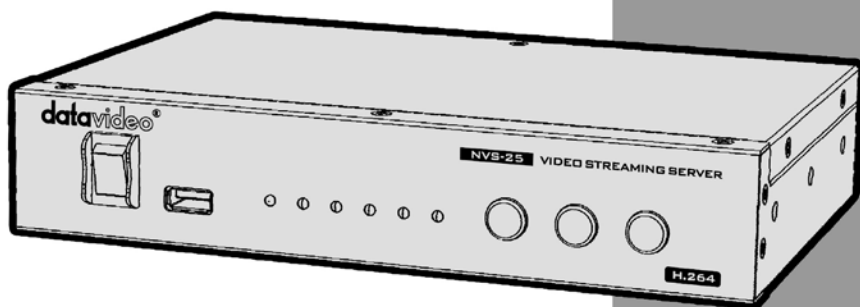


datavideo



H.264 VIDEO STREAMING SERVER NVS-25 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's 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.

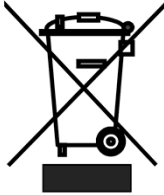
Two Year Warranty

- 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 NVS-25 is a broadcast quality H.264 network streaming server. This unit serves the purpose of sharing HD or SD video over local or global IP networks. Equipped with HDMI, SDI and Composite Video interfaces, the NVS-25 is designed for live event streaming at up to 6Mbps. The NVS-25 supports the following streaming protocols:

- HLS [HTTP Live Streaming]
- RTP / RSTP
- RTMP [Local/Publish]

The NVS-25 can be set up and controlled using almost any devices with a web browser. Users are allowed to configure real time audio and video streaming on the web-based graphical user interface. The encoded video stream can be delivered to a single browser, a group of clients on a Local Area Network (LAN) or even a Content Delivery Network (CDN).

The Core Value of Datavideo, sharing the value!

1.1 Features

- Broadcast quality HD / SD H.264 network streaming
- Quick and easy setup
- H.264 Encoding

Video Inputs - Choose from:

- HD / SD-SDI [BNC]
- HDMI
- CVBS [BNC]

Audio Inputs:

- Unbalanced RCA Phono sockets
- or
- Balanced 3pin XLR

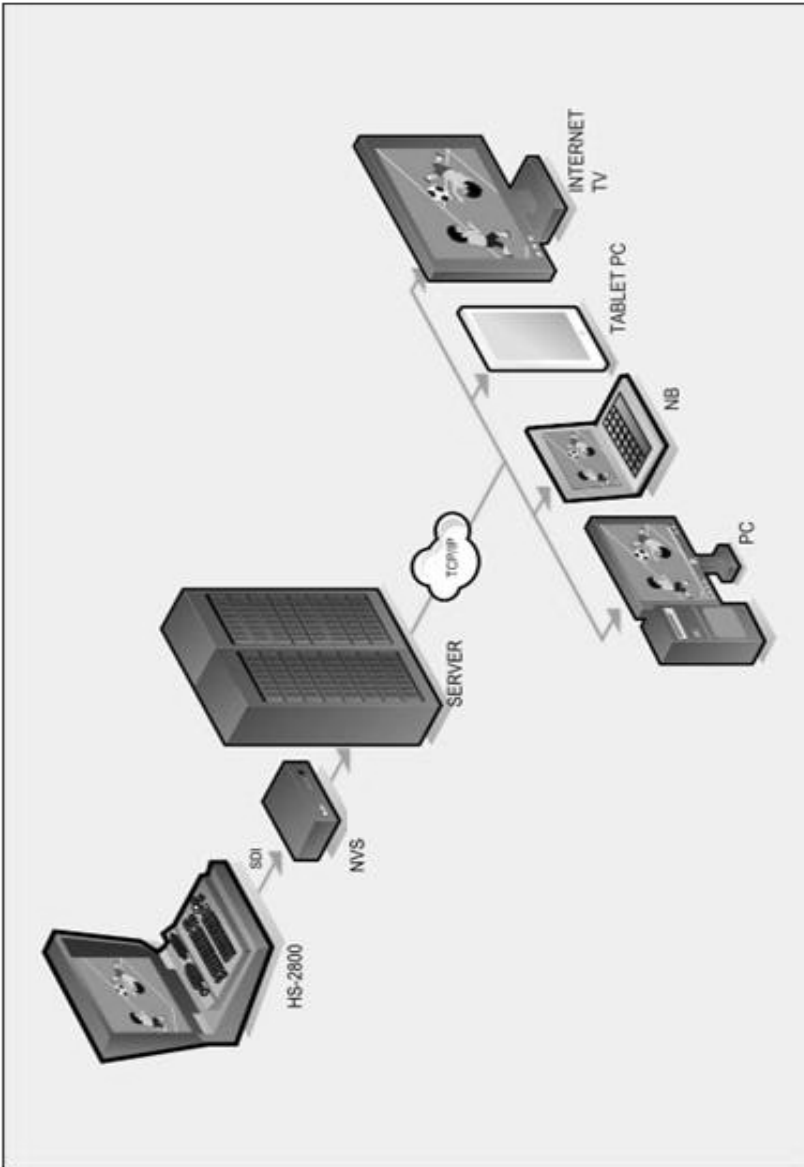
Encoded Video Stream:

- H.264 / AVC up to High Profile Level 4.0
- Up to 1920x1080 @ 30 fps
- Configurable bitrate up to 6Mbps

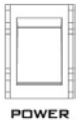
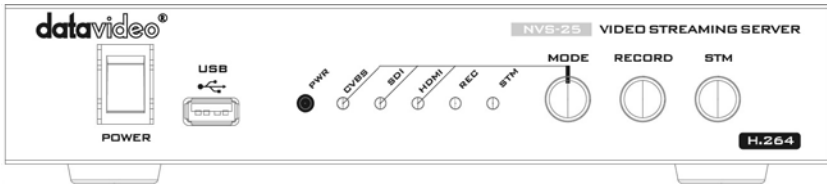
Control

- Web user interface for configuration and control

1.2 System Diagram



1.3 Front Panel



Power On/Off Switch

Switches the power On / Off



USB

USB 2.0 interface for connecting external storage



Mode Select

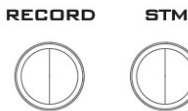
Mode Button - Select Input source between CVBS / SDI / HDMI.

REC – Displays the recording status

STM – Displays the stream server status

PWR – Displays the power status

See the section on [LED Status & Button Behaviour](#)



RECORD

Turns ON/OFF the recording feature

STM

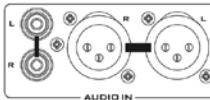
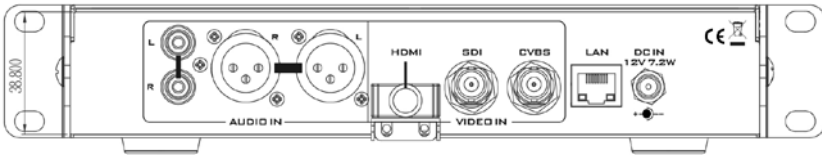
Turns ON/OFF the network streaming feature

Note: Before using this button, the user should first make sure the network and stream settings are properly configured.

Restore factory defaults from the front panel.

From power off. Press and hold the **STM** button and turn on the NVS-25 power; keep holding the **STM** button for **70 seconds and release only after seeing all the front panel LEDs start flashing**. When released, the NVS-25 will take a further 30 seconds to finish the boot-up process. Remember to login with the default username and password ([Default Login Details](#)).

1.4 Rear Panel

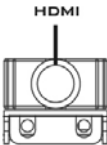


AUDIO IN (XLR)

Supports two channels XLR Balanced Audio Input.

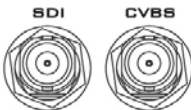
AUDIO IN (RCA)

RCA stereo for a line level auxiliary analogue audio source, such as a CD player or tape deck. If you are using more than two sources via an external audio mixer, connect the audio mixer's line level output to this unbalanced audio input.



HDMI IN

HDMI digital signal input connector.

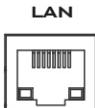


CVBS IN

Composite video input: takes a BNC connector from the composite output of a VCR, camera, DVD player, etc.

SDI IN

BNC connector for SDI input.



Ethernet Port (RJ-45)

10/100M base Ethernet Network interface



DC In Socket

Connect the supplied 12V PSU to this socket. The connection can be secured by screwing the outer fastening ring of the DC In plug to the socket.

Chapter 2 Product Installation

2.1 NVS-25 Network Video Streaming Server Setup

The NVS-25 is designed to act as an interface between video source equipment and the IP network as depicted in the [System Diagram](#).

Connect live video and audio to NVS-25

Refer to [Rear Panel](#) section for connection of your live video and audio source cabling to the rear panel of the NVS-25.

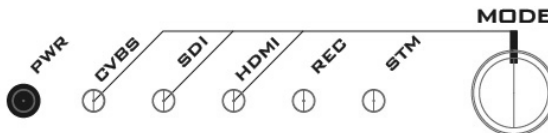
Connect NVS-25 to the local IP network

Refer to [Rear Panel](#) for connection of the NVS-25 to the local IP network via RJ-45 Ethernet cable. The local IP network could be from an office LAN face plate on the wall or an existing LAN network router / switch.

Connect power to NVS-25

The NVS-25 comes with its own power supply unit which is plugged into a normal wall/power outlet. The device can also receive power from Datavideo's PD-2 power distribution unit. PWR LED indicator on the front panel of the NVS-25 should be flashing red after being switched on. It takes approximately one minute for the unit to start and the boot-up process is complete when PWR LED indicator turns to constant green.

