



Impulse

User Guide

About This Manual

This manual describes the detailed installation, setup and operation of the Sencore Impulse. Read carefully to make sure all steps are completed properly. For additional support assistance, visit www.sencore.com/support.

Important

To avoid injury or product damage, make sure to review and understand all safety instructions.

Use quality cabling and make sure the connections are in good operating condition. Use provided power supply, or one with an equivalent rating. Do not open the device, as it may result in electrical shock to the user. Specifications and functions may be changed for improvement without advanced notification.

Notices

Trademark Acknowledgments

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Publication Disclaimer

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Safety Instructions

Respect all warning symbols to avoid personal injury. Before working on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing injury.

Electric Shock Hazard

This equipment meets applicable safety standards. Refer to this equipment's Identification label or contact factory for details about regulatory compliance approvals.



Electric shock can cause personal injury or even death. Avoid direct contact with dangerous voltages at all times. The protective ground connection, where provided, is essential to safe operation and must be verified before connecting the power supply.

Heed the following safety warnings and guidelines:

- Only trained and qualified personnel should be allowed to install, replace, or service this equipment.
- Only qualified service personnel are allowed to remove chassis covers. Any repairs should be performed by the factory.
- No user-serviceable parts inside. Do not open.

Important Safety Reminders

- Read these instructions.
- Keep these instructions.
- Follow all instructions
- Heed all warnings
- Do not use this device near water.
- Clean only with a dry cloth.
- Do not block any ventilation openings. Install in accordance with Sencore's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other devices (including amplifiers) that produce heat.
- Protect the power cord from being walked on or pinched particularly at wall plugs, convenience receptacles, and the point where they exit from the device.
- Only use attachments/accessories specified by the manufacturer.
- Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the device. When a cart is used, use caution when moving the cart-device combination to avoid injury from tipping over.
- Use quality surge suppression device to prevent damage during lightning storms.
- Refer all servicing to qualified service personnel. Servicing is required when the device has been damaged in any way, such as damage to power-supply cord, liquid has been spilled or objects have fallen into the device, the device has been exposed to rain or moisture, does not operate normally, or has been dropped.

**WARNING:**

To reduce the risk of fire or electric

Installation Site

When selecting the installation site, comply with the following:

- Protective Ground - The protective ground lead of the building's electrical installation should comply with national and local requirements.
- Environmental Condition - The installation site should be dry, clean, and ventilated. Do not use this equipment where it could be at risk of contact with water.

Installation Requirements

Installation of the equipment must comply with local and national electrical codes.

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1 Overview

1.1 General

Impulse is a single-channel encoder/streamer/web streamer for cost effective audio and video processing and transport. It supports professional encoding and IP streaming for live encoding, uploading, playback, channel insertion, and live broadcasting, AD/local program playback/streaming, remote meetings, digital signage and more.

1.2 Architecture

Front Panel



- 1) Display screen: This LCD screen displays the management IP address, operational mode, input stream standard, output protocol, running status and other items.
- 2) Power and status indicator: This LED will turn on when the Impulse is powered on and change colors based on operational status.
- 3) Navigation and menu buttons, for entering setup menu and navigation through front panel display.
- 4) USB storage input for use with playback and/or recording features

Back Panel



- 1) DC Input - DC Power connection
- 2) RJ45- management / IP output connection port (10/100)
- 3) HDMI OUT- HDMI pass through port
- 4) SD card slot for use with playback and/or recording features
- 5) HDMI IN- HDMI input port
- 6) CVBS/CCIN- closed caption input
- 7) SDI IN- SDI input port
- 8) RS232 input – future use for data input/data overlay
- 9) Audio input – for use with external audio source

2 Installation

2.1 Introduction

This chapter contains the information for technicians installing the equipment.

2.2 Installation Preparation

Before Starting

Make sure that the device is in good condition and that you have the cabling needed to complete the installation.

Unpacking and Inspecting the Housing

While unpacking the unit, inspect it for shipping damage. If any damage is found, contact dealer or customer service representative.

2.3 Equipment Wiring and Connection

2.3.1 Power Connection

Use of proper power connection is vital to the safe operation of the device. Only use the supplied power connector or one with equal specifications.

2.3.2 Connection Setup for Web Management

Connect to the device's management port with a CAT5 or better cable and set up a management network with a computer connected to the same network or directly to the impulse.

3 Operation Guide

3.1 Powering Up and Initialization

Connect the supplied transformer to the unit and proper power source. The unit will begin the boot up process which may take more than 1 minute.

3.2 Operating the Front Panel Interface

The Impulse can be controlled using the front panel. The "OK" button responds similar to enter or save, the "Menu" button responds similar to a back button. The Left, Right, Up, and Down arrows can be used to navigate selections.

