch panel that is capable of rotating 360 degrees. The unit also has integrated microphones and speakers. The Hub 500 ideally sits on top of a conference room table and provides Skype for Business based audio, video and content share capabilities.
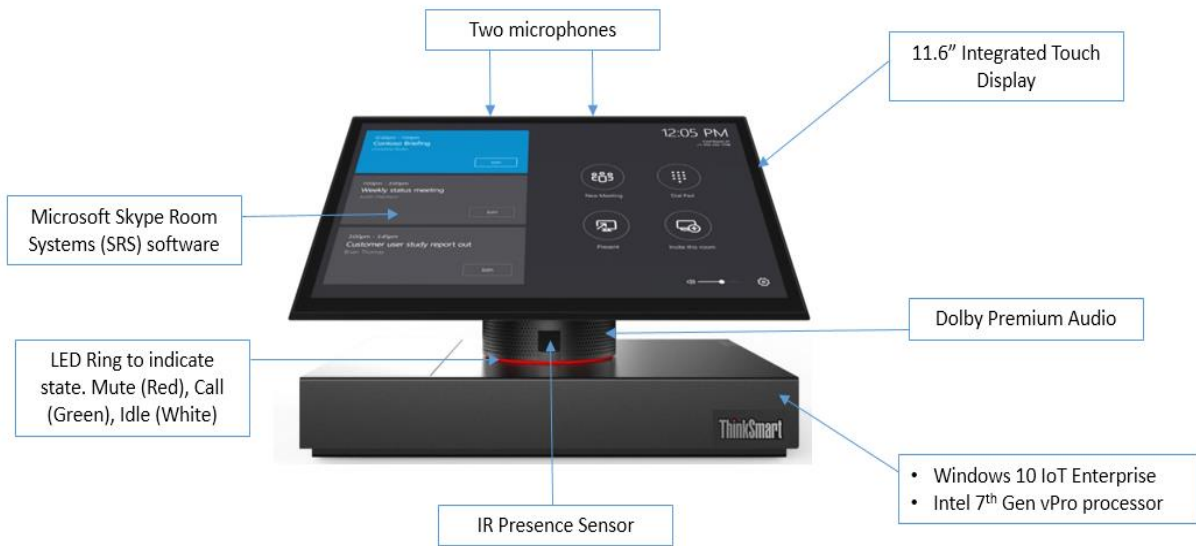
Note: The Lenovo Hub 500 does **NOT** use a Microsoft Surface Pro tablet. The 11.6" touch display is integrated into the design.

Hub 500 Ports (Rear panel)
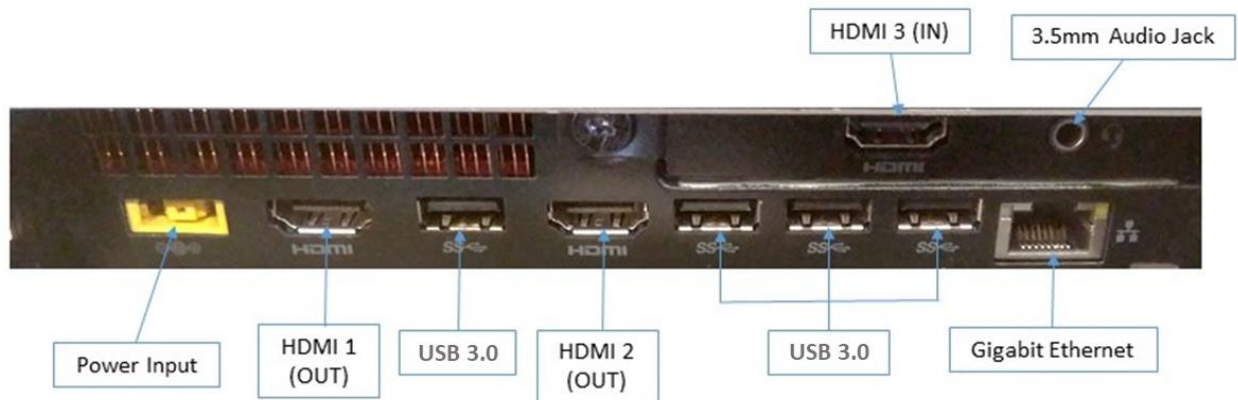
Technical Specifications

Display	11.6" touch display Anti-glare and Anti-fingerprint coating 360 degrees rotatable
Microphone	Two integrated microphones, built into the top display bezel
Speakers	Dolby premium audio – Dual 4W speakers
Ports	2 HDMI Outputs 1 HDMI Input 4 USB 3.0 ports 1 Power 1 RJ-45 Gigabit Ethernet
Processor / SSD / RAM	Intel i5 7th Generation vPro Processor / 128GB / 8GB
Operating System	Windows 10 IoT Enterprise
Sensors	Integrated IR Presence/Motion sensor
Software	Microsoft Skype Room Systems V2
Buttons	Power On button on the front
Cable Management & Security	Secure latch in the back of the unit to secure cables Kensington lock
RAL Color	Iron Gray (Lenovo)

Microsoft Skype Room Systems

Skype Room Systems v2 is Microsoft's latest conferencing solution designed to transform your meeting room into a rich, collaborative Skype for Business experience. Users will enjoy its familiar Skype for Business interface and IT administrators will appreciate an easily deployed and managed Windows 10 Skype Meeting app. Skype Room Systems v2 is designed to leverage existing equipment like LCD panels for ease of installation to bring Skype for Business into your meeting room.

More information available at https://technet.microsoft.com/en-us/library/mt790550.aspx

Hub 500 Package – What's inside the Box

1. One Lenovo Hub 500 factory installed with Microsoft Windows 10 IoT Enterprise Operating System and Microsoft Skype Room Systems Software
2. One Lenovo Power Adapter

Hub 500 Requirements

There are a few requirements that needs to be met to fully start using the ThinkSmart Hub 500. The requirements are outlined below,
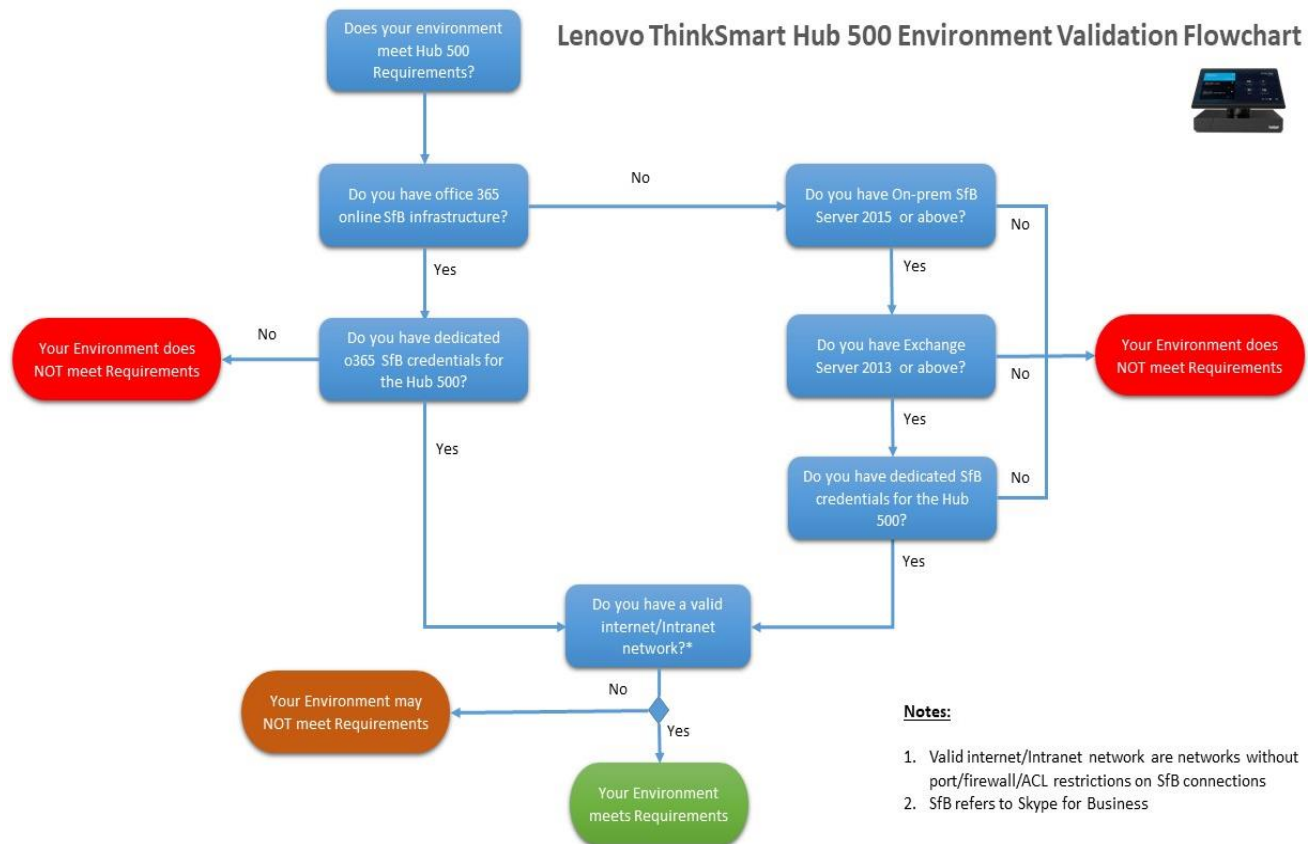
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Hardware / Software Requirements

Type	Recommended	Comments
Lenovo ThinkSmart Hub 500	-	Included in the Package
External HDMI compliant displays (1 or 2)	40"+ single HDMI compliant display	-
RJ45 Ethernet Cable (Internet/Intranet)	-	-
Compatible power adapter	-	Included in the Package
Windows 10 IoT Enterprise	-	Included in the Package
Skype Room Systems V2 modern app	-	Included in the Package

License Requirements (Any one option will suffice)

Options	Type	Requirements
		Microsoft Exchange 2013 SP1+ or Exchange Online
		Microsoft Skype for Business Server 2015+
Option 1	On-Premise	Built-in PSTN capability in the SfB infrastructure for PSTN dialing capability
Option 2	Cloud (with PSTN dialing)	Office 365 Enterprise E5 (Skype and PSTN capability)
Option 3	Cloud	Office 365 Enterprise E1/E3 or Office 365 Skype Premium license Cloud-PBX Add-on for Enterprise Voice

Environment Validation Flowchart

Lenovo ThinkSmart Hub 500 Environment Validation Flowchart

Target Rooms

The Hub 500 is ideal for small to medium size huddle, conference and meeting rooms (4 to 6 or 6 to 8 people). The two microphones on the Hub 500 are tuned for a 360-degree audio capture. The ideal room size for Hub 500 is 15x15 ft. The optimal distance from the microphone to the human speaker is upto 4m.

Powering On

1. Unpack the Hub 500 from its packaging and place it on a flat surface
2. Connect the provided power adapter to the power source and to the Hub 500
3. Turn on the Hub 500 by pressing the power button located on the front grill

Initial Setup

Once the Hub 500 is powered on, the Hub will go through the BIOS POST and will boot from the internal SSD to load the Microsoft Windows 10 IoT Enterprise operating system. By default, there are two Windows accounts built into the Hub 500 out of the factory.

"Skype" user account

This account is the default account from which the Skype Room Systems app (SRS) runs from. This account is limited to running the SRS app. **This account is the default recommended account from which to run SRS**. No administrator privileges are available from this account.

When the Hub boots, it will automatically login into the "Skype" account and will automatically launch the SRS app. No user intervention required.

"Administrator" user account

This account is the standard Windows administrator account and provides system-wide privileges. This account is password protected. The default password is "sfb" without quotes. For a typical day-to-day usage, the administrator credentials are not needed. The admin account is only used for device management. The default account to run the SRS app is "Skype" and this account will be automatically logged in when the Hub 500 boots.

