# NETXROUTER

User Guide v7

March 31, 2026

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# 1 Introduction

This manual is for NETXROUTER version 7 software from Drastic Technologies, Ltd.

## 1.1 Conventions

This manual assumes the following:

That the user knows how to operate a mouse and keyboard and perform the basic functions of Microsoft Windows, macOS or Linux operating system.

That the user is familiar with the creative software in use.

That the user has access to technicians capable of placing the device on the network and setting up any SAN systems if necessary.

The name of a control or display present on the interface will be displayed in **bold** text.

Where a portion of the manual is referred to the name of section mentioned will be displayed in *italics*.

Certain images in this document may have been grayed out where it is useful or necessary to place indicator marks to show specific controls or displays above a darker background.

## 1.2 About NETXROUTER

Increasingly, video content creation and distribution workflows are migrating toward an IP backbone, with obvious cost and efficiency benefits. However, there are an ever growing number of streaming protocols, and each distribution endpoint may require a different protocol depending on a number of factors such as security, multiplexing/single endpoint, current setup, bandwidth, and so on.

There will be cases where you have access to an IP stream or streams, and they are either SRT, RTP, UDP, or RIST streams. In some of these cases you will want to use these streams by sending them to other stakeholders for collaboration, asset sharing, delivery and output purposes.

**NETXROUTER** can take either up to 8 or up to 16 SRT, RIST, UDP, or RTP inputs and send them out as up to 16 SRT, RIST, UDP, or RTP outputs with on the fly transwrapping as needed. (transwrapping changes the protocol but not the codec) Local or cloud based workflows supported. **NETXROUTER** provides dependable, secure live video streaming to multiple destinations for content sharing, review and approval, production, broadcast, and distribution workflows.

**NETXROUTER** can receive these streams and route them to remote users. It is possible the destination targets will require a flavor of IP stream other than the source. **NETXROUTER** can convert from one type of stream to another in real time to accommodate varying destination capabilities.

**NETXROUTER** performs real time video routing and protocol conversion so you can send your streams to an unlimited number of users with varying network security and bandwidth capabilities.

**NETXROUTER** can distribute and multiplex your streams, so you can provide access to your stakeholders as needed. Each module provides 16 channels of output, and may be scaled up as needed by adding modules.

**NETXROUTER** is the secure, robust media stream gateway that will simplify your content creation workflow. Quickly assign an input and output 'port', a UDP/RTP/SRT/RIST IP address, port and latency/encryption settings and go. **NETXROUTER** performs all the necessary protocol conversion with extremely low latency to optimize streams to specific networks without impacting video quality and latency. **NETXROUTER** can be deployed anywhere on a network so that devices behind the firewall can reach streams while maintaining network security policies. You can use **NETXROUTER** in one static configuration all the time, or change the setup every time a new source or destination is needed.

### 1.2.1 Main Use Cases

- Remote contribution
- Backhaul
- Return feeds
- Bi-directional interviews
- Content distribution for international syndication
- Sharing with affiliates

### 1.2.2 Technical Specifications

- **IP Stream Inputs**: up to 8 or up to 16 (depending on the license) SRT, RIST, UDP, or RTP inputs, user selectable
- **IP Stream Outputs**: up to 16 SRT, RIST, UDP, or RTP outputs, user selectable

## 1.3 System Requirements

### 1.3.1 Recommended Environment

**NETXROUTER** software must be installed on a system at least as powerful as the configurations detailed at the link below.

https://www.drastic.tv/images/documentation/recommended_hardware_environment.pdf

Demo downloads of Drastic software are available for the user to test their application and to confirm their workflow. Faster and more powerful hardware will provide better performance. In some cases, specific hardware will be required in order to enable resource-intensive, advanced or optional features.

# 2 Installing NETXROUTER

**NETXROUTER** is designed to run locally or in the cloud on Windows or Linux (RedHat or Ubuntu) platforms. Please note: NETXROUTER MUST BE LICENSED to run at all. You can use the licensing app included in the installs to get a temporary license to test with.

## 2.1 Windows

The Windows **NETXROUTER** installer is a standard Setup.exe style installer. Run SetupNet-X-Router_x64_7_0.exe and follow the prompts.

By default, **NETXROUTER** runs on port 80/443 using the Apache web servce. To run it on Windows you must also install UwAmp (a Windows Apache HTTP server) from
https://www.uwamp.com/en/?page=download
If there is are request for restart during an installation, do not allow it to restart. Once the installer finished, you must restart the system.

