P2PKVM

MULTI-MODE KVM OVER IP SYSTEM WITH EXTENDER, SWITCH, MATRIX & WEB CONTROL

USER MANUAL

P2P-KDR302	Point-to-point Single-Head DP CAT5 & Fiber Receiver with USB 2.0, Audio and RS232
P2P-KDT302	Point-to-point Single-Head DP CAT5 & Fiber Transmitter with USB 2.0, Audio and RS232
P2P-KHR302	Point-to-point Single-Head HDMI CAT5 & Fiber Receiver with USB 2.0, Audio and RS232
P2P-KHT302	Point-to-point Single-Head HDMI CAT5 & Fiber Transmitter with USB 2.0, Audio and RS232
P2P-KVR302	Point-to-point Single-Head DVI CAT5 & Fiber Receiver with USB 2.0, Audio and RS232
P2P-KVT302	Point-to-point Single-Head DVI CAT5 & Fiber Transmitter with USB 2.0, Audio and RS232

Designed and Manufactured in the USA

Smart-AVI

1-888-994-7427
www.smartavi.com

OVERVIEW

TECHNICAL SPECIFICATIONS

VIDEO		
Format	DisplayPort / HDMI	
Input Interface	SM-UVH-2S	(2) DisplayPort 20-pin / (2) HDMI 19-pin
	SM-UVH-2D / SM-UVH-4S	(4) DisplayPort 20-pin / (4) HDMI 19-pin
	SM-UVH-4D	(8) DisplayPort 20-pin / (8) HDMI 19-pin
Output Interface	SM-UVH-2S / SM-UVH-4S	(1) DisplayPort 20-pin / (1) HDMI 19-pin
	SM-UVH-2D / SM-UVH-4D	(2) DisplayPort 20-pin / (2) HDMI 19-pin
Resolution	3840x2160 @ 60Hz	
DDC	5 volts p-p (TTL)	
Input Equalization	Automatic	
Input Cable Length	Up to 20 ft	
Output Cable Length	Up to 20 ft	
AUDIO		
Input Interface	SM-UVH-2S / SM-UVH-2D	(2) 3.5 mm Stereo Audio
	SM-UVH-4S / SM-UVH-4D	(4) 3.5 mm Stereo Audio
Output Interface	(1) 3.5 mm Stereo Audio	
Impedance	600 Ohm	
Frequency Response	20 Hz to 20 kHz	
Nominal Level	0-1.0 V	
Common Mode	Rejection at 60 dB	
USB		
Signal Type	USB 2.0, 1.1, and 1.0 w/ internal hub	
Input Interface	SM-UVH-2S / SM-UVH-2D	(2) USB Type B
	SM-UVH-4S / SM-UVH-4D	(4) USB Type B
Output Interface	(2) USB 1.1 Type A for KVM Devices; (2) USB 2.0 Type A Transparent	
CONTROL		
Front Panel	Push Buttons with LED Indicators	
RS-232	DB9 Female - 115200 N, 8, 1, No flow control	
Hot Keys	Via Keyboard	
OTHER		
Power Adapter	External 100-240 VAC/12VDC3A @ 24W	
Approvals	UL, CE, ROHS Compliant	
Operating Temperature	+32 to +104°F (0 to +40°C)	
Storage Temperature	-4 to 140°F (-20 to +60°C)	
Humidity	Up to 80% (No Condensation)	
Emulation	Keyboard and Mouse	

WHAT'S IN THE BOX?

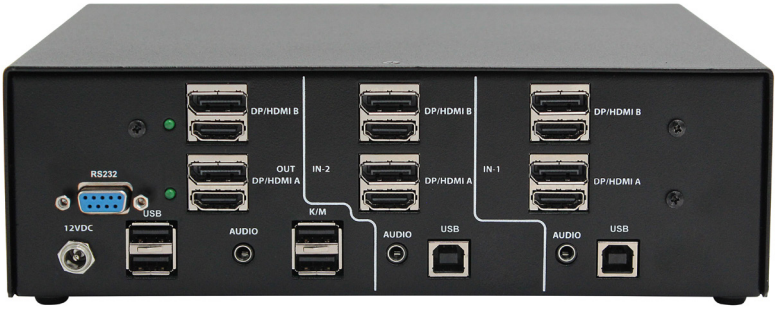
PART NO.	Q-TY	DESCRIPTION
SM-UVH Unit	1	2-/4-Port Single-/Dual-Head DisplayPort/HDMI KVM Switch with USB 2.0 & Aux Emulation
PS12VDC3A	1	Power Adapter
	1	User Manual

FRONT AND BACK

SM-UVH-4S Front

SM-UVH-4S Back

SM-UVH-2D Front

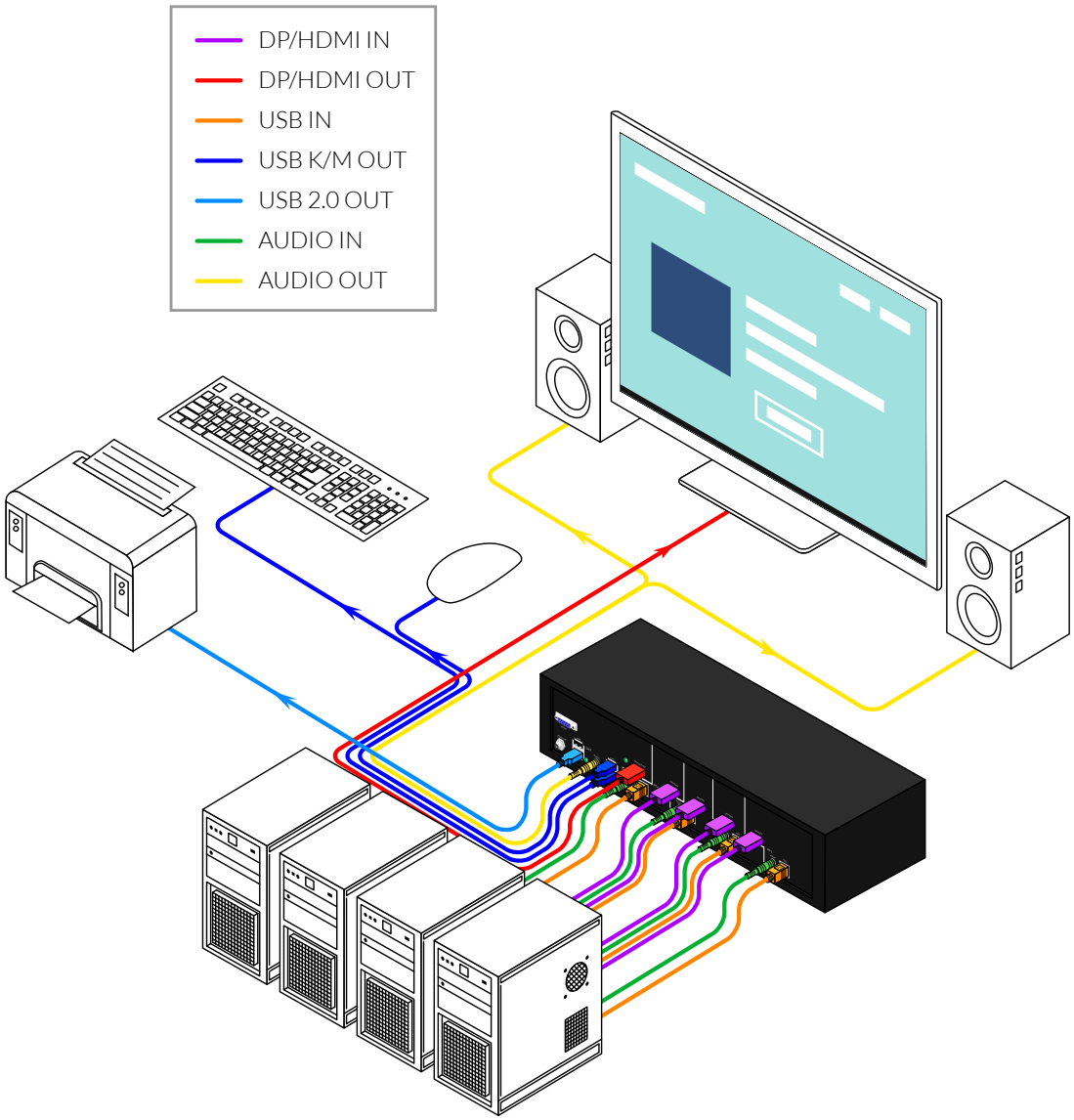


SM-UVH-2D Back

INSTALLATION

1. Ensure that power is turned off or disconnected from the unit and the computers.
2. Use a DP or HDMI cable to connect the DP or HDMI output port from each computer to the corresponding DP/HDMI IN ports of the unit.
3. Use a USB cable (Type-A to Type-B) to connect a USB port on each computer to the respective USB ports of the unit.
4. Optionally connect a stereo audio cable (3.5mm to 3.5mm) to connect the audio output of the computers to the AUDIO IN ports of the unit.
5. Connect a monitor to the DP/HDMI OUT console port of the unit using a DP or HDMI cable.
6. Connect a USB keyboard and mouse in the two USB console ports.
7. Optionally connect stereo speakers to the AUDIO OUT port of the unit.
8. Finally, power on the KVM by connecting a 12VDC power supply to the power connector, and then turn on all the computers.

Note: You can connect up to 4 computers to the 4 port KVM.



INSTALLATION (CONTINUED)

MULTI-HEAD UNITS:

1. Ensure that power is turned off or disconnected from the unit and the computers.
2. Use DP or HDMI cables to connect the DP/HDMI output ports of each computer to the corresponding DP/HDMI IN ports of the unit. For example, if using SM-UVH-4D, the four DP/HDMI ports of one computer must all be connected to one channel.

The DP/HDMI IN connectors that belong to the same channel are arranged vertically.

3. Use a USB cable (Type-A to Type-B) to connect a USB port on each computer to the respective USB ports of the unit.
4. Optionally connect a stereo audio cable (3.5mm on both ends) to connect the audio output of the computer to the AUDIO IN ports of the unit.
5. Connect the monitors to the DP/HDMI OUT console ports of the unit using DP or HDMI cables.

The DP/HDMI IN ports on one row will be switched to the DP/HDMI OUT of the same row.

6. Connect a USB keyboard and mouse in the two USB console ports.
7. Optionally connect stereo speakers to the AUDIO OUT port of the unit.
8. Power on the KVM by connecting a 12VDC power supply to the power connector, and then turn on all the computers.

INSTALLATION (CONTINUED)

EDID LEARN

The KVM is designed to learn the connected monitor's EDID upon power up. In the event of connecting a new monitor to the KVM, a power recycle is recommended.

The KVM will indicate to the user the EDID learn process by flashing the front panel's LEDs. When the LEDs stop flashing, the EDID learn process is done.

The monitor must be connected to the video output connector located in the console space at the back of the KVM during the EDID learn process.

If the read EDID from the connected monitor is identical to the current stored EDID in the KVM then the EDID learn function will be skipped.

SYSTEM OPERATION

There are three ways to control the SM-UVH Unit: Keyboard Hotkeys, RS-232 Serial Commands, and Front Panel Buttons. All modes of control will allow the user to set their desired configurations.

FRONT PANEL CONTROL

To switch to an input port, simply push the button on the front-panel of the KVM. If an input port is selected, the LED of that port will turn on.
Hold down first and last buttons of front panel for 3 seconds to force learn EDID.

