

# TeamStream

**Wireless Huddle Room System**

**User Manual**



# TS-100

## SAFETY INSTRUCTIONS

Please review the following safety precautions. If this is the first time using this model, then read this manual before installing or using the product. If the product is not functioning properly, please contact your local dealer or Aurora for further instructions.



The lightning symbol in the triangle is used to alert you to the presence of dangerous voltage inside the product that may be sufficient to constitute a risk of electric shock to anyone opening the case. It is also used to indicate improper installation or handling of the product that could damage the electrical system in the product or in other equipment attached to the product



The exclamation point in the triangle is used to alert you to important operating and maintenance instructions. Failure to follow these instructions could result in injury to you or damage to the product.



Be careful with electricity:

- **Power outlet:** To prevent electric shock, be sure the electrical plug used on the product power cord matches the electrical outlet used to supply power to the Aurora product. Use only the power adapter and power connection cables designed for this unit.
- **Power cord:** Be sure the power cord is routed so that it will not be stepped on or pinched by heavy items.
- **Lightning:** For protection from lightning or when the product is left unattended for a long period, disconnect it from the power source.



Also follow these precautions:

- **Ventilation:** Do not block the ventilation slots if applicable on the product or place any heavy object on top of it. Blocking the air flow could cause damage. Arrange components so that air can flow freely. Ensure that there is adequate ventilation if the product is placed in a stand or cabinet. Put the product in a properly ventilated area, away from direct sunlight or any source of heat.
- **Overheating:** Avoid stacking the Aurora product on top of a hot component such as a power amplifier.
- **Risk of Fire:** Do not place unit on top of any easily combustible material, such as carpet or fabric.
- **Proper Connections:** Be sure all cables and equipment are connected to the unit as described in this manual.
- **Object Entry:** To avoid electric shock, never stick anything in the slots on the case or remove the cover.
- **Water Exposure:** To reduce the risk of fire or electric shock, do not expose to rain or moisture.
- **Cleaning:** Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- **ESD:** Handle this unit with proper ESD care. Failure to do so can result in failure.

### FCC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference.
- (2) This device must accept any interference received, including interference that may cause undesired operation.



This device is in compliance with Japanese Radio Communications Laws.

### Trademarks

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## Features

- ◆ Automatically detects supported VESA resolutions over VGA and HDMI
- ◆ Supports mirrored and extended display on Windows
- ◆ Supports mirrored display on macOS
- ◆ Can transmit smart devices' screen, photos, videos, music and more
- ◆ Supports mirroring device output to WirelessMedia mobile apps
- ◆ Supports controlling inputs from mobile apps
- ◆ Airplay support for Apple devices
- ◆ Multiple inputs: 3 x HDMI, 1 x VGA
- ◆ 3 local HDMI inputs with 4K@60Hz support
- ◆ 4K@60Hz, 4K@30Hz and 1080p output resolutions supported
- ◆ HDCP compliant
- ◆ Easy-to-use panel and web GUI
- ◆ Controllable via front panel controls as well as Lan and RS232
- ◆ Controls external devices with RS232, GPIO and relays



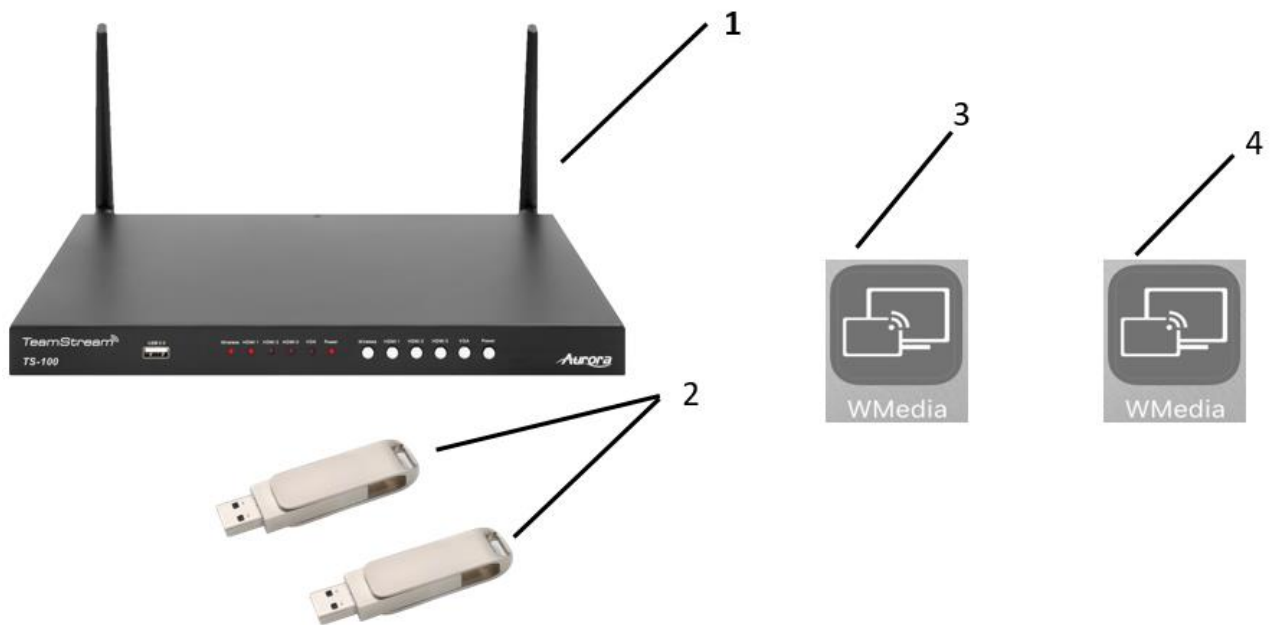
## INTRODUCTION

### About

The TeamStream TS-100 is Aurora's new 4K wireless and wired huddle room collaboration system which not only supports 4K wireless presenting from Windows, macOS, Android and iOS devices, but also adds 3 HDMI and 1 VGA input for your local display sources.

### TeamStream Set Components

A typical TeamStream Set includes two key fobs, one Base Unit, the "WMedia for Android" APK, and the "WMedia for IOS" APP. Depending on your application or the size of the meeting room, more key fobs can be added as needed.



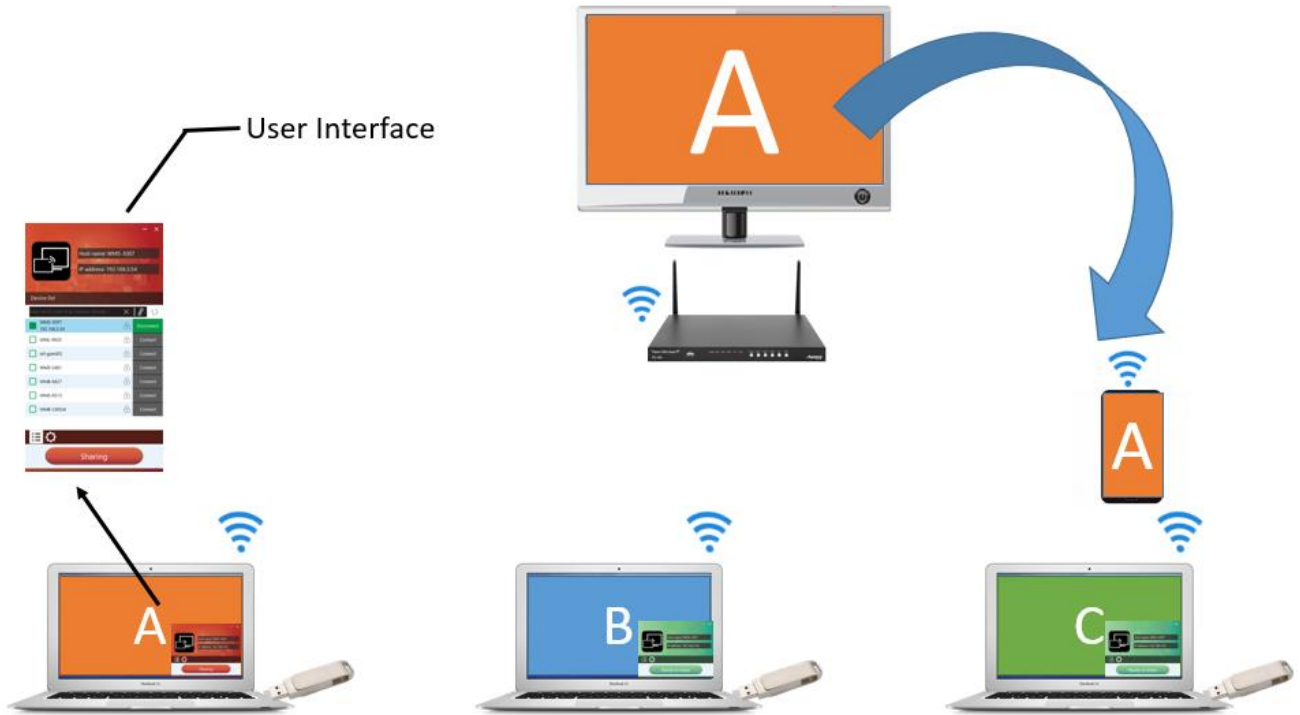
## Components

ID	Name	Description
1	TeamStream base unit	TeamStream primary hub
2	TeamStream key fob	Key fob with TeamStream software for Windows and macOS
3	WMedia for Android	Android app for screen sharing, transmitting photos/music/video/files, exchanging files, remote viewing of the display, and remote mouse
4	WMedia for iOS	iOS app for screen sharing, transmitting photos/music/video/files, exchanging files, remote viewing of the display, and remote mouse

## Accessories List

ID	Name	Description
1	Antenna	2 pcs of antenna are included in the box. To avoid damage, they are not pre-mounted. The antenna can rotate for a better wireless connection
2	Power adapter	International plug and inter-changeable power adapter; plugs include US, Europe, UK, and Australia standard

## TeamStream Key Fob and TS-100 System





## Specifications:

### Specifications of TeamStream key fob on Windows

Features	
SW format	TS-100.exe for Windows
Security	WPA/WPA2
Required Windows OS	Windows XP/Vista/7/8/8.1/10 and above, 32 & 64 bit
Video Capacity	Wireless Transmission 1080P@ < 30Hz
Distance	35m without obstacle between laptop WiFi module and AS-100
Control	
Button	Visual button on laptop
Indicator	Green/Red visual indicator on visual button

### Specifications of TeamStream key fob on macOS

Features	
SW format	TS-100.app for macOS
Security	WPA/WPA2
Required Windows OS	macOS 10.13
Video Capacity	Wireless Transmission 1080P @ < 30Hz
Distance	35m without obstacle between lap-top WiFi module and AS-100
Control	
Button	Visual button on laptop
Indicator	Green/Red visual indicator on visual button

### Specifications of TS-100

Supported Formats	
Video Input Formats	1x Wireless, 3x HDMI, 1x VGA
Format Compliance	WiFi 11n/ac
Video Output Formats	1x HDMI with CEC
Video Output Resolution	1920x1080@60Hz, 3840x2160@30Hz/60Hz, 1920x1200@60Hz
Format Compliance	HDMI1.4/HDMI2.0
Audio Input Formats	1x analog audio in
Audio Output Formats	HDMI: embedded digital audio De-embedded analog stereo audio: 20 kΩ impedance
Inputs Connectors	

Wireless Input	WiFi 11n/ac
<b>Outputs Connectors</b>	
HDMI Output	1x HDMI 19-pin female connector
Analog Audio Output	1x 3.5mm PC audio female connectors
<b>Features</b>	
Number of window simultaneous on screen	1
Number of simultaneous connections	< 14
Data rate wireless	Up to 300Mbps, depending on the WiFi module of the laptop
Video Playback Frame Rate	20-30 FPS
Latency of wireless	100-130ms (lowest latency mouse lower to 20ms)
Wireless transmission protocol	IEEE 802.11 a/g/n/ac
Frequency band	2.4 GHZ and 5 GHZ
Video Capacity:	1080P @ < 60Hz Airplay for iOS devices 1080P @ < 60Hz TS-100.apk for Android 1080P @ < 30Hz for TS-100.exe for Windows 4K @ < 60Hz for wired HDMI
Remote Viewing	Mirroring remote view on mobile by app installed
Mobile Capability	Free IOS app, Free Android app
Encryption	AES WPA PSK, WPA2 PSK
Remote Mouse	Remote control presenter's PC Support 1080P maximum 30 fps over wireless channel Adopt H.264 compression tech on the transmitter
"TS-100 C"	35m distance between transmitter and base unit, "Auto-password" for each meeting or class for security, Real-time remote viewer of the main screen from mobile device app, Preview Windows, enable preview windows to monitor each lap-top Low-latency mouse, minimum 20ms latency for mouse
Firmware 2.2	HDMI AUTO-switch, auto-switch between HDMI input and wireless input Airplay 2.0, supports airplay 2.0 device

Firmware 3.0

- Segmented Dual Network, staying both Guest network and Corp network
- Security Levels, enables three different security level
- Win10 Extended Desktop, enables presenter mode
- White Board & Annotation

## Control

On-Screen Setting Configuration Visual Button, by HID mouse, or remote control on APP

Ethernet Telnet

Series 1x 3-pin terminal connector

GPIO 2x GPIO, 2-pin terminal connector

Relay 2x Relay, 2-pin terminal connector

## Mechanical

Dimensions (W x D x H) undetermined

Weight undetermined

## Environmental

Operating Temperature +32° to +104° F (0° to +40° C)

Storage Temperature -4° to +140° F (-20° to +60° C)

Humidity (Storage / Operating) 20% to 90% (non-condensing)

## Power

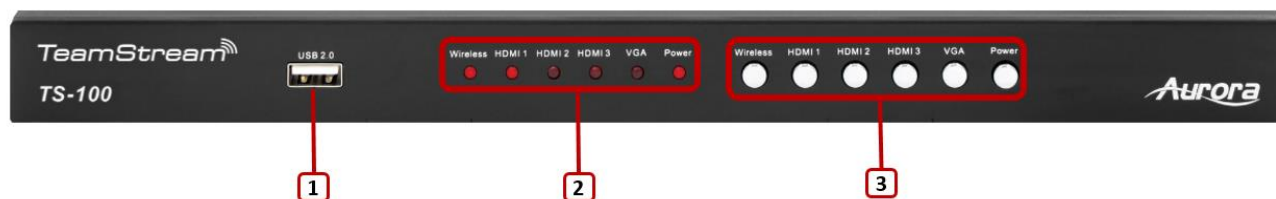
DC Power 12V

Power Consumption 10W (max.)

## Accessories Included

1x DC adapter with four plug-ins, US, Europe, UK, Australia

## Panel Layout



ID	Name	Description
1	USB 2.0	USB port is for updating via plugging USB disk with firmware
2	LEDs	To indicate the signal available and power on/off
3	Buttons	To switch the input signal and power on/off

### USB Port

- The USB port is used to update the software of the TS-100.
- You may pair the TS-100 and the key fob by plugging in the key fob.
- The USB port is used for creating or updating the launcher by clicking **Download** button when a USB stick is plugged in.
- You may connect a mouse to the USB port to access the **settings**, select the **HDMI** input, open the **help** page and choose the **source** device.

### POWER Button

The button at the front of the base unit has a power on/off function once the base unit is powered.

- When the system is powered on, pushing the power button makes the system shut down and power off.
- When the system is powered off, pushing the power button makes the system start up.
- Push the power button to enter standby mode.
- Push the power button to wake up the base unit.

## Rear Panel



ID	Name	Description
1	Antenna fixture points	Screw on the included two antennas to these two ports
2	DC power socket	Connect the included power adapter to this socket, and connect the plug to an available electrical outlet
3	LAN Ethernet port	Connect an Ethernet cable between this jack and a LAN to connect TS-100 to LAN. PoE is supported
4	Rear USB connector	USB port for key fob pairing, mouse control, USB touch screen and other uses
5	Reset	Reset button restores to the factory default setting
6	HDMI output	Connect an HDMI cable from this port to an HD or 4K/HDMI 2.0 display
7	Line audio output	2 channel analog audio output; Connect a 3.5mm mini-jack PC connector from this jack to the Line-In jack of an audio system
8	HDMI input 1	Connect a local HDMI input, up to 4K_60Hz, HDCP2.2 source device
8	HDMI input 2	Connect a local HDMI input, up to 4K_60Hz, HDCP2.2 source device
8	HDMI input 3	Connect a local HDMI input, up to 4K_60Hz, HDCP2.2 source device
9	VGA input	Connect a local VGA input
10	Line audio input	2 channel analog audio output, Connect a 3.5mm mini-jack PC connector from this jack to the Line In jack of an external audio source devices
11	Series Ports	Connect to the third-party control device
12	GPIO Ports	Connect to the third-party control device, to trigger some

		device toggle action
13	Relay Ports	Connect to the third-party device, to power on/off the device

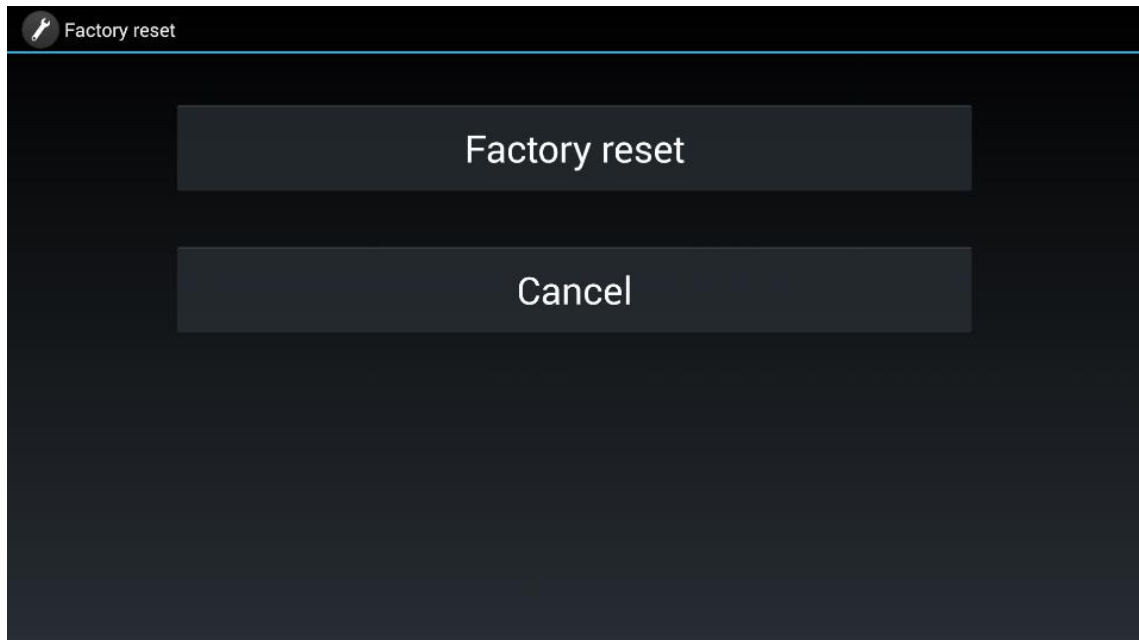
## Default Configuration

- Ethernet:
  - IP address
  - Ethernet MAC Address
  - Proxy: None
  - IP setting: DHCP
  - PPPOE setting: Disconnected
- Wireless network
  - Wireless network configuration wizard, Device name: TS-100-XXXX; Network mode: Wireless direct mode
  - Show SSID and PASS when mirroring: OFF
  - Auto change Wi-Fi hotspot password: 5 minutes
  - Disable password change hint dialog: OFF
  - Hide SSID, Password & IP in Status Bar: OFF
  - Lock Homescreen Status Bar: OFF
- Moderator Control:
  - Preview Windows: OFF
- General setting:
  - Auto copy software: OFF
  - Auto Standby: Never
  - Airplay screen quality: High
  - HDMI output resolution: 1920x1080@60Hz
  - Enable HDMI CEC: ON
  - HDMI input auto switch: Manual
  - Background image: Disable customized changeable background
  - Volume: 100
- Security setting

- Security level: Level 1
- LAN discovery & connection: Devices can see and connect to the TeamStream device via LAN and toggle WiFi connectivity
- Remote view lock: Disable viewing of the screen by mobile device
- Show PCs user status when mirroring: ON
- Clear history after meeting: Always
- Change admin password. (The default password is admin.)
- External Control Setup: Parameter and Control
- Language: English
- System update
- Date & time:
  - Automatic date & time: use network-provided time

## Restore default configuration via Reset button

- Start up the Base unit.
- When the *Home Page* is shown up, press the reset button at the real panel of TS-100. Press this button until the *factory reset page* is shown up as below, for at least 2 seconds.
- Use a mouse to connect to TS-100 and click *Factory Reset*. The Base unit will reboot after 3 seconds to be default configuration. Click *Cancel* to return.



- ⚠ **Attention:** The LAN connection is set to "disabled" when restored to the default configuration. If you want to have corporate LAN connection, you should turn it on. To understand how to turn on the device, please refer to the page *Security Setting*.



## TeamStream Key Fob Panel

The TeamStream key fob is used for toggling the mirroring from personal PC or MAC desktop on the main screen.



ID	Name	Description
1	USB connector	The USB connector can be plugged into a Windows PC/Laptop (for sharing your screen) or the base unit (for pairing the button to the base unit or updating its software)
2	Type-C connector	The USB connector can be plugged into a MAC book (for sharing your screen) or the base unit (for pairing the Button to the base unit or updating its software)

## Software Interface

### Home Page

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Step 1: Run the TeamStream app from the USB stick or download and run the app from 192.168.43.1:8000 or 192.168.3.82:8000 if connected by LAN.  
 Step 2: Connect to TS-100-2759 and enter the password above.  
 Step 3: Click 'Ready to Share' to share your screen

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Step 1: Download the WirelessMedia app from Google Play or the iOS App Store  
 Step 2: Connect over WiFi to TS-100-2759 and enter password above.  
 Step 3: Open the app and click 'Mirroring' to share your device's screen

ID	Name	Description
1	SSID (Service Set Identifier) Name	Connect the WIFI namely SSID name to connect the TS-100 hotspot.
2	PASS (Password)	Enter the password when connect the WIFI SSID of TS-100.
3	Refresh button	Hotspot IP address of TS-100. Corporate LAN IP address of TS-100.
4	Wi-Fi IP LAN IP	Hotspot IP address of TS-100. Corporate LAN IP address of TS-100.
5	Security Level	Show the user which security level for the conference.
6	Download Button	Create & update the launcher.
7	Wired source input	Click to selection switch the local wired source input including the HDMI1, HDMI 2, HDMI 3 and VGA input.

8	Settings	Connect a mouse to either USB port and click to open the Settings menu.
9	Help	Help documents for quick installation, operation and support.
10	Guest and Staff SSID	The name of the Guest and staff network.
11	PC and key fob quick-to-start steps	Steps to instruct how to transmit PC/Lap-top onto the main screen.
12	Android/iOS quick-start steps	Steps to instruct how to transmit smart mobile devices either powered by Android or IOS, onto the main screen.
13	Arrow mark	Click to show the preview window, whiteboard, annotation and information.


## SSID and PASS (password)

Connect to the Hotspot of TS-100 by this SSID and PASSWORD.

 **Attention:** if it shows N/A, please click the **Settings** page, find the LAN discovery & connection. Please refer to *Security Settings*.

## Changeable PASS (password)

- PWD (password) is changeable every 5 minutes. PWD (password) is configurable in the **Settings** page to Never Change, 5m, 30m, 1h, 2h, 4h 24h. The changeable PWD will be fixed by connecting a TeamStream key fob to PC/Laptop, and continue to be changeable after 15 seconds from disconnecting the last TeamStream key fob.
- Users don't need to pair the TeamStream key fob again, if only the PWD (password) is changed. A smart mobile device has to enter the correct SSID and PWD (password) to connect the TS-100 hotspot, in order to access all "TeamStream" functionality.
- When TS-100 is disconnected with the last TeamStream key fob for 15s, it'll open up a dialog box for user to confirm whether to clear the meeting history, including all data/files to be temporarily memorized in the TS-100.


 **Attention:** For any change of SSID/WIFI channel/Password (occurred when the full-upgrade), the TeamStream key fob should pair with the TS-100 again.

## Refresh button:

Click the Refresh button on home page to change the password.

## WiFi IP & LAN IP:

- Wifi IP: It shows the Hotspot IP address of TS-100.
- Lan IP: It shows the TS-100's IP address in the corporate LAN (Local Area Network).

 **Attention:** When LAN IP shows “N/A”, it means the TS-100 is not connected to the LAN (Local Area Network) by CAT cable or it failed to get an available IP address by the corporation router. When the WiFi IP shows “N/A”, it means, the TS-100 does not have an open hotspot. Click the following to open the hotspot:

**Settings > Security Settings > LAN discovery & connection.**

## Security Level

It will show the security level when clicking the icon, letting the user know the permissions.

## Download Button

Create and update the launcher.

## Wired source Input

Click this button to toggle the local wired input on the TS-100 including HDMI1, HDMI2, HDMI3 and VGA.

## Settings

Control the configurations of TeamStream over a LAN (local Area Network). Use the USB connected mouse or the Remote Mouse function in the “TS-100 for Android” APK or “TS-100 for IOS” application.

The settings include the sub-menu below:

- Ethernet
- Wireless network
- Moderator Control
- General Settings
- Security Settings

- External Control Setup
- Language
- System Update
- Date & Time
- About Device

## Help

- User Manual TeamStream

## Quick start steps for key fob with PC / laptop

### Method 1

- Step 1: Copy TeamStream.exe/app from the users' own USB stick or download the file by connecting to WiFi using the SSID & PASS.
- Step 2: Plug TeamStream's USB key fob into your PC / laptop. Click to run TeamStream

### Method 2

- Step 1: Pair the "TeamStream" key fob with the base unit. The unit and the key fob should be paired already by default.
- Step 2: Plug into your PC, laptop, or iOS device and click "TeamStream" to activate display mirroring.

## Smart mobile devices quick-start steps

- Step 1: Download the APK/APP named "TS-100".
- Step 2: Connect to the wireless network WMB-\*\*\*\* and enter your password.
- Step 3: Open the app and click Mirroring to show your mobile screen.

## Installation

### About this chapter:

The installation chapter gives an overview of the different ways to install and connect the TS-100 base unit.

### Overview of this section:

- Installation methods for the Base unit
- Table mounting
- Wall mounting
- Recommendations for antenna placement and orientation
- TS-100 power connection
- TS-100 video connection
- TS-100 audio connection
- TS-100 LAN connection
- About USB device connection
- Wiring diagram


## Installation methods for the Base unit

### Introduction to the installation methods:

The base unit can be installed in different ways in a meeting room.

- Table mount
- Wall mount

The articulated antennas are removable. They can rotate for better wireless connection.

 **Attention:** For optimal performance, install the base unit close to the display and avoid obstacles around the base unit.

## Necessary tools

- Drill (type of drill depends on the type of wall)
- Flat-head screwdriver
- Cross-head screw driver

## Necessary parts

- 2 mounting screws
- 2 plugs
- Mounting bracket (included in the box)

## How to install

1. Drill two holes in the wall as indicated on the drawing.

Horizontal distance: 177 mm ± 0.15

2. At the bottom of the base unit, place the bracket on the 4 holes and screw in the 4 screws until fastened.
3. Insert a plug in each hole (if needed, depends on the wall type), and drive in 2 screws. Please leave at least a 0.15mm space to place the bracket between the screw header and wall. Ensure that the head of the screw is not bigger than the bracket's mounting hole.

Note: Mounting screws and plugs are not included in the TeamStream box. The type of screws depends on the type of wall (stone, wood, plasterboard, ...) you are mounting the base unit to. Make sure the head of the screw is not larger than the hole in the bracket.

4. Place the TS-100 on the wall, so that the holes on the bracket match the 2 unfixed screws on the wall. The bracket should not be touching the wall too closely. Hoop the bracket on the screw and slide the base unit downwards until it's affixed in the 2 screw on the wall.
5. Set the bracket in place with the 2 unfixed screws.

## Antenna placement rules

- The antennas should be oriented vertically (perpendicular to the ceiling and parallel to the walls).
- The antennas should be installed far enough (at least 50cm/1.6ft) from metallic surfaces to avoid unwanted reflections and far enough (at least 1m/3.3ft) from other radio equipment that operates in the same frequency range, e.g. other Wi-Fi access points, cordless telephones and microwave ovens. It is also best

to install antennas at least 15 cm (6 inches) from concrete walls for optimal signal strength.

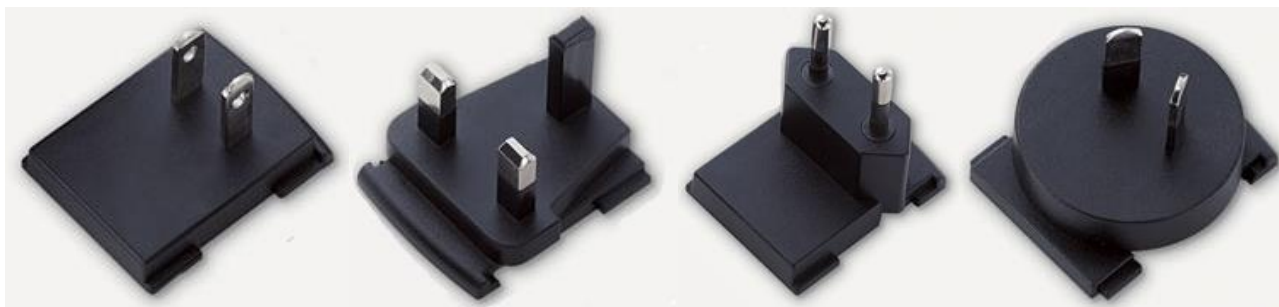
- The most favorable situation is a direct line of sight between antennas and any wirelessly connected devices. Any obstruction will cause the signal to follow a longer propagation path, which can result in performance degradation.
- Due to the particular radio pattern of the dipole antennas, the antennas should not be placed just above potential positions of TeamStream devices. As a result, the advised position for the antennas is at the side of the meeting room.

## TS-100 Power Connection

The base unit can be powered by the external universal power adapter.

### How to connect the external power adapter

1. Attach the appropriate power plug (US, UK, EU or AU) to the power adapter.
2. Connect the power cable to the TS-100's DC 12v socket.
3. Connect the other end of the power cable into the corresponding electrical outlet.