## 2.2 Linux

**- @todo**

## 2.3 Apache Config

To allow the **NETXROUTER** API to work properly, the config file must include the following entries. In them main section, enable these modules:

LoadModule log_rotate_module "{APACHEPATH}/modules/mod_log_rotate.so”
LoadModule proxy_module "{APACHEPATH}/modules/mod_proxy.so"
LoadModule proxy_http_module "{APACHEPATH}/modules/mod_proxy_http.so"
**LoadModule rewrite_module "{APACHEPATH}/modules/mod_rewrite.so"**

In the normal (port 80) section and https section (port 443), the following must be added:

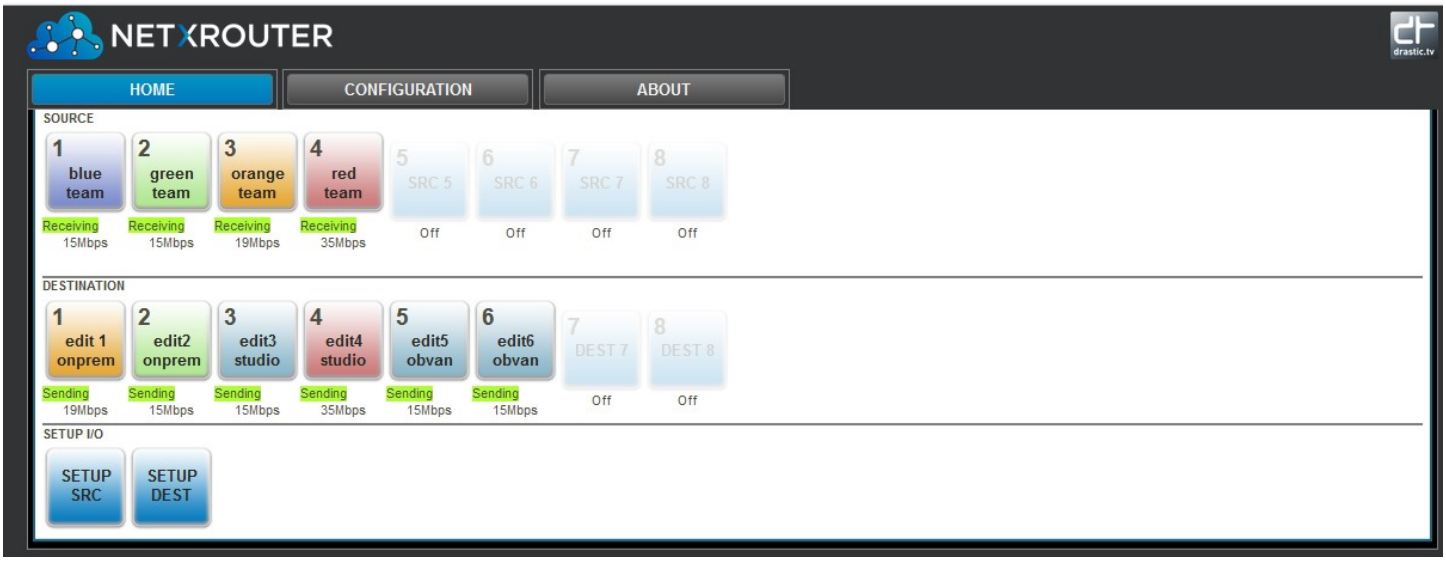
ReWriteEngine On
**ProxyPass /config http://127.0.0.1:1080/config**
**ProxyPassReverse /config http://127.0.0.1:1080/config**
**ProxyPass /options http://127.0.0.1:1080/options**
**ProxyPassReverse /options http://127.0.0.1:1080/options**

# 3 Configuring NETXROUTER

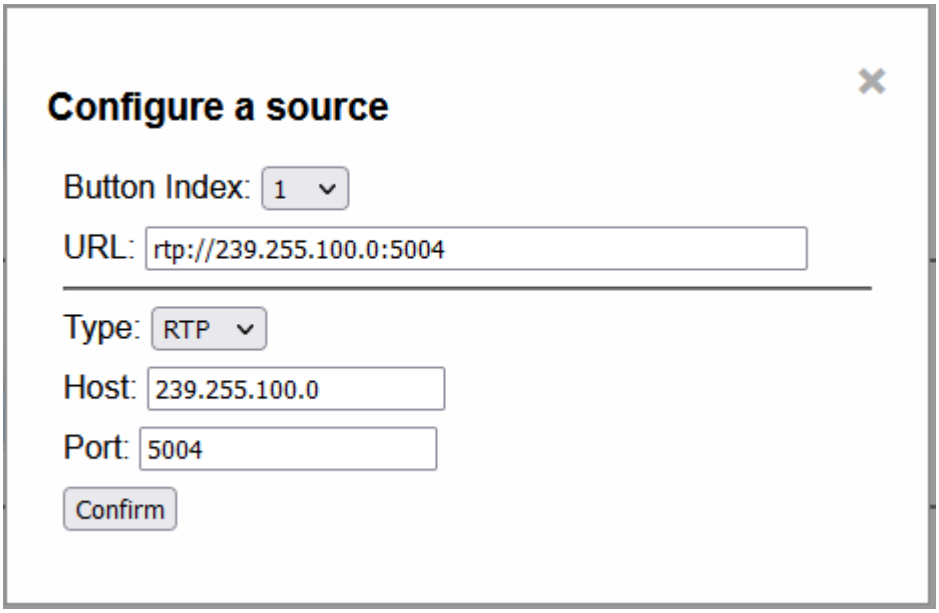
**NETXROUTER** is a software based router for IP streams. It assumes you have access to a number of SRT, RTP, UDP, or RIST streams, and you would like to route them to various end points for distribution. As the signals are routed they can optionally be converted from one supported protocol to another.