HOTKEY AND RS232 SERIAL CONTROL

The SM-UVH Unit may also be controlled via RS-232 commands. To use these commands, you must use HyperTerminal or an alternate terminal application. The settings for the connection are as follows: Baudrate **115200**; Data Bits **8**; Parity **None**; Stop Bits **1**; Flow Control **None**.
Once you have connected to the SM-UVH Unit via Serial, you will see the SM-UVH Unit's information when the device starts up.

The following commands can be used for RS-232 with available keyboard hotkeys:

COMMAND DESCRIPTION	HOTKEY	RS-232 COMMAND
Switch All USB and Video	[CTRL][CTRL] [port #] [ENTER]	//**m** [port #] [ENTER]
Switch Channel forward	[CTRL][CTRL] [arrow up]	//[arrow up]
Switch Channel backward	[CTRL][CTRL] [arrow down]	//[arrow down]
Switch KVM Only	[CTRL][CTRL] **c** [port #] [ENTER]	//**c** [port #] [ENTER]
Switch Audio Only	[CTRL][CTRL] **a** [port #] [ENTER]	//**a** [port #] [ENTER]
Switch USB Only	[CTRL][CTRL] **u** [port #] [ENTER]	//**u** [port #] [ENTER]
Learn EDID	[CTRL][CTRL] **e** [ENTER]	//**e** [ENTER]
Trigger Hotplug	[CTRL][CTRL] **h** [ENTER]	//**h** [ENTER]
Reset Software	[CTRL][CTRL] **r** [ENTER]	//**r** [ENTER]
Factory Defaults	[CTRL][CTRL] **f** [ENTER]	//**f** [ENTER]
Get Port Status	N/A	//**??** [ENTER]

CUSTOM HOTKEY TRIGGERS

Users can customize the keys that trigger hotkeys. The default trigger for hotkey function on the keyboard is **Ctrl** + **Ctrl**. The trigger function can be used to change to the following keys:
Ctrl (Left / Right), **Alt**, **Shift** (Left / Right), **Caps Lock**, **Scroll Lock**, **F1**-**F12**.

To view the current hotkey trigger setting:
Use the RS-232 command: **/** + **/** + **?** + **?** + **Enter** to view the current hotkey trigger. To reset the Hotkey Trigger, use the "**Factory Defaults**" command.

To change the hotkey trigger setting:
[hotkey] + [hotkey] + **X** + [desired]

Example: If the user's current hotkey trigger is **Shift** and they want to change it to **Scroll Lock**, the user would type **Shift** + **Shift** + **X** + **Scroll Lock**.

DEVICE MODES

Currently, ASPEED devices have 4 modes of operation. All modes are included in a firmware application that functions on both AST and HSE boards. These modes are as follows:

EXTENDER
- Allows simple connection by directly connecting a transmitter to a receiver unit.
- Plug and play functionality.

KVM SWITCH
- Included in the "Extender" mode.
- Allows users to connect transmitters and receivers to a network switch and switch between video feeds by means of a hotkey combination.
- This mode does not need an OSD like the "Matrix" mode.

MATRIX
- Connect all transmitters and receivers to a network switch and the user can switch between any transmitter from any receiver.
- Supports Dual Head mode.

SAVIGATE
- Connect all transmitters and receivers to a network switch and the user can switch between any transmitter from any receiver.
- Supports Dual Head mode.

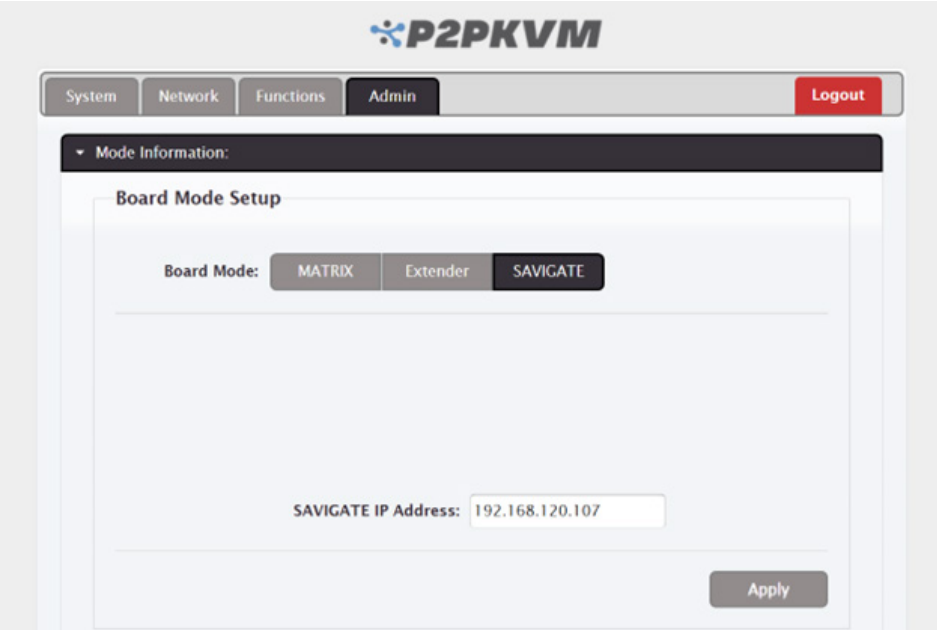
EXTENDER MODE

Extender mode is a simple plug-and-play option that allows users to extend their computer input to another location through the use of a wired ethernet or fiber connection.

Ensure both the transmitter and receiver both have an assigned static IP address by doing the following.
1. Connect both transmitter and receiver to a network switch.
2. Connect 5V power adapters to both devices.
3. Once both devices are booted, open the **Savi-Finder** application on a computer and note the IP addresses of each device.
4. Open a web browser and log in to both devices using the IP addresses found in the previous step.
5. Go to the **Network** tab for each device and under "IP Mode," select **Static**.
6. Enter a static IP address to use for each unit.
7. Click **Apply**.
8. Reboot the device by going to the **System** tab and clicking **Reboot** under the "Utilities" section.

Ensure the devices are in the correct mode.
1. Open a web browser and in the address bar enter the IP addresses of the receiver and login using username and password admin and admin.
2. Navigate to the "Admin" tab for the receiver.
3. Expand the section called "Mode Information" to view the current mode.

EXTENDER MODE (CONTINUED)



4. Click “Extender” for the Extender Mode.
5. Click “Apply” and the device will automatically reboot.
6. After the static IP and Mode selection steps, follow the Hardware Setup instructions to physically connect the receiver to the transmitter and start using the P2PKVM application.

HARDWARE SETUP

1. Position the P2PKVM transmitter conveniently near a computer.
2. Connect the corresponding cables from the computer to the USB IN, AUDIO IN, MIC IN, and HDMI IN ports on the back of the P2PKVM transmitter.
3. To use a monitor for local display, connect an HDMI cable from the monitor to the HDMI OUT on the front of the transmitter.
4. Position the P2PKVM receiver near the remote workstation or display location.
5. Connect a CATx or Fiber cable to the LINK port on the front of the transmitter, then connect the other end to the LINK port on the front of the receiver.
6. Connect a keyboard and mouse to the USB K/M OUT ports on the back of the receiver.
7. Connect an audio output device (e.g., speakers) to the AUDIO OUT 3.5mm jack and connect a microphone to the MIC OUT 3.5mm jack.
8. Connect a monitor to the receiver by plugging an HDMI/DP cable into the HDMI/DP OUT port, then into the monitor.
9. Connect any additional USB peripherals (e.g., printer) into either of the ports labeled USB 2.0 OUT.
10. Plug the 5V power cords into both the transmitter and receiver. The devices will begin booting up.

Once the devices are finished booting up, a video display will appear and the user will be able to control the device with K/M capabilities.

UPDATING DEVICE FIRMWARE

To update a device in Extender mode, refer to the following steps.

1. Connect the device to a network switch and connect a 5V power adapter.
2. If the device is a transmitter, use the Savi-Finder application to find the IP address. If the device is a receiver, take note of the device IP on the login screen after the device boots up.

EXTENDER MODE (CONTINUED)

3. Open a web browser and enter the IP address found from the previous step into the browser's address bar.
4. Login to the device with a username/password (admin/admin by default).

5. Navigate to the "Update Firmware" section of the "System" tab.

6. Click the "Choose File" button and select the update file for the device.
7. Click the "Upload" button and wait until the update completes.

KVM SWITCH MODE

The KVM Switch mode also uses the “Extender” mode under the web interface “Mode Information” section in the “Admin” tab. This mode allows users to select 3 transmitters that can be switched between using hotkeys.

KVM SWITCH INSTALLATION

A Gigabit switch can be used to connect multiple pairs of transmitters and receivers to one network which will allow KVM switching with the connected pairs. The Gigabit switch must support and have Jumbo Frames and IGMP Snooping enabled to ensure the P2PKVM transmitters and receivers work properly. If there are issues about enabling the required settings, consult the switch’s manual for information. If transmitters and receivers are not able to find each other, make sure that any P2PKVM devices connected to the switch are on the same VLAN. Once the devices are properly connected, each device can be accessed through a web browser with its IP address.

HARDWARE INSTALLATION

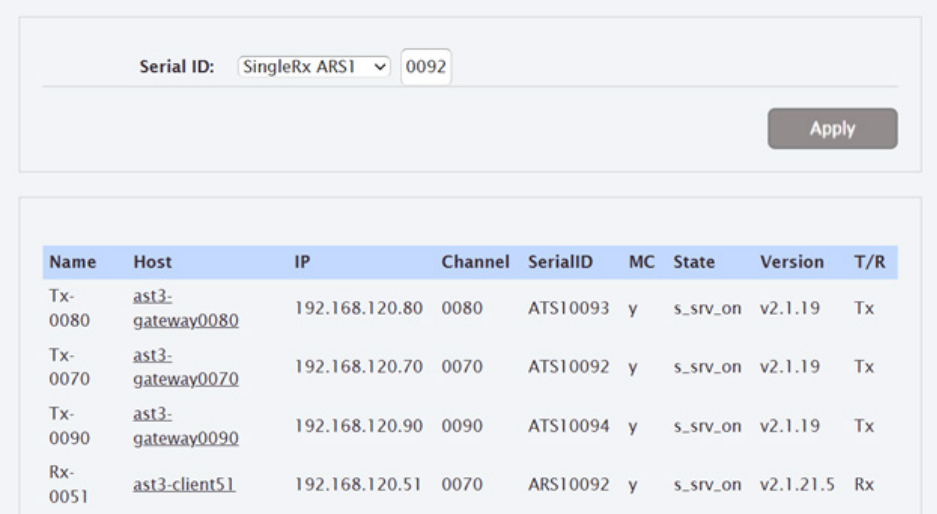
1. Position the P2PKVM transmitter conveniently near a computer or other input source.
2. Connect the corresponding cables from the computer to the USB IN, AUDIO IN, MIC IN, and HDMI/DP IN found on the back of the P2PKVM transmitter. To view a computer’s input locally, connect a HDMI/DP cable from a monitor to the HDMI/DP OUT on the front of the transmitter.
3. Position the P2PKVM receiver conveniently near the new setup that will serve as the output.
4. Connect a Cat5/Fiber cable to the LINK on the front of the transmitter, then connect the other end to a port on the Gigabit switch.
5. Connect the keyboard and mouse to the USB K/M OUT ports found on the back of the receiver. Connect the audio output device, such as a set of speakers, to the 3.5mm jack labeled AUDIO OUT and connect the audio input device, such as a microphone, to the 3.5mm jack labeled MIC OUT.
6. Connect the monitor by connecting a HDMI/DP cable to the HDMI/DP port on the front of the receiver labeled HDMI/DP OUT, then plug the other end of the cable into the monitor.
7. To connect any extra USB devices, such as a printer, plug them into either of the two ports labeled USB 2.0 OUT.
8. Connect a Cat5/Fiber cable to the LINK on the front of the receiver. Then connect the other end to a port on the Gigabit switch.
9. Now plug the 5V power cords into both the transmitter and receiver, and after a few moments the units will boot up.

