Installation and Operation Guide V1.3

Firmware 1.6.19 (NFL-SC)

4K-SVE

Sports Video Encoder

HARDWARE
ENCODER | RECORDER

H264 AVC

User guide notes:

- The screenshots in this manual might not exactly reflect your user interface due to variations in firmware revisions

Contents

Hardware Features

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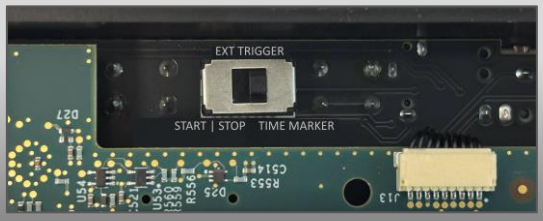
Accessories
Trigger Button and Tally Light

External Button Trigger Setting (access by removing the bottom cover):

1. Trigger Based Workflow: The external trigger button works in parallel with the yellow 'Time Marker" button to log 'Mark-In" and 'Mark-Out' events
2. Clip based workflow: The external trigger button works in parallel with the red Recording 'START | STOP' button



Default Setting : TIME MARKER

Front Panel Controls

START | STOP: Start of a recording and/or live stream. Video will be recorded to USB (if present) and to the internal SSD backup drive. Active recording is indicated by a solid lit red LED. A udp stream will be delivered over ethernet to the destination as preconfigured in the webUI. Without a network connection (standalone recording application), the udp stream will have no effect.
In case of a missing or defective USB Drive, the backup recording to SSD will still initiate and the backup can be recovered by ftp or USB (see Page 16 for details)

TIME MARKER: Trigger your start and stop of a play event. The yellow LED indicates a started trigger event. Triggers can be initiated with the yellow front panel push button or an external trigger button. The trigger events are saved in a separate text file on USB and internal SSD.

The 4K-SVE also accepts embedded SDI triggers. The source of the trigger can be changed by pressing the 'TIME MARKER' button 3 times and then confirm by pressing one more time. Ensure you have the correct trigger source setting prior to start recording. A single push of the button will display the current setting.

USB UNMOUNT: A solid yellow led indicates a successfully mounted USB drive. To prevent corrupt video files, it is highly suggested to unmount the USB drive before removing it. Push and hold the USB UNMOUNT button until the display prompts to confirm, then release and press the button again. It is save to remove the USB Drive after the yellow LED turns off.

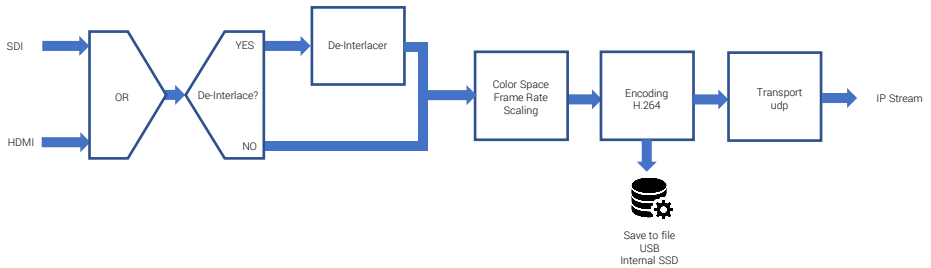
FORMAT USB: Push and hold the USB FORMAT button until the display prompts to confirm, then release and press the button again .This will erase all the data. The drive will automatically remount after formatting is complete

DISPLAY: This button steps through several display pages providing information about the 4K-SVE and its settings.

CAMERA ID: Change the ID of the unit and the connected camera. Up to 20 ID's can be preset in the webUI (see page 12 for more information). The ID becomes part of the video file name for easy identification. A single press of the button displays the current setting.

TIME ZONE: Change the time zone. Standard setting is UTC. A single press of the button displays the current setting.

Block Diagram



Video Recorder

Talon 4K-SVE ships pre-configured to be used "out-of-the-box" as a Video Recorder

Presets:
- Video Input: SDI
- Encoding Resolution and Frame Rate: 1080P59.94
- Bitrate: CBR @ 10Mbps
- Video Segmenting: 60 Minutes
- Trigger Input: Button

First Use:

Connect and Power On: Connect Power (6) → Connect SDI Video Source (4) → Press the Power Switch (9).
The Power | Boot LED (8) will change from red to blue once boot is complete.
The SDI LED (8) will turn green, indicating a valid video input.

Set Time Zone: Press TIME ZONE button (10).

Set Camera ID: Press CAMERA ID button (11)
Up to 20 Camera ID's can be configured using the web UI

Insert USB Media: Insert USB Media (2). The USB LED (16) will turn solid yellow once the drive is mounted.
If the USB drive is not formatted as exFAT, it will automatically be formatted after 5 seconds unless aborted.
⚠ *Formatting will erase all existing data*

Start Recording: Press the START | STOP button (7) to begin recording → the START | STOP LED (7) will turn Red.
MP4 files will be saved to the USB media, with a backup copy stored on the internal SSD drive → see Page 16 for more information on recording

Time Marker: Press the TIME MARKER button (15) to log Start and Stop actions associated with each video file → the TIME MARKER Led (15) will turn yellow indicating an active event. The events will be saved to a RECORDING MANIEFEST file on USB and internal SSD *(see next page)*
⚠ *The external **BUTTON TRIGGER** (14) is synchronous with the **TIME MARKER** button (15)*

Remove USB Drive (Important): Press and hold the USB UNMOUNT button (16) and follow the on-screen instructions.
Press the button again to complete unmounting.
⚠ *Removing the USB drive without unmounting may corrupt recorded video files.*

TRIGGER SOURCE (Embedded SDI or Button Trigger):

Important: Recording must be stopped for below actions to be valid.

To change the trigger source:
1. Press the TIME MARKER button (15) three times, then confirm the change, or
2. Select the trigger source using the web UI - System - Device.
3. A single press of the TIME MARKER button (15) displays the current trigger source setting.

