datavideo®

H.264 VIDEO STREAMING SERVER

NVS-20

Instruction manual

www.datavideo.com

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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

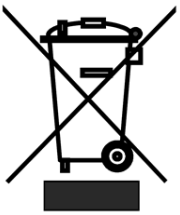
- All Datavideo products purchased after 01-Oct.-2008 qualify for a free one year extension to the standard Warranty, providing the product is registered with Datavideo within 30 days of purchase. For information on how to register please visit www.datavideo.com or contact your local Datavideo office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

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.

Disposal



For EU Customers only - WEEE Marking

This symbol on the product indicates that it will not be treated as household waste. It must be handed over to the applicable take back scheme for the recycling of Waste Electrical and Electronic Equipment. For more detailed information about the recycling of this product, please contact your local Datavideo office.

Packing List

The following items should be in the box. If any items are missing please contact your supplier.

Item No.	Description	Quantity
1	NVS-20 Unit	1
2	Accessory kit*	1
3	Instruction Manual	1

Product Overview

The Datavideo NVS-20 is a broadcast quality, H.264 network streaming server. This unit makes it easy to share HD or SD video over local or global IP networks. Equipped with HDMI, SDI and Composite video inputs the NVS-20 is designed for live event streaming at up-to 6Mbps. The NVS-20 supports the following streaming protocols:

- HLS [HTTP Live Streaming]
- RTP / RSTP
- RTMP [Flash]

The NVS-20 can be set up and controlled using almost any device with a web browser. Users can confirm real-time video with audio through the same web browser based user interface. The encoded video stream can then be delivered to a single browser, a group of clients on a LAN or even a Content Delivery Network.

That's Datavideo, sharing the value!

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

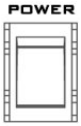
Encoded Video Stream:

- 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

Front Panel

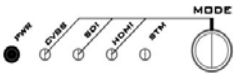


Power On/Off Switch

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.

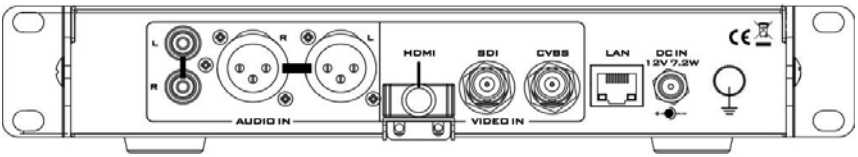
STM - Displays the stream server status

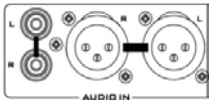
PWR - Displays the power status

See page 30 also.

Restore factory defaults from the front panel.
From power off**.** Press and hold in the mode button and turn on the NVS-20 power; keep holding the mode button for 40 seconds. When released the NVS-20 will take a further 30 seconds to finish the boot up process. Remember to login with the default username and password as shown on page 22.

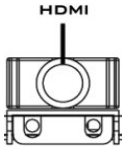
Rear Panel



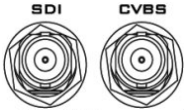


AUDIO IN (XLR)
Supports two channels XLR Balanced Audio Input.

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.



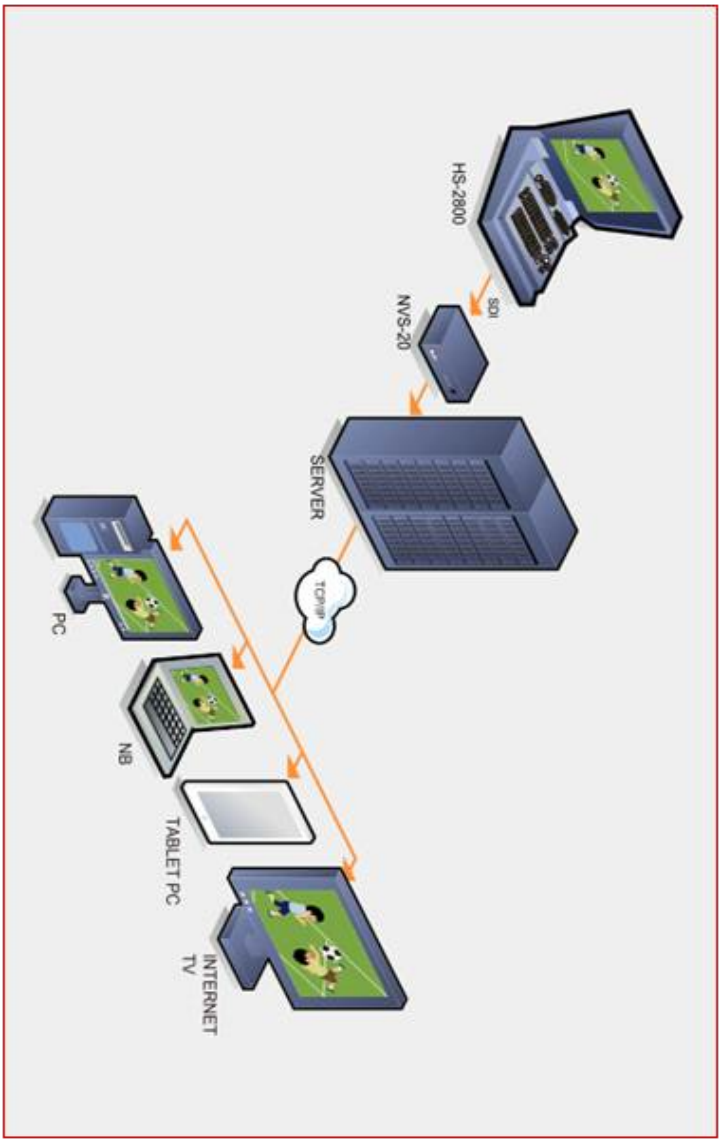
CVBS IN
Composite video input: takes a BNC connector from the composite output of a VCR, camera, DVD player, etc.

