NewTek™ IsoCorder

User Guide

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CHAPTER 1 GETTING STARTED

SECTION 1.1 INTRODUCTION

Thank you for choosing NewTek ™ IsoCorder. For some, the first question may be "What is NDI?" In a nutshell, the Network Device Interface (NDI) technology is an open standard for live production IP workflows over Ethernet networks. NDI allows systems and devices to identify and communicate with each other, and to encode, transmit, and receive high quality, low latency, frame-accurate video and audio over IP in real time.

NDI enabled-devices and software have the potential to greatly enhance your video production pipeline, by making video input and output available anywhere on your network. Devices such as NewTek's TriCaster® and a growing number third-party systems provide direct support for NDI signals, both ingest and output.

One of the most common tasks you may need to perform is to capture various video sources. While TriCaster provides native support for capture, NewTek ™ IsoCorder extends this capability in several ways. Not only does the Pro version let you record a larger number of NDI sources than TriCaster, but it allows you to do so at any convenient location in your facility where your network coverage extends.

This application comes in two flavors – a two-channel version free from www.NDI.NewTek.com, and the full, feature-packed commercial version designated NewTek ™ IsoCorder Pro.

- Both versions are able to record any NDI source on your network to suitable storage media.
- NewTek ™ IsoCorder Pro can capture up to 16 NDI channels, with embedded alpha channel when appropriate.
- Onscreen previews are provided, and the Display widget provides diverse monitoring options.
- NewTek ™ IsoCorder Pro also includes per-channel proc amp and white balance controls, Auto Color, and waveform/vectorscope display.
- Optional overlays include VUs, title and 4:3 safe areas, checkerboard background (for 32 bit sources) and center cross.

SECTION 1.2 SYSTEM REQUIREMENTS/INSTALLATION

1.2.1 SYSTEM REQUIREMENTS

Minimum system requirements:

- 32-bit or 64-bit Microsoft® Windows Vista® operating system or better
- Minimum Intel i3 Sandy Bridge CPU (2008 or later), better strongly encouraged (obviously, capturing 16 streams of video requires a powerful computer system)
- Gigabit LAN connection for signal transmission over IP via NDI™ Technology

1.2.2 INSTALLATION

The installation process is the same for both Standard and Pro editions:

1. Begin by double clicking the Installation file to begin the set up process. The first page you will see is the *Welcome* page- click "Next" at the bottom.
2. The *License Agreement* is shown after the *Welcome* page. Please read this, select a switch in the footer to indicate whether you accept the agreement, and click "Next".

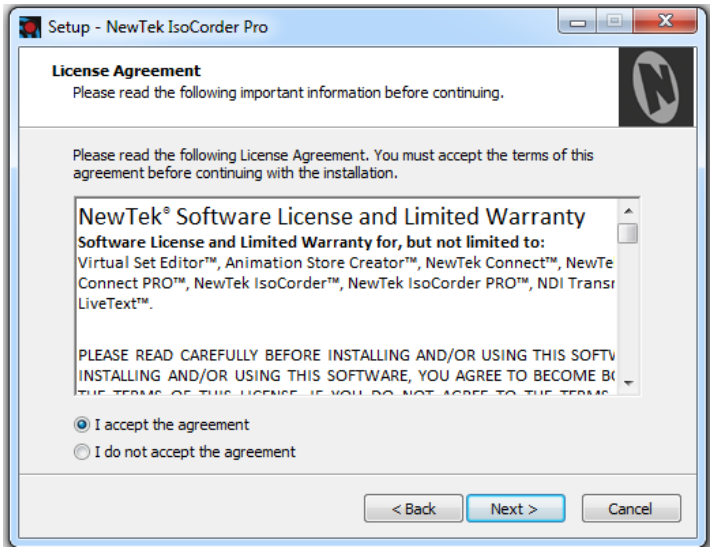


FIGURE 1-1

3. The next few pages establish where the software will be installed and where Start Menu shortcuts will be placed. The defaults should be just fine, so you can click "Next" on these two pages.

