



User Manual

GD-RN-AC2004P
GD-RN-AC2416N
GD-RN-AC2416P
GD-RN-AP8616P

GD-RN-AP8632P
GD-RN-AT8864N
GD-RN-CT8832N
GD-RT-AT819128N

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Content

1.	Introduction.....	7
1.1	Model Overview	7
1.2	Key Features of the NVRs	8
1.3	Front Panel View	12
1.4	Remote Control	18
1.5	USB Mouse	23
1.6	OSD Keyboard.....	24
1.7	Rear Panel View.....	25
2.	Getting Started	31
2.1	Recorder Startup	31
2.2	Using the Wizard for Basic Configuration.....	38
2.3	Adding and Connecting the IP Cameras	42
2.3.1	Activating the IP Camera.....	42
2.3.2	Adding the Online IP Cameras	43
2.3.3	Editing the Connected IP Cameras and Configuring Customized Protocols.....	46
2.3.4	Editing the IP Cameras Connected to the PoE Interfaces.....	49
2.3.5	Configuring the PoE Interface	51
3.	Live View.....	53
3.1	Introduction of Live View	53
3.2	Operations in the Live View mode	53
3.3	Adjusting the Live View Settings	60
3.4	Channel-zero Encoding.....	62
4.	PTZ Controls.....	63
4.1	Configuring PTZ Settings.....	63
4.2	Setting PTZ Presets, Patrols & Patterns	64
4.3	PTZ Control Panel	70
5.	Recording and Capture Settings.....	72
5.1	Configuring Parameters.....	72
5.2	Configuring Recording and Capture Schedule.....	75
5.3	Configuring Motion Detection Recording and Capture.....	79
5.4	Configuring Alarm-Triggered Recording and Capture	80
5.5	Configuring VCA Event Recording.....	82
5.6	Manual Recording and Continuous Capture	83
5.7	Configuring Holiday Recording and Capture	84

5.8 Configuring Redundant Recording and Capture	85
5.9 Configuring the HDD Group for Recording and Capture	86
5.10 Files Protection	87
5.10.1 Locking the Recording Files	87
5.10.2 Setting the HDD Property to Read-only	90
6. Playback	91
6.1 Playing Back Record Files	91
6.1.1 Instant Playback	91
6.1.2 Playing Back by Normal Search	91
6.1.3 Playing back by Smart Search	95
6.1.4 Playing Back by Event Search	97
6.1.5 Playing Back by Tag	98
6.1.6 Playing Back by Sub-periods	100
6.1.7 Playing Back by System Logs	101
6.1.8 Playing Back External File	102
6.1.9 Playing Back Pictures	102
6.2 Auxiliary Functions of Playback	103
6.2.1 Playing Back Frame by Frame	103
6.2.2 Thumbnails View	104
6.2.3 Fast View	104
6.2.4 Digital Zoom	104
6.2.5 File Management	105
7. Backup	106
7.1 Backing up Record Files	106
7.1.1 Quick Export	106
7.1.2 Backing up by Normal Video/Picture Search	108
7.1.3 Backing up by Event Search	110
7.1.4 Backing up Video Clips or Captured Playback Pictures	111
7.2 Managing Backup Devices	112
7.3 Hot Spare Device Backup	113
7.3.1 Setting the Hot Spare Device	113
7.3.2 Setting the Working Device	113
7.3.3 Managing the Hot Spare System	114
8. Alarm Settings	115

8.1 Setting a Motion Detection Alarm	115
8.2 Setting Sensor Alarms	117
8.3 Detecting a Video Loss Alarm.....	119
8.4 Detecting a Video Tampering Alarm.....	120
8.5 Handling an Exceptions Alarm.....	122
8.6 Setting Alarm Response Actions.....	122
8.7 Triggering or Clearing an Alarm Output Manually	125
9. POS Configuration.....	127
9.1 Configuring the POS Settings.....	127
9.2 Configuring the Overlay Channel	131
9.3 Configuring the POS Privacy Information Filtering.....	132
9.4 Configuring the POS Alarm.....	133
10. VCA Alarm.....	135
10.1 Face Detection	135
10.2 Vehicle Detection	136
10.3 Line Crossing Detection	137
10.4 Intrusion Detection	138
10.5 Region Entrance Detection	140
10.6 Region Exiting Detection	141
10.7 Unattended Baggage Detection	141
10.8 Object Removal Detection.....	141
10.9 Audio Exception Detection	142
10.10 Sudden Scene Change Detection	143
10.11 Defocus Detection	143
10.12 PIR Alarm	143
10.13 Loitering Detection.....	144
10.14 People Gathering Detection	144
10.15 Fast Moving Detection	144
10.16 Parking Detection	145
11. VCA Search.....	146
11.1 Face Search.....	146
11.2 Behavior Search.....	146
11.3 Plate Search	147
11.4 People Counting	147
11.5 Heat Map.....	148

11.6 Advanced Search	148
12. Network Settings	150
12.1 Configuring General Settings.....	150
12.2 Configuring Advanced Settings	151
12.2.1 Configuring DDNS.....	151
12.2.2 Configuring the NTP Server.....	153
12.2.3 Configuring SNMP	154
12.2.4 Configuring More Settings	155
12.2.5 Configuring the HTTPS Port.....	156
12.2.6 Configuring Email	158
12.2.7 Configuring the NAT	160
12.2.8 Configuring the Virtual Host	163
12.3 Checking Network Traffic	165
12.4 Configuring Network Detection	165
12.4.1 Testing the Network Delay and Packet Loss	165
12.4.2 Exporting the Network Packet	166
12.4.3 Checking the Network Status.....	167
12.4.4 Checking the Network Statistics.....	167
13. RAID	169
13.1 Configuring an Array.....	169
13.1.1 Enable RAID.....	170
13.1.2 One-touch Configuration	170
13.1.3 Manually Creating the Array	171
13.2 Rebuilding the Array.....	171
13.2.1 Automatically Rebuilding the Array	172
13.2.2 Manually Rebuilding the Array.....	172
13.3 Deleting the Array	172
13.4 Checking and Editing the Firmware.....	173
14. HDD Management	174
14.1 Initializing HDDs	174
14.2 Managing the Network HDD	175
14.3 Managing eSATA	177
14.4 Managing a HDD Group.....	178
14.4.1 Setting HDD Groups	178
14.4.2 Setting the HDD Property.....	178

14.5 Configuring the Quota Mode	179
14.6 Configuring the Disk Clone	180
14.7 Checking the HDD Status.....	181
14.8 HDD Detection.....	182
14.9 Configuring HDD Error Alarms.....	184
15. Camera Settings	185
15.1 Configuring the OSD Settings	185
15.2 Configuring the Privacy Mask.....	185
15.3 Configuring the Video Parameters	187
16. NVR Management and Maintenance.....	188
16.1 Viewing the System Information	188
16.2 Searching & Exporting Log Files	188
16.3 Importing/Exporting the IP Camera Info.....	191
16.4 Importing/Exporting Configuration Files.....	191
16.5 Upgrading the System	192
16.5.1 Upgrading by Local Backup Device.....	192
16.5.2 Upgrading by FTP	192
16.6 Restoring the Default Settings.....	193
17. Others	194
17.1 Configuring the RS-232 Serial Port	194
17.2 Configuring the General Settings	194
17.3 Configuring the DST Settings	195
17.4 Configuring More Settings.....	196
17.5 Managing the User Accounts	197
17.5.1 Adding a User.....	197
17.5.2 Deleting a User.....	200
17.5.3 Editing a User	201
18. Glossary	204
19. Compatible IP Cameras.....	205
20. Troubleshooting.....	225

1. Introduction

Thank you for purchasing a Grundig product. Before installing or connecting the product, please read first the following documents which you can find on the CD in the product package:

- Legal Disclaimer
- Safety Instructions
- Installation Manual for the respective product model

Further information about the product like Data Sheets, CE Documents, etc. can also be found on the CD in the product package.

This User Guide is a user manual for IP Recorders (NVRs). Please see in the table of 1.1 Model Overview the applicable models.

Please read this User Guide carefully and retain it for future use.

1.1 Model Overview

This User Guide is for the following products:

GD-RN-AC2004P
GD-RN-AC2416N
GD-RN-AC2416P
GD-RN-AP8616P
GD-RN-AP8632P
GD-RN-AT8864N
GD-RN-CT8832N
GD-RN-AT819128N

1.2 Key Features of the NVRs

General:

- Connectable to network cameras, network dome and encoders.
- Connectable to third-party network cameras like ACTI, Arecont, AXIS, Bosch, Brickcom, Canon, PANASONIC, Pelco, SAMSUNG, SANYO, SONY, Vivotek and ZAVIO, and cameras that adopt the ONVIF or PSIA protocol.
- <H.265+>/<H.265>/<H.264+>/<H.264>/<MPEG4> video formats (plus <MJPEG> for the GD-RN-AT819128N, only for some IP cameras).
- <PAL>/<NTSC> adaptive video inputs.
- Each channel supports <Dual-stream>.
- Up to 8/16/32/64 network cameras can be added according to different models.
- Independent configuration for each channel, including <Resolution>, <Frame Rate>, <Bit Rate>, <Image Quality>, etc.
- The quality of the input and output record is configurable.

Local Monitoring:

- HDMI1/VGA1 and HDMI2/VGA2 outputs are provided for GD-RN-AT8864N and GD-RN-CT8832N.
- HDMI 1, HDMI 2, and VGA outputs are provided for GD-RN-AT819128N (HDMI 2 video output at up to a 4K resolution).
- HDMI and VGA outputs provided for GD-RN-AC2004P, GD-RN-AC2416N, GD-RN-AC2416P, GD-RN-AP8616P and GD-RN-AP8632P.
- HDMI video output at up to a 4K resolution and VGA video output at up to a 2K resolution.
- Multiple screen display in <Live View> is supported and the display sequence of channels is adjustable.
- <Live View> screen can be switched in a group. <Manual Switch> and <Auto-switch> are provided and the <Auto-switch> interval is configurable.
- <3D Positioning> is supported by GD-RN-AP8616P, GD-RN-AP8632P, GD-RN-AT8864N and GD-RN-CT8832N in the <Live View>.
- <POS Information Overlay> on the <Live View> by GD-RN-AP8616P, GD-RN-AP8632P, GD-RN-AT8864N and GD-RN-CT8832N.
- Configurable <Main Stream> and <Sub-stream> for the <Live View>.
- <Quick Setting> menu is provided for the <Live View>.
- <Motion detection>, <Video Tampering>, <Video Exception Alert> and <Video Loss Alert> functions.
- <Privacy Mask>.
- Multiple <PTZ> protocols are supported; <PTZ Preset>, <Patrol> and <Pattern>.
- Zooming in by clicking the mouse and <PTZ Tracing> by dragging the mouse.

HDD Management:

- Up to 16 SATA hard disks and 1 eSATA disk can be connected for GD-RN-AT819128N, up to 8 SATA hard disks and 1 eSATA disk can be connected for GD-RN-AT8864N and GD-RN-CT8832N, 4 SATA hard disks for GD-RN-AP8616P and GD-RN-AP8632P, 2 SATA hard disks for GD-RN-AC2416N and GD-RN-AC2416P, and 1 SATA hard disk for GD-RN-AC2004P.
- Up to a 6TB (8TB for GD-RN-AT819128N) storage capacity is supported for each disk.

- Supports 8 network disks (NAS/IP SAN disk).
- Supports <S.M.A.R.T.> and <Bad Sector Detection>.
- <HDD Group> Management.
- Supports <HDD Standby> function.
- HDD Property: <Redundancy>, <Read-only>, <Read/Write (R/W)>.
- HDD Quota Management; different capacity can be assigned to different channels.
- For GD-RN-AT8864N, GD-RN-CT8832N and GD-RN-AT819128N, <RAID0>, <RAID1>, <RAID5>, <RAID6> and <RAID 10> are supported.
- <Hot-swappable RAID Storage Scheme> which can be enabled and disabled on your demand. 16 arrays can be configured.
- GD-RN-AT8864N, GD-RN-CT8832N and GD-RN-AT819128N support the disk clone to the eSATA disk.

Recording, Capture and Playback:

Note:

<Capture> is supported by GD-RN-AP8616P, GD-RN-AP8632P, GD-RN-AT8864N, GD-RN-CT8832N and GD-RN-AT819128N only.

- <Holiday Recording Schedule> configuration.
- <Continuous> and <Event> video recording parameters.
- Multiple recording types: <Manual>, <Continuous>, <Alarm>, <Motion>, <Motion | alarm>, <Motion & alarm VCA>, and <POS> (<POS> for GD-RN-AP8616P, GD-RN-AP8632P and GD-RN-AT8864N only).
- 8 recording time periods with separated recording types.
- POS Information Overlay on an image by GD-RN-AP8616P, GD-RN-AP8632P, GD-RN-AT8864N and GD-RN-CT8832N.
- Pre-record and Post-record for <Alarm>, <Motion Detection> for recording, and <Pre-record> time for <Schedule> and <Manual Recording>.
- Searching record files and captured pictures by events (<Alarm Input>/<Motion Detection>).
- <Tag> adding for record files, searching and playing back by tags.
- Locking and unlocking record files.
- <Local Redundant Recording> and <Capture>.
- Provide new <Playback> interface with easy and flexible operation.
- Searching and playing back record files by <Channel Number>, <Recording Type>, <Start Time>, <End Time>, etc.
- Supports the <Playback> by <Main Stream> or <Sub-stream> (GD-RN-AP8616P, GD-RN-AP8632P, GD-RN-AT8864N, GD-RN-CT8832N).
- <Smart Search> for the selected area in the video.
- Zooming in during <Playback>.
- Reverse Playback of Multi-channel.
- Supports <Pause>, <Play Reverse>, <Speed Up>, <Speed Down>, <Skip Forward> and <Skip Backward> during <Playback> and locating by dragging the mouse.
- Supports a <Thumbnails> view and a <Fast> view during <Playback>.

- Up to 16-ch <Synchronous Playback> at 1080p real time (up to 20-ch <Synchronous Playback> at 1080p real time for GD-RN-AT819128N).
- Supports <Playback by Transcoded Stream>.
- <Manual Capture>, <Continuous Capture> of video images and <Playback> of captured pictures.
- Supports enabling <H.264+> to ensure high video quality with a lowered bitrate.

Backup:

- Export video data by USB, SATA or eSATA device (for GD-RN-AT8864N, GD-RN-CT8832N and GD-RN-AT819128N only).
- Export video clips during <Playback>.
- Management and maintenance of backup devices.
- Either <Normal> or <Hot Spare> working mode is configurable to constitute an N+1 Hot Spare system.

Alarm and Exception:

- Configurable Arming Time of Alarm Input/Output.
- Alarm for <Video Loss>, <Motion Detection>, <Tampering>, <Abnormal Signal>, <Video input/output Standard Mismatch>, <Illegal Login>, <Network Disconnected>, <IP Conflication>, <Abnormal Record/Capture>, <HDD Error>, and <HDD Full>, etc.
- <POS Triggered Alarm> supported by GD-RN-AP8616P, GD-RN-AP8632P, GD-RN-AT8864N and GD-RN-CT8832N.
- VCA Detection Alarm is supported.
- VCA Search for <Face Detection>, <Vehicle Plate>, <Behavior Analysis>, <People Counting> and <Heat Map>.
- Connectable to a thermal network camera (for GD-RN-AP8616P, GD-RN-AP8632P, GD-RN-AT8864N and GD-RN-CT8832N). Supports the advanced search for fire/ship/temperature/temperature difference detection triggered alarm and the recorded video files and pictures (for GD-RN-AP8616P, GD-RN-AP8632P, GD-RN-AT8864N and GD-RN-CT8832N).
- Alarm triggers <Full Screen Monitoring>, <Audio Alarm>, <Notifying Surveillance Center>, <Sending Email> and <Alarm Output>.
- Automatic restore when system is abnormal.

Other Local Functions:

- Operable by front panel, mouse, remote control or control keyboard.
- Three-level user management; The Admin User is allowed to create many operating accounts and define their operating permission, which includes the limit to access any channel.
- Admin password resetting by exporting/importing the GUID file (may not be available for GD-RN-AT819128N).
- Operation, Alarm, Exceptions and Log recording and searching.
- Manually triggering and clearing alarms.
- Import and Export of device configuration information.

Network Functions:

- Four self-adaptive 10M/100M/1000M Network interfaces for GD-RN-AT819128N and the <Multi-address>, <Load Balance> and <Network Fault-tolerance> working modes are configurable.

- Two self-adaptive 10M/100M/1000M Network interfaces for GD-RN-AT8864N and GD-RN-CT8832N, and the <Multi-address> and <Network Fault-tolerance> working modes are configurable.
- One self-adaptive 10M/100M/1000M Network interface for GD-RN-AC2416N, GD-RN-AC2416P, GD-RN-AP8616P and GD-RN-AP8632P.
- One self-adaptive 10M/100M Network interface for GD-RN-AC2004P.
- Four independent PoE Network interfaces are provided for GD-RN-AC2004P and sixteen independent PoE Network interfaces for GD-RN-AC2416P, GD-RN-AP8616P and GD-RN-AP8632P.
- Long distance (100-300 m) network transmission via PoE (for GD-RN-AC2416P, GD-RN-AP8616P, GD-RN-AP8632P and GD-RN-AC2004P).
- <IPv6> is supported.
- <TCP/IP Protocol>, <DHCP>, <DNS>, <DDNS>, <NTP>, <SMTP>, <SNMP>, <NFS>, and <iSCSI> are supported.
- <TCP>, <UDP> and <RTP> for unicast.
- <Auto>/<Manual> Port Mapping by UPnP™.
- Support access by <Cloud P2P>.
- Remote web browser access by <HTTPS> ensures high security.
- The <ANR (Automatic Network Replenishment)> function is supported, it enables the IP Camera to save the recording files in the local storage when the network is disconnected and it synchronizes the files to the NVR when the network is resumed.
- Remote <Reverse Playback> via <RTSP>.
- Supports accessing by the platform via ONVIF.
- Remote <Search>, <Playback>, <Download>, <Locking> and <Unlocking> of the record files and also supports <Downloading Files Broken Transfer Resume>.
- Remote <Parameters Setup>; remote <Import>/<Export> of <Device Parameters>.
- Remote viewing of the <Device Status>, <System Logs> and <Alarm Status>.
- Remote keyboard operation.
- Remote HDD formatting and program upgrading.
- Remote system restart and shutdown.
- <RS-232> and <RS-485> transparent channel transmission for GD-RN-AP8616P, GD-RN-AP8632P, GD-RN-CT8832N and GD-RN-AT819128N. RS-232 transparent channel transmission for GD-RN-AT8864N.
- Alarm and exception information can be sent to the remote host.
- Remotely <Start>/<Stop> recording.
- Remotely <Start>/<Stop> output.
- Remote <PTZ Control>.
- Remote JPEG capture.
- <Virtual Host> function is provided to get access to and to manage the IP Camera directly.
- <Two-way Audio> and <Voice Broadcasting>.
- Embedded WEB server.

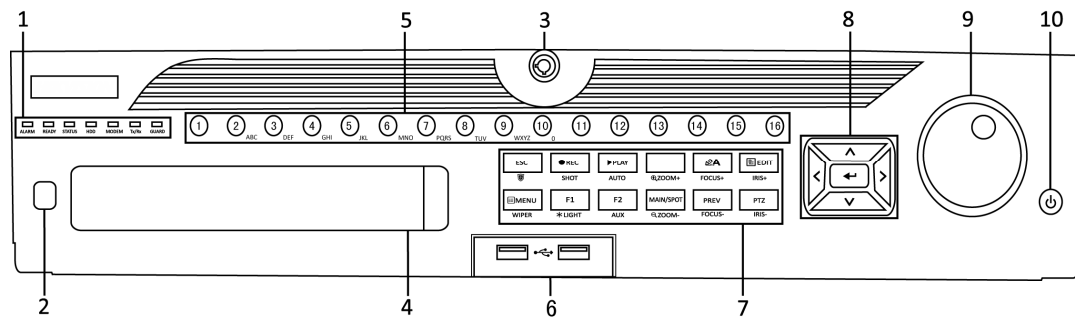
Development Scalability:

- <SDK> for the Windows system.

- Source code of the application software for demo.
- Development support and training for the application system.

1.3 Front Panel View

GD-RN-AT8864N, GD-RN-CT8832N:



GD-RN-AT8864N/-CT8832N

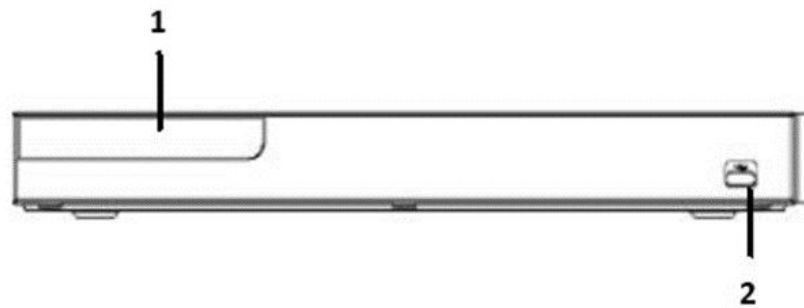
Panel Description:

No.	Name		Function Description
1	Status Indicators	ALARM	Turns red when a Sensor Alarm is detected.
		READY	Turns blue when the device is functioning properly.
		STATUS	Turns blue when device is controlled by an IR Remote.
			Turns red when controlled by a keyboard and purple when IR Remote and keyboard is used at the same time.
		HDD	Flickers red when data is being read from or written to HDD.
		MODEM	Reserved for future usage.
		Tx/Rx	Flickers blue when network connection is functioning properly.
		GUARD	Turns blue when the device has an armed status; at this time, an alarm is enabled when an event is detected.
Turns off when the device is unarmed. The <Arm>/<Disarm> status can be changed by pressing and holding on the <ESC> button for more than 3 seconds in the <Live View> mode.			
2	IR Receiver		Receiver for IR Remote control.
3	Front Panel Lock		Locks or unlocks the panel by the key.
4	DVD-R/W		Slot for DVD-R/W disk.
5	Alphanumeric Buttons		Switches to the corresponding channel in the <Live View> or in the <PTZ Control> mode.
			Inputs numbers and characters in the <Edit> mode.
			Switches between different channels in the <Playback> mode.
			Turns blue when the corresponding channel is recording; turns red when the channel has a <Network Transmission> status; turns pink when the channel is recording and transmitting.
6	USB Interfaces		Universal Serial Bus (USB) ports for additional devices such as a USB mouse and a USB Hard Disk Drive (HDD).
7	Composite Keys	ESC	Returns to the previous menu.
			Presses for arming/disarming the device in the <Live View> mode.

No.	Name		Function Description
		REC/SHOT	Enters the <Manual Record> settings menu.
			Presses this button followed by a numeric button to call a <PTZ Preset> in <PTZ Control> settings.
			Turns audio on/off in the <Playback> mode.
		PLAY/AUTO	Enters the <Playback> mode.
			Automatically scans in the <PTZ Control> menu.
		ZOOM+	Zooms in the PTZ Camera in the <PTZ Control> settings.
		A/FOCUS+	Adjusts the focus in the <PTZ Control> menu.
			Switches between input methods (upper and lower case alphabet, symbols and numeric input).
		EDIT/IRIS+	Edits text fields. When editing text fields, it also deletes the character in front of the cursor.
			Checks the checkbox in the checkbox fields.
			Adjusts the iris of the camera in the <PTZ Control> mode.
			Generates video clips for backup in the <Playback> mode.
			Enters/exits the folder of a USB device and an eSATA HDD.
		MAIN/SPOT/ZOOM-	Switches between <Main> and <Spot> output.
			Zooms out the image in the <PTZ Control> mode.
		F1/ LIGHT	Selects all items on the list when used in a list field.
			Turns on/off the <PTZ> light (if applicable) in the <PTZ Control> mode.
			Switches between <Play> and <Reverse Play> in the <Playback> mode.
		F2/ AUX	Cycles through tab pages.
			Switches between channels in the <Synchronous Playback> mode.
		MENU/WIPER	Returns to the <Main> menu (after successful login).
			Presses and holds the button for five seconds to turn off the audible key beep.
			Starts the wiper (if applicable) in the <PTZ Control> mode.

No.	Name		Function Description
			Shows/hides the control interface in the <Playback> mode.
		PREV/FOCUS-	Switches between Single-screen and Multi-screen mode.
			Adjusts the focus in conjunction with the A/FOCUS+ button in the <PTZ Control> mode.
		PTZ/IRIS-	Enters the <PTZ Control> mode.
			Adjusts the iris of the PTZ Camera in the <PTZ Control> mode.
8	Control Buttons	DIRECTION	Navigates between different fields and items in menus.
			In the <Playback> mode, use the Up and Down buttons to speed up and slow down a recorded video. Use the Left and Right buttons to select the next and previous video files.
			Cycles through channels in the <Live View> mode.
			Controls the movement of the PTZ Camera in the <PTZ Control> mode.
		ENTER	Confirms selection in any of the <Menu> modes.
			Checks the checkbox fields.
			Plays or pauses the video playing in the <Playback> mode.
			Advances the video by a single frame in the Single-frame <Playback> mode.
			Stops/starts <Auto-switch> in <Auto-switch> mode.
9	JOG SHUTTLE Control	Moves the active selection up and down in a menu.	
		Cycles through different channels in the <Live View> mode.	
		Jumps 30s forward/backward in video files in the <Playback> mode.	
		Controls the movement of the PTZ Camera in the <PTZ Control> mode.	
10	POWER ON/OFF		Press the button for more than 3 seconds to turn on/off the NVR.

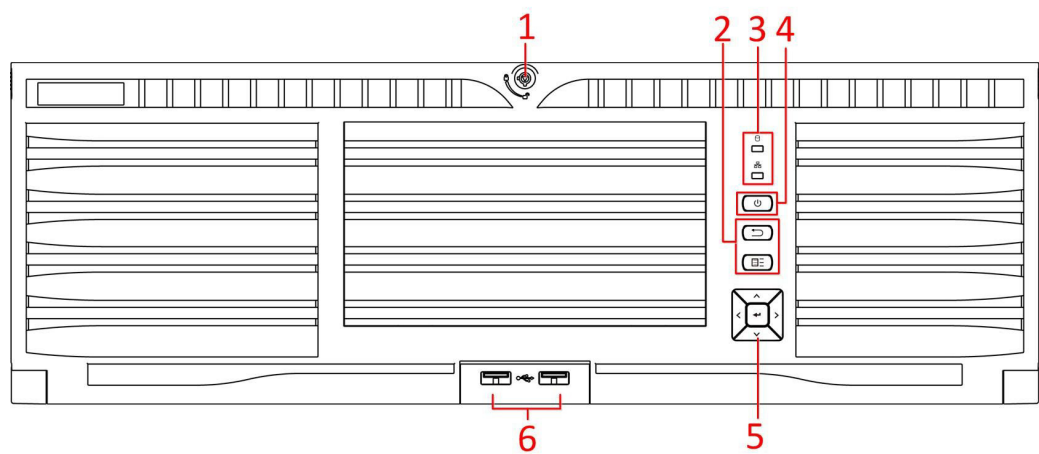
GD-RN-AC2416N, -AC2416P, -AP8616P and -AP8632P:



Panel Description:

No.	Name		Function Description
1	Status Indicators	POWER	Turns blue when NVR is powered up.
		HDD	Blinks red when HDD is reading/writing.
		Tx/Rx	Blinks blue when network connection is functioning normally.
		Alarm	Turns red when alarm comes up
2	USB Interface		Universal Serial Bus (USB) ports for additional devices such as USB mouse.

GD-RN-AT819128N:



GD-RN-AT819128N

Panel Description:

No.	Name		Description
1	Panel lock		Locks or unlocks the panel by the key.
2	Shortcut buttons	Exit	<ul style="list-style-type: none"> • Returns to the previous menu. • Press it twice quickly to switch the main and auxiliary port. • In the <Live View> mode, press it to enter the <PTZ Control> interface.
		Menu	<ul style="list-style-type: none"> • Press it to bring up the <Main> menu. • Hold it for 5 seconds to turn on/off the button sound. • During <Playback>, press it to show/hide the Control Panel.
3	Status indicators	HDD	<ul style="list-style-type: none"> • Solid red: at least one HDD is installed • Unlit: no HDD is detected. • Blinking red: HDD is reading/writing.
		Tx/Rx	Blinking blue indicates that the network communication is normal.
4	Power switch		Powers the device on/off. Solid blue indicates that the device is powered on. Solid red indicates that the device is shut down.
5	Control buttons	ENTER	<ul style="list-style-type: none"> • Confirms a selection in any of the <Menu> modes. • Checks the checkbox fields. • Switches on/off status. • Plays or pauses the video playing in the <Playback> mode. • Advances the video by a single frame in the Single-frame <Playback> mode. • Stops/starts <Auto-switch> in the <Auto-switch> mode.
		DIRECTION	<ul style="list-style-type: none"> • Navigates between different fields and items in menus. • In the <Playback> mode, use the Up and Down buttons to speed up and to slow down a recorded video. Use

No.	Name		Description
			<p>the Left and Right buttons to select the next and previous video files.</p> <ul style="list-style-type: none"> • Cycles through channels in the <Live View> mode. • Controls the movement of the PTZ Camera in the <PTZ Control> mode.
6	USB interfaces		Universal Serial Bus (USB) ports for additional devices such as a USB mouse and a USB Hard Disk Drive (HDD).

1.4 Remote Control

The NVR may also be controlled with the included IR remote control, shown in 0.

Note:

Batteries (2×AAA) must be installed before operation.

The IR Remote is set at the factory to control the NVR (using default Device ID# 255) without any additional steps. Device ID# 255 is the default universal device identification number shared by the NVRs. You may also pair an IR Remote to a specific NVR by changing the Device ID#, as follows:

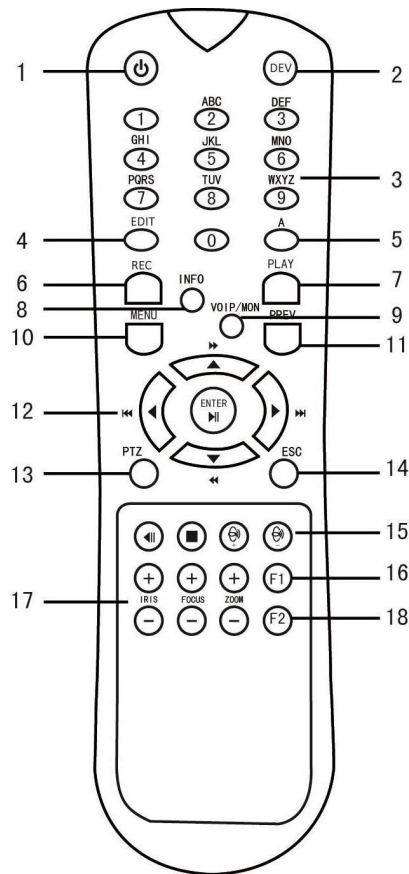
Pairing (Enabling) the IR Remote to a Specific NVR (optional):

You can pair an IR Remote to a specific private NVR by creating a user-defined Device ID#. This feature is useful when using multiple IR Remotes and NVRs.

On the NVR:

Steps:

1. Go to General > More Settings.
2. Type a number (255 digits maximum) into the <Device No.> field.
3. On the IR Remote:
4. Press the <DEV> button.
5. Use the Number buttons to enter the <Device ID#> that was entered into the NVR.
6. Press the <Enter> button to accept the new <Device ID#>.



Remote Control

Unpairing (Disabling) an IR Remote from an NVR:

To unpair an IR Remote from an NVR so that the unit cannot control any NVR functions, proceed as follows:

Press the <DEV> key on the IR Remote. Any existing Device ID# will be erased from the unit's memory and it will no longer function with the NVR.

Note:

(Re)-enabling the IR Remote requires pairing to an NVR. See "Pairing the IR Remote to a Specific NVR (optional)," above.

The keys on the remote control closely resemble the ones on the front panel.

IR Remote Control Functions :

No.	Name	Function Description
1	POWER ON/OFF	<ul style="list-style-type: none"> • To Turn Power On: <ul style="list-style-type: none"> - If the User has not changed the default NVR Device ID# (255): <ol style="list-style-type: none"> 1. Press the Power On/Off button (1). - If the User has changed the NVR Device ID#: <ol style="list-style-type: none"> 1. Press the <DEV> button. 2. Press the Number buttons to enter a user-defined Device ID#. 3. Press the <Enter> button. 4. Press the <Power> button to start the device. • To Turn the NVR Off: <ul style="list-style-type: none"> - If the User Is Logged On: <ol style="list-style-type: none"> 1. Hold the Power <On>/<Off> button (1) down for five seconds to display the “Yes/No” verification prompt. 2. Use the <Up>/<Down> arrow buttons (12) to highlight the desired selection. 3. Press the <Enter> button (12) to accept the selection. - If the User is <i>not</i> logged on: <ol style="list-style-type: none"> 1. Hold the Power <On>/<Off> button (1) down for five seconds to display the <User Name>/<Password> prompt. 2. Press the <Enter> button (12) to display the on-screen keyboard. 3. Input the <User Name>. 4. Press the <Enter> button (12) to accept the input and to dismiss the on-screen keyboard. 5. Use the Down arrow button (12) to move to the <Password> field. 6. Enter the password (use the on-screen keyboard or the numeric buttons (3) for numbers). 7. Press the <Enter> button (12) to accept the input and to dismiss the on-screen keyboard. 8. Press the <OK> button on the screen to accept the input and to display the <Yes>/<No> verification prompt (use the <Up>/<Down> Arrow buttons (12) to move between fields) 9. Press the <Enter> button (12) to accept the selection. <p>The <User Name>/<Password> prompt depends on the NVR configuration. See the “System Configuration” section.</p>

2	DEV	Enable an IR Remote: Press the <DEV> button, enter the NVR <Device ID#> with number keys, press <Enter> to pair the unit with the NVR.
		Disable an IR Remote: Press the <DEV> button to clear the Device ID#; the unit will no longer be paired with the NVR.
3	Numerals	Switch to the corresponding channel in the <Live View> or in the <PTZ Control> mode.
		Enter numbers in the <Edit> mode.
4	EDIT	Delete characters before the cursor.
		Check the checkbox and select the <ON>/<OFF> switch.
5	A	Adjust the focus in the <PTZ Control> menu.
		Switch on-screen keyboards (upper and lower case alphabet, symbols and numerals).
6	REC	Enter the Manual Record Setting menu.
		Call a <PTZ Preset> by using the numeric buttons in the <PTZ Control> settings.
		Turn audio on/off in the <Playback> mode.
7	PLAY	Go to the <Playback> mode.
		Auto-scan in the <PTZ Control> menu.
8	INFO	Zoom in the PTZ Camera in the <PTZ Control> setting.
9	VOIP	Switches between main and spot output; Zooms out the image in the <PTZ Control> mode;
10	MENU	Return to the <Main> menu (after successful login).
		N/A
		Show/hide full screen in the <Playback> mode.
12	DIRECTION	Navigate between fields and menu items.
		Use the <Up>/<Down> buttons to speed up/slow down a recorded video and use the <Left>/<Right> buttons to advance/rewind 30 seconds in the <Playback> mode.
		Cycle through channels in the <Live View> mode.
		Control the PTZ Camera movement in the <PTZ Control> mode.
	ENTER	Confirm a selection in any <Menu> mode.
		Checks a checkbox.
		Play or pause a video in the <Playback> mode.

		Advance video a single frame in the Single-frame <Playback> mode.
		Stop/start the <Auto-switch> in the <Auto-switch> mode
13	PTZ	Enter the <PTZ Control> mode.
14	ESC	Go back to the previous screen.
		N/A
15	RESERVED	Reserved
16	F1	Select all items on a list.
		N/A
		Switch between Play and Reverse Play in the <Playback> mode.
17	PTZ Control	Adjust the PTZ Camera iris, focus, and zoom.
18	F2	Cycle through tab pages.
		Switch between channels in the Synchronous <Playback> mode.

Troubleshooting the Remote Control:

Note:

Make sure that you installed the batteries properly in the remote control. You also have to aim the remote control at the IR receiver in the front panel.

If there is no response after you press any button on the remote control, follow the procedure below to troubleshoot.

Steps:

1. Go to Menu > Settings > General > More Settings by operating the front control panel or the mouse.
7. Check and remember the <NVR ID#>. The default <ID#> is <255>. This <ID#> is valid for all of the IR remote controls.
8. Press the <DEV> button on the remote control.
9. Enter the <NVR ID#> you set in step 2.
10. Press the <ENTER> button on the remote control.

If the Status indicator on the front panel turns blue, then the remote control is operating properly. If the Status indicator does not turn blue and there is still no response from the remote, please check the following:

- Batteries are installed correctly and the polarities of the batteries are not reversed.
- Batteries are fresh and not out of charge.
- The IR receiver is not obstructed.
- No fluorescent lamp is used nearby.

If the remote control still cannot function properly, please change the remote control and try again or contact the device provider.

1.5 USB Mouse

A regular 3-button (Left/Right/Scroll-wheel) USB mouse can also be used with this NVR. To use a USB mouse:

Steps:

1. Plug the USB mouse into one of the USB interfaces on the front panel of the NVR.
2. The mouse should automatically be detected. If, in a rare case, the mouse is not detected, the possible reason may be that the two devices are not compatible, please refer to the recommended device list from your provider.

The operation of the mouse:

Description of the Mouse Control:

Name	Action	Description
Left-Click	Single-Click	<Live View>: Select the channel and show the Quick Set menu. Menu: Select and enter.
	Double-Click	<Live View>: Switch between single-screen and multi-screen.
	Click and Drag	PTZ control: pan, tilt and zoom. <Video Tampering>, <Privacy Mask> and <Motion Detection>: Select the target area. Digital zoom-in: Drag and select the target area. <Live View>: Drag the channel/time bar.
Right-Click	Single-Click	<Live View>: Show menu. Menu: Exit the current menu to the upper level menu.
Scroll-Wheel	Scrolling up	<Live View>: Previous screen. Menu: Previous item.
	Scrolling down	<Live View>: Next screen. Menu: Next item.

1.6 OSD Keyboard



OSD Keyboard (1)



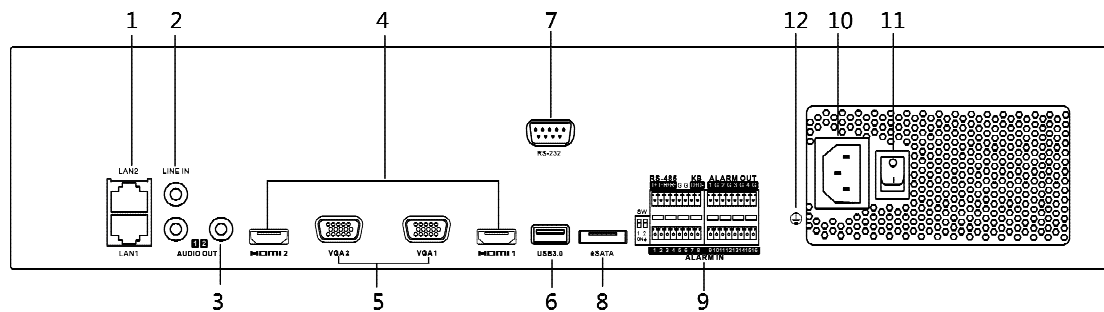
OSD Keyboard (2)

Description of the buttons on the OSD Keyboard:

Icon	Description	Icon	Description
	Number		English letter
	Lowercase/Uppercase		Backspace
	Switch the keyboard		Space
	Positioning the cursor		Exit
	Symbols		Reserved

1.7 Rear Panel View

GD-RN-AT8864N, GD-RN-CT8832N:

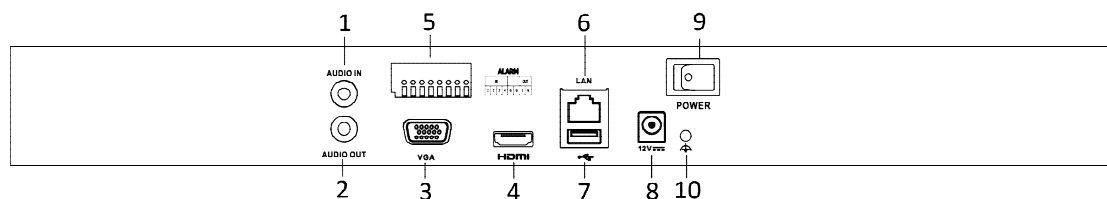


GD-RN-AT8864N/-CT8832N

Panel Description:

No.	Name	Description
1	LAN1/LAN2 Interface	2 RJ-45 10/100/1000 Mbps self-adaptive Ethernet interfaces are provided.
2	LINE IN	RCA connector for audio input.
3	AUDIO OUT	2 RCA connectors for audio output.
4	HDMI1/HDMI2	HDMI video output connector.
5	VGA1/VGA2	DB9 connector for VGA output. Display local video output and menu.
6	USB 3.0 interface	Universal Serial Bus (USB) ports for additional devices such as a USB mouse and a USB Hard Disk Drive (HDD).
7	RS-232 Interface	Connector for RS-232 devices.
8	eSATA	Connects external SATA HDD, CD/DVD-RM.
9	Controller Port	D+, D- pin connects to the Ta, Tb pin of the controller. For cascading devices, the first NVR's D+, D- pin should be connected with the D+, D- pin of the next NVR.
	ALARM IN	Connector for <Alarm Input>.
	ALARM OUT	Connector for alarm output.
10	100 to 240 VAC	100 to 240 VAC power supply.
11	Power Switch	Switch for turning the device on/off.
12	GROUND	Ground (needs to be connected when the NVR starts up).

GD-RN-AC2416N and GD-RN-AC2416P:

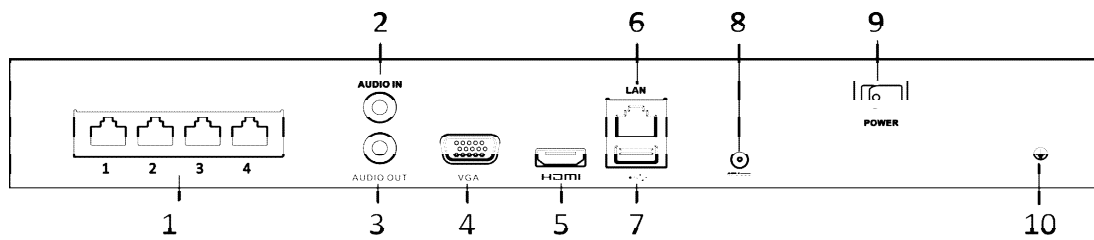


GD-RN-AC2416N and GD-RN-AC2416P

Panel Description:

No.	Name	Description
1	Audio In	RCA connector for audio input.
2	Audio Out	RCA connector for audio output.
3	VGA Interface	DB9 connector for VGA output. Display local video output and menu.
4	HDMI Interface	HDMI video output connector.
5	ALARM IN	Connector for <Alarm Input>.
	ALARM OUT	Connector for alarm output.
6	LAN Network Interface	1 10/100/1000 Mbps self-adaptive Ethernet interface
7	USB Interface	Universal Serial Bus (<USB 3.0>) ports for additional devices such as USB mouse and USB Hard Disk Drive (HDD).
8	Ground	Ground (needs to be connected when the NVR starts up).
9	Power Supply	See the Specification Sheet of the NVR.
10	Power Switch	Switch for turning the device on/off.

GD-RN-AC2004P:

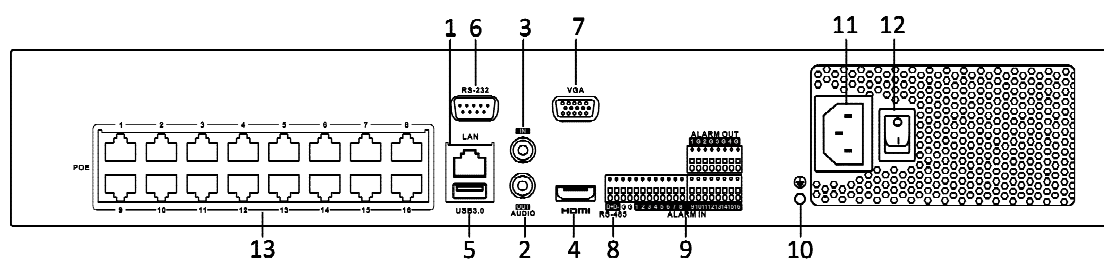


GD-RN-AC2004P

Panel Description:

No.	Name	Description
1	Network Interfaces with PoE function	Network interfaces for the cameras and to provide power over Ethernet.
2	Audio In	RCA connector for audio input.
3	Audio Out	RCA connector for audio output.
4	VGA Interface	DB9 connector for VGA output. Display local video output and menu.
5	HDMI Interface	HDMI video output connector.
6	LAN Network Interface	1 10/100/1000 Mbps self-adaptive Ethernet interface for GD-RN-AC2004P ; 1 100 Mbps full-duplex Ethernet interface for GD-RN-AC2004P
7	USB Interface	Universal Serial Bus (USB) ports for additional devices such as a USB mouse and a USB Hard Disk Drive (HDD).
9	Power Supply	48 VDC power supply.
10	Ground	Ground (needs to be connected when the NVR starts up).

GD-RN-AP8616P and GD-RN-AP8632P:

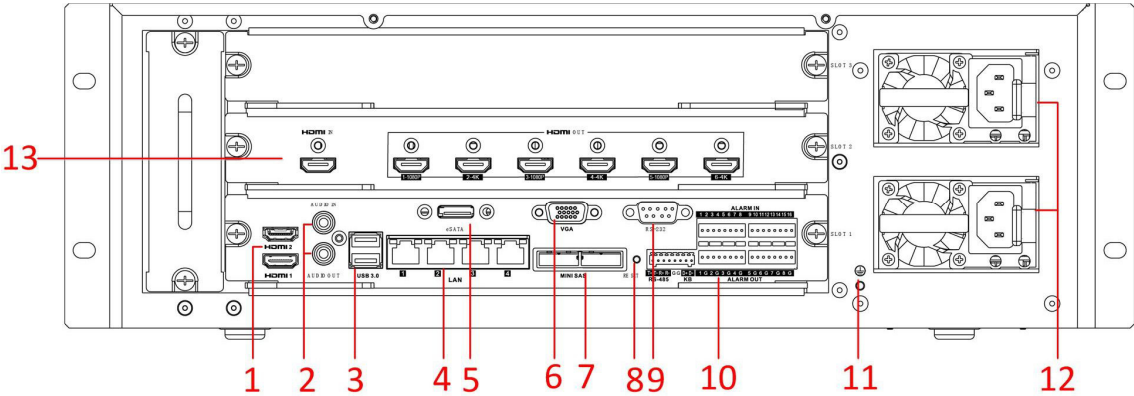


GD-RN-AP8616P and GD-RN-AP8632P

Panel Description:

No.	Name	Description
1	LAN Interface	1 network interface.
2	AUDIO OUT	RCA connector for audio output.
3	LINE IN	RCA connector for audio input.
4	HDMI	HDMI video output connector.
5	USB 3.0 interface	Universal Serial Bus (USB) ports for additional devices such as a USB mouse and a USB Hard Disk Drive (HDD).
6	RS-232 Interface	Connector for RS-232 devices.
7	VGA	DB9 connector for VGA output. Display local video output and menu.
8	RS-485 Interface	Half-duplex connector for RS-485 devices.
9	ALARM IN	Connector for <Alarm Input>.
	ALARM OUT	Connector for alarm output.
10	GROUND	Ground (needs to be connected when the NVR starts up).
11	AC 100V ~ 240V	100V to 240VAC power supply.
12	Power Switch	Switch for turning the device on/off.
13	Network Interfaces with PoE function	Network interfaces for the cameras and to provide power over Ethernet.

GD-RN-AT819128N:



GD-RN-AT819128N

Panel Description:

No.	Name	Description
1	HDMI 1/2	HDMI video output connector.
2	Audio in	RCA connector for audio input.
	Audio out	RCA connector for audio output.
3	USB 3.0	Universal Serial Bus (USB 3.0) ports for additional devices such as a USB mouse and a USB Hard Disk Drive (HDD).
4	LAN	4 10/100/1000 Mbps self-adaptive Ethernet interfaces.
5	eSATA	Connects external SATA HDD, CD/DVD-RM.
6	VGA	DB9 connector for VGA output.
7	Mini SAS (optional)	Connector for mini SAS.
8	Reset	<Reset> button.
9	RS-232	Connector for RS-232 devices.
10	Alarm in	Connector for <Alarm Input>.
	Alarm out	Connector for alarm output.

	RS-485	Connector for RS-485 devices.
	KB	Connector for the keyboard.
11	GND	Ground (needs to be connected when the NVR starts up).
12	Power supply modules	Only one power supply module is provided by default. Two power supply modules are optional for redundancy.
13	Decoding board	Not Available.

2. Getting Started

2.1 Recorder Startup

Proper startup and shutdown procedures are crucial to expanding the life of the NVR.

Before you start:

Check that the voltage of the extra power supply is the same as the NVR's requirement and that the ground connection is working properly.

