

HDD-20E User Manual

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1. The HDD-20E Introduction

The HDD-20E is a mini and professional high-definition AV decoder with built-in H.265 and H.264 Onvif, RTSP, UDP, TCP, and SRT protocols. It decodes network cameras, IP encoders, NVRs, and other IP network video sources, and outputs in high-definition HDMI signals.

2. Product Features

1. Mini form factor: Easy to carry.
2. Low power consumption & USB-powered: You can power it with USB connection to the display directly without additional power adapter.
3. HDMI type-A male design: You can plug it to the HDMI port of the display directly without additional HDMI cable, making the setup neat and tidy.
4. 4K & 2K decoding: Support decoding 4K and 2K video at high bit rate with HEVC or AVC codec.
5. Output in 4K & 2K: Support HDMI output in 4K & 2K. The decoder can automatically output in best HDMI definition according to the definition of the display. Support automatically up-scaling and down-scaling for output.
6. Decode 4 video sources & output in multi-window display: The decoder supports full-screen, picture-in-picture, side-by-side, three-windows, and quad-view scene placements for output. Moreover, you can save the output scenes for fast call.
7. 4K SRT decoding: Pair with DDMALL or third-party SRT encoders to perform peer-to-peer IP video streaming securely and reliably in low latency.
8. Support decoding IP cameras and NVRs from different brands to convert IP stream to HDMI signal for output.
9. Support multiple protocols including Onvif, RTSP, UDP, TCP, and SRT.
10. Proprietary Low-latency protocol: Pair with DDMALL Low-latency encoder HEV-2K/HEM-4K, and enable DDMALL proprietary Low-latency protocol for video transmission with the latency as less as 80ms.
11. Support device online upgrading.

3. Parameters

3.1 General

Power Supply	5V/1A (USB-powered)
Power Consumption	2W
Work Temperature	-10~50℃ (14~122°F)
Storage Temperature	-20~85℃ (-4~185°F)
Work Humidity	10%-90%RH (Non-condensing)
Weight	35g
Size	75mm(L)*32mm(W)*22mm(H)
MTBF	30,000h

Table 1

3.2 Video

HDMI Standard	HDMI 2.0
Supported HDMI Output Resolution	3840*2160P@60/50/30/25/24Hz 1920×1080P@60/50/30/25/24Hz 1920×1080i@60/50Hz 1280×720P@60/50
Video Codec	H.264/AVC、H.265/HEVC
Supported IP Input Resolution	3840×2160P@60/30Hz 1920×1080P@60/30Hz 1280×720P@60/30Hz

Table 2

3.3 Audio

Audio Output	HDMI audio 3.5mm analog audio
Audio Codec	G.711u, AAC

Table 3

3.4 System

Supported Protocol	SRT, RTSP, ONVIF, UDP
Control Method	Web UI
Factory Default Parameters	Web-UI login credentials: Username: admin Password: admin
	Default IP: 192.168.1.250

Table 4

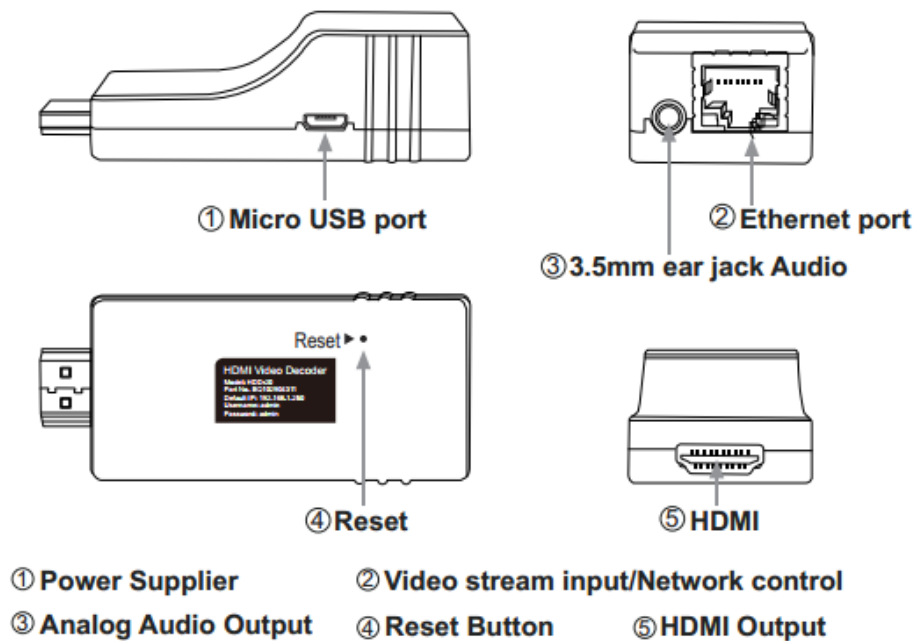
Note: Specifications subject to change without notice.

4. Packing List



Picture 1

5. Product Appearance Overview



Picture 2

5.1 Ethernet Indicators

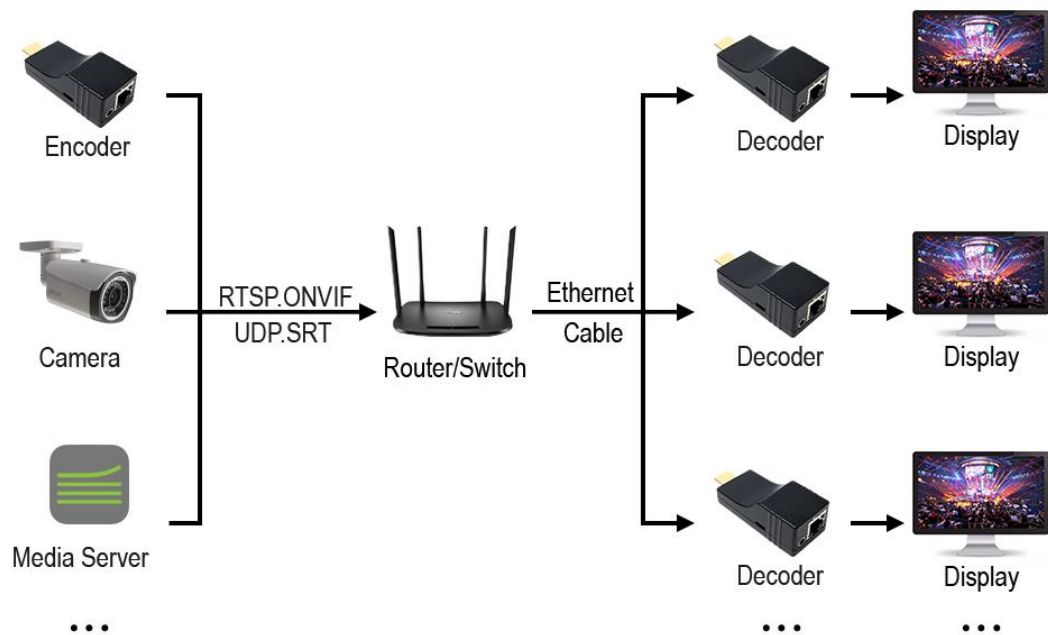
Status	Green Light	Orange Light
Off	Power off	The decoder hasn't connected network successfully
Solid on	Power on	/
Flash Slowly	The decoder is resetting factory default settings	The decoder has connected network successfully
Flash Quickly	/	The decoder is pulling and playing video streams

Table 5

5.2 Device Set Button

Reset factory settings: press the device set button with a pin for about 3-5s until the Ethernet green light flashes slowly. The HDD-20E has been reset to factory settings, and all parameters are reset to default values (The default IP of the HDD-20E is 192.168.1.250).

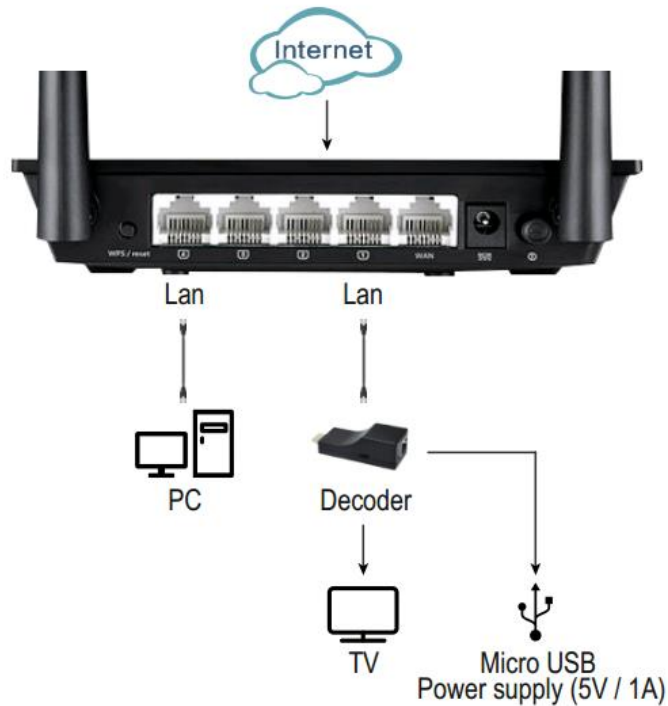
6. Typical Setup Diagram



Picture 3

7. Hardware Installation

1. Connect the HDMI connector of the HDD-20E to the HDMI port of the display.
2. Use an Ethernet cable to connect the HDD-20E to the Router Lan port or the Switch.
3. Power the HDD-20E with USB connection (USB 5V/1A power supply).
4. Set the control terminal of the HDD-20E to the same Lan as the HDD-20E, and the IP address in the same network segment as the HDD-20E (the default IP of the HDD-20E is 192.168.1.250).
5. General network connection diagram of the HDD-20E is shown as below picture.



Picture 4

8. Network Settings

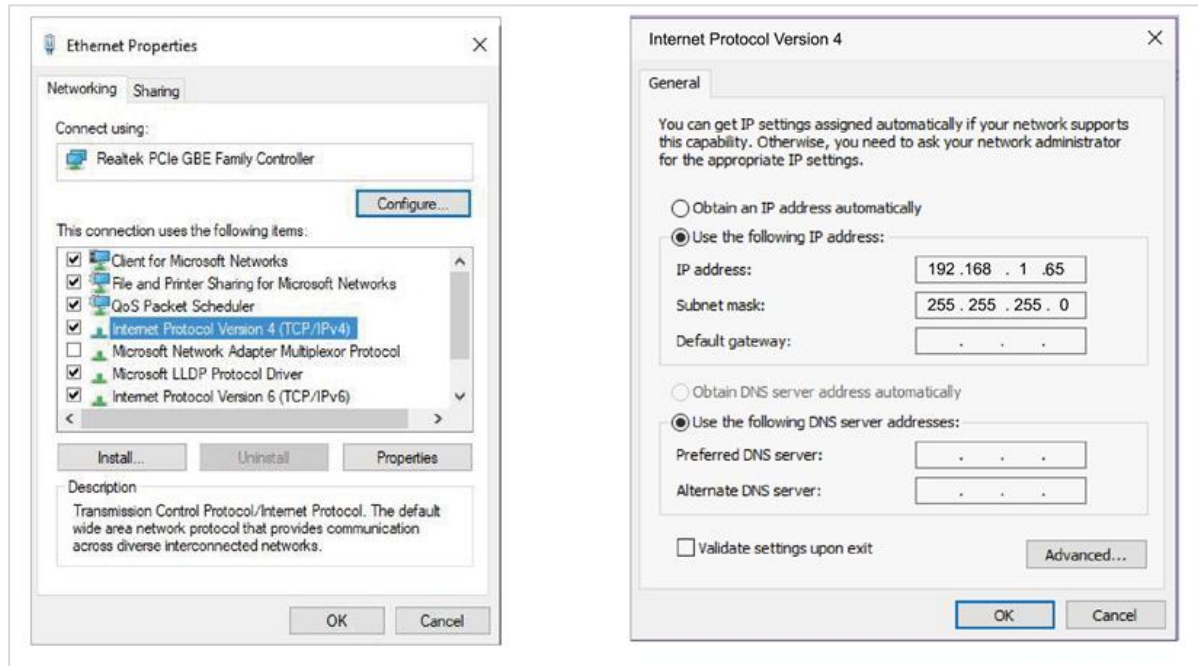
8.1 Edit the IP of the Control Computer

By default, the IP of the HDD-20E is 192.168.1.250. The control computer that is used to control the decoder must be in the same Lan as the HDD-20E, and IP in the same network segment as the decoder. For the first use, you need to edit the IP of the control computer to be 192.168.1.xxx (xxx range is 0-255 except 250). Here we introduce the operation methods of editing the Windows computer IP/

1. Open the Windows computer, and press  + R keys.
2. Enter "ncpa.cpl" in the run bar, and click "Confirm" to enter the Ethernet connection page.
3. On the Ethernet connection page, you can see the status of the current Ethernet connection. Double click the connected network (the network in the same Lan as the decoder) to enter its Ethernet setting page.
4. Click "Ethernet Properties" on the setting page, and double click "Internet Protocol

Version 4 (TCP/IPv4)".

