AVer TR320/530 and PTZ310/330 Camera Integration

with Echo360 Platform

Steps to integrate the Aver TR and PTZ Cameras with Echo360 (March 2020)

AVer Pro-AV has high quality image Cameras (TR320/530 and PTZ310/330) that will integrate with Echo360 workflows for peak performance and ease of use. We will show the configuration process for both the TR and PTZ Camera lines and Echo360 software.

Echo360 combines video management with lecture capture and active learning to increase student success. They have Recording and Streaming, Video management, Video Learning and Engagement, and Analytic capabilities.

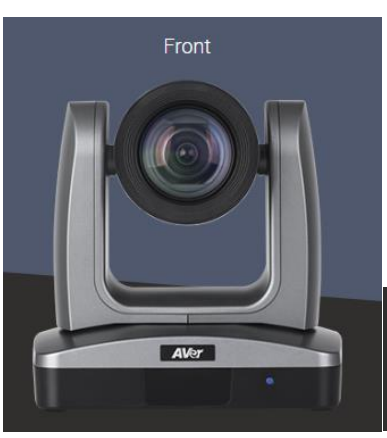
AVer Cameras with Echo360

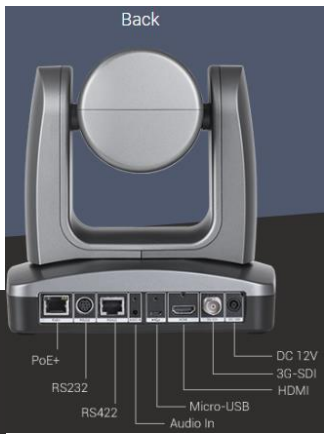
The workflow from the AVer cameras is seamless; there are three main environments to which the cameras can be configured as a capture device.

- Echo360 Pro
- Echo360 Pod
- Legacy SafeCapture HD (SCHD)

The AVer PTZ310/330(N) and TR320/530 cameras have various video output capabilities; here is a brief overview of each.

PTZ 310/330 Camera





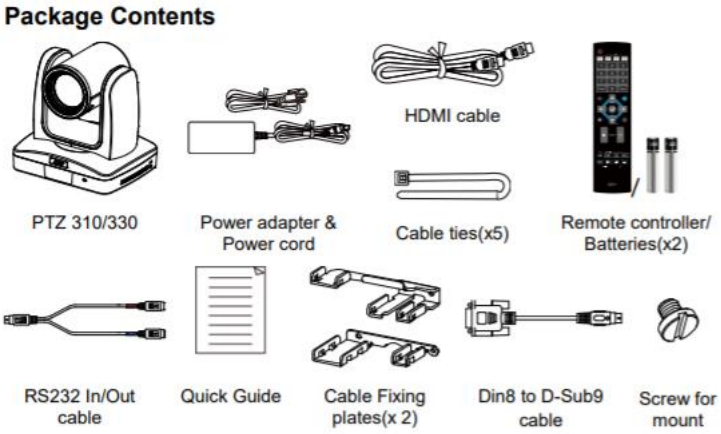
Output resolution
Auto, 1080p/60, 1080p/59.94, 1080p/50, 1080i/60, 1080i/59.94, 1080i/50, 1080p/30, 1080p/29.97, 1080p/25, 720p/60, 720p/59.94, 720p/50

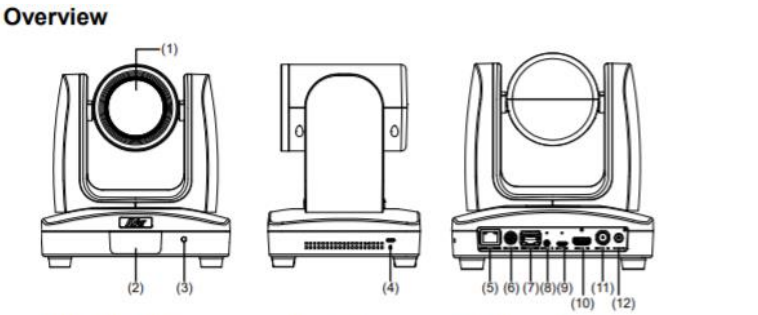
Video output	Audio output	Audio input
3G-SDI, HDMI, IP, USB	3G-SDI, HDMI, IP, USB	MIC / Line-in

Audio - channel	Audio - codec	Audio - sample rate
2ch (stereo)	AAC-LC (48/44.1/32/24K), G.711/PCM (16K/8K)	48 / 44.1 / 32 / 24 / 16 / 8Khz

PTZ310/330 Camera (continued)

- AVer PTZ310/330/N Camera and accessories.





TR 520/530 Camera

Camera

Audio	Output resolution
PCM, AAC-LC, G.711	Auto, 1080p/60, 1080p/50, 1080i/60, 1080i/50, 1080p/30, 720p/60

Output interface	Video output capability
3G-SDI*2, HDMI*1, IP (RJ45)	Up to 1080P/60

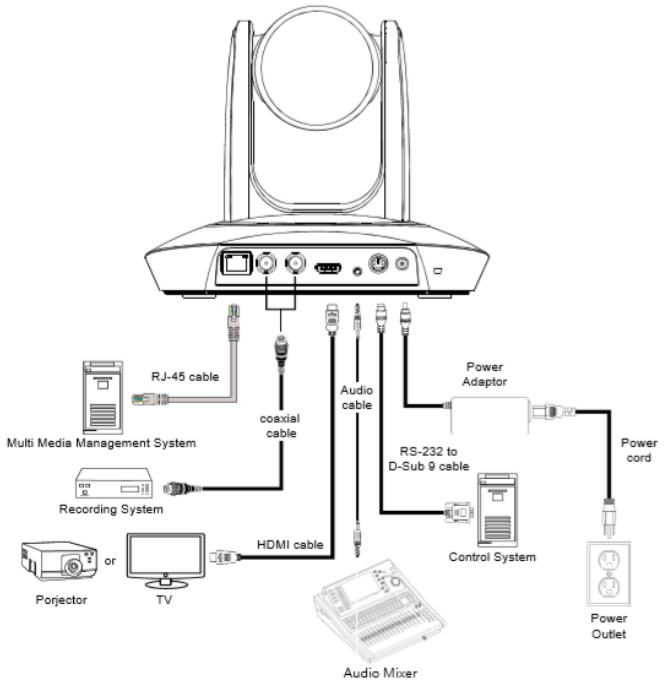
Panoramic camera (Full view)

Output resolution
Auto, 1080p/60, 1080p/30, 720p/60

Interface/Streaming/Protocol

Network protocol	IP video streaming
RTSP, RTMP, ONVIF	Dual video streaming (PTZ and panoramic view)

Device Connections



AVer PTZ 310/330 Camera integration with Echo360

The following are the steps needed to configure the AVer Camera with the Echo360 platform.
The PTZ camera has various outputs for video; the Echo360 can support any one of these video connections.

They are:

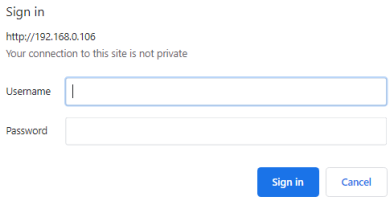
- HDMI
- 3G-SDI (Coaxial connection, SMPTE 424M)
- USB (Micro USB connection, Echo360 Pod only)
- IP - Network - RTSP (RJ45 network connection)

We can combine the outputs into 2 main groups of emphasis:

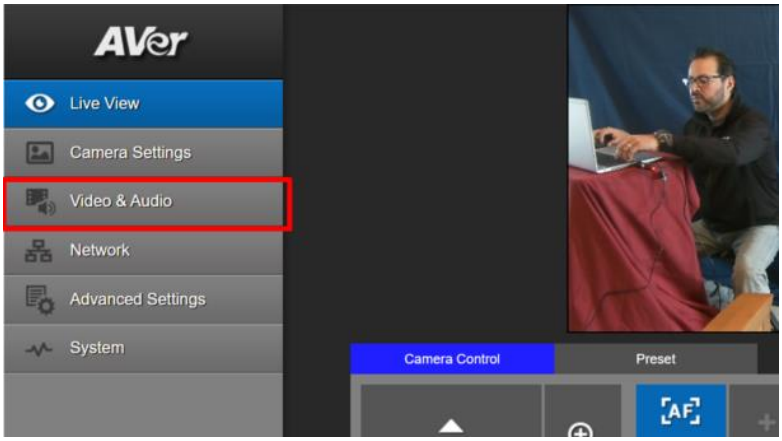
1. **HDMI/SDI/USB connection type**
2. **IP/Streaming connection type**

