![AVer logo](www.aver.com)

AVer PTZ310N/330N Camera NDI Video Mode

with Panopto (April 2020)

Steps to integrate the Aver PTZ Camera with Panopto in NDI Video Mode and using NewTek NDI Tools

AVer Pro-AV has high quality image Cameras (TR320/530 and PTZ310/330) that will integrate with Panopto workflows for peak performance and ease of use.   We will show the configuration process for both the TR and PTZ Camera lines and Panopto software.
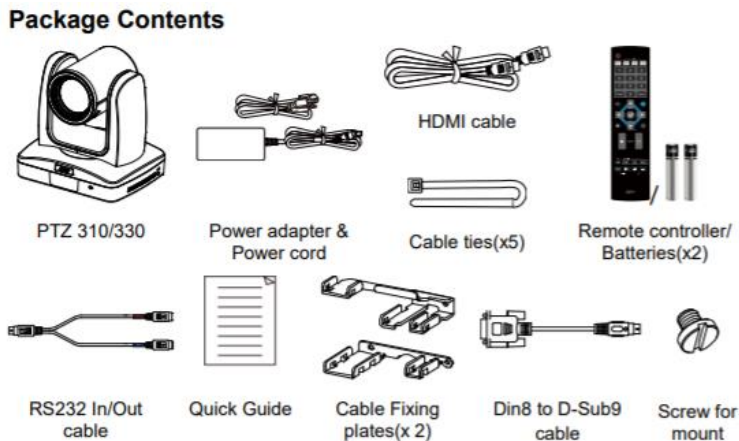
Panopto has an easy to use online video platform solution for video management, recording, live streaming, video search, quizzing, analytics, and more.   Panopto supports the NDI/HX standard via the NewTek NDI Virtual Input driver, which can be downloaded from NewTek's website:
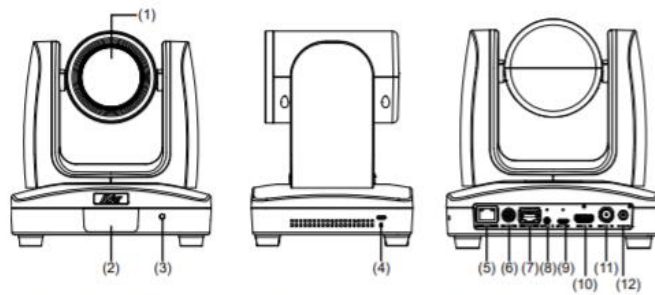
https://www.newtek.com/ndi/tools/

NDI is a high performance standard that allows anyone to use real time, ultra-low latency video on existing IP video networks.   For this configuration the AVer camera will have later firmware installed and is designated as a PTZ310N or PTZ330N, the "N" designates that the camera has the ability to integrate with the NewTek NDI protocol.   Current PTZ cameras in the field are not upgradeable to support NDI.

PTZ310N/330N Camera

- AVer PTZ330/N Camera and accessories.

Package Contents

PTZ 310/330 — Power adapter & Power cord — HDMI cable — Cable ties(x5) — Remote controller/ Batteries(x2)

RS232 In/Out cable — Quick Guide — Cable Fixing plates(x 2) — Din8 to D-Sub9 cable — Screw for mount

Overview

(1) Camera lens
(2) IR sensor
(3) Power indicator
(4) Kensington lock

(5) PoE+ port
(6) RS232 port
(7) RS422 port
(8) Audio IN

(9) micro-USB port
(10) HDMI port
(11) 3G-SDI port
(12) DC Power jack

- Chrome Browser, version 79.0.3945.xxx and later.
- Panopto user account.
- NDI Tools 4.1/3.5
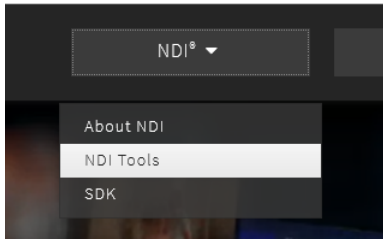- Windows 10 Pro OS, i7 Processor, 16GB Memory, used in this setup.