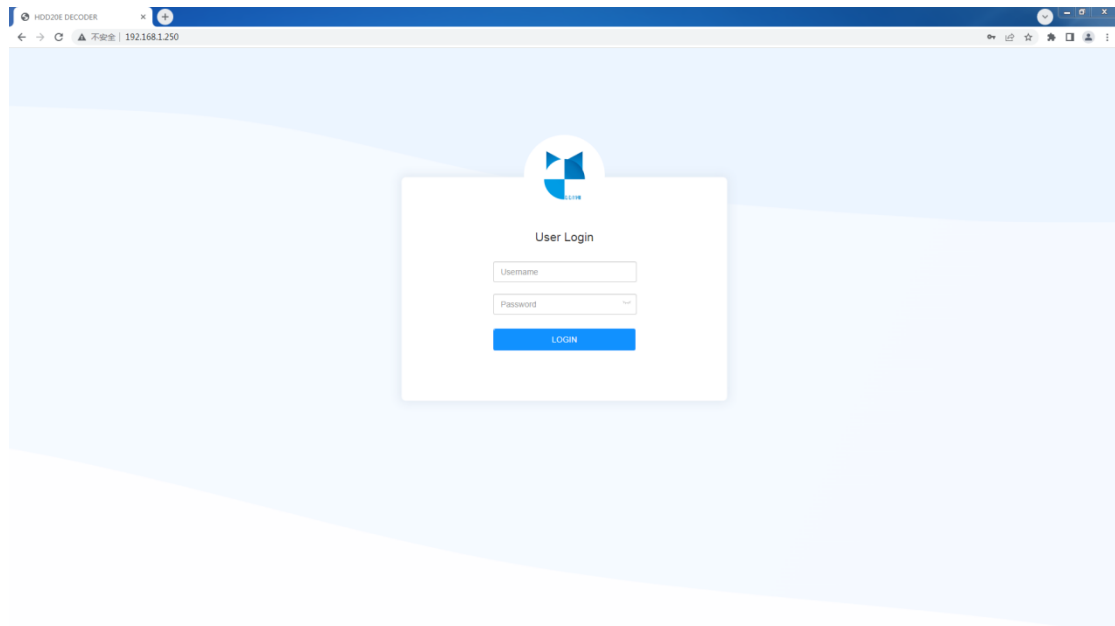
5. Check "Use the following IP address" option, and enter "192.168.1.xxx" (xxx range is 0-255 except 250) in the IP box, enter "255.255.255.0" in the Subnet mask box, and double click "OK" to save the settings.



Picture 5

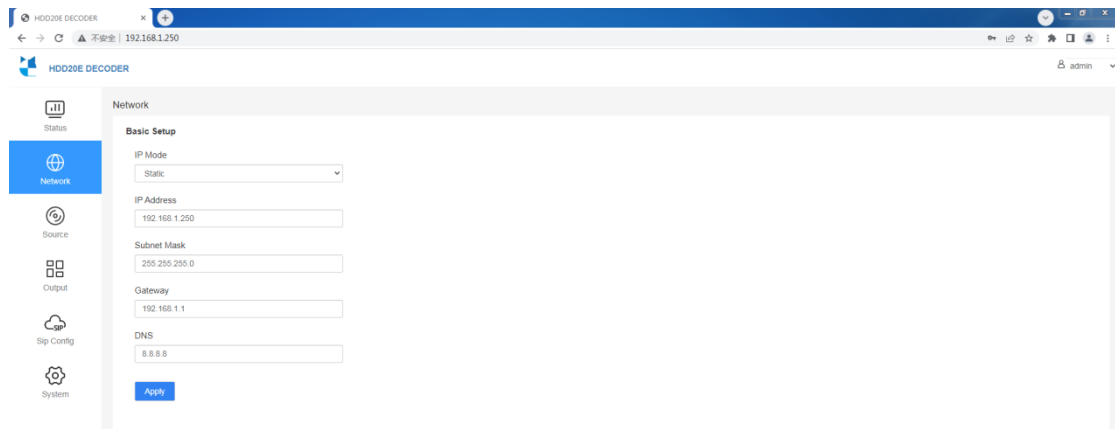
8.2 Log in to the Decoder Web UI

1. Open the browser of the control computer, enter "192.168.1.250" (the default IP of the HDD-20E" in the URL address to load the login page of the decoder, and enter username and password (the default username and password are admin/admin) to log in to the web UI of the decoder.



Picture 6

2. On the web UI, Click “Network” icon on the left menu to enter the Network setting page, where you can edit the IP of the HDD-20E.



Picture 7

IP Mode: DHCP or Static.

- If you select DHCP, the IP of the HDD-20E is dynamic. The IP Address, Subnet Mask, Gateway, and DNS are automatically assigned by the DHCP server in the same Lan as the HDD-20E (For example, the Router that the HDD-20E connects). You can log in to the management interface of the Router to check the IP that is assigned to the HDD-20E.
- If you select Static, the IP of the HDD-20E is fixed. You need manually set the IP Address, Subnet Mask, Gateway, and DNS.
- Please click “Apply” to take the settings effect after you finish the settings, and use the use

IP to log in to the web UI of the HDD-20E for parameter settings (Please make sure the control device is in the same Lan as the new IP of the HDD-20E).

9. Decoding Parameter Settings

9.1 Log in to the Web UI of the Decoder

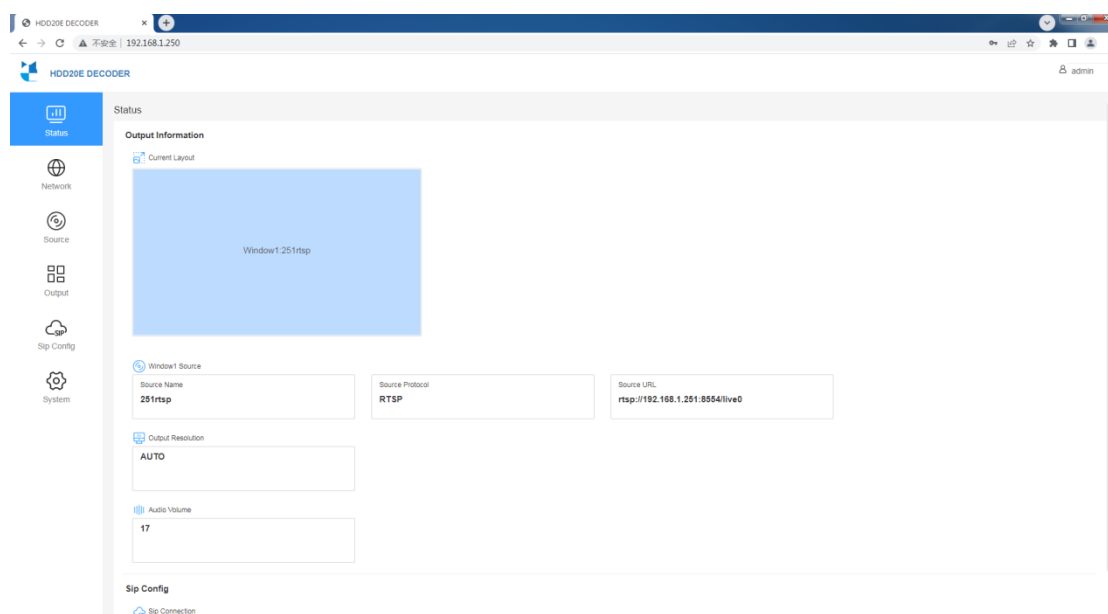
1. For the first use, please refer to **8. Network Settings**, log in to the web UI of the HDD-20E to edit the IP of the HDD-20E regarding your using network environment.

2. Make sure the control terminal of the decoder is in the same Lan as the HDD-20E such as the mobile phone, laptop, tablet etc., and enter the IP of the decoder to load its login interface. Enter the username and password (admin/admin) to enter the decoder's web UI, where you can configure the Network, Source (add IP stream source), Output, and System for the HDD-20E.

Note: The control terminal that is used to control the HDD-20E, such as mobile phone, laptop, tablet etc. must be in the same Lan as the HDD-20E, and IP in the same network segment as the decoder.

9.2 Status Introduction

Click the Status icon on the left menu to enter the Status page, where you can check the decoder's current status including Output windowing modes, IP stream source name, Protocol, URL, and output resolution etc.



Picture 8

1. Current Layout

It displays the current output windowing mode of the HDD-20E, and the playing IP stream source name of each window.

2. Window Source

1) Source Name: It shows the IP stream name which is being decoded and played currently.

2) Source Protocol: It shows the protocol that is used for the current IP stream.

3) Source URL: It shows the URL address of the current IP stream.

3. Output Resolution

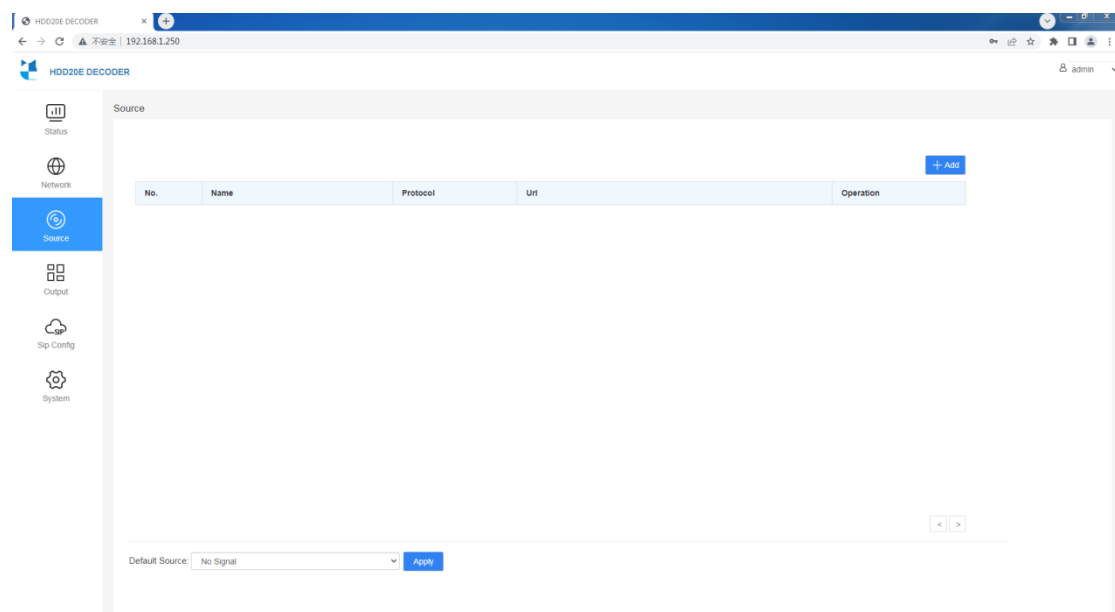
It displays the output resolution of the HDD-20E. When you set it to Auto mode, the HDD-20E will automatically output the best resolution to match the recommended resolution of the display connected.