Select the input connection to be streamed



The **MODE** button on the front panel of the NVS-25 is used to select the live video input connected to the rear of the unit. Press this button to cycle through HDMI, SDI and Composite [CVBS].

Each time the button is pressed, an LED will be lit for the selected source. The default at power on is HDMI. If no source video is detected, the LED will be flashing red. If a live video source is detected, the LED will be changed to solid green.

The STM or stream LED will become solid green once the unit is correctly configured by IP connected computer.

2.2 How to find the NVS-25 on an IP network

As illustrated in the [System Diagram](#), the NVS-25 is designed to act as an interface between video source equipment and the IP network.

By default, the **NVS-25 will try to obtain an IP Address from the DHCP network server** once physical network connection has been established. This can be later

changed to True Static IP mode if required.

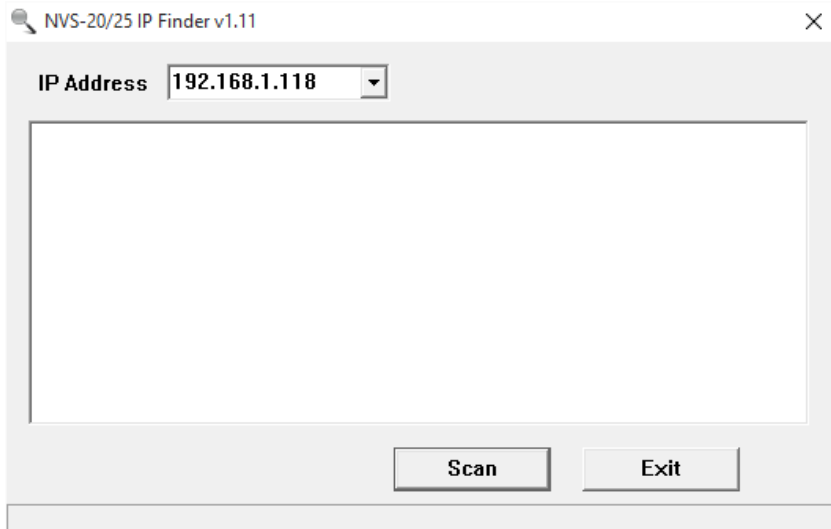
How to use the NVS25 IP Finder utility software

Datavideo provides a free, *Windows based* utility, called **NVS-2X IP Finder**.



NVS-2X IPFinder v1.11.exe
NVS-20/25 IP Finder Application
1.0.0.1

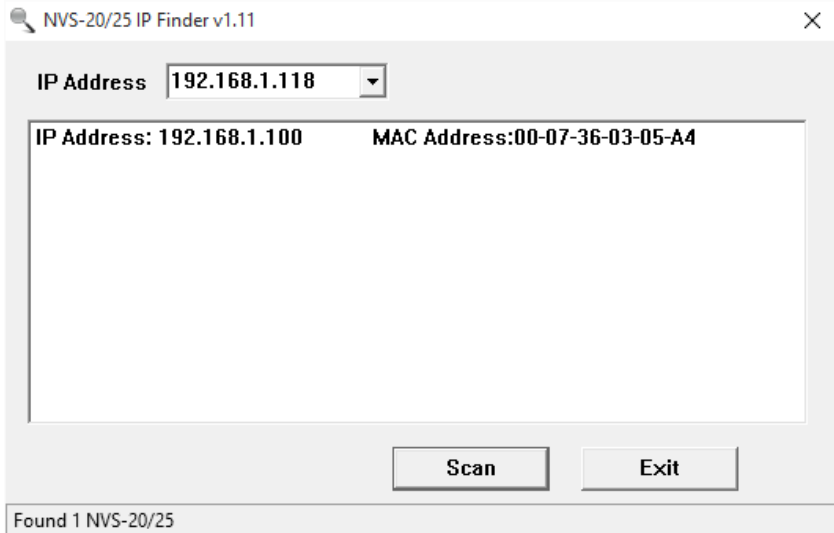
You need to make sure that IP Finder Utility will not be blocked by computer firewall or anti-virus software the first time the utility is run on the computer. The utility must be able to scan or search the local network.



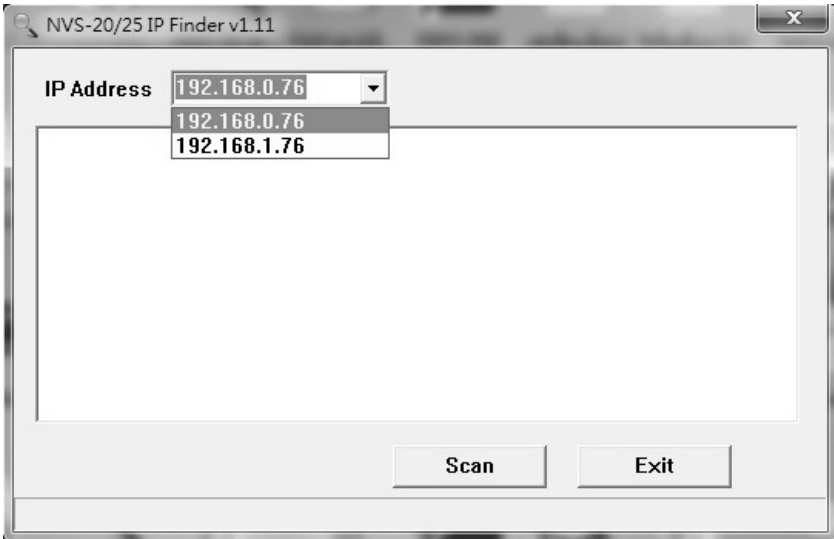
After opening the NVS-25 IP Finder Utility, the computer IP address is displayed in the “Local IP Address” pull-down menu of the utility window. ***Make a note of the IP Address for the computer.***

When the utility scans the LAN that the computer is connected to, it will display the IP and MAC addresses of all the NVS-25 units found on this local area network. ***Make a note of the NVS-25 IP Address.*** In this case, the IP address of the NVS-25 is 192.168.1.100. However, please note that the actual IP address may differ from the example shown below.

H.264 Network Video Streaming Server
NVS-25



If your computer has two Ethernet cards which are respectively connected to two different network domains, by clicking the “Local IP Address” pull-down menu, you will then be able to select the network that you would like to scan. In the example below, we have selected the 192.168.0.X network. The IPs shown are IPs of the Ethernet cards.

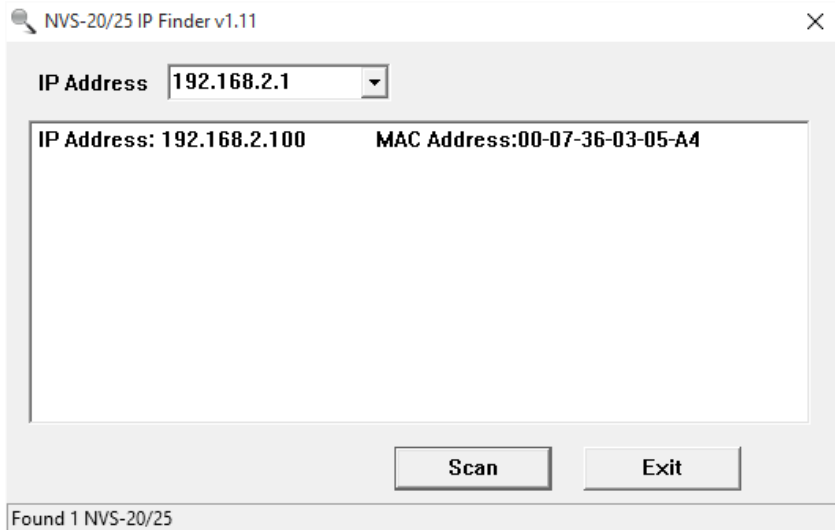


If you are using an Apple computer then you can use an alternative utility app such as Fing or Network Analyzer Lite.

Use the NVS25 IP Finder utility software to search a different network

The NVS-25 IP finder allows the user to search for the NVS-25 device which is connected to a different network from which the computer terminal is connected to.

To use the NVS-25 IP finder to search a different network, simply enter the IP of the NVS-25 installed on another network into the “**Local IP Address**” pull-down menu as shown in the diagram below. Click on the “**Scan**” button and once the NVS-25 device is found, the IP finder will display the IP and MAC addresses of the device found. However, before you do this, consult your local network administrator or IT department for proper network configuration (bridging two different network domains).

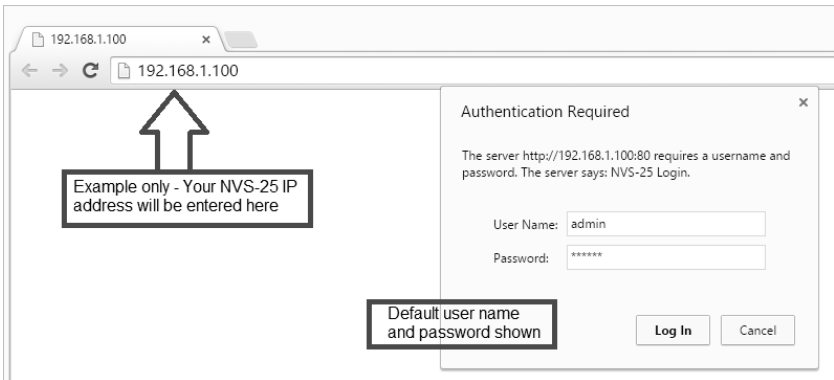


Chapter 3 NVS-25 login using a web browser

By now, we have obtained the IP addresses of the computer and the NVS-25. If both devices are assigned the IP addresses with the same network prefix, we should be able to use any web browser to login and configure the NVS-25.