Connecting Peripherals

The Hub 500 has four standard USB 3.0 ports in the back and can support running any compatible USB peripherals. Some of the popular USB peripherals for the Hub 500 are Cameras, satellite or extended microphones and speakers.

In most cases once a USB device is inserted into the USB port, the Hub will automatically detect and install the corresponding drivers needed to run the peripherals.
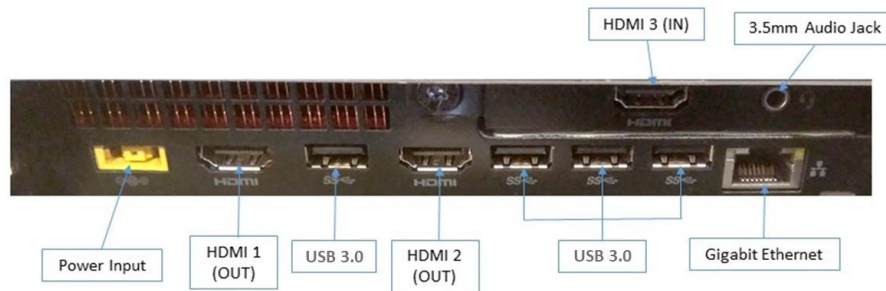

Configuring Hub 500

When the Hub is powered on, the Hub will automatically login to the "Skype" account and will launch the Skype Room Systems (SRS) app.

First time configuration

When the Hub is turned on for the first time, an appropriate Skype or Lync credentials is required in order to sign in and use the Hub. Please refer to License Requirements.

The first screen is the Microsoft license agreement page.
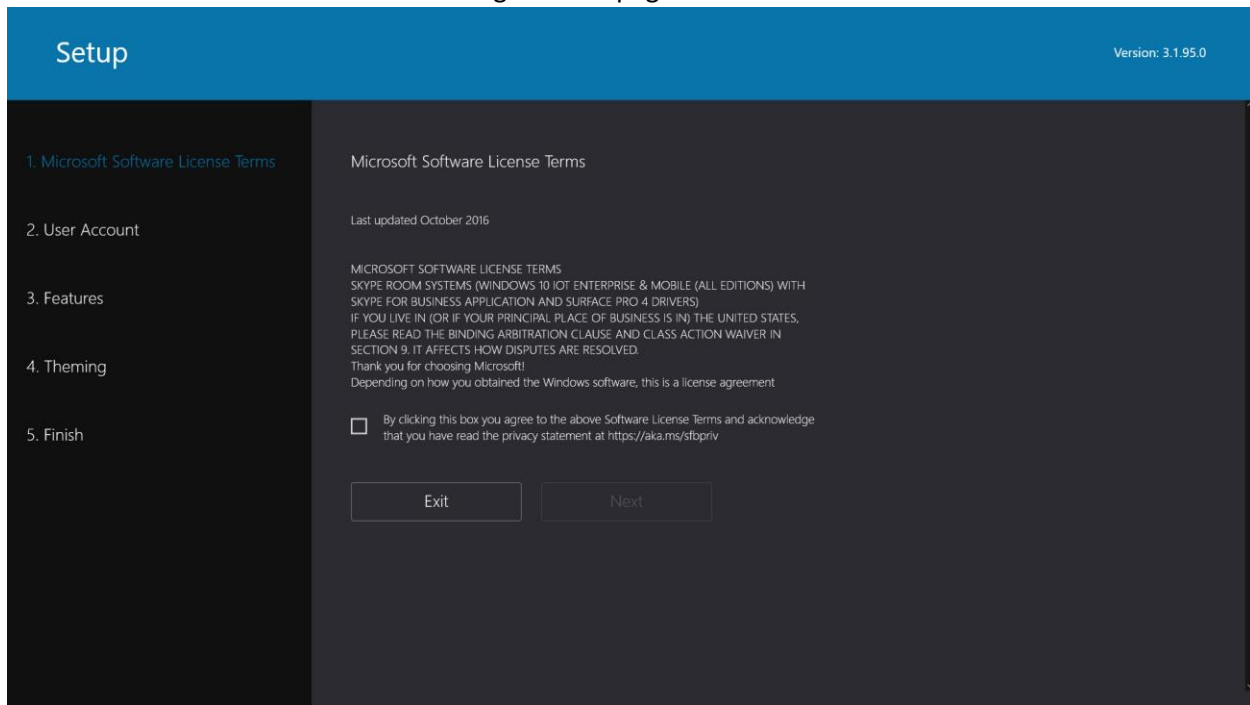
After the license page is the page to configure the Skype for Business credentials that is dedicated to the Hub. Please talk to your local IT to get a permanent Skype for Business credentials that the Hub can use.

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Enter the Skype for Business credentials and select "Next".
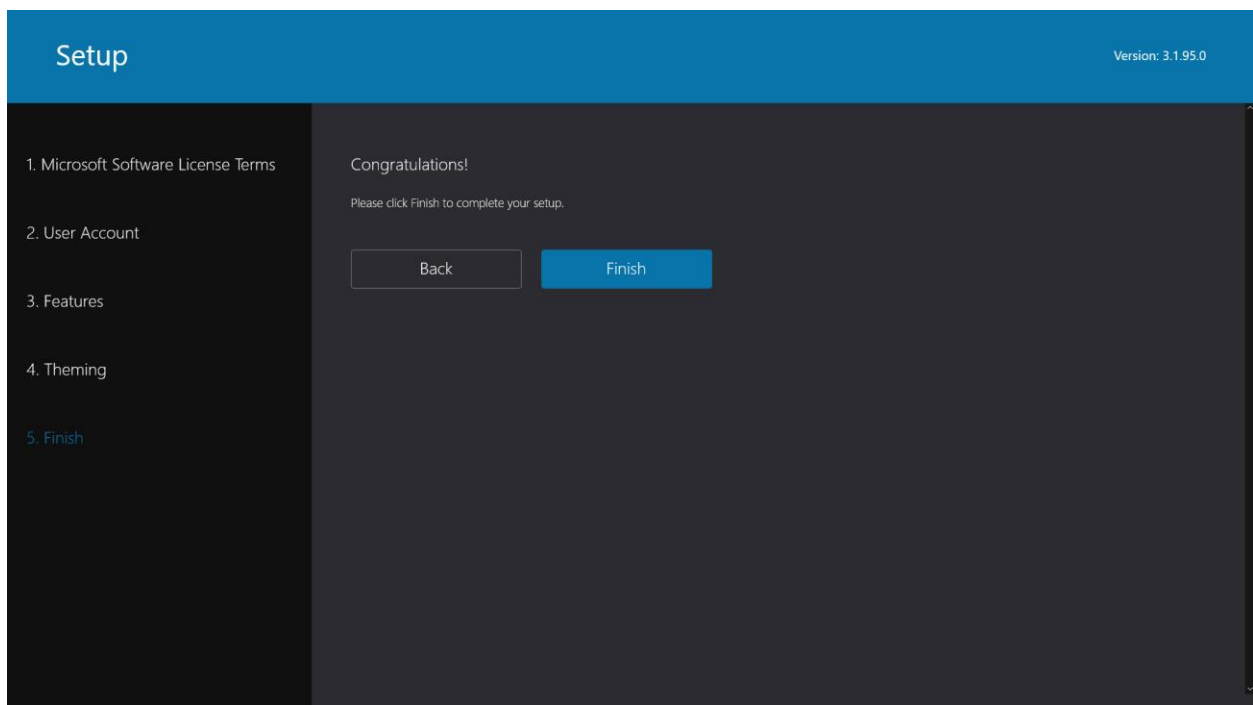

If you have dual monitors connected to the Hub, then please set Dual Monitor Mode to On, otherwise leave the settings to default and Click Next.
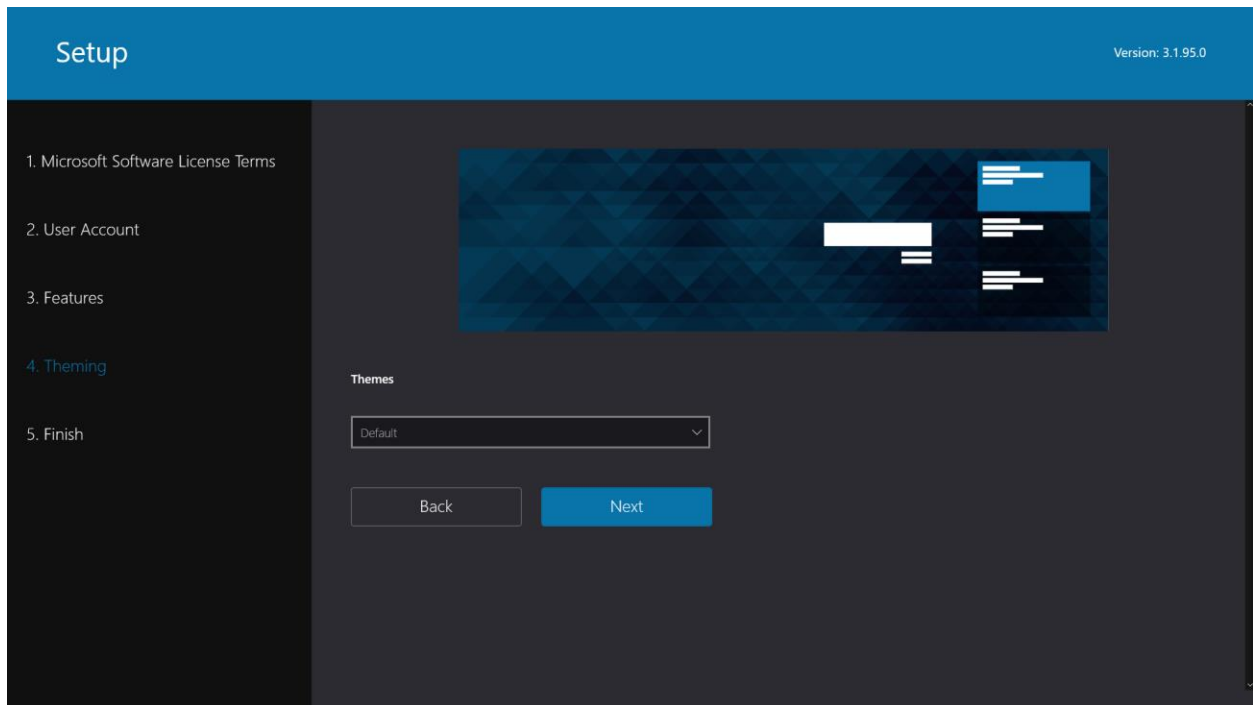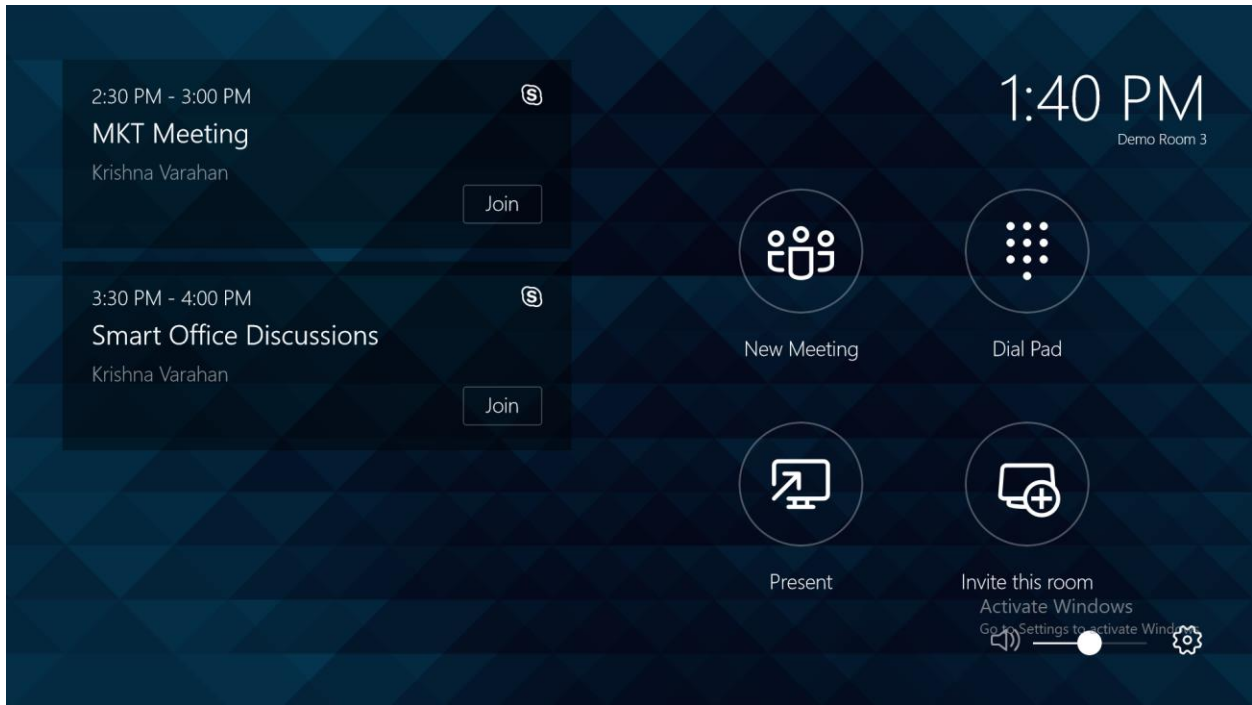
Select the theme of your choice. If you want to set a custom theme, then please refer Custom Theme section. Click Next.