4. Audio Volume

It displays the current output volume of the HDD-20E

9.3 Source Settings

Click the Source icon on the left menu to enter the Source page, where you can add the network stream sources, which need to be decoded. The HDD-20E supports decoding RTSP, ONVIF, UDP, and SRT network stream sources.



Picture 10

9.4.1 Add STSP Stream Source

1. Click “Add” button, and the web prompts the IP stream source adding window.
2. Stream Protocol: Select RTSP.
3. Index: The sequence number of the IP stream, which is automatically generated according to the adding time orderly.
4. Name: You can customize the name for the added IP stream. For example: Encoder-RTSP.
5. URL: Enter the URL address of the RTSP stream that need to be decoded. Here for example, when we need to decode the RTSP stream of the encoder HEV-4K, we enter the RTSP URL of the HEV-4K “rtsp://192.168.1.251:8554/live0”.
6. RTSP Connection: You can select RTSP Over TCP or RTSP Over UDP according to the type of the RTSP stream to be decoded.
7. Security: If the RTSP stream is encrypted, please check “Yes” box, and enter the username and password. If the RTSP stream is not encrypted, please check “No” box.
8. Click “Add” after you finish the parameter settings. When the web prompts a successful message, you can close the window to exit the source adding work.

Add Source

X

Stream Protocol

RTSP

Index

1

Name

Encoder-RTSP

URL:

rtsp://192.168.1.251:8554/live0

RTSP Connection

RTSP over TCP

Security

☐ Yes

☒ No

User Name

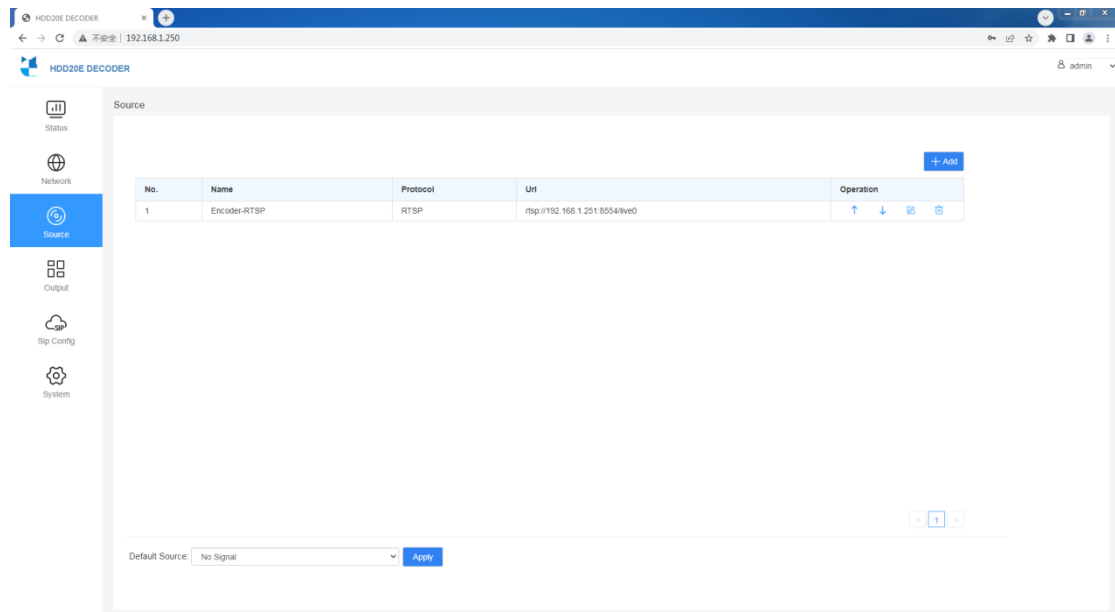
Password

Exit

Add

Picture 11

9. Go back to the Source page. You can see the new added IP source on the Source list. Click the buttons under the Operation section to control the IP source.
- ✓ Click  or  to change the sequence order of the IP source. When you click , the current IP source will swap the position with the previous source. When you click , it will swap the position with the later source.
 - ✓ Click  to edit the IP source.
 - ✓ Click  to delete the IP source.



Picture 12

9.4.2 Add ONVIF Stream Source

1. Click “Add” button, and the web will prompt the IP stream source adding window.
2. Stream Protocol: Select ONVIF.
3. Index: The sequence number of the IP stream, which is automatically generated according to the adding time orderly.
4. Name: You can customize the name for the added IP stream. For example: Camera-ONVIF.
5. IP Address: Enter the IP address of the ONVIF stream. Here for example, the IP stream source is an network camera. We enter the IP of the camera here “192.168.1.200”.
6. RTSP Connection: You can select RTSP Over TCP or RTSP Over UDP according to the type of the ONVIF stream to be decoded.
7. Security: If the ONVIF stream is encrypted, please check “Yes” box, and enter the username and password. If the ONVIF stream is not encrypted, please check “No” box.
8. Click “Add” after you finish the parameter settings. When the web prompts a successful message, close the window to exit the stream source adding work.

Add Source

X

Stream Protocol

ONVIF

Index

2

Name

Camera-ONVIF

IP Address:

192.168.1.200

RTSP Connection

RTSP over TCP

Security

☐ Yes ☒ No

User Name

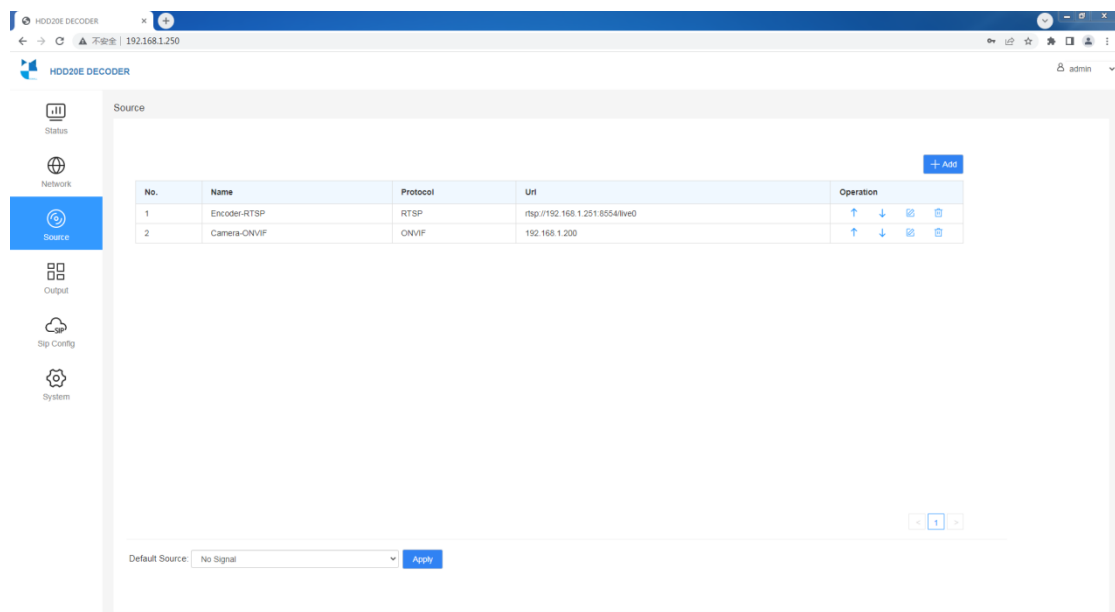
Password

Exit

Add

Picture 13

9. Go back to the Source page. You can see the added IP stream on the Source list. Click the buttons under the Operation section to control the IP stream.
- ✓ Click  or  to change the sequence order of the network stream. When you click , the current stream will swap the position with the previous stream source. When you click , it will swap the position with the later stream source.
 - ✓ Click  to edit the IP source.
 - ✓ Click  to delete the IP source.



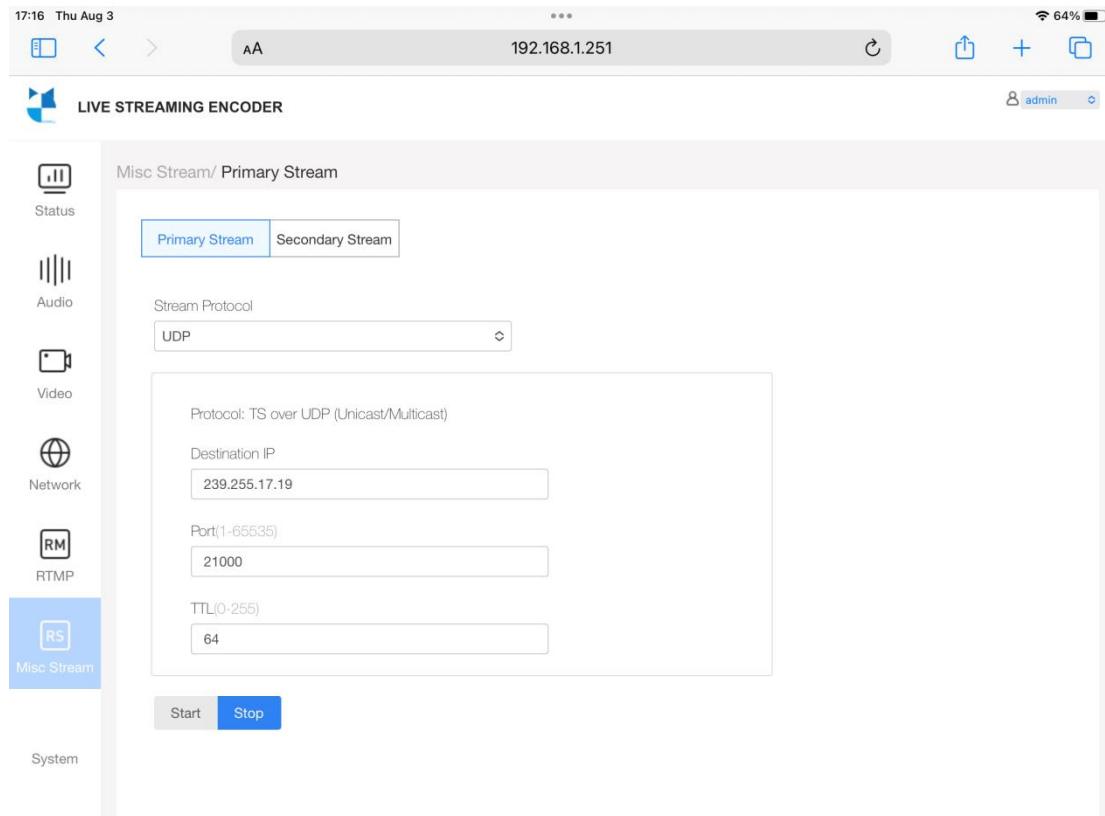
Picture 14

9.4.3 Add UDP Stream Source

In this part, we will use the DDMALL encoder HEV-4K as the UDP stream source for illustration. If you use other encoders or encoding software, you can refer to this part.

UDP Multicast Mode:

1. Log in to the encoder HEV-4K web UI, and click Misc Stream to enter the UDP multicast setting page. For example, the Destination IP is set to 239.255.17.19 (the Multicast IP range of the encoder is 244.0.0.0 to 239.255.255.255), the Port is set to 21000 (the Port range of the encoder is 21000 to 22000), and the TTL is set to 64 (The TTL range is 0 to 255). Click “Start” after you finish the settings to conduct video transmission.



