Chroma-X Full HD

Half-Duplex Encoder / Decoder



Quick Start Guide

Note: This document reflects the current feature-set which may change without notice. We will attempt to keep all users up-to-date on any such changes. All context is © 2019. All rights reserved.

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Introduction

Designed for Contribution, Production, and Collaboration, Chroma-X advanced performance compact encoder/decoder provides near lossless video quality, and secure, real-time, remote, collaborative workflows. Chroma-X supports HD resolutions, along with High Dynamic Range color standards to create streaming content for broadcasting, enterprises, and post production by providing low latency video in HD formats over public and private IP networks.

The software-defined Streambox Chroma-X Encoder / Decoder is an economical palm size device, providing minimal latency, and integrated reliable LDMP media transport technology that simplifies streaming workflows over Internet and MPLS networks. Chroma provides high-quality, superb color, low-bandwidth video that can be seamlessly transported where mission critical media is required. Real-time transport assures an efficient solution for feature editors to stream into the cloud where producers and directors can perform live review sessions, commercial advertising producers can implement review and edit meetings, and broadcasters can set up video contribution between locations and network centers.

Getting Started

What's Included:

- 1 x Chroma-X unit with HD-SDI and LCD control panel
- Linux operating system running on Intel i5 processor
- HD Encoder and Decoder software
- AES 128-bit encryption
- Web user interface for secure local and remote access

What's Supported:

- HD: 4:2:2 color, 10-bit (optional: 4:4:4 color, 12-bit) HDR video
- HD: 1920x1080p, 1920x1080PsF, 1920x1080i, 1440x1080i, 1280x1080i, 960x1080i, 1280x720p, 960x720p, 800x720p, 640x720p
- 8-channel embedded audio
- Bitrates: 4 to 80Mbps
- Encoding latency: adjustable from 200msec to 2sec
- ACT-L3, ACT-L5 codec with Low Delay Multi-path Protocol (LDMP) transport
- End-to-end AES 128-bit Encryption (with no increase in latency)
- Integrated Streambox Cloud Service (AWS) for low delay streaming worldwide

What's Needed:

- Set up Encoder – Decoder per 'Initial Connections' section below
- For use with Streambox Cloud Services: Get account name (DRM) from Streambox Sales or Support (if you don't already have one).

Anatomy of the Chroma-X

Chroma-X is a software defined encoder and decoder packaged as a small form factor device made available as a *Hardware as a Service* (HaaS) or *Infrastructure as a Service* (IaaS) offering. The Chroma-X device is based on an Intel NUC computer with an i5 processor using the same Linux software base as Chroma rackmount systems.

Front Panel

LCD display with Joystick,
Push-to-Enter, navigation



Buttons:
Status: Thumbnail preview
Stream: Start/Stop Encoder stream
Back: Navigate back or Escape

Right Panel



PWR: On/Off
IFB: Audio out for IFB monitor
USB: USB 2 & 3
SDI In: Video source in (Encoder)
SDI Out: Video out (Decoder)

Left Panel



USB-C: mouse/keyboard/for future features
USB 3: mouse/keyboard/for future features
LAN: RJ45 connection
HMDI Cns: Counsel display for system user interface
12-19V: For power adapter (110-120VAC, 50W max)

Initial Connections

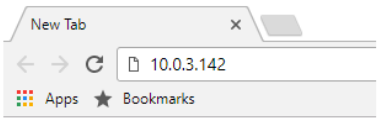
- Connect LAN (Internet)
- Plug in power adaptor
- As Encoder: connect video source to SDI In (Right Panel)
- As Decoder: connect monitor to SDI Out (Right Panel)
- Determine assigned IP address (see next)

IP Address

It is important to confirm the IP address assigned to this machine for both remote Web access and the destination IP when used as a decoder. This can be done in 2 easy steps: 1) From the Main Menu (on the LCD screen), select ‘Dashboard’ with the joystick and then press to Enter; 2) The assigned IP address will appear on the lower part of the Dashboard screen (green arrow).



Initial Setup



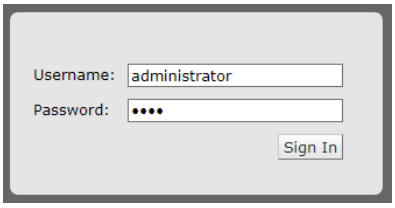
First you must decide whether the unit will be used as a decoder or an encoder. It can be used as either or, but not simultaneously.