⚠ Only the selected trigger source is active; the other is disabled.

Video Recorder

RECORDED VIDEO FILES AND TIME MARKER MANIFEST

USB Structure: Video Files and Trigger Manifest

Name	Date modified	Type
ch1_SL_20260123-103642_0.mp4	1/23/2026 10:36 AM	MP4 File
ch1_SL_20260123-103747_0.mp4	1/23/2026 10:37 AM	MP4 File
ch1_SL_20260123-103801_0.mp4	1/23/2026 10:38 AM	MP4 File
RECORDING_MANIFEST_SL.json	1/23/2026 10:37 AM	JSON File

Video File Naming:
ch1_cameraID_date_time_segment number.mp4

Manifest File:


```
{
    "Action": "Start",
    "Duration": "00:00:03.466",
    "File_name": "ch1_SL_20260123-103642_0.mp4",
    "Time": "2026-01-23T10:36:46.411916-06:00",
    "Trigger_type": "GPIO"
},
{
    "Action": "Stop",
    "Duration": "00:00:08.810",
    "File_name": "ch1_SL_20260123-103642_0.mp4",
    "Time": "2026-01-23T10:36:51.757554-06:00",
    "Trigger_type": "GPIO"
},
```


Action:	Start or Stop
Duration:	Elapsed time after Action event
File_name:	Video File to which the action applies to
Time:	Time the action was triggered (RFC3339)
Trigger_type:	TIME MARKER button (GPIO) or SDI (Embedded)

Catapult and DV Sport automatically recognize the manifest during file import. Video files are then cut or cropped according to the imported manifest.

Formatting USB Drive:
Press and Hold **Format** Button (16) for approximately 3 seconds. Follow the instructions on the display by confirming with an additional push of the format button → this will erase all video files on the USB Media. The drive will remount after successful formatting.

Formatting internal SSD Drive:
Press and Hold **Format** Button (16) for approximately 15 seconds. Follow the instructions on the display by confirming with an additional push of the format button → this will erase all backup video files on the internal SSD Media.

Recover Backup Files from internal SSD drive:

1. The internal drive can be accessed via ftp using the following address: ftp://talon:<password>@<IP Address> (Network connection required). Default password is "access". The password can be changed in the web UI - System - Device (FTP Password)
2. Download to USB: Using a PC, create a blank file named "recovery" (no extension) and copy the file to a formatted USB drive. Insert USB drive to 4K-SVE → automatic download of all video files created within the last 24 hours

Network Configuration and Login

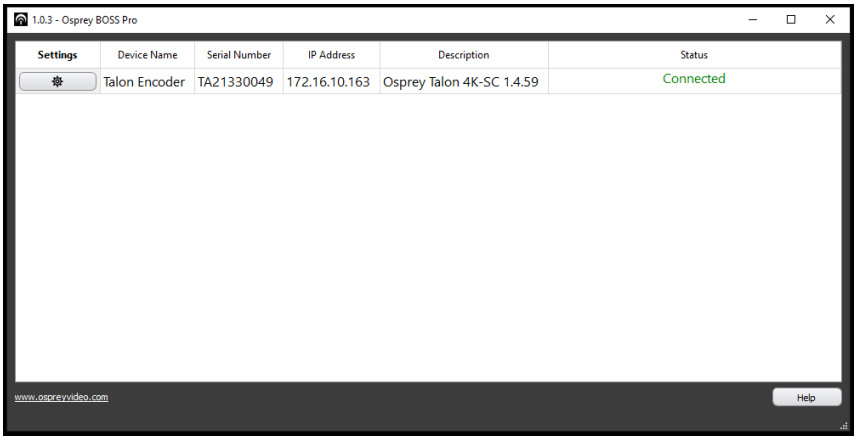
Important! Talon Encoders ship from the factory in DHCP mode. Please ensure your host PC and Talon are connected to the same network supporting DHCP.

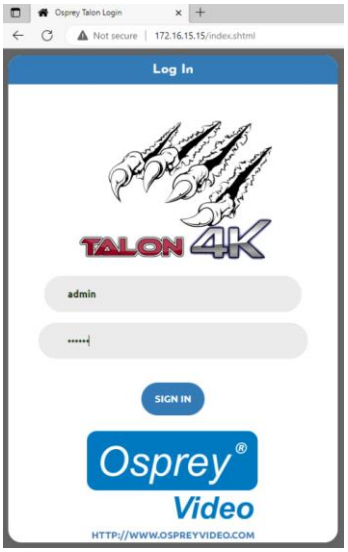
1. Connect Talon to your network using a CAT5 or faster Ethernet cable
2. Connect Talon to power using the supplied 12V adapter. Ensure the barrel connector is fully engaged and locked
3. Power up Talon with the front power switch
    - Red "Power" LED will turn blue once the booting process is complete.
    - Use the Display button to toggle to the IP Address page. It might take up to a minute to successfully acquire an IP address.
    - Connect to Talon from your host PC
    - Option #1: Type the IP address into your web browser
    - Option #2: Download "Boss" from www.ospreyvideo.com to find all Talons on your network
4. Default login credentials
    - Username: admin
    - Password: osprey

Setting up Talon without Network access or with Network without DHCP server using APIPA

1. Verify your PC is set to Automatic IP (DHCP)
2. Connect Talon directly to your PC with an Ethernet cable (**ensure the PC doesn't have network connection though LAN, Wifi, etc**)
3. Follow above instructions beginning with step 2.

APIPA - Automatic Private IP Addressing (APIPA) is a feature of Windows-based OS -- included since Windows 98 and Windows ME -- that enables a Dynamic Host Configuration Protocol client to automatically assign an IP address to itself when there's no DHCP server available to perform that function.