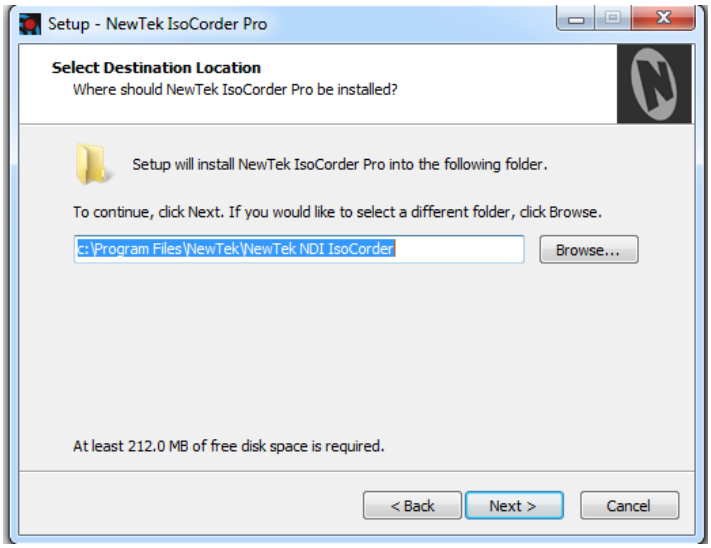


FIGURE 1-2

4. Next you will see a menu verifying where the files will be installed. A confirmation page follows a successful installation and asks whether you wish to *Launch* NewTek ™ *IsoCorder*.

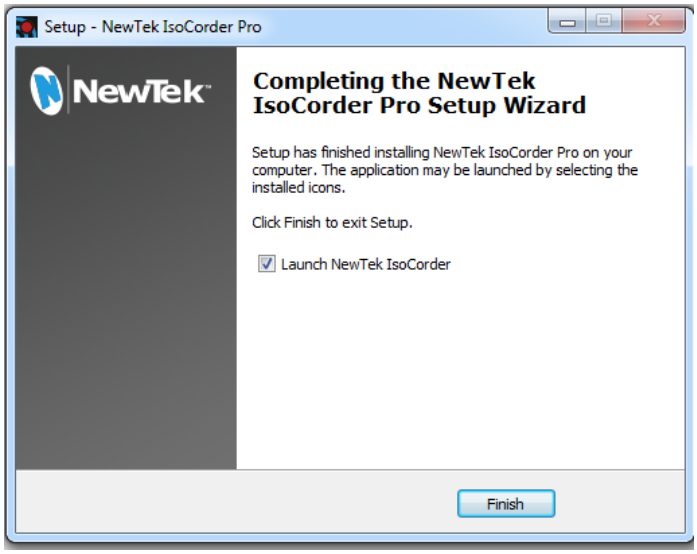


FIGURE 1-3

1.2.3 REGISTRATION

If you installed the "Pro" edition of the NewTek ™ IsoCorder software you will be greeted by the following *Register* NewTek ™ *IsoCorder* window. This computer will need to be online to proceed with activation and use.

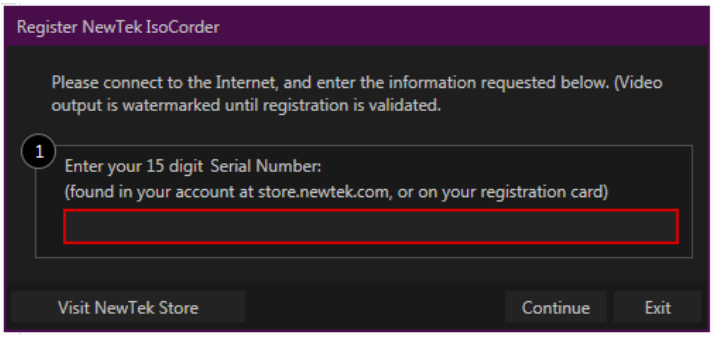


FIGURE 1-4

CHAPTER 2 NEWTEK ™ ISOCORDER CONFIGURATION

SECTION 2.1 DISPLAY WIDGET

Located in the lower right corner of the interface, the *Display* widget provides a variety of layout options for viewing channels in groups or individually. Options are based on which version of the NewTek™ IsoCorder software you have installed.