NDI Minimum System Hardware Requirements:

- 64-bit Microsoft® Windows 7 operating system (OS) or better recommended
- Intel i3 or i5 Sandy Bridge CPU (Quad/Six core) or better with integrated GPU (NVIDIA discrete GPU, with 2GB video memory or better recommended)
- 8GB RAM
- Gigabit connection or better
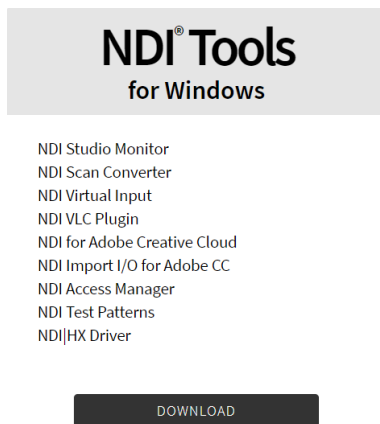- Display with screen resolution of 1024 x 768 or higher *Mac OS X versions of select tools also available. *

  *Minimum system requirements and features may vary.   Subject to change without notice. *
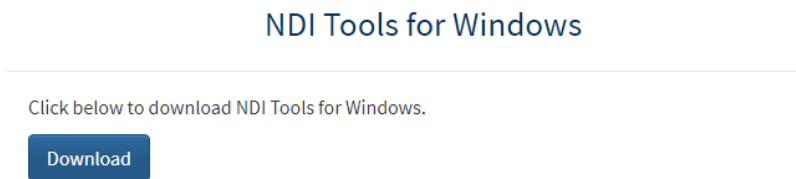
NDI 4 Tools Installation

1. If NDI 4 Tools software is not installed, go to https://www.ndi.tv/ to download and install.
2. From the NDI website, select NDI->NDI Tools, and then scroll down to NDI Tools 4.x to download.

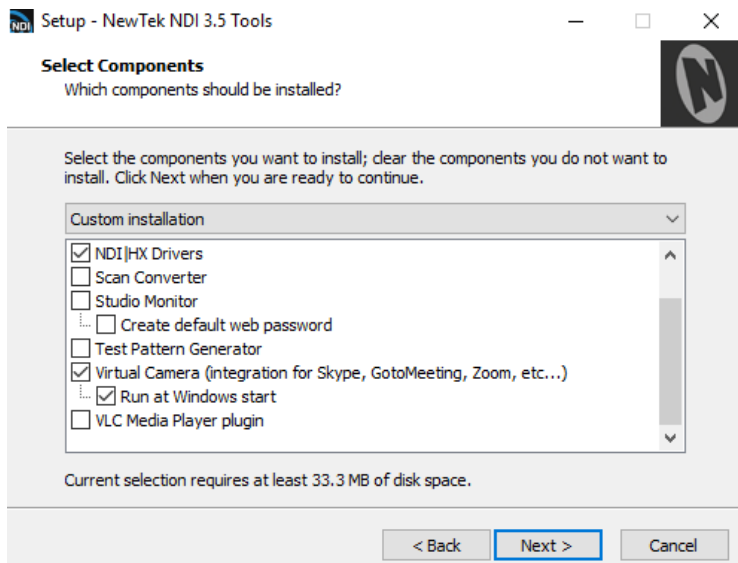3. Next, select "NDI Tools for Windows" download.

