

AVer TR320/530 and PTZ310/330/N Camera Integration

with Microsoft Teams and Skype Platform

Steps to integrate the Aver TR and PTZ Cameras with Microsoft Teams and Skype (March 2020)

AVer Pro-AV has high quality image Cameras (TR320/530 and PTZ310/330) that will integrate with the Microsoft Teams and Skype workflows for peak performance and ease of use. We will show the configuration process for both the TR and PTZ Camera lines and Microsoft Teams/Skype environment. **Microsoft Teams** has enterprise level security, compliance, and manageability as with Office 365. Has many built in apps and tools to help them work more effectively, combines instant messaging, video conferencing, calling, and document collaboration. **Skype for Business** will be replaced with Teams at or around July 31, 2021.

Microsoft Skype is typically used to make free video and voice one-to-one and group calls, send instant messaging and share files with other people on Skype. You can use Skype on your mobile, computer or tablet.

AVer Cameras with Microsoft products

The workflow from the AVer cameras is seamless; there are three main methods to configuring the capture device depending on the environment. We will discuss each environment:

- SDI / HDMI
- USB
- RTSP (Streaming)

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

PTZ 310/330/N Camera



Video output 3G-SDI, HDMI, IP, USB	Audio output 3G-SDI, HDMI, IP, USB	Audio input 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 / 8KI

PTZ310/330/N Camera (continued)

• AVer PTZ310/330/N Camera and accessories.



- (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

TR 520/530 Camera

Front	TZ Camera	Back
Panoramic Camera		RJ45 HDMI DC 12V 3G-SDI 2 RS232 3G-SDI 1 Audio Line In
Camera Audio PCM, AAC-LC, G.71	Output resolution Auto, 1080p/60, 1080p/50, 1080i/60, 1 1080i/50, 1080p/30, 720p/60	Panoramic camera (Full view)
Output interface 3G-SDI*2, HDMI*1, IP (RJ45)	Video output capability Up to 1080P/60	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/N Camera integration with Microsoft Teams and Skype

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

They are:

- HDMI
- 3G-SDI (Coaxial connection, SMPTE 424M)
- USB (Micro USB connection on Camera)
- IP Network RTMP (RJ45 Gbit network connection)

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

- 1. HDMI/SDI/USB connection type
- 2. IP/Streaming (RTMP) 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.

Sign in				
nttp://192.16 /our connec		e is not private		
Jsemame				
Password				
			Sign in	Cancel

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.

AV er		10
O Live View		
Camera Settings		
R Video & Audio		A A A A A A A A A A A A A A A A A A A
A Network		
Advanced Settings		THE PARTY
-v- System	Camera Control	Preset
		AF.

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.

AVer	Video Mode	• •	
Live View	Stream Only USB Only	USB + Streaming NDI	
Camera Settings	Stream Video Output	Bitrate	Encoding Type
Video & Audio	1920x1080 Transrate	16Mbps 512Kbps 1Mbps	H 204 MJPEG
器 Network	30 🔻	2Mbps 4Mbps 8Mbps	O ● VBR CBR
Advanced Settings	Audio Input Type	16Mbps 32Mbps Audio Volume 5	
-v- System	● O Line In MIC In	0 10	
	Encoding Type	Sampling Rate	
	O O AAC G.711	48K *	

	Stream Only	USB Only	USB + Streaming	NDI
Video Standard->	(Various)	(Various)	(Various)	(1080p/60)
SDI Output	✓	\checkmark	\checkmark	✓
HDMI Output	\checkmark	\checkmark	\checkmark	✓
USB Output	x	\checkmark	\checkmark	X
RTSP Output	✓	X	\checkmark	✓

PTZ Camera HDMI/SDI/USB connection to Microsoft

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

If you are using a laptop to capture video, you can use a direct USB connection or 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





Microsoft OS Device Manager

Once the AVer PTZ310/330 Camera has been connected to a USB port on the PC using the USB to Micro-USB cable provided, verify that Windows does see the camera in the "Device Manager" window under Cameras.