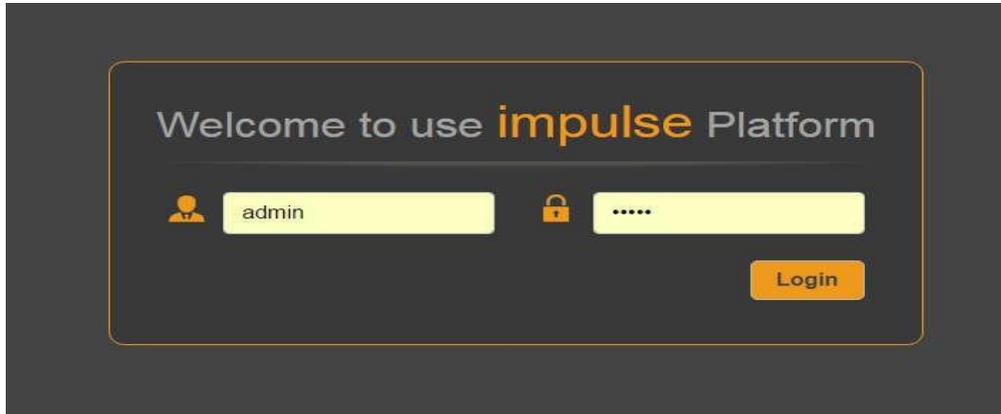
3.3 Operating the Web Interface

3.3.1 Access Interface PC Web-UI

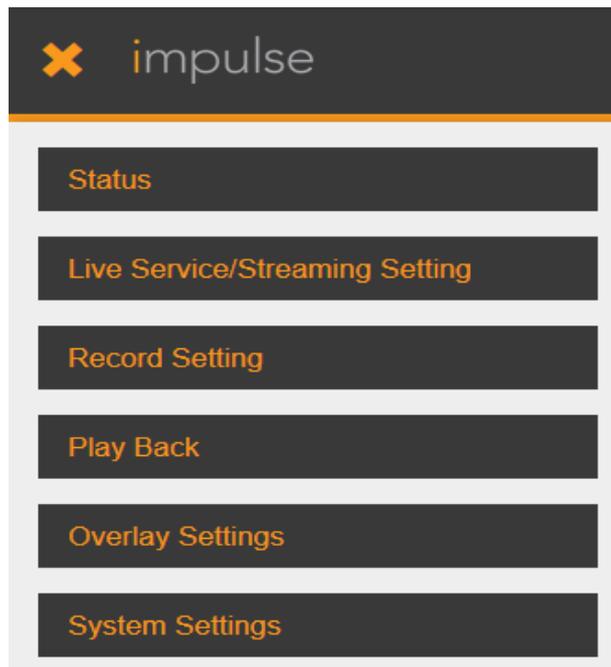
Impulse can be accessed and configured via web UI. The instructions are as follows:

- 1) Connect the Impulse to a management PC/server directly, or to a network switch.

- 2) The Impulse default IP address is 192.168.1.100. Modify the IP address of the management computer or Impulse to ensure both are in the same subnet range.
- 3) Open a web browser and enter Impulse's default IP address – the browser will connect to the device. Once the connection is established, a login page will appear. (default username/password: admin/admin)

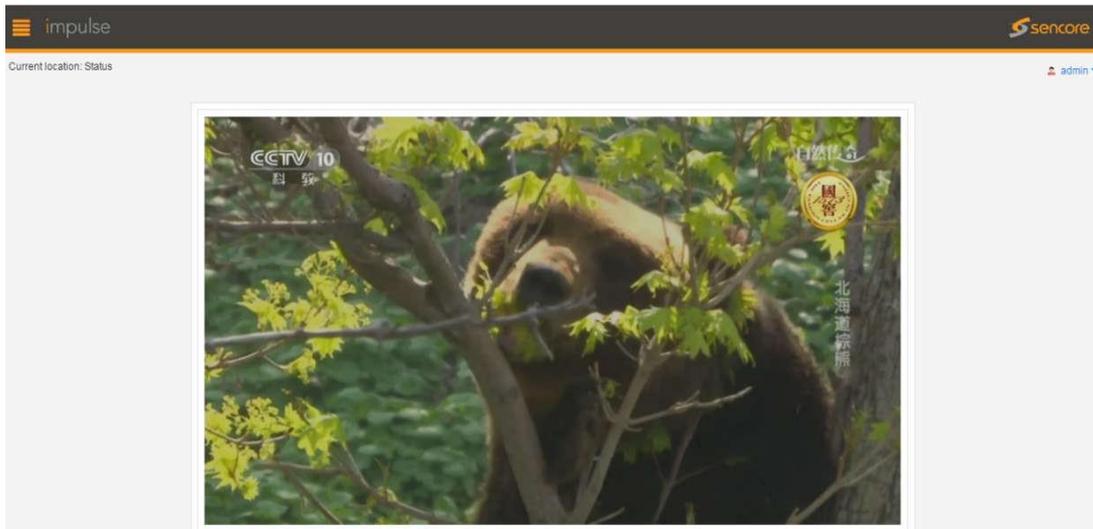


After login, this icon will appear in the upper left corner:  Click this icon and a drop down menu with options will be displayed, including Status, Live Service/Streaming Settings, Record Settings, Play Back, Overlay Settings and System Settings.

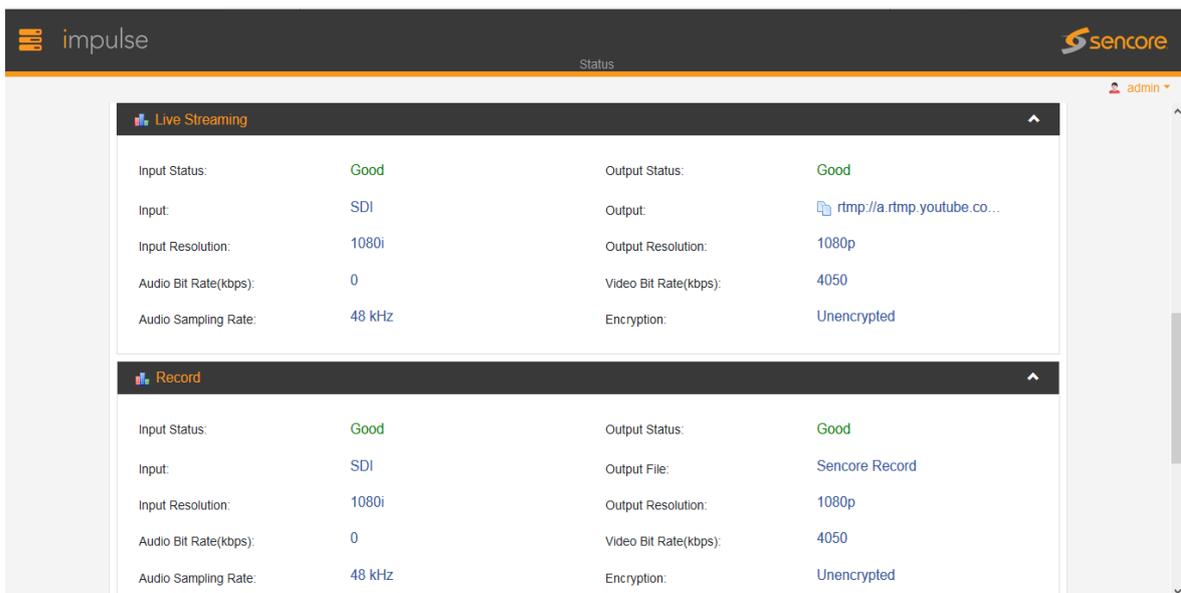


3.3.2 Status

Preview window – this page displays a preview window, showing active video on the input. The video will refresh approximately every 4 seconds, however if video is showing, the live video footage is full frame rate even though the status page does not show full frame rate.



