Technical Guide | SRG-XP1/XB25

NDI®|HX introduction

Version 1.1

SONY

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1. Overview

This document explains typical Procedures and Tips for the NDI®|HX connectivity when using Sony's Color Video Camera SRG-XP1/SRG-XB25.

Services and software provided by other companies

- Separate terms and conditions of use may be applied.
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- Services and software content are subject to change without notice.
- Separate registration and/or payment may be required.

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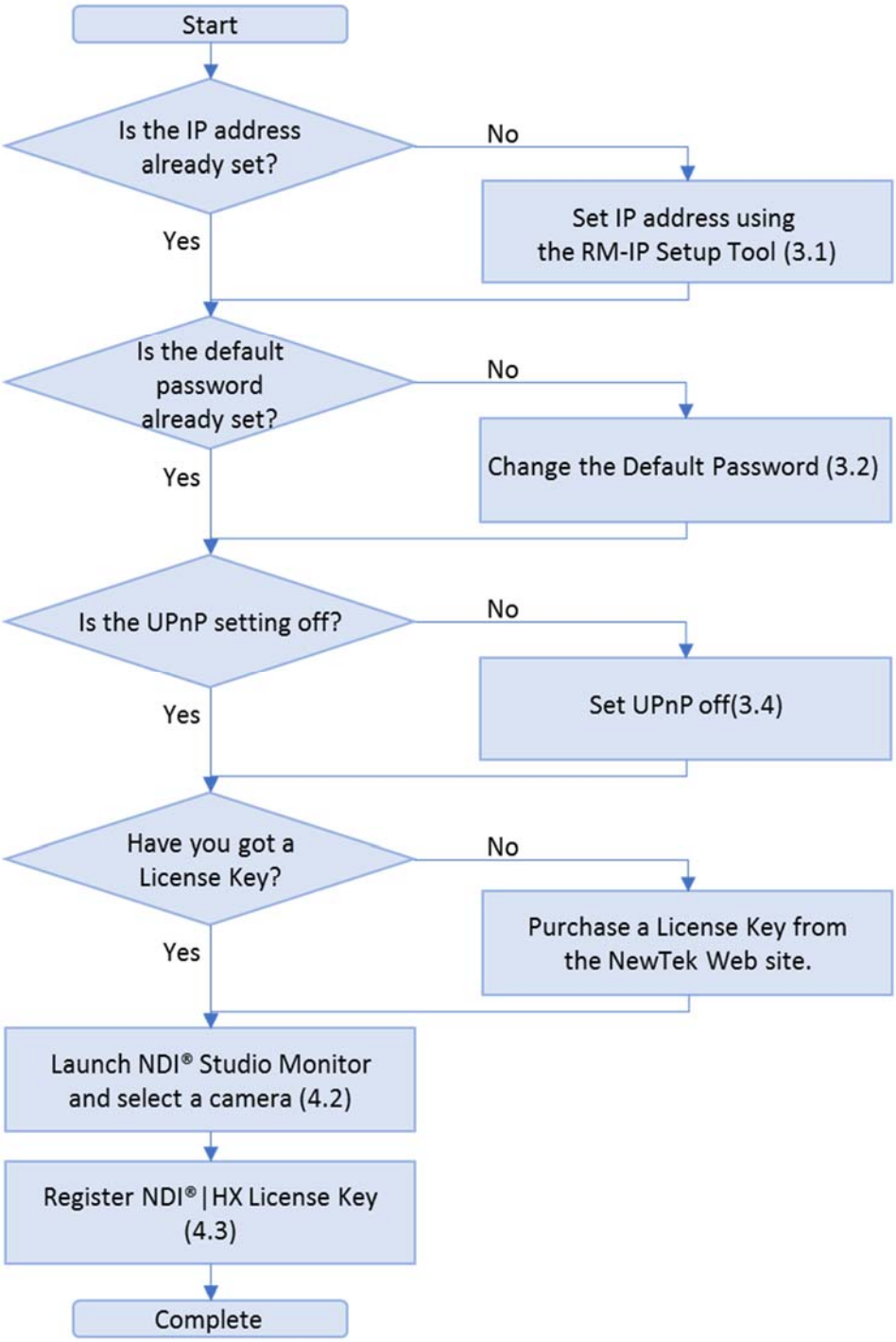
Please setup NDI®|HX network connection under following disturbance condition.