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.

System Diagram



How to set up the NVS-20

As we see from the System Diagram on the previous page the Datavideo NVS-20 is designed to sit between the video source equipment and the delivery IP network.

Connect live video and audio to the NVS-20

Referring to page 9, connect your live video and audio source cabling to the rear panel of the NVS-20.

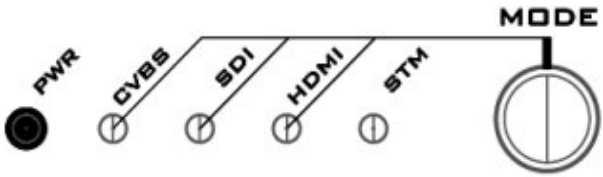
Connect the NVS-20 to the local IP network

Referring to page 9, connect an RJ-45 Ethernet cable to the rear panel of the NVS-20 from the local IP network. This could be from an office LAN face plate on the wall or direct to an existing LAN network router / switch.

Connect power to the NVS-20

The NVS-20 comes with its own power supply unit which connects it to a normal wall/power outlet. The unit can also be powered from a Datavideo PD-2 power distribution unit. The power or PWR LED on the front of the NVS-20 should glow red when connected and switched on. The unit takes approximately 1 minute to start so please be patient and wait for the power LED to change to green.

Select the input connection to be streamed



The **MODE** button on the front panel of the NVS-20 is used to select the live video input connected to the rear of the unit. Press this button to cycle through the HDMI, SDI and Composite [CVBS] inputs.

Each time the button is pressed an LED will light for the selected source, the default at power on is HDMI. If no source video is detected then the LED will flash red. If a live video source is detected then the LED will change to steady green.

The STM or stream LED will go green once the unit is correctly configured by computer IP connection.

How to find the NVS-20 on an IP network

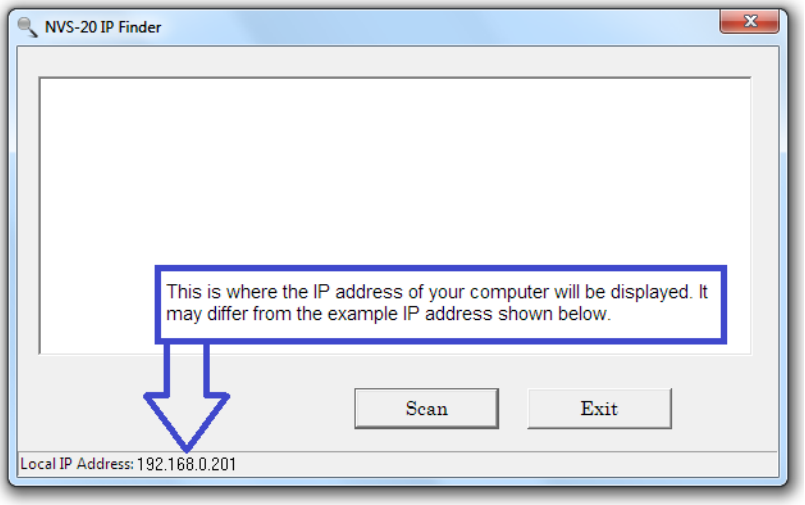
As we see from the System Diagram on page 10, the Datavideo NVS-20 is designed to sit between the video source equipment and the delivery IP network.

By default, once the physical connections have been made, the **NVS-20 will try to obtain an IP Address from the DHCP network server**. As we will see this can be changed later to a Static IP address if required.

How to use the NVS20 IP Finder utility software

Datavideo supply a free, *Windows based* utility, called **NVS-20 IP Finder**.

The first time this software is used on the computer you may need to allow it permission through your computers firewall / anti-virus software in order for it to be able to scan or search the local network.



