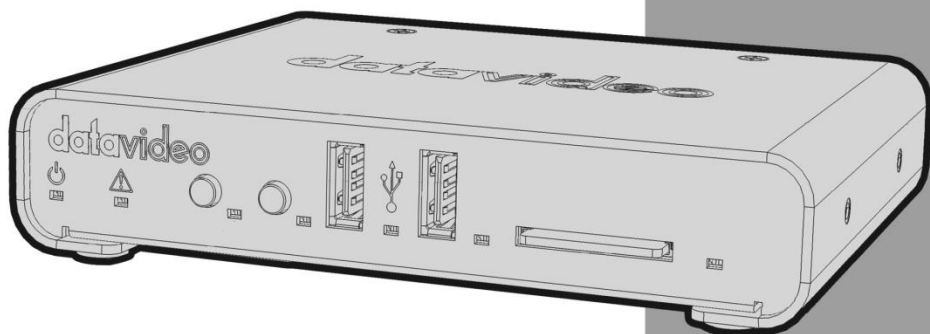


datavideo



**VIDEO STREAMING
SERVER**

NVS-30

Instruction Manual

www.datavideo.com

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Disclaimer of Product & Services

The information offered in this instruction manual is intended as a guide only. At all times, Datavideo Technologies will try to give correct, complete and suitable information. However, Datavideo Technologies cannot exclude that some information in this manual, from time to time, may not be correct or may be incomplete. This manual may contain typing errors, omissions or incorrect information. Datavideo Technologies always recommend that you double check the information in this document for accuracy before making any purchase decision or using the product. Datavideo Technologies is not responsible for any omissions or errors, or for any subsequent loss or damage caused by using the information contained within this manual. Further advice on the content of this manual or on the product can be obtained by contacting your local Datavideo Office or dealer.

FCC Compliance Statement

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Warnings and Precautions



1. Read all of these warnings and save them for later reference.
2. Follow all warnings and instructions marked on this unit.
3. Unplug this unit from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
4. Do not use this unit in or near water.
5. Do not place this unit on an unstable cart, stand, or table. The unit may fall, causing serious damage.
6. Slots and openings on the cabinet top, back, and bottom are provided for ventilation. To ensure safe and reliable operation of this unit, and to protect it from overheating, do not block or cover these openings. Do not place this unit on a bed, sofa, rug, or similar surface, as the ventilation openings on the bottom of the cabinet will be blocked. This unit should never be placed near or over a heat register or radiator. This unit should not be placed in a built-in installation unless proper ventilation is provided.
7. This product should only be operated from the type of power source indicated on the marking label of the AC adapter. If you are not sure of the type of power available, consult your Datavideo dealer or your local power company.
8. Do not allow anything to rest on the power cord. Do not locate this unit where the power cord will be walked on, rolled over, or otherwise stressed.
9. If an extension cord must be used with this unit, make sure that the total of the ampere ratings on the products plugged into the extension cord do not exceed the extension cord rating.
10. Make sure that the total amperes of all the units that are plugged into a single wall outlet do not exceed 15 amperes.
11. Never push objects of any kind into this unit through the cabinet ventilation slots, as they may touch dangerous voltage points or short out parts that could result in risk of fire or electric shock. Never spill liquid of any kind onto or into this unit.
12. Except as specifically explained elsewhere in this manual, do not attempt to service this product yourself. Opening or removing covers that are marked "Do

Not Remove” may expose you to dangerous voltage points or other risks, and will void your warranty. Refer all service issues to qualified service personnel.

13. Unplug this product from the wall outlet and refer to qualified service personnel under the following conditions:
 - a. When the power cord is damaged or frayed;
 - b. When liquid has spilled into the unit;
 - c. When the product has been exposed to rain or water;
 - d. When the product does not operate normally under normal operating conditions. Adjust only those controls that are covered by the operating instructions in this manual; improper adjustment of other controls may result in damage to the unit and may often require extensive work by a qualified technician to restore the unit to normal operation;
 - e. When the product has been dropped or the cabinet has been damaged;
 - f. When the product exhibits a distinct change in performance, indicating a need for service.

Warranty

Standard Warranty

- Datavideo equipment is guaranteed against any manufacturing defects for one year from the date of purchase.
- The original purchase invoice or other documentary evidence should be supplied at the time of any request for repair under warranty.
- Damage caused by accident, misuse, unauthorized repairs, sand, grit or water is not covered by this warranty.
- All mail or transportation costs including insurance are at the expense of the owner.
- All other claims of any nature are not covered.
- Cables & batteries are not covered under warranty.
- Warranty only valid within the country or region of purchase.
- Your statutory rights are not affected.

Two Year Warranty

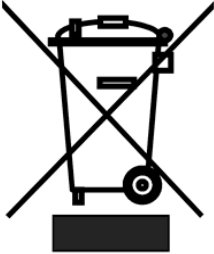
- All Datavideo products purchased after 01-Oct.-2008 qualify for a free one year extension to the standard Warranty, providing the product is registered with Datavideo within 30 days of purchase. For information on how to register please visit www.datavideo.com or contact your local Datavideo office or authorized Distributors



- Certain parts with limited lifetime expectancy such as LCD Panels, DVD Drives, Hard Drives are only covered for the first 10,000 hours, or 1 year (whichever comes first).

Any second year warranty claims must be made to your local Datavideo office or one of its authorized Distributors before the extended warranty expires.

Disposal



For EU Customers only - WEEE Marking

This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.



CE Marking is the symbol as shown on the left of this page. The letters "CE" are the abbreviation of French phrase "Conformité Européene" which literally means "European Conformity". The term initially used was "EC Mark" and it was officially replaced by "CE Marking" in the Directive 93/68/EEC in 1993. "CE Marking" is now used in all EU official documents.

Chapter 1 Product Overview

The Datavideo NVS-30 Video Streaming Server is a small, easy-to-use video streaming and recording appliance designed for professional video producers who need to simultaneously stream a live event and record the master quality version for post-event editing.

By separating the task of recording from streaming in a single integrated unit, the Datavideo NVS-30 ensures that the Content Delivery Networks (CDNs) are focused on delivering quality video to your audience while you control the quality of the archive.

From any HDMI input source such as a camera or switcher, the Datavideo NVS-30 generates an H.264 encoded stream compliant with RTSP or RTMP protocols. While encoding the video at bit rates appropriate for live streaming, the Datavideo NVS-30 simultaneously records a high-quality MP4 or MOV file to an SD card, a USB drive, or a network-mapped drive. The Datavideo NVS-30 can be remotely controlled using any computer or mobile device with a web browser.

1.1 Features

- Simultaneous Live Streaming & Recording
- HDMI Input and Output
- Up to 20Mbps Streaming/30Mbps Recording
- H.264 RTSP/RTMP Compliant Streaming
- H.264 MP4 Recording with 2-Channel AAC Audio
- Multi-Tap 10-Bit Scaler & De-Interlacer
- Web UI for system configuration
- Start/Stop Front Panel Push Buttons

Supported input formats

- 1920x1080p at 23.98/24/25/30/50/59.94/60 fps
- 1280x720p at 50/59.94/60 fps
- 1920x1080i at 25/29.97 fps

Supported operating systems and web browsers

- Operating systems
 - Mac OS X Yosemite
 - Microsoft Windows 8.1 (64-bit)
- Web browsers
 - Microsoft Internet Explorer
 - Apple Safari

Streaming

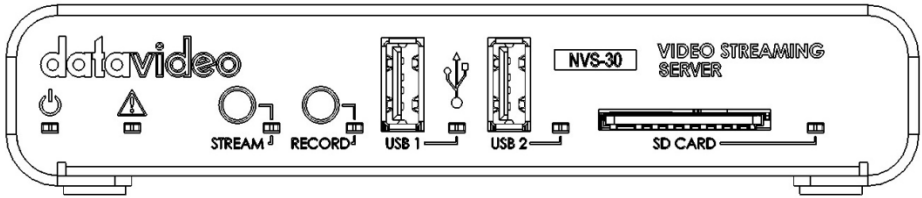
- RTSP and RTMP streaming protocols for use on:
 - Adobe Media Server, Wowza Media Server
 - Software video players such as QuickTime and VLC
 - Content Delivery Networks (CDNs) such as YouTube Live, Ustream and etc.

Recording

- Input source recording for
 - Video on demand (VOD)
 - High-quality editing
 - Archiving/previewing purposes
- Recording format
 - MOV and MP4 file formats on a FAT32 or NTFS file system

Chapter 2 Connections and Controls

2.1 Front Panel



Stream and Recording



Stream Button

Press this button to activate the RTMP stream and press again to stop streaming.

The Stream button is disabled when device is set to **Record-only** mode.

For information on specifying your stream settings, see [“Stream Settings”](#) in Chapter 4.

Note: Pressing the Stream button starts the stream for that device only. If you want to control multiple devices, you must use the control buttons on the Control page of the Command Center to start and stop streaming multiple NVS-30 devices on the network at the same time (see Chapter 5, [“Streaming and Recording”](#)).

Stream LED

Indicates the device streaming status (see **Appendix 1**, [“Status LEDs”](#)).



Record Button

Press the Record button to start recording your input source to the media selected in the “[Record Settings](#)”. Press the Record button again to stop the recording.

The Record button is disabled when NVS-30 is set to Stream-only mode.

For information on specifying your record settings, see “[Record Settings](#)” in Chapter 4.

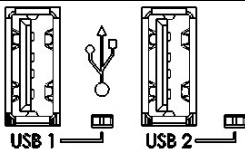
Note: Pressing the Record button starts recording for that device only. If you want to control multiple devices, you must use the control buttons on the Control page of the Command Center to start and stop recording on multiple NVS-30 devices on the network at the same time (see Chapter 5, “[Streaming and Recording](#)”).

Record LED

Indicates the device recording status (see **Appendix 1**, “[Status LEDs](#)”).

Note: If you want to start/stop streaming and recording at the same time, press and hold the Stream and Record buttons and then release them at the same time.

USB Port






USB Ports 1 and 2

Connect a USB 2.0 or 3.0 media device to the USB port for recording the source connected to the device HDMI input. To select USB port 1 or 2 as the recording destination, see “[Record Settings](#)” in Chapter 4.

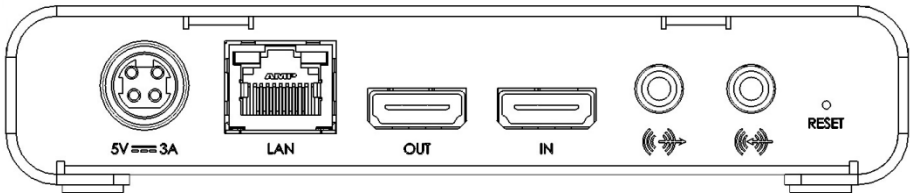
USB 1 / USB 2 LEDs

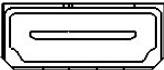
Indicates the USB port status (see **Appendix 1**, “[Status LEDs](#)”).