- Packet Loss : < 1%
- Latency : < 100ms

2. Flowchart

The flowchart shows outline of the procedure for enabling the NDI®|HX connectivity function of the camera described in the following chapter.



3. Pre-configuration Settings

This section describes some pre-configuration settings you will need before activating the NDI®|HX function for the SRG-XP1/XB25.

3.1. Set IP address by using the RM-IP Setup Tool

For IP communication, the IP address needs to be set. You can use RM-IP Setup Tool to assign IP address to the camera. Please refer to the RM-IP Setup Tool Guide for more details.
The NDI® Tools (provided by NewTek on the NewTek web site) will detect a Camera by using “Name” filed data displayed on the RM-IP Setup Tool. When you use the NDI®|HX function for multiple cameras, it is recommended to change the “Name” in advance. The default camera Name is “CAM1”.

[Note]
The DHCP setting cannot be enabled from the RM-IP Setup Tool.

3.2. Change the default password

When the procedure of 3.1 and 3.2 are performed, HTTP access to the camera is available. Please change the default password (initial password) according to the Operation Manual of the Camera.

Ref). The section of [Accessing the Camera from a Web Browser]-[Changing the Initial Password] of the Camera’s Operation Manual.

3.3. Camera’s Codec Setting

The NewTek NDI® System acquires a video stream with an appropriate resolution as needed.
In the case of Sony SRG-XP1/XB25, Image 1~3 channels are used. Codec configurations such as respective channels' image size and frame rate etc. are automatically determined depending on "Ouput type" setting when NDI functionality is enabled as follows.

SRG-XP1/XB25

Video Out Reslotion	NDI®		
	Image 1	Image 2	Image 3
	HEVC	H264	H264
3840x2160 / 59.94p	3840x2160 / 59.94p	-	640x360 / 29.97p
3840x2160 / 50p	3840x2160 / 50p	-	640x360 / 25p
3840x2160 / 29.97p	-	3840x2160 / 29.97p	640x360 / 29.97p
3840x2160 / 25p	-	3840x2160 / 25p	640x360 / 25p
1920x1080 / 59.94p	-	1920x1080 / 59.94p	640x360 / 29.97p
1920x1080 / 50p	-	1920x1080 / 50p	640x360 / 25p
1920x1080 / 29.97p	-	1920x1080 / 29.97p	640x360 / 29.97p
1920x1080 / 25p	-	1920x1080 / 25p	640x360 / 25p
1280x720 / 59.94p	-	1280x720 / 59.94p	640x360 / 29.97p
1280x720 / 50p	-	1280x720 / 50p	640x360 / 25p