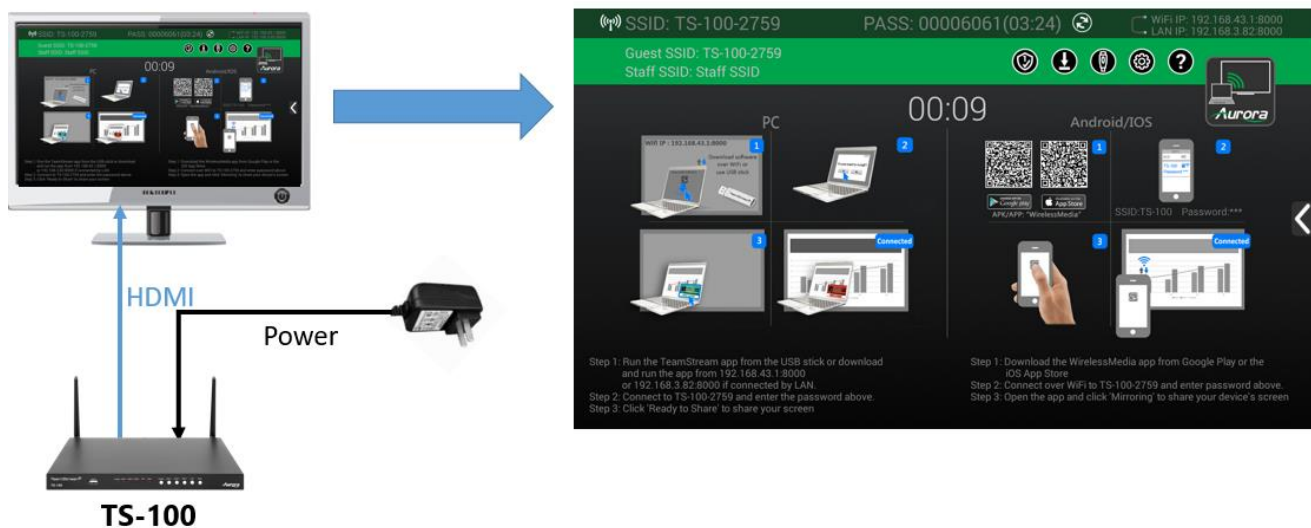
**⚠ Attention:** You must still power on the unit by pressing the **POWER** button after the unit is connected to an electrical outlet.



## TS-100 Video Connection

1. Screw the two Antennas to the TS-100.
2. Use an HDMI cable to connect the TS-100's HDMI output to a 4k or HD display.
3. Connect the power adapter to the TS-100's DC power socket and an available electrical outlet.

After the device is powered on, it will show the homepage as illustrated below.



## TS-100 Audio Connection

TeamStream can capture the audio output of the PC or laptop and send it to the base unit together with the video signal. The audio output will be at line levels from the mini jack socket 3.5mm connector and the HDMI output connectors simultaneously.

It's up to the user to decide whether or not to send the audio signal together with the video signal.

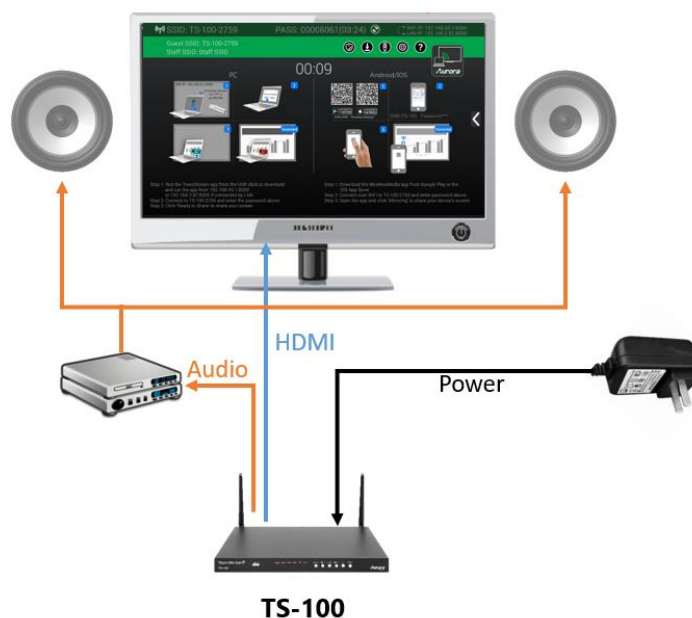
## Audio via HDMI output

If your devices have an HDMI connection, then a separate audio connection is not necessary. The audio signal is sent together with the video signal to the display. The system is illustrated below:



## How to connect separate audio

1. Connect an audio cable with a mini jack socket 3.5mm connector into the audio of the base unit
2. Connect the other side to the meeting room's sound system.



## Troubleshooting audio

The TeamStream key fob will keep capturing and sending the audio of the device you are streaming from, as long as the display is mirrored.

1. Ensure that the laptop is being shared on screen.
2. Check the Settings configuration, to adjust the volume set in TeamStream settings tab.

## PC / laptop sound

By default, TeamStream will mute the internal speaker of the PC or laptop and route the audio to the base unit, after the PC or laptop is successfully mirroring its desktop to the main screen, in order to avoid repeated audio. When clicking the icon of UI to stop sharing, it'll turn on the internal speaker of PC or laptop. You can adjust the volume on the PC or laptop.

**⚠ Attention:** If you want to keep the internal speaker of the PC or laptop while routing the audio to the base unit, please click the audio mute icon in the status bar to turn on the internal speaker.

## TS-100 LAN connection

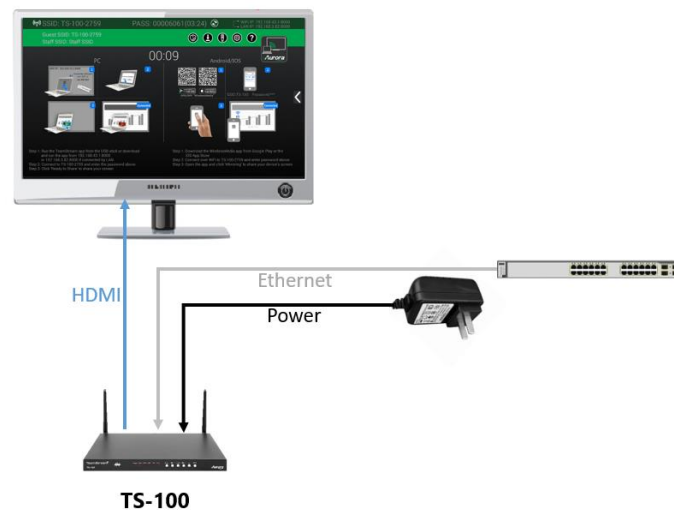
The base unit can be connected to a local network or directly to a PC or laptop. For normal operation, a LAN connection is not necessary.

The LAN connection can be used

- for network integration of the TeamStream base unit
- for Telnet control the base unit
- for maintenance purposes

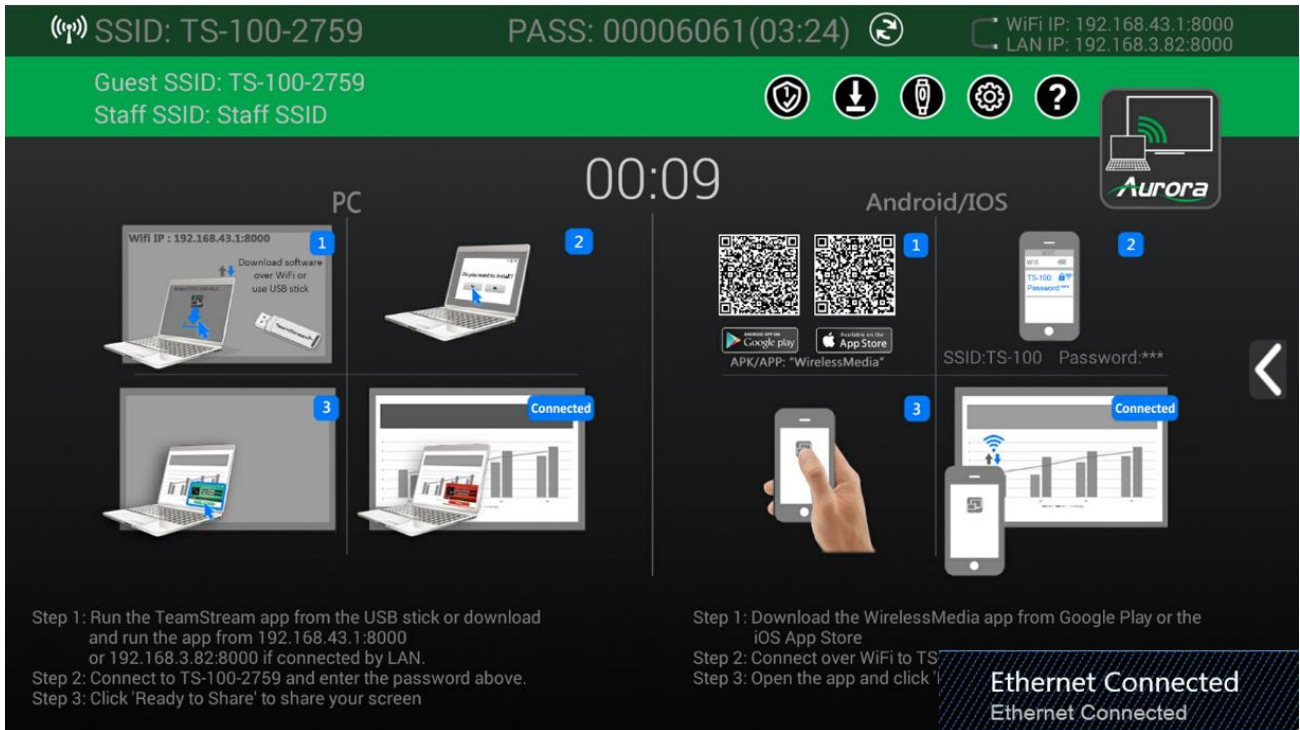
## How to connect

1. Connect a network cable with an RJ-45 connector into the LAN port of base unit.
2. Connect the other side to LAN.
3. If the LAN Ethernet switch supports PoE, you may power the unit over an ethernet connection instead of the power adapter.



## LAN Indicator

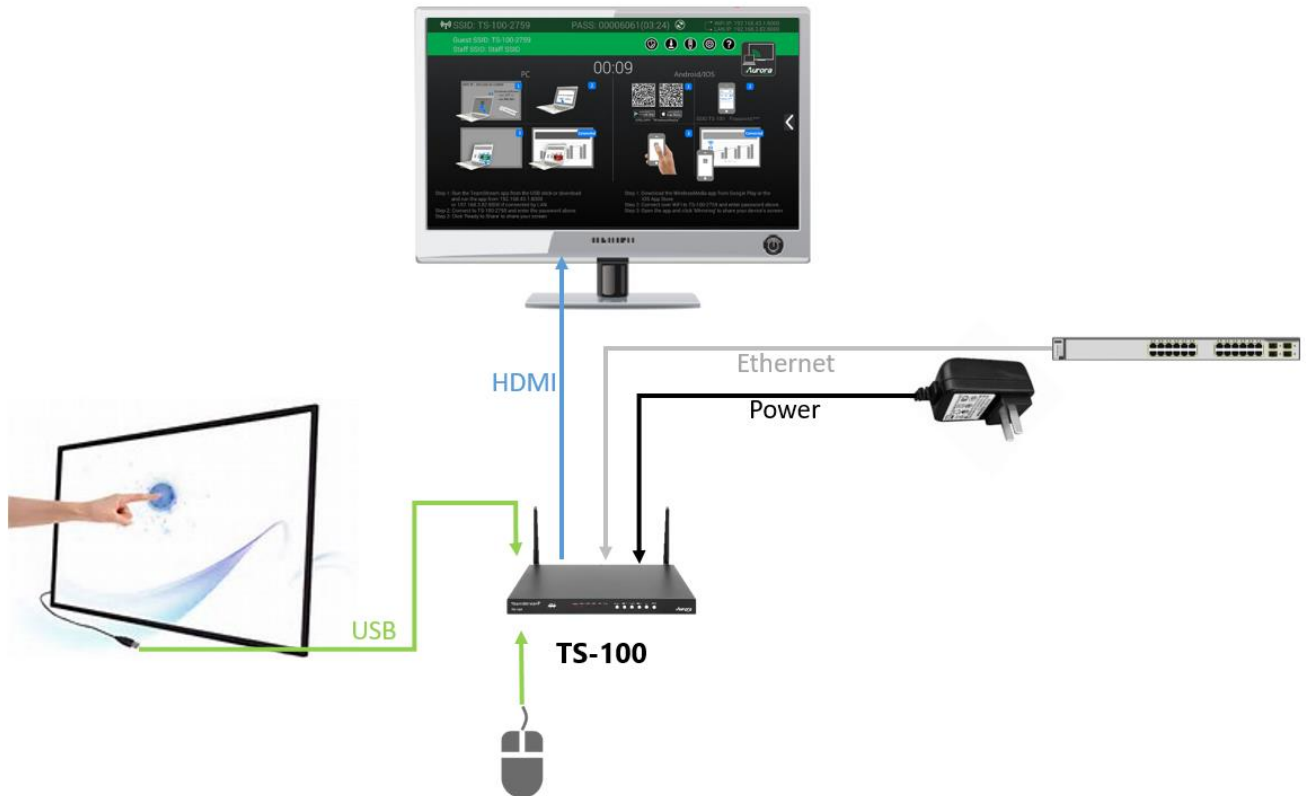
When connected to LAN, an OSD “Ethernet Connected” is shown on the home page, as shown below:



## About USB Connections

### How to connect mouse or touch screen

Plug the USB connector of a mouse or touch-screen device to either USB input of the TS-100.



### How to use USB control

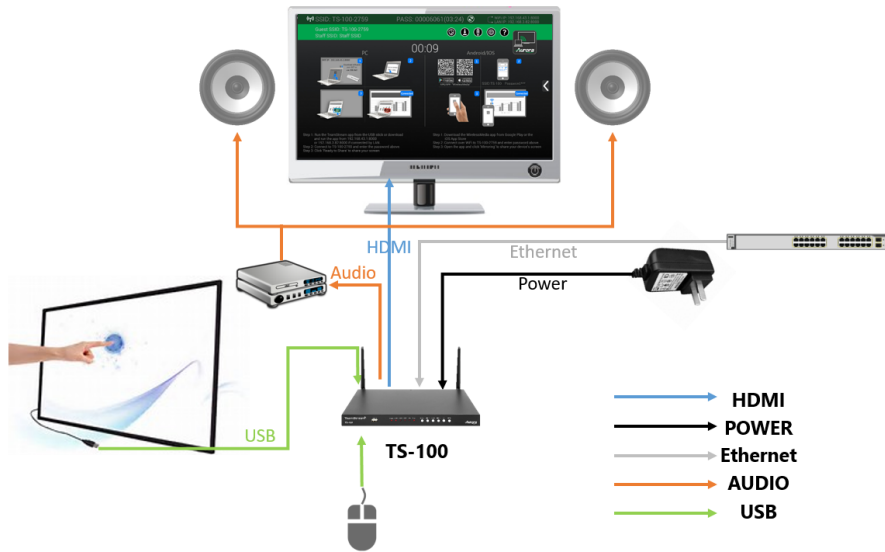
For a USB mouse:

- Single click to select
- Right click to return to the home page

For touch screen

- Tap to select
- Press and hold to open the menu

## Wiring Diagram



## TeamStream Wireless Connection

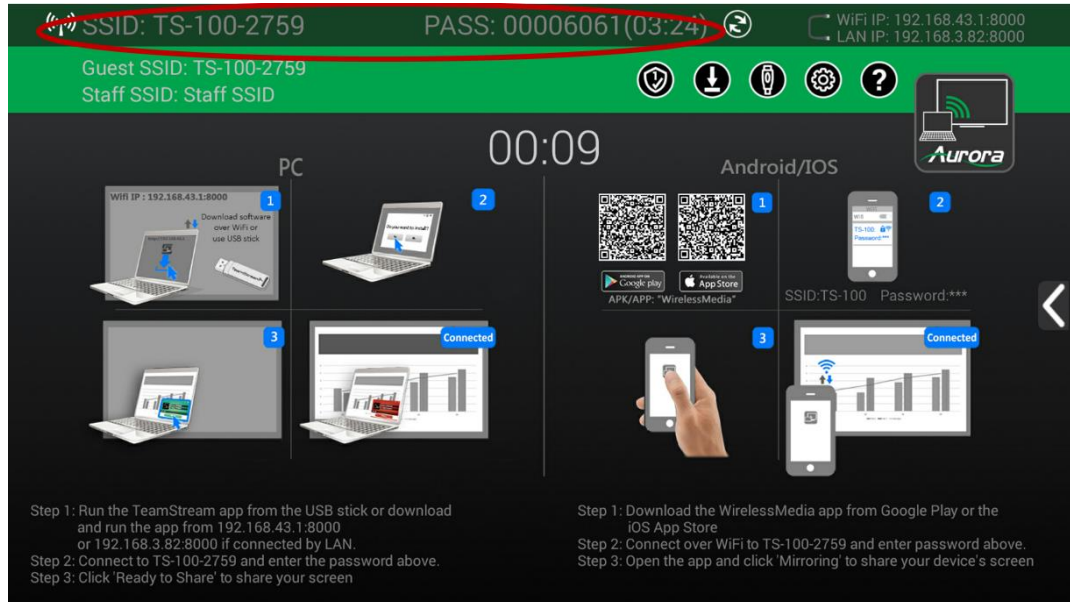
- Using your laptop or mobile device, download the application named “TS-100” in Android Google Play market or Apple App Store.



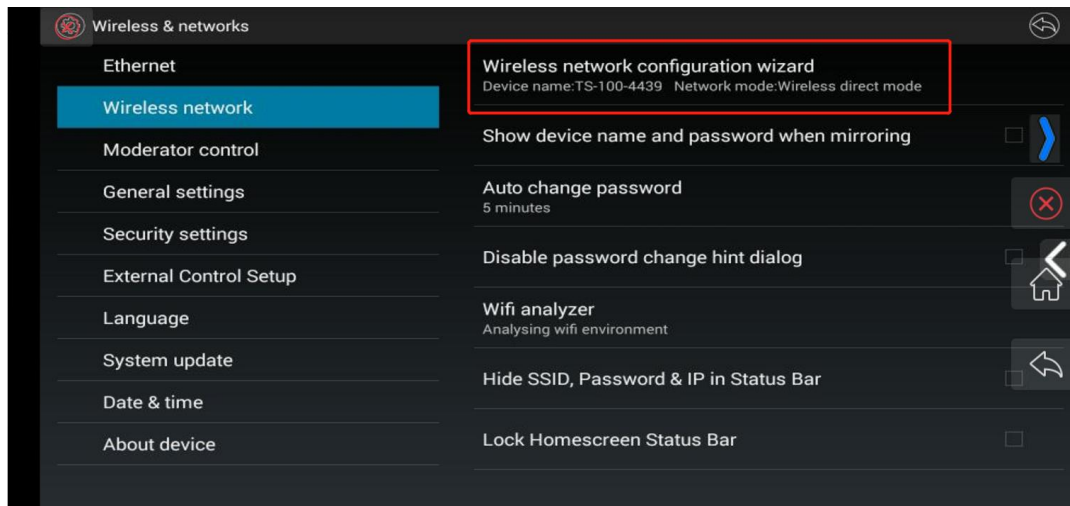
- The TS-100 provides two ways to be discovered:
  - 1) Tethering & a portable hotspot, to connect the hotspot &
  - 2) a LAN connection, to connect to the TS-100 or mobile device both in the LAN network

## Enabling the portable hotspot:

1. Check the SSID and password (PASS) as shown on the homepage:



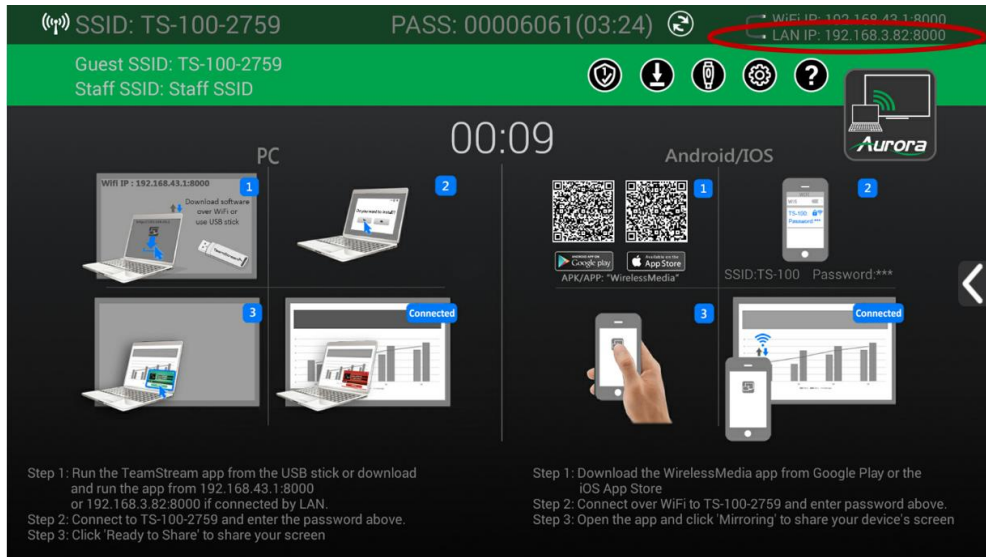
2. If it shows SSID: N/A and PASS: N/A, please refer to *Wireless & network settings*, to select the first mode, wireless direct mode, by clicking step-by-step.





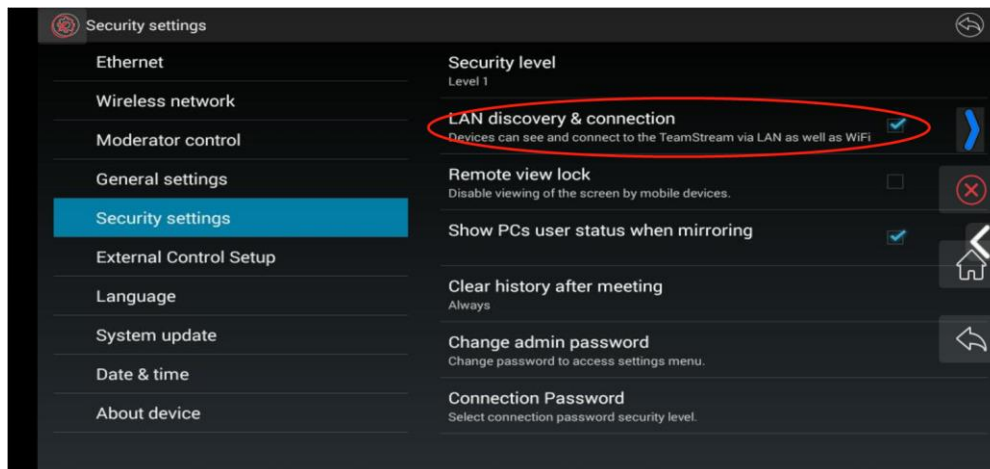
## Enable LAN connection:

- Be sure the TS-100 is connected to the network. When *Local IP* shows an active IP address, such as 192.168.3.82, it indicates the TS-100 is successfully connected to LAN and received an appointed IP address.



**⚠ Attention:** When it shows “N/A”, it means that the TS-100 is not connected to the LAN (Local Area Network) by CAT cable, or it failed to get an available IP address by the router.

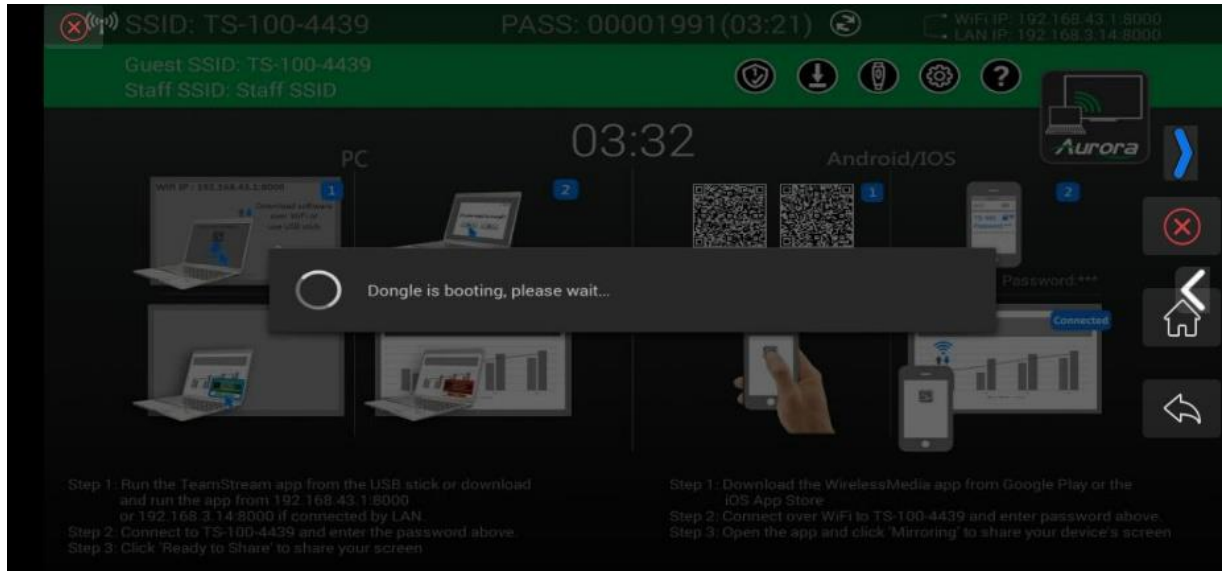
- Please refer to the *security settings* page and check on the *LAN discovery & connection*, as below:



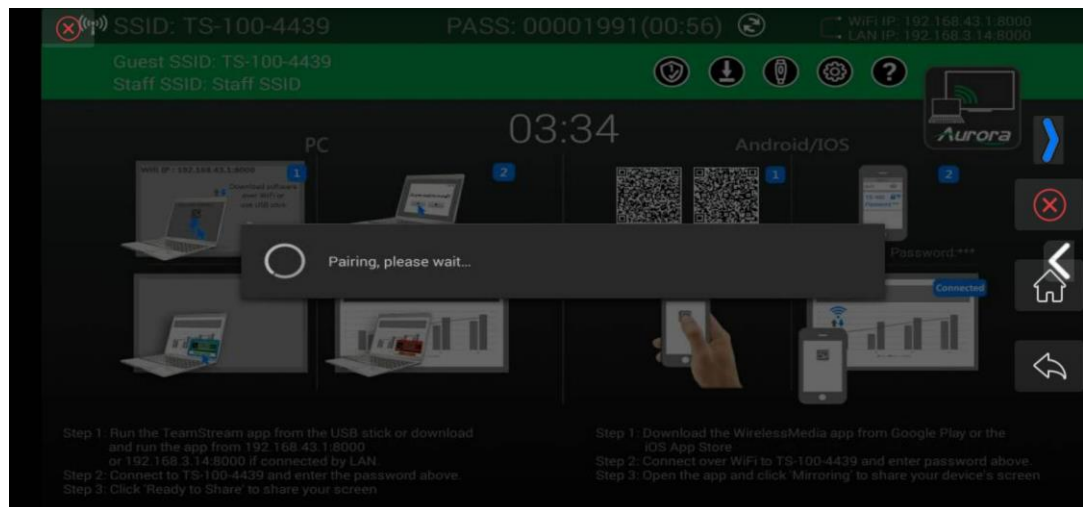
## TeamStream Key Fob Pairing

5. Connect the USB of the TeamStream key fob to either of the 2 USB2.0 ports on the TS-100. This will pair the TeamStream key fob and the TS-100. The home page will display as shown below. Pair all TeamStream key fobs in the same way.

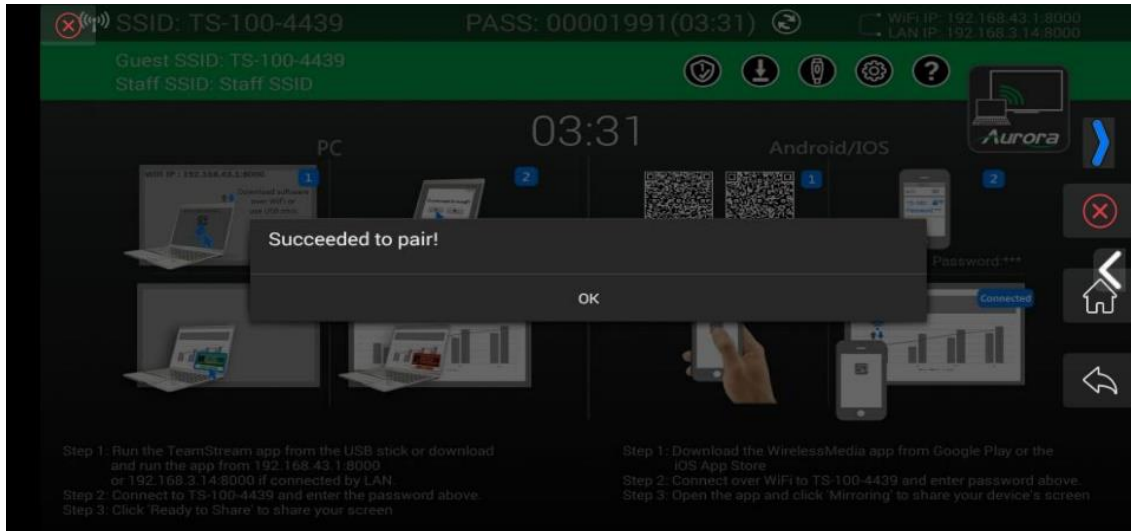
When you plug in the TeamStream key fob, the message table will display that the TeamStream key fob is booting.



Then, the message table will show that the devices are pairing, as below:



- When you complete the pairing, the message table will show "Succeeded to pair!" on the home page. Then, please plug in the TeamStream key fob.



- If it shows that the pairing fails, please ensure that the USB connection is stable and try again.

## Mirroring For PC or Laptop

There are three methods to mirror the TS-100 wirelessly on your PC or laptop.

### Method 1: via the PC launcher's software

**Step 1.** Connect your PC or laptop's Wi-Fi to the hotspot of the TS-100. (The ID and password are showed on the homepage).

**Step 2.** Use the USB driver to connect the USB port of TS-100 and click the download icon to get the launcher (the PC client software \*.exe program).

The screenshot displays the Aurora TS-100 interface with the following information:

- SSID: TS-100-2759
- PASS: 00006061(03:24)
- WiFi IP: 192.168.43.1:8000
- LAN IP: 192.168.3.82:8000
- Guest SSID: TS-100-2759
- Staff SSID: Staff SSID
- Time: 00:09
- Navigation icons: Home, Download, Hotspot, Settings, Help, and Aurora logo.

**PC Mirroring Section:**

- 1:** Download software over WiFi or use USB stick. (WiFi IP: 192.168.43.1:8000)
- 2:** Laptop connected to the network.
- 3:** Laptop displaying the mirrored screen.
- Connected:** Status indicator.

**Android/iOS Mirroring Section:**

- 1:** QR codes and app store links for "WirelessMedia".
- 2:** Smartphone displaying the TS-100 password screen.
- 3:** Hand holding the smartphone.
- Connected:** Status indicator.