Compatible browsers such as Google Chrome, Firefox, Opera or even Safari can be used. Please note that **Internet Explorer** can also be used, but you may need to **enable compatibility view** and **pop-up windows** on the browser first.

Type the NVS-25 IP address into the browser address bar. Remember to include the dots between the four octets. After hitting the “enter” key, you will then be prompted to enter the login information on a pop-up window.



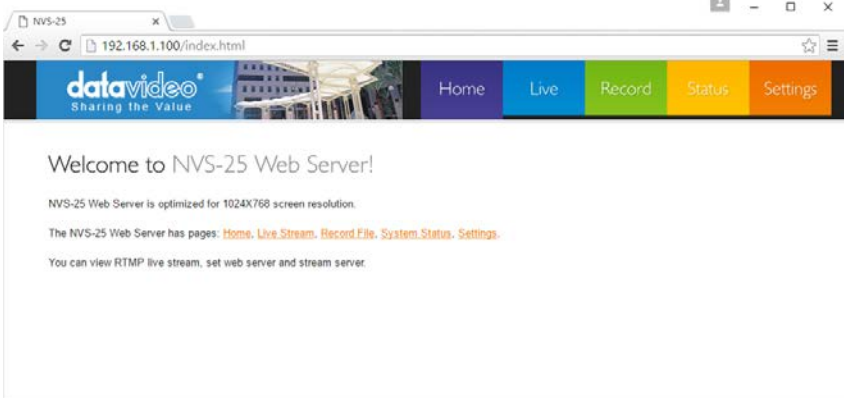
3.1 Default Login Details

All NVS-25 units are delivered from the factory with the same default username and password. This can be changed at a later stage to suit your needs.

Username = admin **Password = 000000 [Six Zeros]**

Please refer to [Account Setup](#) section for instructions on how to change the default login information.

Once we are logged into NVS-25, we will be automatically directed to the **Home Page** shown below. Four options are available on this page: Live, Record, Status and Settings.



3.2 Live Option

On the Live option page, the user can retrieve live video stream link and enter the link into a video streaming application such VLC player or view the live video stream on a local area network. Please refer to [Live Stream Setup](#) section for more information.

3.3 Record Option

On the Record option page, the NVS-25 can be configured to connect to an external USB 2.0 hard drive or pen drive. When the USB storage device is connected, NVS-25 can then record video to the device. The recording time is dependent on the recording bit rate and the free space available on the USB device. Please refer to [Record Option](#) for more information.

3.4 Status Option

The Status Option displays the current stream settings in use.

3.5 Settings Option

Six setting options can be checked on this page:

- **Live Stream Setup**
- **Encoder Setup**
- **Network Setup**
- **Firmware Update**
- **Account Setup**
- **Restore Default**

Chapter 4 Settings

4.1 Live Stream Setup - Protocols

It is always preferable to decide what stream setting best matches your purpose of use as well as the network and protocol before streaming video via the NVS-25.

HLS Protocol

Use the NVS-25 to feed IP video stream to several **Apple computer clients** or tablet computers such as iPad, iPhone or MacBook running Safari browser. HLS feeds video and audio streams to the iOS devices. **Note that, depending on the settings chosen, HLS latency may be up to 10 seconds in case of live events.**

RTSP Protocol

Use the NVS-25 to feed IP video stream [TCP , HTTP] to a small group of clients on a Local Area Network (LAN) or Wide Area Network (WAN). The user can then view the video via free client software such as VLC Player. **However RTSP does not work well with some tablet computers.** RTSP is open for viewing by anyone on the same network with the streaming details or link. **It can be sent across the internet, but each client added will add data loading to the NVS-25, as each video stream is set up individually for each client.** RTSP has a limitation of three viewing clients before the NVS-25 becomes congested and video stream fails.

RTMP Protocol

Use the NVS-25 to deliver a single IP video stream [TCP] to a server on a Wide Area Network [WAN] like the *internet* (RTMP Publish) or to a small group of clients on a private Local Area Network [LAN] (RTMP Local).

The server on the WAN could be the server of a **Content Delivery Network [CDN]**, such as **Ustream**. To use a CDN, you may need to register for a free / trial account with additional costs first. The user just need to deliver one video stream to the CDN and that IP video feed will be shared among multiple viewers. This means less work for you and the NVS-25 as well. CDNs differ in tariffs and the way they operate so **it is best to do your homework beforehand.**

The server on a WAN could also be your own **Wowza server**. Wowza server is another form of CDN solution, typically for large organizations, where you brand the look and feel of the delivery network plus the video stream itself. **Again it is best to do your homework beforehand.**

Stream Server Selection

This pull-down menu allows you to either select one of three transmission protocols [HLS, RTSP (TCP, HTTP), RTMP (Local, Publish)] or switch off the current video stream. The default is stream off.

Live Stream Setup

Stream Server Selection

Auto stream at startup

Stream OFF ▼
Stream OFF
RTSP over TCP/UDP
RTSP over HTTP
RTMP Local
RTMP Publish
HLS

Repeat Every None ▼
None ▼
None ▼

None ▼

Apply

After the preferable stream server is selected, the user can also enable the Stream Schedule function by checking the “**Enable Schedule Stream**” box and then select the time to the first stream time as well as its cycle.

Enable Schedule Stream

First Time None ▼
None ▼
None ▼

Repeat Every None ▼
None ▼
None ▼

Apply

The “**First Time**” option allows you to select the time to the first stream time. Select number of days from the first pull down menu, number of hours from the second pull down menu and number of minutes from the third pull down menu. For example, if the current time is 09:57 on Wednesday and the scheduled stream time is 12:00 on Saturday, you should select 3 Days from the first pull down menu, 2 Hours from the second pull down menu and 3 Minutes from the third pull down menu.

Enable Schedule Stream

First Time	3 Days ▼	Repeat Every	None ▼
	2 Hours ▼		None ▼
	3 Minutes ▼		None ▼

The “**Repeat Every**” option gives the user the ability to set the frequency of the stream after the stream time is determined. Again, select number of months from the first pull down menu, number of days from the second pull down menu and number of hours from the third pull down menu. For example, if you would like to repeat the stream every 12 hours, simply click the second pull down menu and select 12 Hours.

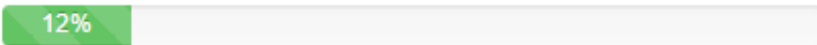
Enable Schedule Stream

First Time	None ▼	Repeat Every	None ▼
	None ▼		None ▼
	None ▼		12 Hours ▼

After all settings are determined, click the **Apply** button.

NOTE: All settings applied will not be in effect unless the **Apply** button has been clicked and the NVS-25 configuration progress bar indicates 100% completion.

Stream Server Selection



The user can also enable “**Auto stream at startup**” so that the original settings persist through the power cycle process.

RTMP Publish URL

Two options and four text bars will appear when **RTMP Publish** is selected under the **Stream Server Selection** Option. Enable the desired options and enter the corresponding information to stream your video to your Content Delivery Network.

- **Audio Only:** Check to enable Audio Only streaming (You can enable **Pattern Generator** accompanying this setting; **Pattern Generator** generates color bars when video signals are absent and can be enabled in **Encoder Setup** under the **Settings Option**).

Note: Not all CDNs support “Audio Only” feature. Wowza server is a good server example that supports “Audio Only”.

- **Anevia Server:** Check to enable Anevia Server if the traditional publish method fails. Anevia Server uses another RTMP Engine to transmit data in FLV packet format (H.264+AAC). Uncheck to use the original RTMP Engine to transmit the data in Metadata + H.264 + AAC. Once enabled, the maximum video bitrate is 3Mbps.
- **RTMP URL:** Enter the RTMP Publish URL for your WAN-based server or CDN account
- **RTMP Stream:** Name of the streaming video
- **RTMP Username:** Username of CDN account
- **RTMP Password:** Password of CDN account

RTMP Publish

Audio Only Enable

Anevia Server Enable

RTMP URL

RTMP Stream

RTMP Username

RTMP Password

If you wish to view the RTMP stream directly from the NVS-25 on the local area network (LAN) using the Live option, select **RTMP Local** option.

4.2 Setting > Encoder Setup

Input Source Selection

Pattern Generator

Video Tuning (0~255)

Brightness	128
Contrast	128
Hue	128
Saturation	128

Encoder Setup

Scale Down	<input type="button" value="No"/>
H.264 Encode	<input type="button" value="Main 3.1"/>
GOP Structure	<input type="button" value="IPPP"/>
GOP Size	<input type="button" value="30"/>
Video Bitrate (Kbps)	<input type="button" value="3000"/>
Video Rate Mode	<input type="button" value="VBR"/>
Audio Stereo	<input type="button" value="Stereo"/>
Stereo Bitrate (Kbps)	<input type="button" value="384"/>
Audio Source	<input type="button" value="DIG"/>
Analog Audio System	<input type="button" value="EBU"/>

On any video streaming device, the encoder plays a crucial role in the entire system. The NVS-25 provides the user with several configurable parameters as listed in the table below. The following sub-sections will provide details of each parameter.