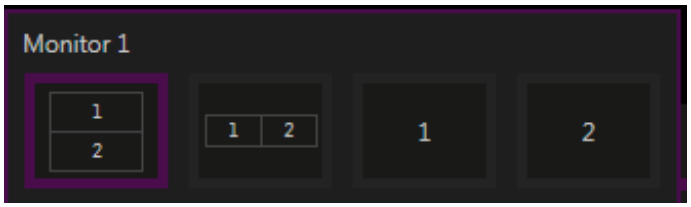


FIGURE 2-1 STANDARD VERSION

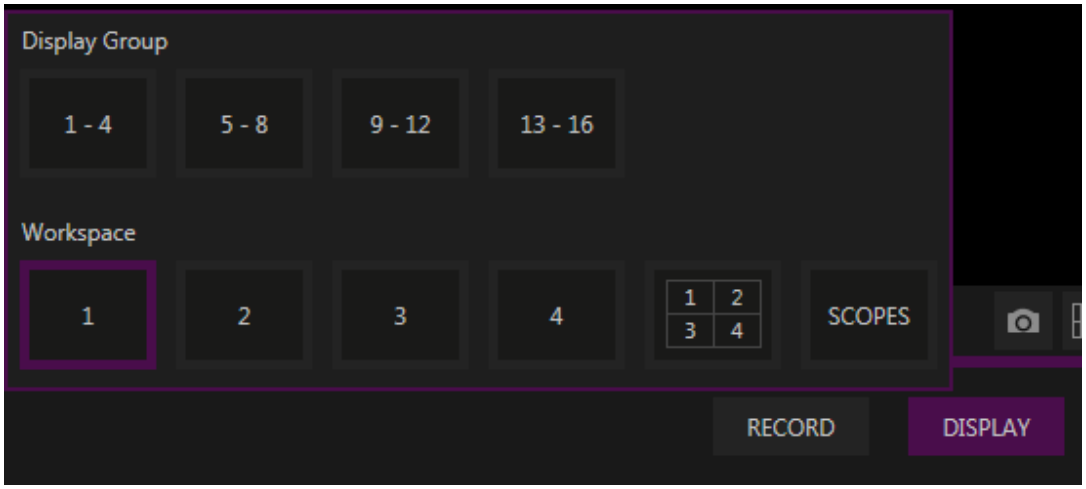


FIGURE 2-2 PRO VERSION

SECTION 2.2 OVERLAYS

An Overlay can be a useful tool for visualizing safe zones, centering and more. Overlay options are provided for each channel.

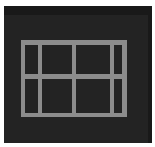


FIGURE 2-3

The list of overlay options vary between versions of NewTek ™ IsoCorder and can be opened by clicking on the icon in the lower right corner of each quadrant (Figure 2-3). Activate an overlay by clicking on it in the list, you can activate more than one and stack them (see Figure 2-4, and Figure 2-5).