Starting up the NVR:

Steps:

1. Check that the power supply is plugged into an electrical outlet. It is HIGHLY recommended that an Uninterruptible Power Supply (UPS) be used in conjunction with the device. The Power indicator LED on the front panel should be red, indicating that the device gets the power supply.
2. Press the <POWER> button on the front panel. The Power indicator LED should turn blue, indicating that the unit begins to start up.
3. After startup, the Power indicator LED remains blue. A splash screen with the status of the HDD appears on the monitor. The row of icons at the bottom of the screen shows the HDD status. 'X' means that the HDD is not installed or that it cannot be detected.

Shutting down the NVR:

There are two proper ways to shut down the NVR.

- OPTION 1: Standard shutdown

Steps:

1. Enter the Shutdown menu: Menu > Shutdown



Shutdown Menu

4. Click the <Shutdown> button.
5. Click the <Yes> button.

- OPTION 2: By operating the front pane

Steps:

2. Press and hold the <POWER> button on the front panel for 3 seconds.
3. Enter the <Administrator's User Name> and <Password> in the dialog box for authentication.
4. Click the <Yes> button.

Note:

Do not press the <POWER> button again when the system is shutting down.

Rebooting the NVR:

In the Shutdown menu, you can also reboot the NVR.

Steps:

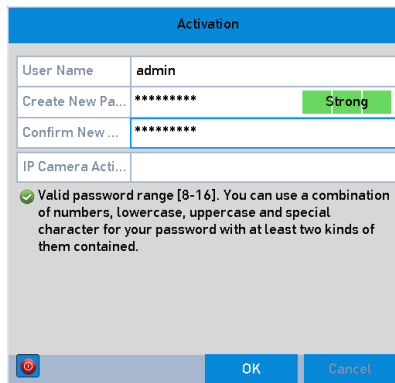
1. Enter the <Shutdown> menu by clicking Menu > Shutdown.
2. Click the <Logout> button to lock the NVR or the <Reboot> button to reboot the NVR.

Activating your Recorder:

For the first-time access, you need to activate the device by setting an Admin Password. No operation is allowed before activation. You can also activate the device via a Web Browser, Grundig Viewer or the SCMS Client Software.

Steps:

1. Enter the same password in the text field of <Create New Password> and <Confirm New Password>.



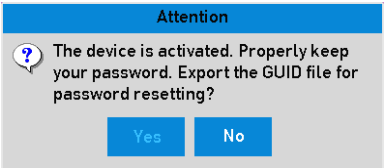
Settings Admin Password

WARNING:

We highly recommend you create a strong password of your own choosing (Using a minimum of 8 characters, including at least three of the following categories: upper case letters, lower case letters, numbers and special characters.) in order to increase the security of your product. We also recommend that you reset your password regularly, especially in the high security system, resetting the password monthly or weekly can better protect your product.

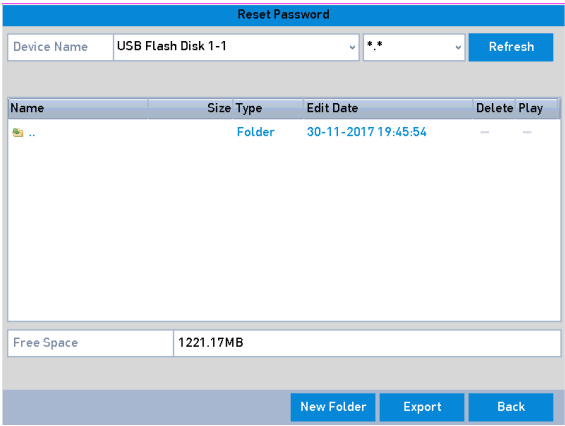
2. Click <OK> to save the password and to activate the device.

3. When the device is activated, the system pops up the message box to remind you to remember the password. Then you can click <Yes> to continue to export the GUID file for the future password resetting.



Export GUID File Remind

4. Insert the U-flash disk to your device, and export the GUID file to the U-flash disk in the <Reset Password> interface. Please refer to the Chapter **Resetting Your Password** for the instructions of password resetting.



Export GUID File

Note:

Please keep your GUID file properly for future password resetting. This GUID Export function may not be available for the GD-RN-AT819128N.

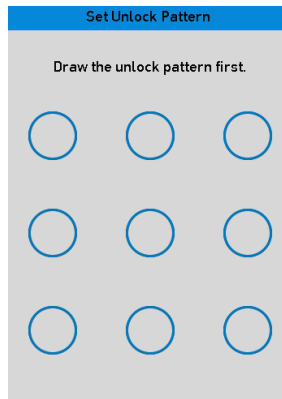
Using the Unlock Pattern for Login:

For the Admin User, you can configure the unlock pattern for the device login.

Configuring the Unlock Pattern:

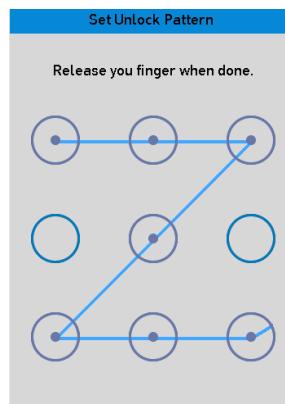
Steps:

1. After the device is activated, you can enter the following interface to configure the device unlock pattern.



Set the Unlock Pattern

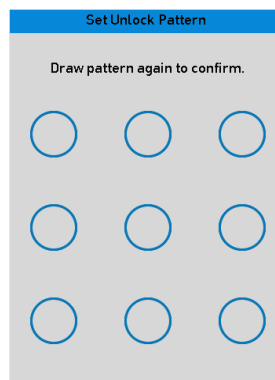
2. Use the mouse to draw a pattern among the nine dots on the screen. Release the mouse when the pattern is done.



Draw the Pattern

Note:

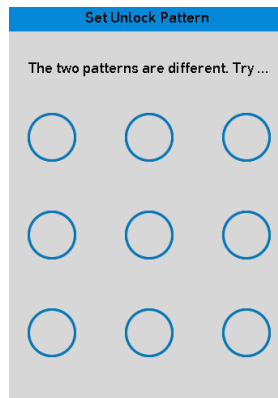
- Connect at least four dots to draw the pattern.
 - Each dot can be connected once only.
3. Draw the same pattern again to confirm it. When the two patterns match, the pattern is configured successfully.



Confirm the Pattern

Note:

If the two patterns are different, you must set the pattern again.

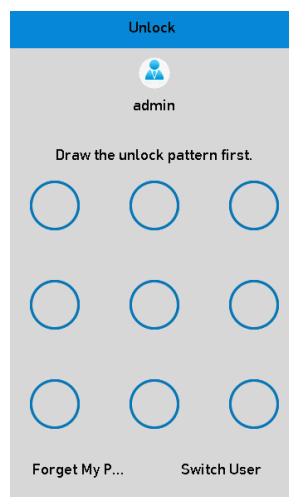


Re-set the Pattern

Logging in via Unlock Pattern:

Note:

- Only the Admin User has the permission to unlock the device.
 - Please configure the pattern first before unlocking. Please refer to **Configuring the Unlock Pattern**
1. Right-click the mouse on the screen and select the menu to enter the interface as shown below.

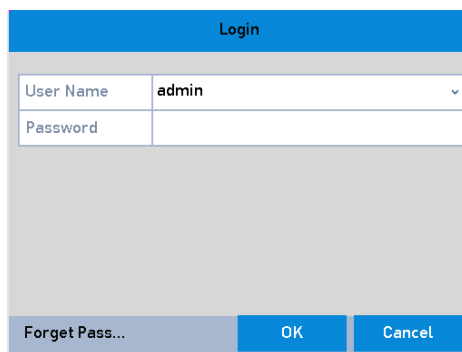


Draw the Unlock Pattern

2. Draw the pre-defined pattern to unlock to enter the menu operation.

Note:

- If you forgot your pattern, you can select the <Forget My Pattern> or the <Switch User> option to enter the normal <Login> dialog box.
- When the pattern you draw is different from the pattern you have configured, you should try again.
- If you have drawn the wrong pattern for more than 5 times, then the system will switch to the normal login mode automatically.

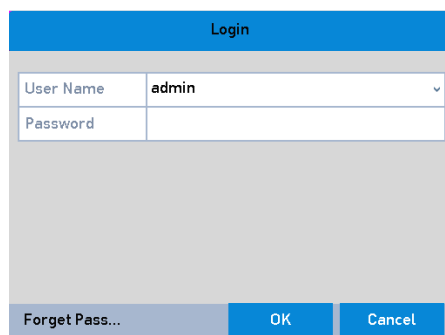
A screenshot of a 'Login' dialog box. It has a blue title bar with the word 'Login'. Below the title bar, there are two input fields: 'User Name' with a dropdown arrow and 'Password'. The 'User Name' field is currently set to 'admin'. At the bottom of the dialog box, there are three buttons: 'Forget Pass...', 'OK', and 'Cancel'.

Normal Login Dialog Box

Login and Logout:**- User Login:**

If the NVR has logged out, you must log in the device before operating the menu and other functions.

3. Select the <User Name> in the dropdown list.

A screenshot of the 'Login' interface. It has a blue title bar with the word 'Login'. Below the title bar, there are two input fields: 'User Name' with a dropdown arrow and 'Password'. The 'User Name' field is currently set to 'admin'. At the bottom of the interface, there are three buttons: 'Forget Pass...', 'OK', and 'Cancel'.

Login Interface

4. Enter the <Password>.
5. Click <OK> to log in.

Note:

When you forget the password of the Admin User, then you can click <Forget Password> to reset the password. Please refer to Chapter **Resetting Your Password** for details.

Note:

In the <Login> dialog box, if you enter the wrong password 7 times, then the current user account will be locked for 60 seconds.

User Logout

After logging out, the monitor turns to the <Live View> mode and if you want to perform any operations, you need to enter the User Name and the Password again.

Steps:

1. Enter the Shutdown menu: Menu > Shutdown



Logout

2. Click <Logout>.

Note:

After you have logged out the system, menu operation on the screen is invalid. It is required to enter a user name and password to unlock the system.

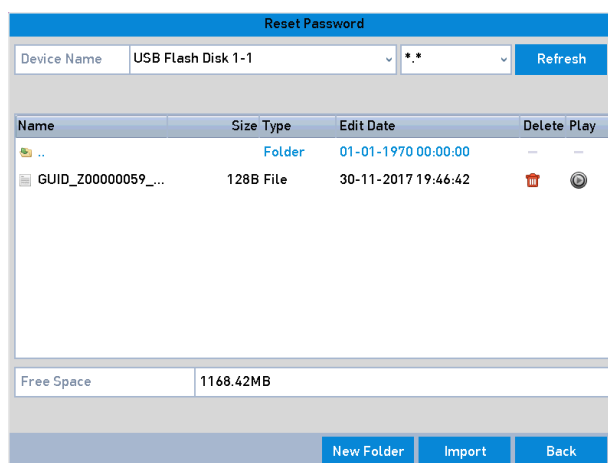
Resetting Your Password:

When you forget the password of the Admin User, you can reset the password by importing the GUID file. The GUID file must be exported and saved in the local U-flash disk after you have activated the device (refer to Chapter 17.5.3).

3. On the user login interface, click <Forget Password> to enter the <Reset Password> interface.

Note:

Please insert the U-flash disk stored with the GUID file to the NVR before resetting the password.



Reset Password

4. Select the GUID file from the U-flash disk and click <Import> to import the file to the device.

Note:

If you have imported the wrong GUID file for 7 times, you will not be allowed to reset the password for 30 minutes.

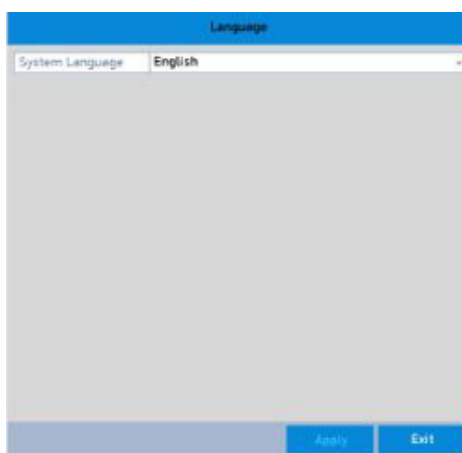
5. After the GUID file is successfully imported, enter the reset password interface to set the new admin password. Refer to Chapter 17.5.3.
6. Click <OK> to set the new password. You can export the new GUID file to the U-flash disk for future password resetting.

Note:

When the new password is set, the original GUID file will be invalid. The new GUID file should be exported for future password resetting. You can also enter the User>User Management interface to edit the Admin User and to export the GUID file.

2.2 Using the Wizard for Basic Configuration

By default, the Setup Wizard starts once the NVR has loaded, as shown below.

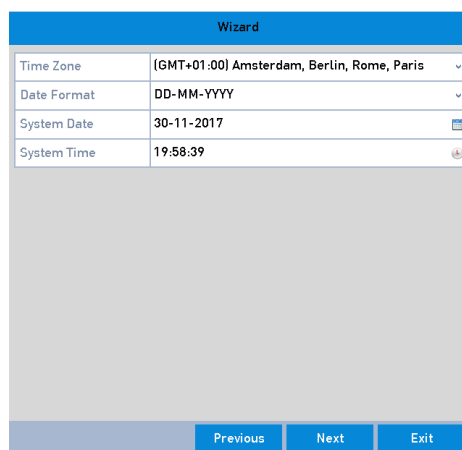


Start Wizard Interface

Operating the Setup Wizard:

Steps:

1. The Setup Wizard can walk you through some important settings of the NVR. If you don't want to use the Setup Wizard at that moment, click the <Cancel> button. You can also choose to use the Setup Wizard next time by leaving the <Start wizard when the device starts?> checkbox checked.
2. Click the <Next> button to enter the Date and Time Settings window, as shown below.



Date and Time Settings

3. After the time settings, click the <Next> button which takes you back to the Network Setup Wizard window, as shown in the following Picture.

Wizard	
NIC Type	10M/100M/1000M Self-adaptive
Enable DHCP	<input type="checkbox"/>
IPv4 Address	10 . 6 . 0 . 98
IPv4 Subnet Mask	255 . 255 . 255 . 0
IPv4 Default Gateway	10 . 6 . 0 . 254
Enable Obtain DNS ...	<input type="checkbox"/>
Preferred DNS Ser...	8.8.8.8
Alternate DNS Serv...	8.8.8.8
Internal NIC IPv4 A...	192 . 168 . 254 . 1
Previous Next Exit	

Network Settings

Note:

Two self-adaptive 10M/100M/1000M network interfaces provided for GD-RN-AT8864N, GD-RN-AP8616P and GD-RN-AP8632P and two working modes are configurable: Multi-address and Network Fault tolerance. Also one self-adaptive 10M/100M/1000M network interface is provided for GD-RN-AC2416N, GD-RN-AC2416P, GD-RN-AP8616P and GD-RN-AP8632P.

4. Click the <Next> button after you configured the basic network parameters. Then you will enter the <Cloud P2P> interface. Configure the <Cloud P2P> according to your need.

Wizard	
Server Port	8000
HTTP Port	80
RTSP Port	554
Enable UPnP	<input type="checkbox"/>
Enable DDNS	<input type="checkbox"/>
DDNS Type	NO-IP
Area/Country	Custom
Server Address	
Device Domain Name	
Status	DDNS is disabled.
User Name	
Password	
Previous Next Exit	

Advanced Network Parameters

5. Click the <Next> button after you configured the basic network parameters. Then you will enter the <Advanced Network Parameter> interface. You can enable <UPnP>, <DDNS> and set other ports according to your need.

Wizard	
Server Port	8000
HTTP Port	80
RTSP Port	554
Enable UPnP	<input type="checkbox"/>
Enable DDNS	<input type="checkbox"/>
DDNS Type	NO-IP
Area/Country	Custom
Server Address	
Device Domain Name	
Status	DDNS is disabled.
User Name	
Password	
<div>Previous Next Exit</div>	

Advanced Network Parameters

- Click the <Next> button after you configured the network parameters, which takes you to the RAID configuration window.

Note:

The RAID is supported by GD-RN-AT8864N and GD-RN-AT819128N only.

Wizard					
L...	Capacity	Status	Property	Type	Free Space
					Init
<div>Previous Next Exit</div>					

Array Management

- Click the <Next> button to enter the Array Management window.
- Click the <Next> button after you configured the network parameters, which takes you to the <HDD Management> window, shown below.

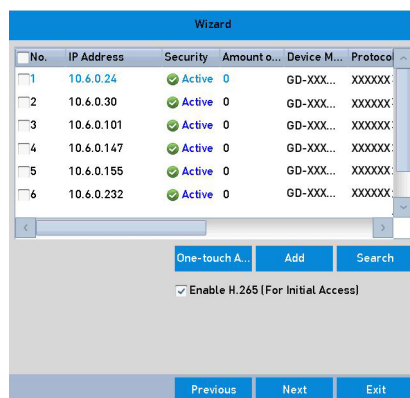
Wizard					
L...	Capacity	Status	Property	Type	Free Space
4	7452.04GB	Normal	R/W	Local	6333.00GB
					Init
<div>Previous Next Exit</div>					

HDD Management

9. To initialize the HDD, click the <Init> button. Initialization removes all the data saved in the HDD.
10. Click the <Next> button. You enter the <Adding IP Camera> interface.
11. Click <Search> to search the online IP Camera and the Security status shows whether it is active or inactive. Before adding the camera, make sure the IP Camera to be added shows an active status.

If the camera shows an inactive status, then you can click the inactive icon of the camera to set the password to activate it. You can also select multiple cameras from the list and click the <One-touch Activate> to activate the cameras in batch.

Click the <Add> button to add the camera.

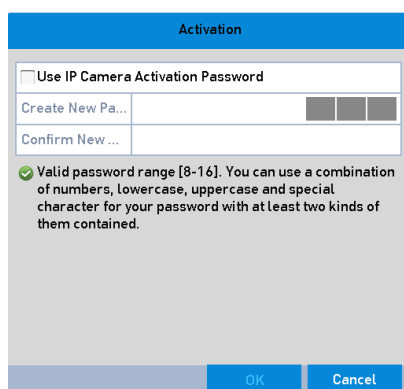


Search for IP Cameras

Note:

When you check the checkbox of <Enable H.265>, the NVR can automatically switch to the H.265 stream of the IP camera (which supports H.265 video format) for the initial access.

12. Click the <Next> button. Configure the recording for the added IP Cameras.



Record Settings

13. Click <OK> to complete the startup Setup Wizard.

2.3 Adding and Connecting the IP Cameras

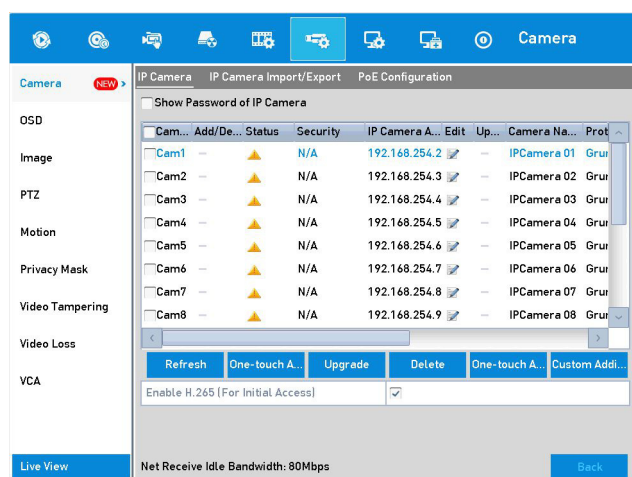
2.3.1 Activating the IP Camera

Before adding the camera, make sure the IP camera to be added is in active status.

Steps:

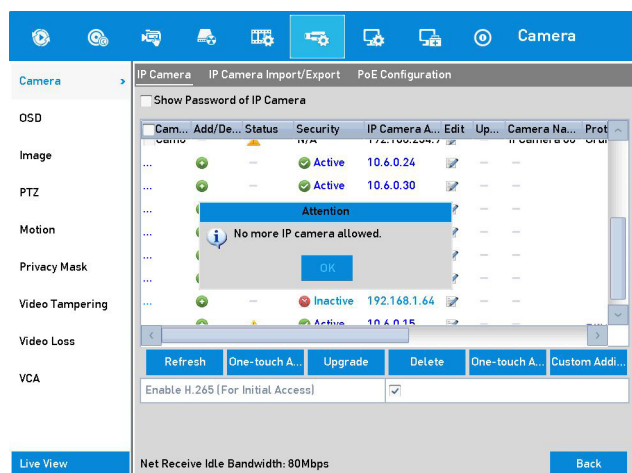
1. Select the <Add IP Camera> option from the right-click menu in the <Live View> mode or click Menu> Camera> Camera to enter the <IP Camera Management> interface.

For the IP camera detected online in the same network segment, the <Password> status shows whether it is active or inactive.



<IP Camera Management> interface

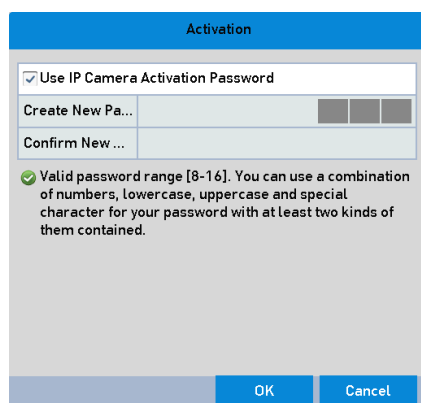
2. Click the inactive icon of the camera to enter the following interface to activate it. You can also select multiple cameras from the list and click the <One-touch Activate> to activate the cameras in batch.



Activate the Camera

3. Set the password of the camera to activate it.

<Use Admin Password>: when you check the checkbox, the camera (s) will be configured with the same admin password of the operating NVR.



Set New Password

<Create New Password>: If the admin password is not used, you must create the new password for the camera and confirm it.

WARNING:

Strong Password recommended—We highly recommend you create a strong password of your own choosing (Using a minimum of 8 characters, including at least three of the following categories: upper case letters, lower case letters, numbers and special characters.) in order to increase the security of your product. And we recommend you reset your password regularly, especially in the high security system, resetting the password monthly or weekly can better protect your product.

4. Click <OK> to finish the activating of the IP camera. Then the security status of camera will be changed to <Active>.

2.3.2 Adding the Online IP Cameras

The main function of the NVR is to connect the network cameras and to record the video received by it. So before you can get a <Live View> or a record of the video, you should add the network cameras to the connection list of the device.


Before you start:

Ensure the network connection is valid and correct. For detailed checking and configuring of the network, please see the Chapter about *12.3 Checking Network Traffic* and the Chapter about *12.4 Configuring Network Detection*.

Adding the IP Cameras:

- OPTION 1:

Steps:

1. Click to select an idle window in the <Live View> mode.
2. Click the  icon in the center of the window to pop up the Adding IP camera interface.
3. Select the detected IP camera and click the <Add> button to add it directly, and you can click the <Search> button to refresh the online IP camera manually.

Edit IP Camera	
IP Camera No.	D4
Adding Method	Manual
IP Camera Address	192.168.254.5
Protocol	Grundig-1
Management Port	8000
Channel Port	1
Transfer Protocol	Auto
User Name	admin
Password	
<div>Protocol OK Cancel</div>	

Quick Adding IP Camera Interface

Or you can choose to custom add the IP camera by editing the parameters in the corresponding textfiled and then click the <Add> button to add it.

• OPTION 2:

Steps:


1. Select the <Add IP Camera> option from the right-click menu in the <Live View> mode or click Menu> Camera> Camera to enter the <IP Camera Management> interface.

The screenshot shows the 'IP Camera' management interface. On the left is a sidebar with options: Camera (selected), OSD, Image, PTZ, Motion, Privacy Mask, Video Tampering, Video Loss, and VCA. The main area has tabs for 'IP Camera', 'IP Camera Import/Export', and 'PoE Configuration'. Below the tabs is a table of cameras:

Cam...	Add/De...	Status	Security	IP Camera A...	Edit	Up...	Camera Na...	Prot
Cam1	—	▲	N/A	192.168.254.2	✎	—	IPCamera 01	Grui
Cam2	—	▲	N/A	192.168.254.3	✎	—	IPCamera 02	Grui
Cam3	—	▲	N/A	192.168.254.4	✎	—	IPCamera 03	Grui
Cam4	—	▲	N/A	192.168.254.5	✎	—	IPCamera 04	Grui
Cam5	—	▲	N/A	192.168.254.6	✎	—	IPCamera 05	Grui
Cam6	—	▲	N/A	192.168.254.7	✎	—	IPCamera 06	Grui
Cam7	—	▲	N/A	192.168.254.8	✎	—	IPCamera 07	Grui
Cam8	—	▲	N/A	192.168.254.9	✎	—	IPCamera 08	Grui

Below the table are buttons: Refresh, One-touch A..., Upgrade, Delete, One-touch A..., and Custom Addi... There is also a checkbox for 'Enable H.265 (For Initial Access)' which is checked. At the bottom, it says 'Net Receive Idle Bandwidth: 80Mbps' and has a 'Back' button.

Adding IP Camera Interface

2. The online cameras with the same network segment will be detected and displayed in the camera list.
3. Select the IP camera from the list and click the  button to add the camera. Or you can click the <One-touch Adding> button to add all cameras (with the same login password) from the list.

Note:

Make sure the camera to add has already been activated.

• OPTION 3:

Steps:

1. On the <IP Camera Management> interface, click the <Custom Adding> button to pop up the Add IP Camera (Custom) interface.

Custom Adding IP Camera Interface

2. You can edit the <IP Address>, <Protocol>, <Management Port>, and other information of the IP camera that is to be added.

Note:

If the IP camera that is to be added has not been activated, you can activate it from the IP camera list on the Camera Management interface.

3. (Optional) Check the checkbox of <Continue to Add> to add other IP cameras.
4. Click <Add> to add the camera. The successfully added cameras are listed in the interface.

Refer to the following table for the description of the icons:

Description of Icons:

Icon	Explanation	Icon	Explanation
	Edit basic parameters of the camera		Add the detected IP camera.
	The camera is disconnected; you can click the icon to get the exception information of the camera.		Delete the IP camera
	Play the live video of the connected camera.		Advanced settings of the camera.
	Upgrade the connected IP camera.	Security	Show the security status of the camera to be active/inactive or the password strength (strong/medium/weak/risk)

Note:

For the added IP cameras, the <Security> status shows the security level of the camera's password: <Strong Password>, <Weak Password> and <Risk Password>.

Cam...	Add/De...	Status	Security	IP Camera A...	Edit	Up...	Camera Na...	Prot
<input type="checkbox"/> Cam1	—		Weak Pass...	10.6.0.23			Camera 01	Grui
<input type="checkbox"/> Cam2	—		N/A	192.168.254.3		—	IPCamera 02	Grui
<input type="checkbox"/> Cam3	—		N/A	192.168.254.4		—	IPCamera 03	Grui

Security Level of an IP Camera's Password

Enabling the Password of Visible IP Cameras:

For the admin login user account, you can check the checkbox of <Show Password of IP Camera> to enable the showing of the passwords of the successfully added IP cameras in the list.

You must enter the admin password to confirm permission.

Confirm Permission	
User Name	admin
Password	*****
<div>OK Cancel</div>	

List of Added IP Cameras

Enabling the H.265 Stream Access:

You can check the checkbox of <Enable H.265>, the NVR can automatically switch to the H.265 stream of the IP camera (which supports an H.265 video format) for the initial access.

2.3.3 Editing the Connected IP Cameras and Configuring Customized Protocols

After the adding of the IP cameras, the basic information of the camera lists in the page, you can configure the basic setting of the IP cameras.

Steps:

1. Click the icon to edit the parameters; you can edit the <IP Address>, the <Protocol> and other parameters.

Edit IP Camera	
IP Camera No.	D1
Adding Method	Manual
IP Camera Address	10.6.0.23
Protocol	Grundig-1
Management Port	8000
Channel Port	1
Transfer Protocol	Auto
User Name	admin
Password	l
<div>Protocol OK Cancel</div>	


Edit the Parameters

<Channel Port>: If the connected device is an encoding device with multiple channels, you can choose the channel to connect by selecting the <Channel Port> number in the dropdown list.

2. Click <OK> to save the settings and exit the Editing interface.

- To edit advanced parameters:

Steps:

1. Drag the horizontal scroll bar to the right side and click the  icon.

Edit IP Camera	
IP Camera No.	D2
Adding Method	Manual
IP Camera Address	192.168.254.3
Protocol	Grundig-1
Management Port	8000
Channel Port	1
Transfer Protocol	Auto
User Name	admin
Password	

Protocol OK Cancel

Network Configuration of the Camera

2. You can edit the network information and the <Password> of the camera.

Edit IP Camera	
IP Camera No.	D1
Adding Method	Manual
IP Camera Address	10.6.0.23
Protocol	Grundig-1
Management Port	8000
Channel Port	1
Transfer Protocol	Auto
User Name	admin
Password	*****

Protocol OK Cancel

Password Configuration of the Camera

3. Click <OK> to save the settings and to exit the interface.

- Configuring the customized protocols:

To connect the network cameras which are not configured with the standard protocols, you can configure the customized protocols for them.

Steps:

1. Click the <Protocol> button in the Custom Adding IP camera interface to enter the Protocol Management interface.

Protocol Management		
Custom Protocol	Custom Protocol 1	
Protocol Name	Custom 1	
Stream Type	Main Stream	Sub-Stream
Enable Substream		<input checked="" type="checkbox"/>
Type	RTSP	RTSP
Transfer Protocol	Auto	Auto
Port	554	554
Path		
Example: [Type]://[IP Address]:[Port]/[Path] rtsp://192.168.0.1:554/ch1/main/av_stream		
		<input type="button" value="Apply"/> <input type="button" value="OK"/> <input type="button" value="Cancel"/>

Protocol Management Interface

There are 16 customized protocols provided in the system, you can edit the <Protocol Name>; and choose whether to enable the Sub-stream.

2. Choose the protocol type of transmission and choose the transfer protocols.

Note:

Before customizing the protocol for the network camera, you have to contact the manufacturer of the network camera to consult the URL (uniform resource locator) for getting main stream and sub-stream.

The format of the URL is: [Type]://[IP Address of the network camera]:[Port]/[Path].

Example: rtsp://192.168.1.55:554/ch1/main/av_stream.

- **<Protocol Name>:** Edit the name for the <Custom Protocol>.
- **<Enable Sub-stream>:** If the network camera does not support <Sub-stream> or if the <Sub-stream> is not needed, leave the checkbox empty.
- **<Type>:** The network camera adopting <Custom Protocol> must support getting stream through standard <RTSP>.
- **<Transfer Protocol>:** Select the <Transfer Protocol> for the <Custom Protocol>.
- **<Port>:** Set the <Port> number for the <Custom Protocol>.
- **<Path>:** Set the <Resource Path> for the <Custom Protocol>. E.g., ch1/main/av_stream.

Note:

The <Protocol Type> and the <Transfer Protocols> must be supported by the connected network camera.

After adding the customized protocols, you can see the protocol name is listed in the dropdown list.

Protocol Management		
Custom Protocol	Custom Protocol 1	
Protocol Name	Custom 1	
Stream Type	Main Stream	Sub-Stream
Enable Substream		<input checked="" type="checkbox"/>
Type	RTSP	RTSP
Transfer Protocol	Auto	Auto
Port	554	554
Path		

Example: [Type]://[IP Address]:[Port]/[Path]
rtsp://192.168.0.1:554/ch1/main/av_stream

Apply OK Cancel

Protocol Setting

- Choose the protocols you just added to validate the connection of the network camera.

2.3.4 Editing the IP Cameras Connected to the PoE Interfaces

This chapter is only applicable for the following models: GD-RN-AP8616P, GD-RN-AP8632P, GD-RN-AC2416P and GD-RN-AC2004P.

The <PoE> interface enables the NVR system to pass electrical power safely along with data on Ethernet cabling to the connected network cameras.

Up to 4 network cameras can be connected to 4-Port models, 8 network cameras to 8-Port models, and 16 network cameras to 16-Port models. If you disable the PoE interface, you can also connect to the online network cameras. And the PoE interface supports the Plug-and-Play function.

Example:

For GD-RN-AP8616P, if you want to connect 6 network cameras via PoE interfaces and 2 online cameras, you must disable 10 PoE interfaces in the Edit IP Camera menu.

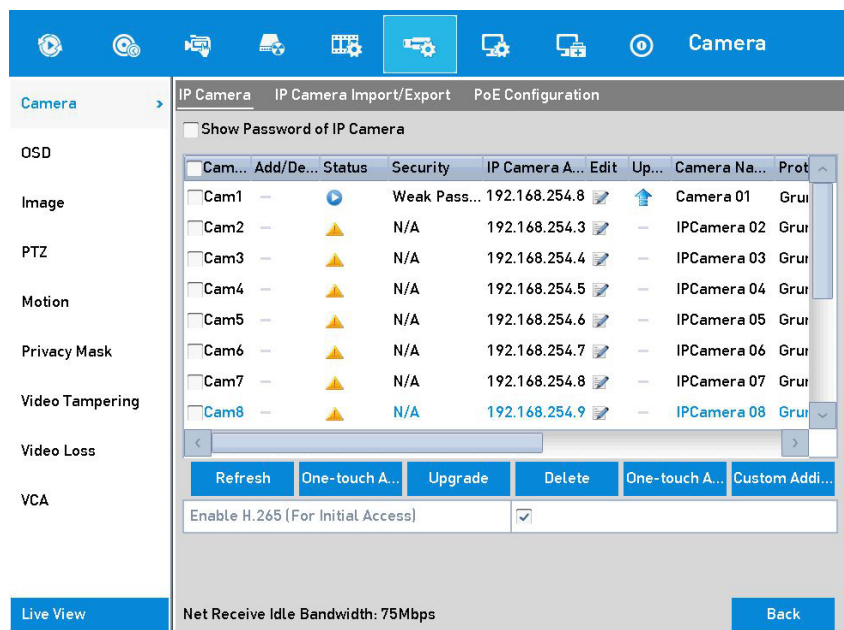
- To add Cameras for NVR supporting the <PoE> function:

Before you start:

Connect the network cameras via the <PoE> interfaces.

Steps:


- Enter the <Camera Management> interface: Menu> Camera> Camera



List of Connected Cameras

Note:

The cameras connecting to the <PoE> interface cannot be deleted in this menu.

- Click the  button, and select the <Adding Method> in the drop-down list.
 - <Plug-and-Play>**: It means that the camera is connected to the <PoE> interface, so in this case, the parameters of the camera can't be edited. The <IP Address> of the camera can only be edited in the <Network Configuration> interface, see *Chapter 11.1 12.1 Configuring General Settings* for detailed information.

Edit IP Camera	
IP Camera No.	D4
Adding Method	Plug-and-Play
IP Camera Address	192.168.254.5
Protocol	Grundig-1
Management Port	8000
Channel Port	1
Transfer Protocol	Auto
User Name	admin
Password	
<div> <div>Protocol</div> <div>OK</div> <div>Cancel</div> </div>	

Edit IP Camera Interface - Plug-and-Play

- Manual**: You can disable the <PoE> interface by selecting the manual while the current channel can be used as a normal channel and the parameters can also be edited.

Input the <IP Address>, the <User Name> and the <Password> of the administrator manually and Click <OK> to add the IP Camera.

Edit IP Camera	
IP Camera No.	D4
Adding Method	Manual
IP Camera Address	192.168.254.5
Protocol	Grundig-1
Management Port	8000
Channel Port	1
Transfer Protocol	Auto
User Name	admin
Password	

Protocol OK Cancel

Edit IP Camera Interface – Manual

2.3.5 Configuring the PoE Interface

When it requires long-distance <PoE> transmission (100 to 300 m), you can configure the <PoE> channel to the long network cable mode.

Steps:

1. Enter the <PoE Configuration> interface.
2. Menu> Camera> Camera> PoE Configuration
3. Click the radio button of each <PoE> channel to switch **OFF** and **ON**. You can click the radio button of the <PoE Channel> to enable or disable the long network cable mode.
4. **<ON>**: Long-distance (100 - 300 meters) network transmissions via the <PoE> interface.
5. **<OFF>**: Short-distance (< 100 meters) network transmission via the <PoE> interface.

Camera
IP Camera
IP Camera Import/Export
PoE Configuration

OSD

Image

PTZ

Motion

Privacy Mask

Video Tampering

Video Loss

VCA

ON OFF ON OFF ON OFF ON OFF ON OFF

ON: PoE channel is connected via a long network cable. OFF: PoE channel is connected via a ...

1-4				
5-8				

Real Power: 0.0W

Remaining Power: 200.0W

Notice:

1. The rated power of all PoE ports is 200.0W.

2. The power range for each PoE port is 0-30.0W.

3. When the real power exceeds the rated power, the PoE ports will be powered off according to the camera No., from largest to smallest, until the real power turns to be less than the rated power.

Live View
Back

Configure the PoE Interface

51 ENGLISH

Note:

- The <PoE> is enabled with the short network cable mode (<OFF>) by default.
- The bandwidth of the IP Camera connected to the <PoE> via a long network cable (100 - 300 meters) cannot exceed 6 MP.
- The allowed max. long network cable may be less than 300 meters, depending on different IP Camera models.
- When the transmission distance reaches 100 to 250 meters, it must use the CAT5E or CAT6 network cable to connect with the <PoE> interface.
- When the transmission distance reaches 250 to 300 meters, it must use the CAT6 network cable to connect with the <PoE> interface.
- Refer to chapter 19 for the list of IP cameras.

Note:

You can check the connecting status and power information of the <POE> channel on the interface.

6. Click <Back> to finish the settings.

3. Live View





3.1 Introduction of Live View

<Live View> shows you the video image received from each camera in real time. The NVR automatically enters the <Live View> mode when it is powered on. It is also at the very top of the menu hierarchy, thus pressing the <ESC> button many times (depending on which menu you're on) brings you to the <Live View> mode.

<Live View> Icons:

In the <Live View> mode, there are icons at the upper-right of the screen for each channel, showing the status of the <Record> and <Alarm> in the channel, so that you can know as soon as possible whether the channel is recorded or whether alarms occur.

Description of <Live View> Icons:

Icons	Description
	Alarm (<Video Loss>, <Video Tampering>, <Motion Detection>, <VCA> and <Sensor Alarm>)
	Record (<Manual Record>, <Schedule Record>, <Motion Detection>, <VCA> and <Alarm Triggered Record>)
	<Alarm> and <Record>
	<Event>/<Exception> (<Motion Detection>, <VCA>, <Sensor Alarm> or <Exception> information, appears at the lower-left corner of the screen. Please refer to <i>Chapter Setting Alarm Response Actions</i> for details.)

3.2 Operations in the Live View mode

In the <Live View> mode, there are many functions provided. The functions are listed below.

- **<Single Screen>**: showing only one screen on the monitor.
- **<Multi-screen>**: showing multiple screens on the monitor simultaneously.
- **<Auto-switch>**: the screen is auto-switched to the next one. And you must set the <Dwell Time> for each screen on the configuration menu before enabling the <Auto-switch>.

Menu> Configuration> Live View> Dwell Time.

- **<Start Recording>**: <Continuous Record> and <Motion Detection Record> are supported.
- **<Output Mode>**: Select the output mode to <Standard>, <Bright>, <Gentle> or <Vivid>.
- **<Add IP Camera>**: This is a shortcut to the <IP Camera Management> interface.

- **<Playback>**: Playback the recorded videos for the current day.
- **<Aux Monitor>**: the NVR checks the connection of the output interfaces to define the main and auxiliary output interfaces. The priority level for the main and aux output is HDMI1/VGA1> HDMI2/VGA2 (for GD-RN-AT8864N) and HDMI> VGA (for GD-RN-AC2416N, GD-RN-AC2416P, GD-RN-AC2004P, GD-RN-AP8616P and GD-RN-AP8632).

GD-RN-AT8864N: When the HDMI1, HDMI2, VGA1 and VGA2 are all connected, the HDMI1/VGA1 is used as main output and the HDMI2/VGA2 is used as the aux output.

GD-RN-AC2004P, GD-RN-AC2416N, GD-RN-AC2416P, GD-RN-AP8616P and GD-RN-AP8632P: When both the HDMI and VGA are connected, the HDMI is used as main output and the VGA is used as the aux output.

For GD-RN-AT819128N the following applies: To configure HDMI 1 and VGA Simultaneous Output> and <Menu Output> Mode, refer to the corresponding Chapter.

Main and Auxiliary Output Priority Principle (for GD-RN-AT819128N):

HDMI 1 and VGA Simultaneous Output	Menu Output Mode	Main and Auxiliary Output Priority
Enabled	Auto	HDMI 1 > HDMI 2/VGA
	HDMI 1/VGA	HDMI 1/VGA > HDMI 2
	HDMI 2	HDMI 2 > HDMI 1/VGA
Disabled	Auto	HDMI 1 > VGA > HDMI 2
	VGA	VGA > HDMI 1 > HDMI 2
	HDMI 1	HDMI 1 > VGA > HDMI 2
	HDMI 2	HDMI 2 > VGA > HDMI 1

When the <Aux Output> is enabled, the main output cannot perform any operation, and you can do some basic operation on the <Live View> mode for the <Aux Output>.

Front Panel Operation on <Live View>:

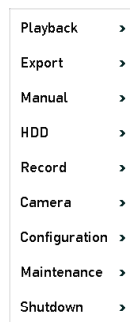
Functions	Front Panel Operation
Show single screen	Press the corresponding Alphanumeric button. E.g. Press 2 to display only the screen for channel 2.
Show multi-screen	Press the PREV/FOCUS- button.
Manually switch screens	Next screen: <Right>/<Down> direction button. Previous screen: <Left/Up> direction button.
Auto-switch	Press the <Enter> button.
Playback	Press the <Play> button.
Switch between main and aux output	Press the <Main>/<Aux> button.

Using the Mouse in <Live View>:

Name	Description
Common Menu	Quick access to the sub-menus which you frequently visit.
Menu	Enter the <Main> menu of the system by right clicking the mouse.
Single Screen	Switch to the single full screen by choosing a channel number from the dropdown list.
Multi-screen	Adjust the screen layout by choosing from the dropdown list.
Previous Screen	Switch to the previous screen.
Next Screen	Switch to the next screen.
Start/Stop Auto-switch	Enable/disable the <Auto-switch> of the screens.
Start Recording	Start <Continuous Recording> or <Motion Detection Recording> of all channels.
Add IP Camera	Enter the <IP Camera Management> interface and manage the cameras.
Playback	Enter the <Playback> interface and start playing back the video of the selected channel immediately.
PTZ	Enter the <PTZ Control> interface.
Output Mode	Four modes of output are supported including <Standard>, <Bright>, <Gentle> and <Vivid>.
Aux Monitor	Switch to the auxiliary output mode and the operation for the main output is disabled.

Note:

- The <Dwell Time> of the <Live View> configuration must be set before using <Start Auto-switch>.
- If you enter the <Aux Monitor> mode and the <Aux Monitor> is not connected, then the mouse operation is disabled; you need to switch back to the <Main> output with the <MAIN>/<AUX> button on the front panel or on the remote.
- If the corresponding camera supports the <Intelligent> function, then the <Reboot Intelligence> option is included when right-clicking the mouse on this camera.



Right-click Menu

Using an Auxiliary Monitor:

Certain features of the <Live View> are also available while in an Aux monitor. These features include:

- **<Single Screen>**: Switch to a full screen display of the selected camera. Camera can be selected from a dropdown list.
- **<Multi-screen>**: Switch between different <Display Layout> options. Layout options can be selected from a dropdown list.
- **<Next Screen>**: When displaying less than the maximum number of cameras in the <Live View>, clicking this feature will switch to the next set of displays.
- **<Playback>**: Enter into the <Playback> mode.
- **<PTZ Control>**: Enter the <PTZ Control> mode.
- **<Main Monitor>**: Enter the <Main Operation> mode.

Note:

In the <Live View> mode of the main output monitor, the menu operation is not available while Aux output mode is enabled.

Quick Setting Toolbar in the <Live View> mode:

On the screen of each channel, there is a <Quick Setting Toolbar> which displays when you single-click the mouse in the corresponding screen.
















Quick Setting Toolbar

Note:

The fisheye expansion view feature is supported by the models GD-RN-AP8616P, GD-RN-AP8632P, GD-RN-AT8864N only.

Description of Quick Setting Toolbar Icons:

Icon	Description	Icon	Description	Icon	Description
	Enable/Disable Manual Record		Instant Playback		Mute/Audio on
	Capture		PTZ Control		Digital Zoom
	Image Settings		Face Detection		Live View Strategy
	Information		Close		3D Positioning (only for some NVR models)
	Main/Sub-Stream				



<Instant Playback> only shows the record from the last five minutes. If no record is found, it means there is no record during the last five minutes.



<3D Positioning> (for GD-RN-AP8616P, GD-RN-AP8632P and GD-RN-AT8864N) is for zooming in to/out of the specific area of a live image.

Use the left key of mouse to click on the desired position in the video image and drag a rectangle area in the lower right direction, the camera will move the position to the center and enable the rectangle area to zoom in. Use the left key of the mouse to drag a rectangle area in the upper left direction to move the position to the center and to enable the rectangle area to zoom out.



<Digital Zoom> is for zooming in on the live image. You can zoom in the image to different proportions (1 to 16X) by moving the sliding bar from <-> to <+>. You can also scroll the mouse wheel to control the zoom in/out.



The <Image Settings> icon can be selected to enter the <Image Settings> menu.

You can set the image parameters like <Brightness>, <Contrast>, <Saturation> and <Hue> according to the actual demand.

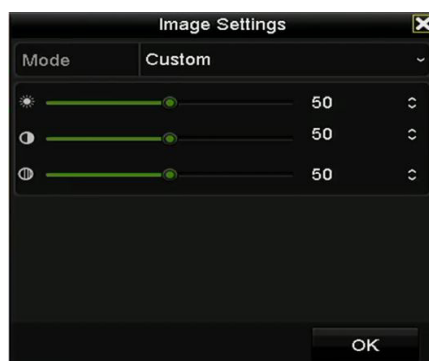
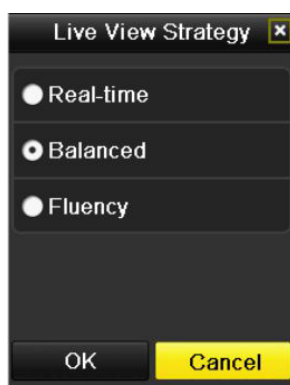


Image Settings- Customize



<Live View Strategy> can be selected to set a strategy including <Real-time>, <Balanced> and <Fluency>.



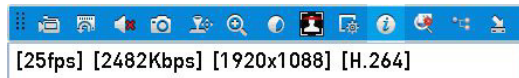
Live View Strategy



The <Face detection> function can be used to detect the human faces in the <Live View> mode and to save them in HDD. When there are human faces with the specified size detected in the front of the camera, the device will capture the human face and save it in HDD.



Move the mouse onto this icon to show the <Real-time Stream Information> including the <Frame Rate>, the <Bitrate>, the <Resolution> and the <Stream Type>.



Information

Fisheye Expansion View:

Some NVR recorders (GD-RN-AP8616P, GD-RN-AP8632P and GD-RN-AT8864N) support the <Fisheye Expansion> for a connected <Fisheye Camera> in the <Live View> or in the <Playback> mode.

Click on the icon to enter the <Fisheye Expansion> mode.

Fisheye Display Mode:

Fisheye expansion	Button	Operation
		180° panorama
		360° panorama
		PTZ expansion
		Fisheye

Four different display modes are available. You can select a display mode as demand.

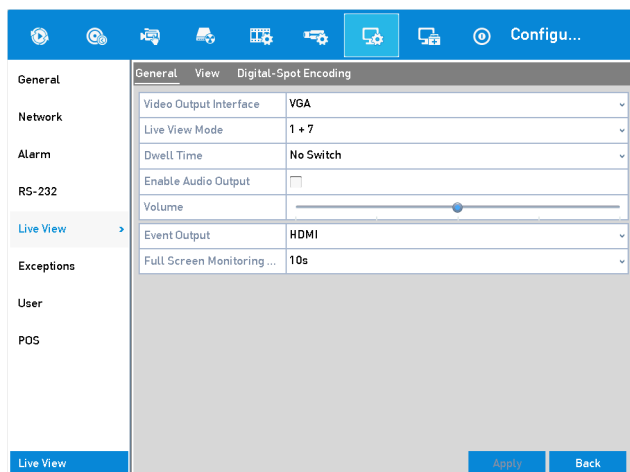
- **<180° Panorama>**: Switch the <Live View> image to the <180° Panorama> view.
- **<360° Panorama>**: Switch the <Live View> image to the <360° Panorama> view.
- **<PTZ Expansion>**: The <PTZ Expansion> is the close-up view of some defined area in the <Fisheye View> or a panorama expansion and it supports the electronic <PTZ> function which is also called <e-PTZ>.
- **<Fisheye>**: In the <Fisheye> mode, the whole wide-angle view of the Fisheye Camera is displayed. This view mode is called <Fisheye View> because it approximates the vision of a fish's convex eye. The lens produces curvilinear images of a large area while distorting the perspective and angles of objects in the image.

