

4Kp60 Encoder & IPTV Streamer with HDMI Input



h.265 and h.264 compatible 4Kp60 UHD HDR encoder & IP streamer combined with RECORDING function

- ✓ HDMI compatible input for encoding and recording to USB or SD Card: to USB 3.0/TFcard in NTFS/exFAT/FAT32 format, with SAMBA server built-in
- ✓ Stereo Audio embedded or external Input (3.5mm stereo) / out
- ✓ HD Resolution 2160p60, 1080p, 1080i, 720p. ... HDR 10bit with h.265 Main10 Profile, BT.2020 WCG
- ✓ GbE IP output: RTSP, RTMP(s), UDP/RTP, HTTP, HLS, FLV, **MJPG, SRT**
- ✓ Distribution of Video Camera U(HD) and other sources content over LAN, WAN or internet.
- ✓ 4 simultaneously and independent Live stream broadcast encoder engines to multiple destinations (2x UHD + 2x FHD par. Encoding)
- ✓ Video-over IP applications, Digital Signage, NVR, Hotel Info-channel
- ✓ IPTV/OTT applications, Video conferencing, Camera streaming
- ✓ IPTV on LAN applications, Corporate IPTV for Broadcastings
- ✓ UHD,HD and SD video encoding and downscaling
- ✓ Corresponding product: BLANKOM IPTV-STB 6700+ (UHD)
- ✓ Motion JPEG encoding and SRT streaming protocol support

BLANKOM HDE-276

IPTV encoder is designed for TV signal distribution in excellent quality over LAN and INTERNET.

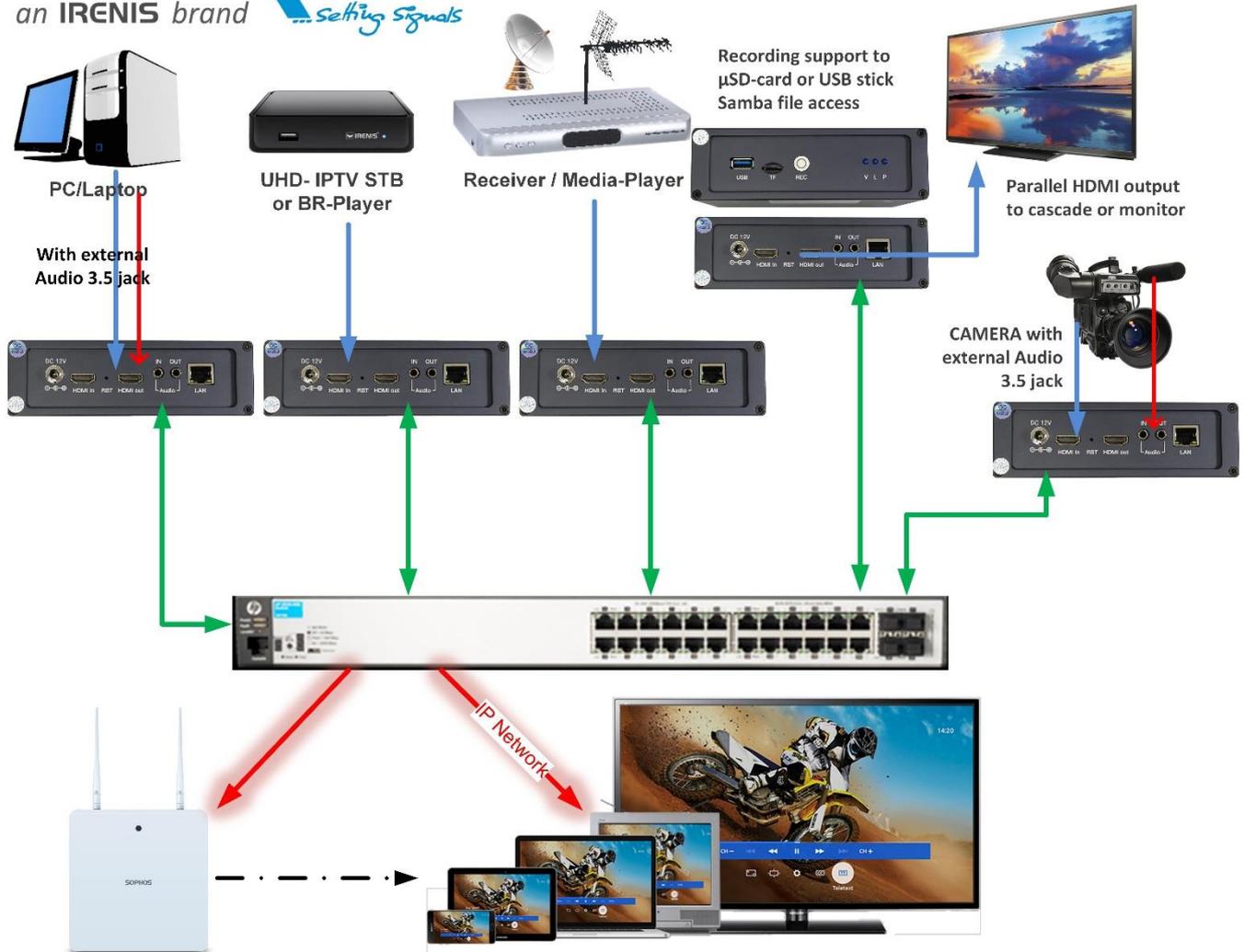
The h.264 and h.265 (HEVC) compatible compression technology features low-latency and low bit rates for IPTV/OTT systems. The high-efficient encoding chips saves bandwidth cost through all its resolution range.

Distribution of SD up to UHD TV channels through the IPTV/OTT network using state-of-art IP technology from almost any kind of video input.

Excellent video and audio quality.

High reliability. No regular service and maintenance need during operation.

BLANKOM HDE-276 encoder serves the distribution of SD/HD and UHD TV/video content through IP networks in digital quality. The live video can be received by Internet media server by TV sets with IPTV Set-Top Boxes, on PC's and tablets with VLC Player.



Function	h.265 (HEVC) and h.264 compatible Encoder and IP Streamer		
INPUT	HDMI compatible input and loop through HDMI output		
Resolution	2160p60...2560x1440@144fps , 1080p, 1080i, 720p and below		
Audio	Embedded from HDMI signal or optional Stereo Input by 3.5mm jack		
Video encoder	h.265 (HEVC) or h.264 (AVC) compatible, MJPG, 0.1...100 Mbps, 5-144 FPs, VBR/CBR		
Audio encoder	AAC (normal, +, ++), MP3, MP1L2, AC3 stereo compatible, 44.1kHz/48kHz		
Audio Bit-rate:	Bit-rate: 32k/48k/96k/128k/160k/192k, Data-rate: 64 kbps-384 kbps		
SYSTEM	4 independent output streams (Main and 3 Secondary)		
Data interface	RJ45, 1000Mb/s Ethernet interface, management by web browser, NTP support		
Protocol	HTTP(s), RTSP, RTMPs, UDP/RTP, FLV, HLS, SRT ; unicast/multicast -> REC enables SAMBA		
Data Rate	32 kbps – 32 Mbps (dep. on sampling rate chosen)		
Encoding bitrate process	CBR/VBR		
EDID/ GAMMUT Modes	BT2020, BT709, BT601		
ONVIF 2.x	Supported by RTSP: G711A		
Picture adjust	De-interlacing, Noise reduction, Sharpening, Filter& Aspect Ratio setting		
OSD	4 Logo and Text Insertion as transparent overlays		
Recording to USB/SDcard	TS-files to Micro-SD-Card or USB penkey (<i>high speed versions recommended</i>) Supported Filesystems: FAT32 (FAT (16/32) are limited – check file size limits)		
Power supply	External 100...240VAC 50/60Hz to 12V DC, 2-3A, Euro-plug to 5.1 DC Jack		
Dimensions	150 x 110 x 45mm	Operating temperature	-10 ... 70 °C
Weight	0.5 kg	Storage temperature	-20 ... 80 °C
Consumption	10W	Relative Humidity	5%-90% non-condensing

Quick-Start-Manual

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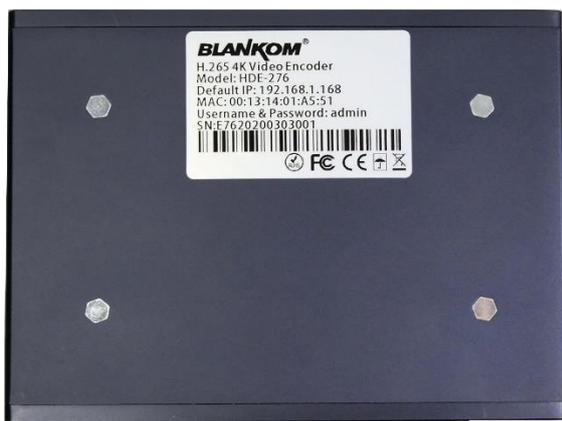


Rear panel: 12V DC Jack (+ = middle), RST=Reset hole, HDMI-Input connector, External Audio-Stereo IN by 3.5mm Jack (not included with the device), Gigabit Ethernet



Front-Panel: USB connector for Recording, TF-Card (µ-SDCard), REC-Button, Status LEDs: Power, Ethernet, System ready

Bottom-Sticker shows initial factory default settings:



MAC address can be changed in the Web-IF if

needed.

Notes and Hints:

The Gigabit-Ethernet-port does not support PoE so please take care of not accidentally using a PoE switch- you can damage the port and the unit will be not accessible anymore.

We recommend to use an IGMP-V2/3 protocol capable GBE- Switch to avoid flooding your network with unmanaged multicast streams. Also some consumer Internet routers do not like Multicasts (UDP/RTP) and might reboot periodically.

An Internet-connection is not necessary as long as you need to use NTP and does not have an own NTP server in your network.

Please assure that your HDMI –Output you like to encode is set to max. UHD with 2160p60 or lower.

The embedded Linux system takes some seconds to fully boot. After the System-LED is on, you can connect your browser to it. We recommend Chrome, Opera, and Mozilla. For a preview PopUp in the browser, a flash-player add-on need to be installed for the browser.

Sometimes it is helpful to reload the browser – page to get the changed settings and values because of different browser behaviours...

The RESET button will erase all your settings and the unit will be forced to start with factory defaults. Use a thin wire to pass the small hole and press the inside button by it for at least 5-10 seconds until the System LED will go off. The encoder would perform a restart than after releasing the button.

The Web-Interface lookalike may vary between different Versions but basically its self-explaining.

Note: The encoder cannot upscale or doing 50 fps out of 25 coming in. It is limited to what the input can provide.

Setting up your PC/Laptop before connecting:

If you use a Windows based PC, you should assign its Ethernet adapter into the same range like the encoder: Use a static IP like follows: 1st: Open your network settings in System Menu:

→ Maybe confirm Administrator access-→

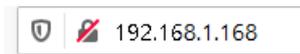
Change IPv4 settings:

Quick-Start-Manual



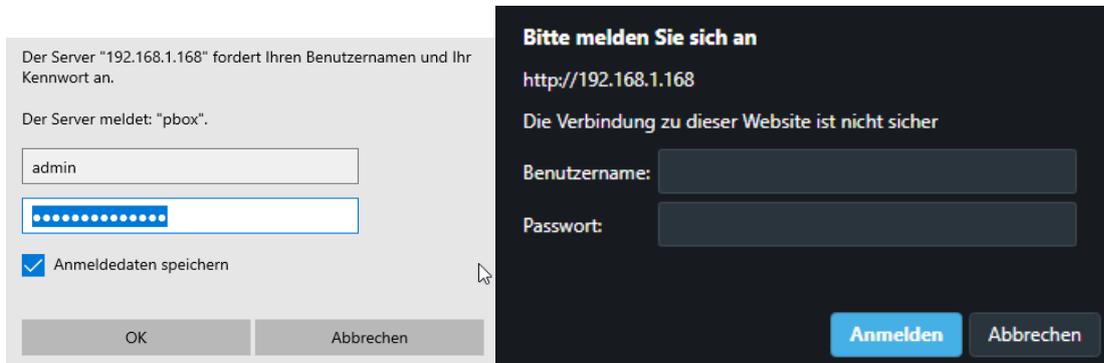
And confirm please. Linux users should know how to change the ethernet or WIFI settings.