Live Stream / Record Stream – this section displays Information such as input/output status, resolution, bitrate of live/record stream. This page is a reference point for ensuring device is operating properly and can be used to quickly identify issues with incoming and outgoing content.



3.3.3 Broadcast/Live Stream Settings

On this page, there are 2 sections for settings: Basic Settings (quick setup using presets) and Advanced Settings (ability to control low level encoder settings).

Basic Settings:

- 1) Output –UDP, HLS, RTSP or RTMP/RTMPS. Choosing an output will change what options appear beneath.
 - a) UDP: enables IP and Port. This will create the destination address of the stream.

Basic Settings

Input: SDI

Output: UDP

IP: 227.40.50.60

Port: 1234

Video Profile: 1080p-4000Kbps-128Kbps

b) HLS: the only new option that appears is HLS URL.

Basic Settings

Input: SDI

Output: HLS

HLS URL: http://10.0.104.6/hls/index.m3u8

Video Profile: 1080p-4000Kbps-128Kbps

c) RTSP: the only new option that appears is RTSP URL.

Basic Settings

Input: SDI

Output: RTSP

RTSP URL: rtsp://10.0.104.6:8554/live

Video Profile: 1080p-4000Kbps-128Kbps

d) RTMP/RTMPS: the most important part to choose first is the mode. Then more options appear.

i) Facebook: automatic Facebook takes the user to a prompt for authorizing the account to stream with.

Basic Settings

Input: SDI

Mode: Facebook

Authorize Your Device

Video Profile: 1080p-4000Kbps-128Kbps

Following the instructions given after clicking “Authorize Your Device”, the following options become available: Stream To, Title, Description, and Privacy.

The screenshot shows the 'Basic Settings' interface for Facebook streaming. The 'Input' is set to 'SDI' and the 'Mode' is set to 'Facebook'. A button labeled 'Enter to watch live' is visible. The 'Stream To' is set to 'Timeline', the 'Title' is 'facebook_web', the 'Description' is empty, and the 'Privacy' is set to 'Public'. The 'Video Profile' is '1080p-4000Kbps-128Kbps'. A 'Facebook Account: Stream Cast' is logged in, with a 'Logout' button next to it.

- i) YouTube: automatic YouTube takes the user to a prompt for authorizing the account to stream with.

The screenshot shows the 'Basic Settings' interface for YouTube streaming. The 'Input' is 'SDI' and the 'Mode' is 'Youtube'. A large dark button labeled 'Authorize Your Device' is prominently displayed in the center. The 'Video Profile' is '1080p-4000Kbps-128Kbps'. The 'Title' and 'Privacy' fields are currently disabled.

Following the instructions given after clicking “Authorize Your Device”, the options “Title” and “Privacy Status” become available.

The screenshot shows the 'Basic Settings' interface for YouTube streaming after authorization. The 'Input' is 'SDI' and the 'Mode' is 'Youtube'. A 'Live Status' indicator shows a green 'ON' icon. The 'Title' is 'youtube_webster', the 'Privacy Status' is 'public', and the 'Video Profile' is '1080p-4000Kbps-128Kbps'. A 'YouTube Account' is logged in with a 'Logout' button. At the bottom, there are three buttons: 'Apply', 'Stop Streaming', and 'Easy to use mode'. An 'Advance Settings' button is also visible at the bottom left of the settings panel.

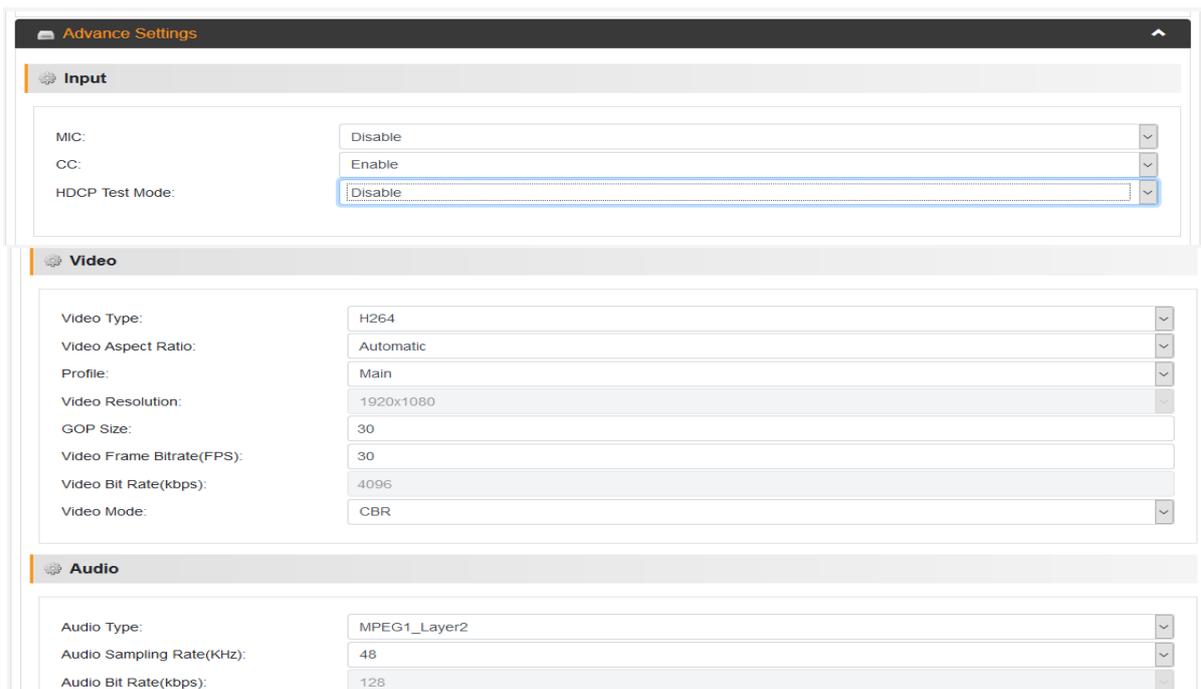
- 1) Input – selecting HDMI or SDI input source (SDI is an optional input chosen at time of purchase)
 - a) Video Profile – presets for common resolution-video bitrate-audio bitrate settings. When selecting “user-defined”, these settings can be configured in the “Advanced Settings” section.

