# Minrray NDI|HX PTZ Camera
Quick Installation Guide

Notes: This is only quick installation for NDI Usage. For more information about this camera, pls find it from Manual from Camera Box or contact us to have PDF format manual.

1. Equipment Installation

1) Connect camera to your network via a CAT5 or CAT6 patch cable or directly to your PC via a CAT5 or CAT6 crossover cable.

2) Turn on camera power.

3) If successful, the orange network light will illuminate and the green light will start flashing. If unsuccessful, the patch cable is bad, you are using the wrong cable (patch aka "straight-thru" cable for connection through a LAN; crossover for a direct PC connection) or you have connected to an inactive network jack.

2. Network Connection

Connection method between network camera and computer, as in pictures 1.1 and 1.2, below:
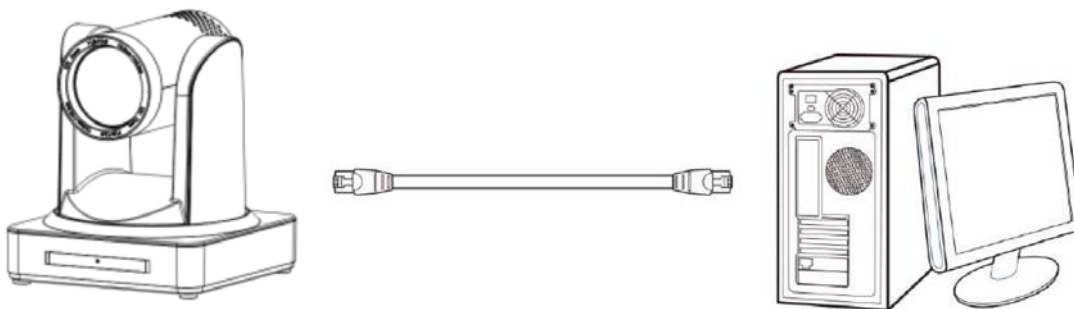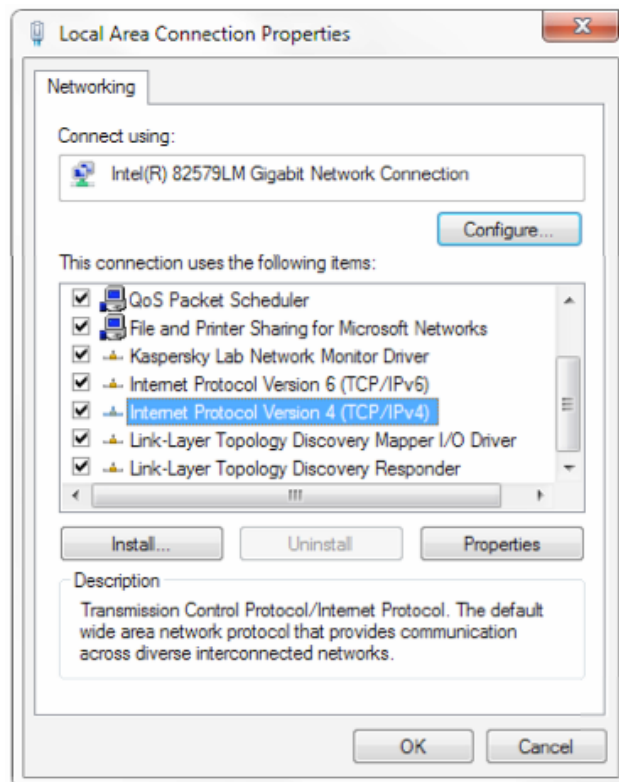

Picture 1.1 Direct connections via "cross-over" network cable
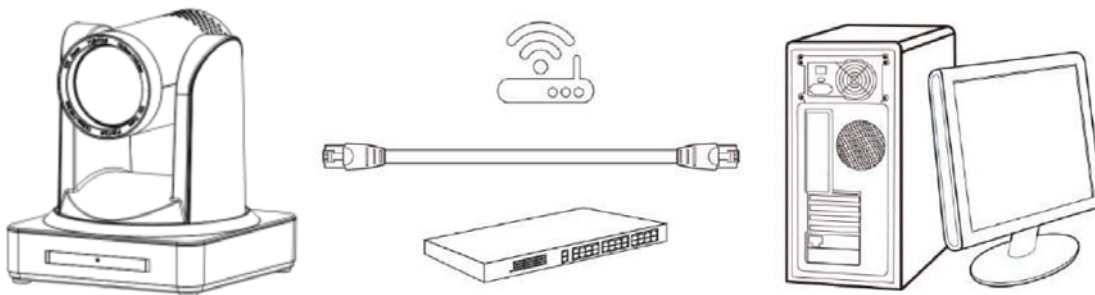
Picture 1.2 Connections to LAN via patch cable to LAN wall jack or LAN switch(For POE, you need to use PoE Switch 802.3af)

