HD Video/Audio Decoder

HDR503 Series Decoder

User Manual (V2.3.0)

Regulatory information
FCC information

FCC compliance: This equipment has been tested and found to comply with the limits for a digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC conditions

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

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

EU Conformity Statement

CE

This product and - if applicable - the supplied accessories too are marked with "CE" and comply therefore with the applicable harmonized European standards listed under the Low Voltage Directive 2006/95/EC, the EMC Directive 2004/108/EC, the RoHS Directive 2011/65/EU.

2012/19/EU (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: www.recyclethis.info.

2006/66/EC (battery directive): This product contains a battery that cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the battery to your supplier or to a designated collection point. For more information see: www.recyclethis.info.

Preventive and Cautionary Tips

Before connecting and operating your decoder, please be advised of the following tips:

- Ensure unit is installed in a well-ventilated, dust-free environment.
- Keep all liquids away from the decoder.
- Please check the power supply to avoid the damage caused by voltage mismatch.
- Please make sure the decoder work in the allowed range of temperature and humidity.
- Please keep the device horizontal and avoid the installation under severe vibration environment.
- The dust board will cause a short circuit after damping; Please remove dust regularly for the board, connector, chassis fan and other parts of the device with brush.
- Improper use or replacement of the battery may result in hazard of explosion. Replace with the same or equivalent type only. Dispose of used batteries according to the instructions provided by the battery manufacturer.

Table of Contents

CHAPTER 1 Introduction 5
1.1 Description 6
1.2 Features 6
CHAPTER 2 Panels and Connections 8
2.1 Front Panel 9
2.2 Rear Panel 9
CHAPTER 3 Initial Network Parameters Configuration 10
3.1 Searching Active Devices Online 11
3.2 Modifying Network Parameters 12
CHAPTER 4 Decoder Configuration and Operation by Web Browser 13
4.1 Decoding Operation 15
4.1.1 Configuring Decoded Video Display 15
4.1.2 Configuring Dynamic Decoding 16
4.1.3 Configuring Cycle Decoding 19
4.1.4 Configuring Video Wall Display 20
4.1.5 Enabling/Disabling the Decoding Channel 22
4.1.6 Configuring Picture Overlay 22
4.1.7 Checking the Connection Status 23
4.1.8 Checking the Decoding Channel Status 24
4.1.9 Checking the Display Channel Status 24
4.1.10 Configuring Transparent Channel 25
4.2 Decoder Configuration 27
4.2.1 Checking Device Information 27
4.2.2 Configuring Time Settings 27
4.2.3 Configuring Basic Network Settings 28
4.2.4 Configuring DDNS Settings 29
4.2.5 Configuring RS-485/RS-232 Serial Port 31
4.2.6 Configuring Alarm Input / Output Settings 32
4.2.7 Configuring Arming Time 33

4.2.8 Managing User Account 34
4.2.9 Importing/Exporting Parameters 35
4.3 Configuring Remote Playback 36
4.4 Switching Display Mode 39
4.5 Rebooting, Upgrading and Restoring the Default Settings for the Decoder 40
CHAPTER 5 Decoder Configuration and Operation by Client Software 42
5.1 Adding an Encoder 43
5.2 Adding a Decoder 47
5.3 Setting TV Wall Layout 49
5.4 Decoding Operation 51
5.5 Configuring Remote Setting for the Decoder 53
CHAPTER 6 Appendix 54
Appendix A. Specifications 55
Appendix B. FAQ 56
Appendix C. List of Third-party IP Cameras Access 57

CHAPTER 1

Introduction

1.1 Description

Designed for the high-definition video monitoring system, HDR503 Series HD Video/Audio Decoder is developed on the basis of TI platform, Linux operating system and Netra processor, ensuring high reliability and stability of system running.

HDR503 Series HD Video/Audio Decoder is capable of decoding video at 5MP resolution and outputting decoded video via BNC, VGA and HDMI interfaces, and it also supports multiple network protocols and multiple stream transmission mode. The decoded video can be displayed on video wall or large screen.

1.2 Features

Decoding Video and Audio

Private H.264, standard H.264, MPEG2 and MPEG4 video stream formats are supported.

Support PS, RTP and private customized data encapsulation formats.

PAL and NTSC image standards supported.

Decode video stream at resolution of 5MP, 3MP, 1080P, 720P, SVGA, VGA, 4CIF, DCIF, 2CIF, CIF and QCIF.

G.722, G.711A, G.711U, MPEG2-L2 and ACC audio stream formats are supported.

Support of getting stream and decoding by channel zero, stream ID and HiDDNS.

Support of getting stream and decoding by URL method.

High-definition video output via VGA/HDMI connector and standard-definition video output via BNC connector.

Window jointing for video wall display.

Decoding Capacity

Refer to the following table for the decoding capacity and display modes of different models:

Resolution Model	Resolution				Video Output	Window-division Mode	Multi-display Mode
	5MP	1080P	720P	4CIF			
HDR503-1	2 channels	4 channels	8 channels	16 channels	1 HDMI, 1 VGA and 1 BNC outputs	1/4/6/8/9/12/16	
HDR503-4	4 channels	8 channels	16 channels	32 channels	4 HDMI, 4 VGA and 2 BNC outputs	1/4/6/8/9/12/16	1 × 2, 2 × 1, 2 × 2
HDR503-8	8 channels	16 channels	32 channels	64 channels	8 HDMI, 8 VGA and 4 BNC outputs	1/4/6/8/9/12/16	1 × 2, 2 × 1, 2 × 2, 2 × 3, 3 × 2, 2 × 4, 4 × 2

Decoding Mode

Dynamic decoding: Log on the remote encoder or remote stream media server to select a channel of video source to acquire video stream, and then decode and output the video for local display.

Cycle decoding: Set multiple remote monitoring channels on a decoding channel, and the decoder is capable of performing cycle decoding according to the configured sequence and time. The stream sources can be obtained via remote access to the encoder or stream media server and decoded for local output. A maximum of 64 channels are allowed for cycle decoding.

Obtain stream from stream media server: The decoder can receive real-time data by access to stream media server, and then decode the video stream and output them on the TV Wall. The private RTSP is adopted as the control protocol, and the TCP/UDP is used for receiving the data stream.

Remote playback of record files: By remote access to the encoding devices with storage capability, and directly obtain the record files from the encoder, and finally decode for local output.

Network

One 10/100/1000Mbps self-adaptive Ethernet interface.

Support TCP, UDP and Multicast network protocols.

Multiple DDNS settings: Peanut Hull, Dyndns, IPServer, NO-IP and HiDDNS.

Support SADP software to automatically search and discover the online devices in local network area.

Automatically get IP address by DHCP protocol.

Remote upgrading and maintenance can be done via web browser or client software.

User Administration

A maximum of 32 user accounts can be created by the system, including 1 administrator and 31 normal users. The user name of the administrator is admin, which cannot be modified, and the password is allowable to be modified by the administrator only; no deletion of the administrator is allowed, and the administrator is authorized to set the operation permissions for other users.

Transparent Channel

The decoder adopts the RS-232/RS-485 serial interface to realize transparent transmission, and the transparent channel of the decoder supports multicast transparent transmission as well. Multiple transparent channels can be established simultaneously.

Two-way Audio

The decoder is capable of realizing two-way audio with the remote client.

CHAPTER 2

Panels and Connections

2.1 Front Panel

Figure 2.1 Front Panel

Table 2.1 Description of Front Panel

	LED Indicator & Interface	Connections
1	POWER	Power LED indicator
2	LINK	Network connection LED indicator
3	Tx/Rx	Data transmitting/receiving status LED indicator

2.2 Rear Panel

Figure 2.2 Rear Panel of HDR503-8

Table 2.2 Description of HDR503-8 Rear Panel

	Interface	Connections
1	VAG 1~ VGA8	VGA output of decoded video
2	HDMI Video Output	HDMI output of decoded video
3	VIDEO OUT	DB15 connector for video output, connecting to video output device (e.g., monitor) with the DB15-to-BNC adapter.
4	LINE IN/OUT	Two-way audio input/output, 3.5mm connector.
5	AUDIO OUT	DB15 connector for audio out, connecting to audio output device with the DB15-to-BNC adapter.
6	LAN	10/100/1000 Mbps Ethernet interface
7	RS-485 Serial Interface	Connect to RS-485 devices, e.g., keyboard, etc.
8	Alarm In	4 alarm inputs
	Alarm Out	4 alarm outputs
9	RS-232 Serial Interface	Connect to RS-232 devices, e.g., PC, etc.
10	GND	Grounding
11	Power Supply	Power input interface
12	Power Switch	Power On/Off Switch

CHAPTER 3

Initial Network Parameters Configuration

Purpose:

If you don't know the IP address of the decoder and this is not the first time you use the decoder, you can use SADP (IP finder) software or the Serial port tools to find out the IP address of the decoder and to configure the IP address or other network parameters of it. It is recommended to change the default IP address for the first time to use it.

This chapter aims to tell the procedures of using the SADP software to find and configure the IP address and other parameters of the device.

Note:

For the first-time user, the default user name of HDR503 series is *admin*, and password is *12345*. And the default IP address is 192.0.0.64.

3.1 Searching Active Devices Online

- **Search online devices automatically**

Click APT-SADP to run the SADP software and it will automatically search the online devices every 15 seconds from the subnet where your computer locates. It displays the total number and information of the searched devices in the **Online Devices** interface. Device information including the device type, IP address, port number, gateway, etc. will be displayed.

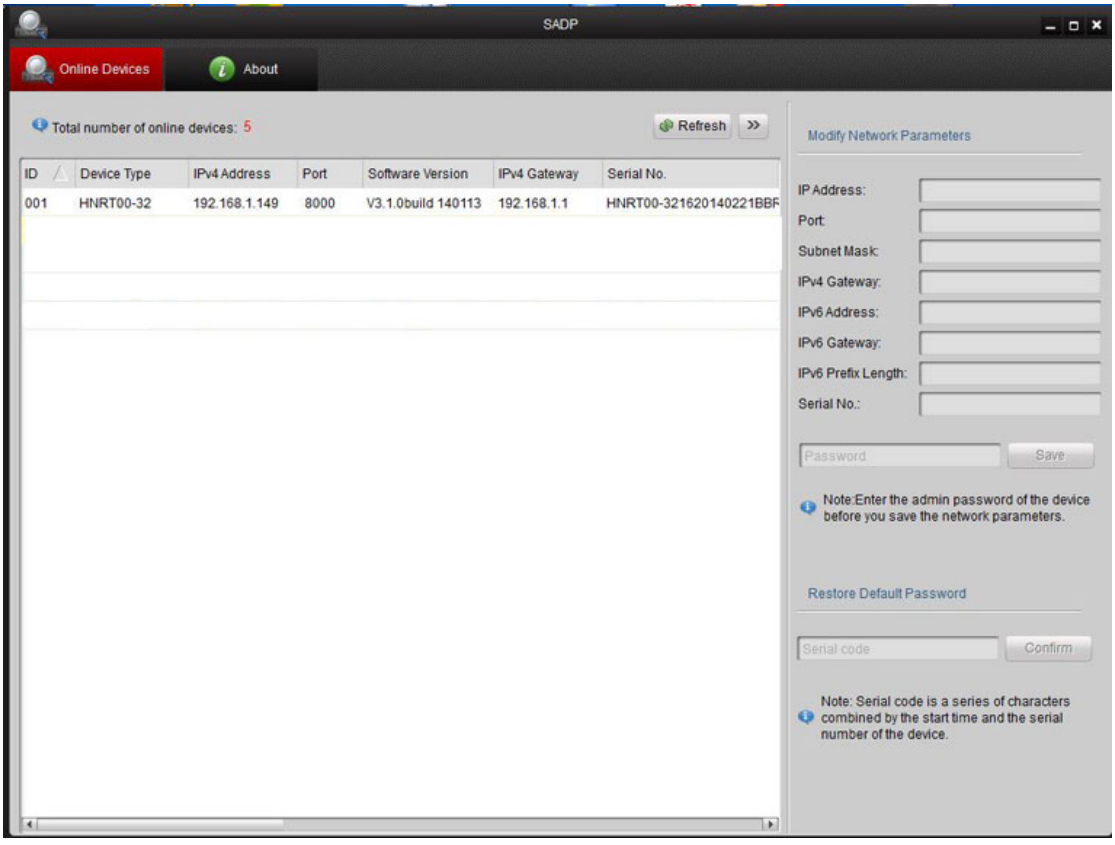


Figure 3.1 Search Online Device by SADP

Note: Device can be searched and displayed in the list in 15 seconds after it went online; it will be removed from the list in 45 seconds after it went offline.

- **Search online devices manually**

You can also click Refresh to refresh the online device list manually. The newly searched devices will be added to the list.

Note: You can click ▲ or ▼ on each column heading to order the information; you can click » to expand the device table and hide the network parameter panel on the right side, or click « to show the network parameter panel.

3.2 Modifying Network Parameters

Steps:

1. Select the device to be modified in the device list and the network parameters of the device will be displayed in the **Modify Network Parameters** panel on the right side.
2. Edit the modifiable network parameters, e.g., IP address, port number and gateway.
3. Enter the password of the admin account of the device in the **Password** field and click Modify to save the changes.

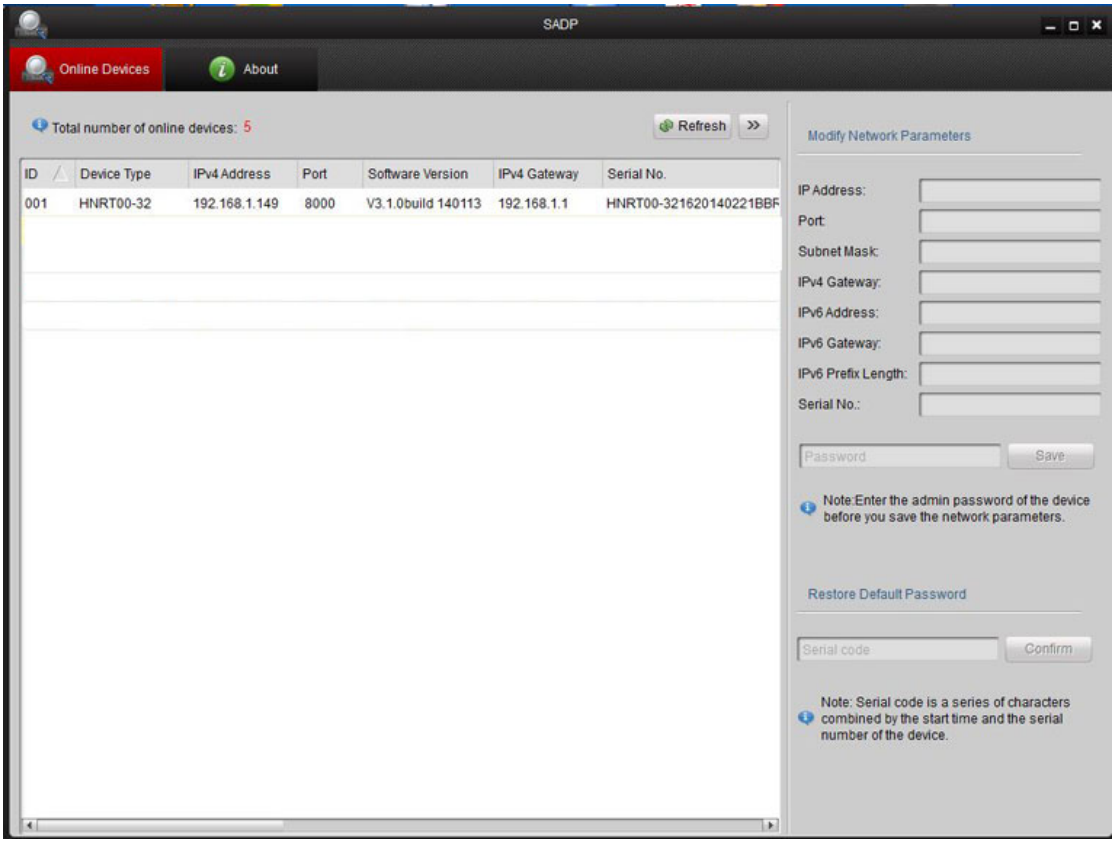


Figure 3.2 Add Searched Online Device

CHAPTER 4

Decoder Configuration and Operation by Web Browser

Purpose:

Since there is no local operation GUI provided for the decoder, you can manage and configure it by web browser or the iVMS-4200 client software. In this chapter, the operation and management of the decoder by the web browser is provided.