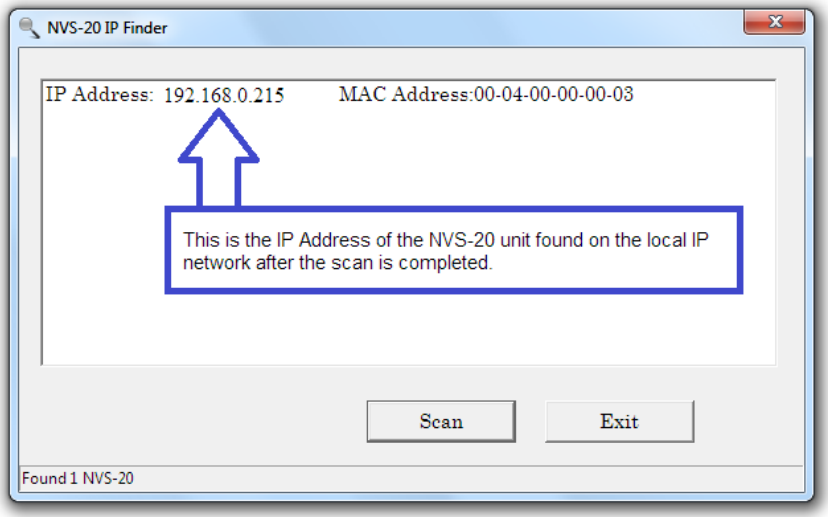
When first launched the NVS-20 IP Finder utility displays the IP address of the computer being used in the bottom left of the utility window.

Make a note of the IP Address for the computer.

When the utility scans the LAN that the computer is connected to, it displays the current IP address and MAC ID for any NVS-20 units found on this local IP network.

Make a note of the NVS-20 IP Address.

The IP address may differ from the example shown below.



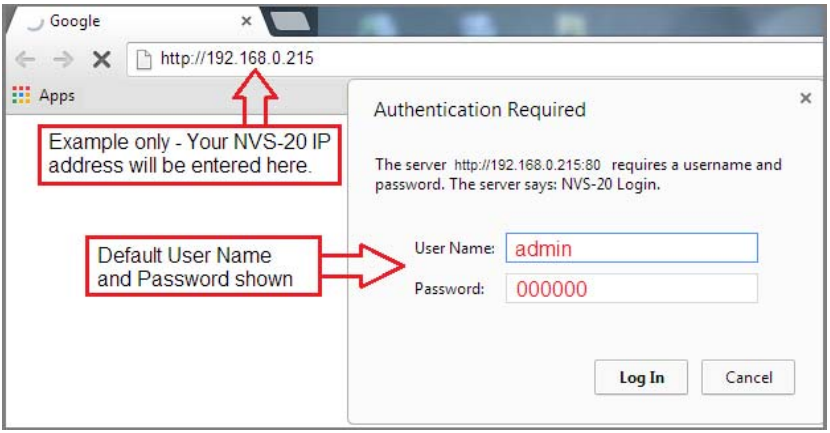
If you are using an Apple computer then you can use an alternative utility app such as Fing or Network Analyzer Lite.

NVS-20 Login using a web browser

From the previous pages we now know the IP address of our computer and the NVS-20. If the first three numbers of both are the same then we should be able to use a web browser to login and configure the NVS-20.

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*** within the browser first.

Type the numbers of the IP address for the NVS-20 into the search bar of the browser. Remember to include the dots in between the numbers. When entered you will then be asked to login to the NVS-20 via a pop up window.



Default Login details

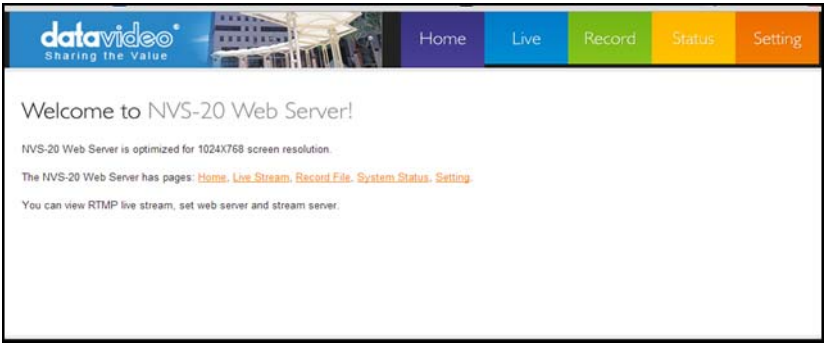
All NVS-20 units are delivered from the factory with the same default user name and password. This can be changed at a later stage to suit your needs.

User Name = **admin** **Password** = **000000** [Zero six times]

For details of how to change the default login see page 22.

NVS-20 web browser Home page

Once we have logged into the NVS-20 we are presented with the **Home page**. From this screen we can select from the following options; Settings, Status, Record or Live.



Live option

When clicked, the Live option tab will open a new page. This page will display either the live video stream or a link to be copied into another video web streaming application such VLC player or a Content Delivery Network page.
For more information see page 26 to page 28.

Record option

When clicked, the Record option tab will open a new page. The NVS-20 can be connected to an external USB 2.0 hard drive or pen drive. When the USB media is connected, the NVS-20 can record video to the device. The recording time is limited by the recording bit rate and free space available on the USB device.
For more information see page 25.

Status option

When clicked, the Status option tab will open a new page. The current streaming settings in use will be displayed.

Setting option

When clicked, the Setting option tab will open a new page. There are five sections of settings which can be looked at. These are: **Live Stream Set Up**, **Network Set Up**, **Firmware Update**, **Account Set Up** and **Restore Default**

Setting > Live stream set up - Protocols

Before using the NVS-20, it is best to decide what streaming protocol best suits your purpose.