3. Setting Computer Networking.

1) open the window of Local Area Connection Properties on computer, select the "Internet protocol version 4(TCP/IPv4)" as shown by picture as below.
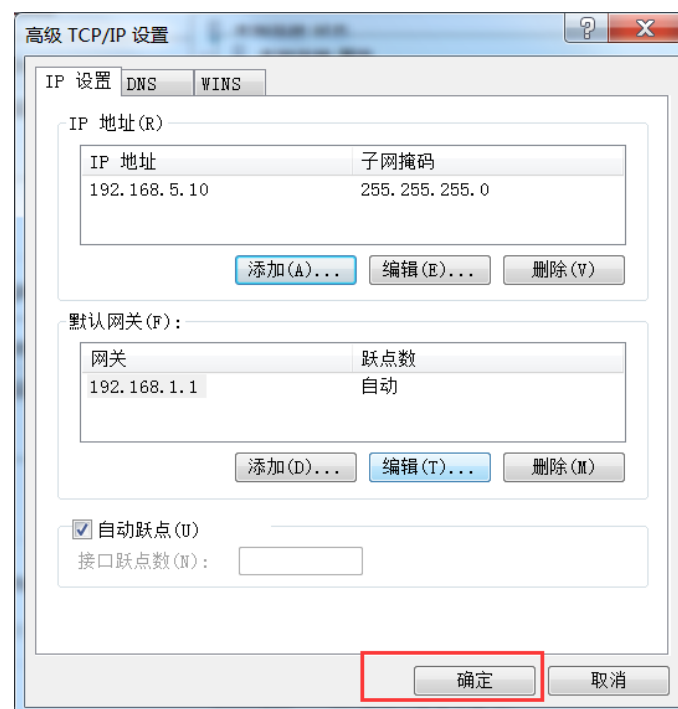
2) Double click or click the property "Internet protocol version 4 (TCP/IPv4) "to enter into the Internet Protocol Version 4(TCP/IPv4) Properties window, select "Advanced" to enter into the Advanced TCP/IP Setting.
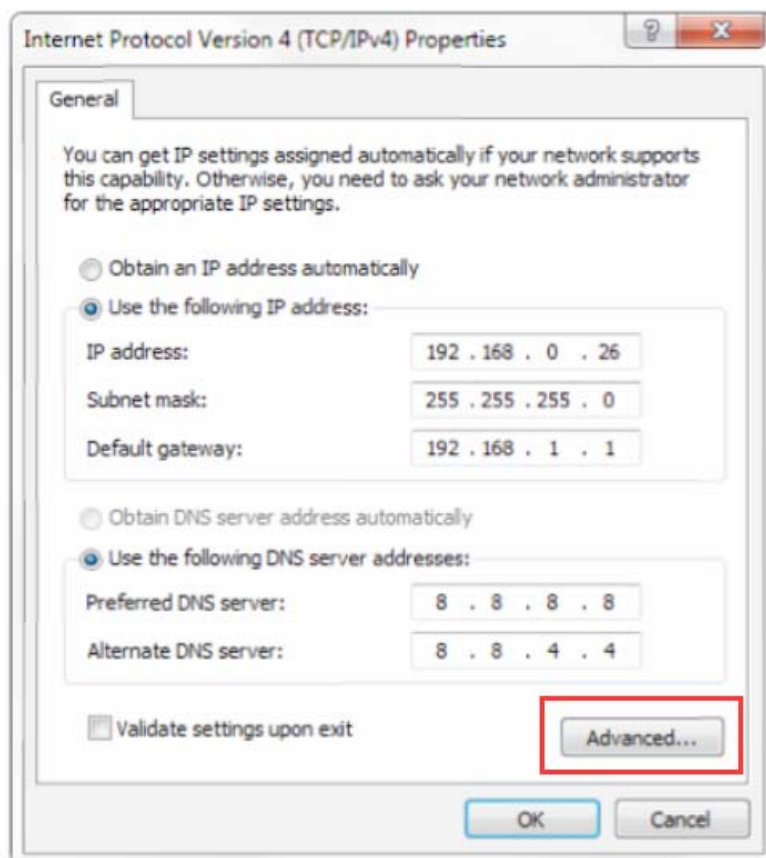
3) Add IP and subnet mask in the IP browser as picture shown below
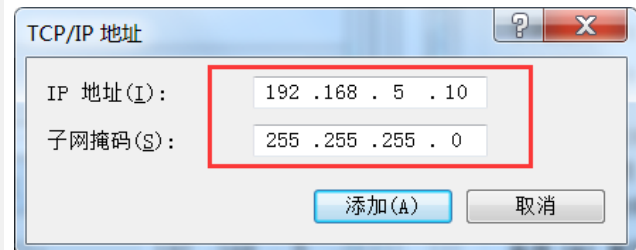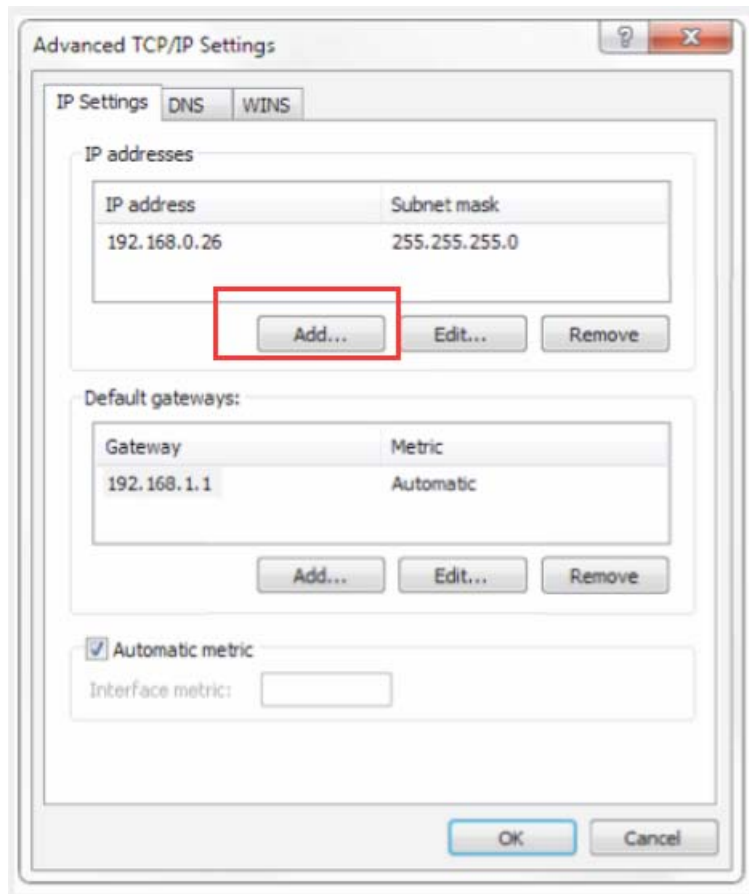
4) Click the "Confirm" to have adding Camera to the same segment of computer network.

4. IE Login

1) Open IE or Google Chrome Brower, enter IP address of NDI camera: 192.168.5.163. Login with user name or password: admin. Pls select English before you login.