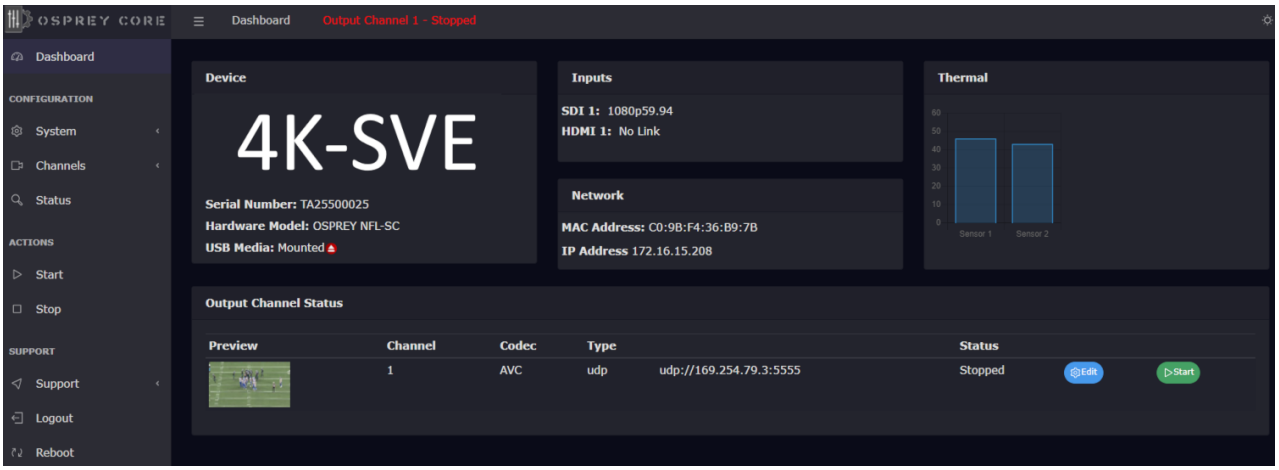


Web Interface - Dashboard

Overview

A web server in Talon allows for system control and stream settings via web browser. All commonly used Windows, Mac and Linux web browsers are supported. Please ensure your device is connected to the same network as Talon (see Page 6 for further instructions). To connect to the interface simply enter the IP address of your Talon into the web browser. Default login for a factory default Talon is **user: admin** and **password: osprey**.

The Dashboard provides basic information about the status of your Talon and a video preview* of your output channel.



* Video Preview will stop once an Encoder is started

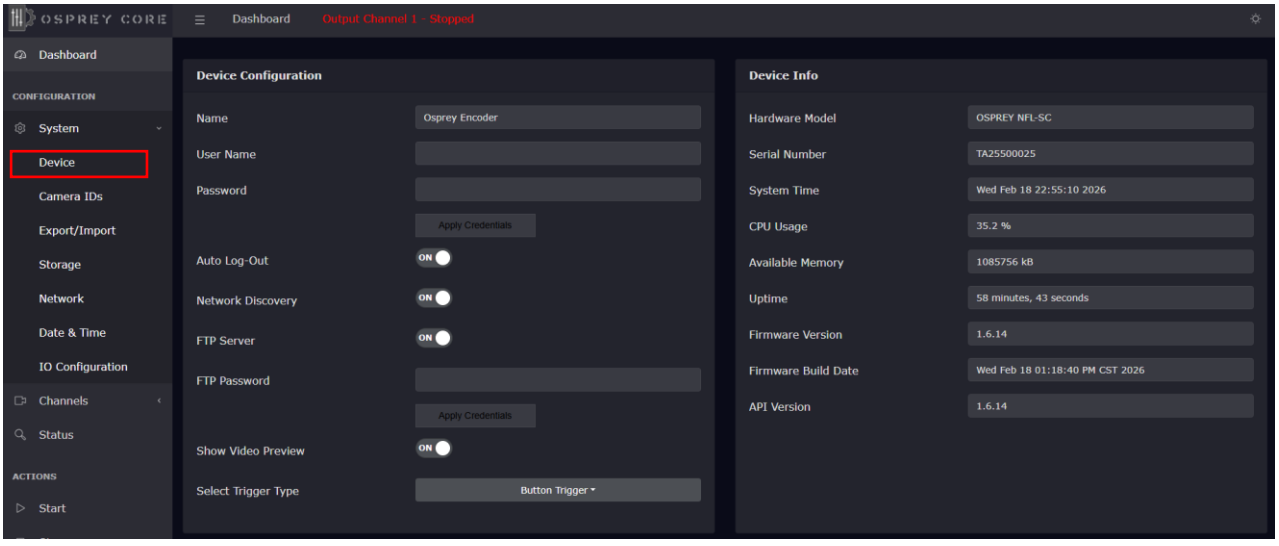
Web Interface System - Device

Device Configuration

Name	change your device name
User Name	change user login name credentials
Password	change user login password credentials
Auto Log-Out	enable/disable UI Auto Logout Feature (auto logout is 10 minutes)
Network Discovery	Network Discovery allows computers and devices to find one another when they are on the same network. This service is turned 'on' by default. To stop Discovery services, select 'off'. Note that monitoring tools such as Osprey Boss require Discovery to locate Talon devices on the network. Osprey Boss will not be able to see any system that has Discovery turned off
FTP Server	on unit ftp server - default user: 'talon'. Remote access to USB/NVME storage drive
FTP Password	on unit ftp server - password: 'access'. Remote access to USB/NVME storage drive ftp access: ftp://talon:access@IPAddress (ftp://user:password@IPAddress)
Show Video Preview	disable "Dashboard Video Preview" to improve UI responsiveness and CPU usage
Select Trigger Type	Select between Button Trigger and Embedded SDI Trigger

Device Info

Hardware Model	Indicates if the NFL specific (Osprey NFL-SC) or generic (Osprey-SC) firmware is loaded