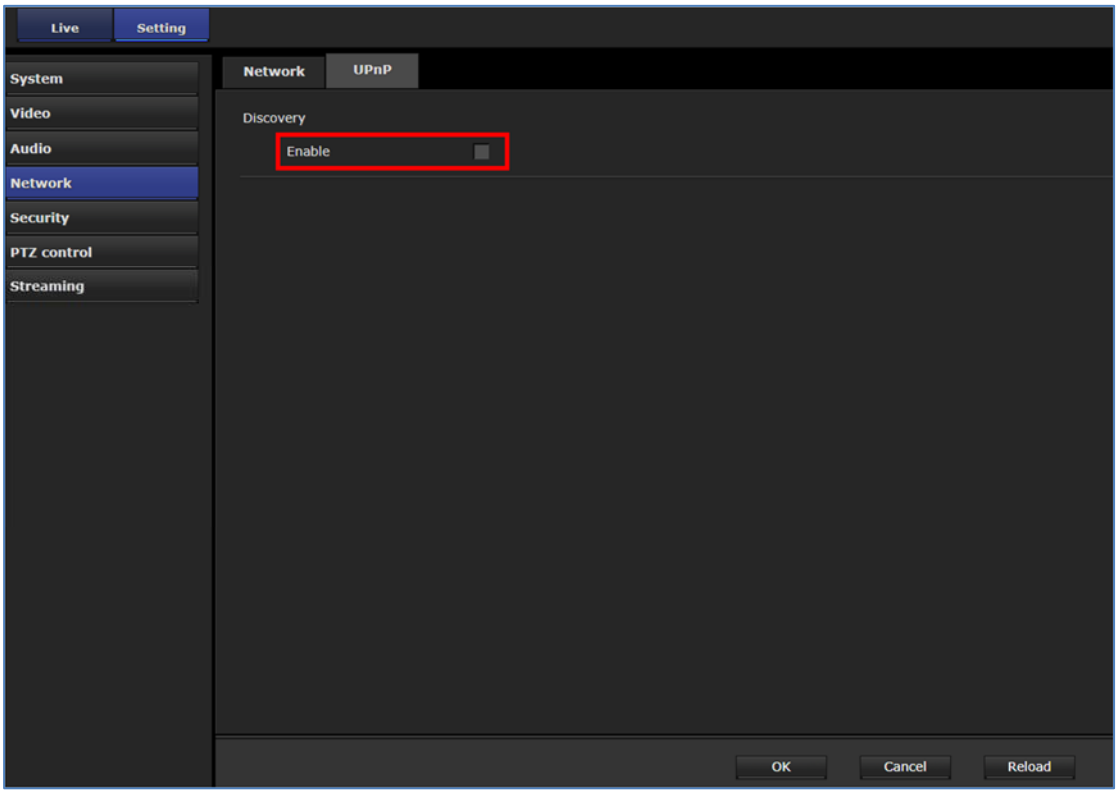
NDI® Resolution	NDI® frame rate	Encoder Type	Bitrates M/bps
3840x2160	59.94p	HEVC	32
3840x2160	50p	HEVC	27
3840x2160	29.97p	H.264	21
3840x2160	25p	H.264	19
1080p	59.94	H.264	16
1080p	50	H.264	14
1080p	29.97	H.264	11
1080p	25	H.264	10
720p	59.94	H.264	10
720p	50	H.264	9
640x360	29.97p/25p	H.264	5

3.3.1. Audio Setting

The NDI® system utilizes audio stream also when the camera's audio output setting is enabled.
Enable/disable the audio transmission function regarding the use case.
The related settings are in the [Audio] tab on the [Audio] page of the administrator menu.

3.4. UPnP Setting

Disable UPnP function from the UPnP setting page of the camera webpage before registration the NDI®|HX as below figure:


Live
Setting
System
Video
Audio
Network
Security
PTZ control
Streaming
Network
UPnP
Discovery
Enable
OK
Cancel
Reload

3.5. NDI® Tools download/installation

To activate NDI®|HX function of the camera and connect to NDI® products via NDI®|HX function, the NDI® Tools provided by NewTek needs to be installed on a PC.

NDI® Tools is available from the following site.

https://ndi.tv/tools/

Once NDI® Tools is installed, the software below will be available for the Windows OS.

