NewTek™

NewTek Connect

User Guide

NDI®

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CHAPTER 1 GETTING STARTED

SECTION 1.1 INTRODUCTION

Thank you for choosing NewTek Connect. For some, the first question may be "What is NDI®?" In a nutshell, NewTek's Network Device Interface (NDI) technology is a new 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 your network runs. Devices such as NewTek's TriCaster® and a growing number of third party systems provide direct support for NDI, both for ingest and output – but, at times, you may want to connect a source that is not natively NDI-enabled; or you may wish to supply an NDI output to a traditional downstream device or display. NewTek Connect provides the means to handle i/o requirements of this type and more.

This application comes in two flavors – a two-channel version available from ndi.tv/tools and the full, feature-packed commercial version, designated "NewTek Connect Pro".

- Both versions support third-party hardware i/o cards, such as those from Blackmagic Design, Deltacast, and AJA), and webcams.
- NewTek Connect Pro also supports media file playback, four independent channels (and eight-channel audio), and key-fill workflows on supporting hardware.
- Onscreen previews are provided, and the Pro version supports dual monitor layouts plus an additional NDI program return display, and tally.
- NewTek Connect 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.
- 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".

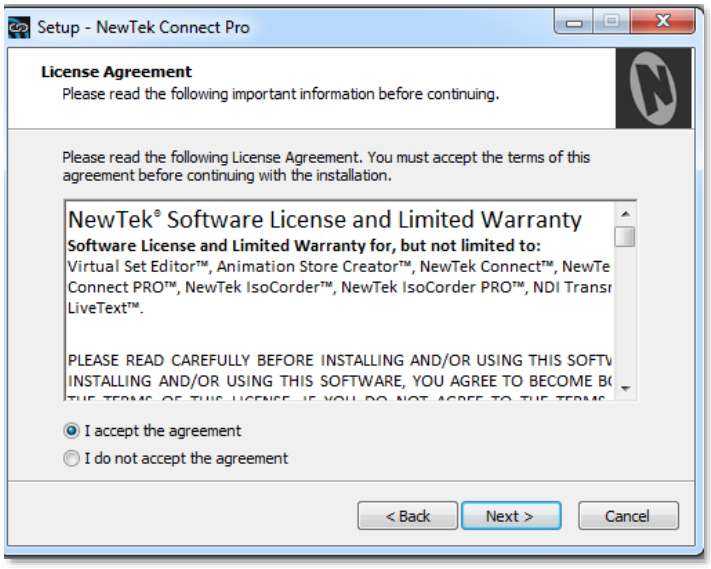


FIGURE 1-1

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.

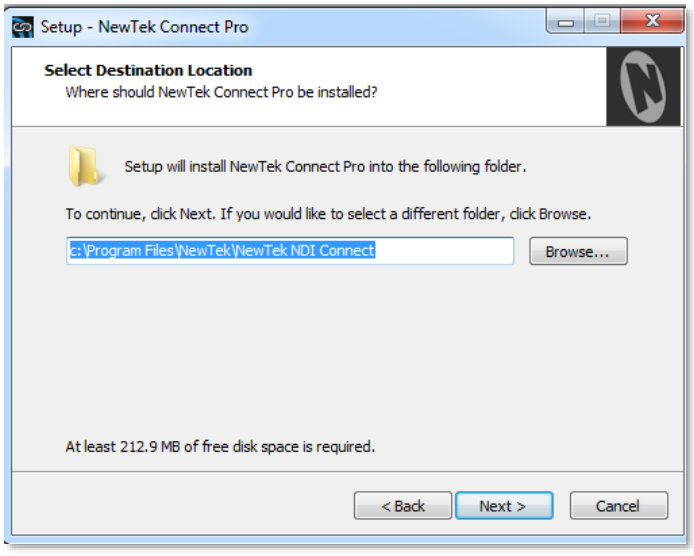


FIGURE 1-2

4. The *Select Additional Tasks* page will only appear when you install the Pro version. If you see this page make your choice and click "Next".

