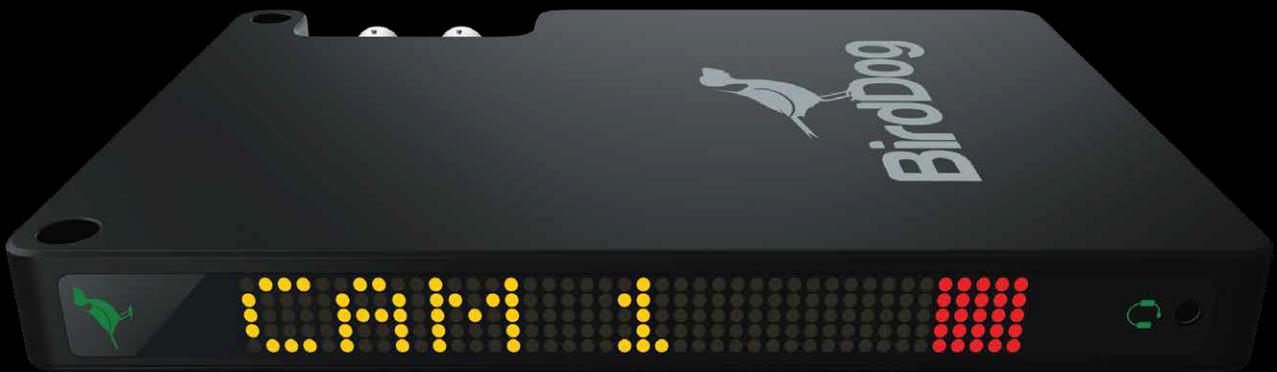


 **BirdDog** | **STUDIO NDI**

THE WORLD'S BEST NDI ENCODER AND DECODER.



USER GUIDE | DECEMBER 2018

**NDI**<sup>®</sup>



WELCOME TO THE FUTURE.

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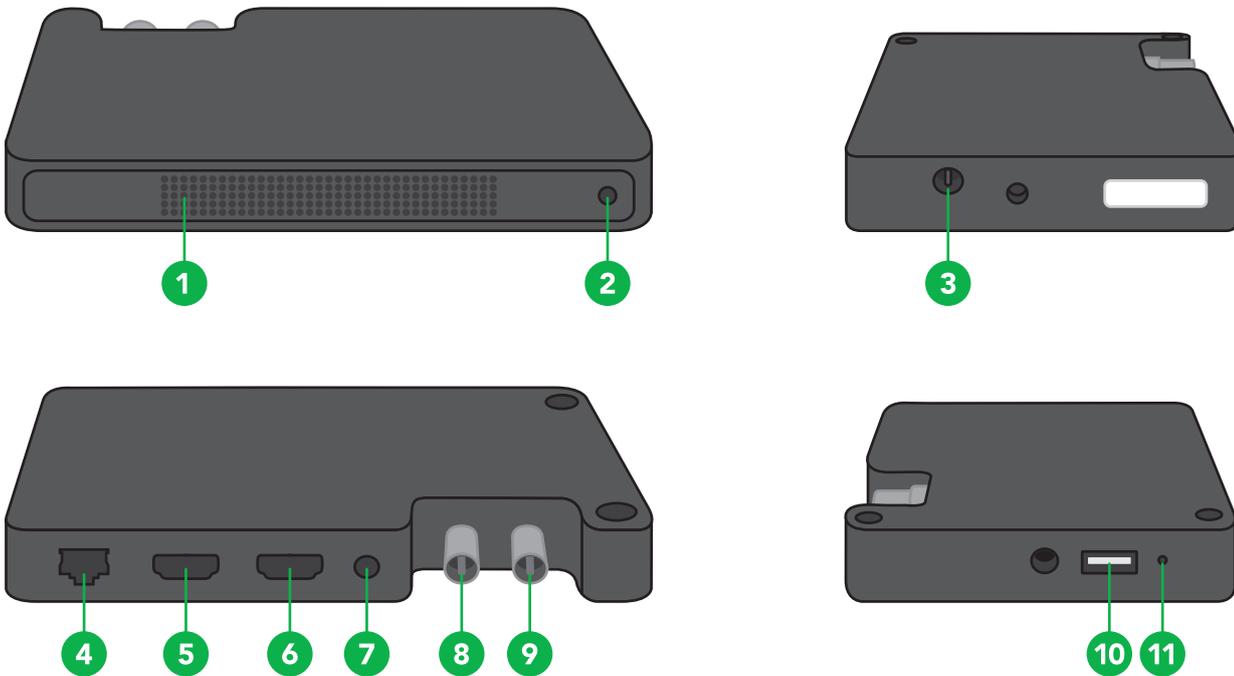
- NewTek Studio Monitor
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## GETTING TO KNOW STUDIO NDI

Thanks for purchasing BirdDog Studio NDI. Please take some time to read this document to allow you to get the most out of your purchase and familiarize yourself with the features available in the unit.

- |                                       |                                    |
|---------------------------------------|------------------------------------|
| 1. LED Display monitor                | 7. External tally connector (GPIO) |
| 2. Audio Headset connector            | 8. 3G-SDI Input                    |
| 3. DC Input (5-18v DC)                | 9. 3G-SDI Output                   |
| 4. 1Gb Ethernet (Power over Ethernet) | 10. USB Accessory port             |
| 5. HDMI Input                         | 11. Factory reset                  |
| 6. HDMI Output                        |                                    |

### Physical connectors



### Powering Studio NDI

Studio NDI is equipped with a sophisticated system allowing power from various sources:

#### PoE (Power over Ethernet)

PoE is a convenient way to power Studio NDI as it allows both data and power to be sent through the same standard Ethernet cable.

To take advantage of PoE, the network switch that Studio NDI is directly plugged into must support PoE, in either 802.11at or 802.11af standard.

### Thermal management

Studio NDI has been engineered to be passively cooled, no fans are required. In order to achieve this the entire enclosure of Studio NDI is designed to dissipate heat. The main processor is capable of operating up to 100 degrees Celsius / 212 degrees Fahrenheit.

Some factors affect how much heat BirdDog will produce, and it is normal for it to feel warm to the touch.