- b) “Easy to use mode” – this enables easy to use mode, and is only accessible through the front panel of the NB200. The GUI will log out until it is disabled.

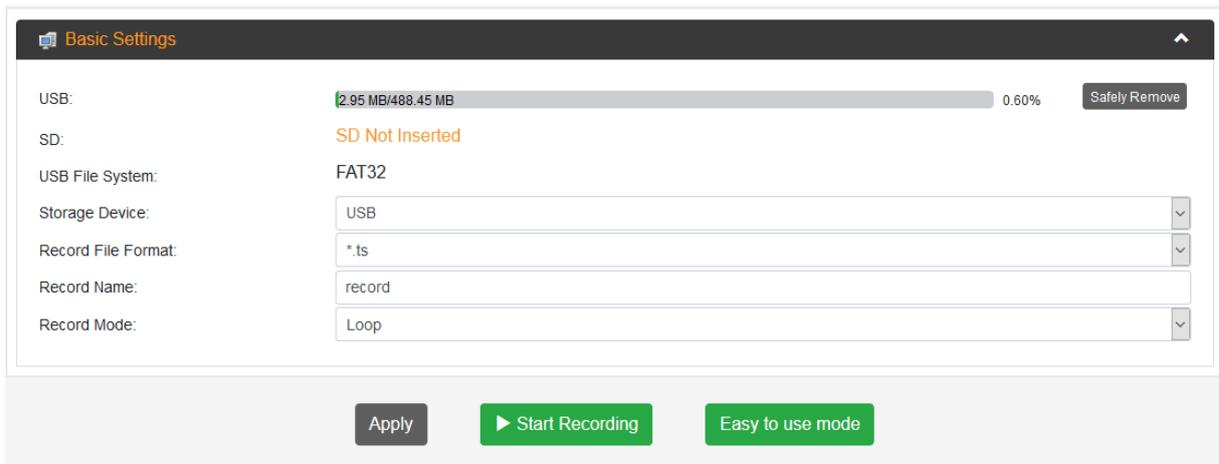
Advanced Settings:

- 1) Input – here input settings for the encoder can be changed.
 - a) Mic: enabling this allows a microphone input to come through.
 - b) CC: enabling this will pass captions through the encoder.
 - c) HDCP test mode: enabling this will encrypt the HD signal for security.
- 2) Video – Here video settings for the output of the encoder can be changed.
 - a) Video Type: H.264 or H.265 (H.265 is a licensable option)
 - b) Video Aspect Ratio: Automatic, 16x9, 4x3 Profile: High, Main, Baseline
 - c) Video Resolution: 1920x1080, 1680x1200, 1600x900, 1440x1050, 1440x900, 1360x768, 1024x768, 1024x576, 960x540, 850x480, 800x600, 720x576, 720x540, 720x480, 720x404, 704x576, 640x480, 640x360, 480x270, Automatic
 - d) GOP Size: 1~61
 - e) Video Frame Bitrate (FPS): 20~60
 - f) Video Mode: CBR (Constant Bitrate), VBR (Variable Bitrate)
- 3) Audio – Here audio settings for the output of the encoder can be changed.
 - a) Audio Type: AAC
 - b) Audio Sampling Rate (KHz): 48
 - c) Audio Bitrate (kbps): 32, 48, 56, 64, 80, 96, 112, 128, 160, 192, 224, 246, 256, 320, 384, 448 and BITRATE_MAX

After finishing configuration on the Impulse, click the “Start Streaming” button at the bottom of the Live Service/Stream Settings page to start streaming.



3.3.4 Record Settings



Basic Settings:

- 1) USB/SD – provides status for installed storage media and file system. When USB is selected, USB File System will appear.
- 2) Storage Device – allows for destination of recorded file
- 3) Record File Format – user can choose to change the file type (ts, mp4, or mov)
- 4) Record Name - Input file name
- 5) Record Mode: Loop, Size and Time
 - a) Loop – will record until storage device is out of space.
 - b) Size – Enabling size option opens 2 new sub-parameters, record size and loop.
 - i) Record Size – indicate the size of the file to be recorded.
 - ii) Loop – can be enabled to continuously create more files.

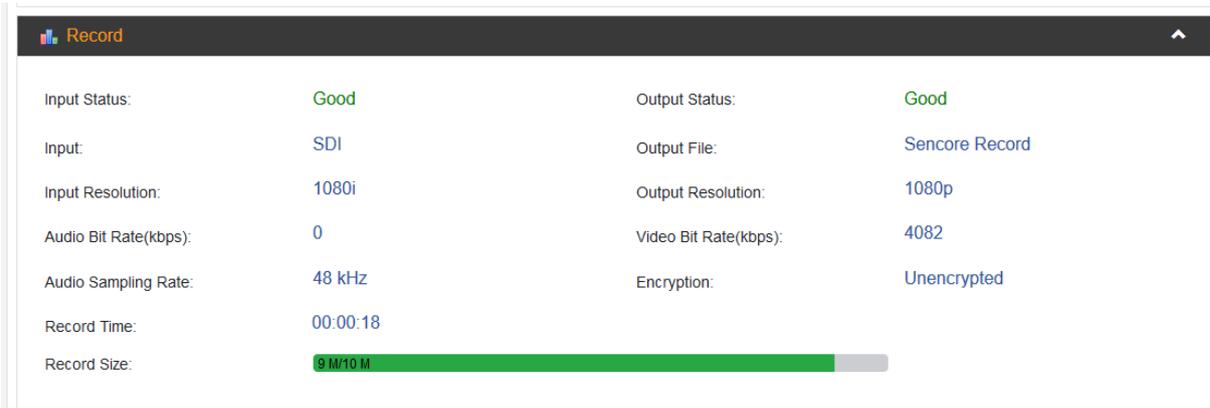


- c) Time – enabling time option opens 2 new sub-parameters, record time and loop.
 - i) Record Time (seconds) – indicate length of file to be recorded.
 - ii) Loop – can be enabled to continuously create more files.