4. You will be asked to register for the Download, Name, email, etc. then you should see the following to continue with the download.
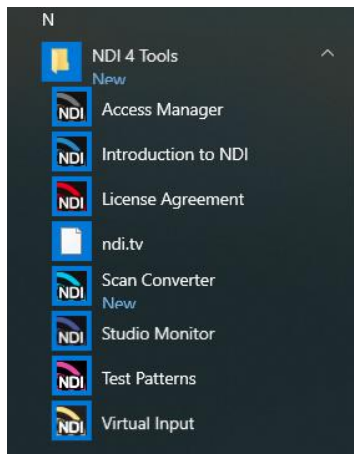

5. During the installation select the **NDI|HX Drivers and Virtual Camera**. You can also install other applications but these are not required for Panopto integration.
6. You can also select to **Run NDI Virtual Input at Windows Start**. This is a recommended step for Panopto for Windows Desktop and a requirement for Panopto Remote Recorder.

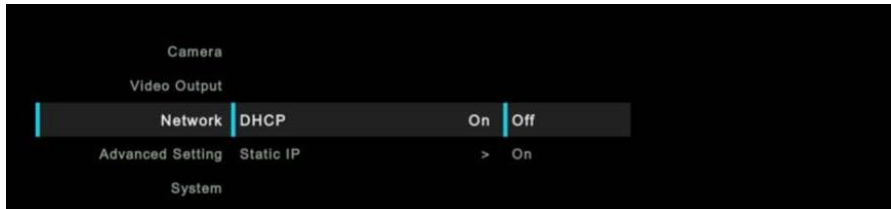# NDI 4 Tools Installation (continued)

7. You may need to restart your computer following the installation.
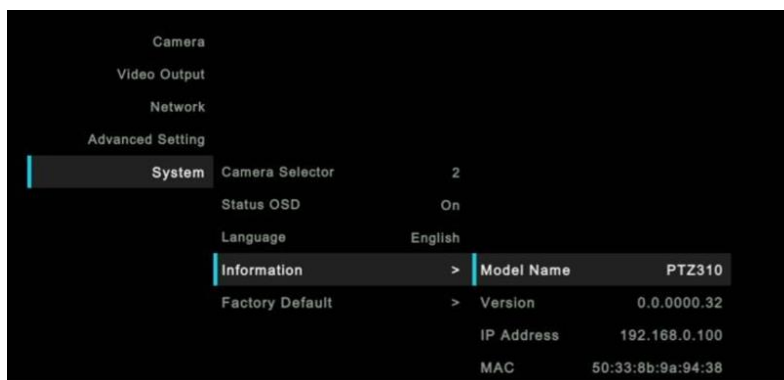8. Once installed, you should have the following on your Windows Start Menu:

AVer PTZ310/330N Camera Video Mode

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.
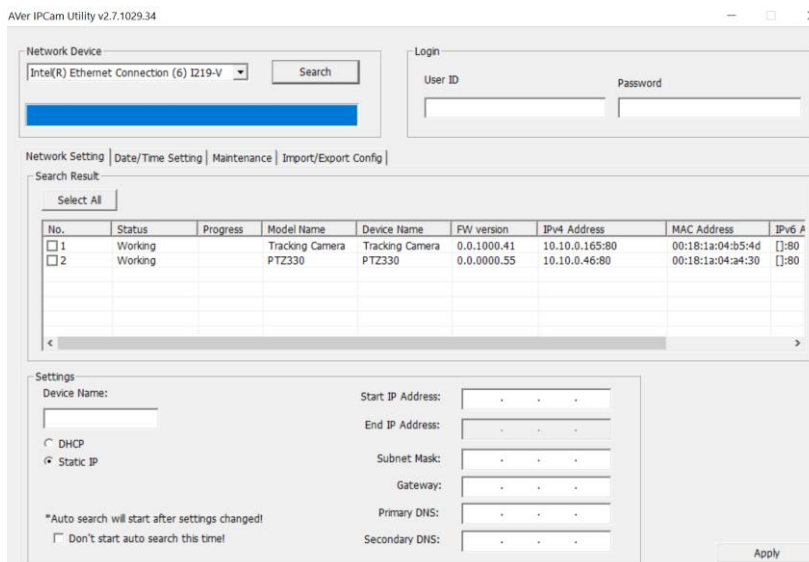
    Go to **Network > DHCP > On**.