## 3.1 Set Up a Source IP Stream

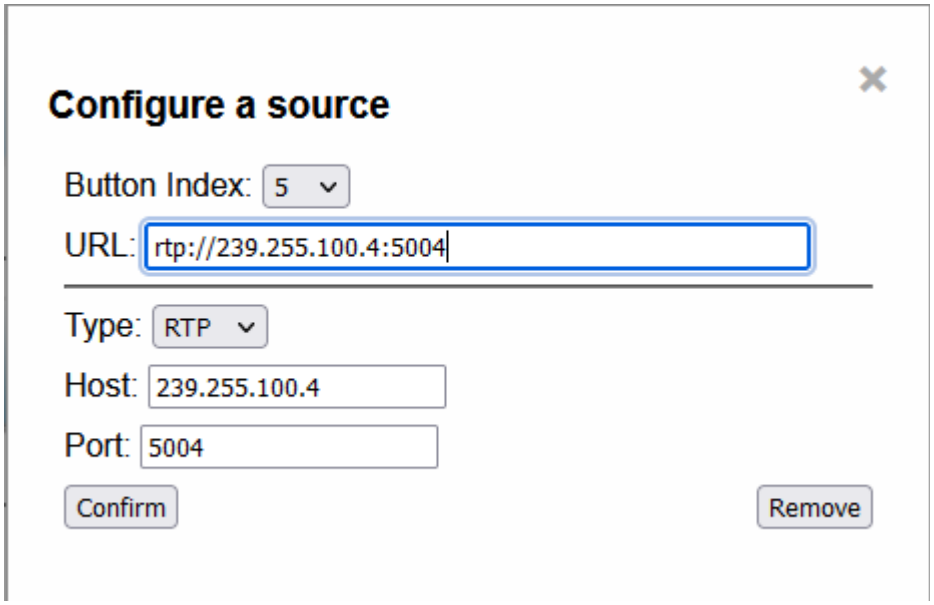
Run **NETXROUTER**. The user will run the **NETXROUTER** GUI in their browser, which provides a convenient web interface to access all the controls. Select the **Home** tab. The below image shows a few sources already set up.



Click on the **Setup SRC** button on the lower left. This opens a configuration window to let you specify the stream's details.



Use the **Button Index** pulldown menu to confirm which button you'd like to assign your source to. For this example, we will add a fifth source channel.




Specify the URL of the incoming stream. You can type in the host, and the port, and specify an IP stream type, and **NETXROUTER** will fill in the URL. Alternately, you can enter the URL, and the type, host, and port will all be automatically filled in.

You can check the IP Protocols section of this manual for information on each protocol's style.

In the **Host** field, specify the URL of the host system that will receive the stream. Note that the host is also contained in the source URL.

In the **Port** field, specify the port being used to send the stream. Note that the port # is also contained in the source URL.

