



## **BirdDog Mini Firmware v20.11.367**

### **Release notes**

BirdDog Mini v20.11.367 firmware brings some substantial new features and enhancements to the BirdDog Mini product making it more flexible.

Key improvements and feature additions are listed below:

- Added analogue audio input as a source in encode mode
- Added support for NDI Groups
- Changed the format of the config file for Remote Sources and NDI Groups
- Added real time NDI decode status information
- Minor changes made to BirdDog Dashboard

## **BirdDog Mini Firmware v3.6.3**

### **Release notes**

BirdDog Mini v3.6.3 firmware brings some substantial new features and enhancements to the BirdDog Mini product making it more flexible.

Key improvements and feature additions are listed below:

- Added NDI v4.5.3 support
- Under the hood performance and stability enhancements

## **BirdDog Mini Firmware v3.6**

### **Release notes**

BirdDog Mini v3.6 firmware brings some substantial new features and enhancements to the BirdDog Mini product making it more flexible.

Key improvements and feature additions are listed below:

- Significant improvements in our sender and receiver efficiency
- Reduced heat emission
- Fixed issue where some software receivers could not detect frame changes within a frame causing them to crash
- Added 1080p24 and 1080p23.98 encode and decode
- Added ability to switch between the full bandwidth and proxy stream in Decode mode
- Added Comms support in Decode mode
- Minor cosmetic improvements made to BirdDog Dashboard (WebUI)

## **BirdDog Mini Firmware v3.4**

### **Release notes**

BirdDog Mini v3.4 firmware brings some substantial new features and enhancements to the BirdDog Mini product making it more flexible.

Key improvements and feature additions are listed below:



- Fixed the audio distortion on decode in 720p mode.
- Added BirdDog Neutralizer support
- Fixed the 'Encode' and 'Decode' labels.

## **BirdDog Mini Firmware v3.1 Release notes**

BirdDog Mini v3.1 firmware brings some substantial new features and enhancements to the BirdDog Mini product making it more flexible.

Key improvements and feature additions are listed below:

- NDI v4.1 support
  - o This version of firmware includes the latest NDI libraries allowing for greater compatibility, higher performance NDI source discovery and new network operating modes
  - o Supports NDI 4.x Discovery server for larger deployments
  - o Added MultiTCP support
- Updated Web UI
  - o Since there are many more options in v3.0 firmware, the Web UI has been updated to accommodate a drawer arrangement for the A/V Setup making it cleaner and easier to understand
  - o Dynamic feedback is now included in the WebUI where any setting is correctly reflected in the WebUI even after the unit is rebooted
- New HDMI Input module
  - o The updated HDMI input module mates the BirdDog Mini 10x faster at connecting to and encoding HDMI sources, it responds immediately to HDMI signal loss and reconnection and is much more reliable when switching rapidly between different sources.
- HDMI Colour space selection
  - o Choose between YUV and RGB colour space on the HDMI output of BirdDog Mini (operational for both loop and decode operating modes)
- Selectable HDMI output behaviour
  - o Select between HDMI loop out and NDI Decode
  - o readily accessible and allows remote troubleshooting
- NDI Failover
  - o You can now notify an NDI receiver what NDI source it should switch to in the event that the BirdDog source is no longer available
- NDI Decode performance improvements
  - o NDI decode has been improved to be line-based decoding, the net result is a 1 frame improvement in the latency of decode.
- NDI Decode Alpha channel support
  - o NDI Decode will now connect to NDI sources which include Alpha channel, you can select to either display the main Fill image or the Alpha decoded image on the HDMI output.
- NDI Bandwidth management
  - o User-selectable NDI bandwidth target bitrate, this allows users to increase or decrease the amount of network bandwidth the BirdDog Mini uses, this is selectable between 80mbps and 180mbps
- Enhanced Tally support
  - o On-board Tally LED can be enabled or disabled independently of the HDMI output Tally borders.
- Custom Screensaver
  - o When BirdDog is set to decode mode and the desired NDI source is not available you are able to select between the unit displaying a Black image, the BirdDog default logo, or a custom logo which you can capture from any NDI source.
- Audio Gain adjustment
  - o User selectable gain for the headset microphone and speaker output, this allows support for many more devices for use with BirdDog Comms or for analogue audio output in Decode mode.



