SONY

ILME-FR7

NDI®|HX Introduction

Technical Guide

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1. Overview

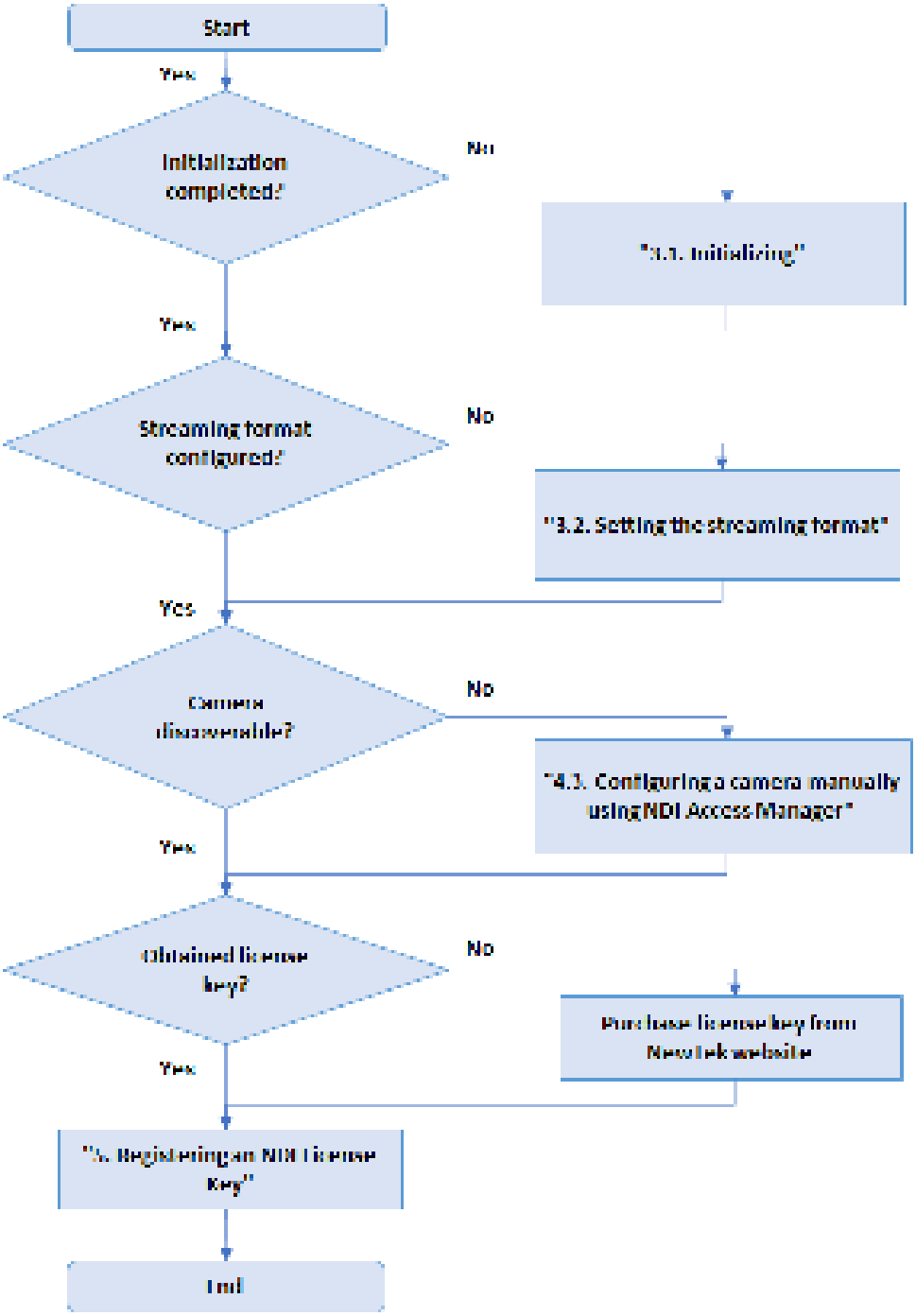
This document describes the procedure for enabling NDI®|HX connectivity (referred to as the NDI®|HX function) developed by NewTek Inc., on the Sony ILME-FR7 Interchangeable Lens Digital Camera. Hereinafter, the ILME-FR7 is referred to as the "camera" or the "unit."
* NDI®|HX refers to high efficiency low bandwidth NDI®|HX.