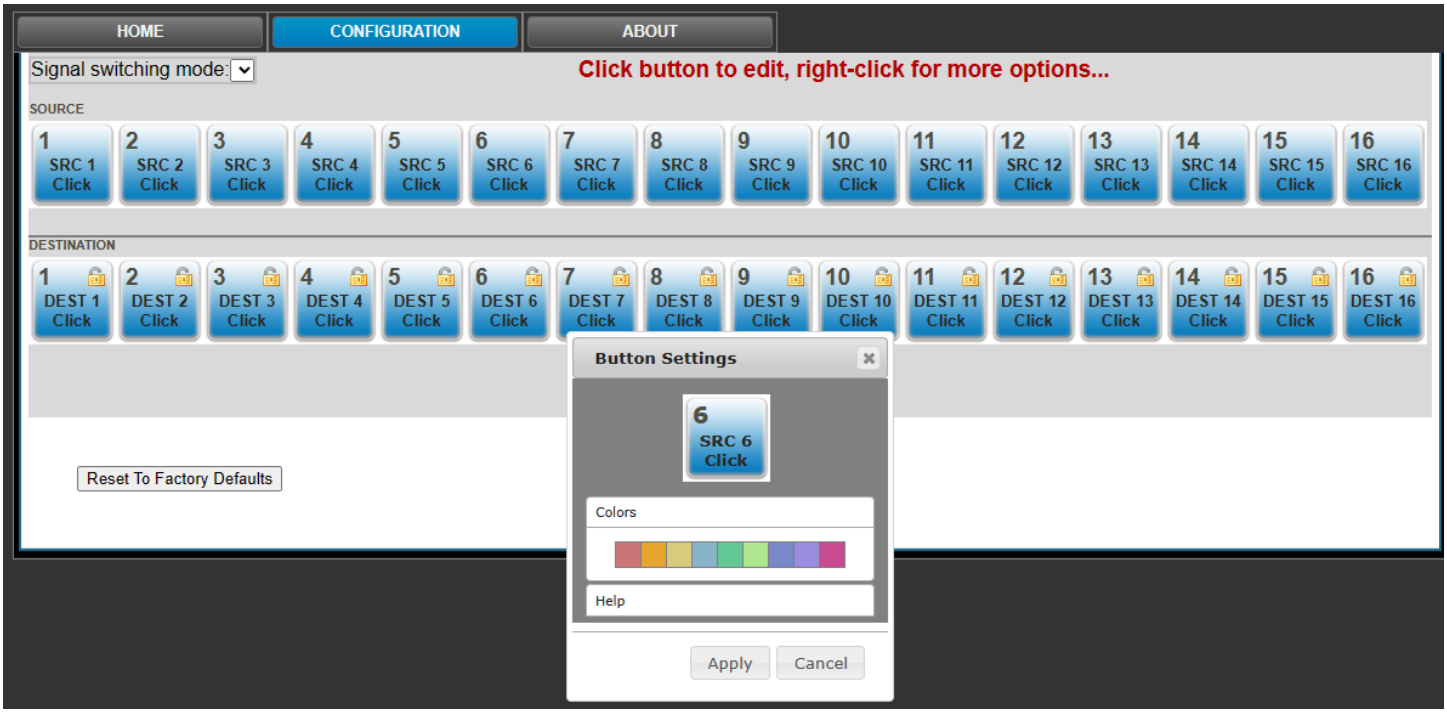
Press the **Confirm** button. The button will connect, and begin receiving.

### 3.1.1 Source Button Settings

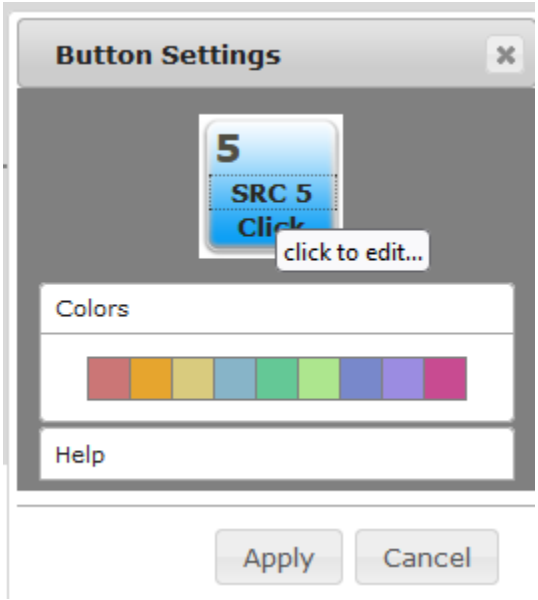
Once you have at least one source set up, you can configure how the button is displayed.

#### *3.1.1.1 Specify Destination Details*

Click the **Configuration** tab. Click a **Source** button to review its settings.



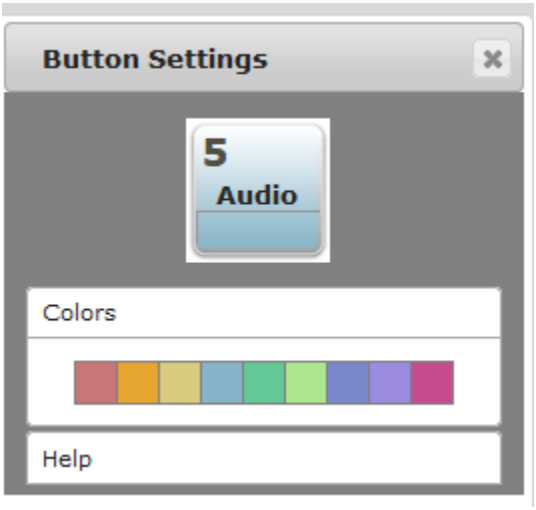
The button for each source can be customized to clarify your workflow. In the above image the user has clicked on button 6.