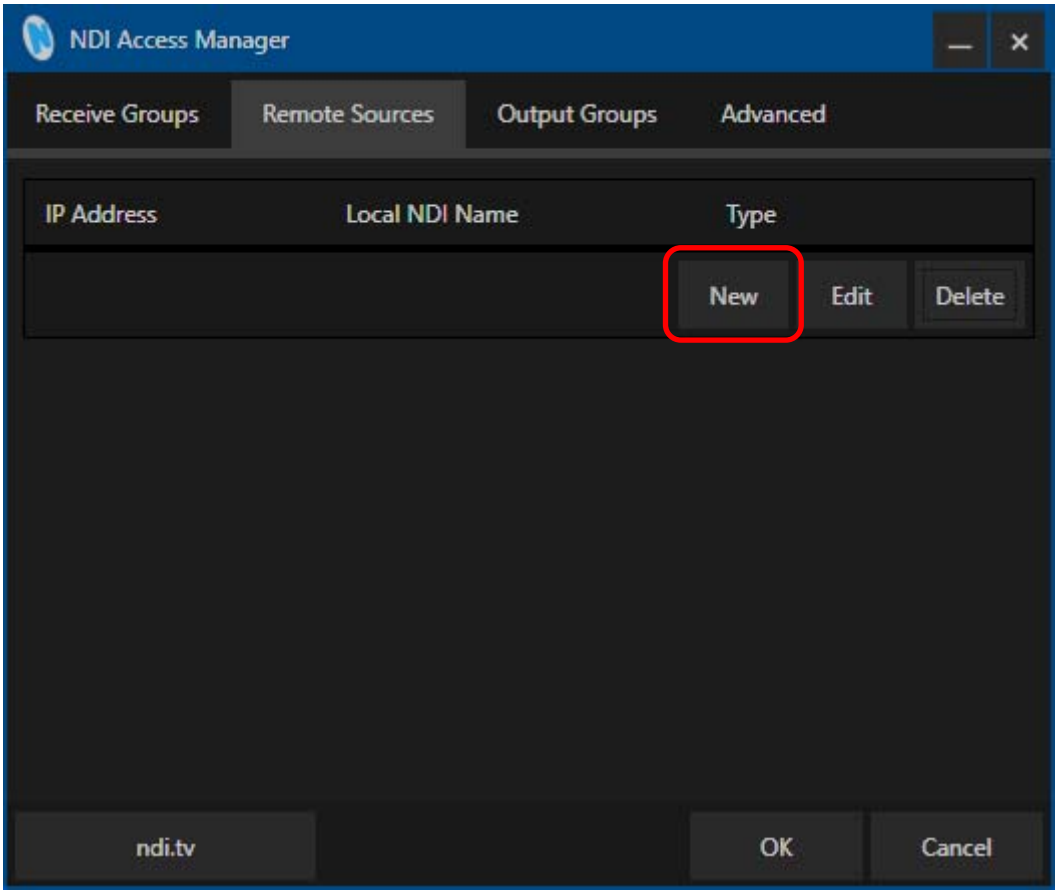
- Access Manager
- Scan Converter
- Studio Monitor
- Test Patterns
- Virtual Input

3.6. Remote Source settings via Access Manager

The Access Manager tool allows you to configure the connection settings for remote sources (NDI® media sources connected to the network) in the NDI® system.

