

The Osprey logo is a blue rounded rectangle containing the word "Osprey" in white, italicized, sans-serif font. A registered trademark symbol (®) is located at the top right of the word.

Osprey[®]

Video

Osprey® Talon Series User Guide

Contents

Overview	4
Warranties	5
FEEDBACK:	5
Product Description	6
Audience	6
Warnings	6
Installing additional software	8
Connecting to the Internet	8
Package contents	8
Getting Started	9
Prerequisites	10
Osprey Talon front panel diagram	11
Osprey Talon back panel diagram.....	11
Osprey Talon Status Lights.....	12
First time set up	13
Connecting to an electrical power source.....	13
Web Interface	14
Login.....	14
Tab ID.....	15
System Control Tab	16
Talon IP Setup	16
Device Management.....	17
Set Name.....	17
Set Password.....	17
Reboot.....	17
Update Firmware	18
Updating via the Talon Web page.....	18
Updating via Flash Drive.....	19
NOTE: For all image updates	19
Operating Mode.....	20
1x3 MBR Mode	20
2X2 LC Mode	20

Changing Operating Modes	20
Status.....	21
Encoder Setup.....	22
Stream Control Buttons	23
Save	23
Clone.....	23
Delete	23
Creating Additional Streams	24
NOTE: More About Operating Modes.....	24
Encoder Setup.....	25
Video Source.....	25
Video Resolution	25
Video Bitrate.....	25
Frame Rate Divider	25
Video Profile	25
GOP Size	26
Number of B Frames.....	26
DeInterlacing	26
Maximum Delay	26
Audio Enable.....	26
.....	27
Audio Info.....	27
Enable (all formats)	28
Source (all formats)	28
Codec (all formats)	28
Sample Rate (all formats).....	28
Bit Rate	28
Mode (all formats).....	28
Rtp Port (RTP only)	28
Pid (UDP only).....	28
Max PTS-PCR (UDP only)	28
Format	28
Jumbo PES	28
Output Setup.....	29
RTMP	30
UDP	30

RTP.....	31
Save to File	31
Finding your encoder with Osprey BOSS	32
Appendix: Osprey Hardware Specifications	34
Osprey Talon H.264 Encoder	34
Osprey Talon SAH-E23 Features	35

© 2016 Osprey Video. All rights reserved.

Osprey® and SimulStream® are registered trademarks of Osprey Video. Microsoft®, Windows® is a registered trademark of Microsoft Corporation. Any other product names, trademarks, trade names, service marks, or service names owned or registered by any other company and mentioned herein are the property of their respective companies.

No part of this specification may be reproduced, transcribed, transmitted or stored in a retrieval system in any part or by any means without the express written consent of Osprey Video. Osprey Video reserves the right to change any products herein at any time and without notice. Osprey Video makes no representations or warranties regarding the content of this document, and assumes no responsibility for any errors contained herein.

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, in particular, 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, 1624 Valwood Pkwy, Carrollton, TX 75006 USA

Overview

Thank you for purchasing the Osprey® Talon series 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.

Warranties

For complete warranty details, refer to the specific warranty included with each product. General warranty information includes the following:

Limited Warranty

Osprey Video warrants its hardware products against defects in material and workmanship under normal use for the period of one year (12 months) from date of sale. Where specific Osprey Video warranties exist that provide more substantial coverage, notwithstanding the warranty provisions herein, such product warranties control and preempt or supersede the warranty provisions herein.

Reseller Pass Through of Standard Limited Warranties

Resellers pass the Osprey Video standard limited warranties for the products through to the customer without modification. Any modification of a product voids the Osprey Video or any other existing or available warranty.

FEEDBACK:

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

support@ospreyvideo.com

+1 972 488 7157

Product Description

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

Audience

The audience for this user guide includes anyone who uses or administers the Osprey Talon series. Users should have a basic technical understanding of streaming media. This user guide provides information on the Osprey Talon series only.

Warnings

Only trained and qualified personnel should install, replace, or service this equipment.

Do not attempt to open the case of the system. If you do, you incur a high risk of electrical shock that may cause damage to the system or personal physical injury or death to you and/or others. No user-serviceable parts exist inside the system. If you open the system case or make unauthorized changes to the case, you void the warranty.

Install the system away from any heat sources. This remains vital to the safety of the product users. Do not install the system near any heat sources such as:

- Radiators
- Heat registers
- Stoves
- Other heat-producing equipment

WARNING! Installing the system near heat sources could result in personal injury or death.

Never insert objects of any kind into the system through any system openings, as the objects may touch dangerous voltage points, short out parts, and result in a risk of fire or electrical shock.

Do not stack the system atop or below other electronic devices as this can cause heat build-up and vibration of the system. These conditions can damage the system thereby voiding the limited warranty.

You may stack multiple Osprey Talon units as these systems accommodate stacking.

Do not install the system in any area where the temperature is less than 5°C or more than 40°C. Transfer from temperature extremes may cause condensation. Let the system remain unplugged at room temperature for at least 45 minutes before connecting it.