<i>Input Source Selection</i>	HDMI / CVBS / SDI
<i>Video Tuning</i>	Brightness / Contrast / Hue / Saturation / Sharpness 0 ~ 255
<i>Scale Down</i>	1280x720 / 720x576 / 720x480
<i>H.264 Encode</i>	Main 3.0 / Main 3.1 / High 4.0
<i>GOP Structure</i>	IBBP / IPPP / IBP
<i>GOP Size</i>	6 / 7 / 8 / 9 / 10 / 11 / 12 / 13 / 14 / 15 / 16 / 17 / 18 / 19 / 20 / 21 / 22 / 23 / 24 / 25 / 26 / 27 / 28 / 29 / 30 / 31 / 32 / 33 / 34 / 35 / 36 / 37 / 38 / 39 / 40 / 41 / 42 / 43 / 44 / 45 / 46 / 47 / 48 / 49 / 50 / 51 / 52 / 53 / 54 / 55 / 56 / 57 / 58 / 59 / 60 / 61 / 62
<i>Video Bitrate (Kbps)</i>	800 / 900 / 1000 / 1500 / 2000 / 2500 / 3000 / 3500 / 4000 / 4500 / 5000 / 5500 / 6000
<i>Video Rate Mode</i>	CBR / VBR
<i>Audio Stereo</i>	Stereo / Mono
<i>Stereo Bitrate (Kbps)</i>	64 / 96 / 112 / 128 / 160 / 192 / 224 / 256 / 320 / 384

<i>Audio Source</i>	DIG / RCA / XLR
<i>Analog Audio System</i>	EBU / SMPTE

Input Source Selection

This pull-down menu allows you to switch between physical video inputs (HDMI, CVBS and SDI) located on the rear panel of NVS-25. The default is HDMI. Please note that you will not be able to use Video Tuning if SDI is selected.

Input Source Selection

Pattern Generator

Brightness
 Contrast
 Hue
 Saturation

Pattern Generator allows the NVS-25 to generate color bars as the video input. It is usually enabled along with the Audio Only function. For example, in radio broadcasting, voice is transmitted in the absence of the image, so you should enable Pattern Generator to use the color bars in place of the video signal.

Video Tuning

For HDMI and CVBS inputs, set video brightness, contrast, hue and saturation on the NVS-25. SDI video is usually adjusted on the source equipment before it is delivered to the NVS-25. The values of brightness, contrast, hue and saturation range from 0 to 255 with the default programmed to 128.

Video Tuning (0-255)

Brightness
 Contrast
 Hue
 Saturation

Image Size

The first step of encoder setup is to adjust the image size. The NVS-25 allows you to downscale the output image and set the SD aspect ratio at the input. The Scale Down function, as the name suggests, allows the user to shrink the image size. The table below shows all possible downscaled resolutions on NVS-25.

Original Resolution	Downscaled Resolution
1920x1080	1280x720, 720x567, 720x480
1280x720	720x576, 720x480
720x576	720x480

Encoder Setup

Scale Down	No
H.264 Encode	No
GOP Structure	1280x720
GOP Size	720x576
Video Bitrate (Kbps)	720x480
Video Rate Mode	VBR
Audio Stereo	Stereo
Stereo Bitrate (Kbps)	384
Audio Source	DIG
Analog Audio System	EBU

H.264 Encode

The H.264 standard can be viewed as a "family of standards" composed of different profiles. A specific encoder encodes at least one, but not necessarily all profiles. The NVS-25 offers the user three profiles: Main Profile 3.0, Main Profile 3.1 and High Profile 4.0.

Encoder Setup

Scale Down	No
H.264 Encode	Main 3.1
GOP Structure	Main 3.0
GOP Size	Main 3.1
Video Bitrate (Kbps)	High 4.0
Video Rate Mode	VBR
Audio Stereo	Stereo
Stereo Bitrate (Kbps)	384
Audio Source	DIG
Analog Audio System	EBU

Main Profile

The 'Main' or Mainline Profile includes support for interlaced video, inter-coding using B-slices, inter coding using weighted prediction and entropy encoding using context-based adaptive binary arithmetic coding (CABAC). Ideal application of the Main Profile includes long term video archival storage and standard-definition digital TV broadcasts that use the MPEG-4 format as defined in the DVB standard.

High Profile

The High Profile is used as the preferred choice for HD broadcast and disc storage applications, adopted by the Blu-ray Disc storage format and DVB HDTV broadcast service.

Group of Pictures

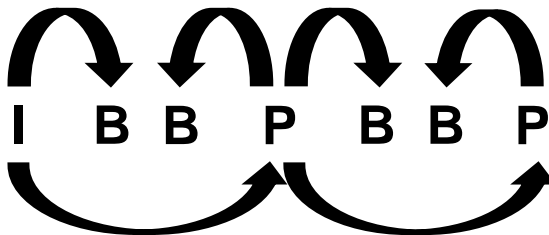
H.264/MPEG-4 AVC (Advanced Video Coding) is a common video stream compression method. It eliminates redundant video information within a frame known as intraframe compression as well as over a period of time known as interframe compression. The two compression techniques are described as follows:

- Intraframe compression (Spatial Compression): a compression technique applied to information contained only within the current frame, creating video frames called I-frames
- Interframe compression (Temporal Compression): a compression technique applied to a sequence of video frames, rather than a single image; instead of storing complete frames, only changes from one frame to the next are stored in order to reduce the amount of data needed to be stored while still achieving high-quality images.

H.264/MPEG-4 AVC uses the two above-mentioned compression techniques, whereby three types of compressed frames described as follows are generated and organized in a group of pictures, or GOP.

- I-frame: Intra (I) frames, also known as reference or key frames, contain all the necessary data to re-create a complete image.
- P-frames: Predicted (P) frames are encoded from a “predicted” picture based on the closest preceding I- or P-frame.
- B-frames: Bi-directionally (B) predicted frames are encoded based on an interpolation from I- and P-frames that come before and after them.

The Group of Pictures (GOP) structure specifies the order in which intra- and inter-frames are arranged. All three frame types do not have to be used in a pattern. The typical GOP structure is IBBPBBP. The I-frame is used to predict the first P-frame and these two frames are also used to predict the first and the second B-frame. The second P-frame is predicted using the first P-frame and they join to predict the third and fourth B-frames. The relationship between I-frame, P-frame, and B-frame is illustrated diagrammatically below.



The GOP structure is often referred to by the GOP size, which is defined as a distance between two full images. For example, in a sequence with pattern IBBPBBPBBPBBPBBPBBPBBPBBP..., the GOP size is equal to 12 (length between two I frames).

H.264 Network Video Streaming Server NVS-25

The NVS-25 offers the user three types of GOP structure: IBBP, IPPP and IBP. Note: Since B-frame is predicted based on I and P frames, a GOP cannot end with a B-frame because if B-frame is used as a reference for making further prediction, a growing propagation error will result.

Encoder Setup

Scale Down	No ▾
H.264 Encode	Main 3.1 ▾
GOP Structure	IPPP ▾
GOP Size	IBBP
Video Bitrate (Kbps)	IPPP
Video Rate Mode	IBP
Audio Stereo	Stereo ▾
Stereo Bitrate (Kbps)	384 ▾
Audio Source	DIG ▾
Analog Audio System	EBU ▾

GOP pattern with longer GOP length encodes video very efficiently. Shorter GOP lengths usually work better with video that has quick movements, but they do not compress the data rate as much. On the NVS-25, there are 57 GOP sizes available for the user, ranging from 6 to 62.

Encoder Setup

Scale Down	No ▾
H.264 Encode	Main 3.1 ▾
GOP Structure	IPPP ▾
GOP Size	30 ▾
Video Bitrate (Kbps)	22 ▴ ▾
Video Rate Mode	23 ▾
Audio Stereo	24 ▾
Stereo Bitrate (Kbps)	25 ▾
Audio Source	26 ▾
Analog Audio System	27 ▾

28 ▾
29 ▾
30 ▾
31 ▾
32 ▾
33 ▾
34 ▾
35 ▾
36 ▾
37 ▾
38 ▾
39 ▾
40 ▾
41 ▾

Video Bitrate/Mode

The bitrate of the video specifies the amount of information stored in the video. The higher the bitrate is, the clearer the video is. For example, SD video may appear acceptable at 1000 Kbps but HD video is unacceptable at 1000 Kbps. The NVS-25 converts video into data, which are sent across an IP network. High bitrates consume more bandwidth across the IP network. In a gigabit office LAN, bitrate may not be a concern. Speed/Bandwidth is the limitation in a NVS-25 application environment.

The bitrate ranges from 800 to 6000 Kbps as shown in the diagram below.

Encoder Setup

Scale Down	No ▾
H.264 Encode	Main 3.1 ▾
GOP Structure	IPPP ▾
GOP Size	30 ▾
Video Bitrate (Kbps)	3000 ▾
Video Rate Mode	800
Audio Stereo	900 ▾
Stereo Bitrate (Kbps)	1000
Audio Source	1500
Analog Audio System	2000 ▾
	2500 ▾
	3000
	3500
	4000
	4500
	5000
	5500
	6000

Reset All Apply

Please note the following limitations as some video bitrates work with certain video formats only.