    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.
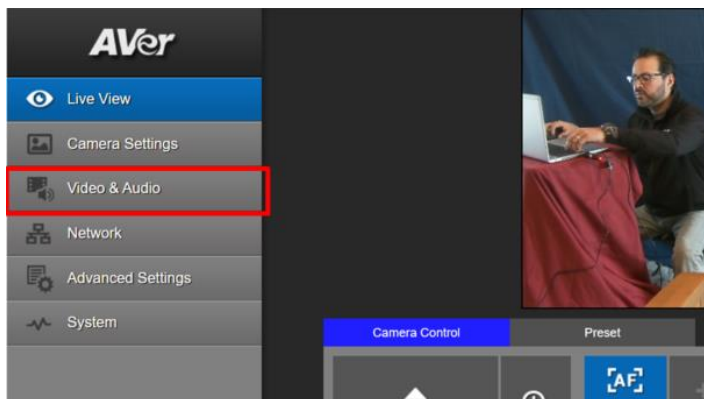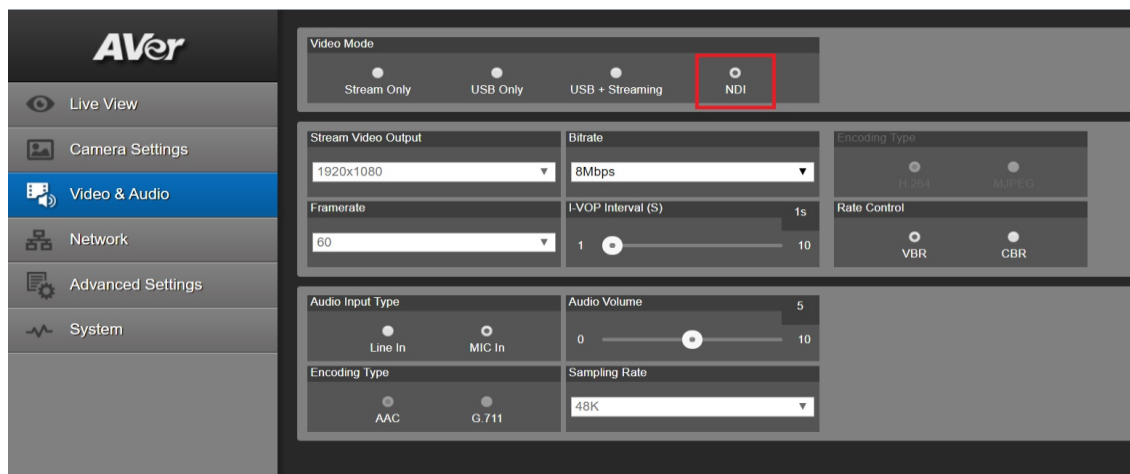
AVer PTZ310/330N Camera Video Mode (continued)

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 "NDI" selected for Video Mode.   Select your Stream Video Output, Bitrate, Framerate, Encoding, etc.
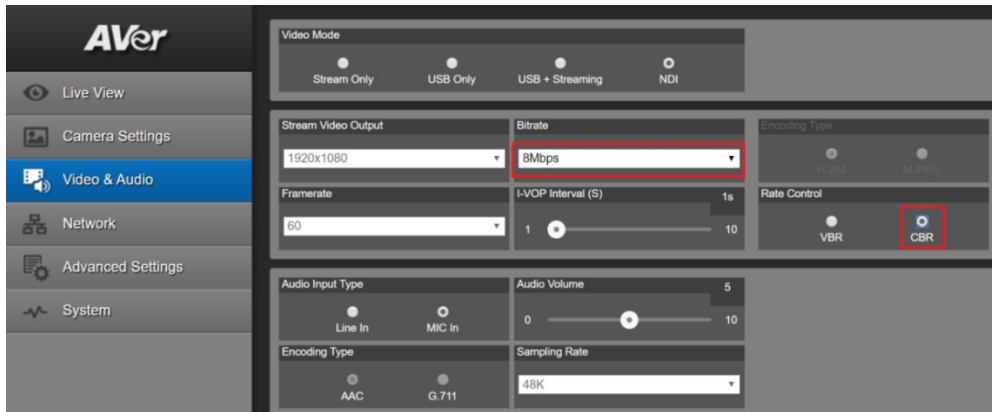***Note:** The camera will need to re-boot when changing to/from NDI video mode.