Click Finish.

At this point, the SRS app will attempt to sign-in with the credentials, and once successfully authenticated, the SRS app will show signed-in state.
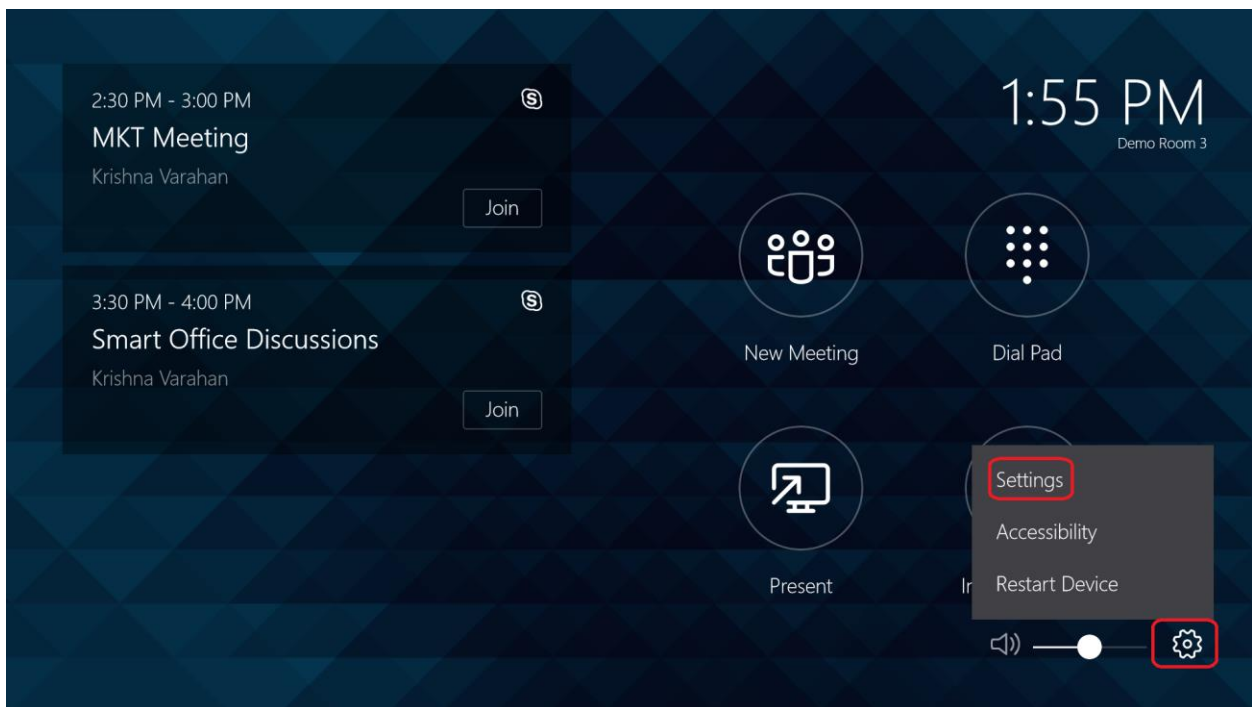
At this point, the Hub is signed-in and shows all the scheduled meetings and is ready to use.

Changing credentials

Click on [⚙] and select "Settings"

This will open the sign-in page
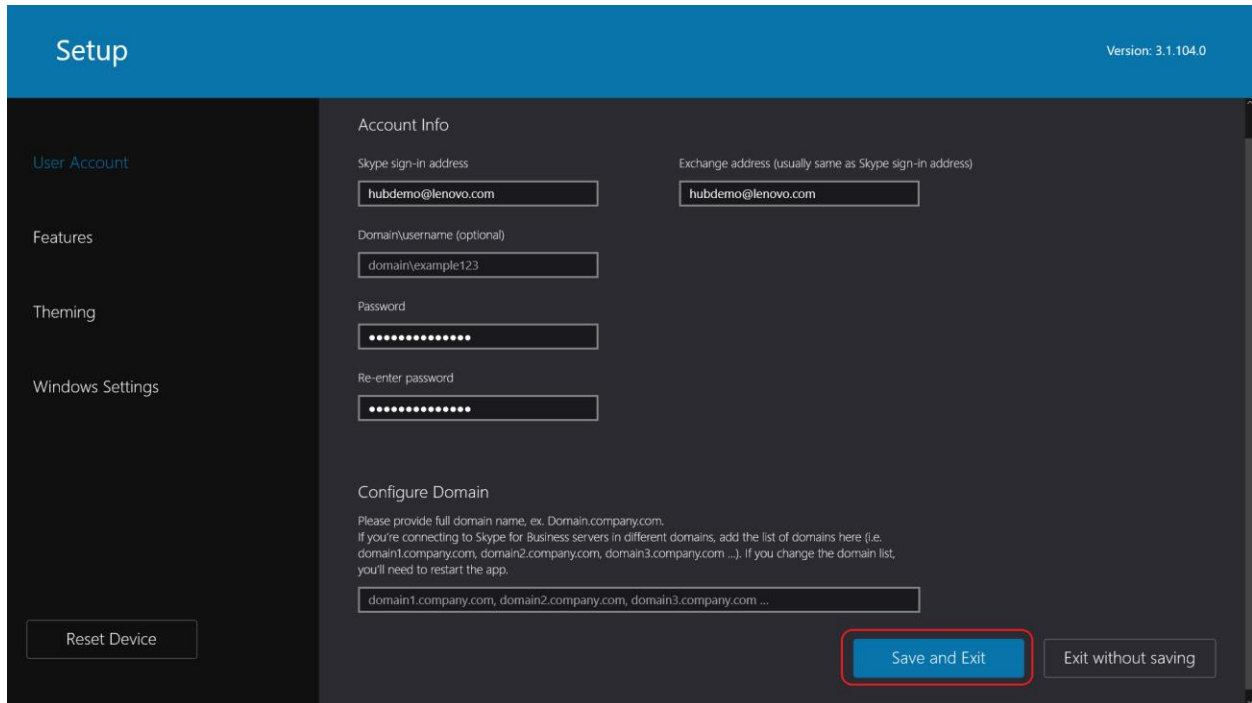
Change the credentials and click on "Save and Exit". This will force the SRS app to login with the new credentials.
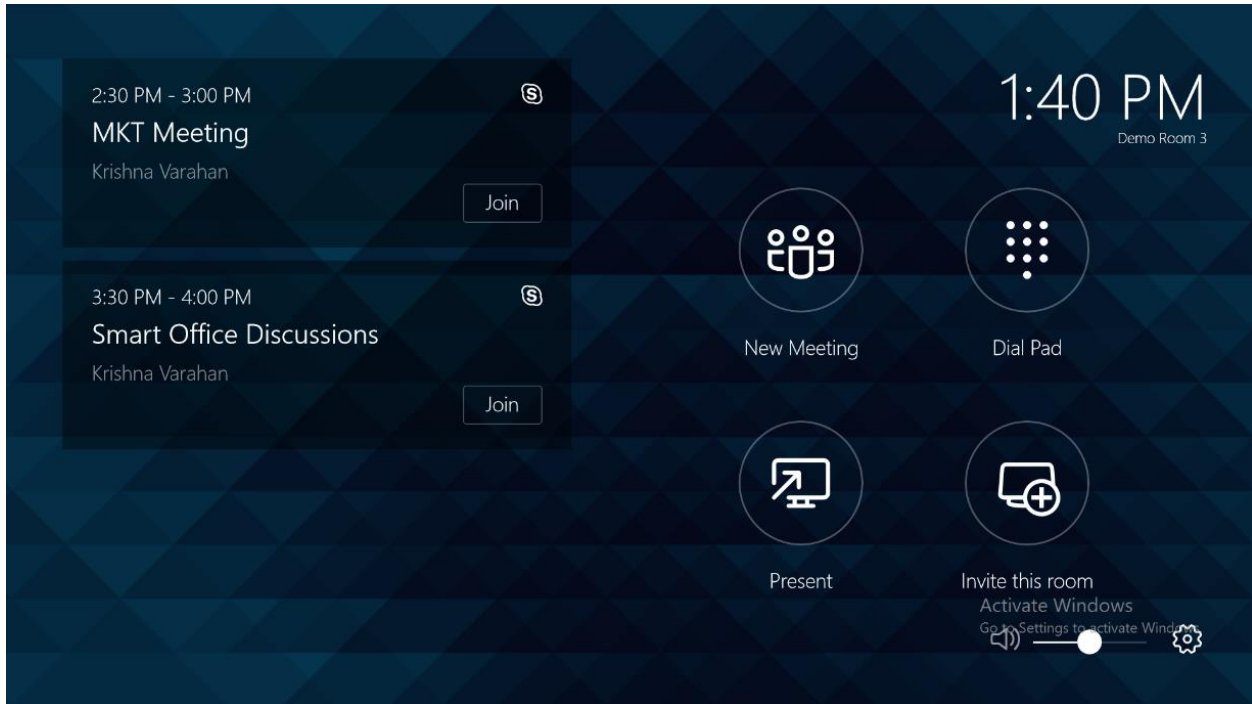
Restarting Hub 500

