



NDI | HX PTZ Camera

Quick Installation Guide



Notes: This is only quick installation for NDI Usage. For more information about this camera, please find the other manual from Camera Box.

1. Login



Configurations

- Audio Configure
- Video Configure
 - Video Encode
 - Stream Publish
 - RTP Multicast
 - Video Parameters
 - Video OSD
 - OSD Font Size
 - Video Out
- Network Configure
 - Network Port
 - Ethernet
 - DNS

Ethernet

DHCP

IP Address: 192.168.5.163

Subnet Mask: 255.255.255.0

Default Gateway: 0.0.0.0

MAC Address: E4:77:D4:09:A7:87

```
C:\Users\Administrator ipconfig
...
Ethernet adapter Ethernet: (/Wireless Network Connection)
  Connection - specific DNS suffix .:Technogyrss.local
  (/Connection - specific DNS suffix .:wireless.bris.ac.uk)
    IPv4 Address . . . . .:192.168.1.190
    Subnet Mask . . . . .:255.255.255.0
    Default Gateway . . . . .:192.168.1.1
...
C:\Users\Administrator ncpa.cpl
```

```
Blackmagic stephaniepeters — bash — 80x24 EPSON WF-7520 S
Last login: Tue Oct 27 08:24:05 on console
Stephanies-MacBook-Pro:~ stephaniepeters$ ipconfig
usage: ipconfig <command> <args>
where <command> is one of waitall, getifaddr, ifcount, getoptoption, getoptoption, get
v6packet, set, setverbose
Stephanies-MacBook-Pro:~ stephaniepeters$ ipconfig getifaddr en0
192.168.111.112
Stephanies-MacBook-Pro:~ stephaniepeters$
```

1) Open Browser, for example Google Chrome, enter IP address of NDI camera: default "192.168.5.163". Login with username and password: both are "admin". Please select English in the upper right corner before you login.



2) It is suggested for users to change IP Address of their camera. The camera has a default static IP address "192.168.5.163". It is better to change IP Address of camera in the same segment as ontology network segment: make sure only the first three IP Address segment of camera need to be changed, subnet Mask and Gateway is same.

3) Extra: Check your Network IP segment. **NOTE:** Changing the IP address without talking to your network administrator may cause conflicts with the network. If the first three segment of IP Address changed to be one that is already used, it will cause communication problems.

- Check the IP Address segment of network: press Win + R, then type "CMD" in the appear window and press Enter key. You should see a black box pop up with the ability to type in the box.
- If you type "ipconfig" in the black box and press Enter key, you will see a bunch of information pop up in your command prompt.
- When you see "IPv4 Address" that is your computers IP address on your current network. So, you would use the first three sets of numbers from this as your IP segment.

NOTE: If need to find the IP Address segment of MAC computer, first to open a new finder window and then go to Applications, and then Utilities. Program "Terminal" can be found in this menu and then select it.

Now, you would type in "IP config get if addr en0". Once you type this string and click "Enter" on your keyboard you will receive back an IP address.

So, the IP segment of network as shown in the picture below according to MAC is 192.168.111.xxx, which can be used to figure out the IP segment in which camera need to be set.

2. Enable NDI | HX on Admin Web page

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 - Network Port
 - Ethernet
 - DNS
 - GB28181
 - SRT
 - NDI
 - RTSP

NDI

NDI Enable

NDI Name: NDI-638615

NDI Group: public

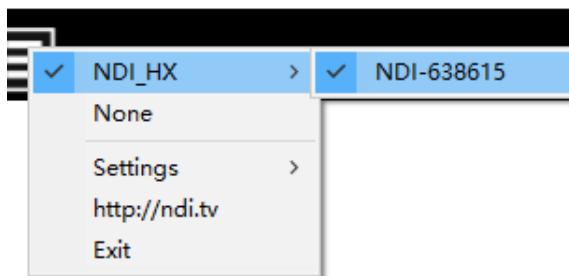
Login on the web page by NEW camera IP address



3. Test NDI|HX Camera with NDI Studio Monitor

NDI - NDI_HX (NDI-638615) (1080/25p)

The software is available on NewTek website.