Use an outlet with surge suppression or ground fault protection when using the system. Unplug the power cord from the wall outlet, disconnect the network connection, and disconnect the lines between the system and the video source for added protection:

- During a lightning storm
- During dangerous weather conditions
- When the encoder remains unattended or unused for long periods

Reduce the risk of fire or electric shock. Do *not* expose the system to any rain or moisture. Exposing the system to rain or other types of moisture could result in system damages. Do not place any liquids on or near the system. If you place liquids in any form on or near the system, do so at your own risk, for you incur a high risk of electrical shock that could occur and cause damage to the system.

WARNING! Exposing the system to rain or other types of moisture could result in physical injury or death. Any liquids on or near the system may result in electrical shock and personal injury or death.

Refer all servicing to authorized service personnel. You must have authorized personnel only service any damaged system. Relevant damage may occur with but is not limited to the following:

- An unplugged or damaged power supply cord
- Spilled liquid on the system
- Fallen objects in or on the system
- Appliance exposure to rain or other moisture or liquid
- Failure to perform as described in the User Guide
- A dropped system

Osprey Video assumes no liability or responsibility for any damaged system that clients continue using.

Use only attachments, accessories, or equipment specified by the manufacturer with the system. Using accessories or attachments not recommended by the encoder manufacturer voids the Limited Warranty.

Do not attempt to service the system yourself. If you open or remove covers, you may be exposed to dangerous voltage. Such action voids the Limited Warranty. Refer all servicing issues to authorized service personnel only.

The plug-socket combination that serves as the main disconnecting device must be accessible at all times.

Protect the power cord from anyone walking on it and being strained or pinched particularly at plugs, electrical receptacles, and the point where the power cord exits the system.

Do not use adapter plugs or remove the grounding prong from the power cable.

Use only the type of power source indicated on the marking label on the back panel of the unit to operate the system. Unplug the system power cord by gripping the plug and removing it from the power source. Do not pull the cord to remove the power source from the system.

Do not plug the system into a wall outlet that contains an overload of electrical cords or power strips/extension cords. This type of overload may result in fire or electrical shock risks.

Always handle the system carefully. Always avoid excessive shock and vibration to the system. Excessive shock or vibration can damage the system.

WARNING! Excessive shock or vibration to the system may result in electrical shock and personal injury or death.

Installing additional software

The Osprey Talon systems run an embedded version of the Linux operating system (OS). Installation of additional software on the Osprey Talon systems is not allowed.

Connecting to the Internet

Never connect an Osprey Talon system to the Internet through a direct connection without the use of a firewall. 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.

Package contents

Completely unpack all contents from the box and inspect each item for damage. Ensure that you have all the components listed below:

- | | |
|---------------------|--|
| System | • Osprey Talon |
| Power Supply | • AC to DC converter 12V International |
| Hardware | • Mounting Brackets |

WARNING! Read the installation instructions before connecting the system to the power source.

Getting Started

Before you can use your Osprey Talon encoder, you first need to set up and configure it. This chapter is dedicated to providing 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, MAC 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 detailed in “Before you Begin” including:
 - FCC Notice
 - Environmental Notices
 - Warnings

You must complete the following tasks to setup the Osprey Talon encoder:

- Address and comply with the prerequisites above.
- Connect the Osprey Talon encoder using supplied power source.
- Connect the Osprey Talon encoder to an IP network with DHCP enabled.
- Access the '**Configuration Host**' computer on the same network.
- Start the 'Osprey BOSS' application.
- Select the Talon that matches your serial number.
- Configure the Osprey Talon encoder.

Osprey Talon 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.

OSPREY TALON FRONT PANEL

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



Osprey Talon back panel diagram

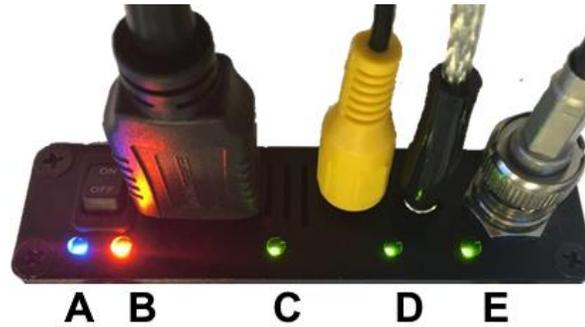


A **B** **C** **D**

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

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

First time set up

You should read all instructions, notices, and warnings in the previous section prior to getting started with your new Osprey Talon hardware for the first time. Also, ensure you have all required parts and meet all system requirements before installing this product.

Do not continue with the installation if you find any components missing or damaged. Contact the Osprey reseller where you purchased your Osprey Talon system for assistance in obtaining any missing or replacement parts.

Connecting to an electrical power source

The Osprey Talon ships with an AC to DC converter 12V.

To connect the power source:

1. Attach the connector end of the AC/DC adapter to the Osprey Talon.
2. Plug the other end of the cable into a wall outlet or surge protection enabled power strip connected to a wall outlet or other common power source.