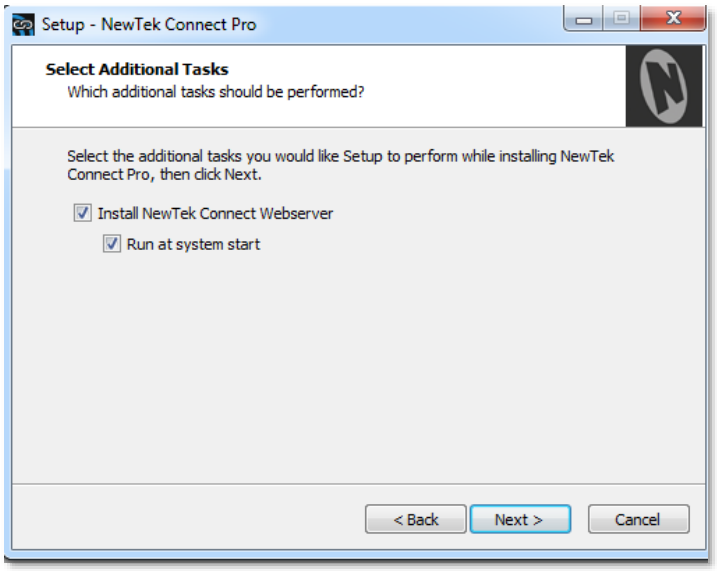


FIGURE 1-3

5. If you did not install the "Pro" edition 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 Connect*.

1.2.3 REGISTRATION

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

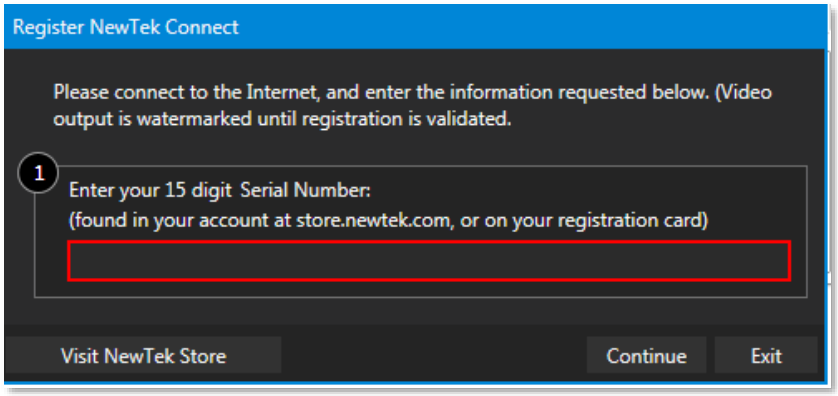


FIGURE 1-4

CHAPTER 2 NEWTEK CONNECT CONFIGURATION

SECTION 2.1 DISPLAY

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, on one or two monitors. Options are based on which version of the NewTek Connect software you have installed.