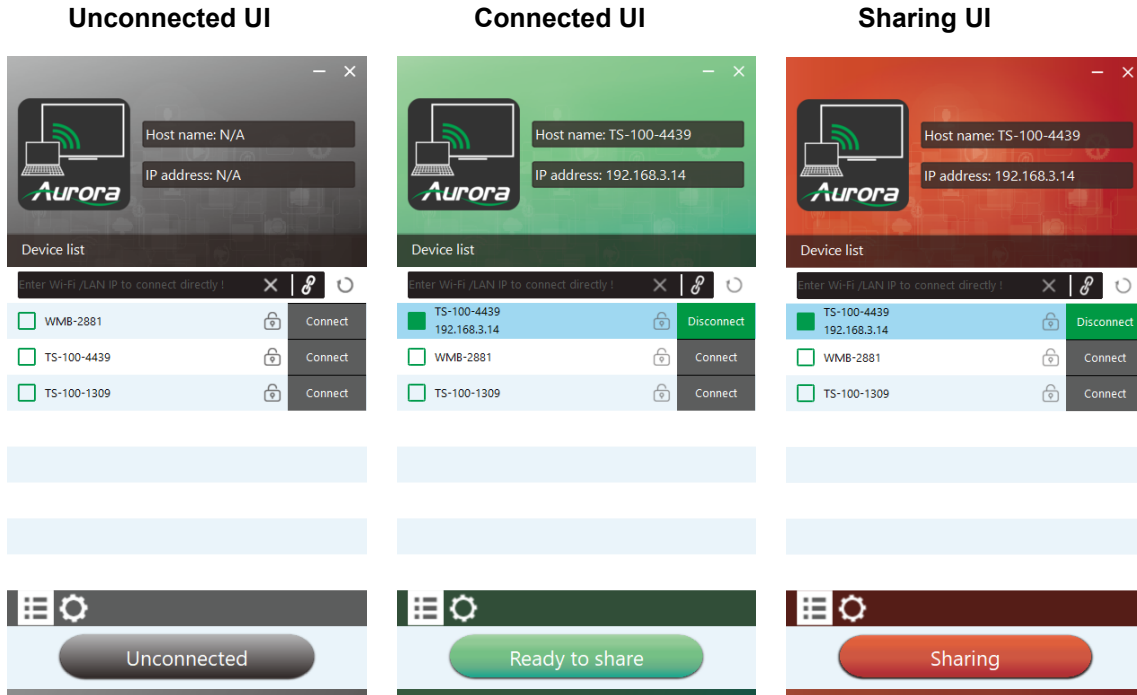
**PC Instructions:**

- Step 1: Run the TeamStream app from the USB stick or download and run the app from 192.168.43.1:8000 or 192.168.3.82:8000 if connected by LAN.
- Step 2: Connect to TS-100-2759 and enter the password above.
- Step 3: Click 'Ready to Share' to share your screen.

**Android/iOS Instructions:**

- Step 1: Download the WirelessMedia app from Google Play or the iOS App Store.
- Step 2: Connect over WiFi to TS-100-2759 and enter password above.
- Step 3: Open the app and click 'Mirroring' to share your device's screen.

**Step 3.** You have to copy the “Launcher” (PC client software \*.exe program) from your USB driver on your Laptop or PC and run it with the display mirrored.



**Note:**

*You do not need admin rights for installing the PC client software.*

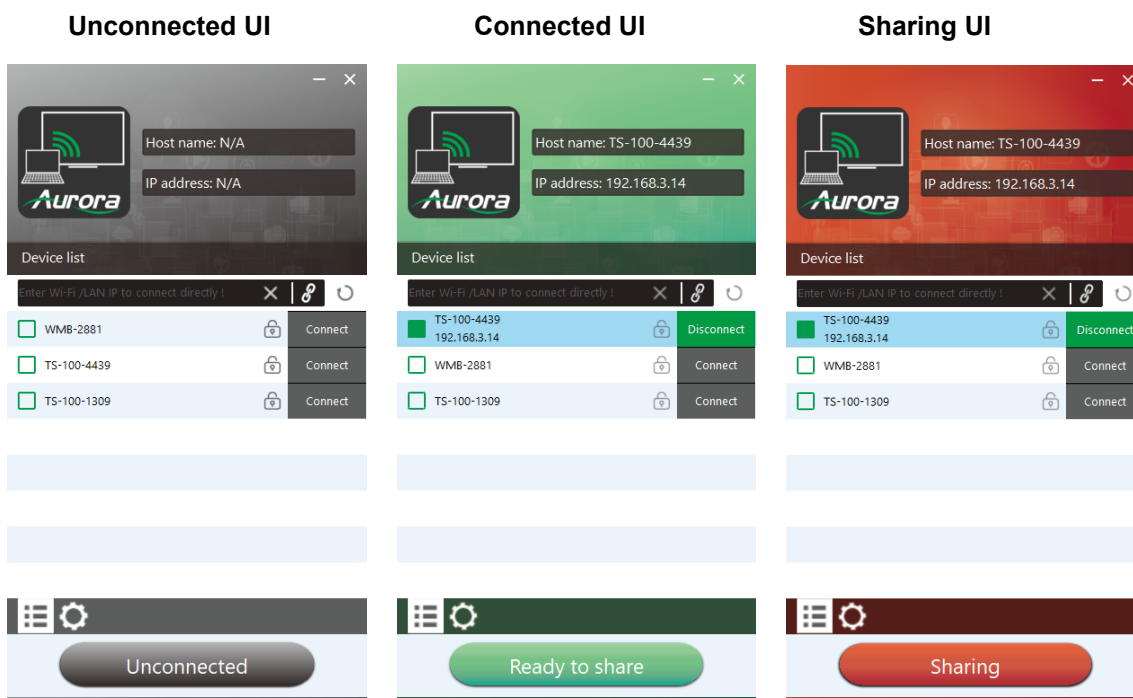
**Method 2: via the TeamStream key fob**

**Step 1.** Plug the TeamStream key fob into the USB port of TS-100 base unit to pair for the first time. There is no need to pair from the second time. It will download the launcher’s PC software for Windows and iOS to the TeamStream key fob automatically. Unplug the key fob after pairing is complete.





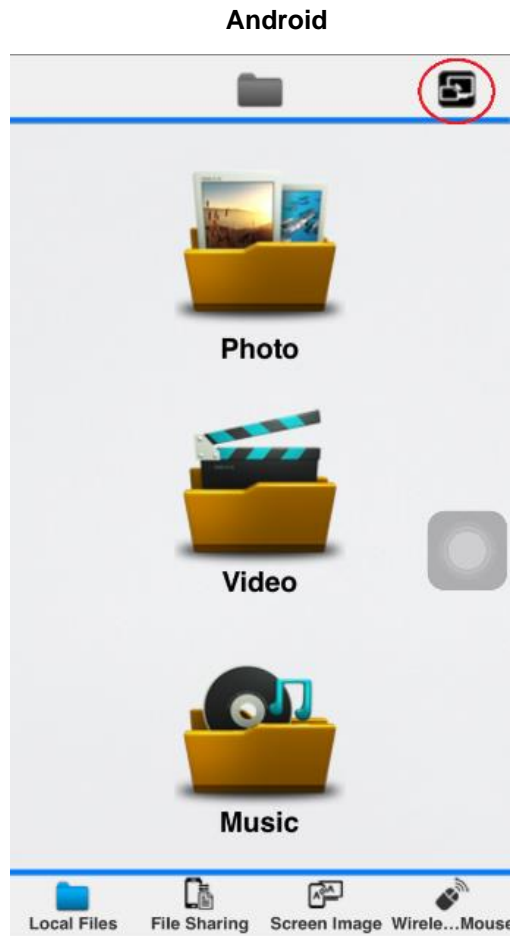
**Step 2.** Plug the TeamStream key fob into your PC or laptop via a USB port or type-C port. Then, click the \*.exe file or app to run on Windows or iOS.

**Step 3.** Enter the password which showed on the homepage of TS-100. Then click the “Ready to share” to mirror.



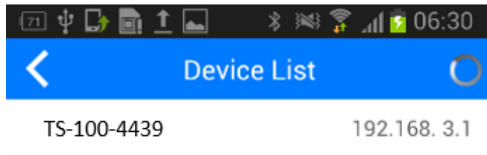
## Method 3: via a mobile device

1. Open the “TS-100” application on your mobile device, and you will see the home page of “TS-100” as shown below. and click the device list button “” for Android, or click the device list button “” for IOS devices, which is highlighted in red circles as shown below:

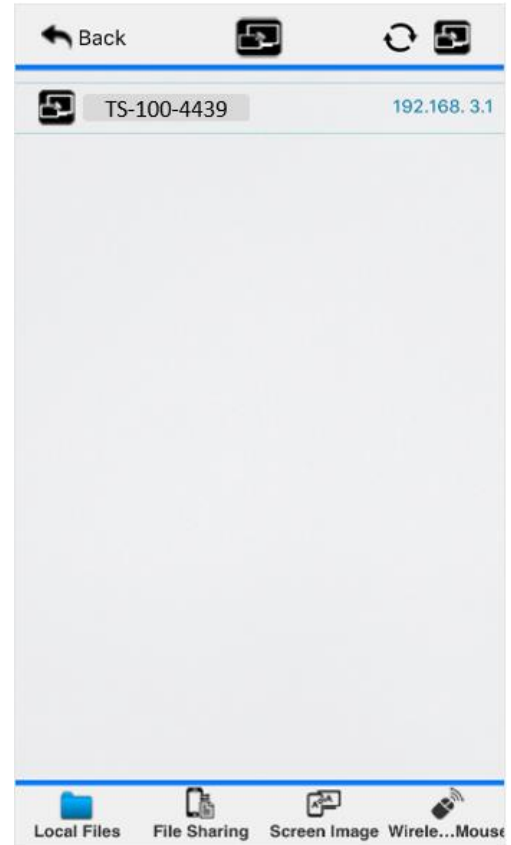


2. Click the device that was found to connect the TS-100.

### Android






### iOS





- After the pairing is complete, it will return to the home page. For example, if Samsung Galaxy I9300 is connected, you will see the screen below:



- For iOS devices, please swipe from bottom on desktop to activate the control center. Click the airplay icon  on your Apple device and select the target TS-100 to start mirroring through the TS-100 to the main screen.
- For Android devices version 5.0 and greater, please click the devices list to select the target TS-100, and click the **Mirror** icon  on the main interface of the TS-100 APK for Android. For lower than Android 5.0 devices, please click the **Local Files** icon  to select the sharing picture, music and video.

## Whiteboard & Annotation

**Whiteboard** and **Annotation** requires an HID compatible device, such as an interactive white board or interactive touch screen. It is easy to use, makes collaboration in your business more productive and effective. Documents can be easily written, edited, captured and shared.

**Whiteboard:** Write all your ideas and share the digital notes with anybody. Different colors of pen and background can be selected.


**Annotation:** Draw or write annotations as an overlay within your documents, presentations. Save and share everything that was discussed. Different colors of pen can be selected.

### How to start Whiteboard or Annotation mode:

Select the “Preview window” on the home screen to start this mode.

Tap (click) the left arrow located on the right side of the screen, and select the


*Whiteboard*  or *Annotation* icon  icon.

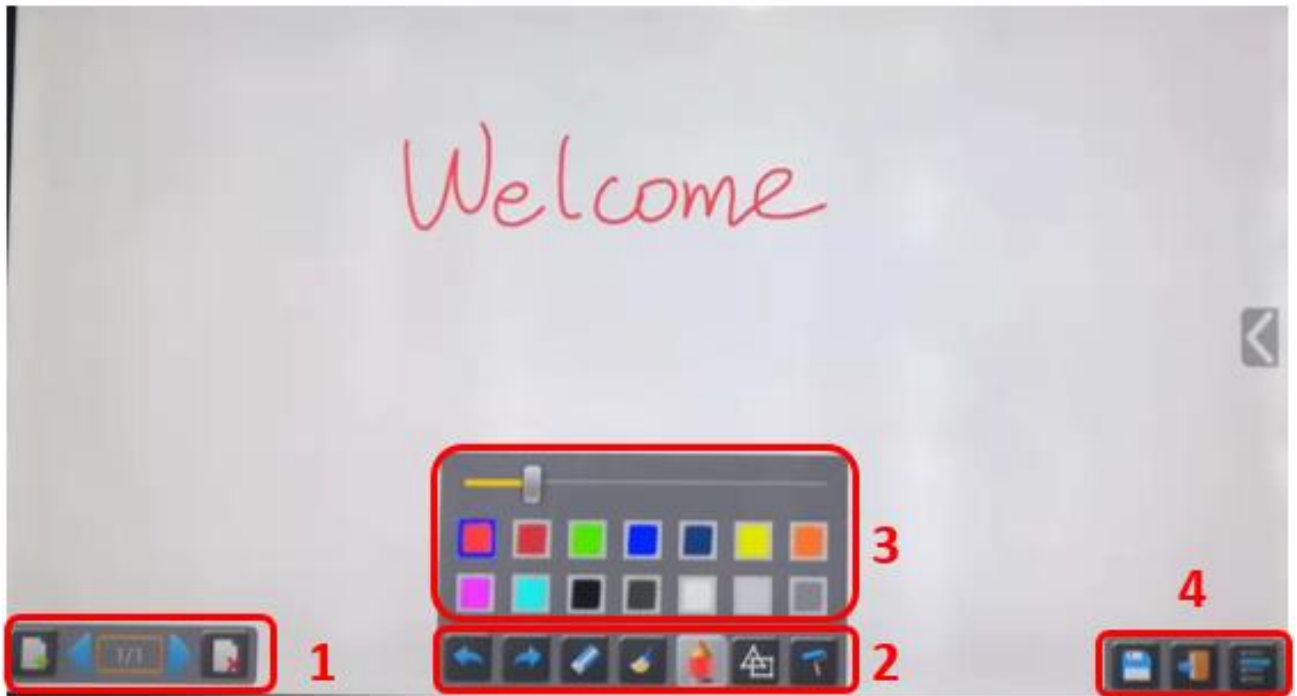
Icon  indicates “information”, click to check the base unit SSID, password, Wifi IP and Lan IP address when some device are sharing on main screen. This info will show on main screen at least 20s then will disappear automatically. In order to let other attendees join into meetings as well.



## Whiteboard





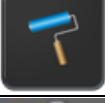
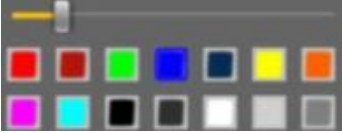
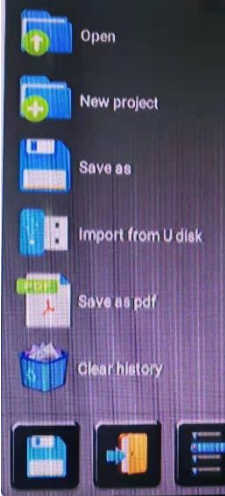





Click on the icon  to enter the white Whiteboard page. You can create free drawings with your finger using the touch screen or mouse (with multitouch capability).




Use the toolbar to select one of the following functions:







ID	Icons	Function
Tool bar 1		Add an empty page Delete the page you are on Display previous or next page
Tool bar 2		Undo: one step backward in changes Redo: one step forward in changes Erase part of a drawing or annotation; change diameter by a longer tap



	    	<p>Clear the entire drawing / writing on the screen</p> <p>Pen allows writing / drawing in different colors</p> <p>Draw basic geometric shapes</p> <p>Select the color of the board; the drawing will be kept</p>
<p>Tool bar 3</p>		<p>The toolbar will pop up when “Pen” , “Draw shape” , or “Select color of board” is selected. The individual size of the pen, shape or color can be changed.</p>
<p>Tool bar 4</p> <p>File options</p> 	  	<p>Save the current screenshot on local storage (PNG+WMN)</p> <p>Close Whiteboard to go back to Home screen, actual project can be saved on local storage (WMN)</p> <p>File options:</p> <ul style="list-style-type: none"> <li>● Open a WMN file from local storage to continue or edit an older project</li> <li>● New project</li> <li>● Save as a WMN file on a local storage in unit; it will be erased after powering off the device</li> <li>● Import from a U-disk stored project (WMN)</li> <li>● Save all pages as a PDF on local storage</li> <li>● Clear history – delete all whiteboard &amp; annotation files on local storage</li> </ul>

## Annotation

Click on the pen icon  to enter the Annotation function.

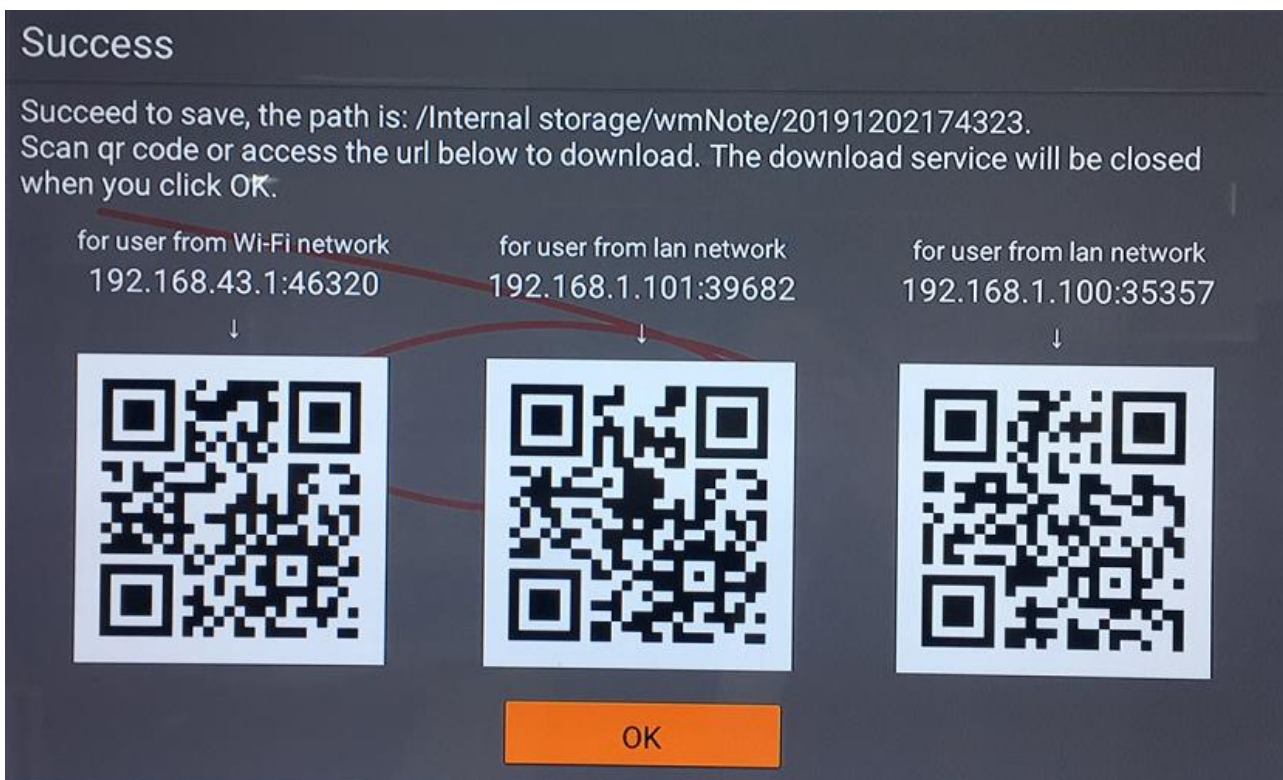
Use the toolbar to select one of the following functions:


ID	Icons	Function
Tool bar 1	     	<p>Undo: one step backward in changes</p> <p>Redo: one step forward in changes</p> <p>Erase part of a drawing or annotation, or change the diameter by a longer tap</p> <p>Clear the entire drawing or writing on the screen</p> <p>Pen allows writing/drawing in different colors</p> <p>Draw basic geometric shapes</p>

Tool bar 1	 	<p>Close Whiteboard to go back to the home screen. The actual project can be saved on local storage (.WMN) Close Whiteboard to go back to Home screen</p> <p>Save the current screenshot on local storage (PNG)</p>
------------	--	---

## Download the drawings to connected users

Scan the QR-code with your mobile phone's camera or enter the given IP-address in a browser. If the network connection is set properly, you will get the saved files on the base unit, which you can download as PNG file. You can copy data to a USB disk and put this USB disk into the Base-unit and import with "Import from U disk" to the Whiteboard-section.



 <http://192.168.43.1:38238/>



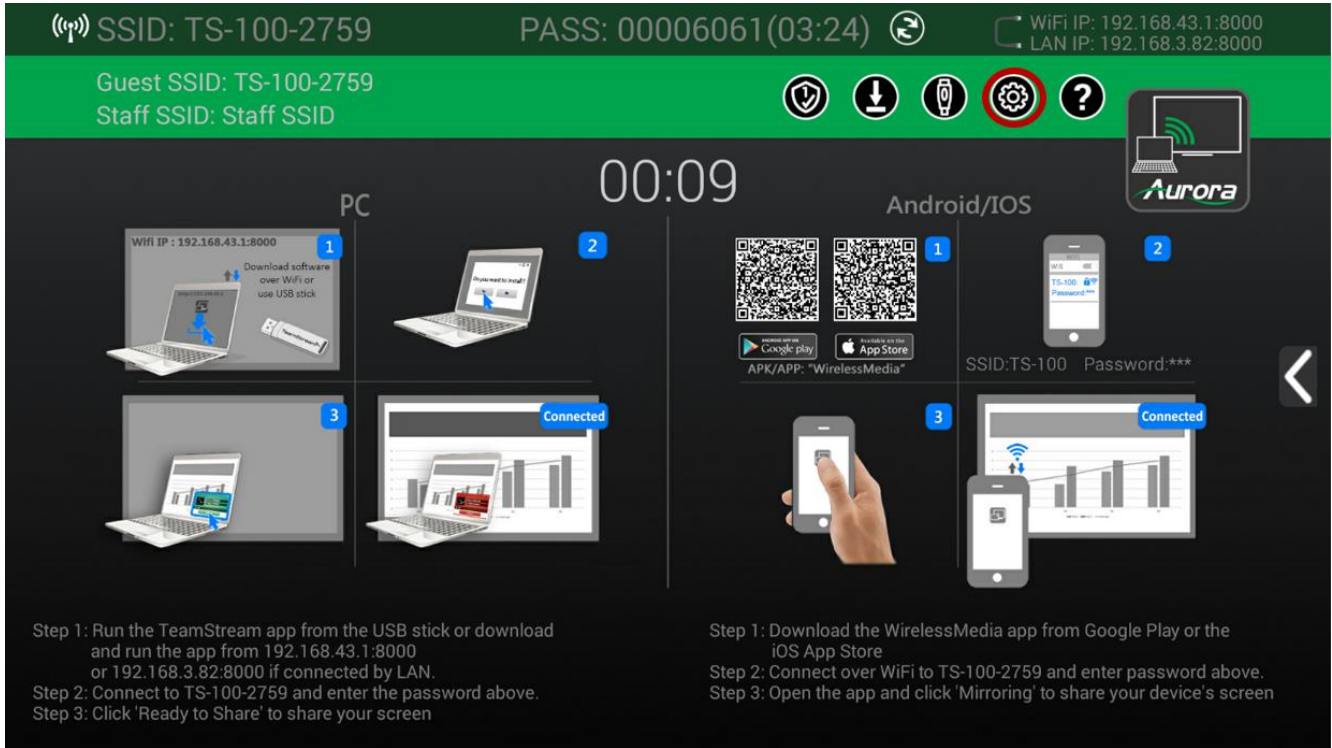
## Files on base unit:/111

name	size	modify date	action
<a href="#">0.png</a>	381.5 KB	19-12-02 PM04:57	<a href="#">download</a>

### Settings Configuration

Connect a mouse to either USB 2.0 of the TS-100, and click the settings button on the top right corner to open the settings menu of TS-100, which is shown as below:





The main interface of Setting is shown as below, including **Ethernet, Wireless network, Moderator Control, General setting, Security Setting, External Control Setup, Language, System Update, Date & time and About Device.**

## Ethernet:

Includes the IP address, Ethernet MAC address, Proxy & IP settings, and PPPoE Settings.

### IP Address

The local IP address of TS-100.

### Ethernet MAC address

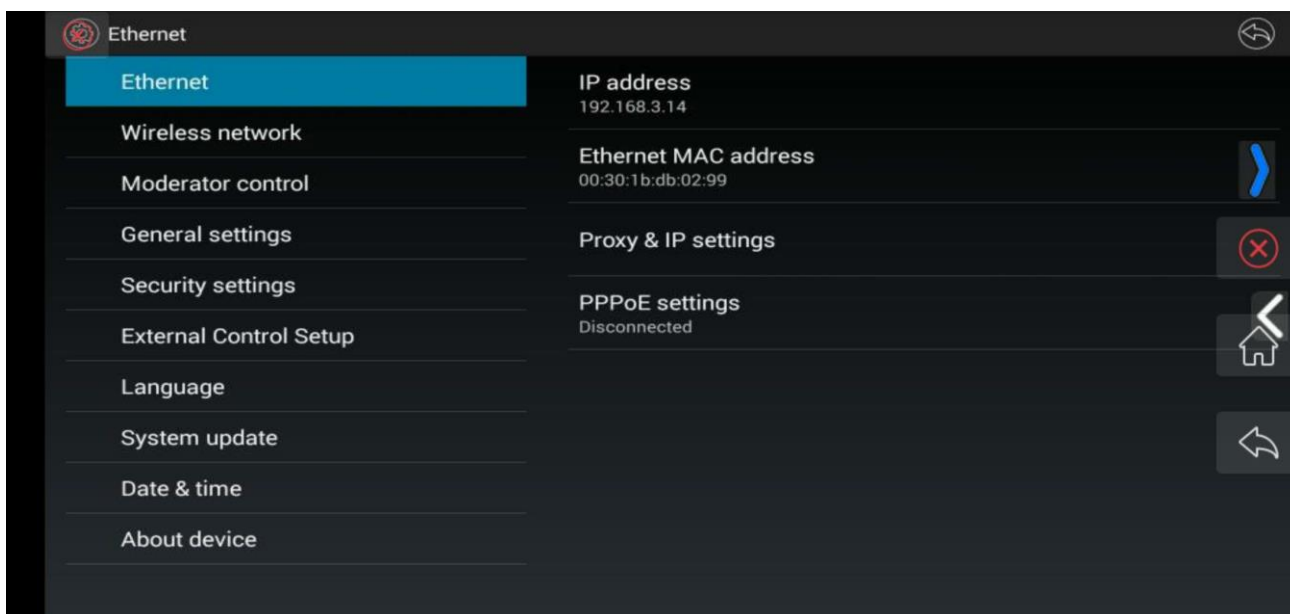
The unique MAC address of TS-100.

### Proxy & IP settings

Click to configure proxy.

### PPPoE settings

Click to configure the PPPoE (Point to Point Power over Ethernet) settings.



The interface of Proxy & IP settings can be configured, including Proxy on / off, and the IP settings, as shown below:

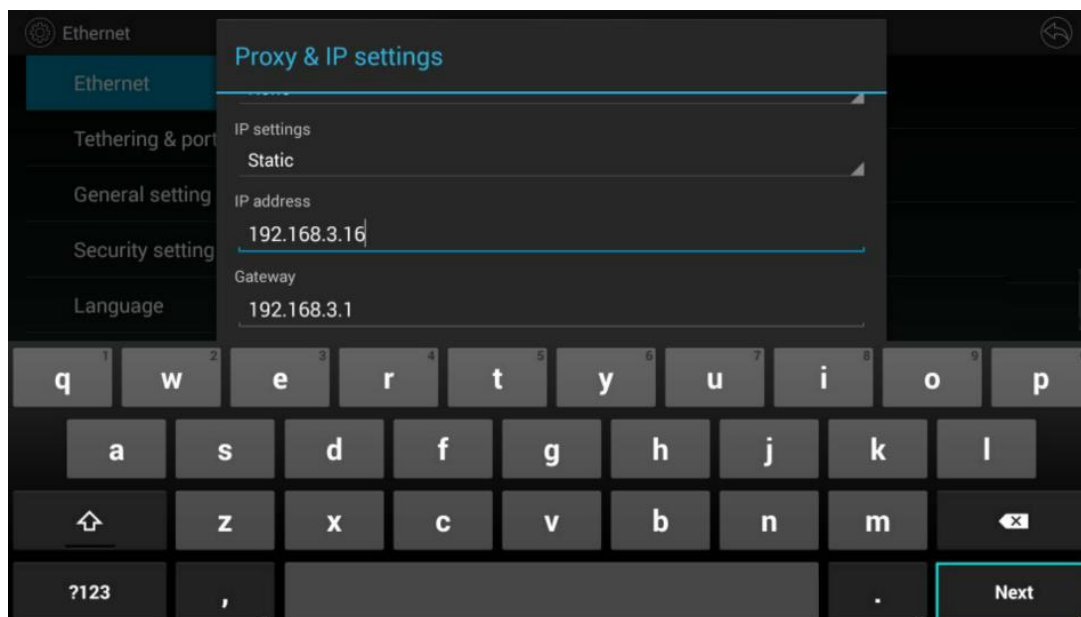
### Proxy & IP settings:

- **Proxy:** Click on the check box to select either "None" or "manual".

- **IP settings:** Click to select the check box, which includes “Static” or “DHCP”. When set to “Static”, it will open-up an advanced settings page, which includes the set items below. Click on the input field to fill out the number.
- **IP address:** Click on the input field to fill out the 4 fields.
- **Gateway:** Click on the input field to fill out the 4 fields. Set the default gateway to the IP-address of the router (must be on the local subnet; it can’t be 0.0.0.0). If no router is on the local subnet, then you may set it to any IP address on the subnet.
- **Network prefix length:** Click on the input field to fill out the number. The default is 24.
- **DNS1:** Click on the input field to fill out the appropriate for the local address.
- **DNS2:** Click on the input field to fill out the appropriate for the local address.

After finishing, please click the settings to save and return. Or, please click “Cancel”.

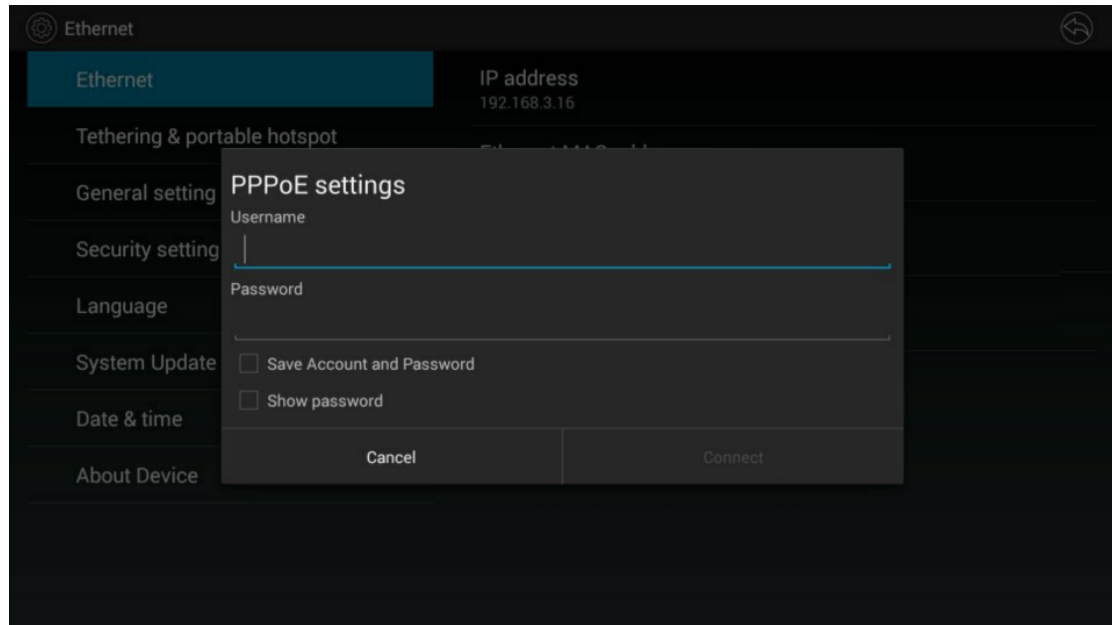
**Changing the IP address:** Click on the input field to fill out the 4 fields via the on-screen keyboard.