Using an Internet browser on the same network, enter the units IP address into the browser's address field (see top image).



If this is the first time this unit has been setup then a screen with an ENCODER and DECODER selector will be displayed (see image to right). Select the highlighted/blue text which indicates the current mode that is online (regardless of what mode you want to setup). Login.

Login



The factory-set username is 'administrator' and 'demo' for the password. After you have completed the setup we recommend that you create new accounts for login.

Switching Encoder/Decoder Modes

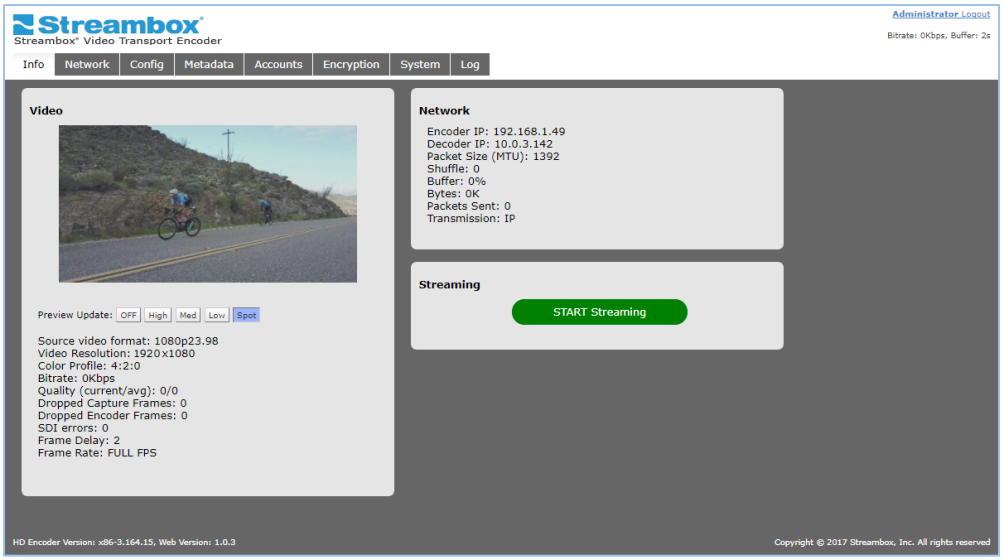
If, as in the example above, the Encoder was online and you want to setup this unit as a decoder, then go to the System tab and press the 'Switch to Decoder' button (see image below). Use the same method to switch from Decoder to Encoder mode.