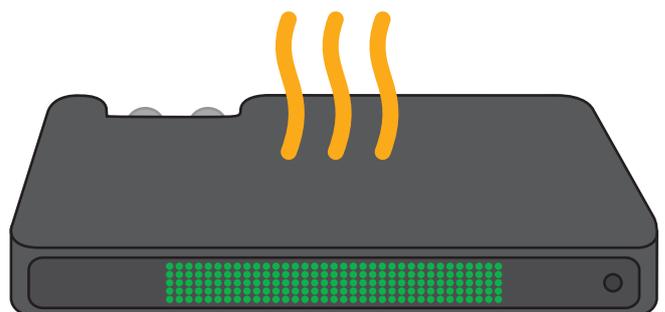
In extreme circumstances (a hot day/direct hot sun) it is advised to power Studio NDI via DC or D-Tap as this produces less heat than PoE.

Different network switches are capable of providing differing amounts of total power to all connected devices. Studio NDI uses approximately 7 watts in PoE mode.

#### DC/D-Tap

Located at the bottom of Studio NDI is a DC connection port. This power input socket is capable of accepting power in a range of voltages from 5–18 volts DC. Studio NDI can be powered by the included AC adaptor or alternatively via the included D-Tap cable to power using a D-Tap compatible battery.

BirdDog has been tested in extreme environments.

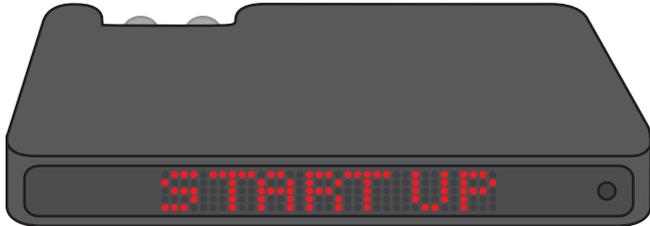


## POWERING ON SEQUENCE

### Indication of system boot process

When BirdDog is initially powered it will immediately indicate on the LED screen 'STARTUP', there are two stages to startup and you will notice after around 5 seconds the text becomes brighter indicating the unit is in the final stages of powering up.

Once the unit has finished the initial bootup sequence it will display several informational pages, firstly the IP address,



this is only displayed if the BirdDog is set to acquire an IP address from a DHCP server (see Network Settings section for more detail).

After displaying the IP address of your device, the page will then display the input detected, including the source (HDMI/SDI) and the detected rate. (ie. 1080i50).

Once completely booted and with a valid video source the BirdDog will settle to a 'CAM1' display, this name is customizable, settings can be accessed via the web configuration panel.



## OPERATING STUDIO NDI

### Web configuration panel

In this release, the web configuration panel allows you to alter key settings of Studio NDI, specifically video source (HDMI/SDI), and video frame rates, restarting the video processing engine, changing networking parameters, and applying firmware updates.

### Access via web browser (URL)

To access the web configuration panel please point your computer web browser to: <http://birddog-xxxxx.local/>

"xxxxx" is the serial number of the Studio NDI, the serial number is printed on the box and on the main unit. Note the web address is case sensitive and should be all lower case. Your computer will need to have 'Bonjour' services loaded in order to access the unit via it's 'friendly' name described above.

Apple devices come pre-installed with Bonjour, while Windows devices need a small plugin available here:

[https://support.apple.com/kb/dl999?locale=en\\_AU](https://support.apple.com/kb/dl999?locale=en_AU)



Note: only the last 5 digits are required for accessing the web interface.

BirdDog Studio NDI - REV n°  
SERIAL xx:xx:xx:x[x:xx:xx]

### BirdDog Finder application

In addition to typing this URL in manually there is an application: BirdDog Finder, which is available from <http://www.bird-dog.tv/firmware-updates>. This application looks on the local network for any NDI capable Studio NDI and launches the web configuration interface directly from the application.

### Accessing Studio NDI via an IP address

Studio NDI is configured to automatically receive a network (IP) address from the computer network via DHCP (Dynamic Host Configuration Protocol). Most corporate, education and home networks have a DHCP server present on the network to allow this to occur. Usually your Internet Router provides this.

If Studio NDI receives an IP address automatically from this server (DHCP) the IP address can be discovered in several ways, including the BirdDog Finder application available from: <http://www.bird-dog.tv/firmware-updates>

### Accessing Studio NDI on a network without a DHCP server

Some standalone or private networks may not have a DHCP server. After 15 seconds of searching for an automatically assigned IP address Studio NDI will fall back to a default address which is:

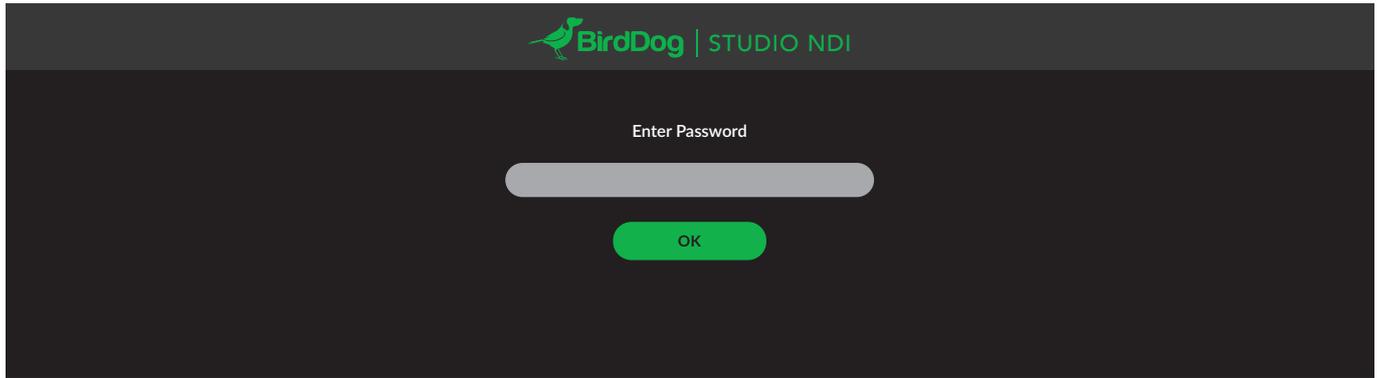
**192.168.100.100**

In order to access the web configuration panel on a network which is configured to a different subnet, change your computers IP address to match the BirdDog unit. Once you gain access to the BirdDog web configuration panel choose your IP address to match the rest of the devices on your network.

For instructions on setting your computers IP address please consult your computer operating system manual or IT support resources.

## PASSWORD MANAGEMENT

Once you direct your web browser to the web configuration panel you will need to log in to change any settings.



