

Osprey[®]

Video

Osprey TALON User Guide

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Overview

Thank you for purchasing the Osprey® Talon video encoder from Osprey Video. This user guide provides step-by-step instructions for installing and using your new video encoder. For the latest Osprey product information and news, visit our website at www.ospreyvideo.com.

FEEDBACK:

We greatly value your input. Please direct any questions, comments or support issues to

support@ospreyvideo.com

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Product Description

The Osprey Talon is a hardware based, small form-factor H.264 video encoder designed to be easy to use, portable, and easily stream both standard definition and high definition content to broadband and mobile networks via H.264 RTMP servers such as Adobe® and Wowza®.

Some information in this user guide is specific to firmware build [1.10.0.257](#). If your Talon is using an earlier firmware, please consider upgrading to the latest version by checking the Osprey website.



Overview	1
FEEDBACK:	1
Product Description	1
Getting Started.....	6
Prerequisites	6
Using Talon for the First Time	7
Osprey BOSS and DHCP.....	7
Osprey BOSS Without DHCP	7
Osprey BOSS With an Invalid Static IP	8
Unknown IP Address Without Osprey BOSS.....	8
Osprey Talon Product Identification.....	8
Osprey Talon Back.....	9
Panel Diagram	9
Osprey Talon G2 Encoder Front Panel Diagram	10
LCD Touch Control.....	10
Osprey Talon G1H Front Panel Diagram	12
Osprey Talon Status Lights.....	13
Talon Web GUI	14
1.0 Tab ID	14
2.0 System Control.....	15
Talon IP Setup.....	15
Firewall Configuration	16
Session Timeout	16
Set Name	17
Set Password	17
Reboot	17
Update Firmware.....	17
4.0 Operating Mode.....	20
1x3 MBR Mode	20
2X2 LC Mode.....	20
1X1 3G Mode	20
Changing Operating Modes.....	20
5.0 Status	21
6.0 Encoder Configuration	22
Stream Capacity.....	22

Stream Control Buttons.....	23
Stop/Start.....	23
Save	Error! Bookmark not defined.
Clone	23
Delete.....	23
Status	23
Encoder Setup	24
AutoStart.....	24
Video Source	24
16:9	24
Encode Profiles (RTMP/RTP only)	25
Video Bitrate	25
Video Rate Control.....	25
Maximum Delay	25
Advanced Settings.....	26
Video Resolution	27
Frame Rate.....	27
Video Profile.....	27
GOP Size	27
Number of B Frames	27
DeInterlacing.....	27
Audio Enable	28
Audio Info.....	28
Output Setup	29
Output Format	29
RTMP/RTMPS.....	29
UDP	30
RTP	31
Save to File	33
File Naming	33
Wowza Cloud	35
Facebook Live.....	38
IBM Cloud Video	44

StreamSpot	46
Zixi	47
Osprey BOSS.....	48
Installing Osprey BOSS	48
Locating Talon with Osprey BOSS	49
Additional Operations from BOSS.....	50
Reboot.....	50
Clear Configuration	51
Clear System.....	51
Appendix A: Encoding Profiles.....	53
Appendix B: Osprey Hardware Specifications.....	54
Osprey Talon G1 model SAH-E23.....	54
Osprey Talon G2 model SAHD-E23	54
Osprey Talon G1H model AH-E23	55
Appendix C: Troubleshooting tips.....	56

Getting Started

Before you can use your Osprey Talon encoder, you first need to set up and configure it. This chapter provides you with the details and step-by-step instructions you need to make your installation as quick and easy as possible.

Here are three starting requirements:

- AC power source (100 - 240 V)
- IP connection and/or Internet connection on a dynamic host configuration protocol/domain name server (DHCP/DNS) network
- A '**configuration host**' system
A configuration host is a networked PC computer running a compatible HTML browser. The browser on the host will be used to access the configuration web page on the Talon encoder. There is also a small application called 'Osprey BOSS' that is used to locate and identify Talon on the local network. BOSS works with PC and Linux. Once Talon has been identified on the network any HTML browser can be used to configure your encoder.

The Osprey Talon encoder, an easy-to-use streaming device, allows you to:

- Connect to a compatible browser on a dynamic host configuration protocol/domain name server (DHCP/DNS) network.
- Configure and connect your audio and video source to the Osprey Talon.
- Select your output formats and streaming settings.
- Enter your streaming server information.
- Start streaming your media.

You can configure and use the Osprey Talon straight from the box for any streaming activities. Use the web interface for setting options and controlling your Osprey Talon from another networked computer.

This section addresses the high-level actions you must perform to physically connect and set up your Osprey Talon video encoder.

Prerequisites

Before connecting the Osprey Talon encoder, ensure you comply with the following prerequisites:

- All packaged items are undamaged and in working order.
- Your environment meets all starting requirements.
- Safety instructions, notices, and warnings in section 8.0 at the end of this document, including:
 - FCC Notice
 - Environmental Notices
 - Warnings

Introducing Osprey Talon

Osprey Talon G2, G1 and G1H hardware-based streaming contribution encoders are designed for A/V and broadcast customers tasked with delivering quality video via RTMP, RTP, and UDP over the unmanaged internet.

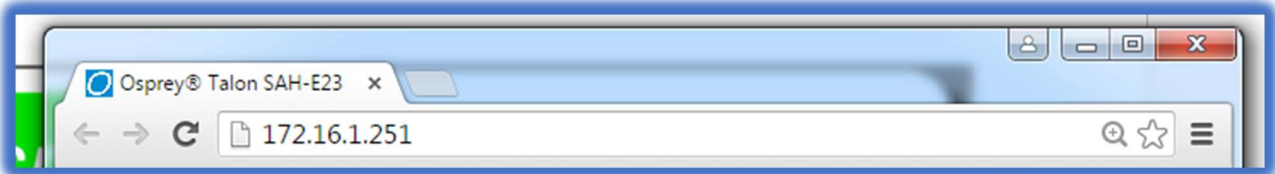
Talon G1 and G2 can ingest video via 3G-SDI, HDMI, or Analog Composite (CVBS)

Talon G1H supports HDMI and CVBS.

Each Talon encoder uses the same web interface and Osprey BOSS utility to access and configure their features. Functions that are not part of that model are not visible in the web page.

Using Talon for the First Time

All configuration of Talon is done via the internal web server. If you already know the IP address of your Talon, simply type that address into a web browser on a computer that has access to your network. You should proceed to the “Login” portion of this guide.



If you do not know the IP address of Talon, the Osprey BOSS utility is the best way to determine the network location of Talon and connect with it. As an alternative to installing Osprey BOSS, you can insert a thumb drive into the USB port on Talon. After a minute, remove the thumb drive and insert it in an available PC. On the drive, you will find a file named “TalonIP.txt” that contains the IP address.

Osprey BOSS and DHCP

The easiest way to configure the address of Talon is to attach it to a network that automatically assigns IP addresses via DHCP. Simply connect the network cable and power up the Talon. DHCP will assign the IP address, Netmask, and Gateway. Then you can use Osprey BOSS from a computer on the same local network to locate Talon and connect to the web GUI. For best results, be certain your network is connected before switching on your Talon.

Osprey BOSS Without DHCP

If your network does not support DHCP, it is still possible to use Osprey BOSS to discover your Talon and assign a static IP address. As in the example above, connect Talon to the network and power it on. Because there is no DHCP on the network, Talon will assign the static IP address of ‘10.10.10.10’. From a PC on the same network, open Osprey BOSS. BOSS will locate the Talon and display the IP address. It is most likely that this address will not be compatible with your network. Use BOSS to assign a temporary address to your Talon. Be certain that address is compatible with your network. Then you can use BOSS to access the web GUI of your Talon. As soon as you log in on Talon, navigate to the “System Control” tab and assign the correct static IP address in the “Talon IP Setup” dialog. Be certain that you include a Default Gateway in the setup. Talon will not be recognized unless it has a default gateway assigned. If your network is small and does not require a default gateway, simply repeat the IP address in the “Default Gateway” location. Do not leave it blank.

IMPORTANT NOTE: When Talon powers up for the first time it waits for a DHCP address. If it doesn’t receive one immediately it will assign the 10.10.10.10 address. If Talon is set to wait for DHCP and the power and network go down, it is possible that Talon will power up and assign an address before the DHCP server can respond. If Talon powers up fully and the encoder is set to auto-start the encoder could fail. If this happens, wait until the network recovers and then power cycle your Talon to receive the DHCP address.

Osprey BOSS With an Invalid Static IP

You might find that you have configured Talon for a static IP on one network and then moved it to a network where that address is invalid. Simply connect Talon to the current network. Then start Osprey BOSS on a PC on that network. BOSS will identify the address of the Talon even though it will not be able to connect with the web GUI. Similar to the scenario above, use BOSS to change the invalid static IP to one that is valid on the current network. Then access the web GUI and complete the updating of the address on Talon.

Unknown IP Address Without Osprey BOSS

In this scenario, Talon is installed on a network and already has an IP address. You find yourself without access to Osprey BOSS. With Talon powered up and attached to the network, insert a thumb drive in the USB port of Talon. The thumb drive needs to be formatted with either FAT or FAT32. After about minute remove the thumb drive and insert it in another computer. On the drive, there will be a file called "TalonIP.txt" that will contain the IP address and MAC address of your Talon. You can then use the IP address to connect via a modern browser. Any time you insert a thumb drive into Talon a "TalonIP.txt" file will be created.

IMPORTANT NOTE: Talon is only compatible with IPv4 addresses. Never connect an Osprey Talon system to the Internet through a direct connection. We recommend taking precautions against unwanted access such as installing systems behind a router or firewall. The speed of the router or switch should match or exceed the speed of the system's network card. See your network administrator for recommendations.

Osprey Talon Product Identification

Talon G1H H.264 Encoder

G1H supports HDMI and CVBS inputs and has a single front panel button for one-touch encoder control. It has the same encoding capacity as the G1 and G2.

Talon G1 H.264 Encoder

SDI, HDMI, CVBS, Analog Audio Inputs
3 Configuration Modes
Closed Caption Support
Simultaneous Streaming and Archiving

Talon G2 H.264 Encoder

All the features of the G1, plus an external touch display providing IP Information, Stop/Start control and Encoder Status.



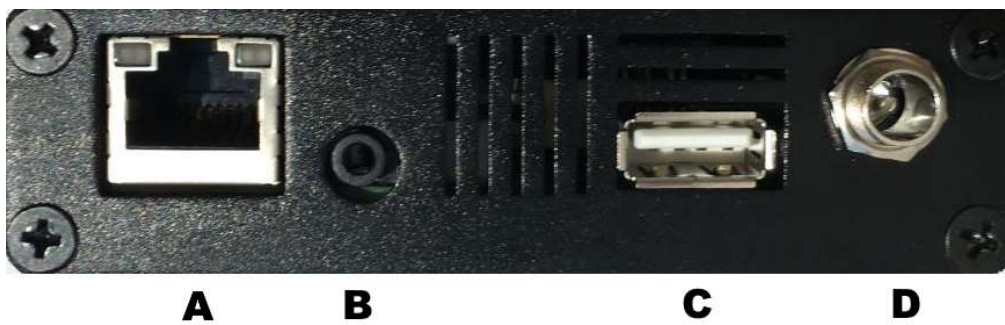
Osprey Talon G1 Front Panel Diagram

You should familiarize yourself with the front panel controls for the Osprey Talon. Besides the basic buttons for power, start/stop, up/down and menu access, there are indicator lights that are hidden until illuminated.

A	Power On/Off
B	HDMI in
C	Composite in (CVBS)
D	Unbalanced Audio in
E	HD/SDI in



Osprey Talon Back Panel Diagram



A	1G Ethernet
B	Service
C	USB
D	9 – 17 VDC

Osprey Talon G2 Encoder Front Panel Diagram

The front panel of the G2 is the same as the G1. However, on the top surface is a touch sensitive LCD panel that can be used to control the encoder without accessing the Web interface.