Microsoft Teams Desktop App

Settings

- One of the very first things to check is if Microsoft Teams has permission to access your camera and microphone. There are instances where the App will not detect your camera if left disabled in your PC's settings.
- 2. Press the *Windows Key* and *I* key together. This will bring up the *Windows Settings* page.



- 3. Next, look for the *Privacy* setting and select it.
- 4. Next, from the left sidebar, under *App permissions* click on *Camera*.



- 5. Next, on the *Camera* page, you want to make sure the option *Allow Apps to access camera* is turned *On*.
- 6. You also want to make sure that under *Choose which app can access your camera,* that *Microsoft Teams* is turned *On.*
- 7. Now Microsoft Teams will appear here in this list if you have the Microsoft Teams desktop app installed.

Microsoft Teams Web App

If you are using your web browser instead of using Microsoft Teams Windows app, you will need to make sure that the site has given permission to use your camera.

- 1. Go to Microsoft Teams using your search browser (Google Chrome or Mozilla Firefox).
- 2. Depending on your search browser, proceed with its appropriate steps:

Google Chrome

Click on the lock icon in the search URL box (at the top) as shown below.

$\leftarrow \ \rightarrow $	с (teams.microsoft.c	.com/_#/calendarv2?viewDa	ate=2019-12-21T16:00:00.0	00Z	
	Mic	rosoft Teams	Ľ		Se	earch or type a comm
L Activity	Ë	Calendar				
E Chat	(ţ)	Today $<$ $>$	December 2019 $ imes $			
: Teams		23 Monday		24 Tuesday		25 Wednesday
assignments	8 AM					
E Calendar	9 AM					

3. Next, click *Site Settings*.



4. You will be brought to your Google Chrome settings where under *Permissions* you will want to make sure that *Camera* is set to *Allow* rather than *Block* or *Ask*.

Settings		
单 People	https://teams.microsoft.com	
🗐 Autofill		
Appearance	289 MB - 15 cookies	Clear data
Q. Search engine	207 MD - 13 UUUNE6	
Default browser		Reset permissions
() On startup	Q Location	Block (default) 👻
Advanced	🖬 Camera	Ask (default)
Privacy and security	Microphone	Ask (default) Allow Block Bloc
Hanguages	•• Motion sensors	Allow (default)
≜ Downloads		
🖶 Printing	Notifications	Block (default)
* Accessibility	<> JavaScript	Allow (default) 👻
🔧 System	🗯 Flash	Block (default) *
Reset and clean up	🖂 Images	Allow (default) 👻
Extensions 🖸	Pop-ups and redirects	Block (default)
About Chrome	Ads Block if site shows intrusive or misleading ads	Block (defauit) +

Ask is a secure option if you do not want your camera turned on without being prompted every time you access Microsoft Teams. *Block* prevents Microsoft Teams from accessing or even detecting your camera.

Mozilla Firefox: Click on the Firefox menu button \equiv Mozilla Firefox menu and select **Options**.

- 1. Next, click **Privacy & Security** from the left menu.
- 2. Then scroll down to the **Permissions** section and click the **Settings** button for the **Camera** option.
- Now enter the website URL in the search field for the site that you want to access your camera. In our case, we will need to enter https://teams.microsoft.com/ to allow Microsoft Teams access to our camera. Hit the Enter key.

Firefox makes it a secure and straightforward way to handle the websites that you want to provide access and the ones to not. You can remove it at any time by selecting it from the list and clicking the **Remove Website**. Finally don't forget to select the **Save changes** button!

4. Try testing to see if your camera works after enabling the camera access for the Microsoft Teams web app.

IP/STREAMING (RTMP)

PTZ Camera RTMP Output to Microsoft Teams using Microsoft Stream

Microsoft Stream accepts live feeds from a variety of different encoders that output RTMP or RTMPS. Below we will cover how to configure the PTZ camera manually for a Live event.