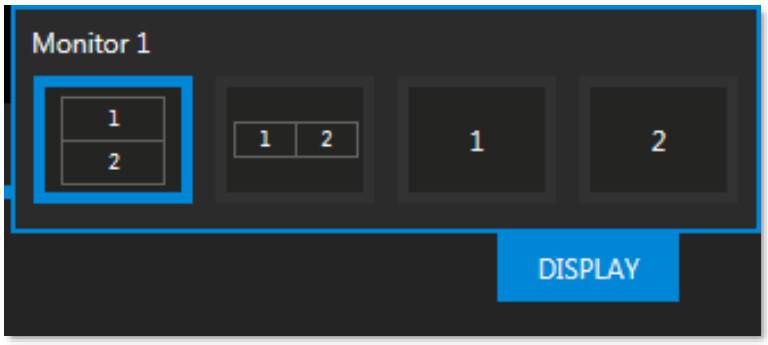


FIGURE 2-1 STANDARD VERSION

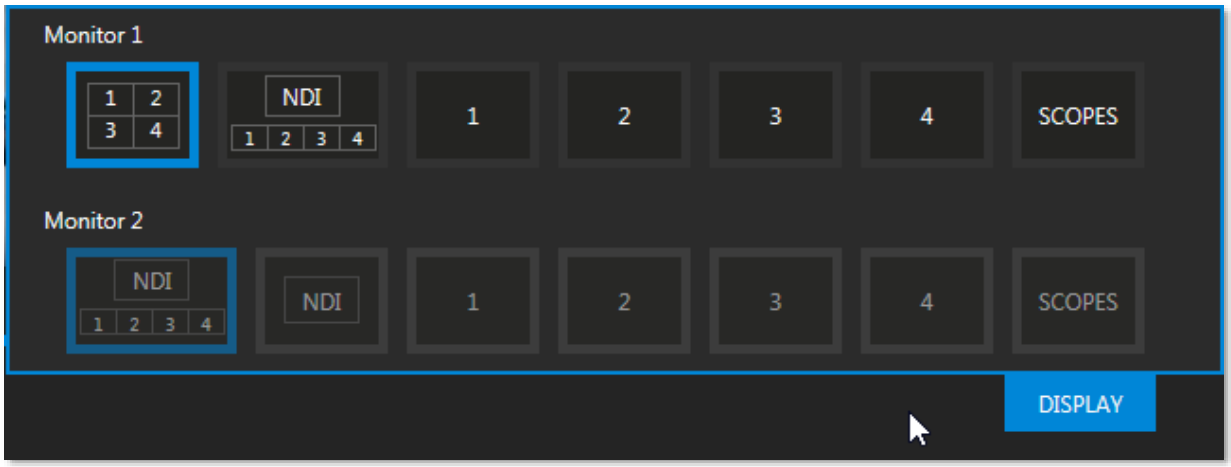


FIGURE 2-2 PRO VERSION

SECTION 2.2 OVERLAY

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

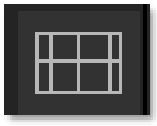


FIGURE 2-3

The list of overlay options vary between versions of NewTek Connect and can be opened by clicking on the icon in the lower right corner of each quadrant (see 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).

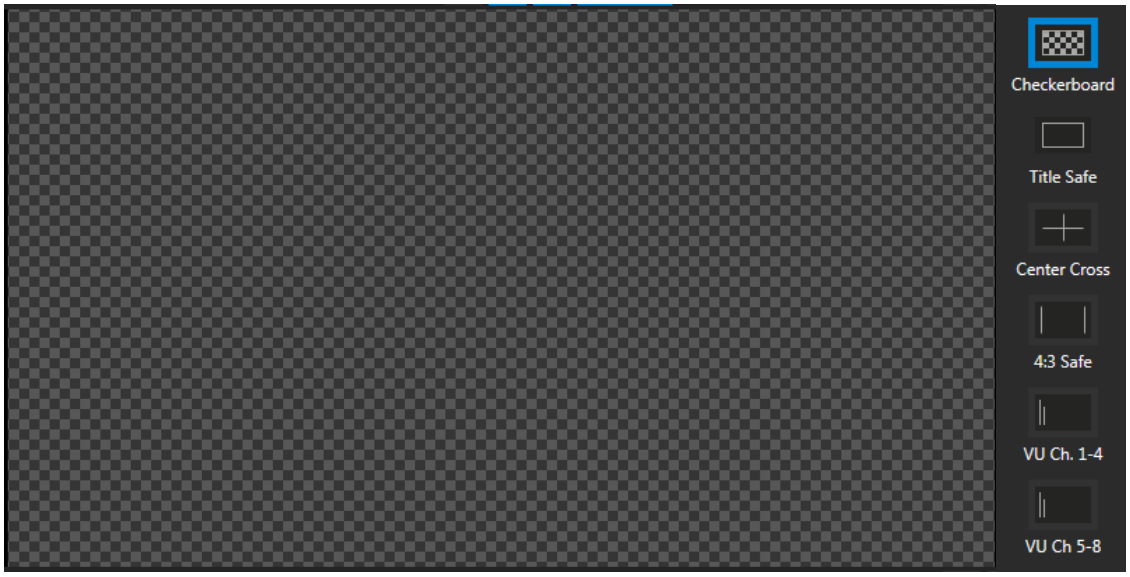


FIGURE 2-4 CHECKERBOARD OVERLAY

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 *Input, Output* and *Color (on Pro edition)* options for that channel.

2.3.1 INPUT CONFIG

The Input panel allows you to select audio and video sources for this channel, and set their format. You can choose an NDI source, an input from A/V capture card, a webcam or even a stored video file. As an added level of control over A/V synchronization a delay (Figure 2-6) can be applied to the audio or video sources (NewTek Connect Pro only).

For key/fill source configurations, continue to choose the *Alpha Matte Source* (NewTek Connect Pro only). Key/fill sources must be synchronized and have the same format.

Note: It is unnecessary to configure the key input for 32bit NDI sources.

NDI Access Manager, included in NDI Tools (available from ndi.tv/tools), can control which NDI sources are visible on the system.