Osprey Talon front panel

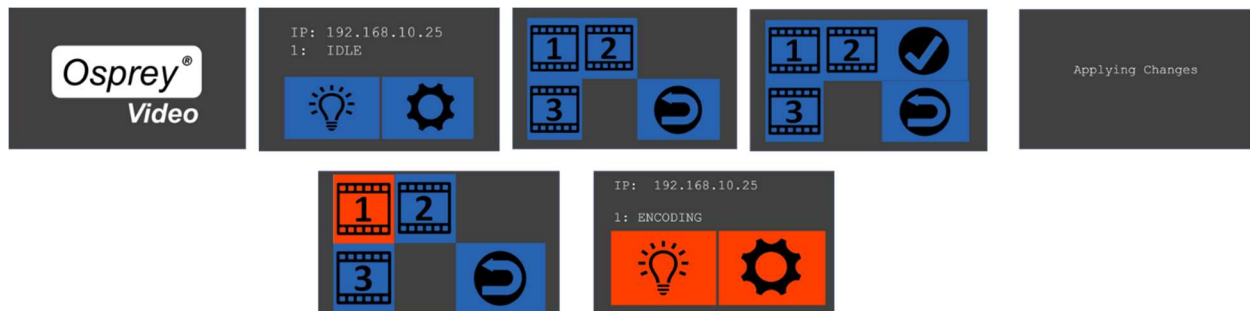
A	Power On/Off
B	HDMI in
C	Composite in (CVBS)
D	Unbalanced Audio in
E	HD/SDI in

A
B
C
D
E




LCD Touch Control


Configuration of the Talon G2 is done using the Web interface. Once stream outputs have been configured, they may be started and stopped with the LCD Touch Control on the front of the encoder. To configure the streams, use the IP address listed on the Touch Control to point your browser to the configuration page.







The Touch Control screen updates continuously to provide the status of Talon encoding operations.

Shows IP address and encoder status.

Select  to turn off the screen

Select  to go to streams screen

Select Stream by Number  to change state or  to return to Main Screen

Select  to confirm changes to the stream or  to return to the Main Screen without changing

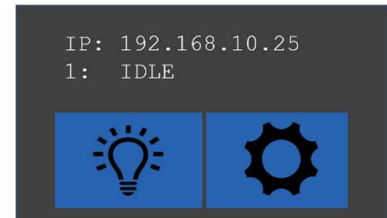
The stream icon will change to Orange indicating a running state. Select arrow to return to main screen.

Main Screen icons will be red indicating Talon is encoding. Status will update for each stream. If "Error" is shown for any encoder, use the Web Interface to view details on the error.

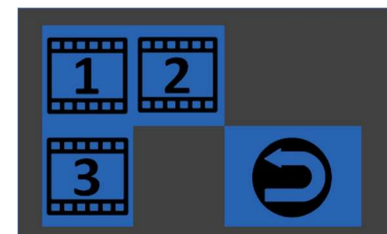
Boot Screen



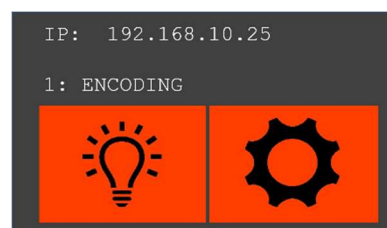
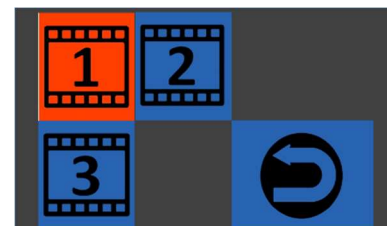
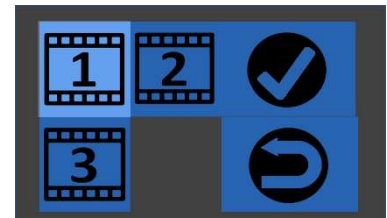
Main Screen



Encoder Screen



Change



Osprey Talon G1H Front Panel Diagram

Talon G1H has two distinct differences from the G1.

1. It does not have an SDI input.
2. On the front panel is a single button to allow users to stop and start the G1H without having to use the web interface.

A	Power On/Off
B	HDMI in
C	Composite in (CVBS)
D	Unbalanced Audio in
E	One Touch Start/Stop

A
B
C
D
E



To use the One Touch feature:

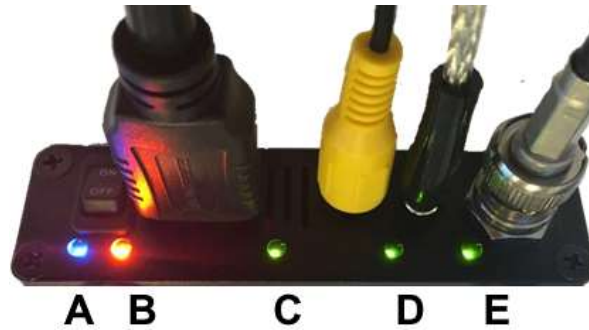
- Create and test encoder settings using the web interface.
- Press and release the One Touch button one time to start an encoding session
- Repeat one time, to stop an encoding session.

All configured sessions will start/stop with the button is pressed. Once started, pressing will stop all running sessions. A simple, one second press is all it takes. It takes a few seconds for the panel lights to indicate that the stream is started.

NOTE: Do not press and hold for more than 10 seconds. Holding the button for more than 10 seconds will erase all current configurations and reboot Talon. Reboot starts on the release of the button.

Osprey Talon Status Lights

There are five lights on the front panel of Talon that indicate the status of several functions.



A and B: Indicate power and boot status of Talon.

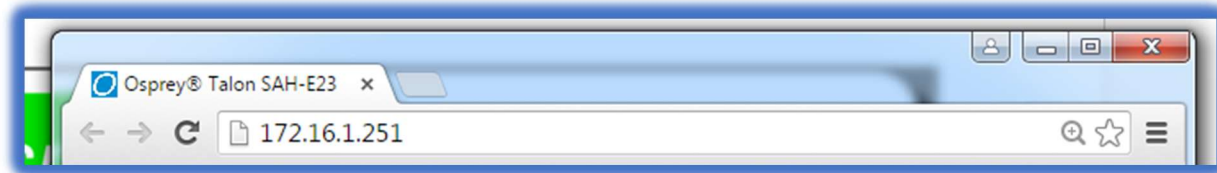
- Single Red indicates that Talon's power is on but is not ready
- Red and Orange indicates Talon is booting. A and B will flash half way through the boot cycle
- Single Blue indicates that Talon is ready
- Blue and Orange indicates that Talon is encoding

C, D and E: Green lights after Talon is ready indicate that video sync is locked.

- C = HDMI
- D = Composite (CVBS)
- E = HD-SD/SDI

Talon Web GUI

To login to the Talon page, first enter the IP address of Talon in a web browser (shown below) and press **enter**.



Your browser will be directed to the Talon Web Interface.



Upon login, you will reach the home page of the web configuration site. The default password is 'osprey'. For increased security always change the default password.

1.0 Tab ID

The tabs on the front page provide access to the available configuration features of the Talon.



System Control	IP Setup, Set Device Name, Set Password, Update Firmware, Select Mode
Status	Displays real time information regarding streams and inputs
Stream 1	Contains all streaming settings for one output stream including source and output setup.
+	Selecting this item allows you to add additional encoders (streams) Up to a total of 3 (depending on the mode selected).

2.0 System Control

This tab accesses most of the administrative functions of the Talon.

Osprey[®] Video

SAHD-E23
 build: 1.10.0.250
 serial number: TA17420001
 mode: 1x3 MBR Mode
 device name: **SAH-E23-DoD**
 logout

System Control | **Status** | **Stream 1** | +

Talon IP Setup
 Use DHCP ☒
 Local IP Address
 Local Netmask
 Default Gateway
 DNS Server IP 1
 DNS Server IP 2
 Apply

Firewall Configuration
 Enable Firewall ☐
 Management IP address(s)
 Apply

Build Date: 02-07-2018-01:42:14 PM
 Device Management

Set Name
 Set Password
 Reboot
 Update Firmware

Operating Mode: 1x3 MBR Mode ▼

Stop All Streams
 Start All Streams

Talon IP Setup

By default, Talon receives its IP address via DHCP. If you need to use a static address it can be set in the IP setup dialog box on the System Control page. If you are not familiar with the settings found here check with your system administrator before changing any settings.

Feature	(default)	Description
IP Address	Automatically Assigned	Sets the IP address
Netmask	Automatically Assigned	Sets the netmask
Gateway	Automatically Assigned	Sets the gateway
Use DHCP	Checked	Enables/Disables DHCP
DNS Server IP (1 and 2)	Automatically Assigned	Specifies Domain Name Server

NOTE: When configuring static IP addresses, Talon requires all variables to be filled in. Static addresses without Netmask, Gateway and two DNS servers may fail. Osprey Boss may not be able to find a Talon with a failed address.

Firewall Configuration

By default, Talon's configuration and control webpages can be accessed by any web browser that can reach it on the network. To add another level of security, users can enable the Talon firewall. Enabling the firewall effectively prevents any browser from connecting to Talon unless it is included on the "Management IP Address" whitelist. Simply add the IP address of the computer you wish to configure or control Talon. [Example:192.168.1.124] Additional addresses can be added, separated by a comma.

CAUTION: Before enabling the firewall, be certain that the Management IP Address box contains at least one address, and that address is the one you want to use for access. Activating the firewall with an empty address box will result in losing access to Talon.

Session Timeout

To prevent accidental unauthorized access, the Talon webpage will timeout after five minutes of inactivity. To rejoin the session you will need to login.

3.0 Device Management

Device management tasks allow the configuration of operating system features. These features aren't accessed on a regular basis because they are not involved in the configuration of the encoder itself.

Osprey[®] Video

SAHD-E23
 build: 1.10.0.250
 serial number: TA17420001
 mode: 1x3 MBR Mode
 device name: **SAH-E23-DoD**
 logout

System Control | Status | Stream 1 | +

Talon IP Setup
 Use DHCP ☒
 Local IP Address
 Local Netmask
 Default Gateway
 DNS Server IP 1
 DNS Server IP 2
 Apply

Firewall Configuration
 Enable Firewall ☐
 Management IP address(s)
 Apply

Build Date: 02-07-2018-01:42:14 PM
Device Management

Set Name
 Set Password
 Reboot
 Update Firmware

Operating Mode: 1x3 MBR Mode ▼

Stop All Streams
 Start All Streams

Set Name

The model designation for Talon is loaded as the default device name. To easily distinguish multiple Talons, you can create a new name here.

Set Password

The default password is "osprey". To maintain device security, it is recommended you change the default password.

Reboot

Reboot performs a complete power reset of the device. Make sure you save all your settings before rebooting.

Update Firmware

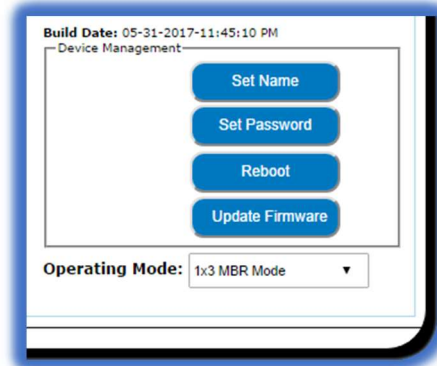
Osprey provides periodic firmware updates for Talon. There are two methods to perform the update.

Updating via the Talon Web Page

From the **DOWNLOADS** section of the Osprey Video webpage, download the most current Talon update file.

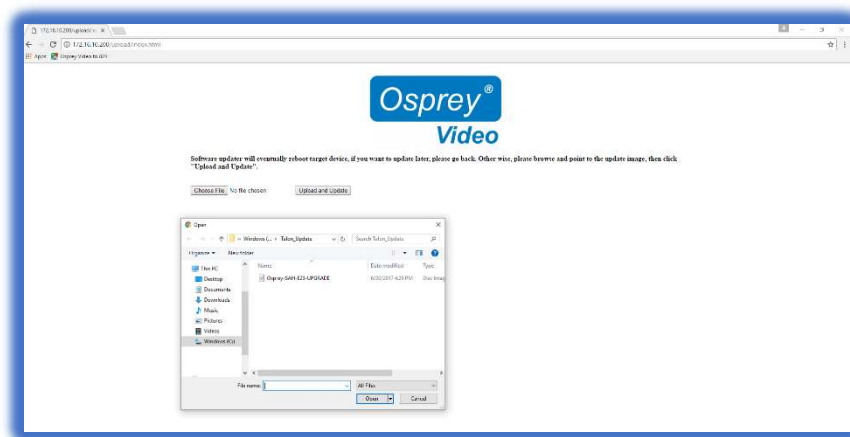
Login to the Talon via the web page and click the **System Setup** tab.

Click the **Update Firmware** tab.



From Explorer select the Image file you downloaded from Osprey Video.