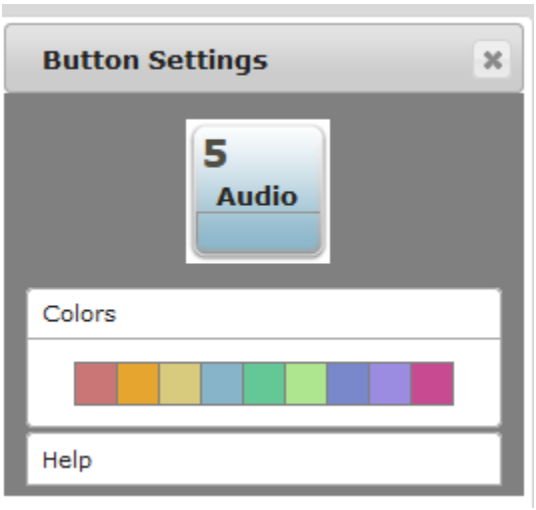

Clicking on the text fields lets you edit the text for easy identification. Clicking a color changes the color of the button so you can logically organize the streams by color.

Click on the upper text field. The text will be replaced by a cursor, so you can type in a short title for the button.

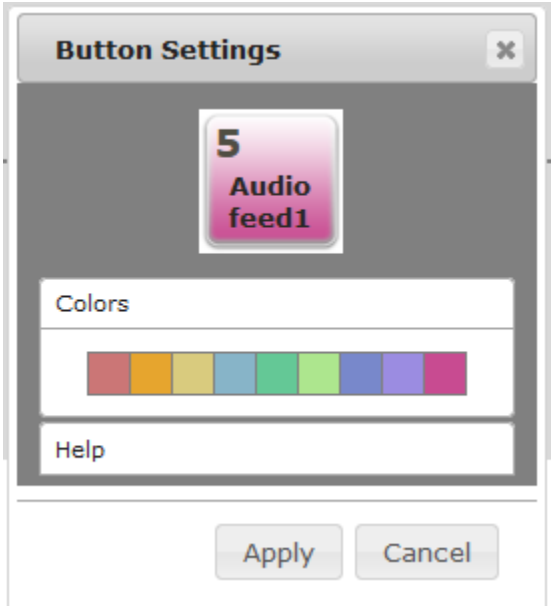
Enter a title into the field. Then click on the lower field.




Enter some descriptive text here to more easily identify the feed.

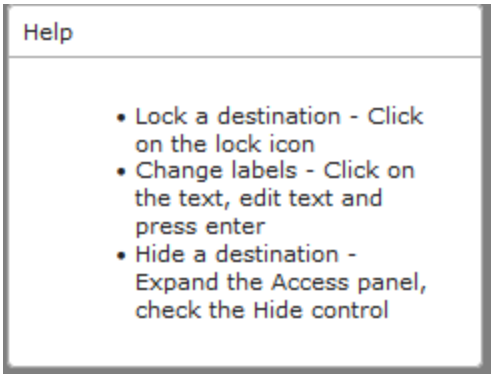


You can also change the color of the button.




Clicking the Apply button closes the button settings window, and enables your changes.

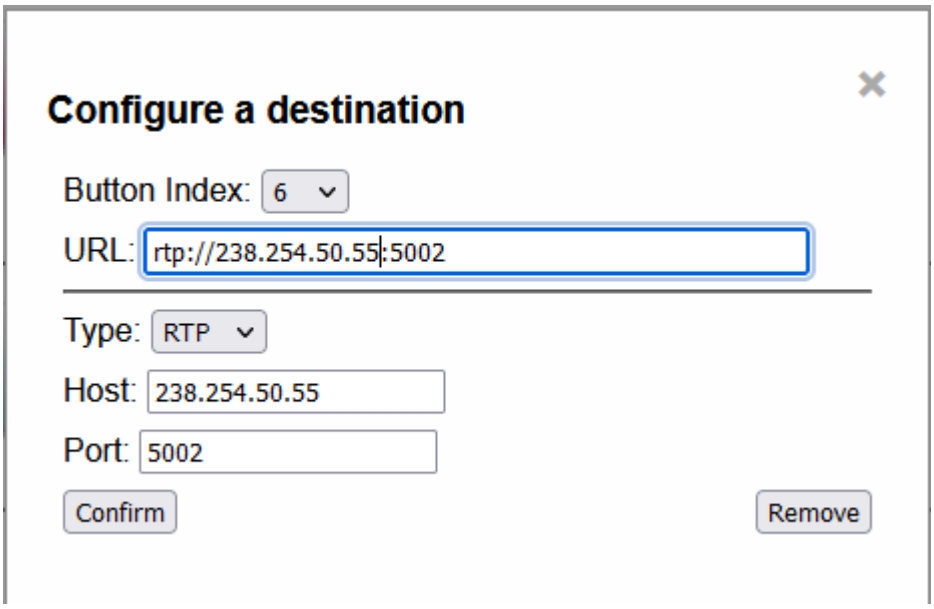
Pressing the **Help** button reveals a couple tips on how to customize each button.