WARNING! The plug-socket combination must remain accessible at all times as it serves as the main disconnecting device.

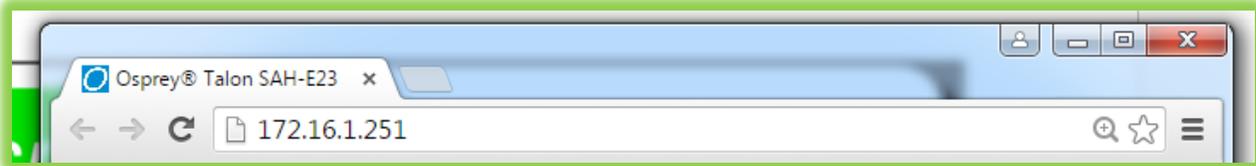
Do not work on the system or connect or disconnect cables during periods of lightning activity.

Web Interface

Talon is configured and controlled exclusively from an internal webpage. This page was designed to provide easy access to all of the configuration features of the Talon. Its simplicity makes it easy to use even from tablets and smart phones.

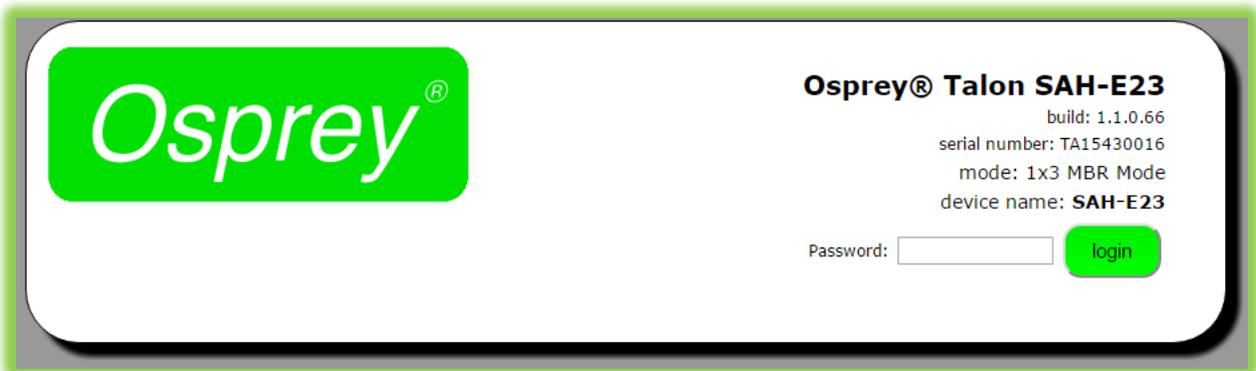
Login

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



By default, the Talon receives its IP address via DHCP. If you are unable to determine the address of your encoder, we have created an application for finding Talon and performing some critical remote functions. Please consult the section labeled **finding your encoder with Osprey BOSS** at the end of this user guide.

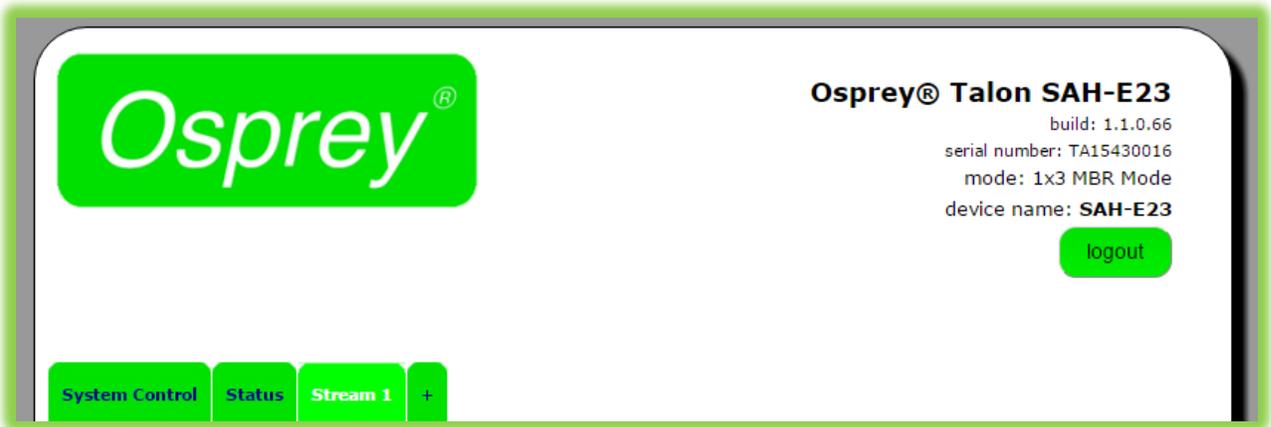
Your browser will be directed to the Talon Web Interface. The default password is 'osprey'. For increased security always change the default password.



Upon login, you will reach the home page of the web configuration site.

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.

