Achieving higher quality NDI|HX streams on a PTZOptics G2 camera

By Matthew Davis on 2021.12.03

So you want to begin experimenting with different methods of improving your NDI|HX stream but aren't sure where to get started? Well we have a guide for you to check out to get your creative ideas flowing…

Since NDI|HX relies on the H264 / H265 compression built into the source to produce an NDI|HX feed we can begin to leverage some of the standard tips and tricks associated with those compression methods to achieve higher quality and sometimes even lower latency streams.

If you have a PTZOptics G2 camera capable of sending an NDI|HX stream you can begin experimenting with this right away to see what it could yield for your specific setup.

Let’s start by logging into the web interface of your PTZOptics NDI|HX camera.

Once logged in, navigate to the “**Video**” section of the camera's web interface.

Scroll to the “**First Stream**” settings section.

If your PC is capable of decoding H265 please select H265 in the “**Encode Codec**” drop down menu; otherwise please select H264.

For our initial test we will use a “**Resolution**” of 1280x720

For our “**Bitrate**” let’s max it out at 20,480

Set the “**I-Key Frame Interval**” for a setting of 2

Finally make sure the “**Bitrate Control**” is set for CBR for Constant Bitrate

All other settings can stay untouched as they will not impact our test; just make sure to click **SUBMIT** to commit changes before rebooting the camera.

Navigate to the “**System**” section of the camera's web interface and reboot the camera.

The last few steps here will relate to the NDI|HX decoding solution where you will want to enable “**lowest latency**” mode as can be found in NDI Studio Monitor in the Settings → Video section of the applications interface.

Once the steps above have been completed you should now be able to connect to the camera to receive higher quality content than was previously available and these adjustments may also have the side benefit of offering lower latency connections between your production solution and the camera.

We hope you enjoy playing with these settings to explore what NDI|HX on PTZOptics products can do for you today!

Some things to consider…

- H264 vs H265
    - H264 will enable the utmost compatibility
    - H265 will typically require an OS license but will yield higher quality results
- Additional Bandwidth
    - Previously NDI|HX streams would consume ~12 Mbps per video feed
    - Under this setup NDI|HX will be consuming 20+Mbps per video feed
- Additional Processing Power
    - This setup will require that your PC performs additional processing so the load on your CPU / GPU will be higher than before
- Resolution & Frame Rate Considerations
    - The lower the resolution and frame rate (1080@60 vs 720@30) the higher the quality you will be able to receive via NDI|HX due to our constrained bitrate options.
    - This same theory can be tested with resolutions and frame rates up to 1080@60 but will yield less drastic improvements to the quality.
- Clear it all away
    - You can always easily restore the camera to using the more standard settings by selecting from the "**NDI Preset**" options on the "**Video**" section of the cameras web interface, applying and then rebooting the camera.
- Focus
    - It may be worth performing the PTZOptics Focus Calibration before beginning any testing, not a requirement though.