Note: The tested Web browsers include: IE7 and IE8, chrome, safari and firefox4.

Open the Web browser and input the IP address of Decoder (e.g., http://192.168.0.0) to enter the login page:

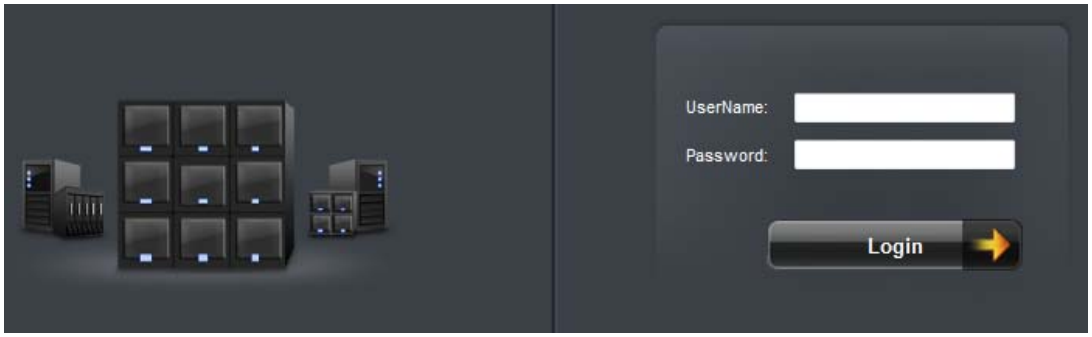


Figure 4.1 Login Interface

Enter the user name and password of the device in the dialog box and then click **Login** to log into the system. By default, the user name for login is *admin* and the password is *12345*.

The main interface of the control panel of the decoder is showed after successful login.

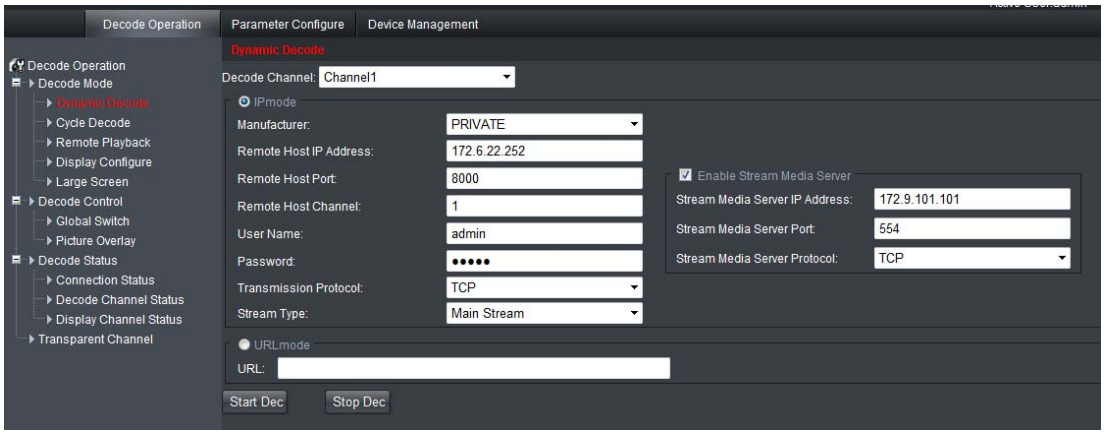


Figure 4.2 Enter WEB Page of Decoder

4.1 Decoding Operation

4.1.1 Configuring Decoded Video Display

Purpose:

To realize the display of the decoded video on the TV wall, you must set the decoding operation parameters.

Before you start:

Check the cabling of the decoder, and ensure that the decoder is connected to the TV wall or monitor via the video output interfaces.

To set the video output of the decoder, the first step is to choose the video output interfaces. There are 3 types of video output interfaces, the VGA, BNC and HDMI outputs.

Steps:

1. Click **Decode Operation** > **Decode Mode** > **Display Control** to enter the display control interface:

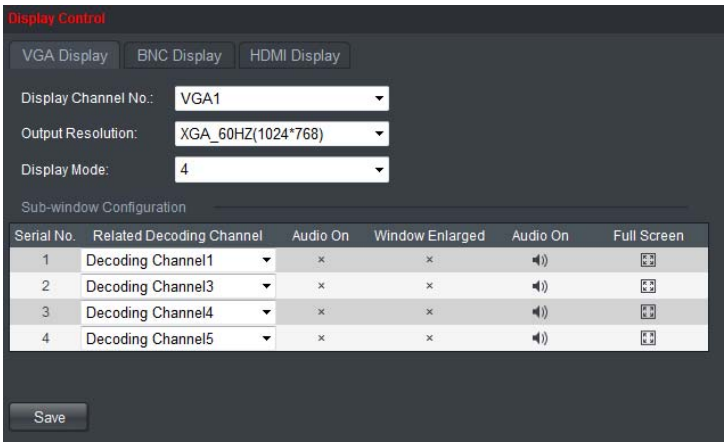


Figure 4.3 Display Configure

2. In the display control interface, you can configure the Display Channel, Video Format (BNC), BNC Output Scaling (BNC), Output Resolution (VGA, HDMI) and Display Mode.

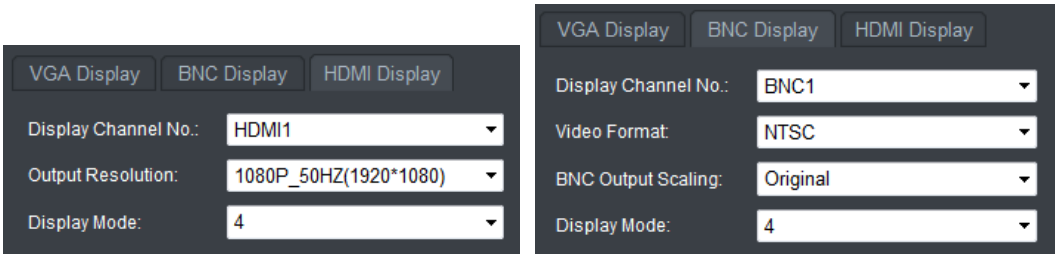
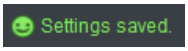


Figure 4.4 Configure Display Parameters

3. Select the window-division display mode. The HDR503 series supports 1/4/6/8/9/12/16-division display mode.
4. Select the decoding channel from the drop-down list for each sub-window.
5. Click **Save** to save the settings and the prompt 

pops out.

After having configured the window-division display, the sub-window information can be viewed on the interface.

Example: If you select the display mode as 4, the sub-window configuration field shows the status of the four sub-windows.

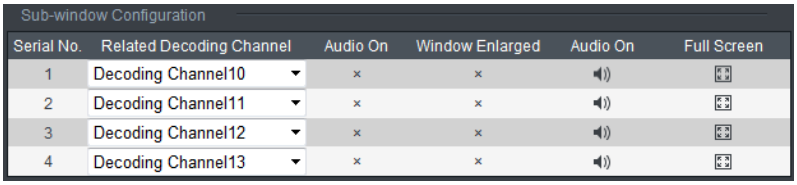


Figure 4.5 Sub-window Information

- **Enlarge/Restore the Sub-window**

Task 1: Enlarge the Sub-window

Steps:

1. Select the button to enlarge the selected sub-window and display in full-screen mode. The following prompt will pop up:

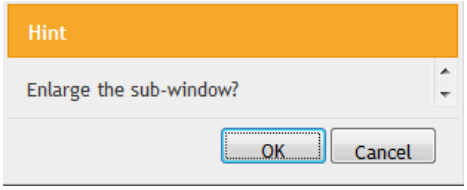


Figure 4.6 Enlarge the Sub-window

2. Click **OK** to enlarge the selected sub-window, and the Window Enlarged in the Sub-window Configuration field will be displayed in √.

Task 2: Restore the Sub-window

Steps:

1. Click the button again and the following prompt will pop up:

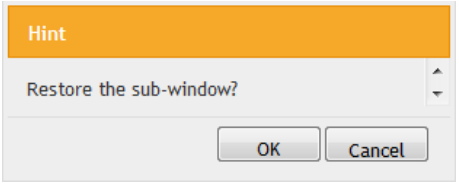


Figure 4.7 Restore the Sub-window

2. Click **OK** to exit the full-screen mode of the selected sub-window, and the Window Enlarged in the Sub-window Configuration field will be displayed in ×.

4.1.2 Configuring Dynamic Decoding

After you have configured the decoded video display mode, you can enable the dynamic decoding now.

Dynamic decoding means that you decode one channel for one decoding window.

Steps:

1. Click **Decode Operation** > **Decode Mode** > **Dynamic Decoding** to enter the dynamic decode settings interface.

2. Select a decoding channel from the drop-down list which has been configured for the sub-window in Display Control Configuration interface.
3. Configure the dynamic decoding mode for the selected channel.

Three decoding modes are selectable: **IP Mode, URL Mode** and **DDNS Mode**.

Task1: Set Encoding Device by IP Mode

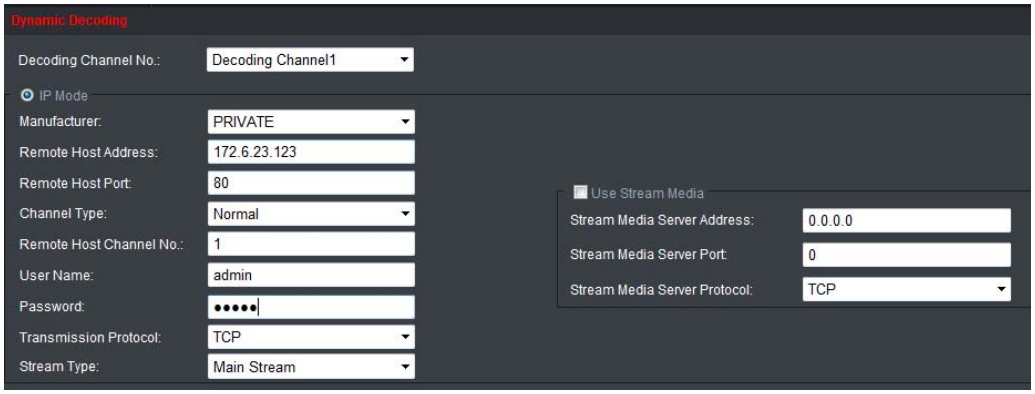


Figure 4.8 Set Encoding Device by IP Mode

Configure the following settings:

- **Manufacturer:** Select the Manufacturer of encoding device connected to be decoded. Encoding devices from the following manufactures are supported: PRIVATE, PANASONIC, SONY, AXIS, SANYO, BOSCH, ZAVIO, ARECONT, PELCO, SAMSUNG and ONVIF.
- **Remote Host Address:** Enter the IP address of the encoding device to be decoded.
- **Remote Host Port:** Enter the port of the encoding device to be decoded.
- **Channel Type**: Select the channel type of the encoding device for decoding. Three types are selectable: normal, channel-zero, and stream ID.

  Normal: Get the stream from the encoding device by IP address.

  Channel-zero: Get the stream from encoding device (DVR) by channel-zero.

  Stream ID: Get the stream from the device (transcoder) which supports access by stream ID.
- **Remote Host Channel No.:** Enter the channel No. of the encoding device for decoding.
- **User Name/Password:** Enter the user name and password used for login to the encoding device.
- **Transmission Protocol:** Select the network transmission protocol and the default protocol is TCP.
- **Stream Type:** Set the stream type to be decoded and the default type is main stream. The sub-stream is supported for decoding when the encoding device supports dual-stream.
- **Enable Stream Media Server (optional):** Enable the stream media server if required.
  - **Stream Media Server IP Address:** Enter the IP address of the server.
  - **Stream Media Server Port:** Enter the port No. of the server and the default port is 554.
  - **Stream Media Server Protocol:** Select the protocol of the server and the default protocol is TCP.

Task 2: Set Encoding Device by URL Mode

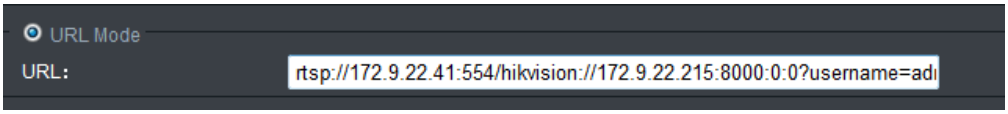


Figure 4.9 Set Encoding Device by URL Mode

URL format:

rtsp://{ip1}[:port1]/hikvision://{ip2:port2:chan:type?username=xxxxx?password=xxxxx?linkmode=xxx}?smversion=x.

Note: { } is required value and [ ] is optional value.

- **ip1:** Set the IP address of the stream media server.
- **port1:** Set the port No. of the stream media server. It is 554 be default if you do not configure it.
- **hikvision:** The identifier of the Hikvision SMS (stream media server) 4.0.
- **ip2:** Enter the IP address of the encoding device to be decoded.
- **port2:** Enter the port No. of the encoding device to be decoded.
- **chan:** Enter the channel No. of the encoding device for decoding.
- **type:** Set the stream type. 0 means main stream and 1 means sub-stream.
- **username:** Enter the user name of the encoding device. Max. length: 32 bytes.
- **password:** Enter the password used for login to the encoding device. Max. length: 16 bytes.
- **linkmode**: Set the protocol to TCP or UDP which is case-insensitive.
- **smversion=x***:* Input the version of the stream media server.

Example:

rtsp://172.9.22.41:554/hikvision://172.9.22.215:8000:0:0?username=admin?password=12345?linkmode=tcp?smversion=4

Notes:

1) The length of URL should be less than 240 bytes.