After finishing configuration, click the “Apply” button to save these settings. Click “Start Recording” at the bottom “Basic Settings” on the recording page of the Impulse to begin recording the input stream to the USB or SD card.

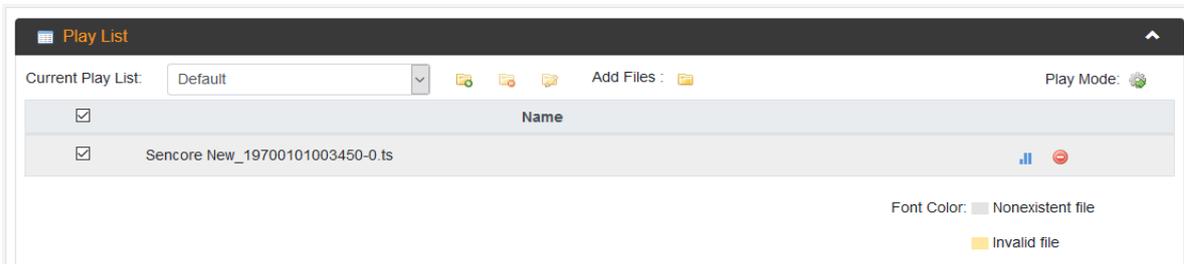
The “Easy to Use Mode” enables starting and stopping the stream through the front panel of the device and will log out of the GUI.



3.3.5 Play Back

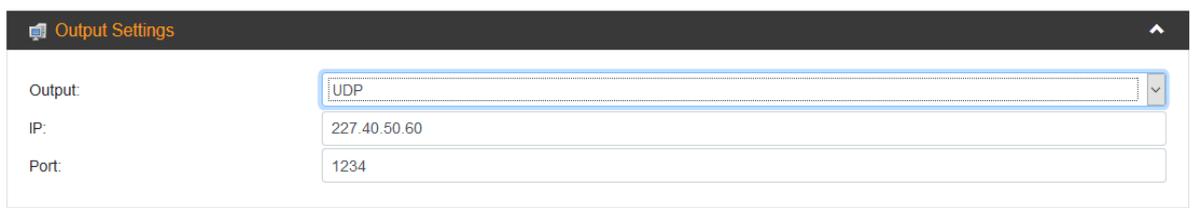
Play List:

Current Play List: User can choose add, remove and select playlists if there is more than one file to run. The order in which to run streams can also be chosen.

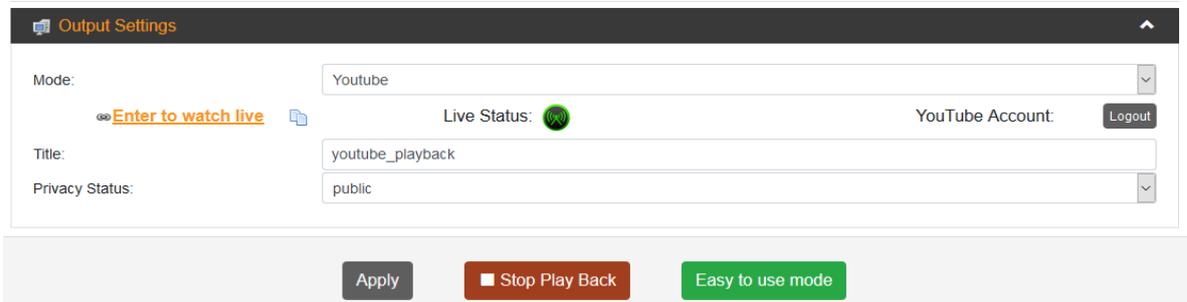


Output Settings:

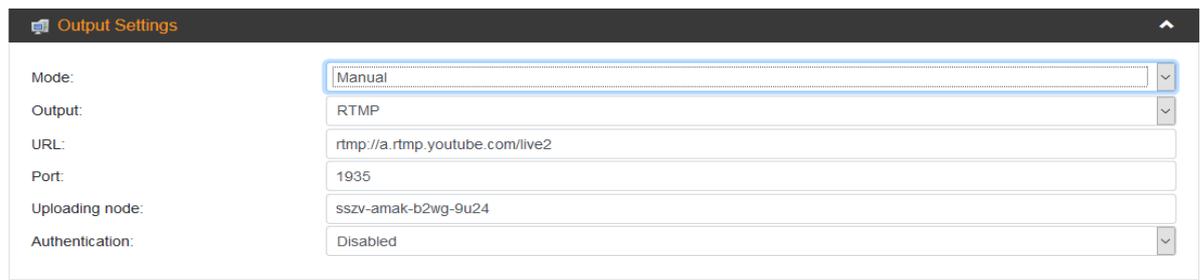
- 1) Output – First select either UDP, RTMP, HLS or RTSP, each type of output has different parameters.
- 2) UDP: choosing this opens 2 sub-parameters, “IP” and “Port”
- 3) IP: specify the destination IP address of the UDP output.
- 4) Port: specify the destination port address of the UDP output.



- a) RTMP: choosing this opens sub-parameter “Mode”.
- b) Mode: select either YouTube for automatic streaming or manual for any RTMP output.
- c) YouTube (automatic): when the stream is active, the “Live Status” transmit icon under “Output Settings” will turn green instead of red or gray.



- i) Manual: enables options “URL”, “Port”, “Uploading node” and “Authentication”.



3.3.6 System Setting

- 1) Version: Displays the software and hardware version.



- 2) License Information: Displays the license status of HDCP, H265, CC, and SDI.



- 3) Network – supports Static and DHCP modes. Change the mode and IP address of device here.

Network Mode: Static

IP Address: 10.0.104.6

Subnet Mask: 255.255.0.0

Default Gateway: 10.0.1.3

Dynamic DNS: Disable

Primary DNS: 172.16.0.86

Secondary DNS: 172.16.0.153

Apply Cancel

4) Language: Impulse currently supports English and Chinese.

Language : English

Chinese

English

Apply

5) System Operation:

a) Upgrade: Click Upload button to select file, then upgrade the software.