Bitrate (Kbps)	Video Format
800	480/576i
900	480/576/720p
1000 or higher	480/576/720p, 1080i, 1080p

The NVS-25 also offers two bitrate modes, Variable Bitrate (VBR) and Constant Bitrate (CBR). Set the NVS-25 to VBR to efficiently send video data across an IP network but there is also a trade-off against video quality. CBR provides better video quality but is less data and bandwidth efficient when sent across an IP network.

Encoder Setup

Scale Down	No ▼
H.264 Encode	Main 3.1 ▼
GOP Structure	IPPP ▼
GOP Size	30 ▼
Video Bitrate (Kbps)	3000 ▼
Video Rate Mode	VBR ▼
Audio Stereo	CBR ▼
Stereo Bitrate (Kbps)	VBR
Audio Source	DIG ▼
Analog Audio System	EBU ▼

Audio Setup

Audio Source can be fed into the NVS-25 in two ways. One way is to embed audio into digital video stream such as HDMI and SDI [DIGITAL] and another way is to feed audio into a separate analog XLR/RCA phono inputs [Analog]. Select your audio source first as shown in the diagram below.

Encoder Setup

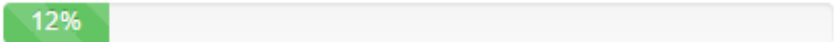
Scale Down	No ▼
H.264 Encode	Main 3.1 ▼
GOP Structure	IPPP ▼
GOP Size	30 ▼
Video Bitrate (Kbps)	3000 ▼
Video Rate Mode	VBR ▼
Audio Stereo	Stereo ▼
Stereo Bitrate (Kbps)	384 ▼
Audio Source	DIG ▼
Analog Audio System	DIG ▼ RCA XLR

Since analog audio levels of the standards in EBU and SMPTE regions are different, thus audio standard option also needs to be taken into consideration. The audio standard settings can be found under the **Analog Audio System** Menu.

Encoder Setup

Scale Down	No ▾
H.264 Encode	Main 3.1 ▾
GOP Structure	IPPP ▾
GOP Size	30 ▾
Video Bitrate (Kbps)	3000 ▾
Video Rate Mode	VBR ▾
Audio Stereo	Stereo ▾
Stereo Bitrate (Kbps)	384 ▾
Audio Source	DIG ▾
Analog Audio System	EBU ▾
	EBU
	SMPTE

NOTE: All settings applied will not be in effect unless the **Apply** button has been clicked and the NVS-25 configuration progress bar displays 100% completion.



4.3 Setting > Network Setup

On the Network Setup page, the user is able to configure the basic network settings on the NVS-25. The two available modes are DHCP and True Static. In DHCP mode, the NVS-25 is randomly assigned an IP address. In True Static mode, the user is allowed to assign a fixed IP address to the NVS-25. Please note that in a non-DHCP environment, the user is allowed to reset the NVS-25, which will then be assigned a default IP address of 192.168.1.20. For instructions on how to reset the device, please refer to the ["Restore Default"](#) section.

Network Setup

Dynamic IP Addressing (DHCP) Enable Disable

Static IP Address :	192.168.1.20
Subnet Mask :	255.255.255.0
Default Gateway :	192.168.1.1
Primary DNS :	192.168.1.1
Secondary DNS :	

(Please change the IP address in browser, after network configuration changed)

DHCP Enable

If DHCP mode is enabled, NVS-25 will attempt to obtain an IP address automatically from the DHCP server upon connection to an office LAN or the router. **IP address obtained in DHCP mode changes every time when NVS-25 is power cycled.** The IP address assigned to NVS-25 has the same network prefix as the office network or the router. **Please refer to the [IP finder](#) section for more information on how to locate NVS-25 on a DHCP network.**

DHCP Disable

If DHCP mode is disabled, NVS-25 will be set to True Static mode. **A true static IP address does not change even after the unit is power cycled.** This allows NVS-25 to be easily located on the network.

If you wish to work in true static mode on your office network, please consult your local network administrator or IT support for advice. They are also able to confirm the IP address of the **Default Gateway**.

The network setting should persist through the firmware upgrade process. Please refer to the [Firmware Upgrade](#) section for the process.

4.4 Setting > Firmware Update

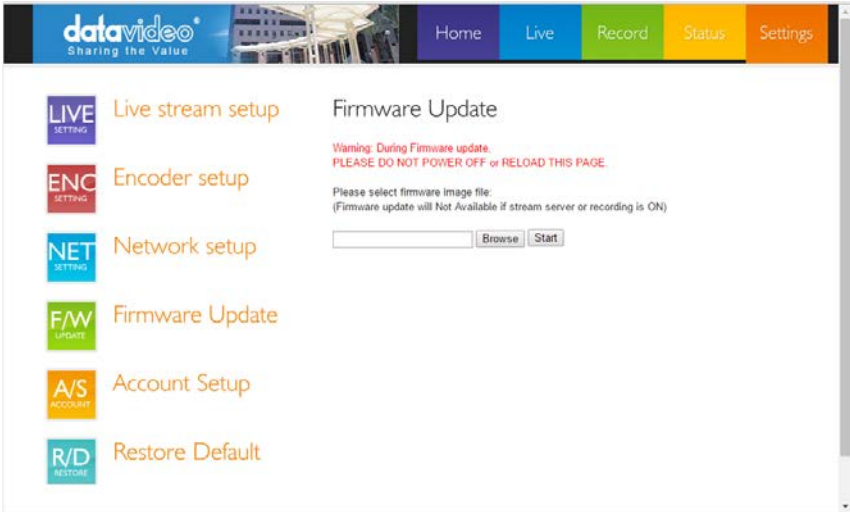
Datavideo usually releases new firmware containing new features or reported bug fixes from time to time. Customers can either download the NVS-25 firmware as they wish or contact their local dealer or reseller for assistance.

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

The existing NVS-25 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-25 requires:

- The latest firmware file, which can be obtained from your local Datavideo dealer or office.
- A computer with web browser on the same IP network as the NVS-25.
- The current NVS-25 IP address and settings.



1. Log into the NVS-25 server on the computer web browser.
2. Click on **Settings Tab** and turn **Stream OFF** under **Stream Server Option**; click on **apply**.
3. Select **Firmware Update** and **Browse** to the latest firmware file.
4. Click on the **Start button** to upgrade the NVS-25 to the latest firmware.

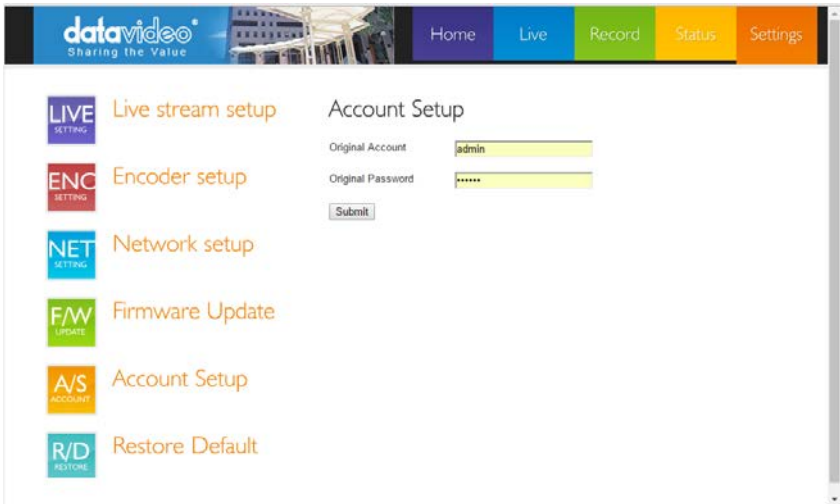
Note: After firmware upgrade, you may need to re-locate the NVS-25 on the network; please refer to the section on [How to find NVS-25 on an IP network](#) for further instructions. Settings of the unit need to be restored to settings prior to firmware upgrade.

4.5 Setting > Account Setup

The NVS-25 has a default admin account and password. This account has access to the NVS-25 login credential and stream settings.

Default username = **admin** Default password = **000000** [Six Zeros]

This section outlines steps to changing the above default username and password to a more secured login credential.



1. Log into the NVS-25 server on the computer web browser.
2. Click on **Settings Tab** and turn **Stream OFF** under **Stream Server Option**; click on **apply**.
3. Click on **Account Setup** and enter the **current username and password**.
4. The user will then be prompted to enter the new login credential again. Enter the new password twice to confirm.
5. After clicking on "**apply change**", the user will be prompted to re-login with new login credential.

NOTE: Please keep the new login credential in a safe place as the old/default login credential is usually deleted during this process.

4.6 Setting > Restore Default

Settings on the NVS-25 are usually changed many times, and this function is used when you wish to restore your factory default settings.

Restore Default

Before Pressing The Button of Restore to Default, Be sure to CONFIRM AGAIN. The System Will Be Restored To Factory Default!!!!

Reset All

NOTE: This feature will also reset the NVS-25 login credential to the default username and password (admin/000000).

1. Log into the NVS-25 server on the computer web browser.
2. Click on **Settings Tab** and select **Restore Default**.
3. Click on the **Reset All** button to proceed.

Restore in Progress...

Preparing to Reboot...

13

Restore Default

Before Pressing The Button of **Restore to Default**, Be sure to **CONFIRM AGAIN**. The System Will Be Restored To Factory Default!!!!

Reset All

4. Reboot the unit after all settings have been restored to the default; re-login with default username and password (admin/000000).

Restore in Progress...

Restore Successful!!
Please Reboot Now!!

Restore Default

Before Pressing The Button of **Restore to Default**, Be sure to **CONFIRM AGAIN**. The System Will Be Restored To Factory Default!!!!