*Note: The STREAM Video Output, Framerate, Encoding type, and Sampling Rate settings are only for viewing, they are not adjustable in NDI mode.

6. The Rate Control setting should be set to CBR, there have been better results seen using this option.
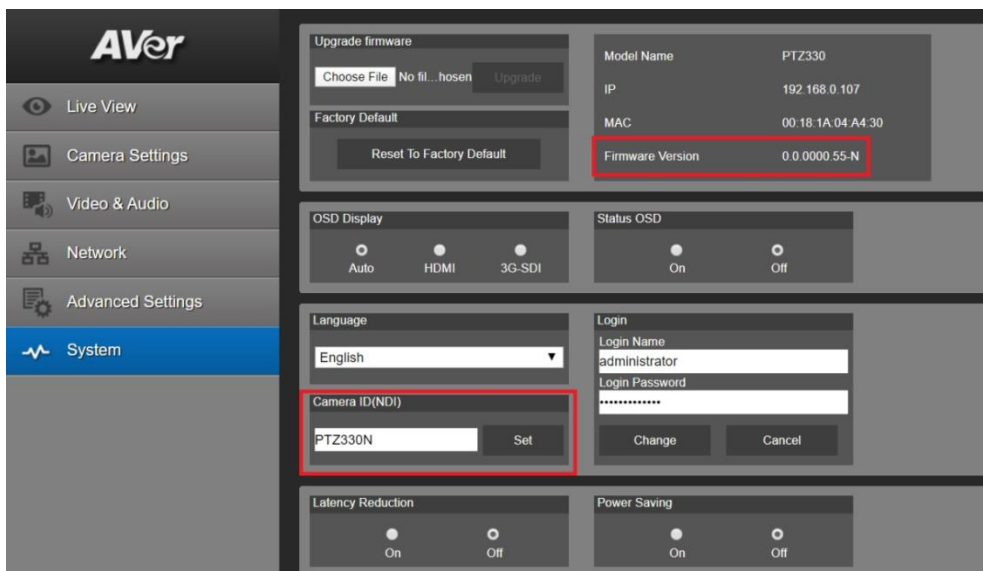
7. Setting the Bitrate to 8Mbps is also recommended, but you may see different results on your network with other settings.

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

8. In the *System* page you can set the identity name *Camera ID (NDI)* for display on the NDI interface. After choosing your name press "Set" to make the change.   ***Note:** A reboot of the camera is necessary for the name change.   The firmware version can also be verified from the *System* page.
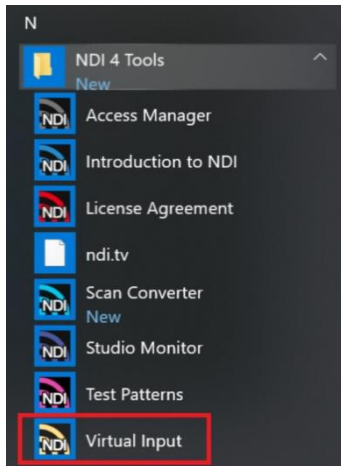

9. The following characters can be used for the Camera ID description; there is a limit of 10 characters for the name.

Numeric characters	0123456789
Alphabetical characters (upper and lower cases)	ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz
Symbols	! @ # $ % ^ & *( ) , . /\ ; :" ' + = < > ? [ ] { } | - _ ` ~ \/