### Default password

The web configuration panel is secured by a user-selectable password. The default password is:

**birddog** (one word, lower case).

It is recommended to change this password in a network environment where Studio NDI is shared with other users (e.g. not private). By entering this password, the user is granted full access to the Studio NDI configuration settings and could interrupt a live program.

To change the password simply login using the default password, navigate to the network tab in the web interface, and select change password.

### Password reset

If you lose or forget your password, you must reset the Studio NDI to factory settings, which will allow logging back in using the default birddog password. Please see page 12 for instructions.

## CONFIGURING VIDEO INPUTS

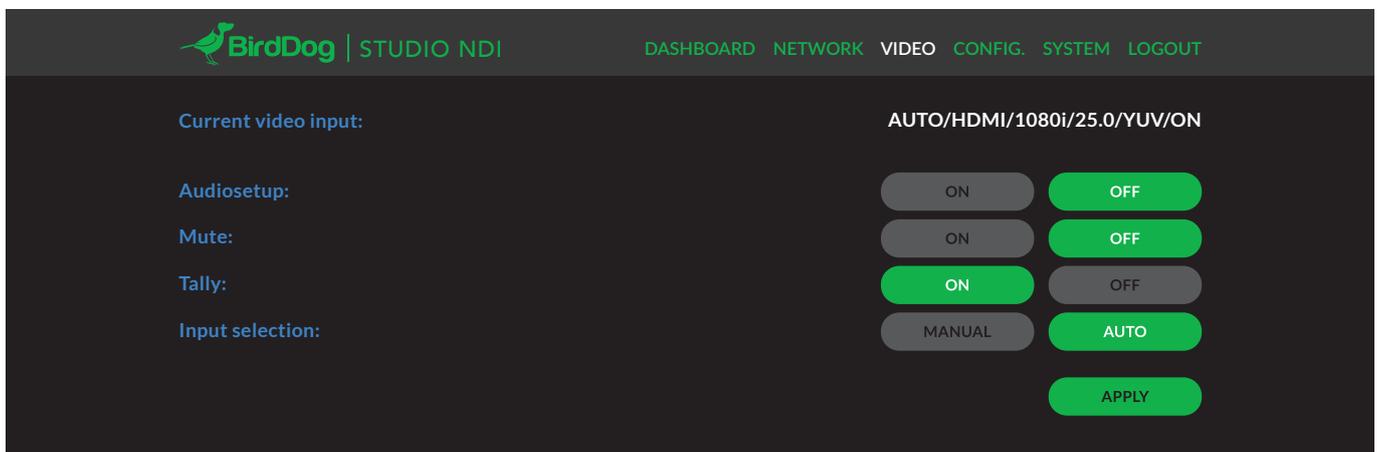
### Automatic input

Studio NDI will search for any active video input on startup. It will search both SDI and HDMI inputs until an active input is found.

Please note that the source from your camera or video device needs to be in a supported video format.

Please check firmware release notes for list of supported video formats.

In full automatic mode if you plug in a secondary source while Studio NDI is operating it will automatically switch to the new input. For example if Studio NDI has an SDI input at 1080p60, and you plug an HDMI source into the unit it will automatically halt the current SDI input and switch to HDMI. The same is true in reverse.



### Semi-automatic input

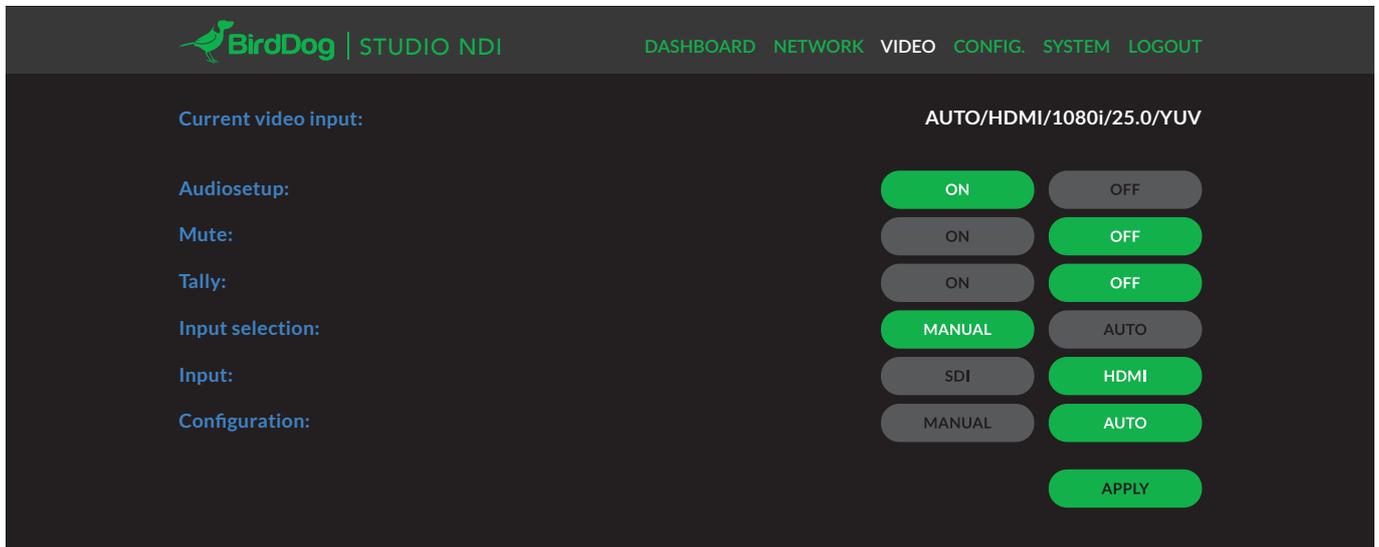
In the web configuration panel under the video tab you can change the input selection from automatic to manual. This will stop Studio NDI from searching both sources and instead will look at the selected source.

In manual input mode, Studio NDI will sync to any valid video input format (i.e. 720p60/1080i/1080p) and colour space in HDMI (YUV/RGB/YVU).

In semi-automatic mode, Studio NDI will be seen on any NDI compatible receiver as: **BIRDDOG-xxxxx [HDMI]**

or **BIRDDOG-xxxxx [SDI]**

(Depending on the input that is selected for semi-automatic operation).