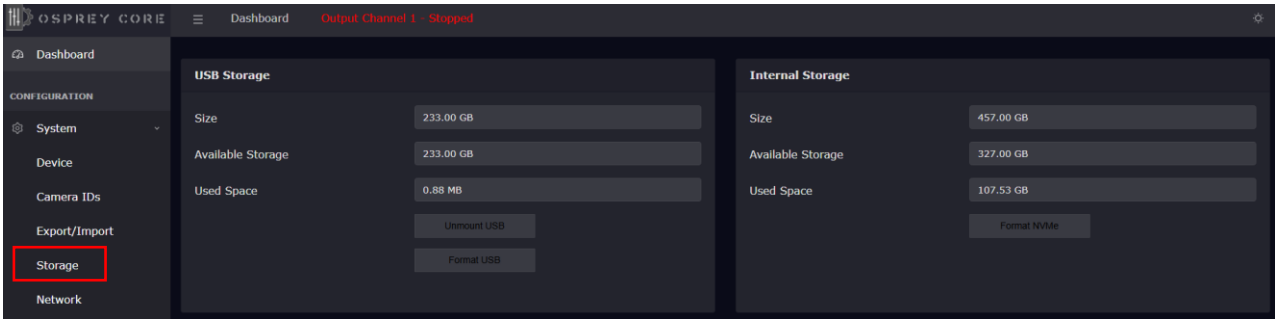


Web Interface System - Storage

System –Storage

Please refresh the browser page after inserting a USB drive as the page doesn't dynamically refresh.

Always unmount the USB drive before unplugging it!!!

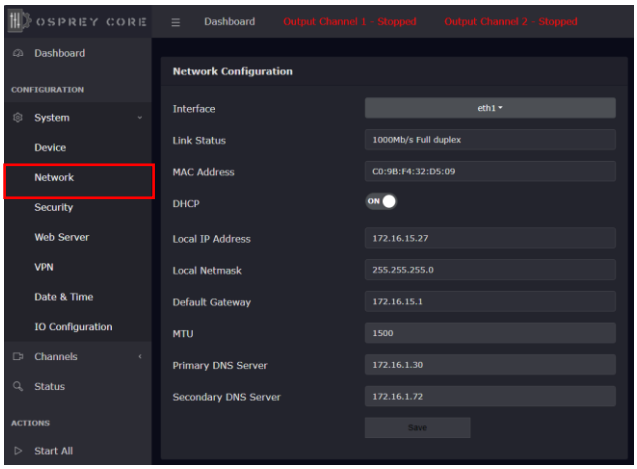


Note: The internal SSD storage allocates approximately 10% of its storage capacity to system files

Web Interface – Network Configuration

System Settings – Network Configuration

Interface	network port identification. If additional network devices are installed, they would be selectable here.
Link Status	Indicates link speed 10/100/1000Mbps (not network speed) and port status, full or half duplex.
MAC Address	Talon MAC ID
DHCP	enable/disable DHCP
Local IP Address	dynamic if DHCP is on. Otherwise, a new valid IP address can be entered here
Local Netmask	dynamic if DHCP is on. Otherwise, a new valid netmask can be entered here
Default Gateway	dynamic if DHCP is on. Otherwise, a new valid gateway can be entered here
MTU	maximum transmission unit in bytes – packet size maximum is 1500
DNS Server	dynamic if DHCP is on. Otherwise, a new valid DNS can be entered here



Important Dual NIC information (when USB to Ethernet adapter is used)

Where two NIC's are used the Interface pull down will have "eth0' and "eth1"

Each configuration now includes "Primary DNS Server" and "Secondary DNS Server".

When the two NICs are on separate networks, only one (usually eth0) should be configured as DHCP. The second NIC should be configured as Static. The Default Gateway should only be configured for the network handling the outbound stream. In that case, the second network should be configured without a default gateway.

NOTE: When saving network settings, save each NIC settings separately. Performing a SAVE on eth0 will not have any effect on eth1.

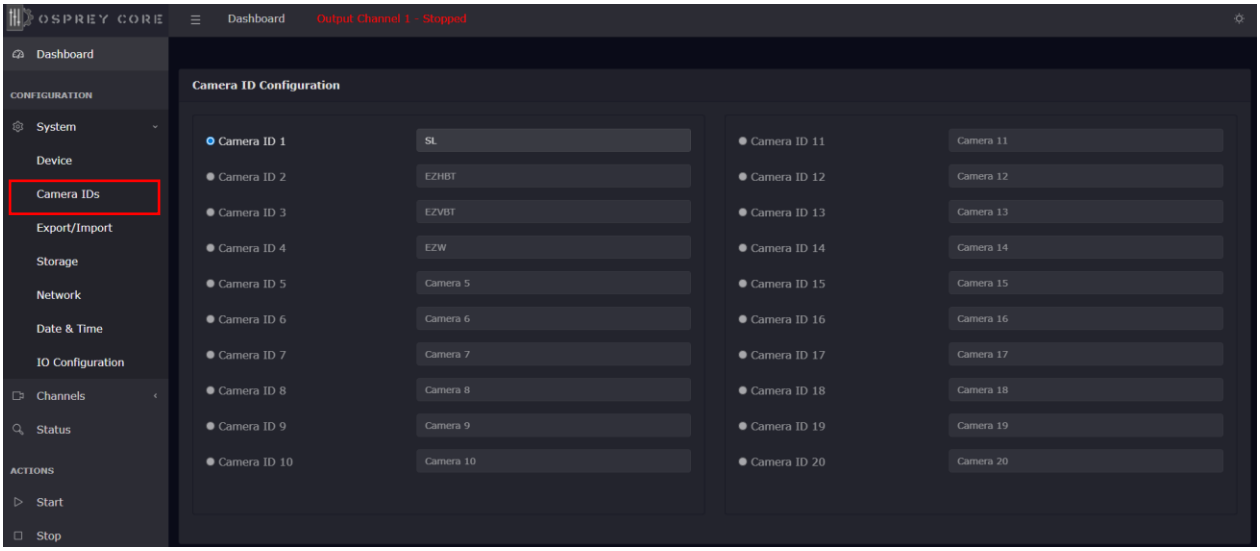
DNS settings: The OS only allows for one pair of DNS servers. Usually, the DHCP server sets the DNS servers as well. If a static DNS server is needed, then both NICs must be set to STATIC addresses for the change to take effect.