Picture 15

2. Go back to the HDD-20E web UI, enter the Source page, click “Add” button, and the web will prompts the IP stream source adding window.
3. Stream Protocol: Select UDP.
4. Index: The sequence number of the IP stream, which is automatically generated according to the adding time orderly.
5. Name: You can customize the name for the IP stream. For example: UDP-Multicast.
6. Multicast: Enable or disable the UDP Multicast. Here due to the HEV-4K has enabled UDP Multicast, we select “Enabled” here.
7. URL: The format of the URL is “udp://Multicast IP of the encoder”. The Multicast IP of the HEV-4K here is 239.255.17.19, so we enter “udp://239.255.17.19” here.
8. Port: Enter the same Port number as the encoder. Here we enter 21000.
9. Click “Add” after you finish the parameter settings. When the web prompts a successful message, close the window to exit the source adding work.

Add Source

X

Stream Protocol

UDP

Index

3

Name

UDP-Multicast

Multicast

Enabled

URL

udp://239.255.17.19

Port(21000-22000)

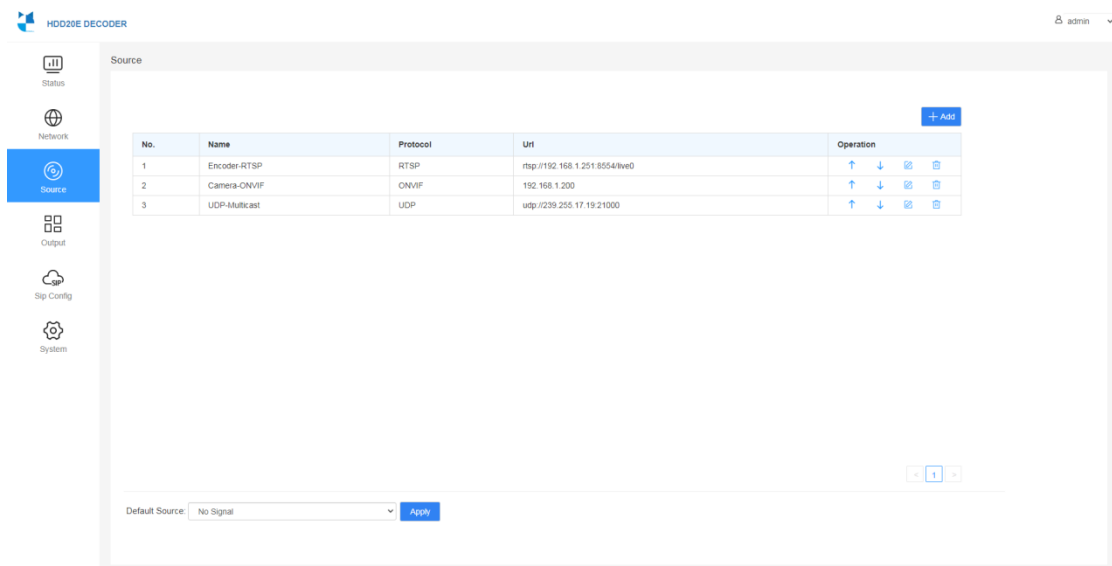
21000

Exit

Add

Picture 16

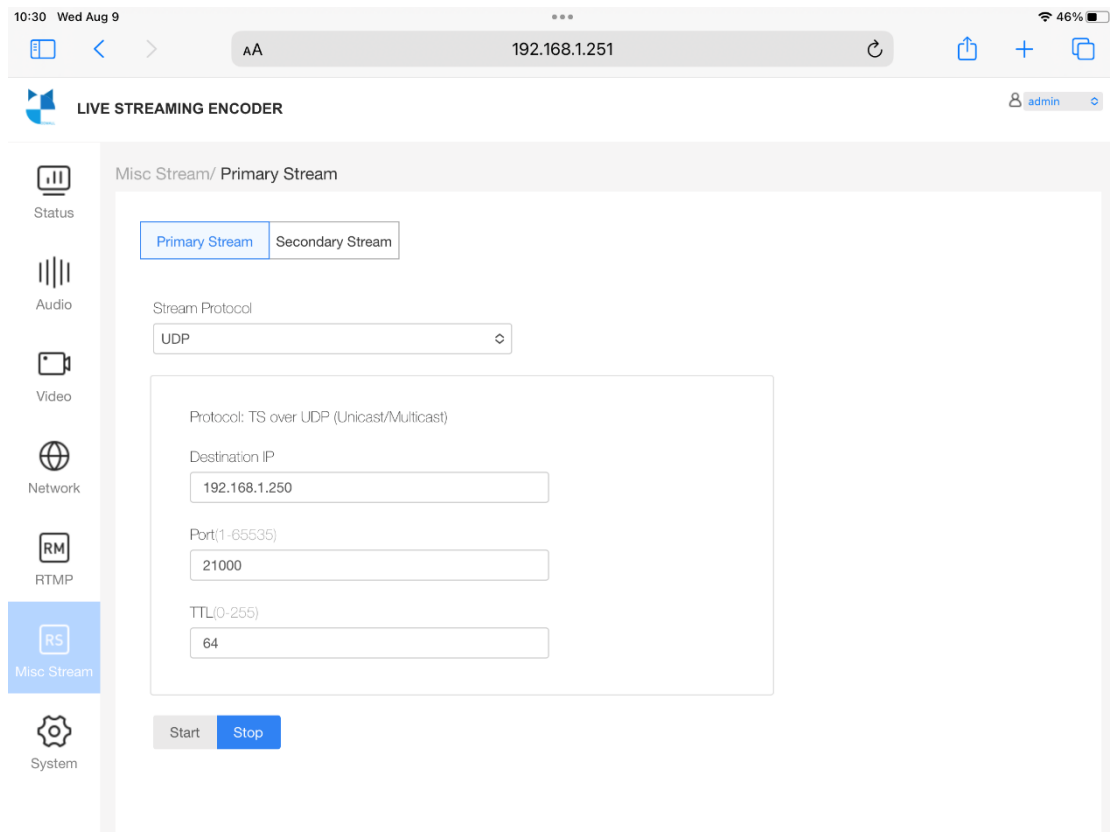
10. Go back to the Source page. You can see the added IP stream on the Source list. Click the buttons under the Operation section to control the IP stream.
- ✓ Click  or  to change the sequence order of the network stream. When you click , the current stream will swap the position with the previous stream source. When you click , it will swap the position with the later stream source.
 - ✓ Click  to edit the IP source.
 - ✓ Click  to delete the IP source.



Picture 17

UDP Unicast Mode:

1. Log in to the encoder HEV-4K web UI, and click Misc Stream to enter the UDP Unicast setting page. For example, the Destination IP is set to 192.168.1.250 (the IP address of the encoder), the Port is set to 21000 (the Port range of the encoder is 21000 to 22000), and the TTL is set to 64 (The TTL range is 0 to 255). Click “Start” after you finish the settings to conduct video transmission.



Picture 18

2. Go back to the HDD-20E web UI, enter the Source page, click the “Add” button, and the web will prompt the stream source adding window.
3. Stream Protocol: Select UDP.
4. Index: The sequence number of the IP stream, which is automatically generated according to the adding time orderly.
5. Name: You can customize the name for the IP stream. For example: UDP-Unicast.
6. Multicast: Enable or disable UDP Multicast. Here for example the HEV-4K uses UDP Unicast, so we select “Disabled” here.
7. Port: Enter the same Port number as the encoder. Here we enter 21000.
8. Click “Add” after you finish the parameter settings. When the web prompts a successful message, close the window to exit the source adding work.

Add Source

X

Stream Protocol

UDP

Index

4

Name

UDP-Unicast

Multicast

Disabled

Port(21000-22000)

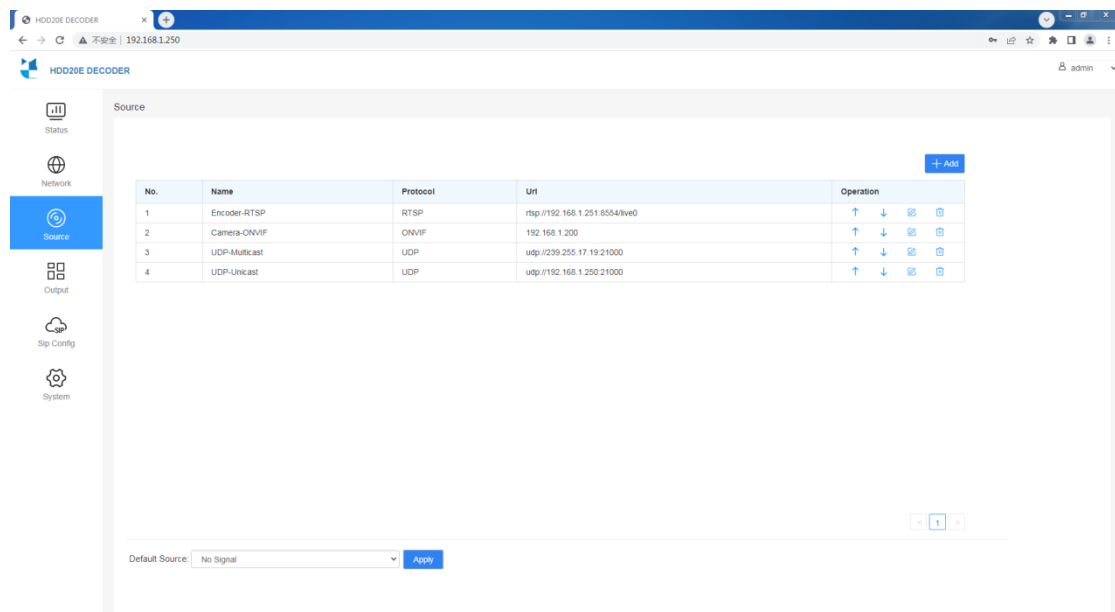
21000

Exit

Add

Picture 19

9. Go back to the Source page. You can see the added IP stream on the Source list. Click the buttons under the Operation section to control the IP stream.
- ✓ Click  or  to change the sequence order of the network stream. When you click , the current stream will swap the position with the previous stream source. When you click , it will swap the position with the later stream source.
 - ✓ Click  to edit the IP source.
 - ✓ Click  to delete the IP source.



Picture 20

9.4.4 Add SRT Stream Source

The SRT has 3 transmission modes including Caller mode, Listener mode and Rendezvous mode. You can use any of the modes to initiate SRT session for video transmission. Here we use DDMALL HDD-20E and encoder HEV-4K for illustration to introduce how to set up SRT session.

- When the encoder works in Listener mode, the decoder needs to be Caller mode. The decoder is the initiator of the SRT session.
- When the encoder works in Caller mode, the decoder needs to be Listener mode. The encoder is the initiator of the SRT session.
- When the encoder works in Rendezvous, the decoder need to be Rendezvous mode. The encoder and decoder use the same port for SRT session.

SRT Mode	How it works
Caller	Set the source device or destination device to be the initiator of the SRT session. The Caller device must know the IP and listening port number of the Listener device.
Listener	Set the device to wait for the SRT session request. The Listener device only needs to know the port that it needs to wait

	for a SRT stream session.
Rendezvous	This mode allows the two devices to use the same port for SRT session. The source and destination must be in Rendezvous mode at the same time.