Once logged-in, the Hub can be restarted by selecting [⚙] and clicking on "Restart Device". This will cause the Hub 500 to restart.
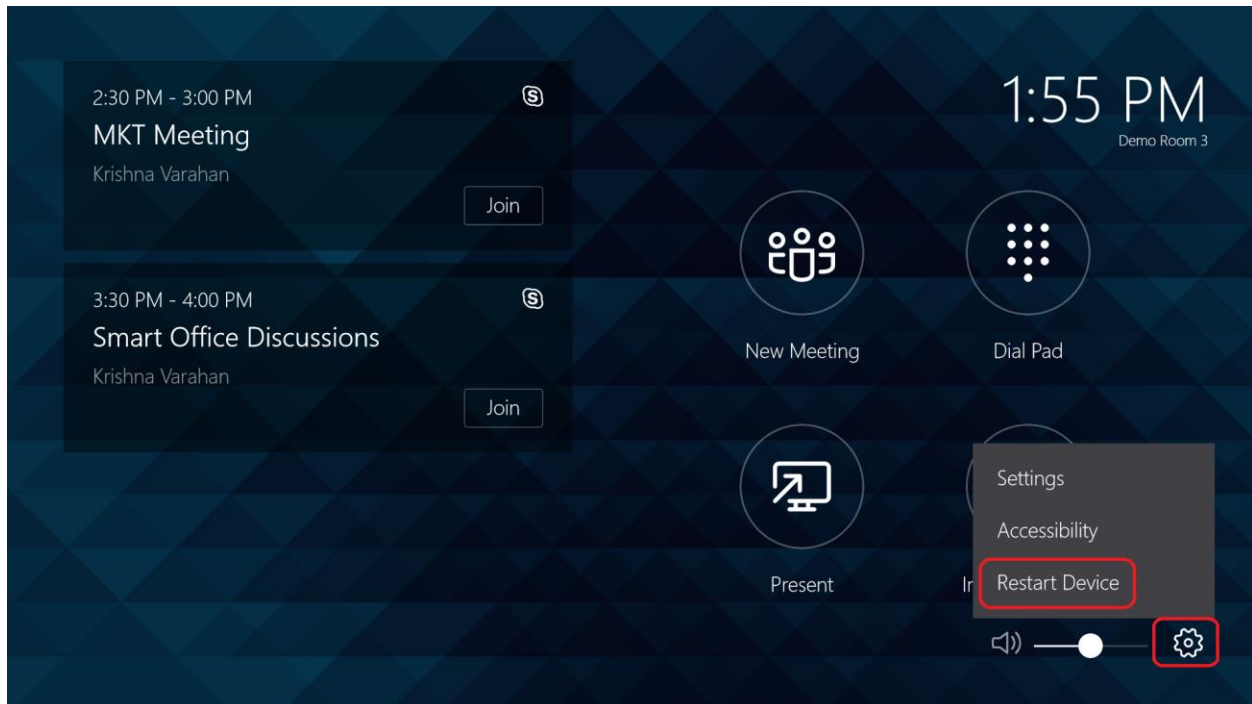
On restarting the Hub will automatically login to the "Skype" account and will launch the SRS app and if the credentials exist will automatically sign-in to the Lync or Skype infrastructure.

Administrator login

The administrator account provides system-wide administration capabilities and is password protected.

In order to login as administrator, click on and select "Settings" and then select "Windows Settings" and then finally click on "Go to Admin Sign-in". A prompt will appear requesting administrator credentials and on successfully validating will allow the user to login as an administrator to manage the device.
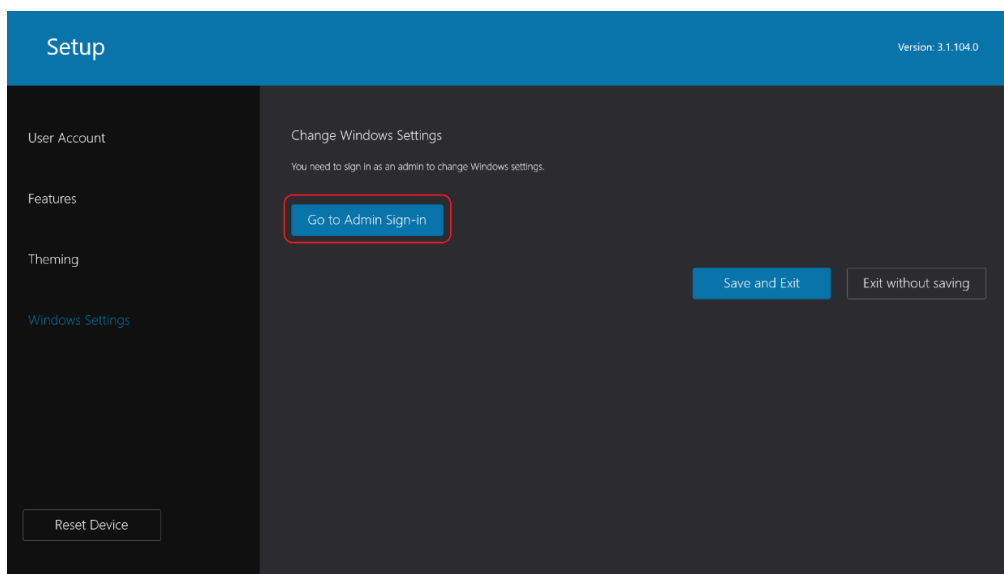
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Deleting Credentials

To delete the credentials from the Hub,

1. Click on Settings
2. Enter the admin password
3. Click on "Windows Settings"
4. Click on "Reset Device"

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

Integrated Display

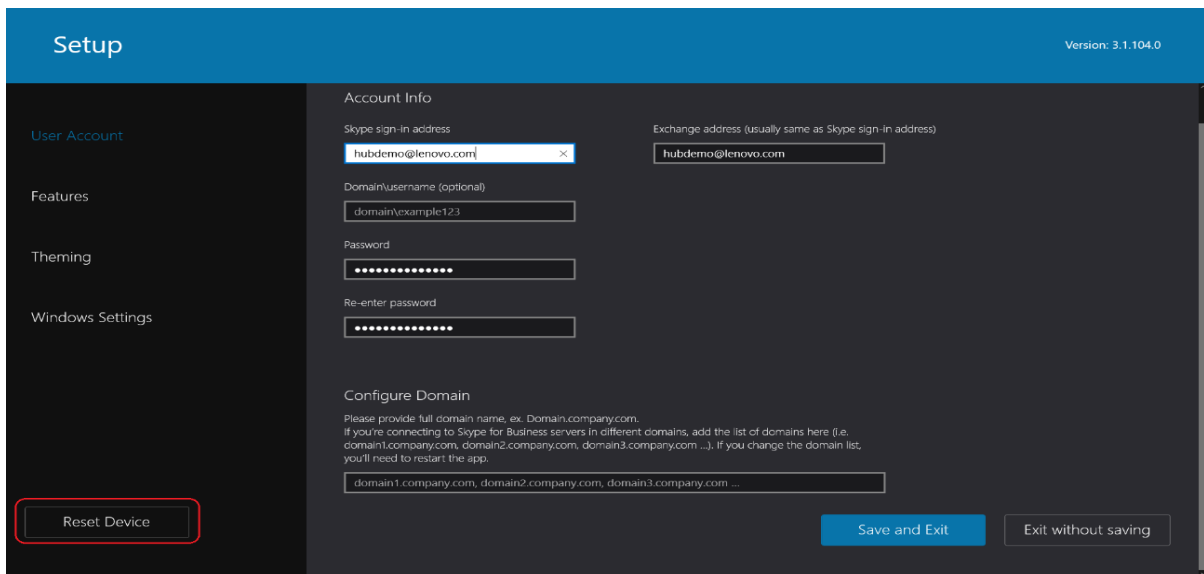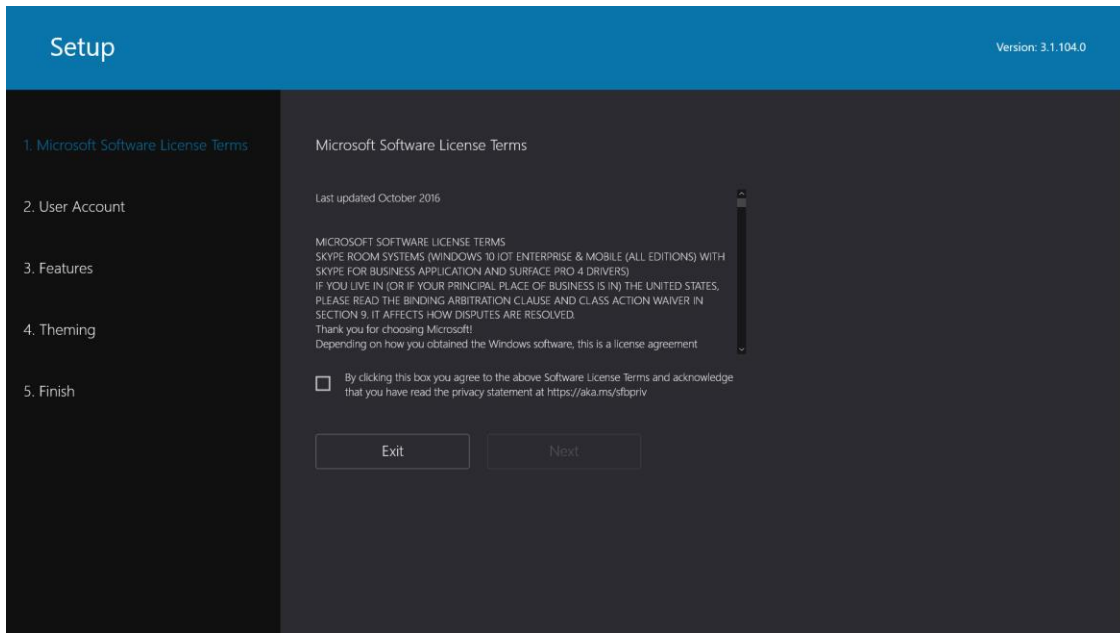The Hub 500 comes with an integrated 11.6" touch display. This display is fixed and cannot be detached. This display **acts as a command control** from which meetings can be joined, participants managed and Hub configured.

The integrated display does not show any meeting content such as video or content share. The integrated display only provides configuration and meeting management capabilities.

Skype Room Systems Language

To change the Skype Room Systems app display language,

1. Click on ⚙ and select settings
2. Input the admin password

3. Select Windows Settings and click on Go to Admin Sign-in
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"
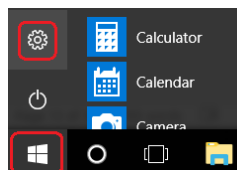
6. Select "Time & language"
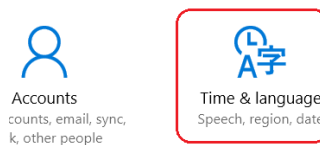
7. Select "Region & language" and click on "Add a language"
8. Select the language of your choice and once listed, click on it and make it default
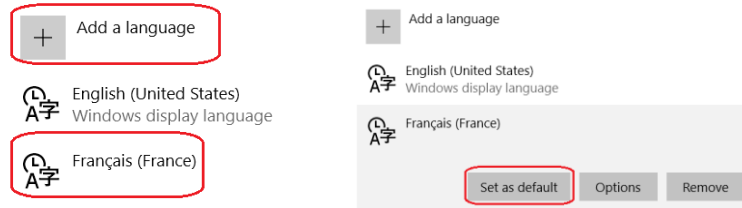
9. From Windows Search, search for "cmd" , right-click on "Command Prompt" and click on "Run as administrator"
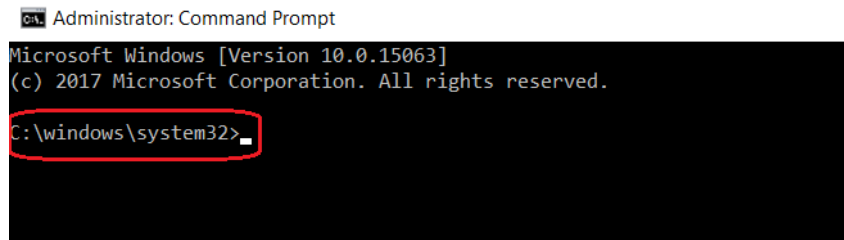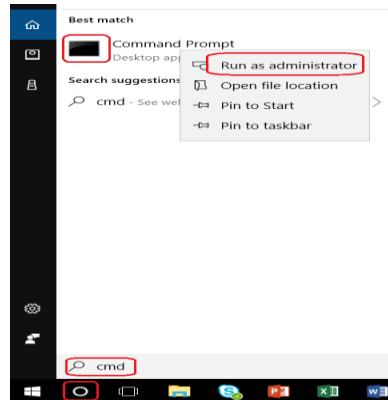
10. Type the following command and hit on **Enter** from the external keyboard or if using onscreen keyboard, click on [↵] twice