SD Card

	<p>SD Card</p> <p>Use the SD card slot for recording the source connected to the device HDMI input to an SD card. The NVS-30 supports SD and SDHC cards with FAT32 or NTFS file systems. To select the SD card slot as the recording destination, see “Record Settings” in Chapter 4.</p> <p>Note: To ensure that your SD card is fast enough to record at higher bit rates, we recommend using an SD card with a Class 10 speed rating.</p> <p>SD Card LED</p> <p>Indicates the SD card status (see Appendix 1, “Status LEDs”).</p>
LED	
	<p>Power LED</p> <p>Indicates the device power status (see Appendix 1, “Status LEDs”).</p>
	<p>Error LED</p> <p>Device error indications (see Appendix 1, “Status LEDs”).</p>

2.2 Rear Panel



Video Input and Output	
 <p style="text-align: center;">IN</p>	<p>HDMI IN</p> <p>Connect an HD HDMI video source (YUV or RGB) from a digital HDMI device to this port for streaming and recording.</p> <p>Note: HDCP and SD sources are not supported on this input.</p>



OUT

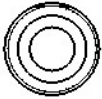
HDMI OUT

Connect an HDMI monitor to this port to preview the HDMI input, and its first two audio channels if selected as the audio input source.

Note: HDCP and SD signals are not supported on this output. The HDMI output supports RGB devices. To monitor your input source, the HDMI monitor must support the video input format.

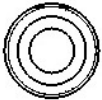
Note: The NVS-30 only supports HD video signals. If you connect an input signal with a resolution smaller than 1280×720, the NVS-30 will not detect the connected input, and the video output and web interface will display “No video signal”.

Analog Input and Output



Analog Audio Input

Allows you to input an unbalanced stereo analog audio source for streaming and recording.

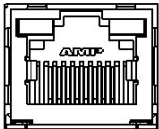


Analog Audio Output

Provides an unbalanced stereo analog audio output for monitoring the selected audio input source.

Note: The NVS-30 supports the first two channels of uncompressed embedded audio from the HDMI input source for streaming and recording. You can choose between the first two audio channels present in the HDMI input or the audio connected to the NVS-30 analog audio input (see “[Audio Input Settings](#)” in Chapter 4).

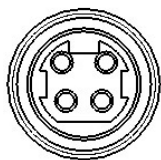
Others



LAN

LAN

The LAN port is an auto-negotiation 10/100/1000 Base-T Ethernet port which connects the NVS-30 to an Ethernet network through a standard RJ-45 Ethernet cable. For information on how to connect to a network, see Chapter 3, “[Network Connection and Setup](#)”.



5V \equiv 3A

Power

Power the NVS-30 device by connecting the device to an AC outlet through a power cord and a power adapter. To power off the NVS-30, simply disconnect the device from the power source and any logged errors will be cleared. All current settings are kept even after the device is powered off.

Note: When power is supplied to the NVS-30, the device begins a power-up sequence during which all LEDs illuminate. The device is ready when two or more of the recording destination LEDs (USB port 1, USB port 2, SD Card) turn off, depending on your record settings.

Power cycle of the NVS-30 performs a simple reboot, not a reset to factory defaults (see “Device Reboot” in Chapter 6).



RESET

Reset Button

You can use the NVS-30 Reset button to reboot the device (quick button press), or reset the device to factory defaults (long press of at least five seconds). For more information, see Chapter 6, “[Reset to Factory Defaults](#)”.

The Reset button is recessed in order to prevent unintended activation. Use a straightened paper clip, or similar device, to press the Reset button.

Chapter 3 Network Connection and Setup

The network connection and setup instructions depend on whether you will be connecting the NVS-30 to a network with a DHCP server.

If connecting to a network with a DHCP server, the NVS-30 must be set to DHCP mode. If your network does not have a DHCP server, the NVS-30 must be set to True Static IP mode. By default, the NVS-30 is set to DHCP mode. Once connected to a network, configure your stream and record settings using the NVS-30 Command Center.

To access the Command Center, you must first know the network IP address of the NVS-30 device or use the Datavideo Utility Software to scan for the device IP. When connecting to a network with a DHCP server, the NVS-30 IP address is assigned by the DHCP server. In this case, you can use the Datavideo Utility Software to find the NVS-30 IP address. When connecting to a network without a DHCP server, you must assign a static IP address to the NVS-30. A default IP address is provided when in True Static IP mode.

3.1 Datavideo Utility Software

The Datavideo Utility Software is available for both Mac OS and Windows systems, and you can use it for the following:

- Identifying NVS-30 devices on a network and lists their IP addresses.
- Open the NVS-30 web based UI (Command Center) by double-clicking an identified device on the device list.
- Update the NVS-30 firmware (see Appendix 2 “[Firmware Update](#)”).
- Reboot NVS-30 devices (see “[Device Reboot](#)” in Chapter 6).

Before launching the Datavideo Utility Software, you must first configure your NVS-30's network settings as well as the PC on which the software is installed. The subsequent section will take you through the entire network configuration process.

3.2 Network Connection and IP Address

This section details how to connect the NVS-30 to a network with or without a DHCP server, and describes how to acquire the NVS-30 IP address.

3.2.1 Finding the NVS-30's current IP address

You must know your NVS-30 device's IP address to access the Command Center. There are three ways to find the NVS-30's current IP address:

- You can see it displayed on an HDMI monitor at device boot up.

- You can have it automatically saved to a connected USB device when rebooting the NVS-30.
- Use the Datavideo Utility Software to view all connected NVS-30 devices and their IP addresses.

Displaying the IP address on an HDMI monitor

The NVS-30's IP address is displayed on a connected HDMI monitor at device bootup:

1. Connect the NVS-30 to an HDMI monitor.
2. Power up the NVS-30.

When the NVS-30 boots up, the IP address appears on the screen for approximately 30 seconds before being replaced by the passthrough signal.

Saving the IP address and status to USB

You can save a file containing the NVS-30's IP address and the device's current status to a USB device, making this information easily accessible.

1. Insert a formatted USB device into the USB port 2.
2. Reboot your NVS-30 by pressing the Reset button on the device ("[Device Reboot](#)" in Chapter 6).
3. The NVS-30's IP address and status information are now saved to a text file on the USB device.

This file can be helpful if you do not have an HDMI monitor or if you need to share status information for your unit.

Finding the IP address with Datavideo Utility Software

The Datavideo Utility Software will display the IP addresses of the NVS-30 devices in your network. See the subsequent sub-section "[Connecting to a network with a DHCP server \(DHCP IP mode\)](#)" for details.

Note: In the DHCP network environment, if you switch the network connection while the NVS-30 is powered, you must power cycle the device to obtain the new IP address from the DHCP server. To power cycle the device, use the Reset button on the NVS-30 (see Chapter 6 "Reset to Factory Defaults").

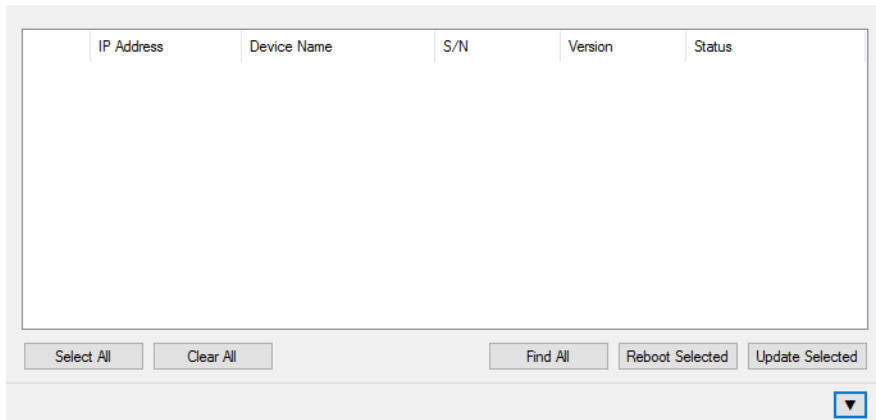
3.2.2 Connecting to a network with a DHCP server

In this section, you will learn how to use the Datavideo Utility Software to find the IP address of your NVS-30 device.

1. Connect the NVS-30's LAN port to a network through an Ethernet cable.
2. Power on the NVS-30 and by default, the NVS-30 is set to DHCP mode.
3. From a computer that is on the same network subnet as your NVS-30 device, download the Datavideo Utility Software from our official website <http://www.datavideo.cow/>.



4. Double-click the downloaded Datavideo Utility Software to open the application. If Universal Plug and Play (UPnP) is enabled on your network, the utility will automatically scan for NVS-30 devices. To scan manually, click the **Find All** button.



5. All the NVS-30s on the same network subnet as your computer will be displayed, along with their IP addresses and other information.
6. Open the Command Center (See Chapter 4).

Tip: If you have multiple NVS-30 devices, you may want to change the name of each device for easier identification (see [“Device name and password”](#) in Chapter 4).

Note: If you need to switch the device from Static IP mode to DHCP IP mode, you can either reset the device to factory defaults (see Chapter 6 [“Reset to factory defaults”](#)), or set it to DHCP mode using the Command Center (see [“IP Setup”](#) in Chapter 4).

3.2.3 Connecting to a network without a DHCP server (True Static IP)

When connecting to a network without a DHCP server, the network does not assign an IP address to your NVS-30 device. In this case, you can either manually assign a static IP address to your NVS-30 device or use the device’s default static IP.

Default Static IP

The default static IP address is designed primarily for the initial setup of the NVS-30 using a point-to-point connection (direct connection between your computer and the NVS-30). On a network without a DHCP server, the NVS-30 must be set to Static IP mode. To set to the **default static IP**, follow the steps outlined below.

1. Power on the NVS-30 and by default, the NVS-30 is set to DHCP mode.

2. Press the Reset button located on the rear panel of the device to initiate a device reboot. During the power-up sequence (all LEDs illuminate), the Record LED flashes for three seconds.
3. Press the Record button on the device while the Record LED is flashing.
4. This sets the device to True Static IP mode and the Static IP address to its default address (169.254.1.11).
5. The device is ready when two or more of the recording destination LEDs (USB port 1, USB port 2, SD Card) turn off, depending on your settings.
6. In order for your computer to communicate with the NVS-30, your computer's IP address must be in the same network range as your NVS-30's IP address. Change your computer's IP address and subnet mask to the following:
IP address 169.254.1.10
Subnet mask 255.255.0.0
7. Establish a connection between the NVS-30 and your computer using one of the following methods:
 - Connect an Ethernet cable from the NVS-30's LAN port directly to your computer's Ethernet port.
 - Connect an Ethernet cable from the NVS-30's LAN port to the same network switch as your computer.
8. Open the Command Center (See Chapter 4).