Reset All

The factory default stream settings are listed as follows:

Stream Server	OFF
Input Source	HDMI
Resolution	No Source Input
Brightness	128
Contrast	128
Hue	128
Saturation	128
Sharpness	128
Scale Down	No
SD Aspect Ratio	4:3
H.264 Level	3.1
H.264 Profile	Main
GOP Structure	IPPP
GOP Size	30
Video Bitrate	3000 Kbps
Video Rate Mode	VBR
Audio Stereo	Stereo
Audio Bitrate	384 Kbps
Audio Source	DIG
Analog Audio System	EBU
F/W Version	160224

Restore Factory default via STM button

The NVS-25 can also be restored to the factory defaults using the STM button located on the front panel. **Power off the unit** and then press and hold the STM button while turning on the NVS-25 power; keep pressing the STM button for **40** seconds. After releasing the STM button, NVS-25 will take another 30 seconds to complete the boot-up process. Remember to login with default username and password (admin/000000).

Chapter 5 Recording the stream to USB 2.0 media

The NVS-25 is capable of recording the **streamed video** and audio into an **MPEG2 TS/MPEG-4 file** on a connected USB 2.0 pen drive.

If the video being streamed into NVS-25 is of a High Definition 1080i video format then the recorded file will use this resolution. If the video being streamed into NVS-25 is of a Standard Definition NTSC format then the recorded file will adopt this resolution instead.

The USB 2.0 pen drive should be a formatted FAT32 drive in order to be readable by NVS-25 to which it is connected. If the USB connected media is incompatible (not FAT32) or unformatted, the error message will show “**USB storage partition incorrect.**” The user may choose to format the connected USB drive by clicking on the “Format USB Storage” button.

Stream Record

USB storage partition incorrect.

Format USB Storage

Chapter 6 Status > Device Information

The Status tab displays the device information such as USB storage information and stream information.

6.1 USB Storage Information

If no USB drive is connected, the message “NO USB Storage plugged” will be displayed as shown below.

Stream Record

No USB storage device is connected.

6.2 Stream Information

Stream information displays the current encoder settings. A sample stream information display is shown below.

USB Storage Information:

Vendor	: Generic
Product	: Mass Storage
Capacity	: 3258/3258 MB

Stream Information (vloss=0):

Stream Server	: OFF
Input Source	: HDMI
Resolution	: No Source Input
Brightness	: 128
Contrast	: 128
Hue	: 128
Saturation	: 128
Sharpness	: 128
Scale Down	: No
SD Aspect Ratio	: 4:3
H.264 Level	: 3.1
H.264 Profile	: Main
GOP Structure	: IPPP
GOP Size	: 30
Video Bitrate	: 3000 Kbps
Video Rate Mode	: VBR
Audio Stereo	: Stereo
Audio Bitrate	: 384 Kbps
Audio Source	: DIG
Analog Audio System	: EBU
F/W Version	: 160224

Chapter 7 Streaming Examples

Various examples of streaming using NVS-25 will be described as follows. There are three streaming protocols available on the NVS-25: **HTTP Live Streaming (HLS) Protocol**, **Real Time Streaming Protocol (RTSP)**, and **Real Time Messaging Protocol (RTMP)**.

7.1 HTTP Live Streaming (HLS) Protocol

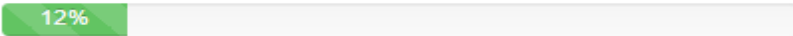
Use NVS-25 to feed IP video stream to several **Apple computer clients** or tablet computers such as iPad, iPhone or MacBook running Safari browser. HLS feeds video and audio streams to the iOS devices. **Note that, depending on the settings chosen, HLS latency may be up to 10 seconds in case of live events.**

In order to configure HLS protocol, the user should first find the NVS-25 IP address on the network using the IP finder that Davavideo provides. Once the NVS-25 IP address is known, enter the IP address into the Safari web browser address bar on iPad or other iOS devices. Please refer to the section on [How to find NVS-25 on an IP network](#) for more information.

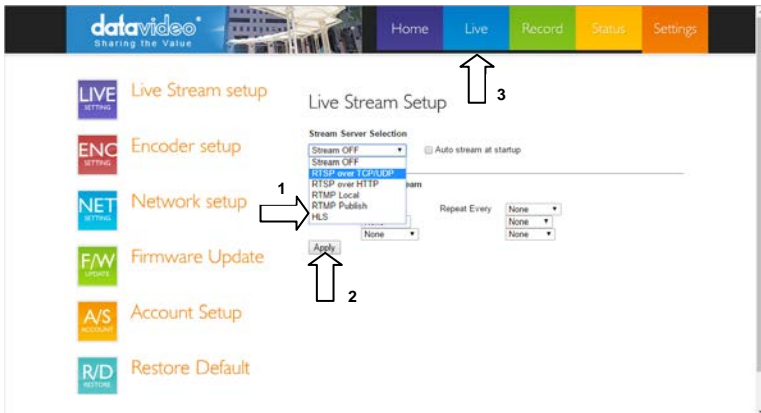
Enter the username and password to log into NVS-25 to gain access to the **Home** Page of the web-based graphical user interface. Please refer to the section on [NVS-25 Login using a Web-Based Graphical User Interface](#) for more information.

Click on the **Settings Tab** and change the protocol to HLS. Click on **Apply to select the desired protocol.**

Stream Server Selection



Once the NVS-25 configuration progress bar displays 100% completion, click on the Live tab and the video stream will be displayed on iPad or other iOS devices.



7.2 Real Time Streaming Protocol (RTSP)

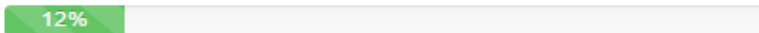
Use NVS-25 to feed IP video stream [TCP , HTTP] to a small group of clients on a Local Area Network (LAN) or Wide Area Network (WAN). The user can then view the video via free client software such as VLC Player. **However RTSP does not work well with some tablet computers.** RTSP is open for viewing by anyone on the same network with the streaming details or link. **It can be sent across the internet, but each client added will add data loading to NVS-25, as each video stream is set up individually for each client.** RTSP has a limitation of three viewing clients before NVS-25 becomes congested and video stream fails.

In order to configure RTSP protocol, the user should first find the NVS-25 IP address on the network using the IP finder that Datavideo provides. Once the NVS-25 IP address is known, enter the IP address into the web browser address bar on the computer or other devices. Please refer to the section on [How to find NVS-25 on an IP network](#) for more information.

Enter the username and password to log into NVS-25 to gain access to the **Home** Page of the web-based graphical user interface. Please refer to the section on [NVS-25 Login using a Web-Based Graphical User Interface](#) for more information.

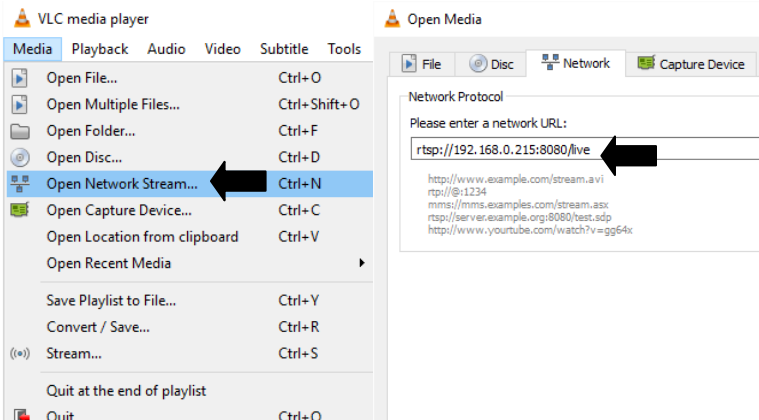
Click on the **Settings Tab** and change the protocol to RTSP over TCP or RTSP over HTTP. Click on **Apply to select the desired protocol.**

Stream Server Selection



Once the NVS-25 configuration progress bar displays 100% completion, click on the Live tab and an RTSP link to the video stream will be displayed. You can also find the link displayed below the Stream Server Selection menu.

Enter the RTSP link into **VLC Media Player** as depicted in the diagram (**Media > Open Network Stream**) below.



7.3 Real Time Messaging Protocol (RTMP)

Use NVS-25 to deliver a single IP video stream [TCP] to a server on a Wide Area Network [WAN] like the *internet* (RTMP Publish) or to a small group of clients on a private Local Area Network [LAN] (RTMP Local).

The server on the WAN could be the server of a **Content Delivery Network** [CDN], such as **Ustream**. To use a CDN, you may need to register for a free / trial account with additional costs first. The user just need to deliver one video stream to the CDN and that IP video feed will be shared among multiple viewers. This means less work for you and the NVS-25 as well. CDNs differ in tariffs and the way they operate so **it is best to do your homework beforehand**.

The server on a WAN could also be your own **Wowza server**. Wowza server is another form of CDN solution, typically for large organizations, where you brand the look and feel of the delivery network plus the video stream itself. **Again it is best to do your homework beforehand**.

Connect your NVS-25 to a server and use the IP finder to search for the device on the network. Once the NVS-25 IP address is known, enter the IP address into the web browser address bar on the computer or other devices. Please refer to the section on [How to find NVS-25 on an IP network](#) for more information.

Enter the username and password to log into NVS-25 to gain access to the **Home** Page of the web-based graphical user interface. Please refer to the section on [NVS-25 Login using a Web-Based Graphical User Interface](#) for more information.