PTZ Camera *HDMI/SDI/USB* Output to the Echo360 System Input

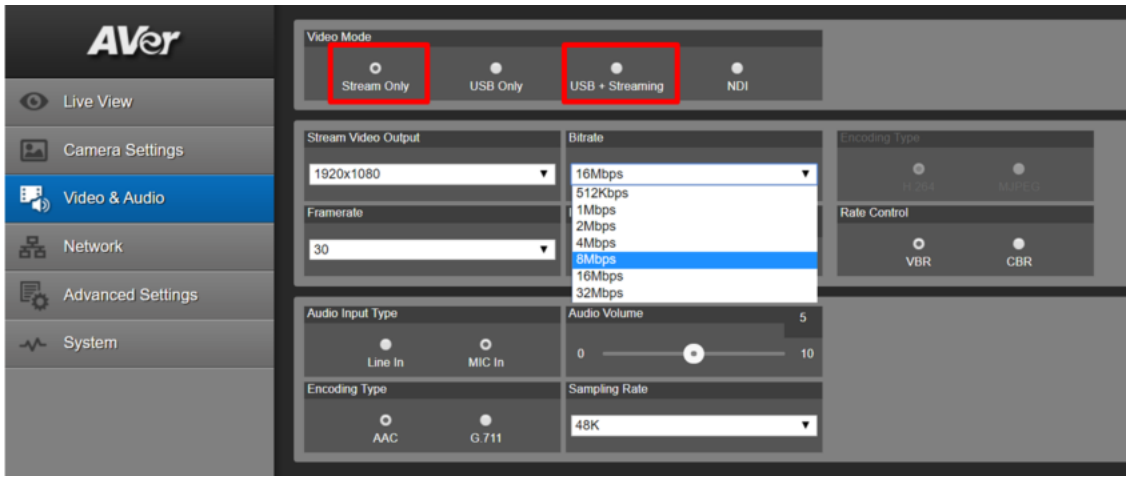
1. Type the IP address of the camera in your Chrome browser (Setup on same subnet) and you should now see the login to the PTZ310/330 camera shown below.



2. The default Username/password is “administrator”.
   ***Note:** If this is the first time accessing the PTZ330 camera via the Web login it may ask you to change the Username/Password.
3. Next, you should now see the main login screen with a “Live View” of the PTZ Camera.



4. Next, after selecting the *Video & Audio* setting, verify the Video Mode you are in. In this setup you should *NOT* be in NDI and *Stream Only* Video Mode, as it will disable the USB output.
   ***Note:** Some servers require a minimum bitrate of 2.5Mbps for their environment.



The PTZ Camera will have an SDI/HDMI output in ALL modes.

	Stream Only (Various)	USB Only (Various)	USB + Streaming (Various)	NDI (1080p/60)
SDI Output	✓	✓	✓	✓
HDMI Output	✓	✓	✓	✓
USB Output	x	✓	✓	x
RTSP Output	✓	x	✓	✓

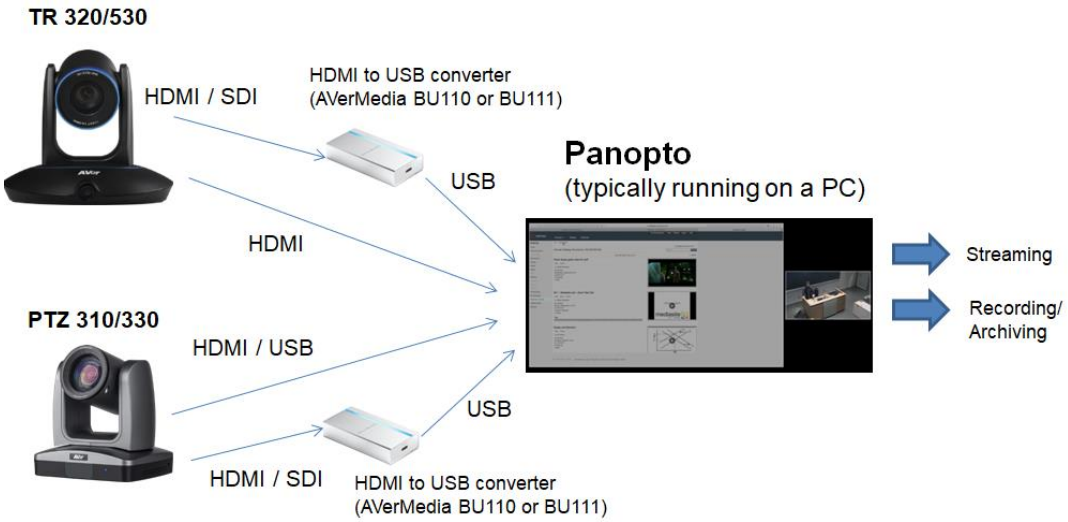
PTZ Camera HDMI/SDI/USB connection to Echo360

When connecting the camera to an Echo360 platform the PTZ310/330 provides HDMI, SDI, and USB output. If you are using a desktop with a video card, they can typically have a direct HDMI input connection with high performance data transfer.

If you are using a laptop to capture video, a portable HDMI to USB dongle like the AVer Media BU110 and BU111 provides a high speed, high quality connection.

Two Likely Scenarios:

- HDMI or USB direct connection from PTZ camera
- HDMI / SDI connection using an AVer Media converter to USB connection



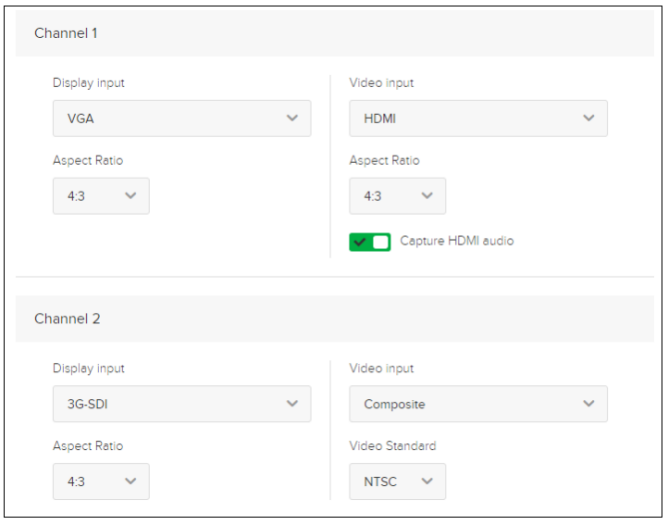
Echo360 Pro

The Echo360 capture appliance has a default configuration which can be edited for each individual device as necessary.

To configure the Pro device defaults:

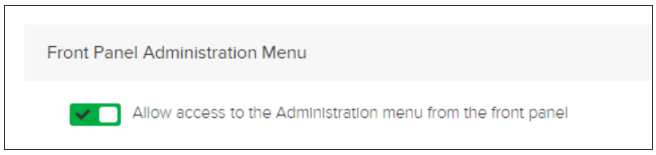
1. Log into Echo360 as an administrator.
2. Click the ***Settings*** icon in the upper right corner of the page (gear icon).
3. Select ***Configurations*** from the settings menu.
4. From the left side of the Configurations page, select ***Device default configurations.***
5. From the options across the top, select ***Echo360 Pro.***
6. Channel 1 and Channel 2 sections of the configuration page are identical and allow you to select which device to use for display and video based on connection type. Each Channel supports up to four connected devices, one of each of the following types:

   HDMI / VGA / Composite / 3G-SDI

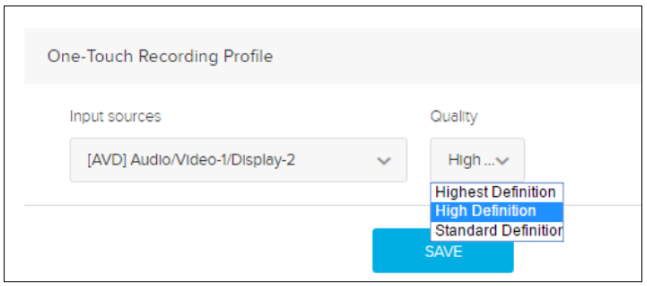


7. Use the ***Channel 1 Video Input*** list to identify the connected device type that will that will be capturing the video feed.
8. If you are using the HDMI output from the PTZ camera direct, enable or disable the ***Capture HDMI audio*** slider for each selected HDMI device.

9. Next, enable or disable the access to the Administration menu on the front panel of the Pro appliance.



10. Next, select the ***Input sources*** and ***Quality*** settings for the One-Touch recording profile.



11. Next, see also the **Echo360 Pro FAQ's** and **How To's** for additional information on the One touch profile.
12. Next, when finished click ***Save,*** then click the Common Settings tab at the top of the page, to complete device configuration for download to a USB drive.