2) The next thing you would want to do is change your cameras IP address to be in the same range as your network. The camera comes with a default static IP address of 192.168.5.163. You will need to update that to be in the same range as your network: make sure IP range, subnet Mask and Gateway is same.
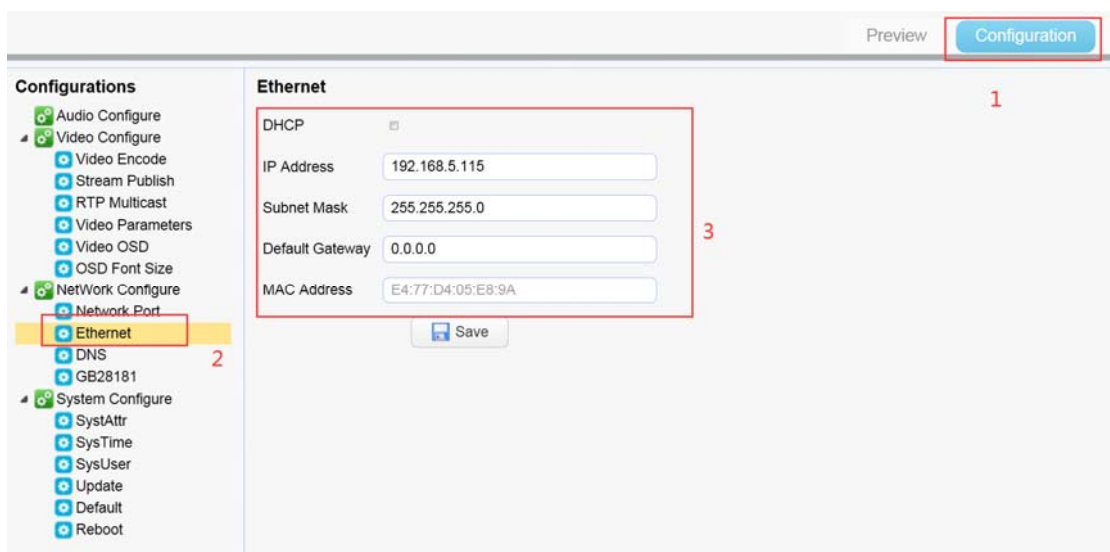
3) Extras: Discovering your Network IP range. NOTE: Changing your IP address without talking to your network admin could lead to conflicts with your network. If you change your address to one that is already in use it will cause communication problems.
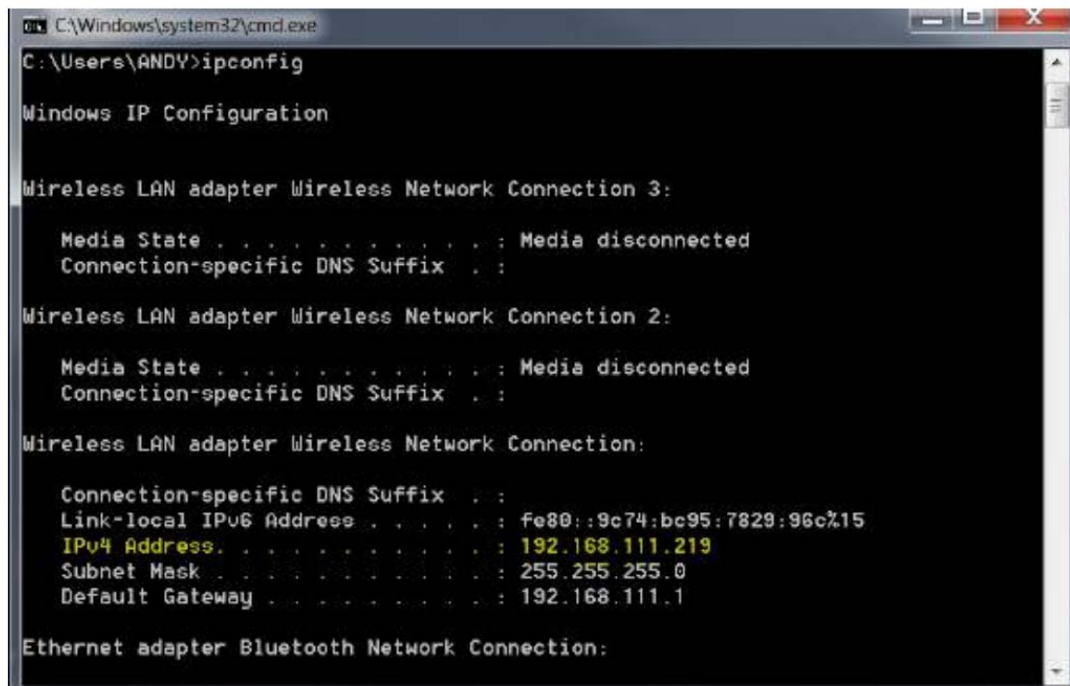
    A. If you need to discover the IP address range of your network you can do so by using command prompt for Windows or Terminal for Macs.

    B. To do this on a PC, you would type "CMD" into your search bar in the Windows menu. You should see a black box pop up with the ability to type in the box.

    C. If you type "ipconfig" and hit "Enter" on your keyboard you will see a bunch of information

pop up in your command prompt.

   D. When you see "IPv4 Address" that is your computers IP address on your current network. So you would use the first 3 sets of numbers from this as your IP range.
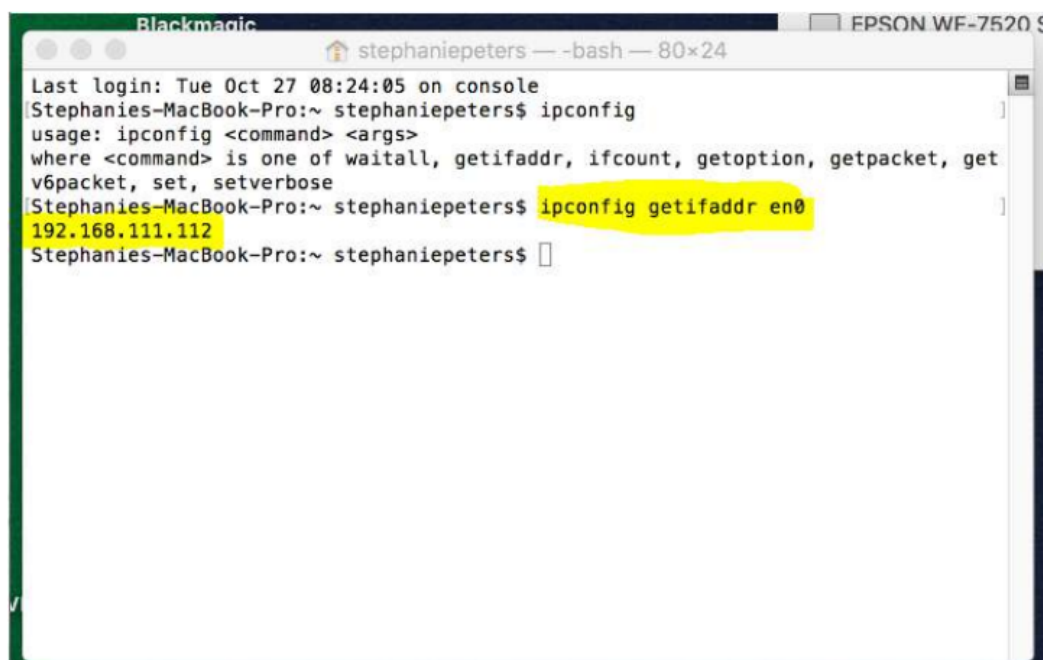
If you need to find the IP range of your MAC computer, you would first open a new finder window and then go to Applications, and then Utilities. You should see the program "Terminal" in that menu, select that program.