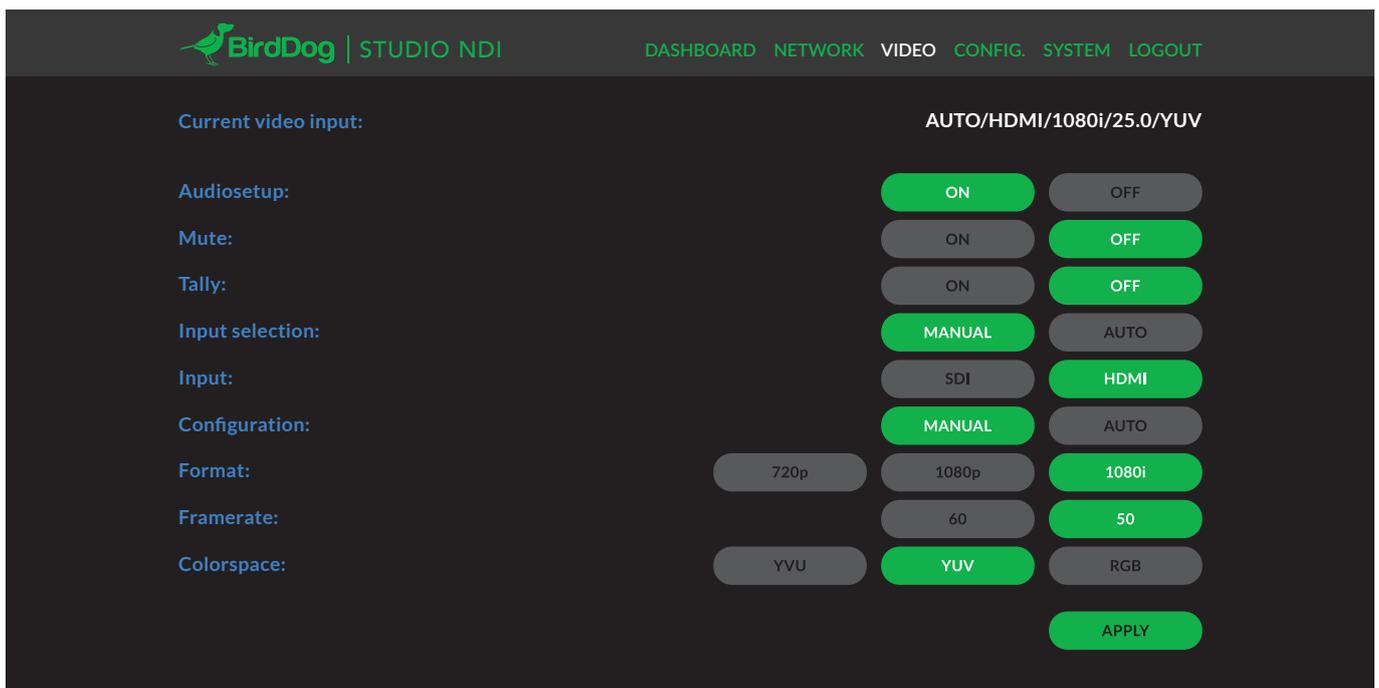


### Manual input

Manual input configures Studio NDI to only look at the selected video source for a specific video format and color space.

This can be useful if your source is not correctly detected by Studio NDI.

BirdDog has taken as much care as possible to ensure any source is automatically detected in the correct format, however some cameras may send nonstandard timing signals or incorrect metadata. In this case please configure Studio NDI with manual input to enable correct operation and report your camera model and video format to BirdDog so it can be added to the list of supported cameras.



## AUDIO

### Enabling or disabling Audio

Studio NDI can be configured to process embedded audio from SDI or HDMI from within the web configuration console. This setting is located in the Video section of the console and operates in the following way:

#### Audio Mute ON

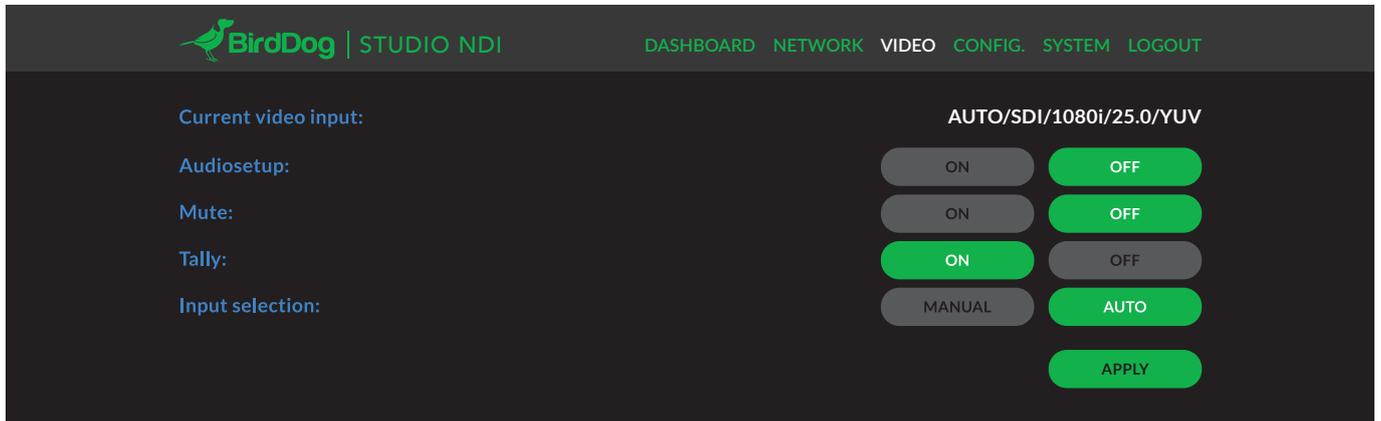
Audio is not passed through embedded SDI or HDMI.

#### Audio Mute OFF

Audio is passed through the embedded SDI or HDMI input and streamed to the NDI receiver.

#### Audiosetup

The Audiosetup option is only relevant for Studio NDI boards with a serial number of less than 7e350 and will resolve an issue where the HDMI audio is received in a corrupted manner. The default setting applies for all other Studio NDI devices.