Echo360 Pod

The back of the Echo360 Pod has a USB port into which users can plug in a USB camera.
The Pod supports any UVC (USB video class) camera that provides 1280x720 resolution and 30fps and MJPEG.

13. Connect the PTZ camera to the Echo Pod via a USB cable or, if using HDMI/SDI output from camera, using an AVer converter (BU110 / BU111).
    ***Note:** There are (2) USB ports on the back of Pod and 2 cameras could be plugged in, the Pod will only recognize 1 of them.
14. Next, check the Pod screen, when a supported USB camera is plugged in, the screen below will appear.

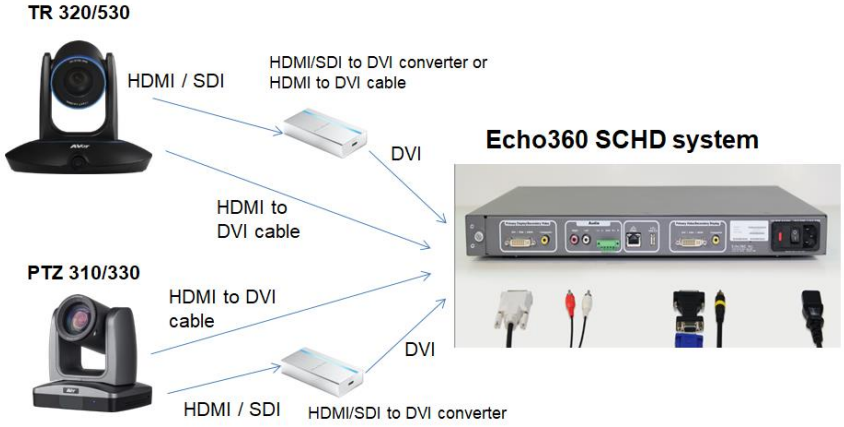
15. If there is problem with the connection or the USB camera is not supported, the screen will show a red line through the device.

16. For more information on this topic see ***Echo360's Pod FAQ's and How To's***

Echo360 Legacy SafeCapture HD (SCHD)

The Echo360 SafeCapture HD is a dedicated, all-in-one capture appliance, capable of capturing either standard or high definition video input, along with display and audio. The SCHD is no longer in active production.

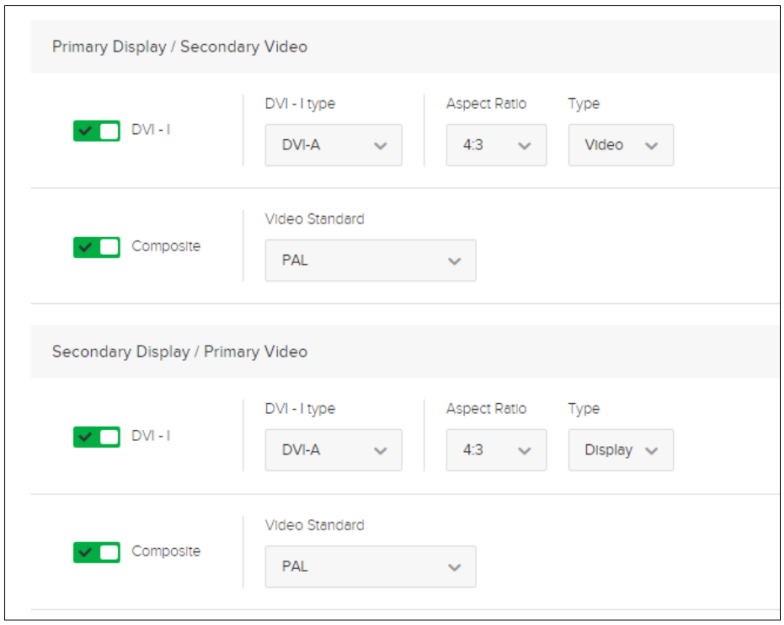
To connect the PTZ camera to the SCHD you would need a converter from (HDMI to DVI) or (SDI to DVI) or an HDMI to DVI cable.



Echo360 Legacy SafeCapture HD (SCHD)

To configure the SCHD device defaults:

1. Log into Echo360 as an administrator.
2. Click the ***Settings*** icon in the upper right corner of the page (gear icon).
3. Select ***Configurations*** from the settings menu.
4. From the left side of the Configurations page, select ***Device default configurations.***
5. From the options across the top, select ***SCHD.***
6. The *Primary Display/Secondary Video* and *Secondary Display/Primary Video* selections of the configuration page are identical, and allow you to select which device to use for display and video inputs based on connection type. Each channel supports up to two connected devices, one of each of the following types:
    - DVI-I
    - Composite



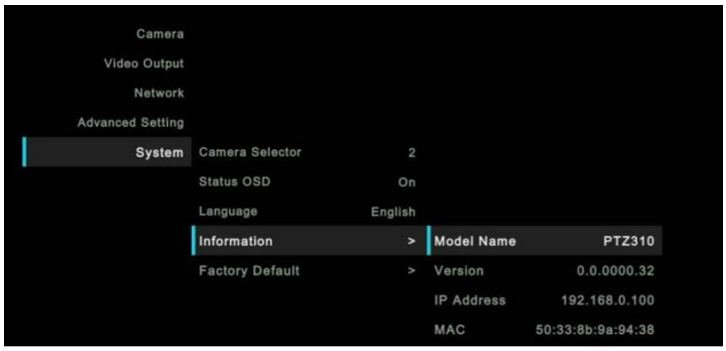
7. Use the ***Primary Display/Secondary Video*** input sliders to identify the connected device types that will be capturing the feed to this channel. This is the visual input that will appear on the LEFT side, if there are multiple graphical inputs selected.
8. Where DVI-I is enabled, select the ***DVI type*** and **Aspect Ratio** for the feed, as well as whether this input device is capturing **Video** or **Display**.
9. Where Composite is enabled, select the Video Standard for the input device: **PAL** or **NTSC**.
10. Repeat these steps for the connected devices capturing the **Secondary Display/Primary Video**.
11. When finished, click **Save**, then click the Common Settings tab at the top of the page, to complete device configuration for download to a USB drive.

IP/STREAMING (RTSP)

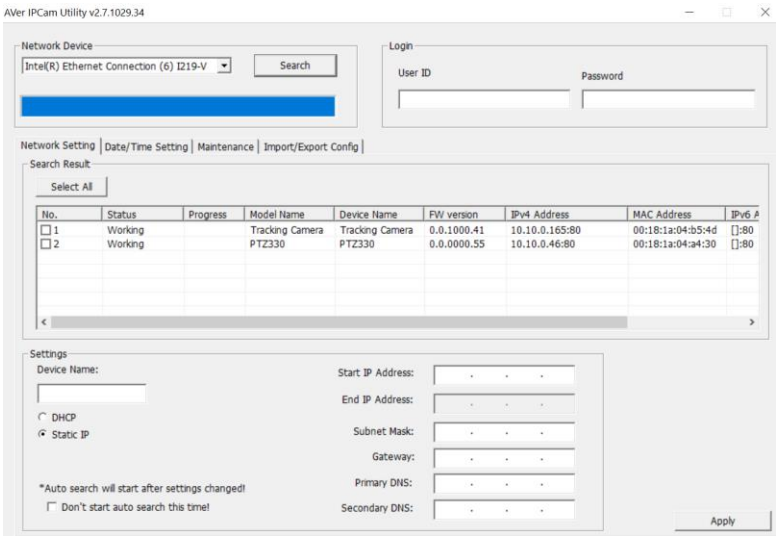
PTZ Camera RTSP Output to the Echo360 System Input

1. Connect the PTZ330 camera via RJ45 Network Cat5E (or better) connection; verify IP address of Camera in order to connect via Web browser. If IP address is not known, locate the remote, select the "Menu" icon and navigate to the "**Network->DHCP->**" setting, verify DHCP is set to "On" in order to grab an available IP address. If you are reserving IP addresses, verify it is set to "OFF" and that the correct IP address has been set.
   Go to **Network > DHCP > On**.

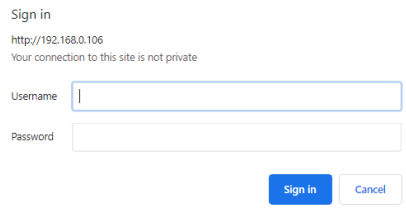
   After turning DHCP on, go to **System > Information** to view the IP address.