KVM SWITCH MODE (CONTINUED)

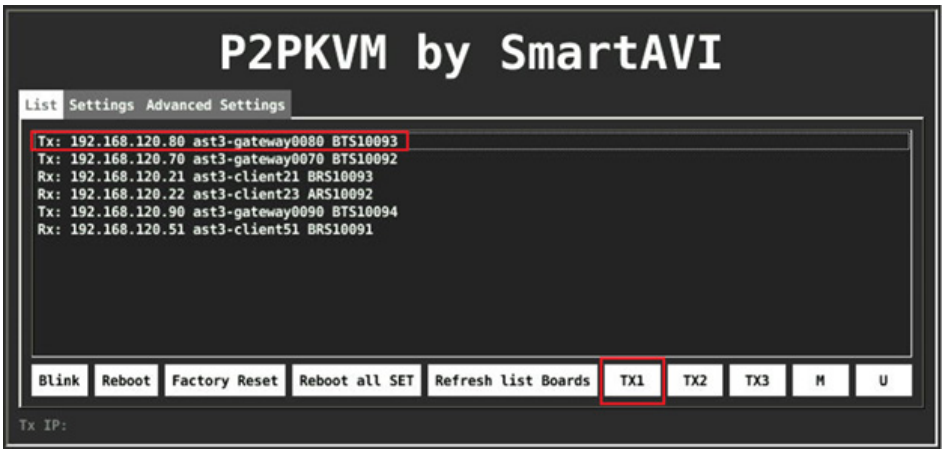
DEVICE SETUP

Ensure the receiver is in the correct mode and configured properly.

1. Using the IP address of the receiver, which can be found on the login screen, open a web browser and enter the IP address in the URL bar.
2. Login to the device with username/password (admin/admin by default).
3. Navigate to the “Admin” tab on the web GUI.
4. Next select “Extender” mode for the KVM Switch mode and click “Apply”.
5. Next go to the network tab and ensure all the Serial IDs are within 1 number of each other. Example: RX serial ID is 0092 and the three TX are 0092, 0093 and 0094.



6. Reboot the device by navigating to the “System” tab and clicking “Reboot” under the “Utilities” section.
7. Once the receiver boots back up, it will automatically connect the first transmitter selected in the mode configuration step.
8. To select the transmitter, open the OSD by holding CTRL + del/. on the number pad three times and go to the “List” tab.
9. Next click on a transmitter in the list and click the desired TX on the bottom right to assign it as either TX1, TX2 or TX3.



10. Repeat for the other two transmitters.

KVM SWITCH MODE (CONTINUED)

HOTKEYS

To switch the transmitter that is displayed from the receiver, simply hold down RCTRL and press the keys Insert, Page Up or Page down three times. Each key will correspond to the order of transmitters selected during configuration. Insert will switch to Transmitter 1, page up will switch to transmitter 2 and page down will switch to transmitter 3.

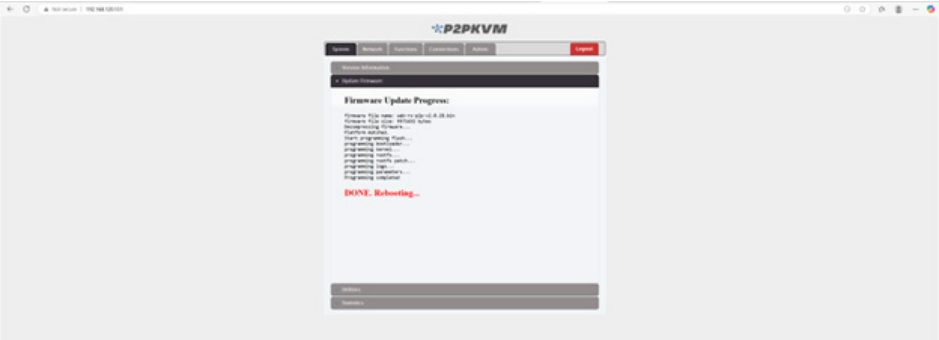
UPDATING DEVICE FIRMWARE

To update a device in Extender mode, refer to the following steps.

1. Connect the device to a network switch and connect power adapter.
2. If the device is a transmitter, use the Savi-Finder application to find the IP address. If the device is a receiver, take note of the device IP on the login screen after the device boots up.
3. Open a web browser and enter the IP address found from the previous step into the browser's address bar.
4. Login to the device with a username/password (admin/admin by default).

5. Navigate to the "Update Firmware" section of the "System" tab.

6. Click the "Choose File" button and select the update file for the device.
7. Click the "Upload" button and wait until the update completes.



MATRIX MODE

Matrix mode allows users to connect multiple transmitters and receivers to a network switch, and allows switching between transmitters through the use of an on-screen display (OSD) or through the web interface.

HARDWARE INSTALLATION

1. Position the P2PKVM transmitter conveniently near a computer or other input source.
2. Connect the corresponding cables from the computer to the USB IN, AUDIO IN, MIC IN, and HDMI/DP IN found on the back of the P2PKVM transmitter. To view a computer's input locally, connect a HDMI/DP cable from a monitor to the HDMI/DP OUT on the front of the transmitter.
3. Position the P2PKVM receiver conveniently near the new setup that will serve as the output.
4. Connect a Cat5/Fiber cable to the LINK on the front of the transmitter, then connect the other end to a port on the Gigabit switch.
5. Connect a keyboard and mouse to the USB K/M OUT ports found on the back of the receiver. Connect the audio output device, such as a set of speakers, to the 3.5mm jack labeled AUDIO OUT and connect the audio input device, such as a microphone, to the 3.5mm jack labeled MIC OUT.
6. Connect the monitor by connecting a HDMI/DP cable to the HDMI/DP port on the front of the receiver labeled HDMI/DP OUT, then plug the other end of the cable into the monitor.
7. To connect any extra USB devices, such as a printer, plug them into either of the two ports labeled USB 2.0 OUT.
8. Connect a Cat5/Fiber cable to the LINK on the front of the receiver, then connect the other end to a port on the Gigabit switch.
9. Now plug the power cords into both the transmitter and receiver, and after a few moments the units will boot up.
10. Once the devices are finished booting up, a video display will appear and the user will be able to control the device with K/M capabilities.

DEVICE SETUP

Ensure the receiver(s) is in the correct mode.

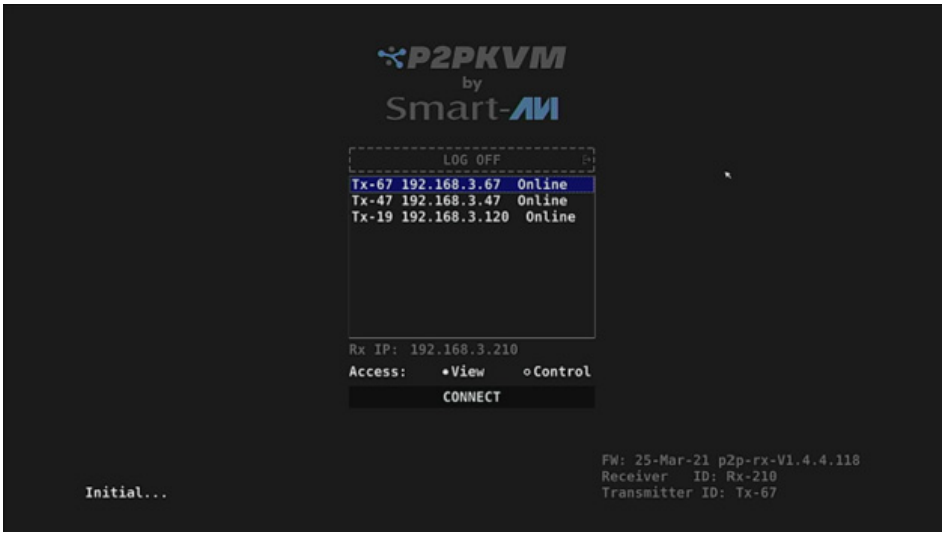
1. Using the IP address of the receiver that can be found on the device's login screen after setup, open a web browser and enter the IP address in the URL bar.
2. Login to the device with a username/password (admin/admin by default).
3. Navigate to the "Admin" tab on the web GUI.
4. Next select "Matrix" mode if it is not already selected.
5. Click "Apply" to apply changes.
6. Reboot the device under the "System" tab and clicking "Reboot" under the "Utilities" section.
7. Once the device boots back up, there will be a login screen displayed on the connected monitor.

MATRIX MODE (CONTINUED)

USING THE P2PKVM OSD

1. Once the transmitters and receivers are finished booting up, start by logging into the OSD system on the receiver by entering in user credentials. The default username and password are admin and admin. Once the user is logged in, it will list any connected transmitters and the IP address for each device.

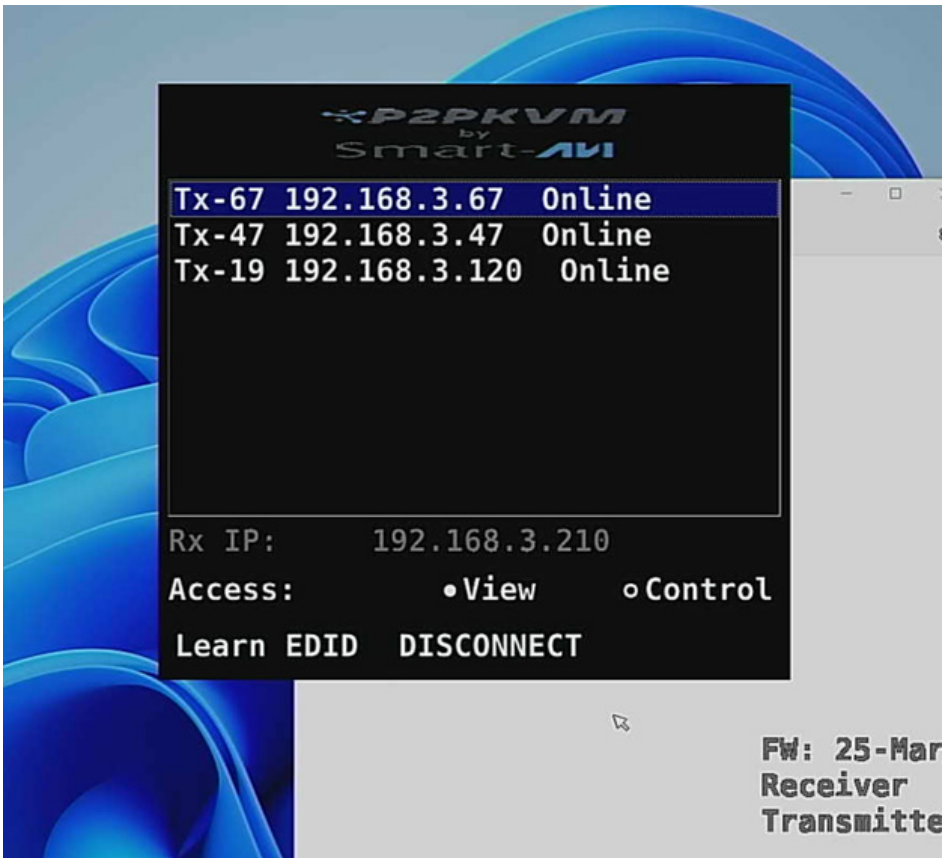
2. To connect to a transmitter and its input source, select a transmitter and press the CONNECT button below the list. The user can toggle between the View or Control access options, which determines if the user will view or control the transmitter it connects to.