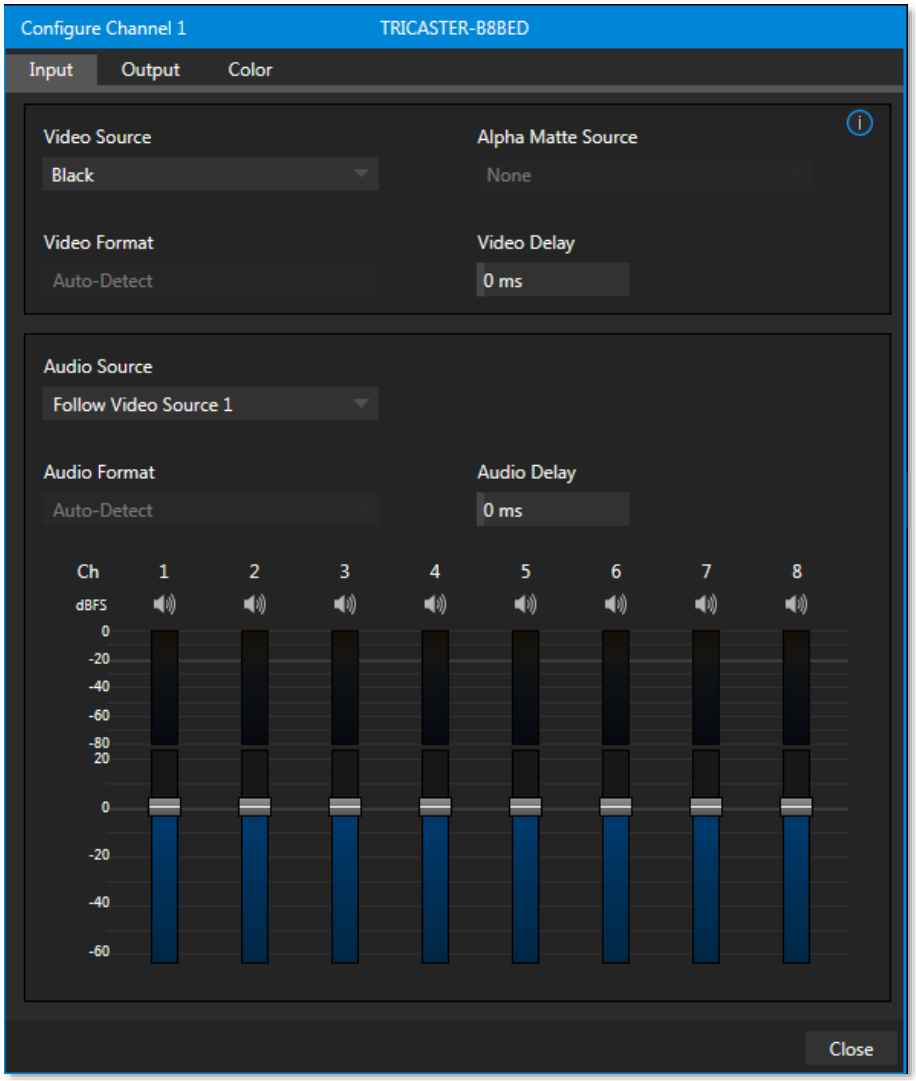


FIGURE 2-6

2.3.1.1 IP CAMERA SOURCES

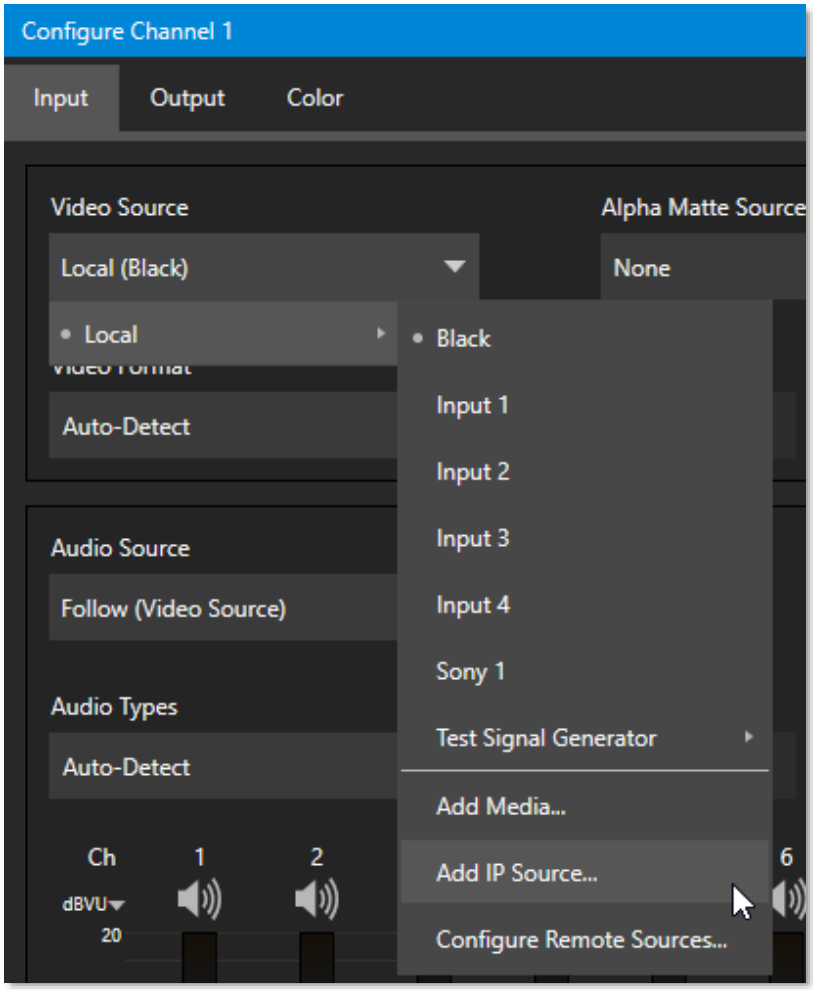


FIGURE 2-8

The Pro version allows an IP (network) source – such as a PTZ camera with NDI network video output – to be directly selected. The *Video Source* drop down menu contains an *Add Media* item to let you select a video file, *Add IP Source* menu item, and *Configure Remote Sources* option (Figure 2-6)

Clicking the *Add IP Source* entry opens the *IP Source Manager* (Figure 2-7). Adding entries to the list of sources shown in this panel causes corresponding entries for new sources to appear in the *Local* group shown in the *Video Source* menu of the *Configure Channel* panel.