Web Interface – Camera ID's

System Settings – Camera ID's

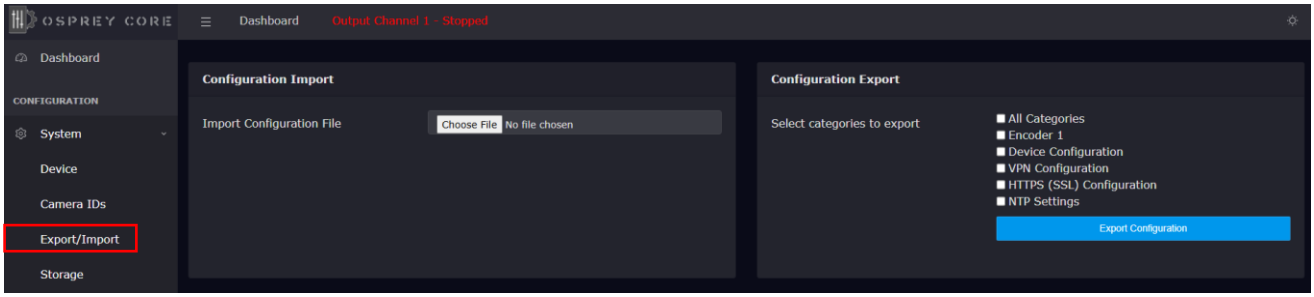
Preconfigure camera names used in the workflow. The camera ID is used to identify individual recorded video clips. For live capture applications, the camera ID will be embedded in the IP stream.

The camera ID can then be selected on the physical unit or in the UI.



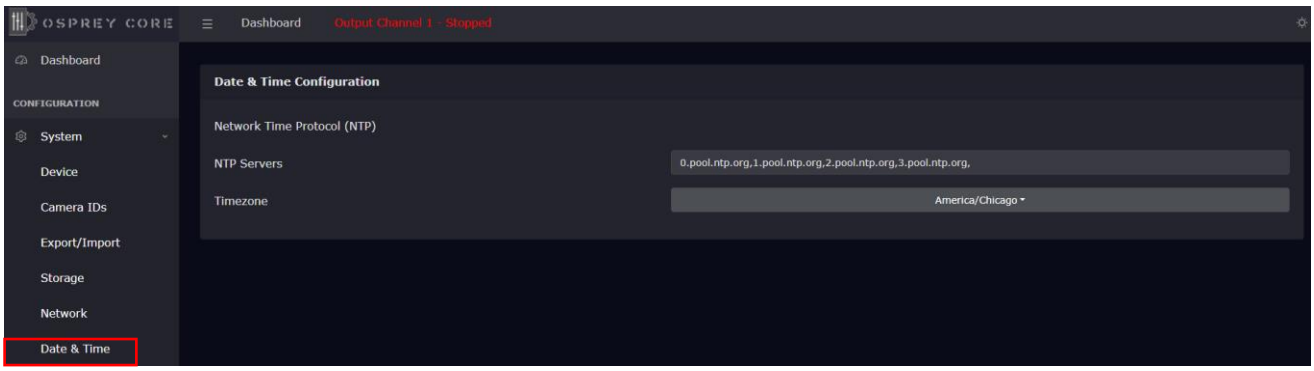
Web Interface – Export / Import

Export and Import your configuration. This feature lets you deploy a fleet of units with identical settings.
Setup the first unit and export the settings, then import the settings to all subsequent units.



Web Interface – Date and Time

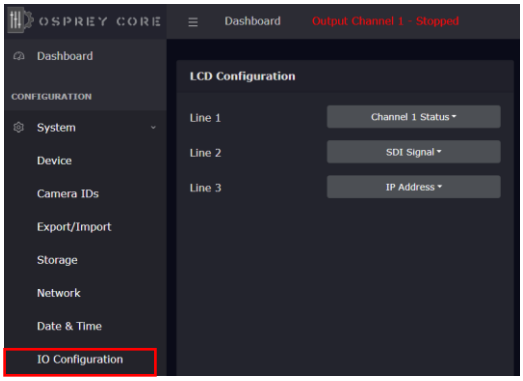
Selection of NTP server and time zone



Web Interface – I/O Configuration

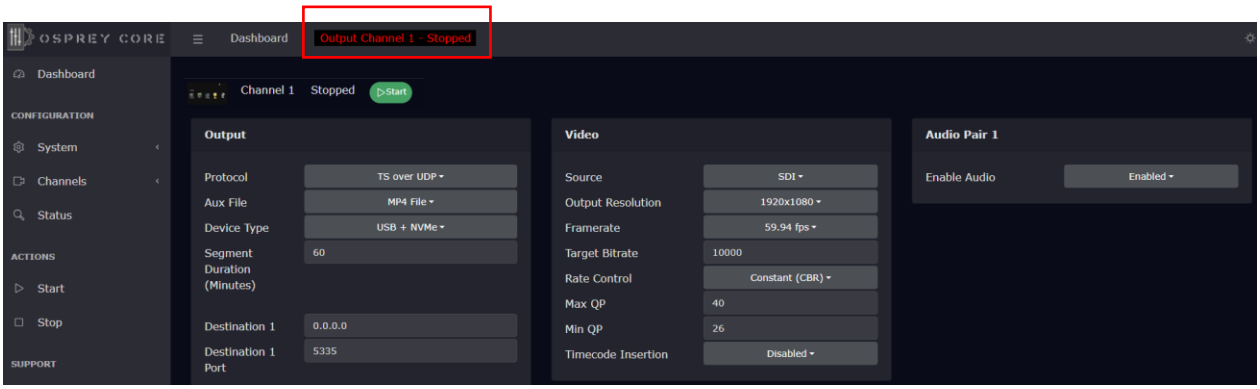
System Settings – I/O Configuration

The last page of the on-board Display Pages can be custom configured



Web Interface – Channel Setup Output Protocol

Channel Setup - Output



Protocol streaming protocol (default TS over udp)