System Control Tab

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

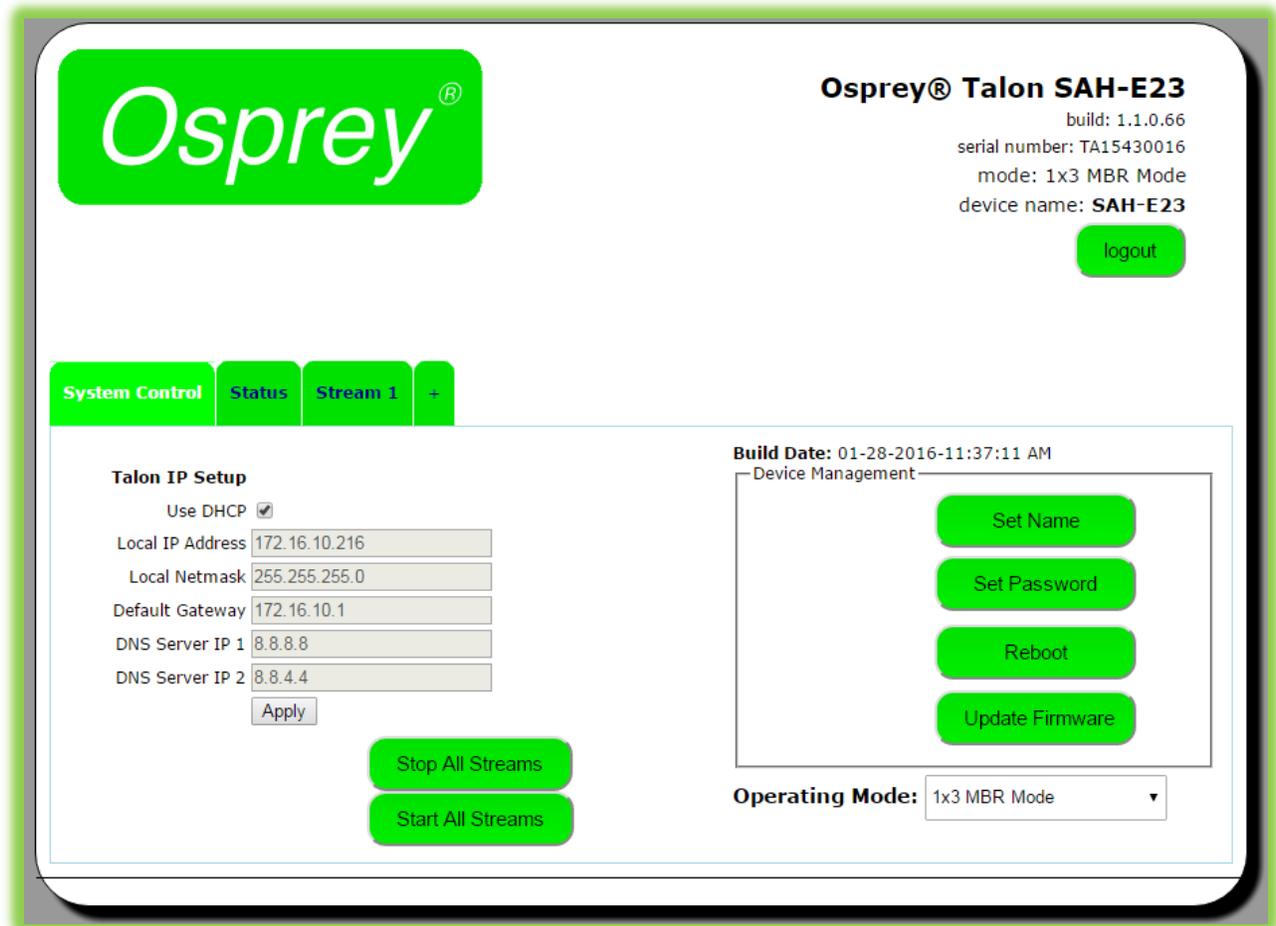
Talon IP Setup

By default, Talon receives its IP address via DHCP. If you need to use a manual 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

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.



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". In order 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 of your settings before rebooting.