3.3 Adjusting the Live View Settings

<Live View Settings> can be customized according to different needs. You can configure the <Output Interface>, the <Dwell Time> for the screen to be shown and <Mute> or turn on the <Audio>. You can configure the <Screen Number> for each channel, etc.

Steps:

1. Enter the <Live View Settings> interface: Menu> Configuration> Live View

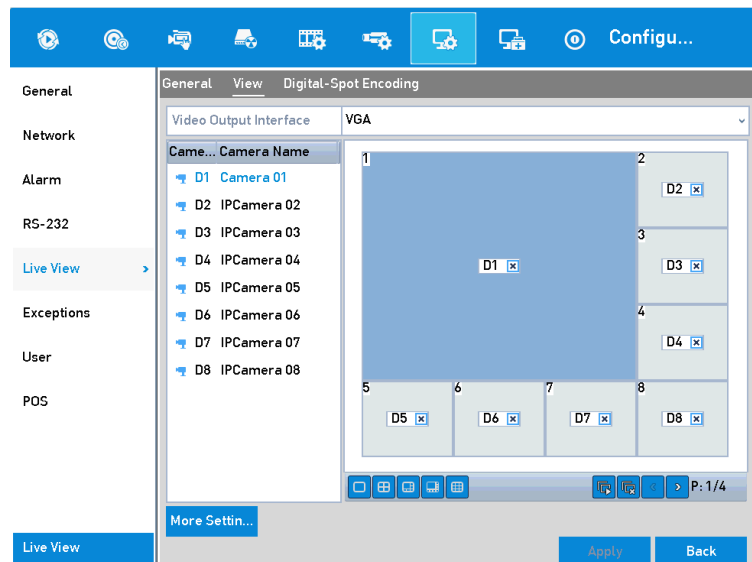


Live View-General




The settings available in this menu include:

- **<Video Output Interface>**: Designates the output to configure the settings.
<VGA/HDMI1 and <VGA2/HDMI2> are provided for GD-RN-AT8864N and GD-RN-CT8832N
HDMI 1, HDMI 2, and VGA outputs are provided for GD-RN-AT819128N (HDMI 2 video output at up to 4K resolution).
HDMI and VGA outputs are provided for GD-RN-AC2004P, GD-RN-AC2416N, GD-RN-AC2416P, GD-RN-AP8616P and GD-RN-AP8632P.
- **<Live View Mode>**: Designates the <Display> mode to be used for <Live View>.
- **<Dwell Time>**: The time in seconds to *dwell* between the switching of channels when enabling <Auto-switch> in the <Live View>.
- **<Enable Audio Output>**: Enables/disables audio output for the selected video output.
- **<Volume>**: Adjust the volume of the <Live View>, <Playback> and of <Two-way Audio> for the selected output interface.
- **<Event Output>**: Designates the output to show an event video.
- **<Full Screen Monitoring Dwell Time>**: The time in seconds to show the <Alarm Event> screen.

2. Setting the Camera Order:

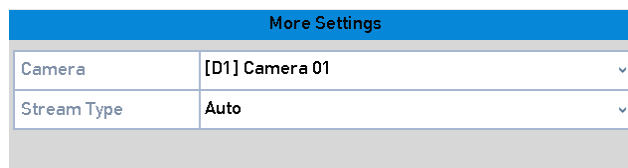


Live View- Camera Order

- 1) Select a <View> mode in , including 1/4/6/8/16/25/32/36/64-window division modes which are supported depending on different models.
- 2) Select the small window and double-click on the channel number to display the channel on the window.
- 3) You can click  to start the <Live View> for all the channels and click  to stop all of the <Live View>.
- 4) Click the <Apply> button to save the settings.

You can also click-and-drag the camera to the desired window on the <Live View> interface to set the camera order.

3. Set the <Stream Type> for the <Live View> of a camera.
 - 1) Click <More Settings> to enter the <More Settings> interface.
 - 2) Select the camera to configure from the list.
 - 3) Select the <Stream Type> to <Main Stream>, <Sub-stream> or <Auto>.



Stream Type Settings

- 4) Click <Apply> to save the settings.
- 5) (Optional) You can click the <Copy> button to copy the <Stream Type> settings of the current camera to other camera(s).

3.4 Channel-zero Encoding

Sometimes you need to get a remote view of many channels in real time from a web browser or a SCMS (Client Management System) software. In order to decrease the bandwidth requirement without affecting the image quality, channel-zero encoding is supported as an option for you.

Steps:

1. Enter the <Live View Settings> interface: Menu > Configuration> Live View
2. Select the <Channel-Zero Encoding> tab.

Enable Digital-Spot Enc...	<input checked="" type="checkbox"/>
Frame Rate	Full Frame ▾
Max. Bitrate Mode	General ▾
Max. Bitrate(Kbps)	1792 ▾

Live View- Channel-Zero Encoding

3. Check the checkbox after <Enable Channel Zero Encoding>.
4. Configure the <Frame Rate>, <Max. Bitrate Mode> and <Max. Bitrate>.

After setting the <Channel-Zero Encoding>, you can get a view of 16 channels in one screen either in the remote client or in the web browser.

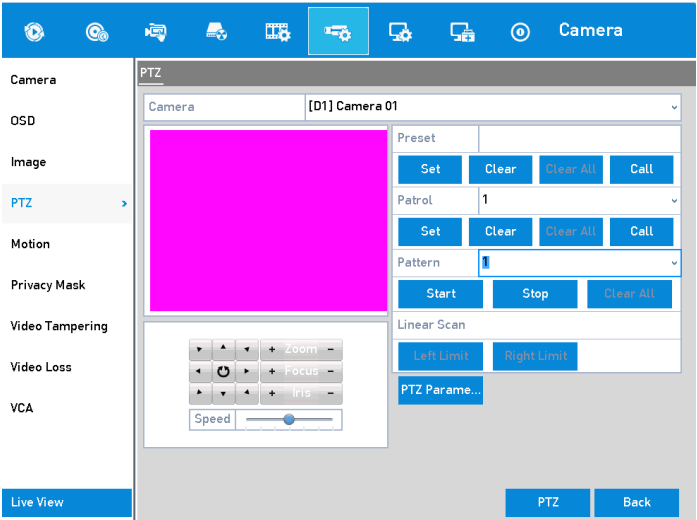
4. PTZ Controls

4.1 Configuring PTZ Settings

Follow the procedure to set the parameters for <PTZ>. The configuring of the <PTZ> parameters should be done before you control the PTZ Camera.

Steps:

- 1. Enter the <PTZ Settings> interface: Menu >Camera> PTZ



PTZ Settings

- 2. Click the <PTZ Parameters> button to set the <PTZ> parameters.

PTZ Parameter Settings	
Baud Rate	9600
Data Bit	8
Stop Bit	1
Parity	None
Flow Ctrl	None
PTZ Protocol	Grundig-1
Address	0
Address range: 0~255	
<div>OKCancel</div>	

PTZ- General

- 3. Choose the camera for the <PTZ> setting in the <Camera> dropdown list.
- 4. Enter the parameters of the PTZ Camera.

Note:

All the parameters should be exactly the same as the PTZ Camera parameters.

- Click the <Apply> button to save the settings.

4.2 Setting PTZ Presets, Patrols & Patterns

Before you start:

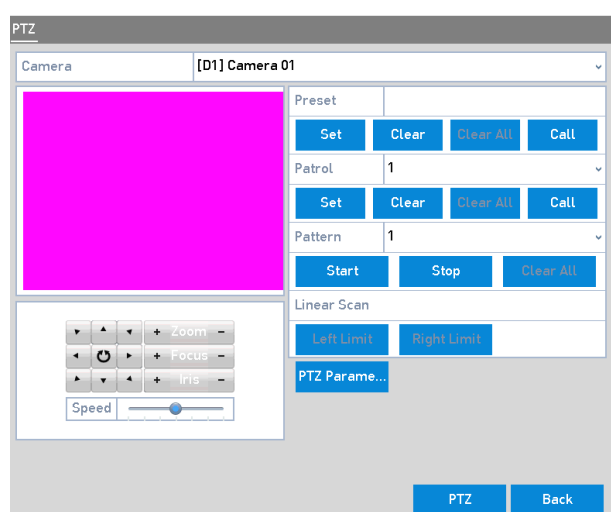
Please make sure that the <Presets>, <Patrols> and <Patterns> should be supported by <PTZ> protocols.

Customizing Presets:

Follow the steps to set the <Preset> location which you want the PTZ Camera to point to when an event takes place.

Steps:

- Enter the <PTZ Control> interface: Menu>Camera>PTZ



PTZ Settings

- Use the directional button to wheel the camera to the location where you want to set the <Preset>; the zoom and focus operations can be recorded in the <Preset> as well.
- Enter the <Preset No.> (1~255) in the <Preset> text field, and click the <Set> button to link the location to the <Preset>.

Repeat steps 2 to 3 to save more presets.


You can click the <Clear> button to clear the location information of the <Preset> or click the <Clear All> button to clear the location information of all of the presets.

Calling Presets:

This feature enables the camera to point to a specified position such as a window when an event takes place.

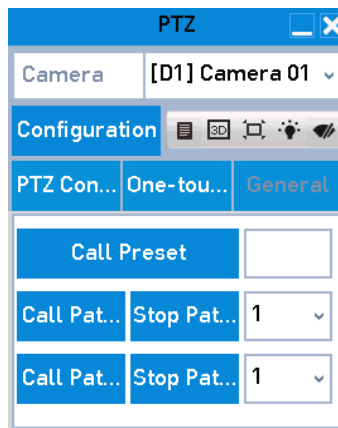
Steps:

- Click the button <PTZ> in the lower-right corner of the <PTZ Settings> interface;

Or press the <PTZ> button on the front panel or click the <PTZ Control> icon  in the quick setting bar or select the <PTZ> option in the right-click menu to show the <PTZ Control> panel.

- Choose the <Camera> in the dropdown list.

- Click the <PTZ Parameters> button to show the general settings of the <PTZ Control>.



PTZ Panel - General

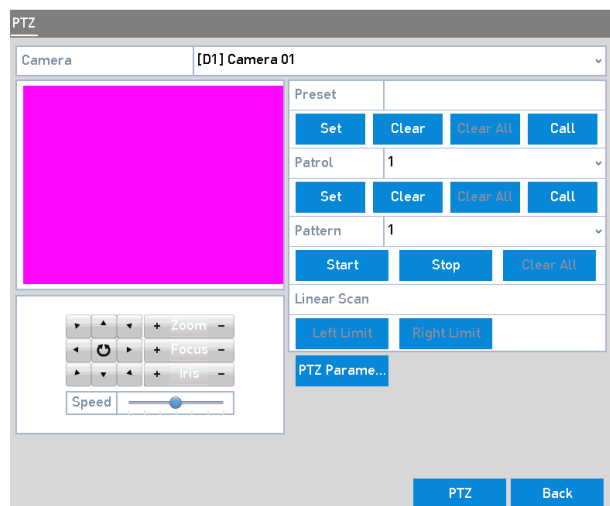
- Click to enter the <Preset No.> in the corresponding text field.
- Click the <Call Preset> button to call it.

Customizing Patrols:

<Patrols> can be set to move the <PTZ> to different key points and have it stay there for a set duration before moving on to the next key point. The key points are corresponding to the presets. The presets can be set following the steps above in **Customizing Presets**.

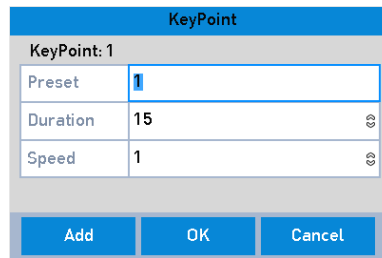
Steps:

- Enter the <PTZ Control> interface: Menu>Camera>PTZ



PTZ Settings

- Select the <Patrol No.> in the drop-down list of <Patrol>.
- Click the <Set> button to add key points for the <Patrol>.



The KeyPoint Configuration dialog box is titled "KeyPoint". It contains a section labeled "KeyPoint: 1" with three input fields: "Preset" with the value "1", "Duration" with the value "15", and "Speed" with the value "1". At the bottom of the dialog are three buttons: "Add", "OK", and "Cancel".

KeyPoint: 1	
Preset	1
Duration	15
Speed	1

Buttons: Add, OK, Cancel

Key point Configuration

4. Configure <Key Point> parameters such as the <Key Point No.>, the <Duration> of stay for one key point and the <Speed> of the <Patrol>. The <Key Point> is corresponding to the <Preset>. The <Key Point No.> determines the order at which the <PTZ> will follow while cycling through the <Patrol>. The <Duration> refers to the time span to stay at the corresponding key point. The <Speed> defines the speed at which the <PTZ> will move from one key point to the next.
5. Click the <Add> button to add the next key point to the <Patrol> or you can click the <OK> button to save the key point to the <Patrol>.


You can delete all the key points by clicking the <Clear> button for the selected <Patrol> or click the <Clear All> button to delete all of the key points for all of the patrols.

Calling Patrols:

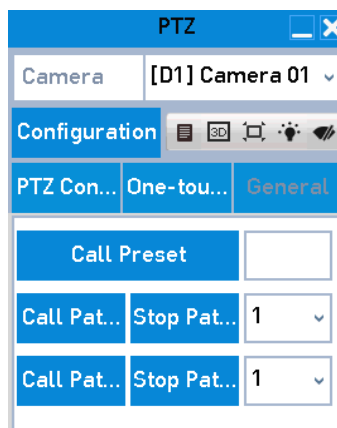
Calling a <Patrol> makes the <PTZ> move according to the predefined <Patrol Path>.

Steps:

1. Click the button <PTZ> in the lower-right corner of the <PTZ Settings> interface;

Or you can instead press the <PTZ> button on the front panel, click the <PTZ Control> icon  in the <Quick Setting Toolbar> or select the <PTZ> option in the right-click menu to show the <PTZ Control> panel.

2. Click the <PTZ Parameters> button to show the general settings of the <PTZ Control>.



The PTZ Panel - General settings window shows the "Camera" dropdown set to "[D1] Camera 01". Below this is a "Configuration" section with icons for 3D, PTZ, and other settings. The "PTZ Con..." button is highlighted. Underneath, there are three rows of controls: "Call Preset" with an empty input field, and two rows of "Call Pat..." and "Stop Pat..." buttons with a dropdown menu set to "1".

PTZ	
Camera	[D1] Camera 01
Configuration	
PTZ Con...	One-tou...
Call Preset	
Call Pat...	Stop Pat... 1
Call Pat...	Stop Pat... 1

PTZ Panel - General

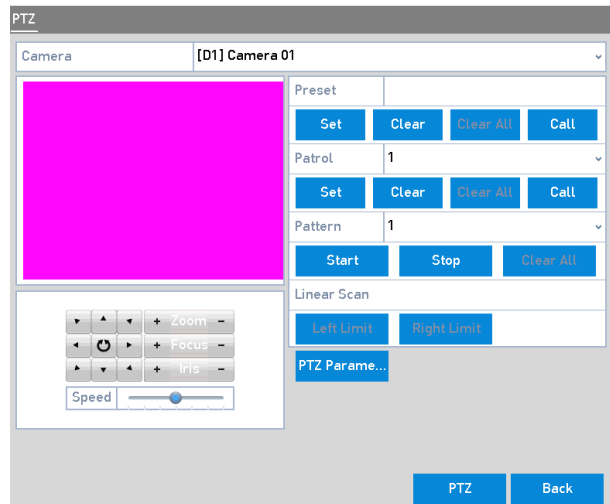
3. Select a <Patrol> in the dropdown list and click the <Call Patrol> button to call it.
4. You can click the <Stop Patrol> button to stop calling it.

Customizing Patterns:

Patterns can be set by recording the movement of the <PTZ>. You can call the pattern to make the <PTZ> movement according to the predefined path.

Steps:

1. Enter the <PTZ Control> interface: Menu > Camera > PTZ



PTZ Settings

2. Choose the <Pattern Number> in the dropdown list.
3. Click the <Start> button and click corresponding buttons in the control panel to move the PTZ Camera and then click the <Stop> button to stop it.


The movement of the <PTZ> is recorded as the pattern.

Calling Patterns:

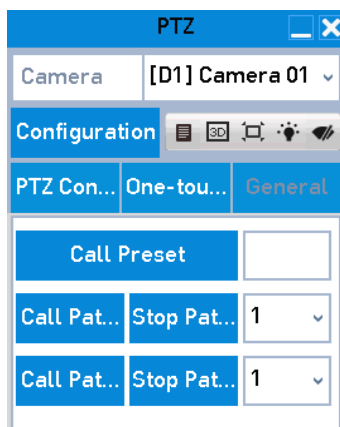
Follow the procedure to move the PTZ Camera according to the predefined patterns.

Steps:

1. Click the button <PTZ> in the lower-right corner of the <PTZ Settings> interface;

Or you can instead press the <PTZ> button on the front panel, click the <PTZ Control> icon  in the <Quick Setting Toolbar> or select the <PTZ> option in the right-click menu to show the <PTZ Control> panel.

2. Click the <PTZ Parameters> button to show the general settings of the <PTZ Control>.



PTZ Panel - General

3. Click the <Call Pattern> button to call it.
4. Click the <Stop Pattern> button to stop calling it.

Customizing Linear Scan Limit:

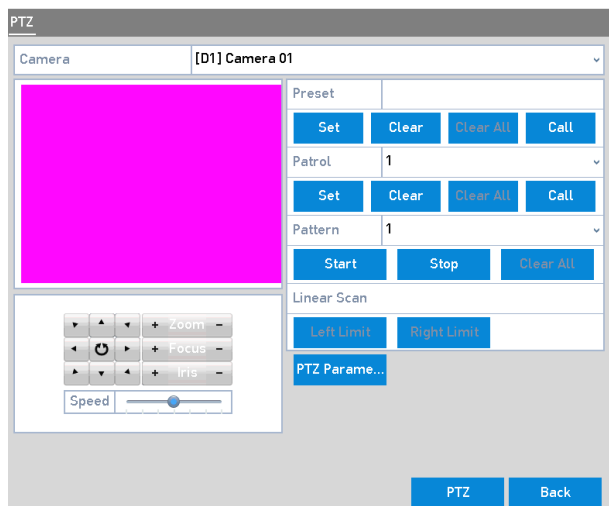
The Linear Scan can be enabled to trigger the scan in the horizontal direction in the predefined range.

Note:

This function is supported by some models.

Steps:

1. Enter the <PTZ Control> interface: Menu > Camera > PTZ



PTZ Settings

2. Use the directional button to wheel the camera to the location where you want to set the limit and click the <Left Limit> or <Right Limit> button to link the location to the corresponding limit.

Note:

The speed dome starts a linear scan from the left limit to the right limit and you must set the left limit on the left side of the right limit; also the angle from the left limit to the right limit should be no more than 180°.

Calling Linear Scan:


Notes:

Before operating this function, make sure the connected camera supports the linear scan and is in private protocol.

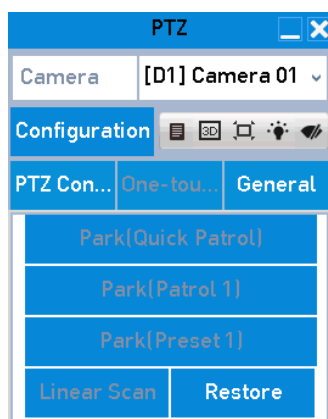
Follow the procedure to call the linear scan in the predefined scan range.

Steps:

1. Click the button <PTZ> in the lower-right corner of the <PTZ Settings> interface;

Or you can instead press the <PTZ> button on the front panel, click the <PTZ Control> icon  in the <Quick Setting Toolbar> or select the <PTZ> option in the right-click menu to show the <PTZ Control> panel.

2. Click the <PTZ Parameters> button to show the <One-touch> function of the <PTZ Control>.



PTZ Panel - One-touch

3. Click the <Linear Scan> button to start the linear scan and click the <Linear Scan> button again to stop it.

You can click the <Restore> button to clear the defined <Left Limit> and <Right Limit> data and the dome needs to reboot to make settings take effect.


One-touch Park:**Note:**

Before operating this function, make sure the connected camera supports the linear scan and that it is in private protocol.

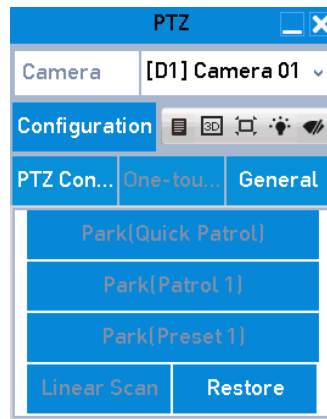
For some models of the speed dome, it can be configured to start a predefined park action (<Scan>, <Preset>, <Patrol> etc.) automatically after a period of inactivity (<Park Time>).

Steps:

1. Click the button <PTZ> in the lower-right corner of the <PTZ Settings> interface;

Or instead you can press the <PTZ> button on the front panel, click the <PTZ Control> icon  in the <Quick Setting Toolbar> to enter the <PTZ Settings> menu in the <Live View> mode.

2. Click the <PTZ Parameters> button to show the <One-touch> function of the <PTZ Control>.



PTZ Panel - One-touch

- There are 3 one-touch <Park Types> selectable; click the corresponding button to activate the park action.

<Park (Quick)>: The dome starts to patrol from the predefined <Preset 1> to <Preset 32> in following order after the <Park Time>. The <Undefined Preset> will be skipped.

<Park (Patrol 1)>: The dome starts move according to the predefined <Patrol 1 Path> after the <Park Time>.

<Park (Preset 1)>: The dome moves to the predefined <Preset 1> location after the <Park Time>.

Note:

The <Park Time> can only be set through the speed dome configuration interface, by default the value is 5s.

- Click the button again to inactivate it.


4.3 PTZ Control Panel

To enter the <PTZ Control> panel, there are two ways supported.

OPTION 1:


In the <PTZ Settings> interface, click the <PTZ> button on the lower-right corner which is next to the <Back> button.

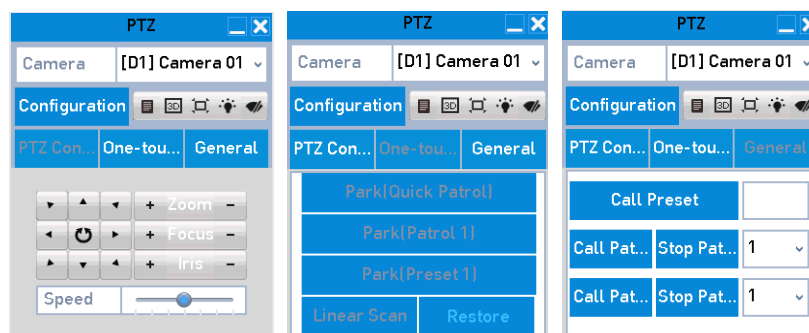
OPTION 2:

In the <Live View> mode, you can press the <PTZ Control> button on the front panel or on the remote control, choose the <PTZ Control> icon  or select the <PTZ> option in the right-click menu.

Click the <Configuration> button on the control panel, and you can enter the <PTZ Settings> interface.

Note:

In the <PTZ Control> mode, the <PTZ> panel will be displayed when a mouse is connected with the device. If no mouse is connected, the  icon appears in the lower-left corner of the window, indicating that this camera is in the <PTZ Control> mode.



PTZ Panel

Description of the <PTZ> panel icons:

Icon	Description	Icon	Description	Icon	Description
	Direction button and the auto-cycle button		Zoom+, Focus+, Iris+		Zoom-, Focus-, Iris-
	The speed of the <PTZ> movement		Light on/off		Wiper on/off
	3D-Zoom		Image Centralization		Menu
	Switch to the <PTZ Control> interface		Switch to the <One-touch> control interface		Switch to the <General Settings> interface
	Exit		Minimize windows		

5. Recording and Capture Settings

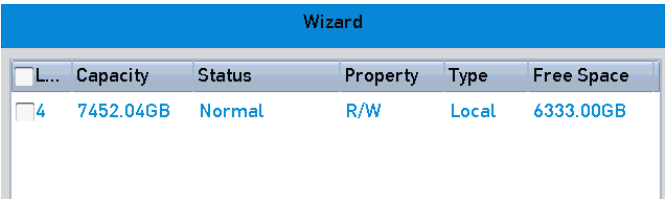
5.1 Configuring Parameters

By configuring the parameters you can define the parameters which affect the image quality, such as the <Transmission Stream Type>, the <Resolution> and so on.

Before you start:

Steps:

- 1) Make sure that the HDD has already been installed. If not, please install a HDD and initialize it.
(Menu>HDD>General)



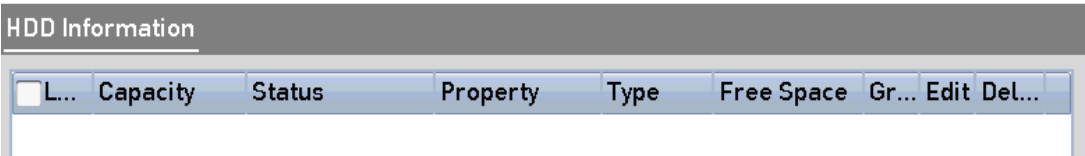
HDD- General

- 2) Check the storage mode of the HDD

Click <Advanced> to check the <Storage> mode of the HDD.

If the HDD mode is <Quota>, please set the <Maximum Record Capacity> and the <Maximum Picture Capacity>. For detailed information, see the Chapter about *14.5 Configuring the Quota Mode*.

If the HDD mode is <Group>, you should set the <HDD Group>. For detailed information, see Chapter 5.9 *Configuring the HDD Group for Recording and Capture*.



HDD- Advanced

Steps:

- 1. Enter the <Record settings> interface to configure the recording parameters: Menu > Record > Parameters

The screenshot shows the 'Record' tab with the following parameters:

Parameter	Main Stream(Continuous)	Main Stream(Event)
Stream Type	Video	Video
Resolution	1920*1080(1080P)	1920*1080(1080P)
Bitrate Type	Variable	Variable
Video Quality	Medium	Medium
Frame Rate	Full Frame	Full Frame
Max. Bitrate Mode	General	General
Max. Bitrate(Kbps)	4096	4096
Max. Bitrate Range Reco...	3840~6400(Kbps)	3840~6400(Kbps)
Video Encoding	H.264	H.264
Enable H.264+	<input type="checkbox"/>	

Buttons at the bottom: Live View, More Settin..., Apply, Back.

Recording Parameters

2. Parameters Setting for Recording

- 1) Select the <Record> tab to configure the parameters. You can configure the <Stream Type>, the <Resolution> and other parameters on your demand.

<Video Encode>: select the video encoding to <H.265> or <H.264>.

<Enable H.264+ Mode>: check the checkbox to enable. Once enabled, the <Max. Bitrate Mode>, <Max. Bitrate(Kbps)> and <Max. Bitrate Range Recommend> are not configurable. Enabling it helps to ensure the high video quality with a lowered bitrate.

Note:

The <H.265> and <H.264+> should be supported by the connected IP Camera .

- 2) Click the <More Settings> button to set the advanced parameters for recording and then click the <OK> button to finish editing.

The 'More Settings' dialog box contains the following fields:

Pre-record	5s
Post-record	5s
Expired Time (day)	0
Record Audio	<input type="checkbox"/>
Video Stream	Main Stream

Buttons at the bottom: OK, Back.

More Settings

<Pre-record>: The time you set to record before the scheduled time or event. For example, when an alarm triggers the recording at 10:00, and if you set the pre-record time as 5 seconds, the camera records at 9:59:55.

<Post-record>: The time you set to record after the event or the scheduled time. For example, when an alarm-triggered recording ends at 11:00, and if you set the <Post-record> time as 5 seconds, it records till 11:00:05.

<Expired Time>: The expired time is the period for a recorded file to be kept on the HDD. When the deadline is reached, the file will be deleted. If you set the expired time to <0>, then the file will not be deleted. The actual keeping time for the file should be determined by the capacity of the HDD.

<Redundant Record/Capture>: By enabling <Redundant Record> or <Capture>, you save the record and captured picture in the redundant HDD. See *Chapter 5.8 Configuring Redundant Recording and Capture*.

<Record Audio>: Check the checkbox to enable or disable audio recording.

<Video Stream>: <Main Stream> and <Sub-stream> are selectable for recording. When you select <Sub-stream>, you can record for a longer time with the same storage space.

- 3) Click <Apply> to save the settings.

Note:

You can enable the <ANR (Automatic Network Replenishment)> function via the web browser (Configuration > Storage > Schedule Settings > Advanced) to save the video files in the IP Camera when the network is disconnected and synchronize the files to the NVR when the network is resumed.

Note:

- The <Redundant Record/Capture> is used when you want to save the record files or captured pictures in the redundant HDD. You must configure the redundant HDD in <HDD Settings>. For detailed information, see the Chapter about the *HDD Settings*.
- The parameters of <Main Stream (Event)> are <Read-only>.

3. Parameters Settings for Sub-stream

- 1) Enter the <Sub-stream> tab page.

Record	Sub-Stream	Capture
Camera	[D1] Camera 01	
Stream Type	Video	
Resolution (max.: 720P)	704*576(4CIF)	
Bitrate Type	Variable	
Video Quality	Medium	
Frame Rate	Full Frame	
Max. Bitrate Mode	General	
Max. Bitrate (Kbps) (max...	1024	
Max. Bitrate Range Reco...	1152~1920(Kbps)	
Video Encoding	H.264	

Sub-stream Parameters

- 2) Configure the parameters of the camera.
- 3) Click <Apply> to save the settings.

4. Parameters Settings for Capture

- 1) Select the <Capture> tab.

Record	Sub-Stream	Capture
Camera	[D1] Camera 01	
Parameter Type	Continuous	Event
Resolution	704*576(4CIF)	704*576(4CIF)
Picture Quality	Medium	Medium
Interval	3s	3s

Capture Parameters

- 2) Configure the parameters.
- 3) Click <Apply> to save the settings.

Note:

The interval is the time period between two capturing actions. You can configure all of the parameters on this menu on your demand.

5.2 Configuring Recording and Capture Schedule

Set the <Record Schedule> and the camera will automatically start/stop recording according to the configured schedule.

Note:

In this chapter, we take the record schedule procedure as an example; the same procedure can be applied to configure a schedule for both recording and capturing. To schedule the <Automatic Capture>, you need to choose the <Capture> tab in the <Schedule> interface.

Steps:

1. Enter the <Record Schedule> interface: Menu>Record/Capture>Schedule
2. Configure the <Record Schedule>.
 - 1) Select the Record/Capture Schedule.

Record Schedule

Different recording types are marked in different color icons.

<Continuous>: This is a scheduled recording.

<Event>: This is a Recording triggered by all Event-triggered Alarms.

<Motion>: This is a Recording triggered by <Motion Detection>.

<Alarm>: This is a Recording triggered by an alarm.

<M/A>: This is a Recording triggered by either <Motion Detection> or by an <Alarm>.

<M&A>: This is a Recording triggered by <Motion Detection> and an <Alarm>.

<POS>: This is a Recording triggered by <POS> and an <Alarm>. (Supported by GD-RN-AP8616P, GD-RN-AP8632P and GD-RN-AT8864N only)

Note:

You can delete the set schedule by clicking the <None> icon.

- 2) Choose the camera you want to configure.
- 3) Select the checkbox after the <Enable Schedule> item.
- 4) Click the <Edit> button or click on the color icon under the <Edit> button and draw the schedule line on the panel.

Edit the schedule:

Note:

The <All-day> continuous recording is configured for the device by factory default.


Steps:

1. In the message box, you can choose the day for which you want to set the schedule.

Edit			
Weekday	Mon		
All Day	<input checked="" type="checkbox"/>	Type	Continuous
Start/End Time	00:00-00:00	Type	Continuous
Start/End Time	00:00-00:00	Type	Continuous
Start/End Time	00:00-00:00	Type	Continuous
Start/End Time	00:00-00:00	Type	Continuous
Start/End Time	00:00-00:00	Type	Continuous
Start/End Time	00:00-00:00	Type	Continuous
Start/End Time	00:00-00:00	Type	Continuous
Start/End Time	00:00-00:00	Type	Continuous
Start/End Time	00:00-00:00	Type	Continuous

Copy Apply OK Cancel

Recording Schedule Interface

You can click the  button to set the accurate time of the schedule.

- To schedule an <All-day> recording, check the checkbox after the <All Day> item.

Start/End Time	00:00-00:00	Type	Continuous
Start/End Time	00 : 00	00 : 00	

Edit Schedule

- To arrange another schedule, set the <Start/End time> for each period.

Note:

Up to 8 periods can be configured for each day. And the time periods can't be overlapped each other.

- Select the record type in the dropdown list.

Note:

- To enable <Motion>, <Alarm>, <M | A (motion or alarm)>, <M & A (motion and alarm)> and <VCA (Video Content Analysis)> triggered recording and capture, you must configure the <Motion Detection Settings>, <Alarm Input Settings> or the <VCA Settings> as well. For detailed information, refer to *Chapter 8.1* and *Chapter 9*.
- The <VCA Settings> are only available to the <Smart IP Cameras>.

Repeat the above <Edit Schedule> steps to schedule recording or capture for other days in the week. If the schedule can also be applied to other days, click <Copy>.

Copy to	
<input type="checkbox"/> All	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6
	<input type="checkbox"/> 7

OK Cancel

Copy Schedule to Other Days

5. Click <OK> to save the setting and to go back to the upper level menu.
6. Click <Apply> in the <Record Schedule> interface to save the settings.

Draw the schedule:

- I. Click on the color icons, you can choose the schedule type as <Continuous> or <Event>.

Draw the Schedule

- II. Click the <Apply> button to validate the settings.

7. (Optional) If the settings can also be used to other channels, click <Copy>, and then choose the channel to which you want to copy them.
8. Click <Apply> to save the settings.

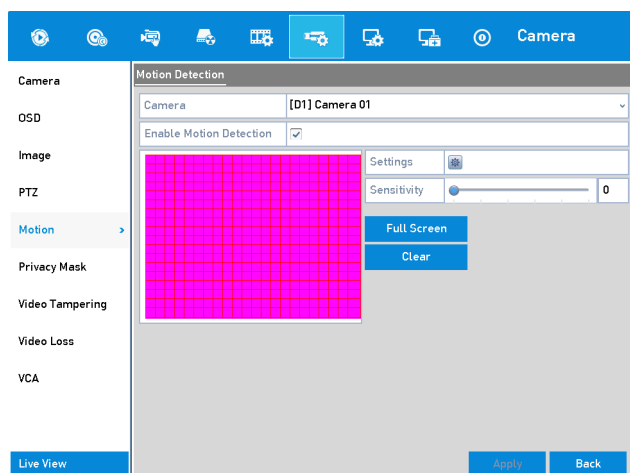
Copy Schedule to Other Channels

5.3 Configuring Motion Detection Recording and Capture

Follow the steps to set the <Motion Detection> parameters. In the <Live View> mode, once a <Motion Detection> event takes place, the NVR can analyze it and do many actions to handle it. Enabling the <Motion Detection> function can trigger certain channels to start recording or trigger <Full-screen Monitoring>, <Audio Warning>, <Notify the Surveillance Center> and so on. In this chapter, you can follow the steps to schedule a record which is triggered by the detected motion.

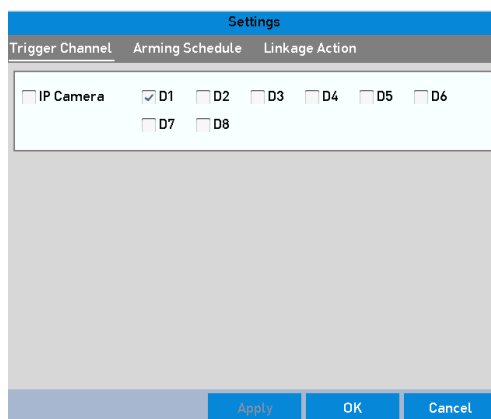
Steps:

1. Enter the <Motion Detection> interface: Menu>Camera>Motion



Motion Detection

2. Configure <Motion Detection>:
 - 1) Choose the camera you want to configure.
 - 2) Check the checkbox after <Enable Motion Detection>.
 - 3) Drag and draw the area for <Motion Detection> by mouse. If you want to set the <Motion Detection> for all of the area shot by the camera, click <Full Screen>. To clear the <Motion Detection> area, click <Clear>.
 - 4) Click <Settings> and the message box for <Channel Information> pops up.



Motion Detection Handling

- 5) Select the channels which you want the <Motion Detection Event> to trigger for the recording.
- 6) Click <Apply> to save the settings.

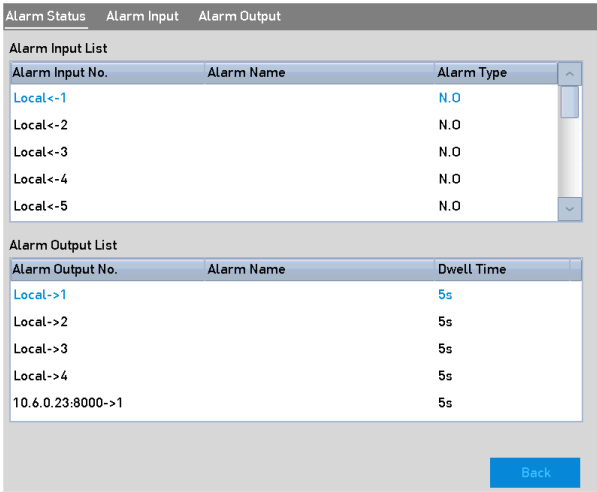
- 7) Click <OK> to go back to the upper level menu.
 - 8) Exit the <Motion Detection> menu.
3. Edit the <Motion Detection Record Schedule>. For the detailed information of schedule configuration, see the Chapter about *5.2 Configuring Recording and Capture Schedule*.

5.4 Configuring Alarm-Triggered Recording and Capture

Follow the procedure to configure alarm-triggered recording or capture.

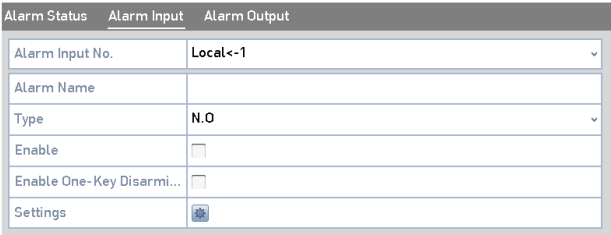
Steps:

1. Enter the <Alarm Settings> interface: Menu> Configuration> Alarm



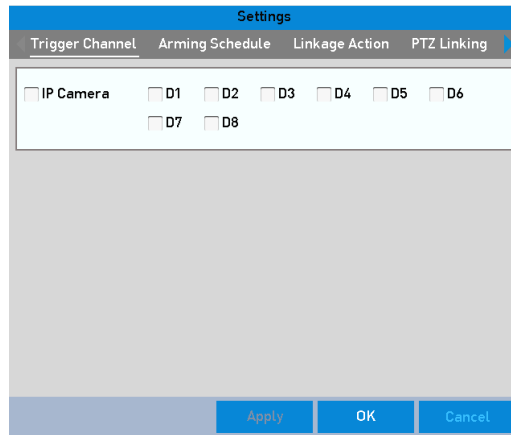
Alarm Settings

2. Click <Alarm Input>.



Alarm Settings- Alarm Input

- 1) Select the <Alarm Input No.> and configure alarm parameters.
- 2) Choose <N.O (normally open)> or <N.C (normally closed)> for the <Alarm Type>.
- 3) Check the checkbox for <Setting> ☒.
- 4) Click <Settings>.

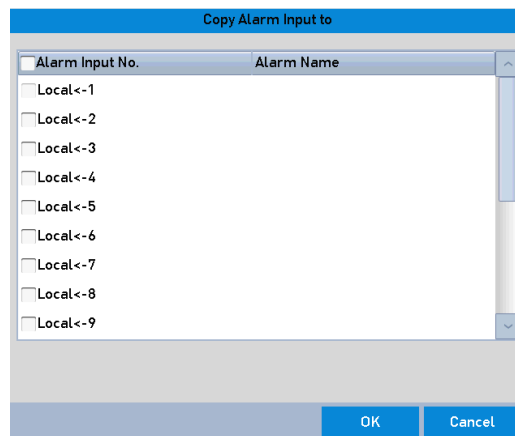


Alarm Settings

- 5) Choose the <Alarm-triggered Recording Channel>.
- 6) Check the checkbox ☒ to select the channel.
- 7) Click <Apply> to save the settings.
- 8) Click <OK> to go back to the upper level menu.

Repeat the above steps to configure other <Alarm Input> parameters.

If the settings can also be applied to other <Alarm Inputs>, click <Copy> and choose the <Alarm Input No.>.



Copy Alarm Input

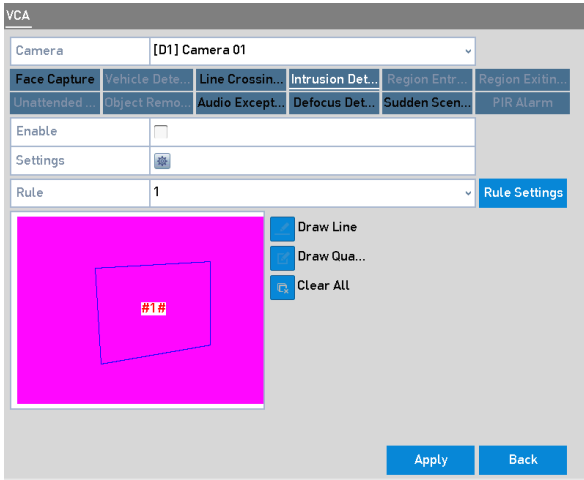
3. Edit the <Alarm-triggered Record> in the <Record/Capture Schedule Settings> interface. For the detailed information of schedule configuration, see Chapter 5.2 *Configuring Recording and Capture Schedule*.

5.5 Configuring VCA Event Recording


The <Event-triggered Recording> can be configured through the menu. Then events include the <Motion Detection>, <Alarm> and <VCA> events (<Face Detection>/<Face Capture>, <Line Crossing Detection>, <Intrusion Detection>, <Region Entrance Detection>, <Region Exiting Detection>, <Loitering Detection>, <People Gathering Detection>, <Fast Moving Detection>, <Parking Detection>, <Unattended Baggage Detection>, <Object Removal Detection>, <Audio Loss Exception Detection>, <Sudden Change of Sound Intensity Detection> and <Defocus Detection>).

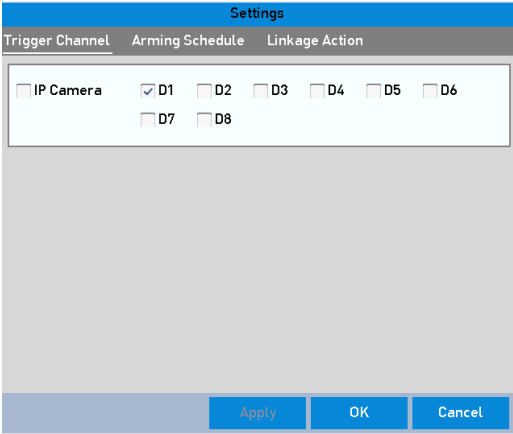
Steps:

1. Enter the <VCA Settings> interface and select a <Camera> for the <VCA Settings>: Menu > Camera > VCA



VCA Settings

2. Configure the <Detection Rules> for <VCA Events>. For details, please refer to *Chapter 10 VCA Alarm*.
3. Click the icon  to configure the <Alarm Linkage Actions> for the <VCA Events>.
4. Select the <Trigger Channel> tab and select one or more channels which will start to record when a <VCA Alarm> is triggered.
5. Click <Apply> to save the settings



Set Trigger Camera of VCA Alarm

Note:

The <PTZ Linking> function is only available for the <VCA Settings> of <IP Cameras>.

6. Enter the <Record Schedule Settings> interface (Menu > Record > Schedule > Record Schedule) and then set <VCA> as the <Record Type>. For details, see step 2 in Chapter 5.2 *Configuring Recording and Capture Schedule*.

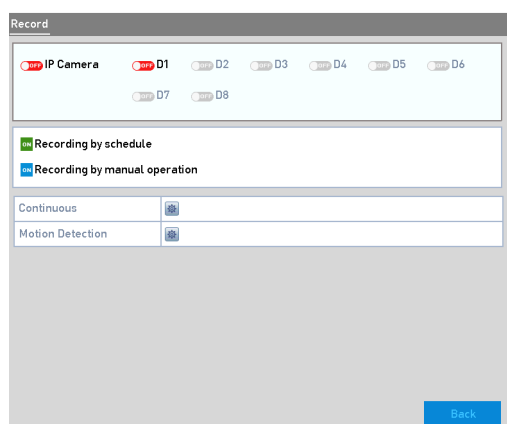
5.6 Manual Recording and Continuous Capture

Follow the steps to set parameters for the manual recording and continuous capture. Using manual recording and continuous capture, you need to manually cancel the record and capture. The manual recording and manual continuous capture is prior to the scheduled recording and capture.



Steps:



1. Enter the <Manual> settings interface: Menu> Manual

Or press the <REC/SHOT> button on the front panel.




Manual Record

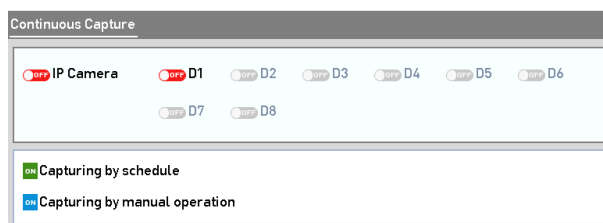
2. Enable the Manual Recording.
 - 1) Select <Record> on the left bar.
 - 2) Click the <Status> button before the <Camera Number> to change from  to .
3. Disable <Manual Record>.

Click the <Status> button to change from  to .





Note:

The Green icon  means that the channel is configured for the record schedule. After rebooting, all the manual records enabled will be canceled.


4. Enabling and disabling the continuous capture
 - 1) Select <Continuous Capture> on the left bar.



Continuous Capture

- 2) Click the <Status> button before the camera number to change from  to .
- 3) Disable <Continuous Capture>.
- 4) Click the <Status> button to change from  to .

Note:

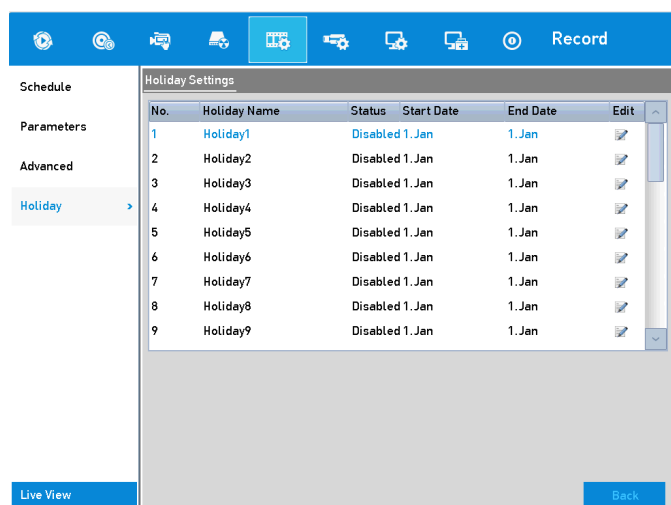
The Green icon  means that the channel is configured for the capture schedule. After rebooting, all the continuous capture will be canceled.

5.7 Configuring Holiday Recording and Capture

Follow the steps to configure the record or capture schedule on holiday for that year. You may want to have different plan for recording and capture on holiday.


Steps:

1. Enter the <Record Setting> interface: Menu > Record > Holiday



Holiday Settings

2. Enable <Edit Holiday Schedule>.

- 1) Click  to enter the <Edit> interface.

Edit		
Holiday Name	Holiday1	
Enable	<input checked="" type="checkbox"/>	
Mode	By Month	
Start Date	Jan	1
End Date	Jan	1

Apply OK Cancel

Edit Holiday Settings

- 2) Check the checkbox after <Enable Holiday>.
 - 3) Select the <Mode> from the dropdown list.
 - 4) There are three different modes for the date format to configure a holiday schedule.
 - 5) Set the <Start Date> and the <End Date>.
 - 6) Click <Apply> to save the settings.
 - 7) Click <OK> to exit the <Edit> interface.
3. Enter the <Record/Capture Schedule Settings> interface to edit the <Holiday Recording Schedule>. See *Chapter 5.2 Configuring Recording and Capture Schedule*.

5.8 Configuring Redundant Recording and Capture


Enabling redundant recording and capture, which means saving the record files and captured pictures not only in the <R/W HDD> but also in the redundant HDD, will effectively enhance the data safety and reliability.

Steps:

1. Enter the <HDD Information> interface: Menu> HDD

Wizard					
<input type="checkbox"/> L...	Capacity	Status	Property	Type	Free Space
<input type="checkbox"/> 4	7452.04GB	Normal	R/W	Local	6333.00GB

HDD General

2. Select the HDD and click  to enter the <Local HDD Settings> interface.
- 1) Set the <HDD Property> to <Redundancy>.
- 2) Click <Apply> to save the settings.
- 3) Click <OK> to go back to the upper level menu.