Important Note* When updating any device from a version prior to 1.0.24 to a version of 1.0.24 or later, two software updates are required. First update with version “V0.0.0_20181207_M60WVUpgrade”. Then update with the latest software version.

b) License: Import or export license.

c) Configuration – Import or export NB200E’s configuration file for backing up or restoring a device to previous settings.

System Operation

Upgrade

Upgrade: Upload

License

Import License: Upload

Export License: Export

Configuration

Import Config: Upload

Export Config: Export

6) Other Operation:

- a) Reboot – click to reboot the Impulse. Remove USB or SD card before rebooting.
- b) Factory Settings – click to restore the unit to factory settings.
- c) Log Export – click to export the unit log file.
- d) Log Clear – click to clear the unit log file.



3.4 Using UDP Streaming

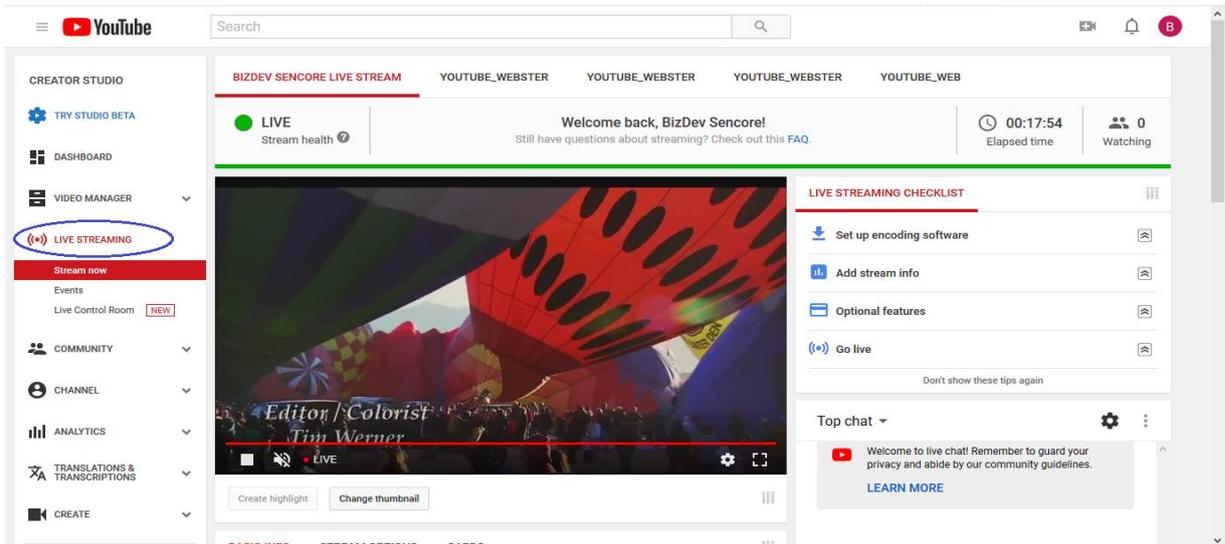
- 1) Plug in an input (HDMI or SDI) and check that the impulse detects the input using the "Status" page within the device.
- 2) Using the menu in the web interface, navigate to "Live Service/Streaming Setting"
- 3) If it's currently streaming, click "Stop Streaming" at the bottom of the page.
- 4) Choose the proper input (HDMI or SDI).
- 5) Select "UDP" from the "Output" section
- 6) Specify the IP destination address and port for the unit to cast from and video profile.
- 7) Click "Apply" to save the new settings.
- 8) Click "Start Streaming"
- 9) Go back to the "Status" page, the output status will now read "Good".
- 10) The device is now live.

3.5 Using Manual RTMP Streaming

- 1) Plug in an input (HDMI or SDI) and check that the impulse detects the input using the "Status" page within the device.
- 2) Using the menu in the web interface, navigate to "Live Service/Streaming Setting"
- 3) If it's currently running, make sure to "Stop Streaming".
- 4) Choose the proper input (HDMI or SDI).
- 5) Select "RTMP/RTMPS" from the "Output" section
- 6) Specify the desired URL and uploading node. Here are instructions for an example to obtain the URL and uploading node from YouTube:
 - a) Open a browser and navigate to www.youtube.com.
 - b) In the top right hand corner, sign in to YouTube with the account that is intended for streaming.
 - c) Click on the User Profile icon in the top right hand corner.



- d) Click YouTube Studio (beta).
- e) On the left side of the page, scroll down and click Creator Studio Classic. (Under the “Dashboard”.)
- f) Click “Skip” to get past the survey.
- g) On the left side of the page (under “Dashboard”), click “Live Streaming”.



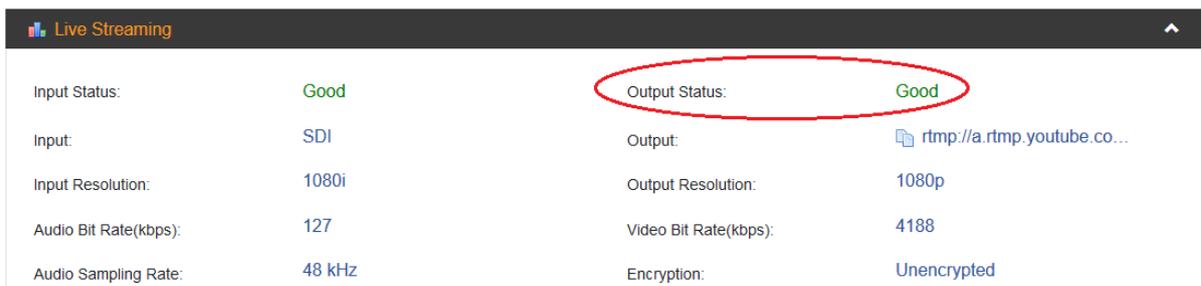
- h) Scroll down until “Encoder Setup” appears on the webpage. The parameters, “Server URL” and “Stream name/key” are displayed



- i) The item “Server URL” needs to be copy pasted to the “URL” portion, under “Basic Settings” on the “Live Service/Stream Settings” page.
- j) The item “Stream name/key” needs to be copy pasted to the “Uploading Node” portion, under “Basic Settings” on the “Live Service/Stream Settings” page.