Then open your browser and enter the http- Address of the box 192.168.1.168 (w/o https):

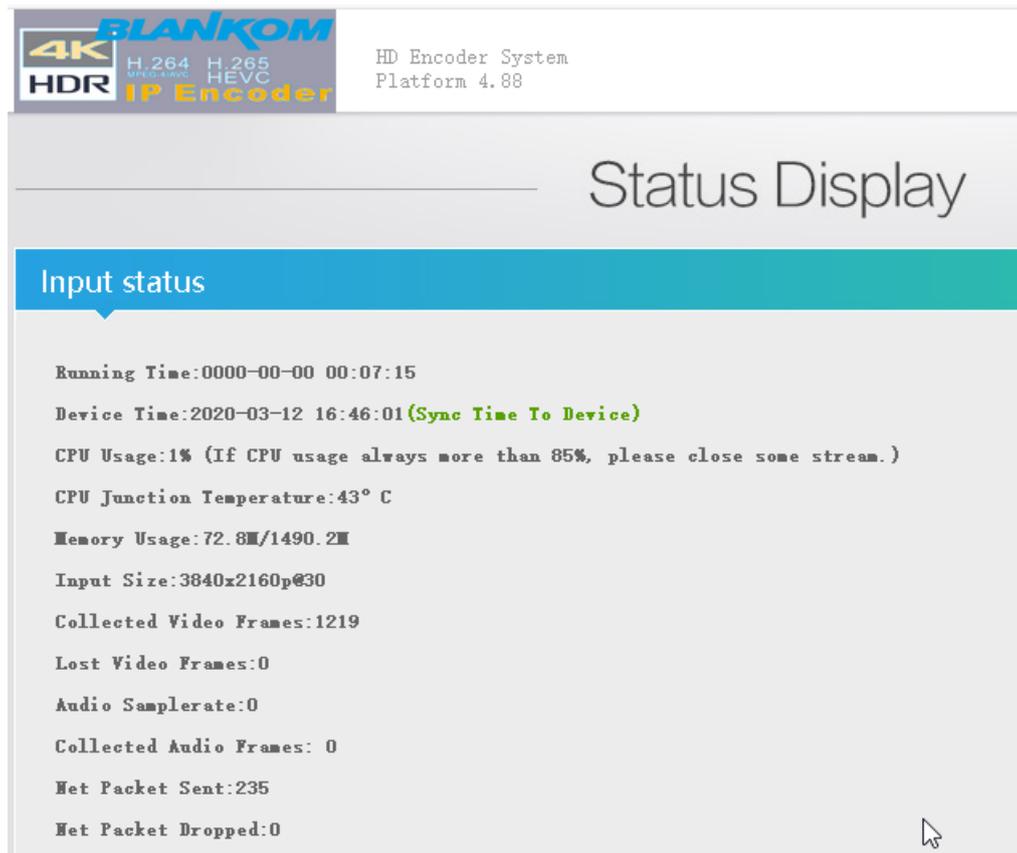


Depending on browser you'll get a log-in-screen window:

(We recommend to use the latest Mozilla browser and not the EDGE)



Enter the default username = admin, default password = admin and here we go:



Like the hint above, sometimes it's helpful to reload the page:



to gather the actual values like Input HDMI values:

Quick-Start-Manual



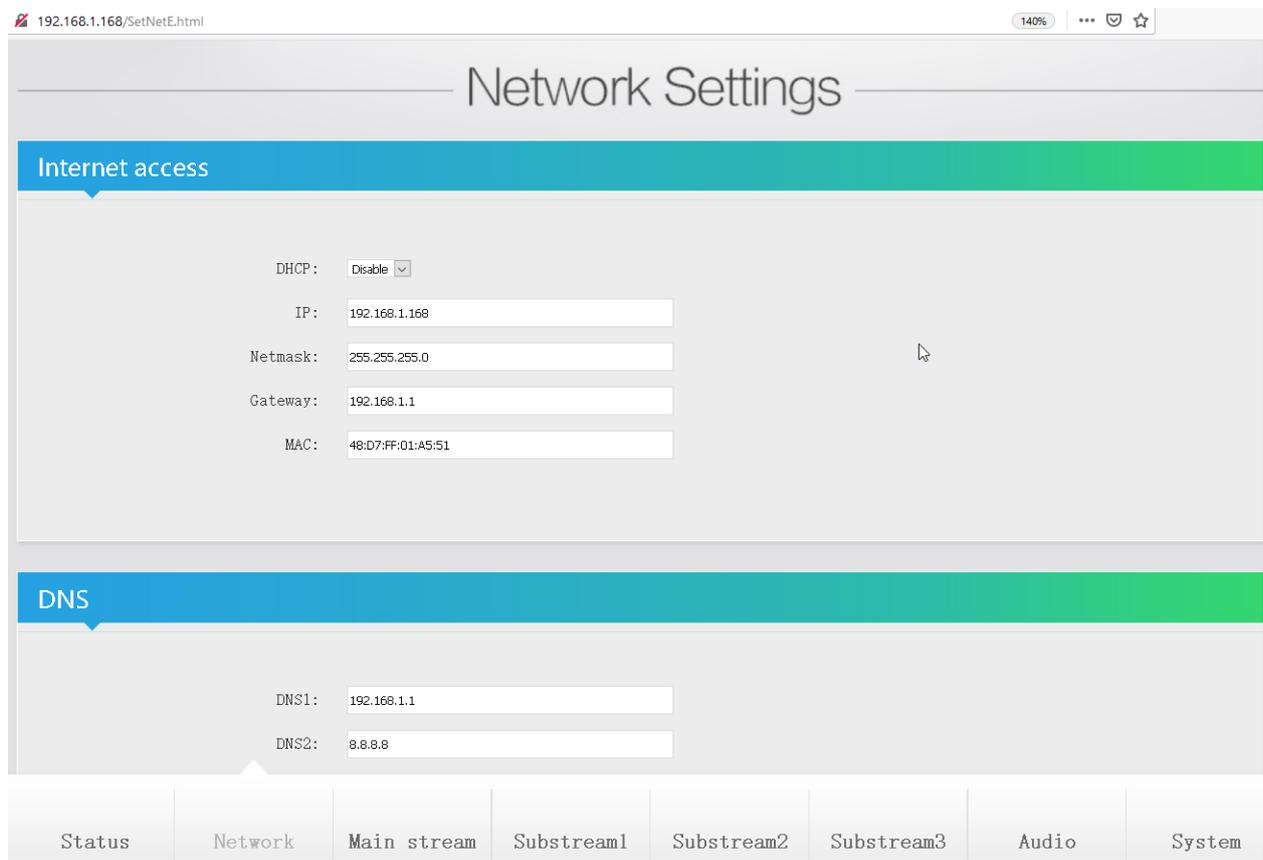
```
Running Time: 0000-00-00 00:04:59
Device Time: 2019-12-02 15:01:11 (Sync Time To Device)
CPU Usage: 11% (If CPU usage always more than 85%, please close some stream.)
Memory Usage: 30.4M/485.6M
Input Size: 1920x1080p@50
Collected Video Frames: 14564
```

The device time can be adjusted by the Network-setup-part NTP-Server which you need to tell the NTP server URI and UTC-time difference. UK = '0', Germany normal is UTC+1...

If you press (Sync Time To Device) it will be updated.

Network: Here you can change the encoders IP-address and mode:

If you change it to DHCP – after a reboot it will catch it from your router. Disadvantage: You need to check the to the encoder given IP Address by your router in its own menu or use an IP-Scanner-tool.



We assume, that you are familiar with the basic settings of a network.



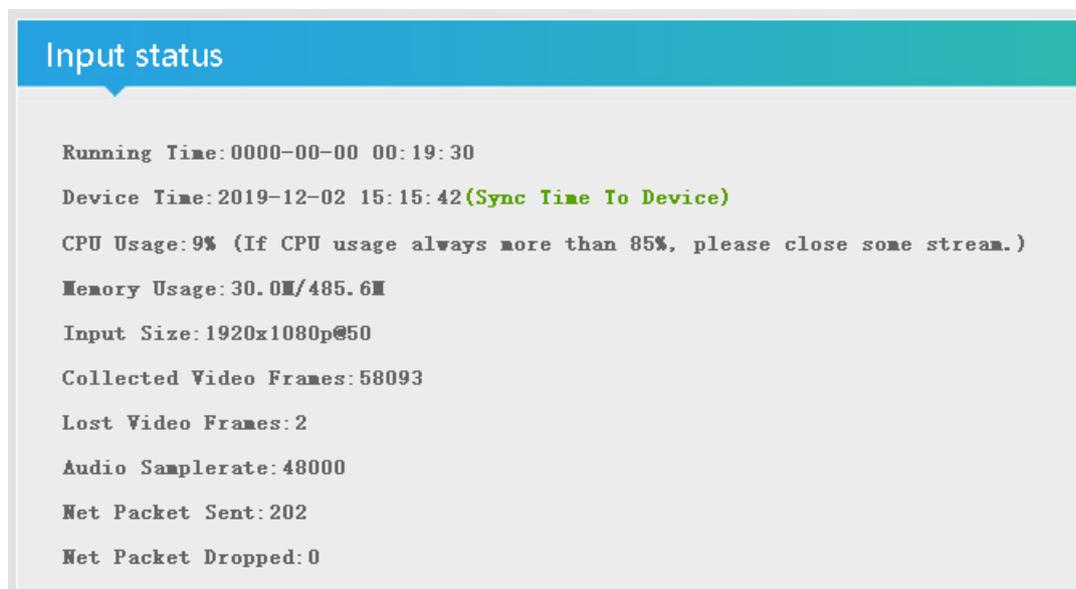
These are the basic ports for HTTP and RTSP-Streaming use. You can modify that but we recommend to keep them as they are because RTSP – receivers might be fixed to that port while HTTP isn't. The bottom of every of the menu-pages contains the 'Set up' buttons to take and enable your changes.

The bottom Web-frame contains the changing – Menu buttons/fields:



Back to the STATUS PAGE:

You'll get information about the Input and Time/Date as well as CPU load and Memory usage:



The Record field will **only appear** if an external USB-PEN or TFCard is inserted in the slot and a reboot is recommended (System menu) so that it initialize the USB/SDCARD:



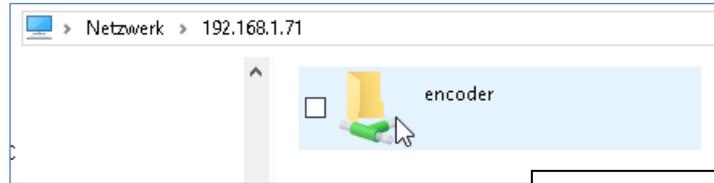
Please use only one at the same time: Either USB or SD-Card.

It can be formatted by your PC as exFAT, NTFS, FAT32 filesystem usage. EXT2/3/4 are Linux based and are only accessible by Linux PC's or you'll need an extra Tool for MS-Windows based.

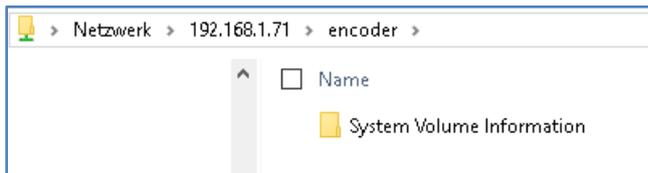
FAT, exFAT and FAT32 have limitations regarding the recording file sizes.

Before unplug the TFCard or USB Stick please press 'Unmount Disk' to safely close any files on it avoiding a file system corruption.

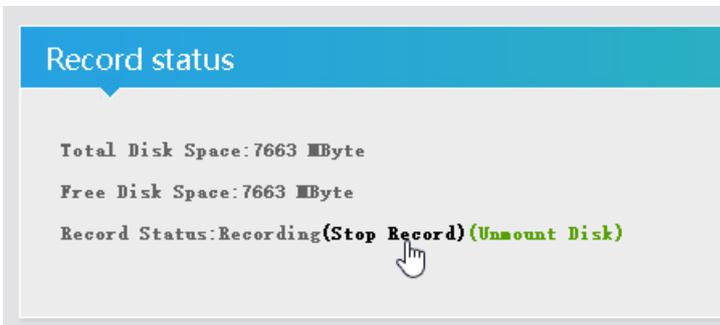
The recorded TS-files can be played in your computer i.e. by VLC. And if in the network they can be accessed by SAMBA: Simply enter the IP address of the encoder in your Windows Explorer window:



W/o any recorded TS it is empty:



now we record:



Please note: If you use Windows 10, your Settings should enable the SAMBA support in Windows:
 System-Settings-> \Programs\Programme und Features...
 Go to Windows features:

Windows-Features

Windows-Features aktivieren oder deaktivieren

Verwenden Sie die Kontrollkästchen, um die entsprechenden Features ein- oder auszuschalten. Ein ausgefülltes Kontrollkästchen bedeutet, dass ein Feature nur teilweise aktiviert ist.

- SMB Direct
- Spermodus für Geräte
- Telnet Client
- TFTP Client
- Unterstützung für die Remotedifferenzialkomprimierungs-AI
- Unterstützung für die SMB 1.0/CIFS-Dateifreigabe
- SMB 1.0/CIFS automatisch entfernen
- SMB 1.0/CIFS-Client
- SMB 1.0/CIFS-Server
- Windows Defender Application Guard

OK Abbrechen



You can see the file size increasing...
 Stop it after a while...