- RESTful API support
  - Mini is now controllable from any device that allows RESTful commands, this allows for automation systems to take full control of the BirdDog Mini and retrieve system status information.
  - More information on BirdDog RESTful API is available at <https://birddoghelp.freshdesk.com/support/solutions/articles/48001049120-restful-api-1-0->
- Enhanced BirdDog Central Pro support
  - Restart video is now supported within the Central Pro application, this will restart both the Encode and Decode engines on the BirdDog Mini, this is particularly useful for a BirdDog Mini that is not
- BirdDog Comms Pro/Comms Lite 1.2 support
  - This firmware supports the updated BirdDog Comms Pro and Comms Lite applications which offer significantly higher performance and useability. Comms software is available via a separate download, release notes of changes in this version are included in the download package.



### NDI 4.1 support

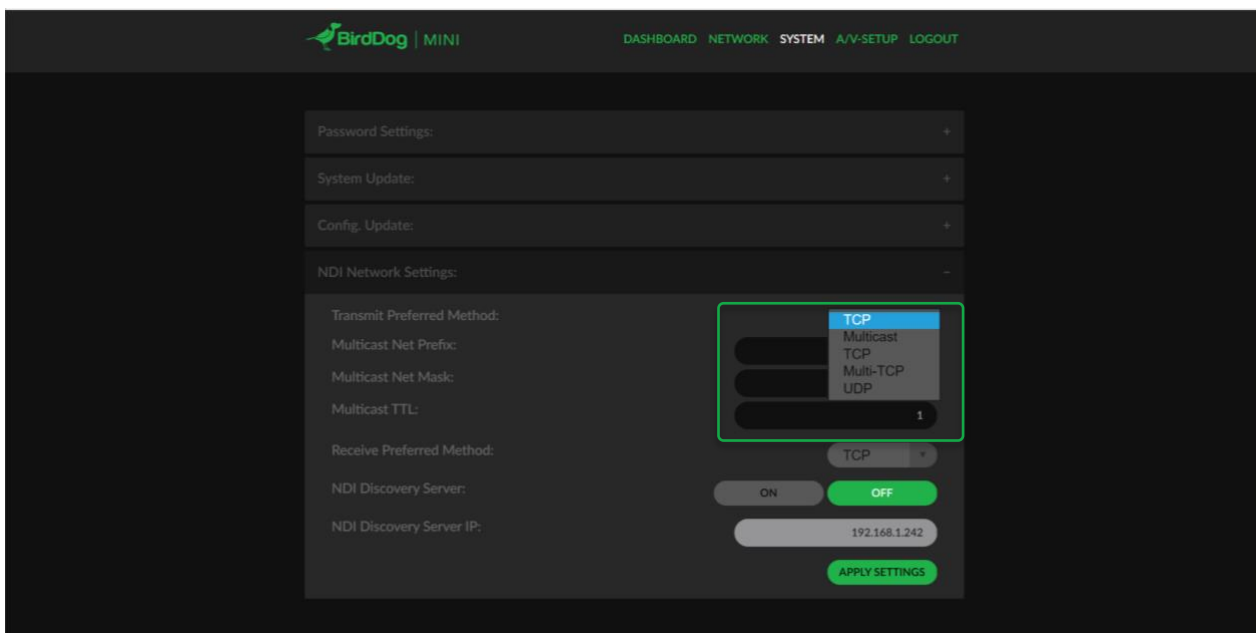
The latest NDI version includes many performance improvements in the networking stack of the NDI protocol. It results in faster discovery of NDI sources, handles poor networking performance better and includes new features including MultiTCP protocol and NDI Discovery Server.

Firmware 3.1 employs new methodologies to handle poor networking performance on a single receiver – e.g. if one receiver was on WIFI trying to receive an NDI stream it could cause dropped frames across the network owing to the receiver holding onto the frame buffer within NDI. BirdDog now serves out individual buffers to each receiver meaning a single poorly performing device will not affect other receivers on the network.

### MultiTCP

MultiTCP is a new NDI transport method that allows users to send NDI video over poor network topography such as WAN (Wide Area Networks) without experiencing issues such as packet loss and lost frames. In the past in order to send NDI video over a WAN the UDP transport was the only option available. UDP solved some issues of WAN applications by allowing the NDI video to travel without dropping masses of frames but results in dropped packets being missed which could cause unstable video. UDP also places more performance demands on devices sending and receiving the signal.