## NDI DECODE OPERATION

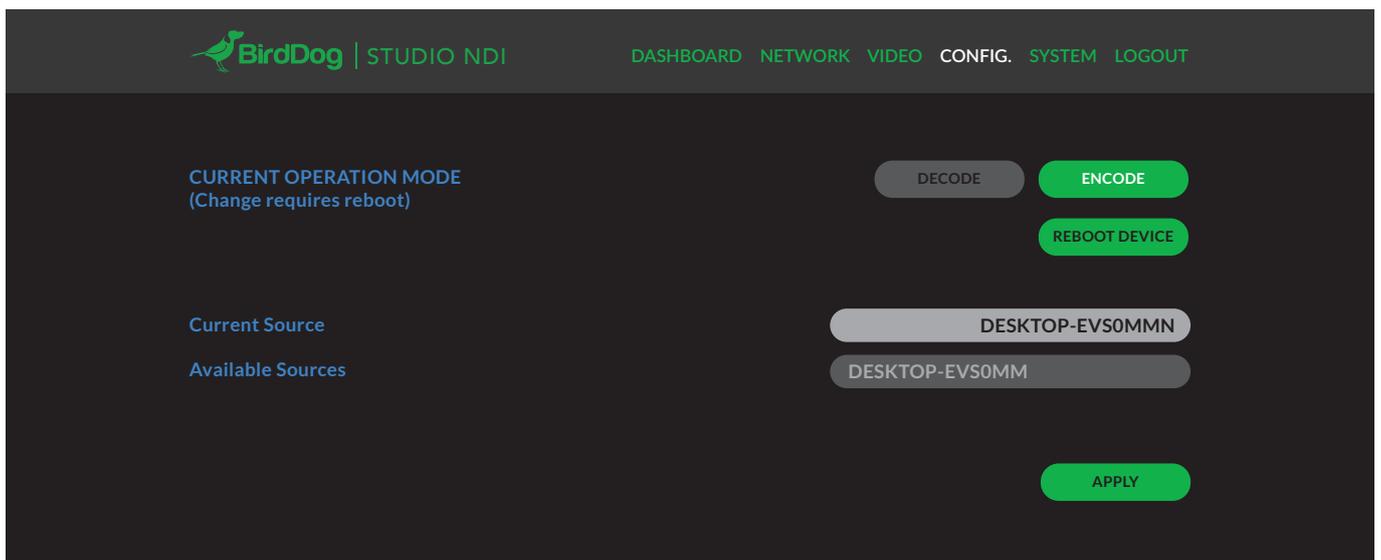
### Changing modes from NDI Encoder to NDI Decoder

BirdDog can operate in either NDI Encode (converting from HDMI or SDI to NDI) or NDI Decode (receiving an NDI signal from the network and displaying it out the HDMI and SDI ports).

To change modes from the default NDI Encoder mode into NDI Decode navigate to the CONFIG. section of the web interface.

Select DECODE mode from the selection box and press REBOOT DEVICE.

Note that you must reboot the BirdDog unit once a new operating mode is selected, dynamically switching will be added in an upcoming firmware release.



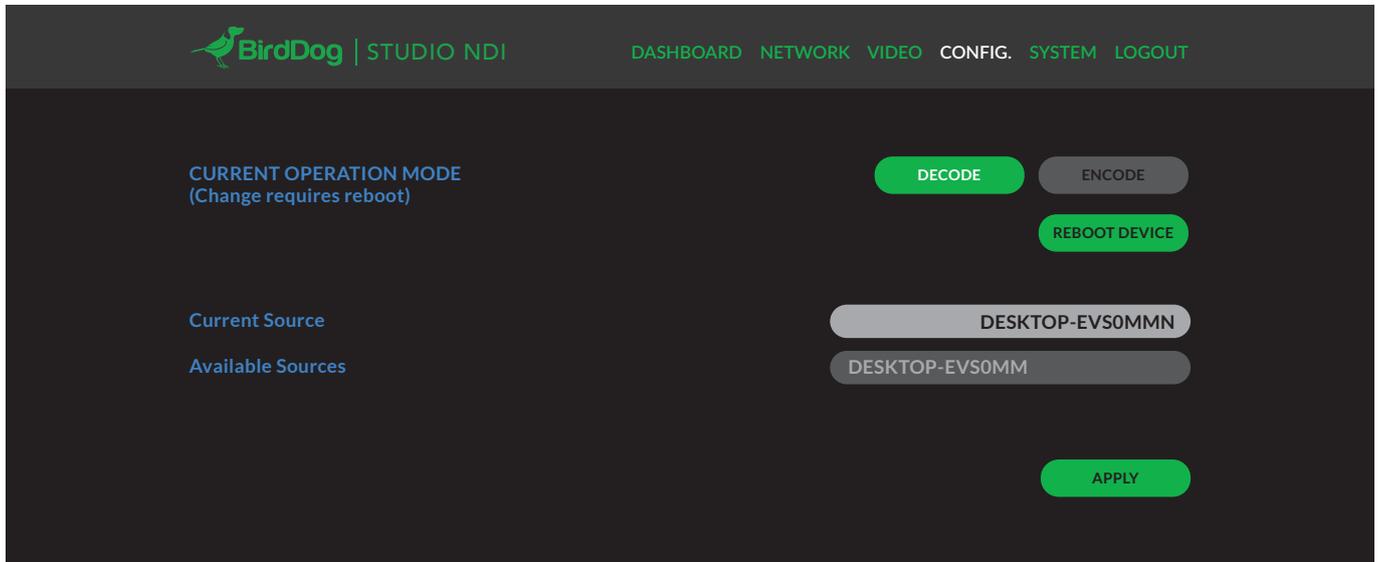
### Selecting an NDI source to decode

Once your BirdDog device has entered NDI decode mode and successfully rebooted – during the boot process the LED display will show DECODE to confirm the status – you are able to select the source that you wish to decode via the web interface.

All available sources are listed in the drop down menu in the CONFIG. section of the web interface, select the desired source and press APPLY to begin receiving this source.

Once your BirdDog unit is in Decode mode you can switch between any available sources on the network by choosing them from the drop down menu and pressing APPLY again.

**Note.** BirdDog can only decode video format and frame rate sources, these formats are the same as what BirdDog capable of encoding. If you are unable to successfully receive a source, please double check that the video format and frame rate are ones that are supported by your unit.