Click **Upload and Update**



Talon will install the new image and automatically restart.

You may receive a warning depending on the size of the update file. Simply wait until the upload completes.



Talon will display this upload success screen and begin the actual update process. This could take several minutes. When the process is complete, Talon will display the Login screen.

Updating via Thumb Drive

If you cannot access the Talon web page, it is possible to update directly from a USB thumb drive.

IMPORTANT: Because you will be updating from a pre-boot environment, the thumb drive must not be larger than 2GB.

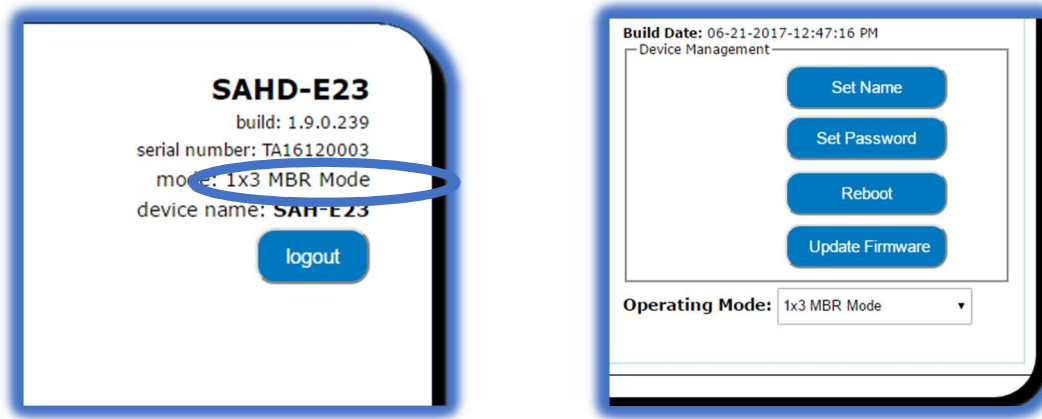
- Insert a thumb drive in your host computer.
- Format the thumb drive as FAT (do not use FAT32).
- Paste the image file to the root of the thumb drive.
- Insert the thumb drive in the Talon USB port.
- Restart the Talon.
- Wait until Talon shows a steady blue light beneath the On/Off switch.
- Remove the thumb drive.
- If you do not remove the thumb drive, Talon will update again on reboot.

NOTE: For all image updates

Passwords and encoder settings are not preserved by the update process.

4.0 Operating Mode

Talon has three operating modes. The current operating mode is indicated in the upper right corner of the webpage along with the serial number and device name. The mode can be changed from the menu just below the Device Management box on the System Control tab.



1x3 MBR Mode

As the name suggests, MBR mode allows the user to select one of the available inputs and then create up to three output streams. This is useful for Multiple Bit Rate streaming or for streaming one input to several server locations at the same time. Users can create three streams to a single RTMP server, or stream RTMP and UDP at the same time while saving to file.

2X2 LC Mode

This mode is designed for Lecture Capture and similar uses. Users may select 1 SDI input and 1 of either HDMI or Composite and stream each separately. This is useful for streaming classroom situations where you need to stream a camera and an additional input such as a scan converter or a laptop output for Lecture Capture. However, be aware that LC mode is Progressive Only. This means that it does not apply any DeInterlacing to the incoming signal. For this reason, it is not recommended to use Composite (CVBS) in this mode.

1X1 3G Mode

To support streaming of full 3G-SDI video Talon must be set to this mode. 1X1 3G mode allows for a full 1080p input to be encoded into a 1080p stream. This is also called pass-through mode as it does not allow for any modification of the video other than compression. The input resolution and frame rate will always match the output. Scaling or deinterlacing is not supported in 1X1 3G mode.

Changing Operating Modes

On first startup, Talon will use 1x3 MBR mode. If you need to change modes, select the desired mode from the dialog at the bottom of the page. Talon will reset itself into the desired mode and reboot. Previous settings will not be retained.

5.0 Status

The Status page provides information about inputs and outputs. From this tab, you can get specific statistics about the incoming video, and outgoing audio and video streams.

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SAHD-E23
build: 1.9.0.239
serial number: TA16120003
mode: 1x3 MBR Mode
device name: SAH-E23
[logout](#)

System Control **Status** **Stream 1** +

Video Status

CH	Bitrate (Kbps)	Actual Bitrate	FPS	Actual FPS	Key-frame FPS	Width	Height
1	3500.00	3373.83	30.0	30.0	0.5	1280	720

Audio Status

Channel	Subchannel	Codec
1	1	fdk_aac

Stream Status

Channel	URL	Frames
1	udp://172.16.10.235:5008	234432

Input Status

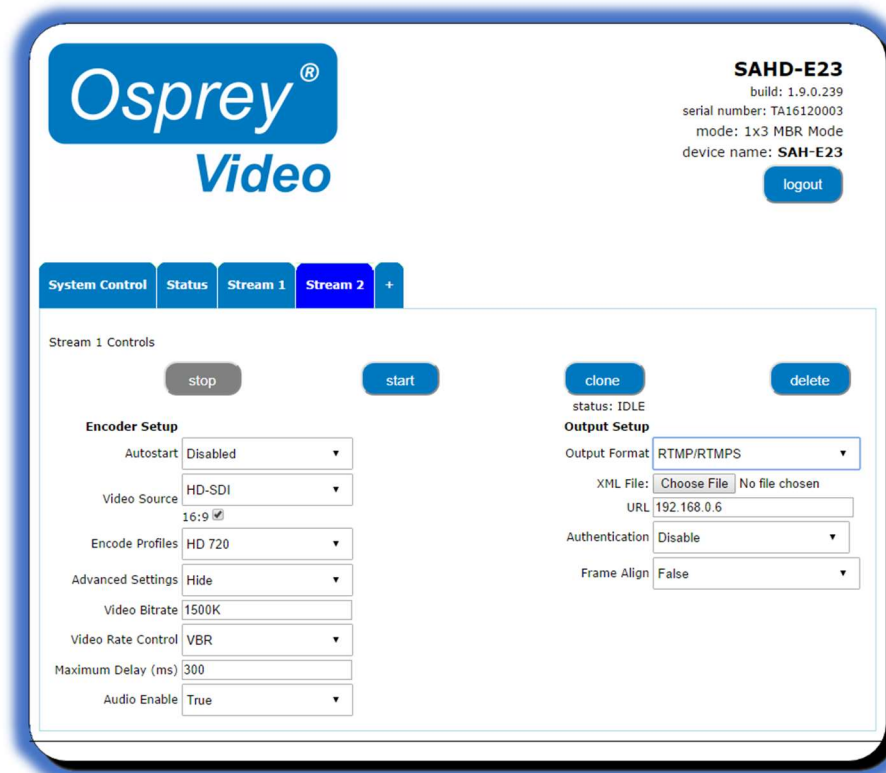
Input	Resolution	FPS
HD-SDI1	1920x1080i	29.97

[Refresh](#)
Auto Refresh ☐

6.0 Encoder Configuration

All configuration for actual encoding is found under the tab marked “Stream (1)”. If your interface doesn’t have a tab marked “Stream” simply click on the tab marked “+” and one will be created automatically. Additional streams may be created by clicking the “+” up to the limits of the Operating Mode.

Stream Capacity



Although the interface will allow the adding of a stream, this does not mean that the encoder will support all the configured streams simultaneously. Capacity is dictated by the size of the **input** signal.

Input Size	Stream Capacity	
1080p60	1 x 1080p30 or less	Only 1 stream allowed
1080i	1 x 1080p30 & 1 x 720p or 3 x 720p	3 x 720p30

NOTE: Exceeding recommend capacity will result in dropped frames and audio problems.

NOTE: Stream capacity is not affected by bitrate. For best results, don’t exceed 20Mbps.

Stream Control Buttons



The five buttons in the Stream 1 Control box control the Stop and Start of the encoder labeled Stream 1.

Stop/Start

Stop and Start buttons will start this stream only. Note that the button color changes to indicate the status of the encoder.

Clone

Often a user wants to create second stream that is very like the first, with only minor differences. You may use the 'Clone' button to make a second stream configuration that is exactly like the first. Then it is a simple matter to make the minor change such as address in the second stream without having to recreate the whole thing.

Delete

Delete completely removes the selected stream configuration.

Status

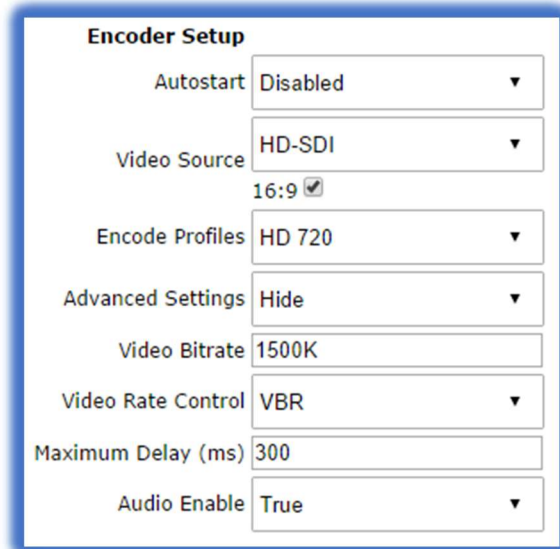
Below the buttons is a status message. Encoder status including error messages is displayed here.

Encoder Setup

By default, the encoder setup dialog is presented in its simplified state with the 'Advanced Settings' button set to 'Hide'. The user can take advantage of pre-set Encode Profiles that configure the advanced settings for you. To see the full range of available settings set the 'Advanced Settings' to 'Show'.

AutoStart

AutoStart is available for each individual encoder. When AutoStart is enabled that encoder will automatically start as soon as Talon boots. This is useful for lights-out encoding operations that need to come online automatically in the event of power outage recovery. Other uses include single purpose encoders that will start on power-up without intervention.



The image shows a screenshot of the 'Encoder Setup' dialog box. It has a title bar 'Encoder Setup' and several settings:

- Autostart:** A dropdown menu currently set to 'Disabled'.
- Video Source:** A dropdown menu currently set to 'HD-SDI'. Below it, the '16:9' checkbox is checked.
- Encode Profiles:** A dropdown menu currently set to 'HD 720'.
- Advanced Settings:** A dropdown menu currently set to 'Hide'.
- Video Bitrate:** A text input field containing '1500K'.
- Video Rate Control:** A dropdown menu currently set to 'VBR'.
- Maximum Delay (ms):** A text input field containing '300'.
- Audio Enable:** A dropdown menu currently set to 'True'.

Video Source

The choices in the pull-down menu vary depending upon the Operating Mode you have selected.

- In 1x3 MBR mode you may select from the three available input sources. Once selected, the same input will be re-used for any additional streams.
- In 2x2 LC mode the video source for Stream 1 must always be HD/SDI. The source for Stream 2 can be either HDMI or Composite. (not available on AH models)
- In 1x1 3G mode any input can be used. The encoded output will always be the same as the input. This mode is required for 3G output.

NOTE: Composite is not recommended in 2x2 Mode.

NOTE: It is recommended in 2x2 LC Mode that the audio originate either from the SDI source or the Analog source.

16:9

If your input is SD, checking this box will set the aspect ratio of the bitstream to 16:9. If the input is HD this setting is ignored.

Encode Profiles (RTMP/RTP only)

There are nine Encode Profiles available on Talon. These range from 'Low' which creates a low bitrate stream with a video resolution of 480x270, to 'HD 1080 60fps' which creates a robust 3G stream. There are specialty profiles for Facebook® and YouTube® that conform to the published suggestions of those platforms. When an Encode Profile is selected, Talon configures the advanced settings. The Video Bitrate and Maximum Delay can be adjusted without changing the profile.

Video Bitrate

Video Bitrate (vrate) is the desired encoded rate of the outgoing video.

Settings are expected in Kilobits per second. For example, you may use 100000; 100k; 100K etc. You may also use 1m; 2m, etc. representing Megabits per second. 1G, etc. is not accepted.

NOTE: If a setting is out of bounds for the encoder you will receive the message "status: !Error: Bad vrate xK". This only indicates that the setting is not acceptable to Talon. It is possible to set a value that is acceptable to Talon, but is not adequate to support quality video.