3. Once the connect button is pressed, the screen will now display the input source that is connected to the transmitter. The user can also use any USB device that is connected to the receiver, as long as the Control option was selected in Step 2.

MATRIX MODE (CONTINUED)

To switch to another input or exit back to the OSD login screen, press the INSERT key three times and a new UI panel will appear in the middle of the screen. If the user has access to a web browser, they can control which transmitter is displayed on the receiver as well.



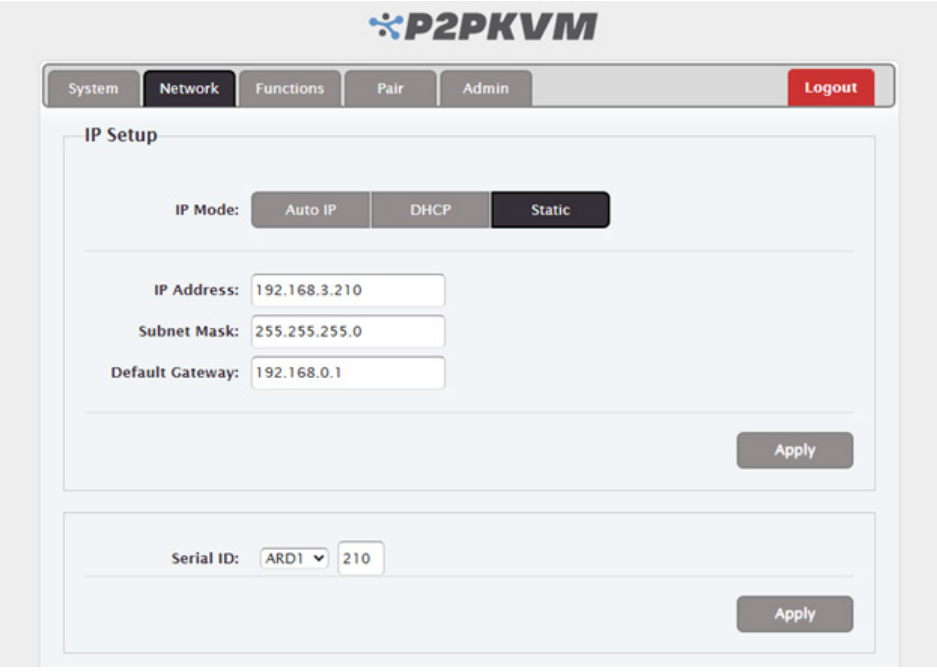
USING THE WEB BROWSER GUI

1. The P2PKVM receivers and transmitters can both be accessed through a web browser using its IP address. This is useful for updating firmware and configuring specific settings for each device. The receiver (RX) can also change the current transmitter (TX) that it is paired with. To access the web control for a device, open a browser and type in the device IP address in the URL bar.

MATRIX MODE (CONTINUED)

2. After connecting to the IP through the browser, a login page will appear. The default username and password are admin and admin. Log in and the System page will be displayed. Certain tabs and settings will only appear depending on device type and head configuration.

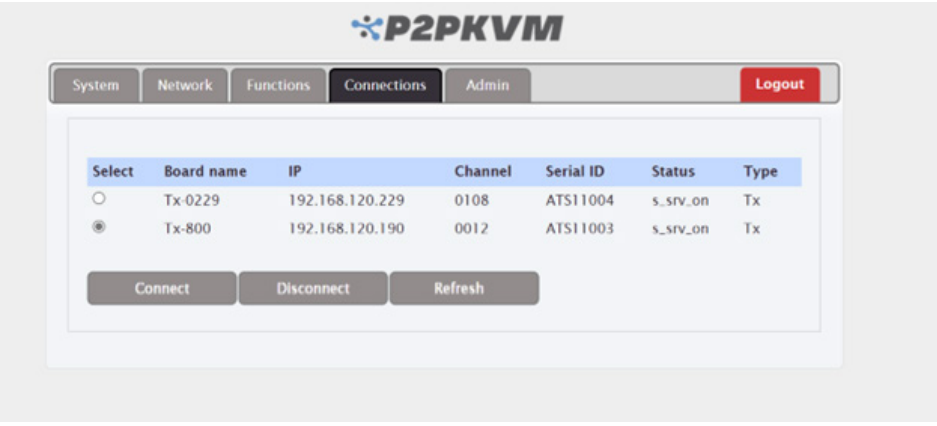
3. The System tab functions as a settings page for the device that has a section to view the current firmware version and another section to update firmware. Once the upload button is pressed under “Update Firmware”, it will take a few minutes for the device to update and reboot. This tab also has sections for rebooting the device, EDIDs, and console commands, as well as a section that displays common device information.



MATRIX MODE (CONTINUED)

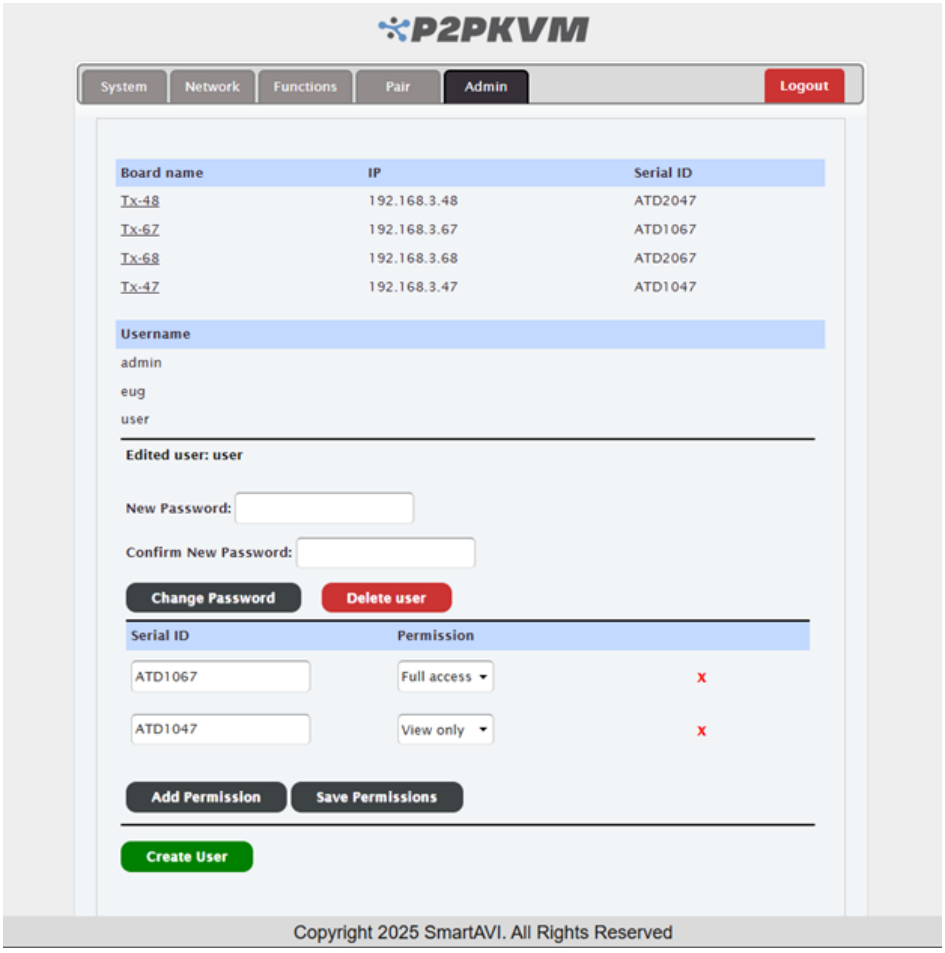
4. The Network tab is used to change device network information, switch between single head and dual head modes, and view currently connected devices on the network. To switch between single head or dual head mode, refer to the Head Configuration section. When the user is done changing any settings, press the Apply button and reboot the device.

5. The Functions tab allows the user to change various video, USB, and serial settings depending on the device type. To enable video for a transmitter, check the box next to “Enable Video over IP”, otherwise the receiver will not emulate the transmitters input when paired. To enable USB control, check the box next to “Enable USB over IP”, otherwise the receiver will not have KVM control when paired. By default, each transmitter will have video and USB emulation enabled. Other settings like resolution, USB devices, and Baud Rate for each device can be edited here.



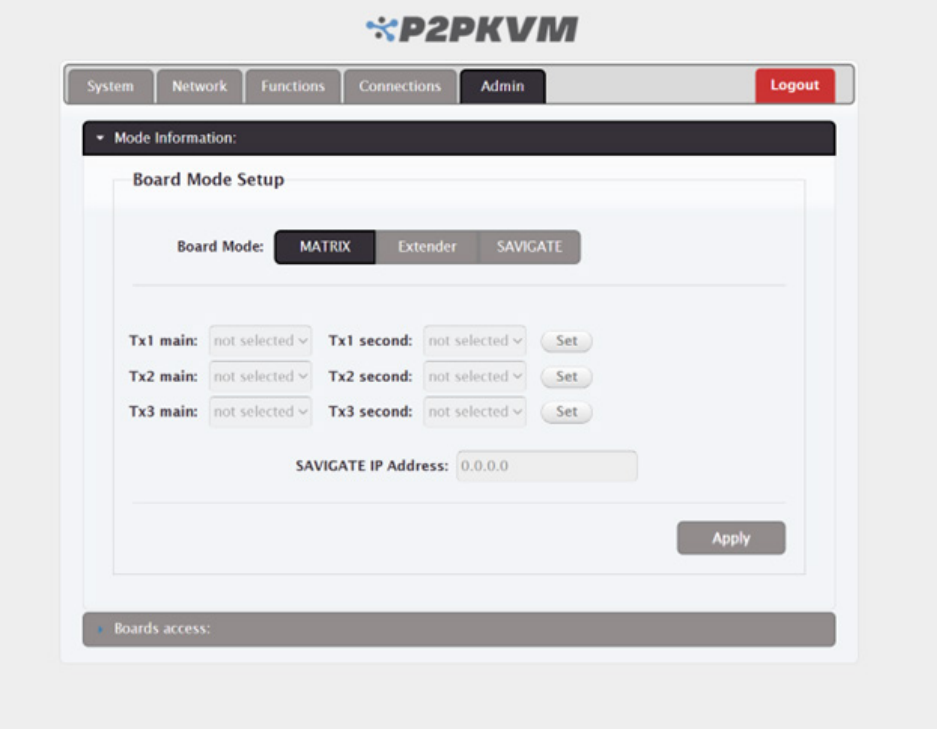
MATRIX MODE (CONTINUED)

6. The Connections tab is only available for the main head receiver; second head devices will not have access to this tab and will not appear in this list. This tab is used to remotely pair the receiver with a transmitter that is connected to the network. To pair a transmitter, check the box next to the transmitter to pair and press the Connect button. The receiver will now pair to the new transmitter and change the input source it is displaying. To reset a paired receiver and transmitter, press the Disconnect button and the receiver will revert back to the OSD login screen. Press the Refresh button to refresh any transmitters that have been changed.



MATRIX MODE (CONTINUED)

7. The Admin tab is used to create and edit users for web access only. Select a user to change any user information like passwords, head configuration, permissions, and more.



8. The Admin tab also contains the “Mode Information” section which allows the changing of the device’s modes. Currently these modes are Matrix, Extender (KVM Switch), and Savigate mode. To change a device mode, simply click the desired mode and press the “Apply” button.