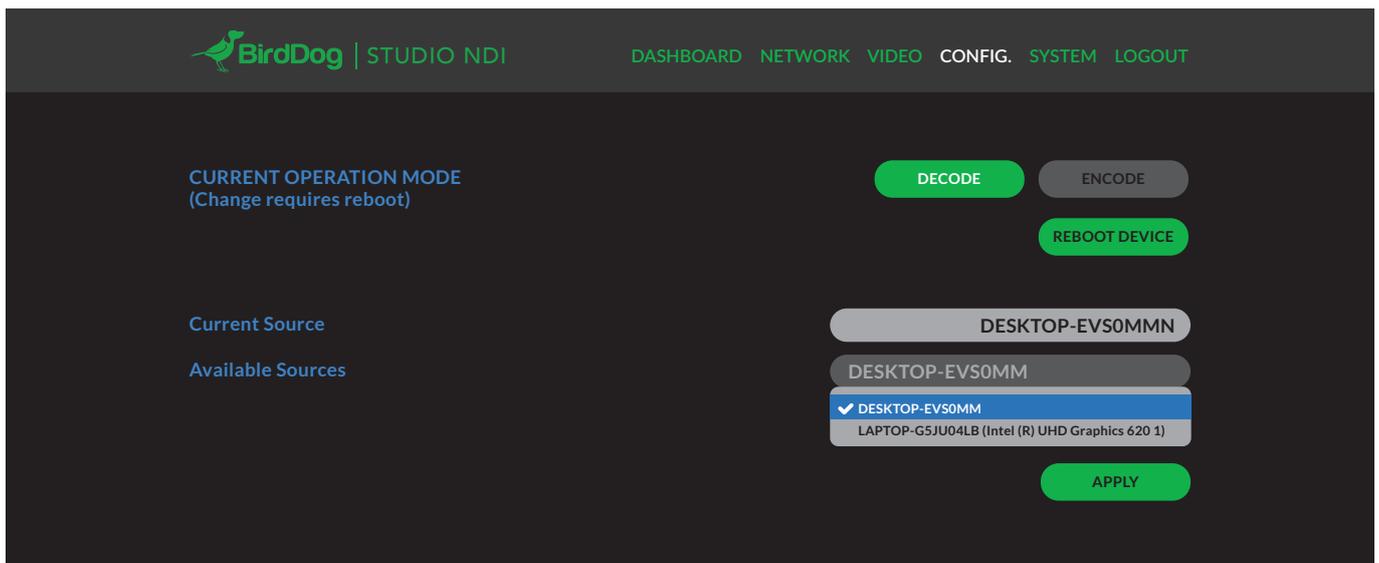


### Changing back to NDI Encode operation

To change modes from NDI Decode mode back into NDI Encode navigate to the CONFIG. section of the web interface.

Select ENCODE mode from the selection box and press REBOOT DEVICE before APPLY.

**Note.** You must reboot the BirdDog unit once a new operating mode is selected, dynamically switching will be added in an upcoming firmware release.



## NETWORK SETTINGS AND DEVICE NAMING

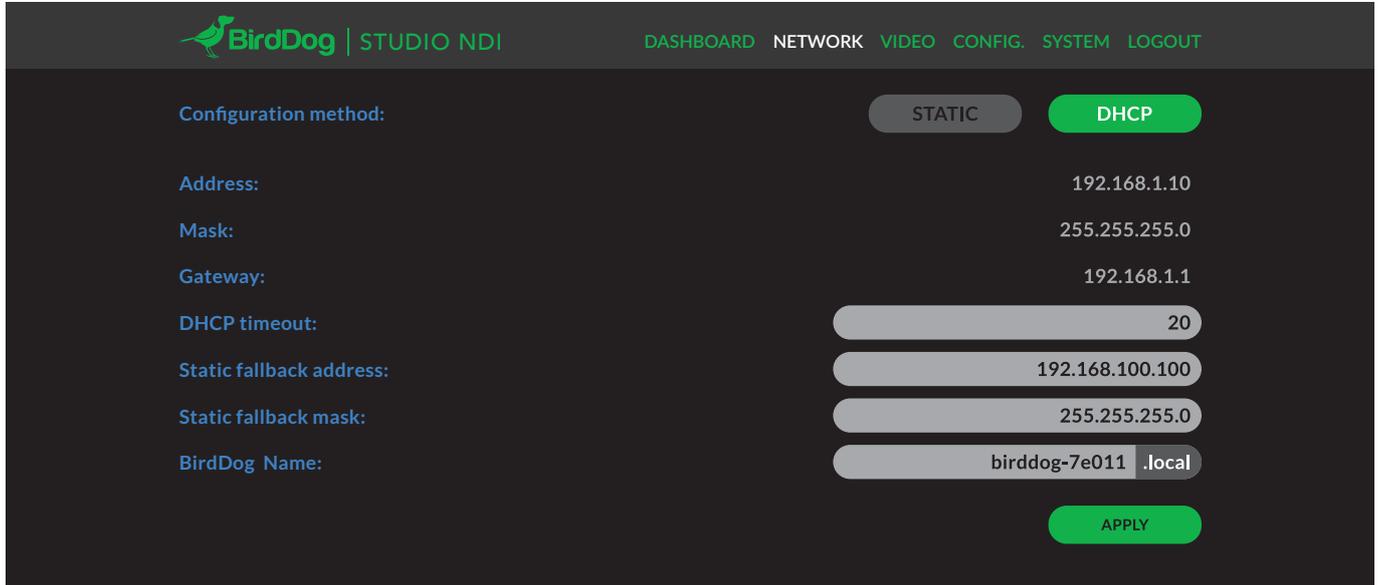
### Device naming

When Studio NDI is first powered on it defaults to the naming convention as described in the web configuration panel section of this manual.

<http://birddog-xxxxx.local/>

It is possible to change the name along with the network settings to better suit your environment.

In the web configuration panel, navigate to the network section.



### IP configuration method

You can configure Studio NDI to operate on the network with a dynamic (DHCP) IP address or a fixed address.

For smaller networks DHCP networking is generally suitable, however larger networks with managed operations will often determine each device needs to have a dedicated and static IP address.

### DHCP IP address

DHCP is set as the network configuration by default for Studio NDI.

### Static IP address

To enable a static IP address, change configuration method to static and fill in the details required in Address, Mask and Gateway. Particular attention should be paid to the Address and Mask fields as incorrect information entered will result in Studio NDI not being visible on the network and a factory reset will be required in order to recover the unit.

### IP address recovery

In the event that the Studio NDI is not visible on the network, the network has changed, or the static IP address details have been lost, reset the BirdDog back to its default settings by following the factory reset procedure.

### BirdDog name

You can name each Studio NDI with a friendly name that makes sense for each production (Camera 1, Camera 2, etc). This name will appear on any NDI receiver when it looks for video coming from Studio NDI over the network. The name must not include any special characters and can be any combination of 'a-z, 1-0, and -'.

Note: no uppercase characters are valid.