**PPPoE settings:**

- **User name:** Click on the input field to fill out the appropriate username.
- **Password:** Click on the input field to fill out the appropriate password.
- Check the box to choose “Save Account and Password” and “Show Password”.

Then, please click "Connect" to connect and return.



## Wireless network

The wireless network settings allow you to view information about the wireless network and make any changes.

### Wireless network settings:

- **Wireless network configuration wizard**
- **Show device name**
- **Password when mirroring**
- **Auto change password**
- **Disable password change hint dialog**
- **Wi-Fi analyzer**
- **Hide SSID**
- **Password & IP in status bar**
- **Lock home screen status bar**

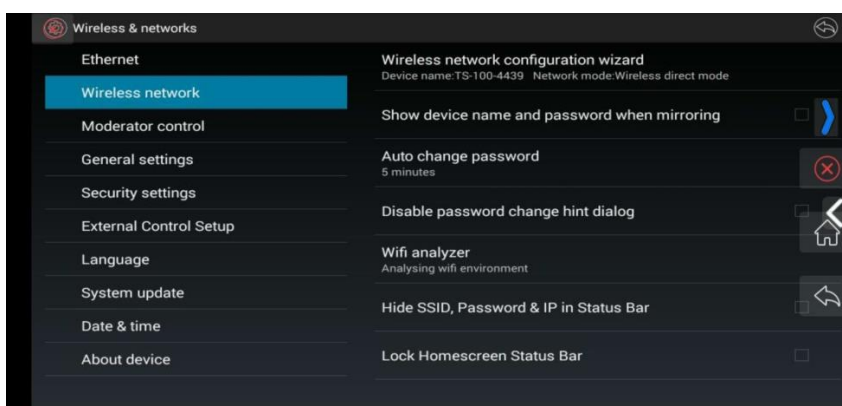
## Wireless network configuration wizard

### Attention:

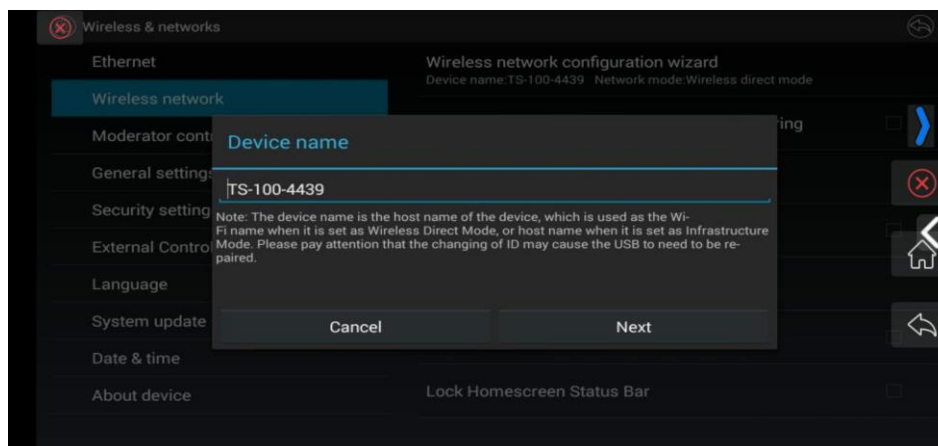
It's highly recommended not to select the Wireless direct mode. By doing so, you will lose the hotspot of the base unit TS-100. The default setting is the Wireless direct mode.

To take advantage of the full benefits of the TeamStream possibilities, TS-100 should be properly integrated into the organization's network (company/university/school). This wizard allows the user to create a custom configuration for integration of TeamStream into the existing wireless infrastructure in larger organizations.

The **Segmented Dual Network** provides two segmented routing ways to connect to the base unit simultaneously and separately, including wireless Wi-Fi network (normally connected to the guest / untrusted network) and wired LAN network (normally connected to the corporate/trusted network).

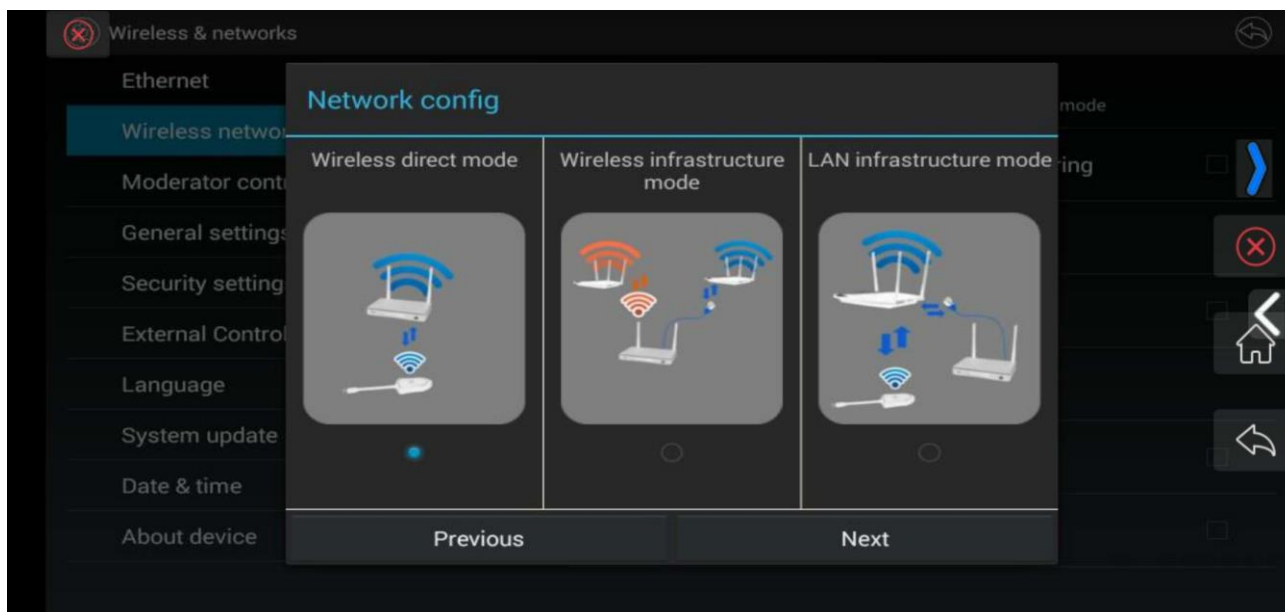


Enter a device name for the base unit. We recommend to take a descriptive name if you have more than one TeamStream installed. The default name is "TS-100-XXXX".




Only "a-z","A-Z","0-9","-\_" and space are legal characters.

Click "Next step". The following three connection methods are available:




### 6.2.1.2 Wireless direct mode

After a factory reset, the TS-100 base unit starts up in the default Stand-Alone **"Wireless direct mode"**. The base unit creates its own wireless access point, which all transmitters use to connect. This is typical for a quick setup for small group meetings. The Wi-Fi icon  for the "Wireless direct mode" is displayed in top status bar of the home screen. **Guest** connects to the access point of TeamStream, while **Staff** can also connect to the

base unit via Wi-Fi or via LAN connection to their corporate network.

## Stand-Alone Connection

The internal Wi-Fi access Point of TS-100 is active . The "TeamStream" key fob is paired directly to it. Guest and Staff use the internal Wi-Fi access point of Base-unit to present with all their units.

**No Internet access is required.**

The LAN port of the base unit is not connected. The PC users can present *with* or *without* the "TeamStream" key fob by the TS-100 PC driver (Windows or MacOS). Android / iOS users (BYOD) can share their content by installing the free app.

## Recommended Environment

This option is best for temporary operation, small installations, and rooms without network access or networks, because it does not allow network access for Guests, due to strict security concerns. The Stand-Alone connection is completely separate from the corporate network.

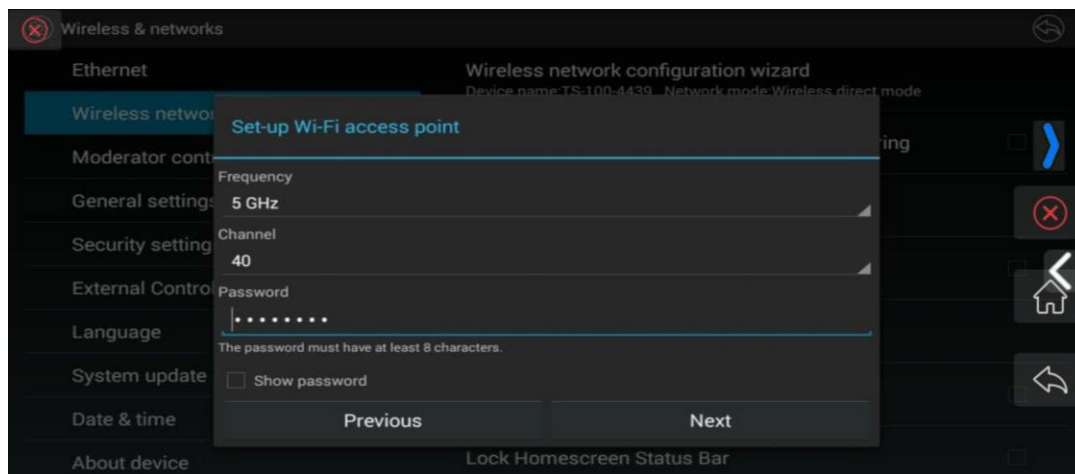
Under this mode, the TeamStream key fob will be automatically paired to the base unit's Wi-Fi hotspot when plugging it into the base unit's USB port for pairing.

**You can start using the TS-100 in this mode without any other wireless network configuration.**

## Setting up the Wi-Fi access point

The setup Wi-Fi access point includes Channel, Frequency and Password settings.





- **Frequency:** Click to select 2.4 GHz or 5 GHz Wi-Fi frequency. The default is 5 GHz.
- **Channel:** Click to select the Wi-Fi channel. The default is 5 GHz, Auto.

*If the Wi-Fi channel is changed, no new pairing of the TeamStream key fob is necessary.*

**2.4 GHz frequency band:** Channels 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 & 11

**5 GHz frequency band:** There is no need to choose the 5G channel; the system will choose the proper channel automatically. The default is 5 GHz, channel: Auto.

**Default channel (USA area):** 36,40,44,48 or 149,153,157, 161. Four channels will be opened at the same time. The system will automatically choose the proper channel from among them.

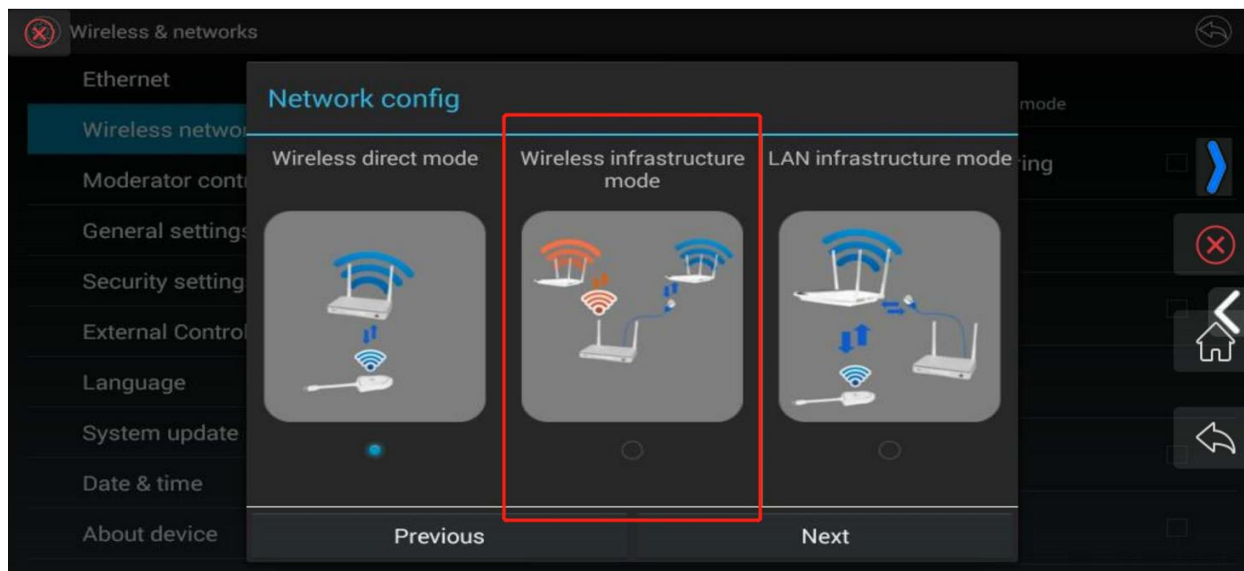
**Default channel (European area):** 36,40,44,48.

**Default channel (China):** 149,153,157,161.

- **Password:** Click in the input field to fill out the appropriate password with length of **4 characters**.

Click "Next step" to edit or change the Guest network SSID or STAFF network SSID. This information will be shown at the home screen of TS-100.

## Wireless Infrastructure mode




The TS-100 can connect to a wired network and a wireless network simultaneously. The basic unit is firmly connected to the company network by LAN. Guest users connect to Wi-Fi "Guest" access. The employees ("Staff") connect to their usual access point of the corporate network, without having to change the Wi-Fi. This is very useful for organizations which have a wireless "Guest" network for external visitors and a wired "Staff" network for their employees. The segmented Dual Network of TS-100 provides two separated routing ways to connect to the base unit at same time. Guest users are not able to access any resource on the Ethernet of the company.

TS-100 uses the existing wireless network infrastructure. Guest and Staff have internet access.

### Dual Network Configuration

The internal Wi-Fi network of TS-100 is connected to the Guest Wi-Fi network of the organization.

**Client Mode:** The indicator-icon  shows the actual signal strength. The base unit is still wired with a LAN cable to the internal company network. PC users can present, with or without the TeamStream key fob by the TS-100 PC driver (Windows or MacOS). Android / iOS users can share their content by installing the free app.

The TeamStream key fob is connected to the Wi-Fi access Point of Guest network, which in turn is connected to the internal Wi-Fi access Point of TeamStream. (The TeamStream key fob can also be configured to connect to the enterprise's access point.) Mobile users stay connected to their current network, have access to their

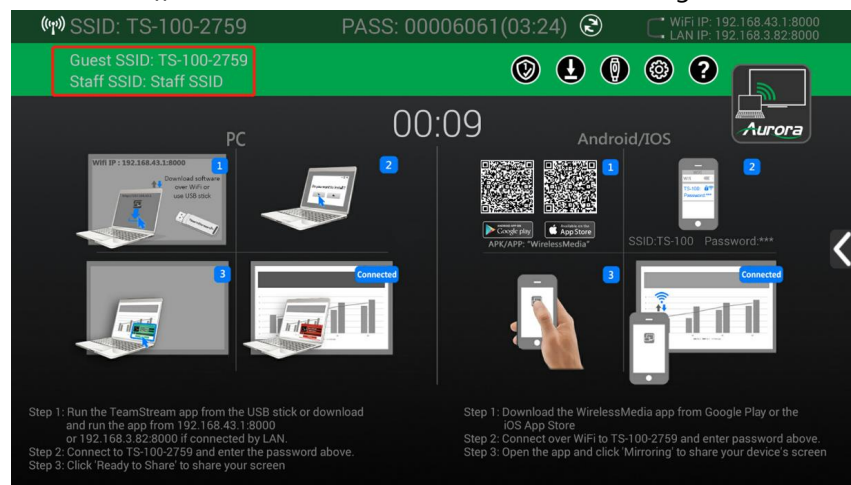
normal corporate environment and Internet access.

The actual received signal strength from the Guest network is shown on the home screen: .

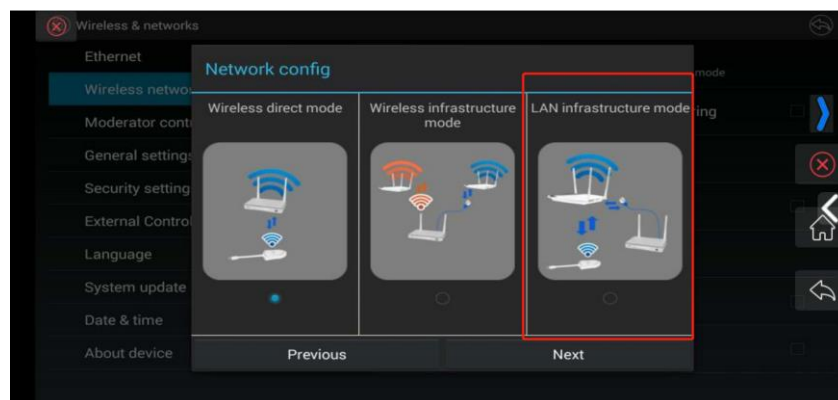
Follow the instructions of the configuration wizard for "Wireless infrastructure mode". When pairing the TeamStream key fobs (by plugging the TeamStream key fob in the USB port of the base unit) it will automatically pair to the associated access point of Guest or Staff Wi-Fi *and not* to TeamStream.

Click "**Next step**" to configure the network which "TeamStream" key fob needs to be paired again to.

The Wi-Fi name of *Guest* and *Staff* will be shown on home screen after clicking "OK".



## LAN Infrastructure Mode

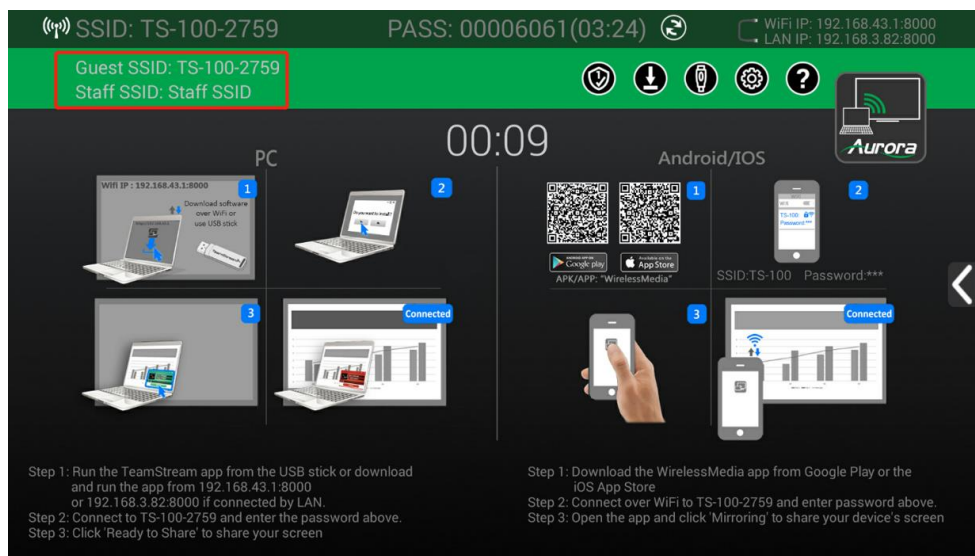


In this configuration the **built-in Wi-Fi** access point of TeamStream is **disabled**:

The key fob and mobile devices can connect to the secured wireless access point of the company network. The base unit of TeamStream is capable of a hard-wired connected via LAN to the Ethernet of the company network.

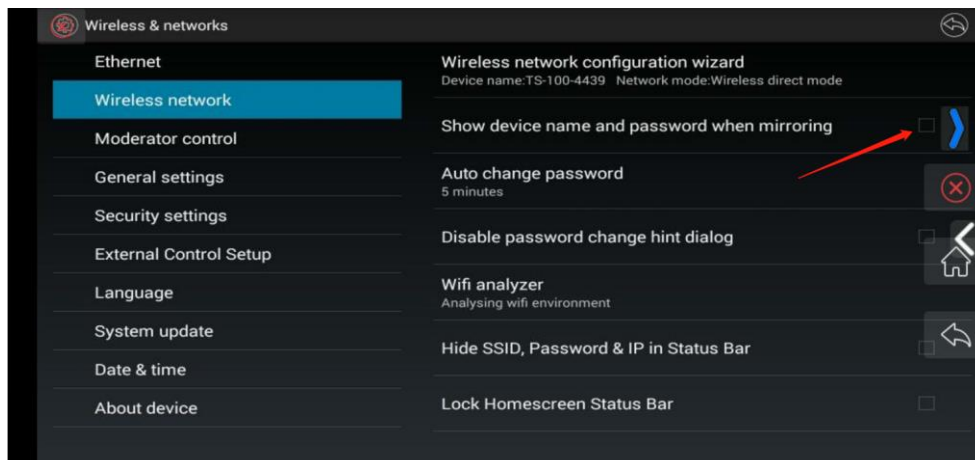
The *Staff* users connect to their usual access point of the company network, without changing the Wi-Fi. Follow the instructions of the configuration wizard for "LAN infrastructure mode".

The Wi-Fi name of *Guest* and *Staff* will be shown on home screen after clicking "OK".



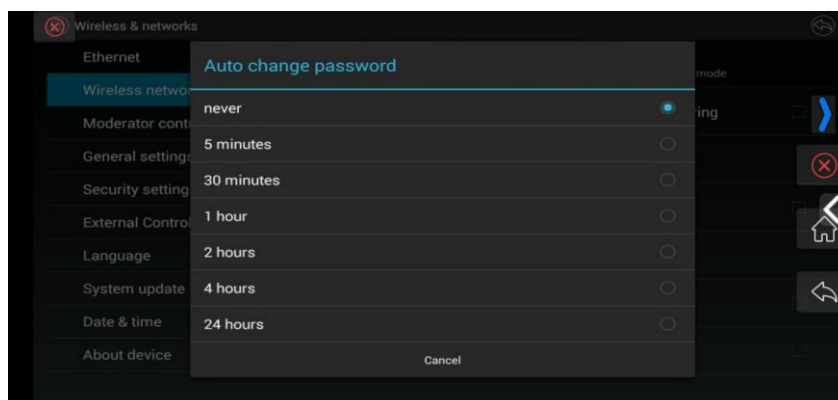
## Show SSID and PASS when mirroring

If "Show SSID and PASS when mirroring" is ticked, the information of the SSID, password, Wi-Fi IP & LAN IP will always be shown while mirroring. The default setting is *Off*.



## Auto change password

Configure to automatically change the Wi-Fi password to a random number every period of time.



Click to set the configuration, including:

- **Never:** never change the Wi-Fi password.
- **5 minutes:** change the Wi-Fi password every 5 minutes.
- **30 minutes:** change the Wi-Fi password every 30 minutes.
- **1 hour:** change the Wi-Fi password every 1 hour.
- **2 hours:** change the Wi-Fi password every 2 hours.
- **4 hours:** change the Wi-Fi password every 4 hours.
- **24 hours:** change the Wi-Fi password every 24 hours.

## Disable password change hint dialog

If ticked, there will be no change hint dialogue.

## Wi-Fi analyzer

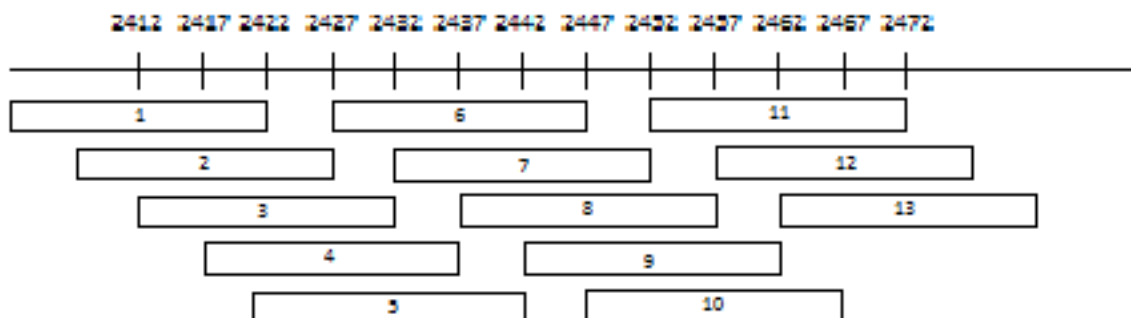
The Wi-Fi analyzer is an embedded application tool which provides advice for the deployment and Wi-Fi configuration.

The IEEE802.11 a/g/n/ac standard makes use of a part of the 2.4GHz ISM band of the 5GHz U-NII bands.

The 2.4GHz ISM band (industrial, scientific and medical) goes from 2.400 GHz to 2.500GHz and can be used freely by any radio device for industrial, scientific and medical application. This band is also used by several common telecommunications protocols or standards the likes of Wi-Fi, Bluetooth, ZigBee, RFID devices. A more comprehensive list of systems authorized on this band can be found at <http://www.efis.dk/sitecontent.jsp?sitecontent=ecatable> for the European Union and at <http://transition.fcc.gov/oet/spectrum/table/fcctable.pdf> for the United States.

The 802.11 standard divides the 2.4GHz ISM band into thirteen 22MHz wide channels, spaced 5MHz from each other (cf. as table 1 below). These channels strongly overlap with each other. The availability of these channels varies from country to country.

The table below depicts the channels enabled for the different regional versions:



**Wi-Fi channels in the 2.4GHz frequency band**

Channel Number	Frequency Range (MHz)	Regional Version			
		NA	EU	JP	CN
1	2401 – 2423	X	X	X	X
2	2406 – 2428	X	X	X	X
3	2411 – 2433	X	X	X	X

<b>4</b>	2416 – 2438	X	X	X	X
<b>5</b>	2421 – 2443	X	X	X	X
<b>6</b>	2426 – 2448	X	X	X	X
<b>7</b>	2431 – 2453	X	X	X	X
<b>8</b>	2436 – 2458	X	X	X	X
<b>9</b>	2441 – 2463	X	X	X	X
<b>10</b>	2446 – 2468	X	X	X	X
<b>11</b>	2451 – 2473	X	X	X	X
<b>12</b>	2456 – 2478				
<b>13</b>	2461 – 2483				

The 5GHz U-NII band covers discontinued parts of the RF spectrum between 5.15GHz and 5.825GHz and allows the use of unlicensed wireless systems. The U-NII band is divided into 4 different sub-bands subjected to specific restriction, as detailed in the next table:

<b>Band</b>	<b>Frequency Range (MHz)</b>	<b>Number of Wi-Fi Channels</b>	<b>Restriction</b>
<b>U-NII 1</b>	5150 - 5250	4	Now authorized for indoor and outdoor use
<b>U-NII 2</b>	5250 – 5350	4	Requires use of radar detection
<b>U-NII 2 extended</b>	5470 – 5725	11	Requires use of radar detection
<b>U-NII 3</b>	5725 - 5825	4	See guidelines

Contrary to the channels defined on the 2.4 GHz band, the channels defined on the 5 GHz band do not overlap with each other.

As represented in the last table, the U-NII 2 and U-NII 2 extended sub-bands are also used by several radar systems and can only be used by Wi-Fi access points using the Dynamic Frequency Selection (DFS) and Transmit Power Control (TPC) algorithms. These 2 algorithms have been defined by the IEEE802.11h standard

and specify a set of procedures to detect and avoid interference with radar systems operating in the U-NII 2 and U-NII 2 extended sub-bands.

Currently, the TS-100 access points do not support DFS and TPC as specified in the IEEE 802.11h standard and the list of the 5 GHz channels enabled for the different regional variants is displayed in the next table.

The 5 GHz band is much less used by non Wi-Fi devices than the 2.4 GHz band. Besides, many of the older Wi-Fi devices only support the 2.4 GHz channels, meaning that the 5 GHz band is less crowded. Moreover, 5 GHz channels do not overlap with each other. **As a result, the use of the 5 GHz channels is most often the preferred choice when installing.**

Channel Number	Frequency Range (MHz)	Regions			
		NA	JP	EU	CN
<b>36</b>	5150 – 5170	X	X	x	
<b>40</b>	5170 – 5190	X	X	X	
<b>44</b>	5190 – 5210	X	X	X	
<b>48</b>	5210 – 5230	X	X	X	
<b>149</b>	5735 – 5755	X			X
<b>153</b>	5755 – 5775	X			X
<b>157</b>	5775 – 5795	X			X
<b>161</b>	5795 – 5815	X			X
<b>165</b>	5815 – 5835	X			X



## Wi-Fi channel selection

Wireless communication signals travel over the air. As a result, two devices transmitting at the same time, on the same frequency, and within range of one another, will disturb each other. When the interference caused by other devices is too strong, the packets transmitted by the Wi-Fi transmitter get so distorted that they are no longer correctly understood by the receiver, and as a result these packets must be retransmitted. This causes a decrease in the actual data rate achieved between the transmitting and the receiving Wi-Fi devices.

To limit the effect of interference between Wi-Fi devices, the 802.11 standard makes use of the CSMA / CA and Clear-Channel Assessment (CCA) algorithms. Before sending a packet, the device checks whether another transmission is currently going on. If this is not case, the device can use the channel and sends some packets. Otherwise, the device will do a random back-off and retry to access the channel after a short period of time. Even with the use of the CSMA/CA and CCA algorithms, the presence of too many Wi-Fi devices on the same channel will have a negative impact on the maximum achievable data rate. Moreover, these algorithms are inefficient against interferences coming from non Wi-Fi devices or from Wi-Fi devices operating on overlapping channels. Therefore, it is strongly recommended to select a Wi-Fi channel with little to no congestion.

## Site survey

Ideally, the selection of the Wi-Fi channel should be made after conducting a wireless site survey. This site survey maps out the different sources of interference and the active RF systems.

Based on the results from the site survey, the least occupied channel can be found and selected for each meeting room. The Wi-Fi Analyzer includes two modes: *Simple Mode* (to deeply check one Wi-Fi hotspot) and *Expert Mode* (to check the Wi-Fi spectrum signal strength).

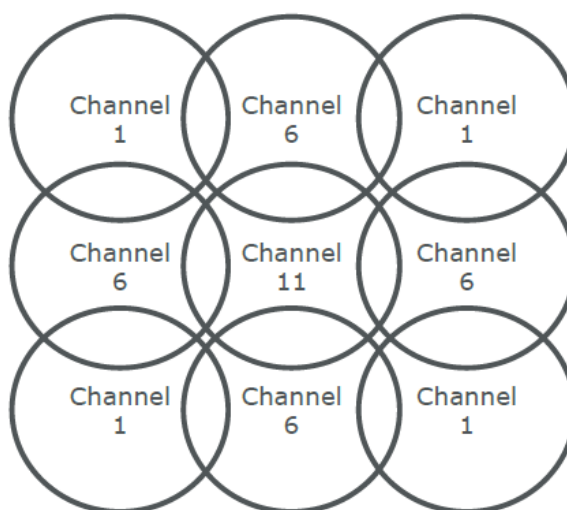
## Generic configuration rules

In case no site survey can be made, the following rules of thumb should allow for a correct configuration:

- The TS-100 access point in a particular meeting room should not re-use a Wi-Fi channel that overlaps with one of the channels used in the corporate WLAN infrastructure. Ideally, at least two channels in the corporate WLAN should be reserved exclusively for TS-100. In the case that many TS-100 systems are

located closely to one another, more channels may be required. When installing TS-100 base units, we recommend checking with the local IT department which channels are not used by the corporate WLAN infrastructure.