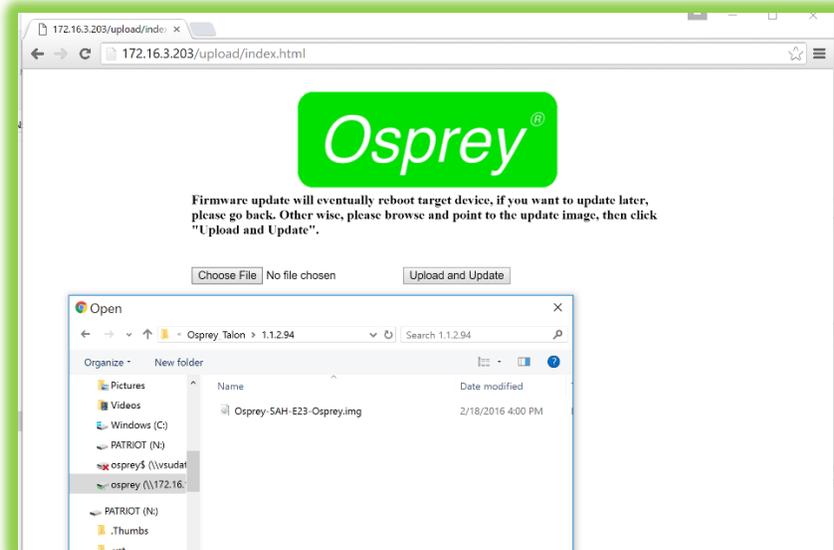
Update Firmware

Talon firmware can be easily updated. Osprey recommends that you check the Osprey Video webpage upon receipt of your Talon to ensure that you have the very latest version. There are two methods.



Updating via the Talon Web page.

1. Download the update from the Osprey Video webpage and save it on the host computer.
2. Login to the Talon via the web page a click the **System Setup** tab.



3. Click the **Update Firmware** tab.
4. From the update page click **Choose File**.
5. From Explorer select the Image file. This can be on the host hard drive or on a Flash drive.
6. Click **Upload and Update**
7. Talon will install the new image and automatically restart.



Updating via Flash Drive

In the event you cannot access the Talon web page, it is possible to update directly from a Flash drive.

- Insert a Flash drive in your host computer.
- Format the drive as FAT (do not use FAT32)
- Paste the image file to the root of the Flash drive.
- Insert the Flash drive in the Talon USB port.
- Restart the Talon
- Wait at least 5 minutes until you are certain Talon has restarted.
- Remove the Flash drive

Talon will silently update its image file and restart.

NOTE: For all image updates

Talon stores passwords, IP settings and Saved Profiles in non-volatile memory. These settings will be saved and made available to the restored image.

Operating Mode

Talon has two 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 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.

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.

NOTE: When changing from one mode to another Talon will not retain stream settings from the previous mode.

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.

Osprey® Talon SAH-E23
 build: 1.1.0.66
 serial number: TA15430016
 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	1000.00	936.27	30.0	28.0	0.5	640	360

Audio Status

Channel	Subchannel	Codec
1	1	fdk_aac

Stream Status

Channel	URL	Frames
1	rtmp://172.16.1.113/noauth/talon66	324

Input Status

Input	Resolution	FPS
HD-SDI1	1920x1080i	29.97

Refresh

Auto Refresh

Encoder Setup

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.

The screenshot displays the web interface for the Osprey Talon SAH-E23. At the top left is the Osprey logo. On the top right, the device information is shown: **Osprey® Talon SAH-E23**, build: 1.1.0.66, serial number: TA15430016, mode: 1x3 MBR Mode, and device name: SAH-E23. A green "logout" button is located below this information.

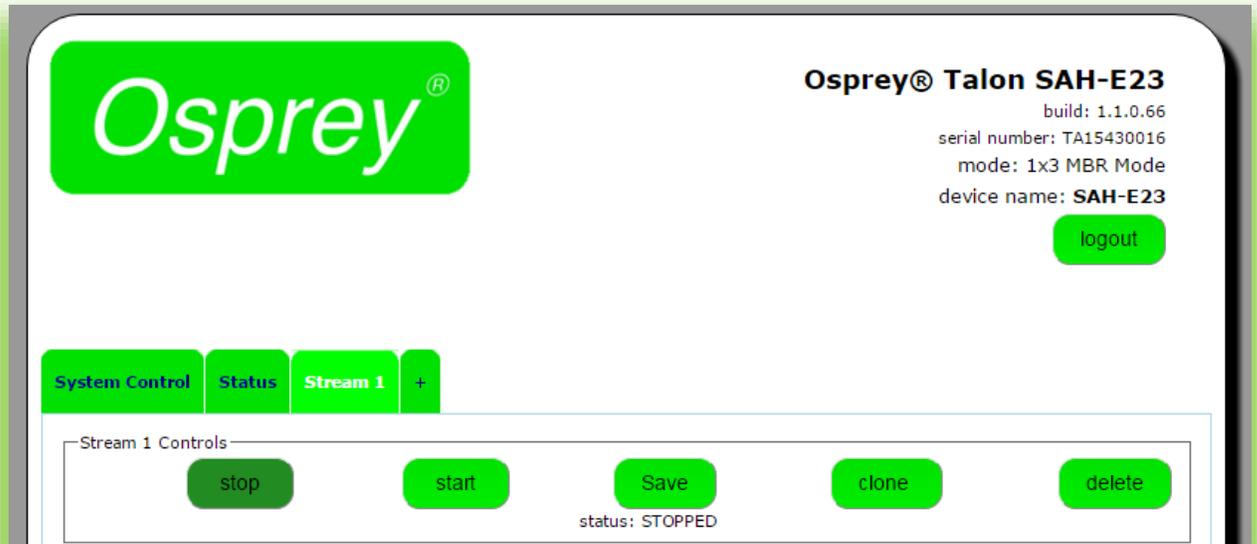
Below the header, there are navigation tabs: "System Control", "Status", "Stream 1", and a "+" button. The "Stream 1" tab is currently selected.