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.
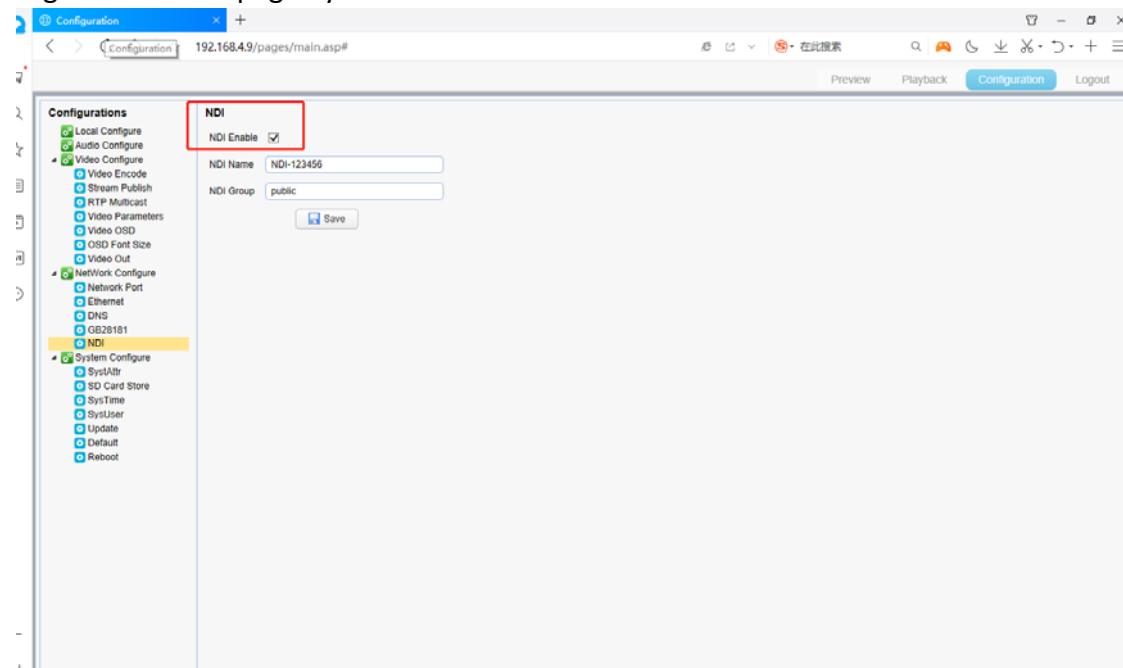
So the IP range of my network, according to my MAC is 192.168.111.xxx, you can use this to figure out the IP range in which your camera needs to be set.
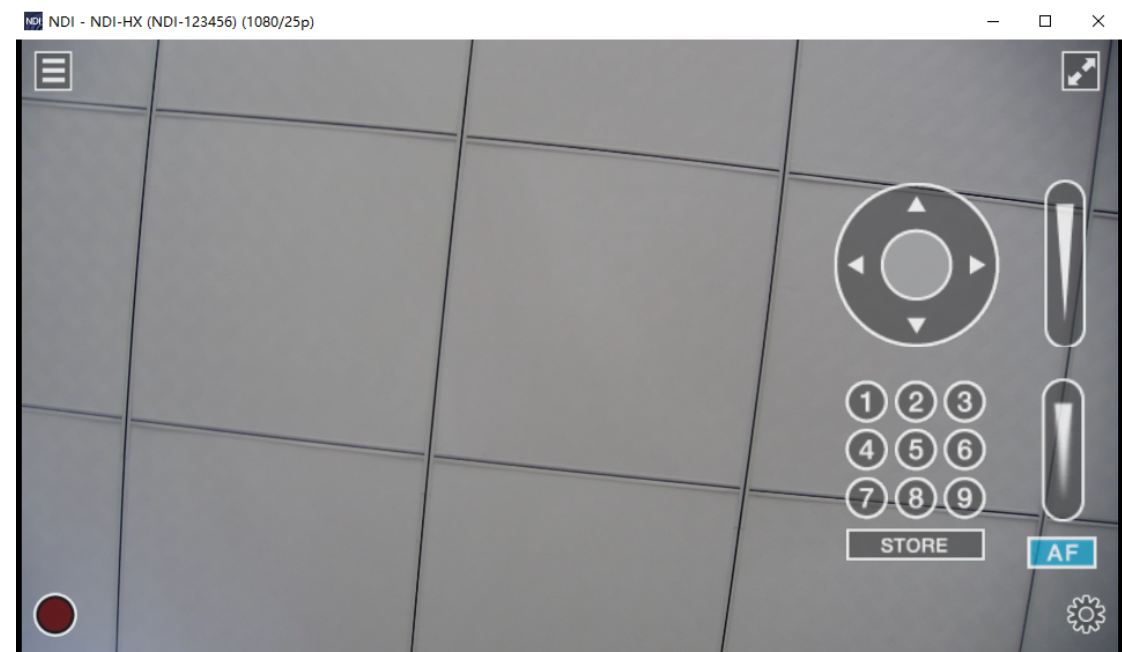
5. Enable NDI | HX on Admin Webpage

Login on the webpage by NEW camera IP address

6. Test NDI|HX Camera with NDI Studio Monitor (the software is available on NewTek website)

8. NDI|HX Camera Video Encode and Audio Configuration

● **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
Notes: The higher the Bitrates, the better the image quality

9. Audio Configure

Recommended audio settings: AAC 48000KHz / 64kbps

NDI | HX supports AAC format only

10 Notes:

❖ High and low bandwidth mode are open at the same time, customers can switch according to different occasions.