HLS protocol

Use the NVS-20 to provide an IP video stream to several **apple based clients** or tablet computers such as an iPad, iPhone or Mac Book running the Safari browser. HLS carries both video and audio to the iOS device. **Note that HLS latency may be up to 10 seconds behind live events depending on the settings used.**

RTSP protocol

Use the NVS-20 to provide an IP video stream [UDP] to a small group of clients on a LAN or WAN. Video can be monitored via free client software such as VLC Player. **RTSP does not work well with some tablet computers.** RTSP is open for viewing by anyone on the same network with the stream details or link. **It can be sent across the internet, but each client added will add data load to the NVS-20, as each video stream is set up individually.** RTSP may be limited to three viewing clients before the NVS-20 becomes choppy and video stream fails.

RTMP protocol

Use the NVS-20 to provide a single IP video stream [TCP] to a server on a Wide Area Network [WAN] like the *internet* or to a small group of clients on a private Local Area Network [LAN].

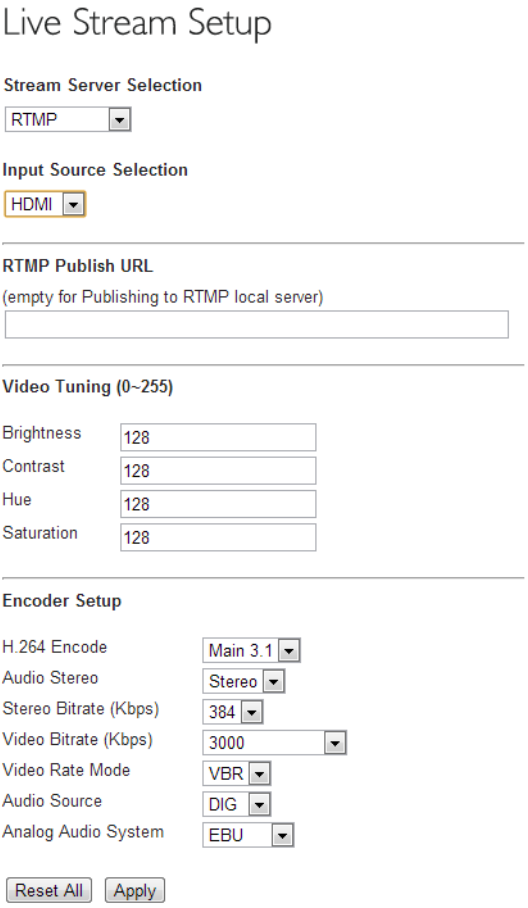
The server on the WAN could be the server of a **Content Delivery Network** [CDN], such as ***Ustream, LiveStream or Justin.tv***. To use a CDN you may need to register for a free / trial account first and then some costs may be involved at a later stage. You only provide one video stream to the CDN and they share that IP video feed with multiple viewers. This means less work for you and the NVS-20 too. CDNs differ in tariffs and the way they operate so **it is best to do your own research beforehand.**

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

Setting > Live stream set up

Before using the NVS-20, it is best to decide what streaming settings best match your purpose and the network and protocol being used. These settings may be confirmed through your own trial and error tests, you may be limited by the speed of your connection through the network or to the internet and you may also find standardised settings in your Content Delivery Network's FAQs page.

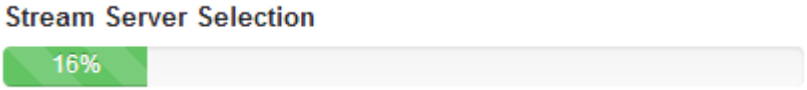
Datavideo have programmed default settings for each of the NVS-20 protocols to give you a starting point that should deliver both pictures and audio to a target client or computer. It may be necessary to adjust these NVS-20 settings further.



Stream Server Selection

This setting allows you to choose one of three transmission protocols [HLS, RTSP, RTMP] or to switch the current video stream off. The default is stream off.

NOTE: All setting changes will not be actioned on the NVS-20 until the **Apply** button has been clicked and the NVS-20 configuration progress bar has completed at 100%.



Input Source Selection

Use this setting to switch between the physical video inputs on the rear panel of the NVS-20. The default is HDMI.

RTMP Publish URL

This option is only shown if RTMP is chosen under ***Stream Server Selection***. Here you would place the RTMP web address for your WAN based server or CDN account.

Leave this option empty if you only wish to view the RTMP stream directly from the NVS-20 on the local IP network using the Live tab in the web browser.

Video Tuning

Video brightness, contrast, hue and saturation can be changed for HDMI and CVBS inputs only. SDI video can be adjusted on the source equipment before it is delivered to the NVS-20. The default setting is 128 from a range 0 to 255.

Encoder setup

H.264 Encode relates to the version of codec to be used. Some early third party set top boxes cannot decode the later H.264 versions. Where possible use the latest version to ensure the best video codec is in use.