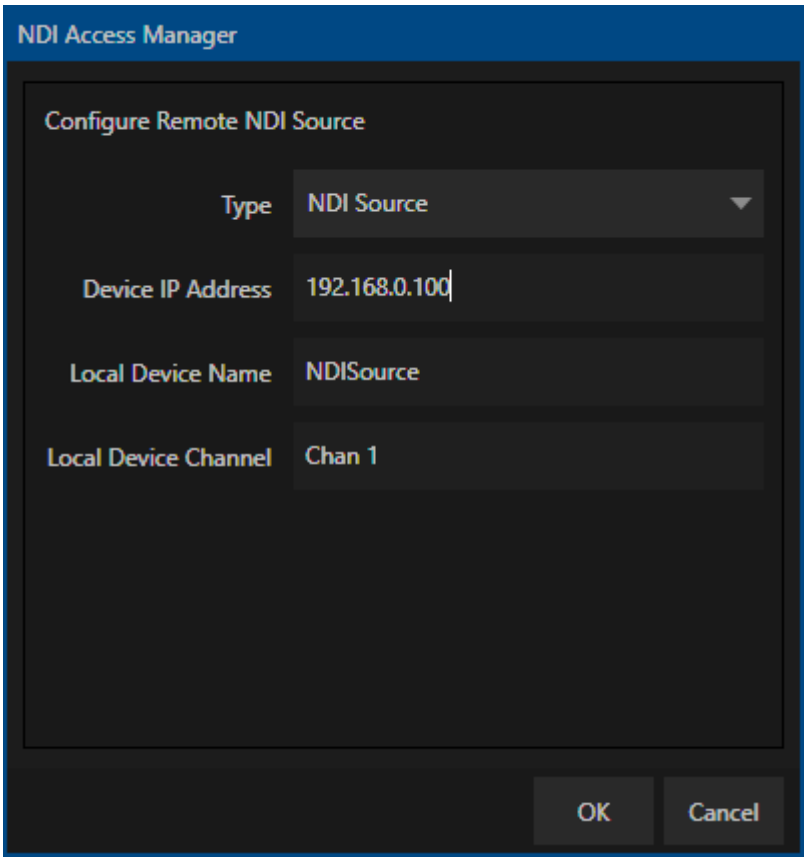
- Stop Studio Monitor
  When NDI® Studio Monitor is launched before starting the Access Manager, stop and close all the NDI® Studio Monitor windows.

- Launch Access Manager
  Launch Access Manager. Go to the [Remote Sources] tab.



Click the [New] button to register the camera access settings. Use the following settings in the new dialog box.

- Type: Select NDI from the menu option.
- Device IP Address: Input camera's IP address
- Local Device Name: Specify the list name displayed when selecting the source of the NDI® system. (The default name is NDI Source).
- Local Device Channel: Specify the name to be displayed in the above Local Device Name list.