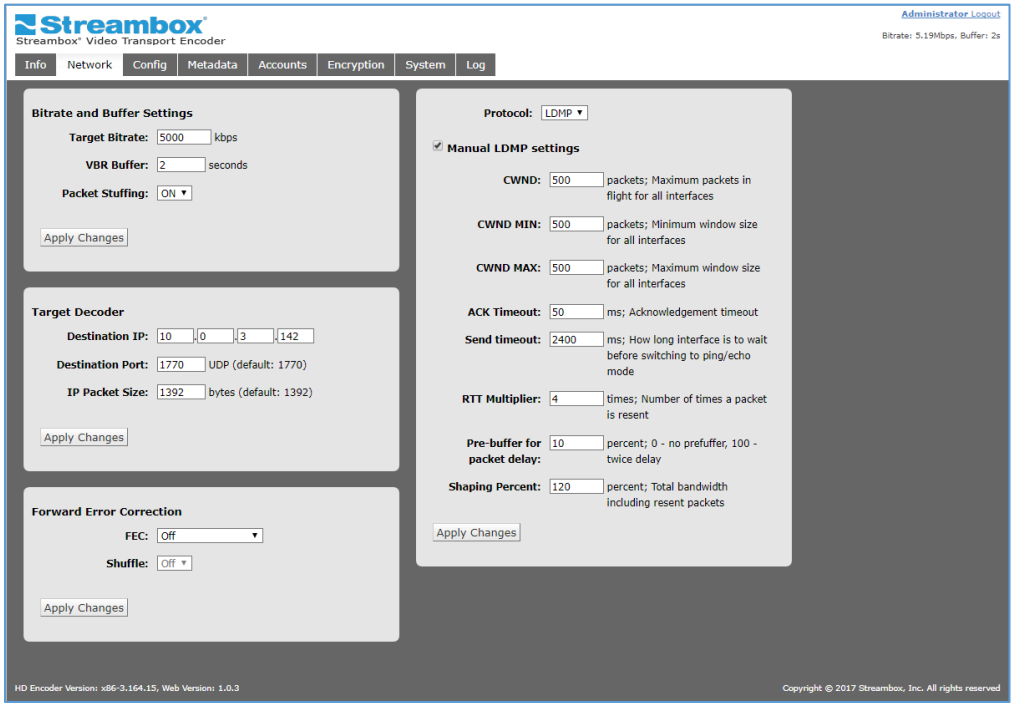
Encoder Mode

The Encoder mode has 8 tabs:

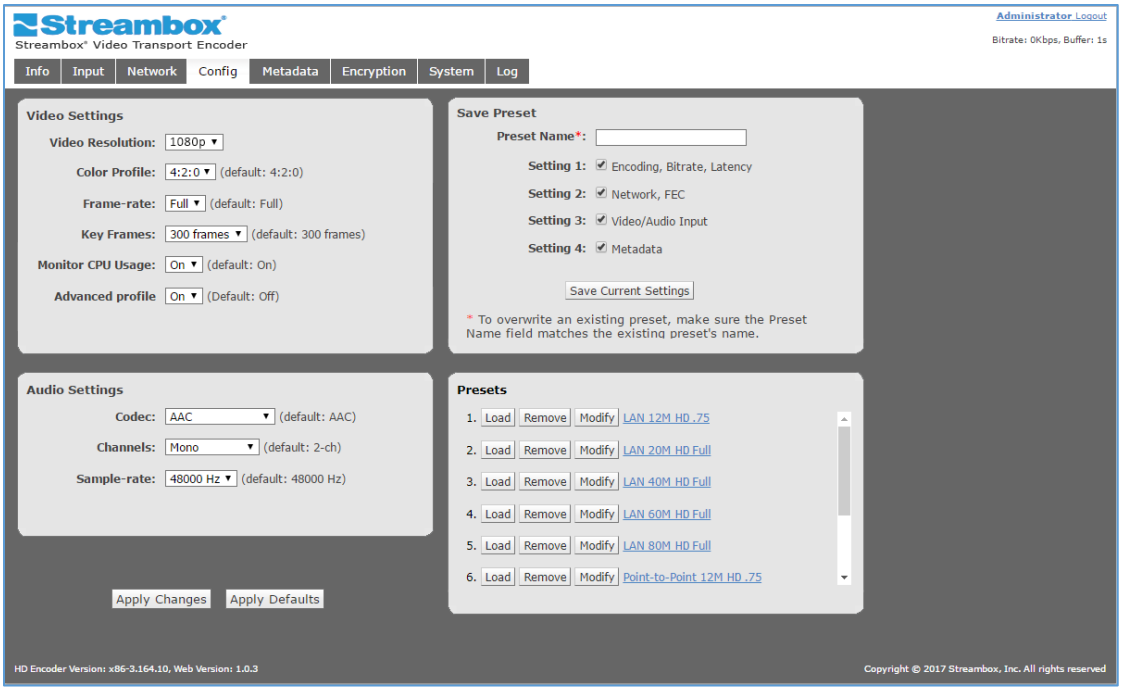
- **Info**: The Info page is essentially the status report of the video source and video stream characteristics and destination. A preview of the source video is provided with a frame rate option of OFF, High (up to 30/sec), Medium (5/sec), Low (1/sec), and Spot check (1/10sec). A START/STOP Streaming button is located here.



- **Network**: The Network page is where you set the Destination IP, Target Bitrate, and other values related to the video stream. Depending on the network bandwidth, Target Bitrates from 1.5 to 80Mbps have been tested. The Destination IP can be any Streambox decoder or Streambox Cloud.



- **Config**: The Config page is where you set the characteristics of the video stream. You can choose from a Present configuration, create or modify your own Preset, of manually enter the desired values.



- **Metadata**: The metadata page provides text fields for Title, Location, Reporter, and Producer. These text items are embedded in the stream.

- **Accounts**: The Accounts page is only displayed for account administrators and is where accounts are created or modified.