On NDI receiving devices, Studio NDI will present as a source as follows:

### birddog-name [AUTO]

when the unit is set to automatic input.

### birddog-name [SDI]

when set to SDI in either semi-automatic or manual mode.

### birddog-name [HDMI]

when set to HDMI in either semi-automatic or manual mode.

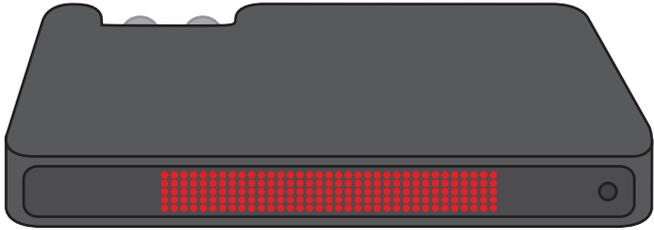
## TALLY SUPPORT

### Onboard Tally

Studio NDI supports Tally within the NDI protocol. Tally is a method of identifying which source is being used 'on air' at any particular time.

Whenever a Studio NDI source is being used on the program output of an NDI compatible receiver that supports Tally metadata, the screen will light up red on the front of the Studio NDI unit.

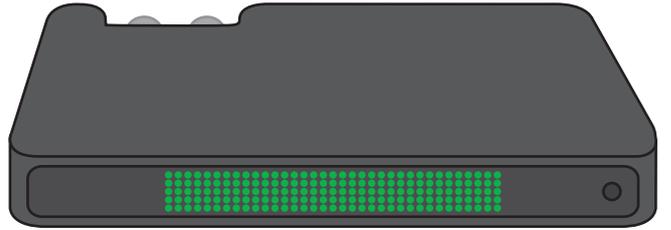
### Program Tally



Studio NDI also supports preview tally. The onboard screen will light up green when the Studio NDI source is placed in the preview bus of the receiving switcher.

In the situation where the BirdDog source is loaded on both the program and preview bus of the receiver the light will be red.

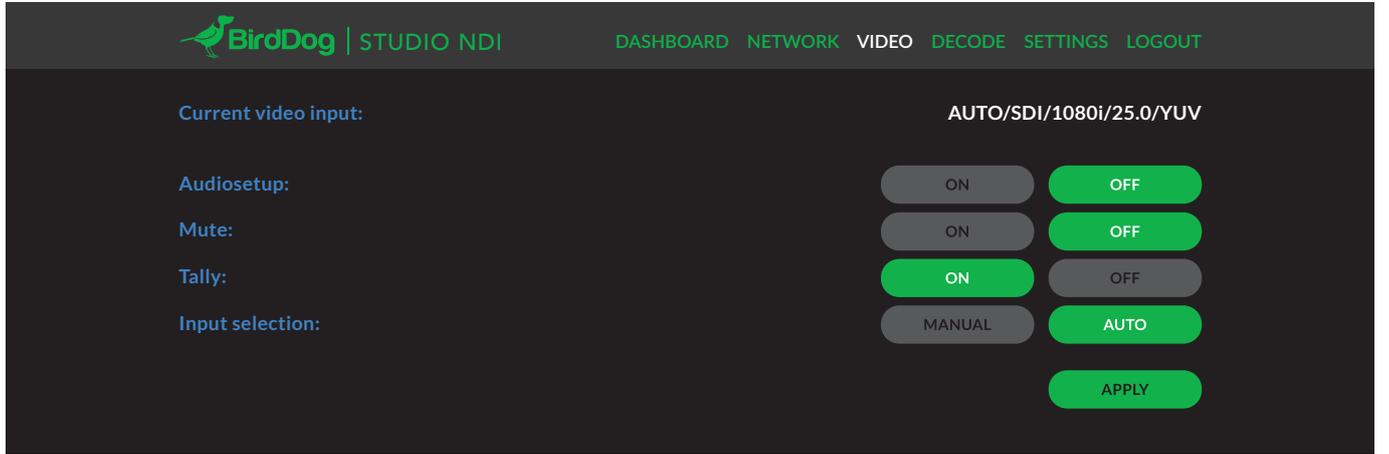
### Preview Tally



### Tally border overlay on loop

Studio NDI is capable of enabling Tally borders on the video loop out. This feature is particularly useful for a camera setup that has a video monitor attached.

The camera operator is able to quickly see if their camera is being used in a current or preview shot in a live environment. This feature is enabled via the Video settings tab in the web configuration panel.

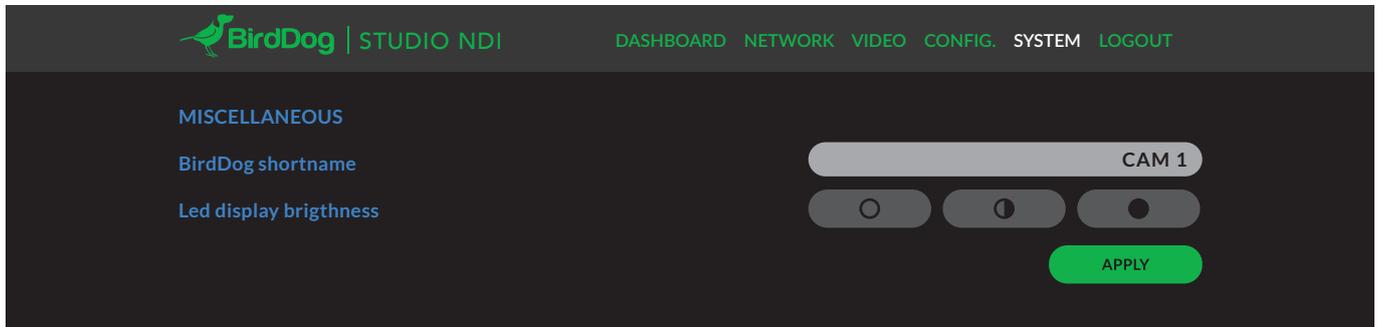


Note the Tally borders now appear on the outside edges of the external monitor and update in real time as you select sources on your vision switcher.

## RENAMING THE LED SCREEN

It is possible to rename the Studio NDI device's on-board LED screen to reflect the location or identification of the source to adjust the name from the default 'CAM1', locate the Miscellaneous settings on the settings page in the web configuration panel.

Note that only standard characters may be used (a...z, A...Z, 0-9).



## FACTORY RESET

### Settings reset

If Studio NDI is not found on the network and the web configuration console is inaccessible it is possible to perform a factory reset on the network settings. To reset Studio NDI simply press and hold the reset micro switch for 6 seconds at any time after Studio NDI has booted up (approx. 20 seconds after power on).