 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.

Camera Video Output Network Advanced Setting				
System	Camera Selector			
	Status OSD	On		
	Language	English		
	Information		Model Name	PTZ310
	Factory Default		Version	0.0.0000.32
			IP Address	192.168.0.100
			MAC	50:33:8b:9a:94:38

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.

twork Devic	ce		-	Login				
itel(R) Ether	rnet Connection (6) I219-V 🔹	Search	User	ID	P	assword	
								_
		4						
twork Setti Search Resul		etting Maintena	nce Import/Export	Config				
Select A								
No.	Status	Progress	Model Name	Device Name	FW version	IPv4 Address	MAC Address	IPv6
1	Working	Progress	Tracking Camera	Tracking Camera	0.0.1000.41	10.10.0.165:80	00:18:1a:04:b5:4d	[]:80
2	Working		PTZ330	PTZ330	0.0.0000.55	10.10.0.46:80	00:18:1a:04:a4:30	[]:80
<							_	3
Settings								
Device Nan	ne:			Start IP Address:				
C DHCP				End IP Address:				
Static II	P			Subnet Mask:				
				Gateway:				
* Auto 200	rch will start after	settings change	di	Primary DNS:				
AULO Sea								

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.

Sign in			
http://192.10 Your connec	8.0.106 tion to this site is not private		
Username			
Password			
		Sign in	Cancel

- 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.

AV er		10
O Live View		
Camera Settings		
Video & Audio		
A Network		
Advanced Settings		
System	Camera Control	Preset
		AF AF

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.

AV er	Video Mode	B Only USB + Stree	aming NDI		
Live View	Stream Only US	USB + Stree	aming NDI		
Camera Settings	Stream Video Output	Bitrate		Encoding Type	
Video & Audio	1920x1080 Framerate	▼ 16Mbps 512Kbps 1Mbps 2Mbps		H 284	MJPEG
器 Network	30	▼ 4Mbps 8Mbps		O VBR	CBR
Advanced Settings	Audio Input Type	16Mbps 32Mbps Audio Volum	ne 5		_
-w- System		o	• 10		
	Encoding Type	Sampling Ra	ate		
		48K			
	Stream Only	USB Only	USB + Streaming	NDI	
	(Various)	(Various)	(Various)	(1080p/60)	
SDI Outpu	t √	\checkmark	\checkmark	✓	
HDMI Out	put 🗸	\checkmark	\checkmark	✓	
USB Outpu	it <mark>x</mark>	\checkmark	✓	x	
RTSP Outp	ut 🗸	x	\checkmark	✓	

Recommended settings from Microsoft

Ingest protocols

• Single bitrate RTMPS or RTMP

Video format

- Codec: H.264
- Profile: High (Level 4.0)
- Bitrate: Up to 5Mbps (5000 kbps)
- Strict Constant Bitrate (CBR)
- Keyframe/GOP: 2 seconds
 - There must be an IDR frame at the beginning of each GOP
 - Frame Rate: 29.97 or 30fps
 - Resolution: 1280 x 720 (720P)
 - Interlace Mode: Progressive
- Pixel Aspect Ratio (PAR): Square

Audio format

- Codec: AAC (LC)
- Bitrate: 192 kbps
- Sample Rate: 48 kHz or 44.1 kHz (recommend 48 kHz)

Playback requirements

• Both an audio and video stream must be present in order to playback content in Microsoft Stream.

Configuration tips

- Whenever possible, use a hardwired internet connection.
- A good rule of thumb when determining bandwidth requirements is to double the streaming bitrates. While this is not a mandatory requirement, it will help mitigate the impact of network congestion.
- When using software based encoders, close any unnecessary programs.
- Don't change your encoder configuration after it has started pushing. It has negative effects on the event and can cause the event to be unstable. If you want to do this before the event has started, you must disconnect using the producer controls in Microsoft Stream and start setup again.
- If the encoder is disconnected during the live event, reconnect it keeping the same timestamps of continuing process. Note that any discontinuity may cause audio or video issues on certain browsers and devices.
- Give yourself ample time to setup your event. For high scale events, it's recommended to start the setup an hour before your event.