Note:

You must set the <Storage Mode> in the <HDD Advanced Settings> to <Group> before you set the <HDD Property> to <Redundant>. For detailed information, please refer to *Chapter 14.4.2 Setting the HDD Property*. There should be at least another HDD which is in <Read/Write> status.

3. Enter the <Record Settings> interface: Menu> Record> Parameters
 - 1) Select the <Record> tab.
 - 2) Click <More Settings> to enter the following interface.

More Settings	
Pre-record	5s
Post-record	5s
Expired Time (day)	0
Record Audio	<input type="checkbox"/>
Video Stream	Main Stream

OK Back

Record Parameters

- 3) Select the <Camera> you want to configure in the drop-down list.
- 4) Check the checkbox of <Redundant Record/Capture>.
- 5) Click <OK> to save the settings and to go back to the upper level menu.

Repeat the above steps for configuring other channels.

5.9 Configuring the HDD Group for Recording and Capture

You can group the HDDs and save the record files and captured pictures in certain <HDD Group>.

Steps:

1. Enter the <HDD Settings> interface: Menu>HDD

Wizard					
L...	Capacity	Status	Property	Type	Free Space
4	7452.04GB	Normal	R/W	Local	6333.00GB

HDD General


2. Select <Advanced> on the left side menu.

Storage Mode	
Mode	Group
Record on HDD Group	1
<input checked="" type="checkbox"/> IP Camera <input checked="" type="checkbox"/> D1 <input checked="" type="checkbox"/> D2 <input checked="" type="checkbox"/> D3 <input checked="" type="checkbox"/> D4 <input checked="" type="checkbox"/> D5 <input checked="" type="checkbox"/> D6 <input checked="" type="checkbox"/> D7 <input checked="" type="checkbox"/> D8	

Storage Mode

Check whether the <Storage Mode> of the HDD is <Group>. If not, set it to <Group>. For detailed information, please refer to *Chapter 14.4 Managing a HDD Group*.

3. Select <General> in the left side menu

4. Click  to enter the <Edit> interface.
5. Configuring an <HDD Group>.
 - 1) Choose a group number for the <HDD Group>.
 - 2) Click <Apply> and then in the pop-up message box, click <Yes> to save your settings.
 - 3) Click <OK> to go back to the upper level menu.
 - 4) Repeat the above steps to configure more <HDD Groups>.
6. Choose the channels which you want to save the record files and captured pictures in the <HDD Group> to.
 - 1) Select <Advanced> on the left bar.
 - 2) Choose a <Group Number> in the dropdown list of <Record> under <HDD Group>
 - 3) Check the channels you want to save in this group.
 - 4) Click <Apply> to save the settings.

Note:

After having configured the HDD groups, you can configure the <Recording and Capture Settings> following the procedure provided in *Chapter 5.2-5.7*.

5.10 Files Protection

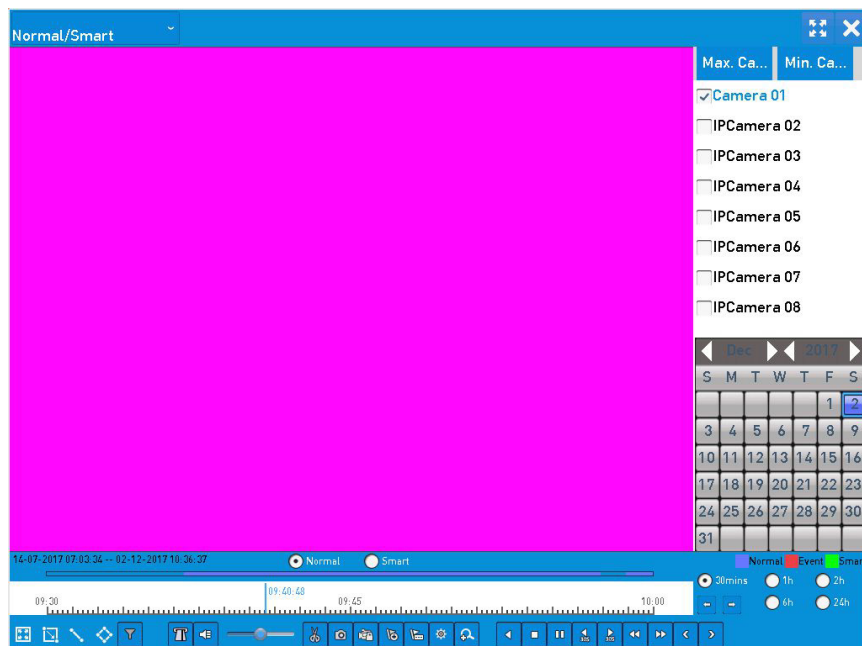
You can lock the recording files or set the <HDD Property> to <Read-only> to protect the record files from being overwritten.

5.10.1 Locking the Recording Files


- Lock File during <Playback>

Steps:


1. Enter the <Playback> interface: Menu> Playback
2. Check the checkbox of channel(s) in the <Channel> list and then double-click to select a date on the calendar.



Normal/Smart Playback

- During <Playback>, click the  button to lock the current recording file.



Note:

In the <Multi-channel Playback> mode, clicking the  button will lock all the record files related to the <Playback> channels.

- You can click the  button to pop up the <File Management> interface. Click the <Locked File> tab to check and export the locked files.



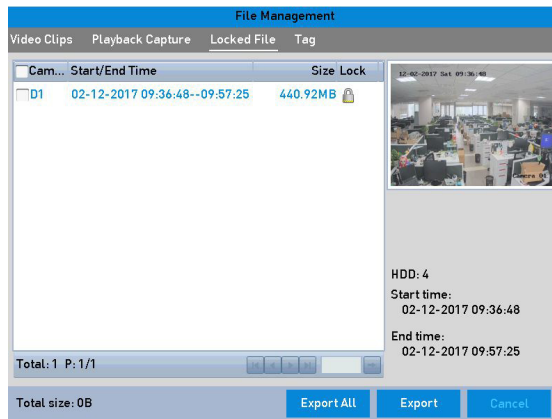
Locked File Management

In the <File Management> interface, you can also click  to change it to  to unlock the file and the file is not protected.

- Lock File when Export

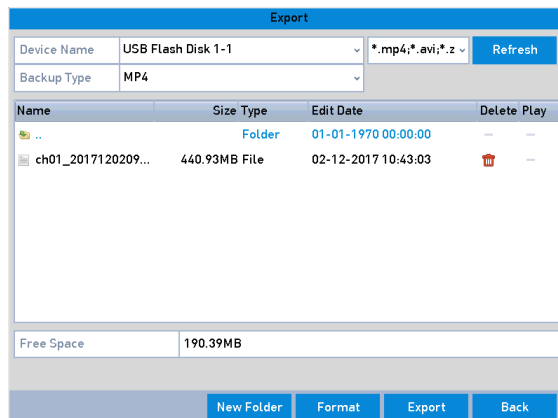
Steps:

- Enter the <Export Settings> interface: Menu> Export





Export

2. Select the channels you want to search by checking the checkbox ☒.
3. Configure the <Record Type>, <File Type> and <Start/End Time>.
4. Click <Search> to show the results.




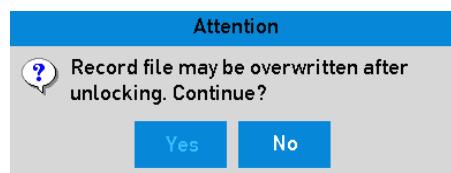
Export- Search Result

5. Protect the record files.
 - 1) Find the record files you want to protect and then click  to change it to , indicating that the file is locked.

Note:

The record files of which the recording is still not completed cannot be locked.

- 2) Click  to change it to  to unlock the file; then the file is not protected.

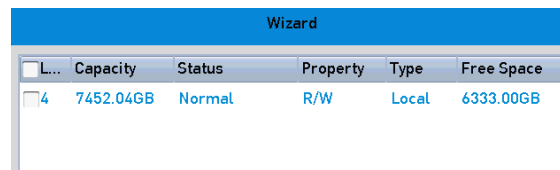


Unlocking Attention

5.10.2 Setting the HDD Property to Read-only

Steps:

1. Enter the <HDD Settings> interface: Menu> HDD



L...	Capacity	Status	Property	Type	Free Space
4	7452.04GB	Normal	R/W	Local	6333.00GB

HDD General

2. Click  to edit the HDD you want to protect.

Note:

To edit the <HDD Property>, you need to set the storage mode of the HDD to <Group>. See *Chapter 14.4 Managing a HDD Group*.

3. Set the <HDD Property> to <Read-only>.
4. Click <OK> to save the settings and to go back to the upper level menu.

Note:

- You cannot save any files in a read-only HDD. If you want to save files in the HDD, change the property to <R/W>.
- If there is only one HDD and it is set to <Read-only>, then the NVR cannot record any files. Only <Live View> mode is available.
- If you set the HDD to <Read-only> when the NVR is saving files in it, then the file will be saved in next R/W HDD. If there is only one HDD, then the recording will be stopped.

6. Playback


6.1 Playing Back Record Files

6.1.1 Instant Playback

Play back the recorded video files of a specific channel in the <Live View> mode. <Channel Switch> is supported.

Instant <Playback> by channel

Steps:

1. Choose a channel in the <Live View> mode and click  in the <Quick Setting Toolbar>.

Note:

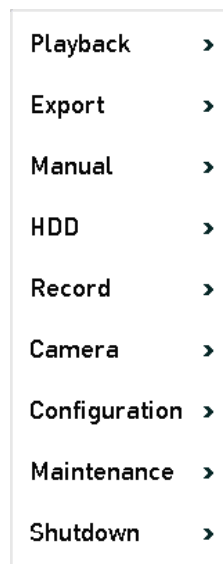
In the instant <Playback> mode, only record files recorded during the last five minutes on this channel will be played back.

6.1.2 Playing Back by Normal Search

Playback by Channel:

Enter the <Playback> interface.

Right-click a channel in the <Live View> mode and select <Playback> from the menu, as shown below.



Right-click Menu under Live View

Note:

Pressing numerical buttons will switch the <Playback> to the corresponding channels during the <Playback> process.

Playback by Time:

Play back video files recorded in specified time duration. Multi-channel simultaneous <Playback> and channel switch are supported.

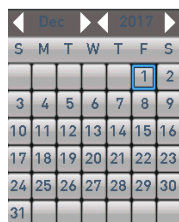
Steps:

1. Enter the <Playback> interface: Menu>Playback
2. Select <Normal/Smart> in the drop-down list on the top-left side.
3. Select the <Stream> to <Main Stream> or <Sub-stream>. (GD-RN-AP8616P, GD-RN-AP8632P, GD-RN-AT8864N and GD-RN-AT819128N)
4. Select a camera in the <Camera> list.

Note:

The <Main Stream> or <Sub-stream> for recording is configurable in Menu>Record>Parameters.

5. Select a date in the calendar and click  on the left toolbar to play the video file.



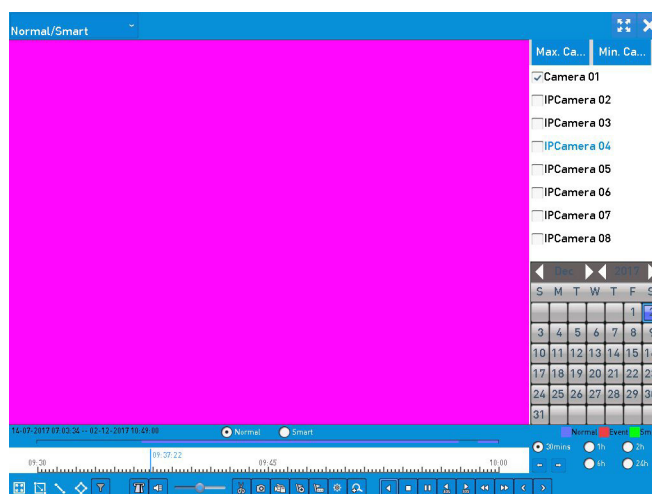
Playback Calendar

If there are record files for that camera in that day, in the calendar, the icon for that day is displayed in different colors for different recording types: blue for <Continuous Recording> and red for <Event Recording>.

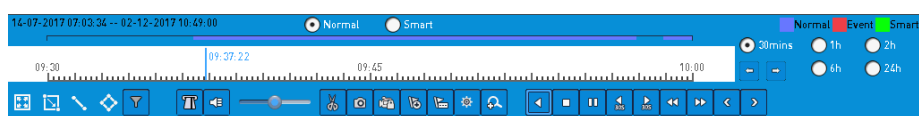
6. Click the  Normal radio button to start playing the continuous recorded files.

Playback interface:

You can use the toolbar in the bottom part of the <Playback> interface to control the playing progress, as shown in the picture below.



Playback interface



Toolbar of Playback

You can click the channel(s) to execute <Simultaneous Playback> of multiple channels.

Note:


- For the <Progress Bar>: use the mouse to click on any point of the progress bar or drag the progress.

The numbers **14-07-2017 07:03:34 -- 02-12-2017 10:49:00** indicate the <Start/End Time> of the recorded video files.

- Playback the bar to locate specific frames.

Detailed Explanation of Playback Toolbar:

Item	Button	Operation	Button	Operation
Smart Search		Draw quadrilateral for the motion detection		Search the matched video
		Set full screen for motion detection		Draw line for the <Line Crossing Detection>
		Draw quadrilateral for the <Intrusion Detection>		Filter video files by setting the <Target Characters>
Operations		Audio on/Mute		Start/Stop clipping
		Capture Picture		Lock File
		Add default tag		Add customized tag
		File management for video clips, captured pictures, locked files and tags		Digital Zoom
Playing Control		Pause/Play		Reverse play/ Pause
		Slow forward		Stop
		30 seconds forward		30 seconds rewind
		Next day		Fast forward
		Previous day		
Time Bar Scaling		Previous/Next period		Play the time bar in 30 minutes (default)
		Play the time bar in 1 hour		Play the time bar in 2 hours
		Play the time bar in 6 hours		Play the time bar in 24 hours
Fisheye Expansion (not supported for all NVR)		180° panorama		360° panorama
		PTZ expansion		Fisheye

Item	Button	Operation	Button	Operation
models)				
POS		Enable/Disable POS information overlay (Supported by GD-RN-AP8616P, GD-RN-AP8632P, GD-RN-AT8864N only)		

Note:

The <Fisheye Expansion View> feature is not supported by GD-RN-AT819128N.

Please refer to *Chapter 3.2.5 Fisheye Expansion* for the description and operation of the <Fisheye Expansion>.

Note:

The <Playing Speed> of <256X> is supported.

If the <Playing Speed> is higher than <2X>, then the <POS> information cannot be overlain on the video.

6.1.3 Playing back by Smart Search

The <Smart Playback> function provides an easy way to get through the less effective information. When you select the <Smart Playback> mode, the system will analyze the video containing the motion, line or intrusion detection information, mark it with green color and play it in the normal speed while the video without motion will be played in the 16-time speed. The <Smart Playback> rules and areas are configurable.

Steps:

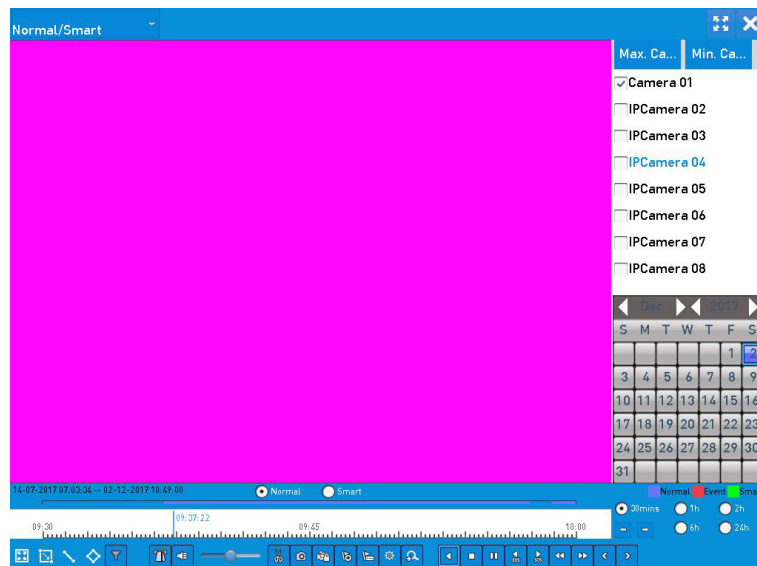
1. Enter the <Playback> interface: Menu>Playback
2. Select <Normal/Smart> in the drop-down list on the top-left side.

Set the <Stream> to <Main Stream> or <Sub-stream> (for GD-RN-AP8616P, GD-RN-AP8632P and GD-RN-AT8864N only).


Note:


The <Main Stream> or <Sub-stream> for recording is configurable in Menu>Record>Parameters.


3. Select a camera in the camera list.
4. Select a date in the calendar and click  on the left toolbar to play the video file.






Playback by Smart Search

5. Click the  **Smart** radio button to switch to the <Playback by Smart Search>.
6. Set the rules and areas for <Smart Search> of <Line Crossing Detection>, <Intrusion Detection> or <Motion Detection> Event triggered recording.
 - <Line Crossing Detection>

Select  and click on the image to specify the start point and end point of the line.
 - <Intrusion Detection>

Click  and specify 4 points to set a quadrilateral region for <Intrusion Detection>. Only one region can be set.
 - <Motion Detection>

Click  and then hold the mouse on the image to draw the detection area manually. You can also click  to set the full screen as the detection area.
7. (Optional) You can click  to filter the searched video files by setting the <Target Characters>, including the gender and age of the human and whether he/she wears glasses.

6.1.4 Playing Back by Event Search

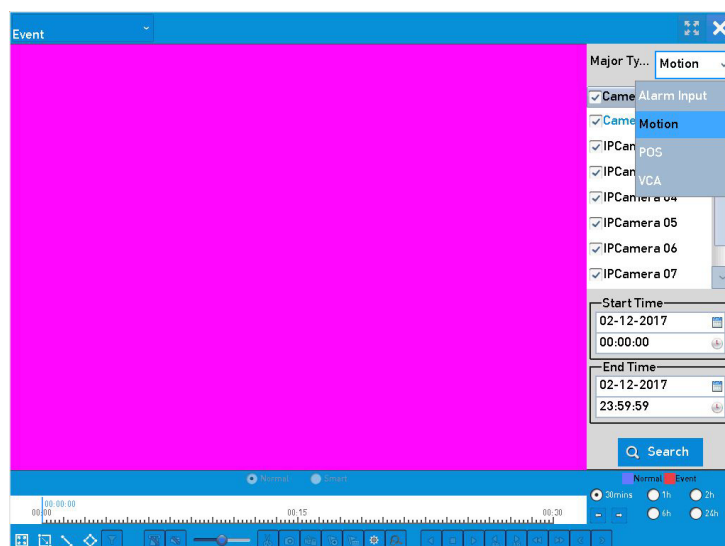
Play back record files on one or several channels searched by <Event Type> (e.g., <Alarm Input>, <Motion Detection> and <VCA>).

Steps:

1. Enter the <Playback> interface: Menu>Playback
2. Select the <Event> in the drop-down list on the top-left side.
3. Select the <Stream> to <Main Stream> or <Sub-stream> (for GD-RN-AP8616P, GD-RN-AP8632P, GD-RN-AT8864N and GD-RN-AT819128N only).
4. Select the <Major Type> to <Alarm Input>, <Motion>, <POS> (if available) or <VCA> as the <Event Type>.

Note:

We take <Playback by VCA> as the example in the following instructions.



Event Search Interface

5. Select the <Minor Type> of VCA from the drop-down list. (Please refer to Chapter 9 VCA Alarm for the details of <VCA Detection> types).


Note:

For configuring the <VCA> recording, please refer to *Chapter 5.4 Configuring the VCA Event Recording and Capture*; and for details of <VCA Detection> types, please refer to *Chapter 9 VCA Alarm*.

6. Select the camera(s) for searching, and set the <Start Time> and <End Time>.
7. Click the <Search> button to get the search result information. You may refer to the right-side bar for the result.

Note:

For the <POS Event Type> (supported by GD-RN-AP8616P, GD-RN-AP8632P and GD-RN-AT8864N only) you can enter the <Keyword> and enable the <Case Sensitivity> (upper case and lower case) to search the video files with the keyword-contained <POS> information.

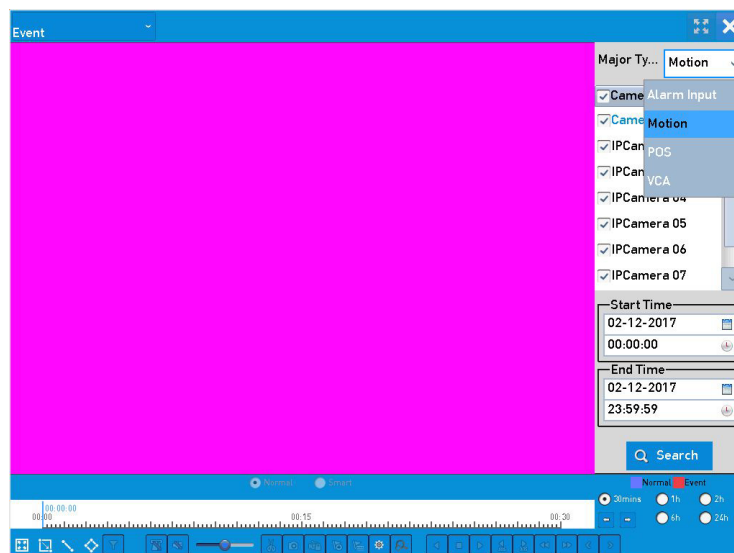
8. Select a result item and click  to play back the file.

Note:



Pre-play and post-play can be configured.

9. Enter the <Playback> interface.

The toolbar in the bottom part of the <Playback> interface can be used to control the playing process.



Interface of Playback by Event

You can click  or  to select the previous or the next event. Please refer to the Table under 6.1.2 for the description of buttons on the toolbar.

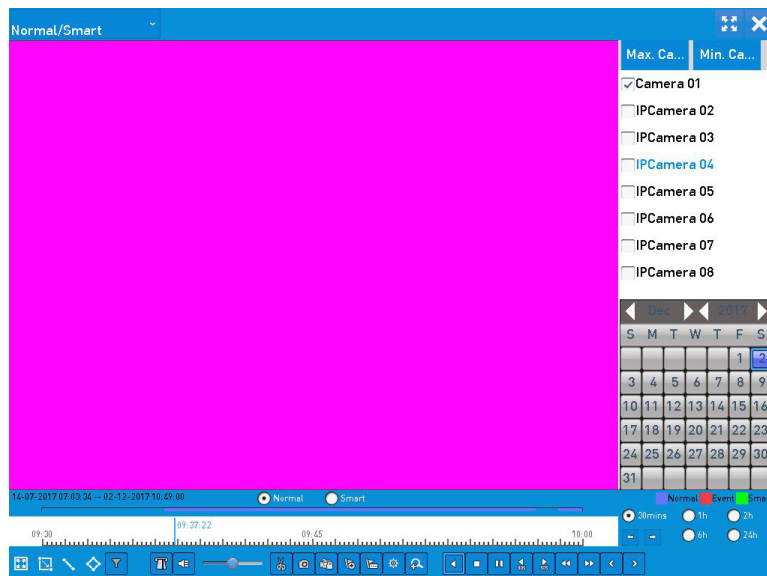
6.1.5 Playing Back by Tag

Video tag allows you to record related information like people and location of a certain time point during <Playback>. You can use video tag(s) to search for record files and a position time point.


Before playing back by tag:


Steps:

1. Enter the <Playback> interface: Menu>Playback
2. Search and play back the record file(s). Refer to *Chapter 6.1.1* for detailed information about searching and the <Playback> of record files.



Interface of Playback by Time


Click  to add a <Default Tag>.

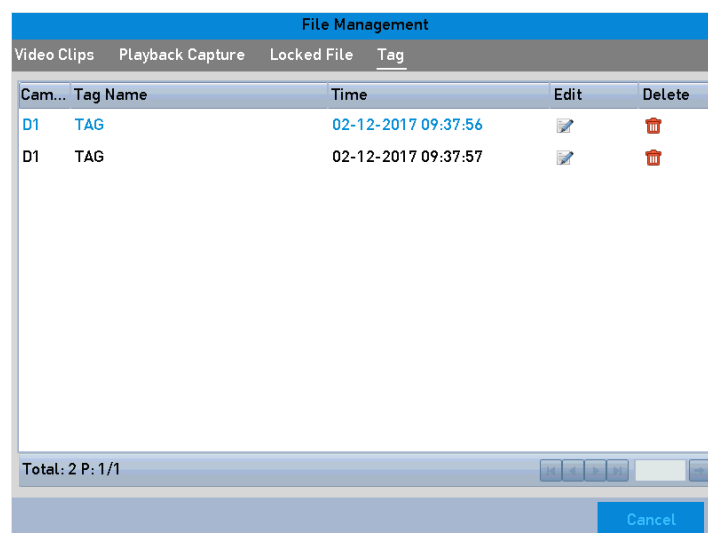
Click  to add a <Customized Tag> and an <Input Tag Name>.

Note:

Max. 64 tags can be added to a single video file.

3. Tag management.

Click  to enter the <File Management> interface and click <Tag> to manage the tags. You can check, edit, and delete tag(s).



Tag Management Interface


Playing back by Tag:

1. Select the <Tag> from the drop-down list in the <Playback> interface.

2. Select the <Stream> to <Main Stream> or <Sub-stream>.
3. Choose <Channels>, edit the <Start Time> and the <End Time> and then click <Search> to enter the <Search Result> interface.



Note:

You can enter a <Keyword> in the textbox to search the tag on your command.

4. Click  to play back the selected tag file.

Note:

<Pre-play> and <Post-play> can be configured.

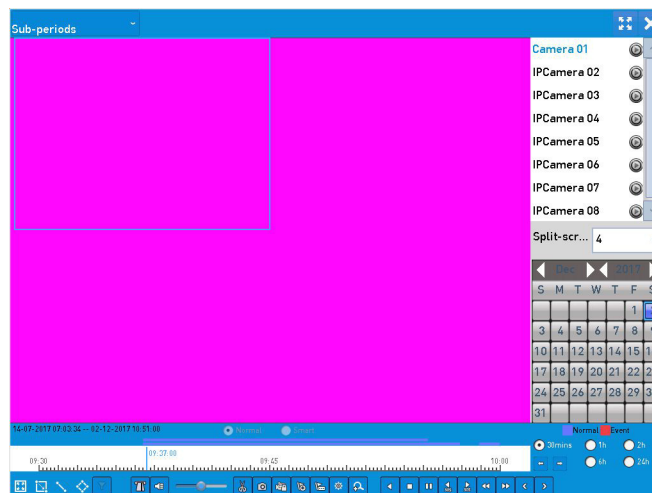
You can click  or  to select the previous or the next tag. Please refer to the Table under 6.1.2 for the description of buttons on the toolbar.

6.1.6 Playing Back by Sub-periods

The video files can be played in multiple sub-periods simultaneously on the screens.

Steps:

1. Enter the <Playback> interface: Menu> Playback
2. Select <Sub-periods> from the drop-down list in the upper-left corner of the page to enter the <Sub-periods Playback> interface.
3. Select the <Stream> to <Main Stream> or <Sub-stream>.
4. Select a <Date> and start playing the video file.
5. Select the <Split-screen Number> from the dropdown list. Up to 16 screens are configurable.



Interface of Sub-periods Playback

Note:

According to the defined number of split-screens, the video files on the selected date can be divided into average segments for <Playback>. E.g., if there are video files existing between 16:00 and 22:00, and the 6-screen display mode is selected, then it can play the video files for 1 hour on each screen simultaneously.

6.1.7 Playing Back by System Logs

Play back record file(s) associated with channels after searching system logs.


Steps:

1. Enter the <Log Information> interface.
2. Menu> Maintenance> Log Information
3. Click the <Log Search> tab to enter the <Playback by System Logs>.
4. Set the search time and click the <Search> button.

Start Time	02-12-2017	00:00:00
End Time	02-12-2017	23:59:59
Major Type	All	
Minor Type		
<input checked="" type="checkbox"/> Alarm Input		
<input checked="" type="checkbox"/> Alarm Output		
<input checked="" type="checkbox"/> Motion Detection Started		
<input checked="" type="checkbox"/> Motion Detection Stopped		
<input checked="" type="checkbox"/> Video Tampering Detection Started		
<input checked="" type="checkbox"/> Video Tampering Detection Stopped		
<input checked="" type="checkbox"/> POS Started		
<input checked="" type="checkbox"/> POS Stopped		
<input checked="" type="checkbox"/> Line Crossing Detection Alarm Started		
<input checked="" type="checkbox"/> Line Crossing Detection Alarm Stopped		

Export All Search Back

System Log Search Interface

5. Choose a log with a record file and click  to enter the <Playback> interface.

Note:

If there is no record file at the time point of the log, the message box <No result found> will pop up.

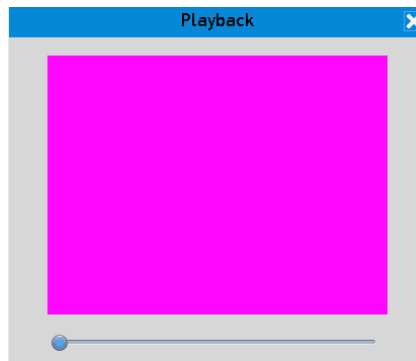
Start Time	02-12-2017	00:00:00
End Time	02-12-2017	23:59:59
Major Type	All	
Minor Type		
<input checked="" type="checkbox"/> Alarm Input		
<input checked="" type="checkbox"/> Alarm Output		
<input checked="" type="checkbox"/> Motion Detection Started		
<input checked="" type="checkbox"/> Motion Detection Stopped		
<input checked="" type="checkbox"/> Video Tampering Detection Started		
<input checked="" type="checkbox"/> Video Tampering Detection Stopped		
<input checked="" type="checkbox"/> POS Started		
<input checked="" type="checkbox"/> POS Stopped		
<input checked="" type="checkbox"/> Line Crossing Detection Alarm Started		
<input checked="" type="checkbox"/> Line Crossing Detection Alarm Stopped		

Export All Search Back

Result of System Log Search

6. <Playback> interface.

The toolbar in the bottom part of the <Playback> interface can be used to control the playing process.



Interface of Playback by Log

6.1.8 Playing Back External File




Perform the following steps to look up and play back files in the external devices.]

Steps:

1. Enter the <Tag Search> interface: Menu>Playback
2. Select the <External File> in the drop-down list on the top-left side.

The files are listed in the right-side list.

You can click the  Refresh button to refresh the file list.

3. Select and click  to play it back. And you can adjust the <Playback Speed> by clicking  and .

6.1.9 Playing Back Pictures


The captured pictures stored in the HDDs of the device can be searched and viewed.

Steps:

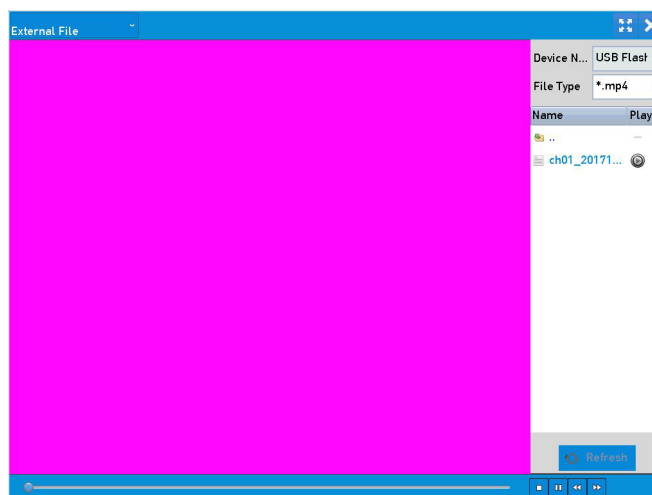
1. Enter the <Playback> interface: Menu>Playback
2. Select <Picture> from the drop-down list in the upper-left corner of the page to enter the <Picture Playback> interface.
3. Check ☒ the checkbox to select the channel(s) and specify the <Start Time> and <End Time> for the search.
4. Click <Search> to enter the <Search Result> interface.

Note:

Up to 4000 pictures can be displayed each time.

5. Choose a picture you want to view and click .

You can click <Back> to return to the <Search> interface.



Result of Picture Playback

6. The toolbar in the bottom part of the <Playback> interface can be used to control the playing process.



Picture Playback Toolbar

Detailed Explanation of Picture-playback Toolbar:

Button	Function	Button	Function	Button	Function	Button	Function
	Play reverse		Play		Previous picture		Next picture

6.2 Auxiliary Functions of Playback

6.2.1 Playing Back Frame by Frame

Play video files frame by frame, in case of checking image details of the video when abnormal events happen.



- Using a Mouse:

Go to the <Playback> interface.

If you choose <Playback> of the record file: click until the speed changes to <Single Frame> and one click on the <Playback Screen> represents the <Playback> of one frame.

If you choose <Reverse Playback> of the record file: click until the speed changes to <Single Frame> and one click on the <Playback Screen> represents <Reverse Playback> of one frame. It is also feasible to use this button in the toolbar.

- Using the Front Panel:

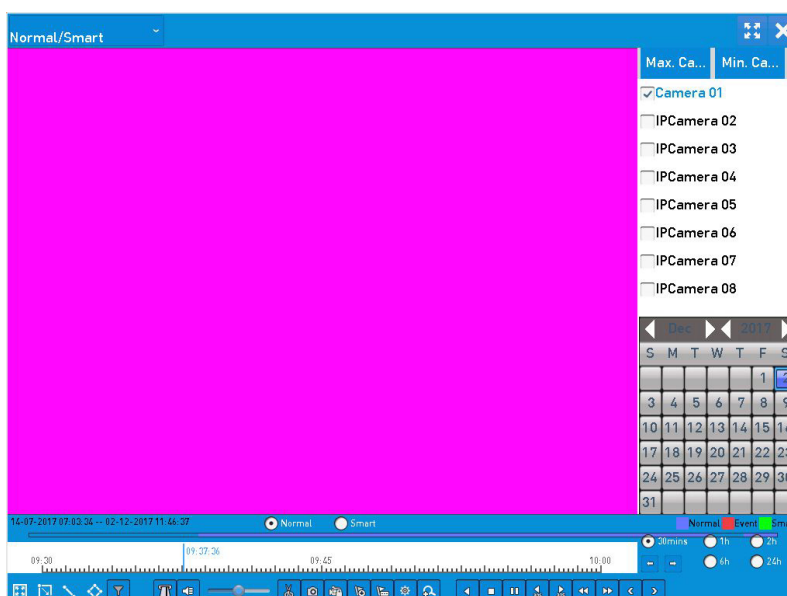
Click this button  to set the speed to <Single Frame>. One click on this button , one click on the <Playback Screen> or <Enter> button on the front panel represents <Playback> or <Reverse Playback> of one frame.

6.2.2 Thumbnails View

With the thumbnails view on the <Playback> interface, you can conveniently locate the required video files on the <Time Bar>.

Steps:

1. Enter the <Playback> interface and start to play the video files.
2. Move the mouse to the time bar to get the preview thumbnails of the video files. Select and double click on a required thumbnail to enter the full-screen playback.



Thumbnails View

Note:

The thumbnail view is supported only in the <1X Single-camera Playback> mode.

6.2.3 Fast View

You can hold the mouse to drag on the time bar to get the fast view of the video files.

Steps:




1. Enter the <Playback> interface and start to play the video files.
2. Use the mouse: hold and drag it through the playing time bar to fast-view the video files.
3. Release the mouse to the required time point to enter the <Full-screen Playback>.

Note:

The fast view is only supported in the <1X Single-camera Playback> mode.

6.2.4 Digital Zoom

Steps:

1. Click  on the <Playback Control Bar> to enter the <Digital Zoom> interface.
2. You can zoom in the image to different proportions (1 to16X) by moving the sliding bar from  to . You can also scroll the mouse wheel to control the zoom in/out.




Draw Area for Digital Zoom

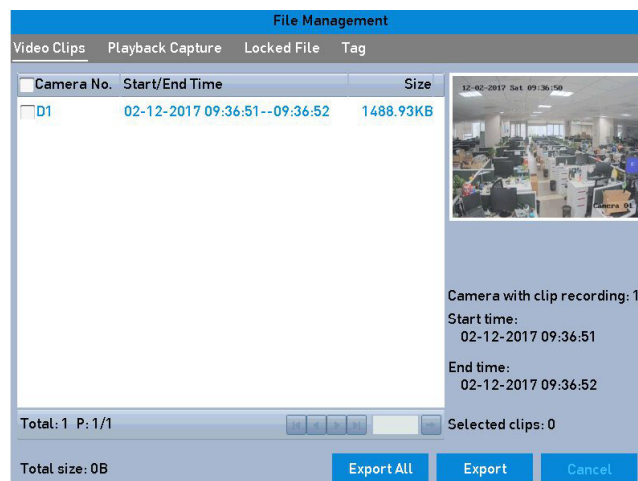
3. Right-click the image to exit the <Digital Zoom> interface.

6.2.5 File Management

You can manage the video clips, captured pictures in <Playback>, locked files and tags you have added in the <Playback> mode.

Steps:

1. Enter the <Playback> interface.
2. Click  on the toolbar to enter the <File Management> interface.



File Management

3. You can view the saved video clips and captured playback pictures, you can lock/unlock the files and edit the tags which you added in the <Playback> mode.
4. If required, select the items and click <Export All> or <Export> to export the clips/pictures/files/tags to a local storage device.

7. Backup

7.1 Backing up Record Files

7.1.1 Quick Export

Export record files to backup device(s) quickly.

Steps:

1. Enter the <Video Export> interface: Menu> Export> Normal

Choose the channel(s) you want to back up and click the <Quick Export> button.

Note:

The time duration of record files on a specified channel cannot exceed one day. Otherwise, the message box “Max. 24 hours are allowed for quick export.” will pop up.

Normal	
<input checked="" type="checkbox"/> IP Camera <input checked="" type="checkbox"/> D1 <input checked="" type="checkbox"/> D2 <input checked="" type="checkbox"/> D3 <input checked="" type="checkbox"/> D4 <input checked="" type="checkbox"/> D5 <input checked="" type="checkbox"/> D6 <input checked="" type="checkbox"/> D7 <input checked="" type="checkbox"/> D8	
Start/End time of record	14-07-2017 07:03:34 -- 02-12-2017 11:48:37
Record Type	All ▾
File Type	All ▾
Start Time	02-12-2017 [calendar] 00:00:00 [clock]
End Time	02-12-2017 [calendar] 23:59:59 [clock]
<div>Search Back</div>	

Quick Export Interface

2. Select the format of the log files to be exported. Up to 15 formats are selectable.
3. Click the <Export> button to start exporting.

Note:

Here we use a USB Flash Drive and please refer to the next section **Normal Backup** for more backup devices supported by the NVR.

Export				
Device Name	USB Flash Disk 1-1	*.mp4;*.avi;*.z	Refresh	
Backup Type	MP4			
Name	Size	Type	Edit Date	Delete Play
..		Folder	01-01-1970 00:00:00	— —
ch01_2017120209...	440.93MB	File	02-12-2017 10:43:02	—
Free Space 190.39MB				
<div> New Folder Format Export Back </div>				

Quick Export using USB1-1

Stay in the <Export> interface until all record files are exported.

Export	
Export finished.	
OK	

Export Finished

- Check the backup result.

Choose the record file in the <Export> interface and click to check it.

Note:

The Player <player.exe> will be exported automatically during record file export.

Export				
Device Name	USB Flash Disk 1-1	*.mp4;*.avi;*.z	Refresh	
Backup Type	MP4			
Name	Size	Type	Edit Date	Delete Play
..		Folder	01-01-1970 00:00:00	— —
ch01_2017120209...	440.93MB	File	02-12-2017 10:43:02	—
Free Space 190.39MB				
<div> New Folder Format Export Back </div>				

Checkup of Quick Export Result Using USB1-1

7.1.2 Backing up by Normal Video/Picture Search

The record files can be backed up to various devices, such as USB devices (USB flash drives, USB HDDs and USB writers), SATA writers and e-SATA HDDs.

Note:

The <eSATA HDD> is supported by GD-RN-AT8864N and GD-RN-AT819128N only.

Backup using USB flash drives and USB HDDs:


Steps:

1. Enter the <Export> interface: Menu>Export>Normal/Picture
2. Select the cameras to search.
3. Set the <Search Condition> and click the <Search> button to enter the <Search Result> interface. The matched video files or pictures are displayed in <Chart> or <List> display mode.

Start/End time of record		14-07-2017 07:03:34 -- 02-12-2017 11:48:37	
Record Type	All		
File Type	All		
Start Time	02-12-2017	00:00:00	
End Time	02-12-2017	23:59:59	

Normal Video Search for Backup

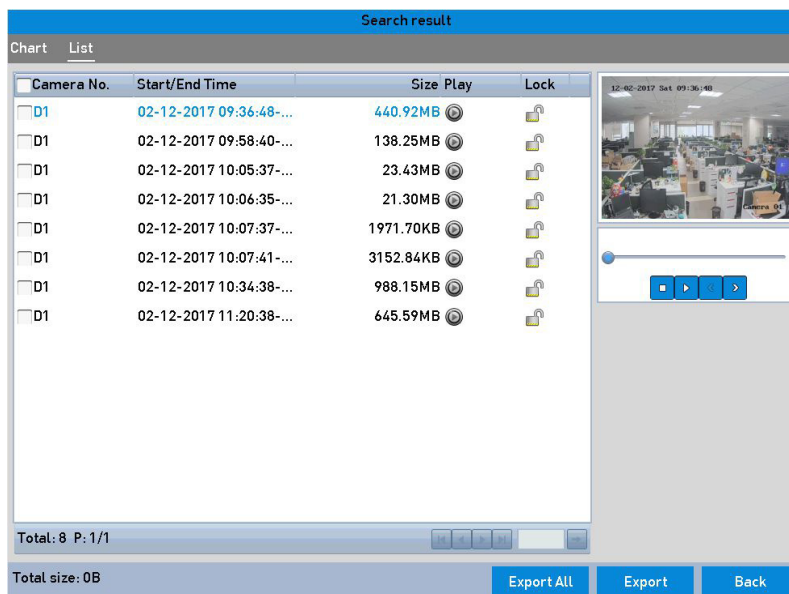
4. Select video files or pictures from the <Chart> or <List> to export.

Click  to play the record file if you want to check it.

Check the checkbox before the record files you want to back up.

Note:

The size of the currently selected files is displayed in the lower-left corner of the window.



Result of Normal Video Search for Backup

5. Export the video files or picture files.

Click the <Export All> button to export all of the files.

Or you can select recording files you want to back up and click the <Export> button to enter the <Export> interface.

Note:

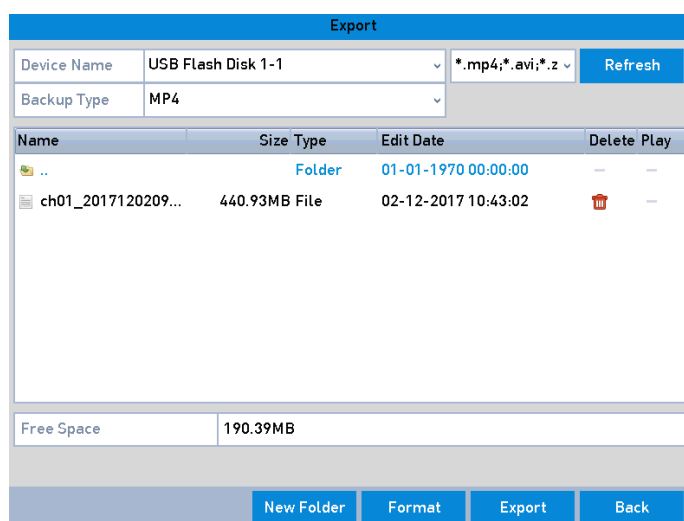
If the inserted USB device is not recognized:

Click the <Refresh> button.

Reconnect the device.

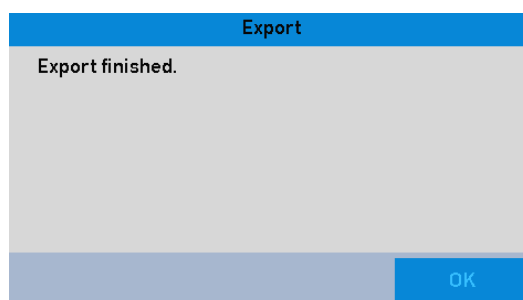
Check for compatibility from the vendor.

You can also format USB flash drives or USB HDDs via the device.



Export by Normal Video Search using USB Flash Drive

Stay in the <Export> interface until all record files are exported with a pop-up message box saying “Export finished”.



Export Finished

Note:

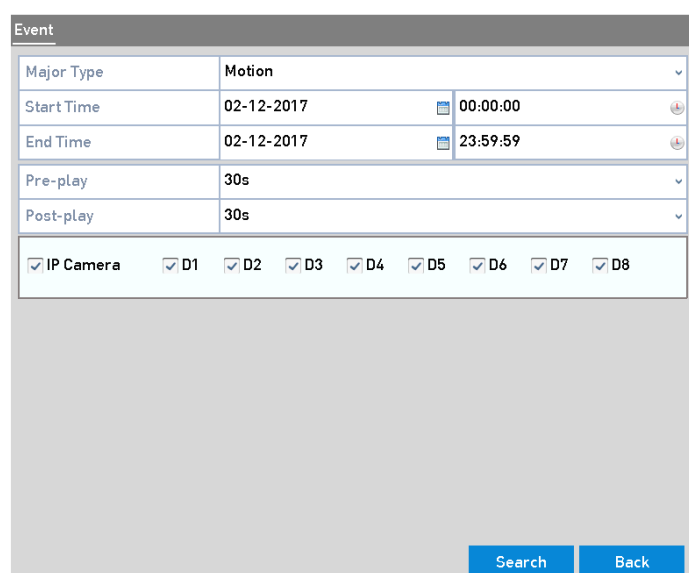
The backup of video files using a USB writer or a SATA writer has the same operating instructions. Please refer to steps described above.

7.1.3 Backing up by Event Search

Back up event-related record files using USB devices (USB flash drives, USB HDDs, USB writers), SATA writers or eSATA HDDs. <Quick Backup> and <Normal Backup> are supported.

Steps:

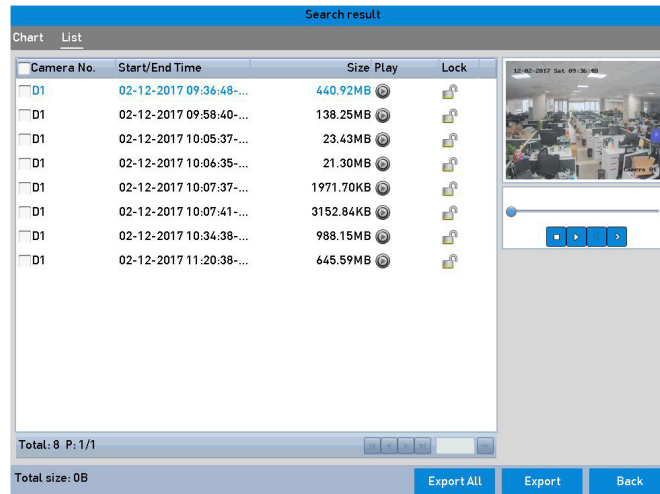
1. Enter the <Export> interface: Menu>Export>Event
2. Select the cameras to search.
3. Select the event type to <Alarm Input>, <Motion>, <VCA> or <POS> (if available, depending on model).



Event Search for Backup

4. Set the search conditions and click the <Search> button to enter the <Search Result> interface. For the <POS Event Type>, you can also set the <Keyword> and enable the <Case Sensitivity> (upper case and lower case) to search the video files with the keyword-contained <POS> information.

- The matched video files are displayed in <Chart> or <List> display mode. Select video files from the <Chart> or <List> interface to export.



Result of Event Search

- Export the video files. Please refer to step 5 of *Chapter 7.1.2 Backing up by Normal Video Search* for details.





7.1.4 Backing up Video Clips or Captured Playback Pictures

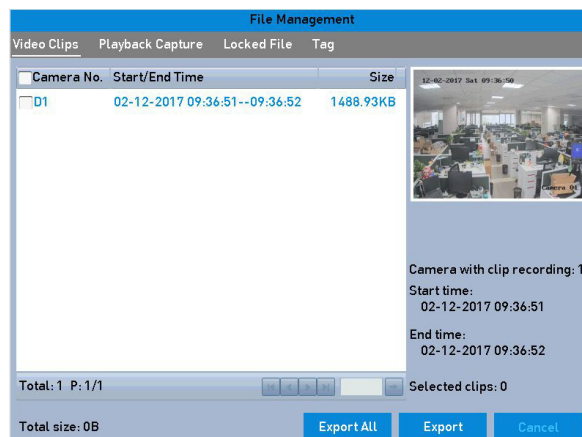
You may also select video clips or captured pictures in the <Playback> mode to export directly during <Playback>, using USB devices (USB flash drives, USB HDDs, USB writers), SATA writers or eSATA HDDs.