Note: The default IP address is not recommended for a traditional network setting. If you wish to use the NVS-30 in True Static IP mode over a network, after the initial setup we recommend that you change the static IP address of the NVS-30 device to an address that is more suitable to your network. You can change the static IP address in the Command Center as described in "IP Settings" in Chapter 4.

Chapter 4 Settings – The Command Center

The NVS-30 Command Center is a web-based application that allows you to configure device settings, control stream and record sessions, and import/export settings to or from other devices. To open the Command Center, you can do one of the following:

1. Enter the network IP address of your NVS-30 in your browser to open the Command Center.
2. On the Datavideo Utility Software, double-click any of the listed devices to open the Command Center.

4.1 Logging in to the Command Center

The Command Center opens on the **Status** page. The **Status** and **About** pages in the Command Center can be accessed without logging in. To access any other page, such as the **Control** or **Stream Settings** page, click the menu item for the page that you want to access and then enter your username and password. By default, the username and password are set to *admin*. The username cannot be changed. If you wish to change the password for your NVS-30 device, see “[Account](#)” in section 4.4.1.

4.2 Control

The **Control** page allows you control the streaming and recording for your NVS-30 device. If you have other NVS-30 devices connected to the same network, you can also control the streaming and recording for up to four other devices at the same time.

Note: You can also use the **Stream** and **Record** buttons directly on the NVS-30 device to stream and record, however, you will not be able to control other devices on the network.


4.2.1 Accessing the Control page






To access the **Control** page, open the NVS-30 Command Center and then click the **Control** tab.







4.2.2 Control Buttons

The following table details the different states of the control buttons in the Command Center.

	Button		Function
Stream		Start stream (RTMP)	<p>Click to Start streaming in RTMP mode.</p> <p>This button indicates that the NVS-30 device is set to stream in RTMP mode. Click this button to start streaming the input source connected to the NVS-30's HDMI input.</p> <p>If controlling multiple NVS-30 devices, those devices set to stream in RTMP mode will begin to stream their input sources as well.</p>

		Stop stream (RTMP)	<p>Click to Stop streaming in RTMP mode. This button indicates that the NVS-30 is currently streaming in RTMP mode. Click this button to stop streaming.</p> <p>If controlling multiple NVS-30 devices, those devices set to stream in RTMP mode will stop streaming as well. The devices on the network that are streaming in RTSP mode will continue to stream.</p>
		Streaming (RTSP)	<p>An indication that the NVS-30 device is currently streaming in RTSP mode. In RTSP mode, the unit delivers stream data once a client connects to the NVS-30 using the RTSP streaming protocol, and therefore does not require you to click the Stream button to start streaming.</p>
		Stream disabled	<p>An indication that the NVS-30 is currently set to Record-only operating mode.</p>
Record		Start record	<p>Click to Start recording Click this button to start recording the input source connected to the NVS-30's HDMI input.</p> <p>If controlling multiple NVS-30 devices, those devices will begin to record their input sources as well.</p>
		Stop record	<p>Click to Stop recording This button indicates that the NVS-30 device is currently recording its input source. Click this button to stop recording.</p> <p>If controlling multiple NVS-30 devices, those devices will stop recording their input source as well.</p>

		<p>Record disabled</p>	<p>Indicates that the NVS-30 is currently set to Stream-only operating mode.</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Stream and Record</p>		<p>Start stream (RTMP) and record</p>	<p>Click to start simultaneous streaming and recording.</p> <p>This button is available only when the NVS-30 is set to stream in RTMP mode. Click this button to start streaming and recording the input source connected to the NVS-30's HDMI input.</p> <p>If controlling multiple NVS-30 devices, those devices will begin to stream and record their input sources as well.</p>
		<p>Stop stream (RTMP) and record</p>	<p>Click to stop simultaneous streaming and recording.</p> <p>Click this button to simultaneously stop streaming and recording the input source connected to the NVS-30's HDMI input. If controlling multiple NVS-30 devices, those devices will stop streaming and recording their input sources as well.</p> <p>Note: You can also use individual Stop stream and Stop record buttons to stop the respective operation.</p>
		<p>Stream and record button disabled</p>	<p>Disabled stream and record button.</p> <p>The stream and record button is disabled when the NVS-30 is currently either streaming or recording, or when the NVS-30 is set to Stream-only or Record-only operating mode.</p>

4.3 Settings

Under the **Settings** tab, you will be able to gain access to the following pages:

- Audio Settings
- Stream Settings
- Record Settings

The subsequent sub-sections will provide an outline of the settings on these pages.

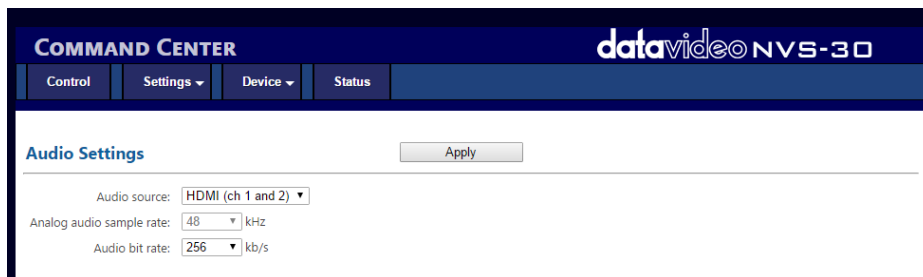
4.3.1 Audio Input Settings

The **Audio Settings** page in the Command Center allows you set the audio input source that will be used for streaming and recording, and the audio sample rate for your analog audio source. If controlling multiple devices, each device on the network streams and records the audio based on its own audio settings.

Note: To save changes made in the **Audio Settings** page, you must click the **Apply** button. If you leave the **Audio Settings** page before applying the settings, all changes will be lost.

Accessing the audio settings

To access the audio settings, open the Command Center and then select **Settings > Audio**.



The screenshot shows the Command Center interface for the NVS-30 device. At the top, there is a navigation bar with the title "COMMAND CENTER" and the device name "datavideo NVS-30". Below the navigation bar, there are four tabs: "Control", "Settings", "Device", and "Status". The "Settings" tab is selected. The main content area is titled "Audio Settings" and contains an "Apply" button. Below the title, there are three settings: "Audio source" set to "HDMI (ch 1 and 2)", "Analog audio sample rate" set to "48 kHz", and "Audio bit rate" set to "256 kb/s".

Audio source

Select the NVS-30 audio input source that will be used for streaming and recording. The NVS-30 supports two audio channels for streaming and recording. You can choose to use either the first two audio channels from your HDMI input source, or the stereo audio source connected to the NVS-30's analog audio input (see the [rear panel](#) section).

The NVS-30 uses the AAC audio format for streaming and recording. To monitor the selected audio source, you can use either the HDMI or analog audio output.

Note: You can choose whether or not to include audio for streaming and recording on the stream and record settings pages respectively.

Analog audio sample rate

If using analog audio, select the desired sample rate for your analog audio input source. If you are using an HDMI audio input source, this option is unavailable (appears dimmed) because the sample rate is determined by the digital signal.

The default setting is 48 kHz, but you can choose any of the available options.

The analog audio input is converted to the selected sample rate before encoding. Selecting the highest sample rate provides the best audio quality, but also increases the total bit rate required to maintain this quality for streaming and/or recording.

Audio bit rate

Select the bit rate at which you want to stream the audio. This setting applies to both the stream and record settings.

Note: (Analog audio only) To select the 32 kb/s bit rate, you must first set the **Analog audio sample rate** to 22.05 kHz.

4.3.2 Operating Modes

To ensure the highest possible streaming/recording video data rates based on your needs, the NVS-30 offers three operating modes:

- **Stream only:** This mode disables the record functionality for your NVS-30. In this mode, the maximum average video data rate for streaming is set to 20 000 kb/s.
- **Record only:** This mode disables the stream functionality for your NVS-30. In this mode, the maximum average video data rate for recording is set to 30 000 kb/s.
- **Stream and record:** This mode allows you to simultaneously stream and record with your NVS-30 device. In this mode, the maximum average video data rate for streaming is 10 000 kb/s, and the combined maximum average video data rate for streaming and recording is 30 000 kb/s. For example, if the average video data rate for streaming is set to the maximum value of 10 000 kb/s, the maximum average video data rate for recording is 20 000 kb/s.

Specifying the operating mode

You can set the NVS-30 operating mode on either the **Stream Settings** page or **Record Settings** page.

Note: Changes made to the operating mode are automatically and instantly applied. The “Apply” button in the “Stream Settings” page and “Record Settings” page does not apply the operating mode setting.

Stream Settings

The **Stream Settings** page in the Command Center allows you set the stream settings for the NVS-30 device. If controlling multiple devices, each device on the network streams based on its own stream settings. For details on how to start/stop streaming, see Chapter 5, “[Streaming and Recording](#)”.

Note: To save changes made in the “Stream Settings” page, you must click the “Apply” button. If you leave the “Stream Settings” page before applying the settings, all changes will be lost.

Accessing the stream settings

To access the stream settings, open the Command Center and select **Settings > Stream**.

Note: The stream settings cannot be modified when the NVS-30 is set to Record-only mode.

The screenshot shows the 'COMMAND CENTER' interface for a 'datavideo NVS-30' device. The top navigation bar includes 'Control', 'Settings', 'Device', and 'Status'. The 'Settings' menu is expanded to show 'Stream Settings'. The 'Operating Mode' section has three radio buttons: 'Stream only', 'Record only', and 'Stream and record', with 'Stream and record' selected. The 'Stream Settings' section features an 'Apply' button and a 'Profiles' dropdown menu with 'dvs-100p' selected. Below the dropdown are 'Load' and 'Save' buttons, and a 'Profile name' field containing 'dvs-100p'. The 'Encoding' section includes a 'Preset' dropdown set to 'None', a checkbox for 'Use stream settings for recording', and input fields for 'Width' (1280), 'Height' (720), and 'Frame rate' (Half). There is also a checkbox for 'Use input resolution'. The 'Target video data rate' is set to 10000 kb/s, with 'average' at 9000 and 'max.' at 11000. 'GOP size' is 60 frames, and 'Include audio' is checked. An 'Advanced Settings' panel on the right shows 'Profile' set to 'Main', 'Frame slices' set to 1, and 'Deblocking filter' unchecked. The 'Streaming' section has radio buttons for 'RTSP' (selected) and 'RTMP', a 'Stream name' field with 'Stream1', a 'Port' field with '8554', and a 'Stream URL' field with 'rtsp://169.254.1.11:8554/Stream1'. There is also an unchecked checkbox for 'Enable jumbo frames'.