6. Next, select the *Network* setting; this is where you will enter the RTMP *Server URL* and *Stream Key*. *RTSP Security* to either "On" or "Off" depending if you want encryption when using *RTSP*.

AVer	DHCP • •		
Live View	On Off	Netmask	
Camera Settings	192.168.0.107	255.255.255.0	
Video & Audio	Gateway	DNS	
器 Network	192.168.0.1	192.168.0.1	Confirm
Advanced Settings	RTMP Settings	RTSP Security	
-vv- System	Server URL	On Off	
	Stream Key		
	Start Stream STOP		

*Note: Once streaming has started do not change the Stream Video Output on the fly, you will need to "Stop" streaming, change the Stream Video Output, then "Start" the stream again.

7. Next, go to your Microsoft Stream account and login to obtain the *Server URL* and *Stream name/key*. Once obtained, you will copy that information and paste it into the PTZ Camera *Server URL* and *Stream Key* fields.

	eed to connect your external encoder. Learn more
lect encoder	
Configure manually	~
Haivision Makito X Encoder	~
Switcher Studio	11
Wirecast	
	xinpu7ksujj2x63z4f-use22.channel.media.azure.net:1935/live/d2 Copy

8. Next, go back to the PTZ WebLogin and select *Start Stream*; this will begin the stream to Microsoft Stream. You should see a *Streaming* icon appear to indicate the process has started.

RTMP Settings	_	RTSP Security	
Server URL	((O))	•	0
		On	Off
Stream Key			
	0705		
Start Stream	STOP		

9. To verify, go to Microsoft Stream and verify you are able to see the preview of the video feed from the PTZ330 camera in **Encoder preview**.



10. To end the streaming feed from the PTZ camera, go to the WebLogin and select "STOP".

11. To verify, go back to your Microsoft Stream preview, it should now be displaying "nothing".

Microsoft Teams configuration

In a Teams live event, you can stream video from an external encoder to Microsoft Stream if the encoder supports Real-Time Messaging Protocol (RTMP).

- 1. In Teams, select Calendar Meetings button, then your live event, and Join.
- 2. Until you start the event, you'll see the title, date, and time in the **Encoder preview** window.
- 3. Click **Start setup**. ***Note:** Setup may take some time to complete.
- 4. Once you see the message **Ready to connect**, go to the **Settings** tab and copy the Server ingest URL into the encoder (PTZ Camera) to start ingesting.
- 5. Once you start streaming from the PTZ camera to *Stream* using the ingest URL, you should see the preview of the video in **Encoder Preview.**
- 6. Once satisfied with the setup and video preview, click **Start event**. Once the live event starts, the video from the PTZ camera is broadcast to the event.
- 7. To end the event, click **End event. *Note:** Once the live event ends, it cannot be restarted.
- 8. This concludes the AVer PTZ330 Camera Streaming with a Microsoft setup.

AVer TR 320/530 Camera integration with Microsoft Teams and Skype

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

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

They are:

- HDMI
- 3G-SDI (x2) (Coaxial connection, SMPTE 424M)
- IP Network RTMP (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 connection type
- 2. IP/Streaming (RTMP) connection type

TR Camera HDMI/SDI/USB Output to Microsoft Teams

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.

 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.

Tracking	Off		
Camera	>		
Video Format	>		
Advanced Setting	>		
Preset	>		
Language	>		
Profile	>		
Factory Default	>		
Information	> Fi		0.0.1000.38
Display	> IP	Address	10.100.93.34
	м	AC	

- 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: <u>https://www.aver.com/download-center</u>.
- 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.

	×
ord	
Login	
	Dord

- 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.