The remaining space will be refreshed...

Double-click opens VLC:



The size of the files depending on your chosen encoding settings by the Codec and the bitrate of the MAIN-Stream encoder part.

Main stream

```
Encode Type:H.265
Encoding Type:1920x1080@50
Bitrate(kbit):8000
TS URL:http://192.168.1.168/0.ts    http://192.168.1.168:8080/0.ts
HLS URL:Disable
FLV URL:http://192.168.1.168/0.flv    http://192.168.1.168:8080/0.flv
RTSP URL:rtsp://192.168.1.168/0    rtsp://192.168.1.168:8554/0
RTMP URL:Disable
RTMP PUSH URL:Disable
Multicast URL:Disable
```

The STATUS page shows your Setup encodings for the MAIN and the 3 Sub streams.

Parallel and different streaming's can be used for all 4 encoder parts as long as the capacity of the system is not claiming it: You will get a message if the encoding capacity will be reached and one or more sub streams would be disabled...

In some Sub-Streams you can check the Picture/Sound directly in the browser by this button:

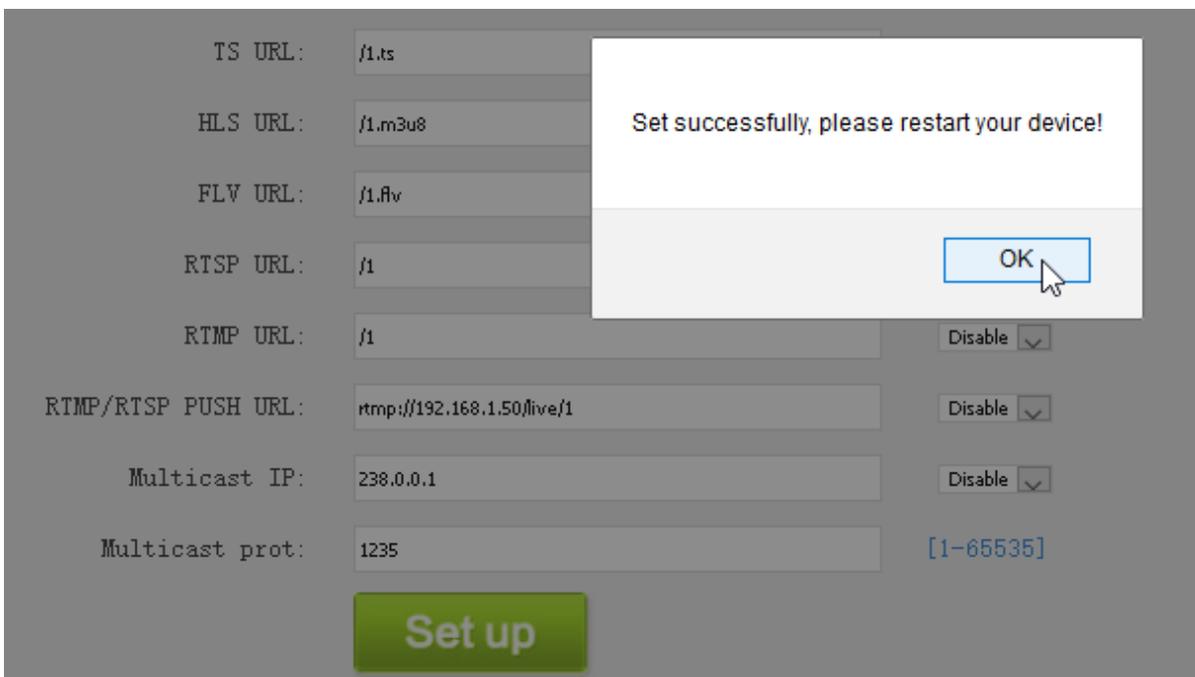


but you need to enable the FLV or HLS stream before using that – and Flash-Player support is needed by your browser:

Enabling it in the related Sub-Stream settings

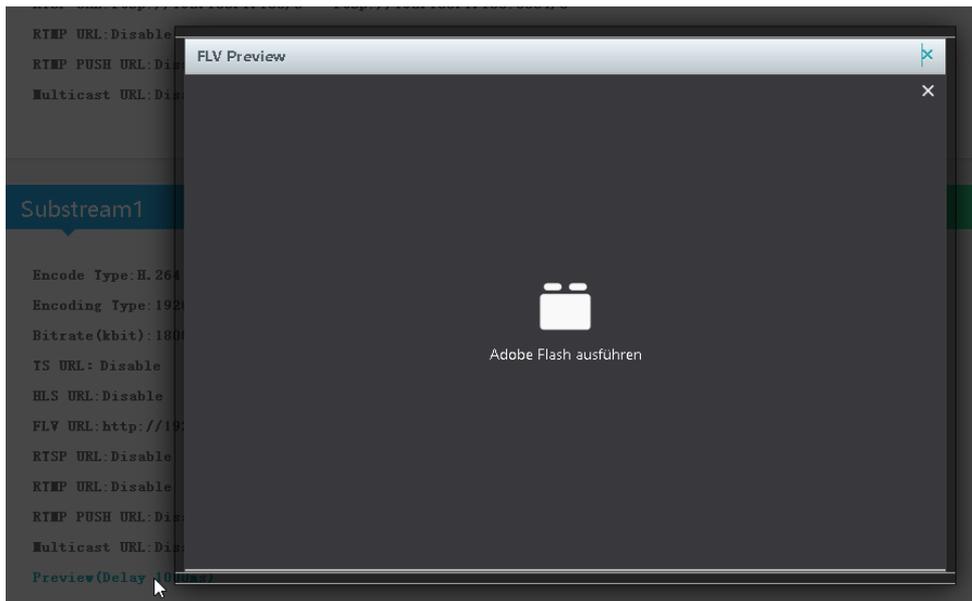


-> Applying it by Set Up!



This **doesn't mean to restart** the encoder but to **restart your Stream-receiver-Decoder** like VLC. This message will pop up every time you change the encoder parameters. Receivers are stupid and might not react to the changed values.

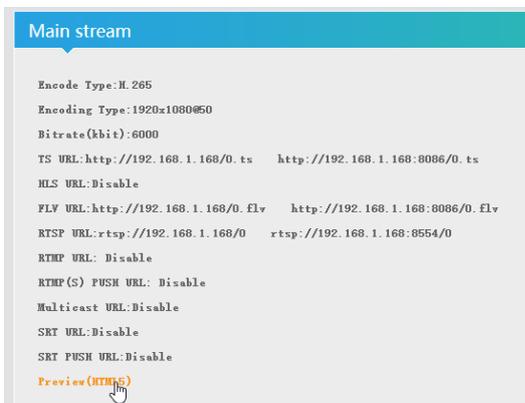
Back to STATUS:



NOTE: FLASH-Player usually do not decode HEVC/h.265 codecs... so do not wonder if the PREVIEW – link will disappear – it is simply none supported by FLASH/Adobe and Apple (HLS)

In addition, new *since 12. January 2021*: ADOBE has stopped delivery of FLASH Player anyway. So most browser developers are disabling this as well.

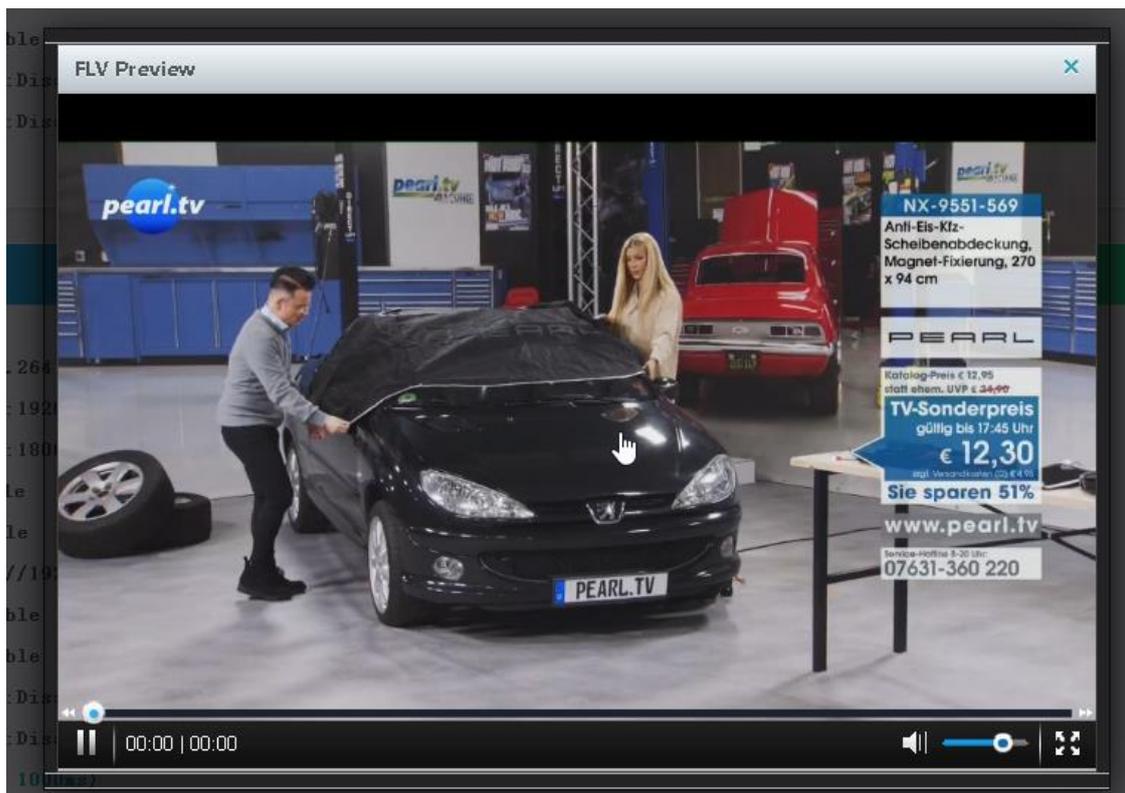
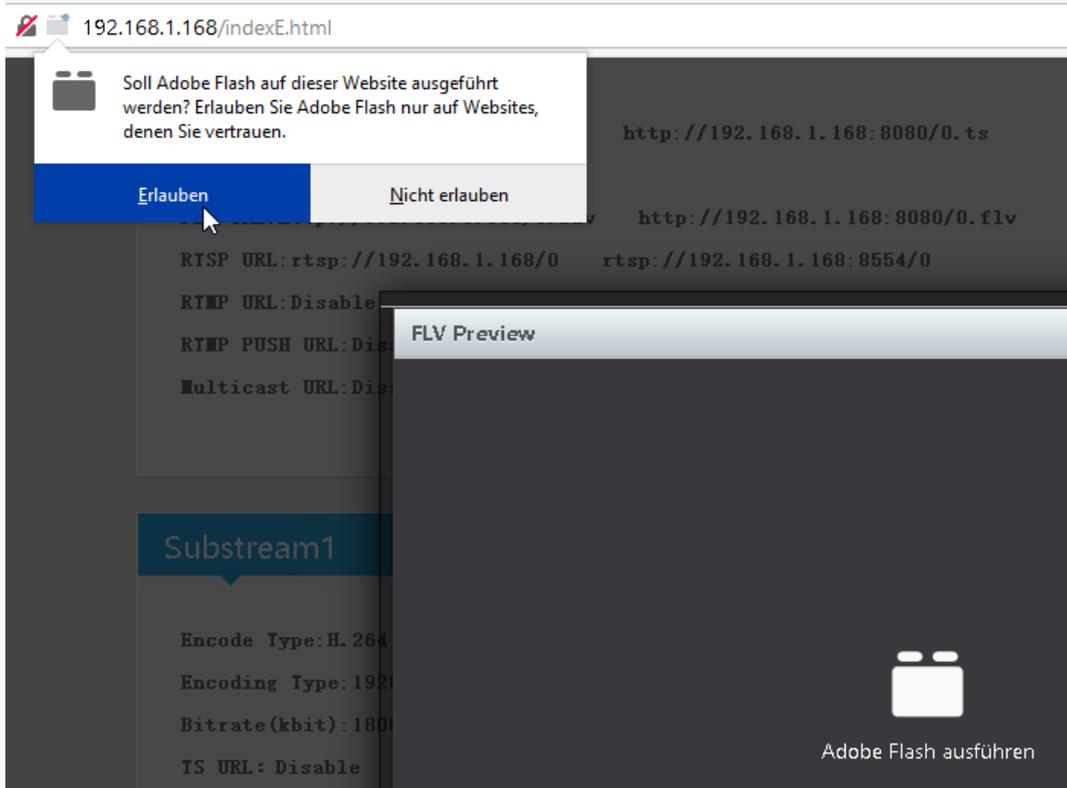
Preview is now also working with h.265 codec but the player has no pause stop ffw/rwd available but the smooth playback highly depends on your receivers CPU/Graphic powers to decode h.265 in Software (eg.: Laptop, Windows 10 and VLC)



The web-preview player does support encoding with h.264 only, so please do set/change the codec to h.264 , than the preview with HTML5 player as popup will work.