Video Rate Control

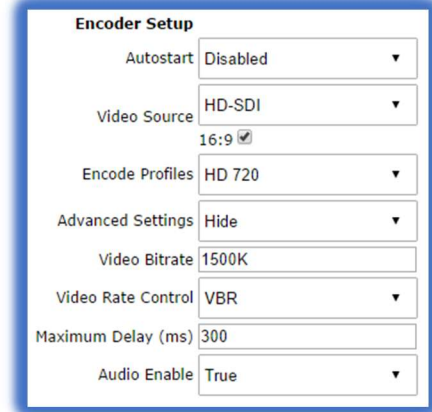
Select VBR for Variable Bit Rate. (default) Select CBR for Constant Bit Rate. (only recommended when your CDN requires it)

NOTE: CBR is only supported for progressive output. Talon CBR does not allow the use of B frames.

Maximum Delay

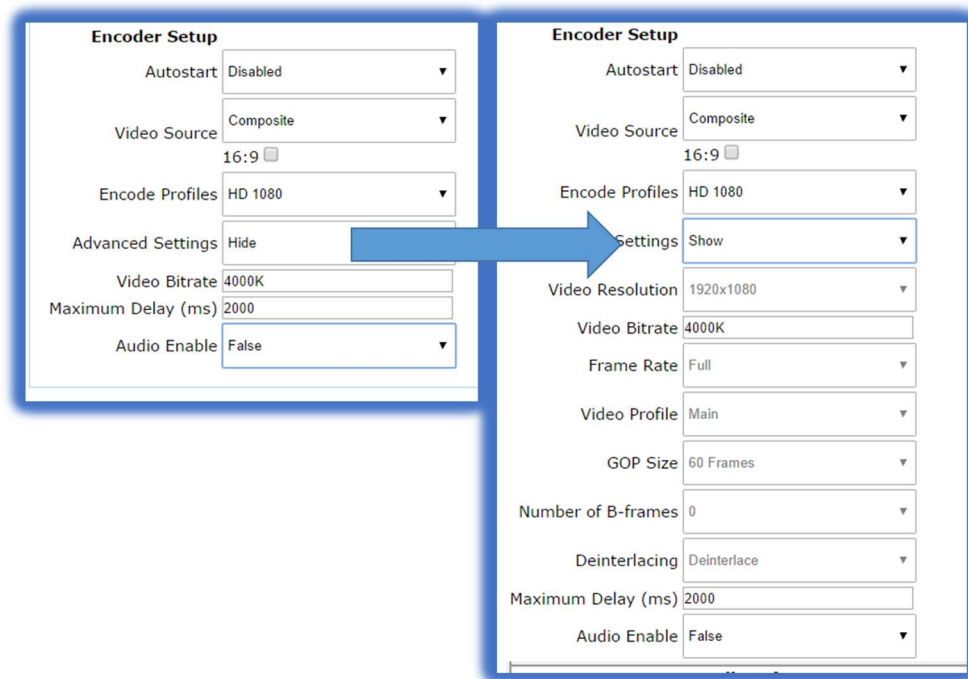
This setting adjusts the amount of internal buffer the encoder can use. Larger buffer gives the encoder more time to produce more accurate video. The default of 2000 is generally adequate for most streaming. A setting of 0 will result in blocky video. A setting above 5000 does not usually provide a significant improvement.

In technical terms the Maximum Delay setting controls how much time is allowed for the bitrate to reach the average set by the 'Video Bitrate'. A longer buffer allows the bitrate to rise and fall more with the complexity of the video. Some live encoding applications do not tolerate large fluctuations in the bitrate. If you encounter such problems set the Maximum Delay to the 100-300ms range. This will provide better results for applications requiring a constant bit rate.



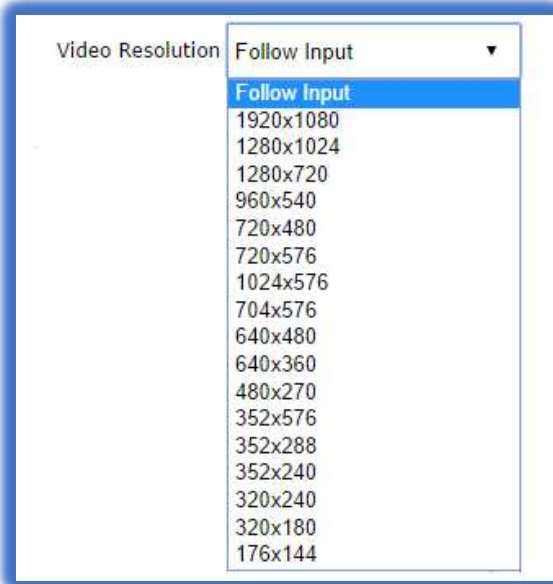
Advanced Settings

When an Encode Profile is selected, Encoder Setup displays a shortened menu. To view all the encoder's settings, select 'Show' from the Advanced Settings pull down.



If you are using an Encode Profile, many of the menus will be grayed out as the profile overrides several of the settings. If you would like to start with an Encoder Profile, but want to change some of the settings, first select the profile that best suits your need. Then select 'Custom' from the bottom of the profile menu. If you have not already opened the Advanced Settings, this will open them and all the variables will be available to you. Below are some of the settings available from the Custom menu.

Video Resolution



This pull-down menu sets the video resolution for the outgoing stream. To make the stream the same resolution as the input imply select “Follow Input”. Otherwise select an outgoing resolution from the list.

NOTE: Up-Scaling, (creating a stream larger than the incoming resolution) is not recommended as it usually results in severely reduced quality.

Frame Rate

This is the frame rate of the encoded video. ‘Full’ will result in the same frame rate as the incoming source. ‘1/2’ will be half the incoming frame rate. ¼ will be one quarter the incoming frame rate.

Video Profile

Talon supports three h.264 encoding profiles; Baseline, Main and High. Profile selection should be based on the target audience of the encoded video.

- Baseline is the lowest level profile and is suitable for streaming to a broad spectrum of internet connected devices including most older smart phones.
- Main is the default setting. It is suitable for most web streaming including HD. It is also good for most modern smart phones.
- High is primarily used for broadcast, or for saving high-quality HD to file. It supports up to 1080p/60 video.

GOP Size

GOP size refers to the distance between i-frames in a stream or file. Live streaming generally uses shorter GOP sizes than saving to file. For live streaming a setting of 2 x (frame rate) is a good starting point. If your encoded stream will be 30 fps, set the GOP to 60 frames. Some server based transcoders prefer GOP up to 10 seconds.

Number of B Frames

B Frames provide encoding information to the i-frame. Talon supports from 0 to 2 B Frames. When using Baseline, profile use 0 B Frames. For most situations, a setting of 1 frame is best.

DeInterlacing

Most streaming video is destined for delivery to a computer or smartphone screen. Such screens can only display progressive video. Most analog video and 1080i HD video are delivered as Interlaced video. These sources must be de-interlaced before they can be encoded for progressive delivery. Talon supports three settings.

- OFF: No DeInterlacing will be applied.
- DEINTERLACE: Standard DeInterlacing will be used.
- DEINTERLACE HQ: This level is suitable for some save to file HD video.

NOTE: When encoding multiple streams, the same DEINTERLACE method is used across all streams. Be certain to select a method that is applicable for all streams. Once a stream has started the DEINTERLACE method cannot be changed on subsequent streams until all streams are stopped.

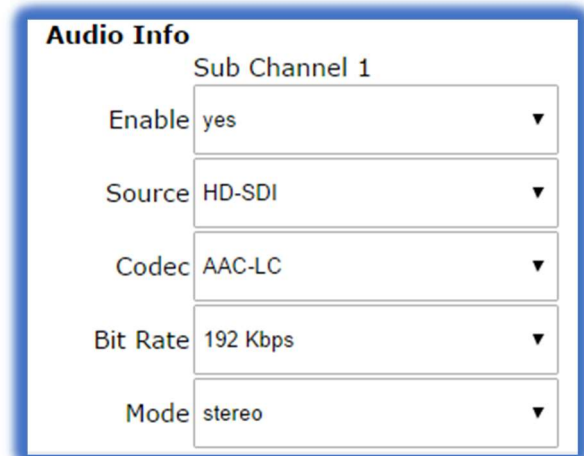
Audio Enable

When set to “True” audio inputs are made available for embedding in the video stream. Set this to “False” if this input will not be using audio.

Note that in 2x2 LC mode, only one input can supply audio at a time. Make certain the audio is enabled on the input delivering audio and disabled on the rest or the video may not start correctly.

Audio Info

When “Audio Enable” is set to “True” the web interface exposes the “Audio Info” fields. Available options change to reflect the Output Format as set in the Output Setup area. Only the audio features used by the input will appear.



Audio Info	
Sub Channel 1	
Enable	yes ▼
Source	HD-SDI ▼
Codec	AAC-LC ▼
Bit Rate	192 Kbps ▼
Mode	stereo ▼

Enable (all formats)

For Web streaming, only 1 pair of audio inputs may be used at a time. Enable the input from “Sub Channel 1” by selecting “yes”. When UDP is selected, a total of 4 Sub Channels become available.

Source (all formats)

Select from HD/SDI, HDMI, or Analog.

Codec (all formats)

For live streaming select from AAC-LC (low complexity) or AAC-HE (high efficiency). The audio codecs labeled MPEG2 and MPEG1L2 are only used for MPEG2 TS streams.

Mode (all formats)

Select Stereo or Mono. Stereo is the default. When using Mono, you may select which of the incoming pair contains the audio. Mono output will either use the left or right channel, or in the case of a stereo input you may select to average the two channels.

RTP Port (RTP only)

Select the audio port for the RTP stream. Default setting is 8900, but any port can be selected. Common usage is from 4000 to 40000.

Pid (UDP only)

Identifies the UDP Process ID for this port.

Max PTS-PCR (UDP only)

Sets the maximum deviation for Presentation Time Stamps and Clock Reference in UDP and MPTS delivery. Default is 250.

Format (UDP only)

Values are ADTS and LATS. Use the default ADTS for RTMP streaming.

Jumbo PES (UDP only)

Enables Jumbo PES and allows specification of number of AUs. Default is None.

Output Setup

The Output Setup dialog allows you to choose the Output Format and configure the options necessary for each.

Output Format

This pull-down menu exposes the available streaming formats. The menu changes depending on the Output Format selected.



RTMP/RTMPS

RTMP has become the most common delivery protocol for internet based video. RTMP streaming requires a source, and encoder, and a streaming server. The resulting video is then played in a browser window or via web based player. Many users use a Content Delivery Network (CDN) to distribute their Live and On Demand video. The CDN then also becomes the video server. CDN can also add value by recording and storing live video for later delivery as Video on Demand (VOD).

XML file

Some CDN providers provide users with a .XML file that contains their encoding parameters. You can download this configuration file to the host control computer and select it from the “Choose File” dialog. At this time, only the RTMP address will be populated. Other encoder settings such as Resolution and Bit Rate must be set manually.

URL

This is where you manually insert the URL for the RTMP server. You must add the “rtmp://” in front of the address when you enter it. The entire URL should be entered in the box, i.e. “rtmp://Servername(or IP address)/ApplicationName/StreamName”. For complex addresses it is best to copy and paste the address from the host control computer.

Authentication

If your CDN uses a user name and password, then enable Authentication. A dialog box will appear below to receive your username and password.

Frame Alignment

When creating multiple bit rate (MBR) streams it is preferred that all streams use the same GOP length and the frames be sent at the same time. Frame Alignment “True” will allow you to apply the same frame settings to all outbound streams.

NOTE: When creating multiple streams to the same source, enable “Frame Alignment” on all streams.

UDP

UDP is a connectionless protocol often used in live video streaming. Most often it is used to create a Multicast; a single stream that is shared across an entire network over a Multicast IP address. This type of stream is accessible via set top boxes and other IP devices. It is often used for digital signage. It can also be used for limited IP satellite video.

Destination Address

Enter the Multicast or Unicast address for your assigned video. It is only necessary to enter the IP address, as the port number will be specified in the next menu.

Dest Port

This is the assigned port for your broadcast. The default is assigned in the 5000 range, but any port can be used.

Video Settings

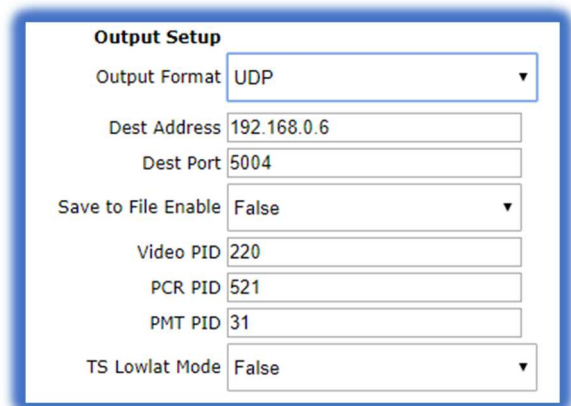
These are the video settings required by the network to deliver a stream to a location. If this is the only stream you may use the defaults. Otherwise insert the values given by your network administrator. Settings include Video PID, PCR PID and PMT PID.