The "Stream 1 Controls" section contains five buttons: "stop", "start", "Save", "clone", and "delete". Below these buttons, the status is indicated as "status: STOPPED".

The main configuration area is divided into two columns: "Encoder Setup" and "Output Setup".

Encoder Setup		Output Setup	
Video Source	HD-SDI	Output Format	RTMP
	16:9 <input type="checkbox"/>	XML File:	Choose File No fil...hosen
Video Resolution	640x360	RTMP://	172.16.1.113/noauth/talon66
Video Bit Rate	1000K	Authentication	Disable
Frame Rate Divider	1	Frame Align	False
Video Profile	High		
GOP Size	60 Frames		
Number of B-frames	0		
Deinterlacing	Deinterlace		
Maximum Delay	2000		
Audio Enable	False		

Stream Control Buttons



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

Save

The Save button can be used to save the changes you make in the encoder configuration below. Use Save if you are going to leave the configuration page without starting the encoder. Once the encoder is started, all changes are automatically saved.

Clone

Often a user wants to create second stream that is very similar to 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.



Creating Additional Streams

Clicking the "+" button will create another Stream tab. The number of tabs you can create is determined by the Operating Mode that is selected.

NOTE: More About Operating Modes

1x3 MBR Mode will allow the creation of 3 Streams. Each must have the same Video Source. You may select from SDI, HDMI or Composite. If you change the video source on any stream, all of the streams will change to that source. Keep this in mind when configuring additional streams.

2x2 LC Mode will only allow the creation of 2 Streams. Stream 1 must always be SDI. Stream 2 can be HDMI or Composite (CVBS). 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.

Encoder Setup

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.

NOTE: Composite is not recommended in 2x2 Mode.

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

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.

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.

Frame Rate Divider

The frame rate for the output video is expressed as the input video size divided by the "Frame Rate Divider". A value of 1 means the output will be the same frame rate as the input. A value of 2 means $\frac{1}{2}$ of the input rate and so on.

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 3 B Frames. When using Baseline profile use 0 B Frames. For most situations a setting of 1 frame is best.

DeInterlacing

Most steaming 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.

Maximum Delay

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

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.

IMPORTANT NOTE: 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.

Osprey® Talon SAH-E23
 build: 1.1.0.66
 serial number: TA15430016
 mode: 1x3 MBR Mode
 device name: SAH-E23
 [logout]

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

Stream 1 Controls
 [stop] [start] [Save] [clone] [delete]
 status: STOPPED

Encoder Setup

- Video Source: Composite
- 16:9
- Video Resolution: 640x360
- Video Bit Rate: 1000K
- Frame Rate Divider: 1
- Video Profile: High
- GOP Size: 60 Frames
- Number of B-frames: 0
- Deinterlacing: Deinterlace
- Maximum Delay: 2000
- Audio Enable: False

Output Setup

- Output Format: RTMP
- XML File: Choose File | No fil...hosen
- RTMP:// 239.0.0.1
- Authentication: Disable
- Frame Align: False

Audio Info

	Sub Channel 1	Sub Channel 2	Sub Channel 3	Sub Channel 4
Enable	yes	no	no	no
Source	Analog	Analog	Analog	Analog
Codec	ARM AACLC	ARM AACLC	ARM AACLC	ARM AACLC
Sample Rate	48000 Hz	48000 Hz	48000 Hz	48000 Hz
Bit Rate	96 Kbps	96 Kbps	96 Kbps	96 Kbps
Mode	stereo	stereo	stereo	stereo

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 particular input will appear.

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”. Be certain that all of the remaining Sub Channels are disabled.

NOTE: Multiple Sub Channels are only used for UDP and MPTS streaming. They are not available for RTMP or RTP.

Source (all formats)

Select from HD/SDI, HDMI, or Analog.

Codec (all formats)

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

Sample Rate (all formats)

Default sample rate is 48000 Hz. Occasionally 44100 Hz is used for older smartphones. Also available are 32000 Hz and 16000 Hz.

Bit Rate

Default bit rate is 96 Kbps. Select your preferred rate from the pull down menu.

Mode (all formats)

Select Stereo or Mono. Stereo is the default and preferred setting.

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

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

Jumbo PES

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

Output Setup

Talon supports delivery via RTP, UDP, and RTMP, as well as an option to save a .TS file. Select the desired delivery from the Output Format pull down menu. Configuration options change depending upon the format selected.

The screenshot displays the web interface for the Osprey Talon SAH-E23. At the top left is the Osprey logo. On the top right, the device name 'Osprey® Talon SAH-E23' is shown along with its build number (1.1.0.66), serial number (TA15430016), mode (1x3 MBR Mode), and device name (SAH-E23). A 'logout' button is located below this information.