❖ 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, 720P 50

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

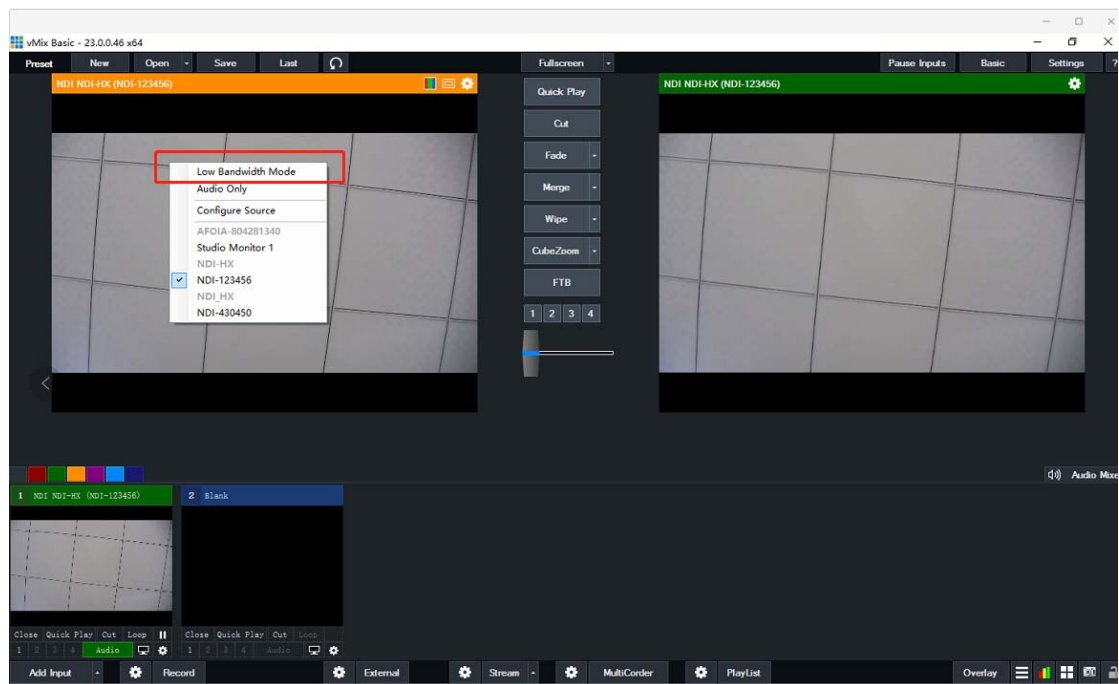❖ Video encoding frame rate is 60, then set the video out format as 1080P60 or 720P60