1.1. About 3rd-party services and software

- Different terms of use may apply.
- The provision of services and software updates may be interrupted or terminated without notice.
- The description of services and software is subject to change without notice.
- Separate registration and subscription may be required.
- Sony will not be liable for any claims made by users or a third party due to the use of services and software of other companies.

2. Flowchart

This section describes the basic procedure for enabling the NDI®|HX connection function of the camera using a flowchart.



3. Preconfiguring

Some preliminary settings, such as initializing the unit and setting the streaming format, are required in order to enable the NDI®|HX function of the unit. These preliminary settings are described below.

3.1. Initializing

The administrator password and the date/time must be configured during the initial setup of the unit.
Configure the initial settings as described in "Accessing the Web App from a Web Browser" and "Initializing the Unit" in "Initializing the Unit Using the Web App" in the Help Guide.

3.2. Setting the streaming format

Set the streaming format to [NDI|HX] using the following procedure.

1. Select [Stream] > [Stream] > [Stream Setting] > [Setting] in the web menu and select [NDI|HX] from the list.
2. Click the [OK] button.
   The streaming format is set to [NDI|HX].

Notes

- Entering the name of the unit in the [Source Name] field is recommended so that the unit can be easily identified when searching for NDI devices.
- For details, refer to "Setting the Streaming Format" in the Help Guide.

4. Searching for Cameras using NDI Tools

After configuring the initial settings and streaming format, search for the unit using NDI Tools from NewTek on your computer.

4.1. Downloading and installing NDI Tools

To enable the NDI®|HX function of the camera for connecting to NewTek NDI products, NDI Tools from NewTek must be installed.
NDI Tools can be downloaded and installed from the following site.
Select the operating system for your computer, then download and install NDI Tools.
https://ndi.tv/tools/

When NDI Tools is installed for the Windows operating system, the following software becomes available.

- NDI Access Manager
- NDI Bridge
- NDI Remote
- NDI Screen Capture
- NDI Studio Monitor
- NDI Test Patterns
- NDI Webcam

Notes

- When installing NDI Tools, you may be required to enter some user-related information. Install the software at your own risk.
- During the NDI Tools installation, the License Agreement appears. Check the contents and click the [I accept the agreement] button to install NDI Tools. NDI Tools cannot be installed if you do not accept the agreement.

4.2. Searching for cameras using NDI Studio Monitor

Once the NDI Tools installation is completed, NDI Studio Monitor becomes available. You can search for and monitor NDI-compatible devices and register a license key for those devices using this tool.

This procedure checks whether a device, on which the initial settings and streaming format have been configured, is discoverable.

1. Launch NDI Studio Monitor.
2. Right-click in the window screen.
3. Check whether the camera name is displayed in the context menu.
   The camera name is displayed in ILME-FR7-[serial number] format.
   You can check the name configured as the source name by selecting the camera name.

Note

Whether or not the camera is detected as shown above will depend on your network environment. If the camera is not detected, the following issues may be the cause.

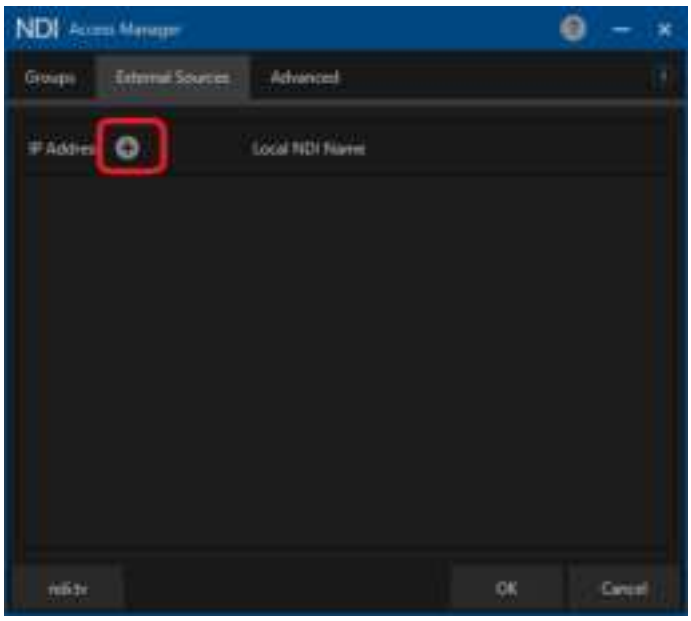
- The camera and the computer on which NDI Tools is installed are not on the same network
- The router connection between the camera and the computer on which NDI Tools is installed does not support multicast communication
- The router and switch devices do not support mDNS
- Device discovery traffic is blocked by the computer firewall or security settings

If the problem persists after checking the above possible causes, configuration using Access Manager may be required. See "Configuring a camera manually using NDI Access Manager" (page 7).