2) The URL mode can only be activated when using with the SMS 4.0 or above version of iVMS-4200 client software.

Task 3: Set Encoding Device by DDNS Mode

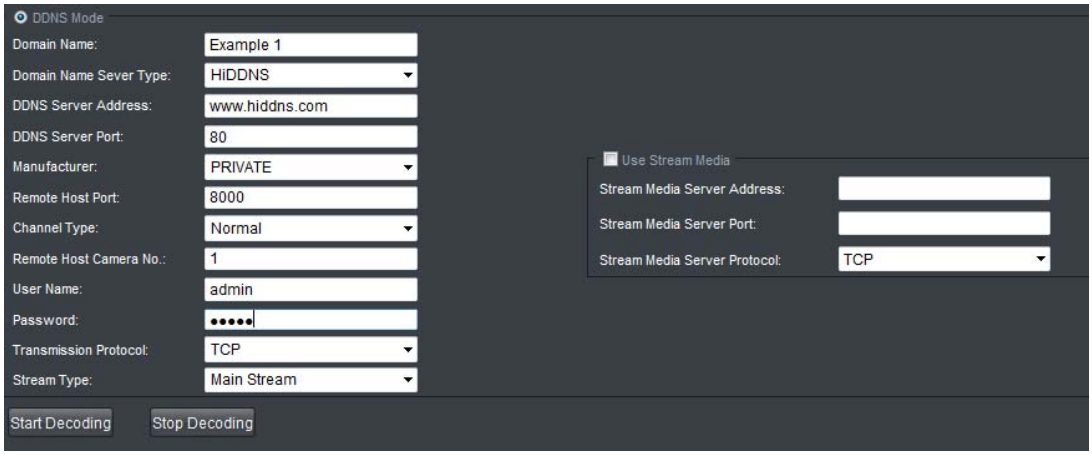


Figure 4.10 Set Encoding Device by DDNS

Configure the following settings:

Domain Name: Input the registered domain name of the DDNS server for the encoding device for decoding.

Domain Name Server Type: Select the DDNS server type. Currently only the HiDDNS is available.

DDNS Server Address: Input the address of the DDNS server (www.hiddns.com).

DDNS Server Port: Input the port number of the DDNS server (e.g., 80).

Manufacturer: Select the Manufacturer of encoding device connected to be decoded. Encoding devices from the following manufactures are supported: PRIVATE, PANASONIC, SONY, AXIS, SANYO, BOSCH, ZAVIO, ARECONT, PELCO, SAMSUNG and ONVIF.

Remote Host Port: Enter the port No. of the encoding device for decoding (e.g., 8000)..

Channel Type: Select the channel type of the encoding device for decoding. Three types are selectable: normal, channel-zero, and stream ID.

Normal: Get the stream from the encoding device by IP address.

Channel-zero: Get the stream from encoding device (DVR) by channel-zero.

Stream ID: Get the stream from the device (transcoder) which is accessed by stream ID.

Remote Host Channel No.: Input the channel No. of the encoding device for decoding. The value 0 represents channel 1, 1 represents channel 2, and so forth.

User Name/Password: Enter the user name and password used for login to the encoding device.

Transmission Protocol: Select the network transmission protocol to TCP, UDP or Mcast. The default protocol is TCP.

Stream Type: Set the stream type to be decoded and the default type is main stream. The sub-stream is supported for decoding when the encoding device supports dual-stream.

4. Click **Start Decoding** to start decoding, and the decoding status can be viewed in the **Connection Status** or the **Decoding Channel** status interface. And you can view the image from the remote encoding device that is decoded and displayed on the screen.

4.1.3 Configuring Cycle Decoding

Purpose:

Comparing with the dynamic decoding, the cycle decoding means that you can configure multiple input streams (the remote encoding devices) to one output (the channel displayed on the screen).

Steps:

1. Click **Decode Operation** > **Decode Mode** > **Cycle Decoding** to enter the Cycle Decoding interface.
2. Select a decoding channel from the drop-down list which has been configured for the sub-window in Display Control Configuration interface.
3. Enter the **Cycle Time** (1~1000 sec).

   The cycle time refers to the time duration for decoding each input signal to the defined channel and displaying on the screen.

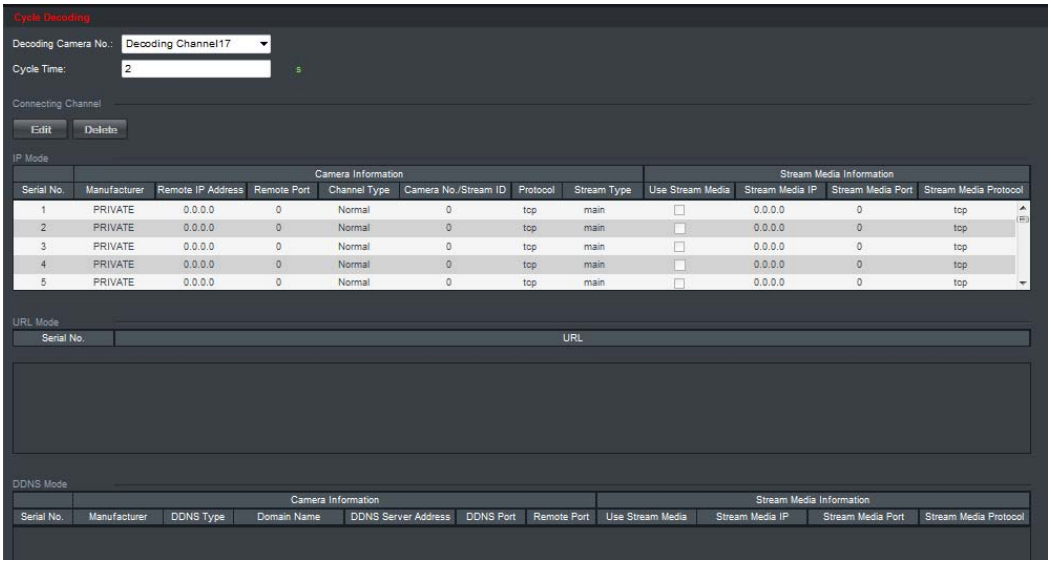


Figure 4.11 Configure Cycle Decoding

4. In the list of IP Mode/URL Mode/DDNS Mode, select an item and click **Edit** to enter the following interface to add a new input stream for decoding or edit the existed input stream by IP mode, URL mode or DDNS mode.

   Note: Refer to *Chapter 4.1.2* for configuring the input stream assigned to the cycle decoding channel by IP mode, URL mode or DDNS mode.

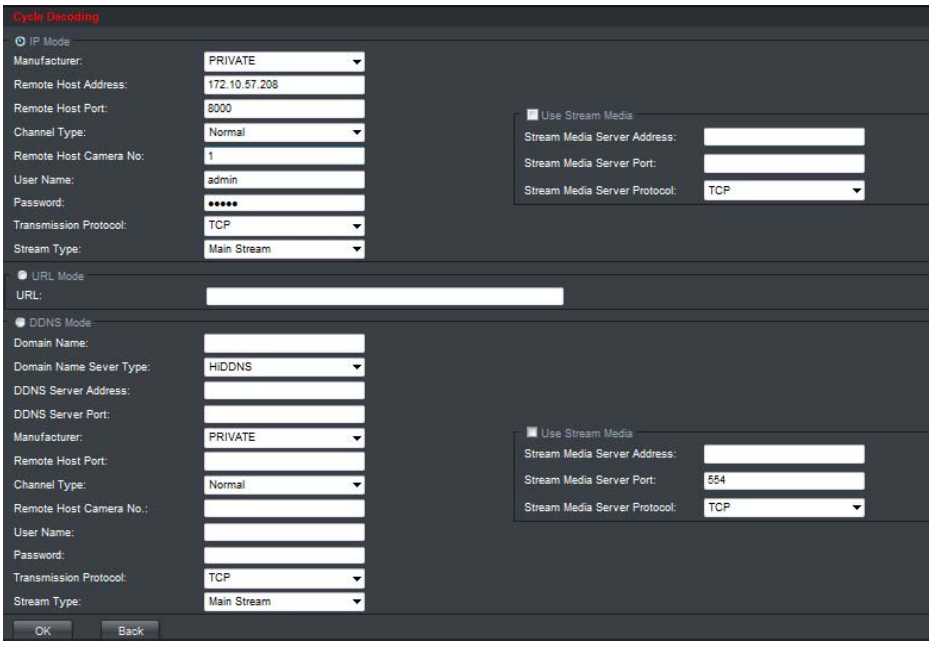


Figure 4.12 Edit Cycle Decoding of a Channel

5. Click **OK** to save the settings and back to the Cycle Decoding interface, or click **Back** to back to the Cycle Decoding interface without saving.
6. Repeat Step4 and Step5 to edit other input streams for cycle decoding.
   You can also click **Delete** to remove the configured input stream from the list.
   Note: Up to 64 input streams can be configured for each cycle decoding channel.

Figure 4.13 Configure Input Streams for Decoding

7. Click **Save** to save the configuration of input streams for the cycle decoding.

Example:

Configuration: Decoding Channel: Channel 1, Cycle Time: 10 seconds, input streams configured for decoding: 10.
Result: the video streams from these 10 input channels will be decoded by decoding channel 1 and displayed on the screen in sequence with the duration of 10 seconds for each.

4.1.4 Configuring Video Wall Display

The HDR503-4 and HDR503-8 support the configuration for the multi-screen video wall display of the decoded video.

Steps:

1. Click **Decode Operation** > **Video Wall** to enter the following interface:

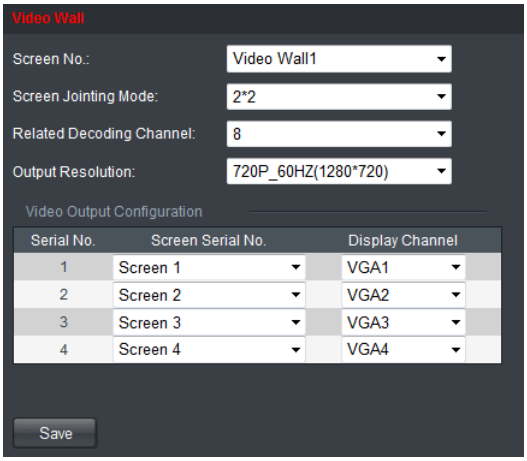


Figure 4.14 Configure Video Wall

2. Select the Screen No. from the drop-down list.
3. Select the Screen Jointing Mode. Different modes are selectable based on models:

   HDR503-4: 1*2, 2*1, 2*2.

   HDR503-8: 1*2, 2*1, 2*2, 2*3, 3*2, 2*4 and 4*2.
4. Select the Related Decoding Channel for the selected video wall.
5. Set the Output Resolution.

   Note: You can select the *NOT_AVAILABLE* option in the Output Resolution to clear the current video wall configuration.
6. In the Video Output Configuration area, select the Display Channel for each screen.
7. Click **Save t**o save the settings.

   Notes:

   1. The BNC video output does not support large screen display currently.
   2. It is recommended to configure the display channels with the same video output type for each large screen, e.g., VGA1, VGA2, VGA3…; or HDMI1, HDMI2, HDMI3….

The display sequence of sub-screens in different screen modes is shown below:

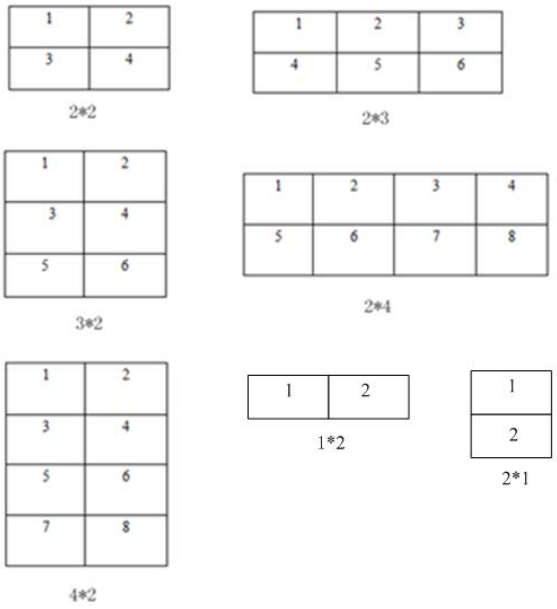


Figure 4.15 Multi-screen Video Wall Display

4.1.5 Enabling/Disabling the Decoding Channel

Purpose:

The Channel On/Off function enables you to start or stop the decoding and displaying for certain channels.

Steps:

1. Click **Decode Operation** > **Decode Control** > **Channel On/Off** to enter the following interface:

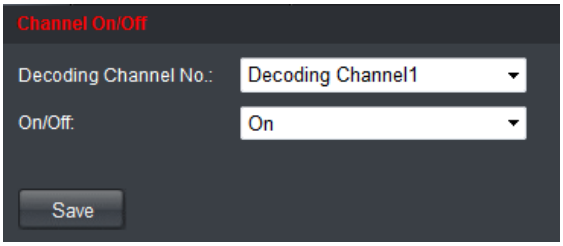


Figure 4.16 Configure Channel On/Off

2. Select a decode channel in the drop-down list in the **Decode Channel** field.
3. Set the decoding channel to On or Off.
4. Click **Save** to save the settings.

4.1.6 Configuring Picture Overlay

Purpose:

The Picture Overlay function can overlay a picture on the screen for the selected decode channel, and the position of the picture overlaid on the screen can also be set here.

Steps:

1. Click **Decode Operation** > **Decode Control** > **Picture Overlay** to enter the following interface:

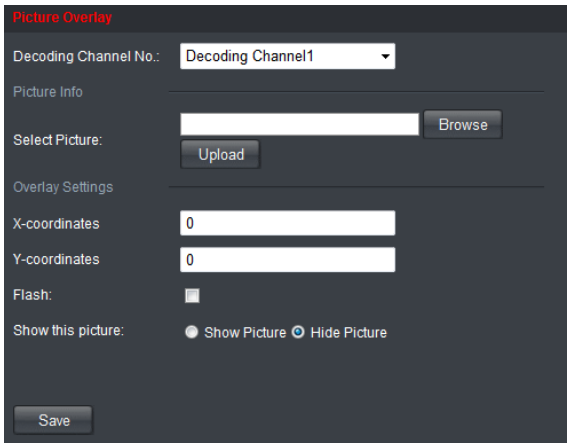


Figure 4.17 Configure Picture Overlay

2. Select the decode channel in the drop-down list in the **Decoding Channel No.** field.
3. Click **Browse** to choose a picture from the local directory, and then upload it by clicking the **Upload** button.
4. Set the X coordinate and the Y coordinate of the picture displayed on the screen to move the picture up and down and left and right.

Note: The picture must be in 24-bit BMP format and its width and height must be 32X pixel, with up to 128×128 resolution and 24 bits depth.