Audio Setup

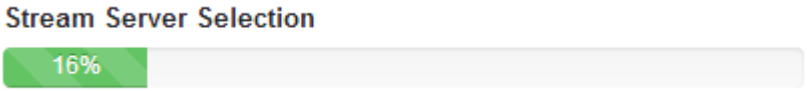
Audio Source can be fed into the NVS-20 in two ways. Embedded into the digital video stream as with HDMI and SDI audio inputs [DIG] or with separate analogue XLR/ RCA phone inputs [Analogue]. As analogue audio level standards differ between the EBU and SMPTE areas this also needs to be set under ***Analogue Audio System***. The quality of the audio, bit rate in Kbps, can also be set.

Video bit rate and mode

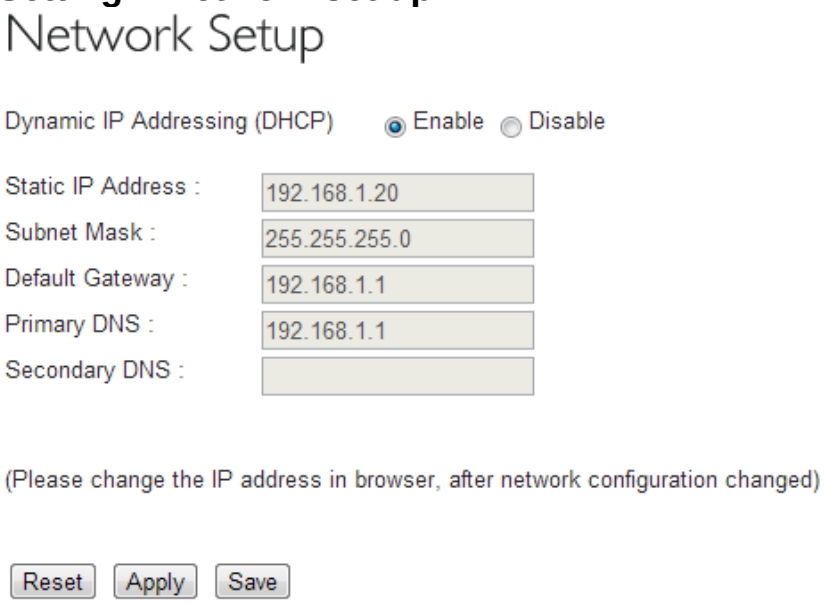
The NVS-20 video bit rate is the conversion level from video into data so that it can be sent across an IP network. The higher the bit rate the better the quality of the picture. For example; Standard Definition pictures may look acceptable at 1000 Kbps. However, High Definition pictures may be unacceptable at 1000 Kbps. Also remember that high bit rates will use more bandwidth across the IP network. This may be okay within a Gigabit office LAN but may be limited by the speed / bandwidth of your internet connection.

The NVS-20 also has two bit rate modes VBR or Variable Bit Rate and CBR or Constant Bit Rate. Set the NVS-20 to VBR to efficiently send video data across an IP network but this is also a trade off against picture quality. CBR provides better video quality but is less data and bandwidth efficient when sent across an IP network.

NOTE: All setting changes will not be actioned on the NVS-20 until the **Apply** button has been clicked and the NVS-20 configuration progress bar has completed at 100%.



Setting > Network set up



DHCP Enable

If this radio button is selected the NVS-20 will attempt to obtain an IP address automatically using DHCP when it is connected to an office LAN or router. **This IP address could change each time the NVS-20 is power cycled.** The IP address for the NVS-20 will be within the IP range used by the office network or router. **For more information on how to locate the NVS-20 on a DHCP network see page 12.**

DHCP Disable

If this radio button is selected the NVS-20 will use a Static IP Address. **A static IP address does not change after the unit is power cycled.** This makes the NVS-20 easier to locate on the network.

If you wish to set up a static IP address on your office network then please speak with your network administrator or local I.T. support for advice. They will also be able to confirm the IP address for the **Default Gateway** to the internet.

Setting > Firmware update

From time to time Datavideo may release new firmware to either add new features or to fix reported bugs in the current NVS-20 firmware. Customers can update the NVS-20 firmware themselves if they wish or they can contact their local dealer or reseller for assistance should they prefer this method.

This section describes the firmware update process and it should take ***approximately 10 minutes total time to complete***.

The current NVS-20 settings should be noted. Once started ***the update process should not be interrupted*** as this could result in a non-responsive unit.

As well as a working NVS-20 you will need:

- The latest update file for the NVS-20. This can be obtained from your local Datavideo dealer or office.
- A computer with web browser on the same IP network as the NVS-20.
- The current IP address and settings of the NVS-20.

1. Log in with the NVS-20 server as normal using the computer web browser.
2. Click **Setting** then turn **"Stream OFF"** under **Stream Server** and **apply**.
3. Select **Firmware Update** and then **Browse** to the firmware file.
4. Press **Start button** to upgrade the NVS-20 firmware.

Note: After the firmware update you may need to locate the NVS-20 on the network, see page 8. The units settings may also need to be changed back.