Click on **Setting** and change the protocol to RTMP Publish or RTMP Local. If you are sending the NVS-25 stream to a Content Delivery Network (CDN), please select RTMP Publish and enter your CDN Publish URL and Stream Name in the text box as shown below.

RTMP Publish

Audio Only Enable

Anevia Server Enable

RTMP URL

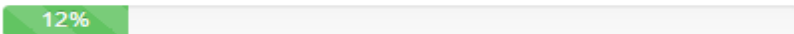
RTMP Stream

RTMP Username

RTMP Password

Click on **Apply** to select the desired protocol.

Stream Server Selection



Once the NVS-25 configuration progress bar displays 100% completion, you can now

H.264 Network Video Streaming Server NVS-25

view the streaming video from NVS-25 on the Content Delivery Network (CDN).

If you are using NVS-25 as the local RTMP server then a video stream player window will be available under the **Live Tab**. Click on the Play button at the lower left corner of the payer window to start playback of the RTMP stream.

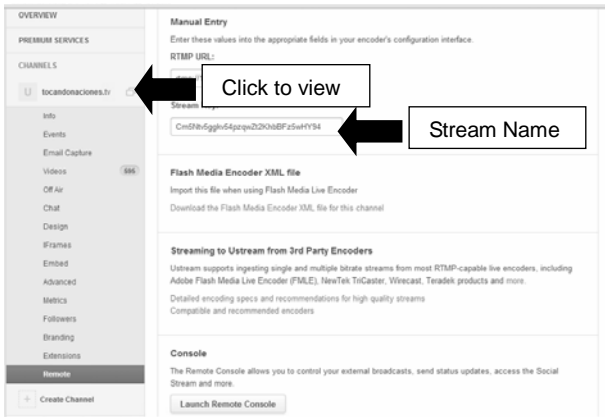
RTMP Live Stream



The following three sub-sections provide examples of streaming video to a Content Delivery Network such as USTREAM, a WOWZA Server and Youtube.

NVS25-USTREAM Connection Configuration

1. Login USTREAM (<http://www.ustream.tv/>) and create a channel under function list
2. Click on the remote option, the page will generate two parameters, RTMP URL and a stream name, as shown in the diagram below.
3. Login NVS-25 and go to "Live Stream Setup."
4. Copy and paste "RTMP URL" and the "stream name" into RTMP URL and RTMP Stream text bars respectively. If your CDN service provider requires you to enter the RTMP stream credentials, please enter in the "**RTMP Username**" and "**RTMP Password**" text bars.
5. Step 4 allows the user to stream video from NVS-25 to USTREAM.
6. Select the configured channel on USTREAM to view the video streamed from NVS-25.



RTMP URL and Stream Name

Live Stream Setup

Stream Server Selection

RTMP Publish Auto stream at startup (Auto)

Enable Schedule Stream

First Time Repeat Every

RTMP Publish

Audio Only Enable

Anevia Server Enable

RTMP URL

RTMP Stream

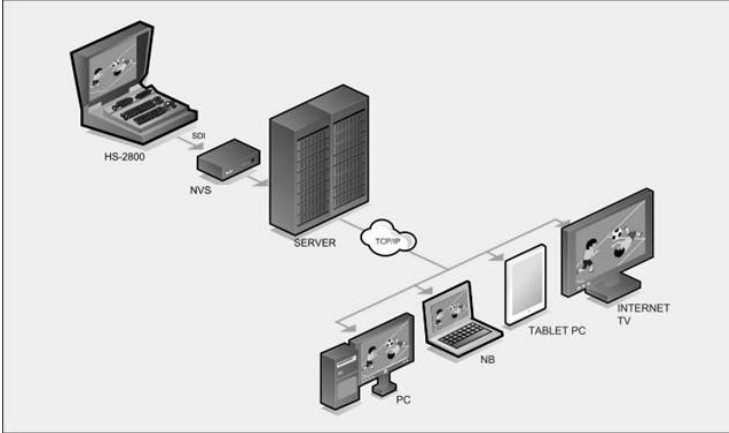
RTMP Username

RTMP Password

NVS-25 Live Stream Setup (USTREAM)

NVS25-WOWZA Server Connection Configuration

1. Install WOWZA on a server assigned of an external IP (This server is solely for WOWZA and contains no other unnecessary configurations).



2. Login NVS-25 and go to “Live Stream Setup.”
3. Enter “rtmp://61.220.30.5/live/nvs-25” into the respective RTMP Publish text bars as depicted in the diagram below, where 61.220.30.5 is the WOWZA server computer IP (RTMP URL) and NVS-25 (RTMP Stream) is the custom streaming location on the WOWZA server.

Live Stream Setup

Stream Server Selection

RTMP Publish Auto stream at startup (Auto)

Enable Schedule Stream

First Time Repeat Every

RTMP Publish

Audio Only Enable
Anevia Server Enable

RTMP URL

RTMP Stream

RTMP Username

RTMP Password

- Go to the website,
<http://www.wowza.com/resources/3.5.0/examples/LiveVideoStreaming/FlashRTMPPlayer/player.html>.
- Enter the WOWZA server computer IP and the custom streaming location as illustrated in the diagram shown below.

RTMP URL	<input type="text" value="rtmp://61.220.30.5:1935/live/"/>
RTMP Stream	<input type="text" value="nvs-25"/>
RTMP Username	<input type="text" value="admin"/>
RTMP Password	<input type="password" value="*****"/>

NVS-25 Live Stream Setup (WOWZA Server)

- Live video streaming is displayed in the diagram below.

Live Video Streaming

Flash RTMP Player

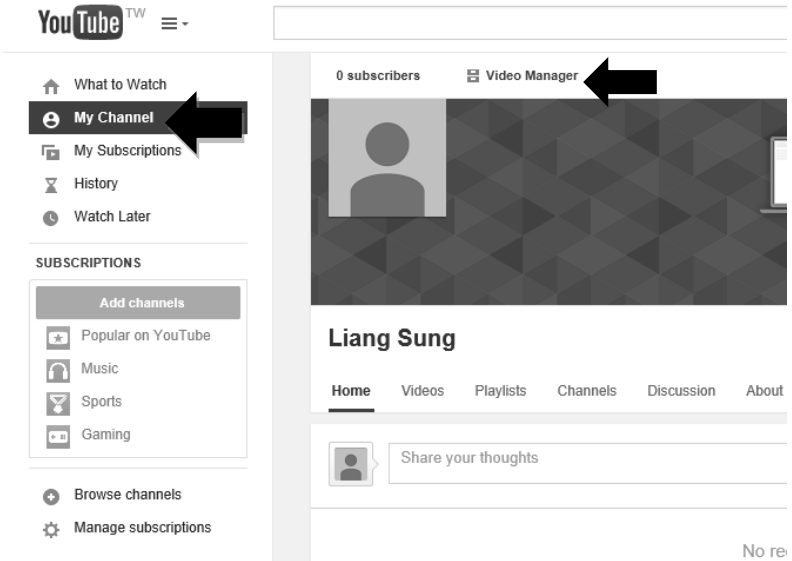
WIN 14.0.0.145 (Flash-AS3)



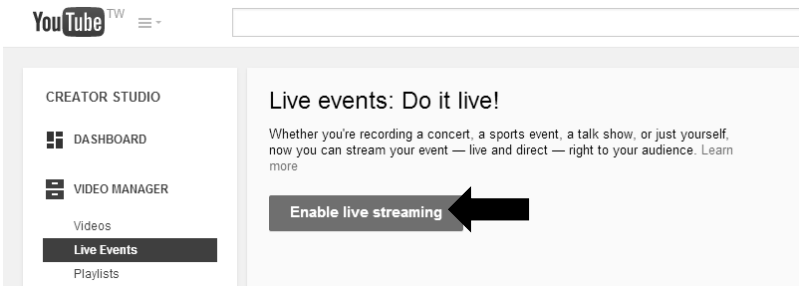
Server:	<input type="text" value="rtmp://61.220.30.5:1935/live/"/>	
Stream:	<input type="text" value="nvs-25"/>	<input type="button" value="Disconnect"/>
Status:		

NVS25-Youtube Connection Configuration

1. Login Youtube (<https://www.youtube.com/>) and click on “My Channel” to enter a page on which you will find a Video Manager tab.



2. For first-time user, the Youtube account must be verified before creating a live event. Click on “Enable live streaming” button and the subsequent wizard will take you through the account verification process.



The image shows two screenshots of the YouTube account verification process. The first screenshot, labeled 'Account verification (step 1 of 2)', contains the following fields and options: 'Select your country' (Taiwan), 'How should we deliver the verification code to you?' (Text me the verification code), 'Which language should we use to send you the verification code?' (English (US)), and 'What is your phone number?' (0987321609). The second screenshot, labeled 'Account verification (step 2 of 2)', shows the 'Enter your 6-digit verification code' field with the value 109794. Both screenshots have a 'Submit' button at the bottom right.