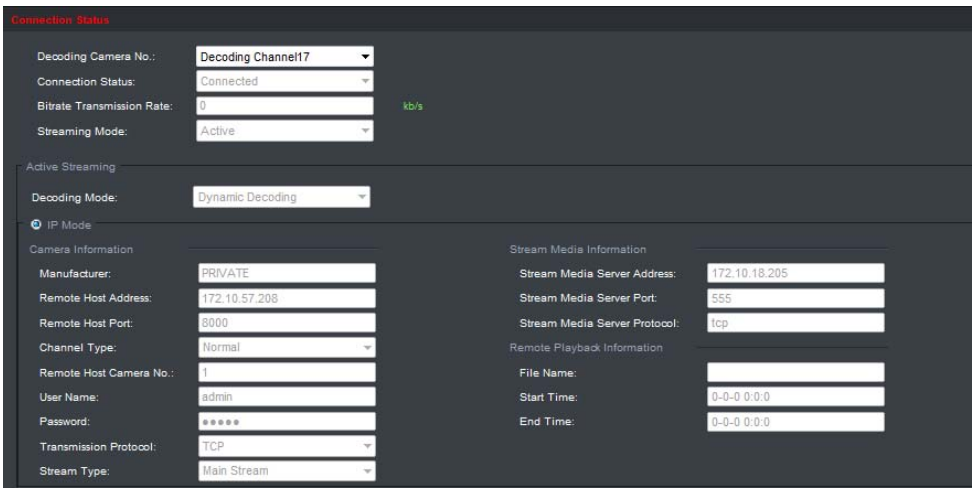
5. You can check the checkbox of **Flash** to set the display style of the picture.
6. Set the picture to show or hide.
7. Click **Save** to save the settings.

4.1.7 Checking the Connection Status

Purpose:

The connection status shows the status of the decoding status and the network connection status of the decoding channel.

Click **Decode Operation** > **Decoding Status** > **Connection Status** to view the connection status of the current decoding channel in IP mode, URL mode or DDNS mode.



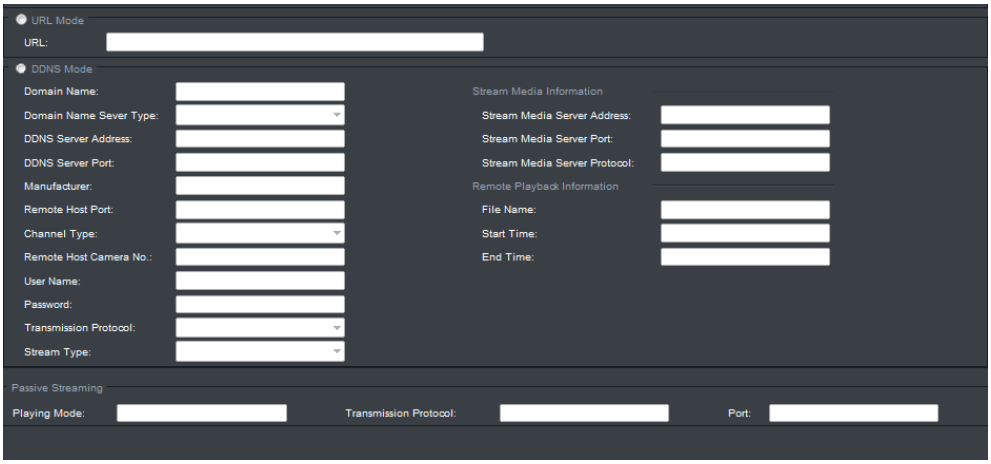


Figure 4.18 Check Connecting Status of Device

You can view the status of the network connection displayed on the interface.

Note: The connection status of device will be refreshed regularly.

4.1.8 Checking the Decoding Channel Status

Click **Decode Operation** > **Decoding Status** > **Decoding Channel** to view the status information of the current decoding channel, including the channel No., decoding status, encoding type, etc. Refer to the following interface:

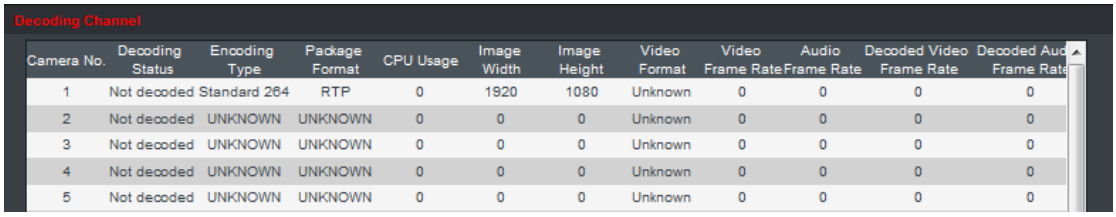


Figure 4.19 Check Decoding Channel Status

4.1.9 Checking the Display Channel Status

Purpose:

The display channel status interface shows the video output status of the decoder, including the status for the VGA output, BNC output, HDMI output, and the sub-window information.

Click **Decode Operation** > **Decoding Status** > **Display Channel** to view the working status of the display channel.

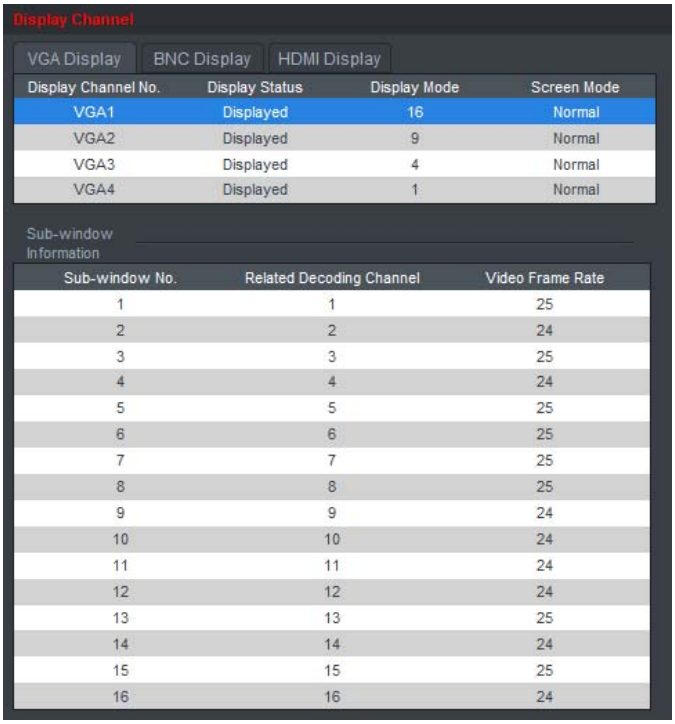


Figure 4.20 Check Display Channel Status

Note: The Display Channel Status of device will be refreshed regularly.

4.1.10 Configuring Transparent Channel

The Transparent Channel refers to the transmission channel used for forwarding data between the Decoder and the Encoder without operating on the data transferred.

Steps:

1. Click **Decode Operation** > **Transparent Channel** to enter the Transparent Channel settings interface.
2. Click to select a transparent channel from the list to configure.

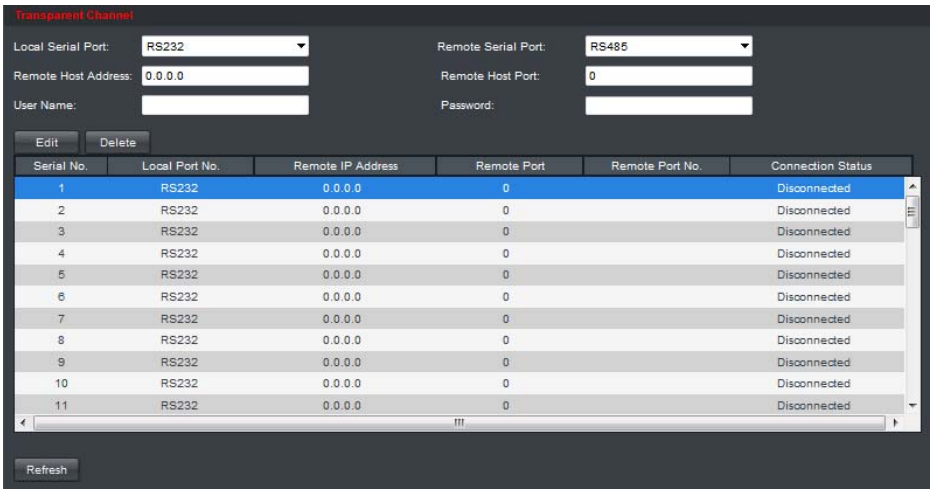


Figure 4.21 Configure Transparent Channel

3. Select the **Local Serial Port** and the **Remote Serial Port** to RS-485 or RS-232.

   Local Serial Port: the serial port used as the transparent channel by the decoder.

   Remote Serial Port: the serial port used as the transparent channel by the encoding device.

Note: When the RS-232 port is used as the Local Serial Port, you must select the operating mode to Transparent Channel by entering the Configuration > Serial Port Settings > RS-232 Port interface.

4. Enter the device information in the Remote Host IP Address, Remote Host Port, and the login User Name and Password of the encoding device.

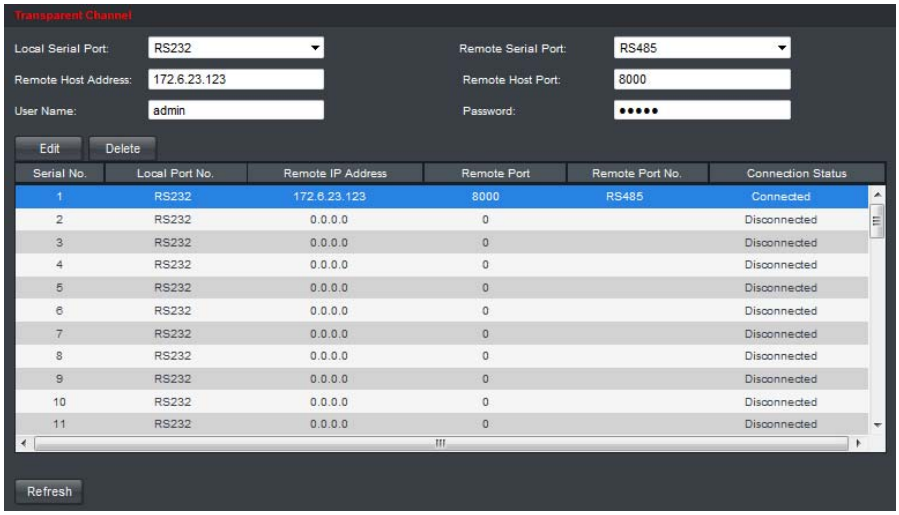


Figure 4.22 Check Connecting Status of Transparent Channel

Note: Up to 64 encoding devices are allowed to establish transparent channel transmission with a decoder.

5. Click **Edit** to finish the settings.
6. Click **Refresh** and the status in the Connection Status will be displayed if the connection is successful.

4.2 Decoder Configuration

4.2.1 Checking Device Information

Purpose:

You can check the information of the device in the device information interface, such as the Device Type, Device Serial No., Firmware Version, etc.

Steps:

Click **Configuration** > **Device Information** to view the device information, including the Device Type, Device Serial No., Firmware Version, DSP Version, etc.

Note: The device name can be edited.

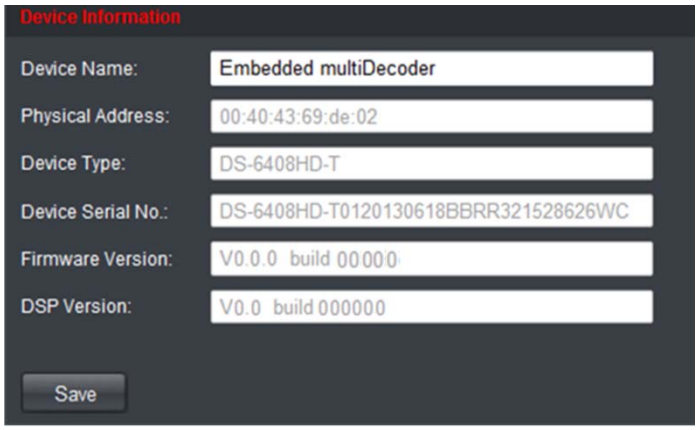


Figure 4.23 Check Device Information

4.2.2 Configuring Time Settings

You can set the time for the decoder in the **Time Settings** interface.

Steps:

1. Click **Configuration** > **Time Settings** to enter the following interface:

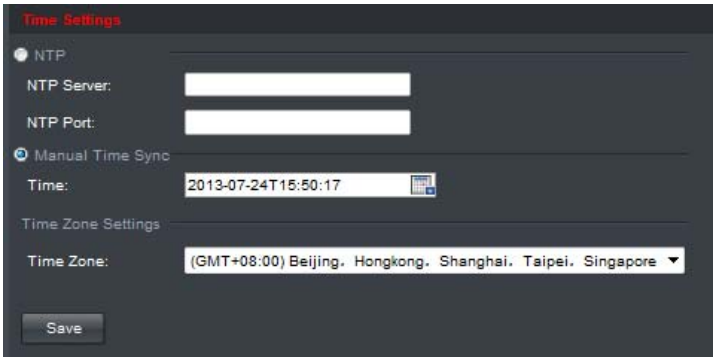


Figure 4.24 Configure Time Settings

2. Configure the time synchronization by NTP server or by manually.

- **Configuring Time Sync by NTP Server**

A Network Time Protocol (NTP) Server can be configured on your device to ensure the accuracy of system date/time.

If the device is connected to a Dynamic Host Configuration Protocol (DHCP) network that has time server properties configured, the camera will synchronize automatically with the time server.

Enable the **NTP** function by checking the checkbox, and configure the following settings:

NTP Server: IP address of NTP server.

NTP Port: Port of NTP server.

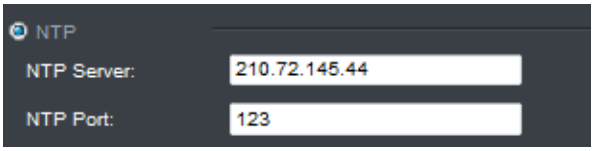


Figure 4.25 Configure Time by NTP

Note: If the device is connected to a public network, you should use a NTP server that has a time synchronization function, such as the server at the National Time Center (IP Address: 210.72.145.44). If the device is set up in a more customized network, NTP software can be used to establish a NTP server used for time synchronization.

- **Configuring Time Synchronization by Manually**

Enable the **Manual Correction** function and then click the icon to set the system time from the pop-up calendar.

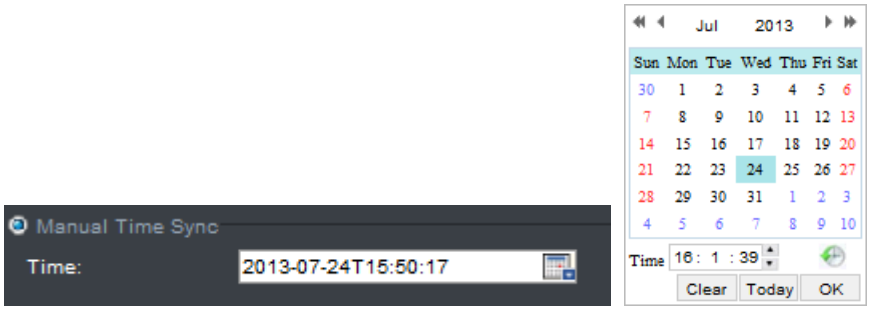


Figure 4.26 Configure Time by Manually

3. Select the time zone that is closest to the device's location from the drop-down list.
4. Click **Save** to save the settings.