MultiTCP employs a new method of sending TCP packets whereby it opens a mass of TCP connections over the WAN and uses them in a 'round robin' manner, this allows each individual TCP connection enough time to acknowledge the receiving packet, confirm nothing is lost and prepare for the next one before it's sent the next TCP packet in the round robin. This is similar to a RAID setup in traditional storage.

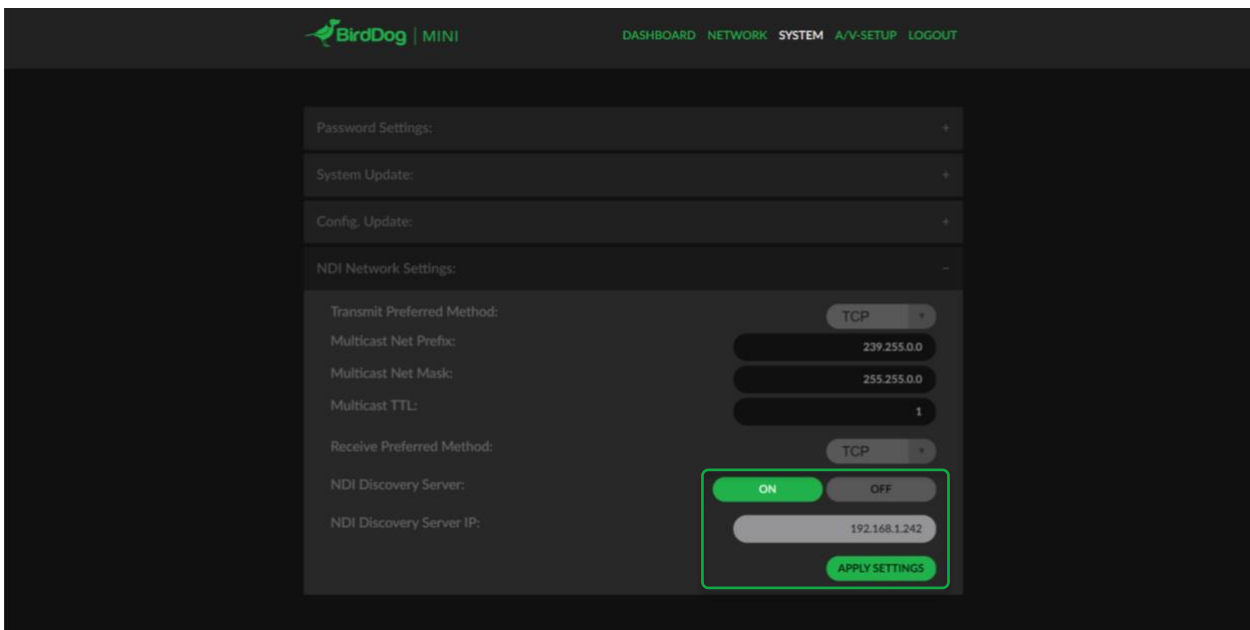




### NDI Discovery Server

NDI 4.1 has a new, optional NDI discovery method called NDI Discovery Server. NDI Discovery server is designed for large environments with many hundreds of NDI sources, in these cases the act of searching for NDI sources can easily overwhelm even a high-powered computer. In addition to this the regular NDI discovery method does not pass source information over network subnets or VLANs.

NDI Discovery Server has two components. The NDI Discovery SERVER software – available as part of the NDI SDK from [www.ndi.tv](http://www.ndi.tv), which must be run on a single computer on the network. Once NDI Discovery SERVER software is operational you can enrol individual devices to the NDI Discovery Server. In BirdDog devices this is set under the Settings tab. Ensure the NDI Discovery Server option is set to ON and the correct IP Address is listed in the NDI Discovery Server address.



Once this is configured the next time the BirdDog Device is rebooted, or video is restarted the BirdDog unit will switch its discovery protocol to NDI Discovery Server. Note these methods are mutually exclusive – you cannot operate in a hybrid of NDI Discovery Server and regular NDI discovery mode on a single network successfully.

### New HDMI Input module

Firmware 3.1 includes a much-improved HDMI input module resulting in a more robust and faster connection between HDMI sources and BirdDog Mini.