MATRIX MODE (CONTINUED)

HEAD CONFIGURATION

1. P2PKVM devices can be set to two modes: single head or dual head. Single Head mode is used for displaying a single input source from a single HDMI port and Dual Head mode is used for a PC with two HDMI ports, which means Dual Head can display its transmitters' input across two receiver outputs. In dual head mode, one receiver will be set to the main head while the other receiver is set as the second head, and only the transmitter connected to the main head receiver will be listed. If a receiver is designated as the second head, then it will not have access to the Pair tab, as its connection to the transmitters is managed by the main head.
2. By default, all devices will be set to single head mode. To switch to dual head mode, refer to the following steps.
   a. For the transmitters, connect a single PC's two HDMI ports to two transmitters with an HDMI cable to the transmitters HDMI IN ports.
   b. Connect ethernet cables from the transmitters to a network switch.
   c. Connect a USB cable from the PC to the transmitter for K/M control.
   d. For the receivers, connect an HDMI cable to two separate monitors
   e. Connect ethernet cables from the receivers to a network switch. Ensure the switch is on the same network as the transmitters.
   f. Connect a USB keyboard and mouse to the USB 3.0 ports on the main head receiver.
   g. Connect power 5V adapters to the receivers and transmitters.
   h. Use the Savi-Finder app to find the IP addresses for both transmitters and in a web browser type the IP addresses in the address bar.
   i. Log into devices using a username/password (admin/admin by default).
   j. Navigate to the network tab and under "Serial ID" select the option "MainRx ARD1" for main-head device and "SecondRx ARD2" for the second-head device.
   k. For the main head device, select the "Second" drop down box and select the Host name for the second-head device. For the second head device, select the "Main" drop down box and select the Host name for the main-head device. This step will properly pair the main head device with the second head device.
   l. Ensure that the number input box is the same number across all devices and it not set to 0.
   m. Click "Set" and "Apply" for both the main head and second head, and then reboot both devices in the Utilities section of the System tab.
   n. Follow steps j-m for the receivers, this time using the IP addresses displayed on the on-screen display.
   o. Once the receivers have rebooted, there will be only one login screen on the main head receiver. The second head receiver will not have a login screen and is primarily used to display input.
   p. Log into the main head receiver and double click on the main head transmitter and both receivers will display video of the PC connected to the transmitters.
3. To change devices back to single head mode
   a. Log into all transmitters and receivers on a web browser.
   b. Navigate to the "Network" tab and under the "SerialID" dropdown box, select "SingleRx ARS1" for receivers and "SingleTx ATS1" for transmitters.
   c. Click "Apply" and reboot from the System tab for each device.
   d. Once the receivers have rebooted, there will be two different login screens displayed.

MATRIX MODE (CONTINUED)

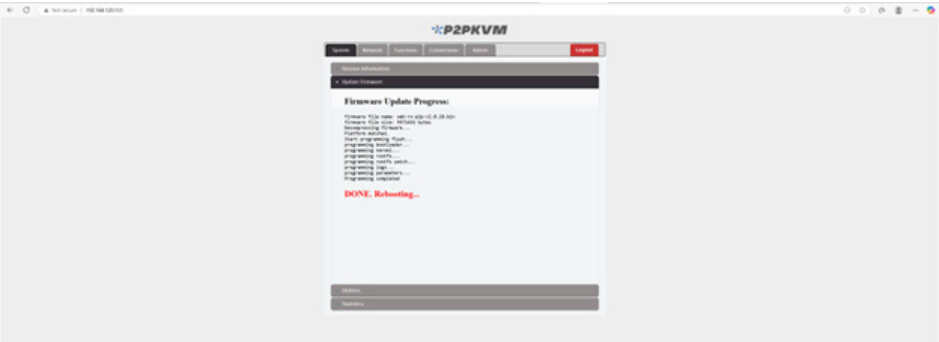
UPDATING DEVICE FIRMWARE

To update a device in Matrix mode, refer to the following steps.

1. Connect the device to a network switch and connect power adapter.
2. If the device is a transmitter, use the Savi-Finder application to find the IP address. If the device is a receiver, take note of the device IP on the login screen after the device boots up.
3. Open a web browser and enter the IP address found from the previous step into the browser's address bar.
4. Login to the device with a username/password (admin/admin by default).

5. Navigate to the "Update Firmware" section of the "System" tab.

6. Click the "Choose File" button and select the update file for the device.
7. Click the "Upload" button and wait until the update completes.



SAVIGATE MODE

Savigate mode (similar to Matrix mode) allows users to connect multiple transmitters and receivers to a network switch in order to switch between transmitters. Savigate mode has an additional feature that allows the user to control the devices from a single web manager, controlled by a separate device instead of controlling each device individual through their web interface.

HARDWARE SETUP

1. Connect an ethernet cable from the Savigate manager device to a network switch and power on the device with a 5V power adapter.
2. Position the P2PKVM transmitter conveniently near a computer or other input source.
3. Connect the corresponding cables from the computer to the USB IN, AUDIO IN, MIC IN, and HDMI/DP IN found on the back of the P2PKVM transmitter. To connect a monitor to transmitter to view the computers video locally, connect a HDMI/DP cable from the monitor to the HDMI/DP OUT on the front of the transmitter.
4. Position the P2PKVM receiver conveniently near the new setup that will serve as the output.
5. Connect a Cat5/Fiber cable to the LINK on the front of the transmitter, then connect the other end to a port on the Gigabit switch.
6. Connect a keyboard and mouse to the USB K/M OUT ports found on the back of the receiver. Connect the audio output device, such as a set of speakers, to the 3.5mm jack labeled AUDIO OUT and connect the audio input device, such as a microphone, to the 3.5mm jack labeled MIC OUT.
7. Connect the monitor by connecting a HDMI/DP cable to the HDMI/DP port on the front of the receiver labeled HDMI/DP OUT, then plug the other end of the cable into the monitor.
8. To connect any extra USB devices, such as a printer, plug them into either of the two ports labeled USB 2.0 OUT.
9. Connect a Cat5/Fiber cable to the LINK on the front of the receiver, then connect the other end to a port on the Gigabit switch.
10. Now plug the power cords into both the transmitter and receiver, and after a few moments the units will boot up. Once the devices are finished booting up, a login screen will appear.

DEVICE SETUP

Ensure the receiver(s) is in the correct mode

1. Using the IP address of the receiver that can be found on the device's login screen after setup, open a web browser and enter the IP address in the URL bar.
2. Login to the device with a username/password (admin/admin by default).
3. Navigate to the "Admin" tab on the web GUI.
4. Next select "Savigate" mode and Click "Apply" to apply changes.
5. Reboot the device under the "System" tab and clicking "Reboot" under the "Utilities" section.
6. Once the device boots back up, there will be a login screen displayed on the connected monitor.

HOW TO USE SAVIGATE

1. Ensure the Savigate manager device is powered on and connected to a network switch using an ethernet cable.
2. Open a web browser on a computer and type "savigate.local" into the address bar.
3. A login screen for the Savigate device will appear.
4. Login with default username and password: admin/admin.

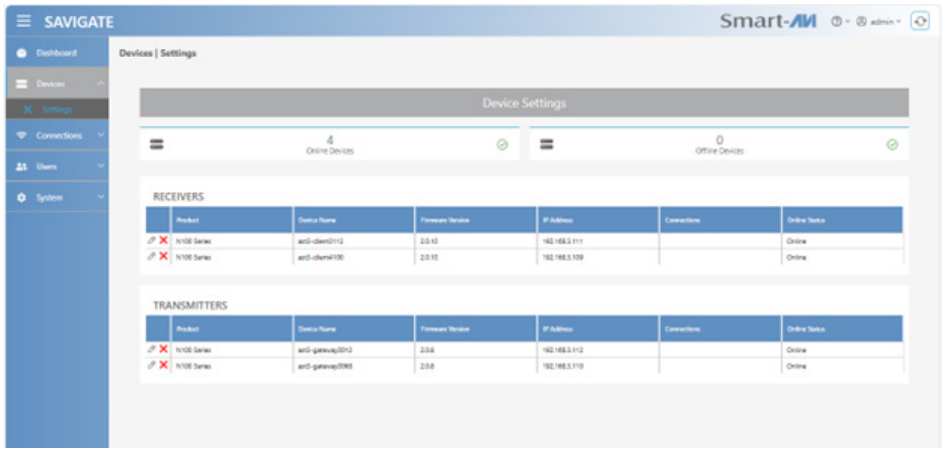
SAVIGATE MODE (CONTINUED)

DASHBOARD

The Dashboard page is the first screen after logging into the Savigate manager. From here, users can navigate to other tabs or view usage statistics for users and devices. The Dashboard page will display how many users are logged in, number of devices connected, user groups, and active connections.

DEVICES

Under the Devices tab, there will be a settings page for all devices. By clicking the pencil icon, the user can edit settings like the devices IP address and factory restore devices.

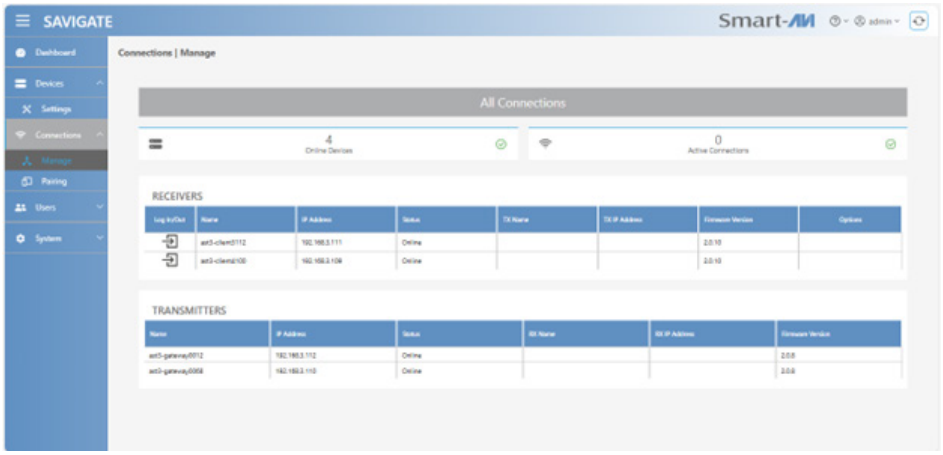


CONNECTIONS

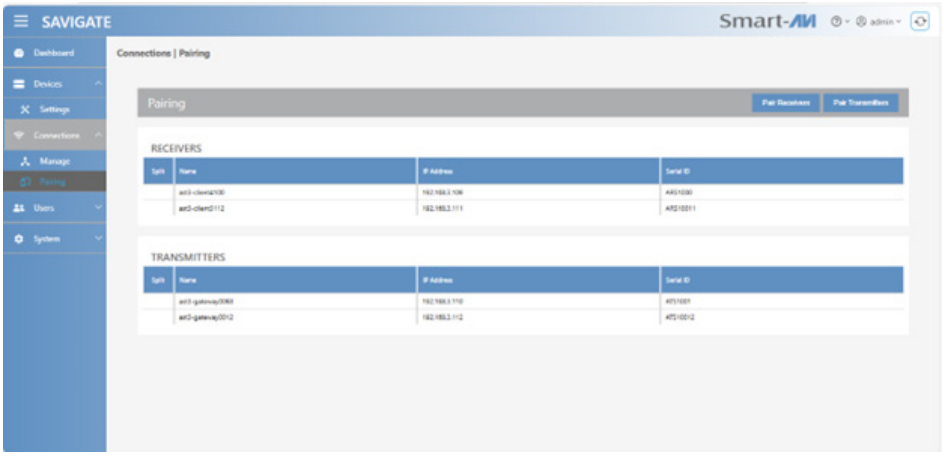
Under the Connection tab, there will be two pages “Manage” and “Pairing”. In the Manage page, the user can log into receivers and connect to an available transmitter. The Pairing tab is used when devices are set to dual-head mode. Here the user can select the main and secondary heads for the dual head mode as well.