To add a camera, click the *Add New IP Source* menu, select a source type from the dropdown list provided. This opens a dialog suited to the particular source device you wish to add, such as one of the numerous supported PTZ camera brands and models.

FIGURE 2-7

Once you have selected a camera from the list a panel will open allowing you to configure the settings for the chosen camera.

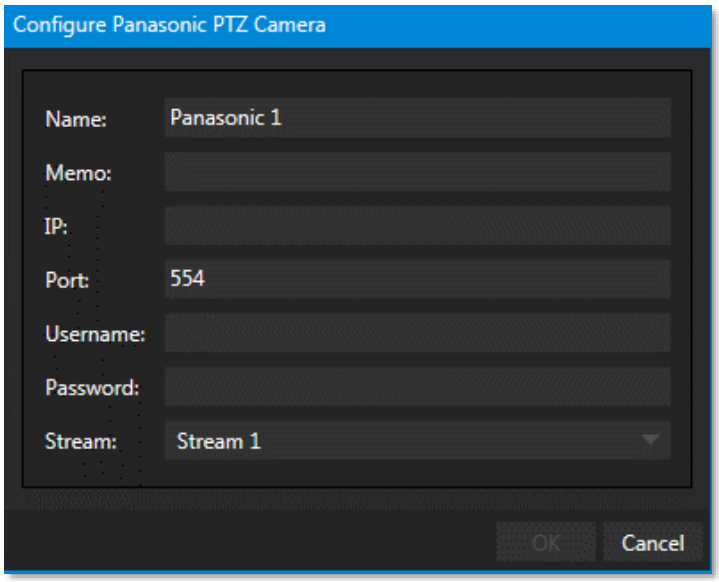


FIGURE 2-9

NewTek Connect will need to be restarted once you have finished selecting and setting up the camera.