Steps:

- Enter the <Playback> interface.

Please refer to *Chapter 6.1 Playing Back Record Files*.

- During <Playback>, use  or  in the <Playback Toolbar> to start or stop clipping record file (s); or use  to capture pictures.
- Click  to enter the <File Management> interface.



Video Clips or Captured Pictures <Export> Interface

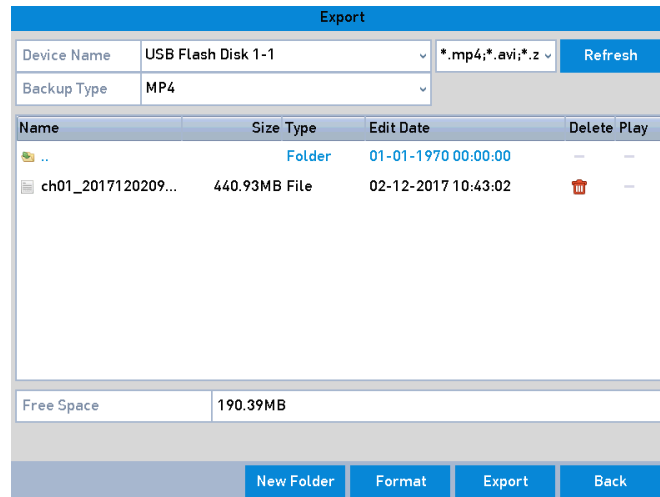
4. Export the video clips or captured pictures in <Playback>. Please refer to step 5 of *Chapter 7.1.2 Backing up by Normal Video Search* for details.

7.2 Managing Backup Devices

Management of USB flash drives, USB HDDs and eSATA HDDs.

Steps:

1. Enter the <Export> interface.



Storage Device Management

2. Backup device management.

Click the <New Folder> button if you want to create a new folder in the backup device.

Select a record file or folder in the backup device and click if you want to delete it.

Click the <Erase> button if you want to erase the files from a re-writable CD/DVD.

Click the <Format> button to format the backup device.

Note:

If the inserted storage device is not recognized:

Click the <Refresh> button.

Reconnect the device.

Check for compatibility from the vendor.

7.3 Hot Spare Device Backup

The device can form an <N+1 Hot Spare> system. The system consists of several working devices and a <Hot Spare>device; when the working device fails, the <Hot Spare>device switches into operation, thus increasing the reliability of the system.

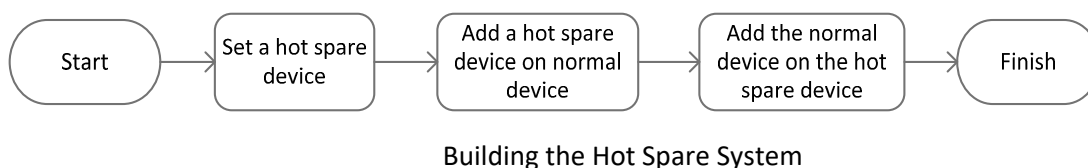
Note:

Please contact the dealer for details of models which support the <Hot Spare> function.

Before you start:

At least 2 devices need to be online.

A bidirectional connection shown in the Picture below is required to be built between the <Hot Spare> device and each working device.



7.3.1 Setting the Hot Spare Device

Note:

The camera connection will be disabled when the device works in the <Hot Spare>mode.

It's highly recommended to restore the defaults of the device after switching the working mode of the <Hot Spare>device to normal mode to ensure the normal operation afterwards.

Steps:

1. Enter the <Hot Spare Settings> interface: Menu > Configuration > Hot Spare
2. Set the <Work Mode> as <Hot Spare Mode> and click the <Apply> button to confirm the settings.
3. Reboot the device to make the change take effect.
4. Click the <Yes> button in the pop-up attention box.

7.3.2 Setting the Working Device

Steps:

1. Enter the <Hot Spare Settings> interface.
2. Menu > Configuration > Hot Spare
3. Set the <Work Mode> as <Normal Mode> (default).
4. Check the checkbox of <Enable> to enable the <Hot Spare> function.
5. Enter the <IP Address> and <Admin Password> of the <Hot Spare> device.
6. Click the <Apply> button to save the settings.

7.3.3 Managing the Hot Spare System

Steps:

1. Enter the <Hot Spare Settings> interface of the <Hot Spare>device: Menu > Configuration > Hot Spare

The connected working device is displayed on the device list.

2. Check the checkbox to select the working device from the device list, and Click the <Add> button to link the working device to the <Hot Spare>device.

Note:

A <Hot Spare>device can connect up to 32 working devices.

3. You can view the working status of the <Hot Spare>device on the <Working Status> list.

When the working device works properly, the working status of the <Hot Spare>device is displayed as <No record>.

When the working device gets offline, the <Hot Spare>device will record the video of the IP Camera connected to the working device for backup, and the working status of the <Hot Spare>device is displayed as <Backing up>.

Note:

The <Record Backup> function can function for 1 working device at a time.

Backing up:

When the working device comes online, the lost video files will be restored by the <Record Synchronization> function, and the working status of the <Hot Spare>device is displayed as <Synchronizing>.

Note:

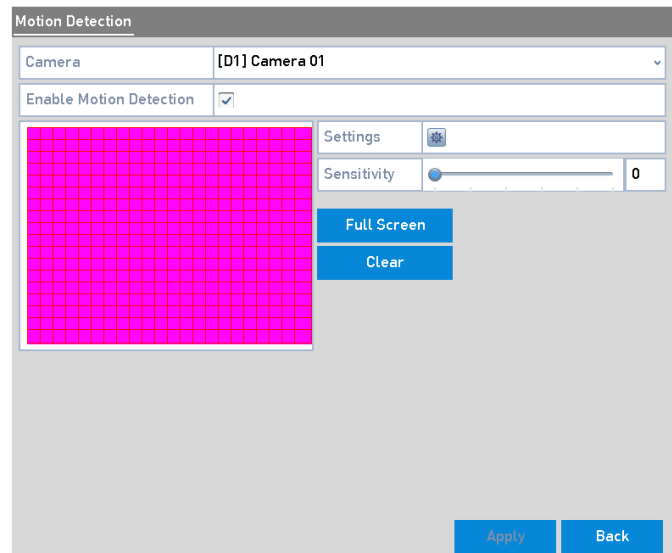
The <Record Synchronization> function can be enabled for 1 working device at a time.

8. Alarm Settings

8.1 Setting a Motion Detection Alarm

Steps:

1. Enter the <Motion Detection> interface of the <Camera Management> and choose a camera you want to set up for <Motion Detection>: Menu> Camera> Motion



Motion Detection Setup Interface

2. Set up the <Detection Area> and the <Sensitivity>.

Check <Enable Motion Detection>, use the mouse to draw detection area(s) and drag the <Sensitivity> bar to set the <Sensitivity>.

Click  and set <Alarm Response Actions>.

3. Click the <Trigger Channel> tab and select one or more channels which will start to record/capture or become <Full-screen Monitoring> when a <Motion Alarm> is triggered. Then click <Apply> to save the settings.

Settings	
Trigger Channel	Arming Schedule
<input type="checkbox"/> IP Camera	<input checked="" type="checkbox"/> D1 <input type="checkbox"/> D2 <input type="checkbox"/> D3 <input type="checkbox"/> D4 <input type="checkbox"/> D5 <input type="checkbox"/> D6 <input type="checkbox"/> D7 <input type="checkbox"/> D8

Apply OK Cancel

Set Trigger Camera of Motion Detection

4. Set up the <Arming Schedule> of the channel.
 - 1) Select the <Arming Schedule> tab to set the <Arming Schedule> of <Handling Actions> for the <Motion Detection>.
 - 2) Choose one day of a week and up to eight time periods can be set within each day.
 - 3) Click <Apply> to save the settings

Note:

Time periods shall not be repeated or overlapped.

Settings	
Trigger Channel	Arming Schedule
Week	Mon
1	00:00-24:00
2	00:00-00:00
3	00:00-00:00
4	00:00-00:00
5	00:00-00:00
6	00:00-00:00
7	00:00-00:00
8	00:00-00:00

Copy Apply OK Cancel

Set Arming Schedule of Motion Detection

5. Click the <Handling> tab to set up <Alarm Response Actions> of the <Motion Alarm> (please refer to *Chapter 8.6 Setting Alarm Response Actions*).
6. If you want to set <Motion Detection> for another channel, repeat the above steps or just click <Copy> in the <Motion Detection> interface to copy the above settings to it.

8.2 Setting Sensor Alarms

Set the <Handling Action> of an <External Sensor Alarm>.

Steps:

1. Enter <Alarm Settings> of the <System Configuration> and select an <Alarm Input>: Menu> Configuration> Alarm


Select the <Alarm Input> tab to enter the <Alarm Input Settings> interface.

Alarm Status Alarm Input Alarm Output		
Alarm Input List		
Alarm Input No.	Alarm Name	Alarm Type
Local<-1		N.O
Local<-2		N.O
Local<-3		N.O
Local<-4		N.O
Local<-5		N.O
Alarm Output List		
Alarm Output No.	Alarm Name	Dwell Time
Local->1		5s
Local->2		5s
Local->3		5s
Local->4		5s
10.6.0.23.8000->1		5s
		Back

Alarm Status Interface of System Configuration

2. Set up the <Handling Action> of the selected <Alarm Input>.

Check the <Enable> checkbox and click the <Settings> button to set up its <Alarm Response Actions>.

Alarm Status Alarm Input Alarm Output	
Alarm Input No.	Local<-1
Alarm Name	
Type	N.O
Enable	<input type="checkbox"/>
Enable One-Key Disarmi...	<input type="checkbox"/>
Settings	

Alarm Input Setup Interface

3. (Optional) Enable <One-key Disarming> for <Alarm Input 1> (Local<-1).
 - 1) Check the checkbox of <Enable One-Key Disarming>.
 - 2) Click the <Settings> button to enter the <Linkage Action Settings> interface.
 - 3) Select the <Alarm Linkage Action(s)> you want to disarm for <Alarm Input 1>. The selected <Linkage Actions> include the <Full Screen Monitoring>, <Audible Warning>, <Notify Surveillance Center>, <Send Email> and <Trigger Alarm Output>.

Note:

When the <Alarm Input 1> (Local<-1) is enabled with <One-key Disarming>, the other <Alarm Input Settings> are not configurable.

4. Select the <Trigger Channel> tab and select one or more channels which will start to <Record>/<Capture> or become <Full-screen Monitoring> when an <External Alarm> is coming in, and click <Apply> to save the settings.
5. Select the <Arming Schedule> tab to set the <Arming Schedule> of <Handling Actions>.

Week	Mon
1	00:00-24:00
2	00:00-00:00
3	00:00-00:00
4	00:00-00:00
5	00:00-00:00
6	00:00-00:00
7	00:00-00:00
8	00:00-00:00

Copy Apply OK Cancel

Set Arming Schedule of Alarm Input

Choose one day of a week (a maximum of eight time periods can be set within each day) and click <Apply> to save the settings.

Note:

Time periods shall not be repeated or overlapped.

Repeat the above steps to set up an <Arming Schedule> of other days of a week. You can also use the <Copy> button to copy an <Arming Schedule> to other days.

6. Select the <Linkage Action> tab to set up <Alarm Response Actions> of the <Alarm Input> (please refer to *Chapter 8.6 Setting Alarm Response Actions*).
7. If necessary, select the <PTZ Linking> tab and set <PTZ Linkage> of the <Alarm Input>.
8. Set <PTZ Linking> parameters and Click <OK> to complete the settings of the <Alarm Input>.

Note:

Make sure that the <PTZ> or the Speed Dome connected supports <PTZ Linkage>.

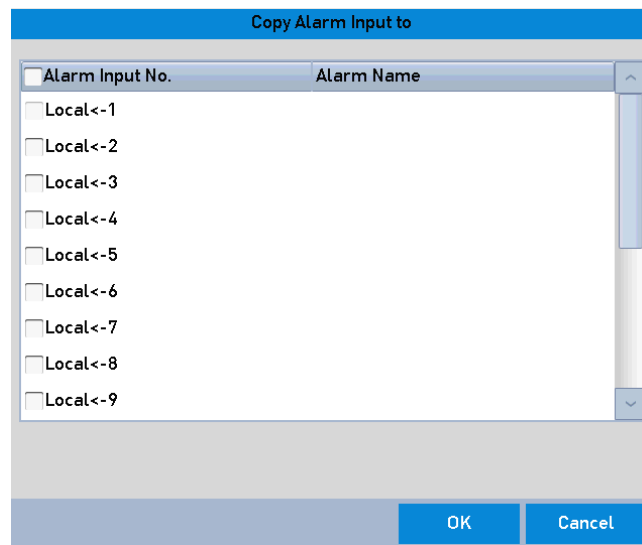
PTZ Linking	[D1] Camera 01
Call Preset	<input type="radio"/>
Preset	1
Call Patrol	<input type="radio"/>
Patrol	1
Call Pattern	<input type="radio"/>
Pattern	1

Apply OK Cancel

Set PTZ Linking of Alarm Input

9. If you want to set a <Handling Action> of another <Alarm Input>, repeat the above steps.

Or you can click the <Copy> button on the <Alarm Input Setup> interface and check the checkbox of <Alarm Inputs> to copy the settings to them.



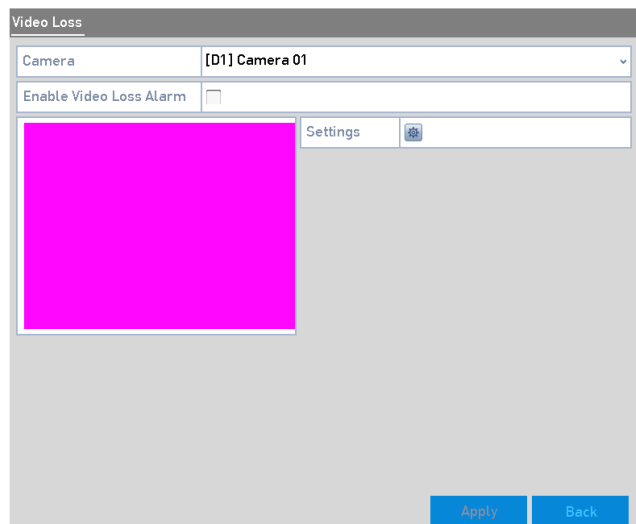
Copy Settings of Alarm Input

8.3 Detecting a Video Loss Alarm

Detect video loss of a channel and take alarm response action(s).


Steps:

1. Enter the <Video Loss> interface of <Camera Management> and select a channel you want to detect: Menu> Camera> Video Loss











Video Loss Setup Interface

2. Set up the <Handling Action> for <Video Loss>.

3. Check the checkbox of <Enable Video Loss Alarm>, and click  to set up a <Handling Action> for <Video Loss>.
4. Set up the <Arming Schedule> of the <Handling Actions>.
 - 1) Select the <Arming Schedule> tab to set the channel's <Arming Schedule>.
 - 2) Choose one day of a week and up to eight time periods can be set within each day.
 - 3) Click the <Apply> button to save the settings.

Note:

Time periods shall not be repeated or overlapped.

Settings	
Arming Schedule	Linkage Action
Week	Mon ▼
1	00:00-24:00 
2	00:00-00:00 
3	00:00-00:00 
4	00:00-00:00 
5	00:00-00:00 
6	00:00-00:00 
7	00:00-00:00 
8	00:00-00:00 
<div> Copy Apply OK Cancel </div>	

Set Arming Schedule of Video Loss

5. Select the <Linkage Action> tab to set up an <Alarm Response Action> of <Video Loss> (please refer to *Chapter 8.6 Setting Alarm Response Actions*).
6. Click the <OK> button to complete the <Video Loss Settings> of the channel.


8.4 Detecting a Video Tampering Alarm

Trigger an <Alarm> when the lens is covered and take <Alarm Response Action(s)>.

Steps:

1. Enter the <Video Tampering> interface of <Camera Management> and select a channel where you want to detect <Video Tampering>: Menu> Camera> Video Tampering

Video Tampering Setting Interface

2. Set the <Video Tampering Handling Action> of the channel.
 - 1) Check the checkbox of <Enable Video Tampering Detection>.
 - 2) Drag the <Sensitivity> bar to set a proper sensitivity level. Use the mouse to draw an area you want to detect <Video Tampering>.
 - 3) Click  to set up a <Handling Action> for <Video Tampering>.
3. Set the <Arming Schedule> and <Alarm Response Actions> of the channel.
 - 1) Click the <Arming Schedule> tab to set the <Arming Schedule> of <Handling Actions>.
 - 2) Choose one day of a week and a maximum of eight time periods can be set within each day.
 - 3) Click the <Apply> button to save the settings.

Note:

Time periods shall not be repeated or overlapped.

Settings	
Arming Schedule	Linkage Action
Week	Mon
1	00:00-24:00
2	00:00-00:00
3	00:00-00:00
4	00:00-00:00
5	00:00-00:00
6	00:00-00:00
7	00:00-00:00
8	00:00-00:00

Copy Apply OK Cancel

Set Arming Schedule of Video Tampering

4. Select the <Linkage Action> tab to set up <Alarm Response Actions> for the <Video Tampering Alarm> (please refer to *Chapter 8.6 Setting Alarm Response Actions*).
5. Click the <OK> button to complete the <Video Tampering Settings> of the channel.

8.5 Handling an Exceptions Alarm

Exception settings refer to the <Handling Action> of various exceptions, e.g.


- **<HDD Full>**: The HDD is full.
- **<HDD Error>**: Writing HDD error or unformatted HDD.
- **<Network Disconnected>**: Disconnected network cable.
- **<IP Conflicted>**: Duplicated <IP Address>.
- **<Illegal Login>**: Incorrect <User ID> or <Password>.
- **<Record/Capture Exception>**: No space for saving recorded files or captured images.
- **<Hot Spare Exception>**: Disconnected with the working device.

Steps:

Enter the <Exception> interface of System Configuration and handle various exceptions.

Menu> Configuration> Exceptions

Please refer to *Chapter 8.6 Setting Alarm Response Actions* for detailed <Alarm Response Actions>.

Exception	
Enable Event Hint	<input checked="" type="checkbox"/>
Event Hint Settings	
Exception Type	HDD Full ▾
Audible Warning	<input type="checkbox"/>
Notify Surveillance Center	<input type="checkbox"/>
Send Email	<input type="checkbox"/>
Trigger Alarm Output	<input type="checkbox"/>

Exceptions Setup Interface

8.6 Setting Alarm Response Actions

<Alarm Response Actions> will be activated when an <Alarm> or an <Exception> occurs, including <Event Hint Display>, <Full Screen Monitoring>, <Audible Warning> (buzzer), <Notify Surveillance Center>, <Trigger Alarm Output> and <Send Email>.

<Event Hint Display>:

When an <Event> or an <Exception> happens, a <Hint> can be displayed on the lower-left corner of the <Live View Image>. And you can click the <Hint> icon to check the details. Besides, the event to be displayed is configurable.

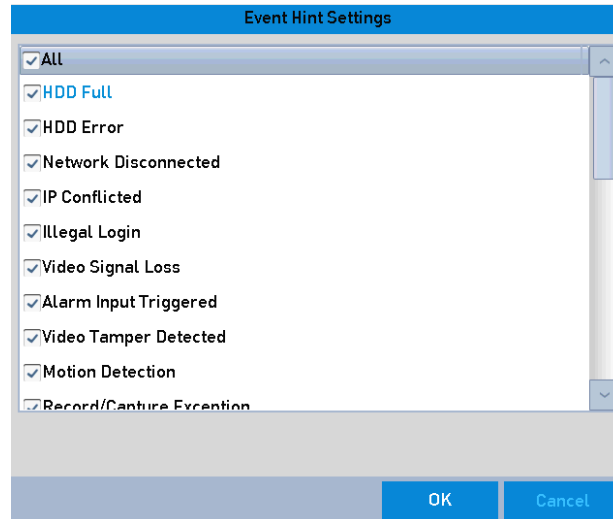
Steps:

1. Enter the <Exception Settings> interface: Menu > Configuration > Exceptions
2. Check the checkbox of <Enable Event Hint>.

Enable Event Hint	<input checked="" type="checkbox"/>
Event Hint Settings	

Event Hint Settings Interface:

- Click  to set the Type of Event to be displayed on the image.



The dialog box titled "Event Hint Settings" contains a list of event types with checkboxes. The list includes: All, HDD Full, HDD Error, Network Disconnected, IP Conflicted, Illegal Login, Video Signal Loss, Alarm Input Triggered, Video Tamper Detected, Motion Detection, and Record/Capture Exception. All checkboxes are checked. At the bottom right are "OK" and "Cancel" buttons.

Event Hint Settings Interface

- Click the <OK> button to finish the settings.

<Full Screen Monitoring>:

When an <Alarm> is triggered, the local monitor (VGA, HDMI or BNC monitor) displays in full screen the video image from the alarming channel configured for <Full Screen Monitoring>.

If alarms are triggered simultaneously in several channels, their full-screen images will be switched at an interval of 10 seconds (default <Dwell Time>). A different <Dwell Time> can be set by going to Menu > Configuration > Live View > Full Screen Monitoring <Dwell Time>.

<Auto-switch> will terminate once the alarm stops and you will be taken back to the <Live View> interface.

Note:

During <Trigger Channel Settings> you must select the channel(s) where you want to make full screen monitoring.

<Audible Warning>:

Trigger an audible *beep* when an alarm is detected.

<Notify Surveillance Center>:

This sends an <Exception> or an <Alarm> signal to the remote <Alarm Host> when an event occurs. The <Alarm Host> refers to the PC installed with a <Remote Client>.

Note:

The <Alarm> signal will be transmitted automatically in the <Detection> mode when a remote <Alarm Host> is configured. Please refer to *Chapter 11.2.6 Configuring More Settings* for details of <Alarm Host> configuration.

<Email Linkage>:

Send an email with <Alarm> information to a user or users when an <Alarm> is detected.

Please refer to *Chapter 11.2.8 Configuring Email* for details of <Email> configuration.

<Trigger Alarm Output>:


Trigger an <Alarm Output> when an alarm is triggered.

Steps:

1. Enter the <Alarm Output> interface: Menu> Configuration> Alarm> Alarm Output
2. Select an <Alarm Output> and set an <Alarm Name> and a <Dwell Time>. Click the <Schedule> button to set the <Arming Schedule> of the <Alarm Output>.

Note:

If <Manually Clear> is selected in the dropdown list for the <Dwell Time>, you can clear it only by going to Menu> Manual> Alarm.

Alarm Status	Alarm Input	Alarm Output
Alarm Output No.	Local->1	
Alarm Name	I	
Dwell Time	5s	
Settings		

Alarm Output Setup Interface

3. Set up the <Arming schedule> of the <Alarm Output>.

Choose one day of a week and up to 8 time periods can be set within each day.

Note:

Time periods shall not be repeated or overlapped.

Week	Mon
1	00:00-24:00
2	00:00-00:00
3	00:00-00:00
4	00:00-00:00
5	00:00-00:00
6	00:00-00:00
7	00:00-00:00
8	00:00-00:00

Set Arming Schedule of Alarm Output

4. Repeat the above steps to set up an <Arming Schedule> of other days of a week. You can also use the <Copy> button to copy an <Arming Schedule> to other days.
5. Click the <OK> button to complete the <Video Tampering Settings> of the <Alarm Output No.>
6. You can also copy the above settings to another channel.

Alarm Output No.	Alarm Name
<input type="checkbox"/> Local->1	
<input type="checkbox"/> Local->2	
<input type="checkbox"/> Local->3	
<input type="checkbox"/> Local->4	
<input type="checkbox"/> 10.6.0.23:8000->1	

Copy Settings of Alarm Output

8.7 Triggering or Clearing an Alarm Output Manually

A <Sensor Alarm> can be triggered or cleared manually. If <Manually Clear> is selected in the dropdown list for the <Dwell Time> of an <Alarm Output>, the <Alarm> can be cleared only by clicking the <Clear> button in the following interface.

Steps:

1. Select the <Alarm Output> you want to trigger or clear and make related operations:
Menu> Manual> Alarm
2. Click the <Trigger/Clear> button if you want to trigger or clear an <Alarm Output>.
Click the <Trigger All> button if you want to trigger all <Alarm Outputs>.
Click the <Clear All> button if you want to clear all <Alarm Outputs>.

Alarm		
Alarm Output No.	Alarm Name	Trigger
Local->1		No
Local->2		No
Local->3		No
Local->4		No
172.6.23.105:8000->1		No

Clear or Trigger Alarm Output Manually

9. POS Configuration

Note:

The <POS> feature is only supported by the NVR models GD-RN-AP8616P, GD-RN-AP8632P and GD-RN-AT8864N.

9.1 Configuring the POS Settings

Steps:

1. Enter the <POS Settings> interface.

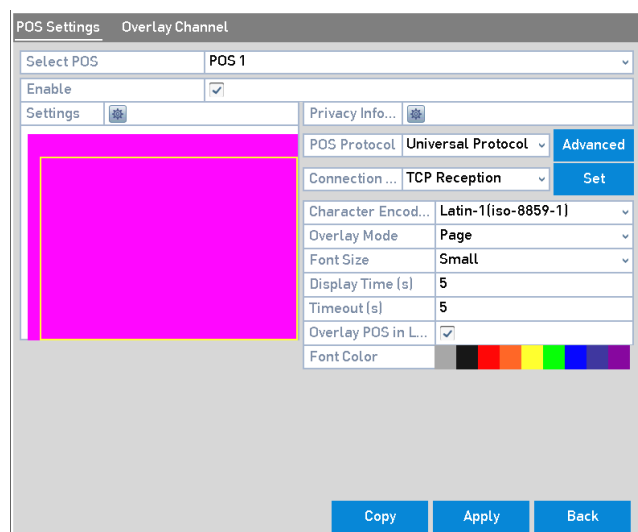
Menu > Configuration > POS> POS Settings

2. Select the <POS> from the drop-down list.

Note:

The amount of <POS> devices supported for each device is the half of its channel amount.

3. Check the checkbox to <Enable> the <POS> feature.



POS Settings

4. Select the <POS Protocol> to <Universal Protocol>, <EPSON>, <AVE> or <NUCLEUS>.

Note:

When the new protocol is selected, you should reboot the device to activate the new settings.

● <Universal Protocol>

Click the <Advanced> button to expand more settings when selecting the <Universal Protocol>. You can set the <Start Line Tag>, <Line Break Tag> and the <End Line Tag> for the <POS Overlay Characters> as well as the <Case-sensitive> property of the characters.

POS Protocol	Universal Protocol	General	
Connection ...	TCP Reception	Set	
Start Line I...		Hex	<input type="checkbox"/>
Line Break	0D0A	Hex	<input checked="" type="checkbox"/>
End Line Id...		Hex	<input type="checkbox"/>
Case Sensit...	<input checked="" type="checkbox"/>	Filt...	<input type="checkbox"/>

Universal Protocol Settings

● <EPSON >

The fixed <Start Line Tag> and <End Line Tag> are used for <EPSON> protocol.

● <AVE>

The fixed <Start Line Tag> and <End Line Tag> are used for <AVE> protocol. And the <Serial Port> and the <Virtual Serial Port> connection types are supported.

- 1) Click <Set> to configure the <AVE> settings.
- 2) Set the rule to <VSI-ADD> or <VNET>.
- 3) Set the <Address> bit of the <POS Message> to send.
- 4) Click <OK> to save the settings.

Rule	VSI-ADD
Address	30

AVE Settings

● <NUCLEUS>

- 1) Click <Set> to configure the <NUCLEUS> settings.
- 2) Enter the <Employee No.>, <Shift No.> and the <Terminal No.> in the field. The matching message sent from the <POS> device will be used as the valid <POS> data.

e<employee#>	0052
s<shift#>	12
t<terminal#>	11

NUCLEUS Settings

Note:

The <NUCLEUS> protocol must be used in the <RS-232> connection communication.

5. Select the connection mode to <TCP>, <UDP>, <Multicast>, <RS-232>, <USB->RS-232> or <Sniff>, and click <Set> to configure the parameters for each connection mode.

● <TCP Connection>

- 1) When using a <TCP Connection>, the port must be set from <1> to <65535>, and the port for each <POS> machine must be unique.

- 2) Set the <Allowed Remote IP Address> of the device sending the <POS Message>.

TCP Connection Settings	
Port	10010
Allowed Remote IP ...	192.0 .0 .64

TCP Connection Settings

● <UDP Connection>

- 3) When using a <UDP Connection>, the port must be set from <1> to <65535> and the port for each <POS> machine must be unique.
- 4) Set the <Allowed Remote IP Address> of the device sending the <POS Message>.

UDP Connection Settings	
Port	10100
Allowed Remote IP ...	192.0 .0 .64

OK Cancel

UDP Connection Settings

● USB->RS-232 Connection

Configure the <Port> parameters of the <USB-to-RS-232> convertor including the <Serial Port Number>, the <Baud Rate>, the <Data Bit>, the <Stop Bit>, the <Parity> and the <Flow Ctrl.>

USB-to-RS-232 Settings	
Serial Port Number	Invalid
Baud Rate	115200
Data Bit	8
Stop Bit	1
Parity	None
Flow Ctrl	None

OK Cancel

USB-to-RS-232 Settings

● RS-232 Connection

Connect the NVR and the <POS> machine via <RS-232>. The <RS-232 Settings> can be configured in Menu> Configuration> RS-232. The <Usage> must be set to <Transparent Channel>.

RS-232 Settings	
Baud Rate	115200
Data Bit	8
Stop Bit	1
Parity	None
Flow Ctrl	None
Usage	Transparent Channel

RS-232 Settings

● Multicast Connection

When connecting the NVR and the <POS> machine via <Multicast> protocol, set the <Multicast Address> and <Port>.

Multicast Settings	
Address	224.0.0.1
Port	10400

Multicast Settings

● Sniff Connection

Connect the NVR and the <POS> machine via <Sniff>. Configure the <Source Address> and the <Destination Address> settings.

Sniff Settings	
Enable Source Port...	<input type="checkbox"/>
Source Address	192.168.1.1
Source Port	10200
Enable Destination ...	<input type="checkbox"/>
Enable Destination ...	<input type="checkbox"/>
Destination Address	192.168.0.1
Destination Port	10300

OK Cancel

Sniff Settings

6. Set other parameters of <Character Overlay>.

- 1) Select the <Character Encoding> format from the drop-down list.
- 2) Select the <Overlay> mode of the characters to display in <Scrolling> or <Page mode>.
- 3) Select the to <Small>, <Medium> or <Large>.
- 4) Set the <Overlay Time> of the characters. The value ranges from <5> to <3600> seconds.
Set the <Delay Time> of the <POS Event>. The value ranges from <5> to <3600> seconds. When the device has not received the <POS Message> over the defined <Delay Time>, the transaction is finished.
- 5) (optional) Check the checkbox to <Enable the POS Overlay in Live View>. When this feature is enabled, the <POS> information can be overlain on the <Live View> image.

6) Select the font color for the characters.

Character Encod...	Latin-1(iso-8859-1) ▾
Overlay Mode	Page ▾
Font Size	Small ▾
Display Time (s)	5
Timeout (s)	5
Overlay POS in L...	<input checked="" type="checkbox"/>
Font Color	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>

Overlay Character Settings

Note:

You can adjust the size and the position of the textbox on the preview screen of the <POS Settings> interface by dragging the frame.

7. Click <Apply> to activate the settings.
8. (Optional) You can click the <Copy> button to copy the current settings to other <POS(s)>.

Copy to

☐ All

☒ POS1

☐ POS2

☐ POS3

☐ POS4

OK

Cancel

Copy POS Settings

9.2 Configuring the Overlay Channel

You can assign the <POS> machine to corresponding channel on which you want to overlay.

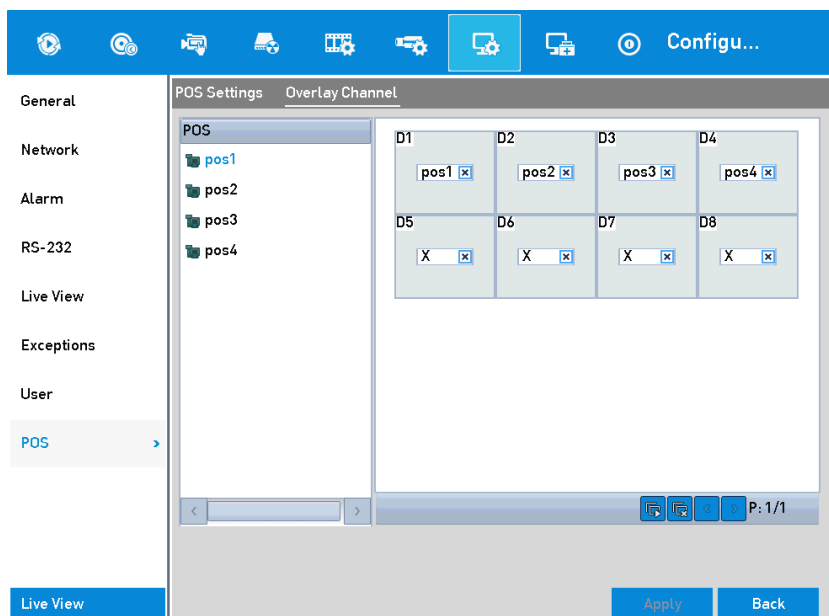
Steps:

1. Enter the <POS Settings> interface: Menu > Configuration > POS> Overlay Channel
2. Click to select the IP Camera from the <Camera> list on the right, and then click a <POS> item from the <POS> device list you want to overlay the <POS> information on the selected camera.



Click  or  to go to the previous or next page of cameras.

Note:

Each <POS> device can be selected for one camera only.



Overlay Channel Settings


3. You can also click  to overlay all <POS> items to the first 8 channels in order. And  is used to clear all <POS Overlay Settings>.

4. Click the <Apply> button to save the settings.

9.3 Configuring the POS Privacy Information Filtering

You can set the <POS Privacy Information> to not display on the image.

Steps:

1. Enter the <POS Settings> interface: Menu > Configuration > POS> POS Settings
2. Click this button  of the <Privacy Settings> to enter the <POS Privacy Information Filtering Settings> interface.

POS Privacy Information Filter	
Privacy Information 1	user
Privacy Information 2	card
Privacy Information 3	amount


POS Privacy information filtering settings

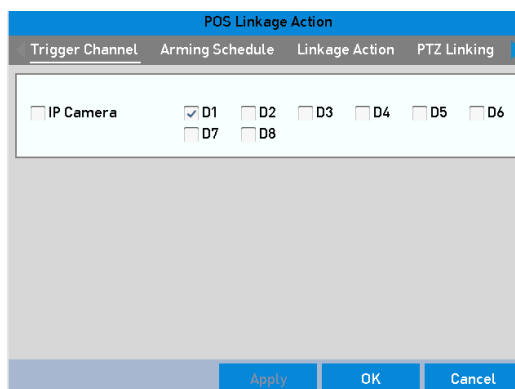
3. Edit three information text (1 to 32 characters) types in the field.
4. Click <OK> to save the settings. The defined privacy information will instead be displayed on the image like this: *** .

9.4 Configuring the POS Alarm

Set the <POS Alarm> parameters to trigger certain channels to start recording or trigger <Full Screen Monitoring>, <Audio Warning>, <Notify the Surveillance Center>, <Send Email> and so on.

Steps:

1. Enter the <POS Settings> interface: Menu > Configuration > POS> POS Settings
2. Follow the steps in *Chapter 9.1-9.2* to configure the <POS Settings> .
3. Click  to enter the <Alarm Settings> interface.



The screenshot shows the 'POS Linkage Action' dialog box with the 'Trigger Channel' tab selected. It features a list of channels with checkboxes for selection. The 'IP Camera' channel is selected, and its associated time periods D1 through D8 are listed. D1 is checked, while D2 through D8 are unchecked. At the bottom, there are 'Apply', 'OK', and 'Cancel' buttons.

Channel	D1	D2	D3	D4	D5	D6	D7	D8
IP Camera	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Set Trigger Cameras of POS

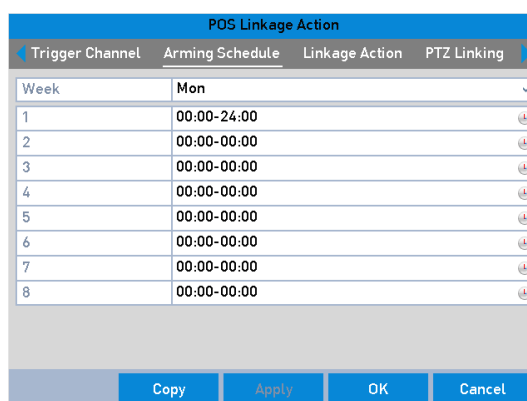
4. Click the <Trigger Channel> tab and select one or more channels to record or become <Full Screen Monitoring> when a <POS Alarm> is triggered.
5. Set the <Arming Schedule> of the channel.

Select the <Arming Schedule> tab to set the channel's <Arming Schedule>.

Choose one day of a week and up to eight time periods can be set within each day. Or you can click the <Copy> button to copy the time period settings to other day(s).

Note:

Time periods shall not be repeated or overlapped.



The screenshot shows the 'POS Linkage Action' dialog box with the 'Arming Schedule' tab selected. It displays a table for setting arming schedules for a specific day (Monday). The table has columns for 'Week' and 'Mon', and rows for eight time periods (1-8). Each row shows a time range (00:00-24:00 for period 1, and 00:00-00:00 for periods 2-8) and a copy icon. At the bottom, there are 'Copy', 'Apply', 'OK', and 'Cancel' buttons.

Week	Mon
1	00:00-24:00
2	00:00-00:00
3	00:00-00:00
4	00:00-00:00
5	00:00-00:00
6	00:00-00:00
7	00:00-00:00
8	00:00-00:00

Set Arming Schedule

6. Click the <Handling> tab to set up <Alarm Response Actions> of the <POS Alarm>.
- Repeat the above steps to set up the <Arming Schedule> of other days of a week.

Click the <OK> button to complete the <POS Settings> of the channel.

7. Select the <PTZ Linking> tab and set the <PTZ Linkage> of the <POS Alarm>.

Set <PTZ Linking> parameters and click the <OK> button to complete the settings of the <Alarm Input>.

Note:

Please check whether the <PTZ> or speed dome supports <PTZ Linkage>.

Settings		
Arming Schedule	Linkage Action	PTZ Linking
PTZ Linking		[D1] Camera 01
Call Preset	<input type="radio"/>	
Preset		1
Call Patrol	<input type="radio"/>	
Patrol		1
Call Pattern	<input type="radio"/>	
Pattern		1
<div>Apply OK Cancel</div>		

Set PTZ Linking

8. Click <OK> to save the settings.

10. VCA Alarm

The NVR supports the <VCA Detection Alarm> (<Face Detection>, <Vehicle Detection>, <Line Crossing Detection> and <Intrusion Detection>, <Region Entrance Detection>, <Region Exiting Detection>, <Unattended Baggage Detection>, <Object Removal Detection>, <Audio Loss Exception Detection>, <Sudden Change of Sound Intensity Detection>, and <Defocus Detection>) sent by IP Camera. The <VCA Detection> must be enabled and configured on the <IP Camera Settings> interface first.

Note:

All <VCA Detection> must be supported by the connected IP Camera .

Please refer to the User Manual of the Network Camera for the detailed instructions for all of the <VCA Detection> types.

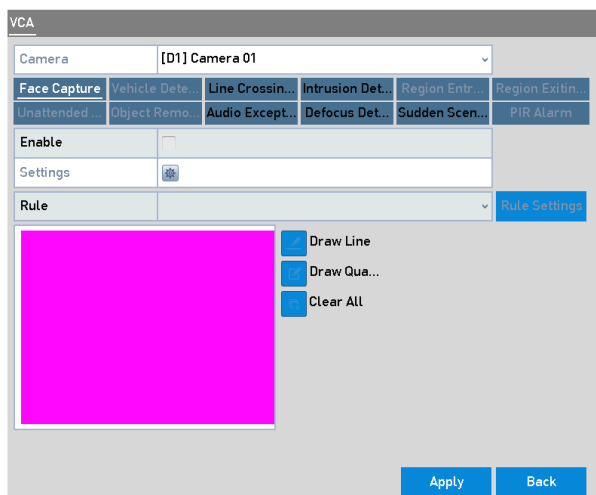
10.1 Face Detection

The <Face Detection> function detects the face that appears in the surveillance scene, and certain actions can be taken when the <Alarm> is triggered.


Steps:

1. Enter the <VCA Settings> interface: Menu> Camera> VCA
2. Select the camera to configure the <VCA>.

You can click the checkbox of <Save VCA Picture> to save the captured pictures of <VCA Detection>.



Face Detection

3. Select the <VCA Detection> type to <Face Detection>.
4. Check the <Enable> checkbox to enable this function.
5. Click  to enter the <Face Detection Settings> interface. Configure the <Trigger Channel>, <Arming Schedule> and <Linkage Action> for the <Face Detection Alarm>. Please refer to Step 3 to Step 5 of Chapter 8.1 Setting Motion Detection Alarm for detailed instructions.


6. Click the <Rule Settings> button to set the <Face Detection> rules. You can click-and-drag the slider to set the detection <Sensitivity>.
7. <Sensitivity>: Range [1-5]. The higher the value is, the more easily the face can be detected.
8. Click <Apply> to activate the settings.

10.2 Vehicle Detection

This function is not available in all models.

<Vehicle Detection> is available for the road traffic monitoring. In <Vehicle Detection>, the passed vehicle can be detected and the picture of its license plate can be captured. You can send an <Alarm> signal to notify the surveillance center and you can upload the captured picture to a FTP server.







Steps:

1. Enter the <VCA Settings> interface: Menu> Camera> VCA
2. Select the camera to configure the <VCA>.
3. You can click the checkbox of <Save VCA Picture> to save the captured pictures of the <VCA Detection>.
4. Select the <VCA Detection Type> to **<Vehicle Detection>**.
5. Check the <Enable> checkbox to enable this function.
6. Click  to configure the <Trigger Channel>, the <Arming Schedule> and <Linkage Actions> for the <Blacklist>, <Whitelist> and <Others>.

Note:

Up to 2,048 <Backlists> or <Whitelists> are supported for <Import> and <Export>.

7. Click the <Rule Settings> to enter the <Rule Settings> interface. Configure the lane, upload a picture and overlay content settings. Up to 4 lanes are selectable.

Rule Settings			
No.	1		
Time Threshold (s)		0	
Sensitivity		50	
Percentage		1	

OK Cancel

Rule Settings

8. Click **<Save>** to save the settings.

Note:


Please refer to the User Manual of the Network Camera for detailed instructions for the **<Vehicle Detection>**.

10.3 Line Crossing Detection

This function can be used for detecting people, vehicles and objects who cross a set virtual line. The **<Line Crossing Direction>** can be set as **<Bidirectional>**, from **<Left to Right>** or from **<Right to Left>**. And you can set the **<Duration>** for the **<Alarm Response Actions>**, such as **<Full Screen Monitoring>**, **<Audible Warning>**, etc.

Steps:

1. Enter the **<VCA Settings>** interface: Menu> Camera> VCA
2. Select the camera to configure the **<VCA>**.
3. You can click the checkbox of **<Save VCA Picture>** to save the captured pictures of **<VCA Detection>**.
4. Select the **<VCA Detection>** type to **<Line Crossing Detection>**.
5. Check the **<Enable>** checkbox to enable this function.

6. Click  to configure the **<Trigger Channel>**, arming schedule and **<Linkage Actions>** for the **<Line Crossing Detection>** alarm.

7. Click the **<Rule Settings>** button to set the **<Line Crossing Detection>** rules.

- 1) Select the direction to **<A->B>**, **<A->B>** or **<A<-B>**.

<A<->B>: Only the arrow on the B side shows; when an object going across the configured line with both directions can be detected and alarms are triggered.

<A->B>: Only the object crossing the configured line from the A side to the B side can be detected.

<B->A>: Only the object crossing the configured line from the B side to the A side can be detected.

- 2) Click-and-drag the slider to set the detection **<Sensitivity>**.
- 3) **<Sensitivity>**: Range [1-100]. The higher the value is, the more easily the **<Detection Alarm>** can be triggered.
- 4) Click **<OK>** to save the **<Rule Settings>** and to go back to the **<Line Crossing Detection Settings>** interface.

Rule Settings			
No.	1		
Time Threshold (s)	<input type="range"/>	0	
Sensitivity	<input type="range"/>	50	
Percentage	<input type="range"/>	1	

Set Line Crossing Detection Rules

8. Click and set two points in the preview window to draw a virtual line.

You can use this icon to clear the existing virtual line and to re-draw it.

Note:

Up to 4 rules can be configured.

VCA

Camera

[D1] Camera 01

Face Capture

Vehicle Dete...

Line Crossin...

Intrusion Det...

Region Entr...

Region Exitin...

Unattended ...

Object Remo...

Audio Except...

Defocus Det...

Sudden Scen...

PIR Alarm

Enable

☐

Settings

Rule

1

Rule Settings

#1#

A

B

Draw Line

Draw Qua...

Clear All

Apply

Back

Draw Line for Line Crossing Detection

Click <Apply> to activate the settings.

10.4 Intrusion Detection

The <Intrusion Detection> function detects people, vehicles or other objects which enter and loiter in a pre-defined virtual region and certain actions can be taken when the alarm is triggered.

Steps:


1. Enter the <VCA Settings> interface: Menu> Camera> VCA

2. Select the camera to configure the <VCA>.

You can click the checkbox of <Save VCA Picture> to save the captured pictures of <VCA Detection>.







3. Select the <VCA Detection> type to <Intrusion Detection>.

4. Check the <Enable> checkbox to enable this function.

5. Click  to configure the <Trigger Channel>, <Arming Schedule> and <Linkage Actions> for the <Line Crossing Detection Alarm>.

6. Click the <Threshold Rule Settings> button to set the <Intrusion Detection> rules. Set the following parameters.


- 1) **<Threshold>**: Range [1s-10s], the <Threshold> for the time of the object loitering in the region. When the duration of the object in the defined detection area is longer than the set time, the alarm will be triggered.
- 2) Click-and-drag the slider to set the detection <Sensitivity>.
- 3) **<Sensitivity>**: Range [1-100]. The value of the sensitivity defines the size of the object which can trigger the alarm. The higher the value is, the more easily the <Detection Alarm> can be triggered.
- 4) **<Percentage>**: Range [1-100]. <Percentage> defines the ratio of the in-region part of the object which can trigger the alarm. For example, if the percentage is set as 50%, when the object enters the region and occupies half of the whole region, the alarm is triggered.


Rule Settings			
No.	1		
Time Threshold (s)		0	
Sensitivity		50	
Percentage		1	

OK Cancel

Set Intrusion Crossing Detection Rules

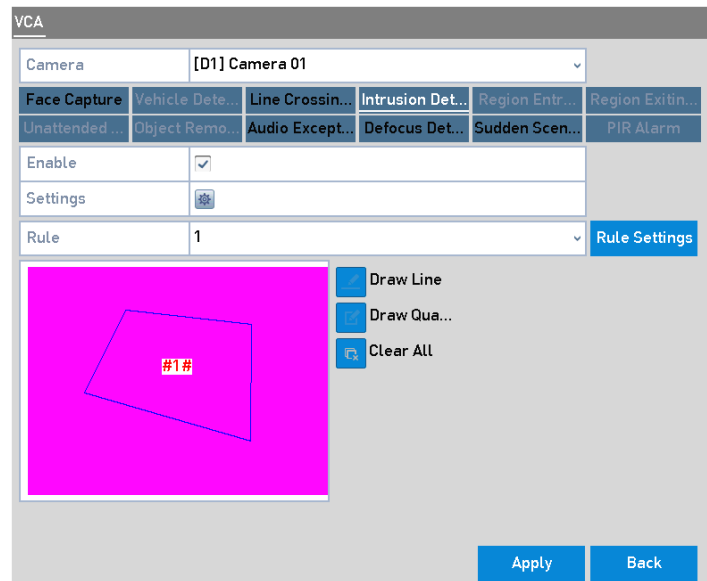
- 5) Click <OK> to save the rule settings and to go back to the <Line Crossing Detection Settings> interface.

7. Click  and draw a Quadrilateral in the preview window by specifying four vertexes of the detection region and right click to complete the drawing. Only one region can be configured.

You can use this icon  to clear the existing virtual line and to re-draw it.

Note:

Up to 4 rules can be configured.



Draw Area for Intrusion Detection

8. Click <Apply> to save the settings.

10.5 Region Entrance Detection

This function is not available in all models.


The <Region Entrance Detection> function detects people, vehicles or other objects which enter a pre-defined virtual region from the outside place and certain actions can be taken when the alarm is triggered.