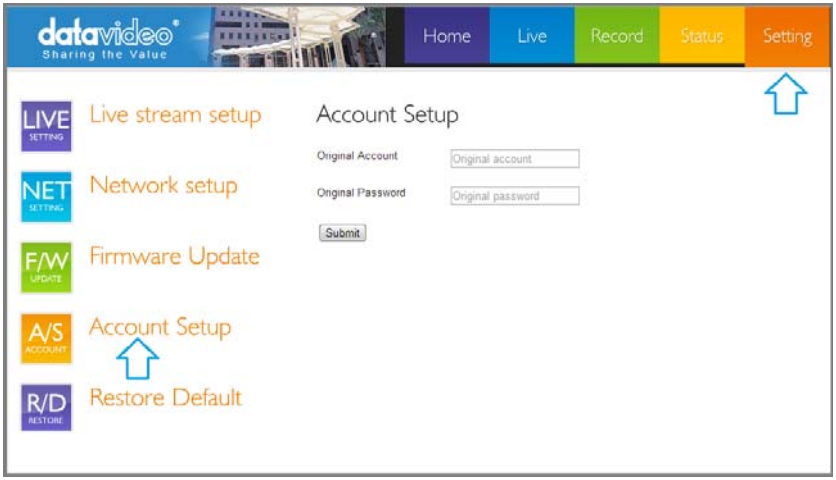
Setting > Account set up

The NVS-20 has one admin user account and password. This account is used to keep the NVS-20 secure and gives access to the streaming settings.

Default user name = **admin** Default password = **000000** [Zero six times]

This section describes how to change the default username and password shown above to something new which is more secure.

Please be careful and memorize the new login details as the old / default login is deleted during this process.



1. Log in with the NVS-20 server as normal using the computer web browser.
2. Click **Setting** then turn **"Stream OFF"** under **Stream Server** and **apply**.
3. Click **Account Setup** then enter the **current user name and password**.
4. The next screen will then request the new login user name and password. The new password will need to be entered twice to confirm it.
5. When **apply change** is clicked you will be asked to log in again with the new details.

NOTE: Please be careful and memorize the new login details as the old or default login is deleted during this process.

Setting > Restore default

There are several settings that can be used within the NVS-20 and from time to time you may wish to restore the out of the factory default settings.

NOTE: This feature will also reset the NVS-20 login details to the default user name and password shown on page 22.

1. Log in with the NVS-20 server as normal using the computer web browser.
2. Click **Setting** then **Restore Default**.
3. Click the **Restore to Default** button to confirm that you wish to proceed.
4. Once the unit has restarted login with the default user name and password shown on page 22.

The factory default streaming settings should then be set as:

Stream Server	: OFF
Input Source	: HDMI
Resolution	: 1920 x 1080
Framerate	: 50 fps
Brightness	: 128
Contrast	: 128
Hue	: 128
Saturation	: 128
Sharpness	: 128
H.264 Level	: 3.1
H.264 Profile	: Main
Audio Stereo	: Stereo
Audio Bitrate	: 384 Kbps
Video Bitrate	: 3000 Kbps
Video Rate Mode	: VBR
Audio Source	: DIG
Analog Audio System	: EBU

Restore Factory default via mode button

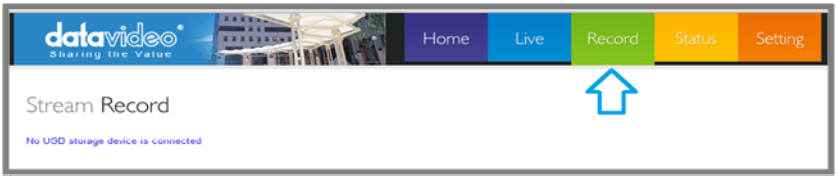
The NVS-20 can also be restored to the factory defaults from the front panel. **From power off.** Press and hold in the mode button and turn on the NVS-20 power; keep holding the mode button for **40** seconds. When released the NVS-20 will take a further 30 seconds to finish the boot up process. Remember to login with the default username and password as shown on page 22.

Recording the stream to USB 2.0 media

The NVS-20 is capable of recording the **streamed video** and audio into an **MPEG2 TS file** on a connected USB 2.0 pen drive.

If the video being fed to the NVS-20 is High Definition 1080i video then the recorded file will also match this resolution. If the video being fed to the NVS-20 is Standard Definition NTSC then the recorded file will match this resolution instead.

The USB 2.0 pen drive should be formatted FAT32 in order for the NVS-20 to recognise when it is connected. If the USB connected media is incompatible or cannot be seen then the NVS-20 will show ***No USB storage device is connected***.

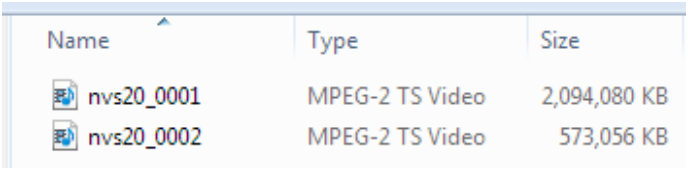


Pen Drive video capacity

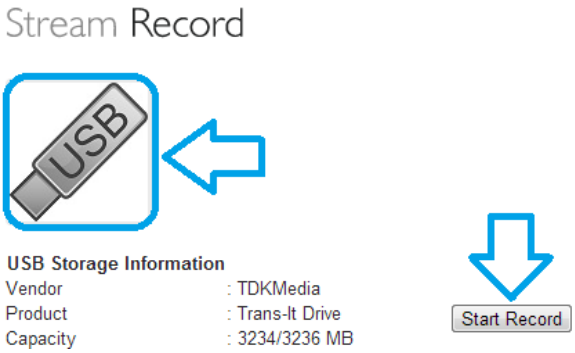
A 4GB USB 2.0 pen drive can store just over two hours of video and audio **when using the default NVS-20 settings.** If the bit rate is changed in Live stream setup settings to a higher rate, the available recording time will be less on the same size pen drive.