Enable Save to File

When streaming with UDP it is possible to simultaneously save a copy to file using the same encoding settings as your UDP stream. To save a copy of your broadcast as a .TS file set this menu to “True”. When “True” is selected, the option appears to choose either USB thumb drive or Network Share as a location. For detailed information see the “Save to File” instructions below.

TS LowLat Mode (default FALSE)

When set to “True” this mode reduces encoder latency by roughly 30%. Low latency can result in exchanging video quality for speed. For most high motion video, consider using the default setting “False”.



The screenshot shows a configuration window titled "Output Setup". It contains several settings:

- Output Format:** A dropdown menu set to "UDP".
- Dest Address:** A text input field containing "192.168.0.6".
- Dest Port:** A text input field containing "5004".
- Save to File Enable:** A dropdown menu set to "False".
- Video PID:** A text input field containing "220".
- PCR PID:** A text input field containing "521".
- PMT PID:** A text input field containing "31".
- TS Lowlat Mode:** A dropdown menu set to "False".

RTP

RTP is a delivery protocol like UDP. It is simple to configure as it only requires a Destination Address and a Destination Port.

Destination Address



This address can be either Multicast or Unicast address depending upon your requirements. You need only enter the destination IP address here.

Destination Port

Enter the destination port for your video stream. Default is 5004, but nearly all ports from 4000 to 40000 are available.

NOTE: Be certain to check the port on your Audio Configuration and set that port accordingly as well.

[About SDP files](#)

Some RTP/RTSP connections may require a Session Description Protocol (SDP) file that is placed on the media server to direct users to the stream. Talon does not support creation or automatic injection of SDP files. Should your media server require such a file, it can be created using notepad. The expected format for delivering video from Talon is:

```
v=0
o=- 653 1 IN IN4 TALON_IP
s=Osprey Talon streaming video
t=0 0
m=audio USER_SELECTED_PORT(audio) RTP/AVP 97
a=tool:Talon
a=recvonly
a=type:broadcast
c=IN IP4 DESTINATION_IP
a=rtpmap:97 mpeg4-generic/48000/2
a=fmtp:97 streamtype=5; profile-level-id=14; mode=AAC-hbr; config=0990; sizeLength=13; indexLength=3;
indexDeltaLength=3; constantDuration=1024
m=video USER_SELECTED_PORT(video) RTP/AVP 102
c=IN IP4 DESTINATION_IP
a=rtpmap:102 H264/90000
a=fmtp:102 packetization-mode=1
b=AS:200
```

Items in **BOLD RED** type contain user provided information.

Save to File

Talon does not have internal file storage. To save video to file there are two options available. You may save to a USB device, or a shared network location.

Select “Save to File” under the “Output Format” menu and one of your “Stream” tabs will be dedicated exclusively to saving encoded output as a .ts file. Enable “Save to File” under the UDP output format tab to create a UDP stream and simultaneously save a .ts file to your selected location.

Maximum available file size varies depending on the formatting of the drive. To avoid creating oversized files, Talon creates files in 2GB segments. Talon appends a _0 to each filename. When the maximum file size is reached, Talon creates an additional file of the same name and appends _1, and so forth.

File Naming

In the “Path and Filename” dialog, enter the filename. The _0.ts will be added automatically. Users may also specify parameters to automatically be replaced in output file name. This allows save to file without overwriting the previous file or to name files in a more convenient manner. %d (date YY-MM-DD), %t (UTC formatted time THHmmsZ), & %v (video bitrate) are all supported.

For example:

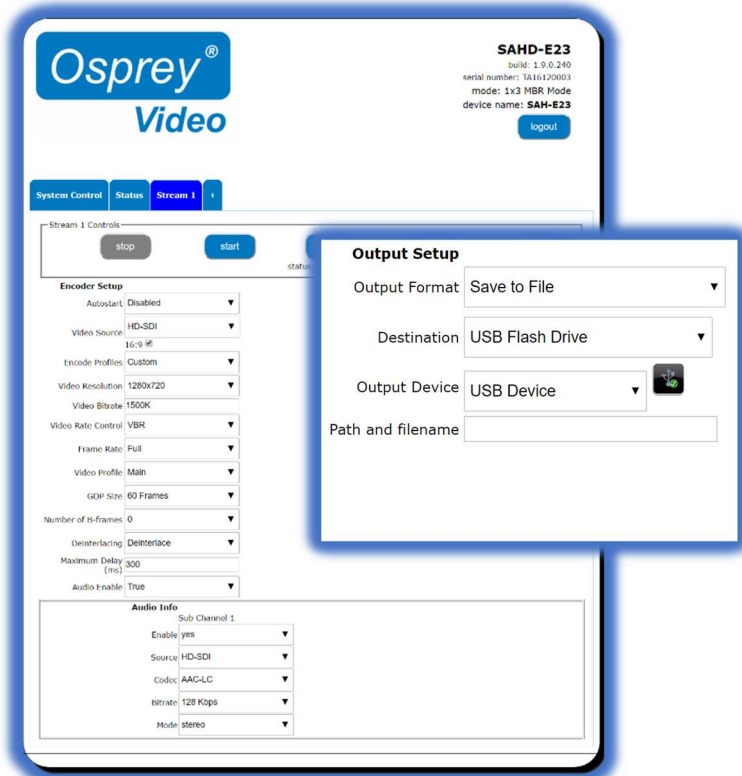
MyFile_%d would become MyFile_2017-13-02_0.ts

MyFile_%v would become MyFile_1500K_0.ts

MyFile_%t would become MyFile_T131800Z_0.ts

test_%d_%t would become test_2007-13-02-T121800Z_0.ts

NOTE: Talon will not create folders or sub-folders on the drive. To place a file in a sub-folder, be certain the folder exists before inserting the drive into Talon. To save the file to a folder enter “foldername/filename”.



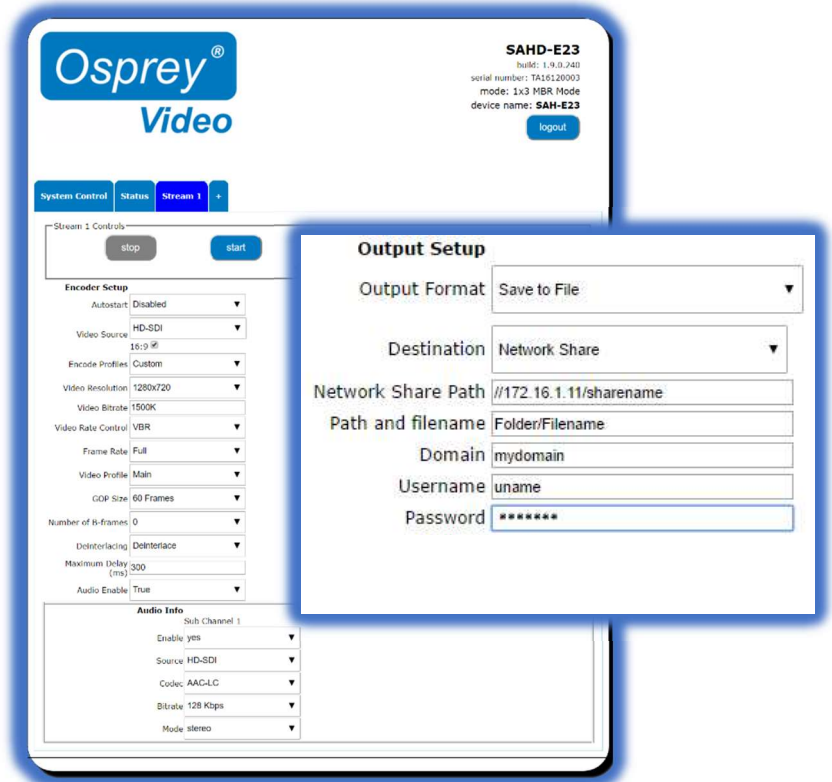
Destination: USB Flash Drive

A thumb drive must be properly mounted for a Save-to-File encode to **work**. When the words "USB Device" appear in the "Output Device" pull down menu, a thumb drive is mounted and available. To ensure the device is properly unmounted when the stream is over click the icon to the right of the "Output Device" box before removing your thumb drive. A 'save to file' stream must have the thumb drive in place or the encode will fail.

NOTE: Do not attempt more than one 'Save-to-File' operation at a time. Do Not use a USB hub.

Destination: Network Share

For larger files, or for saving to a Content Management Server, you can elect to save to a Network Share. When this is selected, the dialog allows you to enter the Share Path along with the necessary Username and Password.



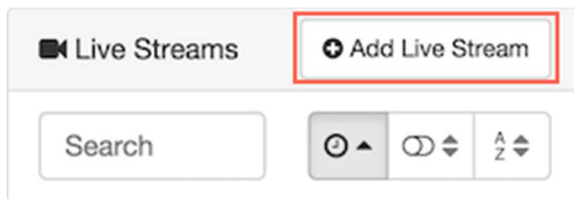
Wowza Cloud

Talon has an API level application integration to allow users to quickly connect with their Wowza Streaming Cloud ® account. Below are the easy steps to connect with Wowza Streaming Cloud.

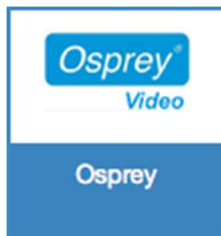
Create a live stream that uses Osprey as the video source

If you haven't already done so, create a live stream in Wowza Streaming Cloud that uses the Osprey Talon encoder as the video source.

1. Sign in to Wowza Streaming Cloud.
2. Click the **Live Streams** menu, and then click **Add Live Stream**.



3. On the **Live Stream Setup** page, enter a **Live Stream Name**, choose a **Broadcast Location**, and then click **Next**.
4. On the **Video Source and Transcoder Settings** page, select **Osprey** as the encoder you want to use to connect to Wowza Streaming Cloud.



5. Specify other video source settings, click **Next**, and complete the steps to finish creating the live stream.

Note: For more information about live stream settings, see [Add a live stream](#).

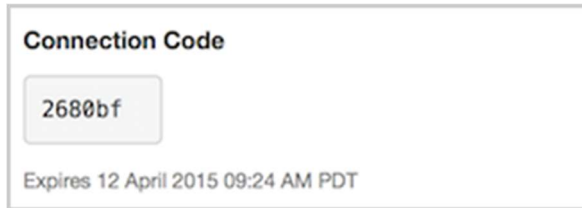
Wowza Streaming Cloud creates the live stream and displays the **Overview** tab of the live stream detail page.

Connect the Osprey Talon to Wowza Streaming Cloud

After you've added a live stream in Wowza Streaming Cloud, configure the Osprey Talon to connect to it. You can configure the Talon in either of two ways: by using the Wowza Streaming Cloud connection code, or by using the XML connection settings file that Wowza Streaming Cloud generated for the live stream.

Connect using the Connection Code

1. In the **Live Streams** panel of the **Live Streams** page of Wowza Streaming Cloud, select the live stream that uses Osprey as its video source.
2. On the **Overview** tab of the live stream detail page, make note of the six-digit **Connection Code**.



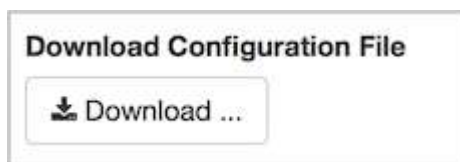
3. Sign in to the Osprey Talon web-based admin interface.
4. Click the **Stream 1** tab or click the plus sign to create a new stream.
5. Under **Output Setup**, for **Output Format**, choose **Wowza Cloud**.
6. Enter the **Connection Code** from the **Overview** tab of your live stream detail page.



7. Click **Authorize**.
8. Configure any other required settings for your broadcast. See the Encoder Setup section for information on how to configure a stream.

Connect using the XML settings file

1. In the **Live Streams** panel of the **Live Streams** page of Wowza Streaming Cloud, select the live stream that uses Osprey as its video source.
2. Click the **Video Source and Transcoder** tab of the live stream detail page.
3. Under **Download Configuration File**, click **Download**.