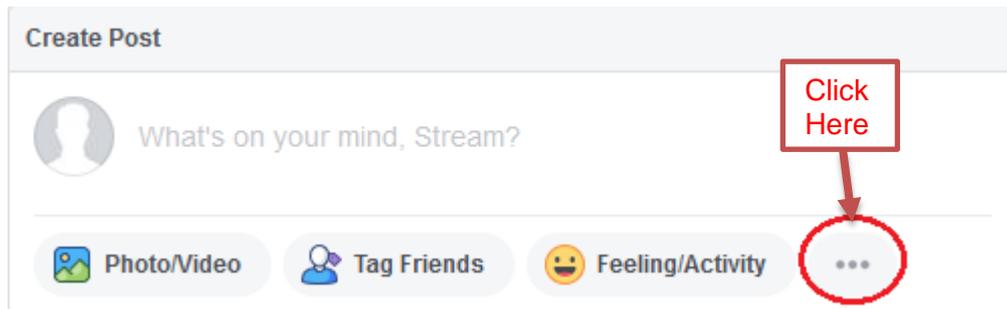
- 7) In the “Live Service/Stream Settings” page of the Impulse, under “Basic Settings” in the “Port” section, enter “1935”. Setting the port to 1935 will configure the Impulse to use RTMP.
- 8) After choosing Authentication and Video Profile, click “Apply”.
- 9) Click “Start Streaming” at the bottom of the “Live Service/Stream Settings”.
- 10) Return to the “Status” page on the Impulse, and observe the “Output Status” under Live Streaming. The status will change from Bad to Good.



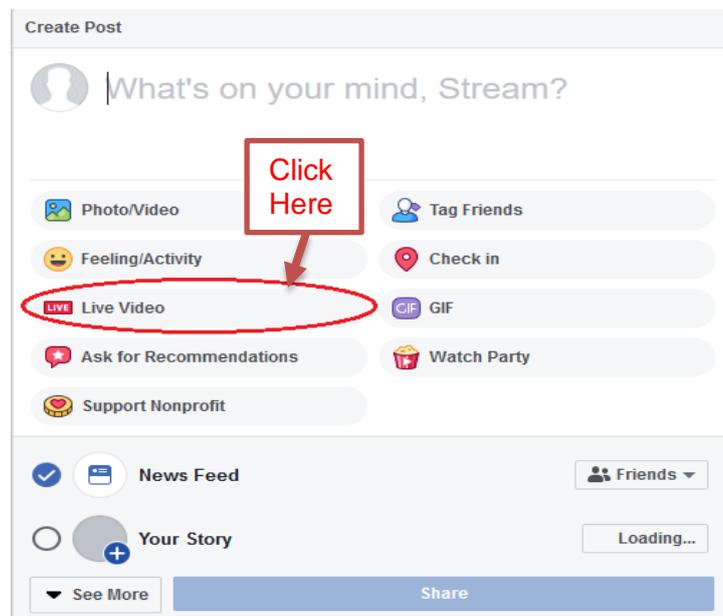
- 11) The stream is now live.

3.6 Manual RTMPS Streaming

- 1) Plug in an input (HDMI or SDI) and check that the impulse detects the input using the “Status” page within the device.
- 2) Using the menu in the web interface, navigate to “Live Service/Streaming Setting”
- 3) If it’s currently running, make sure to “Stop Streaming”.
- 4) Choose the proper input (HDMI or SDI).
- 5) Select “RTMP/RTMPS” from the “Output” section
- 6) Specify the desired URL and Uploading Node. Here are instructions on an example for obtaining the URL and uploading node from Facebook:
 - a) Go to www.facebook.com and sign in with the device intended for streaming.
 - b) Underneath “Create Post”, click “...”



c) Click “Live Video” on the next option that appears.

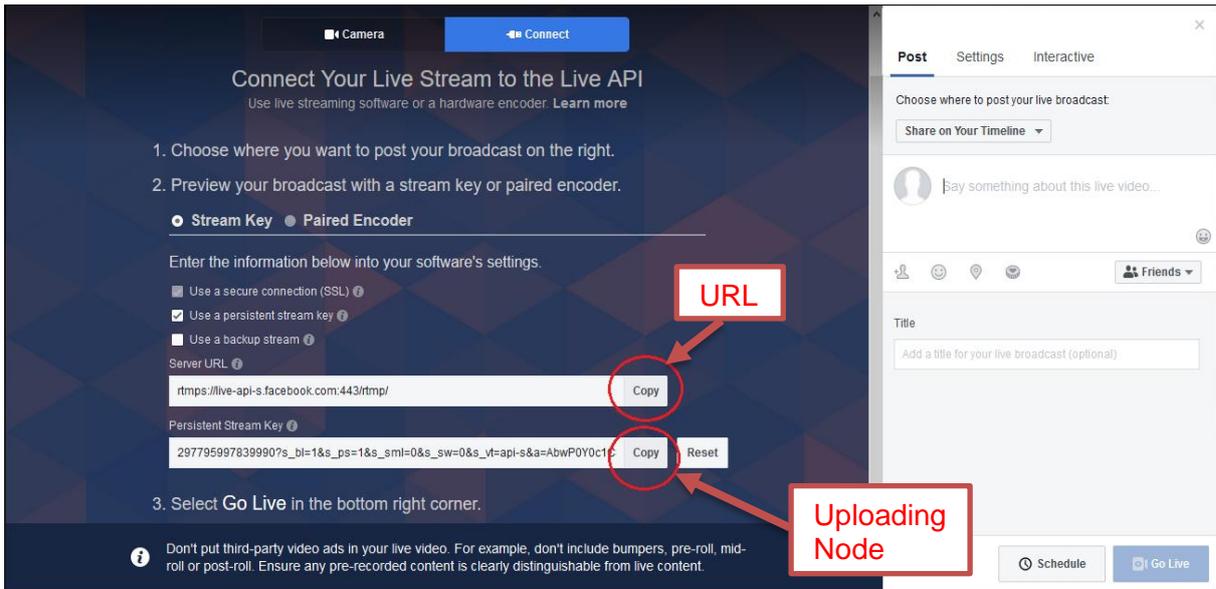


d) Click “Don’t Allow” on the popup that appears to collect user information about the camera and other features. It’s not necessary for streaming from the encoder.