- **Encryption**: The Encryption page is where you enable/disable encryption and set the Encryption Key. When enabled, the receiving decoder must use the identical key as its Decryption Key.

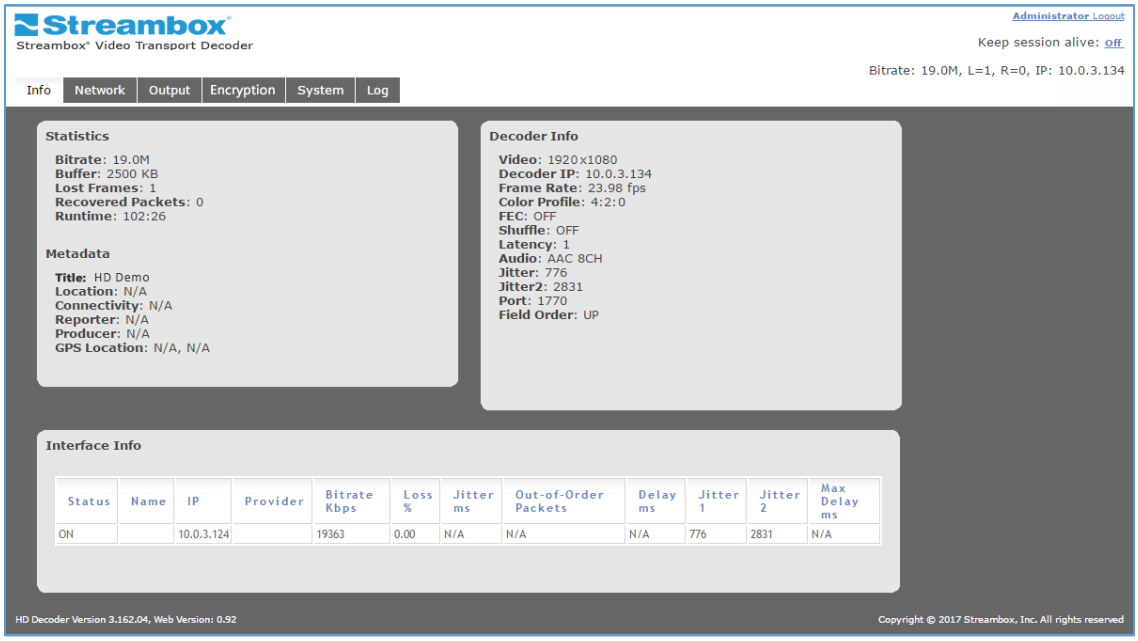
- **System**: The System page provides System Info, the DRM field (for account identity), the Start, Restart, Switch to Decoder, and Advanced Mode (for support) buttons.

- **Log**: The Log page provides a method to log all encoder activity for diagnostic purposes.

Decoder Mode

The Decoder mode has 6 tabs:

- **Info**: The Info page is essentially the status report of the incoming video stream plus any embedded metadata: Title, Location, Reporter, Producer, and GPS Location. Basic decoder information is also displayed.



- **Network**: The Network page is where standard network settings are managed. Most importantly, this is where you set the incoming port number should you need to change the default UDP port, 1770.

- **Output**: The Output page is where general output settings like number of audio channels, show audio meters and timer on the display, and output format are found. It is also where the Genlock settings are located.

- **Encryption**: The Encryption page is where you set the Decryption Key. The receiving decoder must use the identical encryption key used by the encoder.

- **System**: The System page provides System Info, the DRM field (for account identity when using Streambox Cloud), the Start, Restart, Switch to Decoder, and Advanced Mode (for support) buttons.

- **Log**: The Log page provides a method to log all encoder activity for diagnostic purposes.

Note: If switching from Encoder Mode to Decoder Mode results in a poorly rendered image/sound, simply power-cycle the machine.

HTTPS

The default configuration for internet connection to the Streambox HD units is HTTP. If your corporate protocol demands HTTPS connection, you will have to obtain the requisite certificate and then contact Streambox Support for installation instructions.

Contact Information

+1 206.956.0544 Tel
+1 206.956.0570 Fax

Sales and Information
sales@streambox.com
+1 206.956.0544, Option 1

Technical Support
support@streambox.com
+1 206.956.0544, Option 2

Corporate Headquarters
1801 130th Ave NE, #200
Bellevue, WA 98005