4. Copy the downloaded file, **osprey.xml**, to a computer on the same network as the Osprey Talon.

5. Sign in to the Osprey Talon web-based admin interface.
6. Click the **Stream 1** tab or click the plus sign to create a new stream.
7. Under **Output Setup**, for **Output Format**, choose **RTMP**.
8. For **XML File**, click **Choose File** and navigate to and select the **osprey.xml** profile.

Output Setup

Output Format: RTMP

XML File: Choose File No file chosen

URL:

Authentication: Disable

Frame Align: False

9. Configure any other required settings for your broadcast. See the "Encoder Setup" portion of this guide for information on how to configure a stream.

Test the connection

1. In the Wowza Streaming Cloud web manager, select the live stream that uses the Osprey Talon as its video source.
2. Click **Start Live Stream** at the top of the live stream detail page.
3. Click **Start** to confirm that you want to start the stream.

Wowza Streaming Cloud opens the stream and connects with the Osprey encoder.

4. In the Osprey Talon admin interface, start your video source.
5. In the Wowza Streaming Cloud web manager, confirm that the stream is working by looking at the **Video Snapshot** in the **Overview** tab of the live stream detail page.

The video snapshot displays a frame from the live stream every 5 seconds. The started date and time appear under the snapshot. Source stream, transcoder, and delivery metrics begin to update.

Video Snapshot

Started 28 March 2016 02:32 PM PDT

Inbound: Connected	Yes
Inbound Bitrate: Actual	14.2 Kbps
Outbound Bitrate: Actual	56.6 Kbps
Outbound Bitrate: Configured	1360.0 Kbps
CPU Usage	7 %
Frame Size	640x480
Frame Rate	24 FPS
Keyframe Interval	48 GOP
Total Unique Viewers	10

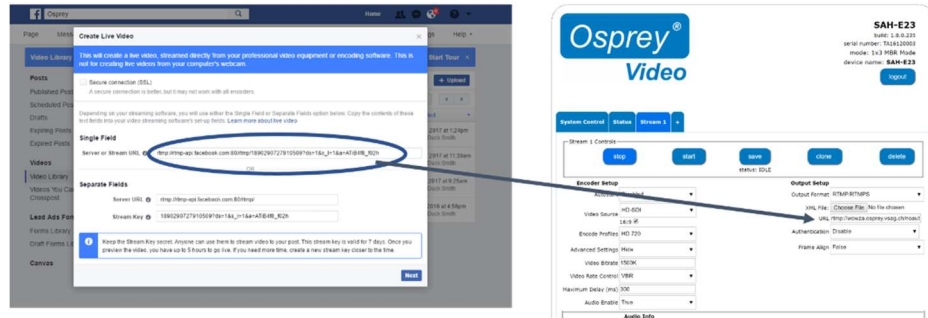
Source Stream Transcoder Delivery

6. Click **Stop Live Stream** at the top of the live stream detail page to end your test stream, and then stop the stream in the Osprey encoder.

For more information regarding Wowza Streaming Cloud check out <https://www.wowza.com/forums/content.php?810-How-to-connect-an-Osprey-Talon-encoder-to-Wowza-Streaming-Cloud>.

Facebook Live

If you are already familiar with publishing live videos with Facebook, just paste the full Facebook URL into the RTMP/RTMPS dialog on Talon. Either RTMP or RTMPS may be used. For in depth instructions, check the Facebook tutorial at www.facebook.com/facebookmedia/get-started/live.

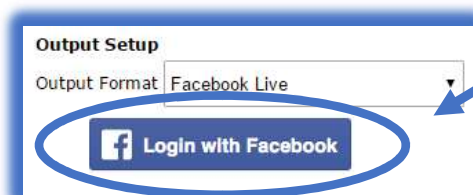
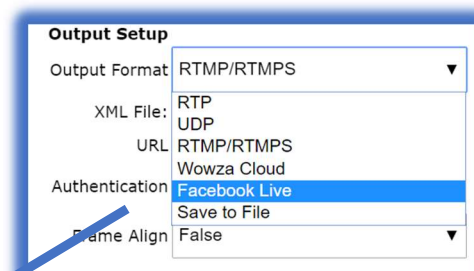


The Facebook URL must be used within 7 days, and it can only be used once. If you want to create another stream you must request another Stream Key.

Talon Application for Facebook Live API

If you are going to do 24/7 streaming, or are creating a regular stream every day, Osprey has created an API level application that works from within Talon. Once Talon has been authorized to stream to your Facebook page or timeline, it is not necessary to reauthorize the stream. This means that there is no need for the encoder operator to have full credentials for the Facebook page after the stream is authorized.

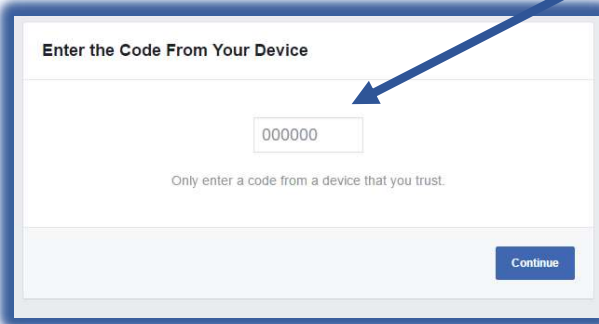
To use the Facebook Live API, select it from the Output Setup pull down menu.



Then press "Login with Facebook"

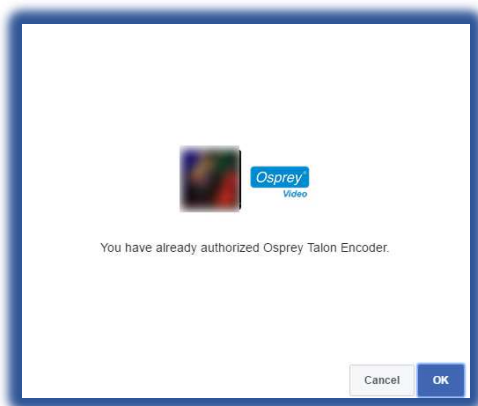
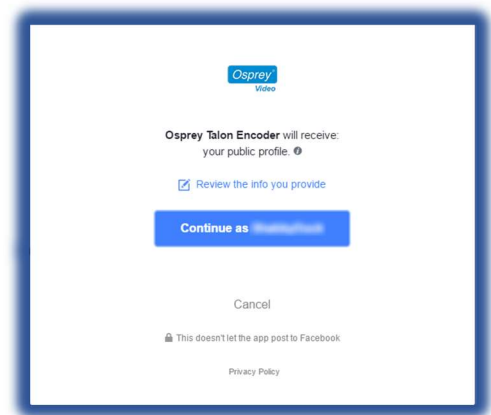
Facebook will respond with a connection code and a link to their site.

Copy the code and then click on the link. The link will take you to your Facebook page where you can enter the code provided. This code authorizes your encoder to send video to your Facebook page. If your browser isn't currently logged in to Facebook, you will need to login now.

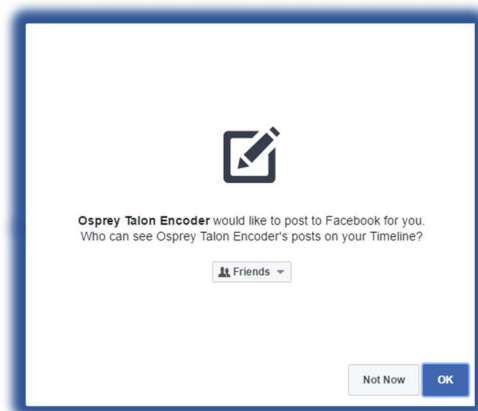


Press "Continue"

This box tells you that the Osprey Talon Encoder will receive your public profile. Press “Continue” to assign posting permissions to Talon.

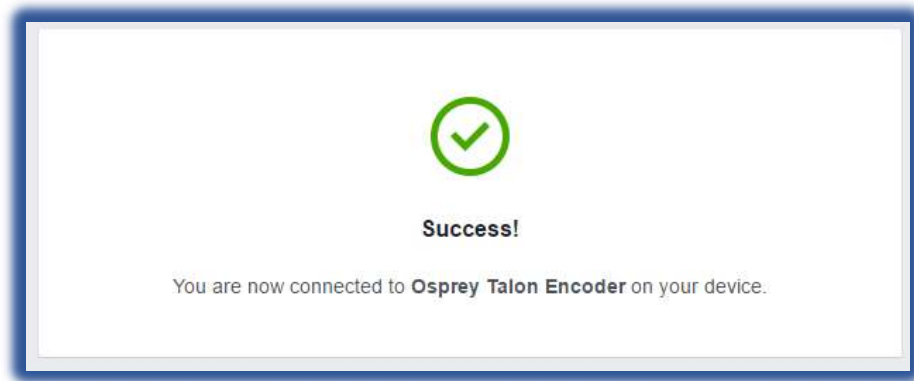
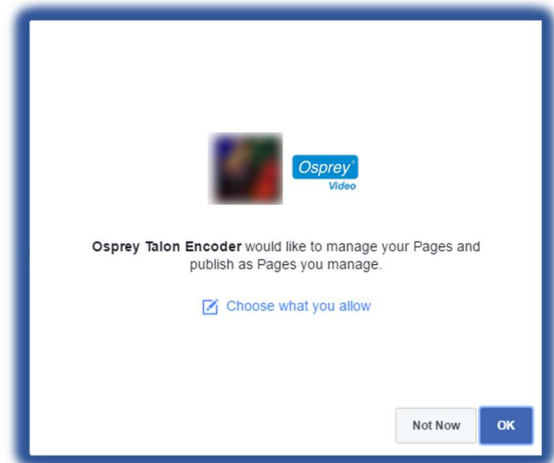


If you’ve already granted permissions to Talon you will receive a **message** telling you that the encoder has previously been authorized.



Facebook will need your permission for Talon to post video to your timeline. You may select what audience can view the video.

If you have other pages that you manage from this Facebook account, you can assign permissions to them here.



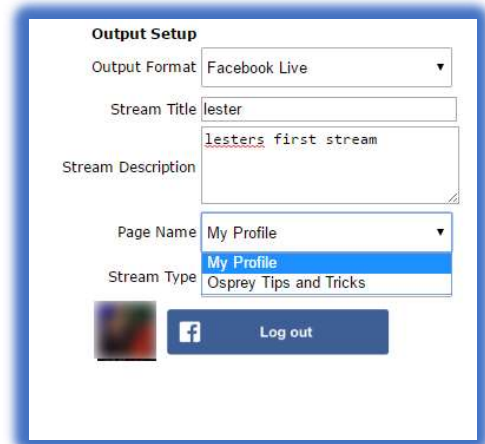
You have completed Facebook configuration.
Now go back to Talon to provision your stream.



The Talon page will now show successful connection with Facebook. Press "Continue" to configure your stream.

Enter a title and description for your stream.
Titles must be less than 255 characters or
streams will fail.

Select “My Profile” to stream to your timeline,
or select another page the you administer
from your Facebook page.



Output Setup

Output Format: Facebook Live

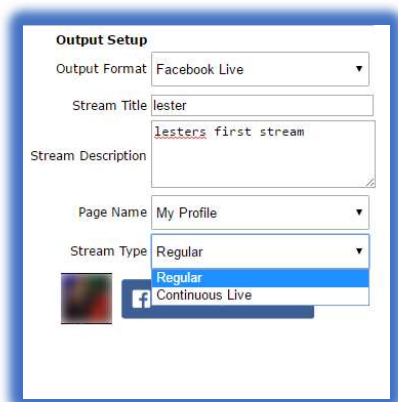
Stream Title: lester

Stream Description: lesters first stream

Page Name: My Profile

Stream Type: My Profile (selected), Osprey Tips and Tricks

Log out



Output Setup

Output Format: Facebook Live

Stream Title: lester

Stream Description: lesters first stream

Page Name: My Profile

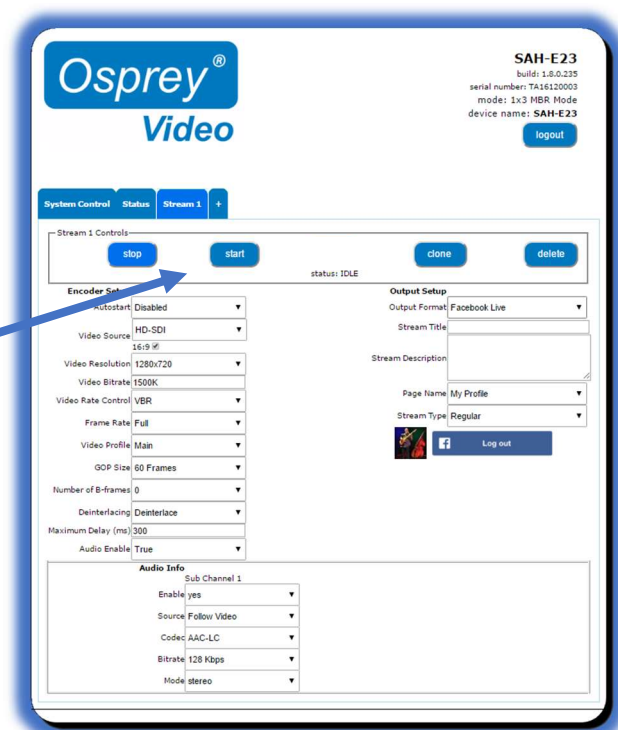
Stream Type: Regular (selected), Continuous Live

From “Stream Type” select ‘Regular’ or
‘Continuous Live’.