4. NDI|HX Camera Video Encode and Audio Configuration

Stream	Main Stream	Sub Stream
Compressed Format	H.264	H.264
Profile	HP	HP
Image Size	1920*1080	640*360
Rate Control	CBR	CBR
Image Quality	Best	Better
Bit Rate(Kb/s)	4096	512
Frame Rate(F/S)	25	25
I Frame Interval	75	75
I Frame Min QP	20	20
Stream Name	live/av0	live/av1

Video Encode

High bandwidth mode: Main Stream

Low bandwidth mode: Sub Stream

Recommended Video Encode settings:

1920 * 1080: 4096 kb/s

1280 * 720: 2048 kb/s

640 * 480: 1024 kb/s

640 * 360: 1024 kb/s

320 * 180: 512 kb/s

320 * 240: 512 kb/s

Note: The higher the Bitrate, the better the image quality.

5. Audio Configure

Enable	<input checked="" type="checkbox"/>
Encode Type	AAC
Sample Rate	48000
Sample Bits	16
Bit Rate	64Kbps
Channel	Stereo
Input Volume	<input type="range" value="4"/> 4

Recommended audio settings: AAC 48000KHz / 64kbps
NDI | HX supports AAC format only

10 Notes:

- ❖ Users can switch according to different occasions with high and low bandwidth mode are open at the same time.
- ❖ The frame rate will affect the video latency. With the same resolution, the higher the frame rate, the smaller the delay of the video.
- ❖ The HEVC (H.265) format will be supported by NDI|HX 4.5. The current version NDI|HX 4.0 only supports H.264.
- ❖ The video frame rate is up to 60 frames. Open two streams at the same time at most.
- ❖ To make sure NDI video smooth, please do not open other stream when NDI streaming is on.
- ❖ SDI and HDMI video out are turned on by default. It's recommended to adjust the Video Out Format to 720PX when

you don't need SDI/HDMI video. "X" represents the frame rate in 720PX.

To configure 60fps Video, Video Out Format must be set as 1080P60 or 720P60. Otherwise, the frame rate of the Video encode part of 60 cannot be configured successfully.

Keep the frame rate of the video encoding part is consistent or multiple with the video out.

Such as: Video encoding frame rate is 25, then set the video out format as 1080P25, 1080P50 or 720P25, 720P50

Video encoding frame rate is 30, then set the video out format as 1080P30 or 720P30

Video encoding frame rate is 60, then set the video out format as 1080P60 or 720P60

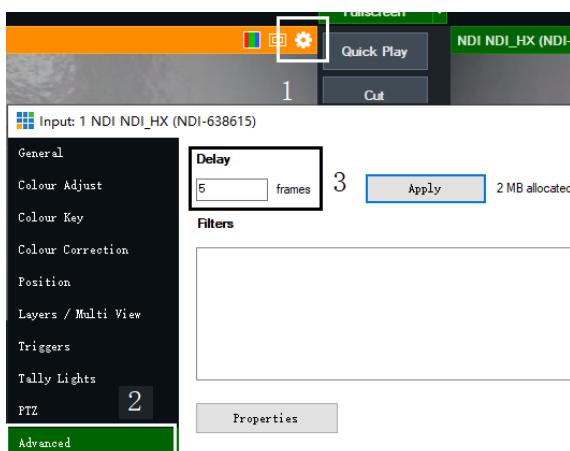
6. NDI|HX Camera & vMix



Firmware requirement: vMix23 and above

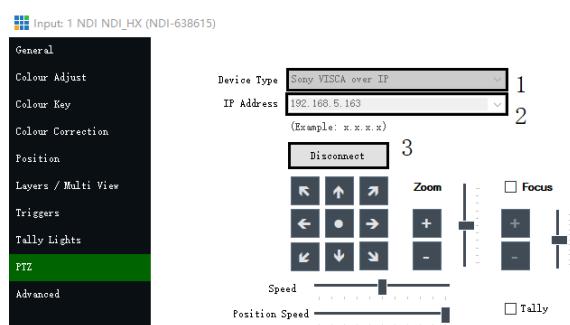
1) Open vMix23, add NDI source

Click "Add Input" on the bottom left of the vMix window and select "NDI/ Desktop Capture" in the appear window, and then choose "your camera: NDI-XXXX". Then select "Low Bandwidth Mode" and click "OK" to finish the adding steps.



2) Latency setting: the frames numbers are related to frame rate.