Operating mode

Select the NVS-30 operating mode.

Stream profiles

The NVS-30 allows you to save up to four stream profiles that you can load at any time. Saving a new stream profile saves the current encoding and streaming settings.

Saving a stream profile

1. Specify your stream settings.
2. From the **Profile** list, select an empty profile, or a previously saved profile that you want to overwrite.
3. Type a **Profile name**.
4. Click **Save**.

Loading a stream profile

1. From the **Profile** list, select a profile.
2. Click **Load**. The loaded profile will appear next to **Loaded profile** field. If a change is then made to any of the stream settings, “(modified)” will appear next to the loaded profile name.

Encoding options

Specify the following H.264 encoding settings for streaming.

Presets

The NVS-30 comes with predefined presets that you can use to quickly set your encoding settings. A preset automatically sets all encoding settings, however, you should verify that the preset frame rate is appropriate for your encoding. You can also use a preset as a starting point to configure your stream encoding settings.

To use a preset:

1. Select the desired preset from the **Preset** list.
2. Select the **Frame rate**.

Note: Some presets may not be compatible for use with all CDNs. To avoid streaming issues, ensure that the selected preset settings, such as video resolution and video data rate, are supported by your CDN.

Use stream settings for recording

In Stream-and-record operating mode, check this box to use the stream encoding settings also for recording.

Video resolution

Select the resolution to which you want to stream by typing values for the **Width** and **Height**. You can also check the **Use input resolution** checkbox to stream at your input source’s original resolution. The NVS-30 does not support upscaling the input source for streaming.

Note: In **Stream-and-record** operating mode, if the current record encoding resolution exceeds a width of 1280 and/or height of 720, and you want to stream at a resolution greater than 1280×720, the stream and record settings must use the same encoding settings. In this case, you must select the **Use stream settings for recording** option.

Frame rate

You can choose to stream at your input source's **Full** frame rate, or at a **Half** or a **Quarter** of your source's frame rate.

Note: The NVS-30 does not support upscaling the resolution or frame rate of the input source. If **Full** is selected from the **Frame rate** list, the frame rate will automatically be set to **Half** of the input source's frame rate after clicking **Apply**.

Target video data rate

Enter the target **average** video data rate for your stream. When entering an average data rate, the **minimum** and **maximum** data rates are automatically set to 90% and 110% of the average data rate, respectively. The default minimum and maximum values are applicable in most instances, however, you can change the minimum and maximum values to suit your needs.

The maximum average video data rate for streaming depends on the selected operating mode (see the "**Operating Modes**" section). The NVS-30 uses a variable data rate when encoding.

GOP size (1-1000)

Type the **GOP size** (distance between I frames) to which you want to encode your input source for streaming. The NVS-30 uses the IP pattern when encoding for streaming. For example, a GOP size of 10 creates a GOP structure of IPPPPPPPPPI.

Include audio

Check the **Include audio** box to stream the selected audio source along with the video. The NVS-30 uses the AAC audio format for streaming. Uncheck this box if you do not want to include audio in your stream.

Advanced settings

Profile sets the H.264 encoding profile for your stream. The available options are **Baseline**, **Main**, and **High**. Typically, **High** profile provides the best image quality and is suitable in most instances. However, depending on the decoder used when viewing the stream, such as with mobile devices, a **Main** or **Baseline** profile may be required.

Frame slices: You can choose to slice each frame into **2**, **4**, or **8** sections when encoding, or you can select **1** to encode the frame as a whole. Slicing each frame when encoding the video for streaming may be useful when a multi-slice decoder device is used to view the stream.

Deblocking filter: Select this option to improve visual quality and prediction performance by smoothing the sharp edges which can form between macroblocks when **block coding** techniques are used. This filter improves the appearance of decoded pictures.

Streaming options

The NVS-30 provides RTSP and RTMP streaming protocols for use on Adobe Media Servers, Wowza Media Servers, software video players such as QuickTime and VLC, or any of the popular Content Delivery Networks (CDNs), such as YouTube Live and Ustream.

In RTSP mode, the NVS-30 acts as a streaming server to which clients can connect via a media server, software video player, or CDN that supports the RTSP streaming protocol. If you want to stream to more than a handful of clients, we recommend using a dedicated media server to send streams to clients.

In RTMP mode, the NVS-30 can send stream data to a CDN or media server that supports the RTMP streaming protocol.

Using the RTSP streaming protocol

RTSP RTMP

Stream name:

Port:

Stream URL: `rtsp://192.168.1.205:8554/Stream1`

Enable jumbo frames:

1. Select **RTSP**.
2. Enter a **Stream name**.
3. Enter the network **Port** through which the clients will connect.
4. A **Stream URL** is automatically generated based on your settings. Provide this URL to a client to connect to your NVS-30 network via a Wowza Media Server, software video player, or CDN that supports the RTSP streaming protocol.
5. Enabling jumbo frames can improve data transmission efficiency by sending a bigger frame of data instead of the standard one. However, use this feature only

when accessing video files stored on an external media library or storage. Please note that to use jumbo frames to stream your video you will have to make sure that every single node on the network has to be jumbo frame enabled or else the overall network performance will not be improved.

As soon as you apply RTSP stream settings, the NVS-30 is ready to deliver RTSP streams to clients, and will begin streaming data once a client connects to the NVS-30 using the RTSP streaming protocol. The NVS-30 will continue to do so until it is no longer in RTSP mode. **There is no need to use the Stream button located on the NVS-30 front panel or the Stream button in the Command Center to start streaming.**

If you get choppy video when streaming to VLC media player, you must enable the Real-time Transport Protocol (RTP) in VLC. Proceed by doing one of the following:

- Windows operating system: Open the VLC media player, select **Tools > Preferences**, and then click the **Input / Codecs** tab. In the Network section, select **RTP over RTSP (TCP)**.
- Mac operating system: Open the VLC media player, select **VLC > Preferences**, and then click the **Input / Codecs** tab. In the **Codecs / Muxers** section, select **Use RTP over RTSP (TCP)**.

Using the RTMP streaming protocol

RTSP RTMP

XML file: No file chosen

Server URL:

Stream name:

Username:

Password:

1. Select **RTMP**.
2. Specify the destination **Server URL** and **Stream name** provided by your CDN or server administrator.

If your CDN such as Ustream provides a streaming **XML file**, or when using Wowza Streaming Engine Manager, you can load the streaming XML file instead of entering the server URL and stream name. To do so, click **Browse...** to select the XML file, and then click **Load**.

When loading a streaming XML file, just the destination information (server URL and stream name) from the streaming XML file will be loaded. If the streaming XML file contains encoding information, those settings will not be loaded.

Clear the **Server URL** field to remove the XML file. Clear the **Stream name** field to remove the loaded streaming XML file.

Please note the following:

- If the stream name, username, or password is included in the stream URL, do not enter the information in the respective text boxes.
 - Streaming XML files are not the same as the NVS-30 configuration XML files.
3. If your Flash-based server or CDN uses the “ModuleRTMPAuthenticate” method for RTMP authentication, username and password are required for authentication. However, if username and password information is not included as part of the stream URL or streaming XML file, you must enter the stream **Username** and **Password** in the text boxes provided.
4. Start streaming the NVS-30 input source to a CDN or media server.

Record Settings

The **Record Settings** page in the Command Center allows you set the record settings for the NVS-30 device. The NVS-30 provides settings for recording your input source for video on demand (VOD), high-quality editing, and archiving/previewing purposes. Content can be recorded to MOV and MP4 file formats on a FAT32 or NTFS file system. Because FAT32 limits the recording file size to 4 GB, you must use an NTFS drive if your recorded file will be greater than 4 GB.

If controlling multiple devices, each device on the network records based on its own record settings. For details on how to start/stop recording, see Chapter 5, “Streaming and Recording”.

Note: To save changes made in the Record Settings page, you must click the Apply button. If you leave the Record Settings page before applying the settings, all changes will be lost.

Accessing the record settings

To access the record settings, open the Command Center and select **Settings > Record**.

Note: The record settings cannot be modified when the NVS-30 is set to Stream-only mode.

COMMAND CENTER
datavideo NVS-30

Control
Settings ▾
Device ▾
Status

Operating Mode

Stream only
 Record only
 Stream and record

Record Settings Apply

Profiles

[empty]
[empty]
[empty]
[empty]

Profile name:
 Loaded profile: None

Encoding

Preset: None
 Use stream settings for recording

Width:
 Height:
 Use input resolution

Frame rate: Full
 (Video input: No video input detected. Check your connection.)

Target video data rate (kb/s): average
 min.
 max.

GOP structure (frames): size / distance between P frames

Include audio:

Advanced Settings

Profile: High

Frame slices:

Deblocking filter:

Recording

Media: SD Card

Maximum recording duration: hours minutes

File switching duration: hours minutes
 MB

File type:
 MOV
 MP4

Path and filename:

Domain:

Username:

Password:

Operating mode

Select the NVS-30 operating mode.

Record profiles

The NVS-30 allows you to save up to four record profiles that you can load at any time. Saving a new record profile saves the current encoding and recording settings.

Saving a record profile

1. Specify your record settings.
2. From the **Profile** list, select an empty profile, or a previously saved profile that you want to overwrite.
3. Type a **Profile name**.
4. Click **Save**.

Loading a record profile

1. From the **Profile** list, select a profile.

2. Click **Load**. The loaded profile will appear next to **Loaded profile** field. If a change is then made to any of the record settings, “(modified)” will appear next to the loaded profile name.

Encoding options

Specify the following H.264 encoding settings for recording.

Presets

The NVS-30 comes with predefined presets that you can use to quickly set your encoding settings. A preset automatically sets all encoding settings, however you should verify that the preset frame rate is appropriate for your encoding. You can also use a preset as a starting point to configure your record encoding settings.

The NVS-30 provides the following preset types:

- **HQ:** Used for creating recorded files that will be edited for high-quality production.
- **Proxy:** Suitable for creating recorded files at smaller file sizes. This is especially useful when creating files for previewing or archiving, or when recording long-duration content.
- **YouTube:** Used for creating recorded files for delivery to most video on demand (VOD) streaming applications.