SAVIGATE MODE (CONTINUED)

MANAGE PAGE



PAIRING PAGE

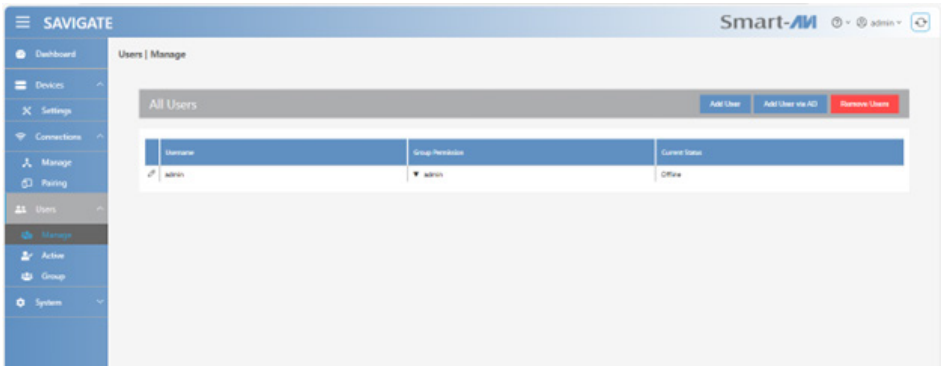


USERS

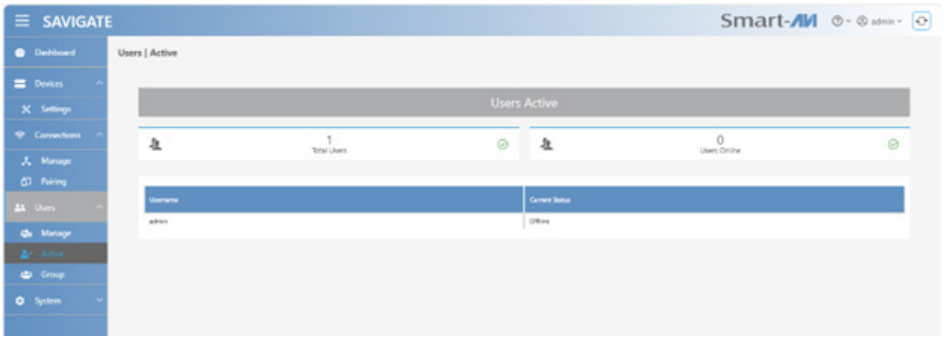
Under the Users tab, there are 3 pages that called Manage, Active, and Group. The Manage page allows the addition or removal of users as well as the ability to assign the user to a group. The Active page will show which users are currently logged in and active. Finally, the Group page allows the creation of groups that users can be assigned to. With a group, users can be given access to devices, like specifying which users can view certain transmitters.

SAVIGATE MODE (CONTINUED)

MANAGE PAGE



ACTIVE PAGE



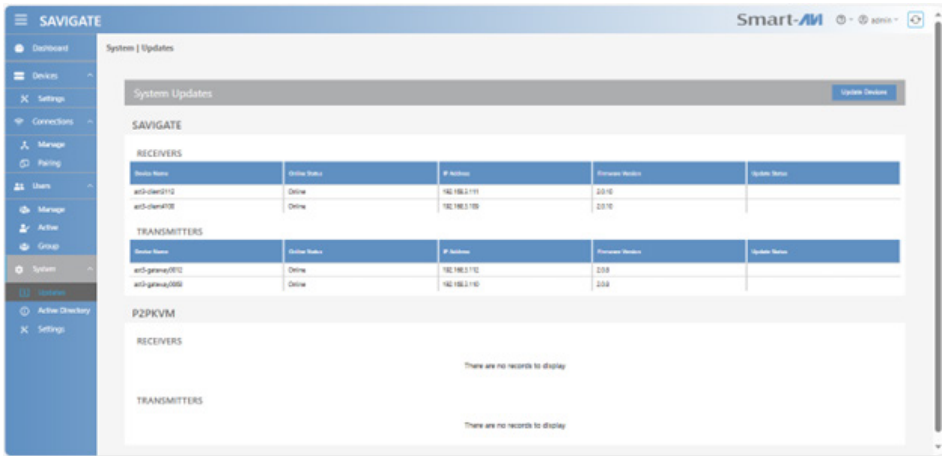
GROUP PAGE

SYSTEM

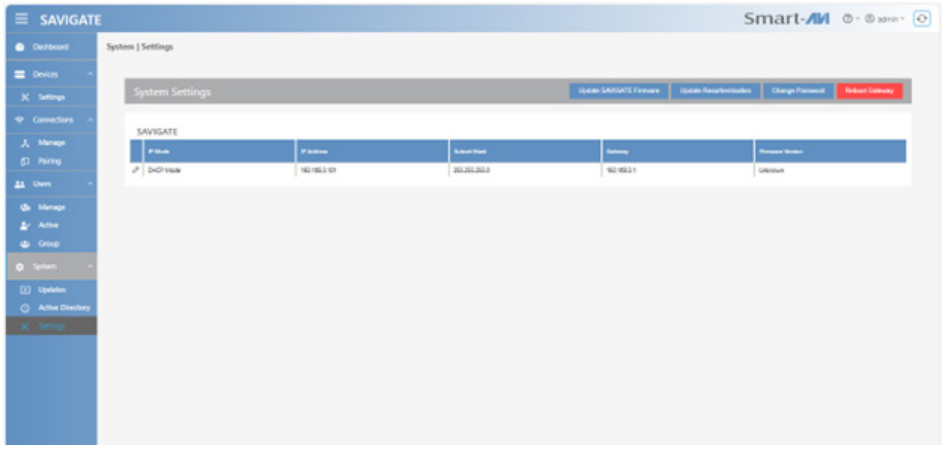
Under the System tab, there are three pages called Updates, Active Directory, and Settings. The updates tab allows users to update their Savigate or P2P devices to a newer firmware. The Active Directory tab shows general information about the manager such as the devices network status. Finally, the Settings page will have general settings for the Savigate manager. These include updating the manager, changing user password, and networking settings for the manager.

SAVIGATE MODE (CONTINUED)

UPDATES PAGE



SETTINGS PAGE

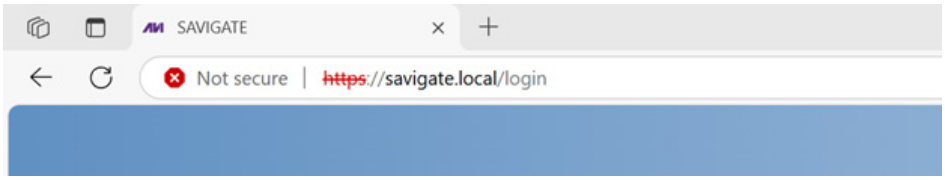


ACTIVE DIRECTORY PAGE

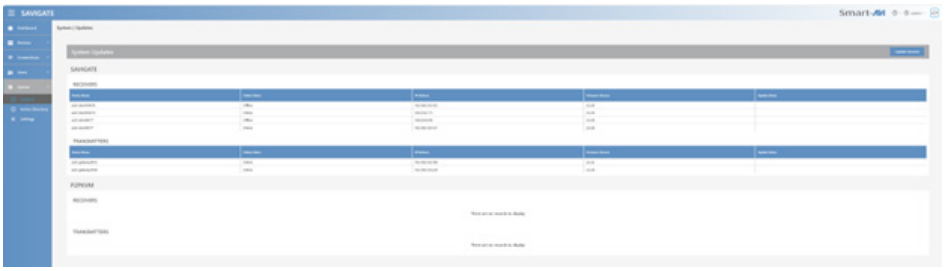
UPDATING DEVICES FROM SAVIGATE MANAGER

Both Savigate and P2P devices can be updated from the Savigate manager. Follow the next steps to update a device to a newer firmware.

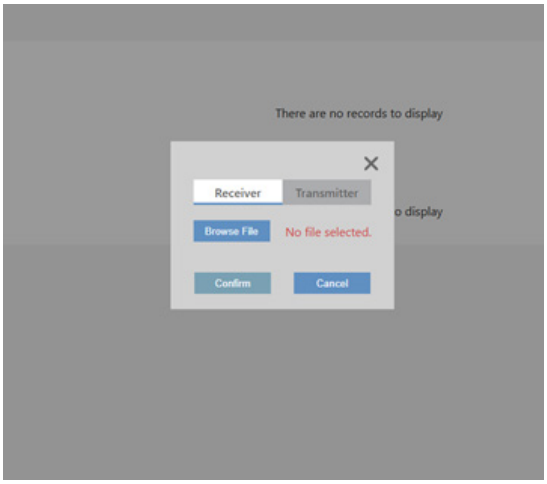
1. Ensure that the Savigate manager device is connected to a network switch and powered on.
2. Open a web browser on a computer and enter “savigate.local” into the address bar.



3. Login to the Savigate manager using a username/password (default: admin/admin).
4. Click on the “System” tab on the left-side of the screen and select the “Updates” option. This will return the user to the device update page.

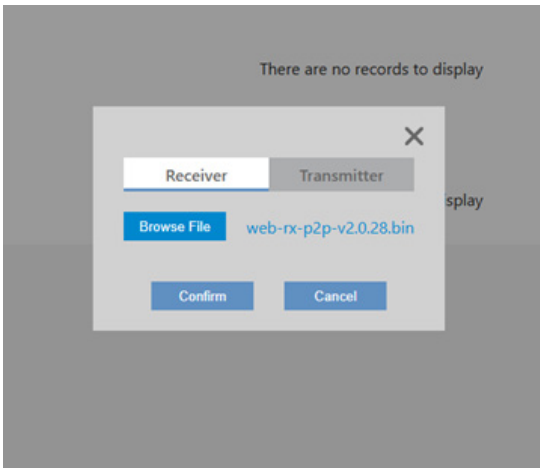


5. Click on the “Update Devices” button in the top right.

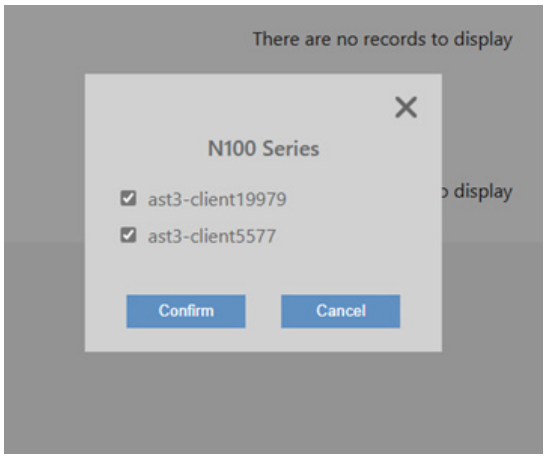


UPDATING DEVICES FROM SAVIGATE MANAGER (CONTINUED)

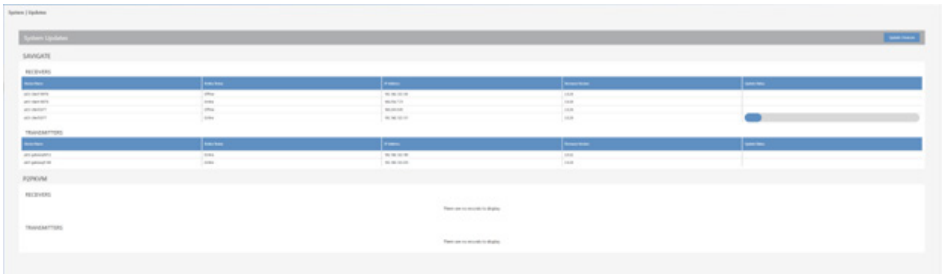
6. Select either transmitter if updating a transmitter or receiver if updating a receiver.
7. Click the “Browse File” button and select the update file to use for the update.
8. Click “Confirm” and the file name will now appear next the “Browse File” button.