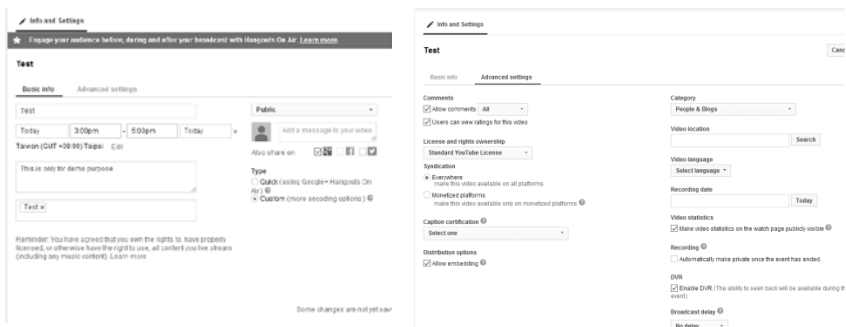
- Once your youtube account is verified, you are then ready to start creating a live stream. Click on the blue “Create live event” button to enter the event settings page.

The image shows the YouTube Creator Studio interface. At the top, there is a 'Congratulations! You have been enabled for live streaming' message. On the left, the 'CREATOR STUDIO' sidebar lists 'DASHBOARD', 'VIDEO MANAGER', 'Live Events' (highlighted), 'Playlists', and 'Tags'. On the right, the 'Live events: Do it live!' section includes a description and a prominent 'Create live event' button.

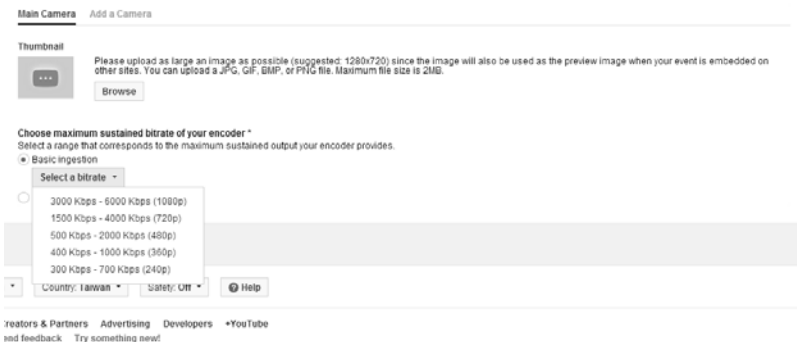
- There are two tabs on the event settings page, basic info and advanced settings, as shown in the diagram below.
 - To best promote your video, enter the event's title and description and make

H.264 Network Video Streaming Server NVS-25

- b. Also add relevant tags to expedite search for the event.
- c. Configure start and end times so users are able to know when to watch the event.
- d. In the private setting dropdown menu, set the event to public if you are ready to have the event appear on the channel and the search result. If you are not ready to have the event viewable, or setting up the task event, make sure to select the unlisted archive setting in the dropdown menu.
- e. Categorize correctly, people are more likely to read your video highly and watch it more frequently if it is placed in the relevant category.
- f. Next to the basic info tab is the “Advanced settings” task, where you can allow and disallow comments.
- g. You can also enable embedding which makes the event embeddable in other locations.
- h. In the second column, this is where you can enable and disable recording in DVR functionality.
- i. Click on the blue “Create Event” button to save the setting. Once your event settings are saved, you can now move on to configure your ingestion setting.



5. On the Ingestion setting page, the encoder setting will appear after a bitrate is selected. “Primary Server URL” and “Stream Name” are two important parameters to be entered into Live Stream Setup on NVS-25.



Select your encoder

YouTube Live provides support for a variety of encoders. Select one of the encoder options below and follow the instructions.

Other encoders

1. Configure your encoder

Recommended settings

2. Copy and paste into your encoder

Enter the stream names and URLs in the configuration options of your encoding software.

Stream Name

liangsung.06y0-wueb-eqpk-01pb

Primary Server URL

rtmp://a.rtmp.youtube.com/live2

Backup Server URL

rtmp://b.rtmp.youtube.com/live2?backup=1

3. Start your encoder

In your encoder, start sending us your video stream.

4. Go to the Live Control Room.

You can preview and start your event from the Live Control Room.

Closed captions

Enable captions (requires supported vendor/software)

- Copy and paste "Primary Server URL" and "Stream Name" into RTMP URL and RTMP Stream text bars on the Live Stream Setup page of NVS-25 respectively. If your CDN service provider requires you to enter the RTMP stream credentials, please enter in the "RTMP Username" and "RTMP Password" text bars.

Live Stream Setup

Stream Server Selection

RTMP Publish

Auto stream at startup (Auto)

Enable Schedule Stream

First Time

None
None
None

Repeat Every

None
None
None

RTMP Publish

Audio Only Enable

Anevia Server Enable

RTMP URL rtmp://a.rtmp.youtube.com/live2

RTMP Stream liangsung.06y0-wueb-eqpk-01pb

RTMP Username

RTMP Password

Apply

H.264 Network Video Streaming Server

NVS-25


7. After completing Step 6, click on the Live Control Room to enter the page shown below. Once the stream is loaded, the "Preview" button will turn to "Start Streaming". Click on "Start Streaming" button to start streaming video to Youtube.

STREAM STATUS GOOD 1080P STREAM	July 19, 2014 at 1:21 PM (CST) The health is good.	AVERAGE LIVE VIEW DURATION 00:00	TOTAL VIEW TIME (HOURS) 0
		PEAK CONCURRENT 0	

[Send feedback](#)

[Manage](#) [Analytics](#)

PREVIEW



BROADCAST ALERT

None ▾

[Turn on](#)

Broadcast alert only works in Flash and HTML5 players. It may not work on some devices.

SLATES INSERTION

[Slate in](#) [Slate out](#)

ADS INSERTION

[Insert](#)

In-stream ad insertion must be enabled for the live broadcast.

Chapter 8 Appendices

Appendix 1: Port Forwarding on your Firewall / Router

In order to view the NVS-25 video stream on remote computers (hosts on the Internet), port forwarding function must be enabled, i.e. set aside one port number on the gateway for the exclusive use of communicating with a service in the private network. Contact your local network administrator or IT support for port forwarding configuration.

Different port numbers of the “port forwarding” function

Web Server/HLS	RTSP	RTMP
80	8554 (over TCP)	1935 (RTMP)
	8000 (over HTTP)	8080 (RTMPT)
	8080 (over HTTP)	8081 (RTMPS)

Appendix 2: LED Status & Button Behaviour

LED Status

Function	State	Description
Power LED	a. OFF	Power OFF
	b. Red	System Boot-up & Program Initialization
	c. Green	System Ready with Interface LED
	d. Blinking	System Error
Record	a. Red	System Error
	b. Green	Recording
Stream	a. OFF	Stream OFF
	b. ON	Stream ON
Interface	a. OFF	Program not initialized
	b. ON	Source input OK
	c. Blinking Red	Blinking while no source input
		Blinking while invalid source input

Button Behaviour

Button	Behavior	Description	LED
STM	Hold for 3 seconds until Stream LED	Start/Stop Stream	Stream LED ON/OFF for starting or stopping
MODE (Stream OFF)	Press Once	Change to next (HDMI->SDI->CVBS->)	Interface LED changed
MODE (Stream ON)	Press Once	Stop Stream -> change to next (HDMI->SDI->CVBS->) Start Stream	1. Streaming LED OFF 2. Interface LED changed 3. Stream LED ON (If there is a valid source input)
RECORD	Press Once	Start/Stop Recording	Record LED ON/OFF

Appendix 3 Frequently-Asked Questions

This section describes problems that you may encounter while using the NVS-25. If you have questions, please refer to related sections and follow all the suggested solutions. If problem still exists, please contact your distributor or the service center.

No.	Problems	Solutions
1.	Mode buttons on the front panel is not sensitive.	It takes quite a while for the system to switch modes after the mode button is pressed. Please wait for at least 10 seconds.
2.	Record button on the front panel is not sensitive.	Please wait for at least 10 seconds and if the system does not respond, press the button again.
3.	RTMP Local / Publish do not work in IBBP and IBP modes.	As IBBP and IBP are new parameter settings, RTMP streaming and MP4 recording only work in IPPP mode.

Appendix 4 Specifications

Video Input	1 x BNC for HD/SD-SDI (75 ohm)
	1 x BNC for CVBS (75 ohm)
	1 x HDMI (Ver 1.3)
Audio Input	SDI embedded audio (2 channels)
	2 x XLR/RCA for Analog audio (2 channels)
	HDMI embedded audio (2 channels)
Output	1x RJ-45 Female (10/100M Ethernet) 1x USB 2.0 Type A for file output to USB storage
Video Encode	H.264 / AVC video CODEC, up to High Profile Level 4.0 Configurable Bit-rate up to 6Mbps
Supported Video Resolution	1080 @ 50P / 59.94P / 60P (50P/59.94P/60P input, 25P/30P record/output) 1080 @ 50i / 59.94i / 60i 720 @ 50P / 59.94P / 60P 576 @ 50i, 480 @ 59.94i
Audio Encoding	AAC-LC audio CODEC Sample rate:48KHz,16bit Configurable Bit-rate up to 384Kbps
Network Feature	DHCP Client Streaming feature: - HLS/RTSP/RTMP Server (One protocol at a time) - Supports up to 3 clients
Monitoring	6 x LED (PWR/ CVBS/ SDI/ HDMI/ REC / Streaming)
Storage	USB 2.0 Mass Storage File system: FAT32/MP4
Control	Web UI for system configuration and control
Update	Firmware upgradable by web UI
Power	Input AC 100 ~ 240V Switching Adaptor
Environmental Conditions	Operating temperature: 0~50°C Storage temperature: -10~60°C

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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Please refer to our website to update the latest version manual.
www.datavideo.com/Encoders/NVS-25

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