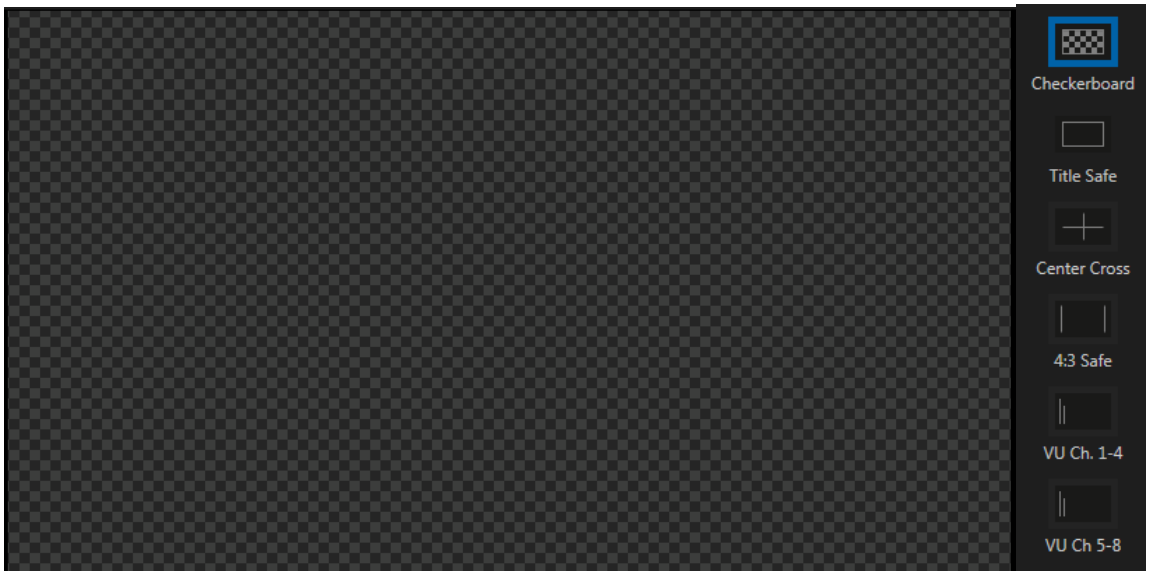


FIGURE 2-4 CHECKERBOARD OVERLAY

FIGURE 2-5

SECTION 2.3 SETUP

Each channel has a gear icon in its lower left corner. The gear will appear for that channel when you hover inside its quadrant. Clicking on this gear will open the *Configure* panel where you can manage *Source,* and *Color (on Pro edition)* options for that channel.

2.3.1 SOURCE CONFIGURATION

The *Source* panel allows you to select the NDI source for this capture channel under *NDI Input*. Here you can assign a base *File Name for Recording*, and set the *Record Path*. There are also fields for assigning *File Name for Grab* and *Grab Path*, these are related to the *Grab Input* button covered in Section 2.3.3.

Another feature under this panel is the ability to adjust audio channel levels using the sliders and VU meters.

NDI Group Manager, included in NDI Tools (available from NDI.newtek.com), can control which NDI sources are visible on the system.