- In an ideal setup, overlapping channels should not be used for two TS-100 base units within range of each other. As the channels in the 2.4 GHz band overlap with each other, best practice is to use channels 1, 6 and 11 on a single floor. On floors above and below, the channel pattern will be shifted to avoid overlap between floors (e.g. by placing channel 6 at the center of the illustrated pattern).



- In case there are not enough channels available, two or more TS-100s can be placed on the same channel; however, this will have an impact on the quality of the link when several clients are sharing simultaneously. In the worst case scenario, with three base units placed on top of one another, this can result in performance issues, as illustrated in the following tables. Table 1 shows a scenario in which all clients are streaming video content, and Table 2 shows a standard office situation where clients share typical office documents or presentations.
- As stated above, the 5 GHz channels do not overlap with each other and are less used by non Wi-Fi devices than the 2.4 GHz channels. Moreover, 5 GHz signals are more rapidly damped than 2.4 GHz signals. Therefore, the use of a 5 GHz channel is recommended. This will limit the impact of a TS-100 system on other installed TS-100 and on other WLAN users.

**Table 1**

<b>Clients sharing video</b>	1	2	3
<b>1</b>	Ok	Ok	Ok
<b>2</b>	Ok	Ok	Moderate risk of reduced quality
<b>3</b>	Ok	Moderate risk of reduced quality	Strong risk of reduced quality
<b>4</b>	Ok	Strong risk of reduced quality	Strong risk of reduced quality

Table 1 represents a connection quality matrix when multiple co-located base units use the same channel at the same time for video streaming.

**Table 2**

<b>Number of clients sharing typical office documents</b>	1	2	3
<b>1</b>	Ok	Ok	Ok
<b>2</b>	Ok	Ok	Ok
<b>3</b>	Ok	Ok	OK
<b>4</b>	Ok	Ok	Moderate risk of reduced quality

Table 2 represents a connection quality matrix when multiple co-located base units use the same channel at the same time for daily office work (Power point presentation, Excel sheets ...)

## Important remarks about the TS-100 system installation

A correct installation of the TS-100 base unit is of critical importance to ensure good performance and a robust communication between the TS-100 buttons and the base unit. When installing the TS-100, please follow the rules below:

- The most favorable setup is a direct line of sight between base unit and buttons. Any obstruction will cause the signal to follow a longer propagation path, which can degrade performance.
- Due to the particular radio pattern of the dipole antennas used with the TS-100 base unit, the antennas should not be placed above TS-100 users. In case of ceiling-mounted setup, the advised position for the TS-100 base unit antennas is at the side of the meeting room.
- Do not use the TS-100 base unit without the shipped antennas. Removing the antenna will cause severe degradation of the signal quality and may result in connection issues between the TS-100 base unit and clients.
- Place the base unit in an open emplacement and avoid installing in a metallic shell. A metallic shell (or even shelf) could act as a Faraday cage and block the RF signal. In case this is unavoidable, please use a TS-100 rack-mounting kit or external antennas.

Once the TS-100 base unit is installed, it is best to control the signal strength at the potential TS-100 Button location. For correct performance, signal strength of -70dBm is needed.

## Wi-Fi Troubleshooting

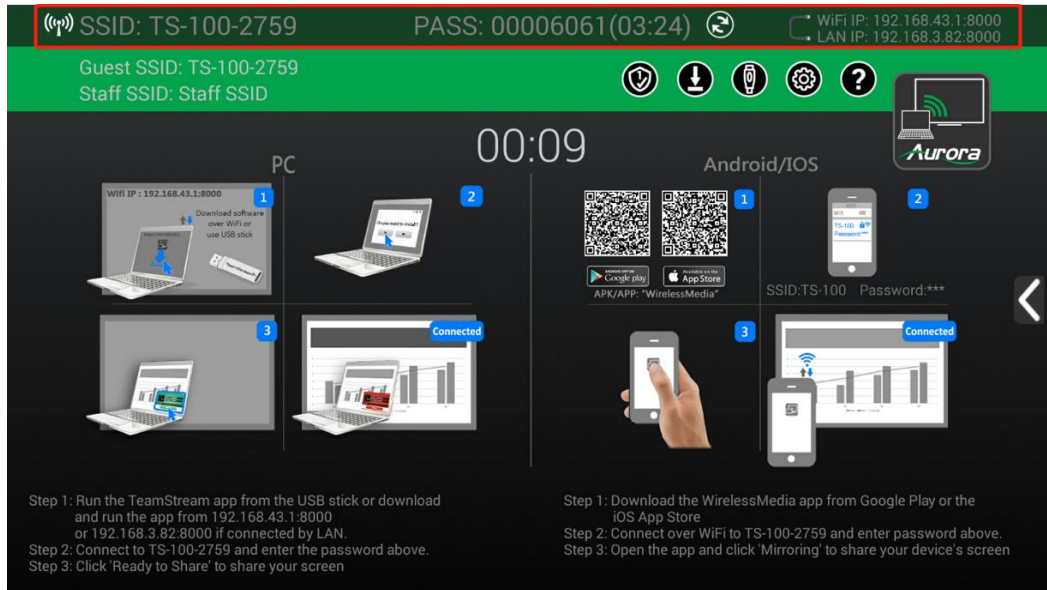
Even if the selected channel is free of any interference, a weak signal coming from the TS-100 client (Button or mobile device) can result in an unstable link. In such cases, we recommend:

- Measuring the RSSI from the TS-100 base unit at different Button locations. This can be done by means of a free Wi-Fi survey tool like the Android Application "Wi-Fi Analyzer" or another base unit's embedded Wi-Fi Analyzer. As explained above, the RSSI should be at least -70dBm.

If the measured RSSI is too low, check above paragraph "Important remarks about the TS-100 system installation".

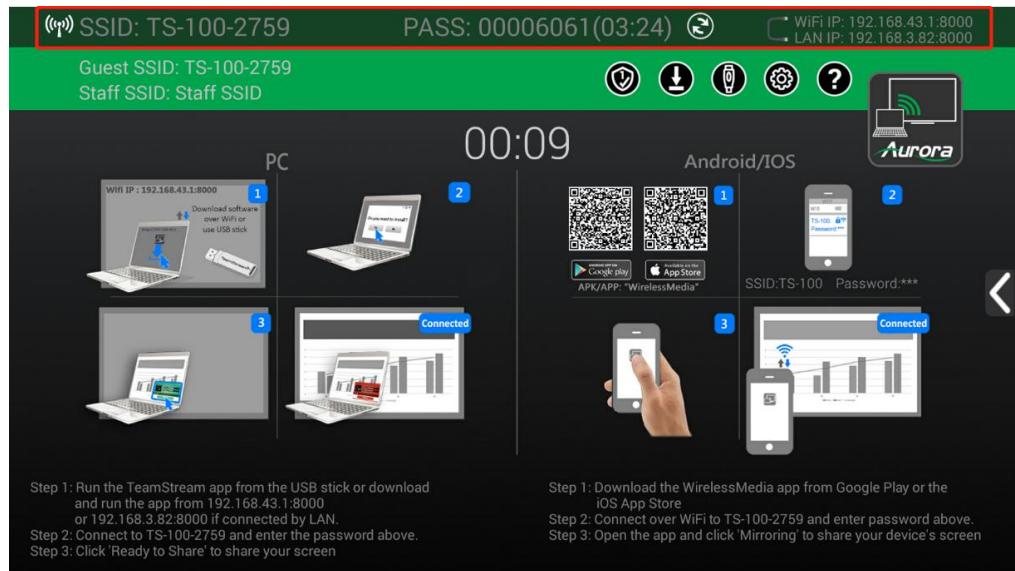
## Hide SSID, Password & IP in Status Bar

While this option is ticked, the status bar will be hidden so that users cannot connect the base unit via hotspot.



## Lock Home Screen Status Bar

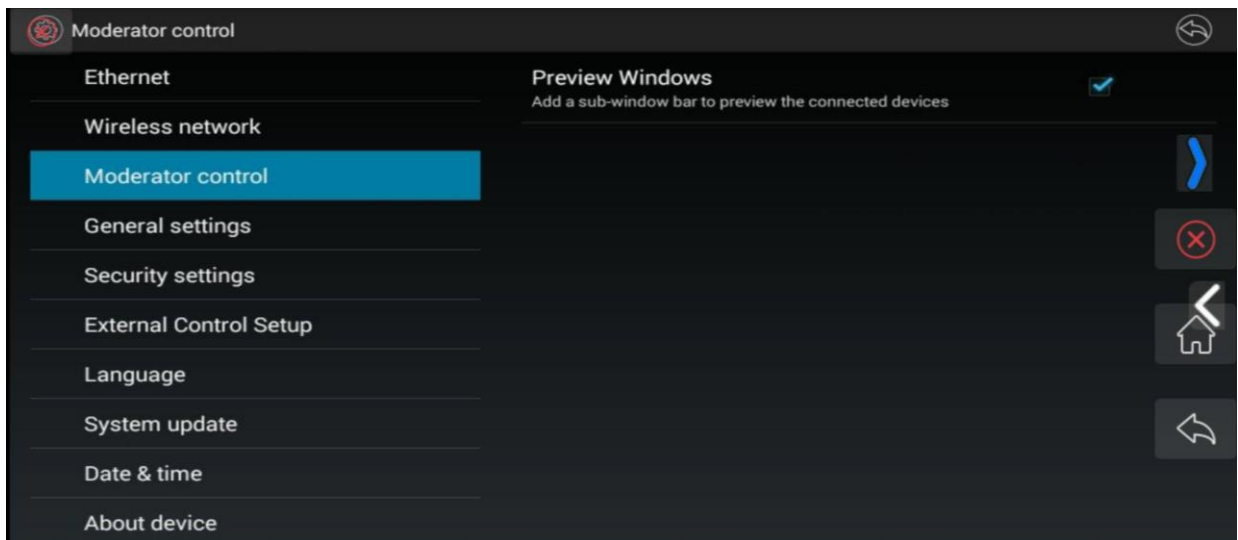
While this option is ticked, the status bar will remain, showing whether it is mirroring or not. During this time, the user may connect to the base unit.



## Moderator Control

### Preview Windows

If "Preview Windows" is turned on, the connected TeamStream key fobs will be showed on the right column of display as small windows.

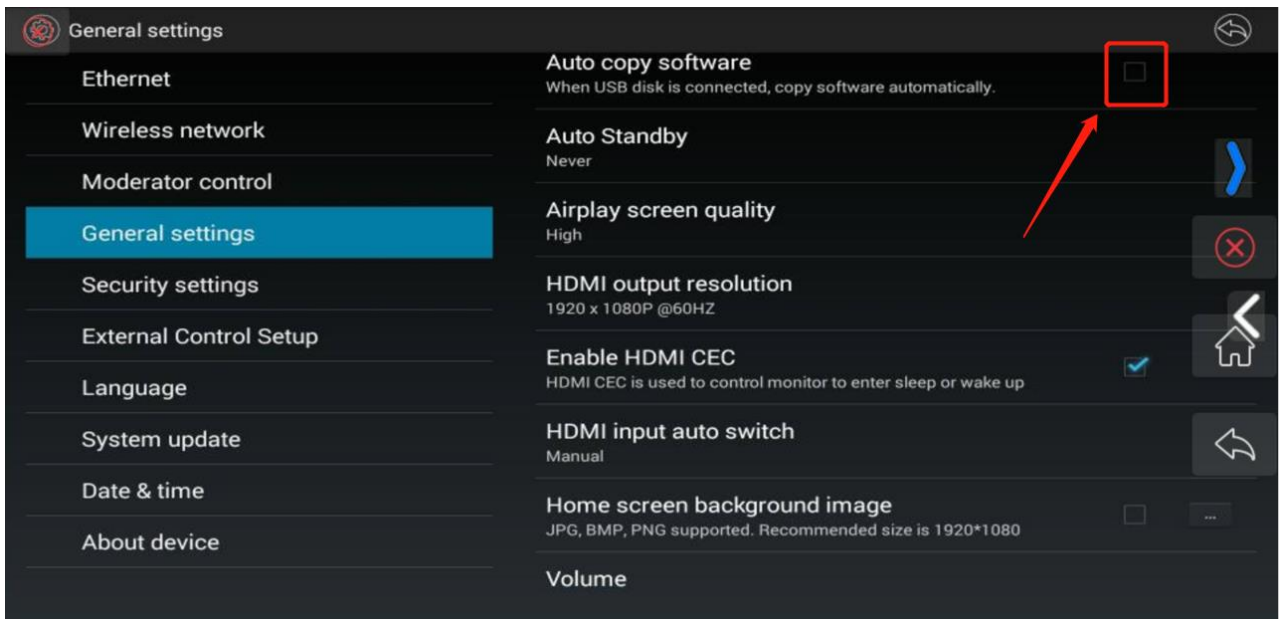


## General Settings

This section includes access to Auto Copy Software, Auto Standby, Airplay Screen Quality, HDMI Output Resolution, Enable HDMI CEC, HDMI Input Auto Switch, Home Screen Background Image and Volumes.

### Auto Copy Software

When a USB stick is plugged in, the launcher will be copied automatically to the USB stick, which includes TS-100.exe, the program for Windows / MacOS and the user manual of TS-100. (The default setting is *off*.)



### Auto Standby

The TS-100 will automatically enter standby mode, using limited power to maintain functionality. Standby time could be configured to:

- **Never:** The TS-100 will never go into standby mode.
- **5 minutes:** The TS-100 will go into standby mode every 5 minutes.
- **30 minutes:** The TS-100 will go into standby mode every 30 minutes.
- **1 hour:** The TS-100 will go into standby mode every hour.
- **2 hours:** The TS-100 will go into standby mode every 2 hours.
- **4 hours:** The TS-100 will go into standby mode every 4 hours.

- **24 hours:** The TS-100 will go into standby mode every 24 hours.

There are 3 methods to wake up the TS-100:

- 1) Connect the TeamStream key fob to a PC and it successfully connects to the TS-100.
- 2) Plug an USB mouse to USB port of TS-100 and move the USB mouse to wake up TS-100.
- 3) Push the power button of TS-100 to wake up.

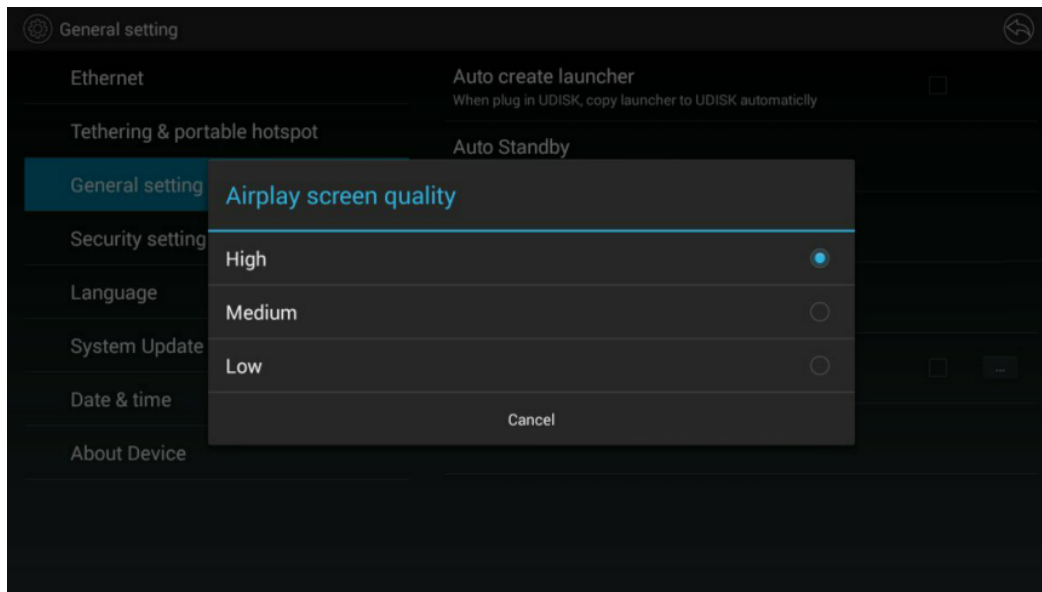
Attention: There are 3 situations which will make TS-100 go into standby mode:

- 1) Under the "Auto Standby" setting, the standby mode is configured to "Never".
- 2) The TeamStream key fob is still connected to PC and successfully connected to TS-100.
- 3) If a USB mouse is connected to USB port of TS-100 and move the USB mouse, standby time will be re-calculated.

## Airplay Screen Quality

Click to select the image quality when transmit apple device by "Airplay" mode, including

- High: 1920x1080
- Medium: 1280x720
- Low: 1136x640





**Note:**

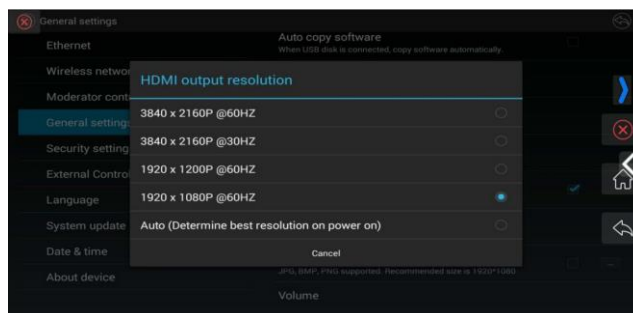
- Different airplay quality will occupy different data rate.
- Under a certain data range, lower resolution will get better fluency.

## HDMI Output Resolution

Click to select the output resolution for TS-100 HDMI output port.

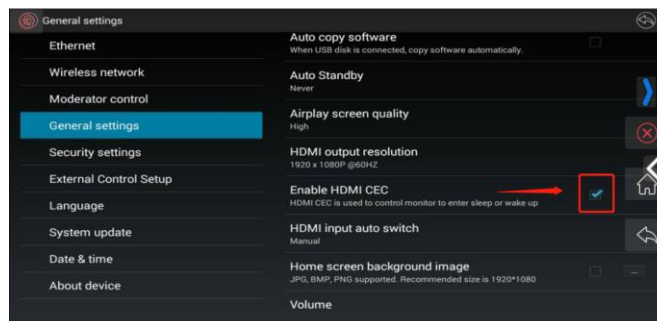
**HDMI output resolution:**

- **3840x2160 @60Hz:** Set the HDMI output resolution of TS-100 at 3840x2160 60Hz.
- **3840x2160 @30Hz:** Set the HDMI output resolution of TS-100 at 3840x2160 30Hz.
- **1920x1200 @60Hz:** Set the HDMI output resolution of TS-100 at 1920x1080 60Hz.
- **1920x1080 @60Hz:** Set the HDMI output resolution of TS-100 at 1920x1080 60Hz.
- **Auto :** Re-authenticate output resolution only when powered on.



## Enable HDMI CEC

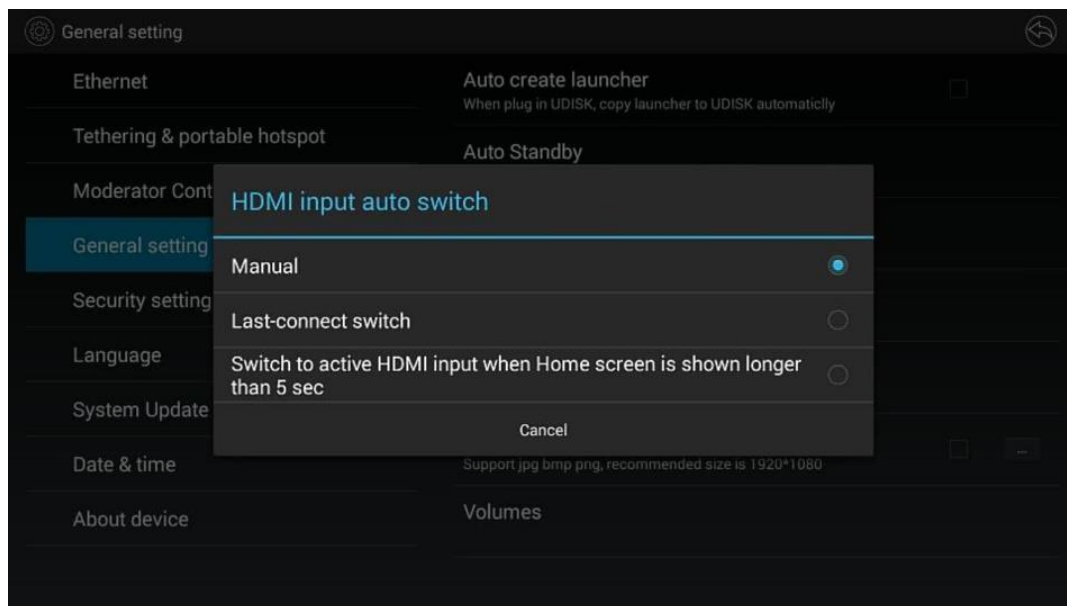
When "Enable HDMI CEC" is ticked, the HDMI CEC function is enabled, so that the TS-100 can control the monitor to enter sleep or wake up.



## HDMI Input Auto Switch

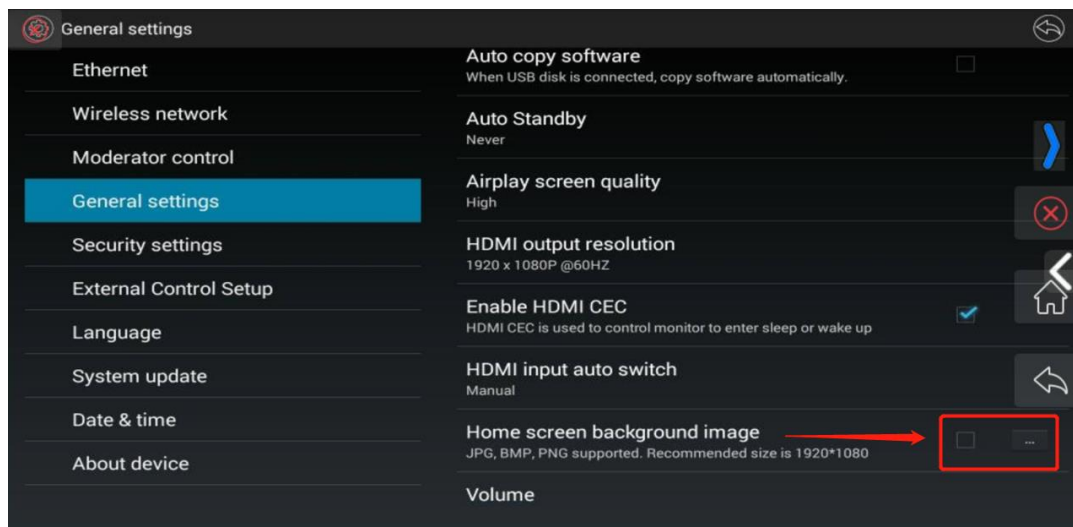
There are three mode for the HDMI auto switch:

- Manual: manually switch to wired input signal source by clicking wired icon on the home page.
- Last-connect switch: Switch to the last-connected wired input source.
- Switch to active wired input when the home screen is shown longer than 5 seconds.



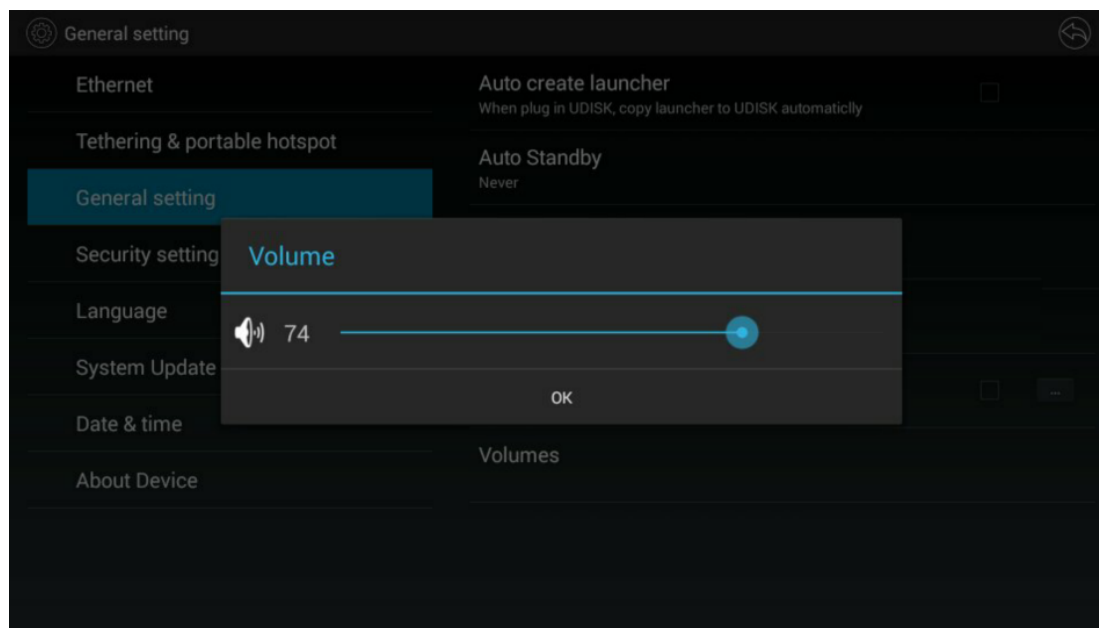
## Home Screen Background Image

To set a user-defined background, use a USB stick (with an image inside) to connect to the base unit, click and choose an image to apply to homepage. (Supports jpg, bmp, png, recommended image size is 1920\*1080.)



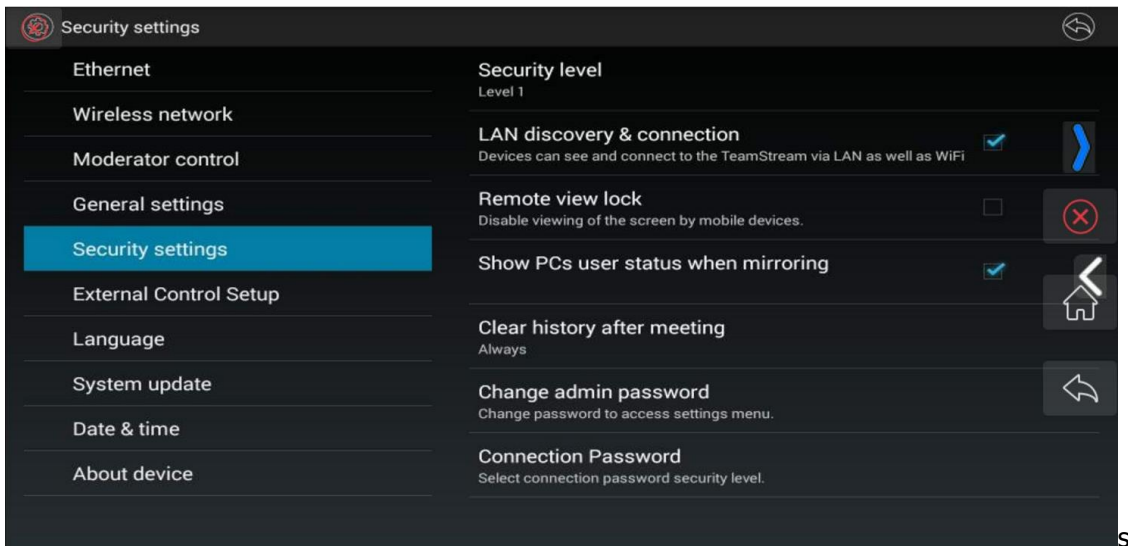
## Volume

The volume output of TS-100 can be adjusted under the general settings.



## 6.4 Security settings

The security settings include Security level, LAN discovery & connection, Remote view lock, Show PC's user status when mirroring, Clear history after meeting, Change admin password and Connection Password.



## Security Level


Based on user requirements, **three different security levels** can be set in the menu of TeamStream; this allows the user to satisfy different security requirements, according to different security sensitive environments or security policies. A security level is a predefined set of settings. Click on the corresponding entry in the menu if you want to adjust the respective security features. The default setting is level 1.



**Level 1:** Normal safety; this keeps the security in normal and daily usage for any organization, such as a classroom, regular meeting room, etc.

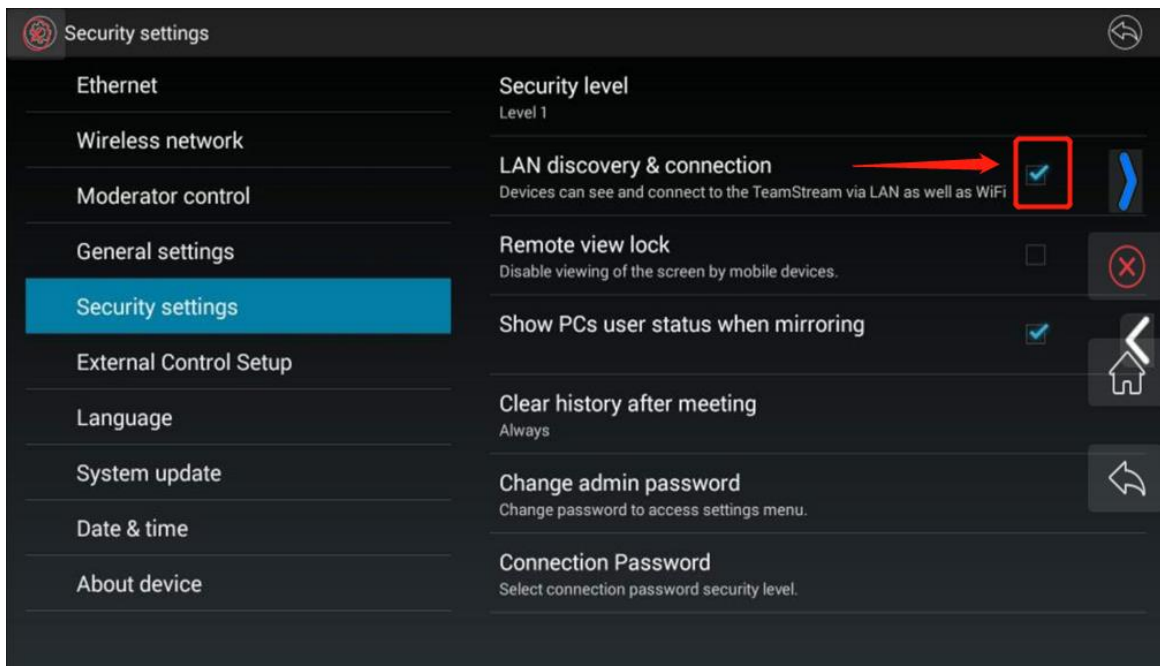
**Level 2:** Higher security; this provides increased security for companies, organizations, government agencies, etc., through powerful encryption of audio and video data; other security features include limiting the transmission of *AirPlay* by introducing a password.

**Level 3:** This is used for strict security requirements of companies, organizations, authorities and banks. This level contains all "Level 2" security measures; in addition, all mobile applications, such as the Android app, as well as AirPlay, are blocked. Additionally, the web browser (WebUI) of the Base-unit is blocked. The downgrade of the firmware is not possible.

The settings of the security level is displayed in the home screen. Click the  icon for more information.