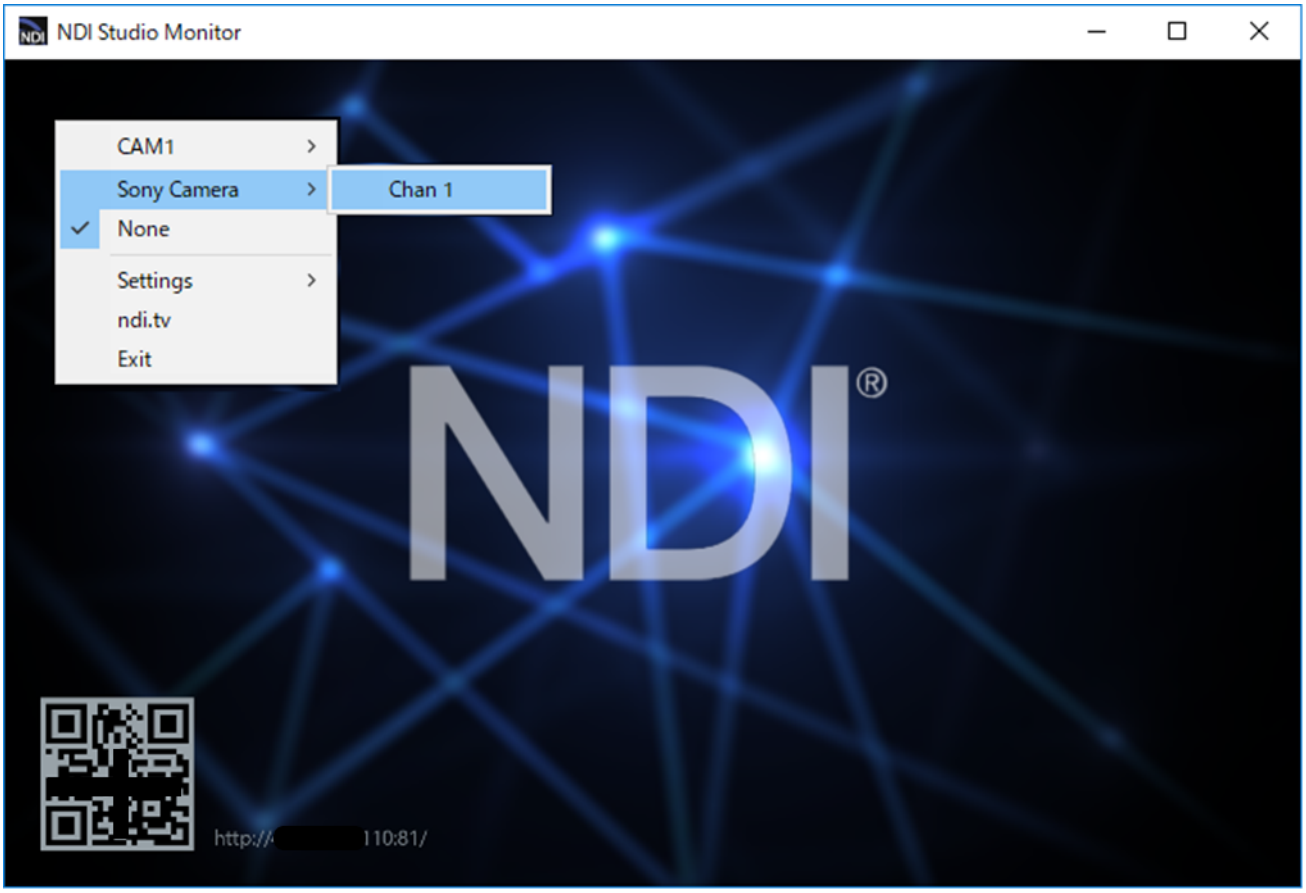


When the entry set in the list on the Remote Source tab has been created, press [OK] to exit the Access Manager.

- Launch Studio Monitor to confirm

  Launch NDI® Studio Monitor. When opening the Studio Monitor, move the cursor into the Studio Monitor window and right-click. Make sure that the entry is visible in the NDI source list as [Local Device Name] -> [Local Device Channel].

  If it is not confirmed, stop all the NDI® Tools, launch the Access Manager again and check the settings.


NDI Studio Monitor
CAM1
Sony Camera
Chan 1
None
Settings
ndi.tv
Exit
NDI®
http://[redacted]110:81/

4. NDI®|HX License Key Registration

The NDI®|HX License Key registration is required for the camera to be workable with its NDI®|HX function.
You can purchase the NDI®|HX License Key from the following NewTek URL.

http://new.tk/ndi_sony

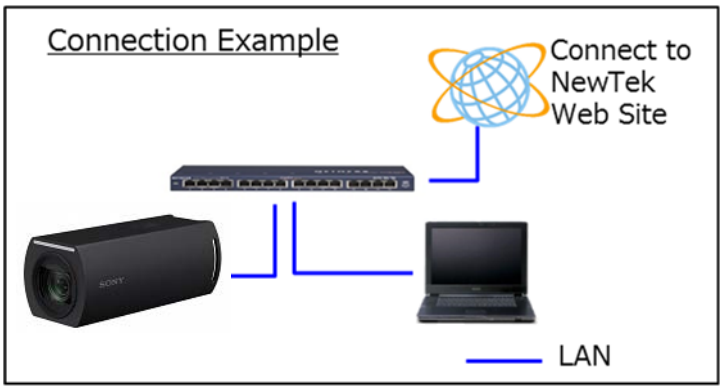
The following describes the registration procedure after successfully purchasing the License Key.
Note:

After NDI®|HX License Key is registered to camera, we can use only NDI streaming. We will not be able to use other streaming method which can be used before. (RTSP[Unicast, Multicast], RTMP, MPEG-TS and SRT)

Lisence key can't be deleted by "factory default". So, once we regisered it, we can't remove.

4.1. Connect to the Internet

Connecting to the Internet is required when you register a license key.