Once the reset process begins, BirdDog Studio NDI will flash the LED screen between red and green repeatedly. Once the screen stops flashing, the reset process has completed and all network settings will return to default (device name and DHCP network address).

The reset switch is located on the top of the unit here:

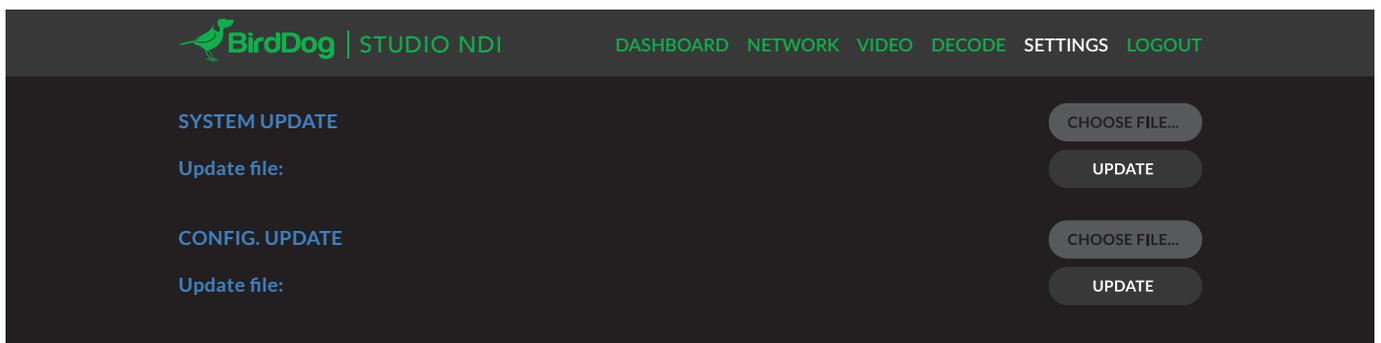


## FIRMWARE UPDATE

Studio NDI is updateable via the web interface. Please check the below address regularly to ensure you have the latest firmware available for your device.

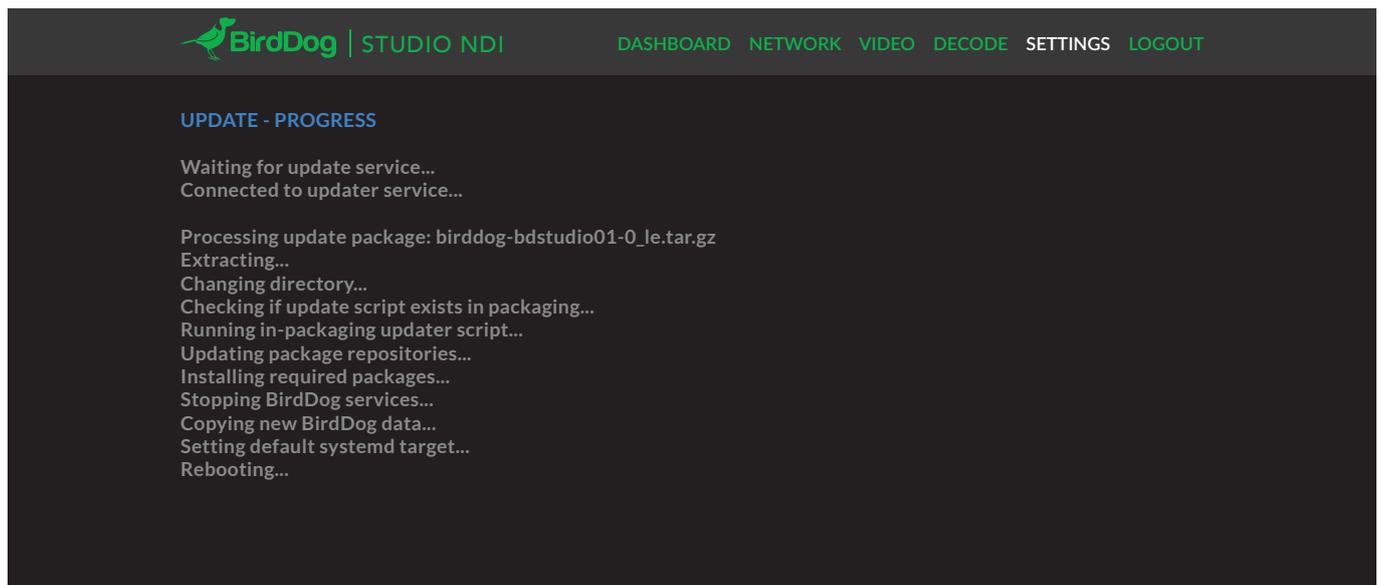
Having the latest firmware ensures you have all the latest features and performance updates to get the most out of Studio NDI: [bird-dog.tv/firmware-updates](http://bird-dog.tv/firmware-updates)

After downloading the latest firmware release, navigate to the settings tab on the Studio NDI web configuration console click on Choose file... select the firmware update file and press the update button.



The screen will update the status of the update procedure, once complete it will show the line Please power cycle your device...

Remove all power from the Studio NDI and wait for 5 seconds before re-powering the device.



## RECEIVING STUDIO NDI STREAMS

There are many applications that support receiving the NDI signal that Studio NDI produces. Each application will vary slightly on how you choose your source.

### NewTek Studio Monitor

NewTek provide a free Studio Monitor application that allows you to monitor many NDI sources on a standard Windows computer. Once Studio Monitor is launched on your computer, simply right click anywhere in the interface and select your Studio NDI from the drop-down list.

Once connected to the Studio NDI you will notice a configuration cog appears on the bottom right-hand side of the video display, this is a shortcut to access the Studio NDI web configuration panel.

### NewTek TriCaster Series

NewTek TriCaster series devices allow several NDI sources to be received simultaneously, the amount of simultaneous connections varies by what model TriCaster you have. Consult your TriCaster user manual to determine how many connections are available on your device.

To select Studio NDI as a source on your TriCaster, simply click on the configuration cog below your desired source location, this will bring up the Input Setting dialog, select from the drop-down list your Studio NDI source.

Once connected to the Studio NDI you will notice a configuration cog appears next to the source drop down window, this is a shortcut to access the Studio NDI web configuration panel.

[bird-dog.tv](http://bird-dog.tv)

[hello@bird-dog.tv](mailto:hello@bird-dog.tv)