Regular streams are limited to 240 minutes
and are automatically archived on Facebook.

Continuous Live streams have no limits, but no
archive is created.

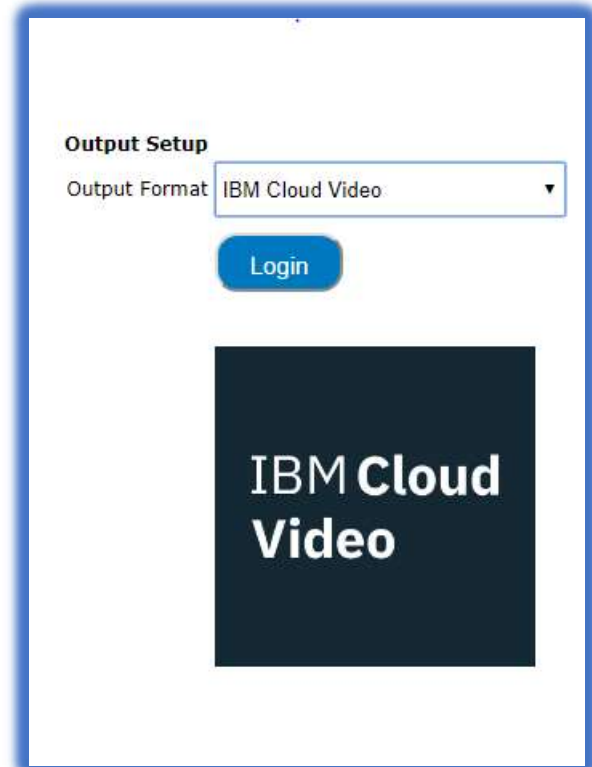
Once you have completed setup, select 'Start' to begin streaming to Facebook



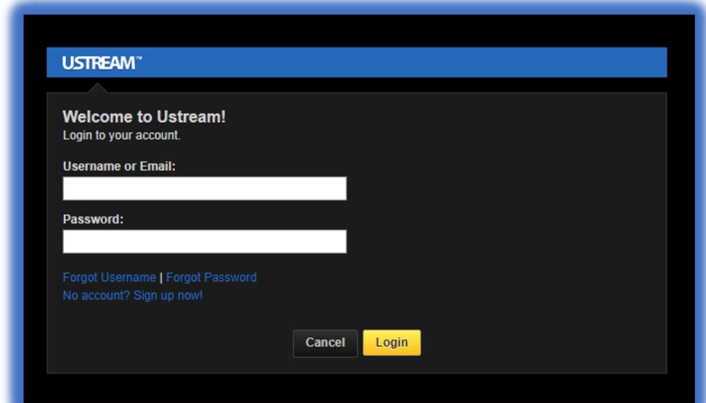
Clicking 'Stop' ends your Facebook stream. It is not necessary to close out the stream from your Facebook page. To start another stream simply click 'Start'. A new stream will start immediately. The new stream is separate from the previous stream and appears on your Facebook page as a separate instance. If you stop and restart your Talon stream in the middle of an event, you will create two separate Facebook instances.

IBM Cloud Video

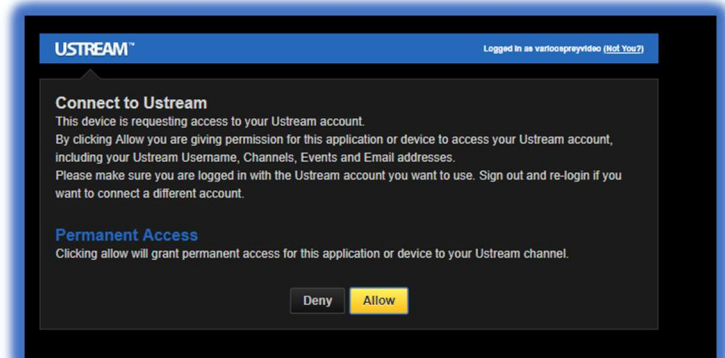
Talon has API support for IBM Cloud Video (formerly UStream). To use your account, select “IBM Cloud Video” from the Output Format menu and press “Login”.



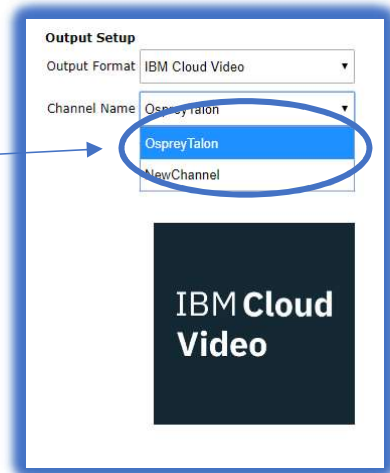
A Popup window will appear where you can insert your IBM Cloud or UStream credentials and login.



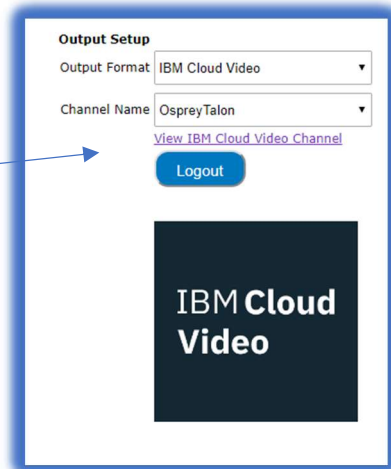
Select “Allow” to grant Talon permission to stream to your IBM Cloud Video account.



From that available channels, select the one you want to use. To create a new channel, you have to go the Cloud Video management page.



Once you start the encoder, you can view your stream by clicking on this link.

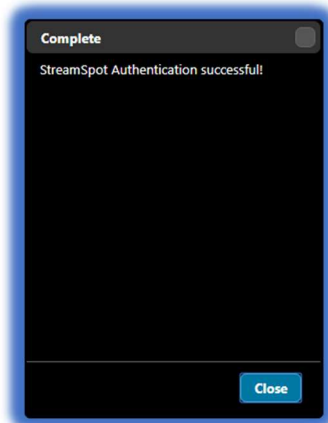


StreamSpot

Talon has API support for StreamSpot. To use your pre-existing StreamSpot account, select StreamSpot from the “Output Format” menu and enter your Username and Password and click “Authorize”.



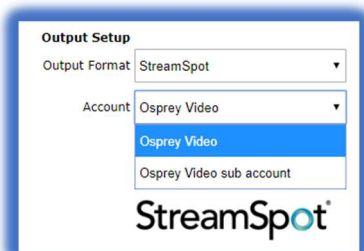
The image shows a web form titled "Output Setup". It contains a dropdown menu for "Output Format" with "StreamSpot" selected. Below this are two text input fields for "Username" and "Password". A blue "Authorize" button is positioned below the password field. The StreamSpot logo is displayed at the bottom of the form.



When authorization is successful, StreamSpot will respond with a completion dialog. Close the dialog and start your encoder. The encoder will remain authorized until you select “Logout”.



The image shows the "Output Setup" form again. The "Output Format" dropdown is still set to "StreamSpot". A new dropdown menu for "Account" has appeared, showing "Osprey Video" as the selected account. A blue "Logout" button is now visible below the account dropdown. The StreamSpot logo is at the bottom.



This image is a close-up of the "Account" dropdown menu from the "Output Setup" form. The dropdown is open, showing three options: "Osprey Video" (which is highlighted in blue), "Osprey Video", and "Osprey Video sub account". The StreamSpot logo is visible at the bottom of the form area.

If you have access to additional sub accounts from your login they will be available in the pull-down and can be selected before you start the stream.

Zixi

Talon can act as a Zixi Feeder. If you have an existing Zixi account simply select “ZIXI” from the Output Setup dialog.

Insert your Zixi Destination Address and Channel Name

Make sure the “Zixi Max Bitrate” field has a bitrate larger than the “Video Bitrate” field from Encoder Setup.

The rest of the Zixi settings are set at their default. If you need to adjust these settings, consult your Zixi Broadcaster instructions.

Output Setup

Output Format

ZIXI ▼

Zixi Dest Address

Zixi Channel Name

Zixi Max bitrate (kbps)

2000

Zixi Server Port

2088

Zixi Max Latency (ms)

2000

Video PID

200

PCR PID


522

PMT PID

32

TS Lowlat Mode

False ▼



Osprey BOSS

Osprey® BOSS is a utility application for managing Osprey Talon encoder systems on a Local Area Network (LAN). It is an extensible application that currently offers six important functions.

- Locate all Talon encoders on a LAN subnet
- Provide easy access to the Talon web GUI
- Remotely reboot Talon
- Remotely set a temporary IP address
- Clear Talon presets
- Clear System settings

Installing Osprey BOSS

BOSS is available on the downloads tab of www.ospreyvideo.com

- From the downloads tab select “Talon G1 Downloads”
- Select “Osprey BOSS Utility”
- Download the version appropriate to your operating system; Windows®, Linux® or MAC®

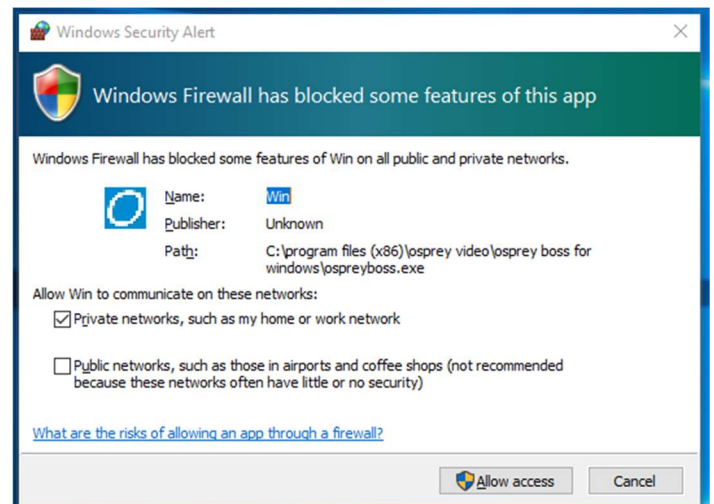
Microsoft

- Click and run the Osprey Boss installer
- Launch Osprey BOSS

NOTE: The first time the application is launched you may receive a notification that some features have been blocked by Windows Firewall. For Osprey BOSS to work you will need to authorize it to pass through the local firewall.