Table 6

Set the Decoder to SRT Caller Mode

1. Log in to the web UI of the HDD-20E, enter the Source page, click “Add” button, and the web will prompts the stream source adding window.
2. Stream Protocol: Select SRT.
3. Index: The sequence number of the IP stream, which is automatically generated according to the adding time orderly.
4. Name: You can customize the name for the added IP stream. For example: SRT-Caller.
5. Mode: Select Caller.
6. Destination Address: The format is “srt://IP address of the Listener device”. When the decoder is set to Caller mode, the encoder needs to be Listener mode. So we need to enter the IP address of the encoder. For example: the IP of the encoder is 192.168.1.251. we enter “srt://192.168.1.251” here.
7. Destination Port: The value needs to be same as the Source Port value of the Listener device. For example: we set to 4201.
8. Source Port: The value cannot be duplicated as the Destination Port value. For example: we set to 4202.
9. Latency(ms): Set the video buffering delay time. by default, it is 120ms with modification range 0-5000. Recommend to use the default value.
10. Encryption: The encryption setting for the SRT transmission. Support AES-128, AES-192, and AES-256 formats. If you choose to encrypt the SRT transmission, you need to set password. And only when the encoder use the same encryption format and password, can they communicate. If you don’t need to encrypt the SRT transmission, choose None. For example, we select None.

11. Bandwidth Overhead: Recommend to use the default value 25%. The higher the value, the more stable the SRT transmission, but the higher bandwidth.
12. Payload Size: It affects the SRT transmission efficiency. Recommend to use the default value 1316. You can edit it accordingly. The higher the value, the higher SRT transmission efficiency.
13. Click “Add” after you finish the parameter settings. When the web prompts a successful message, close the window to exit the source adding work.

The image displays two side-by-side screenshots of the 'Add Source' web interface, showing different configuration modes.

Left Screenshot (Caller Mode):

- Stream Protocol: SRT
- Index: 5
- Name: SRT-Caller
- Mode: caller
- Destination Address: srt://192.168.1.251
- Destination Port: 4201
- Source Port(2000-65535): 4202
- Stream Id: (empty)

Right Screenshot (Listener Mode):

- Destination Port: 4201
- Source Port(2000-65535): 4202
- Stream Id: (empty)
- Latency(ms)(0-5000): 120
- Encryption: None
- Passphrase(10-32 characters): (empty)
- Bandwidth Overhead%(5-100): 25
- Payload Size(0-1456): 1316

Both windows feature 'Exit' and 'Add' buttons at the bottom right.

Picture 21

14. Go to the web UI of the encoder HEV-4K, click Misc Stream, enter the SRT Listener mode setting page. The parameters settings are as follows:
 - 1) Stream Protocol: Select SRT.
 - 2) Mode: Select listener.
 - 3) Source Port: Set to 4201, which is same as the Destination Port value of the decoder.
 - 4) Latency: Set to 120, which is same as the Latency of the decoder.
 - 5) Encryption: Select None. As the HDD-20E is not encrypted, we select None as well. If the

decoder selects encryption, the encoder must use the same encryption format and password so that the encoder and decoder can communicate.

6) Bandwidth Overhead: Set to 25%, which is same as the value of the decoder.

7) Payload Size: Set to 1316, which is same as the value of the decoder.

8) Click “Start” after you finish the parameter settings to start video transmission.

08:59 Fri Aug 4 56%

AA 192.168.1.251

LIVE STREAMING ENCODER admin

Misc Stream/ Primary Stream

Primary Stream Secondary Stream

Stream Protocol
SRT

Mode
listener

Source Port(2000-65531)
4201

Latency(ms)(0-5000)
120

Encryption
None

Passphrase(10-32 characters, letters and numbers only)

Bandwidth Overhead(%) (5-100)
25

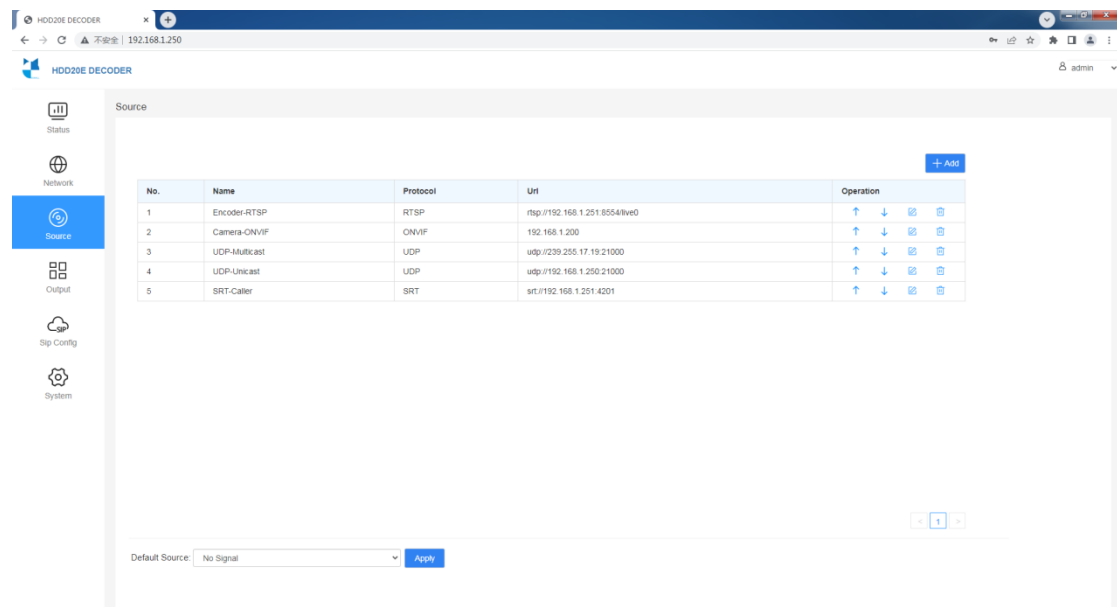
Payload Size(0-1456)
1316

Start Stop

Picture 22

15. Go back to the web UI of the HDD-20E, enter the Source page, and you can see the new added SRT-Caller IP stream on the Source list. Click the buttons under the Operation section to control the IP stream.

- ✓ Click  or  to change the sequence order of the network stream. When you click , the current stream will swap the position with the previous stream source. When you click , it will swap the position with the later stream source.
- ✓ Click  to edit the IP source.
- ✓ Click  to delete the IP source.



Picture 23

Set the Decoder to SRT Listener Mode

1. Log in to the web UI of the decoder HDD-20E, enter the Source page, click the “Add” button, and the web will prompts the stream source adding window.
2. Stream Protocol: Select SRT.
3. Index: The sequence number of the IP stream, which is automatically generated according to the adding time orderly.
4. Name: You can customize the name for the added IP stream. For example: SRT-Listener.
5. Mode: Select Listener.
6. Source Port: The value is same as the Destination Port value of the Caller device. Here for

example: we set to 4201.

7. Latency: The video buffering delay time. By default, it is 120ms with modification range 0-5000. Recommend to use the default value.
8. Encryption: Set encryption for the SRT transmission. Support AES-128, AES-192, and AES-256 encryption formats. If you choose to encrypt the SRT transmission, you need to set password. Only when the encoder uses the same encryption format and password, can they communicate for video transmission. If you choose not to encrypt the SRT transmission, select None. Here for example, we select None.
9. Bandwidth Overhead: Recommend to use the default value 25%. The higher the value, the more stable the SRT transmission, but the higher bandwidth.
10. Payload Size: It affects the SRT transmission efficiency. Recommend to use the default value 1316. You can edit it accordingly. The higher the value, the higher the SRT transmission efficiency.
11. Click “Add” after you finish the parameter settings. When the web prompts a successful message, close the window to exit the stream source adding work.

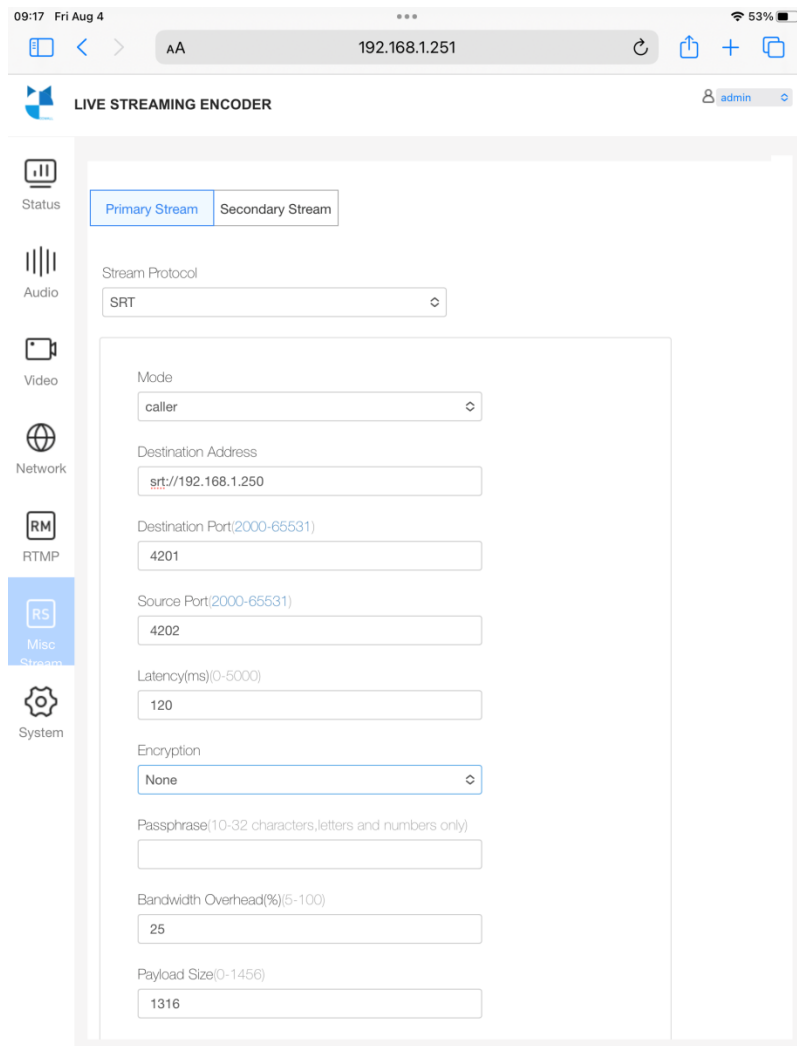
The image displays two side-by-side screenshots of the 'Add Source' dialog box, showing the configuration for an SRT stream source. The left screenshot shows the 'Stream Protocol' set to 'SRT' and 'Index' set to '6'. The right screenshot shows the 'Name' set to 'SRT-Listener' and 'Mode' set to 'listener'. Both screenshots show the 'Source Port' as '4201', 'Latency' as '120', 'Encryption' as 'None', 'Passphrase' as an empty field, 'Bandwidth Overhead' as '25', and 'Payload Size' as '1316'. Both screenshots have 'Exit' and 'Add' buttons at the bottom.