2.3.2 OUTPUT CONFIG

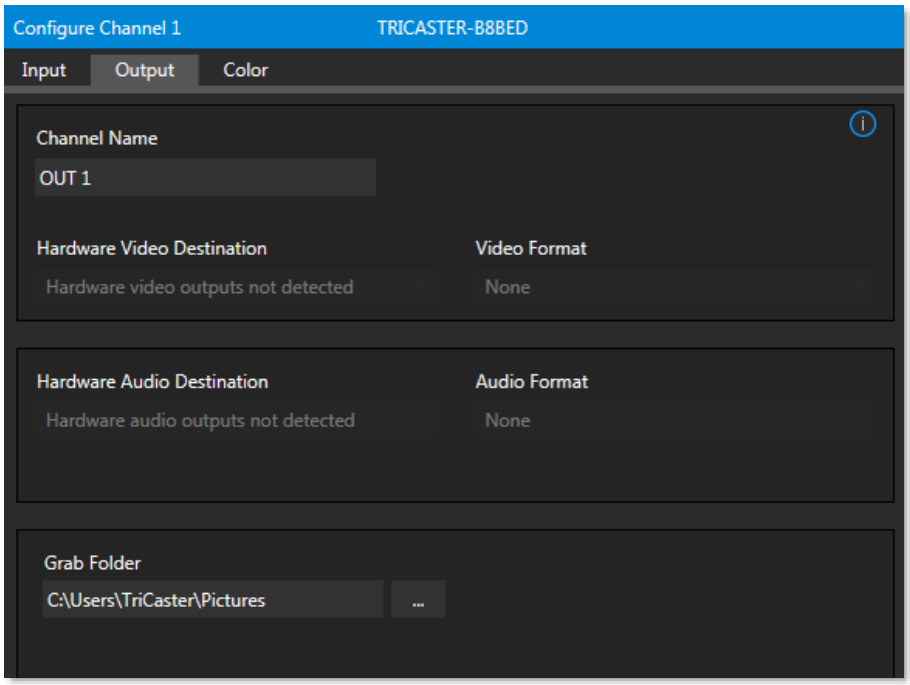


FIGURE 2-10

The *Output* (Figure 2-10) from the channel is always sent to your network as an NDI source. NDI Access Manager, included in NDI Tools (available from ndi.tv/tools), can be used to control access to NewTek Connect output.

If you have a hardware output card, choose video and audio outputs and formats here. Some hardware also supports separated key/fill output.

Selecting an odd-numbered output connection reveals Video and Alpha options in the Format menu. When you choose this option, key output is sent to the next higher numbered connector on the same card.

2.3.3 COLOR CONTROLS (PRO ONLY)

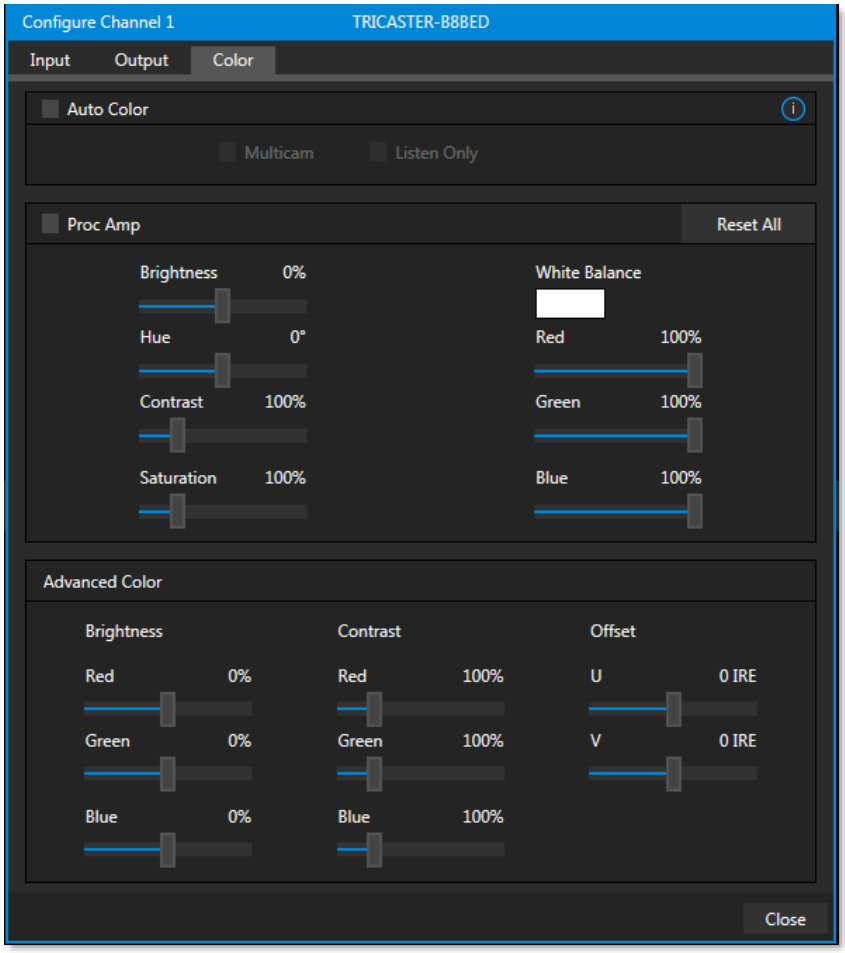


FIGURE 2-11

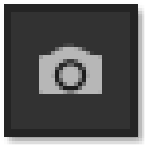
Choosing *Auto Color* automatically adapts color balance as lighting conditions change over time.

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.

2.3.4 GRAB (PRO ONLY)



In NewTek Connect Pro, a *Grab Input* tool is located in the lower right corner below the monitor for a channel. By default, still image files are stored in the system "Pictures" folder. The path can be modified in the *Output* window for the channel (see Section 2.3.2).