4.2. Launch NDI® Studio Monitor and select a camera

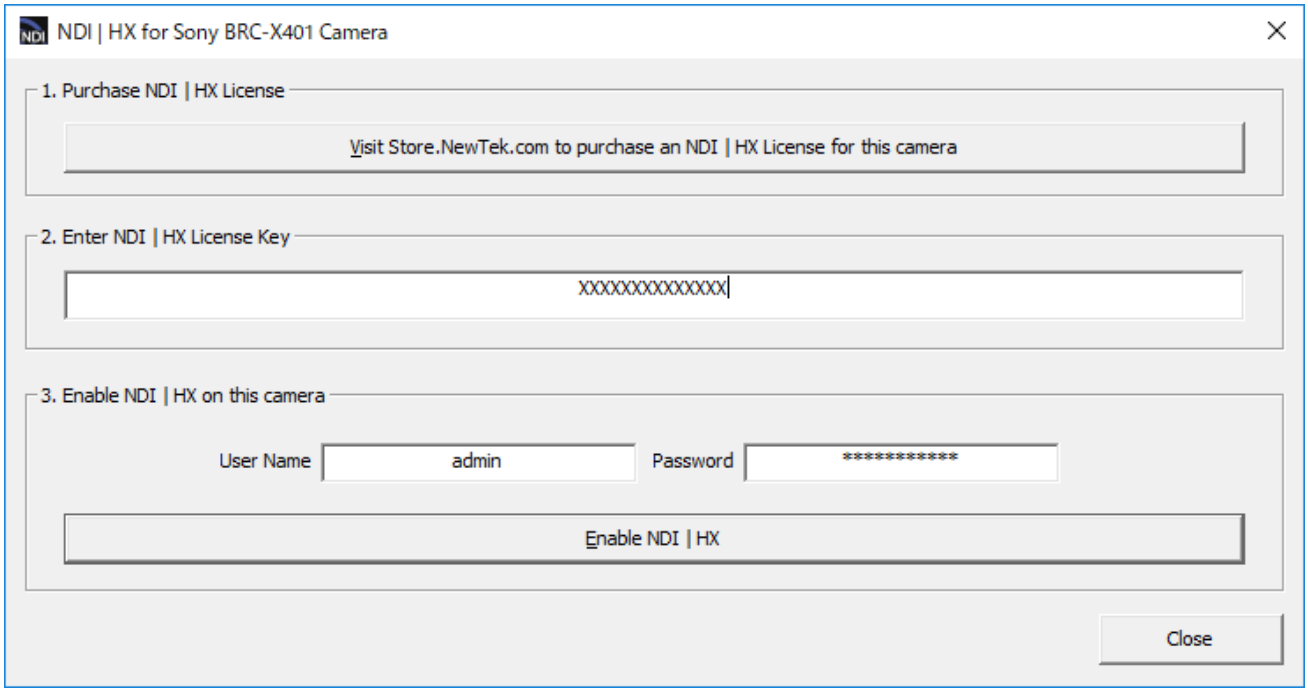
Launch the NDI® Studio Monitor, and move the mouse cursor in the window and right click. The cameras that can be connected via NDI® on the network are displayed in the list.

When the remote source setting by the Access Manager shown in the Section 3.6 is performed, the corresponding camera is displayed as [Local Device Name] -> [Local Device Channel].
If the remote source is not set by the Access Manager, the Camera name set in the Section 3.1 (default value is “CAM1”)-> Channel 1, <IP address> will be displayed.

Select (left-click) the camera. A screen window that asks you to register the NDI®|HX License Key is displayed as shown below.

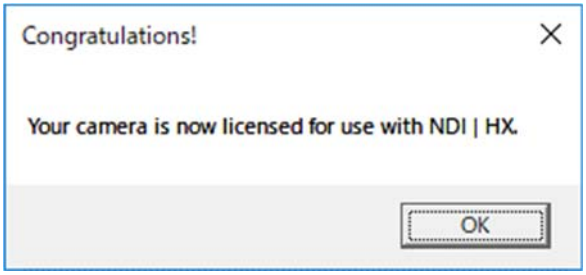
4.3. Register the NDI®|HX License Key

Click the [REGISTER] button at the bottom right of the screen window displayed as above, and register the License Key.
Click the button to register the License Key. When the button is pressed, the following dialog box will appear.