But if you have still an older browser and the flash plugin with h.264: Allow your browser to do that (here Mozilla) with flash add-on installed:

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To also check your encoding streams you can copy the URI from the STATUS page:

Main stream

Encode Type:H. 265

Encoding Type:1920x1080@50

Bitrate(kbit): 8000

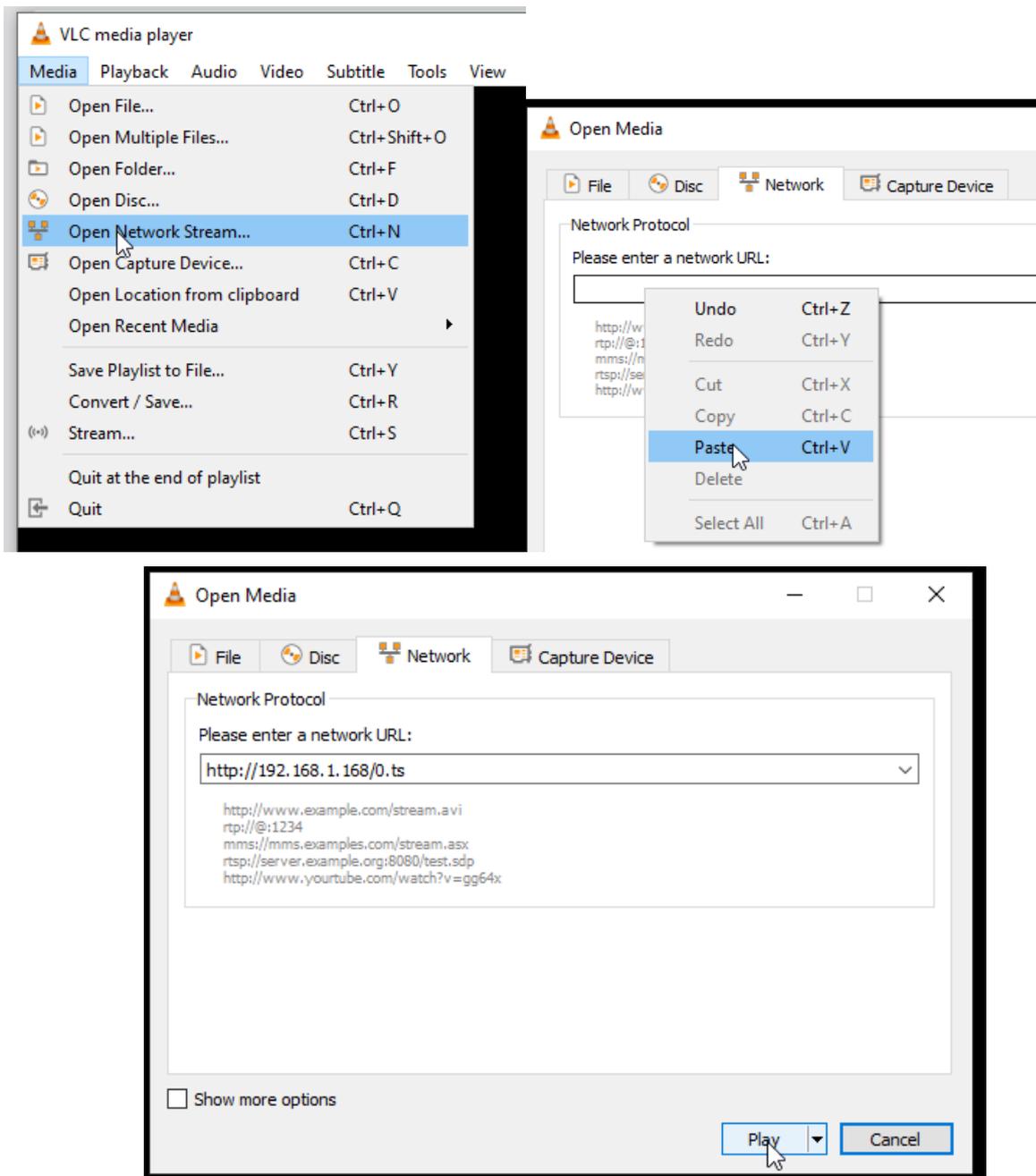
TS URL: **http://192.168.1.168/0.ts** http://192.168.1.168:8080/0.ts

HLS URL:Disable

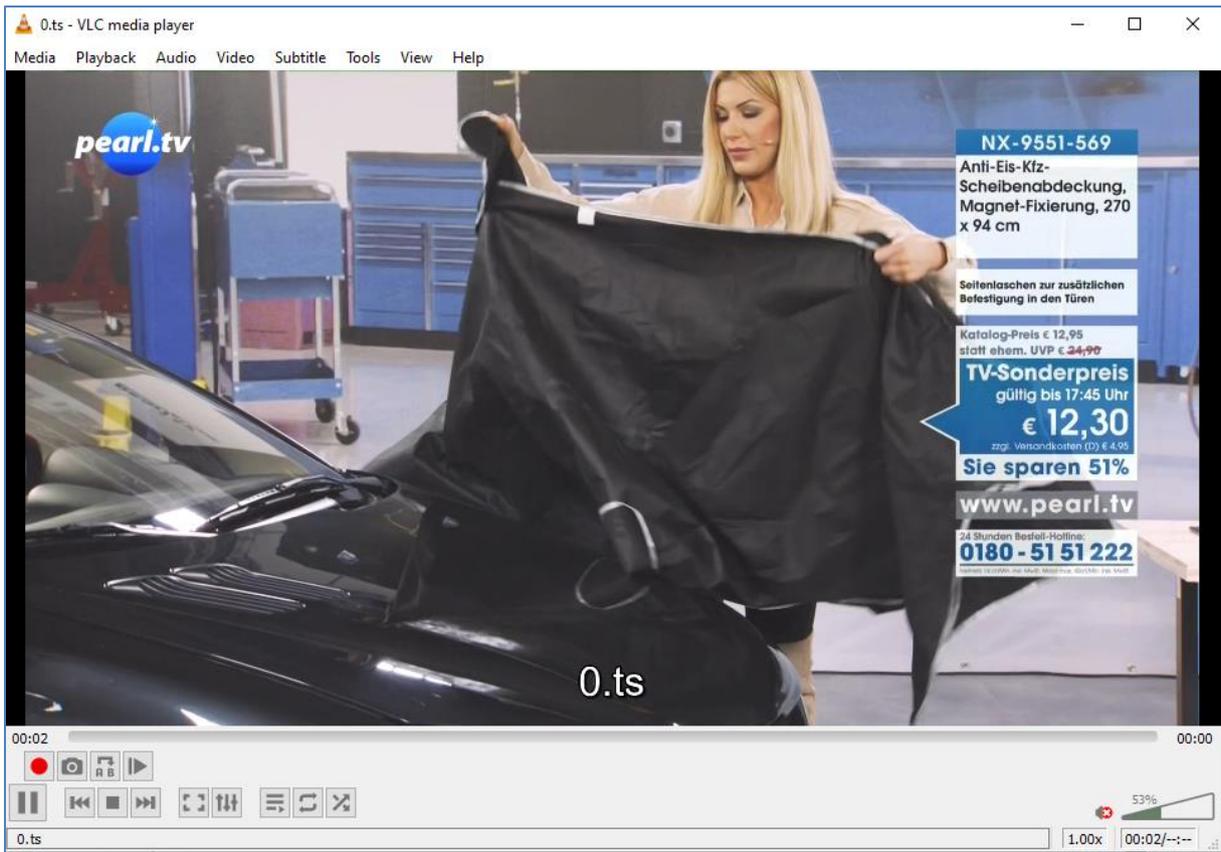
FLV URL:http://192.168.1.168/0.flv http://192.168.1.168:8080/0.flv

RTSP URL:rtsp://192.168.1.168/0 rtsp://192.168.1.168:9554/0

Then insert into VLC:



Quick-Start-Manual



Note: UDP-Addresses will be taken by VLC with an @ and we have made it easy for you:

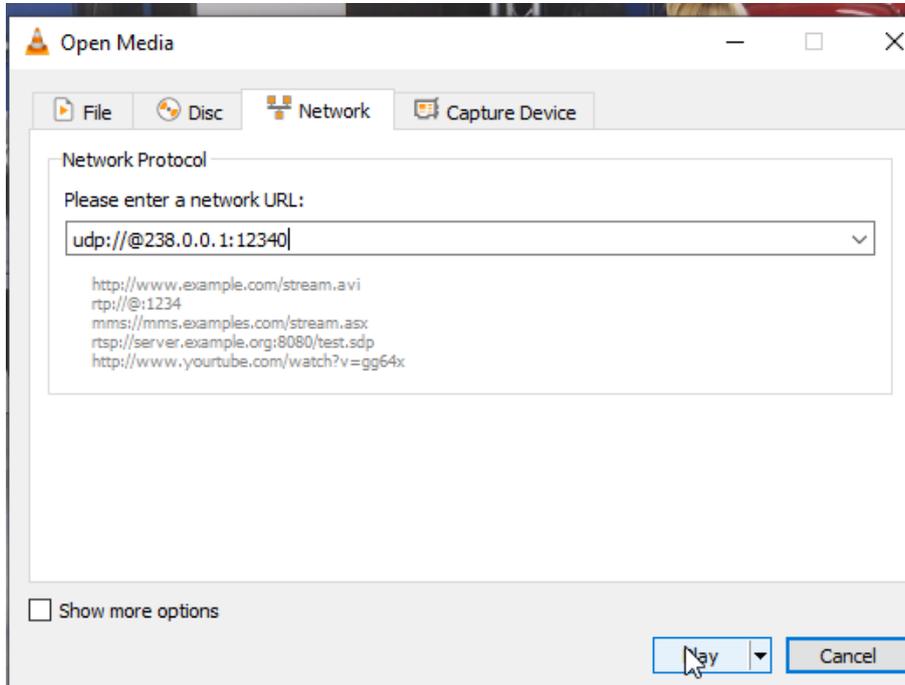
Multicast IP:	<input type="text" value="238.0.0.1"/>	<input type="button" value="Disable"/>
Multicast port:	<input type="text" value="12340"/>	<input type="button" value="Enable"/>
<input type="button" value="Set up"/>		

Bitrate control:	<input type="text" value="cbr"/>	
TS URL:	<input type="text" value="/0.ts"/>	
HLS URL:	<input type="text" value="/0.m3u8"/>	
FLV URL:	<input type="text" value="/0.flv"/>	
RTSP URL:	<input type="text" value="/0"/>	<input type="button" value="Enable"/>
RTMP URL:	<input type="text" value="/0"/>	<input type="button" value="Disable"/>
RTMP/RTSP PUSH URL:	<input type="text" value="rtmp://192.168.1.50/live/0"/>	<input type="button" value="Disable"/>
Multicast IP:	<input type="text" value="238.0.0.1"/>	<input type="button" value="Enable"/>
Multicast port:	<input type="text" value="12340"/>	<input type="button" value="[1-65535]"/>
<input type="button" value="Set up"/>		

Set successfully, please restart your device!

AGAIN: You do not need to restart the encoder only the receivers you have in your network need to re-sync to the changed values!!!:

Quick-Start-Manual



The MAIN and SUB-Stream adjustments are nearly all similar:

Mainstream encoding settings

Main stream

Encoding type:	<input type="text" value="H.265"/>	
FPS:	<input type="text" value="50"/>	[5-60]
GOP:	<input type="text" value="30"/>	[5-300]
Bitrate (kbit):	<input type="text" value="8000"/>	[32-32000]
Encoded size:	<input type="text" value="1920x1080"/>	
Bitrate control:	<input type="text" value="cbr"/>	
TS URL:	<input type="text" value="/0.ts"/>	Enable <input type="text" value=""/>
HLS URL:	<input type="text" value="/0.m3u8"/>	Disable <input type="text" value=""/>
FLV URL:	<input type="text" value="/0.flv"/>	Enable <input type="text" value=""/>
RTSP URL:	<input type="text" value="/0"/>	Enable <input type="text" value=""/>
RTMP URL:	<input type="text" value="/0"/>	Disable <input type="text" value=""/>
RTMP/RTSP PUSH URL:	<input type="text" value="rtmp://192.168.1.50/live/0"/>	Disable <input type="text" value=""/>
Multicast IP:	<input type="text" value="238.0.0.1"/>	Enable <input type="text" value=""/>
Multicast port:	<input type="text" value="12340"/>	[1-65535]

RTMP comes now with RTMPs support since Youtube is demanding it.