NDI Virtual Input

Using the NDI Virtual Input it gives you the ability of suppling a high quality video source to Skype or Zoom meeting, (i.e. from PTZ330N), here is how to configure a "Virtual Input" from NDI.
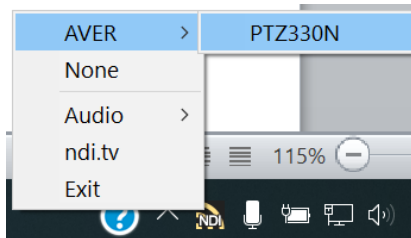
1. Go to Windows Start Menu, select NDI's *Virtual Input* application.

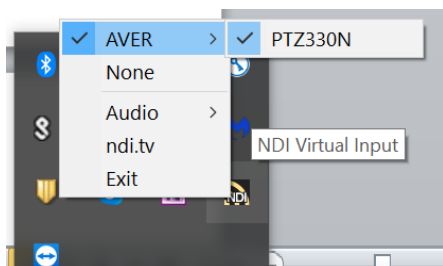2. Next, it will open and place an icon on your System Tray.

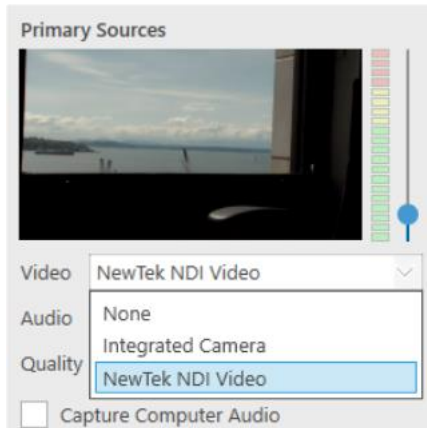3. Next, Right-Click on the NDI icon, you should have the ability to select AVER->PTZ330.

4. Next, verify that your selection is for AVER->PTZ330N, Right-click on icon to verify check marks are there.

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Panopto for Windows System Video Input (NDI)

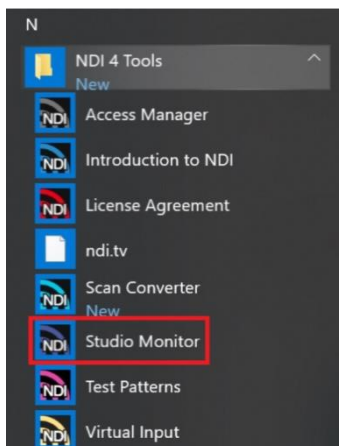1. Go to the Panopto's desktop client; select the NDI source from the list.

2. Next, you should be seeing the NDI video from the PTZ camera.   If not, go to the NewTek NDI Studio Monitor to verify video from the camera.

NDI Studio Monitor

Using NDI Studio Monitor is a quick way to verify that the AVer PTZ camera is outputting NDI video.

1. Go to Windows Start Menu, select NDI's *Studio Monitor*.

2. Next, the NDI Studio Monitor window will open, it may display AVer video or may display NDI's default video of "None".
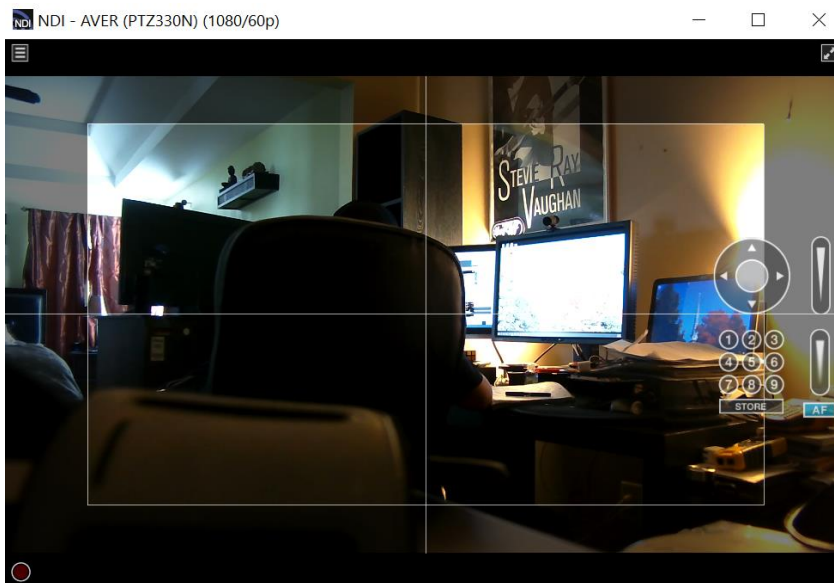
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NDI Studio Monitor (continued)