FIGURE 2-12

2.3.5 HEADPHONE AND TITLEBAR TOOLS

2.3.5.1 HEADPHONES

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

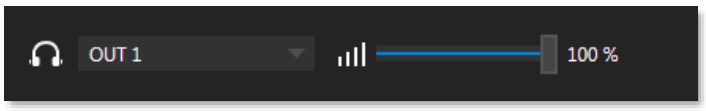
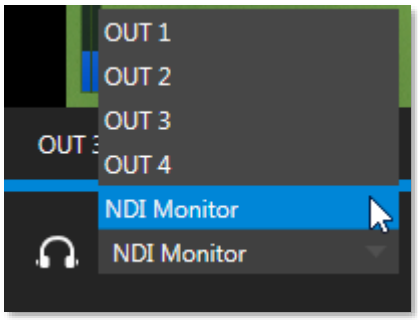


FIGURE 2-13



You can select which channel to listen to using the pop-up menu to the right of the headphone icon. The volume control can then be adjusted from this corner of the interface (see Figure 2-13).

Note: The first two audio channels from the source selected in the menu are transmitted to the headphone jack.

FIGURE 2-14

2.3.5.2 TITLEBAR TOOLS

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

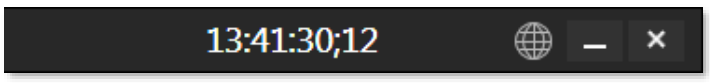


FIGURE 2-15

2.3.5.3 HELP

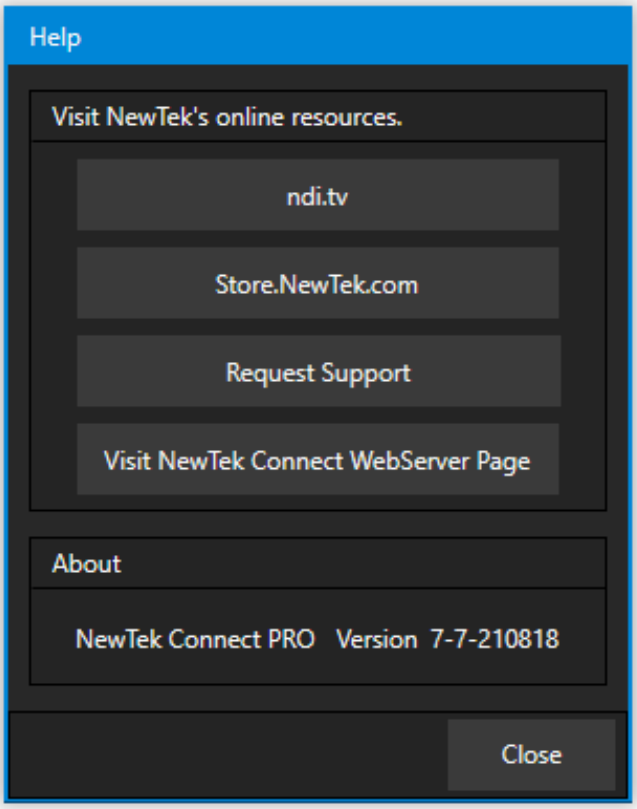


FIGURE 2-16

Clicking on the *Help* icon opens the panel shown in Figure 2-16.

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

- ndi.tv – the place to go for all NDI tools.
- NewTek Store
- Support Help
- Visit NewTek Connect WebServer Page

Under the *About* field is the current NewTek Connect PRO version you are currently running.

SECTION 2.4 FULLSCREEN

FIGURE 2-17

Next to the gear in each quadrant is a full screen button. Clicking this button will expand the video in the selected quad to fill your monitor. Pressing ESC on your keyboard will return the display to normal.

CHAPTER 3 NEWTEK CONNECT WEBSERVER

Another very useful application is included with NewTek Connect Pro. Wouldn't it be great if a configurable display showing one or more NDI sources was available in the web browser of any system on your network? NewTek Connect Webserver gives you just that (Figure 3-1).