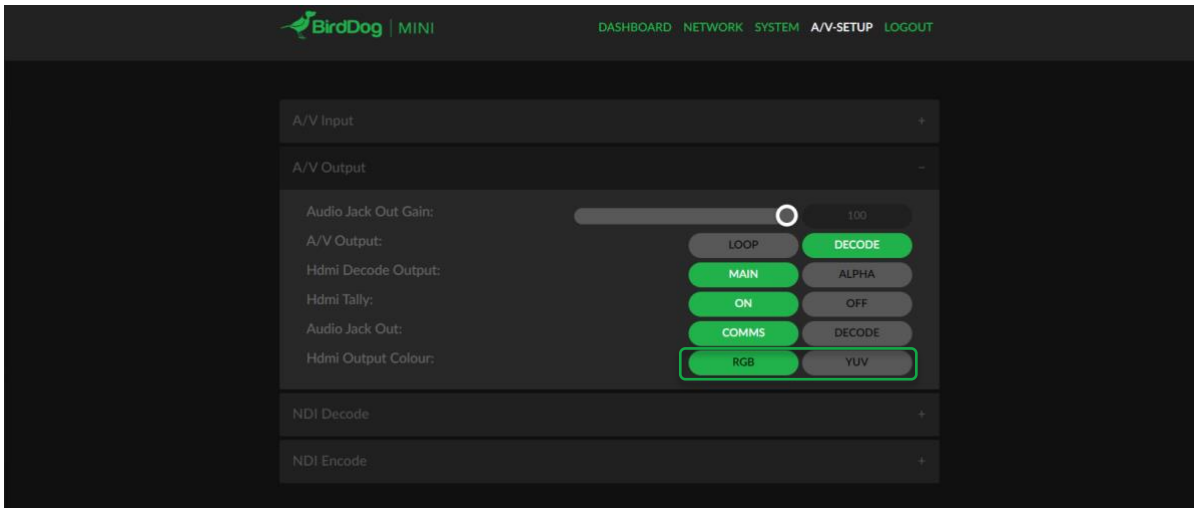
Synchronising sources is dramatically improved in speed. If a HDMI plug is removed while the BirdDog is encoding the device no longer sends the partially received frame as this causes some applications to halt.



### HDMI Colour space selection

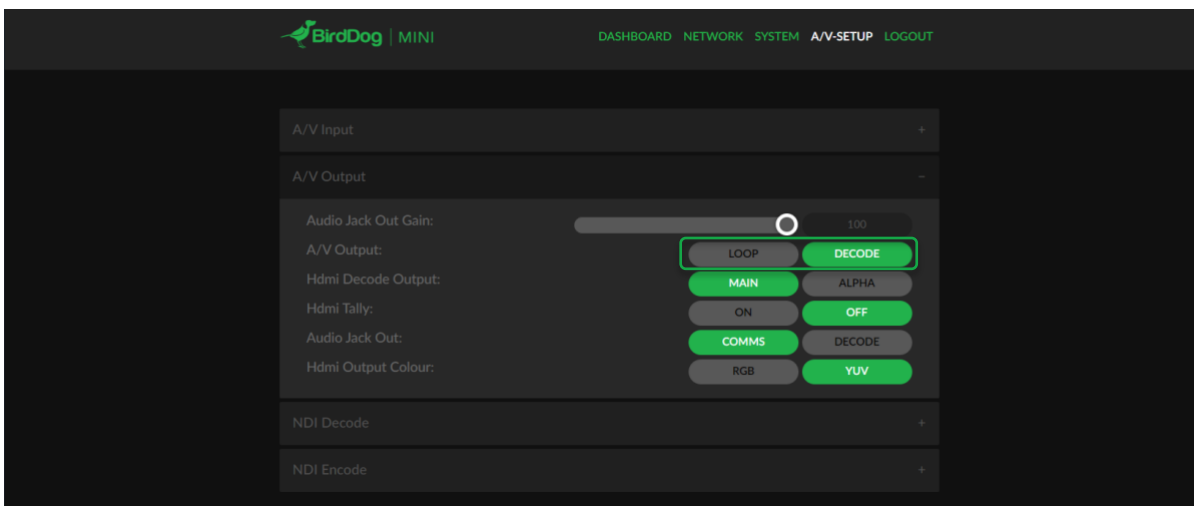
HDMI outputs are now selectable between YUV (Default) and RGB colour spaces. This can assist when using computer displays for NDI decoding. A significant portion of computer screens cannot support YUV colour space.