Field	Value
Stream Protocol	SRT
Index	6
Name	SRT-Listener
Mode	listener
Source Port(2000-65535)	4201
Latency(ms)(0-5000)	120
Encryption	None
Passphrase(10-32 characters)	
Bandwidth Overhead(5-100)	25
Payload Size(0-1456)	1316

Picture 24

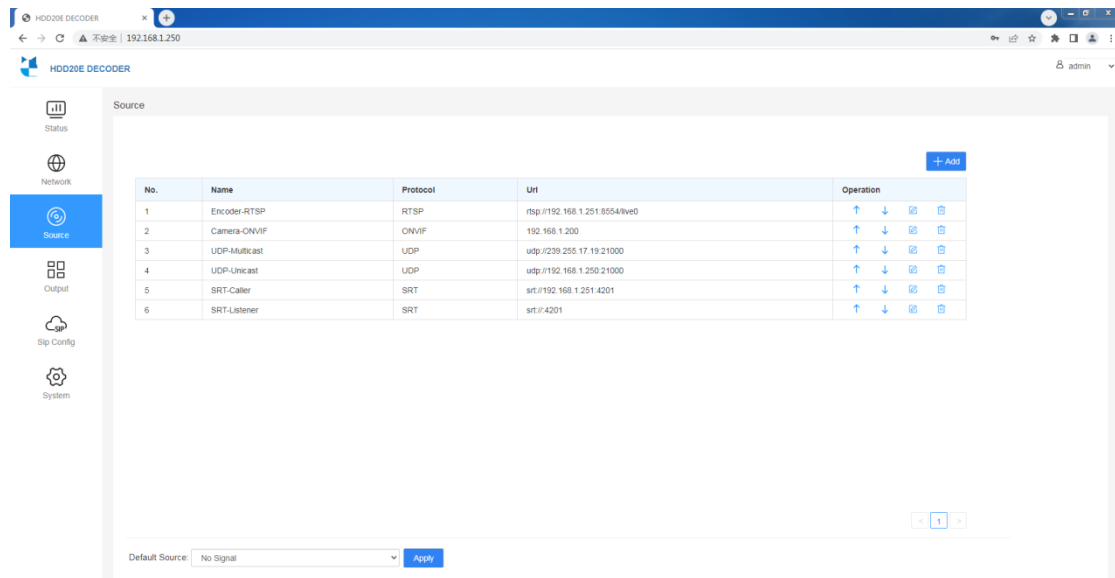
12. Log in to the encoder HEV-4K web UI, click Misc Stream to enter the SRT Caller mode setting page, and set the parameters as follows:

- 1) Stream Protocol: Select SRT
- 2) Mode: Select Caller.
- 3) Destination Address: Set to be: srt://192.168.1.250(The 192.168.1.250 is the IP of the decoder HDD-20E).
- 4) Destination Port: Set to 4201, which is the same as the Source Port value of the decoder.
- 5) Source Port: Set to 4202, which must not be duplicated as the Destination Port value of the encoder.
- 6) Latency: Set to 120, which is same as the Latency value of the decoder.
- 7) Encryption: Set to None. Due to the HDD-20E is not encrypted, we select None as well. If the decoder uses encryption, the encoder needs to use the same encryption format and password so that they can communicate for video transmission.
- 8) Bandwidth Overhead: Set to 25%, which is same as the value of the decoder.
- 9) Payload Size: Set to 1316, which is same as the value of the decoder.
- 10) Click "Start" after you finish to parameter settings to start video transmission.



Picture 25

13. Go back to the web UI of the HDD-20E, enter the Source page, and you can see the new added IP stream SRT-Listener. Click the buttons under the Operation section to control the IP stream.
 - ✓ Click  or  to change the sequence order of the network stream. When you click , the current stream will swap the position with the previous stream source. When you click , it will swap the position with the later stream source.
 - ✓ Click  to edit the IP source.
 - ✓ Click  to delete the IP source.



Picture 26

Set the Decoder to SRT rendezvous Mode

1. Log in to the HDD-20E web UI, enter the Source page, click “Add” button, and the web will prompts the stream source adding window.
2. Stream Protocol: Select SRT.
3. Channel: The sequence number of the IP stream, which is automatically generated according to the adding time orderly.
4. Name: You can customize the name for the IP stream. For example: SRT-Rendezvous.
5. Mode: Select Rendezvous.
6. Destination Address: The format is “srt://IP address of the encoder”. For example, we set it to: srt://192.168.1.251.
7. Destination Port: In Rendezvous mode, the Destination Port value of the decoder is same as that of the encoder. Here we set to 4201.
8. Source Port: No need to set. It will automatically generate the same value as the Destination Port.
9. Latency: The video buffering delay time. By default, it is 120ms with modification range 0-5000. Recommend to use the default value.
10. Encryption: Set the encryption for the SRT transmission. Support AES-128, AES-192, and AES-256 formats. If you choose to encrypt the SRT transmission, you need to set password. Only when the encoder uses the same encryption format and password, can they

communicate for SRT transmission. If you choose not to encrypt the SRT transmission, select None. Here for example, we select None.

11. Bandwidth Overhead: Recommend to use the default value 25%. The higher the value, the more stable the SRT transmission, but the higher bandwidth.
12. Payload Size: It affects the SRT transmission efficiency. Recommend to use the default value 1316. You can edit it accordingly. The higher the value, the higher SRT transmission efficiency.
13. Click “Add” after you finish the parameter settings. When the web prompts a successful message, close the window to exit the stream source adding work.

The image displays two identical 'Add Source' windows side-by-side. Each window contains the following fields and values:

- Stream Protocol: SRT (dropdown)
- Index: 7 (text input)
- Name: SRT-Rendezvous (text input)
- Mode: rendezvous (dropdown)
- Destination Address: srt://192.168.1.251 (text input)
- Destination Port: 4201 (text input)
- Source Port(2000-65535): 4201 (text input)
- Latency(ms)(0-5000): 120 (text input)
- Encryption: None (dropdown)
- Passphrase(10-32 characters): (empty text input)
- Bandwidth Overhead(5-100): 25 (text input)
- Payload Size(0-1456): 1316 (text input)

At the bottom of each window are 'Exit' and 'Add' buttons.

Picture 27

14. Log in to the encoder HEV-4K web UI, click Misc Stream to enter the SRT Rendezvous mode setting page. Set the parameters as follows:
 - 1: Stream Protocol: Select SRT.
 - 2) Mode: Select Rendezvous.
 - 3) Destination Address: Set to: srt://192.168.1.250 (The 192.168.1.250 is the IP of the decoder).

- 4) Destination Port: Set to 4201, which is same as the Destination Port value of the decoder.
- 5) Source Port: No need to set. It will automatically generate the same value as the Destination Port.
- 6) Latency: Set to 120, which is same as the Latency value of the decoder.
- 7) Encryption: Select None. Due to the HDD-20E select None, we select None for the encoder as well. If the decoder sets the encryption, the encoder needs to use the same encryption format and password so that they can communicate for video transmission.
- 8) Bandwidth Overhead: Set to 25%, which is same as the value of the decoder.
- 9) Payload Size: Set to 1316, which is same as the value of the decoder.
- 10) Click “Start” after you finish the parameter settings to start video transmission.

The screenshot shows a web browser window with the address bar displaying '192.168.1.251'. The page title is 'LIVE STREAMING ENCODER' and the user is logged in as 'admin'. On the left sidebar, there are icons for Status, Audio, Video, Network, RTMP, Misc (selected), and System. The main content area is titled 'Stream Protocol' and contains the following settings:

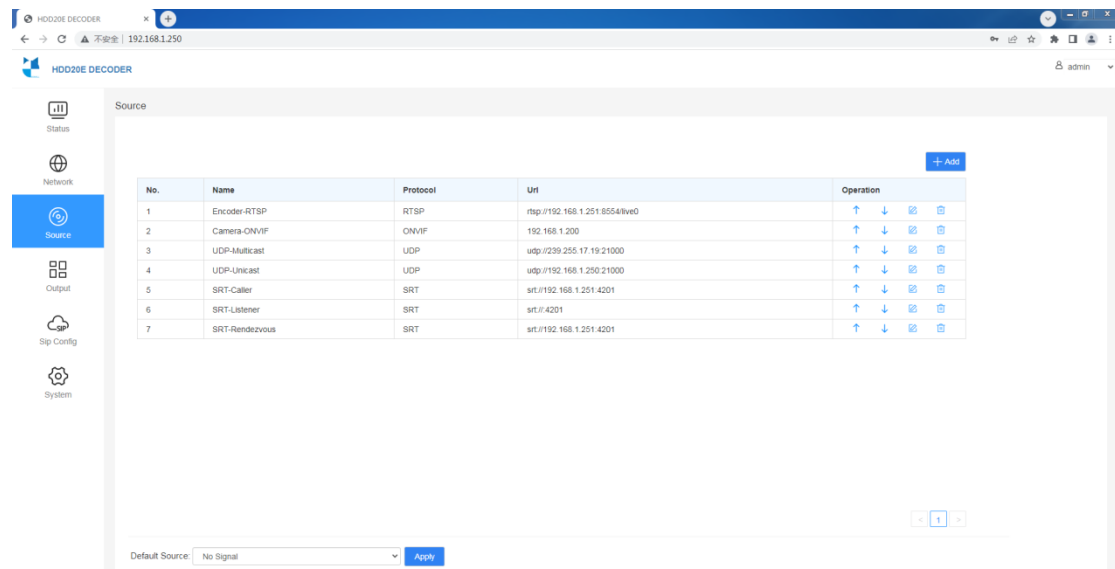
- Stream Protocol: SRT
- Mode: rendezvous
- Destination Address: srt://192.168.1.250
- Destination Port(2000-65531): 4201
- Source Port(2000-65531): 4201
- Latency(ms)(0-5000): 120
- Encryption: None
- Passphrase(10-32 characters, letters and numbers only):
- Bandwidth Overhead(5-100): 25
- Payload Size(0-1456): 1316

At the bottom of the configuration area, there are 'Start' and 'Stop' buttons.

Picture 28

15. Go back to the HDD-20E web UI, enter the Source page, and you can see the new added IP stream SRT-Rendezvous on the Source list. Click the buttons under the Operation section to control the IP stream.

- ✓ Click  or  to change the sequence order of the network stream. When you click , the current stream will swap the position with the previous stream source. When you click , it will swap the position with the later stream source.
- ✓ Click  to edit the IP source.
- ✓ Click  to delete the IP source.

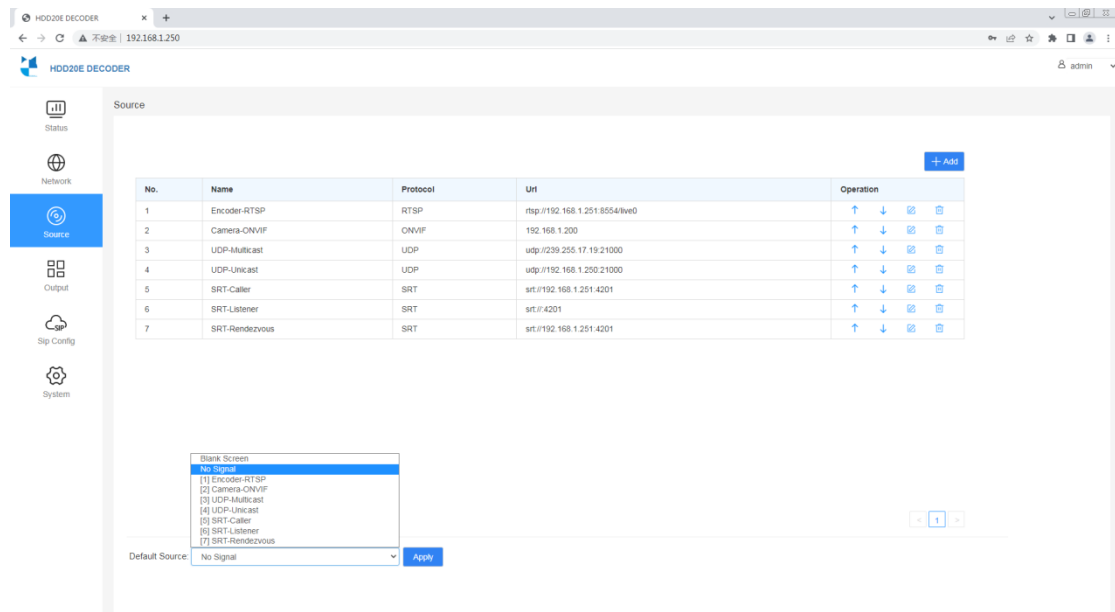


Picture 29

9.4.5 Edit the Image of the Default Source

You can edit the image of the default source for the HDD-20E from the drop-down list of the Default Source:

When you edit the multi-window displaying layout and don't specify a source for the default input preview window, the system will randomly display an image of the Default Source. You can edit it by selecting a video source from the drop-down list of the Default Source. The options include Blank Screen, No Signal, and the added IP stream sources.