Linux

- Install mono for Linux by going to <http://www.mono-project.com/download/#download/download-lin> and following their instructions
- Extract OspreyBOSS-XXX.tar.gz file to a local folder
- Launch OspreyBOSS by issuing a terminal command “mono OspreyBoss.exe”



MAC OS X

- Install Mono for Mac OS x by going to <http://www.mono-project.com/docs/getting-started/install/mac/> and following their instructions.
- Extract the OspreyBOSS-XXX.zip file to a local folder
- Launch OspreyBOSS by running StartOspreyBOSS

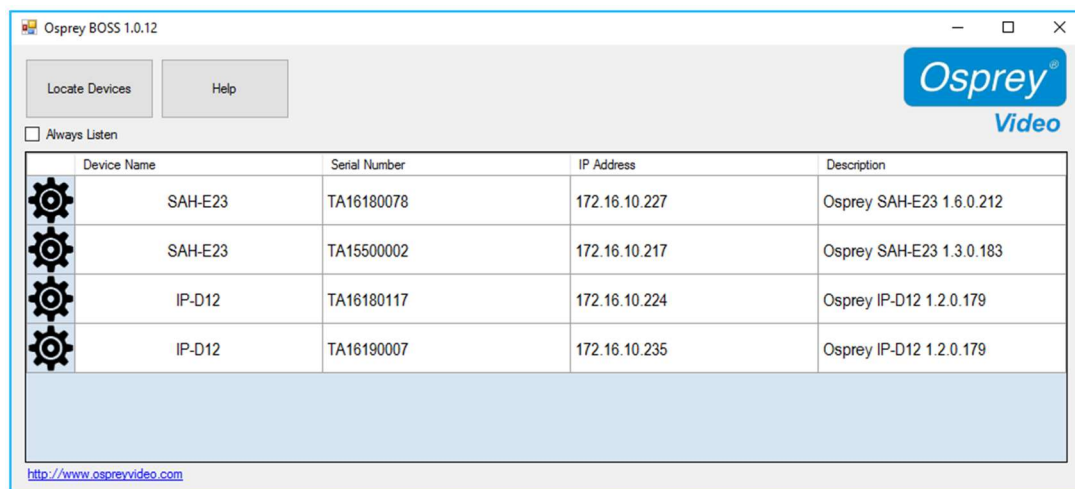
Locating Talon with Osprey BOSS

Talon is managed via a web based GUI that can be accessed over the network by most web browsers. All you need to do is type the IP address of the Talon you wish to access into the address bar of the browser. The simplest way to determine the IP address is to power up Talon and connect it to the LAN. Once it is fully booted up and on the network, Osprey BOSS will locate it and notify you of the IP address.

BOSS can be used if you do not know the exact IP address of your Talon systems. BOSS discovers Talon devices on the network by broadcasting data packets to all IP addresses within your PC's subnet (i.e. the IP range that your PC is currently in). This means that the computer that is hosting BOSS should be on the same IP subnet as Talon.

To locate all Talon devices on your subnet, click the "Locate Devices" button on the BOSS interface.

BOSS will populate with the Serial number, Device name, IP and MAC Address along with the Description for all Talon encoders on this subnet.



To access a specific Talon, click on its Serial Number and you will be taken to the web GUI.

The "Always Listen" check box is only valid for Talon versions 1.6.0.212 and above. Checking will cause BOSS to continually refresh Talon information without pressing "Locate Devices" again.


Additional Operations from BOSS

BOSS also includes other functionality that can be used to manage Talons

- Reboot
- Set a Temporary IP
- Clear Configuration
- Clear System

Reboot

To reboot a Talon from BOSS:

Click the  icon.

- Select “Device Control” tab
- Select “Reboot” from the dialog box
- Confirm Reboot
- Wait for Talon to reboot
- Press “Locate Devices” to refresh BOSS

Clear Configuration


When this check box is selected, Talon will remove all encoder configurations from memory. You will not be able to recover them.

Clear System

When this check box is selected, Talon will clear the encoder name and IP address from memory. Selecting both “Clear Configuration” and “Clear System” will clear all settings and restore Talon to its factory state.

Usually a Talon on the network receives its IP address via DHCP. It is possible to assign a static address. Occasionally, when a static address is used an error can occur whereby the address doesn’t match the correct specification for that network. When the address is wrong, it is not possible to access the Web GUI of the Talon. BOSS is still able to locate and identify a Talon with an unreachable IP address, but will be unable to connect to the Web GUI. For that reason, BOSS includes a utility to assign a **temporary** address to allow access to the Web GUI.

To use this utility:

- Click on the  icon to the left of the Talon you need to change.
- Select “Set IP” from the dialog box
- In the “Set Device IP Address” dialog, enter valid IP information.
- Press “Locate Devices” to refresh BOSS
- Access Talon by clicking on the name of the Talon you want to reach

IMPORTANT NOTE: The IP address that BOSS assigns is only for accessing the web GUI. Upon successfully reaching the GUI, use the Talon’s IP configuration to set it to DHCP or manually enter a valid IP address. If you reboot Talon without first resetting its address in the web GUI you will return to the situation where you started. You will once again have a Talon with an unreachable IP address.

Troubleshooting Note: BOSS will not locate Talon if:

- Network Discovery is turned off on your Windows PC
- Your Talon is not in the same network segment (VLAN/subnet) as your PC
- Your network is firewall-protected. The UDP broadcast may not be permitted unless Port 10024 is open.

If you are unable to locate Talon, have your network administrator ensure it is on the same physical and logical section of your network and that broadcast traffic is allowed on port 10024 with a broadcast address of 224.0.0.212

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.

Note to CATV Installer: This reminder is provided to call to the CATV installer's attention Section 820-40 of the NEC, which provides guidelines for proper grounding and specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

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.



For current RoHS statement, visit www.ospreyvideo.com

Osprey Video, 1628 Valwood Pkwy, Suite 200, Carrollton, TX 75006 USA

Appendix A: Encoding Profiles

Encoding profiles serve as a guideline for the selected resolution. The bitrates are set near the minimum end of the spectrum. You may find that your encode requires a higher bitrate. The bitrate can be changed without changing the rest of the profile settings. All presets use H.264 video codec, main profile and AAC-LC audio with the exception of **LOW** which uses Baseline profile. All GOP sizes are 2 seconds.

Here is a table of the Talon profile settings.

Quality	Resolution	Video Bitrate	Audio Bitrate	FPS
Low	480x270	200kbps	64kbps	30
Med	640x360	800kbps	96kbps	30
High	960x540	1500kbps	96kbps	30
HD 720	1280x720	1500kbps	128kbps	30
HD 1080	1920x1080	4000kbps	192kbps	30
HD 720 60	1280x720	5000kbps	128kbps	60
HD 1080 60	1920x1080	12000kbps	192kbps	60
Facebook	1280x720	1500kbps	128kbps	30
YouTube	1280x720	1500kbps	128kbps	30

Appendix B: Osprey Hardware Specifications



Osprey Talon G1 model SAH-E23

Osprey Talon G2 model SAHD-E23

Description:

SAH-E23: Multi input, H.264 hardware video encoder

SAHD-E23: Multi-input, H.264 hardware video encoder with LCD touch control

Software Control:

HTTP-Based GUI: Configuration and Software Update

USB: Software Update

Video Inputs:

3G SMPTE 424M x 1
HD SMPTE 292M x 1
SD SMPTE 259M x 1
Composite

Video Connectors:

Composite (RCA x 1)
SDI (BNC x 1)
HDMI (HDMI x 1)

Audio Inputs:

Unbalanced stereo
Embedded SDI/HDMI (1 stereo pair per input)

Audio Connector:

Unbalanced stereo (mini-3.5mmx1) (adapter not included)

Video Encoding:

RTMP / UDP / RTP H.264
(H.264 video encode up to 1080p60 in a single output stream or dual encode up to 1 x 1080i30 + 1 720p60)

Audio Encoding: AAC-LC & AAC-HE (32 to 320 kbps)

Closed Caption:

Closed Captioning (EIA-608 & EIA-708) Type 1 ATSC Picture User Data is automatically embedded in the H.264 SEI per SCTE 128-1 standard*** (Available in UDP & RTMP streams)

Video Modes:

HDMI / SDI:
1080p, 25, 29.97, 30, 50, 60

1080i 50, 59.94

720p, 50, 59.94, 60
480p 60

480i 29.97/30 (NTSC)

576p 60
576i 25 (PAL)

Composite:
576i 25 (PAL)
480i 29.97 (NTSC)

Operating Modes:

1 x 3 MBR (Multiple Bit Rate)
1 x 1 3G (Single 3G input and output)
2 x 2 LC (Lecture Capture)

Dimensions:

4.64" L x 4.76 W x 1.34" H (118mm L x 121mm W x 11.13cm H)



Osprey Talon G1H model AH-E23

Description:

AH-E23: Multi input, H.264 hardware video encoder

Software Control:

HTTP-Based GUI: Configuration and Software Update

USB: Software Update

Video Inputs:

HDMI

Composite

Video Connectors:

Composite (RCA x 1)

HDMI (HDMI x 1)

Audio Inputs:

Unbalanced stereo

Embedded HDMI (1 stereo pair per input)

Audio Connector:

Unbalanced stereo (mini-3.5mmx1) (adapter not included)

Video Encoding:

RTMP / UDP / RTP H.264

(H.264 video encode up to 1080p60 in a single output stream or dual encode up to 1 x 1080i30 + 1 720p60)

Audio Encoding: AAC-LC & AAC-HE (32 to 320 kbps)

Closed Caption:

Closed Captioning (EIA-608 & EIA-708) Type 1 ATSC Picture User Data is automatically embedded in the H.264 SEI per SCTE 128-1 standard*** (Available in UDP & RTMP streams)

Video Modes:

HDMI / SDI:

1080p, 25, 29.97, 30, 50, 60

1080i 50, 59.94

720p, 50, 59.94, 60

480p 60

480i 29.97/30 (NTSC)

576p 60

576i 25 (PAL)

Composite:

576i 25 (PAL)

480i 29.97 (NTSC)

Operating Modes:

1 x 3 MBR (Multiple Bit Rate)

1 x 1 3G (Single 3G input and output)

2 x 2 LC (Lecture Capture)

Dimensions:

4.64" L x 4.76 W x 1.34" H (118mm L x 121mm W x 11.13cm H)

Appendix C: Troubleshooting tips

Common Issues:	Solutions:
Unable to locate the system on the network	<p>1) Make sure that Osprey BOSS is on the same VLAN or subnet that the Talon is on.</p> <p>2) Make sure that the computer hosting Osprey BOSS has a rule in the firewall to allow broadcast network traffic for BOSS</p>
Closed caption text unreadable	Frame Rate divider value should be set to 1
Unable to locate the MAC address	Use Osprey BOSS, click on the gear icon, and then on the Status tab
Web page not loading properly	<p>1) Open another web browser with the IP Address</p> <p>2) click on the system via Osprey BOSS</p> <p>3) clear the cache of the web browser, then enter the IP Address</p>
How to disable login	On the System Control web page, click the Set Password button. For the New password and Password again parameters, do not enter anything (leave blank), then click the change button. Reboot the unit. You will not be prompted to login.
Web page unresponsive or not able to access the web page after upgrade	Perform clear configuration/system from Osprey BOSS
Error message(s) indicates "bad destination" when attempting to start an encoder	Verify the URL is correct
Grey screen or blue screen output video	Grey screen output means no SDI input signal. Blue screen output means no HDMI input signal.
What does "polling" mean after starting an encoder	No valid signal is connected. Check signal source
No video when streaming to Wowza or Akamai	Changed the Frame Align to False, then back to True.
Upgrading the unit not successful or not knowing how to upgrade the unit	Ensure using a 2GB USB stick and provide instructions on how to upgrade. If available, upgrade via the web interface

<i>How to set a static IP Address (temporary or permanent)</i>	<i>Use BOSS to set a temporary IP Address or Disable DHCP via the web interface, then assign IP Address</i>
<i>Talon web interface is slow when encoding</i>	<p>1) If more than one encoder is running, try to offload some of the video encoding to the server by sending one stream to the server and letting the server transmux the stream to other resolutions and formats.</p> <p>2) Decrease the resolution of one or more of the streams that are encoding. Keep in mind the total capability of the Osprey talon is equivalent to one 1080P 60 stream</p>
<i>Closed Captions are not being displayed in Flash Player on webpage</i>	<p>1) Ensure that the Flash player being used supports closed captions and is configured for them.</p> <p>2) Ensure that the rtmp server being used supports and is configured for embedded closed captions</p> <p>3) Ensure that you are not using an HDMI source as HDMI does not support closed captions.</p>
<i>When configuring a UDP encoder, error message "Ts rate too small to carry elementary streams" is displayed</i>	<i>Increase the TS RATE located under Output Setup in the encoder. This should be approximately 1.25 times the Video Bitrate that is configured.</i>
<i>Video appears jerky or pixelated in stream</i>	<i>Increase the video bitrate or decrease the video resolution in the encoder configuration</i>
<i>Audio is not present in stream</i>	<p>1) Verify that the correct audio source is selected in the encoder configuration</p> <p>2) If SDI audio was previously selected as an audio source you will need to change the configuration to the correct audio source and reboot the Talon before audio will be available.</p>
<i>Error message "ERROR: invalid or corrupted firmware image!" when updating the firmware.</i>	<i>Make sure you are trying to update with the correct image. The most common cause is trying to apply a decoder image to an encoder or encoder image to a decoder</i>



www.ospreyvideo.com

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