To use a preset:

1. Select the desired preset from the **Preset** list.
2. Specify the **Frame rate**.

Use stream settings for recording

In Stream-and-record operating mode, check this box to use the stream encoding settings for recording.

Video resolution

Select the resolution to which you want to record by typing values for the **Width** and **Height**. You can also check the **Use input resolution** checkbox to record at your input source’s original resolution. The NVS-30 does not support upscaling the input source for recording.

Note: In Stream-and-record operating mode, if the current stream encoding resolution exceeds a width of 1280 and/or height of 720, and you want to record at a resolution greater than 1280×720, the stream and record settings must use the same encoding settings. In this case, you must select the Use stream settings for recording option.

Frame rate

You can choose to record at your input source's **Full** frame rate, or at a **Half** or a **Quarter** of your source's frame rate.

Note: The NVS-30 does not support upscaling the resolution or frame rate of the input source. If **Full** is selected from the Frame rate list, the frame rate will automatically be set to half of the input source's frame rate after clicking **Apply**. For example, if your input resolution is 1080p50/59/60, the NVS-30 will automatically set the frame rate to 1080p25/29.97/30.

Target video data rate

Enter the target **average** video data rate for your recording. When entering an average data rate, the **minimum** and **maximum** data rates are automatically set to 90% and 110% of the average data rate, respectively. The default minimum and maximum values are applicable in most instances, however, you can change the minimum and maximum values to suit your needs.

The maximum average video data rate for recording depends on the selected operating mode (see the "Operating Modes" section). The NVS-30 uses a variable data rate when encoding.

GOP structure

Type the **GOP size** (distance between I frames) and **distance between P frames** to which you want to encode your input source for recording. The NVS-30 uses the IBP pattern when encoding for recording. For example, a GOP size of 15 and a distance between P frames of 3 creates a GOP structure of IBBPBBPBBPBBPBBPBI.

Include audio

Check the **Include audio** box to record the selected audio source along with the video. The NVS-30 uses the AAC audio format for recording. Uncheck this box if you do not want to record audio.

Advanced settings

Profile sets the H.264 encoding profile for your stream. The available options are **Baseline**, **Main**, and **High**. Typically, **High** profile provides the best image quality and is suitable in most instances. However, depending on the decoder used when viewing the recorded file, such as with mobile devices, a Main or Baseline profile may be required.

Frame slices: You can choose to slice each frame into **2**, **4**, or **8** sections when encoding, or you can select **1** to encode the frame as a whole. Slicing each frame

when encoding the video for recording may be useful when a multi-slice decoder device is used to view the recorded file.

Deblocking filter: Select this option to improve visual quality and prediction performance by smoothing the sharp edges which can form between macroblocks when **block coding** techniques are used. This filter improves the appearance of decoded pictures.

Recording options

Configure the following settings for recording.

Media

Select the **Media** to which you want to record your input source. You can choose either a USB port or an SD card slot on the NVS-30 device, or a network location.

Please note the following about using USB devices:

- The NVS-30 writes to all USB devices (including USB 3.0 devices) at USB 2.0 speeds.
- The performance of USB keys or “thumb drives” varies. Many of these devices are optimized for “read” operations, while the NVS-30 requires sustained “write” capabilities. For best results, especially at higher recording data rates, powered USB drives are recommended. In some cases, SD cards may be more suitable when small portable media is required.
- The NVS-30 supports USB devices with FAT32 or NTFS file systems.
- Media may need to be reformatted if not recognized by the NVS-30.
- USB devices with password protection are not supported.
- It may take a few seconds for the NVS-30 to detect a newly connected USB device (verified on the status page).
- For USB 3.0 hard drives without a dedicated power supply, the NVS-30 may not be able to sufficiently power more than one USB 3.0 drive at a time.
- When a recording is stopped, it may take a few moments for the NVS-30 to finalize the file, during which the USB LED continues to flash. To avoid corrupted video files, do not remove the USB device when its LED is flashing.
- Connecting a USB device to USB port 2 and then performing a device reboot allows you to save the NVS-30’s current IP address and status as a text file (see [“Device reboot”](#) in Chapter 6).
- Connecting a USB device to USB port 2 and then performing a factory reset allows you to load pre-configured NVS-30 settings (see [“Automatic configuration”](#) in Section 4.4).

Please note the following about using SD card:

- It may take a few seconds for the NVS-30 to detect a newly inserted SD card.
- When recording is stopped, the SD card LED continues to flash while the NVS-30 finalizes the file. To avoid corrupted video files, do not remove the SD card when its LED is flashing.

Maximum recording duration

Enter a **Maximum recording duration** to set an overall time limit for your recording session. The session will automatically end when this limit is reached, or when the selected storage media is full (whichever occurs first). If you enter a value of 0, the recording session will continue indefinitely, and will stop only when your storage media is full.

File switching duration

Enter a **File switching duration** to separate your recording session into more than one file at predetermined intervals. For example, if you enter a duration of 30 minutes, the NVS-30 will close the current file and start recording to a new file every 30 minutes.

The size of the created files (in approximated MBs) is displayed next to the duration. The file size depends on the video data rates you set in the encoding options.

Note

- **The maximum file switching duration you can set is four hours and fifty minutes.**
- **If you enter a file switching duration of 0, the NVS-30 will automatically switch to a new file every four hours and fifty minutes. This is a precaution that will avoid possible data loss that may occur from having files that are too large.**
- **On FAT32 storage media, file switching will occur automatically after 4 GB is reached. This is a limitation of the FAT32 file system architecture. You can stop recording at any time, either by using the control buttons in the Command Center (see [“Control buttons”](#) in section 4.2), or the Stream and Record buttons on the NVS-30 front panel.**

File type

Select the type of file that will be recorded. You can create either an **MOV** or **MP4** (MPEG-4) file.

Path and filename

Specify the destination and filename for your recording based on your recording destination. When specifying the path, all folders in the path must be already existed. The NVS-30 will not create new folders.

Each recorded filename contains the base name, date, time, an automatically incrementing 3-digit number, and file type, using the following naming convention: *Basename-[YYYY-MM-DD_HH-MM-SS].001.mov* or *.mp4*.

Note: Blank spaces are not supported in the base name. Use underscores in place of blank spaces. For example, enter *Recording1_Stage1* instead of *Recording1 Stage1* as the base name for the file.

USB or SD card: When recording to a USB device or SD card, enter the folder(s) on the recording device to which you want to record, if applicable, followed by the base name. For example, if you want to name your file *Recording1*, and save the file in a folder named *Files* that is contained within another folder named *Project* on the root directory, enter *Project/Files/Recording1*. If you want to save the file in the media device's root directory, simply enter *Recording1*.

Network: Use this option to record your input source to a shared folder on the network. The method for entering the path and filename depends on the operating system of the computer that contains the shared folder.

- **Windows:** When recording to a shared folder that is on the Windows system on the network, you must enter the IP address of the location on the network to which you want to record, followed by the shared folder name, and then the base name for the file in the following format: *//IP address/shared folder name/basename*

For example, if you want to name your file *Recording1*, and save the file to a shared folder named *Files* that is located on a network computer with an IP address of *123.456.7.890*, enter *//123.456.7.890/Files/Recording1*.

Note: If the network destination has a firewall, it must be disabled in order to record to the network location.

- **Mac OS X Yosemite:** When recording to a shared folder that is on the Mac OS X Yosemite system on the network, the folder to which you want to save the file must be shared using the Network File System (NFS) file-sharing protocol. For information on sharing a Mac OS X Yosemite folder, see "Appendix 4, Sharing a Mac OS X Yosemite folder using NFS protocol".

Note: Shared folders that use a file-sharing protocol other than NFS are not supported with the NVS-30 for recording.

When entering the path and filename, you must enter the IP address of the location on the network to which you want to record, followed by the full path to the shared folder from the root directory, and then the base name for the file in the following format:

//IP address:/full path to shared folder/basename

For example, if you want to name your file *Recording1* and save the file to a shared folder named *Files* that is located on the *Desktop* under *Datavideo* in the *Users* root directory folder on a network computer with an IP address of *123.456.7.890*, enter the following:

//123.456.7.890:/Users/Datavideo/Desktop/Files/Recording1

Tip: You can obtain the full path to the shared folder by right-clicking the folder, and then clicking Get Info.

Domain, username, and password

When recording your source input to a network location and if the NVS-30 is not on the same domain as the network, enter the network domain. If required, also enter the **Username** and **Password** that is used to access the network.

5.4 Device

Under the **Device** tab, you will be able to gain access to the following pages:

- Account
- Date and Time
- Automatic Configuration
- IP Setup

The subsequent sub-sections will provide an outline of the settings on these pages.

4.4.1 Account

The **Account** page in the Command Center is where you give a descriptive name to your NVS-30 device and change your NVS-30 password.

Accessing the Account page

To access the **Account** page, open the Command Center, and select **Device > Account**.

The screenshot shows the 'COMMAND CENTER' interface for a 'datavideo NVS-30' device. The top navigation bar includes 'Control', 'Settings', 'Device', and 'Status'. The main content area is titled 'Account' and contains two sections for password management. The first section, 'Device name', has a text input field containing 'NVS-30' and a 'Change' button below it. The second section, 'Current password', 'New password', and 'Confirm new password', each has a text input field, followed by a 'Change' button.

By default, the device name is set to *NVS-30*. You can give a unique name to each NVS-30 device for easy identification within the Command Center and the Datavideo Utility Software. This is especially useful when you have multiple NVS-30 devices on the same network. To change the name of your NVS-30, type the desired name in the **Device name** box, and then click **Change**.

By default, the NVS-30 username and password are set to *admin*. The device username cannot be changed, however, we do suggest that you change the device password. To change the NVS-30 password, enter the current and new passwords and then click **Change**. For information on resetting the password to factory default, see Chapter 6 “Reset to factory defaults”.