4.2.3 Configuring Basic Network Settings

Purpose:

You can set the network parameters for the decoder in the parameter configure interface.

Steps:

1. Click **Configuration** > **Network Settings** > **General** to enter the general network settings interface.

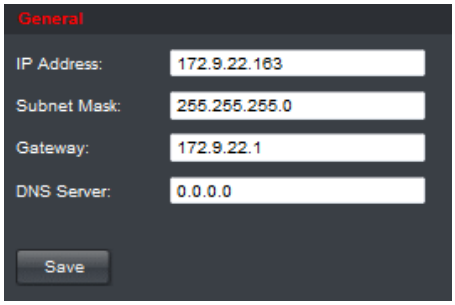


Figure 4.27 Configure Basic Network Settings

2. Set the network parameters, including the IP Address, Subnet Mask, Gateway and DNS Server.
3. Click **Save** to save the settings.

4.2.4 Configuring DDNS Settings

Purpose:

If your device is set to use PPPoE as its default network connection, you may set Dynamic DNS (DDNS) to be used for network access.

Prior registration with your DDNS Provider is required before configuring the system to use DDNS.

Steps:

1. Click **Configuration** > **Network Settings** > **DDNS** to enter the DDNS Settings interface:

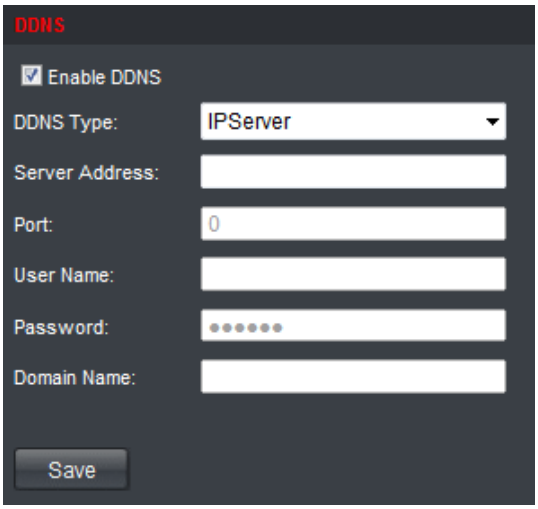


Figure 4.28 Configure DDNS Settings

2. Check the **Enable DDNS** checkbox to enable this feature.
3. Select **DDNS Type**. Four different DDNS types are selectable: IPServer, DynDNS, PeanutHull and HiDDNS.

- **DynDNS:**

(1) Enter **Server Address** for DynDNS (e.g., members.dyndns.org).
(2) Enter the **User Name** and **Password** registered in the DynDNS website.
(3) In the **Device Domain Name** text field, enter the domain obtained from the DynDNS website.
(4) Click **Save** to save the settings.

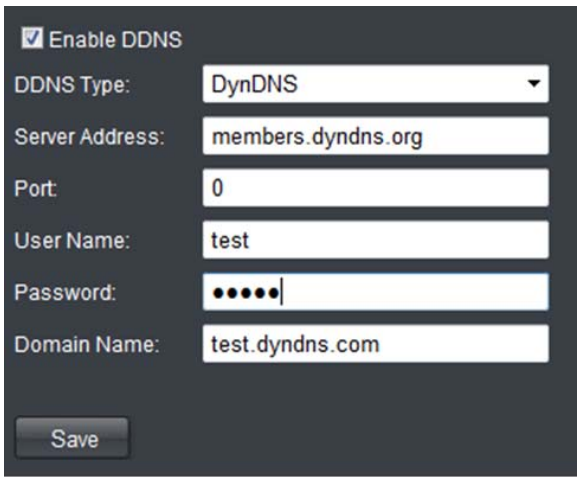


Figure 4.29 DynDNS Settings

- **IPServer:**

(1) Enter Server Address for IPServer.

(2) Click **Save** to save the settings.

Note: For the IP Server, You have to apply a static IP, subnet mask, gateway and primary DNS from the ISP. The **Server Address** should be entered with the static IP address of the PC that runs IPServer software.

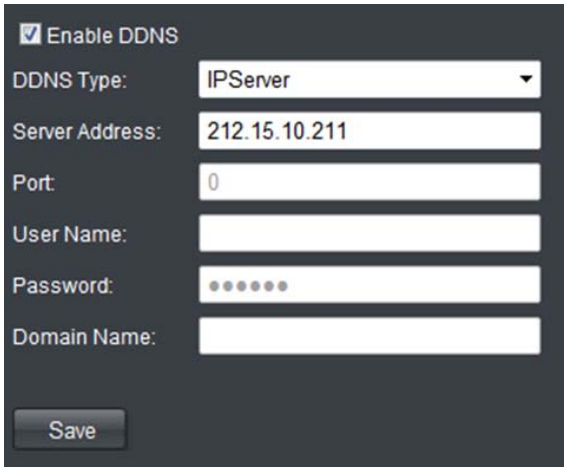


Figure 4.30 IPServer Settings

- **PeanutHull:**

(1) Enter User Name and Password obtained from the PeanutHull website.

(2) Click **Save** to save the settings.

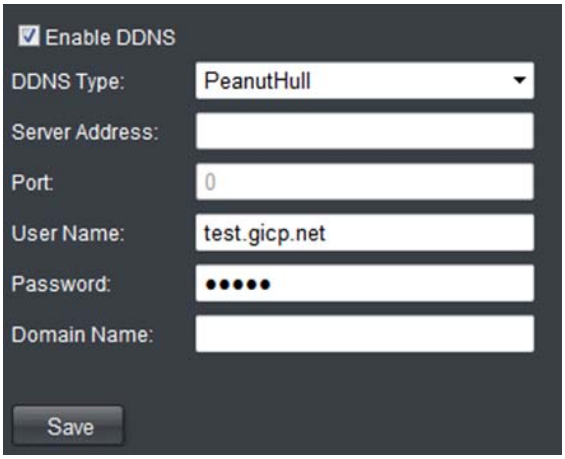


Figure 4.31 PeanutHull Settings

- **HiDDNS:**
  (1) Enter the **Server Address** of the HiDDNS server: www.hiddns.com.
  (2) Enter the **Domain** Name of the device. You can register the alias of the device domain name in the HiDDNS server first and then enter the alias to the domain name in the decoder; you can also enter the domain name directly on the decoder to create a new one.
  Note: If a new alias of the device domain name is defined in the decoder, it will replace the old one registered on the server.
  (3) Click **Save** to save the settings.

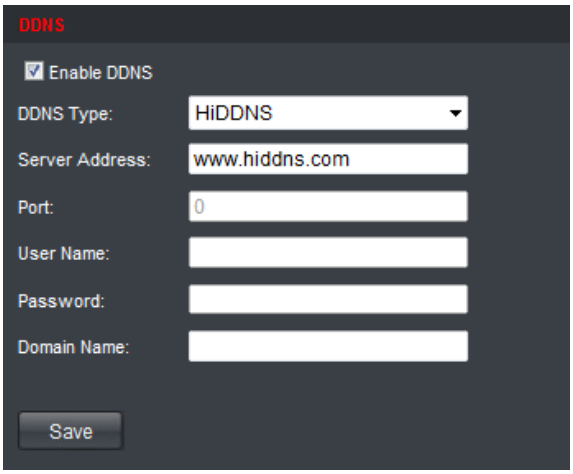


Figure 4.32 HiDDNS Settings

Note: After having successfully registered the device on the HiDDNS server, you can access your device via web browser or Client Software with the Device Domain Name (Device Name).

4.2.5 Configuring RS-485/RS-232 Serial Port

Configuring RS-232 Parameters

Steps:

1. Click **Configuration** > **Serial Port Settings** > **RS-232 Port** to enter the following interface:

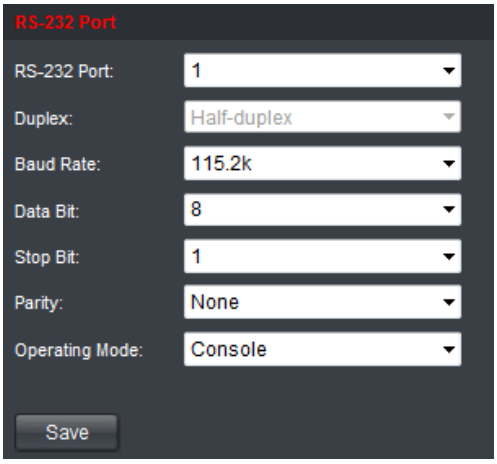


Figure 4.33 Configure RS-232 Settings

2. Configure the RS-232 parameters, including the baud rate, data bit, stop bit and parity type.
3. Select the Operating Mode of RS-232 to Console or Transparent Channel.

   Console: use the RS-232 serial port for debugging the decoder.

   Transparent Channel: use the RS-232 serial port as the transparent channel.
4. Click **Save** to save the settings.

Configuring RS-485 Parameters

Steps:

1. Click **Configuration** > **Serial Port Settings** > **RS-485 Port** to enter the following interface:

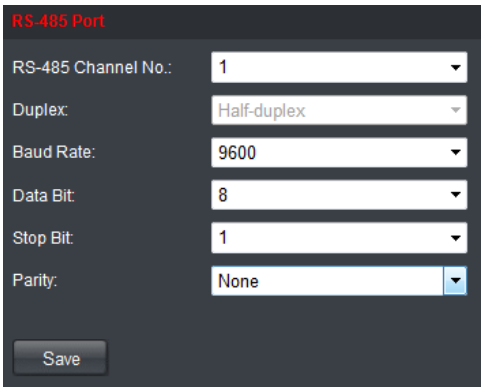


Figure 4.34 Configure RS-485 Settings

2. Configure the RS-485 parameters, including the baud rate, data bit, stop bit and parity type.
3. Click **Save** to save the settings.

4.2.6 Configuring Alarm Input / Output Settings

Purpose:

As the Decoder is unable to obtain the alarm signal over network, it must be connected with external alarm input/output.

Steps:

Alarm Input Settings

1. Click **Configuration** > **Alarm Settings** > **Alarm Input** to enter the alarm setting interface.
2. Set the **Alarm Sensor Type** for the selected alarm input and configure the Alarm Input Handling actions. By default, the Alarm Mode is in NO (Normally Open).

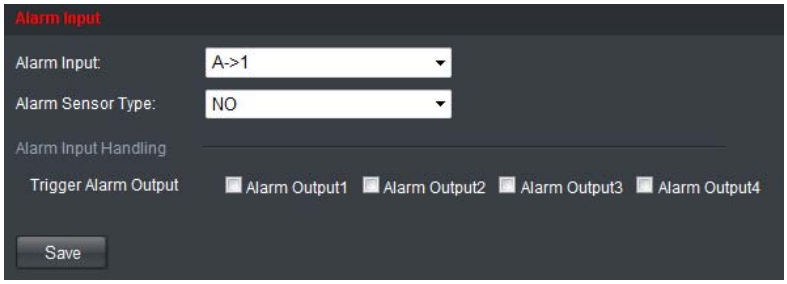


Figure 4.35 Configure Alarm Input Settings

3. Click **Save** to save the settings.

Alarm Output Settings

1. Click **Configuration** > **Alarm Settings** > **Alarm Output** to enter the alarm setting interface.
2. Select the alarm output, you can also customize the output delay time. Output delay time refers to the duration of the alarm after the alarm output, for example, when you set the alarm output delay time as 10 seconds, when an alarm occurs the alarming time lasts 10 seconds later than the time of the alarm stopped.
3. Click **Save** to save your settings.

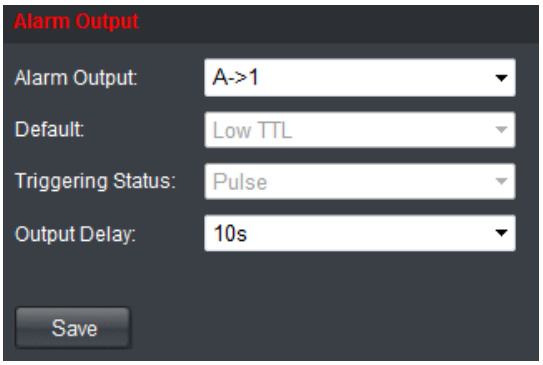


Figure 4.36 Configure Alarm Output Settings

4.2.7 Configuring Arming Time

Purpose:

Set the time schedule for alarm input and alarm output.

Steps:

1. Click **Configuration** > **Arming Time** to enter the following interface.

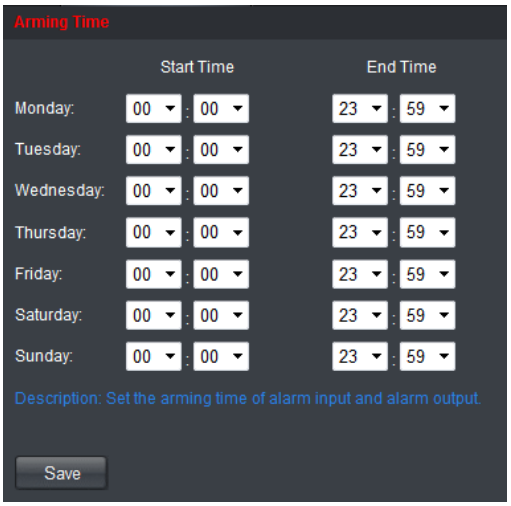


Figure 4.37 Configure Arming Time

2. Choose the Start Time and the End Time.
3. Click **Save** to save the schedule.

4.2.8 Managing User Account

The user accounts can be managed in this interface.

Steps:

1. Click **Configuration** > **User Management** to enter the account management interface.
2. You can add, modify or delete the user account, as well as configure operating permissions for each user account.

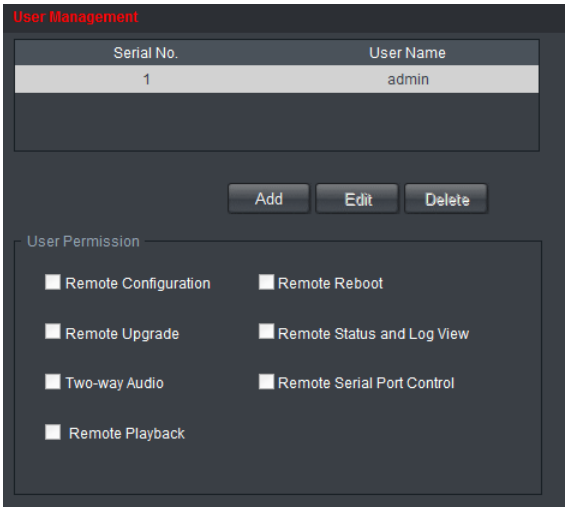


Figure 4.38 Configure User Account

Note: For the admin user, only the password can be modified.