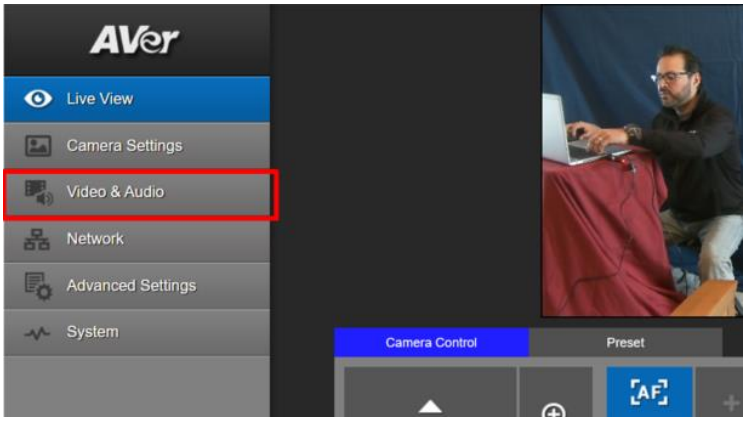
2. Another way to find the Camera IP address (On same Subnet) is to use the AVer IPCam Utility to find the camera. AVer software can be found here: https://www.aver.com/download-center.



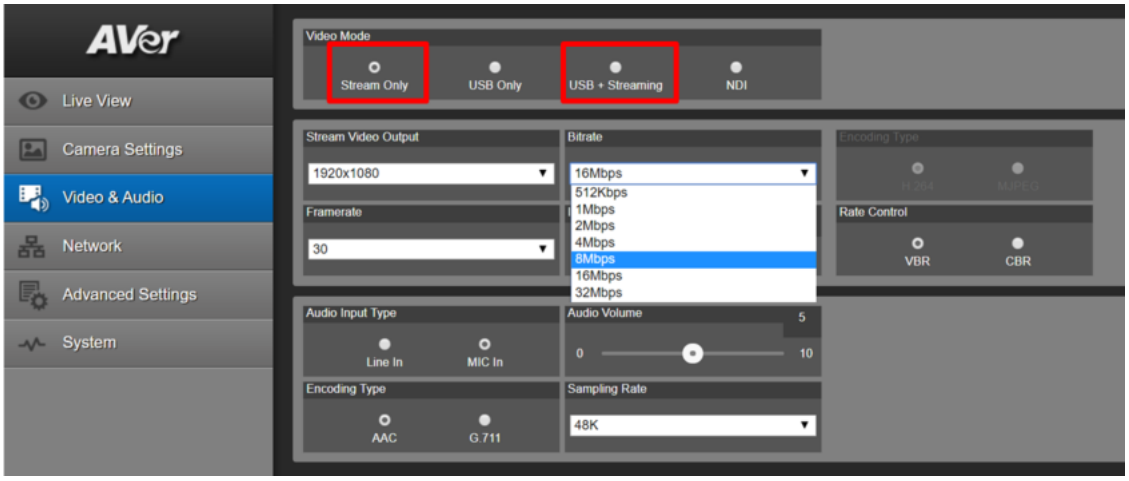
3. Once you have the IP address setup, type the IP address in your Chrome browser (Setup on same subnet) and you should now see the login to the PTZ330 camera shown below.



4. The default Username/password is “administrator”.
   ***Note:** If this is the first time accessing the PTZ330 camera via the Web login it may ask you to change the Username/Password.
5. Next, you should now see the main login screen with a “Live View” of the PTZ Camera.



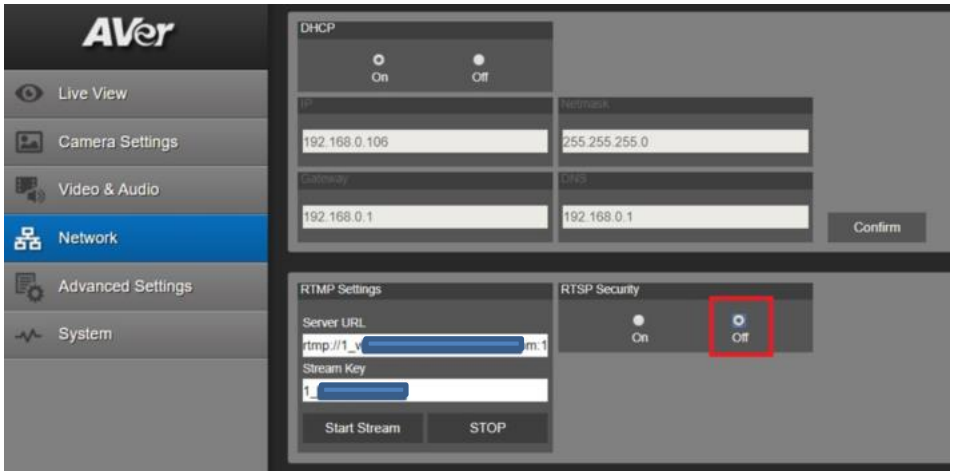
Next, after selecting the *Video & Audio* setting, verify that you have either “Stream Only” selected or “USB + Streaming” selected. Select your Stream Video Output, Bitrate, Framerate, Encoding, etc. ***Note:** Some servers require a minimum bitrate of 2.5Mbps for their environment.



Here are some example bit rates (Target/Maximum) from the Echo360 platform and what can be expected for video throughput:

Capture component (quality)	Target rate (kbps)	Maximum rate (kbps)	Frames per second
Audio (medium)	32	32	--
Audio (high)	128	128	--
SD Video (480p) Composite or DVI, all ratios	600	800	12.5 (PAL) 15 (NTSC)
HD Video (720p) Composite (NTSC or PAL)	1062	1593	30 (NTSC) 25 (PAL)
HD Video (720p) DVI 4:3	1770	2655	25
HD Video (720p) DVI 16:9	2360	3540	25
HD Video (1080p) DVI 4:3	3540	5310	15 (SCHD) 30 (PRO)
HD Video (1080p) DVI 16:9	4720	7080	15 (SCHD) 30 (PRO)

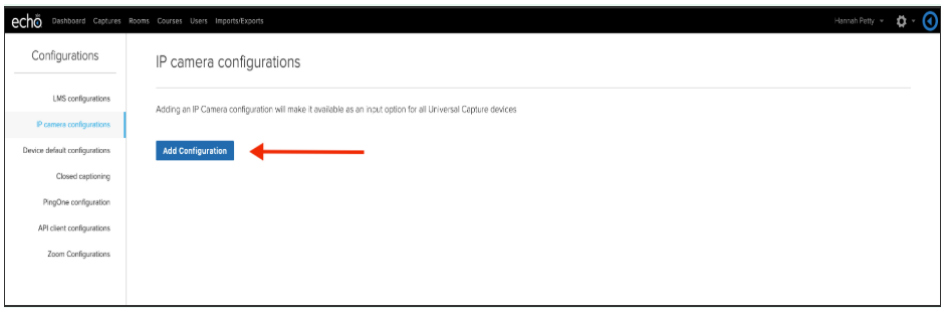
6. Next, select the "*Network*" setting, set the "RTSP Security" to "On/Off", depending on if you are requiring a "Username/Password".



7. This concludes the AVer PTZ camera setup, now we need to configure the Echo360 side of things.

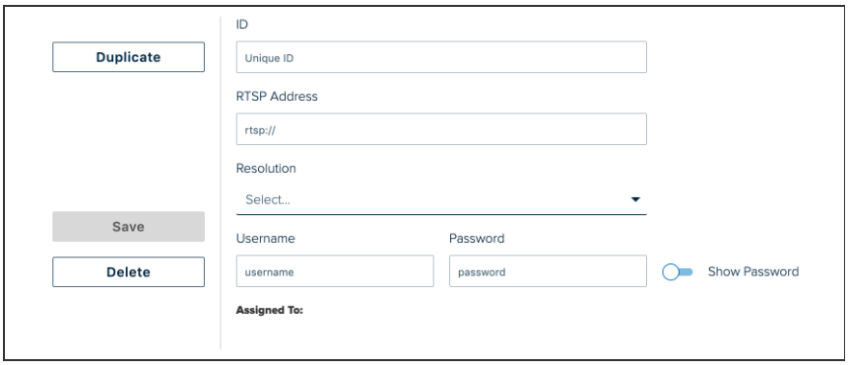
Echo360 System Input

1. Next, go to the Echo360 software and login as Administrator. Select "***Settings***", then select "***Configurations***".
2. Next, select *"**Add Configuration**"* to begin the IP Camera setup.