Steps:

1. Enter the <VCA Settings> interface: Menu> Camera> VCA
2. Select the camera to configure the <VCA>.


You can click the checkbox of <Save VCA Picture> to save the captured pictures of <VCA Detection>.


3. Select the <VCA Detection Type> to <Region Entrance Detection>.
4. Check the <Enable> checkbox to enable this function.

5. Click  to configure the <Trigger Channel>, <Arming Schedule> and <Linkage Actions> for the <Line Crossing Detection Alarm>.

6. Click the <Rule Settings> button to set the <Sensitivity> of the <Region Entrance Detection>.

<Sensitivity>: Range [0-100]. The higher the value is, the more easily the <Detection Alarm> can be triggered.

7. Click  and draw a Quadrilateral in the preview window by specifying four vertexes of the detection region and right click to complete the drawing. Only one region can be configured.

You can use this icon  to clear the existing virtual line and to re-draw it.

Note:

Up to 4 rules can be configured.

8. Click <Apply> to save the settings.

10.6 Region Exiting Detection

The <Region Exiting Detection> function detects people, vehicles or other objects which exit from a pre-defined virtual region and certain actions can be taken when the alarm is triggered.

Note:

Please refer to the *Chapter 9.5 Region Entrance Detection* for operating steps to configure the <Region Exiting Detection>.

Up to 4 rules can be configured.

10.7 Unattended Baggage Detection

This function is not available in all models.

The <Unattended Baggage Detection> function detects objects left behind in the pre-defined region such as baggage, a purse, dangerous materials, etc. and a series of actions can be taken when the <Alarm> is triggered.

Note:

Please refer to the *Chapter 9.4 Intrusion Detection* for operating steps to configure the <Unattended Baggage Detection>.

The <**Threshold**> [5s-20s] in the <Rule Settings> defines the time for which an objects is left behind in the region. If you set the value as <10>, then the <Alarm> is triggered after the object was left and has stayed in the region for 10 seconds.

The <**Sensitivity**> defines the similarity degree of the background image. Usually, when the sensitivity is high, a very small object left in the region can trigger the alarm.

Up to 4 rules can be configured.

10.8 Object Removal Detection

This function is not available in all models.

The <Object Removal Detection> function detects the objects removed from the pre-defined region such as the exhibits on display and a series of actions can be taken when the <Alarm> is triggered.

Note:

Please refer to the *Chapter 9.4 Intrusion Detection* for operating steps to configure the <Object Removal Detection>.

The <**Threshold**> [5s-20s] in the <Rule Settings> defines the time for which objects are removed from the region. If you set the value as <10>, then the <Alarm> is triggered after the object disappears from the region for 10 seconds.

The <**Sensitivity**> defines the similarity degree of the background image. Usually, when the sensitivity is high, a very small object taken from the region can trigger the alarm.

Up to 4 rules can be configured.


10.9 Audio Exception Detection


The <Audio Exception Detection> function detects the abnormal sounds in the surveillance scene such as the sudden increase/decrease of the sound intensity and certain actions can be taken when the alarm is triggered.

Steps:

1. Enter the <VCA Settings> interface: Menu> Camera> VCA
2. Select the camera to configure the <VCA>.

You can click the checkbox of <Save VCA Picture> to save the captured pictures of <VCA Detection>.

3. Select the <VCA Detection> type to <Audio Exception Detection>.
4. Click  to configure the <Trigger Channel>, the <Arming Schedule> and the <Linkage Actions> for the <Face Detection Alarm>.
5. Click the <Rule Settings> button to set the <Audio Exception Rules>.



Rule Settings	
No.	1
Audio Loss Exception	<input type="checkbox"/>
Sudden Increase of Sound I...	<input type="checkbox"/>
Sensitivity	<input type="range"/> 50
Sound Intensity Threshold	<input type="range"/> 50
Sudden Decrease of Sound ...	<input type="checkbox"/>
Sensitivity	<input type="range"/> 50
<div>OK Cancel</div>	

Set Audio Exception Detection Rules

- 1) Check the checkbox of <Audio Input Exception> to enable the <Audio Loss Detection> function.
- 2) Check the checkbox of <Sudden Increase of Sound Intensity Detection> to detect the sound steep rise in the surveillance scene. You can set the detection sensitivity and threshold for sound steep rise.

<Sensitivity>: Range [1-100], the smaller the value is, the more severe the change should be to trigger the detection.

<Sound Intensity Threshold>: Range [1-100], it can filter the sound in the environment, the louder the environment sound, the higher the value should be. You can adjust it according to the real environment.

- 3) Check the checkbox of <Sudden Decrease of Sound Intensity Detection> to detect the sound's steep drop in the surveillance scene. You can set the detection <Sensitivity> [1-100] for the sound's steep drop.
6. Click <Apply> to activate the settings.

10.10 Sudden Scene Change Detection

This function is not available in all models.

The <Scene Change Detection> function detects the change of the surveillance environment affected by the external factors; such as the intentional rotation of the camera and certain actions can be taken when the <Alarm> is triggered.

Note:

Please refer to *Chapter 9.2 Face Detection* for operating steps to configure the <Scene Change Detection>.

The <Sensitivity> in the <Rule Settings> ranges from <1> to <100> and the higher the value is, the more easily the change of scene can trigger the alarm.

10.11 Defocus Detection

This function is not available in all models.

The image blur caused by a defocus of the lens can be detected and certain actions can be taken when the alarm is triggered.

Note:

Please refer to the *Chapter 9.2 Face Detection* for operating steps to configure the <Defocus Detection>.

The <Sensitivity> in the <Rule Settings> ranges from 1 to 100, and the higher the value is, the more easily the defocus image can trigger the alarm.

10.12 PIR Alarm

This function is not available in all models.


A <PIR (Passive Infrared) Alarm> is triggered when an intruder moves within the detector's field of view. The heat energy dissipated by a person or any other warm-blooded creature such as dogs, cats, etc. can be detected.

Steps:

1. Enter the <VCA Settings> interface: Menu> Camera> VCA
2. Select the camera to configure the <VCA>.

You can click the checkbox of <Save VCA Picture> to save the captured pictures of the <VCA Detection>.

3. Select the <VCA Detection> type to <PIR Alarm>.

4. Click  to configure the <Trigger Channel>, the <Arming Schedule> and the <Linkage Actions> for the <PIR Alarm>.
5. Click the <Rule Settings> button to set the rules. Please refer to *Chapter 9.2 Face Detection* for instructions.
6. Click <Apply> to activate the settings.

10.13 Loitering Detection

Note: This function is only available for the NVR model GD-RN-AT819128N.

The <Loitering detection> function detects people, vehicles or other objects which loiter in a pre-defined virtual region for a certain time and a series of actions can be taken when the alarm is triggered.

Note:

- Please refer to *Chapter 9.4 Intrusion Detection* for operating steps to configure the <Loitering Detection>.
- The <**Threshold**> [1s-10s] in the <Rule Settings> defines the time of the object loitering in the region. If you set the value as <5>, then the <Alarm> is triggered after the object is loitering in the region for 5 seconds; and if you set the value as <0>, then the <Alarm> is triggered immediately when the object is entering the region.
- Up to 4 rules can be configured.

10.14 People Gathering Detection

Note: This function is only available for the NVR model GD-RN-AT819128N.

People gathering detection alarm is triggered when people gather around in a pre-defined virtual region and a series of actions can be taken when the alarm is triggered.

Note:

- Please refer to *Chapter 9.4 Intrusion Detection* for operating steps to configure the <People Gathering Detection>.
- The <Percentage> in the <Rule Settings> defines the gathering density of the people in the region. Usually, when the percentage is small, the alarm can be triggered when a small number of people gathered in the defined detection region.
- Up to 4 rules can be configured.

10.15 Fast Moving Detection

Note: This function is only available for the NVR model GD-RN-AT819128N.

The <Fast Moving Detection Alarm> is triggered when people, vehicles or other objects move fast in a pre-defined virtual region and a series of actions can be taken when the <Alarm> is triggered.

Note:

- Please refer to *Chapter 9.4 Intrusion Detection* for operating steps to configure the <Fast Moving

Detection>.

- The <Sensitivity> in the <Rule Settings> defines the moving speed of the object which can trigger the <Alarm>. The higher the value is, the more easily a moving object can trigger the alarm.
- Up to 4 rules can be configured.

10.16 Parking Detection

Note: This function is only available for the NVR model GD-RN-AT819128N.

The <Parking Detection> function detects illegal parking in places such as highways, one-way streets, etc. and a series of actions can be taken when the <Alarm> is triggered.

Note:

- Please refer to *Chapter 9.4 Intrusion Detection* for operating steps to configure the <Parking Detection>.
- The <Threshold> [5s-20s] in the <Rule Settings> defines the time of the vehicle parking in the region. If you set the value as <10>, then the <Alarm> is triggered after the vehicle stays in the region for 10 seconds.
- Up to 4 rules can be configured.

11. VCA Search

With the configured <VCA Detection>, the NVR supports the <VCA Search> for the <Behavior Analysis>, <Face Capture>, <People Counting> and <Heat Map> results.

11.1 Face Search

This function is not available in all models.


When there are detected face pictures captured and saved on an HDD, then you can enter the <Face Search> interface to search the picture and to play the picture-related video file according to the specified conditions.




Before you start:

Please refer to the Chapter about **Face Detection** for configuring the <Face Detection>.

Steps:

1. Enter the <Face Search> interface: Menu >VCA Search > Face Search.
2. Select the <camera(s)> for the <Face Search>.
3. Specify the <Start Time> and the <End Time> for searching the captured <Face Pictures> or video files.
4. Click <Search> to start searching. The search results of <Face Detection> pictures are displayed in a <List> or in a <Chart>.
5. Play the <Face Picture>-related video file.

You can double click on a <Face Picture> to play its related video file in the <View> window on the top right or select a picture item and click  to play it.

You can also click  to stop the playing or click  /  to play the previous/next file.

6. If you want to export the captured <Face Pictures> to a local storage device, connect the storage device to this device and click <Export All> to enter the <Export> interface.

Click <Export> to export all <Face Pictures> to the storage device.

Please refer to *Chapter 7 Backup* for the operation of exporting files.

11.2 Behavior Search


This function is not available in all models.




The behavior analysis detects a series of suspicious behavior based on <VCA Detection> and certain linkage methods will be enabled if the alarm is triggered.

Steps:

1. Enter the <Behavior Search> interface: Menu>VCA Search> Behavior Search

2. Select the camera(s) for the <Behavior Search>.
3. Specify the <Start Time> and the <End Time> for searching the matched pictures.
4. Select the <VCA Detection Type> from the dropdown list including the <Line Crossing Detection>, <Intrusion Detection>, <Unattended Baggage Detection>, <Object Removal Detection>, <Region Entrance Detection>, <Region Exiting Detection>, <Parking Detection>, <Loitering Detection>, <People Gathering Detection> and <Fast Moving Detection>.
5. Click <Search> to start searching. The search results of pictures are displayed in a <List> or in a <Chart>.
6. Play the <Behavior Analysis> picture-related video file.

You can double click on a picture from the list to play its related video file in the view window on the top right or select a picture item and click  to play it.

You can also click  to stop the playing or click  /  to play the previous/next file.

7. If you want to export the captured pictures to a local storage device, connect the storage device to this device and click <Export All> to enter the <Export> interface.

Click <Export> to export all pictures to the storage device.

11.3 Plate Search

This function is not available in all models.

You can search and view the matched captured vehicle plate pictures and related information according to the plate searching conditions including the <Start Time>/<End Time>, <Country> and <Plate No.>.

Steps:

1. Enter the <Plate Search> interface: Menu>VCA Search> Plate Search
2. Select the <Camera(s)> for the <Plate Search>.
3. Specify the <Start Time> and the <End Time> for searching the matched plate pictures.
4. Select the country from the drop-down list for searching the location of the vehicle plate.
5. Enter the <Plate No.> in the field for the search.
6. Click <Search> to start searching. The search results of detected vehicle plate pictures are displayed in a <List> or in a <Chart>.

Note:

Please refer to Steps 7 and 8 of *Section 10.1 Face Search* for the operation of the search results.

11.4 People Counting

This function is not available in all models.

The Counting is used to calculate the number of people that entered or left a certain configured area and to create daily/weekly/monthly/annual reports for analysis.

Steps:

1. Enter the <Counting> interface: Menu> VCA Search> Counting
2. Select the <Camera> for the people counting.
3. Select the <Report Type> to <Daily Report>, <Weekly Report>, <Monthly Report> or <Annual Report>.
4. Set the statistics time.
5. Click the <Counting> button to start people counting statistics.
6. You can click the <Export> button to export the statistics report in excel format.

11.5 Heat Map

This function is not available in all models.

The <Heat Map> is a graphical representation of data represented by colors. The heat map function is usually used to analyze the visit times and <Dwell Time> of customers in a configured area.

Note:

The <Heat Map> function must be supported by the connected IP Camera and the corresponding configuration must be set.

Steps:

1. Enter the <Heat Map> interface: Menu> VCA Search> Heat Map
2. Select the <Camera> for the heat map processing.
3. Select the <Report Type> to <Daily Report>, <Weekly Report>, <Monthly Report> or <Annual Report>.
4. Set the <Statistics Time>.
5. Click the <Counting> button to export the report data and start <Heat Map Statistics>; the results are displayed in graphics marked in different colors.

Note:

As shown in the Picture above, a red color block (255, 0, 0) indicates the most welcome area and a blue color block (0, 0, 255) indicates the less-popular area.

6. You can click the <Export> button to export the statistics report in excel format.

11.6 Advanced Search

Note:

GD-RN-AP8616P, GD-RN-AP8632P, GD-RN-AT8864N and GD-RN-AT819128N support the <Advanced Search> for a <Fire>/<Ship>/<Temperature>/<Temperature Difference Detection> triggered <Alarm> and the recorded video files and pictures.

Before you start:

To get the <Smart Search Result>, the corresponding <Fire>/<Ship>/<Temperature>/<Temperature Difference> type must be enabled and configured on the connected thermal network camera

(Configuration> Advanced Configuration> Smart Event). Please refer to the user manual of the Thermal Network Camera for details.

Steps:

1. Enter the <Advanced Search> interface: Menu > VCA Search > Advanced Search
2. Select the <Camera(s)> for the <Advanced Search>.
3. Specify the <Start Time> and the <End Time> for searching the <Thermal Imaging Detection> results.
4. Select the type to <Fire Detection>, <Ship Detection>, <Temperature Detection> and <Temperature Difference Detection>.
5. Click <Search> to start searching. The search results are displayed in a <List> or in a <Chart>.
6. You can click the <Export> button to export the <Statistics Report> in excel format.

12. Network Settings

12.1 Configuring General Settings

<Network Settings> must be properly configured before you operate the NVR over a network.

Steps:

- 1. Enter the <Network Settings> interface: Menu >Configuration>Network
- 2. Select the <General> tab.

General				PPPOE	DDNS	NTP	Email	SNMP	NAT	More Settings
NIC Type		10M/100M/1000M Self-adaptive								
Enable DHCP		<input checked="" type="checkbox"/>								
IPv4 Address...	. . .	IPv6 Address...	fe80::2a57:beff:fe88:7081/64							
IPv4 Subn...	. . .	IPv6 Address...								
IPv4 Defau...	. . .	IPv6 Defau...								
MAC Address		28:57:be:88:70:81								
MTU(Bytes)		1500								
Enable Obtain DNS Serv...		<input checked="" type="checkbox"/>								
Preferred DNS Server										
Alternate DNS Server										
Internal NIC IPv4 Address		192.168.254.1								
<div>ApplyBack</div>										

Network Settings Interface

- 3. In the <General Settings> interface, you can configure the following settings: <Working Mode>, <NIC Type>, < IPv4 Address>, < IPv4 Gateway>, <MTU>, <DNS DHCP> and <DNS Server>.

Note:

The valid value range of <MTU> is <500> to <9676>.

If the <DHCP Server> is available, you can click the checkbox of <DHCP> to automatically obtain an <IP Address> and other <Network Settings> from that server.

Note:

Two self-adaptive <10M/100M/1000M Network> interfaces for GD-RN-AT8864N and GD-CI-CT8832N and the <Multi-address> and <Network Fault Tolerance> working modes are configurable.

One self-adaptive <10M/100M/1000M Network> interface for GD-RN-AC2416N, GD-RN-AC2416P, GD-RN-AP8632P and GD-RN-AP8616P.

One self-adaptive <10M/100M Network> interface for GD-RN-AC2004P.

Four self-adaptive <10M/100M/1000M Network> interfaces for GD-RN-AT819128N and the <Multi-address>, <Load Balance> and <Network Fault-tolerance> working modes are configurable.

For the GD-RN-AP8616P and GD-RN-AP8632P you need to configure the <Internal NIC Address> so that <IP Addresses> are assigned to the cameras connected to the <PoE> interfaces.

4. After having configured the general settings, click the <Apply> button to save the settings.

Working Mode

Two <10M/100M/1000M NIC> cards are provided and it allows the device to work in the <Multi-address> and in the <Net-fault Tolerance> modes.

<Multi-address Mode>: The parameters of the two <NIC> cards can be configured independently. You can select <LAN1> or <LAN2> in the <NIC Type> field for parameter settings.

You can select one <NIC> card as <Default Route>. Then the system will connect with the Extranet to which the data will be forwarded through the <Default Route>.

<Net-fault Tolerance Mode>: The two <NIC> cards use the same <IP Address> and you can select the <Main NIC> to <LAN1> or <LAN2>. By this way, in case of one <NIC> card failure, the device will automatically enable the other standby <NIC> card so as to ensure the normal running of the whole system.

12.2 Configuring Advanced Settings

12.2.1 Configuring DDNS

You can set the <Dynamic DNS (DDNS)> for network access.

Prior registration with your <ISP> is required before configuring the system to use <DDNS>.

Steps:

1. Enter the <Network Settings> interface.
2. Menu > Configuration > Network
3. Select the <DDNS> tab to enter the <DDNS Settings> interface.
4. Check the <DDNS> checkbox to enable this feature.
5. Select <DDNS Type>. 4 different <DDNS> types are selectable: <IPServer> (not supported by GD-RN-AT819128N), <DynDNS>, <PeanutHull>, <NO-IP>.

- <IPServer>: Input the <Server Address> for the <IPServer>.

General PPPOE <u>DDNS</u> NTP Email SNMP NAT More Settings	
Enable DDNS	<input checked="" type="checkbox"/>
DDNS Type	DynDNS
Area/Country	Custom
Server Address	
Device Domain Name	
Status	DDNS is disabled.
User Name	
Password	

IPServer Settings Interface

- **<DynDNS>:**

- 1) Enter the <Server Address> for <DynDNS> (i.e. members.dyndns.org).
- 2) In the <Device Domain Name> text field, enter the domain obtained from the <DynDNS> website.
- 3) Enter the <User Name> and <Password> registered in the <DynDNS> website.

General PPPOE <u>DDNS</u> NTP Email SNMP NAT More Settings	
Enable DDNS	<input checked="" type="checkbox"/>
DDNS Type	DynDNS
Area/Country	Custom
Server Address	members.dyndns.org
Device Domain Name	123.dyndns.com
Status	DDNS is disabled.
User Name	test
Password	*****

DynDNS Settings Interface

- **<PeanutHull>:** Enter the <User Name> and the <Password> obtained from the <PeanutHull> website.
- **NO-IP:** Enter the account information in the corresponding fields. Refer to the <DynDNS Settings>.
 - 1) Enter the <Server Address> for <NO-IP>.
 - 2) In the <Device Domain Name> text field, enter the domain obtained from the <NO-IP> website (www.no-ip.com).
 - 3) Enter the <User Name> and the <Password> registered in the <NO-IP> website.

General	PPPOE	DDNS	NTP	Email	SNMP	NAT	More Settings
Enable DDNS	<input checked="" type="checkbox"/>						
DDNS Type	NO-IP						
Area/Country	Custom						
Server Address	no-ip.org						
Device Domain Name	13.no-ip.org						
Status	DDNS is disabled.						
User Name	test						
Password	*****						

NO-IP Settings Interface

- 4) Click [Register](#) to register an account if you do not have one and use the account to log in.

Register new user

Add User

*

User Name:

Only Chinese,numeric,English letter,underline and non-white space are allowed. Length Range[3-64].

*

Password:

The password must contain at least two of the required character types: uppercase letter, lowercase letter, special characters, and numeric. Length Range [6-32].

*

Confirm Password:

The password must contain at least two of the required character types: uppercase letter, lowercase letter, special characters, and numeric. Length Range [6-32].

*

Code:

TRSE

Nickname:

Length Range [2-64]

*

Country:

The country cannot be changed once saved, please select it prudently.

Cellphone:

Length Range [1-20]

*

Email:

Remark:

☒ I have read and agree to the [Terms](#)

Register

12.2.2 Configuring the NTP Server

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

Steps:

1. Enter the <Network Settings> interface: Menu >Configuration> Network
2. Select the <NTP> tab to enter the <NTP Settings> interface, as shown below.

Enable NTP	<input checked="" type="checkbox"/>
Interval (min)	60
NTP Server	1
NTP Port	123

NTP Settings Interface

3. Check the <Enable NTP> checkbox to enable this feature.

4. Configure the following <NTP Settings>:

<Interval>: Time interval between the two synchronizing actions with the <NTP Server>. The unit is one minute.

<NTP Server>: <IP Address> of the <NTP Server>.

<NTP Port>: <Port> of the <NTP Server>.

5. Click the <Apply> button to save and exit the interface.

Note:

The time synchronization interval can be set from <1> to <10080> minutes and the default value is <60> minutes. If the NVR 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 NVR is set up in a more customized network, <NTP> software can be used to establish a <NTP Server> used for <Time Synchronization>.

12.2.3 Configuring SNMP

You can use <SNMP> protocol to get the device status and parameters related information.

Steps:

1. Enter the <Network Settings> interface: Menu >Configuration> Network

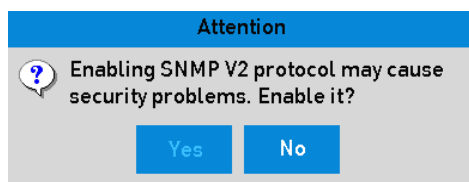
2. Select the <SNMP> tab to enter the <SNMP Settings> interface.

Enable SNMP	<input checked="" type="checkbox"/>
SNMP Version	V2
SNMP Port	161
Read Community	public
Write Community	private
Trap Address	
Trap Port	162

SNMP Settings Interface

3. Check the <SNMP> checkbox to enable this feature.

4. The enabling of <SNMP> may cause security problems. Click <Yes> to continue or <No> to cancel the operation.



SNMP Settings Interface

5. When you choose the <Yes> option in Step 4, then configure the following <SNMP Settings>:

<Trap Address>: <IP Address> of <SNMP Host>.

<Trap Port>: <Port> of <SNMP Host>.

- Click the <Apply> button to save and exit the interface.

Note:

Before setting the <SNMP>, please download the <SNMP> software and manage to receive the device information via the <SNMP Port>. By setting the <Trap Address>, the NVR is allowed to send the <Alarm Event> and an exception message to the surveillance center.

12.2.4 Configuring More Settings

Steps:

- Enter the <Network Settings> interface: Menu > Configuration > Network
- Select the <More Settings> tab to enter the <More Settings> interface.

Alarm Host IP	
Alarm Host Port	0
Server Port	8000
HTTP Port	80
Multicast IP	
RTSP Port	554

More Settings Interface

- Configure the remote <Alarm Host>, <Server port>, <HTTP Port>, <Multicast> and <RTSP Port>.

- **<Alarm Host IP>/<Port>**: With a remote <Alarm Host> configured, the device will send the <Alarm Event> or <Exception> message to the host when an alarm is triggered. The remote <Alarm Host> must have the <SCMS (Client Management System)> software installed.

The **<Alarm Host IP>** refers to the <IP Address> of the remote PC on which the <SCMS (Client Management System)> software is installed, and the <Alarm Host Port> must be the same as the <Alarm Monitoring Port> configured in the software (default <Port> is <7200>).

- **<Multicast IP>**: The multicast can be configured to realize <Live View> for more than the maximum number of cameras through the network. A <Multicast Address> spans the <Class-D IP> range of <224.0.0.0> to <239.255.255.255>. It is recommended to use the <IP Address> ranging from <239.252.0.0> to <239.255.255.255>.

When adding a device to the <SCMS (Client Management System)> software, the <Multicast Address> must be the same as the device's <Multicast IP>.

- **<RTSP Port>**: The <RTSP (Real Time Streaming Protocol)> is a network control protocol designed for use in entertainment and communications systems to control streaming media servers.

Enter the <RTSP Port> in the text field of <RTSP Port>. The default <RTSP Port> is <554> and you can change it according to different requirements.

- **<Server Port> and <HTTP Port>**: Enter the **<Server Port>** and the **<HTTP Port>** in the text fields. The default <Server Port> is <8000> and the <HTTP Port> is <80> and you can change them according to different requirements.

Note:

The Server Port should be set to the range of <2000> to <65535> and it is used for remote client software access. The <HTTP Port> is used for remote <IE Access>.

Alarm Host IP	192.0.0.10
Alarm Host Port	7200
Server Port	8000
HTTP Port	80
Multicast IP	239.252.2.50
RTSP Port	554

Configure More Settings

4. Click the <Apply> button to save and exit the interface.

12.2.5 Configuring the HTTPS Port

<HTTPS> provides authentication of the web site and associated web server that one is communicating with, which protects against Man-in-the-middle attacks. Perform the following steps to set the <Port Number> of <HTTPS>.

Example:

If you set the <Port Number> as <443> and the <IP Address> is <192.0.0.64>, you may access the device by entering *https://192.0.0.64:443* via the web browser.

Note:

The <HTTPS Port> can be only configured through the web browser.

1. Open the web browser and enter the <IP Address> of the device. The web server will select the language automatically according to the system language and maximize the web browser.
2. Enter the correct <User Name> and <Password> and click the <Login> button to log in the device.
3. Enter the <HTTPS Settings> interface.
4. Configuration > Remote Configuration > Network Settings > HTTPS
5. Create a <Self-signed Certificate> or a <Authorized Certificate>.

HTTPS Settings

OPTION 1: Create the <Self-signed Certificate>

- 1) Click the <Create> button to create the following dialog box.

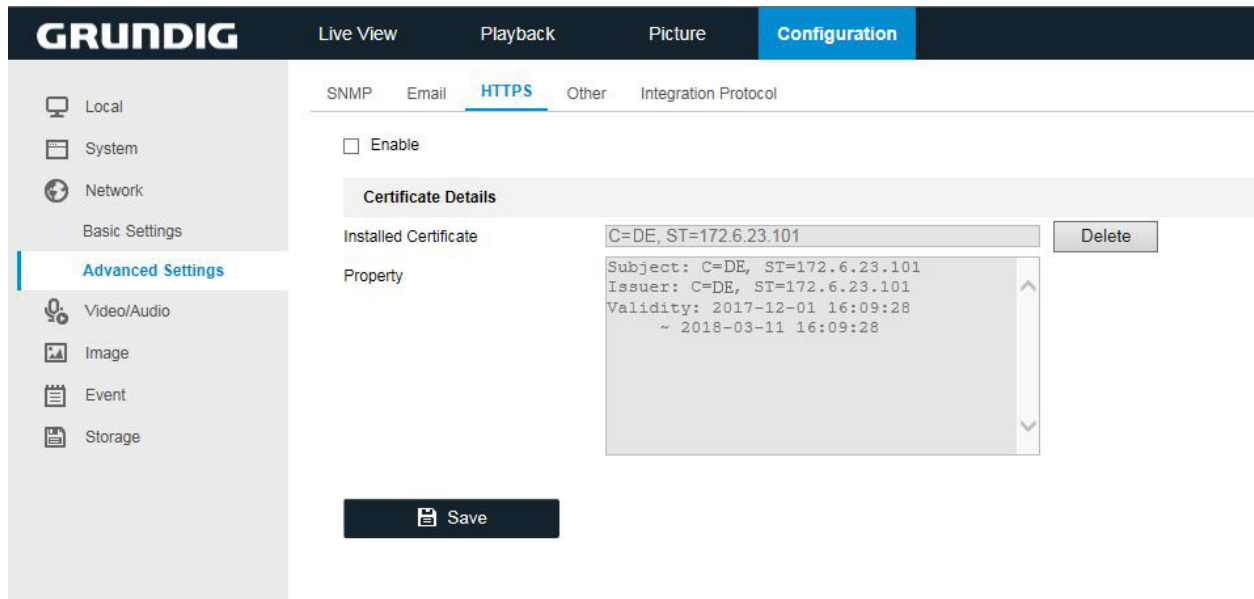
Create Self-signed Certificate

- 2) Enter the <Country>, <Host Name>/<IP>, <Validity> and other information.
- 3) Click <OK> to save the settings.

OPTION 2: Create the authorized certificate

- 1) Click the <Create> button to create the <Certificate Request>.
- 2) Download the <Certificate Request> and submit it to the Trusted Certificate Authority for signature.

- 3) After receiving the signed valid <Certificate>, import the <Certificate> to the device.
6. There will be the certificate information after you successfully create and install the certificate.



Installed Certificate Property

7. Check the checkbox to enable the <HTTPS> function.
8. Click the <Save> button to save the settings.

12.2.6 Configuring Email

The system can be configured to send an Email notification to all designated users if an <Alarm Event> or a <Motion Event>, etc. is detected or if the <Administrator Password> is changed.

Before configuring the <Email Settings>, the NVR must be connected to a Local Area Network (LAN) that maintains a <SMTP Mail Server>. The network must also be connected to either an Intranet or the Internet depending on the location of the e-mail accounts to which you want to send a notification.

Steps:

1. Enter the <Network Settings> interface: Menu >Configuration> Network
2. Set the <IPv4 Address>, <IPv4 Subnet Mask>, <IPv4 Gateway> and the <Preferred DNS Server> in the <Network Settings> menu.

General		PPPOE	DDNS	NTP	Email	SNMP	NAT	More Settings
NIC Type	10M/100M/1000M Self-adaptive							
Enable DHCP	<input type="checkbox"/>							
IPv4 Address	10	.6	.0	.98	IPv6 Address	fe80::2a57:beff:fe88:7081/64		
IPv4 Subnet	255.255.255.0				IPv6 Address			
IPv4 Default	10	.6	.0	.254	IPv6 Default			
MAC Address	28:57:be:88:70:81							
MTU(Bytes)	1500							
Enable Obtain DNS Serv...	<input type="checkbox"/>							
Preferred DNS Server								
Alternate DNS Server								
Internal NIC IPv4 Address	192.168.254.1							
								<input type="button" value="Apply"/> <input type="button" value="Back"/>

Network Settings Interface

- Click <Apply> to save the settings.
- Select the <Email> tab to enter the <Email Settings> interface.

General		PPPOE	DDNS	NTP	Email	SNMP	NAT	More Settings
Enable Se...	<input type="checkbox"/>	SMTP Ser...						
User Name		SMTP Port		25				
Password		Enable SS...		<input type="checkbox"/>				
Sender								
Sender's Address								
Select Receivers	Receiver 1							
Receiver								
Receiver's Address								
Enable Attached Picture	<input type="checkbox"/>							
Interval	2s							

Email Settings Interface

- Configure the following <Email Settings>:

<Enable Server Authentication> (optional): Check the checkbox to enable the <Server Authentication Feature>.

<User Name>: The <User Name> of the sender's account registered on the <SMTP Server>.

<Password>: The <Password> of the sender's account registered on the <SMTP Server>.

<SMTP Server>: The SMTP Server IP Address or Host Name (e.g., smtp.yourprovider.com).

<SMTP Port>: The <SMTP Port>. The default <TCP/IP Port> used for <SMTP> is <25>.

<Enable SSL/TLS> (optional): Click the checkbox to <Enable SSL/TLS> if required by the <SMTP Server>.

<Sender>: The name of the sender.

<Sender's Address>: The Email address of the sender.

<Select Receivers>: Select the receiver. Up to 3 receivers can be configured.

<Receiver>: The name of the user that is to be notified.

<Receiver's Address>: The Email address of the user that is to be notified.

<Enable Attached Picture>: Check the checkbox of <Enable Attached Picture> if you want to send the Email with attached <Alarm> images. The <Interval> is the time of two adjacent <Alarm> images. You can also set the <SMTP Port> and enable <SSL> here.

<Interval>: The interval refers to the time between two actions of sending attached pictures.

6. Click the <Apply> button to save the <Email Settings>.
7. You can click the <Test> button to test whether your <Email Settings> work.

12.2.7 Configuring the NAT

Two ways are provided for port mapping to realize the remote access via the <Cross-segment Network>, <UPnP™> and <Manual Mapping>.

- UPnP™

<Universal Plug and Play (UPnP™)> can permit the device to seamlessly discover the presence of other network devices on the network and establish functional network services for data sharing, communications, etc. You can use the <UPnP™> function to enable the <Fast Connection> of the device to the <WAN> via a router without <Port Mapping>.

Before you start:

If you want to enable the <UPnP™> function of the device, you must enable the <UPnP™> function of the router to which your device is connected. When the <Network> working mode of the device is set as <Multi-address>, then the <Default Route> of the device should be in the same network segment as that of the <LAN IP Address> of the router.

Steps:

1. Enter the <Network Settings> interface: Menu > Configuration > Network
2. Select the <NAT> tab to enter the <Port Mapping> interface.

Port Type	Edit	External ...	External IP Address	Port	UPnP Status
HTTP Port		80	0.0.0.0	80	Inactive
RTSP Port		554	0.0.0.0	554	Inactive
Server Port		8000	0.0.0.0	8000	Inactive
HTTPS Port		443	0.0.0.0	443	Inactive

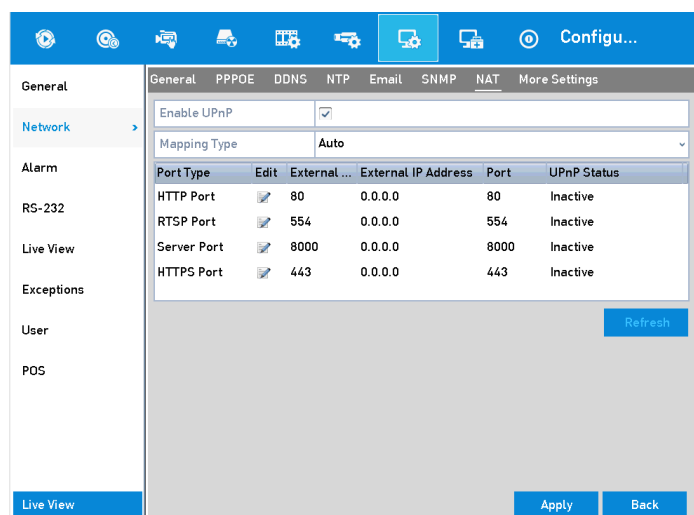
UPnP™ Settings Interface

3. Check the checkbox to enable <UPnP™> .
4. Select the <Mapping Type> as <Manual> or <Auto> in the drop-down list.

OPTION 1: Auto

If you select <Auto>, the <Port Mapping> items are <Read-only> and the <External Ports> are set by the router automatically.

- 1) Select <Auto> in the drop-down list for the <Mapping Type>.
- 2) Click the <Apply> button to save the settings.
- 3) You can click the <Refresh> button to get the latest status of the <Port Mapping>.



UPnP™ Settings Finished-Auto

OPTION 2: Manual

If you select <Manual> as the <Mapping Type>, you can edit the <External Port> on your demand by clicking to activate the <External Port Settings> dialog box.

Steps:

- 1) Select <Manual> in the drop-down list for the <Mapping Type>.
- 2) Click to activate the <External Port Settings> dialog box. Configure the <External Port No.> for the <Server Port>, <HTTP Port>, <RTSP Port> and <Https Port> respectively.

Note:

You can use the default <Port No.> or change it according to actual requirements.

<External Port> indicates the <Port No.> for <Port Mapping> in the router.

The value of the <RTSP Port No.> should be <554> or between <1024> and <65535> while the value of the other ports should be between <1> and <65535> and the value must be different from each other. If multiple devices are configured for the <UPnP™ Settings> under the same router, the value of the <Port No.> for each device should be unique.

External Port Settings	
Port Type	HTTP Port
External Port	81
<div>OK Cancel</div>	

External Port Settings Dialog Box

- 3) Click the <Apply> button to save the settings.
- 4) You can click the <Refresh> button to get the latest status of the <Port Mapping>.

General PPPOE DDNS NTP Email SNMP NAT More Settings					
Enable UPnP		<input checked="" type="checkbox"/>			
Mapping Type		Manual			
Port Type	Edit	External ...	External IP Address	Port	UPnP Status
HTTP Port		80	0.0.0.0	80	Inactive
RTSP Port		554	0.0.0.0	554	Inactive
Server Port		8000	0.0.0.0	8000	Inactive
HTTPS Port		443	0.0.0.0	443	Inactive
					Refresh

UPnP™ Settings Finished-Manual

- Manual Mapping:

If your router does not support the UPnP™ function, perform the following steps to map the port manually in an easy way.

Before you start:

Make sure the router supports the configuration of the <Internal Port> and the <External Port> in the interface of <Forwarding>.

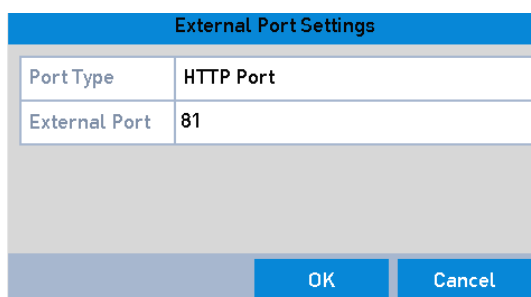
Steps:

1. Enter the <Network Settings> interface.
2. Menu > Configuration > Network
3. Select the <NAT> tab to enter the port mapping interface.

4. Leave the <UPnP>checkbox unchecked.
5. Click  to activate the <External Port Settings> dialog box. Configure the <External Port No.> for the <Server Port>, the <HTTP Port>, the <RTSP Port> and the <HTTPS Port> respectively.

Note:

The value of the <RTSP Port No.> should be <554> or between <1024> and <65535> while the value of the other ports should be between <1> and <65535> and the value must be different from each other. If multiple devices are configured for the <UPnP™ Settings> under the same router, the value of the <Port No.> for each device should be unique.



External Port Settings	
Port Type	HTTP Port
External Port	81
<div>OK Cancel</div>	

External Port Settings Dialog Box

6. Click <OK> to save the setting for the <Current Port> and return to the upper-level menu.
7. Click the <Apply> button to save the settings.
8. Enter the <Virtual Server Settings> page of the router; fill in the blank of the <Internal Source Port> with the <Internal Port Value> and the blank of <External Source Port> with the <External Port Value> and other required contents.

Note:

Each item should be corresponding with the <Device Port> including the <Server Port>, the <HTTP Port>, the <RTSP Port> and the <HTTPS Port>.



Delete	External Source Port	Protocol	Internal Source IP	Internal Source Port	Application
<input type="checkbox"/>	81	TCP	192.168.251.101	80	HTTP

Setting Virtual Server Item

Note:

The above <Virtual Server Setting> interface is for reference only; it may be different due to different router manufacturers. Please contact the manufacturer of the router if you have any problems with setting the <Virtual Server>.

12.2.8 Configuring the Virtual Host

Please note: This function is not available in all models (not supported by GD-RN-AT819128N).

You can directly get access to the <IP Camera Management> interface after enabling this function.

Note:

The <Virtual Host> function can only be configured through the web browser.

Steps:

1. Enter the <Advanced Settings> interface: Configuration > Network > Advanced Settings > Other

Advanced Settings Interface

2. Check the checkbox <Enable Virtual Host>.
3. Click the <Save> button to save the setting.
4. Enter the <IP Camera Management> interface of the NVR. The <Connect> column appears on the far-right side of the camera list: Configuration > Remote Configuration > Camera Management > IP Camera

Channel No.	Camera Name	IP Address	Channel No.	Management Port	Security	Status	Protocol	Connect
D1	Camera 01	10.6.0.23	1	8000	Weak	Online	HIKVISION	
D2	IPCamera 02	192.168.254.3	1	8000	N/A	Offline(IP camera...	Grundig-1	
D3	IPCamera 03	192.168.254.4	1	8000	N/A	Offline(IP camera...	Grundig-1	
D4	IPCamera 04	192.168.254.5	1	8000	N/A	Offline(IP camera...	Grundig-1	
D5	IPCamera 05	192.168.254.6	1	8000	N/A	Offline(IP camera...	Grundig-1	
D6	IPCamera 06	192.168.254.7	1	8000	N/A	Offline(IP camera...	Grundig-1	
D7	IPCamera 07	192.168.254.8	1	8000	N/A	Offline(IP camera...	Grundig-1	
D8	IPCamera 08	192.168.254.9	1	8000	N/A	Offline(IP camera...	Grundig-1	

Connect to IP Camera

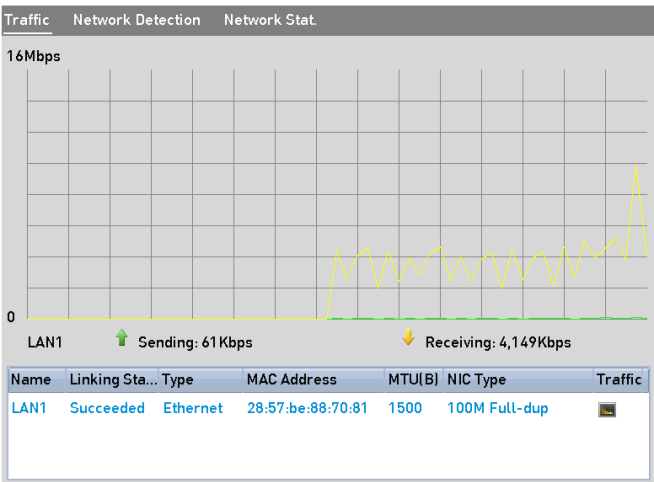
5. Click the link and the page of <IP Camera Management> appears.

12.3 Checking Network Traffic

You can check the <Network Traffic> to obtain <Real-time> information of the NVR such as the <Linking Status>, <MTU>, <Sending/Receiving Rate>, etc.

Steps:

1. Enter the <Network Traffic> interface: Menu > Maintenance > Net Detect



Network Traffic Interface

2. You can view the <Sending Rate> and the <Receiving Rate> information on the interface. The <Traffic> data is refreshed every 1 second.

12.4 Configuring Network Detection

You can obtain the <Network Connecting Status> of the NVR through the <Network Detection> function including <Network Delay>, <Packet Loss>, etc.

12.4.1 Testing the Network Delay and Packet Loss

Steps:

1. Enter the Network Traffic interface: Menu> Maintenance> Net Detect
2. Click the <Network Detection> tab to enter the <Network Detection> menu as shown below.

The screenshot shows the 'Network Detection' interface. At the top, there are three tabs: 'Traffic', 'Network Detection', and 'Network Stat.'. The 'Network Detection' tab is active, displaying a form for 'Network Delay, Packet Loss Test'. The form has two sections: 'Network Delay, Packet Loss Test' and 'Network Packet Export'. The 'Network Delay, Packet Loss Test' section has a 'Select NIC' dropdown menu set to 'LAN1' and a 'Destination Address' text field containing '10.6.0.98'. There is a 'Test' button to the right. The 'Network Packet Export' section has a 'Device Name' dropdown menu set to 'USB Flash Disk 1-1' and a 'Refresh' button to the right. Below these sections is a table with the following data:

Name	Linking Sta...	Type	MAC Address	MTU[B]	NIC Type	Traffic
LAN1	Succeeded	Ethernet	28:57:be:88:70:81	1500	100M Full-dup	

Network Detection Interface

3. Enter the <Destination Address> in the text field of <Destination Address>.

- Click the <Test> button to start testing the <Network Delay> and the <Packet Loss>. The testing result pops up on the window. If the testing failed, the error message box will pop up as well. Refer to the figure below.



Testing Result of Network Delay and Packet Loss

12.4.2 Exporting the Network Packet

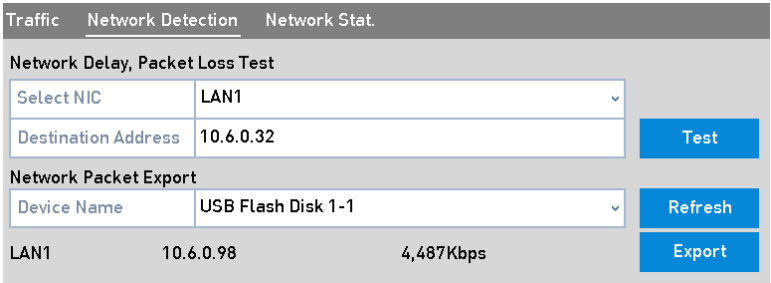
By connecting the NVR to a network, the captured <Network Data Packet> can be exported to a USB-flash disk, a SATA /eSATA, a DVD-R/W and other local backup devices.

Steps:

- Enter the <Network Traffic> interface: Menu> Maintenance> Net Detect
- Click the <Network Detection> tab to enter the <Network Detection> interface.
- Select the backup device from the dropdown list called <Device Name> as show below.

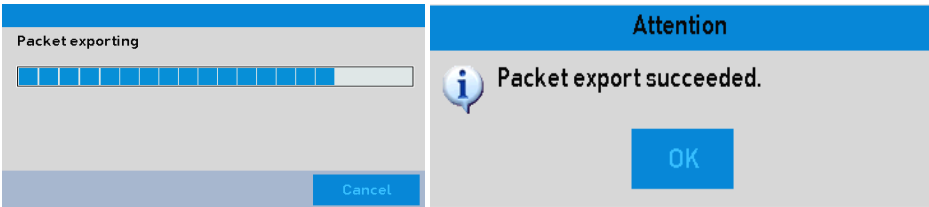
Note:

Click the <Refresh> button if the connected local backup device cannot be displayed. When it fails to detect the backup device, please check whether it is compatible with the NVR. You can format the backup device if the format is incorrect.



Export Network Packet

- Click the <Export> button to start exporting.
- After the exporting is complete, click <OK> to finish the <Packet Export> as shown below.



Packet Export Attention

Note:

Up to 1M data can be exported each time.

12.4.3 Checking the Network Status

You can also check the <Network Status> and quick-set the <Network Parameters> in this interface.

Steps:

- 1. Click the <Status> button on the lower-right corner of the page.

Traffic

Network Detection

Network Stat.

Network Delay, Packet Loss Test

Select NIC

LAN1

Destination Address

10.6.0.32

Test

Network Packet Export

Device Name

USB Flash Disk 1-1

Refresh

LAN1

10.6.0.98

4,487Kbps

Export

Status


Network

Back

Network Status Checking

- 2. If the network is normal, then the following message box pops out.

Result



Network status is normal.

OK

Network Status Checking Result

If the message box pops out with other information instead of this one, you can click the <Network> button to show the <Quick Setting> interface of the <Network Parameters>.

12.4.4 Checking the Network Statistics

You can check the <Network Status> to obtain the <Real-time> information of the NVR.

- 1. Enter the <Network Detection interface: Menu> Maintenance> Net Detect
- 2. Choose the <Network Stat.> tab.

Type	Bandwidth
IP Camera	5,120Kbps
Remote Live View	0bps
Remote Playback	0bps
Net Receive Idle	75Mbps
Net Send Idle	256Mbps

Refresh

Network Stat. Interface

3. Check the <Bandwidth> of the IP Camera , the <Bandwidth> of <Remote Live View>, the <Bandwidth> of <Remote Playback>, the <Bandwidth> of the <Net Receive Idle> and the <Bandwidth> of <Net Send Idle>.
4. You can click <Refresh> to get the newest status.

13. RAID

Please note: This chapter is only applicable to GD-RN-AT8864N, GD-RN-CT8832N and GD-RN-AT819128N.

13.1 Configuring an Array

<RAID (Redundant Array of Independent Disks)> is a storage technology that combines multiple disk drive components into a logical unit. A <RAID> setup stores data over multiple hard disk drives to provide enough redundancy so that data can be recovered if one disk fails. Data is distributed across the drives in one of several ways called "RAID levels", depending on what level of redundancy and performance is required.

The NVR supports the <Disk Array> that is realized by software. You can enable the <RAID> function on your demand.

Note:

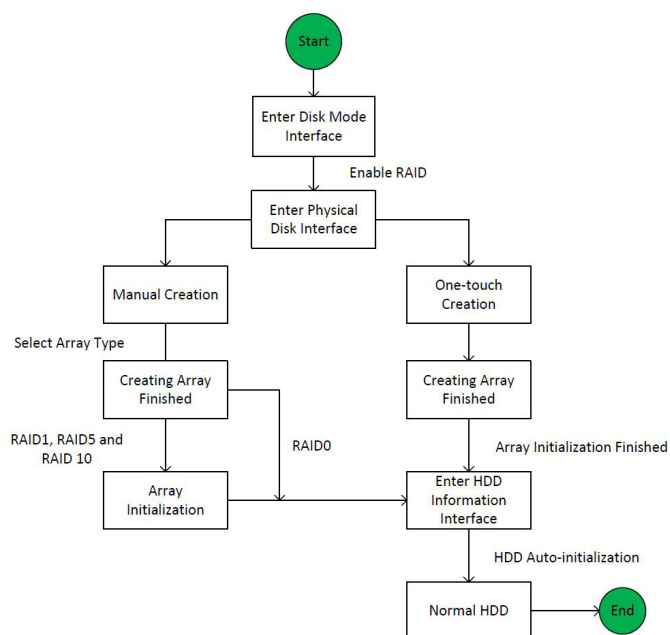
The GD-RN-AT8864N, GD-RN-CT8832N and GD-RN-AT819128N support the <RAID 0>, <RAID 1>, <RAID 5>, <RAID 6> and <RAID 10> array types.