3. Next, to view AVER video, select the Menu box displayed on upper left, then select "AVER PTZ330N".   You can also "right-click" anywhere within the window to access the menu.

4. Next, you should now be viewing the AVER PTZ330/310N video as a source and displays the Video Standard (1080/60p) from AVer Camera.
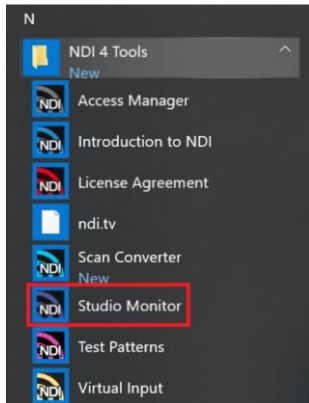

5. At this point, you can close the window and have verified NDI video from PTZ camera is working.

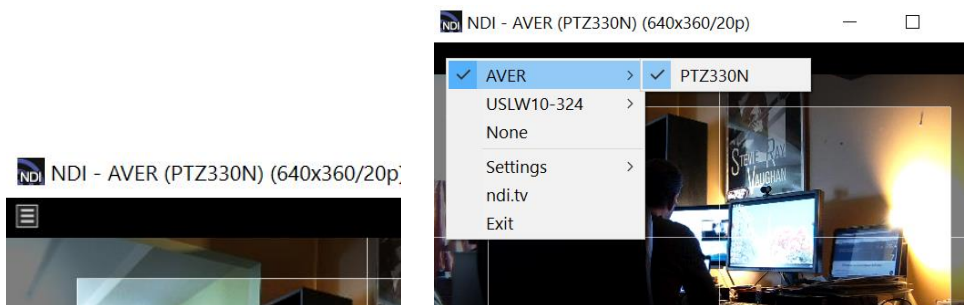AVer Information Inc. Support Guide – AVer Pro-AV Cameras (4/30/2020)

PTZ Camera Control from NDI Studio Monitor

The NDI Studio Monitor allows you to view or display any number of NDI video sources across the network, such as the AVer PTZ310/330N camera.   There is also remote control of PTZ, recording, and configuration of an applicable source.   We will discuss the NDI PTZ control of the AVer PTZ310/330N camera.
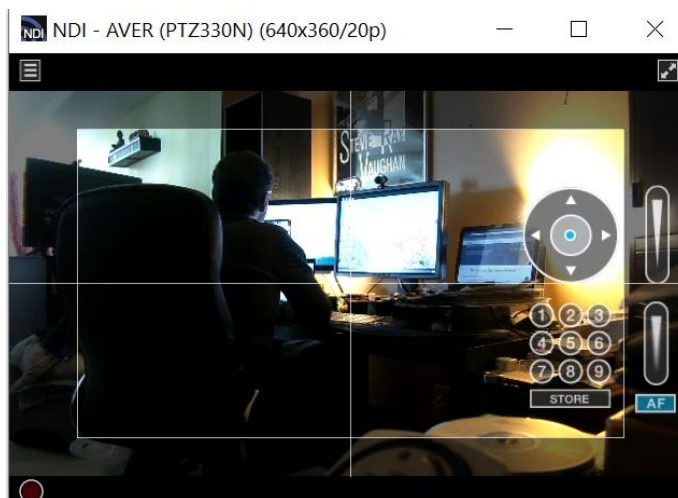
1. Go to Windows Start Menu, select NDI's *Studio Monitor*.