10.   NDI|HX Camera & vMix

Firmware requirement: vMix23 and above
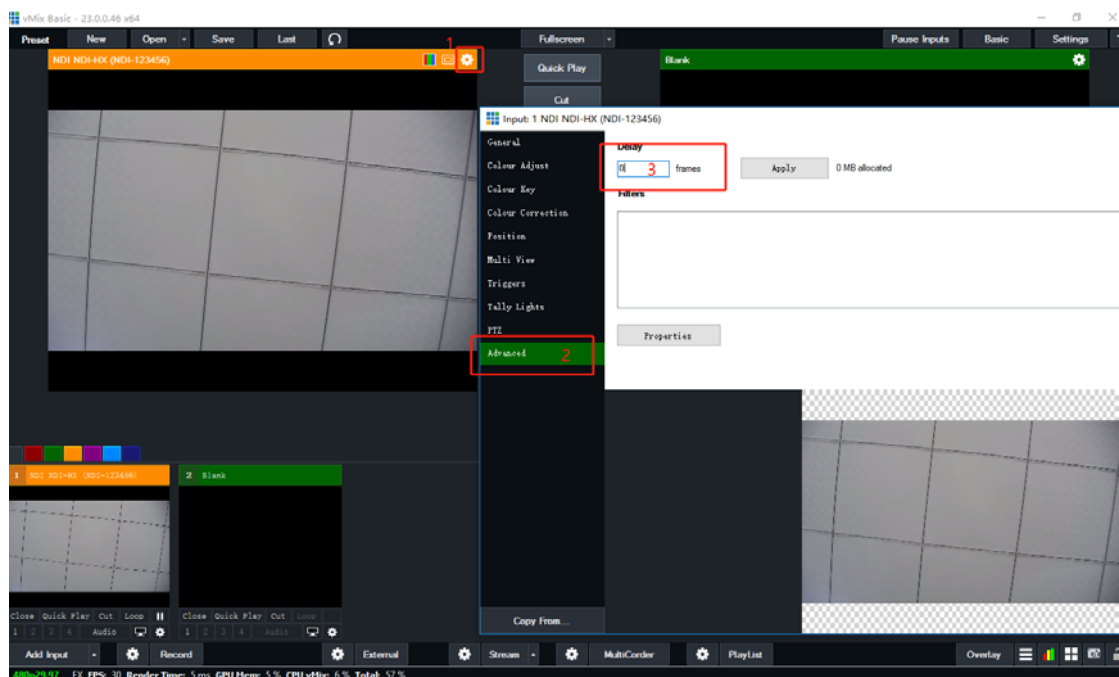
1) Open vMix23, add NDI source
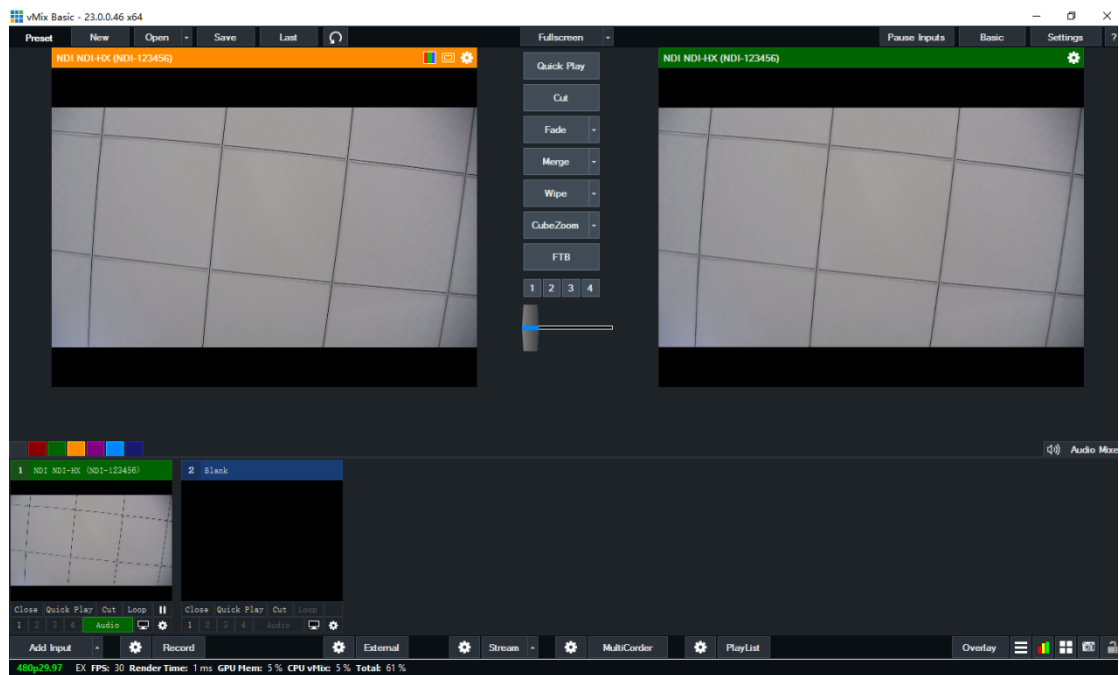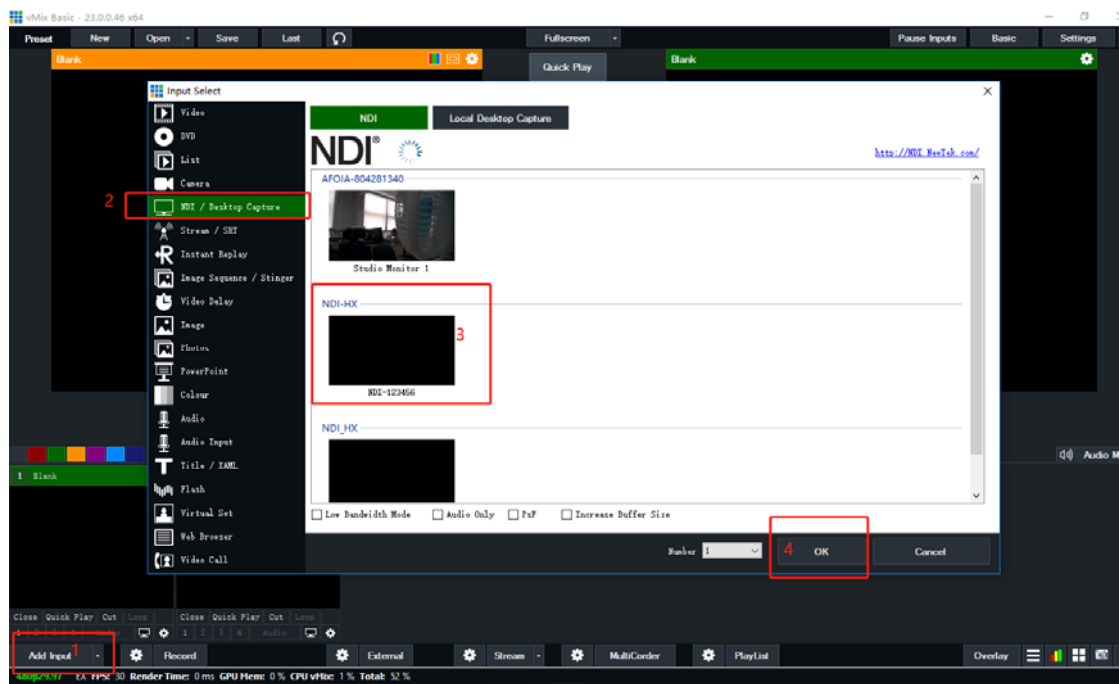
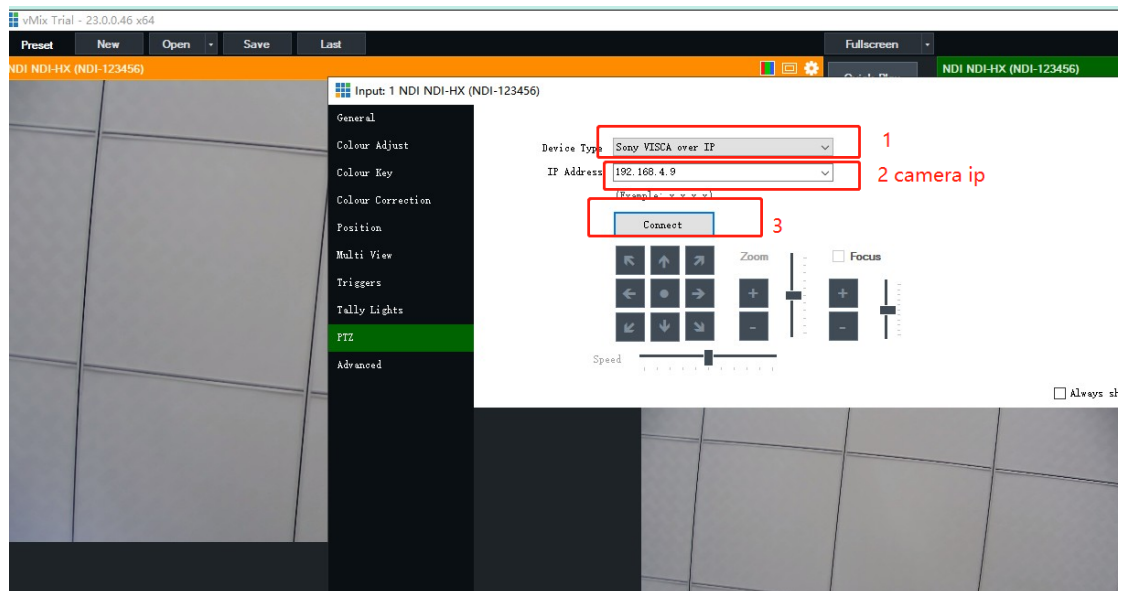2) Select Low Bandwidth Mode

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

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.