Note: Make sure your USB pen drive is empty before starting the stream recording process. The NVS-20 may overwrite any older files already on the USB pen drive when space is low.

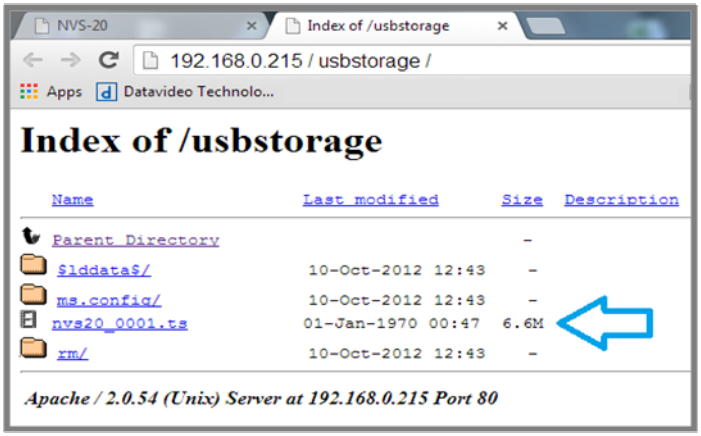
Note: FAT32 will limit the file size to 2GB. Additional files will be created by the NVS-20 as each 2GB file limit is reached. Files will be numbered sequentially.



Stream Record process



1. Log in with the NVS-20 server as normal using the web browser.
2. Check and change the **Live Stream Setup** settings as necessary using the **Setting** tab.
3. Connect the USB 2.0 media into the USB port on the NVS-20 front panel.
4. Click the **Record tab** and then the **Start Record** button.
5. Click on the **USB Storage icon** to view the root directory of the attached USB 2.0 media. This opens a new web page [example below], which can be refreshed, to show the growing **NVS20_xxxx.ts** stream file.
6. Click the **Record tab** and then the **Stop Record** button once the media is nearly full or the event being recorded is finished.

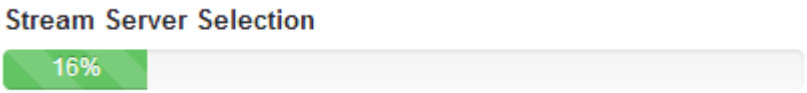


Live tab – HLS protocol

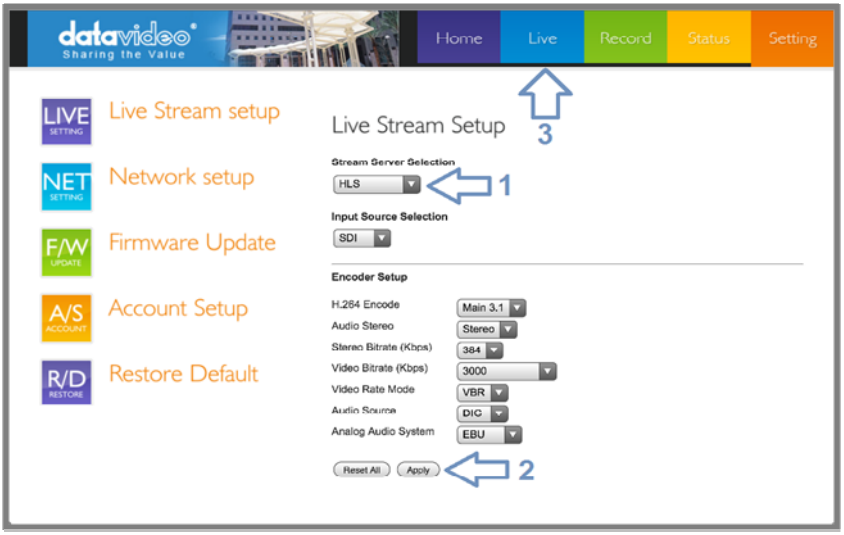
Once the IP address of the NVS-20 is known enter this IP address into the Safari web browser address bar on the iPad or iOS device. See page 12 also.

Enter the set username and password for the NVS-20 to access the **Home** screen. See page 14 also.

Tap on Settings and change the protocol to HLS. Adjust the encoding settings as necessary then tap **Apply.**



Once the progress bar has finished tap the **Live** tab and the video stream will be displayed on the iPad or iOS device.

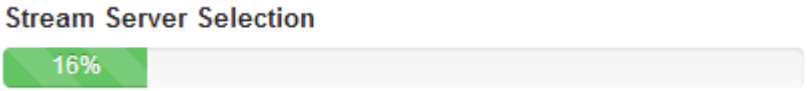


Live tab – RTSP protocol

Once the IP address of the NVS-20 is known, enter this IP address into the web browser address bar on the computer or device. See page 12 also.