The independent LOGO/Text Overlay Settings can be done for every of them:

OSD

Alpha:	<input type="text" value="100"/>	
		[0-128]
Zone 1		
Zone:	<input type="text" value="Disable"/>	

For deeper detailed explanations about the OSD feature refer to the full – Manual please.

Also for the ONVIF settings with RTSP.

Therefore we are adjusting the AUDIO encoding for all encoder parts now (the Audio encoding cannot be separated for every single MAIN and SUB's and is common for all:

Audio encoding settings

Audio encoder

Audio Input:

Samplerate:

Encoder:

Bitrate: [64000~320000]

ONVIF audio

G711A Over RTSP:

Higher bitrate settings for the audio result in higher sound quality. Every codecs have different ranges !!!

So we come to the common SYSTEM settings:

System Settings

Change password

Old password:

New password:

Confirm password:

This chapter is self-explaining – isn't it?

The default settings are usually Ok for most use-cases:

Quick-Start-Manual



192.168.1.168/SystemE.html

Advanced

Video Only:	<input type="text" value="Disable"/>	
Audio Only:	<input type="text" value="Disable"/>	
Hls Splitter Time(s):	<input type="text" value="10"/>	[3-20]
Hls Number:	<input type="text" value="5"/>	[3-20]
Deinterlaced:	<input type="text" value="Both"/>	
Net Drop Threshold:	<input type="text" value="5000"/>	[50-50000]
TS muxer:	<input type="text" value="Compatible with FFmpeg"/>	
TS once pack:	<input type="text" value="7"/>	[3-128]
ts_transport_stream_id:	<input type="text" value="101"/>	[1-65535]
ts_pmt_start_pid:	<input type="text" value="480"/>	[16-7936]
ts_start_pid:	<input type="text" value="481"/>	[32-3840]
ts_tables_version:	<input type="text" value="6"/>	[0-31]
ts_service_name:	<input type="text" value="Live"/>	
ts_service_provider:	<input type="text" value="Encoder"/>	
TS Empty Packet:	<input type="text" value="No Insert"/>	

TS password enable:	<input type="text" value="Disable"/>	
Vmix Compatible:	<input type="text" value="Disable"/>	
TS OVER RTSP:	<input type="text" value="ES"/>	
Multicast type:	<input type="text" value="UDP"/>	
UDP TTL:	<input type="text" value="64"/>	[1-254]
UDP SOCKET_BUF_SIZE:	<input type="text" value="20971520"/>	[0-20971520]
Slice split enable:	<input type="text" value="Disable"/>	
Slice size:	<input type="text" value="1024"/>	[128-65535]
MIN_QP:	<input type="text" value="5"/>	[1-35]
MAX_QP:	<input type="text" value="42"/>	[MIN_QP-50]
SAR(H.264 Only):	<input type="text" value="Disable"/>	
CSC:	<input type="text" value="Disable"/>	
Brightness:	<input type="text" value="50"/>	[0-100], Default: 50
Contrast:	<input type="text" value="50"/>	[0-100], Default: 50
Hue:	<input type="text" value="50"/>	[0-100], Default: 50
Saturation:	<input type="text" value="50"/>	[0-100], Default: 50

For more info... the full manual should explain...

A schedules 'restart' can be programmed (NTP-Time = ON recommended):

Schedule restart

Restart enable:

Restart time:

Set up

NTP

NTP Enable:

NTP Server:

Time Zone:

Set up

The settings as well as the Firmware can be back-upped and re-uploaded:

Upload firmware and configuration

Select File: Keine Datei ausgewählt. (File name has to be 'up.rar' or 'box.ini'. Please don't upload by different people at the same time and don't power off during upload.)

Upload

Backup firmware and configuration

Firmware **Configuration**

Finally i.e. after firmware update has been uploaded, the unit can be remotely reset to factory defaults or rebooted:

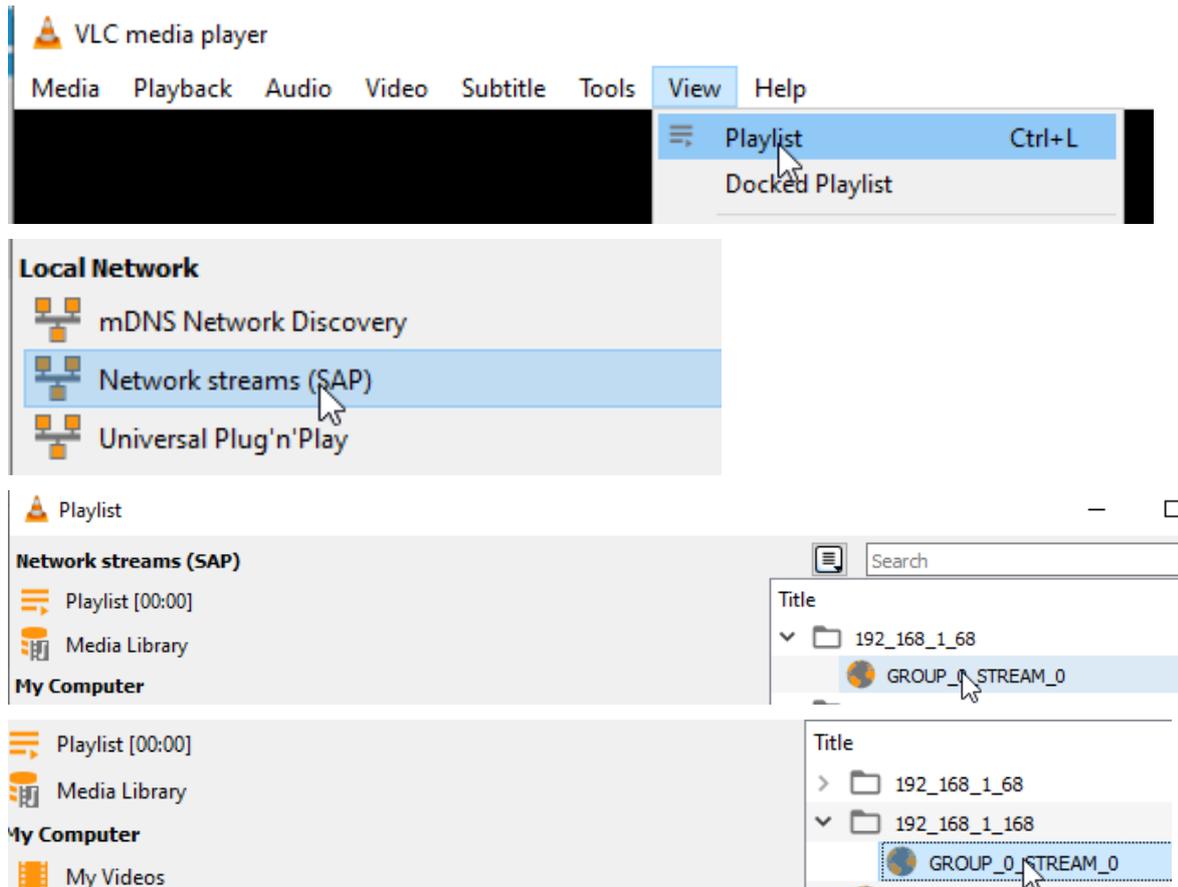
System settings

Reboot **Reset**

We recommend to make yourself familiar with 'What is Multicast and Unicast' and the corresponding IP-Ranges.

A last hint:

Using VLC SAP-Gathering will show a simple click'n start entry:



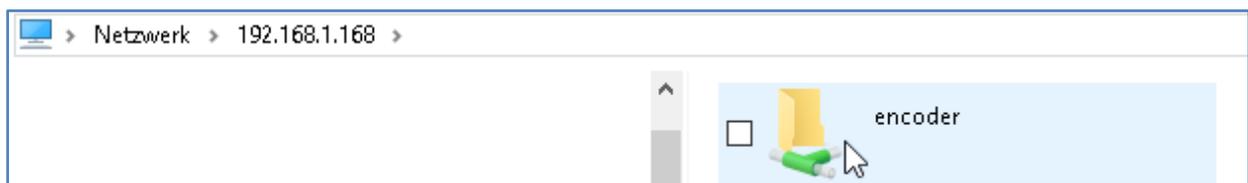
-> Will receive the stream. This works only with Multicast UDP / RTP !.

Accessing the RECORDED TS-Files directly by WINDOWS-PC:

First you have to enable the WINDOWS –Feature Support of SAMBA and CIFS:

For the old WINDOWS 7 users, this is established by default

Simply enter [\\IP-Address-of-the-encoder](#) in the Windows-Explorer



But in WINDOWS 10 (PRO) the support need to be enabled manually:

You need to turn on the SMB1.0 and SMB Direct:

Programs and Features

Control Panel > Programs > Programs and Features

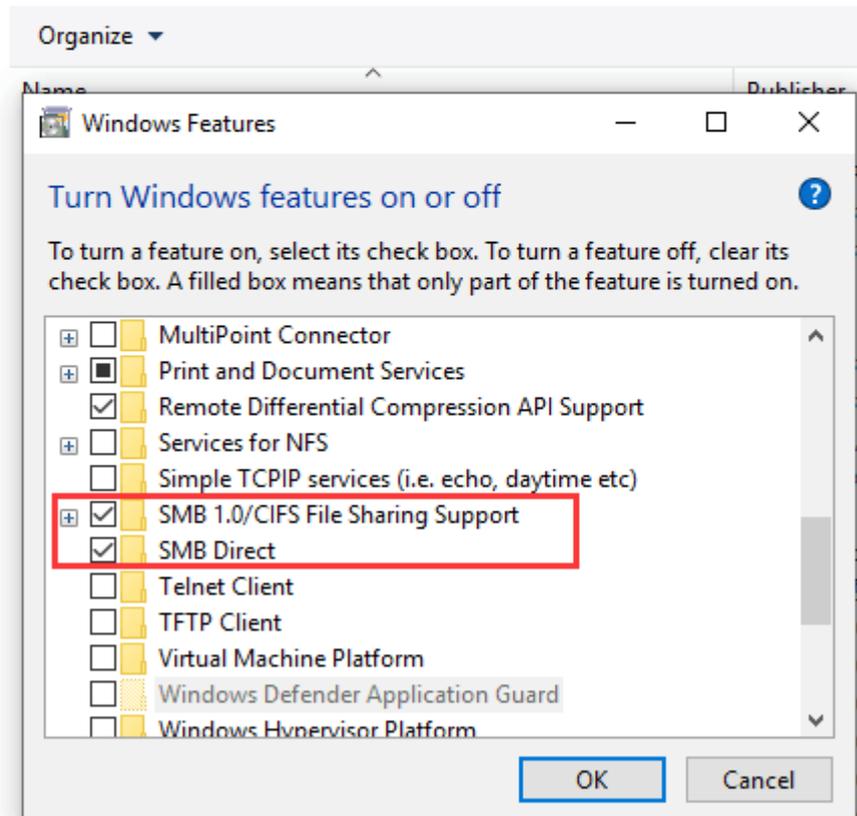
Control Panel Home

Uninstall or change a program

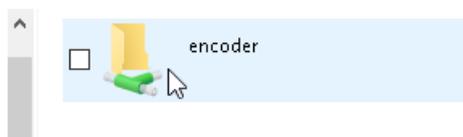
View installed updates

To uninstall a program, select it from the list and then click Uninstall, Char

Turn Windows features on or off



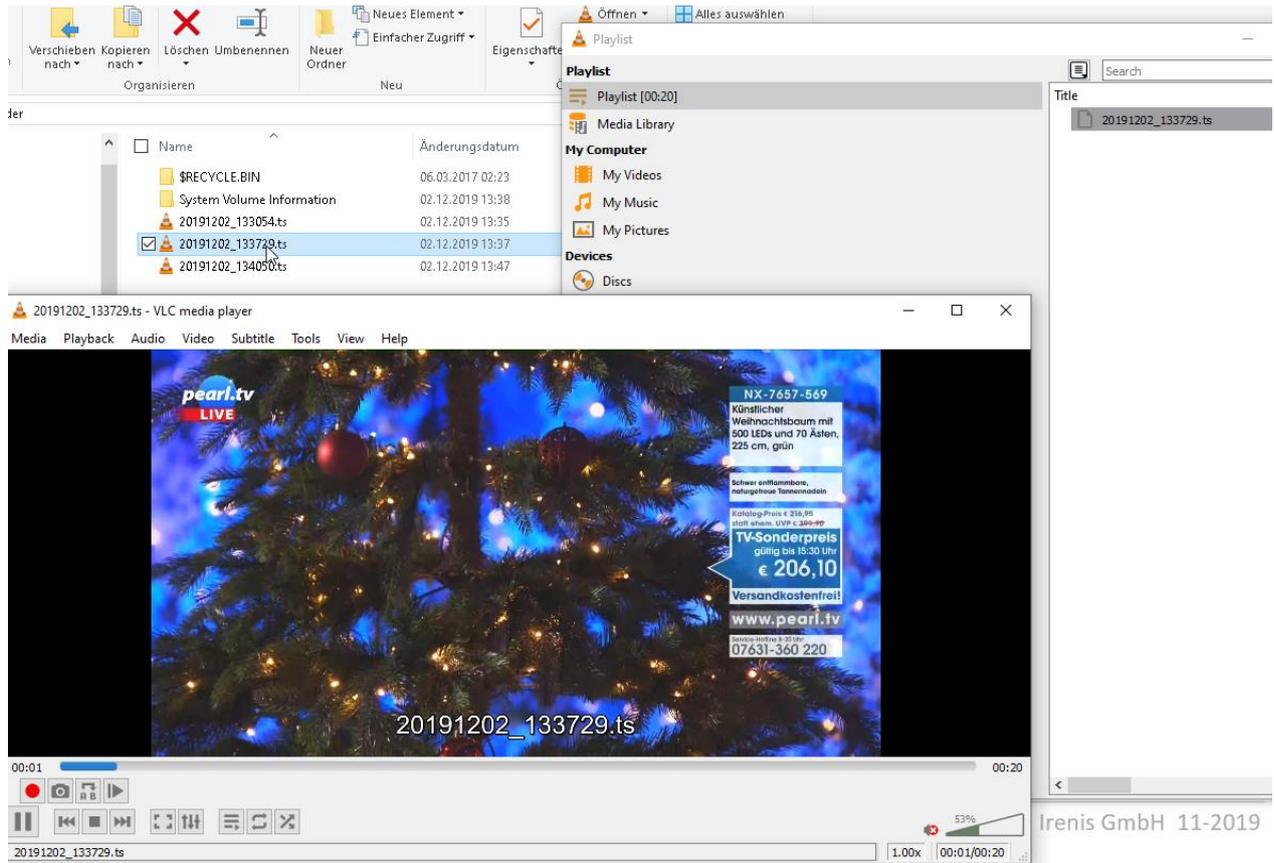
Then enter [\\192.168.1.168](http://192.168.1.168) in the Explorer – Address-Field and you are directed to:



-> Here as example with a USB-PEN NTFS-formatted and some records done

\$RECYCLE.BIN	06.03.2017 02:23	Dateiordner	
System Volume Information	02.12.2019 13:38	Dateiordner	
20191202_133054.ts	02.12.2019 13:35	TS Video File (VLC)	62.998 KB
20191202_133729.ts	02.12.2019 13:37	TS Video File (VLC)	4.487 KB
20191202_134050.ts	02.12.2019 13:47	TS Video File (VLC)	464.884 KB

Simply double-click on one of them and here VLC has been assigned as the default Media-Player:



You can download or delete files remotely... isn't that nice?

Add-on: Power users can adjust the encoding process:

This 4Kp60 encoder has an additional settings menu to toggle between different

EDID modes:



And the adjustment can be selected according to the **GAMUT:**

Advanced

EDID:

Gamut:

- BT2020
- BT601
- BT709
- BT2020

Video Only:

Note: For **HDR 10Bit** Inputs you need to use:

HDR10, 10bit input and encoding: To fully support 10bit, please ensure that the HDMI input is a 10bit input, and select h.265 Main10 Profile encoding see steps below

HDR Settings for UHD 4K60fps HDR Encoder-part

Encoder setting steps:

1. Select the h.265 & Main 10 Profile (Firmware version 4.97 up)



4K HDR
H.264 MPEG-4 AVC
H.265 HEVC
IP Encoder

HD Encoder System
Platform 4.97

Mainstream encoding settings

Main stream

Encoding type:

FPS: [5-60]

GOP: [5-300]

Bitrate (kbit): [32-100000]

Encoded size:

H.265 Profile:

- main 10 profile
- main profile
- main 10 profile

Bitrate control:

2. -> System-Advanced

- a) Select the EDID with HDR.
- b) Gamut: BT2020
- c) Dynamic Range: HDR

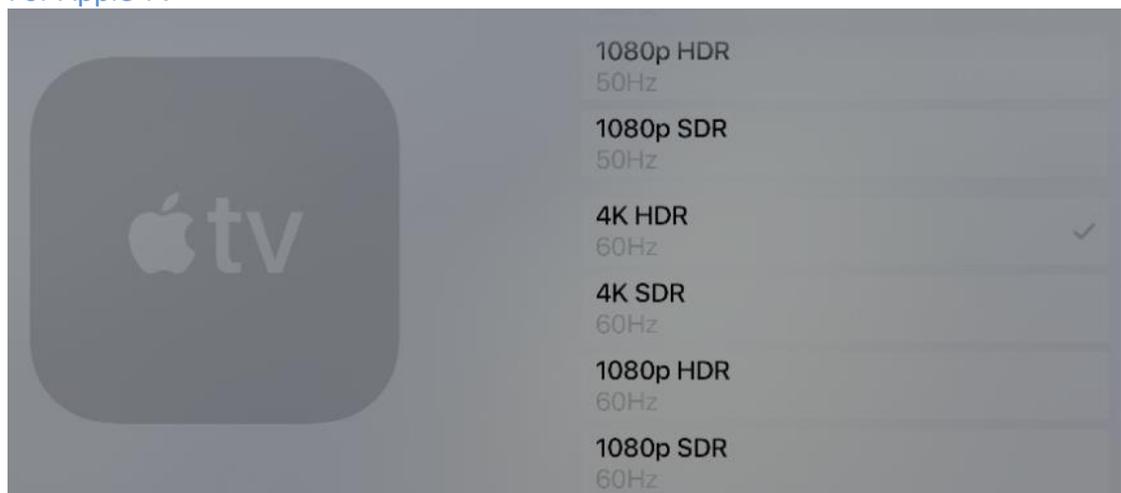


Note: Please select the BT709 & SDR if input video **is not** HDR.

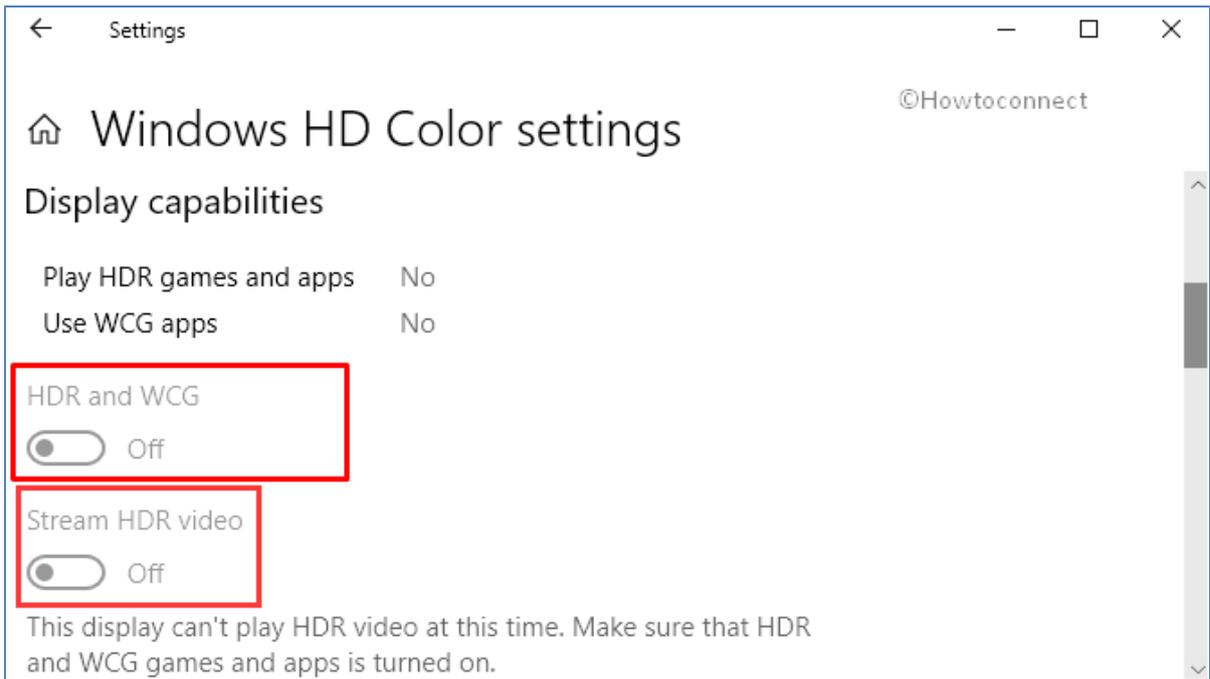
3. Input Video Settings from the Source:

3.1 Select the HDR output and 10bit if you can:

a) For Apple TV

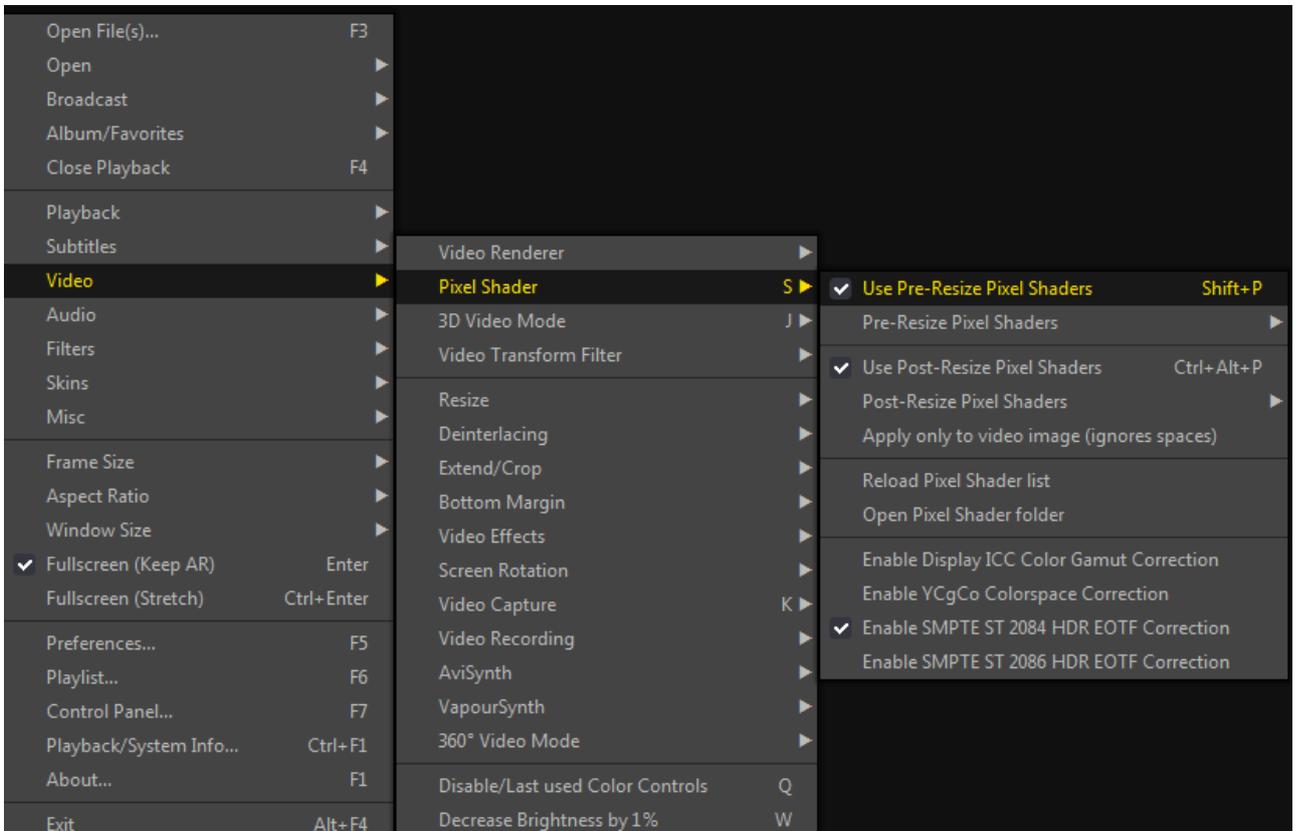


b) For PC's: enable the HDR feature, read here: <https://support.microsoft.com/en-us/help/4040263/windows-10-hdr-advanced-color-settings>



4. Test the 4K HDR Video Streaming

- 4.1 -For VLC: The default settings should support the HDR playback.
- For Pot-Player: See below settings or install the HDR plugin



4.2 Check the play back video codec:

Video # 1

- ... ID : 481 (0x1E1)
- ... Menu ID : 1 (0x1)
- ... Format : HEVC
- ... Format/Info : High Efficiency Video Coding
- ... Commercial name : HDR10
- ... Format profile : Main 10@L4.1@Main
- ... Codec ID : 36
- ... Duration : 10 s 133 ms
- ... Width : 1 920 pixels
- ... Height : 1 080 pixels
- ... Display aspect ratio : 16:9
- ... Frame rate : 60.000 FPS
- ... Color space : YUV
- ... Chroma subsampling : 4:2:0
- ... Bit depth : 10 bits
- ... Color range : Limited
- ... Color primaries : BT.2020
- ... Transfer characteristics : PQ
- ... Matrix coefficients : BT.2020 non-constant
- ... Mastering display color primaries : BT.2020

CBR-streaming (Constant Bitrate)

DVB Transport streams sometimes demand the adding of the so called Zero-packet PID (8191dec) to the output stream even if it is not a Multiple Program TS but our encoders doing the Single Program TS (SPTS): Here VBR (variable bitrate as usual for SPTS)

The screenshot displays a software interface for monitoring and configuring an MPEG-TS stream. The top section includes control buttons for MPEG-TS, OTT, ATSC 3.0, and various settings like ATSC, DVB, ISDB, Freeze, Refresh, and Reset. It also shows the IP address (192.168.1.205) and the URL (udp://238.0.0.1:12340).