2. Next, the NDI Studio Monitor window will open, it may display AVer video or may display NDI's default video of "None".   If "None" is displayed, select the Menu box (or right-click on display), then select *AVER->PTZ330N* as the source.

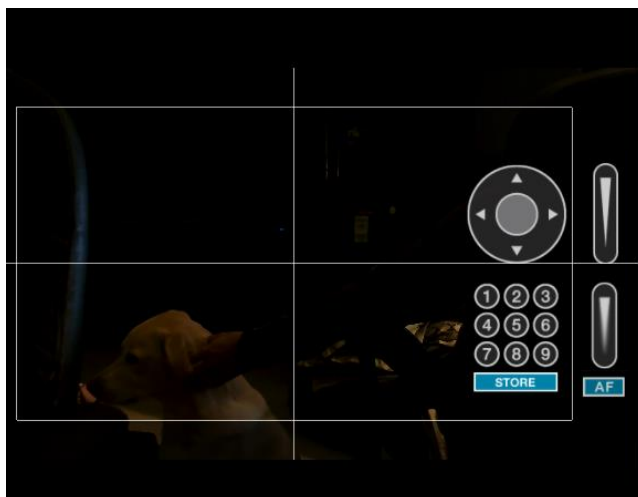3. You should now be seeing the PTZ310/330 video, to activate the controls, move your mouse over the window.

4. The NDI AVer camera controls are Pan, Tilt, Zoom, Manual Focus, Automatic Focus, and Position Presets.

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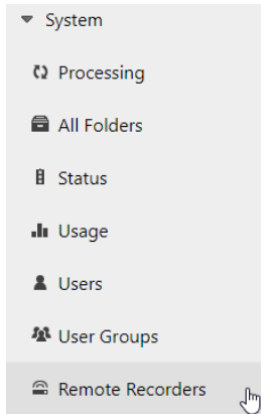**PTZ Camera Control from NDI Studio Monitor (continued)**

5. Initially there will *not* be a blue dot in any of the controls, move your mouse over to the Pan/Tilt control area, and then left click hold.   You will now have a "Joystick" type control of the AVer camera.
6. Move your cursor over the Zoom control, left click hold, you can control the Zoom of the camera.
7. To create a "Preset", adjust the camera to the preferred position, then select "Store" followed by one of the 9 presets.

8. This concludes the AVer PTZ330 camera control section with NDI Studio Monitor.

Panopto Remote Recording

1. As an Administrator, from the Panopto VCMS select *System -> Remote Recorders.*

2. Next, select the remote recorder you have configured with the NDI virtual input, and choose the configuration.
3. Next, select the NewTek NDI Video source as a Primary or secondary source.   You can also choose to select the Line (NewTek NDI Audio) source if you are using the input as an audio source as well.

4. You are now able to record into Panopto with your configured NDI source.

NDI Bandwidth

The following table is intended as a guide for calculating bandwidth needs based on video resolutions and frame rates.   Each reference stream includes 16 channels of audio.

*Note: Information provided by NewTek NDI Technical brief.

Example NDI video stream	Approximate bandwidth required
1 x UHDp60 video stream	250 Mbps
1 x UHDp30 video stream	200 Mbps
1 x 1080p60 video stream	125 Mbps
1 x 1080i60 video stream	100 Mbps
1 x 720p60 video stream	90 Mbps
1 x SD video stream	20 Mbps

Table 1. Bandwidth Requirements. The approximate bandwidth required per NDI video stream for common video resolutions and frame rates.