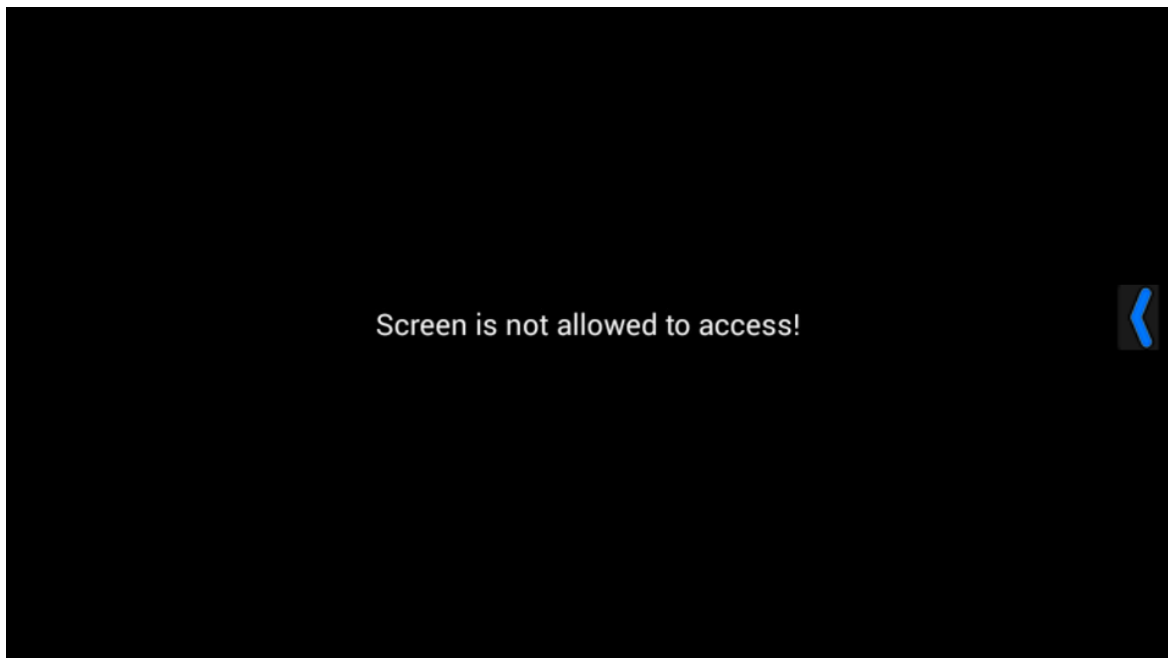
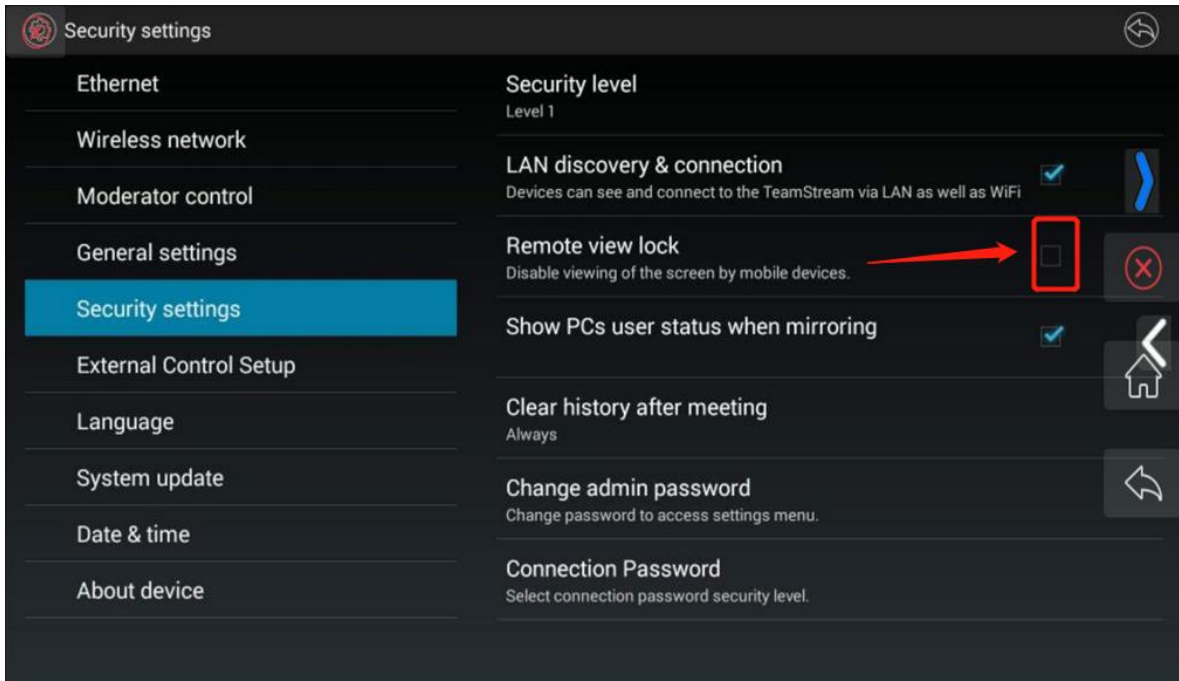
## LAN discovery & Connection

Allow the PC, mobile device or tablet to discover the TS-100 in LAN and connect to it.



## Remote View Lock

When the "Remote View Lock" is ticked, the mobile device will show message "Screen is not allowed to access" as below:

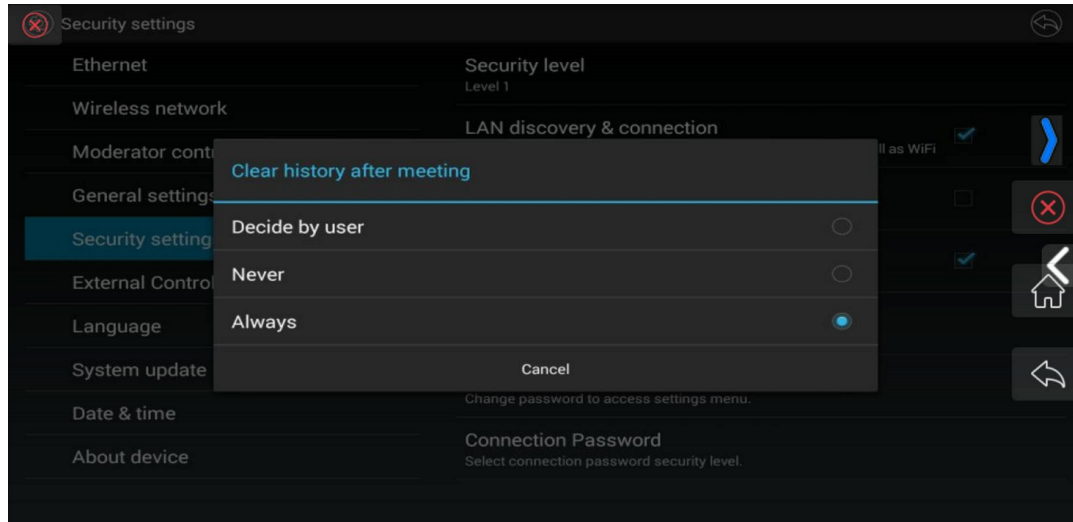


## Clear History After Meeting

You may set how you would like the clear the history after a meeting as follows:

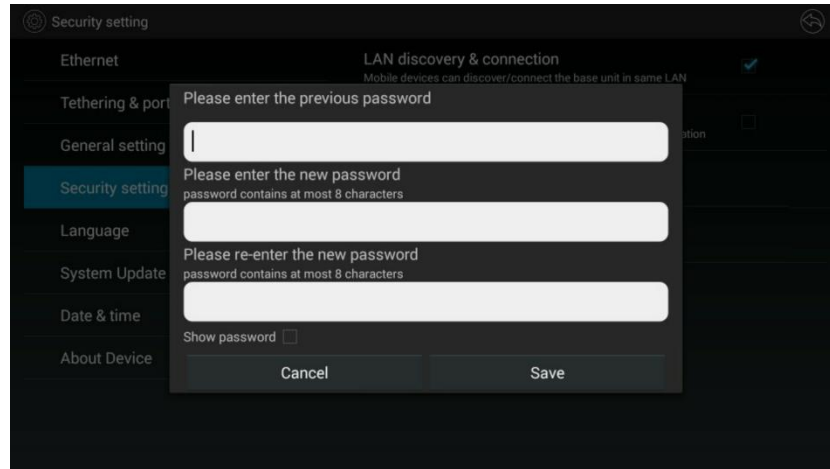
- Decide by user
- Never
- Always

The default setting is *Always*.



## Change admin password

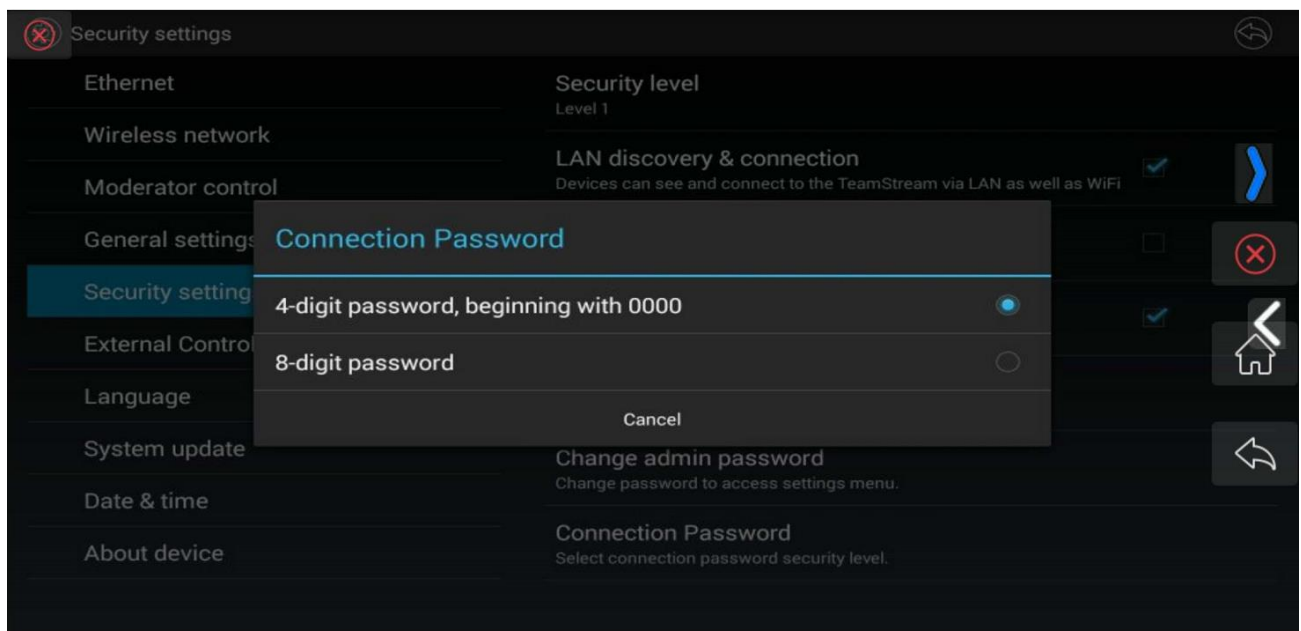
When entering the **Settings** menu, please input the password. The default password is *admin*. You may change the password here.



## Connection Password

You may choose between two formats of password to be displayed on the home screen:

- 4-digit password, beginning with 0000
- 8-digit password



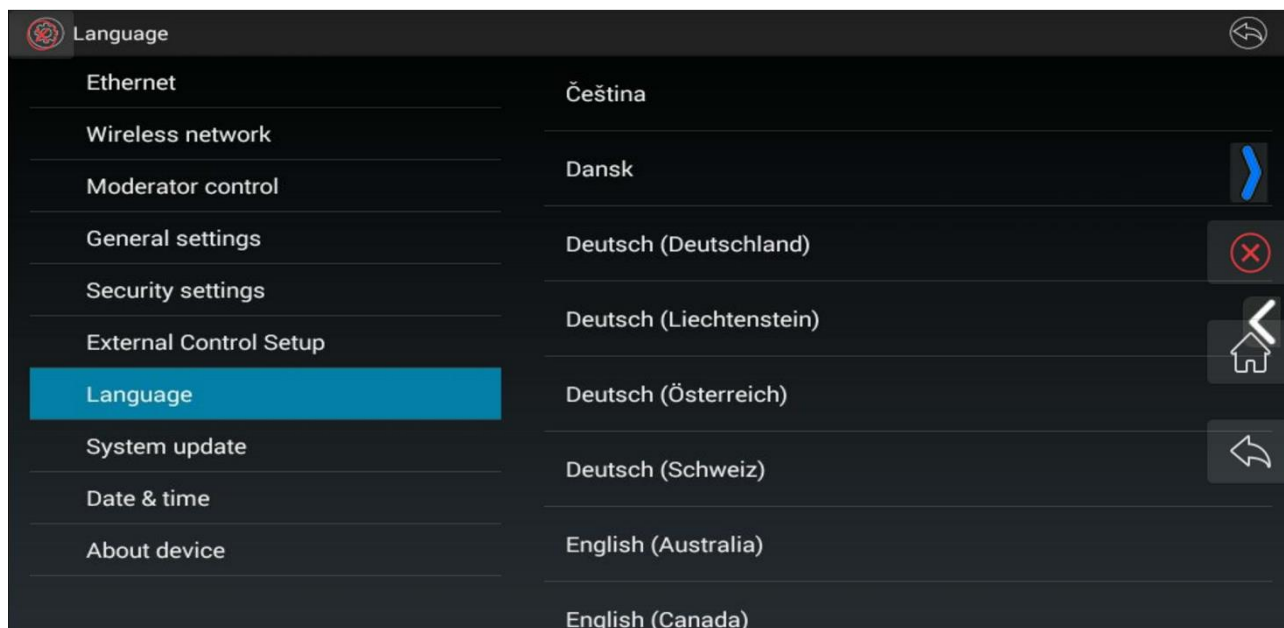
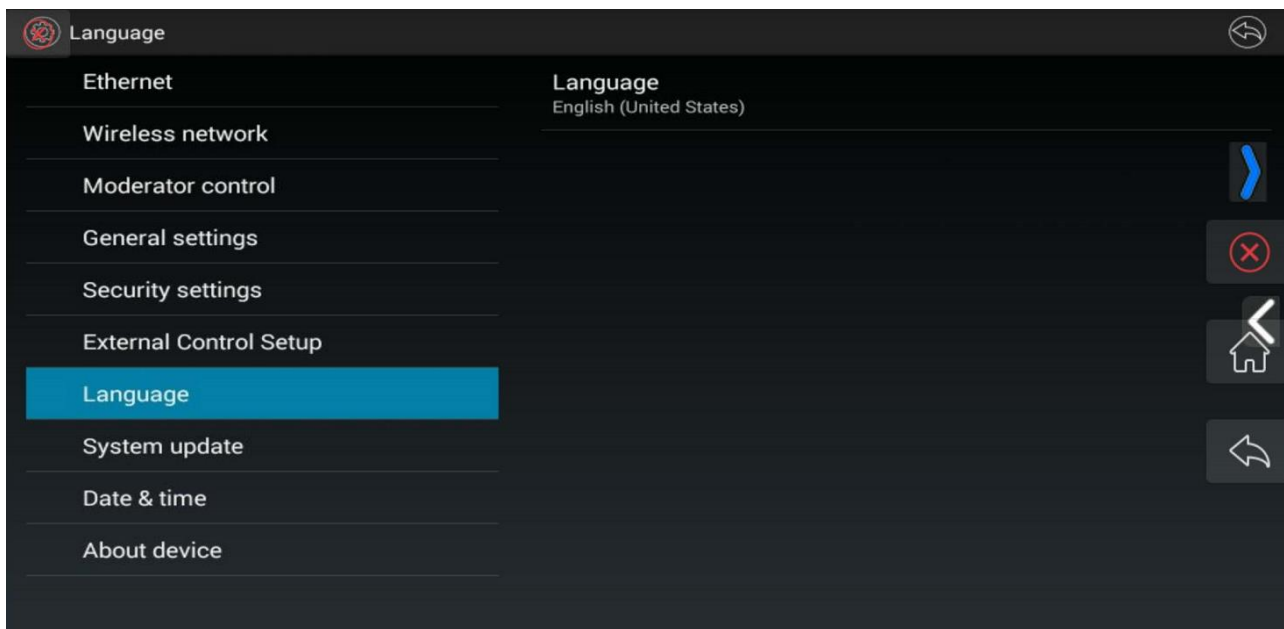


## External Control Setup

The *External Control Setup* section provides information on operating the base unit remotely.

### Language

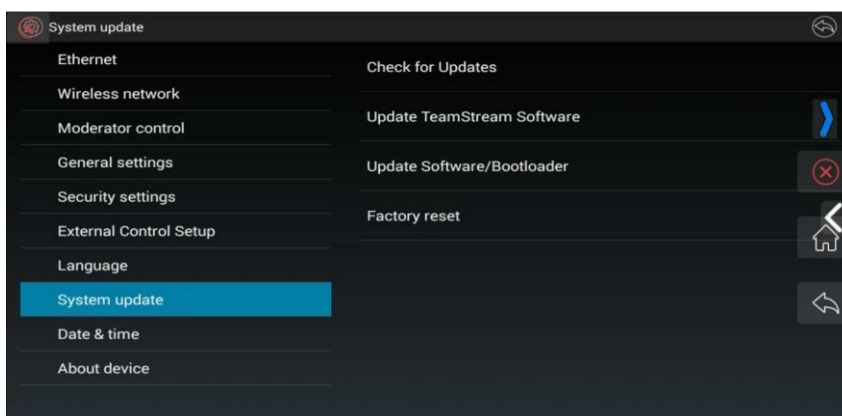
Your active language will be displayed. Click to select the appropriate language.



## System Update

The *System Update* menu includes both a *local update* and a *full update*.

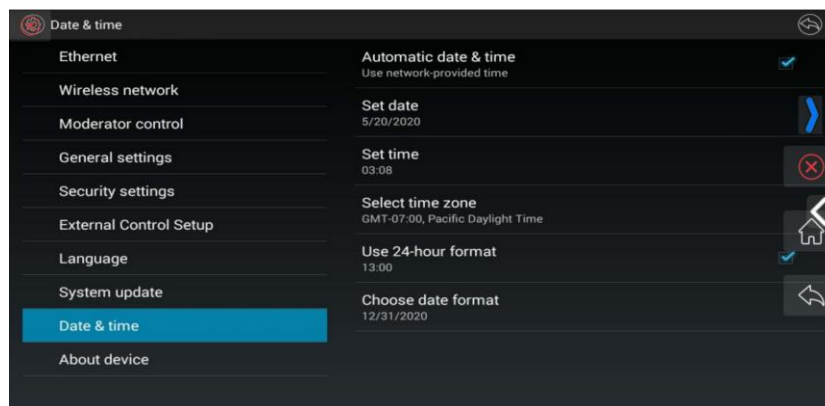
- **Local Update:** Includes only the application software.
- **Full Update:** Includes the application software and firmware.
- **Factory Reset:** Click to perform a factory reset.



## Date & Time

You may choose from the following options to adjust the date and time:

- **Automatic date & time:** Check to use the network provided time as the system time of TS-100.
- **Set date:** Click on the input field to fill in the appropriate date.
- **Set time:** Click on the input field to fill in the appropriate time.
- **Select time zone:** Click on the input field to fill in the appropriate time zone.
- **Use 24-hour format:** Click to select whether or not to use the 24-hour format.
- **Choose date format:** Click to select the data format.



## About Device

This section includes the model number and software Version of your device.



## Updating TeamStream

TeamStream includes two methods of updating: “Local Update” and “Full Update”.

“Local Update” will only update the OS, which is used by users.

“Full Update” will update the OS and booter loader, which is used by professionals. The TeamStream key fob can be upgraded to the latest FW, while it's connected to the USB port for pairing.

## ABOUT THE FIRMWARE:

### Where is the firmware?

There are two firmwares in the TeamStream system that need to be upgraded: the TS-100's firmware and the "Launcher" firmware. They are stored in the base unit, and manually transferred to different devices to run.

- **TS-100's firmware:** This firmware is stored in the receiver / base unit.
- **"Launcher" firmware:** This is the PC / laptop's client software version, which is stored in the base unit. It can be downloaded on your PC and manually transferred by a USB stick, or by downloading from the device's Wi-Fi page.

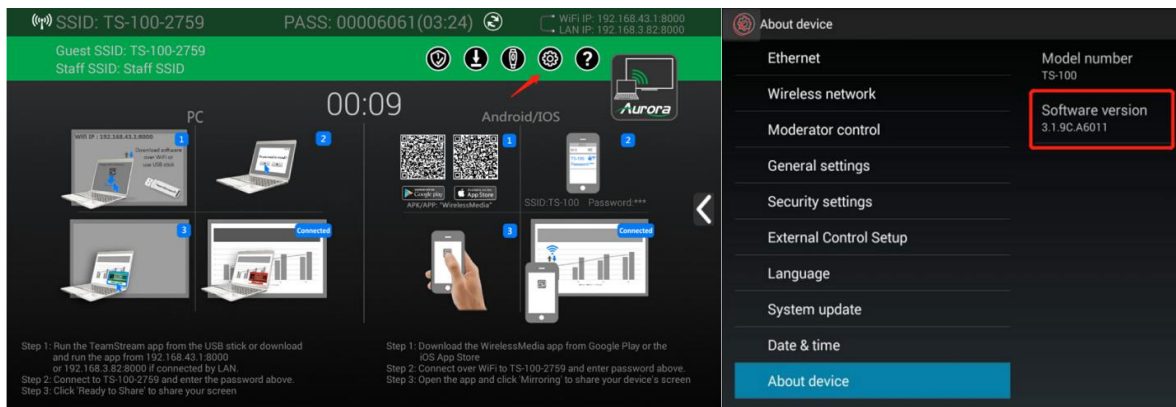
### How can I check the current firmware version?

TS-100's firmware:

The TS-100's firmware version can be visible in the "Setting icon"---"About Device"---"Software version", as shown below:

Steps:

1. Connect a mouse to eight USB port of TS-100, and click the setting button on right top corner, as shown below:

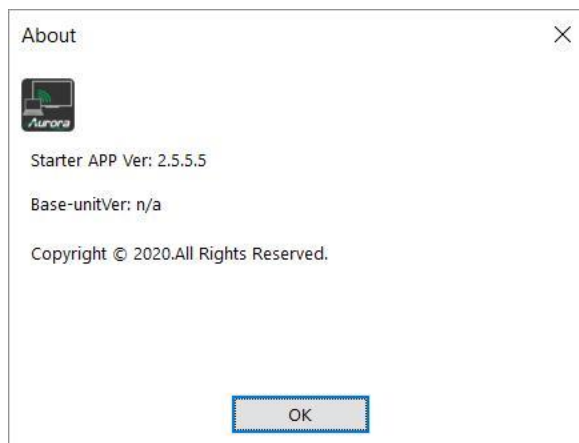


2. Click the menu "About Device", to check the item "Software version". For example, the 2.2.3C.A1027 is the firmware version number of TS-100.

## "Launcher" firmware:

The TeamStream key fob's firmware version, i.e. the transmitter version, can be seen in the TeamStream PC program icon in the status bar, by right-clicking the TeamStream icon and selecting "About", as shown below:

1. After you copy "TeamStream.exe" on windows and run the file, the TeamStream PC program icon will be shown in the status bar.
2. Right-click the icon; this will display a menu, including "Option", "About" and "Exit".
3. Click "About". It will display a message box as shown below:

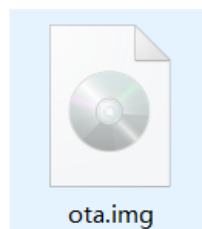


## 7.2 Upgrading TS-100:

**There are two ways to upgrade the base unit.**

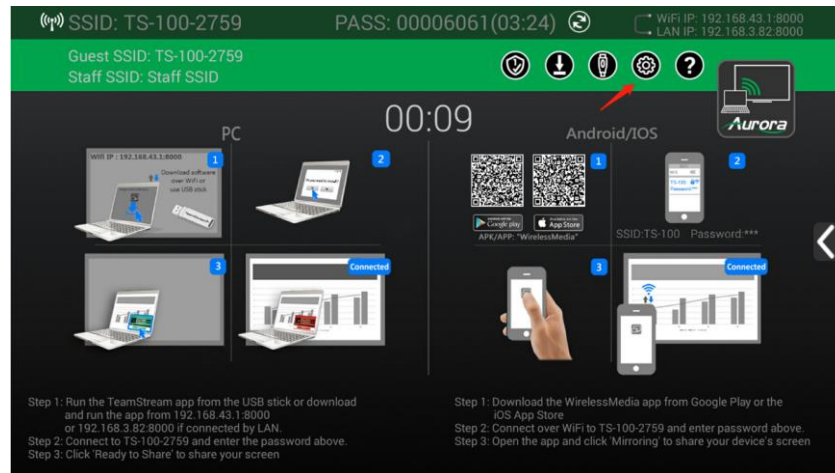
The TS-100 device perform a "Full-Update" via a USB drive as follows.

1. Copy the update file, "update.bin", to the root directory of the USB drive.

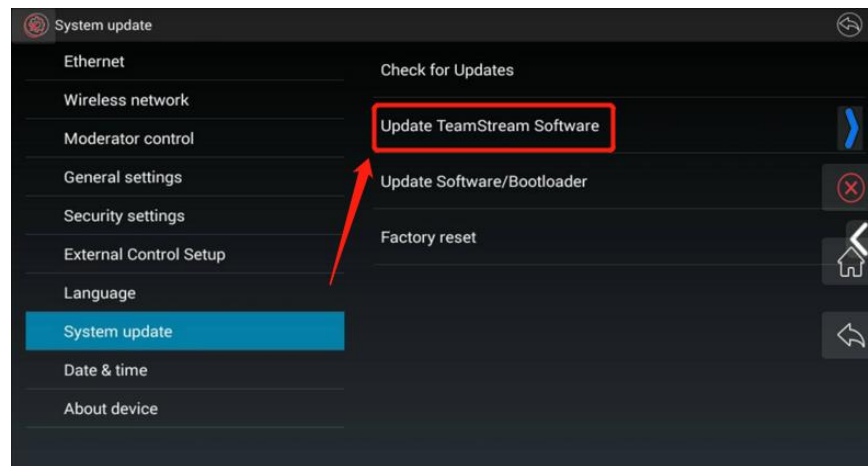


2. Connect the USB drive to either USB port of the TS-100 base unit.  
**Attention: The USB port can only support maximum 500ma. Please use a low power U-disk to update.**
3. Connect an HDMI display to the TS-100's HDMI output port.

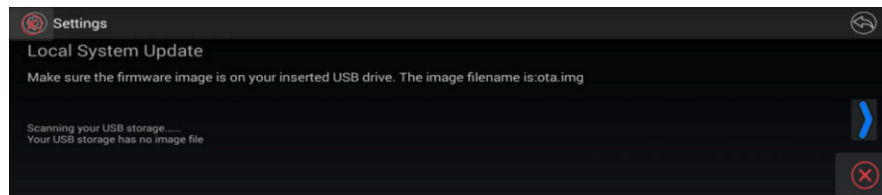
4. Connect the power adapter to the power socket of the TS-100 base unit and turn it on by pressing the front panel power button. The display device shows the home page after a normal boot of the device.
5. Connect a mouse to either one of USB 2.0 port on TS-100, and click the "Settings" button, as shown below:



6. Then, click "System Update".



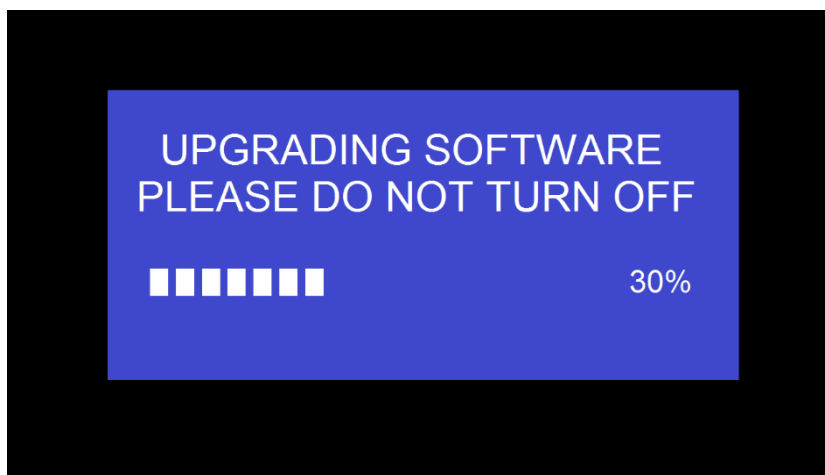
7. Click the button "Update TeamStream Software" and include OS & bootloader.



8. After clicking the update button, "Reboot to continue update?" will be displayed on the device. Please click "OK".

**Attention:** The unit can't be powered off until the upgrading process is finished; otherwise, the unit firmware will be corrupted.

9. The upgrading progress displays as shown below, and the unit will reboot automatically after complete the updating 100%.



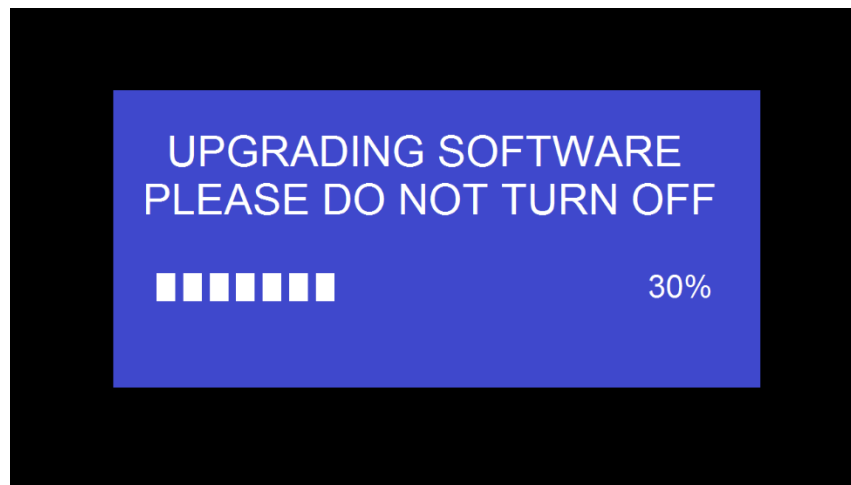
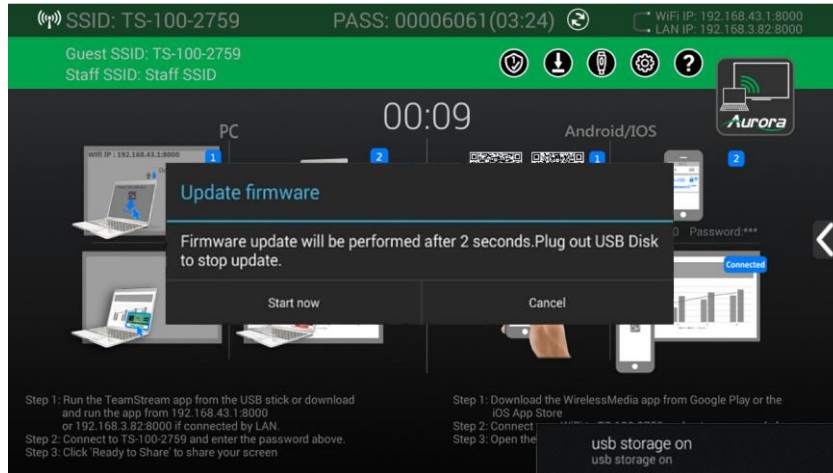
10. After the software upgrade is complete, the unit will display the homepage.