powershell -executionpolicy unrestricted
c:\Rigel\x64\scripts\provisioning\scriptlaunch.ps1 ApplyCurrentRegionAndLanguage.ps1
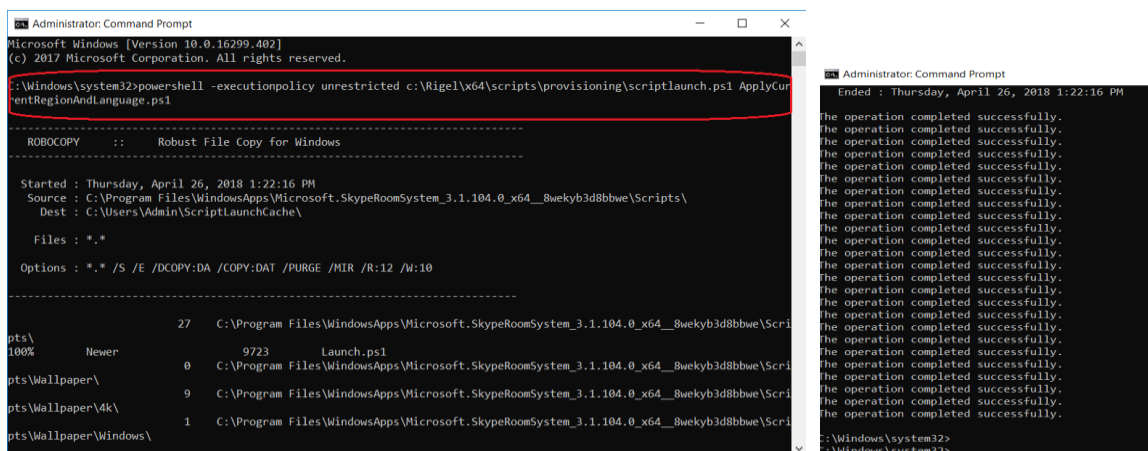
11. Restart Windows and when the Hub 500 reboots, the chosen language will be used in Skype Room Systems app.
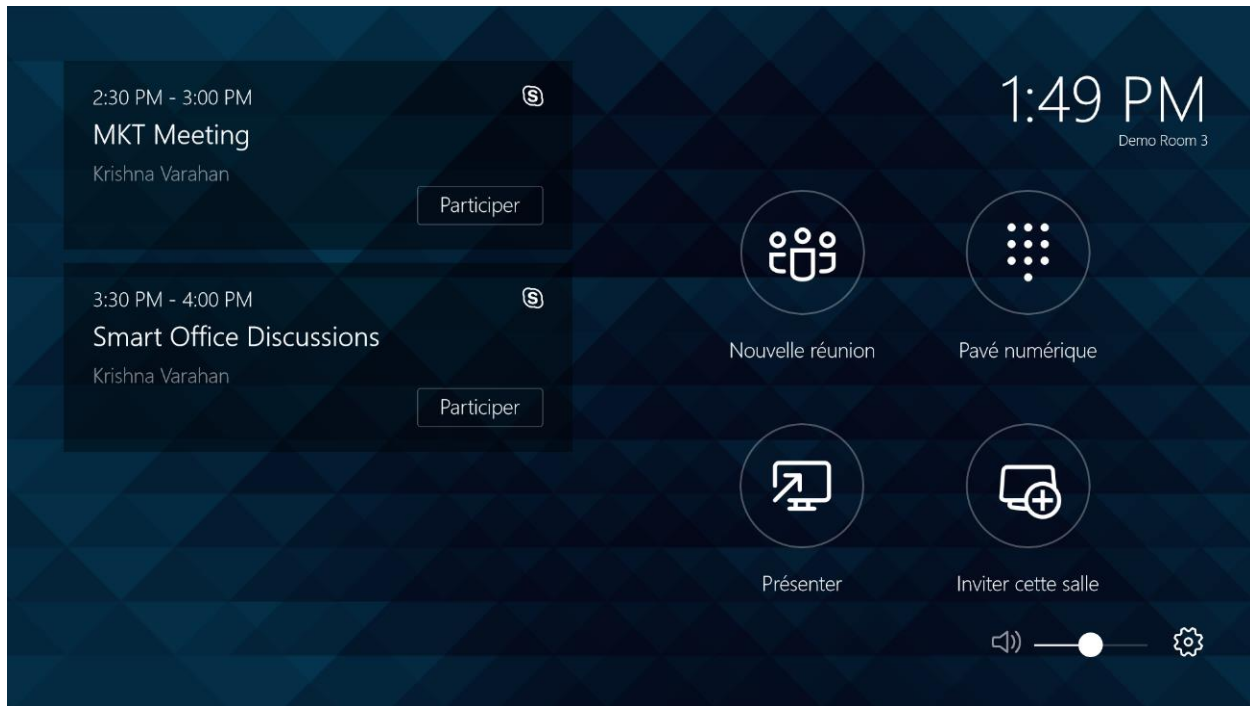
Custom Theme