Before you start:

Please install the HDD(s) properly and it is recommended to use the same enterprise-level HDDs (including model and capacity) for the array creation and configuration so as to maintain a reliable and stable running of the disks.

Introduction:

The NVR can store the data (such as a record, a picture and log information) in the HDD only after you have created the <Array> or you have configured network HDD (refer to *Chapter 14.2 Managing the Network HDD*). Our device provides two ways for creating an <Array>, including <One-touch Configuration> and <Manual Configuration>. The following flow chart shows the process of creating an <Array>.



RAID Working Flow

13.1.1 Enable RAID

Perform the following steps to enable the <RAID> function, or the disk array cannot be created.

Note:

Use the enterprise-level HDDs to create the array.

● OPTION 1:

Enable the <RAID> function in the Wizard when the device starts up, please refer to step 7 of *Chapter 2.2*.

● OPTION 2:

Enable the <RAID> function in the <HDD Management> interface.

Steps:

1. Enter the <Disk Mode Configuration> interface: Menu > HDD > Advanced.
2. Check the checkbox of <Enable RAID>.
3. Click the <Apply> button to save the settings.

13.1.2 One-touch Configuration

Through <One-touch Configuration>, you can quickly create the <Disk Array>. By default, the <Array Type> to be created is <RAID 5>.

Before you start:

- The <RAID> function should be enabled, please refer to *Chapter 13.1.1* for details.
- As the default <Array Type> is <RAID 5>, please install at least 3 HDDs on your device.
- If more than 10 HDDs are installed, 2 arrays can be configured.

Steps:

1. Enter the <RAID Configuration> interface: Menu > HDD > RAID
2. Check the checkbox of the corresponding <HDD No.> to select it.
3. Click the <One-touch Create> button to enter the <One-touch Array Configuration> interface.
4. Edit the <Array Name> in the <Array Name> text field and click the <OK> button to start configuring the <Array>.

Note:

If you install 4 HDDs or more for <One-touch Configuration>, a <Hot Spare> disk will be set by default. It is recommended to set a <Hot Spare> disk for automatically rebuilding the <Array> when the array is abnormal.

5. When the <Array Configuration> is completed, click the <OK> button in the pop-up message box to finish the settings.
6. You can click the <Array> tab to view the information of the successfully created <Array>.

Note:

By default, <One-touch Configuration> creates an <Array> and a <Virtual Disk>.

7. A created <Array> displays as an HDD in the <HDD Information> interface.

13.1.3 Manually Creating the Array

You can manually create the array of <RAID 0>, <RAID 1>, <RAID 5>, <RAID 6> and <RAID 10>.

Note:

In this section, we take <RAID 5> as an example to describe the manual configuration of an <Array> and a <Virtual Disk>.

Steps:

1. Enter the <Physical Disk Settings> interface: Menu > HDD > RAID > Physical Disk
2. Click the <Create> button to enter the <Create Array> interface.
3. Edit the <Array Name>; set the <RAID Level> to <RAID 0>, <RAID 1>, <RAID 5>, <RAID 6> or <RAID 10>; select the Physical Disk that you want to configure for the <Array>.

Note:

If you choose <RAID 0>, at least 2 HDDs must be installed.

If you choose <RAID 1>, 2 HDDs need to be configured for <RAID 1>.

If you choose <RAID 5>, at least 3 HDDs must be installed.

If you choose <RAID 6>, at least 4 HDDs must be installed.

If you choose <RAID 10>, the number of HDDs installed should be even in the range of <4> to <16>.

4. Click the <OK> button to create the <Array>.

Note:

If the number of HDDs you select is not compatible with the requirement of the <RAID Level>, the error message box will pop up.

5. You can click the <Array> tab to view the successfully created <Array>.

13.2 Rebuilding the Array


The working status of an <Array> includes <Functional>, <Degraded> and <Offline>. By viewing the <Array Status>, you can perform immediate and proper maintenance for the disks so as to ensure the high security and the reliability of the data stored in the <Disk Array>.

When there is no <Disk Loss> in the <Array>, the working status of the <Array> will change to <Functional>; when the number of lost disks has exceeded the limit, the working status of the <Array> will change to <Offline>; in other conditions, the working status is <Degraded>.

When the <Virtual Disk> shows a <Degraded> status, you can restore it to <Functional> by <Array Rebuilding>.

Before you start:

Please make sure the <Hot Spare> disk is configured.

1. Enter the <Physical Disk Settings> interface to configure the <Hot Spare> disk.
2. Select a disk and click  to set it as the <Hot Spare> disk.

Note:

Only global <Hot Spare> mode is supported.

13.2.1 Automatically Rebuilding the Array

When the <Virtual Disk> shows a <Degraded> status, the device can start rebuilding the <Array> automatically with the <Hot Spare> disk to ensure the high security and the reliability of the data.


Enter the <Array Settings> interface (Menu> HDD> RAID> Array). The status of the <Array> is <Degraded>. Since the <Hot Spare> disk is configured, the system will automatically start rebuilding by using it.

If there is no <Hot Spare> disk after rebuilding, it is recommended to install a HDD into the device and to set it as a <Hot Spare> disk to ensure the high security and the reliability of the <Array>.

13.2.2 Manually Rebuilding the Array

If the <Hot Spare> disk has not been configured, you can rebuild the <Array> manually to restore the <array> when the <Virtual Disk> has a <Degraded> status.

Steps:

1. Enter the <Array Settings> interface. The disk 3 is lost: Menu > HDD > RAID > Array
2. Click the <Array> tab to back to the <Array Settings> interface and click  to configure the <Array Rebuild>.

Note:

At least one available physical disk should exist for rebuilding the <Array>.


3. Select the available physical disk and click the <OK> button to confirm to rebuild the <Array>.
4. The <Do not unplug the physical disk when it is under rebuilding> message box pops up. Click the <OK> button to start rebuilding.
5. You can enter the <Array Settings> interface to view the rebuilding status.

After rebuilding successfully, the <Array> and the <Virtual Disk> will restore to <Functional>.

13.3 Deleting the Array**Note:**

Deleting the <Array> will cause the deletion of all of the saved data on the disk.

Steps:

1. Enter the <Array Settings> interface: Menu>HDD>RAID>Array.
2. Select an <Array> and click  to delete the <Array>.
3. In the pop-up message box, click the <Yes> button to confirm the <Array Deletion>.

Note:

Deleting the <Array> will cause the deletion of all of the data on the <Array>.

13.4 Checking and Editing the Firmware

You can view the information of the <Firmware> and set the <Background Task Speed> on the <Firmware> interface.

Steps:

1. Enter the <Firmware> interface to check the information of the firmware including the <Version>, the <Maximum Physical Disk Quantity>, the <Maximum Array Quantity>, the <Auto-rebuild Status>, etc.
2. You can set the <Background Task Speed> in the drop-down list.
3. Click the <Apply> button to save the settings.

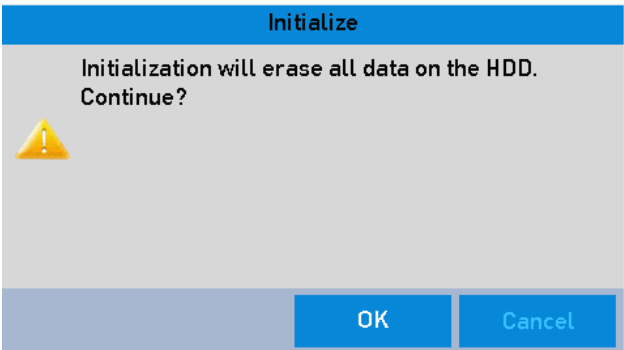
14. HDD Management

14.1 Initializing HDDs

A newly installed hard disk drive (HDD) must be initialized before it can be used with your NVR.

Note:

A message box pops up when the NVR starts up if there exits any <Uninitialized HDD>.



Message Box of Uninitialized HDD

Click the <Yes> button to initialize it immediately or you can perform the following steps to initialize the HDD.

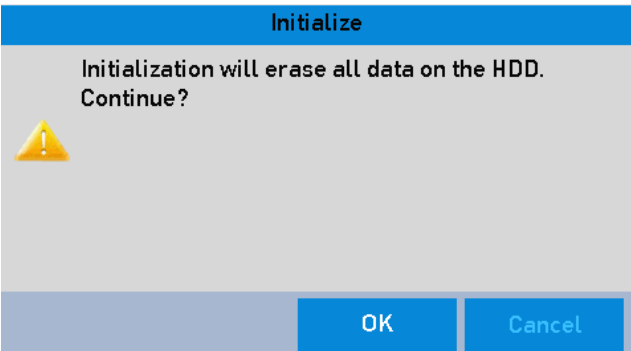
Steps:

1. Enter the <HDD Information> interface: Menu> HDD> General



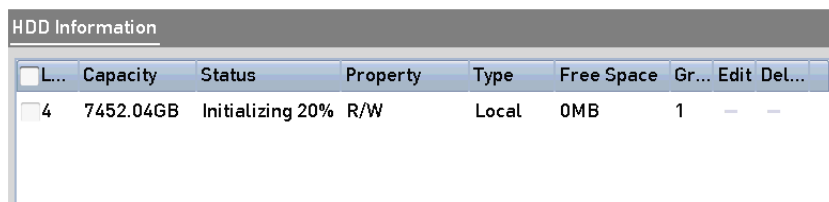
HDD Information Interface

2. Select the HDD that is to be initialized.
3. Click the <Init> button.



Confirm Initialization

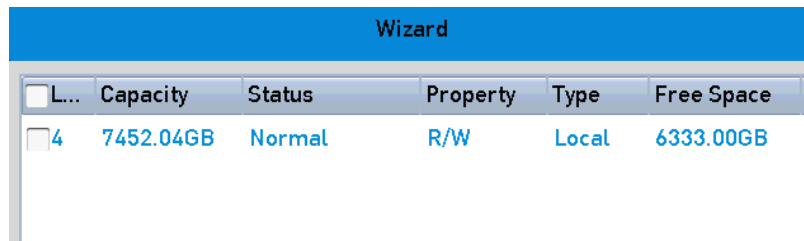
4. Select the <OK> button to start the initialization.



L...	Capacity	Status	Property	Type	Free Space	Gr...	Edit	Del...
4	7452.04GB	Initializing 20%	R/W	Local	0MB	1	—	—

Status changes to Initializing

5. After the HDD has been initialized, the status of the HDD will change from *Uninitialized* to *Normal*.



L...	Capacity	Status	Property	Type	Free Space
4	7452.04GB	Normal	R/W	Local	6333.00GB

HDD Status Changes to Normal

Note:

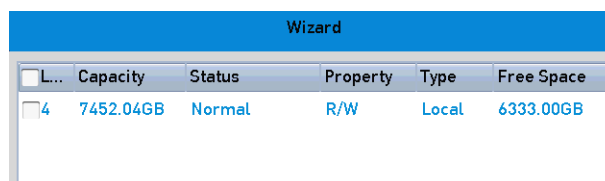
Initializing the HDD will erase all data on it.

14.2 Managing the Network HDD

You can add the allocated <NAS> or disk of <IP SAN> to the NVR and use it as a <Network HDD>. Up to 8 network disks can be added.

Steps:

1. Enter the <HDD Information> interface: Menu > HDD>General



L...	Capacity	Status	Property	Type	Free Space
4	7452.04GB	Normal	R/W	Local	6333.00GB

HDD Information Interface

2. Click the <Add> button to enter the <Add NetHDD> interface.

Add NetHDD	
NetHDD	NetHDD 1
Type	NAS
NetHDD IP Address	.
NetHDD Directory	
<div>Search OK Cancel</div>	

HDD Information Interface

3. Add the allocated <NetHDD>.
4. Select the <Type> between <NAS> and <IP SAN>.
5. Configure the <NAS> or the <IP SAN> settings.
 - Add NAS disk:
 - 1) Enter the <NetHDD IP Address> in the text field.
 - 2) Click the <Search> button to search the available <NAS> disks.
 - 3) Select the <NAS> disk from the list shown below.
 - 4) Or you can just manually enter the directory in the text field of <NetHDD Directory>.
 - 5) Click the <OK> button to add the configured <NAS> disk.

Add NetHDD	
NetHDD	NetHDD 1
Type	NAS
NetHDD IP Address	172.6.24.201
NetHDD Directory	
<div>Search OK Cancel</div>	

Add NAS Disk

- Add IP SAN:
 - 1) Enter the <NetHDD IP Address> in the text field.
 - 2) Click the <Search> button to search the available <IP SAN> disks.
 - 3) Select the <IP SAN> disk from the list shown below.
 - 4) Click the <OK> button to add the selected <IP SAN> disk.

Note:

Up to 1 <IP SAN> disk can be added.

Add NetHDD	
NetHDD	NetHDD 1
Type	IP SAN
NetHDD IP Address	172.6 .24 .201
NetHDD Directory	
<div>Search OK Cancel</div>	

Add IP SAN Disk

6. After having successfully added the <NAS> or the <IP SAN> disk, return to the <HDD Information> menu. The added <NetHDD> will be displayed in the list.

Note:

If the added <NetHDD> is uninitialized, please select it and click the <Init> button for initialization.

14.3 Managing eSATA

When there is an <External eSATA> device connected to the NVR, you can configure the eSATA to use it for <Record/Capture> or <Export>, and you can manage the eSATA in the NVR.

Steps:

1. Enter the <Advanced Record Settings> interface: Menu> Record> Advanced
2. Select the <eSATA Type> to <Export> or <Record/Capture> from the dropdown list of eSATA.

<Export>: use the eSATA for backup. Refer to *Backup using eSATA HDDs in Chapter 7.1.2 Backing up by Normal Video/Picture Search* for operating instructions.

<Record/Capture>: use the eSATA for <Record/Capture>. Refer to the following steps for operating instructions.
3. When the <eSATA Type> is selected to <Record/Capture>, enter the <HDD Information> interface: Menu> HDD> General
4. Edit the property of the selected eSATA or initialize it if required.


Two storage modes can be configured for the eSATA when it is used for <Record/Capture>. Please refer to *Chapter 14.4 Managing a HDD Group* and *Chapter 14.5 Configuring the Quota Mode* for details.

14.4 Managing a HDD Group

14.4.1 Setting HDD Groups

Multiple HDDs can be managed in groups. Video from specified channels can be recorded onto a particular <HDD Group> through <HDD Settings>.

Steps:

1. Enter the <Storage Mode> interface: Menu > HDD > Advanced > Storage Mode
2. Set the <Mode> to Group.
3. Click the <Apply> button and an Attention box will pop up.
4. Click the <Yes> button to reboot the device to activate the changes.
5. After the reboot of the device, enter the <HDD Information> interface: Menu > HDD> General
6. Select HDD from the list and click  to enter the <Local HDD Settings> interface.
7. Select the <Group Number> for the current HDD.

Note:

The default <Group No.> for each HDD is <1>.


8. Click the <OK> button to confirm the settings.
9. In the pop-up Attention box, click the <Yes> button to finish the settings.

14.4.2 Setting the HDD Property

The HDD property can be set to <Redundancy>, <Read-only> or <Read/Write(R/W)>. Before setting the HDD property, please set the storage mode to <Group> (refer to step1-4 of *Chapter 14.4.1 Setting HDD Groups*).

A HDD can be set to read-only to prevent important recorded files from being overwritten when the HDD becomes full in overwrite recording mode.

When the HDD property is set to redundancy, the video can be recorded both onto the redundancy HDD and the <R/W HDD> simultaneously so as to ensure high security and reliability of video data.

1. Enter the <HDD Information> interface: Menu > HDD> General
2. Select HDD from the list and click  to enter the <Local HDD Settings> interface, as shown below.
3. Set the HDD property to <R/W>, <Read-only> or <Redundancy>.
4. Click the <OK> button to save the settings and exit the interface.
5. In the <HDD Information> menu, the HDD property will be displayed in the list.

Note:

At least 2 hard disks must be installed on your NVR when you want to set a HDD to <Redundancy>, and there is one HDD with <R/W> property.

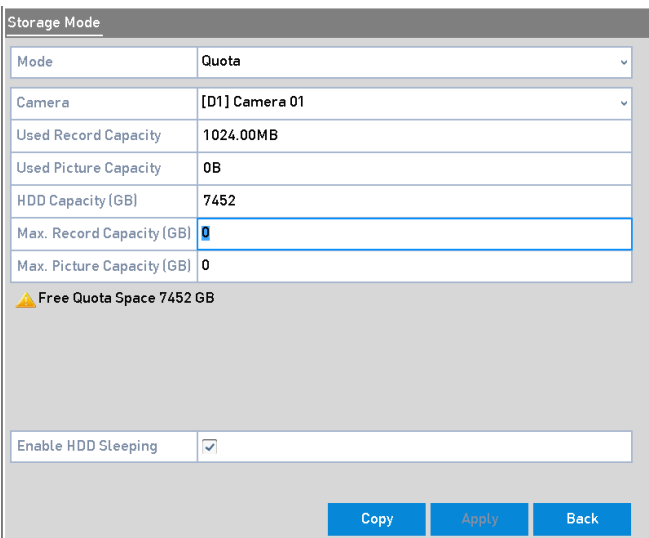
14.5 Configuring the Quota Mode

Each camera can be configured with allocated quota for the storage of recorded files or captured pictures.

1. Enter the <Storage Mode> interface.
2. Menu > HDD > Advanced
3. Set the <Mode> to <Quota>.

Note:

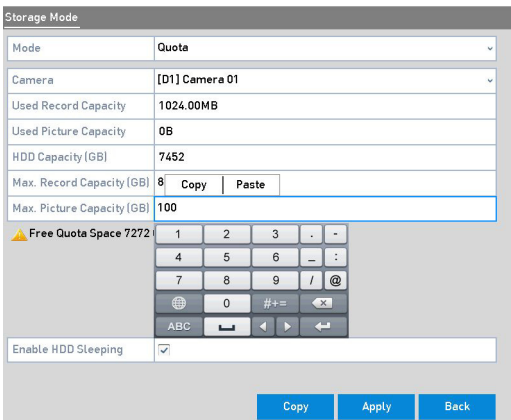
The NVR must be rebooted to enable the changes to take effect.



The screenshot shows the 'Storage Mode' settings interface. At the top, there's a 'Mode' dropdown set to 'Quota' and a 'Camera' dropdown set to '[D1] Camera 01'. Below these are fields for 'Used Record Capacity' (1024.00MB), 'Used Picture Capacity' (0B), 'HDD Capacity (GB)' (7452), 'Max. Record Capacity (GB)' (0), and 'Max. Picture Capacity (GB)' (0). A yellow warning icon indicates 'Free Quota Space 7452 GB'. At the bottom, there's a checkbox for 'Enable HDD Sleeping' which is checked. Three buttons at the bottom right are 'Copy', 'Apply', and 'Back'.

Storage Mode Settings Interface

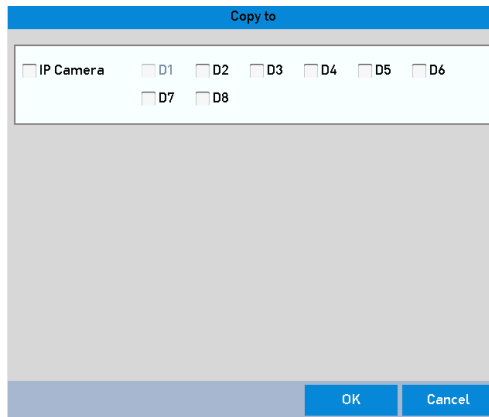
4. Select a <Camera> for which you want to configure the <Quota>.
5. Enter the <Storage Capacity> in the text fields of <Max. Record Capacity (GB)> and <Max. Picture Capacity (GB)>.



This screenshot shows the same 'Storage Mode' interface as before, but with the 'Max. Record Capacity (GB)' field set to 8 and the 'Max. Picture Capacity (GB)' field set to 100. A numeric keypad is visible over the bottom half of the form, and the 'Free Quota Space' is now 7272 GB. The 'Copy' button is highlighted next to the 'Max. Record Capacity' field.

Configure the Record/Picture Quota

6. You can copy the <Quota Settings> of the current <Camera> to other cameras if required. Click the <Copy> button to enter the <Copy Camera> menu, as shown below.



7.

8. Copy <Settings> to other <Camera(s)>.
9. Select the <Camera(s)> to be configured with the same <Quota Settings>. You can also click the checkbox of IP Camera to select all cameras.
10. Click the <OK> button to finish copying the settings and to go back to the <Storage Mode> interface.
11. Click the <Apply> button to apply the settings.

Note:

If the <Quota Capacity> is set to <0>, then all cameras will use the total capacity of the HDD for record and picture capture.

14.6 Configuring the Disk Clone

If the <S.M.A.R.T.> detection result declares the HDD is <Abnormal>, you can choose to clone all the data on the HDD to an inserted eSATA disk manually. Refer to *Chapter 12.8 HDD Detection* for details of <S.M.A.R.T.> detection.

Before you start:

An eSATA disk should be connected to the device.

Steps:

1. Enter the <HDD Advanced Setting> interface:
2. Menu > HDD > Advanced
3. Click the <Disk Clone> tab to enter the <Disk Clone Configuring> interface.
4. Make sure the usage of the eSATA disk is set as <Export>.

If not, click the <Set> button to set it. Choose <Export> and then click the <OK> button.

Note:

The capacity of the <Destination Disk> must be the same as that of the <Clone Source Disk>.

5. Check the checkbox of the HDD to be cloned in the <Clone Source> list.
6. Click the <Clone> button and a message box pops up.
7. Click the <Yes> button to continue.

You can check the clone progress in the <HDD Status>.

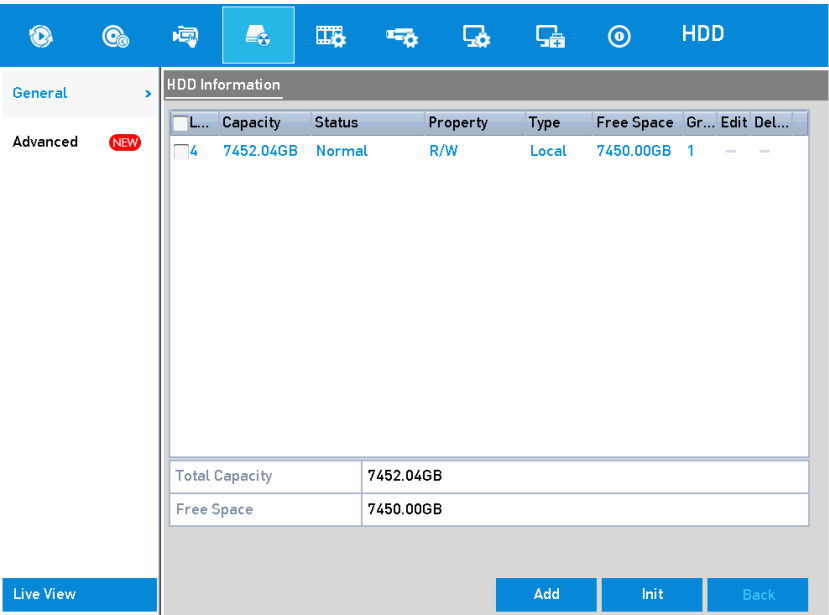
14.7 Checking the HDD Status

You may check the status of the installed HDDs on NVR so as to take immediate check and maintenance in case of HDD failure.

Checking HDD Status in the <HDD Information Interface>:

Steps:

1. Enter the <HDD Information> interface.
2. Menu> HDD> General
3. Check the status of each HDD which is displayed on the list as shown below.



View HDD Status (1)

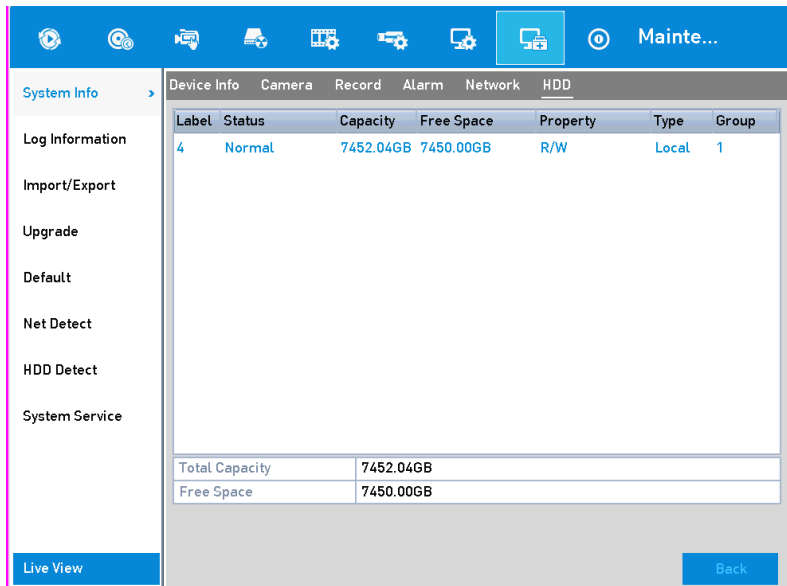
Note:

If the status of HDD is <Normal> or <Sleeping>, that means that it works normally. If the status is <Uninitialized> or <Abnormal>, please initialize the HDD before use. And if the <HDD Initialization> failed, please replace it with a new one.

Checking the <HDD Status> in the <HDD Information> interface:

Steps:

1. Enter the <System Information> interface.
2. Menu >Maintenance > System Info
3. Click the HDD tab to view the status of each HDD displayed on the list, as shown below.



View HDD Status (2)

14.8 HDD Detection

The device provides the <HDD Detection> function such as the adopting of the <S.M.A.R.T.> and the <Bad Sector Detection> technique. The <S.M.A.R.T.> (Self-Monitoring, Analysis and Reporting Technology) is a monitoring system for the HDD to detect and report on various indicators of reliability in the hopes of anticipating failures.

S.M.A.R.T. Settings:

Steps:

1. Enter the <S.M.A.R.T Settings> interface.
2. Menu > Maintenance > HDD Detect
3. Select the HDD to view its <S.M.A.R.T Information> list, as shown below.

S.M.A.R.T Settings Interface

The related information of the <S.M.A.R.T.> is shown on the interface.

You can choose the <Self-test Types> as <Short Test>, <Expanded Test> or the <Conveyance Test>.

Click the <Start> button to start the <S.M.A.R.T. HDD Self-evaluation>.



Note:

If you want to use the HDD even when the <S.M.A.R.T.> checking is failed, you can check the checkbox <Continue to use the disk when self-evaluation is failed>.

Bad Sector Detection:

Steps:

1. Click the <Bad Sector Detection> tab.
2. Select the <HDD No.> in the dropdown list you want to configure and choose <All Detection> or <Key Area Detection> as the <Detection Type>.
3. Click the <Detect> button to start the detection.

S.M.A.R.T. Settings - Bad Sector Detection	
HDD No.	4
Key Area Detection	▼
<button>Detect</button>	
HDD Capacity	7452.04GB
Block Capacity	1863.01MB
Status	Testing... 13%
Error Count	0
Error Info Pause Cancel	
Back	

Bad Sector Detection

You can also click the <Error Info> button to see the detailed damage information.

Further you can click <Pause/Resume> or <Cancel> the detection.

14.9 Configuring HDD Error Alarms

You can configure the <HDD Error> alarms when the HDD status is *Uninitialized* or *Abnormal*.

Steps:

1. Enter the <Exception> interface: Menu > Configuration > Exceptions
2. Select the <Exception Type> to <HDD Error> from the dropdown list.
3. Click the checkbox(s) below to select the <HDD Error Alarm Type(s)> as shown below.

Note:

The <Alarm Type> can be selected to: <Audible Warning>, <Notify Surveillance Center>, <Send Email> and <Trigger Alarm Output>. Please refer to *Chapter 8.6 Setting Alarm Response Actions*.

Exception	
Enable Event Hint	<input checked="" type="checkbox"/>
Event Hint Settings	
Exception Type	HDD Error ▼
Audible Warning	<input checked="" type="checkbox"/>
Notify Surveillance Center	<input type="checkbox"/>
Send Email	<input type="checkbox"/>
Trigger Alarm Output	<input type="checkbox"/>

Configure an HDD Error Alarm

4. When the <Trigger Alarm Output> is selected, you can also select the <Alarm Output> to be triggered from the list below.
5. Click the <Apply> button to save the settings

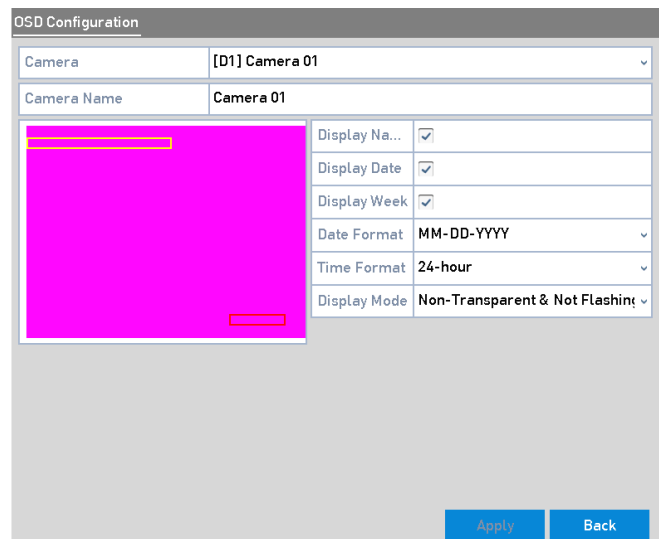
15. Camera Settings

15.1 Configuring the OSD Settings

You can configure the <OSD (On-screen Display) Settings> for the camera, including <Date/Time>, <Camera Name>, etc.

Steps:

1. Enter the <OSD Configuration> interface: Menu > Camera > OSD
2. Select the <Camera> to configure the <OSD Settings>.
3. Edit the <Camera Name> in the text field.
4. Configure the <Display Name>, <Display Date> and <Display Week> by clicking the checkbox.
5. Select the <Date Format>, <Time Format> and <Display Mode>.



OSD Configuration Interface

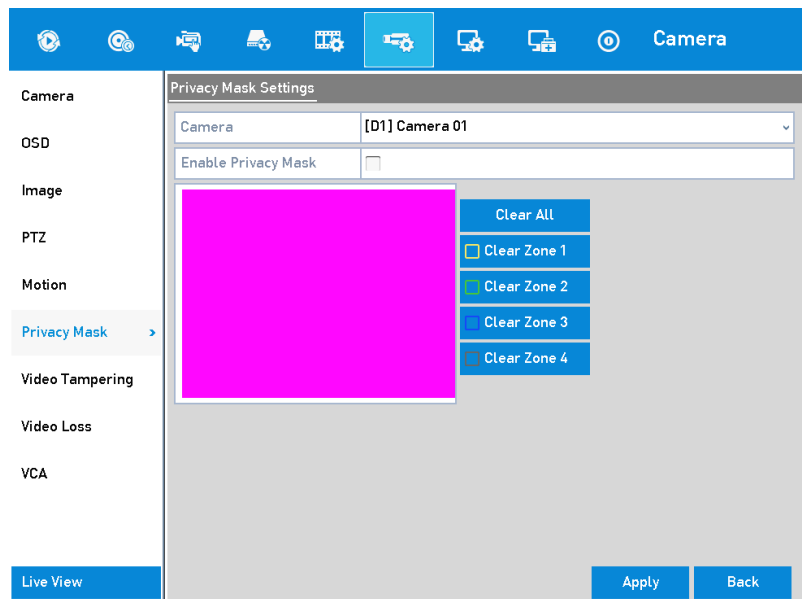
6. You can use the mouse to click and drag the text frame on the preview window to adjust the <OSD> position.
7. Click the <Apply> button to apply the settings.

15.2 Configuring the Privacy Mask

You are allowed to configure the four-sided <Privacy Mask> zones that cannot be viewed by the operator. The <Privacy Mask> can prevent certain surveillance areas to be viewed or recorded.

Steps:

1. Enter the <Privacy Mask Settings> interface: Menu > Camera > Privacy Mask
2. Select the <Camera> to set <Privacy Mask>.
3. Click the checkbox of <Enable Privacy Mask> to enable this feature.



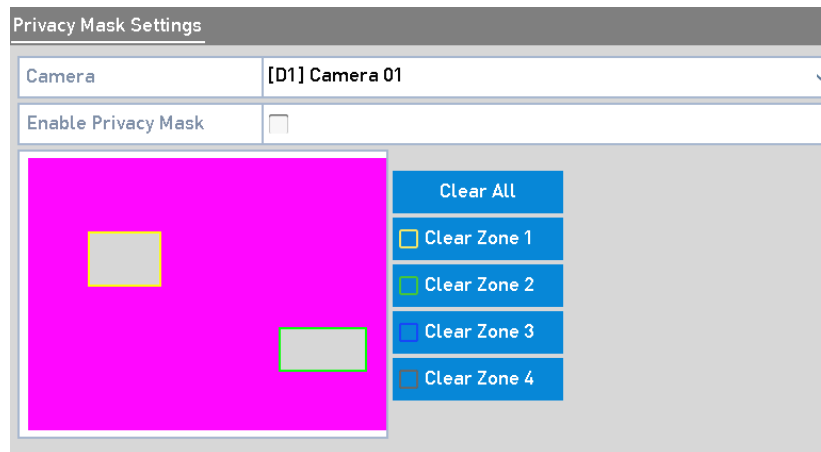
Privacy Mask Settings Interface

4. Use the mouse to draw a zone on the window. The zones will be marked with different frame colors.

Note:

Up to 4 <Privacy Mask> zones can be configured and the size of each area can be adjusted.

5. The configured <Privacy Mask> zones on the window can be cleared by clicking the corresponding <Clear Zone1-4> icons on the right side of the window, or click <Clear All> to clear all zones.



Set Privacy Mask Area

6. Click the <Apply> button to save the settings.

15.3 Configuring the Video Parameters

You can customize the image parameters including the <Brightness>, <Contrast>, <Saturation>, <Image Rotate> and <Mirror> for the <Live View> and the <Recording Effect>.

1. Enter the Image Settings interface: Menu > Camera > Image

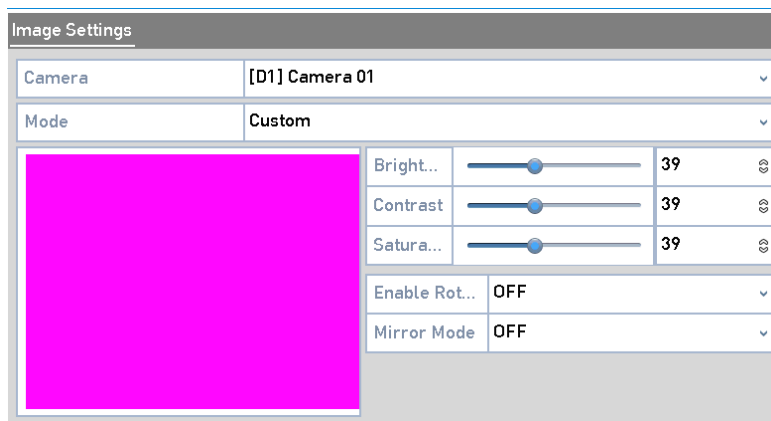









Image Settings	
Camera	[D1] Camera 01
Mode	Custom
	Bright..  39 
	Contrast  39 
	Satura...  39 
Enable Rot...	OFF
Mirror Mode	OFF

Image Settings Interface

2. Select the <Camera> to set <Image> parameters.
3. Adjust the slider or click on the <Up>/<Down> arrow to set the value of the <Brightness>, <Contrast> or <Saturation>.
4. Select the <Enable Rotate> function to <Clockwise 270 degrees> or <OFF>. When <OFF> is selected, the image is restored to original.
5. Select the <Mirror Mode> to <Left-Right>, <Up-Down>, <Center> or <OFF>. When <OFF> is selected, the image is restored to original.

Note:

The <Rotate> and <Mirror> functions must be supported by the connected IP Camera.

The <Image> parameters adjustment can affect both the <Live View> and the recording quality.

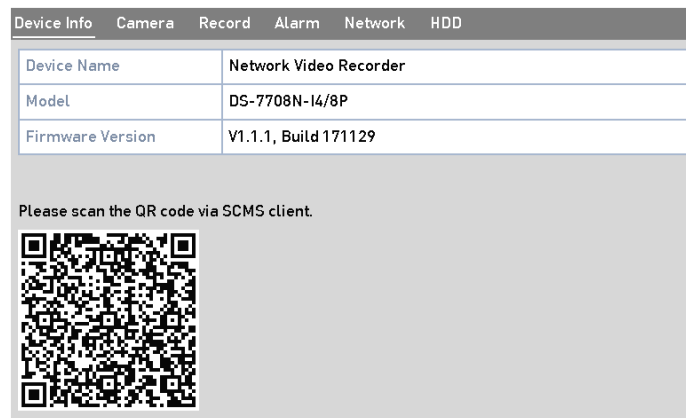
6. Click the <Apply> button to save the settings.

16. NVR Management and Maintenance

16.1 Viewing the System Information

Steps:

1. Enter the <System Information> interface: Menu >Maintenance>System Info
2. You can click the <Device Info>, <Camera>, <Record>, <Alarm>, <Network> and HDD tabs to view the system information of the device.



Device Information Interface

Note:

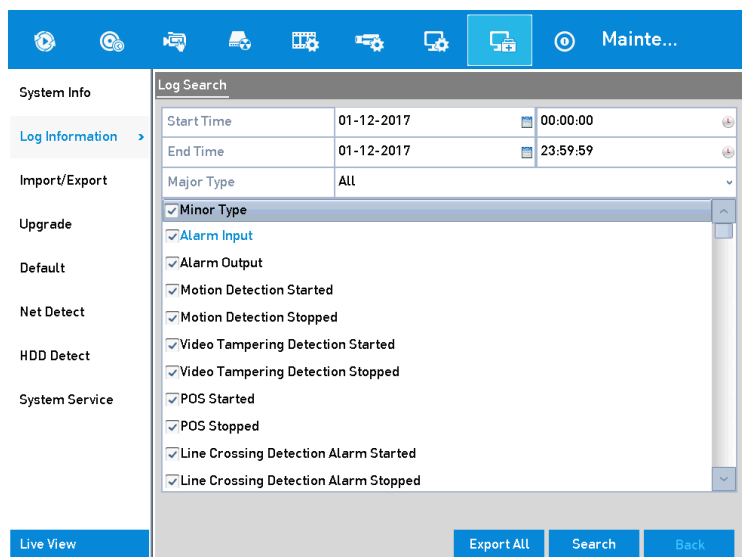
You can add the device to your Grundig SCMS via scanning the <QR Code>.

16.2 Searching & Exporting Log Files

The <Operation>, <Alarm>, <Exception> and <Information> of the NVR can be stored in log files, which can be viewed and exported at any time.

Steps:

1. Enter the <Log Search> interface: Menu > Maintenance > Log Information



Log Search Interface

2. Set the log search conditions to refine your search, including the <Start Time>, <End Time>, <Major Type> and <Minor Type>.
3. Click the <Search> button to start the search of log files.
4. The matched log files will be displayed on the list shown below.

Search Result						
No.	Major Type	Time	Minor Type	Paramet...	Play	Details
1	Operation	01-12-2017 15:30:22	Local Operation...	N/A	—	✓
2	Operation	01-12-2017 15:30:29	Local Operation...	N/A	—	✓
3	Operation	01-12-2017 15:31:46	Power On	N/A	—	✓
4	Exception	01-12-2017 15:42:34	Record/Capture...	N/A	⏮	✓



Total: 4 P: 1/1

Export Back

Log Search Results

Note:

Up to 2000 log files can be displayed each time.

5. You can click  for each log or double click it to view its detailed information, as shown below. And you can also click  to view the related video files if available.

Log Information	
Time	01-12-2017 15:30:22
Type	Operation--Local Operation: Restore Defaults
Local User	admin
Host IP Address	N/A
Parameter Type	N/A
Camera No.	N/A
Description:	
N/A	

[Previous](#)
[Next](#)
[OK](#)

Log Details

- If you want to export the log files, click the <Export> button to enter the <Export> menu.

You can also click <Export All> on the <Log Search> interface to enter the <Export> interface, and all the system logs will be exported to the backup device.

Export				
Device Name	USB Flash Disk 1-1	*.mp4;*.avi;*.z	Refresh	
Backup Type	MP4			
Name	Size	Type	Edit Date	Delete Play
..		Folder	01-01-1970 00:00:00	-- --
ch01_2017120209...	440.93MB	File	02-12-2017 10:43:02	--
Free Space		190.39MB		
New Folder Format Export Back				

Export Log Files

- Select the backup device from the dropdown list of <Device Name>.
- Select the format of the log files to be exported. Up to 15 formats are selectable.
- Click the <Export> button to export the log files to the selected backup device.

You can click the <New Folder> button to create a new folder in the backup device, or click the <Format> button to format the backup device before the <Log Export>.

Note:

Please connect the backup device to the NVR before operating the <Log Export>.

16.3 Importing/Exporting the IP Camera Info

The information of the added IP Camera can be generated into an excel file and exported to the local device for backup, including the <IP Address>, <Manage Port>, <Admin Password>, etc. The exported file can be edited on your PC: adding or deleting content and copy the setting to other devices, for example, by importing the excel file to it.

Steps:

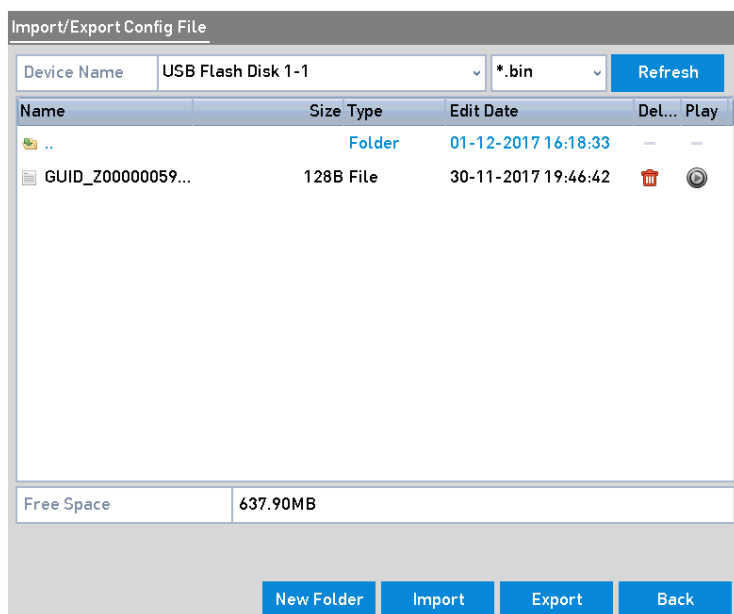
1. Enter the <Camera Management> interface: Menu > Camera > IP Camera Import/Export
2. Click the <IP Camera Import/Export> tab, the content of detected plugged external devices appears.
3. Click the <Export> button to export configuration files to the selected local backup device.
4. To import a configuration file, select the file from the selected backup device and click the <Import> button. After the importing process is completed, you must reboot the NVR.

16.4 Importing/Exporting Configuration Files

The configuration files of the NVR can be exported to a local device for backup; the configuration files of one NVR can be imported to multiple NVR devices if they are to be configured with the same parameters.

Steps:

1. Enter the <Import/Export Configuration File> interface:
Menu> Maintenance> Import/Export



Import/Export Config File

2. Click the <Export> button to export configuration files to the selected local backup device.
3. To import a configuration file, select the file from the selected backup device and click the <Import> button. After the import process is completed, you must reboot the NVR.

Note:

After having finished the <Import> of configuration files, the device will reboot automatically.

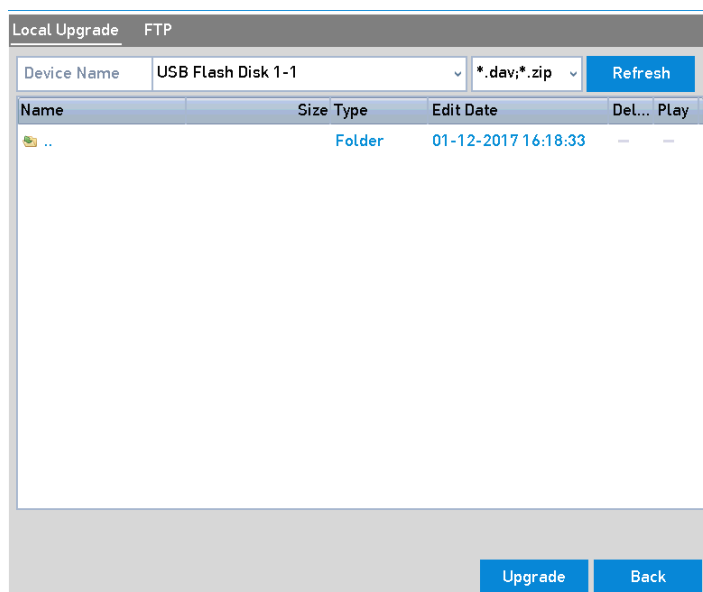
16.5 Upgrading the System

The firmware on your NVR can be upgraded via a local backup device or a remote <FTP Server>.

16.5.1 Upgrading by Local Backup Device

Steps:

1. Connect your NVR with a local backup device where the update firmware file is located.
2. Enter the <Upgrade> interface.
3. Menu >Maintenance>Upgrade
4. Click the <Local Upgrade> tab to enter the <Local Upgrade> menu, as shown below.



Local Upgrade Interface

5. Select the update file from the backup device.
6. Click the <Upgrade> button to start upgrading.
7. After the upgrading is complete, reboot the NVR to activate the new firmware.

16.5.2 Upgrading by FTP

Before you start:

Ensure the network connection of the PC (running <FTP Server>) and the device is valid and correct. Run the <FTP Server> on the PC and copy the firmware into the corresponding directory of your PC.

Steps:

1. Enter the Upgrade interface: Menu >Maintenance>Upgrade
2. Click the <FTP> tab to enter the <Local Upgrade> interface, as shown below.

FTP Upgrade Interface

3. Enter the <FTP Server Address> in the text field.
4. Click the <Upgrade> button to start upgrading.
5. After the upgrading is complete, reboot the NVR to activate the new firmware.

16.6 Restoring the Default Settings

Steps:

1. Enter the <Default> interface: Menu > Maintenance > Default

Restore Defaults

2. Select the <Restoring Type> from the following three options.
 <Restore Defaults>: Restore all parameters, except the network (including the <IP Address>, the <Subnet Mask>, the <Gateway>, the <MTU>, the <NIC Working Mode>, the <Default Route>, the <Server Port>, etc.) and <User Account> parameters, to the <Factory Default Settings>.
 <Factory Defaults>: Restore all parameters to the <Factory Default Settings>.
 <Restore to Inactive>: Restore the device to the inactive status.
3. Click the <OK> button to restore the default settings.

Note:

The device will reboot automatically after restoring to the default settings.

17. Others

17.1 Configuring the RS-232 Serial Port

Note:

The <RS-232> serial port is not supported by GD-RN-AC2004P, GD-RN-AC2416N and GD-RN-AC2416P. (For further information: GD-RN-AP8616P, GD-RN-AP8632P and GD-RN-AT819128N have a <RS-232> and a <RS-485> <Port>. GD-RN-AT8864N has a <RS-232> <Port>.)

The <RS-232 Port> can be used in two ways:

- **<Parameters Configuration>**: Connect a PC to the NVR through the PC <Serial Port>. Device parameters can be configured by using software such as HyperTerminal. The <Serial Port> parameters must be the same as the NVR's when connecting with the PC <Serial Port>.
- **<Transparent Channel>**: Connect a serial device directly to the NVR. The <Serial Device> will be controlled remotely by the PC through the network and the protocol of the serial device.

Steps:

1. Enter the <RS-232 Settings> interface: Menu >Configuration> RS-232.

RS-232 Settings	
Baud Rate	115200
Data Bit	8
Stop Bit	1
Parity	None
Flow Ctrl	None
Usage	Console

RS-232 Settings Interface


2. Configure the <RS-232> parameters, including the <Baud Rate>, the <Data Bit>, the <Stop Bit>, the <Parity>, the <Flow Control> and the <Usage>.
3. Click the <Apply> button to save the settings.

17.2 Configuring the General Settings

You can configure the <BNC Output Standard>, <VGA Output Resolution>, <Mouse Pointer Speed> through the Menu > Configuration > General interface.