Picture 29

9.4.5 Low-latency Mode

The HDD-20E comes with built-in proprietary Low-latency technology. When pairing with DDMALL low-latency encoder HEV-2K/HEM-4K, and enabling the low-latency protocol for video transmission, the latency will be as less as 80ms.

1. Enable the Low-Latency mode for the HDD-20E

- 1) Log in to the HDD-20E web UI, go to the Source page, and click the “Add” button to prompt the source adding window.
- 2) Stream Protocol: Select Low-latency.
- 3) Index: It is the sequence number of the IP stream, which is automatically generated according to the stream adding time.
- 4) Name: You can customize a name for the IP stream. For example: HEV2K-latency.
- 5) IP Address: Enter the IP of the encoder HEV-2K. For example, we enter the default IP of the HEV-2K “192.168.1.251” here.
- 6) Click “Add” after you finish the parameter settings. When the web prompts a successful message, close the window to exit the video source adding work.

X

Add Source

Stream Protocol

Low-latency

Index

8

Name

HEV2K-latency

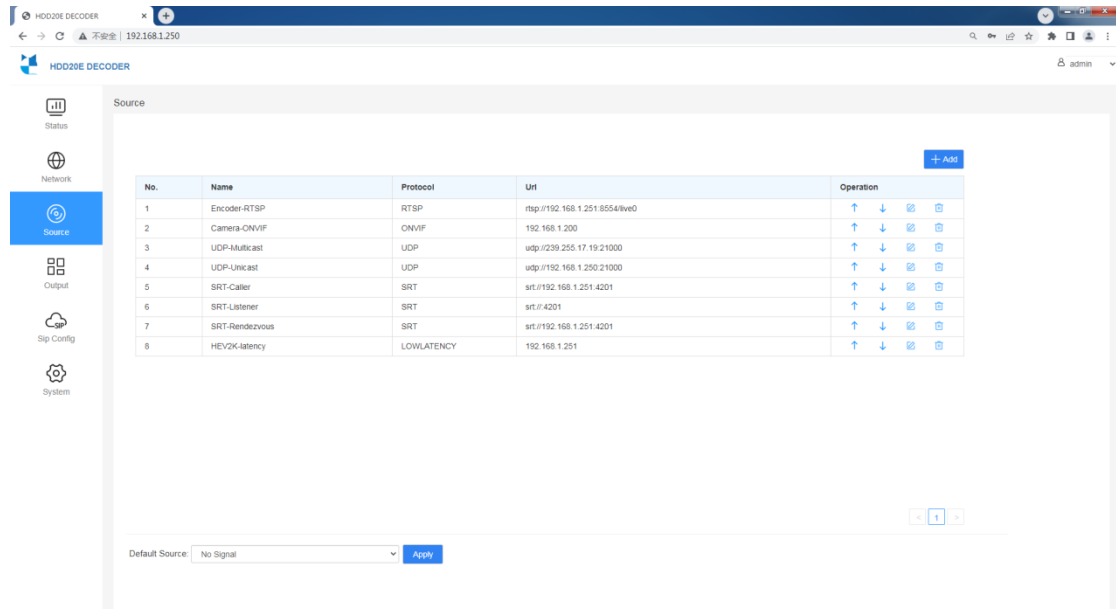
Source(encoder) IP

192.168.1.251

Exit

Add

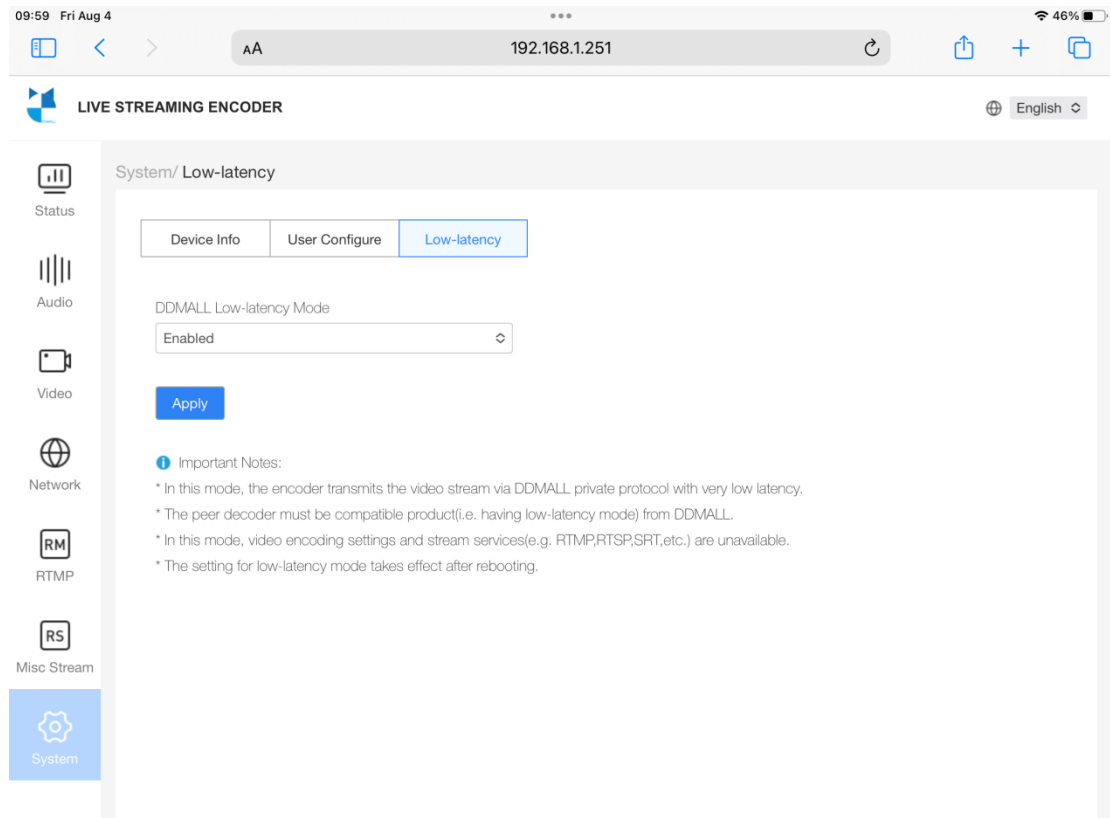
Picture 30



Picture 30

2. Enable the Low-latency mode for the HEV-2K

Log in to the web UI of the encoder HEV-20K, enter the System/Low-latency page, select “Enabled” for the DDMALL Low-latency Mode section to enable the Low-latency mode, and then click “Apply”. When the web prompts “Are you sure to enable DDMALL low-latency mode and reboot the device?”, please click “OK” and the encoder will reboot to take the settings effect.



Picture 31

3. After the encoder reboots, it will use the Low-latency mode to perform video transmission.

You can watch the video streams on the decoding end.

4. Note:

- 1) When you enable the Low-latency mode for the encoder, the encoder must reboot to take the settings effect.
- 2) The encoder and decoder must be in the same Lan, and IP in the same network segment.
- 3) In Low-latency mode, the encoder's Video, Audio, RTMP, and Misc Streams etc. cannot be edited

9.5 Output Settings

On the decoder HDD-20E web UI, click Output icon on the left menu to enter the Output page, which you can edit the multi-window display layouts, save/call the saved scenes, modify the window Audio enable, edit the output resolution, and enable equal-window proportion playback etc.

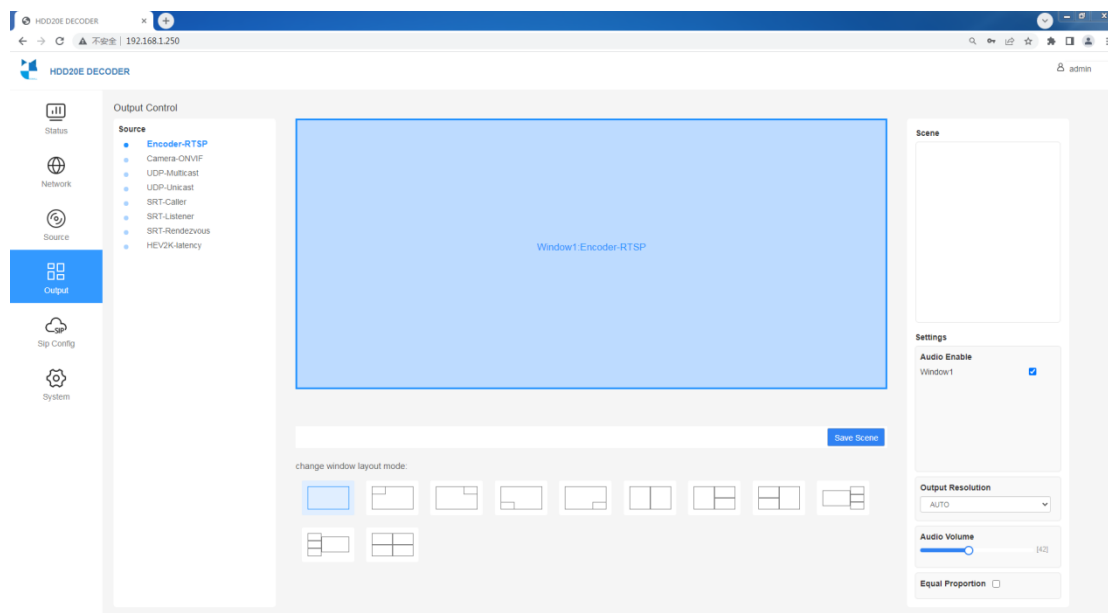


图 31

9.5.1 Switch the Multi-window Display Mode

In the center of the Output page, it shows the supported window layouts and the source display of each window. The HDD-20E supports various layouts, including full-screen, picture-in-picture, two-split(side-by-side), three-window, and quad-view. Click the corresponding window layout icon at the bottom of the Output page to switch.

Note: Due to the decoding capacity of the HDD-20E limits, when you use three-window layout, the IP streams must be in H.265 format and frame rate not exceed 30fps. When you use quad-view layout, the IP streams must be in H.265 format and frame rate not exceed 30fps, and at the same time, the decoding HDMI output resolution cannot exceed 30fps as well.

9.5.2 Switch the IP Stream Source for the Window

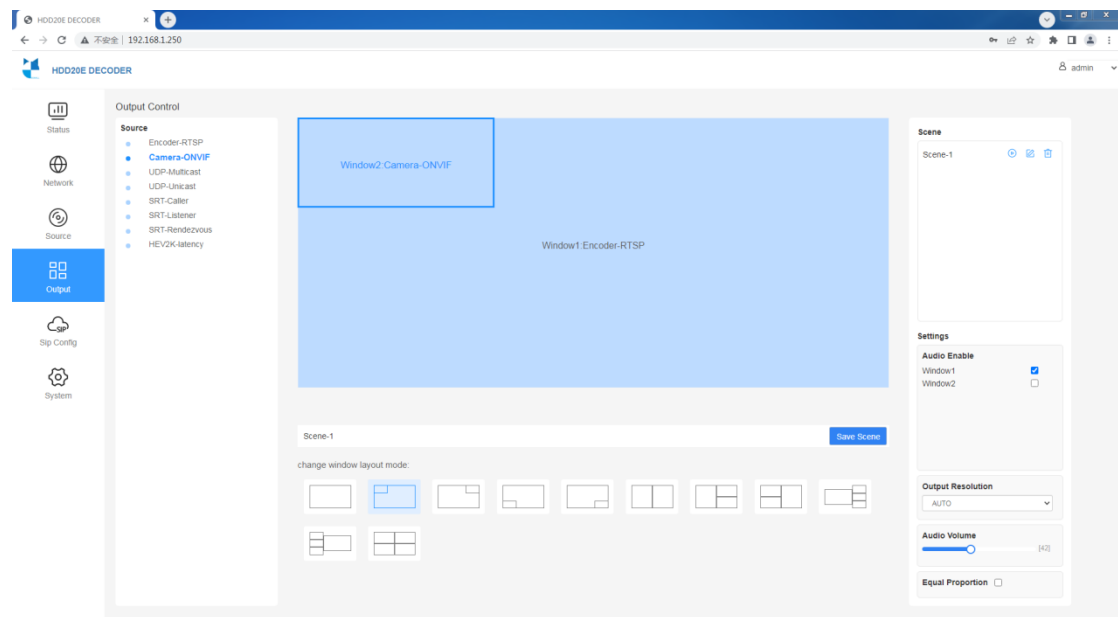
Enter the Source page, you can see all the added IP stream sources on the left side. Click the window in the center of the Source page, and then click the IP stream source in the Source list on the left to switch the window source. The corresponding window information will be updated at the same time.