Below the header, there are navigation tabs: 'System Control', 'Status', 'Stream 1', and a '+' icon. The 'Stream 1' tab is active, showing 'Stream 1 Controls' with buttons for 'stop', 'start', 'Save', 'clone', and 'delete'. The status is indicated as 'status: STOPPED'.

The main configuration area is divided into two sections: 'Encoder Setup' and 'Output Setup'.

Encoder Setup:

- Video Source: HD-SDI
- Aspect Ratio: 16:9
- Video Resolution: 640x360
- Video Bit Rate: 1000K
- Frame Rate Divider: 1
- Video Profile: High
- GOP Size: 60 Frames
- Number of B-frames: 0
- Deinterlacing: Deinterlace
- Maximum Delay: 2000
- Audio Enable: True

Output Setup:

- Output Format: RTMP
- XML File: Choose File (No file chosen)
- RTMP URL: RTMP://172.16.1.113/noauth/talon66
- Authentication: Disable
- Frame Align: False

Audio Info:

	Sub Channel 1	Sub Channel 2	Sub Channel 3	Sub Channel 4
Enable	yes	no	no	no
Source	HD-SDI	Analog	HD-SDI	HD-SDI
Codec	ARM AACLC	ARM AACLC	ARM AACLC	ARM AACLC
Sample Rate	48000 Hz	48000 Hz	48000 Hz	48000 Hz
Bit Rate	96 Kbps	96 Kbps	96 Kbps	96 Kbps
Mode	stereo	stereo	stereo	stereo

RTMP

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 web 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.

RTMP://

This is where you manually insert the URL for the RTMP server. For complex addresses it is preferred to copy and paste the address from the host control computer. It is not necessary to add the "RTMP://" to the address when you enter it.

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, be certain to 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 SetTop 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 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.

Enable Save to File

To save a copy of your broadcast as a .TS file set this menu to "True"

File Location

As Talon has no hard drive, in order to save a file it is necessary to mount a USB device on the external USB port. By default, any device mounted on this port will be designated “/media/usb/[filename].ts”. Talon will not create sub folders to this location. If you have previously created a sub folder then you may include that location after “/usb/” and before [filename].

Video Settings

These are the video settings required by the network to deliver a stream to a particular 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.

TS Rate

In order to support the overhead of a Transport Stream the TS rate must be set greater than the Video Bit Rate. As a rule, 125% of the Video Bit Rate is a good starting point.

RTP

RTP is a delivery protocol similar to 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

Most RTP/RTSP connections require an SDP file. Talon does not support automatic SDP injection. If you are unfamiliar with the format for SDP files contact check OspreyVideo.com for the Knowledge Base article about SDP files.

Save to File

If you are using other channels for streaming with something other than UDP and you need to save the video as a file you may create a separate stream simply for saving to file. The file will be saved as .TS

USB storage devices

Talon does not have onboard storage. In order to save a file you must insert a Flash drive or USB hard drive in the USB port. For convenience all storage is mounted as /media/usb/[filename].ts

NOTE: Talon does not determine if a device is plugged into the USB port. Be certain that you have a storage device plugged into the USB before writing the file.

NOTE: Do not attempt more than one Save to File operation at a time.

NOTE: Do not use a USB hub with Talon.

NOTE: Writing to file does not stop immediately when the encoder stops. For this reason, you must wait at least 1 minute to make sure the write is finished before removing the storage device or turning off Talon.

Finding your encoder with Osprey BOSS

If your Talon is powered up and attached to the local network Osprey has included an application that allows you to use a browser on another computer to locate the encoder and access it via the network.

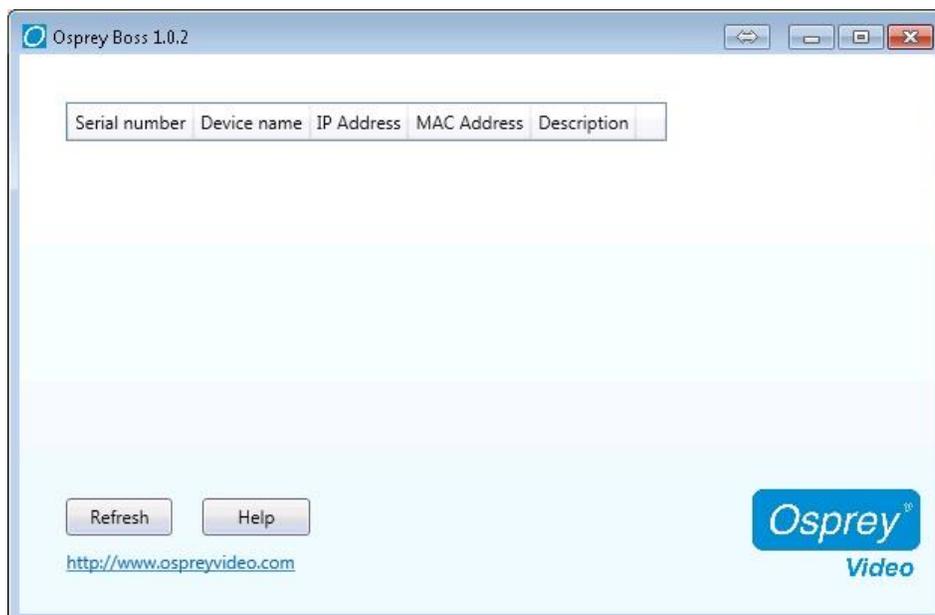
The Base Osprey System Supervisor (BOSS) discovers Osprey Talon devices on the network by broadcasting data packets to all IP addresses within your PC's subnet (i.e. the IP range that your PC is currently in). BOSS can be used if you do not know the exact IP address of your Talon systems. You do need to know the IP subnet on which Talon is installed.