3. Next, enter a unique ID which is used to identify the camera on the *Rooms Configuration Screen*.
4. Next, enter the "RTSP Address" of the PTZ camera, the following syntax is used for the **PTZ310/330 RTSP feed**:

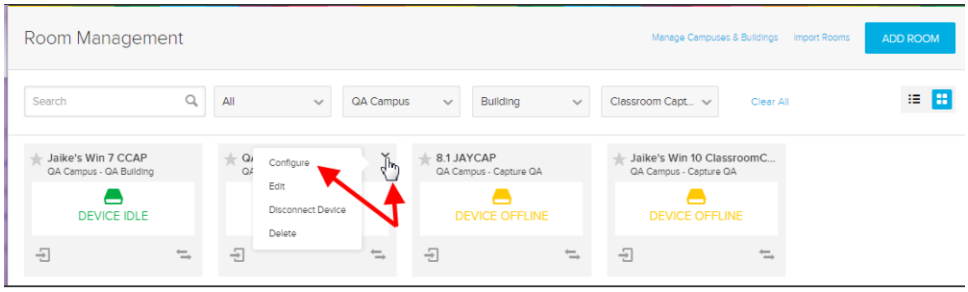
   "rtsp://*Camera IP*:554/live_st1", where *Camera IP* is the actual IP address of the PTZ camera.



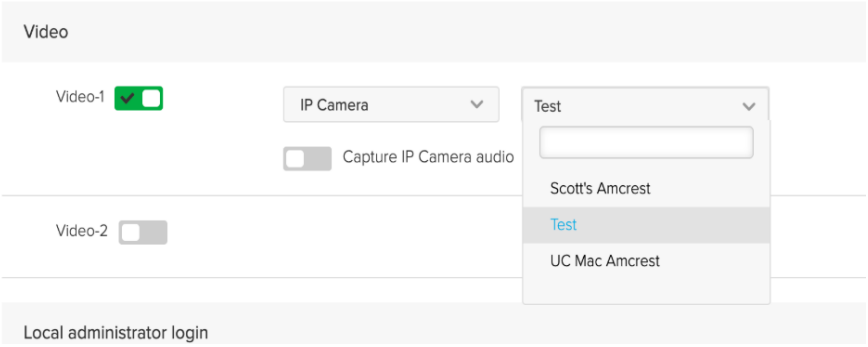
5. Next, select the default resolution of the camera.
6. You have the OPTION to enter a username and password.
7. Next, select "*Save*".

Echo360 System Adding PTZ IP Camera to a Room

1. Navigate to the ROOMS page.
2. Use the filtering drop-down lists and/or Search text box to find the room containing the Universal Capture device.
3. Next, hover your mouse over the Room tile to show the menu arrow in the top-right corner of the tile.



4. Next, click the menu arrow and select *"**Configure**"*.
5. Next, select ***IP Camera*** as the Video input selection.
6. Next, find and select the ID of the desired IP Camera for use in that Room.
   ***Note:** Optionally, you can choose to capture audio from the camera.



7. Next, select *"**Save**"*.
8. This concludes the PTZ camera integration with Echo360.

AVer TR 320/530 Camera integration with Echo360

Here are the steps to configure the AVer Camera while using the Echo360 platform.

The TR camera has various outputs for video and an audio Line-in; the Echo360 can support any one of these audio/video connections.

They are:

- HDMI
- 3G-SDI (x2) (Coaxial connection, SMPTE 424M)
- IP - Network - RTSP (RJ45 network connection)
- Audio Line-In (Use with Powered Mic or Audio Mixer, 1vrms)

We can combine the outputs into 2 main groups of emphasis:

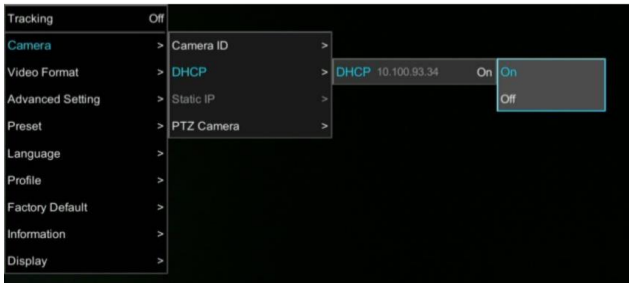
1. **HDMI/SDI/USB connection type**
2. **IP/Streaming connection type**

TR Camera *HDMI/SDI/USB* Output to the Echo360 System Input

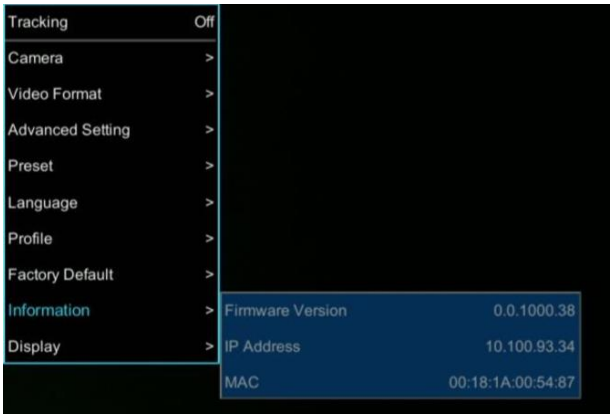
If you are using a laptop to capture video, a portable HDMI to USB dongle like the AVer Media BU110 and BU111 provides a high speed, high quality connection.

1. Connect the TR530 camera via RJ45 Network Cat5E (or better) cable; verify IP address of Camera in order to connect via Web browser. If IP address is not known, locate the remote, select the "Menu" icon and navigate to the "**Camera->DHCP->**" setting, verify DHCP is set to "On" in order to grab an available IP address. If you are reserving IP addresses, verify it is set to "OFF" and that the correct IP address has been set.

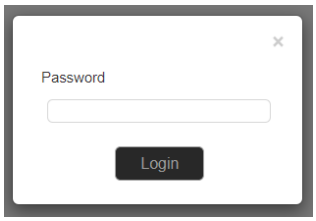
   Go to **Camera > DHCP > DHCP >On**.



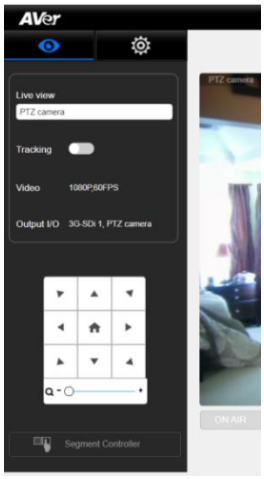
   After turning DHCP on, go to **Information** to view the IP address.



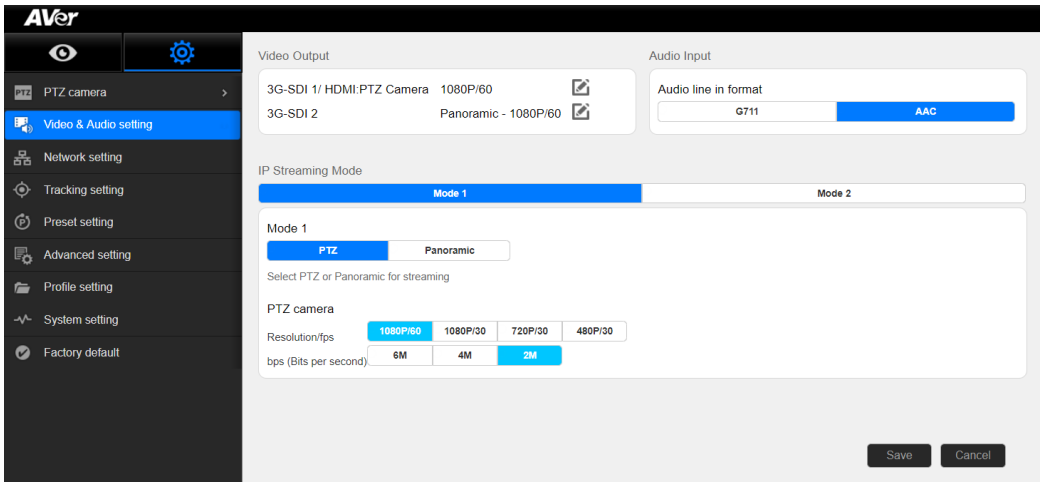
2. Another way to find the Camera IP address (On same Subnet) is to use the AVer IPCam Utility to find the camera. AVer software can be found here: https://www.aver.com/download-center.
3. Next, type the IP address in your Chrome browser (Setup on same subnet) and you should now see a login to the TR320/530 camera shown below.



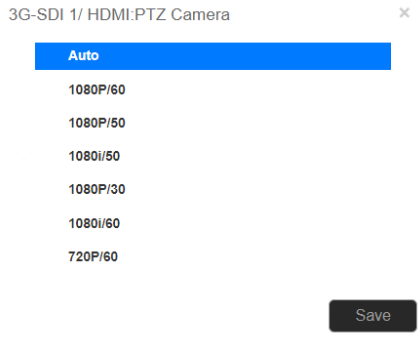
4. The default password is “admin”.
5. Next, you should now see the main login screen with a “Live View” of the TR Camera.