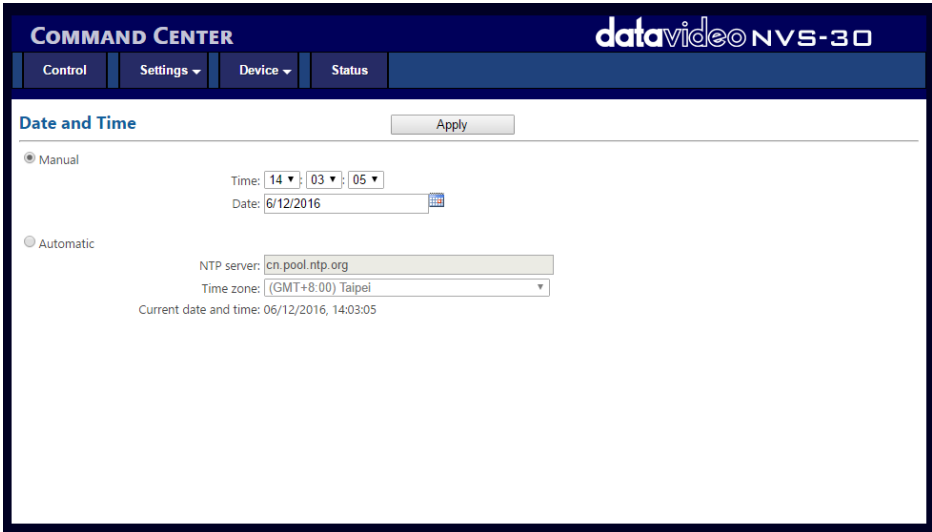
4.4.2 Date and Time

The **Date and Time** page in the Command Center allows you set the date and time for your NVS-30 device. You can set the date and time manually or automatically by using an NTP server. The date and time are used in the naming of the recorded files.

Note: To save changes made in the **Date and Time** page, you must click the **Apply** button. An NVS-30 hardware reboot is required to apply the changes. If you leave the **Date and Time** page before clicking **Apply**, all changes will be lost.

Accessing the Date and Time page

To access the **Date and Time** page, open the Command Center, and select **Device > Date and Time**.



Setting the date and time manually

1. Select **Manual**.
2. Set the **Time**, and enter a **Date** in the format DD/MM/YYYY, or click to select a date from the calendar.
3. Click **Apply**. You'll be notified that the NVS-30 will be rebooted in order to apply the changes.

Setting the date and time automatically

Setting the date and time automatically requires a local or public NTP server address. An Internet connection is required to use a public NTP server.

1. Select **Automatic**.
2. Enter a local or public **NTP server** address. The default NTP server address is time.nrc.ca.
3. Select a **Time zone** from the list. The current date and time associated with the selected NTP server and time zone are displayed next to the **Current date and time** field.
4. Click **Apply**. You'll be notified that the NVS-30 will be rebooted in order to apply the changes.

4.4.3 Automatic Configuration

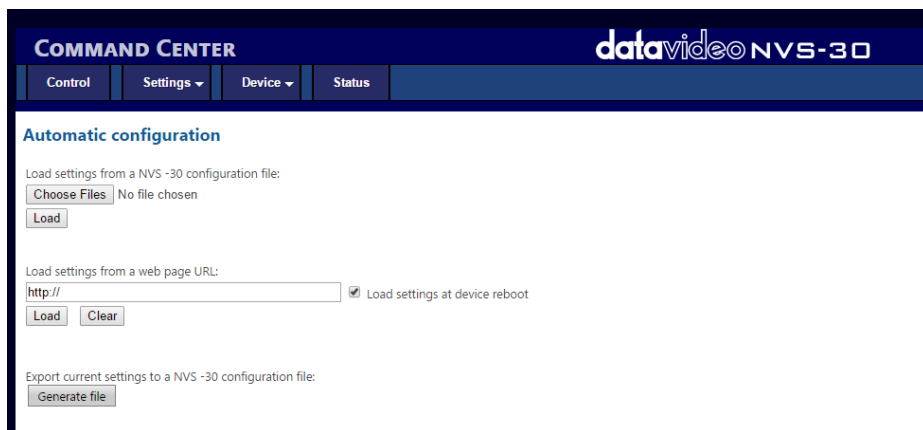
The **Automatic configuration** page in the Command Center is where you can export the current NVS-30 settings to an XML file (called the *NVS-30 configuration file*). You can also import settings from a previously-created configuration file, or import settings from the same XML file hosted on a web page.

When you have an NVS-30 configuration file, you can copy it to a USB device, connect the device to the USB port 2, and then perform a factory reset to automatically load the settings. For more information on performing a factory reset, see Chapter 6 [“Reset to Factory Defaults”](#).

The option to boot up the NVS-30 with all settings loading automatically from a USB device, or loading settings from a web page URL at device reboot, allows you to deploy other NVS-30 devices without logging in to the Command Center.

Accessing the Automatic configuration page

To access the **Automatic configuration** page, open the Command Center and select **Device > Automatic configuration**.



Loading settings from an NVS-30 configuration file

You can import NVS-30 settings from a previously-generated NVS-30 configuration file. The file must be located on your computer or somewhere that is accessible from your computer.

1. Go to the **Automatic configuration** page of the Command Center.
2. Under **Load settings from an NVS-30 configuration file**, click the **Browse** button.
3. Select the file you want to load.
4. Click **Load**.

Your NVS-30 settings will now match those of the chosen configuration file.

Loading settings from a web page URL

You can import settings from a specific web page that is hosting the configuration file generated in the Command Center. This option is particularly useful when there is a need to oversee the NVS-30 operation from a central control environment. You can

set bit rates and destinations by managing a web page instead of logging into the Command Center.

1. Go to the **Automatic configuration** page of the Command Center.
2. In the **Load settings from a web page URL** field, type the URL address of a page hosting the configuration parameters.
3. Click **Load**.
4. (Optional) Check **Load settings at device reboot** checkbox if you want to have your NVS-30 automatically load the settings from the specified URL the next time it boots up.

Your settings will now match those of the chosen configuration file.

Note: With the Load settings at device reboot checkbox checked, you only need to reboot/reset your NVS-30 and it checks the specified URL for updated settings.

Generating a configuration file

You can export your current settings as an NVS-30 configuration file, which you can then save to your computer, to a USB device connected to your computer, or to a network drive. You can then use the configuration file to configure other NVS-30 devices.

Note: You cannot save to a USB device connected to the NVS-30.

1. Go to the **Automatic configuration** page of the Command Center.
2. Under **Export current settings to an NVS-30 configuration file**, click **Generate file**.
3. Select a save location. Do not change the filename (*NVS-30Settings.xml*) if you plan to automatically configure an NVS-30 from a USB device (see the subsequent subsection [“Automatically importing NVS-30 settings on factory reset”](#)).
4. The NVS-30 configuration file is created, and contains all the NVS-30 settings as XML parameters.

Automatically importing NVS-30 settings on factory reset

On factory reset, the NVS-30 can automatically import configuration settings from an NVS-30 configuration file that is on a USB device connected to NVS-30's USB port 2.

1. Copy the NVS-30 configuration file to a USB device.

Note: The configuration file must have the original filename, given by the NVS-30 when the file was generated (*NVS-30Settings.xml*).

2. Connect the USB device to the NVS-30's USB port 2.
3. Perform a factory reset by pressing and holding the Reset button for at least five seconds.

4. The NVS-30 boots up with your settings loaded.

4.4.4 IP Setup

The **IP Setup** page in the Command Center allows you switch the NVS-30 IP mode between DHCP and True Static IP. By default, the NVS-30 is set to **DHCP mode**.

Changing the IP mode will end the current Command Center session. To access the NVS-30 Command Center again, you'll need to enter a different NVS-30 IP address in your browser's address field. If switching to the **True Static IP** mode, you may also be required to change your computer's network configuration. For information on obtaining the NVS-30's IP address and accessing the Command Center in DHCP or True Static IP mode, see [Chapter 3, "Network Connection and Setup"](#).

Accessing the IP Setup page

To access the **IP Setup** page, open the Command Center and select **Device > IP Setup**.

The screenshot shows the 'IP Setup' configuration page. At the top, there's a navigation bar with 'COMMAND CENTER' on the left and 'datavideo NVS-30' on the right. Below this is a menu with 'Control', 'Settings', 'Device', and 'Status'. The main content area is titled 'IP Setup' and features an 'Apply' button. There are two radio buttons: 'DHCP' (unselected) and 'Static' (selected). Below the radio buttons are four input fields: 'IP address' (169.254.1.11), 'Subnet mask' (255.255.0.0), 'Gateway', and 'DNS server'. At the bottom, there is a checked checkbox labeled 'Display this NVS-30 on the network as a UPnP device'.

Setting the IP mode to DHCP

Set the NVS-30 to DHCP mode when connecting to a network with a DHCP server, such as through a router.

1. Select **DHCP**.
2. Click **Apply**.
3. See Section 3.2 "[Network connection and IP address](#)" for instructions on how to connect the NVS-30 to a network with a DHCP server, and how to acquire the NVS-30 network IP address to access the Command Center.

Setting the IP mode to Static

Set the NVS-30 to Static IP mode when connecting to a network without a DHCP server.

1. Select **Static**.
2. Enter a static **IP address** for your NVS-30. Unless you change this address, the default static IP address will be used (169.254.1.11). If you reset the device in Static

IP mode (see [“Default Static IP”](#) section), the static IP address will be reverted to the default.

Note: When connecting multiple NVS-30 devices on the same network, each NVS-30 device must have a unique network IP address.

3. Enter the **Subnet mask** on your network to which the NVS-30 is connected. By default, the subnet mask is set to 255.255.255.0.

4. Enter the **Gateway IP** address and **DNS server**.

5. Click **Apply**.

6. See [Chapter 3, “Network Connection and Setup”](#) for instructions on how to connect the NVS-30 to a network without a DHCP server, how to change your computer’s network configuration to establish a connection between your computer and the NVS-30 device, and how to access the Command Center.

Preventing the NVS-30 from appearing as a UPnP device on the network

The NVS-30 uses the Simple Service Discovery Protocol (SSDP) to broadcast itself as a Universal Plug and Play (UPnP) device. This means that it will appear in Windows Explorer (not visible in Mac OS) as if it were a printer, external hard drive, or similar UPnP device.

This feature is enabled by default, and makes it easier to find the NVS-30 on the network if you do not know the device’s IP address. However, for security reasons you may not want the NVS-30 to appear on your network for anyone to see. If so, you can disable SSDP to hide the NVS-30 from appearing as a UPnP device.

To prevent the NVS-30 from appearing:

1. Open the Command Center.
2. Choose **Device > IP Setup**.
3. Clear **Display this NVS-30 on the network as a UPnP device**.
4. Click **Apply**.

The NVS-30 will no longer be visible in Windows Explorer as a UPnP device. You may need to restart Windows Explorer for the NVS-30 to no longer appear on the network.

Note: By using this option, this NVS-30 device will not automatically appear on the Datavideo Utility Software list of connected devices. You must use the Find All button for the NVS-30 to appear.