11. Please click the settings button to open the menu, and check whether the correct FW version is upgraded.
12. You are now able to use the firmware's new features.

**The second firmware update method is available for newer firmware versions.**

Since firmware version 3.1.9C.A6011 and later firmware versions, the TS-100 base unit can be automatically upgraded by using a USB stick with the firmware inside to connect to the USB port of base unit. After 5 seconds, the base unit TS-100 will begin auto upgrading.



Note: If the firmware is already upgraded to final firmware version, it will show "Version match, no need to update".



## Updating the Launcher

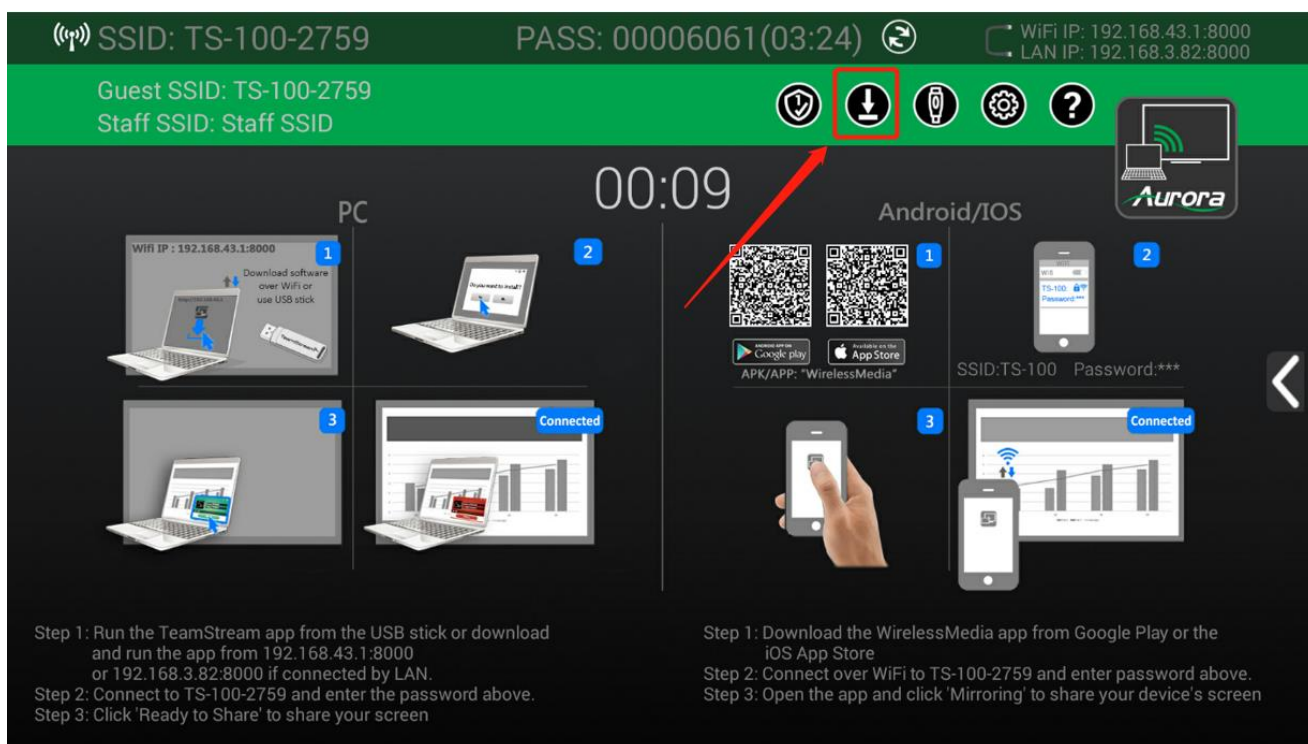
Attention: The USB driver should be FAT 32 format not NTSC format.

After upgrading the TS-100, the launcher must be updated as well.

There are 2 methods to update the launcher, by USB or by Wi-Fi.

### Updating the launcher by USB:

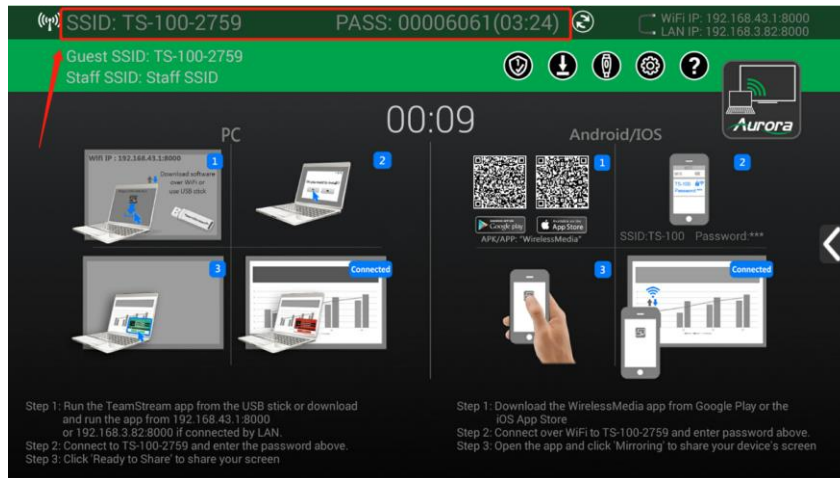
1. Connect the USB drive to either USB port of the TS-100.
2. Click the "Download" button on the home page, as shown below:



3. Once the download is complete, a notification will appear on screen.

## Updating the launcher over Wi-Fi:

1. Connect your PC's Wi-Fi to the TS-100's SSID and enter password on the homepage.



2. Open your internet browser and enter the Wi-Fi IP address: 192.168.43.1:8000.



在 Google 上搜索或输入网址

3. Click to enter the launcher's download page.
4. Choose and click Windows or MAC launcher to download TeamStream.exe.
5. Click to go to the folder where the "TeamStream" exe. program stores.
6. Run the TeamStream.exe program to start sharing.
7. Now, please eject your USB drive and connect it to your PC.
8. There are two methods to execute the launcher for first time users:
  - Copy the \*.exe program to PC, and click it to begin sharing.
  - Connect the TeamStream key fob to PC. Then, click to run the \*.exe file from the USB drive.

You will not need to repeat this step for either method in the future.

## Cleaning leftover TeamStream files on your computer

When there are some old versions of TeamStream files left in the laptop, it may influence the performance of the newer TeamStream program. Currently, it needs to be manually cleared, prior to using the newly updated TeamStream firmware.

Steps:

1. Find the place where the old TeamStream programs are stored. Normally, these files are stored in the C:\Users\\*\*\*(username)\AppData\Local\TeamStream.
2. If the "\*.service" or "\*.serviceC3" can't be removed, an alert notification will appear. Please use the combined hot keys *Ctrl+Alt+Delete* to proceed.
3. Right-click on "\*.service", "\*.serviceC3", or "TeamStreamAutoServiceC3.exe" and click *End Process Tree*.
4. Click *End process tree* on the message box to continue clearing the program.
5. Check the task manager again to be sure there are no TeamStream programs still running. Also check to be sure there are no more TeamStream references in C:\Users\\*\*\*(username)\AppData\Local\TeamStream.

The upgrade is now complete. Please feel free to enjoy the new firmware version and features!

## Transmitting video data


**Operating system requirement:** Windows XP/Vista/7/8/8.1/10 32 & 64 bit

### For Microsoft Windows PC / Laptop

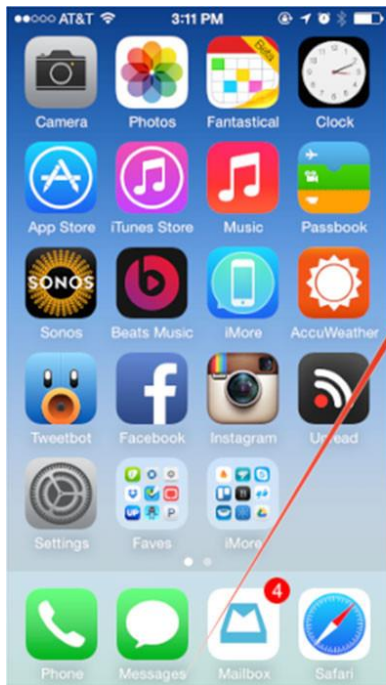
- 1) Use a USB stick to create the launcher, which includes the TeamStream.exe app for Windows and Macbook, the WirelessMedia APK and User Manual; or download the launcher by connecting your PC to the SSID & PASS displayed on the homepage of your TeamStream device.
- 2) Plug the USB stick into the USB port of your PC or laptop, or the type-c port for type-c connectors, after creating the launcher.
- 3) Execute TeamStream.exe / app in a USB stick, then plug the USB dongle into your PC or laptop.
- 4) TeamStream runs after clicking; wait until the UI is green, then click the "Ready to Share" button to mirror your screen.
- 5) You may click the Red UI to remove the source from the main screen.
- 6) A TeamStream status icon is added to the status bar at the right bottom corner.  
Right click it to open up the settings of TeamStream, including:
  - a) **Extended Desktop:** Check to transmit the extended desktop of the PC or Laptop. (The desktop is mirrored by default.)
  - b) **Keep Aspect Ratio:** Click to keep the original aspect ratio displayed on the main screen.
  - c) **HDMI 1 Input:** Click to switch between the wired source and wireless source input signal.
  - d) **Remote Control Lock:** Click to enable / disable remotely control of the PC from the base unit.
  - e) **Remote View Lock:** Click to enable / disable remote viewing of the PC content from mobile devices.
  - f) **Low Latency Mouse:** Click to choose low a latency mouse to get faster mouse operating experience.
  - g) **About TeamStream:** Click to check the software version of the TS-100.
  - h) **Exit:** Click to stop mirroring.

## Transmitting iOS mobile device

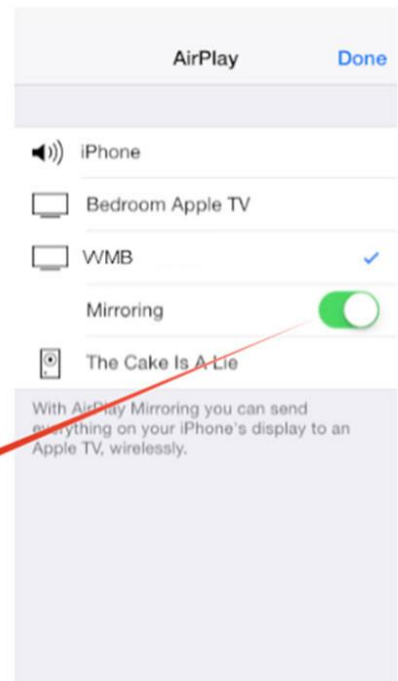
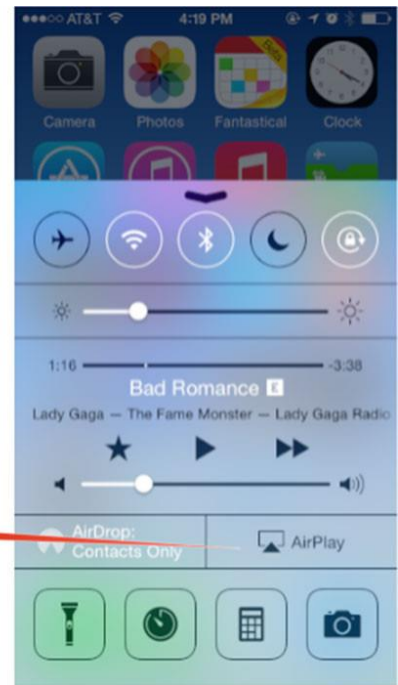
**Airplay:** The base unit supports "Airplay" receivers, which enable mirroring the desktop of your Apple device to the Airplay receiver, such as an iPhone or iPad.

Please swipe from bottom on desktop to activate the control center. Click the airplay icon  on your Apple device and select the receiver device TS-100 to connect the TS-100. Then you can mirror your screen content wirelessly through the TS-100 to the main screen.

## How to use Airplay



Swipe up to activate Control Center



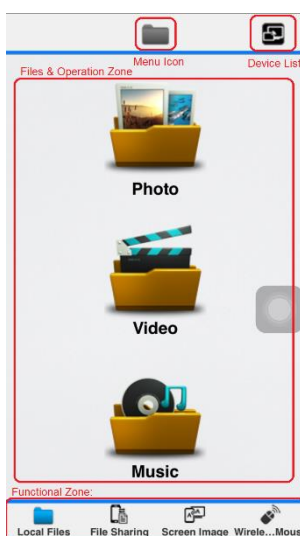
## WirelessMedia App for iOS

**Operating system requirement:** iOS 7.0 and later

- 1) Open the "WirelessMedia" application.



- 2) The main interface of WirelessMedia is shown below:



### Main Menu:

- **Local Files:** Can transmit the local file, including Photos, Video, Music to the receiver to playback.
- **File Sharing / File Exchange:** Can setup a storage for the PC / laptop to access / transmit files to the mobile device.
- **Screen Image / Remote View:** Can use a remote video the active signal on main screen, and control the PC / laptop like a mouse.
- **Wireless Mouse / Remote Mouse:** Can control the TS-100 or the sharing device, like an air-mouse.

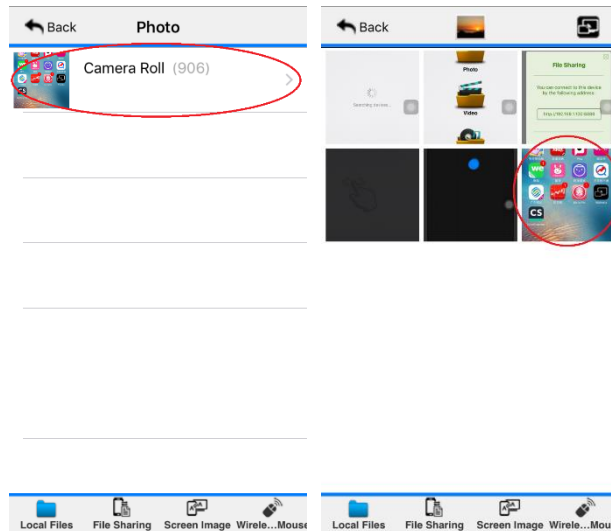
**Menu Icon:** Show the directory menu icon, like photo, video, music and file sharing.

**Device list:** Click to discover the available TS-100 and connect.



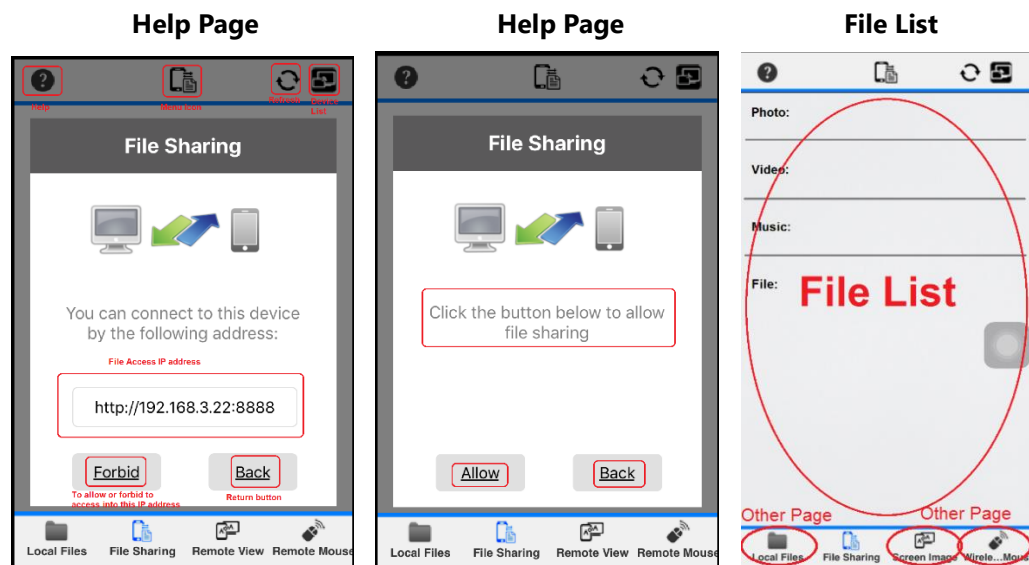
**File & Operation Zone:** Select the file to transmit and do the control operation when available.

3) **Local Files:** Select the file stored on your local iPhone / iPad, as shown below:



4) **File Sharing / File Exchange:** Click the file sharing icon to check the IP address.

Close the File Sharing dialog box as shown below, to enter into the File List, which is a new generated file list stored under the WirelessMedia app in iOS mobile. To access the files, you can enter the IP address by your PC / laptop's web browser while connected to the TS-100 by hotspot or LAN.



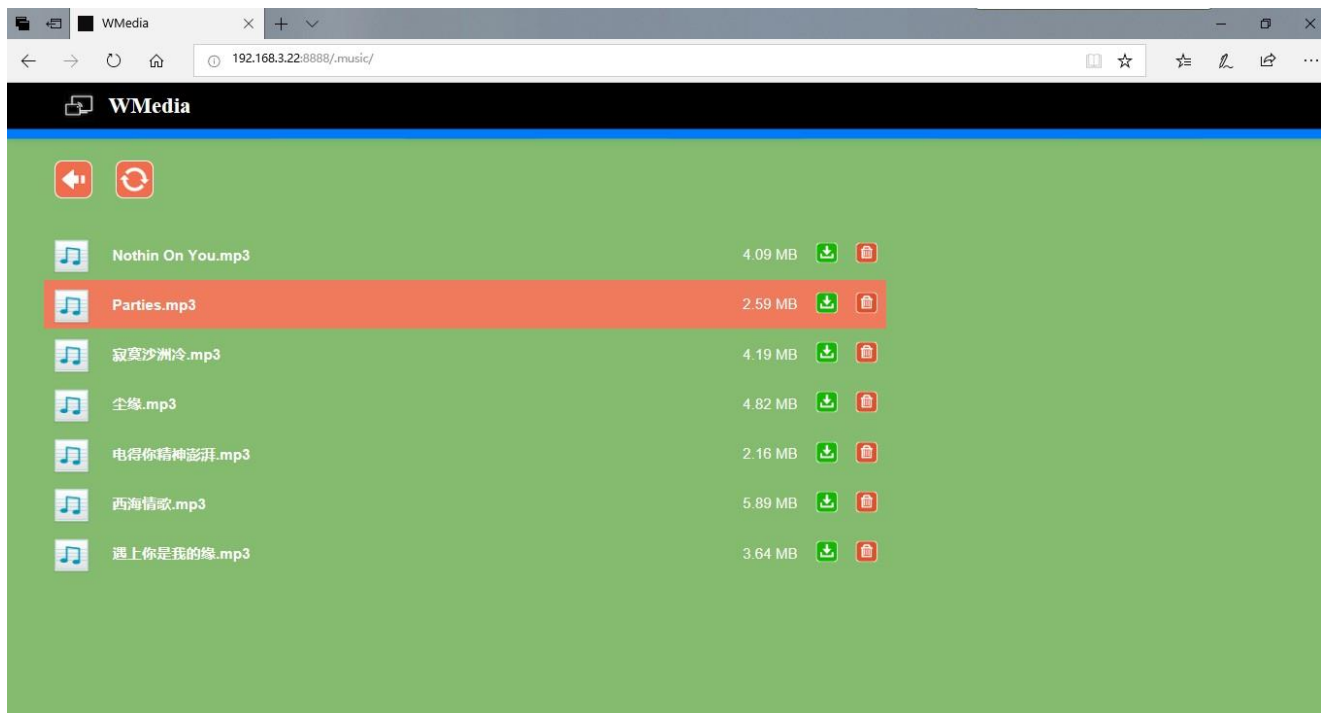
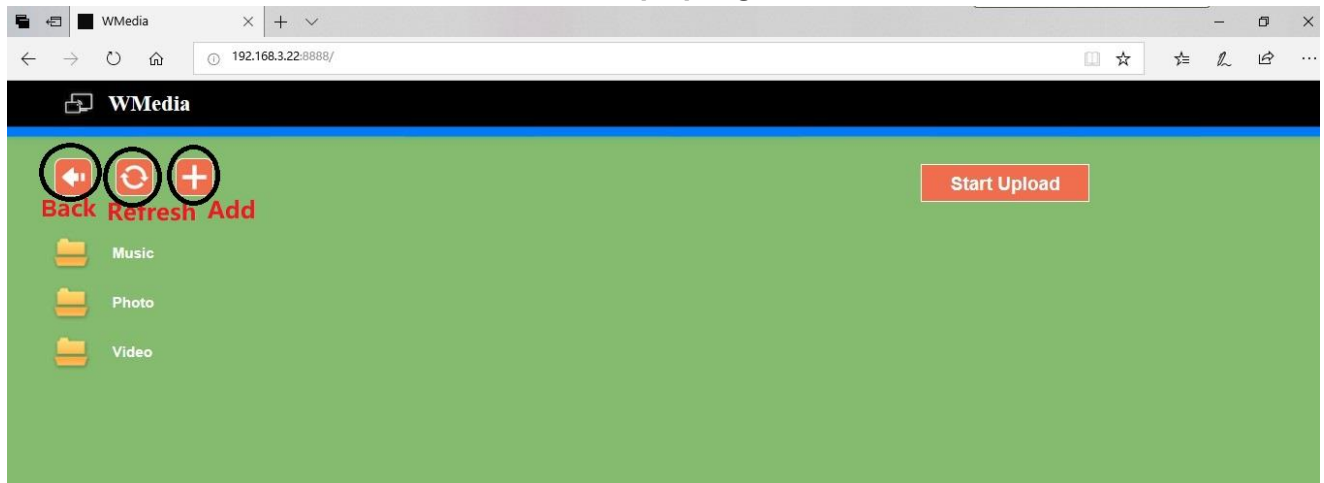
**Help:** to open up the IP address page.

**Access menu:** to allow or forbid to enter into the IP address page.

**File List:** to select the photo, video, music, file to transmit to the main screen.

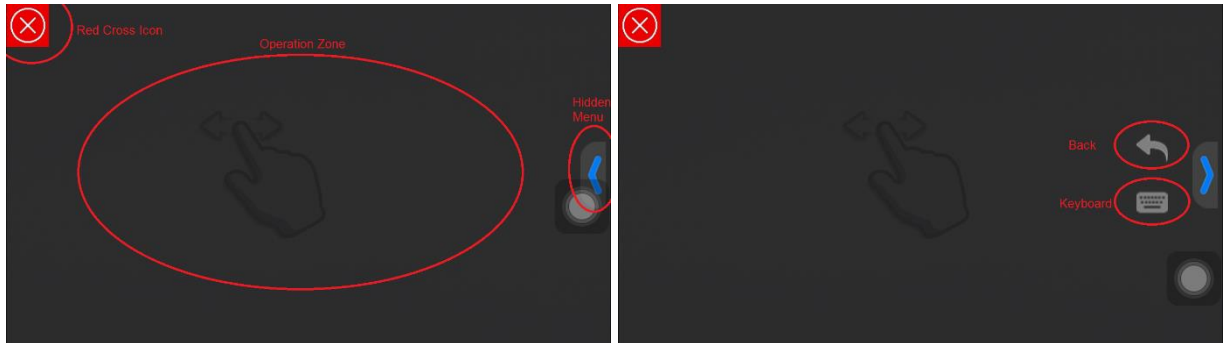
**Other page:** Click the other functional icon to return File Sharing/File Exchange.

## PC / Laptop Page



- 5) **Screen Image / Remote View:** Click the *Screen Image / Remote View* to remotely view what's showing on the main screen.

When there is no connected TS-100, the following screen will display:



**Red Cross Icon:** Return to the main interface of WirelessMedia.

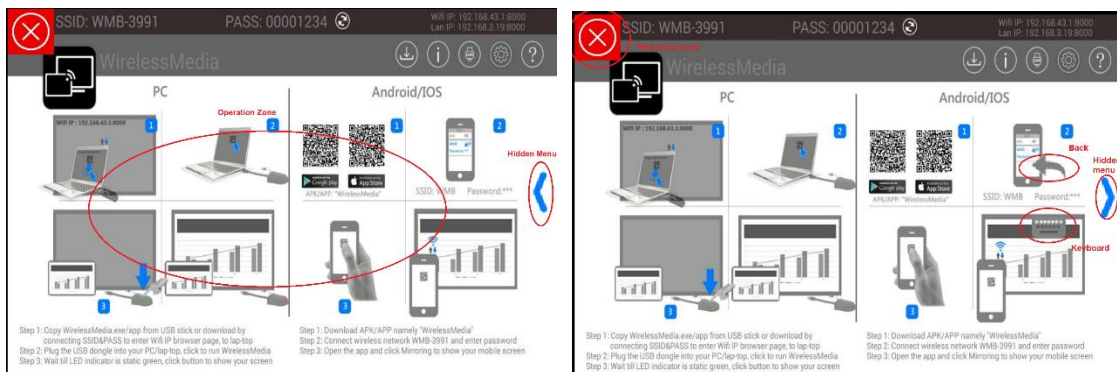
**Operation Zone:** Zone to remotely view the active signal and control it as a mouse.

**Hidden Menu:** Click to open the hidden function features, including Back and Keyboard when available.

**Back:** It sends a "Return" command to the TS-100 to go back to the previous directory menu.

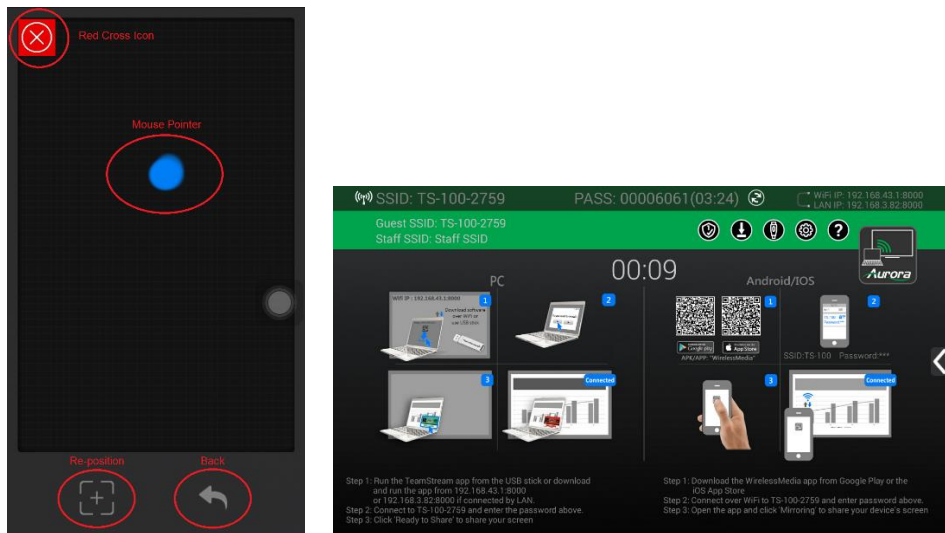
**Keyboard:** Open the keyboard to begin typing.

When there is an active signal showing on the main screen, you'll see it, and click the screen to control it as a mouse, as shown below:



Click the red "X" icon to return.

- 6) **Wireless Mouse:** Click the wireless mouse to generate a mouse pointer to control the TS-100.



**Mouse Pointer:** Represents the relative position of the mouse on the main screen.

**Re-position:** Reset the position to be the center of the screen.

**Back:** It sends a "Return" command to the TS-100 to go back to the previous directory menu.

**Red Cross Icon:** Return to the main interface of WirelessMedia.

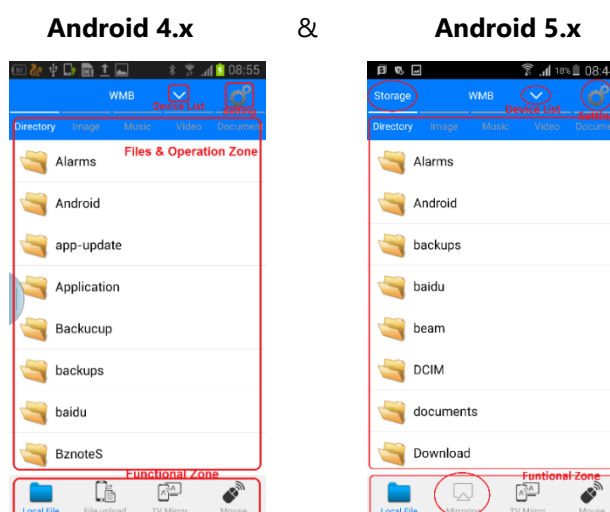
## Transmit Android Device Wirelessly

### WirelessMedia APK for Android

- 1) Open the *WirelessMedia* application.