You can purchase a license via the above link of [1. The Purchase NDI®|HX License]. (http://new.tk/ndi_sony).
Enter the key string obtained by purchasing a license into [2. Enter NDI | HX License Key]. (Sample capture shows XXXX…).
Enter Camera's user name and password in the field of User Name and Password in [3. Enable NDI®|HX on this camera] and click the [Enable NDI®|HX] button.

When the registration succeeds, the following dialog will pop up.



When you click the [OK] button, NDI® Studio Monitor shows the video of the corresponding camera.
You can see that the NDI®|HX function has been activated.

5. CGI command related to NDI®|HX

Set: command/ndi.cgi?<Parameter>=<Value>

Inq:command/inquiry.cgi?inqjs=ndi

Parameter	Set Inq	Value	Deacription
NDICameraName	Inq	0～8 characters	Returns the camera name.
NDIRegistKey	Set Inq	0～32 characters	Used for NDI connection. Do not use directly.

6. Troubleshooting

- When starting NDI ® Studio Monitor, yet no cameras are detected and therefore there is no camera listed in the camera list on the NDI® Studio Monitor.

  [Case-1] Depending on your computer environment (Windows PC), the device detection mechanism may be filtered due to personal firewall settings or anti-virus settings, and the camera may not be detected. In such a case, please review the security settings of your computer or perform remote source setting by using Access Manager as described in the Section 3.6.

  [Case-2]
  There is a report that device detection does not work properly if a network adapter called “Loopback Adapter” is configured on your computer (Windows PC). Installing the software called “Wireshark” may configure a network adapter called “Npcap Loopback Adapter”. If you want the device detection mechanism of NDI® Studio Monitor to work, disabling this network adapter may solve the problem.

- The NDI®|HX License Key registration failed even when the [Enable NDI®|HX] button was pressed.

  [Case-1]
  When registering an NDI®|HX License Key, your computer (the computer on which NDI® Studio Monitor is installed) needs to be connected to the Internet. If the camera and the computer are installed in a corporate network, make sure that the proxy server settings on the computer are properly set.

  [Case-2]
  Once a License Key has been registered to a camera, it cannot be registered to another camera. Please purchase a separate license for each NDI®|HX camera.

- The NDI®|HX License Key registration was successful, but the camera image after registration is not displayed, and the monitor window is black.

  [Case-1]
  This issue will occur when the remote source setting by Access Manager described in Section

3.6 is not performed with the RTSP authentication setting on the camera “On”.
Here is some background information on what is occurring. NDI® Studio Monitor tries to make an RTSP connection to the camera and the camera requests authentication information, but NDI® Studio Monitor does not know the necessary authentication information, then it will repeat connection failures.
Once this issue occurs, the “brute force attack protection” function of the camera may be activated in some cases. If there is continuous accessing that causes an authentication error, the computer will be recognized as an “illegal client” and the accessing from that computer will not be allowed for a certain period of time.
If this symptom occurs, please stop NDI® Studio Monitor immediately and wait for about a minute (in the case of the camera default setting). After that, please input the information for the camera as described in Section 3.6. Finally, quit Access Manager and restart NDI® Studio Monitor to access the camera.

- The video playback on the NDI® Studio Monitor is not smooth or sometimes freezes.
  This issue may be due to the performance of your computer or the network environment.

  [Case-1]
  This issue may be improved by using the hardware acceleration function of your computer (Windows). Open NDI® Studio Monitor, and choose the context menu, then check Allow H/W Acceleration under [Settings] -> [Video].

  [Case-2]
  Ensure you have a Gigabit Ethernet connection as insufficient bandwidth may be an issue. Please make sure that the network connection is good to at least meet the following conditions.
  - Packet Loss : < 1%
  - Latency : < 100ms

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