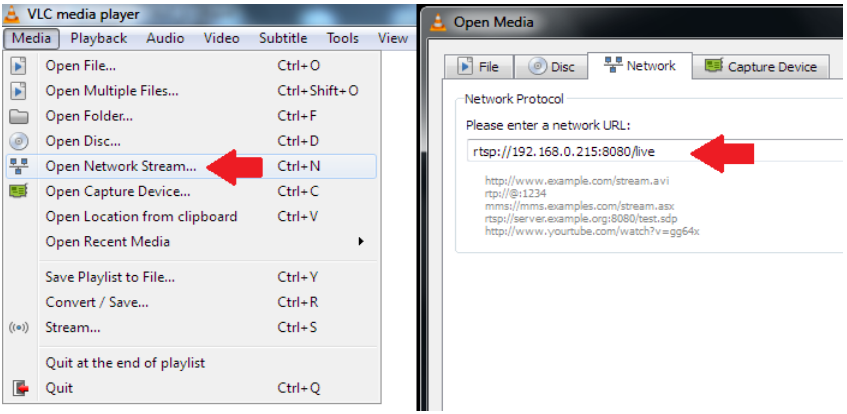
Enter the set username and password for the NVS-20 to access the **Home** screen. See page 14 also.

Tap on **Settings** and change the protocol to RTSP. Adjust the encoding settings as necessary then click **Apply**.



Once the progress bar has finished tap the **Live** tab and an RTSP web link to the video stream will be displayed.

Enter this RTSP web link from the NVS-20 Live tab into **VLC Media Player** using the path **Media** > **Open Network Stream**.



Live tab – RTMP protocol

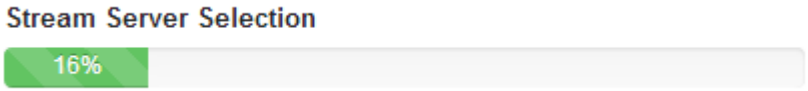
Once the IP address of the NVS-20 is known enter this IP address into the web browser address bar on the computer. See page 12 also.

Enter the set username and password for the NVS-20 to access the **Home** screen. See page 14 also.

Tap on **Settings** and change the protocol to RTMP.

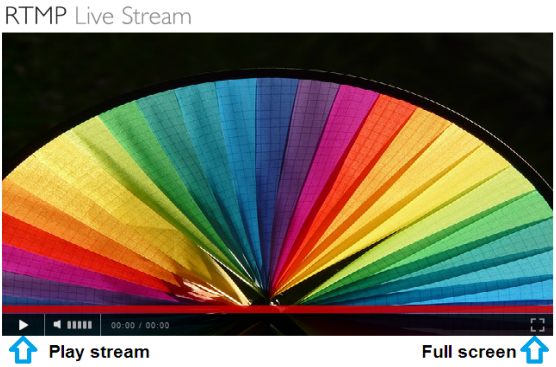
If you are sending the NVS-20 stream to a Content Delivery Network [CDN] enter your CDN Publish URL here.

Leaving the RTMP Publish URL field empty will cause the NVS-20 to act as the local RTMP server. Adjust the encoding settings as necessary then click **Apply**.



Once the progress bar has finished the **Live** tab should confirm the RTMP Publish URL details if you are sending the NVS-20 stream to a CDN.

If you are using the NVS-20 as the local RTMP server then the Live tab will show a video stream player window. Click the Play icon in the lower left corner to start playback of the RTMP stream.



Port Forwarding on your firewall / router

So that the NVS-20 video stream can be seen on the internet (beyond the default gateway) certain network related 'ports' should be opened on your router or firewall. Your local network administrator or I.T. support should be able to help you with this.

Enable the "port forwarding" function or open below ports within the router settings.

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

LED Status & Button Behaviour

LED Status

Function	State	Description
Power LED	a. Off	Power off
	b. Red	system booting up & Program initializing
	c. Green	Ready. with Interface LED
	d. Blinking	System error
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
	d. Blinking Green	USB storage enable

Mode Button Behaviour

Function	Behaviour	Description	LED
Stream On/Off	Hold for 3 seconds until Stream LED	Start/Stop Stream	Stream LED on/off for starting or stopping
Interface changed while Stream Off	Once press	Change to next (HDMI->SDI->CVBS->)	Interface LED changed
	Twice quickly	USB storage	Interface Green LED blinking
Interface changed while Stream On	Once press	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)
	Twice quickly	USB storage	Interface Green LED blinking

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	5 x LED status indicators (HDMI/SDI/CVBS/Streaming/Power)
Storage	USB 2.0 Mass Storage File system: FAT32
Control	Web UI for system configuration and control
Update	Firmware upgradable by web UI
Power	Input AC 100 ~ 240V Switching Adaptor, output DC 12V / 1.5 A
Power Consumption	7.2W
Environmental Conditions	Operating temperature.：0～50℃ Storage temperature：-10～60℃

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Dec-17.2013 P/N: G082060658E1