Clicking **Apply** will save any changes. Clicking **Cancel** will exit the settings dialog without making any changes.

## 3.2 Configure a Destination

Click on the **Setup Dest** button. This opens a configuration window to let you specify the stream's details. In this example we will add a 6th destination.

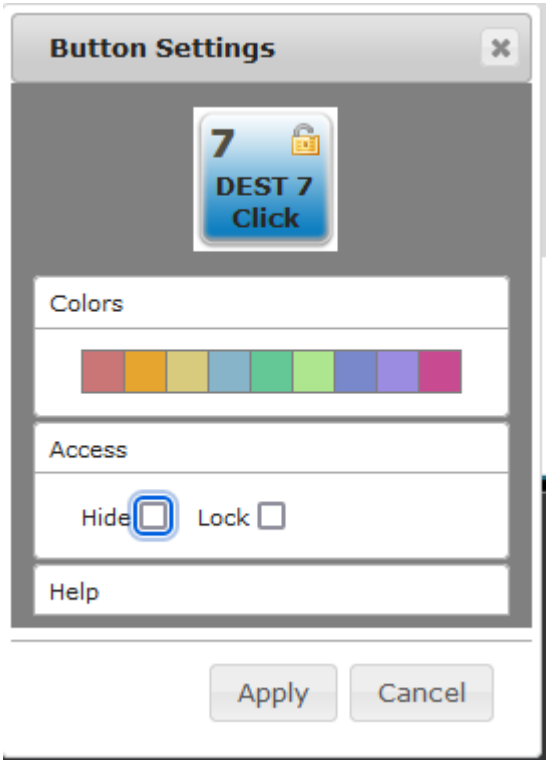



Clicking the confirm button will add the channel as specified. If you enter the whole URL, and Type, Host, and Port will be automatically populated. If you select the Type using the pulldown menu, and enter the host and port manually, the URL will be automatically populated.

### 3.2.1 Destination Button Settings

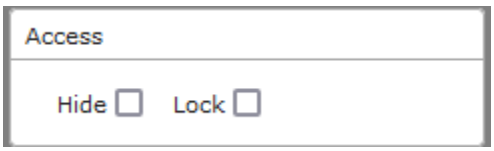
Click the **Configuration** tab. Click a **Destination** button to review its settings.

The button for each source can be customized to clarify your workflow. Clicking on the text fields lets you edit the text for easy identification. Clicking a color changes the color of the button so you can logically organize the streams by color.

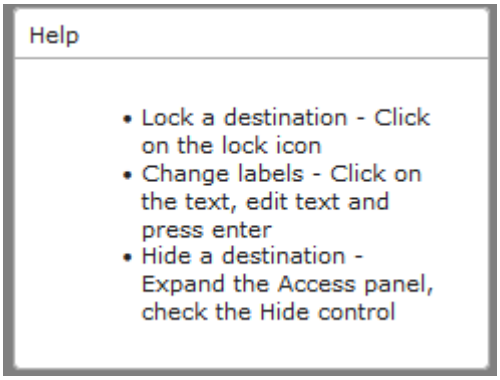



A **Destination** channel can be locked so no accidental changes can be made, and even hidden entirely in a 'set it and forget it' type of configuration.

Clicking the **Lock** checkbox locks the channel so no changes can be made to it. Clicking the **Hide** checkbox removes the channel from display to clarify the current workflow.



Pressing the **Help** button reveals a couple tips on how to customize each button.



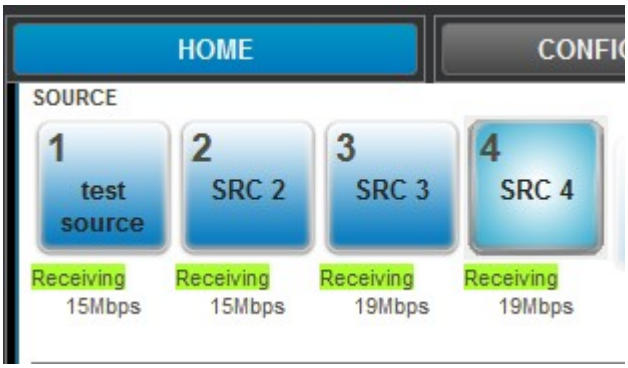

Clicking the **Apply** button will save any changes. Clicking the **Cancel** button will exit the settings dialog without making any changes.