9. Next click on the checkbox for the specific transmitter/receiver to update.



10. Click “Confirm” again and the update will start. There will be a progress bar next to the device that represents the update progress. Please wait for the update to finish before continuing.



CONNECTING ACTIVE DIRECTORY TO SAVIGATE MANAGER

To create and manager users in the Savigate Manager, the user must be logged in as an administrator. Admin users also have the ability to add and manage users from their Active Directory server. This document will cover how to connect an Active Directory to Savigate and how to manage users.

CONNECTING ACTIVE DIRECTORY TO SAVIGATE

Steps:

1. Ensure the Savigate manager unit is connected to a network switch via an ethernet cable
2. Connect AC adapter and power on the device.
3. On the left-side tabs click “System” and select “Active Directory”. This is where the user can input credentials so Savigate can connect to the AD server.

4. Click the “Update Credentials” button.
5. Input the IP address of the Active Directory server.
6. Input the Domain controller ex: test.local
7. Input the Username/Password for the local administrator for the AD server.
8. Click “Confirm” and Savigate will now be connected to the AD server.

MANAGING USERS WITH SAVIGATE

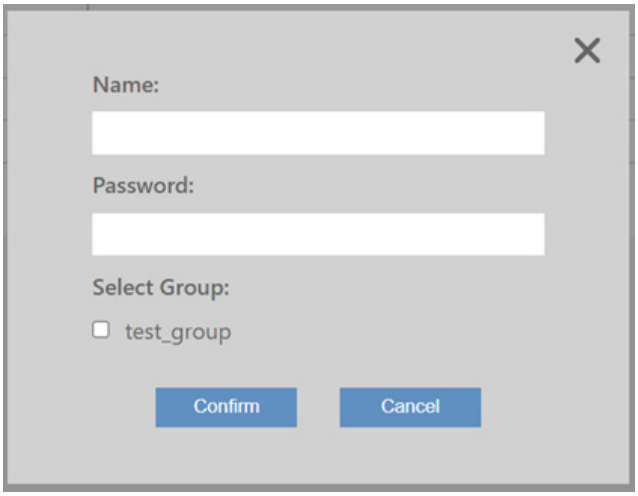
With the Savigate manager admin users have the ability to create groups with access permissions and assign users to those groups. This allows admin users to control what access other users have to certain transmitters.

CREATING A NEW USER

1. Click on the “Users” tab on the side-bar and click the “Manage” tab. Here a list of all current users will be displayed.

MANAGING USERS WITH SAVIGATE (CONTINUED)

2. Click the “Add User” button on the top-right of the screen.
3. Input the new user’s username and password into the input boxes and select “Confirm” to confirm changes.



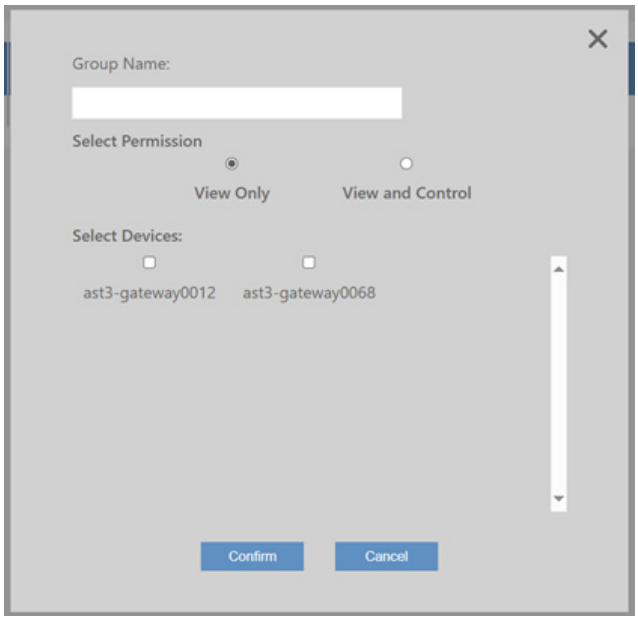
4. The new user will now be shown in the table on the Manage page.

CREATING A NEW USER GROUP

1. Click the “Users” tab and click on the “Group” tab in the side-bar.
2. There will be a table that lists all of the current user groups that have been created.

MANAGING USERS WITH SAVIGATE (CONTINUED)

3. Click the “Add Group” button in the top-right. A new window will appear to name and configure the new group.



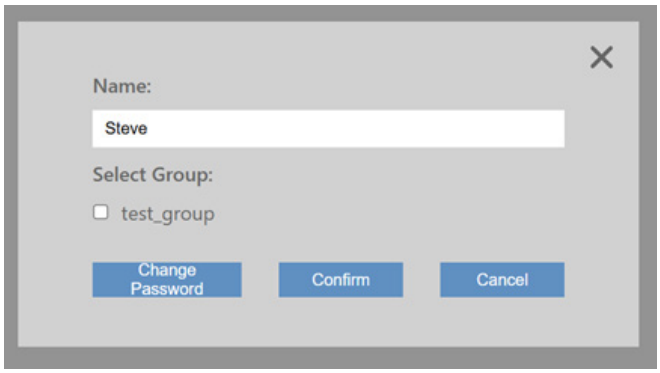
4. Enter the name for the group in the text box.
5. Under “Select Permission” the user can choose to enable full control or view only control using the “View Only” and “View and Control” checkboxes.
6. Under “Select Devices” the user can select which transmitters the group will have access to.
7. Click “Confirm” and the new group will be added to the table on the “Group” page.

ADDING USERS TO A GROUP

1. Select the “Users” tab and click the “Manage” tab. This will bring up a list of all current users.

MANAGING USERS WITH SAVIGATE (CONTINUED)

2. Click the pencil icon next to the username for the user to add to a group.
3. A new window will appear and checkmark which group the user should be added to.

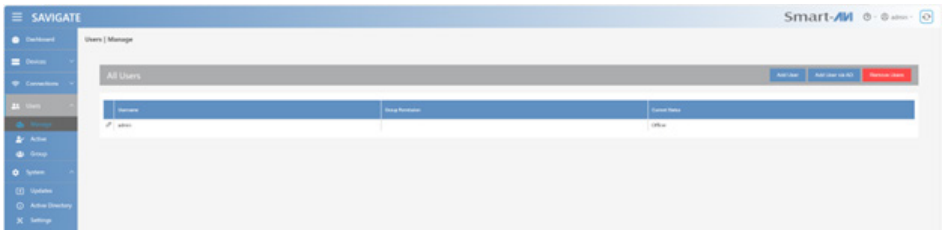


4. Click “Confirm” and the user will be added to the group.
5. Once the user is added, look under the “Group Permission” column in the user table to confirm the user was added. In the cell it will display the name of the group the user is in.

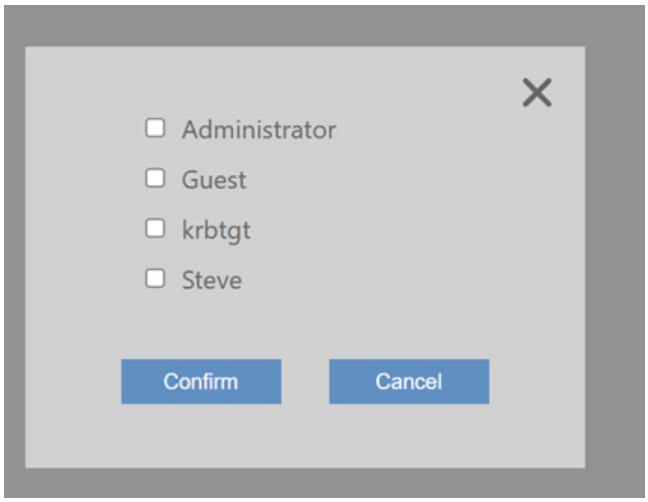
MANAGING ACTIVE DIRECTORY USERS

ADD ACTIVE DIRECTORY USERS TO SAVIGATE

1. First click on the “Users” tab in the side-bar and click “Manage”. By default, only the admin user will be displayed.



2. Next click the “Add User via AD” button and there will be a list of users from the AD that can be added to Savigate.



MANAGING ACTIVE DIRECTORY USERS (CONTINUED)

3. Use the checkboxes to select the users to add and click “Confirm” to confirm changes.
4. The users will now be populated in the list along with the admin user.

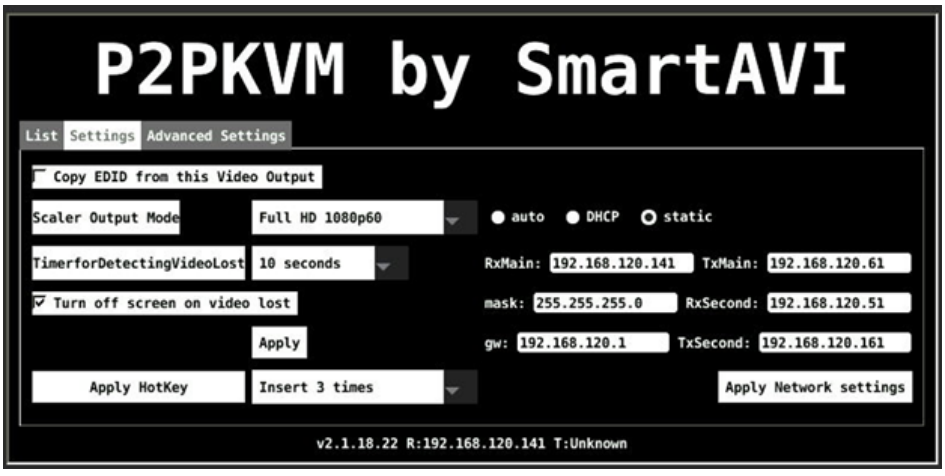
Once a user has been added to Savigate, it can be added to a group. Groups are used to assign permissions to users for access to specific transmitters or change access type like view and control or view only.

P2PKVM OSD MANUAL

Here is the OSD (On-screen display). The OSD has functions similar to the web that can change the settings such as network settings, receiver and transmitter functions and mode settings.

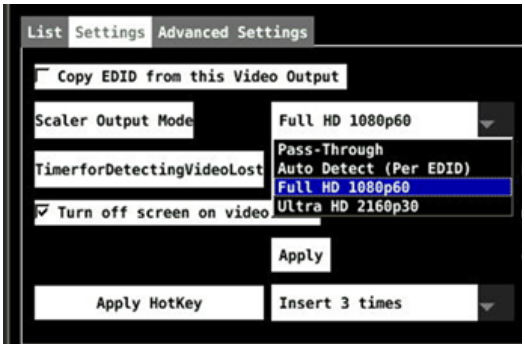
There are three tabs that can be used.