- 2) The main interface of WirelessMedia is shown as below. It includes the features from:

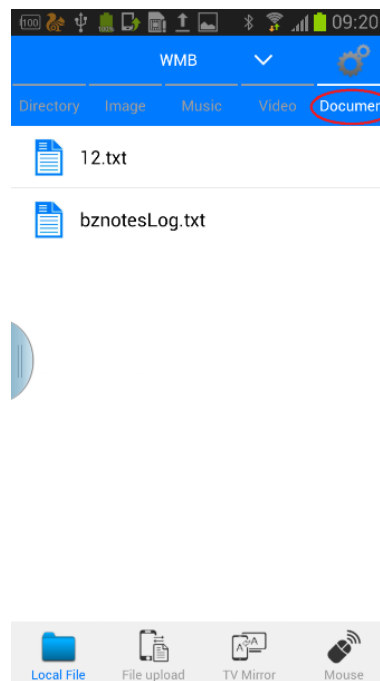
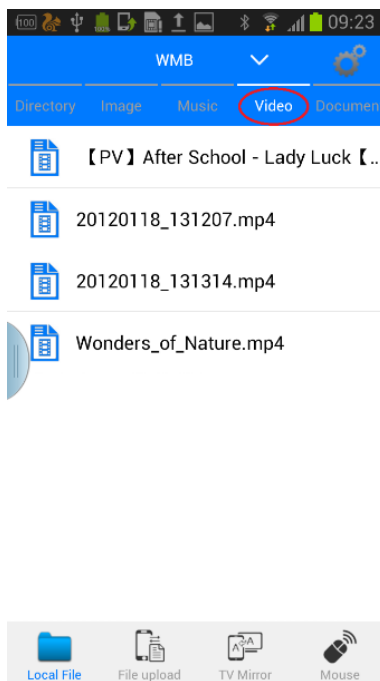
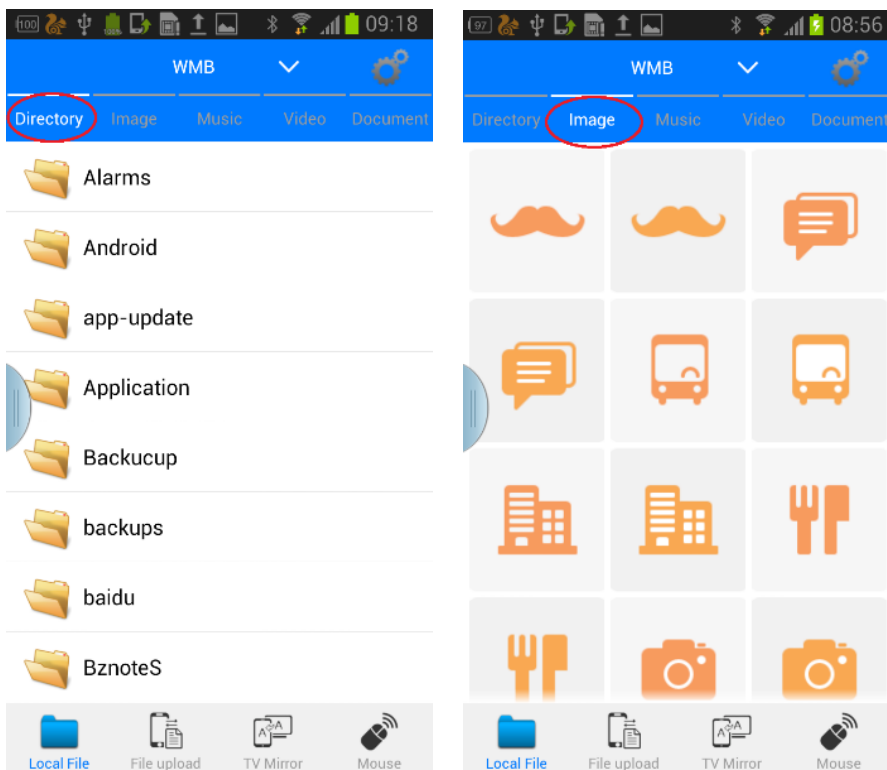


**Interface:**

- **Local Files:** Transmit the local files, including photos, videos, and music to the receiver to playback.
- **File Upload / File Exchange / Storage (for Android 5.x):** Set up a storage for the PC / laptop to access or transmit files to the mobile device.
- **TV Mirror / Remote View:** Remotely view the active signal on main screen and control the PC / laptop like a mouse.
- **Mouse / Remote Mouse:** Control the TS-100 or the sharing device.
- **Menu Icon:** Show the directory menu icon, like photo, video, music, file sharing.
- **Device List:** Click to discover the available TS-100 and connect.
- **File & Operation Zone:** Select the file to transmit and do the control operation when available.

**Attention:** Android Mirroring is only available for Android devices 5.0 and higher.

3) **Local Files:** select the file stored in local iPhone / iPad, as shown below:

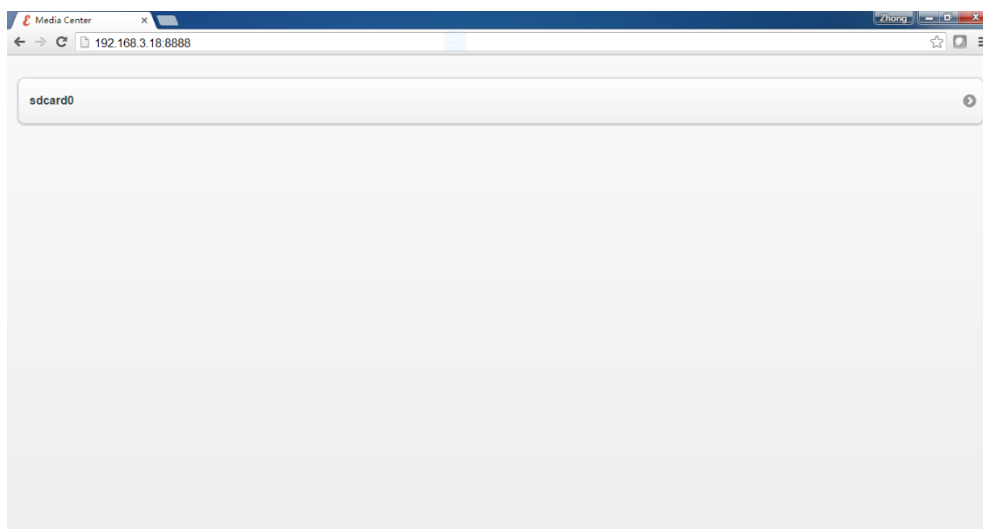
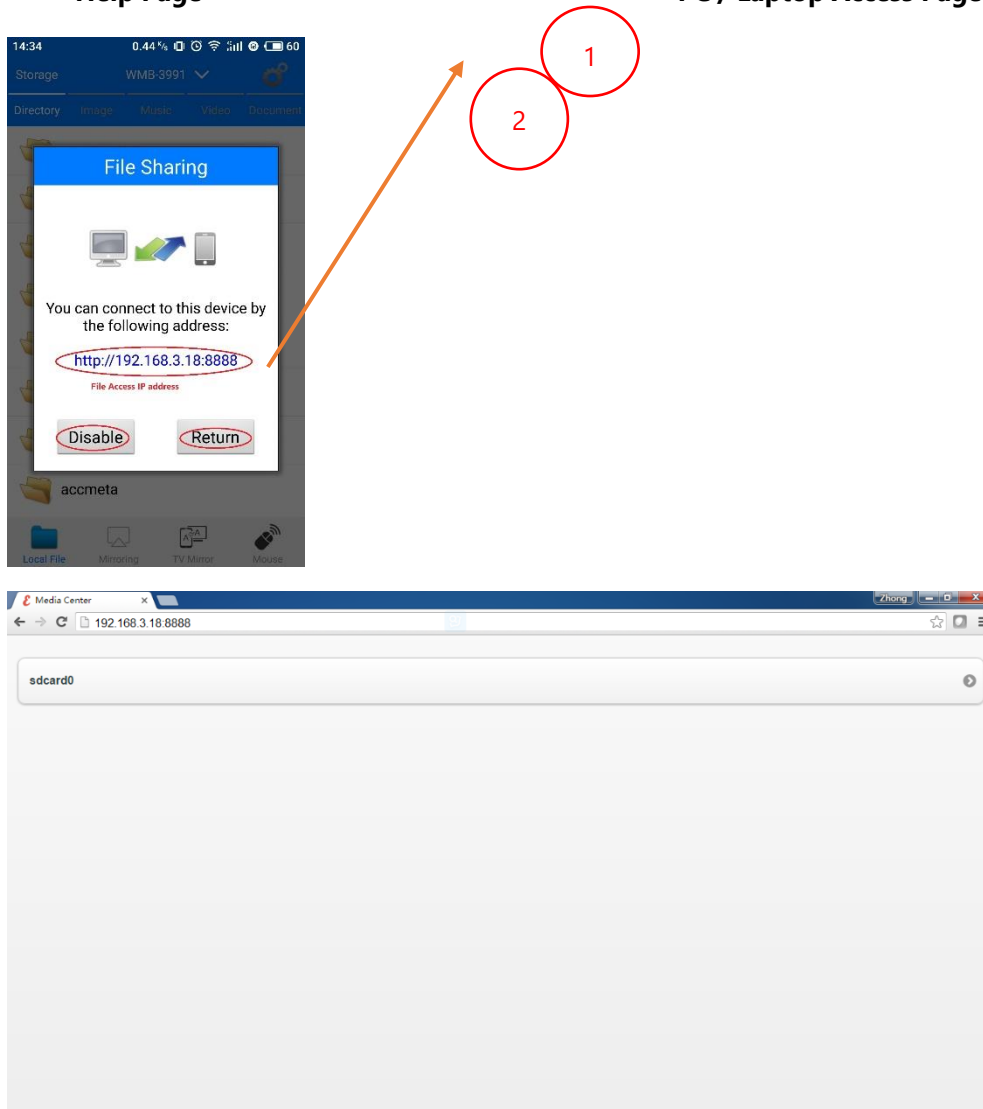


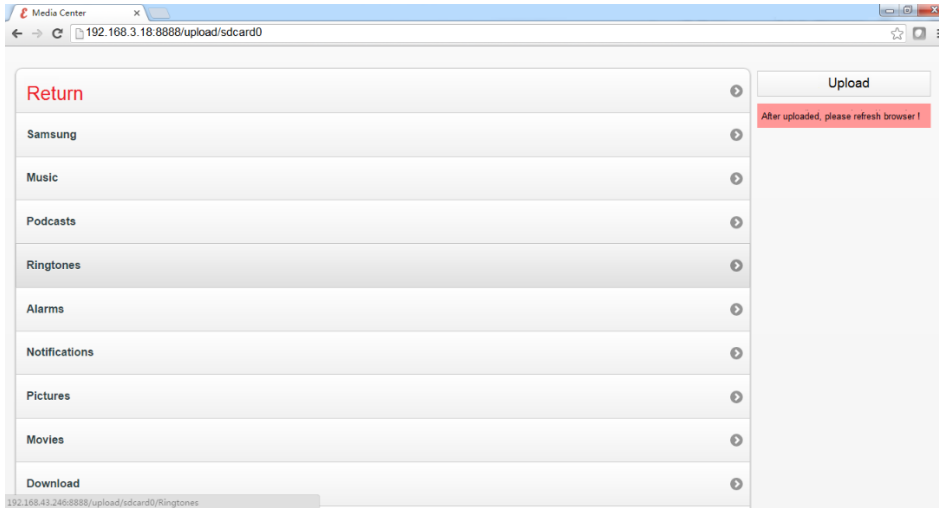
- 4) **File Sharing / File Exchange:** Click the File Sharing / File Exchange icon to check the IP address. Then enter the IP address on your PC or laptop's web browser.
  - 1) Enter the IP address on the web browser.
  - 2) Click the root directory "sdcard0".
  - 3) In the new directory, click "upload" to select the file from your local PC / laptop to be uploaded.

## Help Page



## PC / Laptop Access Page





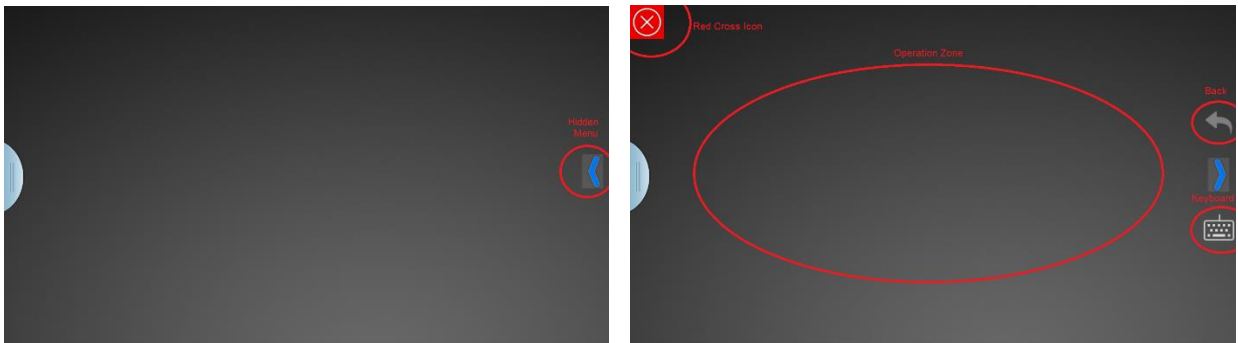
**Help:** Open the IP address page.

**Access menu:** Allow or forbid access to the IP address page.

**File List:** Select the photo, video or music file to transmit to the main screen.

**Other page:** Click the other functional icon to return File Sharing/File Exchange.

- 5) **Screen Image / Remote View:** Click the Screen Image / Remote View to remotely view the main screen. When there is no TS-100 connected, the following screen will be displayed:



**Red Cross Icon:** Return to the main interface of WirelessMedia.

**Operation Zone:** Remotely view the active signal and control it as a mouse in this zone.

**Hidden Menu:** Click to open the hidden function features, including *Back* and *Keyboard* when available.

**Back:** Send a "Return" command to the TS-100 to go back to the previous directory menu.

**Keyboard:** Open the keyboard to begin typing.

When there is an active signal showing on the main screen, you'll see it and click the screen to control it as



a mouse.



Click the Red Cross icon to return.

- 6) **Wireless Mouse:** Click the Wireless Mouse to generate a mouse pointer to control the TS-100.



**Mouse Pointer:** Represents the relative position of the mouse on the main screen.

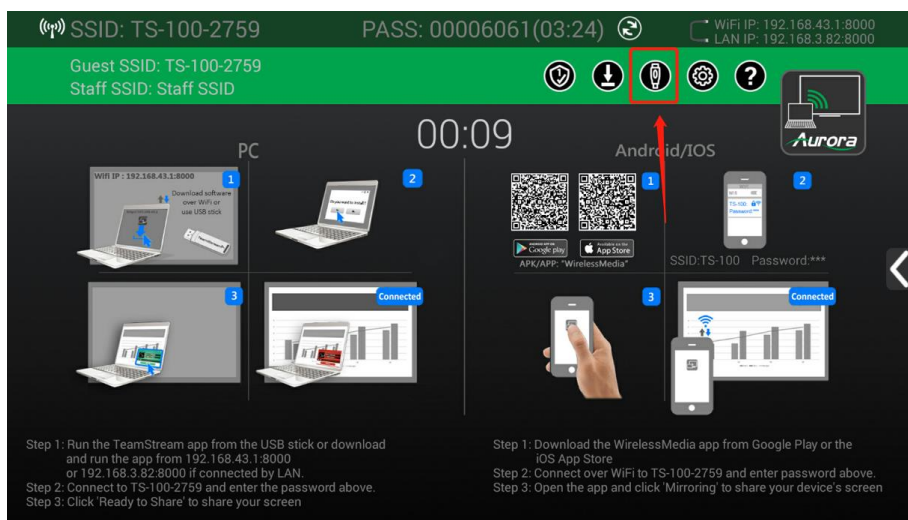
**Re-position:** Resets the position to be the center of the screen.

**Back:** Send a "Return" command to the TS-100 to go back to the previous directory menu.

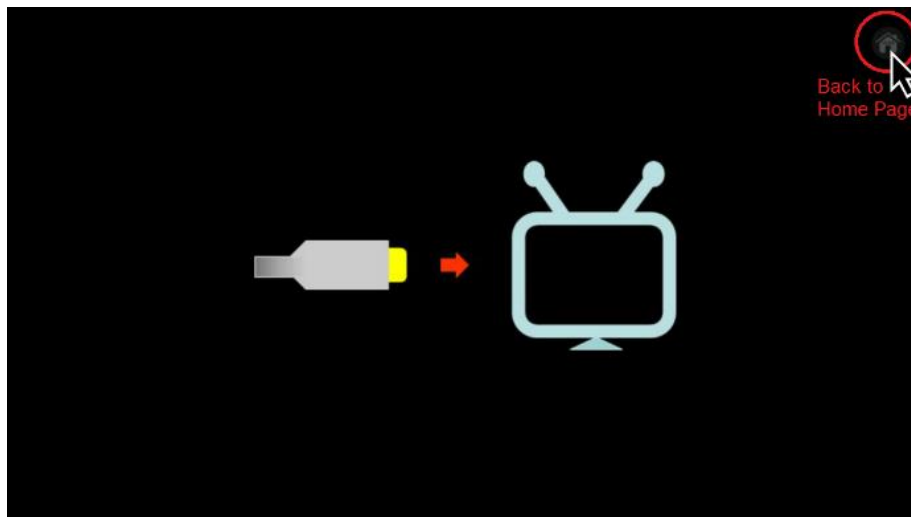
**Red Cross Icon:** Return to the main interface of "WirelessMedia".

## Wired Input Select

When on Home Page, it's used as TeamStream receiver for receiving PC or Mobile devices. Please connect a mouse to either USB 2.0 of TS-100 or use the TeamStream Wireless Mouse / Remote Mouse to click the local wired input icon, as shown below:



When local Wired input, it's used as HDMI switcher with 3 x HDMI input and 1 x VGA input. If you want to go back to wireless system, please connect a mouse to either USB 2.0 of TS-100 or use the TeamStream Wireless Mouse / Remote Mouse to click *back* to home page icon, as shown below:



## High Level Description

This TS-100 will be able to wirelessly transmit the PC/laptop's desktop, mobile smart devices to the main screen.

This TS-100 contains four product components HW transmitter button Mini "TeamStream" key fob TeamStream key fob for Microsoft window PC/Lap-top or OSX system for MacBook, SW "TeamStream for android" device and SW "TeamStream APP for IOS", HW base scaler/switcher receiver TS-100 base.

The transmitter Mini "TeamStream" key fob could wireless route the mirror or extended desktop of PC/lap-top through TS-100 base to the main screen, by connecting the USB cable of TS-100 BASE to the PC/Laptop. A visual button on PC could activate the transmission.

The "TeamStream APK for android" could be installed in Android smart devices and wireless transmit the desktop or a variety of multimedia files to the main screen, through the lead of the TS-100 base. In some case, it could remote view what's showing on the screen.

The "TeamStream APP for IOS" could be installed in IOS smart devices iPhone/iPad and could wireless transmit the desktop or a variety of multimedia files to the main screen, through the lead of the TS-100 base. In some case, it could remote view what's showing on the screen. Airplay is also needed to support.

The Base Unit TS-100 contains two components, The Switcher Block, and The Front Panel Controller Block.

The Switcher Block will include all the video routing, scaling components and the rear panel connectors. The Front Panel Controller Block which is vertical to The Switcher Block, will include the power backlit buttons, LED's. The video board shall function as “Stand Alone” (without the Front Panel Controller block).

The Base Unit TS-100 BASE shall contain an additional scaler switcher inside, which covers additional inputs, contains 3xHDMI 2.0 inputs, 1xVGA input, which supports the full features of HDMI2.0, including HDCP authentication over the HDMI and one HDMI scaled output. All the content over the HDMI shall be supported including Audio, Deep Color and other. The Base Unit TS-100 BASE shall have 1xHDMI 2.0 output as well, to lead all selection switch signal to the main screen.

The scaler functionality shall support an ultra-HD (4K@60Hz, 4:4:4) up-scaling & downscaling function, including AD, format convert, timing control, image control.

TS-100 BASE shall enable a configuration setting, including the WLAN/LAN IP setting. Once power down, the Base Unit TS-100 BASE shall save all the configuration when the unit is powered up again.

## HDMI - Video and Audio Standards

The TS-100 shall transfer all the video and audio capabilities and standards from HDMI inputs to HDMI outputs, including conversion from input standard to output standard according to the Sink EDID.

Table 1 describes the capabilities of TS-100 shall support:

Table 1

Video	Video Input Formats: 1x HDMI Video Output Formats: 1x HDMI Format Compliance: HDMI 2.0 Video Output Resolution: 3840x2160@60Hz/30Hz, 1920x1200@60Hz, 1920x1080@60Hz
Video-Audio Synchronization	HDMI support Lip Sync
Audio	Audio Input Formats: HDMI embedded digital audio Audio Output Formats: HDMI: embedded digital audio

Table 1: the TS-100 shall support HDMI Standards.

## Video and Audio Standards

Table 2 describes the capabilities the 4K Multi-viewer Scaler Switcher shall support:

Table 2

Video	VGA/YPbPr
Audio	3.5mm mini jack supports 2-channel stereo analogy audio

Table 2: the TS-100 shall support VGA Standards.

## Wireless - Video and Audio Standards

Video	<p>Video Input Formats: 1x wireless,                      Video Output Formats: 1x HDMI,                      Video Output Resolution: 3840x2160@60Hz/30Hz,                      1920x1200@60Hz, 1920x1080@60Hz                      Video Capacity: 1080p @ &gt;60Hz Airplay for IOS device                      1080P @ &gt;60Hz "TeamStream" app                      1080P @ &gt;30Hz for TeamStream key fob                      transmitter                      Data rate wireless: Up to 300Mbps                      Number of simultaneous connections: 14                      Number of window simultaneous on screen: 1                      Format Compliance: WIFI 11n/ac                      Mobile Capability: Free IOS app, Free Android app</p>
Video-Audio Synchronization	<p>HDMI support Lip Sync</p>
Audio	<p>Audio Input Formats: WIFI 11n/ac, 1x Line Audio in                      Audio Output Formats:                      HDMI: embedded digital audio                      De-embedded analog stereo audio: 20 kΩ impedance</p>

## Video Board Connectors

Following are the definitions of the Video Board connectors.

- 4.1.1 HDMI connector** – Standard full-size HDMI 2.0 input and output connectors, 19-pin female connectors
- 4.1.2 Audio Connector** – 1x 3.5mm PC DVI stereo audio female input connectors, and 1x 3.5mm stereo audio female output connectors
- 4.1.3 Power connector** – The power connector will be assembled on the video Board
- 4.1.4 Antenna fixture points** – Two antennas could be screwed as to these two ports

## Thermal

The system shall operate correctly in ambient temperatures ranging from 0 to 40 degrees Celsius as measured at 2000m elevation above sea level.

## Humidity

The System shall operate correctly with humidity ranging from 20% to 90% when tested in non-condensing conditions.

## Storage

The storage conditions of the system

- Storage temperature range 0 to 40 degrees Celsius.
- Storage humidity range 20 to 90% non-condensing.

## Safety

The brand company will be responsible for all the safety standardization process in one of the approved safety institutes for Safety Type Approval. Nevertheless, the designer will do all the necessary HW and FW changes in the Main boards in order to achieve Safety Type Approval.

Manufacturer does not assume any responsibility for consequential damages, expenses or loss of revenue or property, inconvenience or interruption in operation experienced by the customer due to a malfunction of the purchased equipment. No warranty service performed on any product shall extend the applicable warranty period. This warranty does not cover damage to the equipment during shipping and Manufacturer assumes no responsibility for such damage. This product warranty extends to the original purchaser only and will be null and void upon any assignment or transfer.

## Telnet and TCP Commands

### Connecting to TeamStream

Supports connecting by telnet and TCP (default port 5656) "TeamStream>" prompt will be sent if connected to the TeamStream by telnet. There is no prompt if connected to the TeamStream by TCP.

- Commands can be either upper case or lower case, both are OK.
- Query commands are the base command followed by '?'. Use these to get information about the state of the TeamStream.
  - A query command example:  
`hdmi ?`
  - TeamStream response:  
`~hdmi on`  
`OK`

### Command Types

Action commands are the base command followed by the action. The TeamStream will respond with "OK" if the command is formatted correctly.

- An action command example:
  - `Hdmi on`
  - TeamStream response:  
`OK`

URC (Unsolicited Result Code) responses are '+' followed by the base command. They are automatically sent by the TeamStream, notifying that it has performed an action. No prior query is necessary.

- A URC response example:  
`+wifi connected 08:ea:40:5d:24:66 2`

### Action/Query Command Format

A typical command format is "`hdmi ?<if>`" `hdmi` is the command. `?` is the command parameter. `<cr>` or `<if>` are required to denote the end of the command.



- A typical response:

```
~hdmi on<if>  
OK<if>
```

~hdmi means this command is a response to the hdmi command; on is the command result. OK<if> is the end of the response, the result is OK.

- If the result is not OK, you will receive an error like below:

```
ERROR:-1001<if>
```

Note: The command and parameters are separated by a space (%20). There is no space between ~ and hdmi in the response: ~hdmi

## About Command Parameters

The button command response is like this:

```
~button 1513849033 c0a82b85,,V2.0.5C.A1009,1,1,0,1,AURORA
```

Parameter 1: 1513849033, The current time of the TeamStream.

Parameter 2: c0a82b85,,V2.0.5C.A1009,1,1,0,1,AURORA is the app info.

## About App Info

```
c0a82b85,,V2.0.5C.A1009,1,1,0,1,AURORA
```

There are 10 items in the app info, split by “,”

- Item 1: c0a82b85 is the app’s device IP, in hex format. CO = 192, a8 = 168, 2b = 43, 85 = 133, means 192.168.43.133
- Item 2: Currently unused.
- Item 3: V2.0.5C.A1009 is the app software version
- Item 4: 1 – this item is reserved for future use
- Item 5: 1 means this app is connected to the TeamStream, 0 means this app is not connected.
- Item 6: 0 means this app is not sharing the screen, 1 means the app is sharing.
- Item 7: 1 means the app is ready to share, 0 means not ready
- Item 8: AURORA is the PC name

## About TeamStream Time

[1513849006](#): how many seconds have passed since 1970-1-01 00:00:00

Command Tag	Command Param	command response	effect	command example
hdmi	on	OK	Switch screen to hdmi input	hdmi on
	off	OK	Switch screen to wireless input/home screen	hdmi off
	?	~hdmi on OK	Query if current input is HDMI	hdmi ?
help			List all commands	help
	***		Show *** command details	help hdmi
home		OK	Force to wireless input/home screen	home
	?	~home on OK	Query wireless input	home ?
wifi	on	OK	Turn on wifi hotspot	
	off	OK	Turn off wifi hotspot	
	channel	OK	Set wifi hotspot channel	wifi channel 40
	ssid	OK	Set wifi hotspot ssid	wifi ssid room506
	pass	OK	Set wifi hotspot password	wifi ssid romt34 pass 12345678
	list	~wifi 08:d4:0c:d1:1e:92 192.168.43.180 ~wifi 08:ea:40:5d:24:66 192.168.43.152 OK	List all clients which are connected to wifi hotspot Parameter 1: MAC Address Parameter 2: IP Address	wifi list
	amount	~wifi 2 OK	Return how many devices are connected to the wifi hotspot	wifi amount

	?	~wifi ap-on 10 ty56rytt 234324rtyuu OK	Query current wifi hotspot settings Parameter 1: ap-on means wifi hotspot is on off means wifi hotspot is off Parameter 2: wifi hotspot channel Parameter 3: wifi hotspot ssid Parameter 4: wifi hotspot password	wifi ?
mute	on	OK	Mutes TeamStream audio	mute on
	off	OK	Unmutes TeamStream audio	mute off
	?	~mute on OK	Query TeamStream mute status	mute ?
standby	set	OK	Set auto standby time. Uses same values as 'General Settings>Auto standby'	standby set off standby set 1min standby set 5min standby set 10min standby set 15min standby set 30min
	wakeup	OK	Wake up TeamStream from standby	standby wakeup
	?	~standby off wakeup	Parameter 1: auto standby timeout setting Parameter 2: standby status, wakeup means the TeamStream is active, sleep means the TeamStream is in sleep mode	standby ?
button	listconnected	~button 1513849033 c0a82b98,,V2.0.5C.A1009,1,1,0,1,AUR ORA	List connected PC app info	
	lc	~button 1513849033 c0a82b98,,V2.0.5C.A1009,1,1,0,1,AUR ORA	Same as listconnected	

	listdisconnected	~button 1513849033 c0a82b98,,V2.0.5C.A1009,1,1,0,1,AURORA	List all PC apps which have ever connected to the TeamStream. Info will be lost on power off.	
	ldc	~button 1513849033 c0a82b98,,V2.0.5C.A1009,1,1,0,1,AURORA	The same as listdisconnected	
	listsharing	~button 1513849033 c0a82b98,,V2.0.5C.A1009,1,1,0,1,AURORA	List which PC app is currently screen sharing	
	ls	~button 1513849033 c0a82b98,,V2.0.5C.A1009,1,1,0,1,AURORA	The same as listsharing	
	listall	~button 1513849033 c0a82b98,,V2.0.5C.A1009,1,1,0,1,AURORA	List all PC apps connected/disconnected	
	la	~button 1513849033 c0a82b98,,V2.0.5C.A1009,1,1,0,1,AURORA	The same as listall	
	?	~button 1513849033 c0a82b98,,V2.0.5C.A1009,1,1,0,1,AURORA	The same as listall	
	share	c0a82b85	Request a PC app to start sharing, the parameter can be the IP or device name	button share Aurora button share c0a82b85
	stop	c0a82b85	Request a PC app to stop sharing, the parameter can be the IP or device name	button stop LYCN button stop c0a82b85
statusbar	hide	OK	Hide home screen statusbar	statusbar hide
	show	OK	Show home screen statusbar	statusbar show
pass	refresh	OK	Refresh connection password	pass refresh
	?	~pass : 12345678	Query connection password	pass ?
source	all	~source HDMI1,WIRELESS OK	return all connected sources, including wireless. Sources can be: HDMI1, HDMI2, HDMI3,VGA, WIRELESS	source all
	***	OK	Switch screen to *** source	source HDMI1

	?	~source HDMI2 OK	Query current source	source ?
gpio	?	~gpio 0,1	Query current gpio status. 0= low voltage 1=high voltage ~gpio 0,1: gpio 0=low voltage gpio 1=high voltage	gpio ?

## URC command format

Here is a typical URC response:

**+wifi** connected 08:ea:40:5d:24:66 2<if>

**+** is the command prefix, this means this is a URC response. **wifi** is the base command, the rest are the response parameters. In this command, it means a device has connected to the WiFi of the TeamStream, its MAC address is 08:ea:40:5d:24:66, and there are 2 devices currently connected.

Note: the response and parameters are separated by a space (%20). There is no space between **+** and **wifi** in the response: **+wifi**

URC Command	When Response Is Sent
+hdmi on	When entering local HDMI input mode
+hdmi off	When leaving local HDMI input mode
+home on	When entering wireless home screen
+home off	When leaving wireless home screen
+wifi ap-on 10 ty56rytt 234324rtyuu	When WiFi hotspot status or settings change or a WiFi device connected/disconnected to/from the TeamStream
+wifi connected 08:ea:40:5d:24:66 2	When a WiFi device connects to the TeamStream Parameter 1:Device MAC address Parameter 2:How many devices are currently connected to the WiFi
+wifi disconnected 08:ea:40:5d:24:66 2	When WiFi device disconnects from the TeamStream. Same parameters

	as the connected response.
+mute on	When TeamStream volume is muted
+mute off	When TeamStream volume is unmuted
+volume unmute 45 +volume mute 45	When TeamStream volume is changed Parameter 1: mute status Parameter 2: volume level
+standby 1min wakeup +standby 15min sleep	When the auto standby setting is changed, the TeamStream goes to sleep, or the TeamStream wakes up
+button connected 151384818 c0a82b98,,,1,1,0,1513848183,0,0,1,Button	When the app connects to the TeamStream
+button infoUpdate 151384820 c0a82b98,8:ea:40:5d:24:66,V2.0.5C.A1009,1,1,0,1,ter	When the TeamStream gets MAC/name from app
+button disconnected 151384884 c0a82b98,8:ea:40:5d:24:66,V2.0.5C.A1009,1,0,0,0,ter	When the app disconnects from the TeamStream
+button startShare 151384821 c0a82b98,8:ea:40:5d:24:66,V2.0.5C.A1009,1,1,1,1,ter	When app starts sharing.
+button stopShare 151384821 c0a82b98,8:ea:40:5d:24:66,V2.0.5C.A1009,1,1,0,1,ter	When app stops sharing.
+source plug in:HDMI1	When HDMI1,HDMI2,HDMI3,VGA,WIRELESS source connected
+source plug out:HDMI1	When HDMI1,HDMI2,HDMI3,VGA,WIRELESS source disconnected
+source available:HDMI1,HDMI2,WIRELESS	When source status changes
+gpio 1,1	When gpio status changes

# TeamStream



# TS-100

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