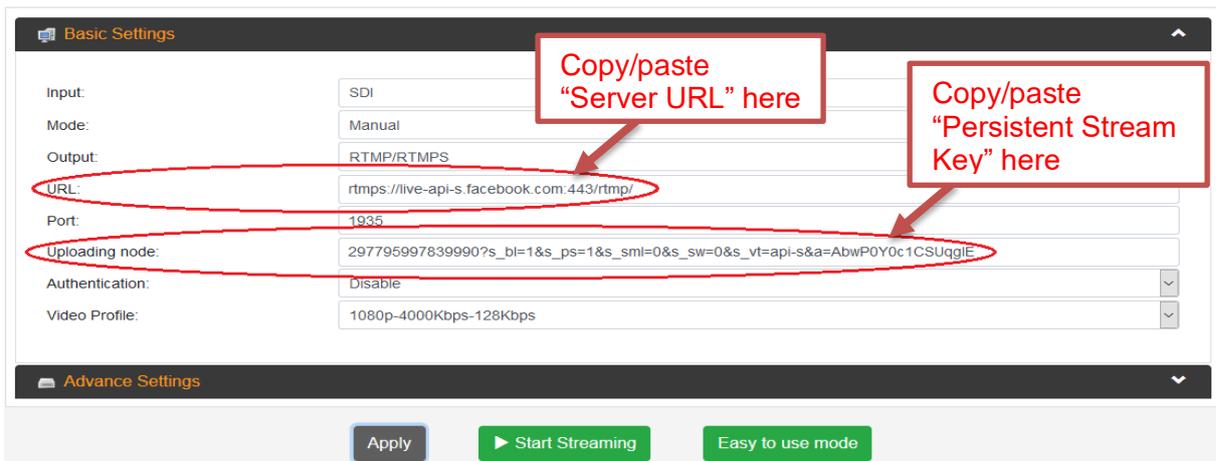
e) Click “Connect” in the top middle of the screen.



f) On the live API connection page, the parameters “Server URL” and “Persistent Stream Key” are displayed.



- g) The item “Server URL” needs to be copy pasted to the “URL” portion, under “Basic Settings” on the “Live Service/Stream Settings” page.
- h) The item “Persistent Stream Key” is to be copy pasted to the “Uploading Node” portion, under “Basic Settings” on the “Live Service/Stream Settings” page.



- 7) In the “Live Service/Stream Settings” page of the Impulse, under “Basic Settings” in the “Port” section, enter “443”. Setting the port to 443 will configure the Impulse to use RTMPS.
- 8) After choosing Authentication and Video Profile, click “Apply”.
- 9) Click “Start Streaming” at the bottom of the “Live Service/Stream Settings” page of the Impulse.
- 10) Return to the “Status” page, and observe the “Output Status” under Live Streaming. The status will change from bad to good.

Live Streaming			
Input Status:	Good	Output Status:	Good
Input:	SDI	Output:	rtmps://live-api-s.faceboo...
Input Resolution:	1080i	Output Resolution:	1080p
Audio Bit Rate(kbps):	128	Video Bit Rate(kbps):	3871
Audio Sampling Rate:	48 kHz	Encryption:	Unencrypted

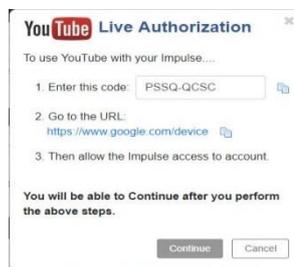
11)The stream is now live.

3.7 Using Automatic YouTube Streaming

1. Plug in an input (HDMI or SDI).
2. Verify the Impulse detects the input on the “Status” page of the device, under “Live Stream”, Input Status.
3. Using the menu in the web interface, navigate to “Live Service/Streaming Setting”
4. Choose the proper input (HDMI or SDI).
5. Select “RTMP/RTMPS” from the “Output” section
6. Select “YouTube” from the “Mode” section.
7. At this time a long grey bar will pop up that says “Authorize Your Impulse”



8. Set the stream “Title”
9. Select your “Privacy Status” (Public, Private, or Unlisted).
10. Choose your desired “Video Profile”.
11. Once all settings are complete, choose “Authorize Your Impulse”. Then a new pop up will be presented called “YouTube Live Authorization”. Complete the steps listed in this pop-up.



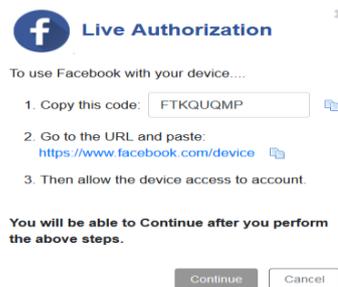
12. Click “Start Streaming” at the bottom of the “Live Service/Stream Settings” page.
13. Return to the “Status” page on the Impulse, under “Live Stream” the Output Status will go from bad to good.
14. The stream is now live.

3.8 Using Automatic Facebook Streaming

- 1) Plug in an input (HDMI or SDI).
- 2) Verify the Impulse detects the input on the “Status” page of the device. Under “Live Stream”, the Input Status will read ‘Good’.
- 3) Using the menu in the web interface, navigate to “Live Service/Streaming Setting”
- 4) Choose the proper input (HDMI or SDI).
- 5) Select “RTMP/RTMPS” from the “Output” section
- 6) Select “Facebook” from the “Mode” section.
- 7) At this time a long grey bar will pop up that says “Authorize Your Device”

Authorize Your Device

- 8) Set the stream “Title”
- 9) Select an option from “Privacy Status” (Public, Private, or Unlisted).
- 10) Select an option from “Video Profile”.
- 11) Once all settings are complete, choose “Authorize Your Impulse”. Then a new pop up will be presented called “Facebook Live Authorization”. Complete the steps listed in this pop-up.



- 12) Click “Start Streaming” at the bottom of the “Live Service/Stream Settings” page.
- 13) Return to the “Status” page on the Impulse, under “Live Stream” the Output Status will go from bad to good.
- 14) The stream is now live.