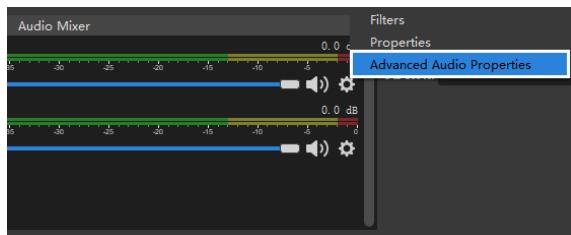
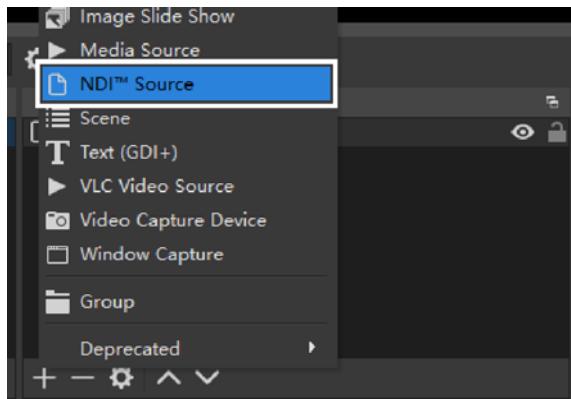
Click "gear" on the upper right corner of the image. Select "Advanced" on the appear window and type to change default frame number "0". For example, the frame rate is 25fps, then the frame data is 40ms, set the frames number as 5, so the network latency is about 200ms.



3) PTZ – Device type: Sony VISCA over IP – IP Address: camera IP – connect

Select "PTZ" on the same window as step 2, and then choose the right "Device Type" and "IP Address". Click the "Connect", after which can operate the camera by vMix.

7. NDI|HX Camera & OBS



1) Using OBS, please download OBS-NDI plug-in via the link below, and install.

<https://github.com/Palakis/obs-ndi/releases/tag/4.7.0>

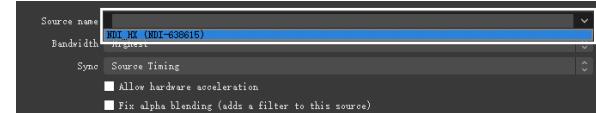
Find more information about OBS-NDI here:

<https://obsproject.com/forum/resources/obs-ndi-newtek-ndi%E2%84%A2-integration-into-obs-studio.528/>

2) Add NDI source

Click "+" in the "Source" window on the bottom of OBS and select "NDI™ Source" to add NDI source.

Choose "Source name" in the appear window and click "OK".



3) Enable Audio

Click "gear" of "NDI™ Source" in the "Audio Mixer" window. And then click "Advanced Audio Properties" and change "Audio Monitoring" to be "Monitor Only (mute output)".



8. Q&A (Trouble Shooting)

- Q: Big latency with vMix and NDI|HX camera.
A: 1. Latency is increased due to the cache configured on client.
2. Set the frame rate to 60 to decrease video latency.
- Q: NDI|HX camera latency.
A: The tested average latency is about 130ms, the lowest delay is about 80ms.
With the following settings:
NDI|HX setting: 1920*1080 | 4096kbs | 60fps;
Video out setting: 720P60
Testing software: NDI Studio Monitor (select low latency mode)
- Q: How to modify network video and audio parameters on NDI|HX camera?
A: Please refer to the No.4 part (NDI|HX Camera Video Encode and Audio Configuration) on page 3.
- Q: NDI|HX is able to search the source, but it can't get the image?
A: Please refer to the No. 1 Part on page 2.

- Q: Can't get video out with vMix.

A: vMix23 and above firmware is able to output NDI|HX video.

- Q: Video is frozen when I use NDI stream.

A: NDI signal transmitting is over IP/network, when video is frozen, which means NDI signal is lost while network transmitting, so please make sure your network is stable. Good network will give you well performance.

- How much Bandwidth does NDI HX use?

Bitrate: 0Mbps	Bitrate(mbps)	Resolution	Frame Rate
Lowest	0-6	640x360	30fps
Low	7-8	1280x720	60fps
Medium	9-12	1920x1080	30fps
High	13-22	1920x1080	60fps

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A professional
video camera, streaming, recording
solution provider
Since 2004

Zowietek Electronics, Ltd.
2218 Hunan Road, West Wing 1701
Pudong, Shanghai 201204
Jan. 2021
www.zowietek.com
support@zowietek.com

User Manual at <https://www.zowietek.com/uploads/PTZ/NDIUserManual.pdf>

FAQ at <https://www.zowietek.com/faq/>