The appearance of video on a screen that cannot support YUV colour space is inverted colours with vertical lines throughout the image. If you are seeing this, please change the HDMI output colour space to RGB and press RESTART VIDEO on the dashboard.



### Selectable HDMI output behaviour

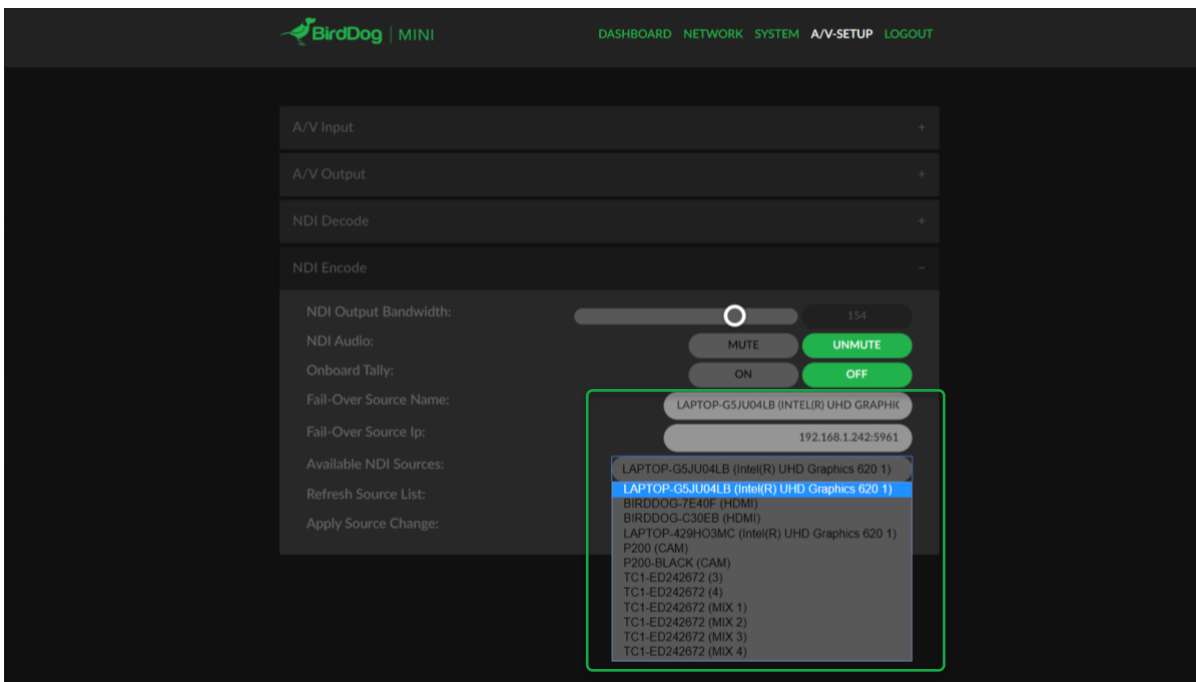
This setting allows you to choose between enabling the HDMI output as an active loop of the HDMI input, or enabling NDI Decode operations on the HDMI output port.





### NDI Failover

By configuring an NDI failover source on a BirdDog Mini, you are able to instruct re NDI receiver what to do in the situation where the BirdDog Mini source is no longer available. This could be caused by a camera turning off, source cable unplugged or an unforeseen network issue. It acts as a 'fail-safe' and ensures that instead of receiving no video or just the last frame you can have your NDI receiver (software or hardware) immediately change to another emergency source. This is selected in the A/V Setting page under NDI Encoder settings.