	Ver							
	•	ö :	Video Output					Audio Input
PTZ	PTZ camera	>	3G-SDI 1/ HDMI:PT	Z Camera				Audio line in format
P.	Video & Audio setting		3G-SDI 2		Panoramic	- 1080P/60		G711 AAC
뮮	Network setting		IP Streaming Mode					
۲	Tracking setting				Mode 1			Mode 2
ø	Preset setting		Mode 1					
P.	Advanced setting		PTZ		anoramic			
1	Profile setting		Select PTZ or Panorar	nic for stream	ning			
-^-	System setting		PTZ camera	1080P/60	1080P/30	720P/30	480P/30	
ø	Factory default		Resolution/fps bps (Bits per second)	6M	4M	2M		
								Save Cancel

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*.

3G-S	DI 1/ HDMI:PTZ Camera	×
	Auto	
	1080P/60	
	1080P/50	
	1080i/50	
	1080P/30	
	1080i/60	
	720P/60	
		Save

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

TR320/530 Camera HDMI/SDI connection to Microsoft Teams

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



Microsoft OS Device Manager

Once the AVer TR320/530 Camera has been connected to a USB port on the PC using the HDMI to USB converter, verify that Windows does see the camera in the "Device Manager" window under Cameras.



Microsoft Teams Desktop App

Settings

- One of the very first things to check is if Microsoft Teams has permission to access your camera and microphone. There are instances where the App will not detect your camera if left disabled in your PC's settings.
- 2. Press the *Windows Key* and *I* key together. This will bring up the *Windows Settings* page.



- 3. Next, look for the *Privacy* setting and select it.
- 4. Next, from the left sidebar, under *App permissions* click on *Camera*.



5. Next, on the *Camera* page, you want to make sure the option *Allow Apps to access camera* is turned *On*.

- 6. You also want to make sure that under *Choose which app can access your camera,* that *Microsoft Teams* is turned *On.*
- 7. Now Microsoft Teams will appear here in this list if you have the Microsoft Teams desktop app installed.

Microsoft Teams Web App

If you are using your web browser instead of using Microsoft Teams Windows app, you will need to make sure that the site has given permission to use your camera.

- 1. Go to Microsoft Teams using your search browser (Google Chrome or Mozilla Firefox).
- 2. Depending on your search browser, proceed with its appropriate steps:

Google Chrome

You need to click on the lock icon in the search URL box (at the top) as shown below.

$\leftarrow \ \rightarrow $	с	🔒 teams.microsoft	.com/_#/calendarv2?viewD	ate=2019-12-21T16:00:00	.000Z	
	Mic	rosoft Teams	Ć		Se	earch or type a comm
L Activity	Ē	Calendar				
E Chat	(†	Today $<$ $>$	December 2019 $ imes $			
iiii Teams		23 Monday		24 Tuesday		25 Wednesday
assignments	8 AM					
E Calendar	9 AM					

3. Next, click *Site Settings*.

	Mi	Cor	nnection is secure		×	S	earch or type a command
Ļ Activity	l	card	r information (for example, p numbers) is private when it n more				
E Chat	Ċ	ନ୍ତୁ	Location	Block (default) 👻			
iii Teams		¢	Notifications	Block (default) 👻		4 ssday	25 Wednesday
anments	8 AM	2	Certificate (Valid)				
	9 AM	۲	Cookies (43 in use)				
alendar	-	۵	Site settings				
4	10 AM						
	11 AM						

4. You will be brought to your Google Chrome settings where under *Permissions* you will want to make sure that *Camera* is set to *Allow* rather than *Block* or *Ask*.