9.5.3 Save and Call the Scenes

After you finish the window layout and window source settings, you can enter a name for the scene in the “Save Scene” box and click “Save Scene” button to save the new created scene. On the upper right side of the Output, you can see the new created scene from the Scene list.

Please make sure the name of the newly created scene cannot duplicate with other added scene, otherwise the save scene will be overwritten.

- ✓ Click  to call the current scene, and the output window layout and window sources of the HDD-20E will be immediately modified to the parameters of the corresponding scene.
- ✓ Click  to edit the name of the current scene.
- ✓ Click  to delete the current scene.



Picture 31

9.5.4 Edit the Window Audio Enable

The Audio Enable list on the right side of the Output page shows the audios enable status for the current window layout. Check the audio box to playback the audio of the corresponding window. Uncheck the box to stop the audio enable, and the HDD-20E will mute the audio.

9.5.5 Edit the Output Resolution

Click the Audio Resolution on the right side of the Output page, you can edit the HDMI output resolution from the down-down list. The default output is Auto mode. In Auto mode, the HDD-20E will automatically match the best output resolution according to the resolution of the connected display monitor. You can edit the output resolution according to your needs. The HDD-20E supports output in 3840*2160p@60/50/30/25/24Hz, 1920*1080p@60/50/30/25/24Hz, 1920*1080i@60/50Hz, and 1280*720p@60/50Hz.

9.5.6 Edit the Volume of Output Audio

On the right side of the Output page, drag the audio bar under the Audio Volume section to adjust the volume. It can adjust the volumes of the HDMI and Analog audio outputs.

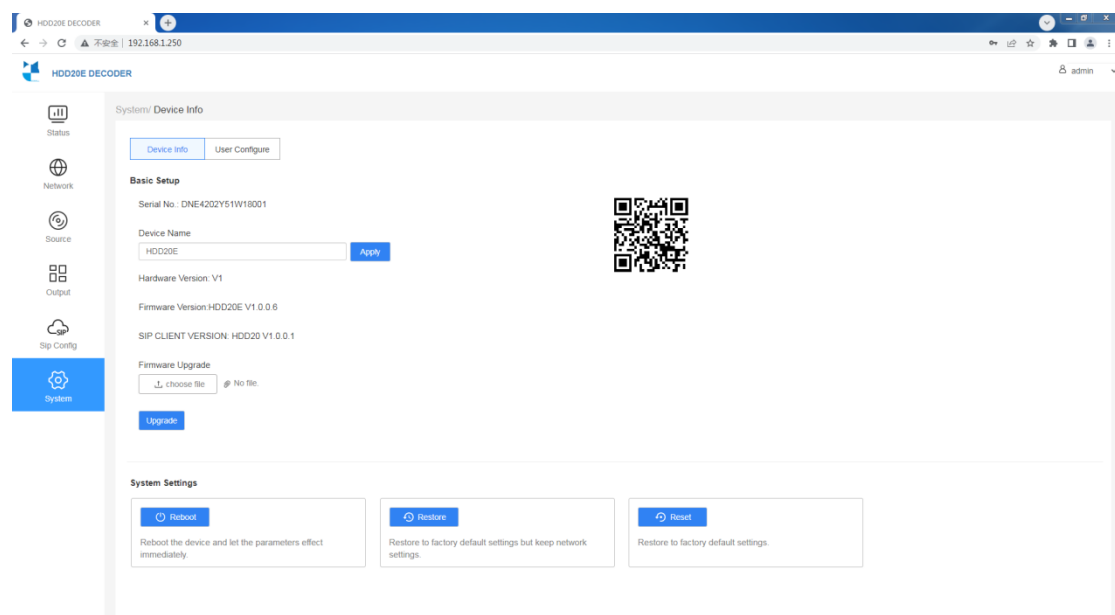
9.5.7 Equal-Window Playback Mode

When you check the Equal proportion box, each window for the two-window and three-window scenes will be displayed in equal proportion on the screen. If you uncheck the equal proportion box, the windows of the two-window and three window scenes will be full displayed on the screen.

9.6 System Settings

Click the System icon on the left menu to enter the System page, where you can check the HDD-20E device name, edit device name, upgrade firmware, reboot device, reset factory settings, and edit the login credentials etc.

9.6.1 System/Device info



Picture 32

Device Name: Enter the new name for the decoder, and click Apply.

Firmware Upgrade: Upgrade the device to newer firmware version.

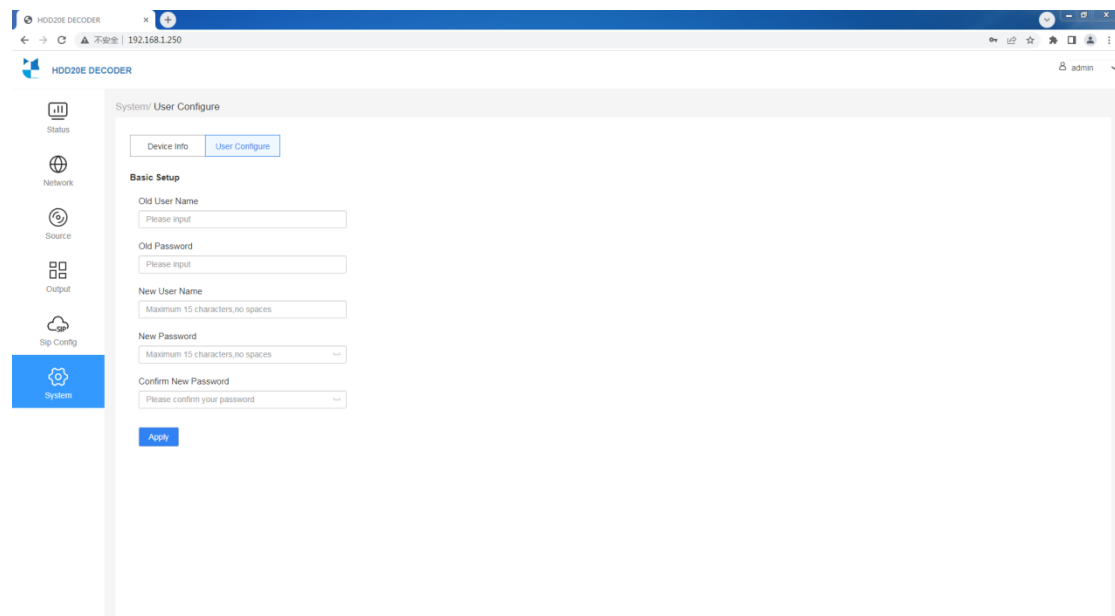
Reboot: Restart the decoder.

Restore: Save the Network settings, and reset other settings to factory default.

Reset: Reset all parameters to factory default.

9.6.2 System/User Configure

On the User Configure page, you can edit the login credentials to log in the web UI of the HDD-20E. to avoid other people to log in to your encoder web UI, recommend to edit the username and password timely.



Picture 33

Note: If you modified the username and password to log in to the web UI of the HDD-20E, please remember the new credentials; if you forget the new username and password, you can long press the device reset button with the pin in the packing box for about 5s until the green Ethernet indicator flashes to reset the decoder to factory settings, and then use the default username and password to log in to the decoder web UI.

10. Frequent Asked Questions & Answers

10.1 Cannot Log in to the HDD-20E Web UI for the First Use

1. Make sure the decoder is powered properly and the Ethernet cable connection normal.
When the green Ethernet indicator is solid , and the orange indicator flashes, it means the decoder has powered on and connected the network properly.
2. Make sure the control terminal used to log in to the decoder web UI such as the PC, laptop, iPad etc. is in the same Lan as the decoder, and IP in the same network segment as the decoder. The default IP of the HDD-20E is 192.168.1.250. You need to edit the IP of the

control terminal to 192.168.1.xxx (xxx range is 0-255 except 250).

10.2 Cannot Log in to the Decoder Web UI after Modifying the IP of the HDD-20E

1. Make sure the decoder is powered on and Ethernet cable connected normally. When the decoder's green Ethernet indicator is solid on, and orange indicator flashes, it means the decoder has been powered on and network connection is normal.
2. Make sure the control terminal used to log in to the decoder web UI such as the PC, laptop, iPad etc. is in the same Lan and IP in the same network segment as the decoder.
3. Open the browser of the control terminal, enter the new IP of the decoder, and please make sure the IP is entered correctly. If the decoder IP is set to DHCP, you need to log in to the web UI of the DHCP server (such as the Router) to check the assigned IP to the decoder.
4. If you forget the decoder IP, you can reset the decoder to factory settings (long press the reset button for about 3-5s until the green Ethernet indicator flashes to reset factory settings), and use the default IP of the decoder 192.168.1.250 to log in to the decoder web UI to do settings. Please note the IP of the control terminal need to modified to 192.168.1.xxx (xxx range is 0-255 except 250) before you can log in to the web UI of the decoder.

10.3 The Screen Shows “Decoder is ready, waiting to establish a network connection”

1. Make sure the decoder is powered on and Ethernet connection is normal. When the green Ethernet indicator is solid on and orange Ethernet indicator flashes, it means the decoder has powered on properly and the network connection is normal.
2. Make sure the encoding end (network camera, encoder, and other IP stream media server etc.) is in the same Lan as the decoder, and IP is in the same network segment.
3. Check the Source settings of the decoder. Make sure the transmission protocol, URL, port etc. information of the added IP stream are correct, and make sure you have clicked “Playback” button for the corresponding stream in the Source list.
4. Check the encoding output of the encoding end (network camera, encoder, IP stream media

server etc.). You can use decoding software such as VLC to pull the stream of the encoding end to check. If the decoding software is also abnormal, you need to check the problems with the encoding end.

10.4 There is no Image Display on the Monitor Connected to the HDD-20E

1. The monitors and TVs always have multiple HDMI interfaces. Please use the menu button to control the monitor, or use the remote to control the TV, and then call the HDMI interface connected to the HDD-20E to display on the monitor or TV screen.
2. Make sure the HDD-20E is powered normally, and the Ethernet cable connection is normal. When the green Ethernet indicator is solid on, and orange indicator flashes, it means the decoder is powered on and network connection is normal.
3. Make sure the HDMI connection between the HDD-20E and the connected display is normal. You can pull off the HDMI connection, and then re-plug the connection. If there is still no image displayed, please change a new HDMI cable to connect the decoder and the display to check if the HDMI cable is damaged.
4. Make sure the output resolution of the HDD-20E is within the supported range of the connected display. You can log in to the decoder web UI, and change the output resolution of the HDD-20E on the Output page to test.