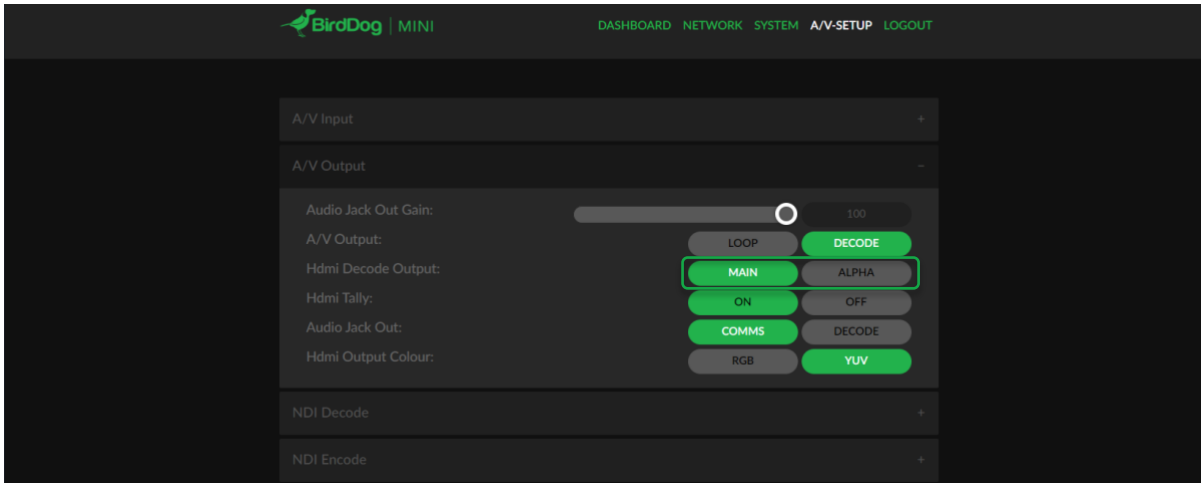
### NDI Decode performance improvements

Firmware 3.1 includes an entirely new NDI decode architecture which allows for faster decoding of a Full NDI stream. As the incoming video is decoded it is immediately written to video memory making it effectively 1 frame faster than previous generations. Combining this with more advanced network timing and synchronisation methodologies the result is smoother, lower latency decode.



### NDI Decode Alpha channel support

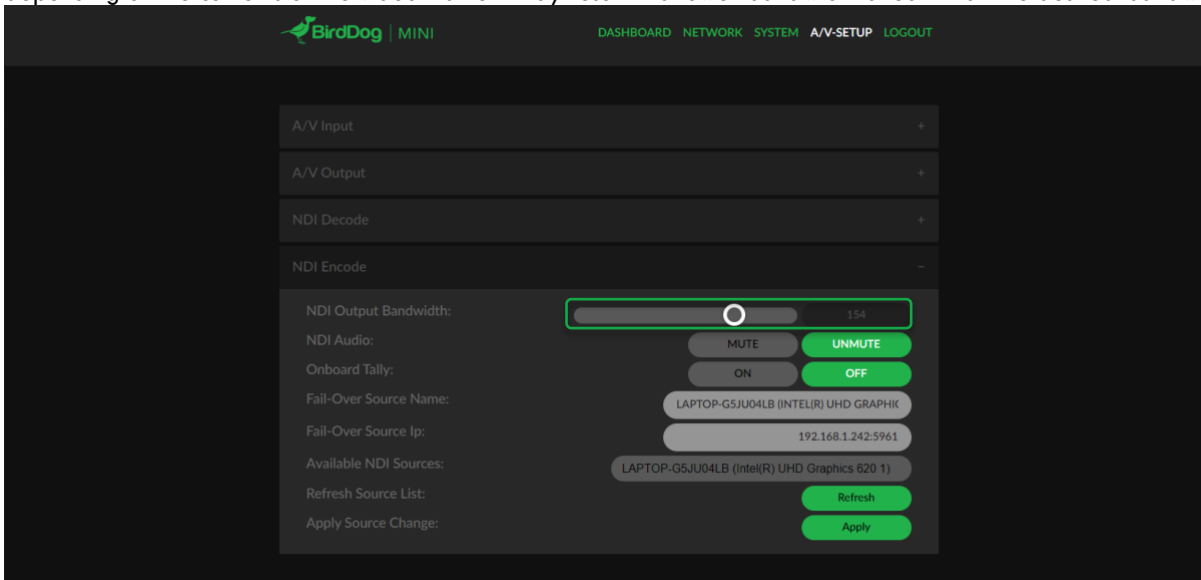
In this version of firmware, you are able to decode NDI sources that provide Alpha Channel embedded in the NDI stream. Many staging and A/V systems operate with Alpha channel included in the NDI stream. This feature is predominately included to expand the number of compatible sources with NDI Decode operations. You are able to select between displaying the main NDI (Fill) stream or displaying the Alpha channel contents on the HDMI output.