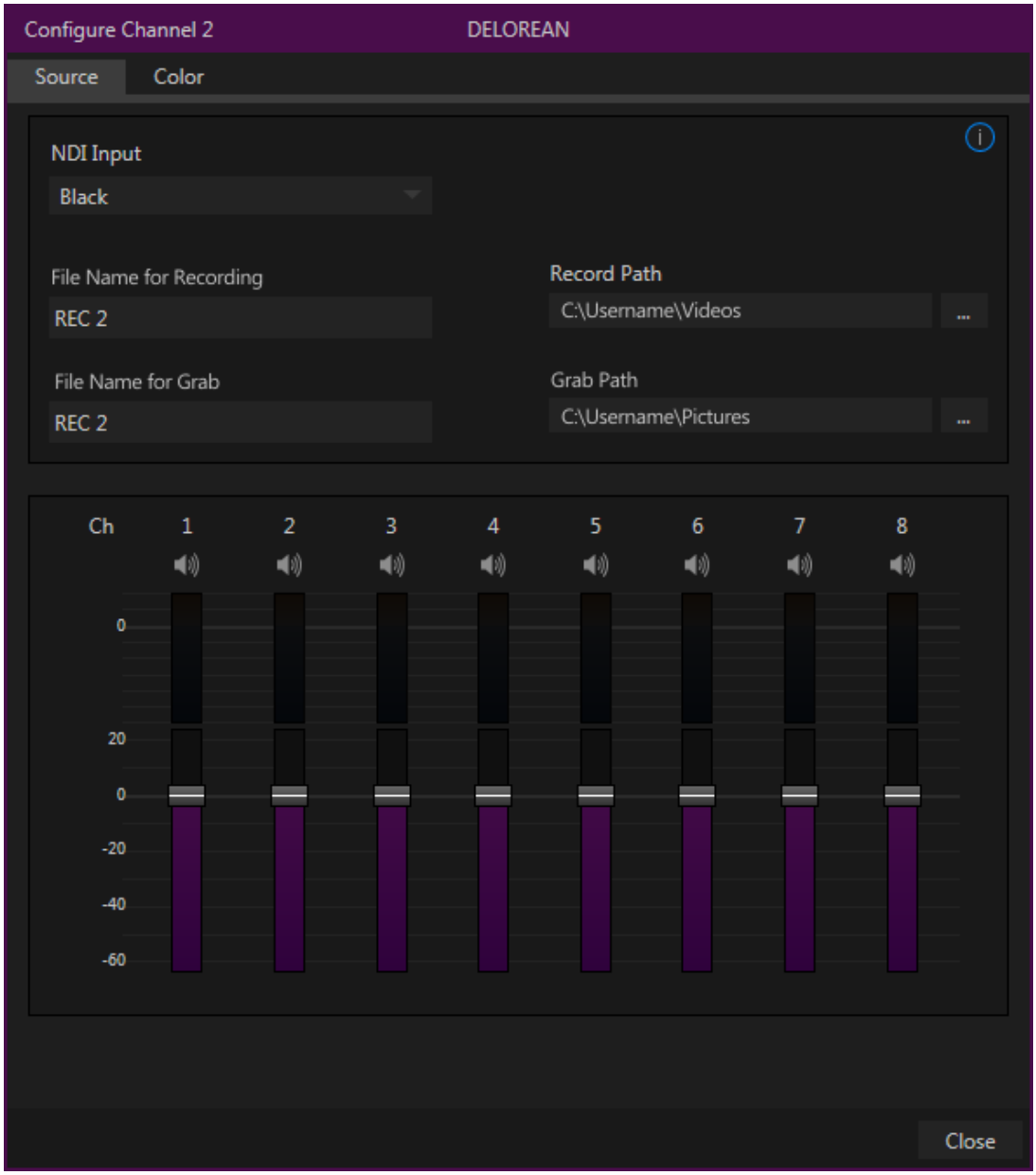


FIGURE 2-6 CONFIGURE CHANNEL SHOWN FROM NEWTEK ™ ISOCORDER PRO

2.3.2 COLOR CONTROLS (PRO ONLY)

Choosing *Auto Color* automatically adapts color balance as lighting conditions change over time.

Note: Proc Amp adjustments follow Auto Color processing.

By default each camera with *Auto Color* enabled is processed by itself. Enable *Multicam* to process multiple cameras as a group.

To apply *Multicam* processing to a source without its own colors being evaluated, checkmark *Listen Only*. Or enable *Listen Only* for all *Multicam* group members except one to make that source the 'master' color reference.