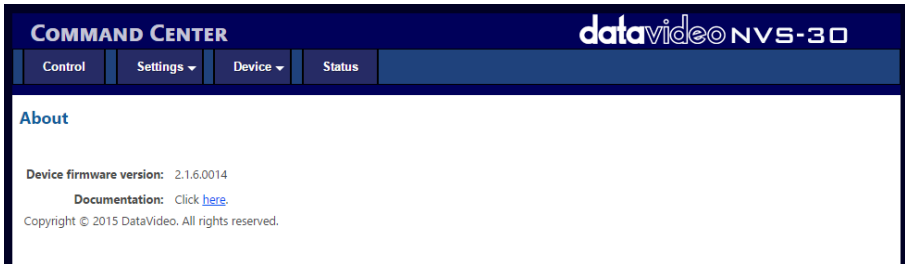
4.4.5 About

The **About** page in the Command Center allows you to see the current firmware version of your NVS-30 device, provide a link to the NVS-30 documentation, and display the Datavideo Limited Warranty for the NVS-30.

This page can be viewed without logging in.

Accessing the About page

To access the **About** page, open the Command Center and select **Device > About**.



Firmware version

Displays the current firmware version of your NVS-30 device. To update the NVS-30 firmware, see Appendix 2 "[Firmware Update](#)".

Documentation

You can access PDF versions of the latest NVS-30 documentation by clicking the link on the **About** page. An Internet connection is required.

4.5 Status

The **Status** page in the Command Center provides a summary of the NVS-30 status and settings, as well as any logged errors. This page can be viewed without logging in.

Accessing the Status page

To access the **Status** page, open the Command Center and select **Status**.

COMMAND CENTER datavideo NVS-30

Control Settings Device Status

Status

Device name: NVS-30

Control status: Single Device

Video input: No video input

Audio input: No audio input

Operating mode: Stream and record

Stream settings: 1280x720p, 0 fps, 10000 kb/s; audio 48 kHz, 256 kb/s; RTSP: rtsps://169.254.1.11:8554/Stream1

RTMP:

Record settings: 1280x720p, 0 fps, 10000 kb/s; audio 48 kHz, 256 kb/s;

Record media: SD Card, no drive present

Messages:

NVS-30 errors

When a streaming or recording error occurs, the LED illuminates on the NVS-30 device. Unless you receive a pop-up error when using the buttons in the Command Center's **Control** page, the error will be logged in the **Messages** section (**Status** page).

Note: An error will not be reported if the audio connected to the NVS-30's analog audio input is lost or missing. If this occurs, the stream and/or recording continues but will not contain audio.

Viewing and clearing errors

Streaming and recording errors that do not appear as a pop up error on the **Control** page are instantly logged in the **Messages** section of the **Status** page.

The **Status** page displays the errors pertaining to that NVS-30 device only.

To monitor streaming and/or recording when controlling multiple devices, we recommend that you open the Command Center for each NVS-30 device.

When you click the **Clear messages** button on the **Status** page, the logged errors are deleted from the list and the LED turns off. The LED will also turn off if you successfully start a new stream and/or recording.

Note: Powering off or resetting the NVS-30 will clear all errors from the device.

Chapter 5 Streaming and Recording

The NVS-30 allows you to stream and record the input source connected to the NVS-30's HDMI input. If you have multiple NVS-30 devices connected to the same network, you can also control the streaming and recording of multiple devices from one device's Command Center.

Unless a specific record duration limit was set in the record settings, NVS-30 limits the duration of each recording to four hours and fifty minutes. The recording will automatically stop when the duration limit is reached.

When a recording is stopped, it will take a few seconds for the NVS-30 to finalize the file. If recording to a USB device or SD card, the USB/SD card LED continues to flash during the finalization process. To avoid corrupted video files, do not remove the USB device or SD card when its LED is flashing.

5.1 Streaming and Recording on a Single Device

To control streaming and recording for a single NVS-30 device, you can use the following two methods:

1. Use the control buttons in the Command Center (see [“Control buttons”](#) in section 4.2).
2. Use the Stream and Record buttons on the NVS-30 device (see [Chapter 2, “Connections and Controls”](#)).

5.2 Streaming and Recording on Multiple Devices

The NVS-30 allows you to start and stop the streaming and recording for up to five devices on the network at the same time. Each device streams and records the input source connected to its HDMI input based on its own stream and record settings. To control multiple devices, you must use the control buttons (see [“Control buttons”](#) in section 4.2) in the Command Center instead of the Stream and Record buttons located on NVS-30 front panel, which control the streaming and recording for that device only.

You can control multiple NVS-30 devices from any of the devices on the network. When enabling the control of multiple devices in a device's Command Center, that device becomes the primary device and the devices being controlled become secondary devices. The control buttons in the Command Center of the primary device can then be used to control the other devices on the network. You can have more than one primary device on the network, with each primary device controlling its secondary devices. For example, if you have three NVS-30 devices on the network, you can set device one to control devices two and three, and you can also set device

two to control devices one and three. For details on enabling multi-device control in an NVS-30's Command Center, and using the control buttons to stream and record, see "[Command Center Control](#)" page.

5.3 Disable Stream and Record buttons on the front panel

You can disable the physical Stream and Record buttons on the NVS-30 device to prevent someone from inadvertently stopping a streaming or recording session. This option only applies to the NVS-30 you are connected to, and not other NVS-30 devices you may be controlling.

To disable the Stream and Record buttons:

1. In the Command Center, click **Control**.
2. Select **Disable Stream and Record buttons on this NVS-30 device**. The Stream and Record buttons on the NVS-30 device are disabled.

Note: This button disable feature is off by default.

5.4 Enabling multi-device control

This section details how to enable multi-device control of up to four other devices in the Command Center.

1. In the Command Center, click **Control**.
2. Select **Control multiple NVS-30 devices**.
3. For each NVS-30 device that you want to control, enter the network **IP address** of the device. Click **Scan** after entering the IP address to verify if the device can be found on the network. For information on acquiring the NVS-30's IP address, see Section 3.2 "[Network connection and IP address](#)".
4. Activate or deactivate the control for an NVS-30 device by selecting or clearing the device's **Active** box.

Chapter 6 Reset to Factory Defaults

This chapter describes how to reset the NVS-30 device using the Reset button located on the device's rear panel. At times you may want to reset current NVS-30 settings to factory defaults, please follow the steps outlined below to perform factory reset.

1. Use a paper clip to press and hold the Reset button on the rear panel for at least 5 seconds.
2. The device begins a power-up sequence during which all LEDs illuminate.
3. The device is ready when all LEDs turn off except the Power, Stream, Record, and USB port 1 LEDs.

When resetting the NVS-30 using this method, the following device settings will be reset to factory defaults.

- Device's login credentials reset to admin.
- The device network setting reset to DHCP mode.

Note: You may switch the device to Static IP mode after performing a factory reset or a simple device reboot, see "Default Static IP" section in Chapter 3.

You can also use a factory reset to load pre-configured NVS-30 settings from a configuration file. For more information, see "[Automatic configuration](#)" in Chapter 4.

6.1 Device Reboot

The Reset button also allows you to perform device reboot. Perform the following to reboot the device.



1. Use a paper clip to press the recessed pinhole **Reset** button on the rear panel.
2. The device begins a power-up sequence during which all LEDs illuminate.
3. The device is ready when two or more of the recording destination LEDs (USB port 1, USB port 2, SD Card) turn off, depending on your settings.
4. Open the Datavideo Utility Software, and select the NVS-30 device you wish to reboot, and then click **Reboot Selected**.

Note: When performing a device reboot, all current settings are kept, including the IP setting (DHCP or Static IP) that was set prior to the reboot, and only logged errors are cleared.

If you have a USB device connected to the NVS-30 USB port 2, the current device's IP address and status will be saved to the USB device as a text file. This is a convenient way to find the device's IP address.

Chapter 7 Appendices

Appendix 1 Status LEDs

LED	State	Condition
	Green	Device is powered.
	Yellow	Indicates that a streaming and/or recording error has occurred, including a physical disconnect of the network cable.
	OFF	<ul style="list-style-type: none"> • Error cleared. • Network cable reconnected. • A new stream/recording is successfully started.
STREAM	OFF	Device in Record-Only mode. In this mode, Stream button is disabled.
	Solid Blue	Stream in RTSP or RTMP mode.
	Flashing Blue	<p>Streaming in progress.</p> <p>In RTSP mode, flashing Stream LED indicates that a client is currently connected to the device.</p> <p>In RTMP mode, flashing Stream LED indicates a stream is started by pressing the Stream button on the device or the control buttons in the Command Center.</p> <p>In Stream-only mode, the Stream LED will flash faster when disconnection occurs, which indicates that the device attempts to reconnect. The Stream LED will resume the regular flashing speed once the connection is re-established.</p>
RECORD	OFF	Device in Stream-Only mode. In this mode, Record button is disabled.
	Solid Red	Device set to record to the selected media.
	Flashing Red	Recording in progress.
STREAM/RECORD	Solid Blue	Indicates Stream Disconnected when Stream and Record modes are turned ON at the same time.

		Note: The device will not try to re-establish the connection and the LEDs will stay solid blue until the stream is manually restarted.
USB Ports 1/2	OFF	The USB port is not selected as the recording media. Device set to Stream-Only mode.
	Solid Red	The USB port is selected as the recording media.
	Flashing Red	The device is currently writing to the media device connected to the USB port. Note: Do not remove the USB device while the USB port LED is flashing as doing so may result in corrupted video files.
SD Card	OFF	The SD card is not selected as the recording media. Device set to Stream-Only mode.
	Red (Solid)	The SD card is selected as the recording media.
	Red (Flash)	The device is currently writing to the SD card inserted in the SD card slot. Note: Do not remove SD card while the SD card LED is flashing as doing so may result in corrupted video files.

Appendix 2 Firmware Update

Datavideo usually releases new firmware containing new features or reported bug fixes from time to time. Customers can either download the NVS-30 firmware as they wish or contact their local dealer or reseller for assistance.

This section outlines the firmware upgrade process which should take ***approximately 10 minutes to complete***.

The existing NVS-30 settings should persist through the *firmware upgrade process, which should not be interrupted once started* as this could result in a non-responsive unit.

Successful firmware upgrade on NVS-30 requires:

- The latest firmware file, which can be obtained from your local Datavideo dealer or office.
 - A MAC or PC computer with web browser on the same IP network as the NVS-30.
 - [Datavideo Utility Software](#) (can be downloaded from Datavideo's official website)
 - The current NVS-30 IP address and settings ([Network Connection and IP Address](#))
1. Power ON NVS-30 and connect it to an Ethernet network.
 2. Open Datavideo Utility Software on a computer that is on the same network subnet as the NVS-30 that you want to update.
Note: You cannot update the NVS-30 firmware over a wireless network.
 3. On the **Datavideo Utility Software**, select the network **IP Address** of the NVS-30 device that you want to update, and then click **Update Selected**.
 4. If you have multiple NVS-30 devices on the network, select the IP address for every device on the Datavideo Utility Software by clicking **Select All**, and all NVS-30 devices will be updated in sequence.