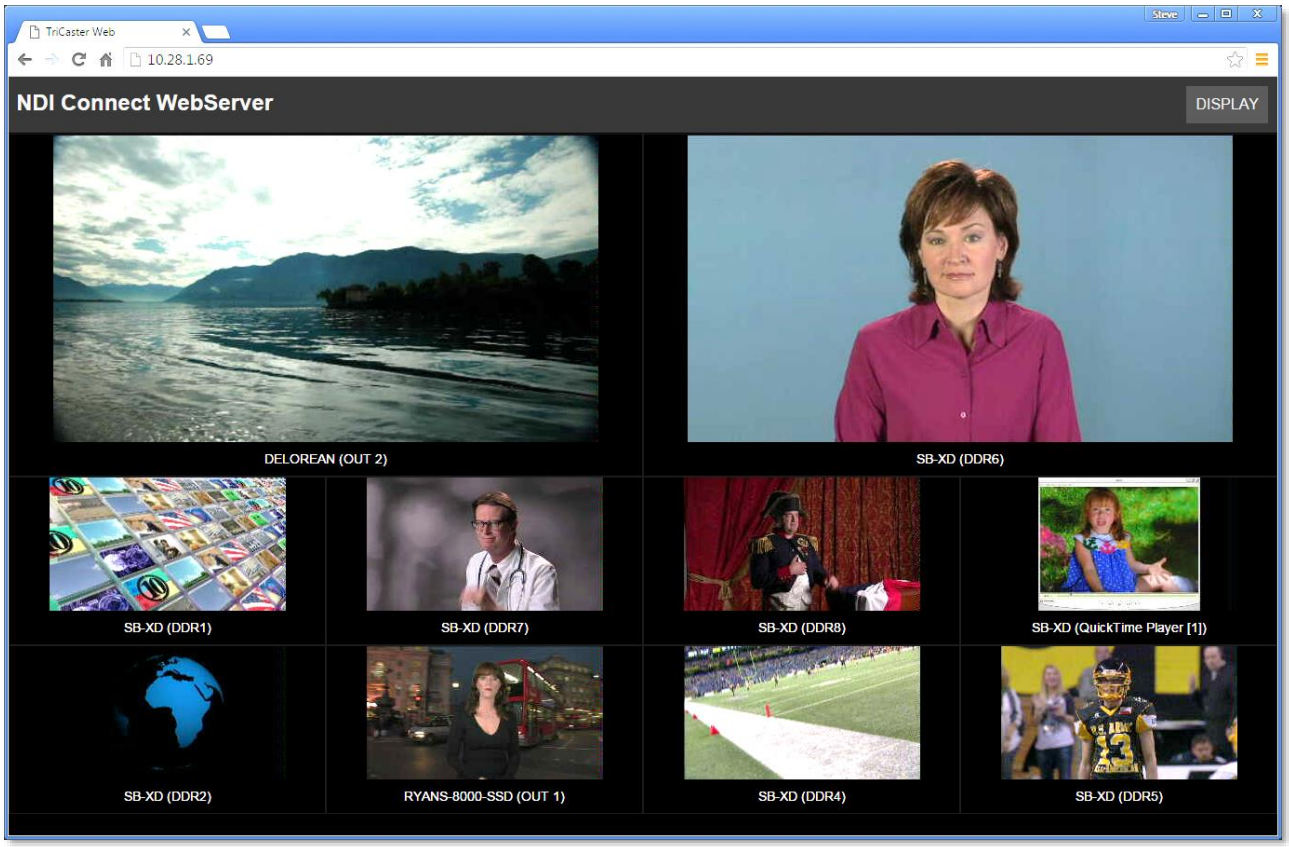


FIGURE 3-1

NewTek Connect Webserver runs automatically when you launch Connect Pro. You can easily open the corresponding webpage to examine it on the same system by clicking the *Visit NewTek Connect Webserver Page* link in NewTek Connect Pro's *Help* panel.

Click *Display* at upper right to choose a viewport layout (Figure 3-2). Then click a viewport to select one of the NDI sources currently being supplied to your network, assigning it to that viewport.

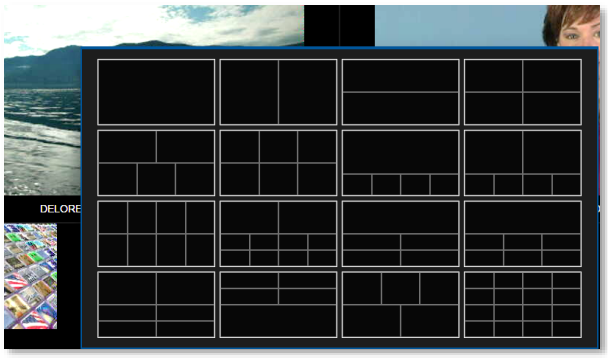


FIGURE 3-2

Continue to populate all of the viewports, then try a different *Display* layout. Notice that the sources you have chosen are retained as you do so. Configuration options are independent on each system, allowing you to freely design displays for different requirements.

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Libraries: This product uses the following libraries, licensed under the LGPL license (see link below). For the source, and the ability to change and recompile these components, please visit the links provided:

- FreeImage library freeimage.sourceforge.io
- LAME library lame.sourceforge.io
- FFMPEG library ffmpeg.org

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

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