The Skype Room Systems (SRS) app that is running on the Hub 500 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\LocalSta te** directory is unavailable, then please run SRS app once. The directory will be generated only when the SRS app is run atleast 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\Lo calState
3. Go to File Explorer Options and ensure the "Hide extensions for known file types" checkbox is unchecked.
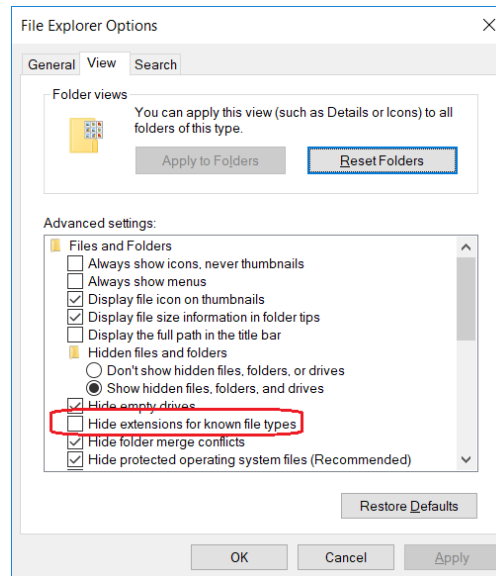
4. Create a new file and name it "SkypeSettings.xml"
5. Open the newly created xml file and add the following content,

```
<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 Hub 500.

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

External HDMI Displays

The Hub 500 has two HDMI ports located in the back and can drive two external displays at 1920x1080 (HD) resolutions. To fully experience the Hub 500, at-least one external display is recommended to be connected to the Hub. The purpose of the external display is to show the Video and Content from the remote participants. If there are multiple meeting participants with Video, the large display will split the screen accordingly to show Video from the participants.

Single External Display	**Single External Display**
Remote Video Feed 1 / Remote Video Feed 2	Remote Video/Content Share
HDMI	HDMI
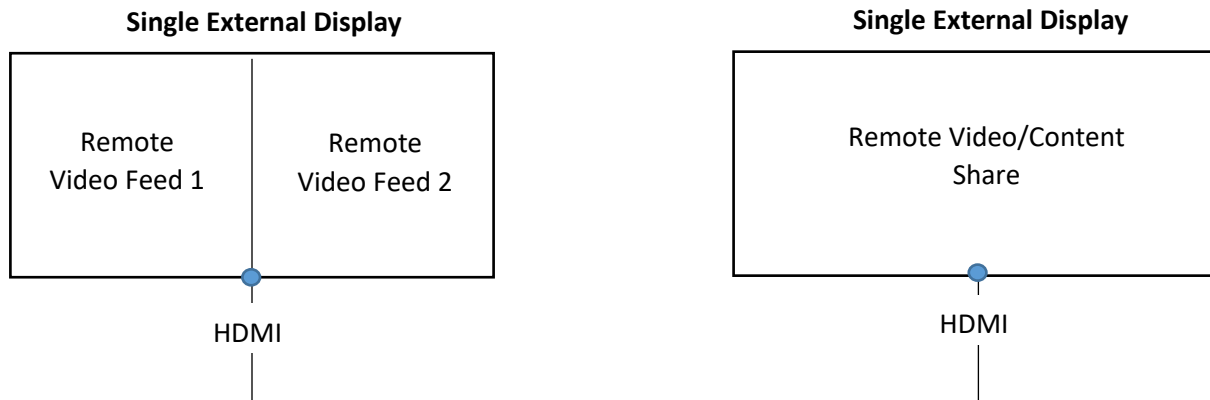
When the Hub is connected to a single external display, the remote video feeds are shared within that external large display. If there are two remote video participants, the screen will be split to show two feeds and so on. When there is a remote content share, the large display will show the content share and will suppress the video feeds

Dual External Display

Remote Video Feeds	Remote Content Share
HDMI	HDMI
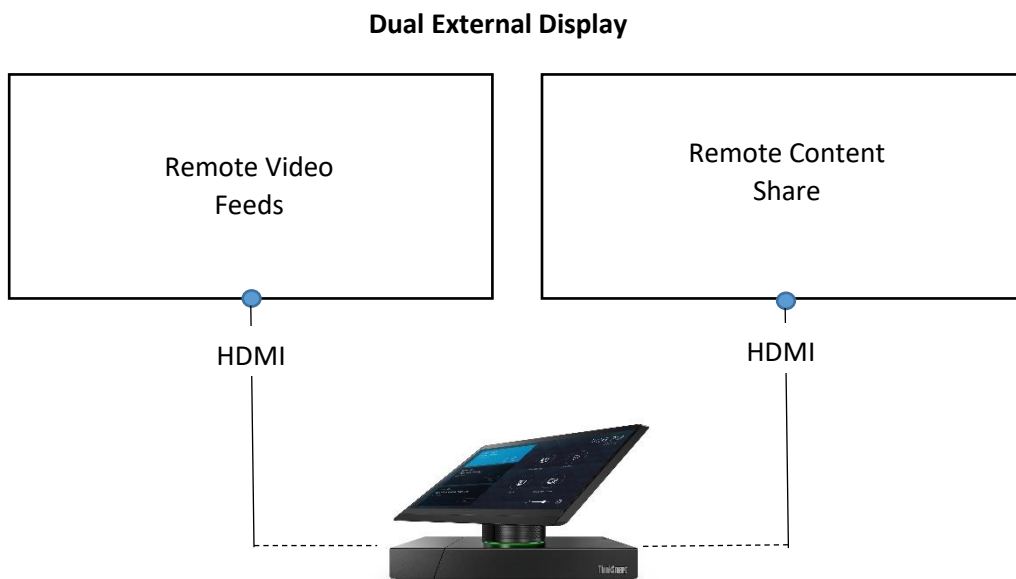
When there are two external displays connected to the Hub, the Hub will allocate one external display to show remote video feeds and the other display will be reserved for content sharing. This setup will provide the capability to see remote video feeds and remote content share at the same time.

Microsoft Teams

Requirements

1. Microsoft Office 365 account with Teams license enabled
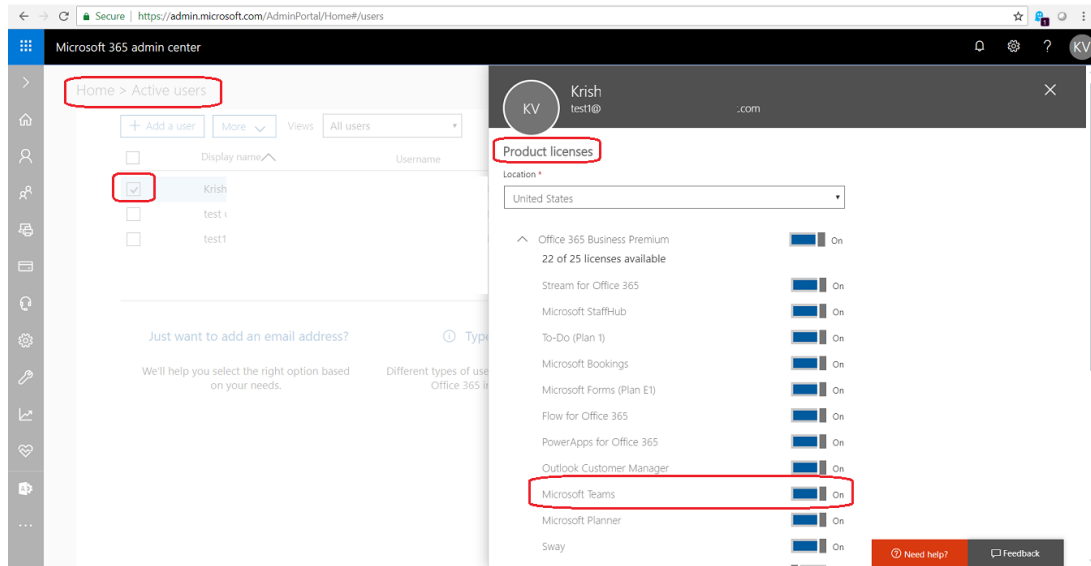
Enable Teams Support on Hub 500

The latest version (4.0.18.0) of the SRS app running on the Hub 500 supports Microsoft Teams meetings.

To enable Microsoft Teams support on the Hub 500,

1. Click on [gear icon] and select settings
2. Input the admin password
3. Click on User Account
4. Go to Supported meeting mode list
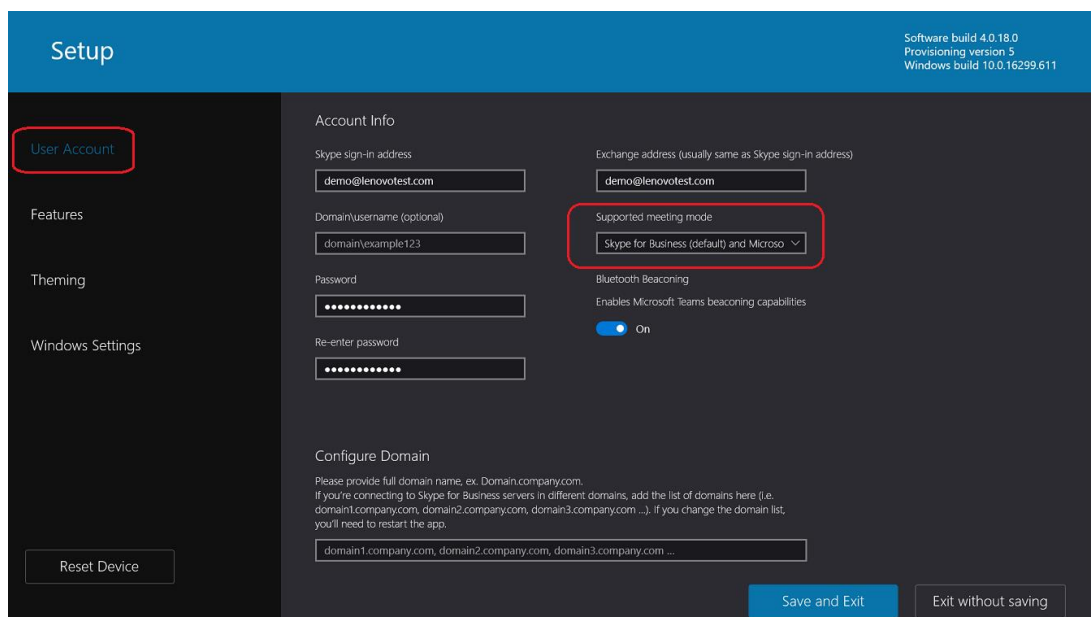
5. Choose "Skype for Business and Microsoft Teams (default)" option
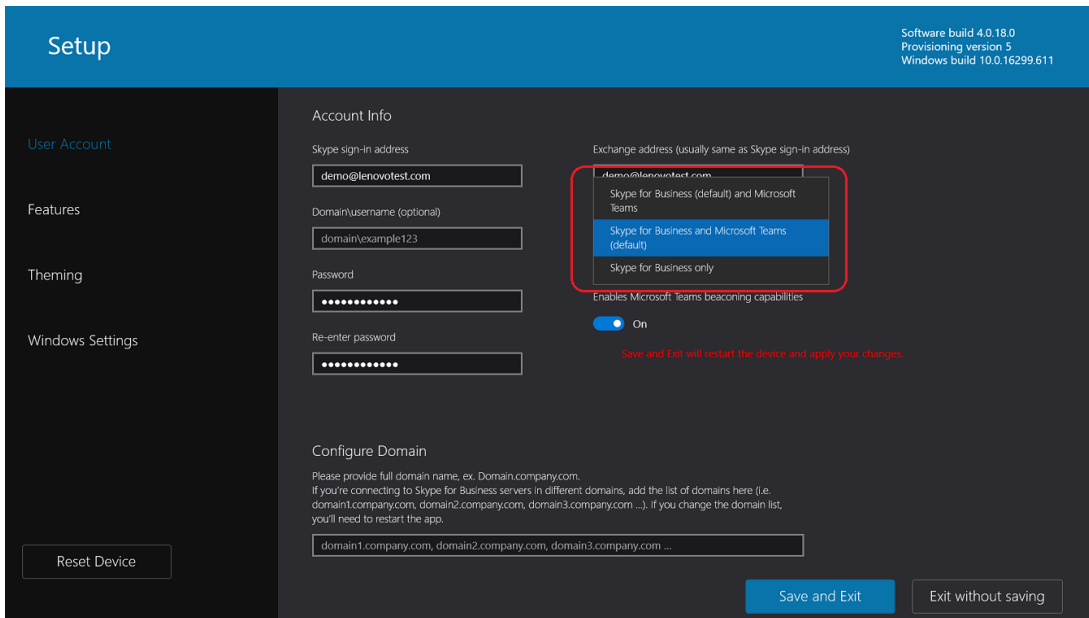
6. Select "Save and Exit"
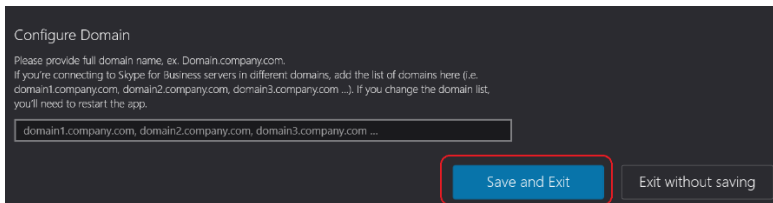
The Hub 500 will reboot and will attempt to login with the provided Microsoft Teams account.
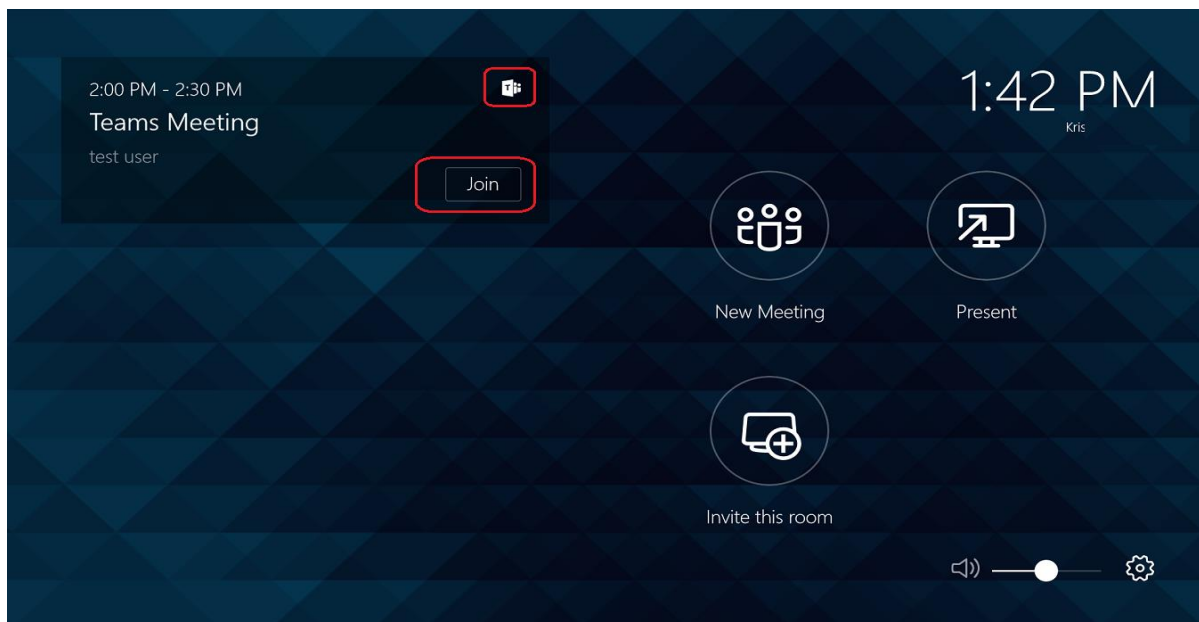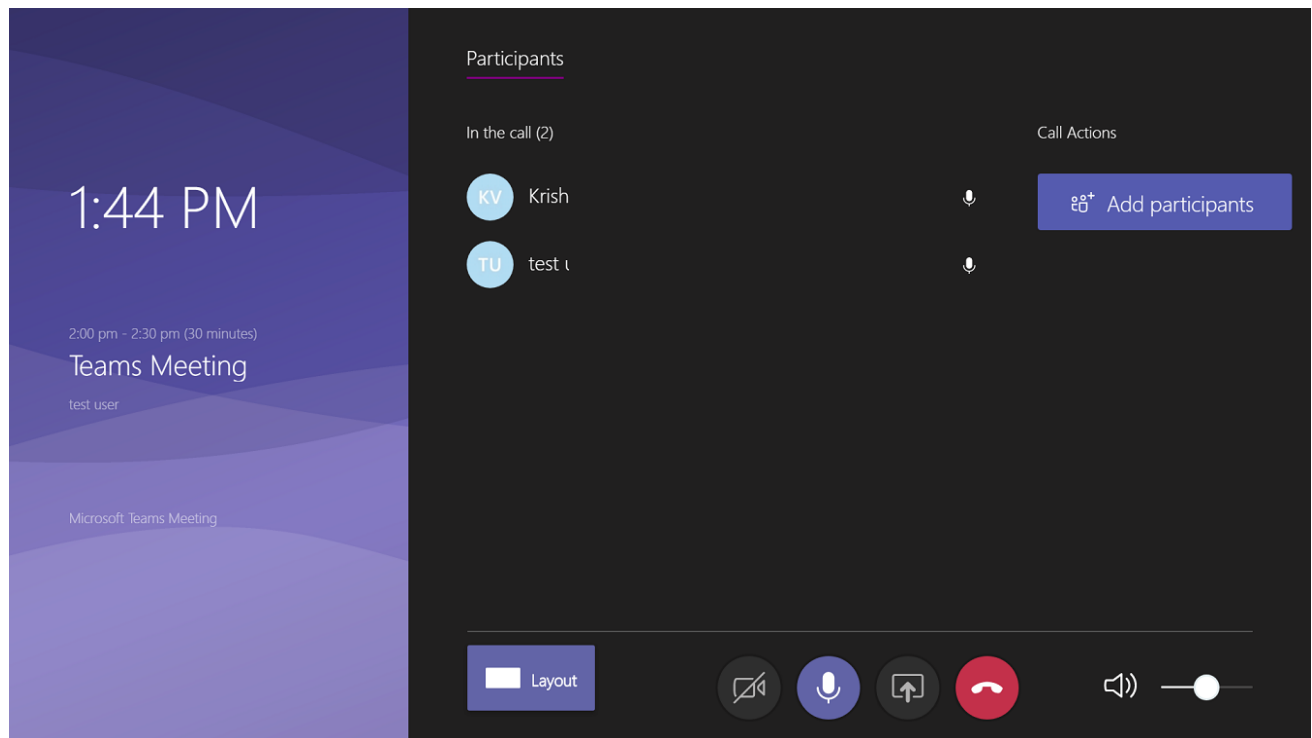
Power Management

The Hub 500 comes equipped with an IR based human proximity sensor, which detects motion directly in the line of sight of the sensor and to an extent 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 Hub 500 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 SRS app runs 24/7 in the background even if the integrated display is in standby mode.

The Hub 500 does not support HDMI CEC.

Content Sharing

The Hub 500 supports two modes of content sharing, Skype for Business or Lync session based content share and wired HDMI based content share.

Skype for Business / Lync content sharing

Skype for Business or Lync clients running from client devices such as smartphones, tablets, PCs, etc can share their content and screen share through the Skype or Lync session. When such content is being shared, the Hub 500 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 Hub 500 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 the screen of the client device onto the large screen.

Powering Off

The Hub 500 can be powered off by pressing and holding the power button for 4 seconds. This will cause the Hub 500 to power down.

User Data and Privacy

The Hub 500 is a real-time communication device and is not a personal device. No user data can be stored in the Hub. All data within the context of the Hub 500 is transient and are not stored permanently. All screen sharing or content sharing happens from client devices such as laptops, smartphones, etc. that are connected via Skype for Business or Lync sessions or via HDMI Ingest.

Lenovo does not gather any usage statistics or any kind of user or device data from the Hub 500.

Cable Management

The ThinkSmart Hub 500 delivers a custom cable management solution designed to keep all the connected cables securely in place. The cable management mechanism is located at the back of the Hub 500.

A single flat-head screw fastens the cable management bay; unlocking this screw will provide access to the device ports.

The cable management bay houses an "arm" that is designed to keep the cables securely locked. (Picture below)