6. Next, select the settings gearbox , then select ***Video & Audio setting***, this is where you can select the Video Output of the TR320/530.



7. Next, selecting 3G-SDI / HDMI will open the following window, allowing you to choose which video standard or the ability to set it to *Auto*.



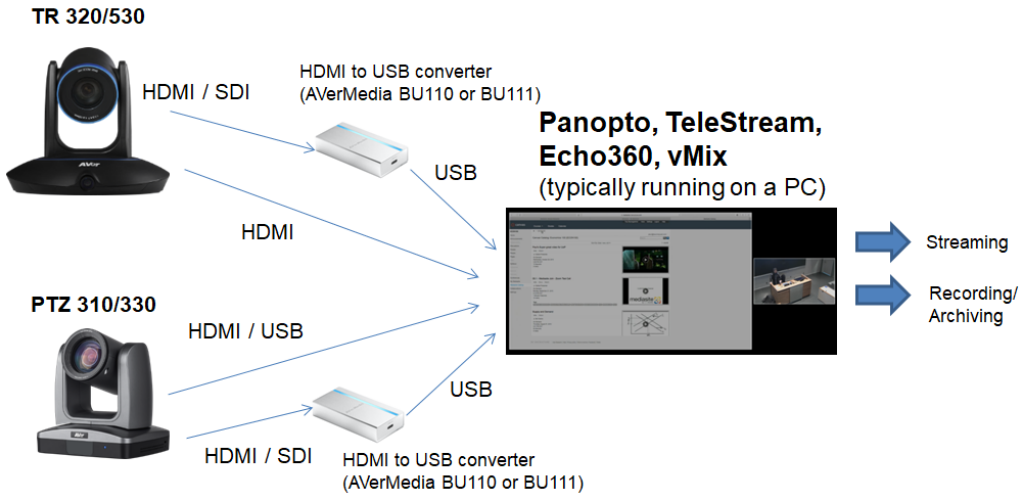
***Note:** Only the standards listed are currently available, no 29.97/59.94 selection.

TR320/530 Camera HDMI/SDI/USB connection to Echo360

The TR camera does not offer a direct USB output, like the PTZ camera does. If the PC you are using happens to have an HDMI Input connection, you can direct connect to it. If there is no HDMI Input and you are using a laptop to capture video, a portable HDMI/SDI to USB dongle like the AVer Media BU110 and BU111 provides a high speed, high quality connection.

Likely Scenario:

- HDMI / SDI connection using an AVer Media converter to USB



Echo360 Pro

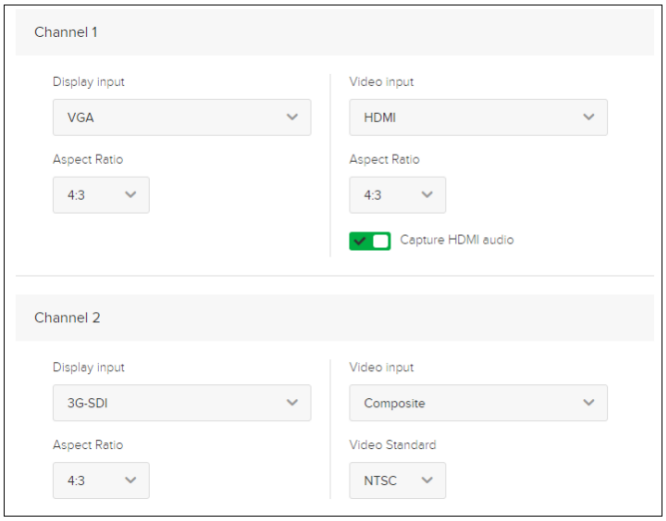
The Echo360 capture appliance has a default configuration which can be edited for each individual device as necessary.

To configure the Pro device defaults:

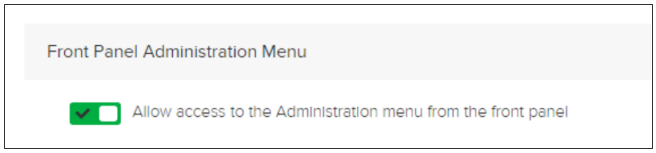
1. Log into Echo360 as an administrator.
2. Click the ***Settings*** icon in the upper right corner of the page (gear icon).
3. Select ***Configurations*** from the settings menu.
4. From the left side of the Configurations page, select ***Device default configurations.***

5. From the options across the top, select ***Echo360 Pro.***
6. Channel 1 and Channel 2 sections of the configuration page are identical and allow you to select which device to use for display and video based on connection type. Each Channel supports up to four connected devices, one of each of the following types:

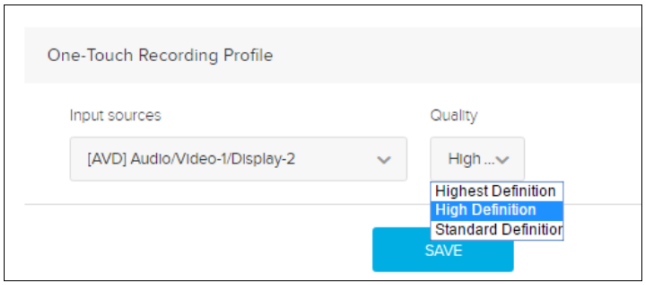
   HDMI / VGA / Composite / 3G-SDI



7. Use the ***Channel 1 Video Input*** list to identify the connected device type that will that will be capturing the video feed.
8. If you are using the HDMI output from the TR camera direct, enable or disable the ***Capture HDMI audio*** slider for each selected HDMI device.
9. Next, enable or disable the access to the Administration menu on the front panel of the Pro appliance.



10. Next, select the ***Input sources*** and ***Quality*** settings for the One-Touch recording profile.



11. Next, see also the **Echo360 Pro FAQ's** and **How To's** for additional information on the One touch profile.
12. Next, when finished click ***Save,*** then click the Common Settings tab at the top of the page, to complete device configuration for download to a USB drive.

Echo360 Pod

The back of the Echo360 Pod has a USB port into which users can plug in a USB camera.

The Pod supports any UVC (USB video class) camera that provides 1280x720 resolution and 30fps and MJPEG.

13. Connect the TR camera to the Echo Pod via a USB cable with an HDMI/SDI output from the camera, using an AVer converter (BU110 / BU111).

    ***Note:** There are (2) USB ports on the back of Pod and 2 cameras could be plugged in, the Pod will only recognize 1 of them.

14. Next, check the Pod screen, when a supported USB camera is plugged in, the screen below will appear.

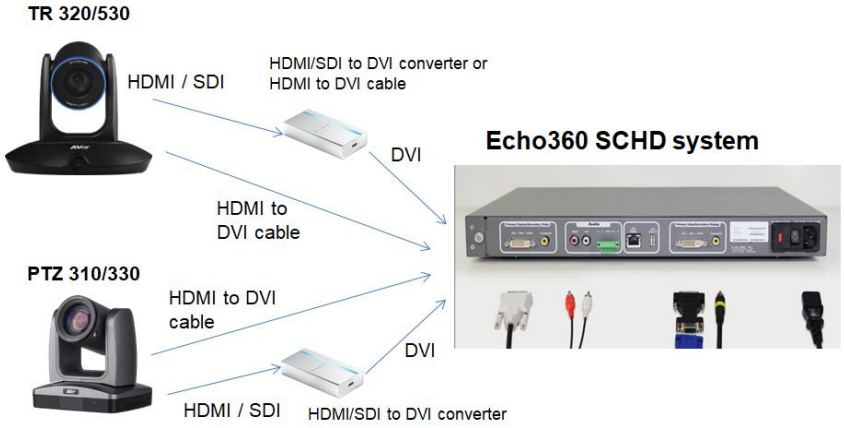
15. If there is problem with the connection or the USB camera is not supported, the screen will show a red line through the device.

16. For more information on this topic see ***Echo360's Pod FAQ's and How To's***

Echo360 Legacy SafeCapture HD (SCHD)

The Echo360 SafeCapture HD is a dedicated, all-in-one capture appliance, capable of capturing either standard or high definition video input, along with display and audio. The SCHD is no longer an active production.