AUX File archive a copy of your stream in .mp4 or 'none' for live streaming only applications

Device Type select the recording media – see next page for additional information

Segment Recorded video files will be automatically segmented after reaching the segment length in minutes

Destination IP address of your endpoint for a udp live stream (example IP address of a receiving PC: 169.15.18.12)

Destination Port Port of your endpoint for a udp live stream (example port: 5555)

VLC example to setup a udp endpoint: Media – Open Network Stream – udp://@:5555

Channel Setup – Video

Source Select between SDI and HDMI Inputs (Default SDI)

Output Resolution Select your desired output resolution (Default 1920x1080)

Frame Rate Select your desired output frame rate (Default 59.94fps)

Target Bitrate Select your desired output target bitrate (Default 10,000 or 10Mbps)

Maximum Bitrate Select your desired maximum bitrate (option only available when VBR is selected)

Rate Control Constand Bitrate (CBR) or Variable Bitrate (VBR)

Max/Min QP Highest and lowest allowed compression (Default 40/26)

Timecode Insertion Enable or Disable timecode insertion for the outbound udp IP Stream

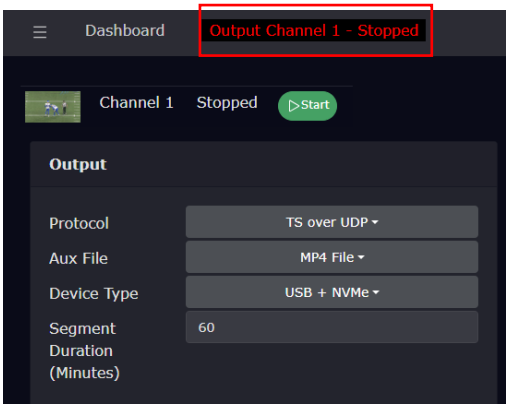
Channel Setup – Audio

Enable Audio Select if the SDI/HDMI embedded Audio is to be enabled or removed from the Recording/Live Stream

Note: For interoperability compatibility, The 4K-SVE is preset to H.264 Encoding with a GOP size of 30

Web Interface – Video Recording

Channel Setup – Video Archiving



Protocol	Streaming protocol. Default udp, no matter if the streaming feature is utilized or not
AUX File	"MP4" for video recording or 'none' if only the streaming feature is utilized
Device Type	Select recording Device (NVME is the internal SSD storage)
Segment	File length limitation. A new video file is automatically created once the limit is reached (default 60 minutes)

In case where USB+NVME is selected but no USB Drive is present, Video will be recorded to internal NVME only

Save to USB

- Only exFAT formatted USB drives are accepted. Talon will auto format non-exFAT formatted drives.
- A correctly mounted drive will show in 'Dashboard' and the yellow LED on the unit is solid yellow
- Unmount USB drive from 'Dashboard' or physical UNMOUNT Button

Important:

USB Recording: Files are never automatically deleted from the USB drive, if the media fills up, the recording to USB will stop resulting in the last recorded file to be "corrupt" while recording to the internal backup NVME drive continues.
The LCD display will alert the user once the remaining capacity on the drive drops below 20%.

Internal SSD Backup Recording: The system will automatically delete the oldest files once the used capacity exceeds 80%. Backup recording capacity is approximately 80 hours of video before the system starts deleting the oldest files.

At CBR @ 10Mbps, 1 hour of video results in a file size of approximately 4.5Gb.

Output file format example:

ch1_filename_20230420-153253_0.mp4

ch1_{CameraID}_{year}{date}-{time}_{segment index number}.mp4

Remote access to USB/NVME storage drive with ftp:

on unit ftp server – user: 'talon', password: 'access'.

ftp://talon:access@IPAddress (ftp://user:password@IPAddress)

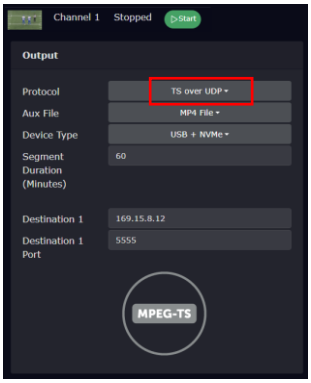
Download of internal backup files to USB:

Using a PC, create a blank file named <recovery> (no extension) and copy the file to a formatted USB drive. Insert USB drive into 4K-SVE → this will download all video files created in the last 24 hours

Web Interface –UDP

TS over UDP (User Datagram Protocol)

Destination	IP address of your endpoint
Destination Port	UDP destination port



UDP is a connectionless protocol with minimal mechanisms. It doesn't require recipients to let the sender know that all data packets have arrived, which can make it unreliable. This protocol is stateless and ideal for transmitting data to large numbers of clients. UDP features multicast support for service discovery and broadcasting. Its low rate of retransmission delays makes it the perfect match for real-time applications