Note: The NVS-30 device will be turned on and off at different times during the update process. The update is complete when all LEDs are turned off except the Power, Stream, Record, and USB port 1 LEDs.

It is not recommended to simultaneously update the same NVS-30 device using more than one instance of the Datavideo Utility Software.

Appendix 3 Recording file sizes and duration

The following tables list the **approximate recording file size** based on the average video data rate and recording duration, and the **approximate maximum recording duration** given the average video data rate and available disk space.

Note: Unless a specific recording duration limit was set in the record settings, the NVS-30 limits the duration of each recording to four hours and fifty minutes. The recording will automatically stop when the duration limit is reached.

Approximate file size					
Recording Duration	Average Video Data Rate (kb/s)				
	500	2000	5000	15 000	25 000
5 min	18.8 MB	75 MB	188 MB	563 MB	938 MB
30 min	112.5 MB	450 MB	1.1 GB	3.4 GB	5.6 GB
60 min	225 MB	900 MB	2.3 GB	6.8 GB	11.3 GB
3 hrs	675 MB	2.7 GB	6.8 GB	20.3 GB	33.8 GB
4 hrs 50 min	1.1 GB	4.5 GB	11.3 GB	33.8 GB	56.3 GB

Approximate maximum recording duration					
Disk Space	Average Video Data Rate (kb/s)				
	500	2000	5000	15 000	25 000
4 GB	17.8 hrs	4.4 hrs	107 min	36 min	21 min
16 GB	71.1 hrs	17.8 hrs	7.1 hrs	2.4 hrs	85 min
32 GB	142.2 hrs	35.6 hrs	14.2 hrs	4.7 hrs	2.8 hrs
64 GB	284.4 hrs	71.1 hrs	28.4 hrs	9.5 hrs	5.7 hrs
256 GB	1138 hrs	284.4 hrs	114 hrs	38 hrs	22.8 hrs
1 TB	4444.4 hrs	1111.1 hrs	444.4 hrs	148.1 hrs	89 hrs

Appendix 4 Sharing a Mac OS X Yosemite folder using NFS protocol

To record to a shared folder that is on a Mac OS X Yosemite system on the network, the folder must be shared using the Network File System (NFS) file-sharing protocol as explained below.

Note: To share a folder using the NFS protocol, the full path to the folder that you want to share is required. You can obtain the full path to the folder by right-clicking the folder, and then clicking Get Info.

1. On the computer that contains the folder that you want to share, make sure that you're logged in as an administrator and that your user account has a password. User accounts that do not have a password cannot be used to share a file using the NFS protocol.

2. In the **Finder** menu, choose **File > New Finder Window**.

3. In the **Applications** folder, click the **Utilities** folder, and then click **Terminal**.

4. In the **Terminal** window, type the following command, where "Path" is the full path to the folder that you want to share:

```
echo /Path -mapall=$(logname) | sudo tee /etc/exports
```

For example, to share a folder named *Files* that is located on the *Desktop* under *Datavideo* in the *Users* root directory folder, type the following command:

```
echo /Users/Datavideo/Desktop/Files -mapall=$(logname) | sudo tee /etc/exports
```



For added security, you can restrict write access to the folder to one device by adding the IP address of the NVS-30 that you want to use to write to the folder. For example, if the IP address of the NVS-30 device is *169.254.1.11*, type the following command:

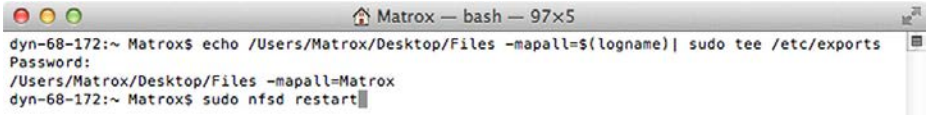
```
echo /Users/Datavideo/Desktop/Files 169.254.1.11 -mapall=$(logname) | sudo tee /etc/exports
```

5. Press **ENTER**.

6. Type your user account password, and then press **ENTER**.

7. Type the following command:

sudo nfsd restart

A screenshot of a macOS Terminal window. The title bar shows 'Matrox — bash — 97x5'. The terminal text is as follows:

```
dyn-68-172:~ Matrox$ echo /Users/Matrox/Desktop/Files -mapall=${logname}| sudo tee /etc/exports  
Password:  
/Users/Matrox/Desktop/Files -mapall=Matrox  
dyn-68-172:~ Matrox$ sudo nfsd restart
```

8. Press **ENTER**.

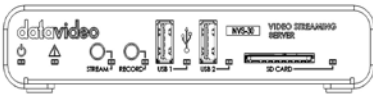
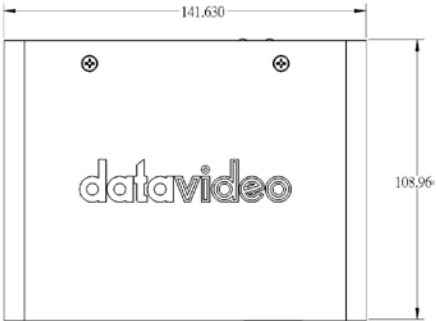
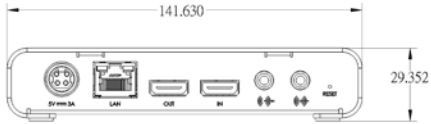
9. Close the **Terminal** window.

Appendix 5 Frequently-Asked Questions

This section describes problems that you may encounter while using NVS-30. If you have any questions, please refer to related sections and follow all suggested solutions. If problem still exists, please contact your distributor or the service center.

No.	Problems	Solutions
1.	How to remove blocky artifacts on the streaming video?	Block artifacts could be due to low quality stream settings for example bitrate below 300kbps. To remove the blockiness, please enable the deblocking filter option on the Stream Settings page. Please see page 24 for details on how to enable deblocking filter.

Appendix 6 Dimensions



All measurements in millimeters (mm)

Appendix 7 Specifications

Video and Audio Input / Output	
HDMI Video Input	1920x1080p @ 60/59.94/50/30/29.97/25/24/23.98 1920x1080i 29.97/25 1280x720p@ 60/59.94/50 Frames per second Video Input Format is Auto-Detected
HDMI Video Output	Preview output of video input signal. 2 Frame delay from input to output.
Audio Input	Processes first two channels of audio embedded in HDMI input signal. Unbalanced analog stereo input via 1/8" (3.5mm) jack. Line Level
Audio Output	Pass through of all embedded audio channels in HDMI signal. Unbalanced analog stereo output via 1/8" (3.5mm) jack – pass through of input. Line Level
H.264/MPEG-4 Part 10 (AVC) Video Encoder	
Resolutions	Selectable encoding resolutions ranging from: 128x128 to 1920x1080
Bit Rates Ranges	Record Only Mode: 100 kbps to 30 Mbps Stream Only Mode: 100 kbps to 20 Mbps Independent Stream and Record Mode**: Recording: 100 kbps - 30 Mbps Streaming: 100 kbps - 10 Mbps Maximum combined total bitrate of 30 Mbps **Note that when <u>both</u> streaming and recording resolutions are above 1280x720, the encode parameters must be identical for both processes. Completely Independent recording and streaming settings are available when either the streaming or the recording resolution is 1280x720 or below.
Encode Frame Rates	Encode frame rates representing 1:1, ½ and ¼ of the input frames rates are supported Note that the maximum encode frame rate is 30 fps when encode resolution is 1920 x 1080
Encoding Profiles	Baseline, Main and High
Encoding Controls	2.0, 3.0, 3.1, 4.0, 4.1 Level Support GOP Size and Structure

	Variable bit rate support Average max/min data rate controls Deblocking Filter
MPEG-4 AAC Audio Encoder	
Standard	AAC-LC
Sample Frequency	22.5, 32, 44.1 and 48 kHz when digitized from analog source
Channels	2 channels Stereo (L/R)
Bit Rates	Range from 32 kbps to 256 kbps
Scaler	
High Quality multi-tap 10 bit Down Scaler and De-Interlacer. Available to both streaming and recording operations.	
Recording File Format	
File Type	Industry Standard MP4 and MOV files with two channels of embedded AAC audio.
Recording Lengths	Maximum file length of 300 minutes - irrespective of storage type used. File splitting feature allows a user to record continuously for long periods by defining file segment sizes. The NVS-30 will create these sequential file segments over the course of the recording operation without losing a single frame of video. File segment can have a length of 1 to 300 minutes.
Network Interfaces	
Connector	RJ45 providing 10/100/1000 Base-T Ethernet with Static or DHCP addressing
Protocols	RTMP, RTSP/RTP IPv4 Support Unicast and Multi Unicast (number of clients may vary from 3 to 10)
User Interface	
Physical Interface	Independent streaming and recording Start/Stop control
Storage Types for File Recording	
2 x USB 2.0	Support for NTFS (3.1) and FAT32 file system <i>The NVS-30 will support writing to USB3 devices at USB2 speeds. Also note, there is a very high variability in the performance capabilities of “thumb” drives (even USB3 versions). Many are optimized for “read” operations while the NVS-30 requires sustained “write” capabilities. For best results, NVS-30 recommends using powered USB drives. If small portable media is required, SD cards may be more suitable.</i>
1 x SD card Slot	Supports SD and SDHC cards. Only NTFS formatted SDXC

	cards are supported. (Class 10 highly recommended).
Network Mapped Drive	Support for writing to shared folders in computers found on a network using Windows Share protocols (suitable for windows system) as well as NFS protocols (suitable for Mac and Linux systems).
Physical	
Dimensions	5.60 in. long (14.2 cm) 4.30 in. deep (10.9 cm) excluding inserted SD-CARD 4.40 in. deep (11.2 cm) including inserted SD-CARD 1.22 in. (3.1 cm) high including rubber feet
Weight	0.66 lbs (300 grams) excluding power supply
Operating conditions	32 to 104 deg. F (0 to 40 deg. C), 20 to 80% relative humidity (non-condensing)
Transport and Storage	Max Operating Altitude: 3000 meters Max Transport altitude: 12,000 meters Storage Humidity 5 to 95% relative humidity (non-condensing)

Service & Support

It is our goal to make owning and using Datavideo products a satisfying experience. Our support staff is available to assist you to set up and operate your system. Contact your local office for specific support requests. Plus, please visit www.datavideo.com to access our FAQ section.

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