Settings		Q. Search settings	
	People	https://teams.microsoft.com	
Ô	Autofill		
æ	Appearance	- 289 MB · 15 cookies	Clear data
	Search engine		
	Default browser		Reset permissions
	On startup	Cocation	Block (default) -
Advanced		📑 Camera	Ask (default)
0		Microphone	Ask (default) Allow Block
	Languages	(*) Motion sensors	Allow (default)
	Downloads		
•	Printing	Notifications	Block (default) 👻
	Accessibility	<> JavaScript	Allow (default) -
*	System Reset and clean up	🖈 Flash	Block (default) 👻
	Keset and clean up	Images	Allow (default) -
Exte	nsions	Pop-ups and redirects	Block (default) 🔹
Abo	at Chrome	Ads	Plants (default)

Ask is a secure option if you do not want your camera turned on without being prompted every time you access Microsoft Teams. *Block* prevents Microsoft Teams from accessing or even detecting your camera.

Mozilla Firefox

You need to click on the Firefox menu button E Mozilla Firefox menu and select **Options**.

- 1. Next, click **Privacy & Security** from the left menu.
- 2. Then scroll down to the **Permissions** section and click the **Settings**... button for the **Camera** option.
- Now enter the website URL in the search field for the site that you want to access your camera. In our case, we will need to enter https://teams.microsoft.com/ to allow Microsoft Teams access to our camera. Hit the Enter key.

Firefox makes it a secure and straightforward way to handle the websites that you want to provide access and the ones to not. You can remove it at any time by selecting it from the list and clicking the **Remove Website**. Finally don't forget to select the **Save changes** button!

4. Try testing to see if your camera works after enabling the camera access for Microsoft Teams web app.

TR320/530 Camera RTMP Output to Microsoft Teams using Microsoft Stream

Microsoft Stream accepts live feeds from a variety of different encoders that output RTMP or RTMPS. Below we will cover how to configure the PTZ camera manually for a Live event.

- 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**.

Tracking	Off				
Camera	>	Camera ID			
Video Format	>	DHCP	> DHC	On	On
Advanced Setting	>	Static IP	->		Off
Preset	>	PTZ Camera			
Language	>				
Profile	>				
Factory Default	>				
Information	>				
Display	>				

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

Tracking	Off	
Camera	>	
Video Format	>	
Advanced Setting	>	
Preset	>	
Language	>	
Profile	>	
Factory Default	>	
Information	> Firmware Version	0.0.1000.38
Display	> IP Address	10.100.93.34
	MAC	00:18:1A:00:54:87

- 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.
- Next, type the IP address in your Chrome browser (Setup on same subnet) and you should
- Next, type the IP address in your Chrome browser (Setup on same subnet) and you shoul now see a login to the TR320/530 camera shown below.

	×
Password	
Login	

- 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 and RTMP Streaming.

AVer		
O	Video Output	Audio Input
PTZ PTZ camera >	3G-SDI 1/ HDMI:PTZ Camera 1080P/60	Audio line in format
Video & Audio setting	3G-SDI 2 Panoramic - 1080P/60	G711 AAC
器 Network setting	IP Streaming Mode	
Tracking setting	Mode 1	Mode 2
Preset setting	Mode 1	
Advanced setting	PTZ Panoramic	
Frofile setting	Select PTZ or Panoramic for streaming	
-vv- System setting	PTZ camera	
Factory default	Resolution/fps Hoderide Hoderide bps (Bits per second) 6M 4M 2M	
		Save Cancel

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.

IP Streaming Mode					
	Mode 1				
Mode 2					
PTZ camera					
Resolution	1080P/30				
bps (Bits per second)	6.0M	3.0M	1.5M		
Panoramic camera					
	1080P/30				
Resolution/fps bps (Bits per second)	6.0M	3.0M	1.5M		
bps (bits per second)			•		

Recommended settings from Microsoft

Ingest protocols

• Single bitrate RTMPS or RTMP

Video format

- Codec: H.264
- Profile: High (Level 4.0)
- Bitrate: Up to 5Mbps (5000 kbps)
- Strict Constant Bitrate (CBR)
- Keyframe/GOP: 2 seconds
 - There must be an IDR frame at the beginning of each GOP
 - Frame Rate: 29.97 or 30fps
 - Resolution: 1280 x 720 (720P)
 - Interlace Mode: Progressive
- Pixel Aspect Ratio (PAR): Square

Audio format

- Codec: AAC (LC)
- Bitrate: 192 kbps
- Sample Rate: 48 kHz or 44.1 kHz (recommend 48 kHz)

Playback requirements

• Both an audio and video stream must be present in order to playback content in Microsoft Stream.