A lock as highlighted in red below locks the arm in place. Pushing the lock to the **right** will release the arm. A similar mechanism is extended to the HDMI-IN cable as well and is highlighted in the picture below. To release the arm for the HDMI-IN, push the lock to the **left** to open the arm that secures the HDMI-IN cable.

Insert the cables to the appropriate ports and then align the cables into the corresponding grooves and then close the arm and secure it to the lock (shown below)

Note: Upto 40lbs of force might be required to lock the arm in place.

Once all the cables are securely connected and locked in place. Close the cable management bay to look as shown below.

Push Button Reset (PBR)

Lenovo Hub 500 supports Windows Push Button Reset (PBR) functionality. This feature restores the Hub to its factory state.

To reset the Hub 500 to factory state,

1. Connect an external keyboard to the Hub 500 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"
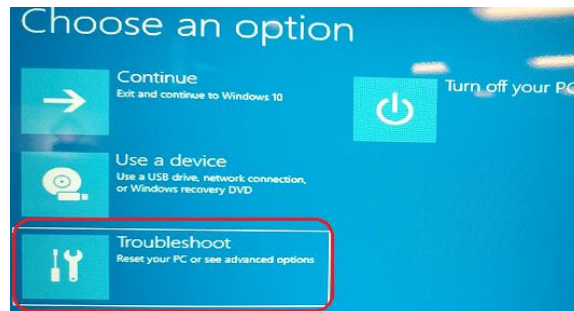
4. Select "Reset this PC"
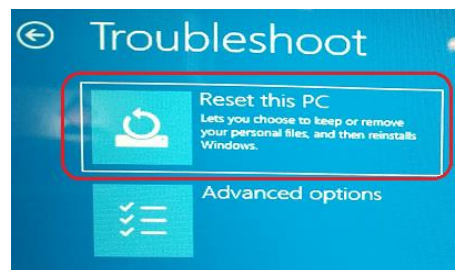
5. Select "Remove everything"
   Note: Recovery via "Keep my files" is not supported.
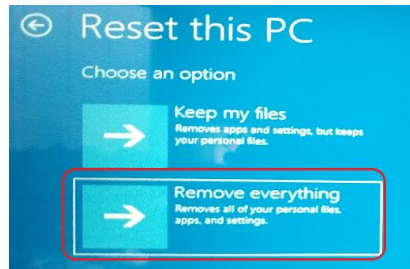
6. Select "Just remove my files"
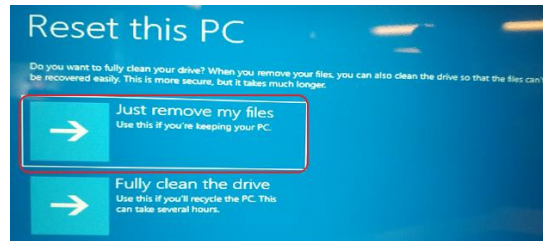
7. Click on "Reset"
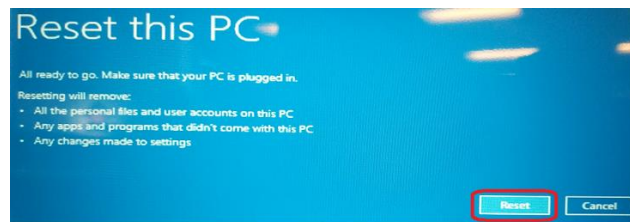
At this point, the process of resetting the Hub 500 to its factory state will begin. Please do not power off or restart the Hub.
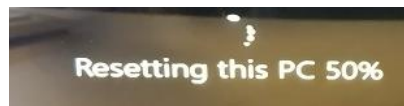
The entire process may take a few hours. Once complete, the Hub will be restored to its original factory state. Please refer Initial Setup.

Hub 500 Management

The Hub 500 can be managed via standard Mobile Device Management (MDM), essentially the same way a regular Windows device within an infrastructure is managed. All Software updates and Driver updates are delivered via standard Windows Update.

Please refer,

https://technet.microsoft.com/en-us/library/mt790549.aspx

https://technet.microsoft.com/en-us/library/mt797749.aspx

FAQ

1. **Does the Hub 500 come with all the necessary software pre-installed?**
   Yes, the Hub 500 comes with factory imaged Windows 10 IoT and installed with all the necessary software. The only customer requirements are Skype for Business or Lync credentials to run on the Hub. Please refer Hub 500 Requirements

2. **How are the drivers, software, BIOS updates delivered?**
   All software updates and driver updates will be delivered via Windows update. BIOS updates will need to be manually done by downloading from the Lenovo support portal.

3. **Do I need to install an antivirus on the Hub 500?**
   By default, Windows 10 IoT is secured via Windows Defender. Organizations can however choose the best protection they need based on their requirements.

4. **Does the Hub support Consumer Electronics Control (CEC)?**
   No, the Hub 500 does not support CEC

5. **How to manage Hub 500 via Microsoft Operations Management Suite (OMS)?**
   Please refer to https://technet.microsoft.com/en-us/library/mt797749.aspx

6. **Does the Hub 500 support PXE boot?**
   Yes, the Hub 500 supports PXE boot

7. **What are the network bandwidth requirements to have an optimal audio and video performance?**

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

8. **Does the Hub 500 support Wi-Fi connection?**
   A wired Ethernet connection is required to connect to the network from the "Skype" account. Wifi is supported in the HW but is not recommended as a replacement for a wired connection.

9. **What are the list of supported peripherals like cameras, extended microphones/speakers?**
   The Hub 500 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
   https://partnersolutions.skypeforbusiness.com/solutionscatalog/personal-peripherals-pcs
   https://technet.microsoft.com/en-us/library/mt790552.aspx

10. **Does the Hub 500 use Microsoft Surface Pro tablet?**
    No, the Hub 500 has an integrated 11.6" touch panel and does not use the Microsoft Surface Pro series tablets.

11. **Does the Hub 500 support wireless display?**
    No, the Hub does not support wireless displays.

12. **How are external cables secured in the Hub?**
    The Hub offers a cable management solution in the back of the unit. This solution keeps all the cables like HDMI, USB and Power cables securely connected to the unit. Please refer to the Cable Management section of this document.

13. **What are the supported external cable diameters/types?**

Cable Type	Supported Diameter Range
HDMI	5mm to 7.5mm
USB	3.5mm to 6mm
Power	3.5mm to 4.5mm

    Recommended HDMI/USB cables are cables with an external nylon mesh sheathing. These cables have better grip and will stay securely in place. For power cable, place the barrel inside the bay, the barrel will prevent the cable from slipping through the locking arm.

14. **Is the Hub 500 compatible with Mac?**
    ThinkSmart Hub 500 runs the Microsoft Skype Room Systems software on a Windows 10 IoT Enterprise OS and the Skype for Business clients are supported on Windows, Android, Mac and iOS. The HDMI Ingest to share content via the Hub 500 supports all the OS mentioned above. Refer Wired HDMI content sharing

15. **Can I use the Hub 500 as a PC?**
    No, the Hub 500 is an appliance and is designed to be a Skype based tabletop conference room AV device.