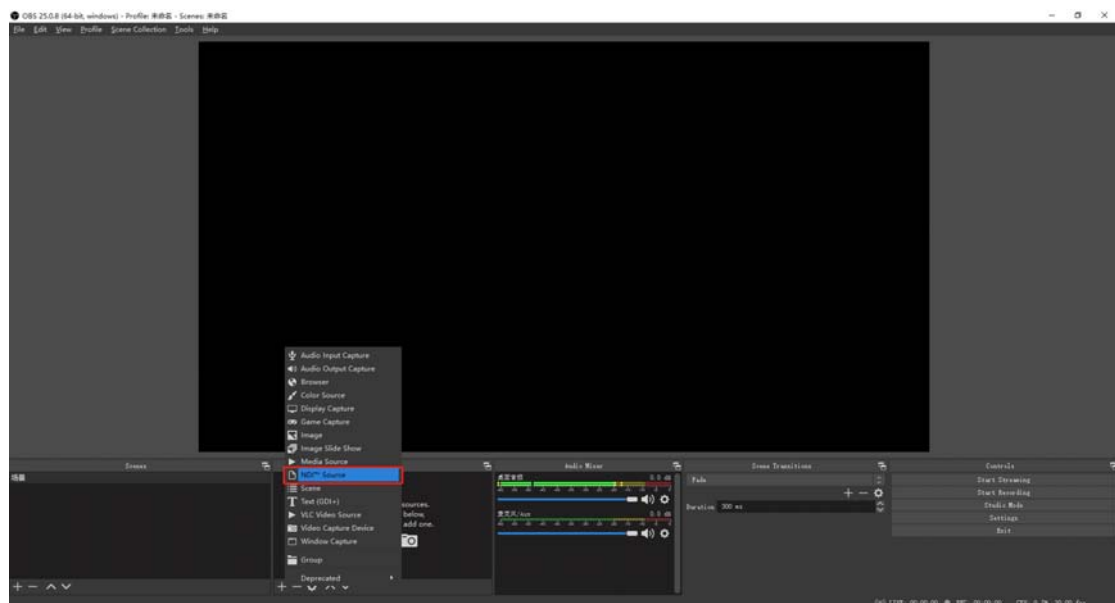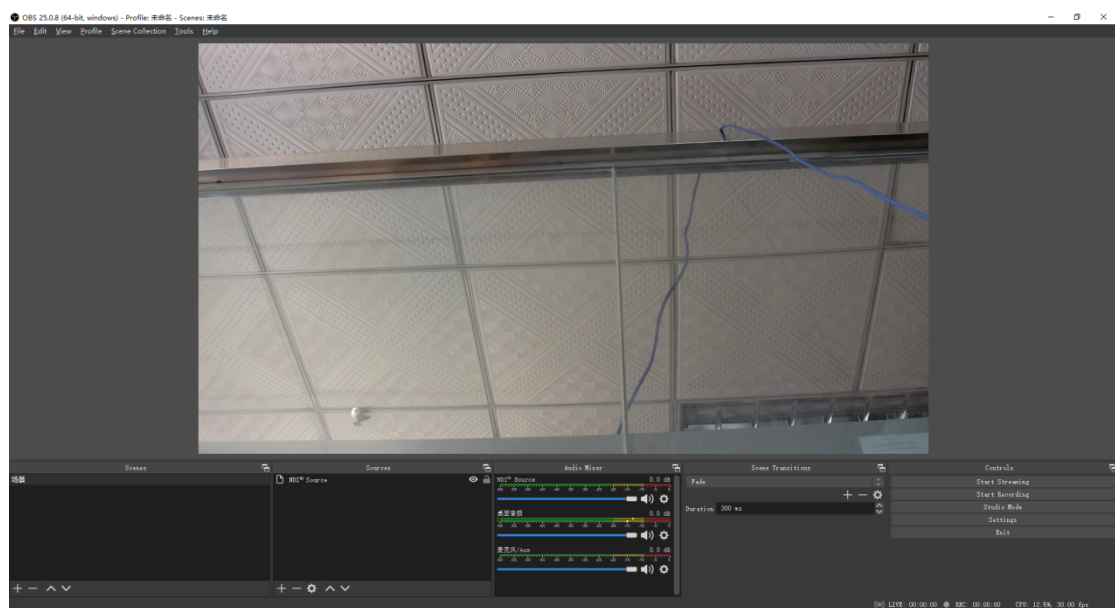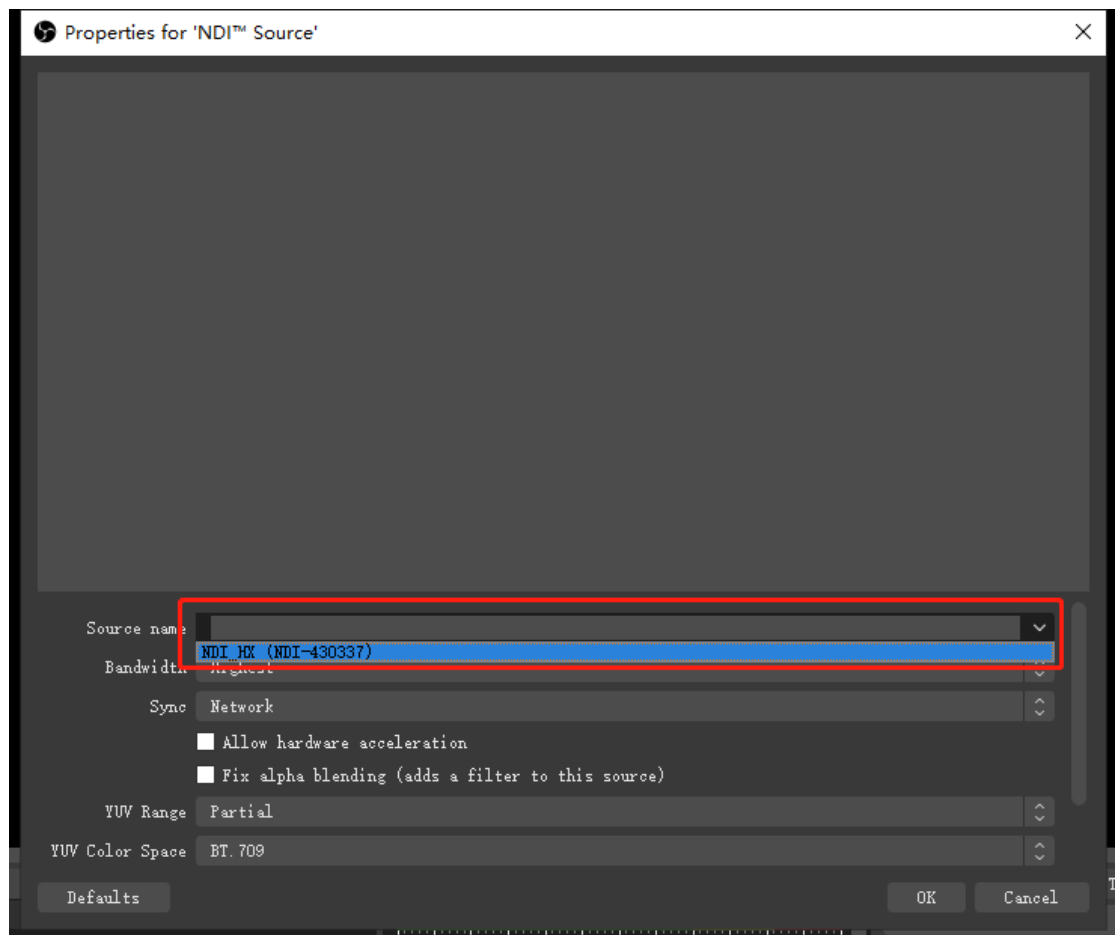4) PTZ – Device type: Sony VISCA over IP – IP Address: camera IP - connect