The main area is divided into two panels:

- PID info (6):** Lists various PID streams with their bitrates and types:
 - 0x0000 PAT (210 kbps / 2.5%)
 - 0x0011 SDT-actual (41 kbps / 0.5%)
 - 0x01E0 PMT (210 kbps / 2.5%)
 - 0x01E1 HEVC/H.265 Video (8.3 Mbps / 96.7%)
 - 0x01E2 AAC Audio (133 kbps / 1.6%)
- Transport stream 101:** Shows the overall stream structure, including Services (Live), Tables (PAT, PMT, SDT-actual), and their respective parameters like Table IDs and Program IDs.

At the bottom, a **Trace bar** window shows a real-time bit-rate graph. The y-axis ranges from 4.0Mbps to 20.0Mbps. The graph shows a fluctuating bit-rate around 8.0Mbps. The x-axis is labeled 'Bit-rate TR 101 290'.

To enable that you have to switch ON the strong CBR encoding mode:

Main stream

Encoding type:

FPS: [5-60]

GOP: [5-300]

Bitrate(kbit): [32-100000]

Encoded size:

H.265 Profile:

Bitrate control: (dropdown menu open showing: cbr, vbr, avbr, qvbr, **strong cbr**, /0.flv)

TS URL: Enable

HLS URL: Disable

FLV URL: Enable

Which also switches ON the TS-adding factor of the zero packets:

ts_pmt_start_pid: [16-7936]

ts_start_pid: [32-3840]

ts_tables_version: [0-31]

ts_service_name:

ts_service_provider:

TS Empty Packet: (dropdown menu open showing: No Insert, **Insert(1.3x)**, Insert(1.2x), Insert(1.5x), Insert(2x), Insert(2.5x), Insert(3x), Insert(3.5x), Insert(4x), Insert(4.5x), Insert(5x))

TS password enable:

Vmix Compatible:

TS OVER RTSP:

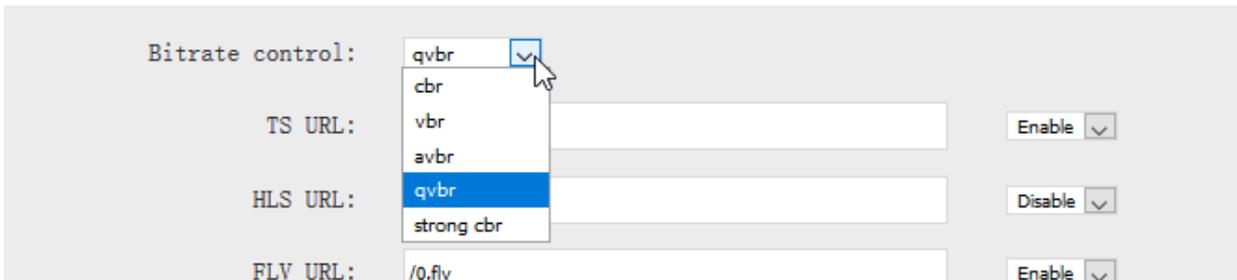
Multicast type:

1.3x would be good pre-set value but you can change that. And results in the add-on of the zero packets – which is not very often used for SPTS IPTV streams but can help following multiplexers or ‘stupid’ IP to RF Modulators to act DVB-conform.



As you can see from the Trace, the former configured max data rate of 8Mb/s encoding is more constant than before and the Video encoder is now more smooth and less data rate.

To switch this to off, simply change the strong CBR back to normal:



Of course, the encoder need to resync itself and a short interruption is the case.

MJPEG support:

If you directly want to send the 'pictures' only as motion JPG format to a browser, you can set this to be enabled:

Encoding type:	<input type="text" value="MJPEG"/>	<input type="button" value="v"/>	
FPS:	<input type="text" value=""/>		[5-60]
Bitrate(kbit):	<input type="text" value="8000"/>		[32-100000]
Encoded size:	<input type="text" value="640x360"/>	<input type="button" value="v"/>	

The status page will show the direct links in blue:

```

Encode Type: MJPEG
Encoding Type: 640x360@27
Bitrate(kbit): 8000
MJPG URL: http://192.168.1.168/3.mjpg
JPG URL: http://192.168.1.168/3.jpg
TS URL: Disable
HLS URL: Disable
FLV URL: Disable
RTSP URL: Disable
RTMP URL: Disable
RTMP PUSH URL: Disable
Multicast URL: Disable

```

here on a different device with

sub stream Number 3 -> Therefore it is named to /3.mjpg

Please note: MJPG-URLs are working only if at least the RTSP URL has been enabled!!!

We recommend better to choose the **Main-encoder** part for this so:

Encoding type:	<input type="text" value="MJPEG"/>	
FPS:	<input type="text" value="25"/>	[5-60]
Bitrate(kbit):	<input type="text" value="5000"/>	[32-100000]
Encoded size:	<input type="text" value="1920x1080"/>	
Bitrate control:	<input type="text" value="vbr"/>	

-> Status page...

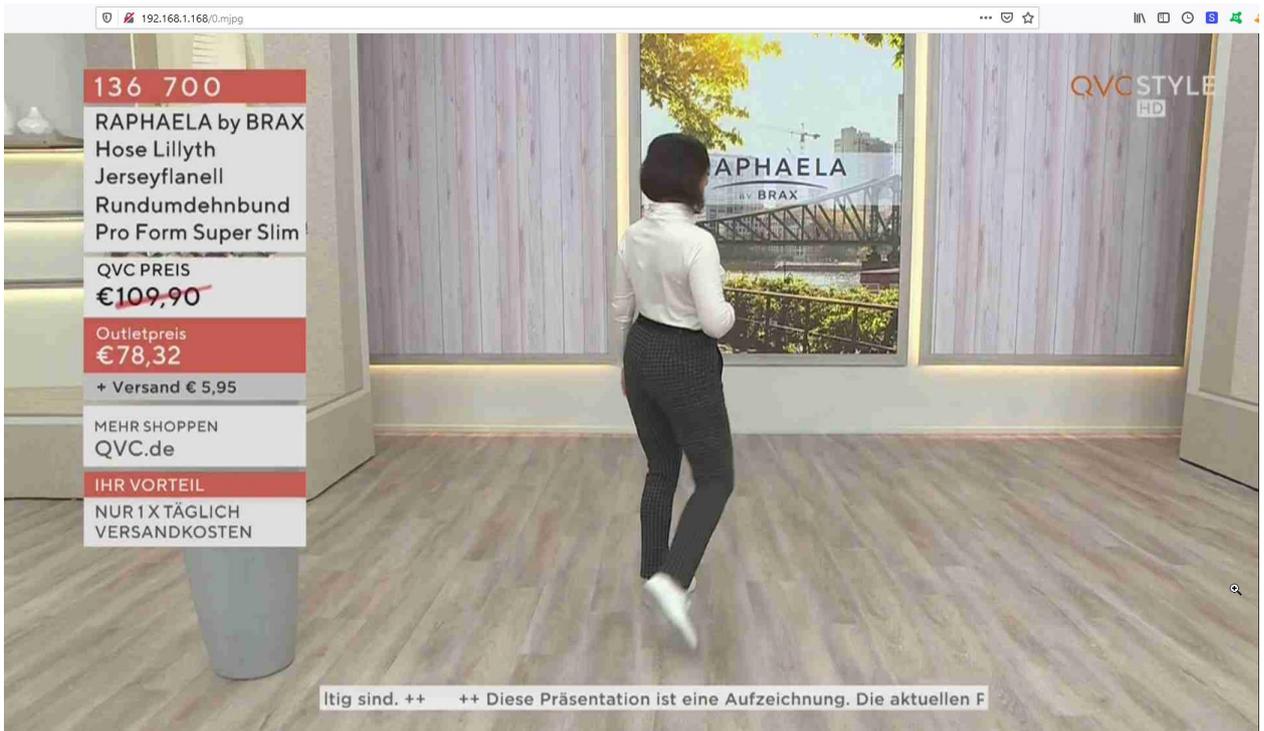
Main stream

Encode Type: MJPEG
Encoding Type: 1920x1080@25
Bitrate(kbit): 5000
MJPEG URL: <http://192.168.1.168/0.mjpg>
JPG URL: <http://192.168.1.168/0.jpg>
TS URL: Disable
HLS URL: Disable
FLV URL: Disable
RTSP URL: rtsp://192.168.1.168/0 rtsp://192.168.1.168:8554/0
RTMP URL: Disable
RTMP PUSH URL: Disable
Multicast URL: Disable

Link open by Mozilla:

Quick-Start-Manual

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Or only the still picture shows the moment of the screen when click on /0.jpg:



SRT Support:

RTMP(S)/RTSP PUSH URL:	<input type="text" value="rtmp://192.168.1.50/live/0"/>	Disable ▾
Multicast IP:	<input type="text" value="238.0.0.10"/>	Enable ▾
Multicast port:	<input type="text" value="12340"/>	[1-65535]
SRT URL Port:	<input type="text" value="9000"/>	Enable ▾ [1-65535]
SRT PUSH URL:	<input type="text" value="srt://192.168.1.50:9000"/>	Enable ▾
SRT Encryption Password:	<input type="text" value="0123456789"/>	Disable ▾

Set up

STATUS Page:

Main stream

```

Encode Type:H.265
Encoding Type:3840x2160@49
Bitrate(kbit):5000
TS URL: http://192.168.1.168/0.ts   http://192.168.1.168:8120/0.ts
HLS URL:Disable
FLV URL:Disable
RTSP URL:rtsp://192.168.1.168/0   rtsp://192.168.1.168:8554/0
RTMP URL:Disable
RTMP PUSH URL:Disable
Multicast URL:udp://0238.0.0.10:12340
SRT URL:srt://192.168.1.168:9000
SRT PUSH URL(Not Connected):srt://192.168.1.50:9000

```

See also:

<https://www.srtalliance.org>**Note: SRT works only in pairs: The stream receiver must support SRT reception.**

It's a faster transport protocol for lower latency over public networks...

SRT-Support: (Only supported by our encoders with h.265 compatibility because of processing power)

What is SRT? Please check <https://www.srtalliance.org>

Bitrate control:	<input type="text" value="vbr"/>	
TS URL:	<input type="text" value="/0.ts"/>	<input type="button" value="Disable"/> ▾
HLS URL:	<input type="text" value="/0.m3u8"/>	<input type="button" value="Disable"/> ▾
FLV URL:	<input type="text" value="/0.flv"/>	<input type="button" value="Disable"/> ▾
RTSP URL:	<input type="text" value="/0"/>	<input type="button" value="Enable"/> ▾
RTMP URL:	<input type="text" value="/0"/>	<input type="button" value="Disable"/> ▾
RTMP(S)/RTSP PUSH URL:	<input type="text" value="rtmp://192.168.1.50/live/0"/>	<input type="button" value="Disable"/> ▾
Multicast IP:	<input type="text" value="238.0.0.1"/>	<input type="button" value="Disable"/> ▾
Multicast port:	<input type="text" value="1234"/>	[1-65535]
SRT URL Port:	<input type="text" value="9000"/>	<input type="button" value="Enable"/> ▾ [1-65535]
SRT PUSH URL:	<input type="text" value="srt://192.168.1.50:9000"/>	<input type="button" value="Disable"/> ▾
SRT Encryption Password:	<input type="text" value="0123456789"/>	<input type="button" value="Disable"/> ▾

SRT Latency can be adjusted in **SYSTEM Firmware Version** depending... :

Advanced

Video Only:	<input type="button" value="Disable"/> ▾	
Audio Only:	<input type="button" value="Disable"/> ▾	
Hls Splitter Time(s):	<input type="text" value="10"/>	[3-20]
Hls Number:	<input type="text" value="5"/>	[3-20]
SRT Latency(ms):	<input type="text" value="150"/>	[1-10000]

It's a faster transport protocol for lower latency over public networks...