# 4 Setting the Destination to the Source

Once you have set up the sources and destinations, you can assign each source to a destination as required. It is a rather straightforward two step operation.

Click on a **Destination** button to select it.
Then click on the **Source** button you want to send it to.

It will display “Receiving” to indicate the source is being received.



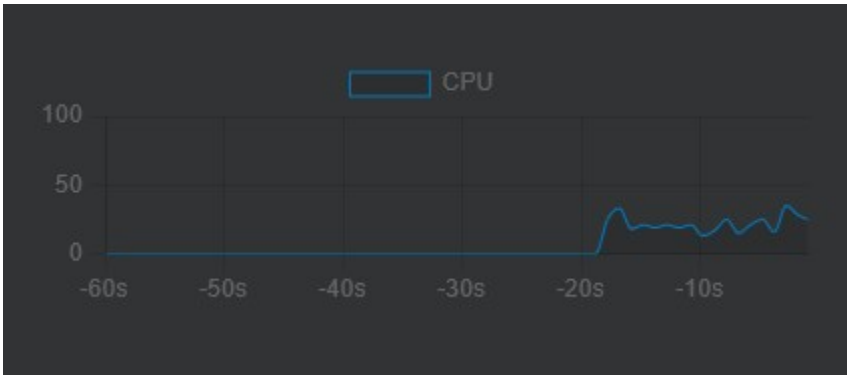
# 5 Real Time Status

The resource usage is monitored in real time and displayed at the bottom of the page, so you can make sure your system is handling the throughput properly. Specifically, the CPU usage, the Memory usage, and the Network Inbound and Outbound traffic are monitored.

Each usage meter scales dynamically, and may not show a full 100 unless you are using a lot of resources.

## 5.1 CPU

The CPU usage is monitored in real time. Clicking the checkbox will turn off the CPU monitoring.

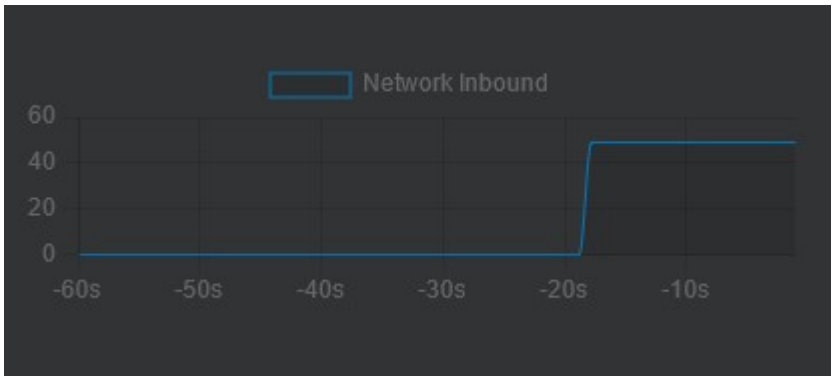



## 5.2 Memory

The memory usage is monitored in real time. Clicking the checkbox will turn off the memory monitoring.

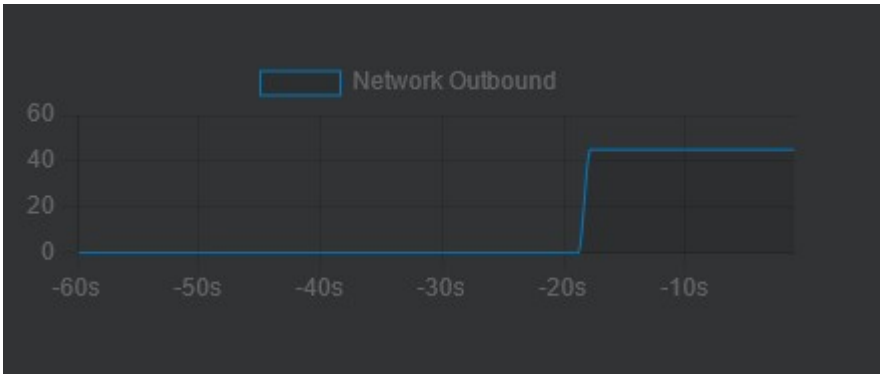
## 5.3 Network Inbound

The network inbound traffic is monitored in real time. Clicking the checkbox will turn off the inbound network monitoring.