11. NDI|HX Camera & OBS

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

https://github.com/Palakis/obs-ndi/releases/tag/4.7.0
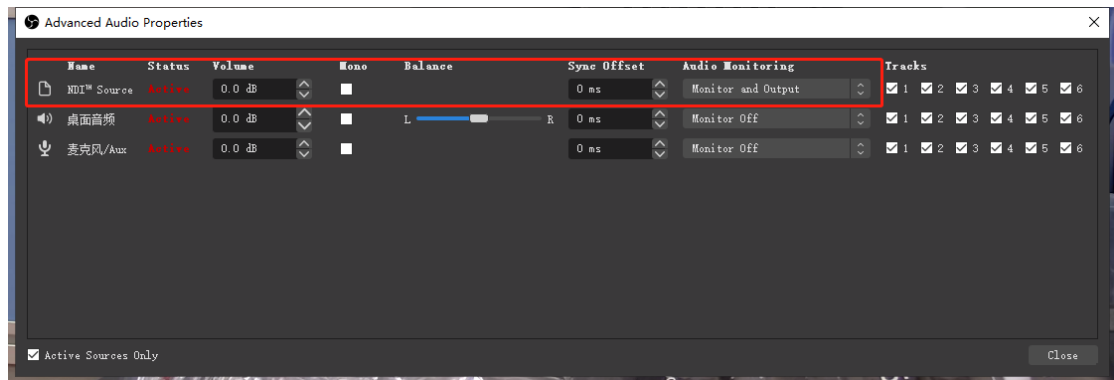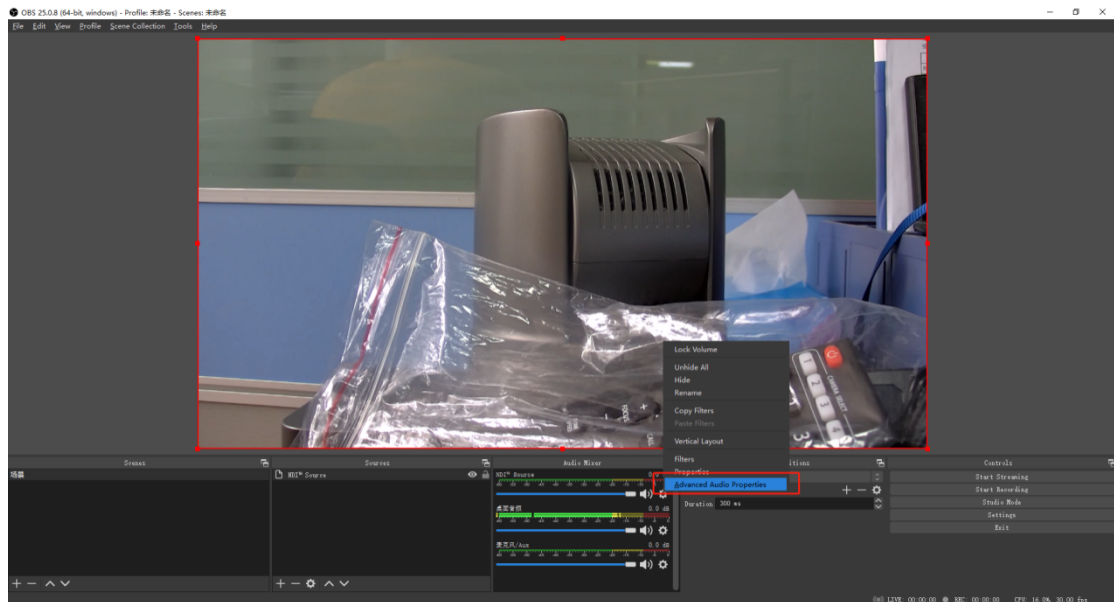
2) Add NDI source

3) Enable Audio

5. Q&A (Trouble Shooting)

- Problem: 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.2 part (NDI|HX Camera Video Encode and Audio Configuration) on page 4.

- Problem: NDI|HX is able to search the source, but can't get the image?

A: Please refer to the No1. Part on page 2.

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

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

- Q: Minrray NDI camera is NDI|HX or FULL NDI?

    A: NDI|HX (H264, H265)

    H.265 is only supported by the latest version of NDI 4.5.2. If you need NDI 4.5.2, pls contact us for having new firmware.

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

    A: NDI signal transmitting is over IP/network, pls make sure your network is good and stable. Decent network will give you good performance.

- How much Bandwidth does NDI HX use?

Bitrate: 0Mbps	Bitrate(mbps)	Resolution
Lowest	0-6	640×360
Low	7-8	1280×720
Medium	9-12	1920×1080
High	13-22	1920×1080

Minrray International Saels Team

Your best NDI Camera Supplier