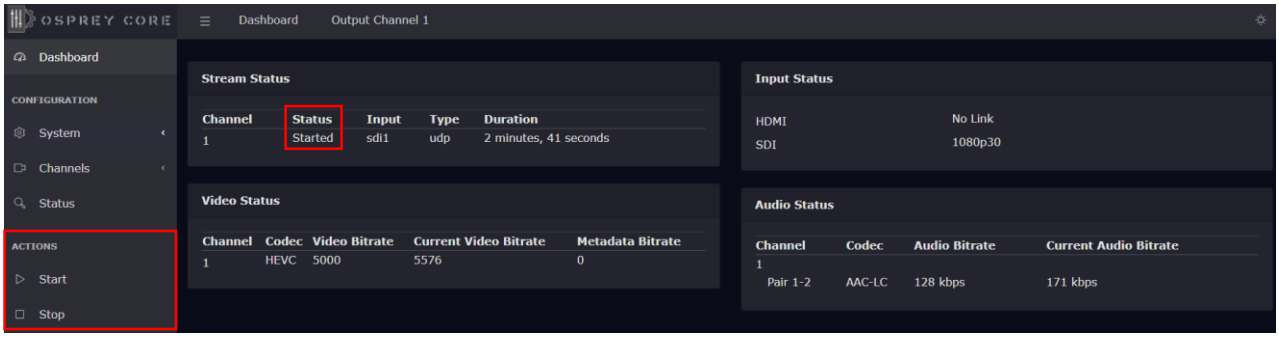
Web Interface – Status and Stream Start/Stop

The Stream 'Start' and 'Stop' buttons are always available in the main menu. It is recommended to start and stop your streams from the 'Status' page or from the 'Dashboard'. This allows for immediate monitoring of your stream data.

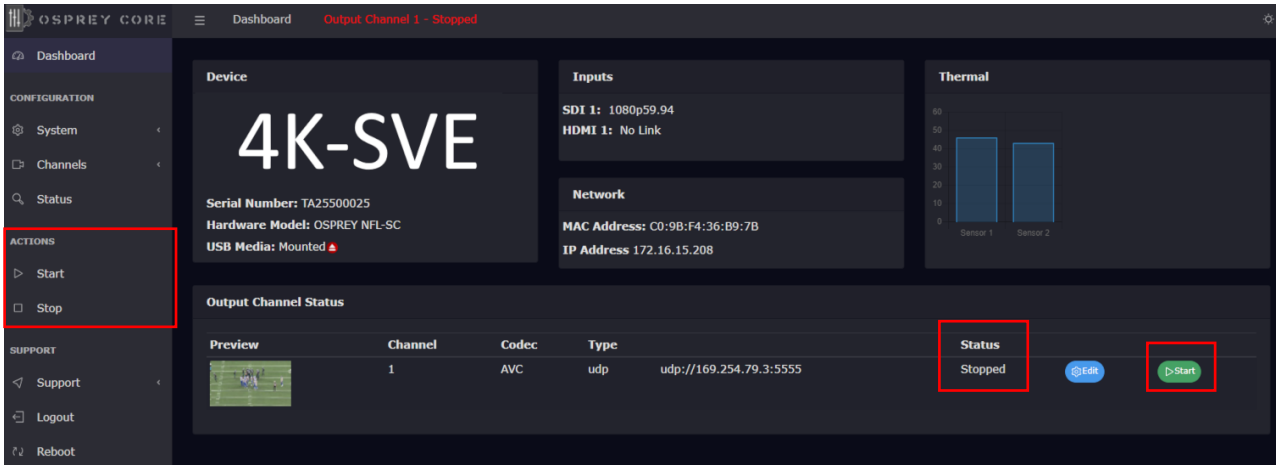
The status page provides information about your video inputs and live stream data

- Audio, Video and Metadata Bitrates
- Video Input resolutions and frame rates

Status Page



Dashboard

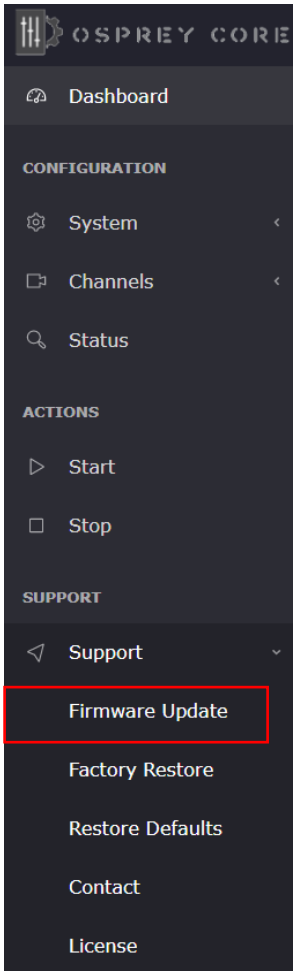


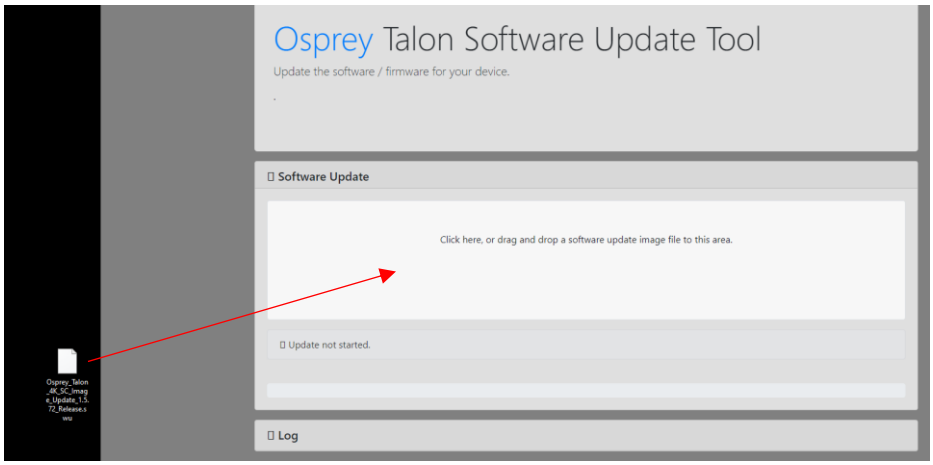
Web Interface – Firmware Update

As we constantly add features and maintain our Talon line of products, we suggest you keep your Encoder Firmware up to date.