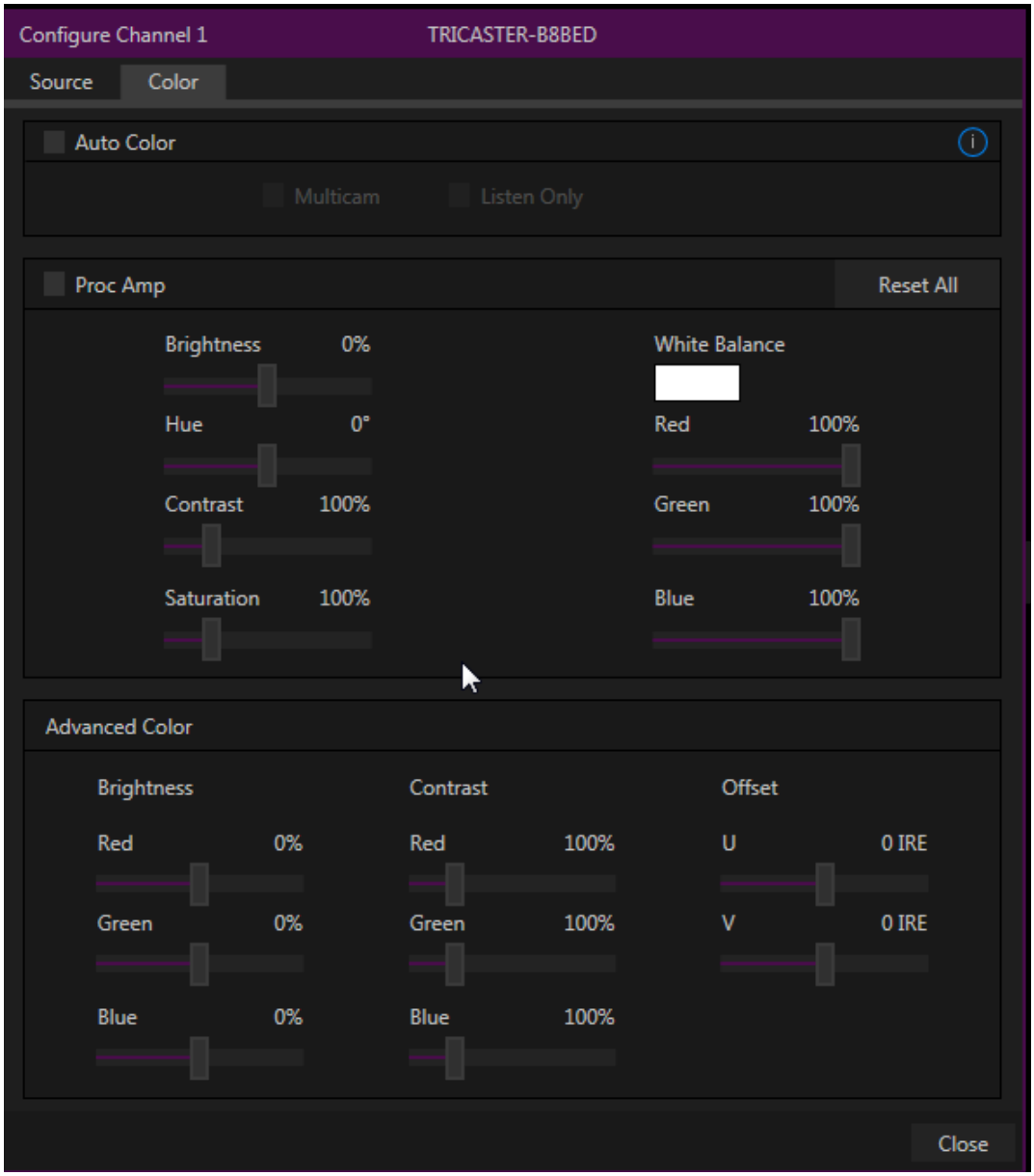


FIGURE 2-7

2.3.3 GRAB

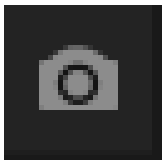


FIGURE 2-8

In the NewTek ™ IsoCorder Pro version, a *Grab Input* tool can be found in the lower right corner of each channel. Where files are stored for each channel when using this feature can be found in the channels *Source* window (see Section 2.3.1).

2.3.4 HEADPHONE AND TITLEBAR TOOLS (INCLUDING WEB AND WEBSERVER LINKS)

2.3.4.1 HEADPHONES

Audio controls are located in the lower left of the NewTek ™ IsoCorder interface.

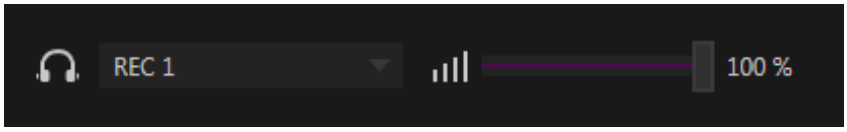


FIGURE 2-9

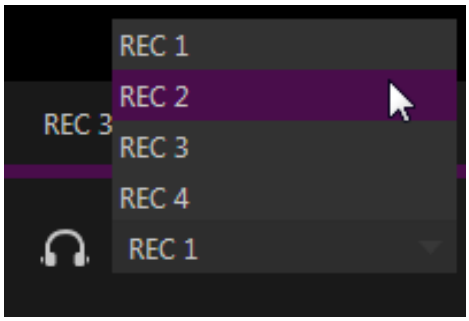


FIGURE 2-10

You can select which channels audio to listen to from the pop-up list control to the right of the headphone icon. The volume control can then be adjusted from this corner of the interface (see Figure 2-9).