Configuration tips

- Whenever possible, use a hardwired internet connection.
- A good rule of thumb when determining bandwidth requirements is to double the streaming bitrates. While this is not a mandatory requirement, it will help mitigate the impact of network congestion.
- When using software based encoders, close any unnecessary programs.
- Don't change your encoder configuration after it has started pushing. It has negative effects on the event and can cause the event to be unstable. If you want to do this before the event has started, you must disconnect using the producer controls in Microsoft Stream and start setup again.
- If the encoder is disconnected during the live event, reconnect it keeping the same timestamps of continuing process. Note that any discontinuity may cause audio or video issues on certain browsers and devices.
- Give yourself ample time to setup your event. For high scale events, it's recommended to start the setup an hour before your event.

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

A	Ver			
	•	Network		
PTZ	PTZ camera >	DHCP enable	Netmask	
1	Video & Audio setting	10	255 . 255 . 255 . 0	
몲	Network setting	1 St St St		
۲	Tracking setting	Gateway	DNS	
¢	Preset setting	10	10 · · · · · · · · · · · · · · · · · · ·	Apply
Þ	Advanced setting	RTMP Server (PTZ)		
1	Profile setting	Server URL	Stream Key	
-~-	System setting	rtmp://a.rtmp		Connect
ø	Factory default			
			t; Panoramic camera: rtsp://Camera IP:8554/live_st2)	
		Password Confirmation		
Γ				

 Next, notice the *RTMP Server URL* selection, this is where you will "paste" the URL string from *Microsoft Stream* as well as the *Stream Key* from *Microsoft Stream*. *Note: The RTMP Stream will use the *PTZ IP Stream Mode* output configuration.

Stream Key	
	Connect

2. Next, go to your Microsoft Stream account and login to obtain the *Server URL* and *Stream name/key*. Once obtained, you will copy that information and paste it into the TR Camera *Server URL* and *Stream Key* fields.

lect encoder			
Configure manually	~		
Haivision Makito X Encoder	~		
Switcher Studio			
Wirecast			

 Next, to begin the Stream from the TR Camera, select *Connect*, you should see a red "Streaming" text appear, to indicate you are now streaming. This is where you would also "Disconnect" from the stream.

Streaming	
Disconnect	

12. To verify, go to Microsoft Stream and verify you are able to see the preview of the video feed from the TR320/530 camera in **Encoder preview**.



13. To end the streaming feed from the TR camera, go to the WebLogin and select "Disconnect".

14. To verify, go back to your Microsoft Stream preview, it should now be displaying "nothing".

Microsoft Teams configuration

In a Teams live event, you can stream video from an external encoder to Microsoft Stream if the encoder supports Real-Time Messaging Protocol (RTMP).

- 1. In Teams, select Calendar Meetings button, then your live event, and Join.
- 2. Until you start the event, you'll see the title, date, and time in the **Encoder preview** window.
- 3. Click **Start setup**. ***Note:** Setup may take some time to complete.
- 4. Once you see the message **Ready to connect**, go to the **Settings** tab and copy the Server ingest URL into the encoder (TR Camera) to start ingesting.
- 5. Once you start streaming from the TR camera to *MS Stream* using the ingest URL, you should see the preview of the video in **Encoder Preview**.
- 6. Once satisfied with the setup and video preview, click **Start event**. Once the live event starts, the video from the TR camera is broadcast to the event.
- 7. To end the event, click **End event. *Note:** Once the live event ends, it cannot be restarted.
- 8. This concludes the AVer TR320/530 Camera Streaming with a Microsoft setup.