Firmware upgrade steps:

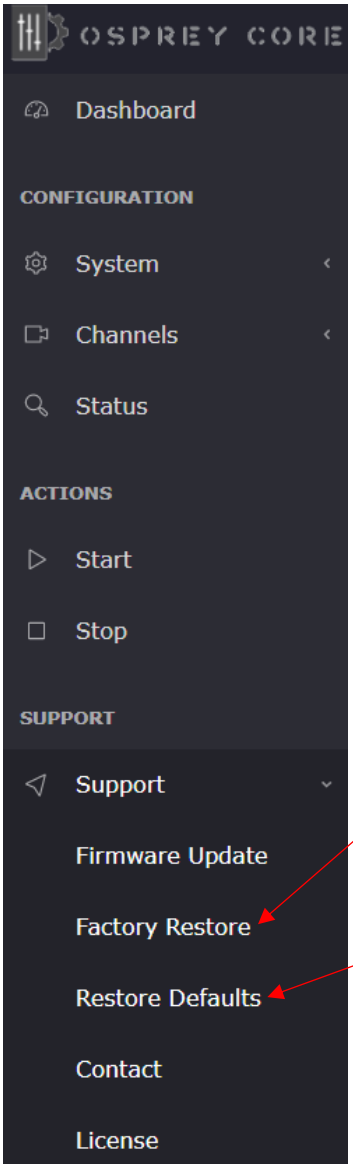
1. Download the latest firmware revision at www.ospreyvideo.com/talon-software-and-firmware
2. Go to 'Firmware Updates' on Talon Web Interface
3. Drop the downloaded firmware file into the 'Software Update Tool'
4. A system prompt will ask to retain the user settings
5. Update will start immediately and might take several minutes





Web Interface – Restore

Please read carefully before attempting to restore Talon's firmware and settings



Factory Restore will reset Talon and restore it with the original firmware it shipped with. Settings will be reset to default

Restore Defaults will reset all user settings with its default values

Enterprise and Security

To protect the Talon OS and to ensure data integrity, multiple security features are included by default. These require no user intervention and are active upon the first startup.

NDAA compliant
Talon 4K series encoders are manufactured in the USA from globally sourced components. All parts are vetted to ensure NDAA compliance.

Operating system firmware
All OS firmware is AES encrypted and RSA authenticated. No part of the operating system can be modified except by Osprey.

Trusted image/update control
The initial firmware, as well as all updates are encrypted, digitally signed and only available from Osprey. This ensures that only approved software can be loaded. Any attempt to load outside software will fail.

Certificate encrypted SSH
All SSH access is keyed and encrypted. Only Osprey can access the device via SSH.

Telnet access blocked (no telnet client installed)
To comply with most secure networks, Telnet access is not enabled. There is no Telnet client on the Talon. Because of the Trusted Image, none can be installed.

OpensSource Listing

Package	Version	Description	License
Linux Kernel	5.15.19		GPLv2
bash	51.8	Bourne Again Shell	GPLv3+
busybox	1.34.1	Lightweight common UNIX utilities	GPLv2 & bzipi2
alsa-conf	1.2.5.1	Advanced Linux Sound Architecture utilities	GPLv2+
alsa-utils	1.2.5.1	Advanced Linux Sound Architecture utilities	GPLv2+
apache2	2.4.52	Opensource web server	Apache-2.0
passwd	3.5.29	System user password management	GPLv2+
cronie	1.5.7	scheduled process management	GPLv2+
curl	7.78.0	Tool for transferring data using various network protocols	MIT
daemontools	0.76	supervisor and monitor services	PD
dhcpd	9.4.0	DHCP client	BSD
e2fsprogs	1.45.3	EXT2/3/4 filesystem utilities	GPLv2
ethtool	5.13	query and control network device drivers	GPLv2+
faad2	2.8.8	Freeware Advanced Audio (AAC) decoder	GPLv2
faac	1.30	AAC audio support	LGPLv2+
gst-interpipes	1.1.8	Tools for monitoring gstreamer	LGPL2.1
gst-perf	1	Tools for monitoring gstreamer	LGPLv2+
gst-shark	0.7.2	Tools for monitoring gstreamer	GPLv2+
gstreamer1.0		Multimedia Pipeline control	LGPLv2+
gstreamer1.0-plugins-bad	1.18.0	Multimedia Pipeline control	GPLv2+
gstreamer1.0-plugins-good	1.18.0	Multimedia Pipeline control	GPLv2+
gstreamer1.0-plugins-base	1.18.0	Multimedia Pipeline control	GPLv2+
i2c-tools	4.3	Accessing i2c devices	GPLv2+
init-ifupdown	1.0	Tools to bring network configuration	MIT
initscripts	1.0	Scripts for run level processing	GPLv2
iproute2	5.15.0	Linux TCP/IP traffic control	GPLv2+
iptables	1.8.7	Linux TCP/IP firewall	GPLv2+
libcrypto	1.1.1l	Crypto library	Openssl+

Safety and Compliance

FCC Notice

The Osprey Talon has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures:
•Reorient or relocate the receiving antenna.
•Increase the separation between the equipment and receiver.
•Connect the computer into an outlet on a circuit different from that to which the receiver is connected.
•Consult the dealer or an experienced radio/TV technician for help.
If the above measures are unsuccessful, please consult the dealer or manufacturer of your radio or television receiver or speak with an experienced Radio/TV technician.
Shielded Cables: Connections between this device and peripherals must be made using shielded cables in order to maintain compliance with FCC radio emission limits.
Modifications: Modifications to this device not approved by Osprey Video could void the authority granted to the user by the FCC to operate the device.

Product Disposal Information

Dispose of this product in accordance with local and national disposal regulations (if any), including those governing the recovery and recycling of waste electrical and electronic equipment (WEEE).

RoHS Compliant: Osprey Video is committed to compliance with the European directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, Directive 2002/95/EC, the RoHS directive.

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