2.3.4.2 TITLEBAR TOOLS

Across the top of the application you will find the titlebar tools. This includes a *clock*, *help*, *minimize*, and *exit* buttons.

FIGURE 2-11

2.3.4.3 HELP

Clicking on the *Help* icon will open the window seen in Figure 2-12.

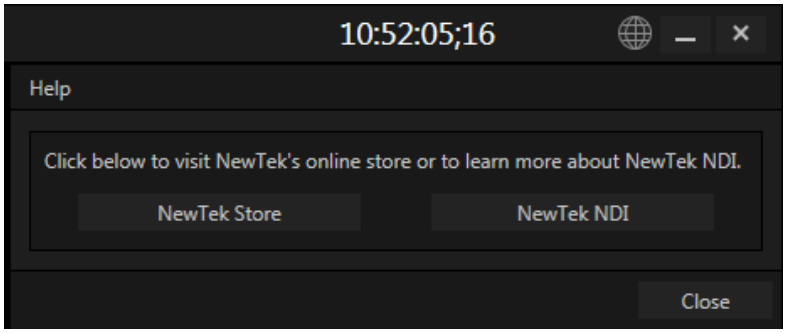


FIGURE 2-12

In the *Help* window you can find links to:

- NewTek NDI – the place to go for NDI Developer tools.
- NewTek Store – the place to go for new Content and Applications.

SECTION 2.4 RECORD

Record is found in the lower right of the main interface. From this panel you can choose to start or stop recording all or selected sources. You are required to set a *Record Path* in the *Source* window before attempting to record any channels.

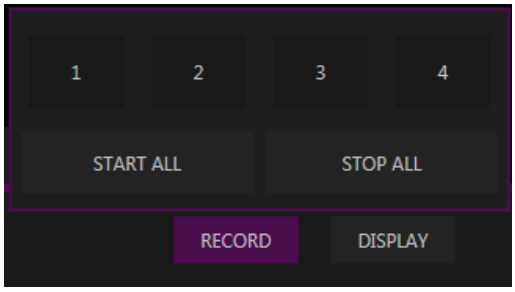
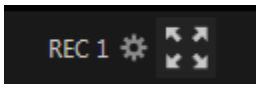


FIGURE 2-13

Hint: We recommend capturing no more than two HD channels to a single standard storage volume. Such drives are typically connected by SATA, eSATA or USB 3 (USB 2 lacks sufficient transfer speed for capture). However faster media solutions, such as RAID or NAS (Network-attached Storage) systems may support capture of many channels to a single device.

SECTION 2.5 FULLSCREEN



Next to the gear in is the **fullscreen** button. Clicking this button will expand the video to fill your monitor. Pressing ESC on your keyboard will return the display to normal.

APPENDIX A HELP

In this section, we'll consider the most common questions you may have while using NewTek™ IsoCorder. Answers are intentionally brief – perhaps just a reminder of one or two steps required to perform some operation. For this reason, we'll also point you to explanatory information elsewhere in this manual whenever that would be useful.

If you've largely mastered your NewTek ™ IsoCorder but have a specific question, this may be the best place to look first. The headings that follow list related questions and answers together, along with cross-references and other helpful remarks.

Hint: The NewTek website includes a comprehensive FAQ database containing a wealth of useful information on all of its products – please see http://www.newtek.com/faq/

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SECTION A.1 CONNECTIONS

Like any network based system, NDI depends on at least two machines or devices being able to connect and communicate with each-other; of course there are a number of reasons why this might not be successful in any environment. This section will help explain the most common issues and help you diagnose and correct them to get the full benefit of NDI.

A.1.1 I CANNOT SEE OTHER NDI SOURCES ON THE NETWORK?

If you cannot see other NDI sources on the network, the two most common causes are :

1. The NDI sources might not be in the same NDI groups as you are monitoring. The easiest way to check this is to use the NDI Group Manager (provided in NDI Tools) and remove to all of the listed sending and receoving groups for both systems.
2. The mDNS ports are blocked on either the sender, receiver or network.