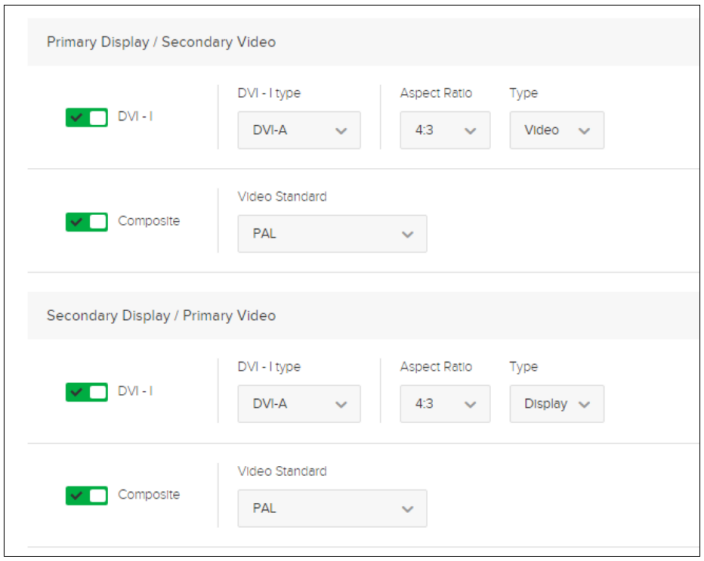
To connect the TR camera to the SCHD you would need a converter from (HDMI to DVI) or (SDI to DVI) or an HDMI to DVI cable.



Echo360 Legacy SafeCapture HD (SCHD)

To configure the SCHD device defaults:

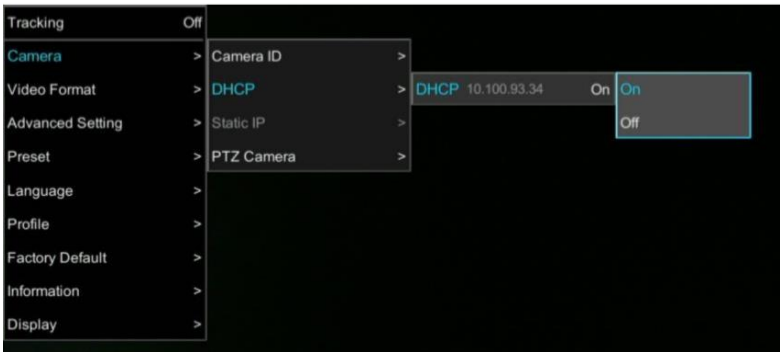
12. Log into Echo360 as an administrator.
13. Click the ***Settings*** icon in the upper right corner of the page (gear icon).
14. Select ***Configurations*** from the settings menu.
15. From the left side of the Configurations page, select ***Device default configurations.***
16. From the options across the top, select ***SCHD.***
17. The *Primary Display/Secondary Video* and *Secondary Display/Primary Video* selections of the configuration page are identical, and allow you to select which device to use for display and video inputs based on connection type. Each channel supports up to two connected devices, one of each of the following types:
    - DVI-I
    - Composite



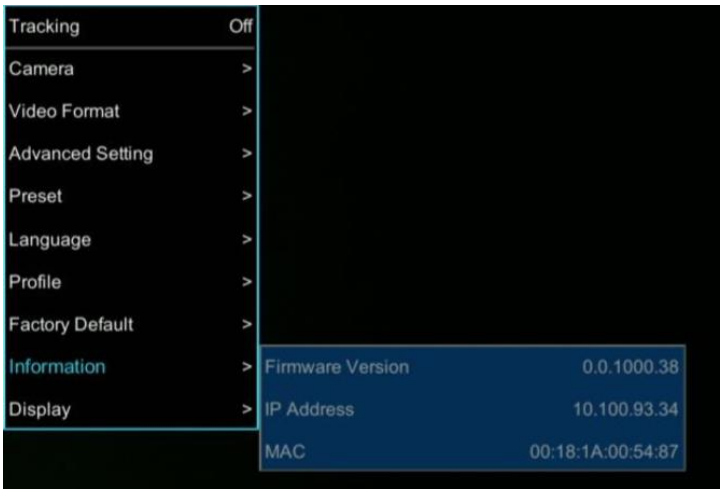
18. Use the ***Primary Display/Secondary Vi*deo** input sliders to identify the connected device types that will be capturing the feed to this channel. This is the visual input that will appear on the LEFT side, if there are multiple graphical inputs selected.
19. Where DVI-I is enabled, select the ***DVI type*** and **Aspect Ratio** for the feed, as well as whether this input device is capturing **Video** or **Display**.
20. Where Composite is enabled, select the Video Standard for the input device: **PAL** or **NTSC**.
21. Repeat these steps for the connected devices capturing the **Secondary Display/Primary Video**.
22. When finished, click **Save**, then click the Common Settings tab at the top of the page, to complete device configuration for download to a USB drive.

IP/RTSP STREAMING from TR320/530 (Tracking) Camera to Echo360

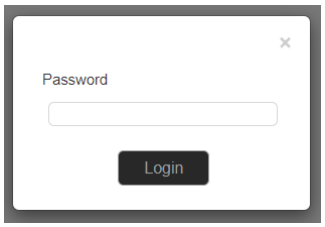
1. Connect the TR530 camera via RJ45 Network Cat5E (or better) cable; verify IP address of Camera in order to connect via Web browser. If IP address is not known, locate the remote, select the "Menu" icon and navigate to the "**Camera->DHCP->**" setting, verify DHCP is set to "On" in order to grab an available IP address. If you are reserving IP addresses, verify it is set to "OFF" and that the correct IP address has been set.
   Go to **Camera > DHCP > DHCP >On**.



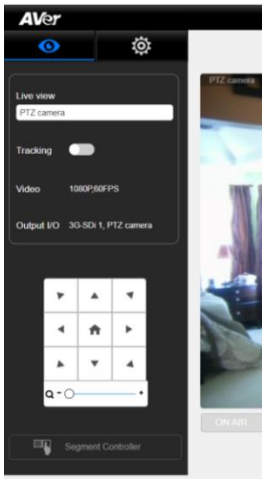
After turning DHCP on, go to **Information** to view the IP address.



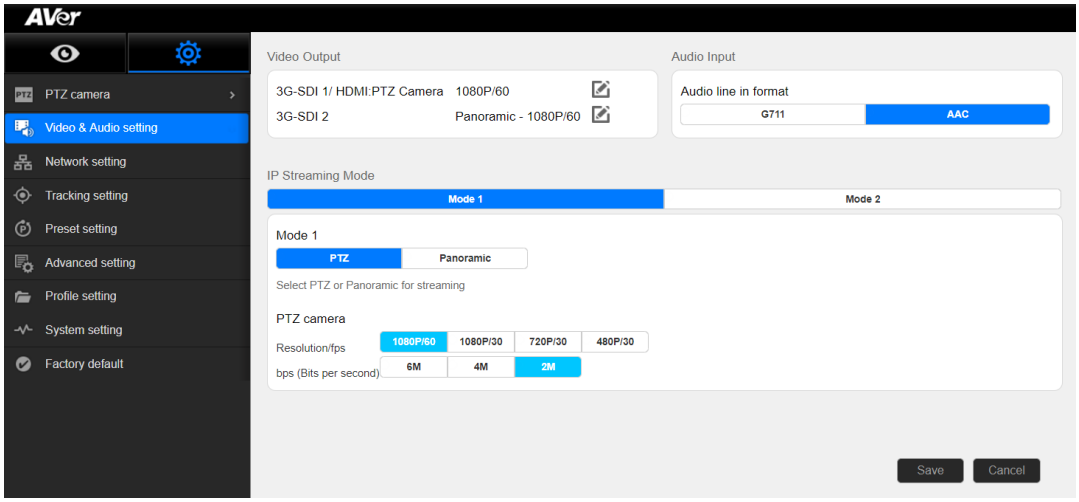
2. Another way to find the Camera IP address (On same Subnet) is to use the AVer IPCam Utility to find the camera. AVer software can be found here: https://www.aver.com/download-center.
3. Next, type the IP address in your Chrome browser (Setup on same subnet) and you should now see a login to the TR320/530 camera shown below.



4. The default password is “admin”.
5. Next, you should now see the main login screen with a “Live View” of the PTZ Camera.