4.3. Configuring a camera manually using NDI Access Manager

Manual registration of a camera using NDI Access Manager may be required even when the streaming format is set [NDI|HX] if the camera cannot be detected during device discovery using NDI Studio Monitor.
Use the following procedure for registration.

1. Check the IP address using [Network] > [Wired LAN] > [IP Address] in the web menu of the camera.
   Make a note of the IP address of the camera. You will need it later in the procedure.
2. Exit NDI Studio Monitor.
   Close all NDI Studio Monitor windows before launching NDI Access Manager.
3. Launch NDI Access Manager.
4. Click the [External Sources] tab.
5. Click [IP Address] > [+].



   A dialog for configuring an external NDI source appears.
6. Select [NDI] for [Type] and enter the IP address from step 1 in [Device IP Address].

7. Click the [OK] button.
8. Next, close all NDI Access Manager windows.

9. Launch NDI Studio Monitor.
10. Right-click in the window screen.
11. Check whether the camera name is displayed in [Local Device Name] > [Local Device Channel] in the context menu.

Notes

- If the corresponding camera cannot be detected, exit all NDI Tools, then launch NDI Access Manager again and check the settings.
- Make sure to select [NDI] for [Type] when registering the unit using NDI Access Manager. Do not select [Devices] > [Sony].
- DHCP is set to On by default in the network settings of the unit. Depending on the network environment, the IP address assigned by the DHCP server may change. If this occurs, review the NDI Access Manager setting or consider configuring the IP address of the camera with DHCP set to Off.

4.4. Setting the codec of the camera

The NewTek NDI system can obtain a video stream at the appropriate resolution as required. The unit supports [Video Stream 1] and [Video Stream 2] channels.
The recommended codec settings when using the NDI®|HX function are shown below.

4.4.1. [Video Stream 1] recommended settings

The [Video Stream 1] settings are for the channel that is used in an NDI system when a "high resolution/high quality" stream is required.

- [Codec 1]: [H.264] or [H.265]
- [Size 1]: [4096×2160], [3840×2160], or [1920×1080]
- [Frame Rate 1]: Configurable maximum frame rate
- [Bit Rate Compression Mode 1]: [VBR]
- [Quality 1]: [6]

4.4.2. [Video Stream 2] recommended settings

The [Video Stream 2] settings are for the channel that is used in an NDI system when a "low resolution" stream is required.

- [Codec 2]: [H.264] or [H.265]
- [Size 2]: [640×360] or [512×270]
- [Frame Rate 2]: Configurable maximum frame rate
- [Bit Rate Compression Mode 2]: [VBR]
- [Quality 2]: [6]

4.5. Setting the camera audio

The NewTek NDI system also uses the audio stream if audio output is enabled on the camera. Enable/disable the audio streaming function according to the use case using [Stream] > [Audio Stream] in the web menu.

4.6. Setting the camera tally

The tally lamp can be set to light up when PROGRAM/PREVIEW is selected in the NewTek NDI system.

To use this function, set [Technical] > [Tally] > [Tally Control] to [External] in the web menu of the camera.

5. Registering an NDI License Key

An NDI license key must be registered for a camera to enable the NDI®|HX function.

Purchase of an NDI license key

This section describes how to register an NDI license key on the assumption that you have already purchased an NDI license key.