4.2.9 Importing/Exporting Parameters

The configuration files of the device can be imported from or exported to local device for backup, which maintains convenient and easy parameters configuration.

Steps:

1. Click **Configuration** > **Config File Import/Export** to enter the parameters import/export interface:

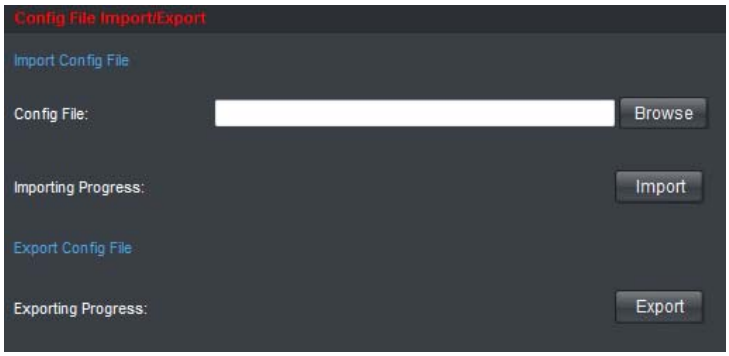


Figure 4.39 Import/Export Config File

2. Click **Browse** to select the file from the local directory and then click the **Import** button to import a configuration file.
   Or click the **Export** button to export configuration files to the local backup device.

4.3 Configuring Remote Playback

Purpose:

You can play back the record files stored in the remote encoding devices.

Steps:

1. Click **Decode Operation** >**Remote Playback** to enter the remote playback interface:

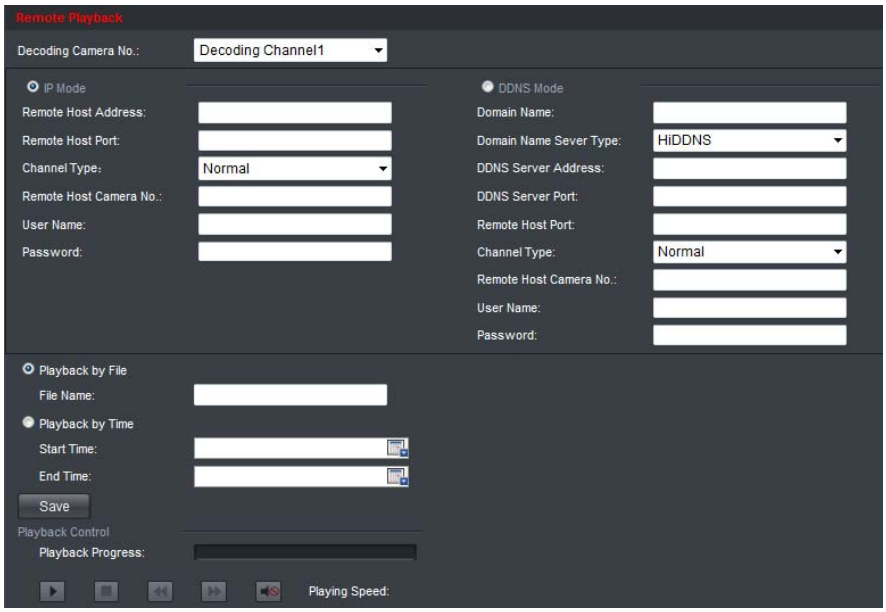


Figure 4.40 Configure Remote Playback

2. Select a Decoding Channel from the drop-down list for playback.
3. You can playback the video files of the encoding device by IP Mode or DDNS mode.

Task 1: Playback Video Files of the Encoding Device by IP Mode

1) Check the checkbox of **IP Mode**.
2) Enter the device information in the **Remote Host Address**, **Remote Host Port**, **Channel Type** (Normal), **Remote Host Channel No.**, and login **User Name** and **Password** of the encoding device.

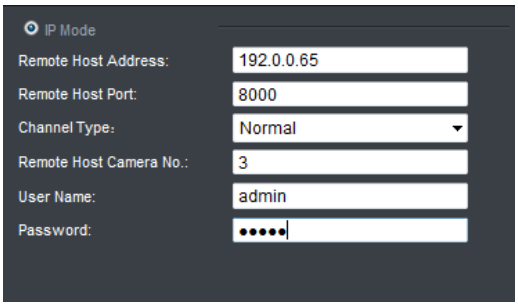


Figure 4.41 Playback Video Files of the Encoding Device by IP Mode

Task 2: Playback Video Files of the Encoding Device by DDNS Mode

1) Check the checkbox of **DDNS Mode**.
2) Enter the **Domain Name** of the device. You can register the alias of the device domain name in the HiDDNS server first and then enter the alias to the domain name in the decoder; you can also enter the domain name directly on the decoder to create a new one.

Note: If a new alias of the device domain name is defined in the decoder, it will replace the old one registered on the server.

3) Configure the following settings:

Domain Name Server Type: select the domain name server type. Currently only the HiDDNS is available.

DDNS Server Address: input the address of the DDNS server (www.hiddns.com).

DDNS Server Port: Input the port number of the DDNS server (e.g., 80).

Remote Host Port: Enter the port No. of the encoding device for decoding (e.g., 8000).

Channel Type: Select the channel type of the encoding device for decoding. By default, the channel type is Normal.

Remote Host Channel No.: Input the channel No. of the encoding device for decoding. The value 0 represents channel 1, 1 represents channel 2, and so forth.

User Name/Password: Enter the user name and password used for login to the encoding device.

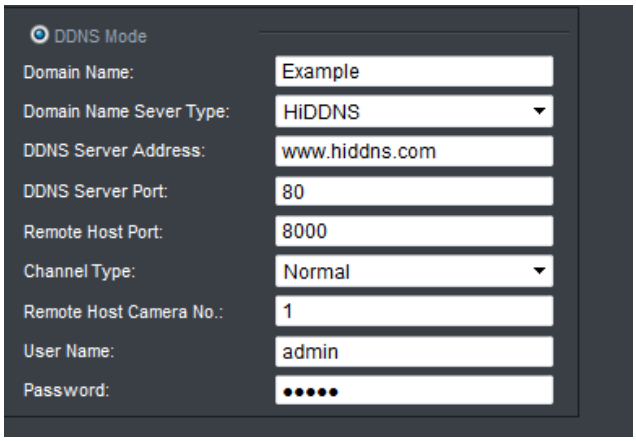


Figure 4.42 Playback Video Files of the Encoding Device by DDNS Mode

4. Select the playback mode to Playback by File or Playback by Time.
   - Playback by file: enter the file name searched on the encoding device.
   - Playback by time: click to enter the start time and end time of the record file.

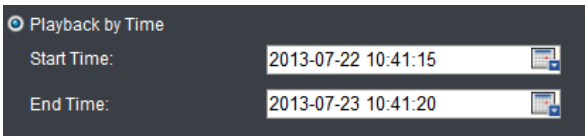


Figure 4.43 Playback by Time

5. Click **Save** to finish the settings.
6. You can click to start playback.

During the playback, use the buttons to start playing, stop playing, slow forward, fast forward, and turn on audio respectively.

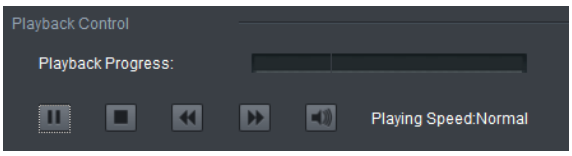


Figure 4.44 Playback Control

Notes:

- The speed of slow forward can be set to 1/2X, 1/4X and 1/8X; and the speed of fast forward can be set to 2X, 4X and 8X.
- During decoding the playback on the screen, if you change the resolution of the video output, the decoding stops.

4.4 Switching Display Mode

Steps:

1. Click **Device Management** to enter the device management interface.

2. Click the to enter the Switch Mode interface. Two display modes for the decoded video output are selectable: Normal Mode and Smooth Mode. When the smooth mode is enabled, the frame rate of the video output is doubled and the video can be played more smoothly.

   Notes:

   - The smooth display mode is valid for the video output in odd number only, e.g., the video output 1, 3, 5 and 7 of HDR503-8 can be enabled with the smooth display feature.
   - The smooth display can be enabled in single-screen display and multi-screen video wall display only and is invalid for the multi-division window display mode.
   - When the Smooth Mode is selected, the decoding capacity of the device will be reduced to 1/4. For example, in the normal mode, the HDR503-8 is capable of decoding 16 channels at 1080P resolution; when the smooth mode, the HDR503-8 is capable of decoding 4 channels at 1080P resolution.

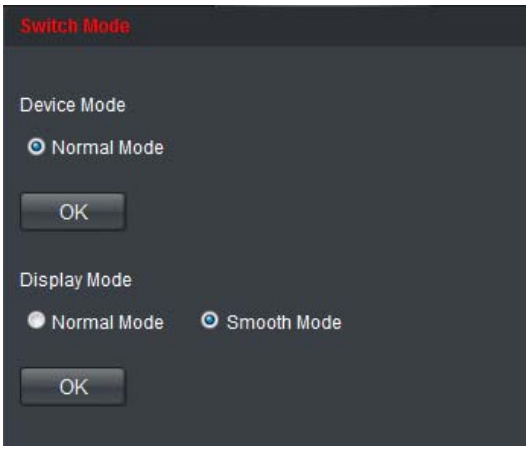


Figure 4.45 Switch Display Mode

3. Click **OK** to save the settings.

   Note: The device will automatically restart after mode switch.

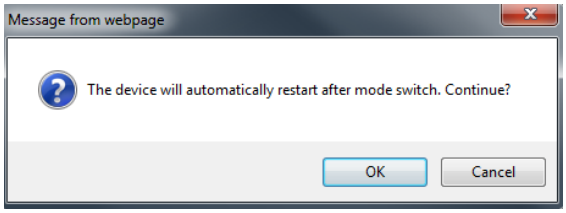


Figure 4.46 Pop-up Message Box

4.5 Rebooting, Upgrading and Restoring the Default Settings for the Decoder

Steps:

1. To reboot, upgrade or restore the default settings of the decoder, go to the **Device Management** interface.
2. Choose the configuration items in the left part of the page.

To upgrade the decoder:

1) Click the

icon to enter the interface, see the following figure.
2) Click **Browse** to search the upgrading files.
3) Click **Upgrade** to upgrade it.

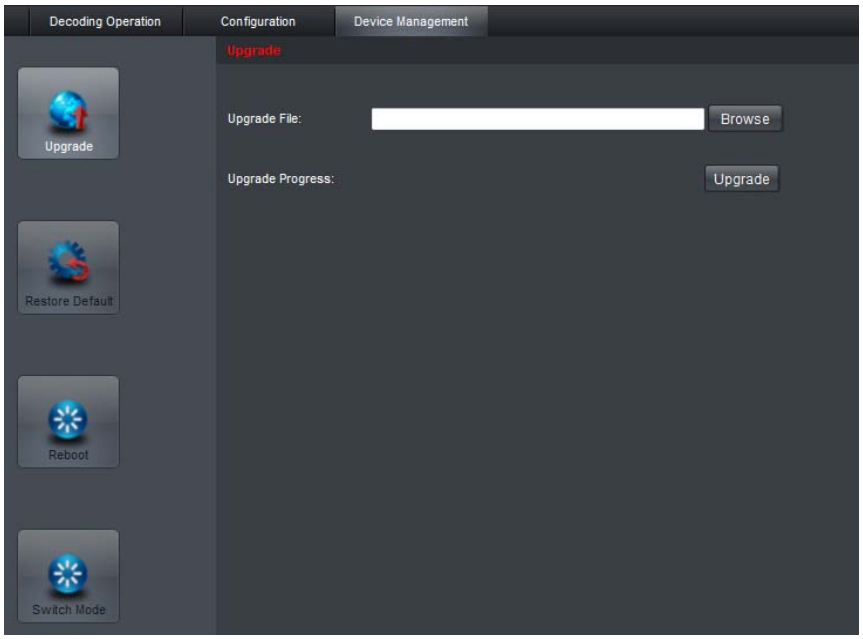
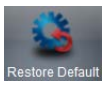


Figure 4.47 Device Management

Notes:

1. When logging in to the device for the first time, please install the plug-in according to the prompt on the screen.
2. The device will restart after the upgrade is complete.

To restore the default settings of the decoder:

1) Click 

icon to enter the Restore Default interface.
2) Click **Complete** to restore the completed factory settings of the decoder.

   Or

   Click **Simple** to restore just a part of the factory settings of the decoder.

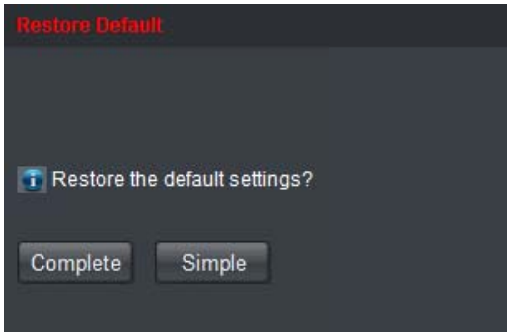


Figure 4.48 Restore Default Settings

To reboot the decoder:

1) Click icon to enter the rebooting interface.
2) Click **OK** if you are sure to reboot the device.

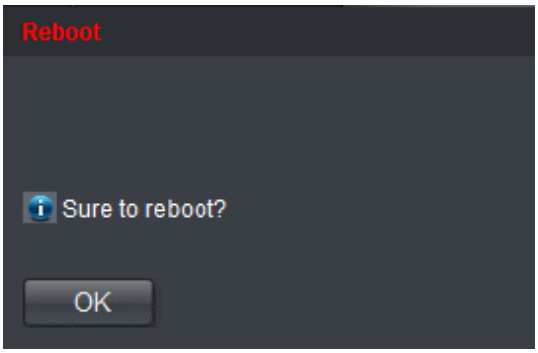


Figure 4.49 Reboot the Device

CHAPTER 5

Decoder Configuration and Operation by Client Software

Run the disk of iVMS-4200 software, and double click the icon to install it in your PC. In this chapter, the basic procedure of operating the decoder by the software is described.

Please refer to the user manual of iVMS-4200 for more detailed information.