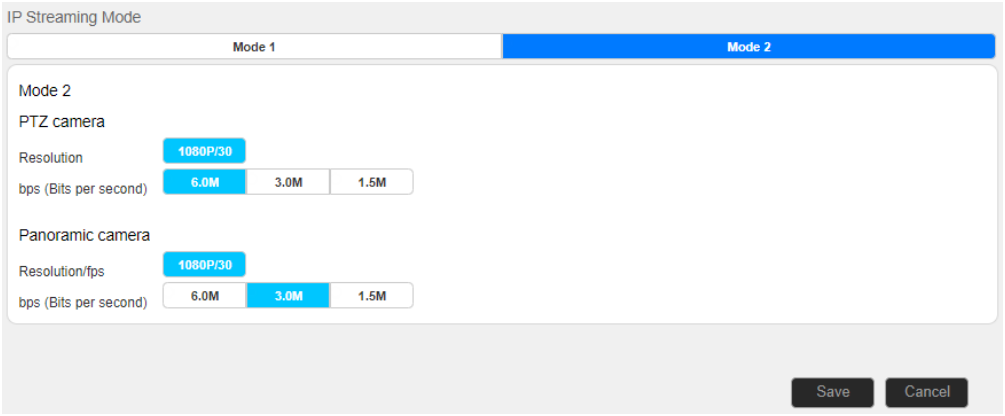


6. Next, select the settings gearbox , then select *Video & Audio setting*, this is where you can select Video Output, Audio, and the type of Streaming mode to use and Streaming video standard. ***Note:** This *IP Streaming Mode* is used for RTSP Streaming.

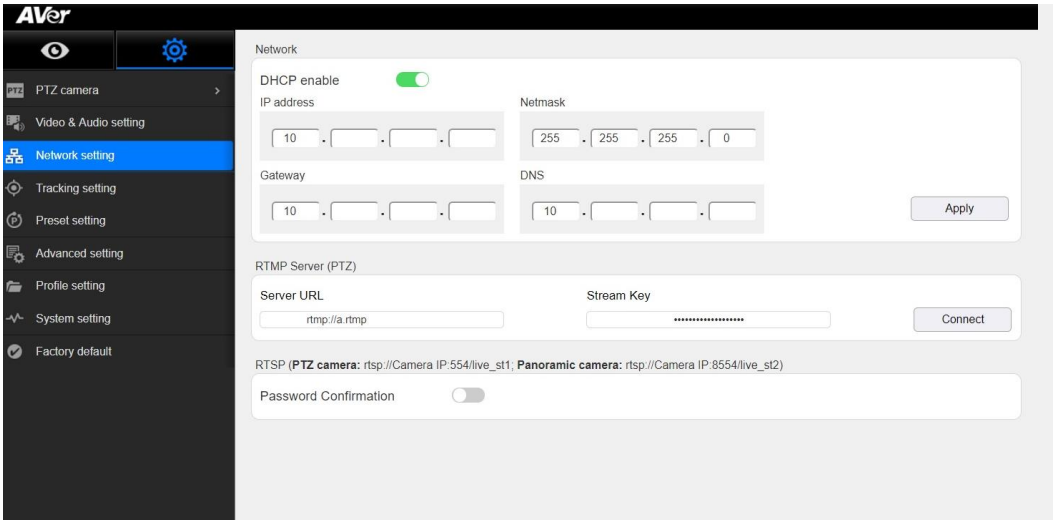


Mode 1: You will use either the PTZ Camera OR Panoramic Camera view for your stream with varying video selections.

Mode 2: There will be 2 simultaneous streams from PTZ and Panoramic views set to (1080p/30) with adjustable **bps** (bits per second) if selected.



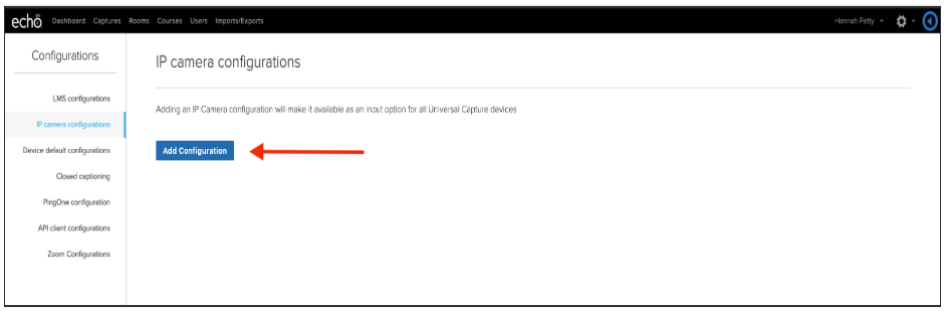
7. Next, select *Network Setting*. You should now see the following information displayed.



8. **RTSP feed**: This where you will configure the ***Stream*** information into Echo360. "rtsp://*Camera IP*:554/live_st1", where *Camera IP* is the actual IP address of the TR camera.

Echo360 System Input

1. Next, go to the Echo360 software and login as Administrator. Select "*Settings*", then select "*Configurations".*
2. Next, select *"Add Configuration"* to begin the IP Camera setup.

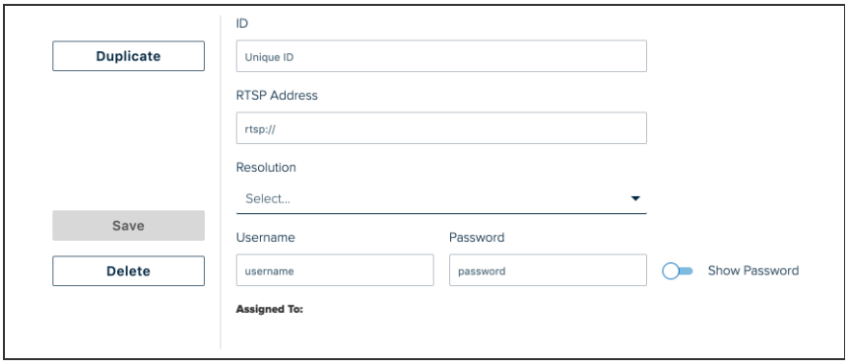


3. Next, enter a unique ID which is used to identify the camera on the *Rooms Configuration Screen*.
4. Next, enter the "RTSP Address" of the TRACKING camera, the following syntax is used for the **TR320/530 RTSP feed**:

   You can select either the PTZ or Panoramic view for the stream.

   PTZ: "rtsp://Camera IP:554/live_st1", where Camera IP is the actual IP address of the TR camera.

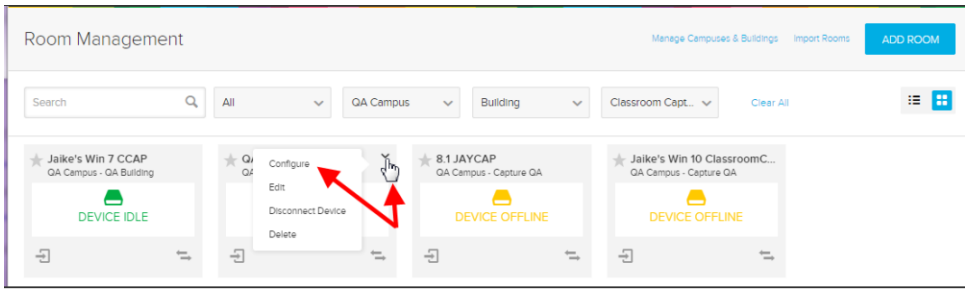
   Panoramic: "rtsp://Camera IP:8554/live_st2", where Camera IP is the actual IP address of the TR camera. ***Note:** Although there is a *Panoramic* stream available, the main purpose of this view is for the capture of information for the tracking algorithms. The quality of the PTZ camera is of better quality and recommended.



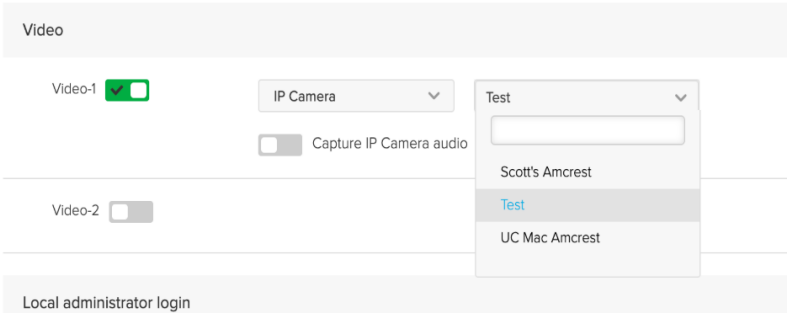
5. Next, select the default resolution of the camera.
6. You have the OPTION to enter a username and password.
7. Next, select "*Save*".

Echo360 System Adding IP Camera to a Room

1. Navigate to the ROOMS page.
2. Use the filtering drop-down lists and/or Search text box to find the room containing the Universal Capture device.
3. Next, hover your mouse over the Room tile to show the menu arrow in the top-right corner of the tile.



4. Next, click the menu arrow and select *"Configure"*.
5. Next, select *IP Camera* as the Video input selection.
6. Next, find and select the ID of the desired IP Camera for use in that Room.
   ***Note:** Optionally, you can choose to capture audio from the camera.



7. Next, select *"Save"*.
8. This concludes the TR camera integration with Echo360.