Check the Status page:

Main stream

Encode Type:H.264

Encode Size:1920x1080@25

Bitrate(kbit):2500

MJPEG URL: <http://192.168.1.168/0.mjpg>

JPG URL: <http://192.168.1.168/0.jpg>

TS URL: <http://192.168.1.168/0.ts> <http://192.168.1.168:8080/0.ts>

HLS URL:Disable

FLV URL:Disable

RTSP URL: <rtsp://192.168.1.168/0> <rtsp://192.168.1.168:8554/0>

RTMP URL:Disable

RTMP PUSH URL:Disable

Multicast URL:Disable

SRT URL: <srt://192.168.1.168:9000>

SRT PUSH URL:Disable

Preview(Delay 1000ms)

For P2P, select SRT PUSH and enter the destination IP Address and Port see later down below

You can check it by VLC: *(please note, the @ in the URI is not necessary like in udp/rtp)*



Some more useful links regarding SRT:

A Media server to handle SRT and more: The Open Broadcaster Software

<https://obsproject.com/>

<https://obsproject.com/wiki/Streaming-With-SRT-Protocol:>



Streaming With SRT Protocol

This feature requires OBS Studio 25.0 or newer.

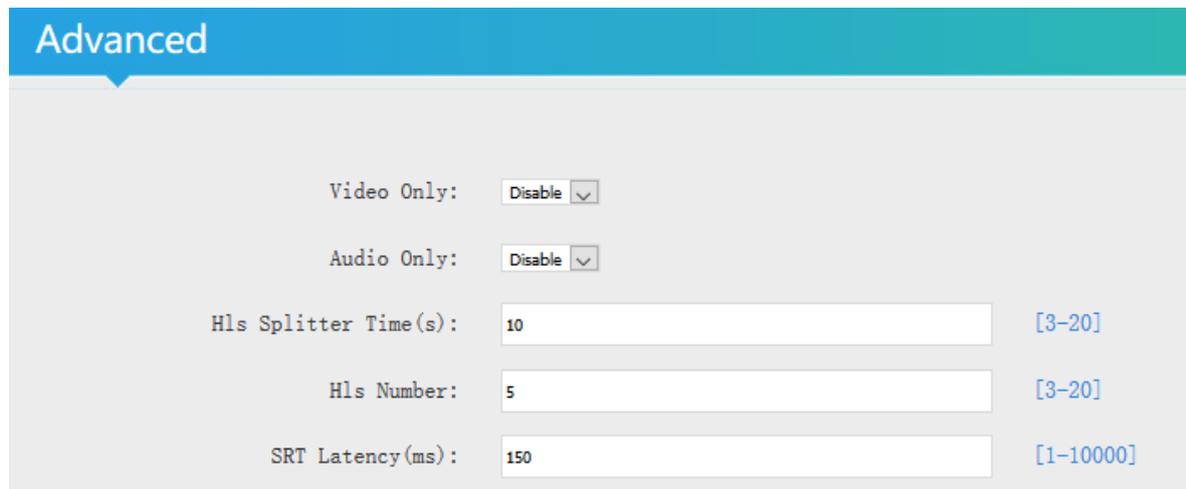
Table of Contents:

- General Overview
- Can SRT be used with Twitch or my favorite service?
 - Services
 - Encoders
 - Servers
 - Players
- How to set up OBS Studio
 - Option 1: Stream SRT using the Streaming output
 - Option 2: Stream SRT using the Custom FFmpeg Record output
- Examples of setups
 - Relay server to Twitch

<https://github.com/obsproject/obs-studio>

<https://github.com/haivision/srt>

SRT Latency settings are to be implemented currently like in the HDE-265:



Advanced

Video Only:

Audio Only:

Hls Splitter Time(s): [3-20]

Hls Number: [3-20]

SRT Latency(ms): [1-10000]

Check the Status page:

Main stream

```

Encode Type:H.264
Encode Size:1920x1080@25
Bitrate(kbit):2500
MJPG URL: http://192.168.1.168/0.mjpg
JPG URL: http://192.168.1.168/0.jpg
TS URL: http://192.168.1.168/0.ts http://192.168.1.168:8080/0.ts
HLS URL:Disable
FLV URL:Disable
RTSP URL:rtsp://192.168.1.168/0 rtsp://192.168.1.168:8554/0
RTMP URL:Disable
RTMP PUSH URL:Disable
Multicast URL:Disable
SRT URL:srt://192.168.1.168:9000
SRT PUSH URL:Disable
Preview(Delay 1000ms)

```

For P2P, select SRT PUSH and enter the destination IP Address and Port:

Example Video Encoder & Decoder SRT settings as a couple:

For HDMI/VGA&CVBS/SDI Decoder-Support h264 & h265, decoder SRT playing the URI as, here the encoder works as caller (SRT push URI) and listener (SRT URI port):

```

srt://ip:port # encoder as Listener, decoder get srt from encoder, here 'ip' is the Encoder IP.
srt://port or srt://@port # encoder mode as caller, push SRT to the decoder, (encoder SRT push
URI as srt://decoder ip:port)

```

With passphrase/Encryption, decoder SRT play URI:

```

srt://passpharese@ip:port # encoder as Listener, decoder get SRT stream from encoder, here 'IP'
is the Encoder IP.

```

```

srt://passphrase@port # encoder mode as caller, push srt to the decoder.

```

See below screenshot for settings:

Main stream

Encoding type: H.265

FPS: 25 [5-60]

GOP: 30 [5-300]

Bitrate (dbit): 2500 [32-32000]

Encoded size: 1280x720

Bitrate control: vbr

TS URL: /0.ts Enable

MMS URL: /0.m3u8 Enable

FLV URL: /0.flv Enable

RTSP URL: /0 Disable

RTMP URL: /0 Disable

RTMP (S)/RTSP PUSH URL: rtmp://28515w1109.qicp.vip:51992/live/10 Disable

Multicast IP: 238.0.0.1 Disable

Multicast port: 1234 [1-65535]

SRT URL Port: 9000 Enable [1-65535]

SRT PUSH URL: srt://192.168.1.169:9000 Enable

SRT Encryption Password: 0123456789 Disable

Set up

TS URL: /1.ts Enable

MMS URL: /1.m3u8 Disable

FLV URL: /1.flv Disable

RTSP URL: /1 Disable

RTMP URL: /1 Disable

RTMP (S)/RTSP PUSH URL: rtmp://192.168.1.50/live/1 Disable

Multicast IP: 238.0.0.1 Disable

Multicast port: 1235 [1-65535]

SRT URL Port: 9001 Enable [1-65535]

SRT PUSH URL: srt://192.168.1.169:9001 Enable

SRT Encryption Password: 0123456789 Enable

Set up

4K Decoder H.265/H.264

Status

Address setting

Advance setting

System setting

Advance setting

System setting

Status

System status

runtime: 0000-00-00 00:15:06
 cpu usage: 7%
 mem usage: 52MB/253MB
 output format: 1080P50
 decode wndnum: 4

Channel1

addr: srt://192.168.1.170:9000
 status: normal
 frame rate(fps): 25
 code rate(kbit/s): 2287

Channel2

addr: srt://@9000
 status: normal
 frame rate(fps): 25
 code rate(kbit/s): 437

Channel3

addr: srt://0123456789@192.168.1.170:9001
 status: normal
 frame rate(fps): 30
 code rate(kbit/s): 524

output format: 1080P50
 decode wndnum: 4

Channel1

addr: srt://192.168.1.170:9000
 status: normal
 frame rate(fps): 25
 code rate(kbit/s): 2031

Channel2

addr: srt://@9000
 status: normal
 frame rate(fps): 25
 code rate(kbit/s): 813

Channel3

addr: srt://0123456789@192.168.1.170:9001
 status: normal
 frame rate(fps): 30
 code rate(kbit/s): 527

Channel4

addr: srt://0123456789@9001
 status: normal
 frame rate(fps): 30
 code rate(kbit/s): 497

OSD

Status
Network
Main stream
Substream
Audio
System

Finally: To get more information about the deeper details of the encoder settings and configuration issues, please download the combined PDF – Manual from our website www.blankom.de.

This Product is manufactured in PRC (China), HS-Code: 85176200 (Europe Zoll-Tarif-Nummer)

Anmerkung:



Alle von uns veröffentlichten Betriebsanleitungen richten sich an den Antennen- und IT-Fachmann, der über grundlegende Kenntnisse der Empfangs-, Netzwerk- und Anlagentechnik verfügt. Die Einhaltung aller relevanten Vorschriften und Richtlinien für den Aufbau und Betrieb von solchen Anlagen obliegt dem Installateur und/oder dem Betreiber. Insbesondere sind die in den jeweiligen Ländern geltenden Vorschriften und Richtlinien für die Inbetriebnahme speziell für den Stromanschluß und alle mit den Produkten in Zusammenhang stehenden und geltenden Normen und Gesetze einzuhalten.

Remark:



All operating instructions published by us are intended for the antenna and IT specialist who has basic knowledge of reception, network and system technology. Compliance with all relevant regulations and guidelines for the installation and operation of such systems is the responsibility of the installer and/or the operator. In particular, the regulations and guidelines applicable in the respective countries for commissioning, especially for the power connection, and all standards and laws related to the products must be complied with.

Annotation :



Tous les modes d'emploi que nous publions sont destinés aux professionnels de l'antenne et de l'informatique qui ont des connaissances de base en matière de réception, de mise en réseau et de technologie des équipements. Le respect de toutes les réglementations et directives pertinentes pour l'installation et l'exploitation de ces systèmes relève de la responsabilité de l'installateur et/ou de l'exploitant. En particulier, il convient de respecter les réglementations et directives applicables dans les pays respectifs pour la mise en service, notamment pour le raccordement électrique, ainsi que toutes les normes et lois relatives aux produits.

Annotazione:



Tutte le istruzioni per l'uso da noi pubblicate sono destinate al professionista dell'antenna e dell'informatica che ha una conoscenza di base della tecnologia di ricezione, di rete e delle apparecchiature. Il rispetto di tutti i regolamenti e le linee guida pertinenti per l'installazione e il funzionamento di tali sistemi è responsabilità dell'installatore e/o dell'operatore. In particolare, devono essere rispettati i regolamenti e le linee guida applicabili nei rispettivi paesi per la messa in funzione, soprattutto per il collegamento alla rete elettrica e tutte le norme e le leggi relative ai prodotti.

Anotación:



Todas las instrucciones de uso publicadas por nosotros se dirigen al profesional de la antena y de la informática que tiene conocimientos básicos de recepción, de redes y de tecnología de equipos. El cumplimiento de todos los reglamentos y directrices pertinentes para la instalación y el funcionamiento de dichos sistemas es responsabilidad del instalador y/o del operador. En particular, deben cumplirse los reglamentos y directrices aplicables en los respectivos países para la puesta en marcha, especialmente para la conexión de la energía y todas las normas y leyes relacionadas con los productos.

Anotação:



Todas as instruções de operação publicadas por nós são destinadas ao profissional de antena e TI que possui conhecimentos básicos de recepção, rede e tecnologia de equipamentos. O cumprimento de todos os regulamentos e diretrizes relevantes para a instalação e operação de tais sistemas é de responsabilidade do instalador e/ou do operador. Em particular, os regulamentos e diretrizes aplicáveis nos respectivos

Quick-Start-Manual



países para comissionamento, especialmente para a conexão de energia e todas as normas e leis relacionadas aos produtos devem ser obedecidas.

Installation Notes

All types of the IRENIS-BLANKOM family are 19" devices with 1 RU height designed for installation in 19" racks. In addition to the front panel screws an internal module support is required at the rack.

Depending on the Frontend used and the operating adjustments, the RF-input port carries DC Voltage (13V /18V, max. 400 mA).

By connecting a mains cable, the device can become functional without any auxiliary appliances. The power supply units are designed for the wide range of 100-230V AC; a manual adjustment of the voltage is not necessary.

For some models the second power connector is feeding another independent power supply for internal redundancy. For a maximum of redundancy both power supplies should use different circuits.

All the outputs are decoupled from one another. Thus, the circuit does not have any effect on the functioning of the device. Connections that are not required need not to be terminated.

Suggestion: CAT 6E Ethernet cable for Gigabit-Ethernet

Note:

IPv4 global scope sessions use multicast addresses in the range 224.2.128.0 - 224.2.255.255 with SAP Announcements being sent to 224.2.127.254 Port 9875 (note that 224.2.127.255 is used by the obsolete SAPv0 and MUST NOT be used).

IPv4 administrative scope sessions using administratively scoped IP multicast. The multicast address to be used for announcements is the highest multicast address in the relevant administrative scope zone. For example, if the scope range is 239.16.32.0 - 239.16.33.255, then 239.16.33.255 is used for SAP Announcements.