The following figure shows the main interface after accessing to the software:

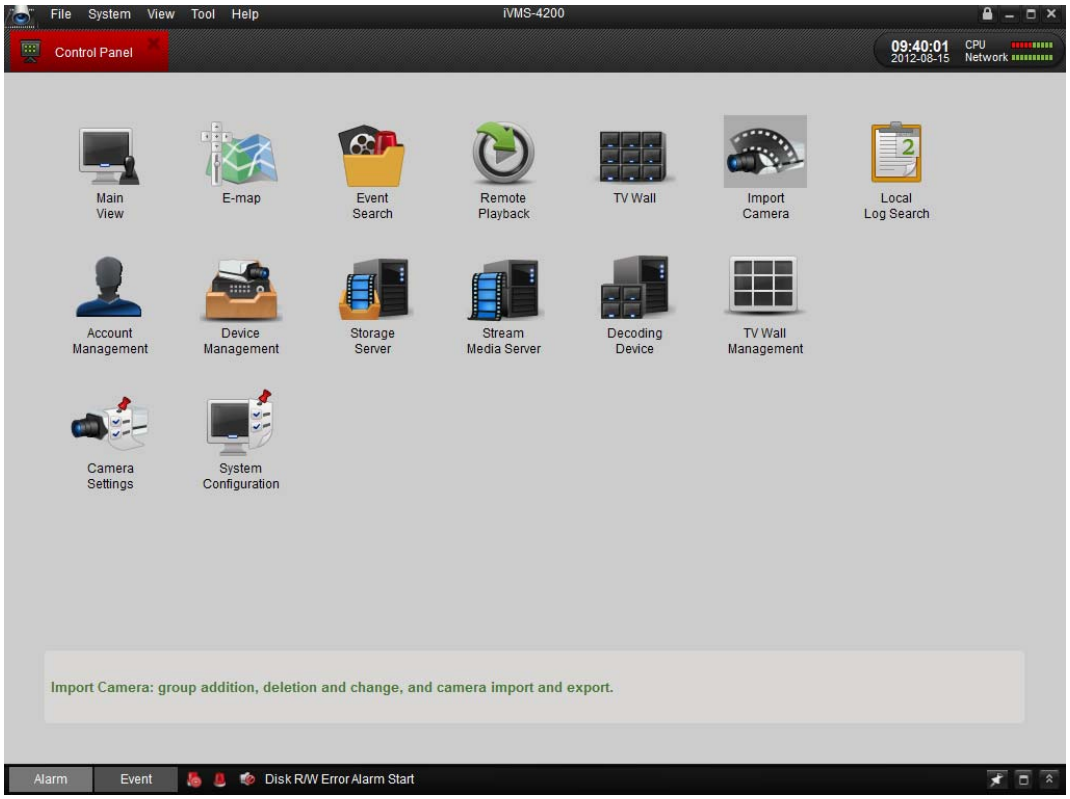


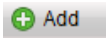
Figure 5.1 Control Panel

Note: The software is capable of many functions as the controlling and managing for many devices, such as the DVR, NVR, etc. In this manual, only the operation related to the decoder is introduced.

5.1 Adding an Encoder

Steps:

1. Click

in the control panel to enter the decoding device management interfaces.
2. Click 

to enter the Add Device interface.
3. Add the device by IP address or private domain name (IP Server/HiDDNS). You can also add the third-party encoding device.

Task1: Add an Encoder by IP Address

1) Edit the nickname of the encoding device.
2) Enter the IP address, port, login user name and password.
3) Click **Add** to add the device.

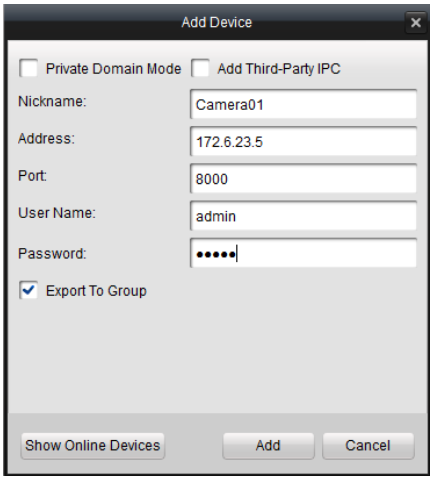


Figure 5.2 Add Device by IP Address

Task2: Add an Encoder by IP Server or HiDDNS

1) Enter the Nickname in the text filed.
2) Select the DDNS protocol type to IP Server or HiDDNS by checking the checkbox.
3) Enter the Enter Server Address for IP Server or HiDDNS (default: www.hiddns.com).

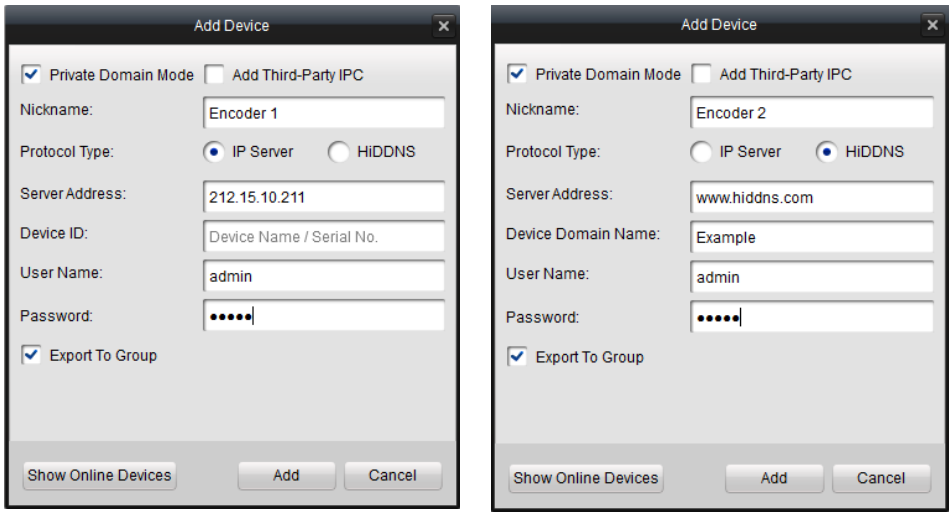


Figure 5.3 Add an Encoder by DDNS Address

1) Enter the Device ID for the IP Server or the Device Domain Name for the HiDDNS. You can register the alias of the device domain name in the HiDDNS server first and then enter the alias to the domain name in the encoder; you can also enter the domain name directly on the encoder to create a new one.

   Notes:

   - For the IP Server, You have to apply a static IP, subnet mask, gateway and primary DNS from the ISP. The Server Address should be entered with the static IP address of the PC that runs IP Server software.
   - For the HiDDNS, if a new alias of the device domain name is defined in the encoder, it will replace the old one registered on the server.
2) Enter the login user name and password.
3) Click **Add** to add the encoder.

Note: After having successfully registered the device on the HiDDNS server, you can access your device via web browser or Client Software with the Device Domain Name (Device Name).

Task3: Add a Third-party Device

1) Check the checkbox of Add Third-Party IPC. .
2) Edit the nickname of the encoding device.
3) Enter the IP address, port, login user name and password.
4) Select the factory type of the encoding device from the dropdown list.
5) Click Add to add the device.
6) Enter the channel number.
7) Click Add to add the device.

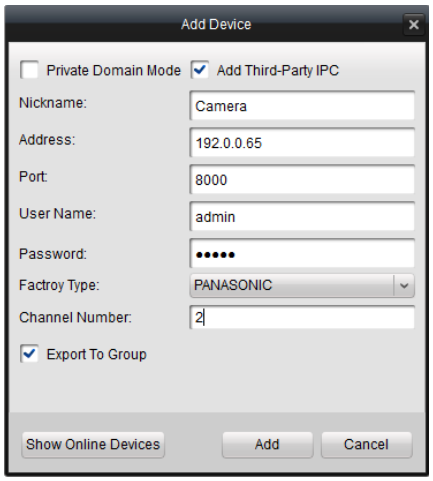


Figure 5.4 Add Third-party Device

Note: The added third-party encoding device is only a virtual node, and the live view and parameters configuration cannot be realized via the iVMS-4200 client software.

4. You can check the successfully added device on the Device Management interface.

Figure 5.5 List of Added Devices

Task4: Add Device Searched Online

You can also click Show Online Devices to search the online devices in the same network segment. The online devices available are listed on the field.

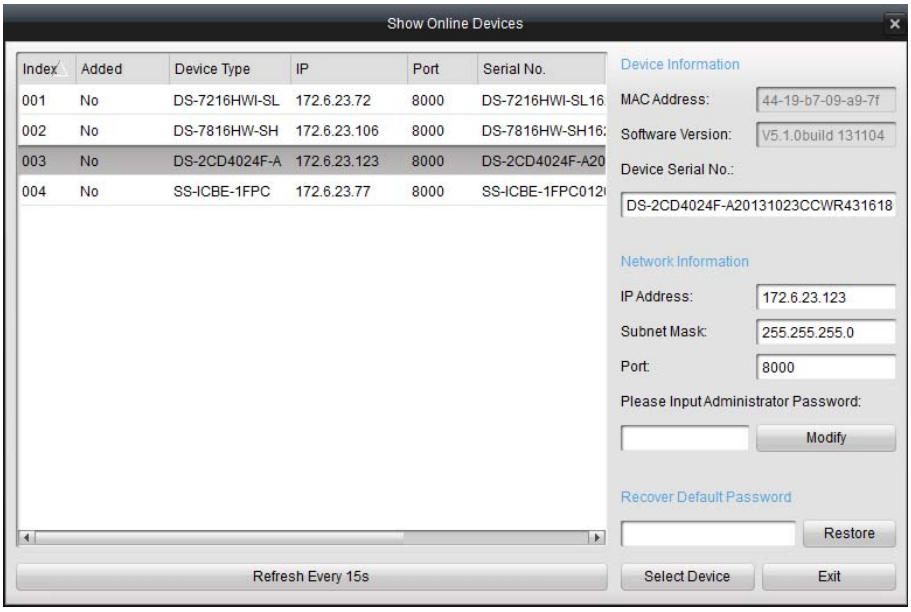


Figure 5.6 Add Device Searched Online

Select a device from the list and click the Select Device icon to add the selected device.

5.2 Adding a Decoder

Steps:

1. Click

in the control panel to enter the decoding device management interface.
2. Click

to enter the Add Decoder Device interface.
3. Add the device by IP address or private domain name (IP Server/HiDDNS).

Task1: Add a Decoder by IP Address

1) Edit the nickname of the decoder. The nickname is the name you customized and give to the decoder in the client software.
2) Enter the IP address, port, login user name and password.
3) Click **Add** to add the device.

Figure 5.7 Add a Decoder by IP Address

Task2: Add a Decoder by Private Domain Mode (IP Server/HiDDNS)

1) Check the checkbox of the Private Domain Mode.
2) Enter the Nickname in the text filed.
3) Select the DDNS protocol type to IP Server or HiDDNS by checking the checkbox.
4) Enter the Enter Server Address for IP Server or HiDDNS (default: www.hiddns.com).

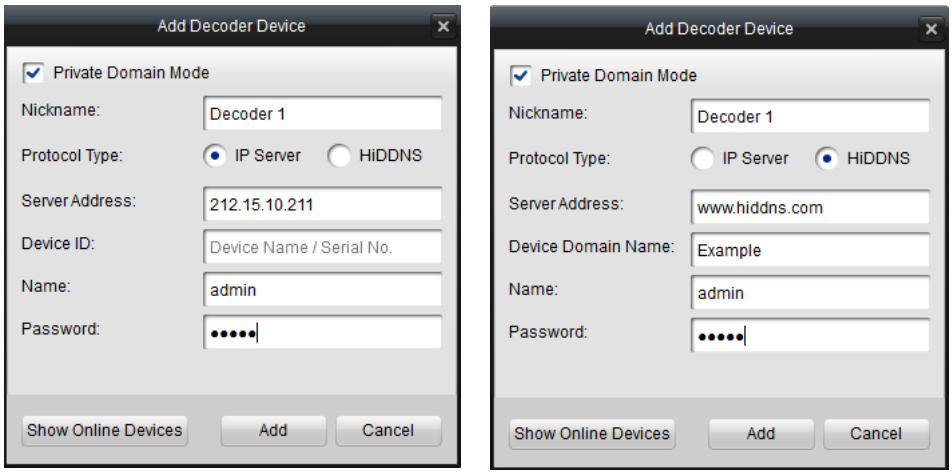


Figure 5.8 Add a Decoder by DDNS Address

5) Enter the Device ID for the IP Server or the Device Domain Name for the HiDDNS.

6) Enter the login user name and password.

7) Click **Add** to add the decoder.

Note: Please refer to *Section 5.1 Adding an Encoder* for details.

The successfully added decoder device can be viewed in the list.

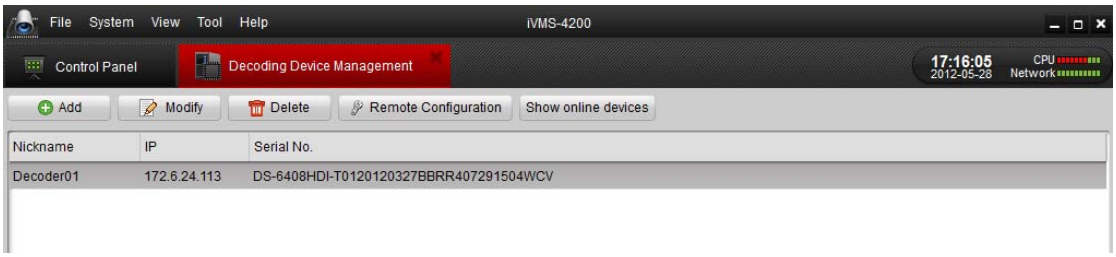


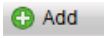
Figure 5.9 List of Added Decoders

You can also click **Show online devices** to add the decoder. Please refer to *Section 5.1 Adding an Encoder* for operating instructions.

5.3 Setting TV Wall Layout

Steps:

1. In the control panel, click

to enter the TV Wall setting interface.
2. Click 

to add the screen information.