## 5.4 Network Outbound

The network outbound traffic is monitored in real time. Clicking the checkbox will turn off the outbound network monitoring.



# 6 IP Protocols

## 6.1 UDP and RTP

**UDP** [User Datagram Protocol] and **RTP** [Real-time Transport Protocol] streams can be elementary video or audio streams, or more commonly a transport stream with PMT/PAT (Program Association Table/Program Mapping Table) and a number of streams within it. For UDP and RTP, you can specify a TCP (direct) address, but normally it will be a multicast group address, and also a port is normally specified. Here are a few examples:

udp://239.254.40.40:5004
rtp://239.100.20.20:50004
rtp://239.100.30:31:1234

This is a server protocol on the receiver, and requires the selected port to be open to receive. On the send side, it should work without firewall adjustment.

## 6.2 SRT

**SRT** [Secure Reliable Transport] streams contain a transport stream with PMT/PAT and a number of streams within it. For SRT you can specify an address and a port. There are three modes for SRT: listener, caller, and rendezvous. If you are a listener, you can only connect with a caller, and vice versa. For Rendezvous, both the sender and receiver must be in rendezvous mode. A password for encrypted service can also be set. Here is some information on the modes:

**Listener** - this has to be one of your local IP addresses, and acts as a server waiting for a connection, so it must be directly visible to the caller (not behind a firewall)
**Caller** - this calls out to a remote IP that is running as a listener. You must be able to reach the IP directly (e.g. no firewall)
**Rendezvous** - this connects bi directionally, allowing it to connect through firewalls without extra configuration. Each side of the rendezvous uses the external (internet facing) IP address of their internet connection. This allows the signals to connect and pass through the firewall

Here are a few examples:

srt://239.254.40.40:5004?mode=listener
srt://172.12.25.20:5006?mode=caller

srt://239.100.30:31:1234?mode=caller&password=thisisapassword&user=thisisauser

Possible parameters include

mode=
caller
listener
rendezvous
password=<string>
keylen=16|24|32
username=<string>
streamid=#
latency=#
buffering=#
maxbw=#

When using the 'listener' mode, the port it is listening on must be open in the firewall. For Caller and Rendezvous, it should work without firewall adjustment.

## 6.3 RIST

**RIST** [Reliable Internet Stream Transport] streams are UDP based self correcting connections. RIST supports three profiles: Simple, Main, and Advanced. Both the sender and the receiver must be in the same mode. The receiver will be the server and listen for a connection. The sender will be the client and connect to the receiver to send the data. The protocol will use two ports, the lower of which is specified in the URL and the higher which is the lower plus one. The lower port must be even.

Here are a few examples:

rist://10.0.0.123:5000?mode=listener&profile=main
rist://192.168.1.22?mode=caller&profile=simple

Possible parameters include:

mode: listener (for server/receiver), caller (for client/sender) - Required
profile: simple. main or advanced
password: encryption key
buffering: amount of buffer in milliseconds

When using the 'listener' mode, the port it is listening on must be open in the firewall. For Caller, it should work without firewall adjustment.

# 7 Operation Under Control

**NETXROUTER** supports AJA and Grass Valley control protocols.

## 7.1 Grass Valley Control Protocols

NP Commands Supported
Background:

BK, I; Connect, heartbeat
BK, N; Gets system name
BK, T; Gets software title
BK, t; Gets protocol software
BK, R; Gets software version
BK, d; Gets device name
Queries:

QN, S; Gets all srcs by name
QN, IS; Gets all srcs, name & index
QN, D; Gets all dests, names
QN, ID; Gets all dests, name & indx

## 7.2 AJA Control Protocols

KUMO SDI Routers and Control Panels v4.3 45

QN, L; Gets levels (hard coded as “Kumo_Lev0”)
QD, {destname}; Gets: protect {On/Off}, chop{=OFF}, {sourceName}, level{=lev0}
Qd, {destname}; Gets: protect {On/Off}, chop{=OFF}, {sourceName}, level{=lev0}
Control:

TD,{destname,srcname};Takes by name
TI,{destIndx,srcIndx}; Takes by index
PR,{destname, levelmask} Sets lock for given dest
UP,{destname, levelmask} Unsets lock for given dest

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Hardware and Media—The Product hardware components, if any, including equipment supplied but not manufactured by the Company but NOT including any third party equipment that has been substituted by the Distributor or customer for such equipment (the “Hardware”), will be free from defects in materials and workmanship under normal operating conditions and use.

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Your sole remedies under this limited warranty are as follows:
Hardware and Media—The Company will either repair or replace (at its option) any defective Hardware component or part, or Software Media, with new or like new Hardware components or Software Media. Components may not be necessarily the same, but will be of equivalent operation and quality.

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