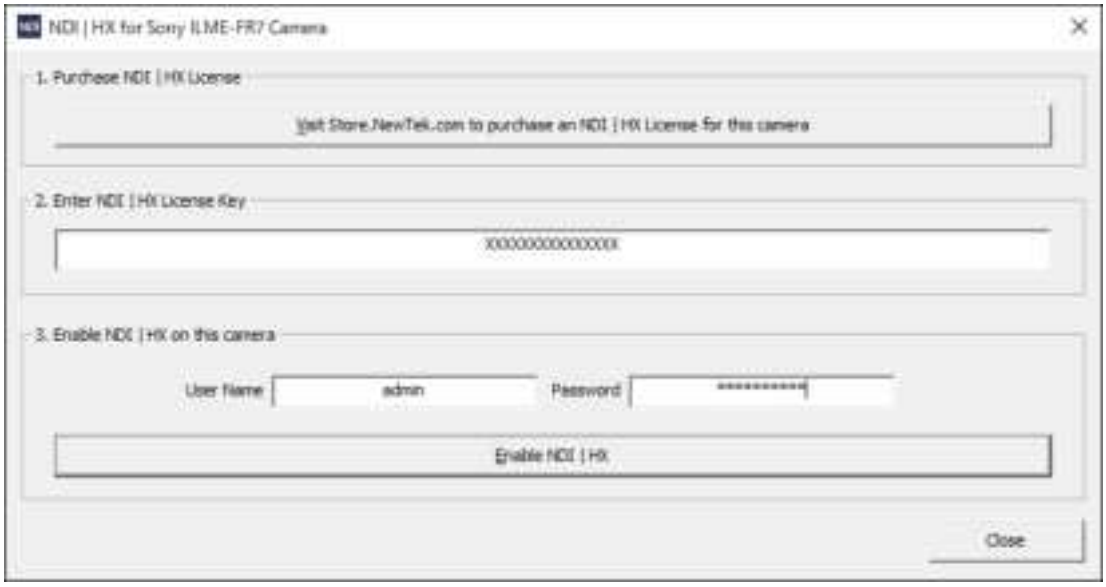
Purchase an NDI license key from NewTek by accessing the page at the following URL.

https://www.newtek.com/ndihx/products/upgrade/

Register the NDI License Key using the following procedure.

1. Launch NDI Studio Monitor.
2. Right-click in the window screen.
   Cameras that support NDI connection and which are connected to the same network appear in the list.
3. Click the desired camera to select it.
4. Click the [REGISTER] button.

The NDI license registration screen appears.



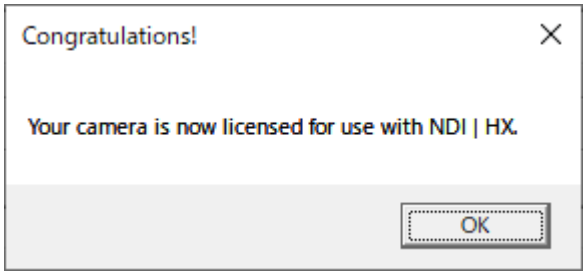
5. Enter the license key that was issued when it was purchased in [2. Enter NDI | HX License Key].

   Note

   This document does not describe the license purchase procedure, but you can purchase a license from the site displayed by clicking the [1. Purchase NDI | HX License] button.

6. In [3. Enable NDI | HX on this camera], enter the camera admin user name in [User Name] and the password in [Password].
7. Click the [Enable NDI | HX] button.

   The following dialog appears if registration is successful.



8. Click the [OK] button.

   The image from the corresponding camera is displayed in NDI Studio Monitor.

The procedure to enable the NDI®|HX function is completed.

6. Troubleshooting

If the configuration is not successful, review the following problems and solutions.

6.1.1. Camera is not detected after launching NDI Studio Monitor and displaying the camera list

Case 1

Depending on your Windows computer, the NDI Studio Monitor device discovery mechanism may be blocked by personal firewall settings, antivirus settings, etc., preventing the camera from being detected. In this case, review the security and other settings of your computer, or configure the camera as a remote source using NDI Access Manager as described in section "Configuring a camera manually using NDI Access Manager" (page 7).

Case 2

If you have installed Wireshark on your computer, a network adapter called "Npcap Loopback Adapter" may have been configured. If a loopback adapter is present, device detection using NDI Studio Monitor may not work properly. Disable the Wireshark network adapter and try device detection again.

6.1.2. Attempts to register an NDI license key are unsuccessful when the [Enable NDI | HX] button is clicked

Case 1

Your computer (on which NDI Studio Monitor is installed) must be connected to the Internet when registering an NDI license key. If the camera and computer are installed in an enterprise or company network, check that the proxy server settings on the computer are configured to allow connection to the Internet.

Case 2

An NDI license key that has already been registered for one camera cannot be registered again for another camera. Purchase a separate license.

6.1.3. Video playback in NDI Studio Monitor is not smooth

Problems may be caused by deficient performance of your computer or by the network environment.

Check the network equipment used by your computer and camera. If the link speed is 100Base-TX or lower, it may not be possible to secure sufficient bandwidth, depending on the number of connected cameras. In this case, consider selecting a Gigabit Ethernet network switch or a device with a large buffer size to prevent packet congestion.

7. Trademarks

- NewTek™ and NDI® are trademarks or registered trademarks of Vizrt Group.

8. Revision History

Date	Revision	Description
2023/03/08	1.0	First edition

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