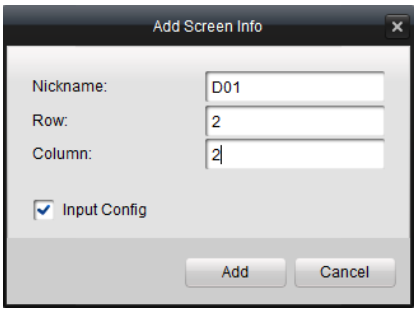


Figure 5.10 Add Screen Information

3. Edit the nickname, and enter the number of screens in row and column.
4. Check the checkbox of **Input Config** to input the screen settings to TV wall.
5. Click **Add** to finish the adding of the screen information and enter the following interface:

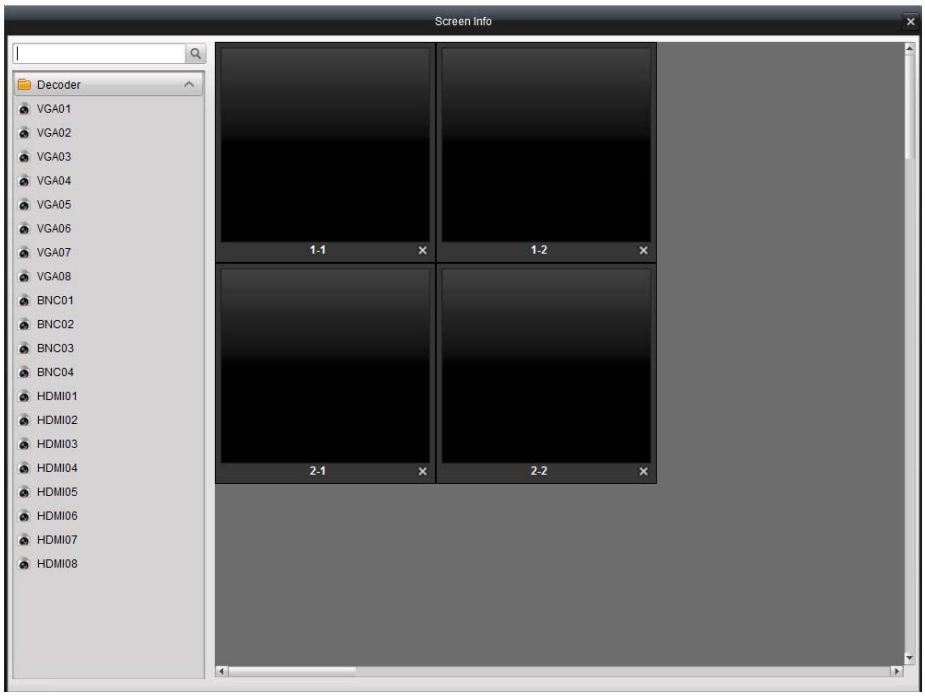


Figure 5.11 Screen Configuration Interface

6. Click and drag the channels on the list of the decoding devices to the display screens.

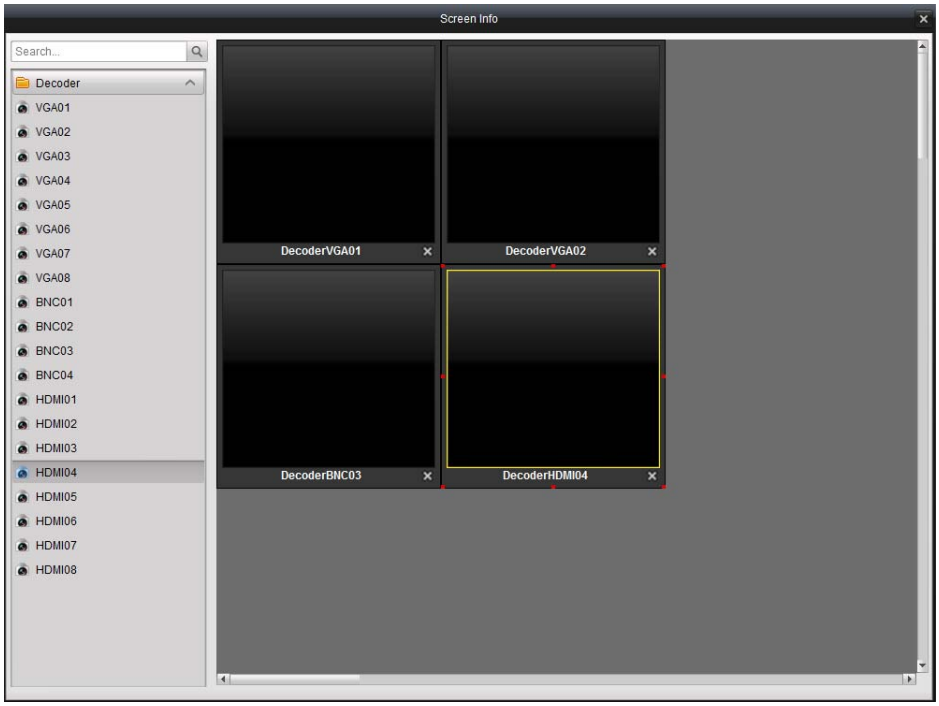


Figure 5.12 Configure Screen Layout

You can double click a decode channel on the list to modify its nickname and video standard (BNC) or resolution (VGA and HDMI).

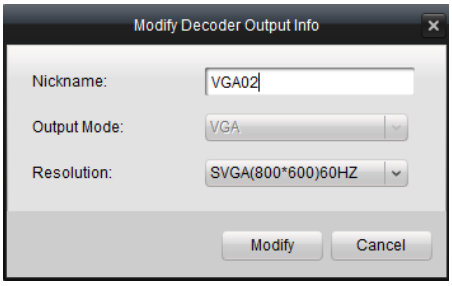


Figure 5.13 Modify Output Information

5.4 Decoding Operation

Steps:

1. In the control panel, click

to enter the TV Wall interface.

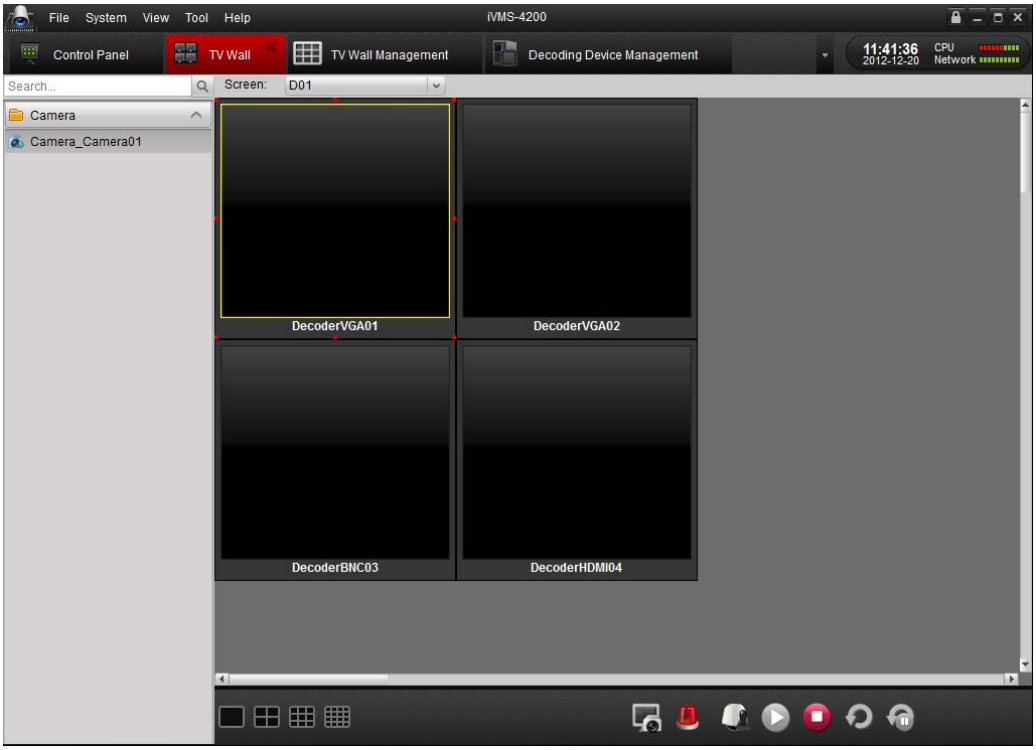


Figure 5.14 TV Wall Interface

In this configuration interface, the left bar lists the encoding devices which has been added to the client software, and the bottom bar with the configuration of the decoding action.

Table 5.1 Description of Buttons on the Toolbar

Button	Description	Button	Description
	Single-division display mode		4-division display mode
	9-division display mode		16-division display mode
	Live view		Alarm mode
	PTZ control		Start decoding
	Stop decoding		Start cycle decoding
	Stop cycle decoding		

2. Click and drag the encoding channels from the left list to the screen on the TV Wall.
3. Select the screen and click the button on the bottom or select **Start Decoding** from the right-click menu to start decoding.

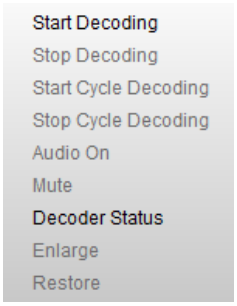


Figure 5.15 Start Decoding

4. Use the other functional buttons on the bottom or right-click menu to start/stop cycle decoding, display in multi-division mode, view decode status, PTZ control, etc.

5.5 Configuring Remote Setting for the Decoder

Steps:

1. On the Decoding Device Management interface, select a decoder from the list and click Remote Configuration to enter the remote settings interface.

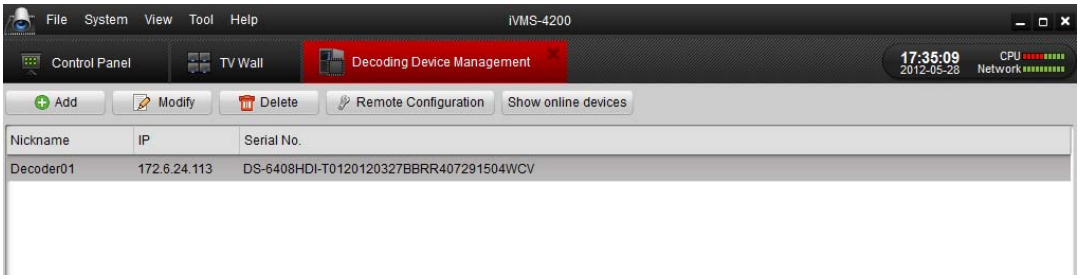


Figure 5.16 Decoder List

2. You can view the device information, and configure the parameters for the device.

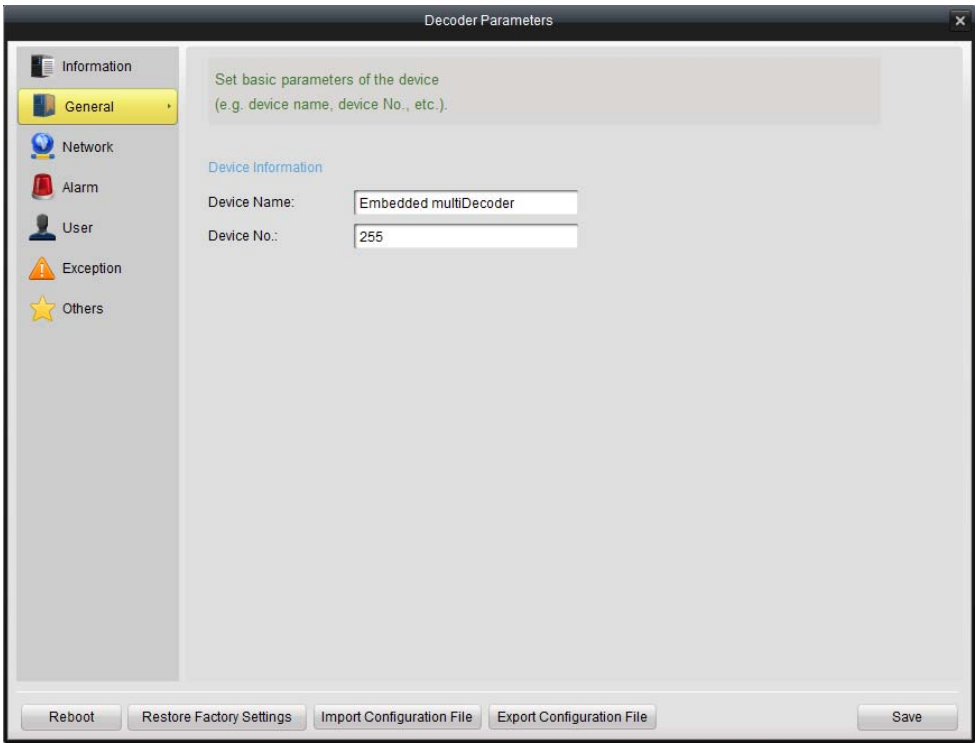


Figure 5.17 Remote Settings of the Decoder

Note: The RS-485 parameters of the decoder cannot be configured through the remote settings.

For detailed information, please refer to the *User Manual of the iVMS-4200 Client Software*.

CHAPTER 6

Appendix

Appendix A. Specifications

Model		HDR503-1	HDR503-4	HDR503-8
Audio/ Video Output	VGA Output	1-ch	4-ch	8-ch
		1920×1080@60/50Hz, 1600×1200@60Hz, 1280×1024@60Hz, 1280×720@50/60Hz, 1024×768@60Hz		
	HDMI Output	1-ch	4-ch	8-ch
		1920×1080@60/50HZ, 1600×1200@60Hz, 1280×1024@60Hz, 1280×720@50/60Hz, 1024×768@60Hz		
	CVBS Output (without audio)	1-ch	2-ch	4-ch
	Audio Output	1-ch, RCA connector	4-ch, DB15 connector	8-ch, DB15 connector
Audio/ Video Decoding	Video Stream Format Supported	H.264 /MPEG4/MPEG2/Private		
	Audio Stream Format Supported	G.722/G.711A/G.711U/MPEG2-L2/ACC		
	Decoding Capability	5MP: 2-ch; 1080P: 4-ch; 720P: 8-ch; 4CIF: 16-ch	5MP: 4-ch; 1080P: 8-ch; 720P: 16-ch; 4CIF: 32-ch	5MP: 8-ch; 1080P: 16-ch; 720P: 32-ch; 4CIF: 64-ch
	Multi-division Display	1/4/6/8/9/12/16	1/4/6/8/9/12/16	1/4/6/8/9/12/16
	Screen Jointing Mode	——	1×2, 2×1, 2×2	1×2, 2×1, 2×2, 2×3, 3×2, 2×4, 4×2
External Interface	Network Interface	1; 10/100/1000 Mbps self-adaptive Ethernet interface		
	Serial Interface	1 RS-232 (DB9), 1 RS-485		
	Two-way Audio In	1-ch, 3.5 mm connector (2.0 Vp-p, 1 kΩ)		
	Two-way Audio Out	1-ch, 3.5 mm connector (2.0 Vp-p, 1 kΩ)		
	Alarm In	4		
	Alarm Out	4		
General	Power Supply	12 VDC	100~240VAC	100~240VAC
	Power Consumption	Max. 15W	Max. 70W	Max. 70W
	Working Temperature	-10°C ~ 55°C		
	Working Humidity	10% ~ 90%		
	Dimensions (W×D×H)	220×180×45 mm	440×340×70 mm	440×340×70 mm
	Weight	≤1.2 kg	≤5.2 kg	≤5.2 kg

Appendix B. FAQ

- **Why cannot *ping* the decoder?**
    1. Check the cable and the switch.
    2. Please refer to *Chapter 3* to configure the IP address of the decoder.

- **Why cannot connect the decoder with client software?**
    1. Check the decoder IP address.
    2. Cable is connected.
    3. User name and password of decoder are correct.

- **Why cannot play back the record files in DVR with decoder?**
    1. Check the DVR network connection.
    2. Check the parameters of the playback file.
    3. Check if there are files existed in the selected time duration.

- **Why cannot decode the stream transported by stream media server?**
    1. Check the network connection between decoder and stream media server.
    2. Check if the stream media server port is connected with the port added on decoder.

Appendix C. List of Third-party IP Cameras Access

IP Camera Manufacturer	Model	Supported Video Format
Panasonic	SP306H	H.264, MPEG4
	SP336H	
Sony	SNC-CH220	
	SNC-RH124	
Axis	P5532	
	Q7404	
Sanyo	VCC-HD2500P	
Bosch	NBC265P	
Zavio	D5110	
Arecont	AC1305M	
Pelco	IX30DN-ACFZHB3	
Onvif	Supported	