A.1.2 DEBUGGING FAILED CONNECTIONS

If you can see other NDI sources on the network, the most common cause is that the port numbers required for video transfer are blocked by local firewalls, or by the network hub itself.

To debug failed connections, proceed as follows:

1. Run reliable NDI sending and receiving applications (such as NDI Test Patterns and NDI Video Monitor, both in NDI Tools) on the same computer system. This approach bypasses the local network infrastructure. If they fail to connect, then the problem is either your NDI group configuration, or local software based firewalls.
2. Connect two computers together using a network crossover cable. If NDI connections succeed in this configuration but fail when attached to the network, the network infrastructure is the most likely cause of the problem.

SECTION A.2 DOES MY PRODUCT SUPPORT NDI?

A.2.1 NEWTEK IVGA PRO

This application is not supported for NDI, having been replaced by “NDI Scan Converter”. The latter is included in NDI Tools, which you can download without cost from NDI.NewTek.Com

A.2.2 NEWTEK LIVETEXT

Native NDI support is provided by LiveText 3.0, which will be a free download from the main NewTek downloads page.

A.2.3 NEWTEK TRICASTER MINI, MINI SDI, 410, 460, 860, 8000

Version 2-5 for these systems provides support for NDI using the Net 1 and 2 inputs and Network output. This update may be downloaded from the NewTek website.

A.2.4 NEWTEK TRICASTER ADVANCED EDITION

The TriCaster Advanced Edition version 3-2 provides support for NDI using the Net 1 and 2 inputs and Network output. and may be downloaded from the NewTek website.

The upcoming TriCaster Advanced Edition IP version offers a complete, end-to-end, NDI and IP based workflow on every input and output.

A.2.5 OTHER TRICASTER MODELS

NDI has not been extended to other TriCaster models at the current time, but may be added in the future.

A.2.6 NEWTEK TALKSHOW

The TalkShow version 1-2 update (or better) available from the NewTek website adds full NDI support.

A.2.7 NEWTEK 3PLAY

In the very near future, software updates providing native NDI output for all current 3Play models will be available from the NewTek website.

A.2.8 APPLICATIONS CREATED PRIOR TO MARCH 2016 BY OTHER VENDORS THAT SUPPORT NETWORK INPUTS USING AIRSEND

The “NewTek AirSend Updater”, available from NDI.NewTek.Com, locates any AirSend applications and updates them to support NDI automatically.

SECTION A.3 NDI AND YOUR NETWORK

Basically, NDI networking consists of just two operations:

1. It detects other NDI sources on the network using mDNS. mDNS uses port 5353.
2. It establishes direct communication between sources using ports provided by the operating system. In Microsoft Windows, for example, you can determine what range of port numbers might be used with:

   netsh int ipv4 show dynamicport tcp

   High port numbers are relatively common. On modern OSes the port numbers typically start around 49000.

A.3.1 ROUTERS AND FIREWALLS

Obviously your local network router or switch must permit communication using the ports assigned to NDI. Although most common networks do not block the mDNS port, it is not uncommon for networks to be configured to block high port numbers. This would prevent NDI from transmitting video.

Similarly, a software based firewall on the system itself might block the ports used by NDI. It is best to first test with firewalls turned off, then add the relevant firewall rules as needed.

Although it is not recommended, the default range of ports are used for dynamic allocation can be configured in most modern OSes. For instance, Microsoft Windows can be instructed to use ports 10000-11000 with the following command:

```
netsh int ipv4 set dynamicport tcp start=10000 num=1000
```

Note, too, that WIFI routers often block multicast traffic or transfer over certain port ranges between wired and wireless networks.

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CHAPTER 3 CREDITS

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- FreeImage library http://freeimage.sourceforge.net/
- LAME library http://lame.sourceforge.net/
- FFMPEG library http://ffmpeg.org/

For a copy of the LGPL licence, please look in the folder c:\TriCaster\LGPL\

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