### NDI Bandwidth management

NDI encoding in BirdDog Mini firmware v3.1 allows you to select the target bitrate of the NDI stream.

As NDI is a variable bitrate, this setting is the maximum desired bitrate (in mbps), encoded streams will not always be at this rate, depending on the contents of the video frame it may result in a lower bandwidth stream than the desired bandwidth.





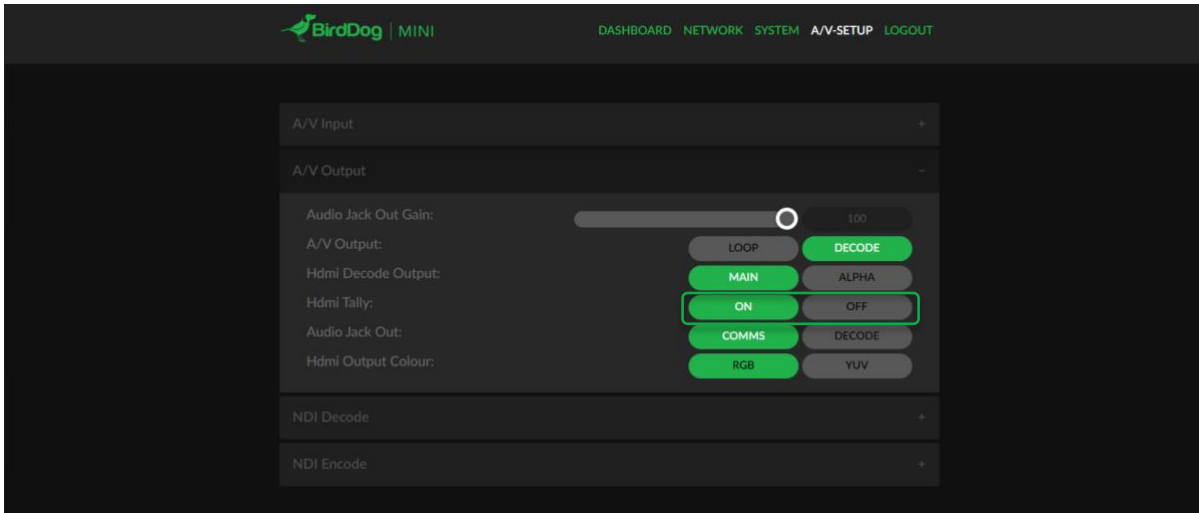


### Enhanced Tally support

Tally configuration is now available in two locations, A/V output and NDI Encode. This allows you to select which Tally notifications make sense for your particular use case.