BOSS will not locate Talon if:

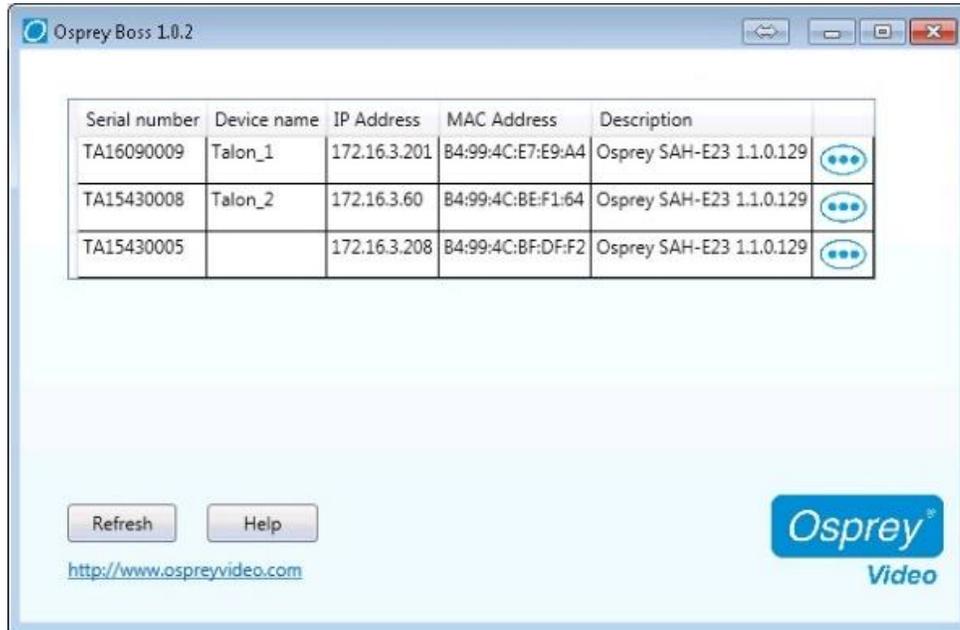
- You are using a router in your network to connect across subnets.
- Your network is firewall-protected. The UDP broadcast may not be permitted unless Port 10024 is open.
- If you are unable to locate Talon, please ensure it is on the same physical and logical section of your network and that broadcast traffic is allowed on port 10024 with a broadcast address of 224.0.0.212

To use BOSS:

- Download the from the link at www.OspreyVideo.com. There are versions available for PC, MAC and Linux.
- Install the application on a computer located on the same IP Subnet as Talon.
- Launch BOSS
- When the BOSS screen appears, click the "Refresh" button.



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 the web page of a particular Talon, click on the Serial Number of the desired Talon and you will be taken to the web GUI.

Appendix: Osprey Hardware Specifications

Osprey Talon H.264 Encoder

ENVIRONMENTAL SPECIFICATIONS

Operating temperature range	0° to 40° C
Non-operating temperature range	-40° to +75° C
Operating humidity range	Between 5 % and 80 % (non-condensing) @ 40° C
Non-operating humidity range	95 % RH (non-condensing); gradient 30 % per hour
Operating altitude range	0 to 3,048 meters (10,000 feet)
Non-operating altitude range	0 to 15,240 meters (50,000 feet)

- Approximate weight:
Osprey Talon = 65 grams

Osprey Talon SAH-E23 Features

Description:

2 channel SDI HD/SD, composite, or HDMI

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)

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)

Weight:

≈65g

Index

- Audience, 6
- Before you Begin, 6
- Change the network settings, 23
- Changing the network settings, 23
- Connect the power source, 14
- Connecting to an electrical power source, 14
- Connecting to the Internet, 9
- Easy first time set up, 14
- Environmental specifications, 27
- Install Overview, 10
- Installing additional software, 9
- Osprey Talon back panel, 13
- Osprey Talon back panel diagram, 13
- Osprey Talon front panel, 12
- Osprey Talon H.264 Encoder, 27
- Package contents, 9
- Package Contents, 9
- Prerequisites, 11
- SAH-E20 Features, 29
- SAH-E23 Features, 28
- Setup System Option, 23
- Stopped icon, 24
- Talon Back View, 13
- Warnings, 7
- Warranties, iv



Video

www.ospreyvideo.com