1. **Settings**
   a. This tab allows the user to change the general settings of the receivers and transmitters.
2. **List**
   b. This tab shows a list of all the P2PKVM devices connected to the same network switch.
3. **Advanced Settings**
   c. This tab allows the user to switch between modes and adjust the video functions of the transmitters.



SETTINGS TAB

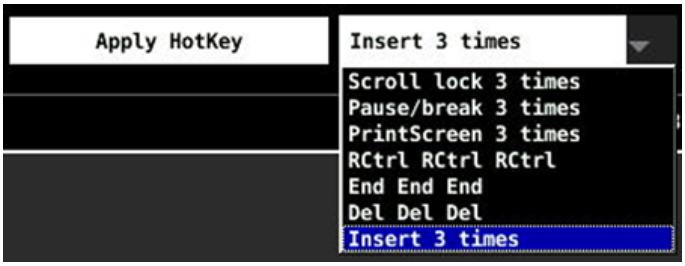
GENERAL SETTINGS



- Copy EDID from the Video Output saves the EDID from the receiver.
- Scalar Output Mode allows you to change the resolution of the output from the receiver.
  1. Pass-Through outputs the video to whatever resolution the PC is set to.
  2. Auto Detect will output the video to the resolution from the EDID of the PC.
  3. Full HD 1080p60 will output in 1080p at 60 Frames per second.
  4. Ultra HD 2160p30 will output in 4K 2160p at 30 frames per second.
- Timer for Detecting Video Lost is the time it takes for the Receiver to turn off its video after it has been disconnected from its transmitter.
- Turn off screen on Video Lost will turn off the screen if there is no connection to the transmitter.

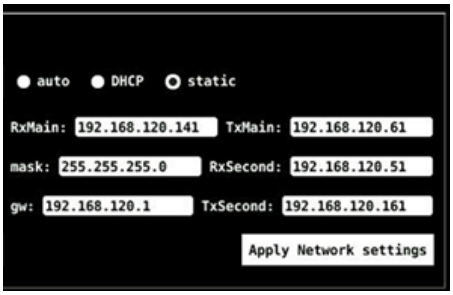
After choosing the settings, press the “Apply button” to apply the settings.

To change the hotkey for the OSD, click the drop-down menu and you can choose any of these options:



To apply the hotkey changes, click “Apply Hotkey” button.

IP SETTINGS



SETTINGS TAB (CONTINUED)

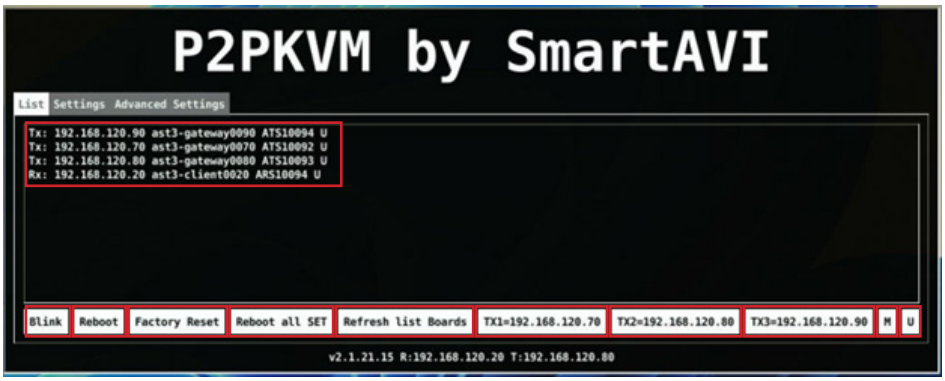
In single head mode, the IP for RxMain and TxMain will automatically be filled out with the IP of the board.
In Dual Head mode, the IP for RxMain, TxMain, RxSecond and TxSecond will automatically be filled out with the corresponding IP of each board.
To change the IP address of the boards, the IP of each board MUST be entered correctly into the text boxes.
There are three options to change the IP of the boards:

1. Auto – Assigns the boards with a random IP starting with 169.254.x.x.
2. DHCP – Assigns the boards with a random IP based on the current network it is connected to
3. Static – Assigns the boards with the IP that the user input from the web UI

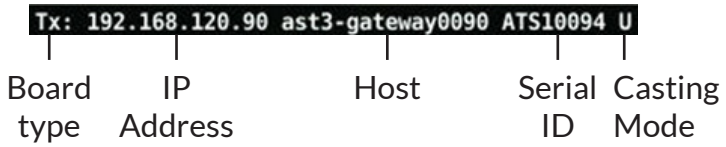
To apply the network settings, click the “Apply Network Settings” button.

LIST TAB

LIST TAB:



1) Shows all the receivers and transmitters connected to the same network

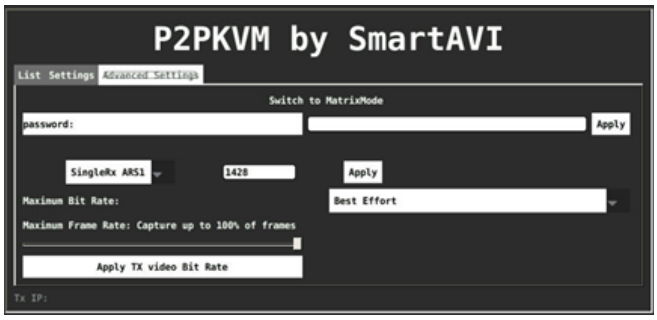


2) Blinks the LED of the selected board
3) Reboots the selected board
4) Factory Resets the selected board
5) Reboots all the receiver and transmitter of the selected board
6) Refreshes the list of boards
7) Option to set the three transmitters for KVM Switch mode
8) The “M” button changes all boards to multicast mode, the “U” changes all boards to Unicast mode

NOTE: Factory Resetting devices will reset the IP of the board to either:

- Receiver: 192.168.99.22
- Transmitter: 192.168.99.55

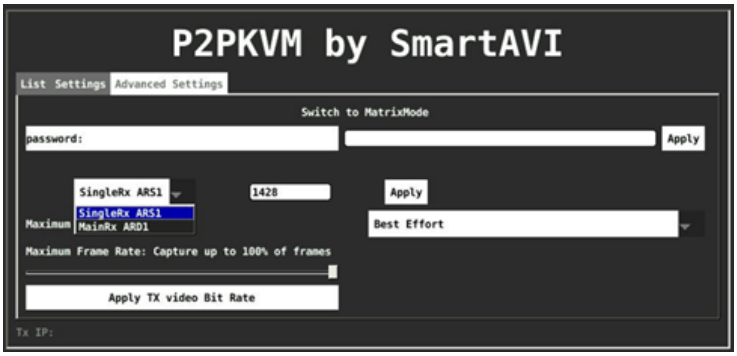
ADVANCED SETTINGS



The advanced settings tab allows the user to change the modes of the boards as well as control the functions of the transmitters.
To switch to Matrix mode, enter the password (default password is: admin) and click “Apply”
The Maximum Bit Rate option allows the user to limit the bit rate of the ethernet used by the transmitters.
The Maximum Frame Rate option allows the user to reduce the frame rate of the transmitters to a minimum of 40% and a maximum of 100%.
To apply the transmitter settings, click “Apply TX video Bit Rate”.

DUAL HEAD MODE SETTINGS

NOTE: To switch to dual head mode, the IP address of all boards must be correctly typed into the IP settings in the Settings Tab.

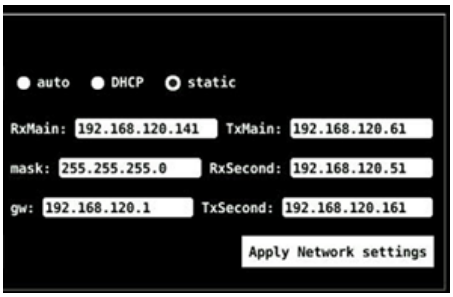


There are two options in the drop-down menu:

1. SingleRx ARS1 – This option is to switch all the boards that have their IP inputted in the settings tab to single head mode
2. MainRx ARD1 – This option is to switch all the boards that have their IP inputted in the settings to dual head mode

The user can also change the serial ID of all the boards using the text box to the right of the drop-down menu.
If MainRx ARD1 is selected, the boards will switch to their assignments based on how their IP was entered in the settings tab.

DUAL HEAD MODE SETTINGS (CONTINUED)



For example: The main receiver head will be the board with the IP 192.168.120.141 and the second receiver head will be the board with the IP 192.168.120.51. The main transmitter head will be the board with the IP 192.168.120.61 and the second transmitter head will be 192.168.120.161.

TROUBLESHOOTING

No Power

- Make sure that the power adapter is securely connected to the power connector of the unit.
- Check the output voltage of the power supply and make sure that the voltage value is around 12VDC.
- Replace the power supply.

No Video

- Check if all the video cables are connected properly.
- Connect the computer directly to the monitor to verify that your monitor and computer are functioning properly.
- Restart the computers.

Keyboard is not working

- Check if the keyboard is properly connected to the unit.
- Check if the USB cables connecting the unit and the computers are properly connected.
- Try connecting the USB on the computer to a different port.
- Make sure that the keyboard works when directly connected to the computer.
- Replace the keyboard.

Mouse is not working

- Check if the mouse is properly connected to the unit.
- Try connecting the USB on the computer to a different port.
- Make sure that the mouse works when directly connected to the computer.
- Replace the mouse.

No Audio

- Check if all the audio cables are connected properly.
- Connect the speakers directly to the computer to verify that the speakers and the computer audio are functioning properly.
- Check the audio settings of the computer and verify that the audio output is through the speakers.

TECHNICAL SUPPORT

For product inquiries, warranty questions, or technical questions, please contact info@smartavi.com.

LIMITED WARRANTY STATEMENT

A. Extent of limited warranty
SmartAVI, Inc. warrants to the end-user customers that the SmartAVI product specified above will be free from defects in materials and workmanship for the duration of 1 year, which duration begins on the date of purchase by the customer. Customer is responsible for maintaining proof of date of purchase.

SmartAVI limited warranty covers only those defects which arise as a result of normal use of the product, and do not apply to any:

a. Improper or inadequate maintenance or modifications
b. Operations outside product specifications
c. Mechanical abuse and exposure to severe conditions

If SmartAVI receives, during applicable warranty period, a notice of defect, SmartAVI will at its discretion replace or repair defective product. If SmartAVI is unable to replace or repair defective product covered by the SmartAVI warranty within reasonable period of time, SmartAVI shall refund the cost of the product.

SmartAVI shall have no obligation to repair, replace or refund unit until customer returns defective product to SmartAVI.

Any replacement product could be new or like new, provided that it has functionality at least equal to that of the product being replaced.

SmartAVI limited warranty is valid in any country where the covered product is distributed by SmartAVI.

B. Limitations of warranty
To the extant allowed by local law, neither SmartAVI nor its third party suppliers make any other warranty or condition of any kind whether expressed or implied with respect to the SmartAVI product, and specifically disclaim implied warranties or conditions of merchantability, satisfactory quality, and fitness for a particular purpose.

C. Limitations of liability
To the extent allowed by local law the remedies provided in this warranty statement are the customers sole and exclusive remedies.

To the extant allowed by local law, except for the obligations specifically set forth in this warranty statement, in no event will SmartAVI or its third party suppliers be liable for direct, indirect, special, incidental, or consequential damages whether based on contract, tort or any other legal theory and whether advised of the possibility of such damages.

D. Local law
To the extent that this warranty statement is inconsistent with local law, this warranty statement shall be considered modified to be consistent with such law.

Smart-AVI

SMART AUDIO VIDEO INNOVATION

NOTICE

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Designed and Manufactured in the USA

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