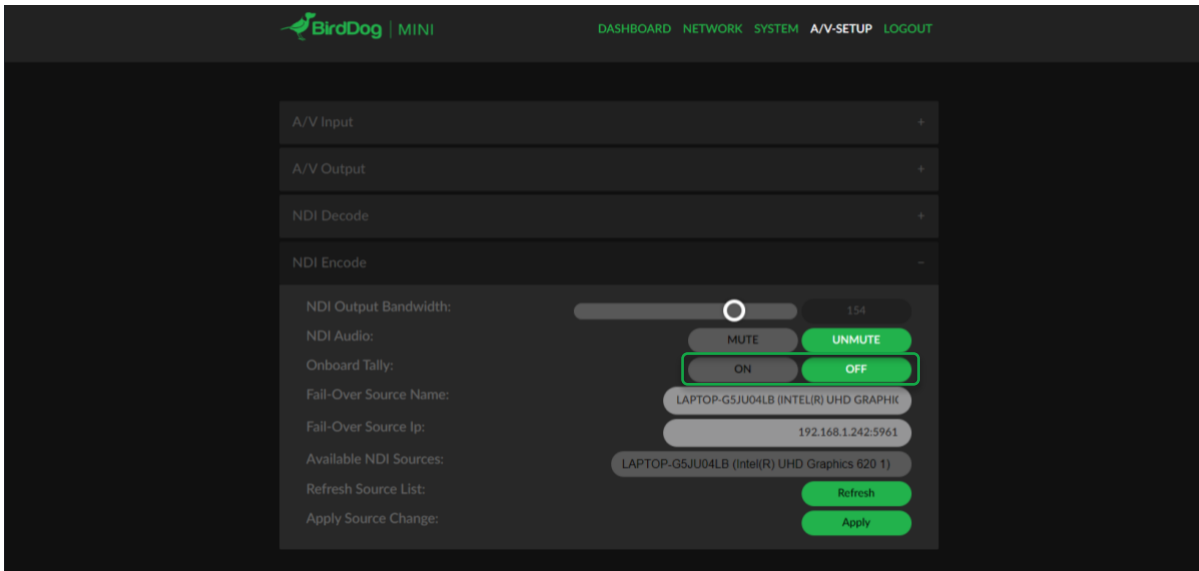
### A/V output Tally configuration

This option allows you to select to enable or disable tally borders on the HDMI output. These borders will be operational regardless of the HDMI A.V output being set to loop or Decode



### NDI Encode

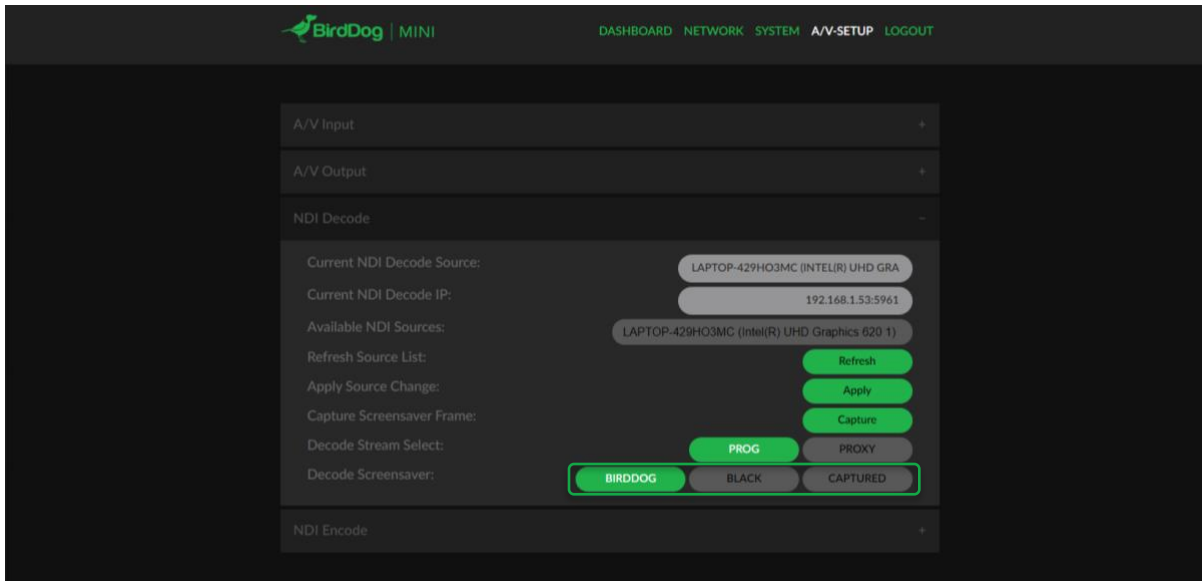
This option enables or disables the onboard tally light.





### Custom Screensaver

When BirdDog Mini is set to decode an NDI source, and that NDI source stops becoming available, or is not found, the BirdDog Mini is able to handle the situation with 3 output options



- BIRDDOG** This will display the default BirdDog Mini logo, this can be useful when initially setting up an environment as it will show a video output even if the NDI stream is not available.
- BLACK** This will display a black image, it will maintain sync with the monitor so the screen will not fall asleep but does not have any image
- CAPTURED** By capturing a Screensaver frame (button located directly above) you can choose any image you like to be the screensaver image. This is ideal for permanent installations.

### Capturing a screensaver image

To capture a custom screensaver image, ensure the BirdDog Mini is set to decode an NDI source, when you see the desired decode frame you wish to make your screensaver appear on the HDMI output, press CAPTURE.



### Audio Gain adjustment

Audio gain is now independently adjustable for both Analog (mic) inputs and outputs. This allows for a wider variety of headsets to be used with BirdDog Comms along with giving the ability to adjust the volume of the Analog audio output when in NDI Decode mode.