16. **Are there any Lenovo specific software installed on the Hub 500?**
    None, the Hub 500 comes with Windows 10 IoT Enterprise OS and Microsoft Skype Room Systems Software pre-installed along with all the necessary drivers required to drive the Hub 500. There are no other software installed.

17. **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 via Skype for Business / Lync sessions. The Hub does not support storing any user data for sharing during meetings.

18. **Can the Hub 500 work with HDMI extenders via Ethernet?**
    Yes, the Hub 500 is a standard HDMI complaint device and has been tested to work with products like AMX DXLink HDMI transmitters and receivers.

19. **Does the Hub 500 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.
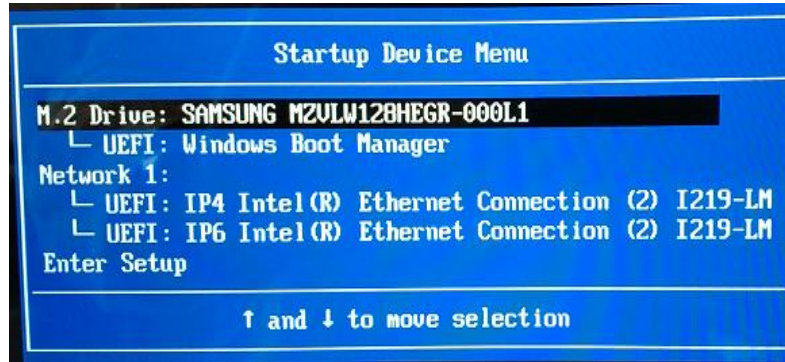
20. **Does the Hub 500 support USB boot?**
    Yes, the Hub 500 supports USB boot. Insert a USB key in one of the USB ports and follow the same process as outlined in **Does the Hub 500 support network boot?** question above.

21. **Does the Hub 500 support deployment via SCCM?**
    Yes, the details are available here http://thinkdeploy.blogspot.com/2018/04/preparing-thinksmart-hub-for-skype-room.html

22. **Does the Hub 500 support Zoom or WebEx?**
    No. The Hub 500 supports Skype for Business only. UC's like Zoom, WebEx and others are not supported currently.

23. **What are the TCP/IP ports that must be opened in the infrastructure?**
    Below are the basic default ports SRS will need, there maybe other requirements based on your environment, please refer to the links below.

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

https://docs.microsoft.com/en-us/skypeforbusiness/plan-your-deployment/clients-and-devices/srs-v2-prep

https://support.office.com/en-us/article/Office-365-URLs-and-IP-address-ranges-8548a211-3fe7-47cb-abb1-355ea5aa88a2?ui=en-US&rs=en-US&ad=US#BKMK_Identity

24. **How to configure network proxy for the Hub 500?**

The Proxy configurations are outlined here,
https://docs.microsoft.com/en-us/SkypeForBusiness/plan-your-deployment/clients-and-devices/srs-v2-prep#proxy

Troubleshooting

1. **No display on the integrated display**

   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.

2. **No display on the external display**
   a) Ensure an HDMI cable is properly connected to one of the HDMI OUT ports on the back of the Hub
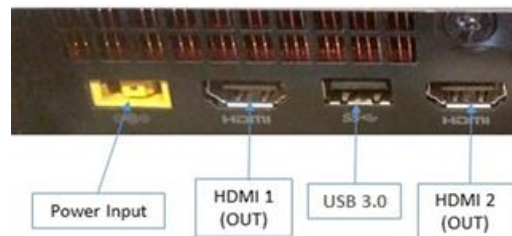
   b) Ensure the HDMI cable is not faulty or loose
   c) Ensure the external display Video source is set to the correct source HDMI port
   d) Try to connect the HDMI cable to another HDMI OUT port in the back of the Hub
   e) Try another HDMI cable
   f) Try restarting the Hub

3. **Dialpad is 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

4. **No content shown on the second display**
   a) Ensure both displays are properly connected to HDMI OUT 1 and HDMI OUT 2 on the back of the hub
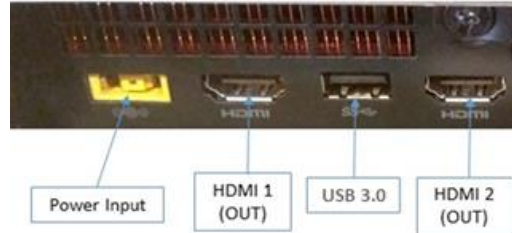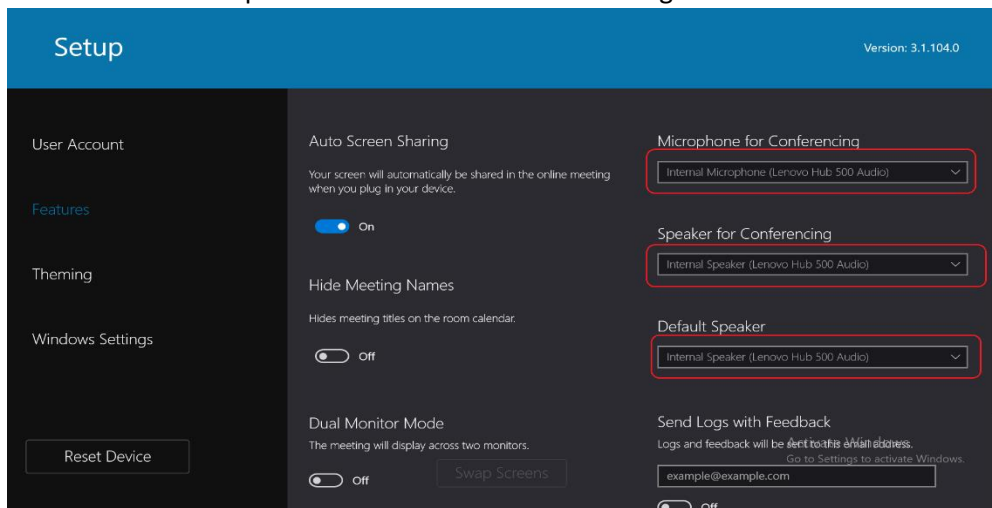

   b) Ensure the Dual Monitor mode is turned on in SRS settings
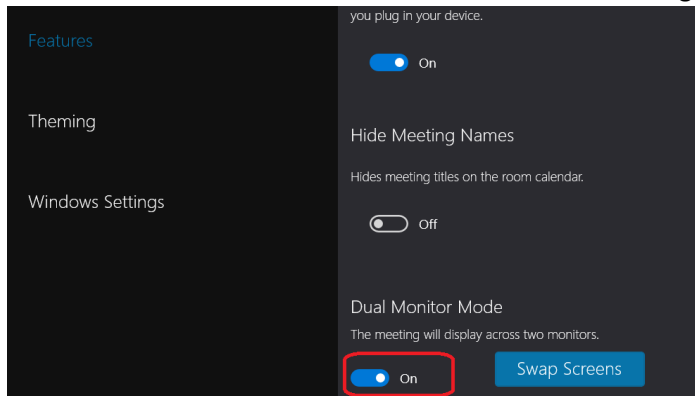
   For further troubleshooting, follow steps outlined in **No display on the external display.**
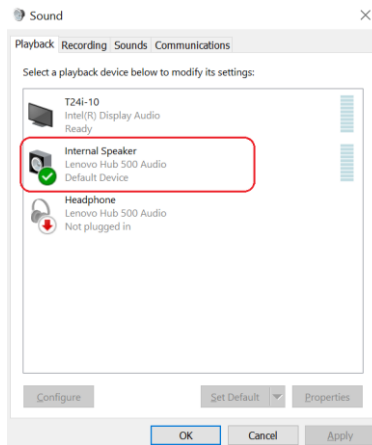
5. **No audio from the internal speakers**
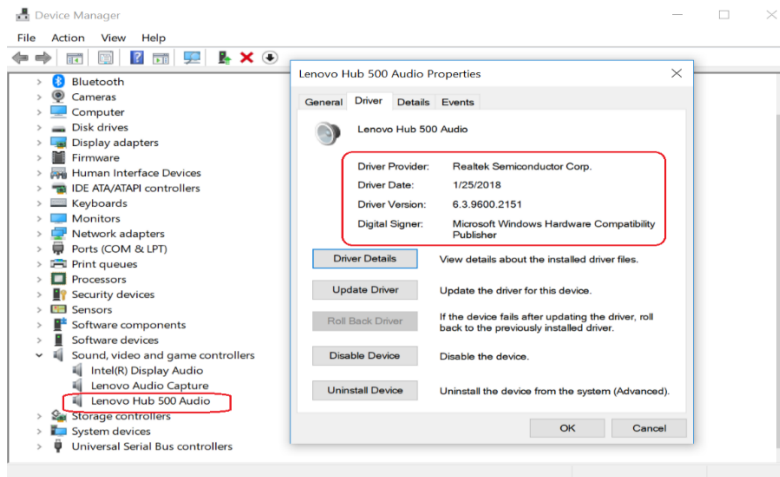   a) Ensure the correct speaker is selected in the SRS Settings UI

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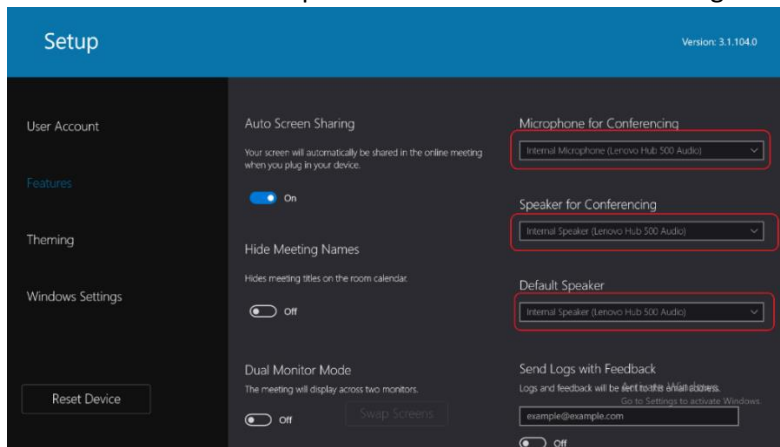

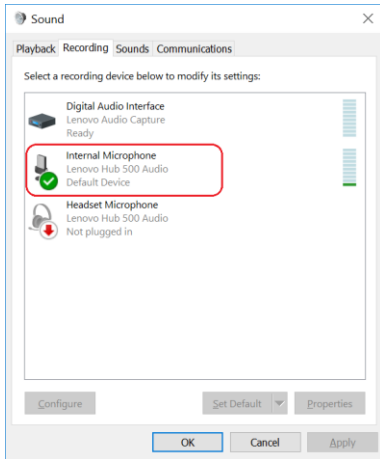c) Open Device Manager and ensure the audio driver is installed properly.

6. **Internal microphone is not working**
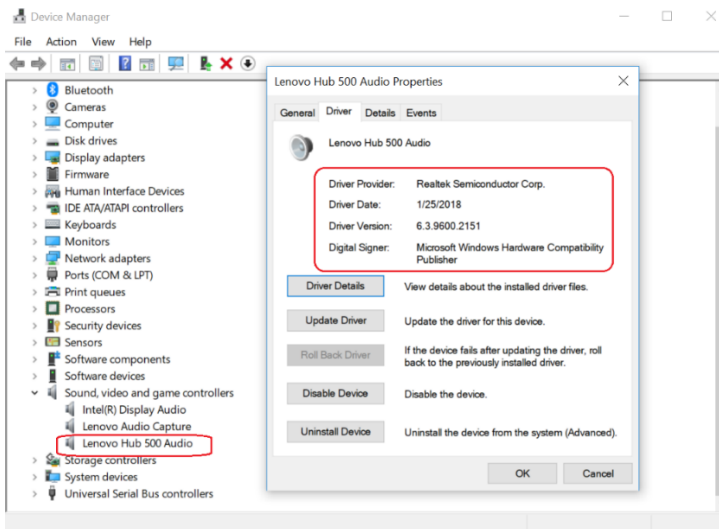   a) Ensure the correct microphone is selected in the SRS Settings UI

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

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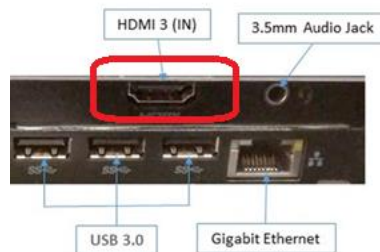

7. **Reset SRS credentials**
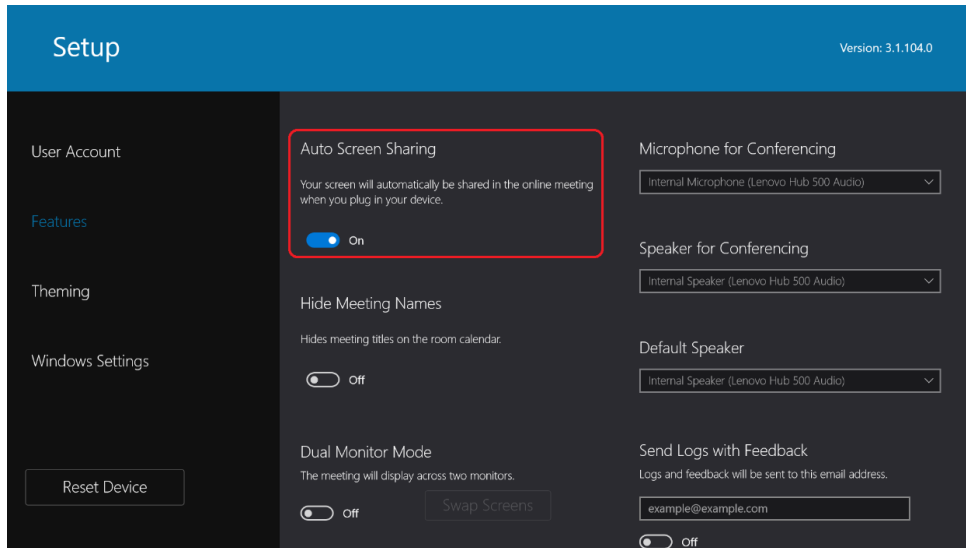   a) Refer [Deleting Credentials](#)

8. **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 Auto Screen Sharing is enabled in the SRS 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.

Useful links

https://technet.microsoft.com/en-us/library/mt790550.aspx
https://technet.microsoft.com/en-us/library/mt790549.aspx
https://docs.microsoft.com/en-us/skypeforbusiness/plan-your-deployment/clients-and-devices/skype-room-systems-v2-0
http://thinkdeploy.blogspot.com/2018/04/preparing-thinksmart-hub-for-skype-room.html
https://docs.microsoft.com/en-us/skypeforbusiness/plan-your-deployment/clients-and-devices/srs-v2-prep
https://support.office.com/en-us/article/Office-365-URLs-and-IP-address-ranges-8548a211-3fe7-47cb-abb1-355ea5aa88a2?ui=en-US&rs=en-US&ad=US#BKMK_Identity
https://docs.microsoft.com/en-us/skypeforbusiness/deploy/deploy-clients/room-systems-v2-configure-accounts
https://docs.microsoft.com/en-us/SkypeForBusiness/plan-your-deployment/clients-and-devices/srs-v2-prep#proxy

Version History

Date	Version	Comments
06/15/2018	v18	• Clarified FAQ on Wifi • Clarified on optimal mic distance • Updated requirements
06/25/2018	v19	• IP ports and proxy
08/31/2018	V20	• Updated with Microsoft Teams information
09/07/2018	V21	• Minor updates