Steps:

1. Enter the <General Settings> interface: Menu >Configuration> General
2. Select the <General> tab.

General	DST Settings	More Settings
Language	English	
VGA Resolution	1024*768/60HZ	
HDMI Resolution	1024*768/60HZ	
Time Zone	(GMT+01:00) Amsterdam, Berlin, Rome, Paris	
Date Format	DD-MM-YYYY	
System Date	01-12-2017	
System Time	16:34:53	
Mouse Pointer Speed		
Enable Wizard	<input checked="" type="checkbox"/>	
Enable Password	<input checked="" type="checkbox"/>	

General Settings Interface (GD-RN-AT8864N)

- Configure the following settings:

<Language>: The default language used is <English>.

<Output Standard>: Select the output standard to <NTSC> or <PAL>, which must be the same with the video input standard.

<Resolution>: For the GD-RN-AT8864N, you can configure the <VGA/HDMI Resolution> and <VGA2/HDMI 2 Resolution>. And up to a <4K (3840 × 2160) Resolution> is selectable for the <VGA/HDMI Output>.

For the GD-RN-AC2004P, GD-RN-AC2416N, GD-RN-AC2416P, GD-RN-AP8616P and GD-RN-AP8632P, you can configure the <VGA Resolution> and the <HDMI Resolution> respectively. And up to a <4K (3840 × 2160) Resolution> is selectable for the <HDMI Output>.

For the GD-RN-AT819128N, you can configure the VGA, the HDMI 1 and the HDMI 2 resolution. And up to a <4K (4096 × 2160) Resolution> is selectable for the <HDMI 2 Output>.

<Time Zone>: Select the <Time Zone>.

<Date Format>: Select the <Date Format>.

<System Date>: Select the <System date>.

<System Time>: Select the <System Time>.

<Mouse Pointer Speed>: Set the speed of the mouse pointer; 4 levels are configurable.

<Enable Wizard>: <Enable/Disable> the Wizard when the device starts up.

<Enable Password>: <Enable/Disable> the use of the < Login Password>.

- Click the <Apply> button to save the settings.

17.3 Configuring the DST Settings

Steps:

- Enter the <General Settings> interface: Menu >Configuration>General
- Choose the <DST Settings> tab.

General DST Settings More Settings						
<input type="checkbox"/> Auto DST Adjustment						
<input type="checkbox"/> Enable DST						
From	Apr	1st	Sun	2	:	00
To	Oct	last	Sun	2	:	00
DST Bias	60 Minutes					

DST Settings Interface

You can check the checkbox before the <Auto DST Adjustment> item.

Or you can manually check the <Enable DST> checkbox, and then you choose the date of the <DST> period.

17.4 Configuring More Settings

Steps:

1. Enter the <General Settings> interface: Menu >Configuration>General
2. Click the <More Settings> tab to enter the <More Settings> interface.

General DST Settings More Settings	
Device Name	Network Video Recorder
Device No.	255
Auto Log out	5 Minutes
Menu Output Mode	Auto

More Settings Interface

3. Configure the following settings:

<Device Name>: Edit the name of the NVR.

<Device No. >: Edit the <Serial Number> of the NVR. The <Device No.> can be set in the range of <1> to <255> and the <Default No.> is <255>. The number is used for both the remote and the keyboard control.

<Auto Logout>: Set a <Timeout Time> for menu inactivity. E.g., when the <Timeout Time> is set to <5 Minutes>, then the system will exit from the current <Operation> menu to the <Live View> screen after 5 minutes of menu inactivity.

<Enable HDMI/VGA Simultaneous Output> (for GD-RN-AT8864N only): By default, the video outputs from HDMI and VGA interfaces are operated separately. You can set the simultaneous output for the HDMI and the VGA by checking the checkbox of the option.

<Enable HDMI 1 and VGA Simultaneous Output> (for GD-RN-AT819128N only): By default, the video outputs from HDMI 1 and VGA interfaces are operated separately. You can set the simultaneous output for the HDMI 1 and the VGA by checking the checkbox of the option.

<Menu Output Mode>: You can choose the menu display on different video output.

For GD-RN-AT8864N, you can select the menu output mode from <VGA/HDMI> and <VGA2/HDMI2>.

And for the GD-RN-AC2004P, GD-RN-AC2416N and the GD-RN-AC2416P, you can select the <Menu Output Mode> from VGA, HDMI or <Auto>. When the <Auto> option is selected and both HDMI and VGA outputs are connected, the device will detect and set the HDMI as the <Menu Output>.

For GD-RN-AT819128N: When the <Auto> option is selected and all outputs are connected, the device will detect and set the HDMI 1 as the <Menu Output>. For details, refer to the Table *Main and Auxiliary Output Priority Principle* (in Chapter 3.2.)

4. Click the <Apply> button to save the settings.

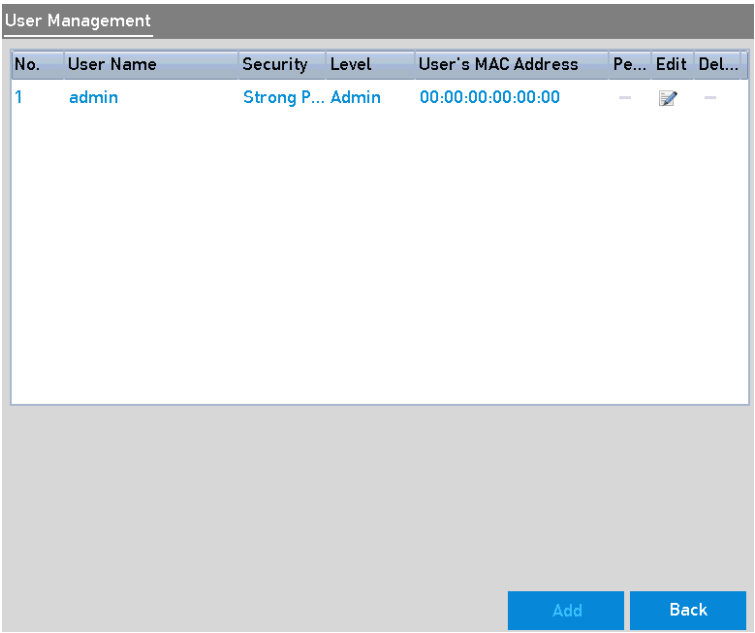
17.5 Managing the User Accounts

There is a default account in the NVR: *Administrator*. The *Administrator* user name is *admin* and the password is set when you start the device for the first time. The *Administrator* has the permission to add and delete user and configure user parameters.

17.5.1 Adding a User

Steps:

1. Enter the <User Management> interface: Menu> Configuration> User



User Management Interface

2. Click the <Add> button to enter the <Add User> interface.

Add User	
User Name	1
Admin Password	*****
Password	***** Strong
Confirm	*****
Level	Operator ▼
User's MAC Address	00 :00 :00 :00 :00 :00

☒ Valid password range [8-16]. You can use a combination of numbers, lowercase, uppercase and special character for your password with at least two kinds of them contained.

OK
Cancel

Add User Menu

- Enter the information for the new user, including the <User Name>, the <Admin Password>, the <Password>, <Confirm>, the <Level> and the <User's MAC Address>.





<Password>: Set the password for the <User Account>.




WARNING

Strong Password recommended – We highly recommend you create a strong password of your own choosing (Using a minimum of 8 characters, including at least three of the following categories: upper case letters, lower case letters, numbers, and special characters.) in order to increase the security of your product. And we recommend you reset your password regularly, especially in the high security system, resetting the password monthly or weekly can better protect your product.

- **<Level>**: Set the user level to <Operator> or <Guest>. Different user levels have different operating permission.
 - <Operator>**: The <Operator> user level has the permission for <Two-way Audio> in the <Remote Configuration> and all operating permission in <Camera Configuration> by default.
 - <Guest>**: The <Guest> user has no permission of <Two-way Audio> in <Remote Configuration> and only has the <Local/Remote Playback> in the <Camera Configuration> by default.
 - **<User's MAC Address>**: The <MAC Address> of the remote PC which logs onto the NVR. If it is configured and enabled, it only allows the remote <User> with this <MAC Address> to access the NVR.
- Click the <OK> button to save the settings and to go back to the <User Management> interface. The added new user will be displayed on the list.

User Management							
No.	User Name	Security	Level	User's MAC Address	Pe...	Edit	Del...
1	admin	Strong P...	Admin	00:00:00:00:00:00	—		—
2	1	Strong P...	Operator	00:00:00:00:00:00			

Added User Listed in User Management Interface

5. Select the <User> from the list and then click  to enter the <Permission Settings> interface, as shown below.

Permission

Local Configuration

Remote Configuration

Camera Configuration

☒ Local Log Search

☐ Local Parameters Settings

☐ Local Camera Management

☐ Local Advanced Operation

☐ Local Shutdown / Reboot

Apply

OK

Cancel

User Permission Settings Interface

6. Set the operating permission of <Local Configuration>, <Remote Configuration> and <Camera Configuration> for the <User>.
- **<Local Configuration>**
 - <Local Log Search>**: Searching and viewing logs and system information of the NVR.
 - <Local Parameters Settings>**: Configuring parameters, restoring <Factory Default Parameters> and <Importing/Exporting> configuration files.
 - <Local Camera Management>**: The adding, deleting and editing of <IP Cameras>.
 - <Local Advanced Operation>**: Operating <HDD Management> (initializing HDD, setting HDD property), upgrading system firmware, clearing <I/O Alarm Output>.
 - <Local Shutdown Reboot>**: Shutting down or rebooting the NVR.
 - **<Remote Configuration>**
 - <Remote Log Search>**: Remotely viewing logs that are saved on the NVR.

<Remote Parameters Settings>: Remotely configuring parameters, restoring <Factory Default Parameters> and <Importing/Exporting> configuration files.

<Remote Camera Management>: Remote adding, deleting and editing of the <IP Cameras>.

<Remote Serial Port Control>: Configuring settings for <RS-232> and <RS-485> <Ports>.

<Remote Video Output Control>: Sending a remote button control signal.

<Two-Way Audio>: Realizing two-way radio between the remote client and the NVR.

<Remote Alarm Control>: Remotely arming (<Notify Alarm> and <Exception> message to the remote client) and controlling the <Alarm Output>.

<Remote Advanced Operation>: Remotely operating <HDD Management> (initializing HDD, setting HDD property), upgrading system firmware, clearing <I/O Alarm Output>.

<Remote Shutdown/Reboot>: Remotely shutting down or rebooting the NVR.

● <Camera Configuration>

<Remote Live View>: Remotely viewing live video of the selected <Camera(s)>.

<Local Manual Operation>: Locally starting/stopping manual recording and <Alarm Output> of the selected <Camera(s)>.

<Remote Manual Operation>: Remotely starting/stopping manual recording and <Alarm Output> of the selected <Camera(s)>.

<Local Playback>: Locally playing back recorded files of the selected <Camera(s)>.

<Remote Playback>: Remotely playing back recorded files of the selected <Camera(s)>.

<Local PTZ Control>: Locally controlling <PTZ> movement of the selected <Camera(s)>.

<Remote PTZ Control>: Remotely controlling <PTZ> movement of the selected <Camera(s)>.

<Local Video Export>: Locally exporting recorded files of the selected <Camera(s)>. Click the <OK> button to save the settings and to exit the interface.





Note:

Only the <Admin User Account> has the permission of restoring factory default parameters.


17.5.2 Deleting a User

Steps:

1. Enter the <User Management> interface: Menu >Configuration>User
2. Select the <User> to be deleted from the list, as shown below.

User Management							
No.	User Name	Security	Level	User's MAC Address	Pe...	Edit	Del...
1	admin	Strong P...	Admin	00:00:00:00:00:00	—		—
2	1	Strong P...	Operator	00:00:00:00:00:00			


User List


3. Click  to delete the selected <User Account>.

17.5.3 Editing a User




For the added user accounts, you can edit the parameters.

Steps:

1. Enter the <User Management> interface: Menu >Configuration>User
2. Select the user to be edited from the list, as shown below.
3. Click  to enter the <Edit User> interface, as shown below.

Edit User	
User Name	1
Old Password	*****
Change Password	<input checked="" type="checkbox"/>
Password	***** Strong
Confirm	*****
Level	Operator ▾
User's MAC Address	00 :00 :00 :00 :00 :00
 Valid password range [8-16]. You can use a combination of numbers, lowercase, uppercase and special character for your password with at least two kinds of them contained.	
<div>OK Cancel</div>	

Edit User (Operator/Guest)

Edit User	
User Name	admin
Old Password	*****
Change Password	<input checked="" type="checkbox"/>
Password	***** Strong
Confirm	*****
Enable Unlock Patt...	<input type="checkbox"/>
Draw Unlock Pattern	
Export GUID	
User's MAC Address	00 :00 :00 :00 :00 :00
<p> Valid password range [8-16]. You can use a combination of numbers, lowercase, uppercase and special character for your password with at least two kinds of them contained.</p>	
<div style="text-align: right;"> OK Cancel </div>	

Edit User (admin)

4. Edit the <Password> for the <User>:

- <Operator> and <Guest>

You can edit the user information, including the <User Name>, the <Password>, the <Permission Level> and the <MAC Address>. Check the checkbox of <Change Password> if you want to change the password, and input the new password in the text field of <Password> and <Confirm>. A strong password is recommended.

- <Admin>

You are only allowed to edit the <Password> and the <MAC Address>. Check the checkbox of <Change Password> if you want to change the password, and the input the correct <Old Password>, and the <New Password> in the text field of <Password> and <Confirm>.



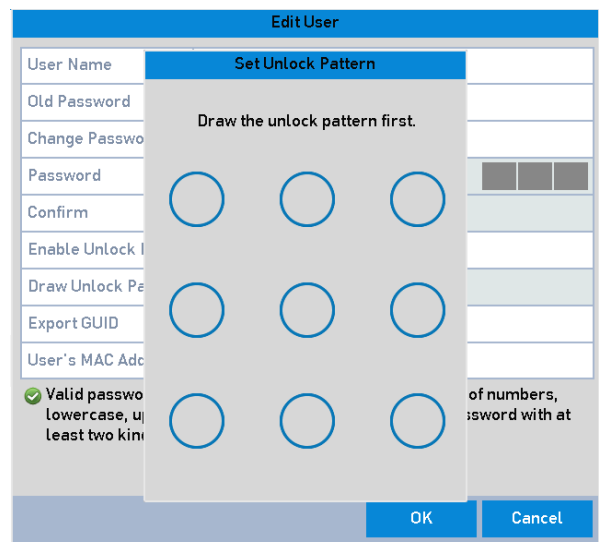
WARNING

Strong Password recommended – We highly recommend you create a strong password of your own choosing (Using a minimum of 8 characters, including at least three of the following categories: upper case letters, lower case letters, numbers, and special characters.) in order to increase the security of your product. And we recommend you reset your password regularly, especially in the high security system, resetting the password monthly or weekly can better protect your product.



5. Edit the <Unlock Pattern> for the <Admin User Account>.
6. Check the checkbox of <Enable Unlock Pattern> to enable the use of the unlock pattern when logging in to the device.
7. Use the mouse to draw a pattern among the 9 dots on the screen. Release the mouse when the pattern is done.

Note:

Please refer to *Chapter 2.3.1 Configuring the Unlock Pattern* for detailed instructions.



Set Unlock Patter for Admin User

8. Click  of <Export GUID> to enter the <Reset Password> interface to export the GUID file for the <Admin User Account>.
9. When the <Admin Password> is changed, you can re-export the GUID file to the connected U-flash disk for the future password resetting. Please refer to the section “Resetting Your Password” in Chapter 2.1 for details.
10. Click the <OK> button to save the settings and to exit the menu.
11. For the <Operator> or the <Guest> <User Account>, you can also click  on the <User Management> interface to edit the permission.

18. Glossary

- **<Dual Stream>**: <Dual Stream> is a technology used to record high resolution video locally while transmitting a lower resolution stream over the network. The two streams are generated by the NVR, with the <Main Stream> having a maximum resolution of <4CIF> and the <Sub-stream> having a maximum resolution of <CIF>.
- **HDD**: Acronym for <Hard Disk Drive>. A storage medium which stores digitally encoded data on platters with magnetic surfaces.
- **<DHCP>**: <Dynamic Host Configuration Protocol (DHCP)> is a network application protocol used by devices (<DHCP Clients>) to obtain configuration information for operation in an <Internet Protocol> network.
- **<HTTP>**: Acronym for <Hypertext Transfer Protocol>. A protocol to transfer a hypertext request and information between servers and browsers over a network.
- **<DDNS>**: <Dynamic DNS> is a method, protocol or network service that provides the capability for a networked device such as a router or a computer system using the <Internet Protocol Suite>, to notify a domain name server to change, in <Real-time> (<Ad-hoc>) the active <DNS> configuration of its configured hostnames, addresses or other information stored in the <DNS>.
- **<Hybrid NVR>**: A <Hybrid NVR> is a combination of a DVR and an NVR.
- **<NTP>**: Acronym for <Network Time Protocol>. A protocol designed to synchronize the clocks of computers over a network.
- **<NTSC>**: Acronym for <National Television System Committee>. <NTSC> is an analog television standard used in such countries as the United States and Japan. Each frame of an <NTSC> signal contains 525 scan lines at 60Hz.
- **NVR**: Acronym for <Network Video Recorder>. An NVR can be a PC-based or embedded system used for centralized management and storage for IP cameras, IP Domes and other NVRs.
- **<PAL>**: Acronym for <Phase Alternating Line>. <PAL> is also another video standard used in broadcast television systems in large parts of the world. <PAL> signal contains 625 scan lines at 50Hz.
- **<PTZ>**: Acronym for <Pan>, <Tilt>, <Zoom>. <PTZ Cameras> are motor driven systems that allow the camera to pan left and right, tilt up and down and zoom in and out.
- **USB**: Acronym for <Universal Serial Bus>. USB is a plug-and-play serial bus standard to interface devices to a host computer.

19. Compatible IP Cameras

For the list, our company holds right to interpret.

ONVIF compatibility refers to the camera / can be supported both when it uses the ONVIF protocol and its private protocols. Only ONVIF is supported / refers to the camera / can only be supported when it uses the ONVIF protocol. Only AXIS is supported / refers to / the function can only be supported when it uses the AXIS protocol.

IP Camera Brand or Protocol	Model	Version	Max. Resolution	Sub-stream	Audio
ACTi	ACM3401-09L-X-00227	A1D-220-V3.13.16-AC	1208*1024	×	×
	TCM4301-10D-X-00083	A1D-310-V4.12.09-AC	1208*1024	×	√
	TCM5311-11D-X-00023	A1D-310-V4.12.09-AC	1208*960	×	√
Arecont	AV1305 M	65175	1208*1024	√	×
	AV2815	65220	1920*1080	√	×
	AV3105M	65175	1920*1080	√	×
	AV8185DN	65172	1600*1200	×	×
Axis	M1114	5.09.1	1024*640	√	×
	M3011(ONVIF compatibility)	5.21	640*480 (704*576)	√ (×)	×
	M3014(ONVIF compatibility)	5.21.1	1280*800	√	×
	P1346	5.40.9.2	2048*1536	√	√
	P3301(ONVIF compatibility)	5.11.2	640*480 (768*576)	√	√ (×)
	P3304(ONVIF compatibility)	5.20	1280*800 (1440*900)	√	√ (×)
	P3343(ONVIF compatibility)	5.20.1	800*600	√	√ (×)
	P3344(ONVIF compatibility)	5.20.1	1280*800 (1440*900)	√	√ (×)
	P5532	5.15	720*576	√	×

	Q7404	5.02	720*576	√	√
Bosch	AutoDome Jr 800 HD (ONVIF compatibility)	39500450	1920*1080	×	√ (×)
	Dinion NBN-921-P (ONVIF compatibility)	10500453	1280*720	×	√ (×)
	NBC 265 P (ONVIF compatibility)	07500452	1280*720	×	√ (×)
Brickcom	CB-500Ap(Brickcom-50xA) (ONVIF compatibility)	v3.2.1.3	1920*1080	×	√ (×)
Canon	VB-H410 (ONVIF compatibility)	Ver.+1.0.0	1920*1080 (1280*960)	×	√
	VB-S9000F	Ver. 1.0.0	1920*1080	×	×
	VB-S300D	Ver. 1.0.0	1920*1080	×	×
	VB-H6100D	Ver. 1.0.0	1920*1080	×	×
	VB-H7100F	Ver. 1.0.0	1920*1080	×	√
	VB-S8000	Ver. 1.0.0	1920*1080	×	×
GRUNDIG	GD-CI-AC1616V (ONVIF compatibility)	All versions	1280x720	√	×
	GD-CI-BC1616V (ONVIF compatibility)	All versions	1280x720	√	×
	GD-CI-AC2616V (ONVIF compatibility)	All versions	1920 x 1080	√	×
	GD-CI-BC2616V (ONVIF compatibility)	All versions	1920 x 1080	√	×
	GD-CI-AC4616V (ONVIF compatibility)	All versions	2688 × 1520	√	×

GD-CI-BC4616V (ONVIF compatibility)	All versions	2688 × 1520	√	×
GD-CI-AC2627V (ONVIF compatibility)	All versions	1920 x 1080	√	×
GD-CI-AC4627V (ONVIF compatibility)	All versions	2688 × 1520	√	×
GD-CI-AC4637V (ONVIF compatibility)	All versions	2688 × 1520	√	×
GD-CI-AP4617V (ONVIF compatibility)	All versions	2560 x 1440	√	×
GD-CI-AP4617W (ONVIF compatibility)	All versions			
GD-CI-AP4637V (ONVIF compatibility)	All versions	2560 x 1440	√	×
GD-CI-AT3637V (ONVIF compatibility)	All versions	2048×1536	√	√
GD-CI-AP5617F (ONVIF compatibility)	All versions	2560 × 1920	√	√
GD-CI-AT12617F (ONVIF compatibility)	All versions	4000 × 3072	√	√
GD-CI-AC1616T (ONVIF compatibility)	All versions	1280x720	√	×
GD-CI-BC1616T (ONVIF compatibility)	All versions	1280x720	√	×
GD-CI-AC2616T (ONVIF compatibility)	All versions	1920 x 1080	√	×

GD-CI-BC2616T (ONVIF compatibility)	All versions	1920 x 1080	√	×
GD-CI-AC4616T (ONVIF compatibility)	All versions	2688 × 1520	√	×
GD-CI-BC4616T (ONVIF compatibility)	All versions	2688 × 1520	√	×
GD-CI-AC2627T (ONVIF compatibility)	All versions	1920 x 1080	√	×
GD-CI-AC4627T (ONVIF compatibility)	All versions	2688 × 1520	√	×
GD-CI-AC4637T (ONVIF compatibility)	All versions	2688 × 1520	√	×
GD-CI-AP4617T (ONVIF compatibility)	All versions	2560 x 1440	√	×
GD-CI-AP4637T (ONVIF compatibility)	All versions	2560 x 1440	√	×
GD-CI-AT2647T (ONVIF compatibility)	All versions	1920x1080	√	√
GD-CI-BT2647T (ONVIF compatibility)	All versions	1920x1080	√	√
GD-CI-AT8637T (ONVIF compatibility)	All versions	3840 × 2160	√	√
GD-CI-AP2647P (ONVIF compatibility)	All versions	1920 x 1080	√	√
GD-CI-AP4746P (ONVIF compatibility)	All versions	2560 x 1440	√	√

	GD-CI-AT4747P (ONVIF compatibility)	All versions	2560 x 1440	√	√
Panasonic	SP306H (ONVIF compatibility)	Application:1 .34 Image data:1.06	1280*960	√ (x)	√
	SF336H	Application:1 .06 Image data: 1.06	1280*960	√	√
Pelco	D5118 (ONVIF compatibility)	1.8.2- 20120327- 2.9310- A1.7852	1280*960	√	x
	IX30DN-ACFZHB3 (ONVIF compatibility)	1.8.2- 20120327- 2.9080- A1.7852	2048*1536	√	x
	IXE20DN-AAXVUU2 (ONVIF compatibility)	1.8.2- 20120327- 2.9081- A1.7852	1920*1080	√	x
Sanyo	2300P(with lens)	2.03-02 (110318-00)	1920*1080	x	x
	2500P(with lens)	2.02-02 (110208-00)	1920*1080	x	√
	4600P	2.03-02 (110315-00)	1920*1080	x	√
SONY	SNC-CH220	1.50.00	1920*1080	x	x
	SNC DH220T (ONVIF only)	1.50.00	2048*1536	x	x
	SNC-EP580 (ONVIF compatibility)	1.53.00	1920*1080	√	√
	SNC-RH124 (ONVIF compatibility)	1.79.00	1280*720	√	√
SAMSUNG	SND-5080 (ONVIF compatibility)	3.10_130416	1280*1024	√	√
Vivotek	IP7133	0203a	640*480	x	x

	FD8134 (ONVIF compatibility)	0107a	1280*800	×	×
	IP8161 (ONVIF compatibility)	0104a	1600*1200	×	√ (×)
	IP8331 (ONVIF compatibility)	0102a	640*480	×	×
	IP8332 (ONVIF compatibility)	0105b	1280*800	×	×
Zavio	D5110 (ONVIF compatibility)	MG.1.6.03P8	1280*1024	√ (×)	×
	F3106 (ONVIF compatibility)	M2.1.6.03P8	1280*1024	√ (×)	√
	F3110 (ONVIF compatibility)	M2.1.6.01	1280*720	√ (×)	√
	F3206 (ONVIF compatibility)	MG.1.6.02c045	1920*1080	√ (×)	√
	F531E (ONVIF compatibility)	LM.1.6.18P10	640*480	√ (×)	√
HIKVISION	DS-2CD7133F-E	V5.2.0 build 140721	640*480	√	×
	DS-2CD793NFW-D-EI	V5.2.0 build 140721	704*576	√	√
	DS-2CD802NF	V2.0 build 090522	704*576	√	√
		V2.0 build 090715			
		V2.0 build 110301			
	DS-2CD833F-E	V5.2.0 build 140721	640*480	√	√
	DS-2CD893PF-E	V5.2.0 build 140721	704*576	√	√
	DS-2CD2012-I	V5.3.0 build150327	1280*960	√	×
	DS-2CD2132-I	V5.3.0 build150327	2048*1536	√	×
	DS-2CD2410FD-I(W)	V5.3.0 build150327	1920*1080	√	√

DS-2CD2612F-I	V5.3.0 build150327	1280*960	√	×
DS-2CD2612F-IS	V5.3.0 build150327	1280*960	√	√
DS-2CD2632F-I	V5.3.0 build150327	2048*1536	√	×
DS-2CD2632F-IS	V5.3.0 build150327	2048*1536	√	√
DS-2CD2710F-I	V5.3.0 build150327	1920*1080	√	×
DS-2CD2720F-I	V5.3.0 build150327	1920*1080	√	×
DS-2CD4010F	V5.3.0 build150327	1920*1080	√	√
DS-2CD4012F	V5.3.0 build150327	1280*1024	√	√
DS-2CD4026FWD	V5.3.0 build150327	1920*1080	√	√
DS-2CD4026FWD-SDI	V5.3.0 build150327	1920*1080	√	√
DS-2CD4032FWD	V5.3.0 build150327	2048*1536	√	√
DS-2CD4065F	V5.3.0 build150327	3072*2048	√	√
DS-2CD4124F-I(2.8-12mm)	V5.3.0 build150327	1920*1080	√	√
DS-2CD4132FWD-I(2.8-12mm)	V5.3.0 build150327	2048*1536	√	√
DS-2CD4212F-I(2.8-12mm)	V5.3.0 build150327	1280*1024	√	×
DS-2CD4212F-IS(2.8-12mm)	V5.3.0 build150327	1280*1024	√	√
DS-2CD4212FWD-I	V5.3.0 build150327	1280*960	√	×
DS-2CD4212FWD-IS	V5.3.0 build150327	1280*960	√	√
DS-2CD4224F-I	V5.3.0 build150327	1920*1080	√	×

DS-2CD4232FWD-I	V5.3.0 build150327	2048*1536	√	×
DS-2CD4232FWD-IS(2.8-12mm)	V5.3.0 build150327	2048*1536	√	√
DS-2CD4312F-I	V5.3.0 build150327	1280*1024	√	×
DS-2CD4312FWD-I	V5.3.0 build150327	1280*960	√	×
DS-2CD4324F-I	V5.3.0 build150327	1920*1080	√	×
DS-2CD4332FHWD-IS	V5.3.0 build150327	2048*1536	√	√
DS-2CD4332FHWD-I	V5.3.0 build150327	2048*1536	√	×
DS-2CD4332FWD-I	V5.3.0 build150327	2048*1536	√	×
DS-2CD6213F	V5.2.6 build 141218	1280*960	√	×
DS-2CD6223F	V5.2.6 build 141218	1920*1080	√	×
DS-2CD6233F	V5.2.6 build 141218	2048*1536	√	×
DS-2CD7153-E	V5.2.0 build 140721	1600*1200	√	×
DS-2CD7164-E	V5.2.0 build 140721	1280*720	√	×
DS_2CD754F-EI	V5.2.0 build 140721	2048*1536	√	√
DS-2CD754FWD-E	V5.2.0 build 140721	1920*1080	√	√
DS-2CD754FWD-EIZ	V5.2.0 build 140721	2048*1536	√	√
DS_2CD783F-EI	V5.2.0 build 140721	2560*1920	√	√
DS-2CD8153F-E	V5.2.0 build 140721	1600*1200	√	√
DS-2CD8464F-EI	V5.2.0 build 140721	1280*960	√	√

DS-2CD852MF-E	V2.0 build 110614	1600*1200	√	√
	V2.0 build 110426			
	V2.0 build 100521			
DS-2CD855F-E	V5.2.0 build 140721	1920*1080	√	√
DS-2CD862MF-E	V2.0 build 110614	1280*960	√	√
	V2.0 build 110426			
	V2.0 build 100521			
DS-2CD863PF/NF-E	V5.2.0 build 140721	1280*960	√	√
DS-2CD864FWD-E	V5.2.0 build 140721	1280*720	√	√
DS-2CD876MF/BF-E	V4.0.3 build120913	1600*1200	√	√
DS-2CD877BF	V4.0.3 build120913	1920*1080	√	√
DS-2CD886MF-E	V4.0.3 build 120913	2560*1920	√	√
DS-2CD966(B)	V3.1 build 120423	1360*1024	×	×
DS-2CD966-V(B)	V3.1 build 120423	1360*1024	×	×
DS-2CD976(C)	V3.1 build 120423	1600*1200	×	×
DS-2CD976-V(C)	V3.1 build 120423	1600*1200	×	×
DS-2CD977(C)	V3.1 build 120423	1920*1080	×	×
DS-2CD986A(C)	V3.1 build 120423	2448*2048	×	×
DS-2CD986C (B)	V2.3.6 build 120401	2560*1920	×	×

DS-2CD9122	V3.7.1 build140417	1920*1080	√	×
DS-2CD9152	V3.7.1 build140417	2560*1920	√	×
iDS-2CD9152	V3.7.1 build140417	2560*1920	√	×
DS-2CD9122-H	V3.7.1 build140417	1920*1080	√	×
DS-2CD9182-H	V3.8.1 build140815	3296*2472	√	×
DS-2CD9121	V3.7.1 build140417	1600*1200	√	×
iDS-2CD9121	V3.7.1 build140417	1600*1200	√	×
DS-2CD9131	V4.0.0 build150213	2048*1536	√	×
iDS-2CD9131	V4.0.0 build150213	2048*1536	√	×
DS-2CD9121A	V3.8.2 build141121	1600*1200	√	×
iDS-2CD9121A	V3.8.2 build141121	1600*1200	√	×
DS-2CD9111(B)	V3.7.1 build140417	1360*1024	√	×
DS-2CD9151A	V3.8.2 build141121	2448*2048	√	×
DS-2CD9152-H	V3.8.2 build141121	2592*2048	√	×
iDS-2CD9282	V3.8.2 build141121	3296*2472	√	×
DS-2CD9131-K	V4.0.0 build150213	2048*1536	√	√
DS-2CD9152-HK	V3.8.2 build141121	2592*2048	√	√
iDS-2CD9131-E	V3.8.2 build141121	2048*1536	√	×
iDS-2CD9151A-E	V3.8.2 build141121	2448*2048	√	×

iDS-2CD9151A	V3.8.2 build141121	2448*2048	√	×
iDS-2CD9152-EH	V3.8.2 build141121	2592*2048	√	×
iDS-2CD9152-H	V3.8.2 build141121	2592*2048	√	×
DS-2CD9120-H	V3.7.1 build140417	1600*1200	√	×
iDS-2CD9361	V4.0.0 build150213	2752*2208	√	×
iDS-2CD9022	V4.0.0 build150213	1920*1080	√	√
iDS-2CD9025	V3.8.2 build141114	1920*1080	√	×
iDS-2CD9022-SZ	V4.0.0 build150213	1920*1080	√	×
DS-2CD9125-KS	V3.8.1 build150113	1920*1080	√	×
DS-6501HCI	V1.0.1 build130607	352*288	√	√
DS-6501HCI-SATA	V1.0.1 build130607	352*288	√	√
DS-6501HFI	V1.0.1 build130607	704*576	√	√
DS-6501HFI- SATA	V1.0.1 build130607	704*576	√	√
DS-6502HCI	V1.0.1 build130607	352*288	√	√
DS-6502HCI- SATA	V1.0.1 build130607	352*288	√	√
DS-6502HFI	V1.0.1 build130607	704*576	√	√
DS-6502HFI- SATA	V1.0.1 build130607	704*576	√	√
DS-6504HCI	V1.0.1 build130607	352*288	√	√
DS-6504HCI- SATA	V1.0.1 build130607	352*288	√	√

DS-6504HFI	V1.0.1 build130607	704*576	√	√
DS-6504HFI- SATA	V1.0.1 build130607	704*576	√	√
DS-6508HCI	V1.0.1 build130607	352*288	√	√
DS-6508HCI- SATA	V1.0.1 build130607	352*288	√	√
DS-6508HFI	V1.0.1 build130607	704*576	√	√
DS-6508HFI- SATA	V1.0.1 build130607	704*576	√	√
DS-6516HCI	V1.0.1 build130607	352*288	√	√
DS-6516HCI- SATA	V1.0.1 build130607	352*288	√	√
DS-6516HFI	V1.0.1 build130607	704*576	√	√
DS-6516HFI- SATA	V1.0.1 build130607	704*576	√	√
DS-6601HCI	V1.2.1 build131202	352*288	√	√
DS-6602HCI	V1.2.1 build131202	352*288	√	√
DS-6604HCI	V1.2.1 build131202	352*288	√	√
DS-6601HFI(-SATA)	V1.2.1 build131202	704*576	√	√
DS-6602HFI(SATA)	V1.2.1 build131202	704*576	√	√
DS-6604HFI(-SATA)	V1.2.1 build131202	704*576	√	√
DS-6701HWI	V1.2.3 build141202	960*576	√	√
DS-6701HWI-SATA	V1.2.3 build141202	960*576	√	√
DS-6704HWI	V1.2.3 build141202	960*576	√	√

DS-6704HWI-SATA	V1.2.3 build141202	960*576	√	√
DS-6708HWI	V1.2.3 build141202	960*576	√	√
DS-6708HWI-SATA	V1.2.3 build141202	960*576	√	√
DS-6716HWI	V1.2.3 build141202	960*576	√	√
DS-6716HWI-SATA	V1.2.3 build141202	960*576	√	√
DS-6601HFHI	V1.1.0 build150123	1920*1080	√	√
DS-6601HFHI/L	V1.1.0 build150123	1920*1080	√	√
DS-2DF7274-A/D/AF	V5.2.8 build150124	1280*960	√	√
iDS-2DF7274-A/D/AF	V5.2.8 build150124	1280*960	√	√
DS-2DM7274-A	V5.2.8 build150124	1280*960	√	√
DS-2DF5274-A/D/A3/D3/AF/A3F	V5.2.8 build150124	1280*960	√	√
iDS-2DF5274-A/D/A3/D3/AF/A3F	V5.2.8 build150124	1280*960	√	√
DS-2DM5274-A/A3	V5.2.8 build150124	1280*960	√	√
DS-2DF7276-A/D/AF	V5.2.8 build150124	1280*960	√	√
iDS-2DF7276-A/D/AF	V5.2.8 build150124	1280*960	√	√
DS-2DF5276-A/D/A3/D3/AF/A3F	V5.2.8 build150124	1280*960	√	√
iDS-2DF5276-A/D/A3/D3/AF/A3F	V5.2.8 build150124	1280*960	√	√
DS-2DF7274-AH/DH/AFH	V5.2.8 build150124	1280*960	√	√
iDS-2DF7274-AH/DH/AFH	V5.2.8 build150124	1280*960	√	√

DS-2DF5274-AH/DH/A3H/D3H/AFH/A3FH	V5.2.8 build150124	1280*960	√	√
iDS-2DF5274-AH/DH/A3H/D3H/AFH/A3FH	V5.2.8 build150124	1280*960	√	√
DS-2DF7276-AH/DH/AFH	V5.2.8 build150124	1280*960	√	√
iDS-2DF7276-AH/DH/AFH	V5.2.8 build150124	1280*960	√	√
DS-2DF5276-AH/DH/A3H/D3H/AFH/A3FH	V5.2.8 build150124	1280*960	√	√
iDS-2DF5276-AH/DH/A3H/D3H/AFH/A3FH	V5.2.8 build150124	1280*960	√	√
DS_2DF7130I5-AW	V5.2.8 build150124	1280*960	√	√
DS-2DF7285-AH	V5.2.8 build150124	1920*1080	√	√
DS-2DF5285-AH	V5.2.8 build150124	1920*1080	√	√
DS-2DF7294-A/D/AF	V5.2.8 build150124	2048*1536	√	√
iDS-2DF7294-A/D/AF	V5.2.8 build150124	2048*1536	√	√
DS-2DF5294-A/D/A3/D3/AF/A3F	V5.2.8 build150124	2048*1536	√	√
iDS-2DF5294-A/D/A3/D3/AF/A3F	V5.2.8 build150124	2048*1536	√	√
DS-2DF7296-A/D/AF	V5.2.8 build150124	2048*1536	√	√
iDS-2DF7296-A/D/AF	V5.2.8 build150124	2048*1536	√	√
DS-2DF5296-A/D/A3/D3/AF/A3F	V5.2.8 build150124	2048*1536	√	√
iDS-2DF5296-A/D/A3/D3/AF/A3F	V5.2.8 build150124	2048*1536	√	√
DS-2DF6223-A	V5.2.8 build150124	1920*1080	√	√

iDS-2DF6223-A	V5.2.8 build150124	1920*1080	√	√
DS-2DF8223i-A	V5.2.8 build150124	1920*1080	√	√
iDS-2DF8223i-A	V5.2.8 build150124	1920*1080	√	√
DS-2DF7284-A/D/AF	V5.2.8 build150124	1920*1080	√	√
iDS-2DF7284-A/D/AF	V5.2.8 build150124	1920*1080	√	√
DS-2DF7286-A/D/AF	V5.2.8 build150124	1920*1080	√	√
iDS-2DF7286-A/D/AF	V5.2.8 build150124	1920*1080	√	√
DS-2DF5284-A/D/A3/D3/AF/A3F	V5.2.8 build150124	1920*1080	√	√
iDS-2DF5284-A/D/A3/D3/AF/A3F	V5.2.8 build150124	1920*1080	√	√
DS-2DF5286-A/D/A3/D3/AF/A3F	V5.2.8 build150124	1920*1080	√	√
iDS-2DF5286-A/D/A3/D3/AF/A3F	V5.2.8 build150124	1920*1080	√	√
DS_2DF7230I5-AW	V5.2.8 build150124	1920*1080	√	√
DS-2AF7220-A/D	V5.2.8 build150124	1920*1080	√	√
DS-2AF7230-A/D	V5.2.8 build150124	1920*1080	√	√
DS-2AF5220-A/D	V5.2.8 build150124	1920*1080	√	√
DS-2AF5230-A/D	V5.2.8 build150124	1920*1080	√	√
iDS-2DF5220S-D4/JY	V5.2.8 build150124	1920*1080	√	√
DS-2DF7268-A	V5.2.8 build150124	704*576	√	√
DS-2DF5268-A	V5.2.8 build150124	704*576	√	√

DS-2DF7264-A	V5.2.8 build150124	704*576	√	√
DS-2DF5264-A	V5.2.8 build150124	704*576	√	√
DS-2DE5172-A/A3	V5.2.10 build150128	1280*960	√	√
DS-2DE5174-A/AE/AE3/A3/D/D3	V5.2.10 build150128	1280*960	√	√
DS-2DE5176-A/AE	V5.2.10 build150128	1280*960	√	√
DS-2DE7172-A	V5.2.10 build150128	1280*960	√	√
DS-2DE7174-A/AE/D	V5.2.10 build150128	1280*960	√	√
DS-2DE7176-A/AE	V5.2.10 build150128	1280*960	√	√
DS-2DE7120i-A/AE	V5.2.10 build150128	1280*960	√	√
DS-2DM7130i-A	V5.2.10 build150128	1280*960	√	√
DS-2DM4120-A	V5.2.10 build150128	1280*960	√	√
DS-2DE5120I-A	V5.2.10 build150128	1280*960	√	√
DS-2DM5120-A	V5.2.10 build150128	1280*960	√	√
DS-2DM5130-A	V5.2.10 build150128	1280*960	√	√
DS-2DE2103-DE3/W	V5.2.10 build150128	1280*960	√	√
DS-2DE2103I-DE3/W	V5.2.10 build150128	1280*960	√	√
DS-2DE7184-A/AE/D	V5.2.10 build150128	1920*1080	√	√
DS-2DE5182-A/A3	V5.2.10 build150128	1920*1080	√	√
DS-2DE5184-A/AE/AE3/A3/D/D3	V5.2.10 build150128	1920*1080	√	√

DS-2DE5186-A/AE	V5.2.10 build150128	1920*1080	√	√
DS-2DE7182-A	V5.2.10 build150128	1920*1080	√	√
DS-2DE4582-A	V5.2.10 build150128	1920*1080	√	√
DS-2DE4220-A	V5.2.10 build150128	1920*1080	√	√
DS-2DE4182-A	V5.2.10 build150128	1920*1080	√	√
DS-2DM7230i-A	V5.2.10 build150128	1920*1080	√	√
DS-2DM7220i-A	V5.2.10 build150128	1920*1080	√	√
DS-2DE7186-A/AE	V5.2.10 build150128	1920*1080	√	√
DS-2DE5220I-A	V5.2.10 build150128	1920*1080	√	√
DS-2DM5220-A	V5.2.10 build150128	1920*1080	√	√
DS-2DM5230-A	V5.2.10 build150128	1920*1080	√	√
DS-2DE2202-DE3/W	V5.2.10 build150128	1920*1080	√	√
DS-2DE2202I-DE3/W	V5.2.10 build150128	1920*1080	√	√
DS-2DE4572-A	V5.2.10 build150128	1280*720	√	√
DS-2DE4172-A	V5.2.10 build150128	1280*720	√	√
DS-2DE7194-A/A3	V5.2.10 build150128	2048*1536	√	√
DS-2DE5194-A/A3	V5.2.10 build150128	2048*1536	√	√
DS-2DF1-518	V3.2.0 build131223	704*576	√	√
DS-2DM1-718	V3.2.0 build131223	704*576	√	√

DS-2DM1-518	V3.2.0 build131223	704*576	√	√
DS-2DF1-718	V3.2.0 build131223	704*576	√	√
DS-2DF1-514	V3.2.0 build131223	704*576	√	√
DS-2DF1-714	V3.2.0 build131223	704*576	√	√
DS-2DY9174-A	V5.2.8 build150124	1280*960	√	√
DS-2DY9176-A	V5.2.8 build150124	1280*960	√	√
DS-2DY9194-A	V5.2.8 build150124	2048*1536	√	√
DS-2DY9196-A	V5.2.8 build150124	2048*1536	√	√
DS-2DY9184-A	V5.2.8 build150124	1920*1080	√	√
DS-2DY9186-A	V5.2.8 build150124	1920*1080	√	√
DS-2DY9185-A	V5.2.8 build150124	1920*1080	√	√
DS-2DY9187-A	V5.2.8 build150124	1920*1080	√	√
DS-2DF8223IV-A	V5.3.0 build150304	1920*1080	√	√
DS-2DF8623IV-A	V5.3.0 build150304	3072*1728	√	√
DS-2DF6623V-A	V5.3.0 build150304	3072*1728	√	√
DS-2DF8823IV-A	V5.3.0 build150304	4096*2160	√	√
DS-2ZCN2006	V5.2.7 build141107	1280*960	√	√
DS-2ZCN2006(B)	V5.2.7 build141107	1280*960	√	√
DS-2ZCN3006	V5.2.7 build141107	1280*960	√	√

DS-2ZCN3006(B)	V5.2.7 build141107	1280*960	√	√
DS-2ZMN2006	V5.2.7 build141107	1280*960	√	√
DS-2ZMN2006(B)	V5.2.7 build141107	1280*960	√	√
DS-2ZMN3006	V5.2.7 build141107	1280*960	√	√
DS-2ZMN3006(B)	V5.2.7 build141107	1280*960	√	√
DS-2ZCN2007	V5.2.7 build141107	1920*1080	√	√
DS-2ZCN3007	V5.2.7 build141107	1920*1080	√	√
DS-2ZCN3007(B)	V5.2.7 build141107	1920*1080	√	√
DS-2ZMN2007	V5.2.7 build141107	1920*1080	√	√
DS-2ZMN3007	V5.2.7 build141107	1920*1080	√	√
DS-2ZMN3007(B)	V5.2.7 build141107	1920*1080	√	√
DS-2ZMN0407	V5.2.7 build141107	1920*1080	√	√
DS-2ZMN3207	V5.2.7 build141107	1920*1080	√	√
DS-2ZMN2008	V5.2.7 build141107	2048*1536	√	√
DS-2ZCN2008	V5.2.7 build141107	2048*1536	√	√
DS-2ZMN3007(S)	V5.2.2 build141113	1920*1080	√	√
DS-2ZCN3007(S)	V5.2.2 build141113	1920*1080	√	√
DS-2ZMN2307	V5.2.2 build141113	1920*1080	√	√
DS-2CN2307	V5.2.2 build141113	1920*1080	√	√

	DS-2ZMN2309	V5.2.2 build141113	3072*2048	√	√
	DS-2ZCN2309	V5.2.2 build141113	3072*2048	√	√

20. Troubleshooting

- **No image displayed on the monitor after starting up normally.**

Possible Reasons:

- No VGA or HDMI connections.
- Connection cable is damaged.
- Input mode of the monitor is incorrect.

Steps:

1. Verify the device is connected with the monitor via a HDMI or a VGA cable.
2. If not, please connect the device with the monitor and reboot it.
3. Verify that the connection cable is good.
4. If there still is no image display on the monitor after rebooting, please check if the connection cable is good and change a cable to connect again.
5. Verify that the Input mode of the monitor is correct.
6. Please check that the input mode of the monitor matches with the output mode of the device (e.g. if the output mode of the NVR is HDMI output, then the input mode of the monitor must be the HDMI input). And if not, please modify the input mode of the monitor.
7. Check if the fault is solved by Steps 1 to 3.
8. If it is solved, finish the process.
9. If not, please contact the engineer from our company to do the further process.

- **There is an audible warning sound “Di-Di-Di-DiDi” after a newly bought NVR starts up.**

Possible Reasons:

- No HDD is installed on the device.
- The installed HDD has not been initialized.
- The installed HDD is not compatible with the NVR or is broken down.

Steps:

1. Verify that at least one HDD is installed in the NVR.

If not, please install the compatible HDD.

Note:

Please refer to the <Quick Operation Guide> for the HDD installation steps.

If you don't want to install a HDD, select: Menu>Configuration > Exceptions and uncheck the <Audible Warning> checkbox of <HDD Error>.

2. Verify if the HDD is initialized.

- 1) Select: Menu> HDD> General.
- 2) If the status of the HDD is <Uninitialized>, please check the checkbox of corresponding HDD and click the <Init> button.
3. Verify that the HDD is detected or is in good condition.
 - 1) Select: Menu> HDD> General.
 - 2) If the HDD is not detected or the status is <Abnormal>, please replace the dedicated HDD according to the requirement.
4. Check if the fault is solved by Steps 1 to 3.

If it is solved, finish the process.

If not, please contact the engineer from our company to do the further process.

- **The status of the added IP camera displays as <Disconnected> when it is connected through <Private Protocol>. Select: Menu> Camera> Camera> IP Camera to view the <Camera Status>.**

Possible Reasons:

- Network failure and the NVR and the IP Camera lost the connection.
- The configured parameters are incorrect when adding the IP Camera.
- Insufficient bandwidth.

1. Verify that the network is connected.
 - 1) Connect the NVR and the PC with the <RS-232> cable.
 - 2) Open the <Super Terminal> software and execute the <Ping Command>. Enter “ping IP” (e.g. ping 172.6.22.131).

Note:

Simultaneously press <Ctrl> and <C> to exit the <Ping Command>.

If there exists return information and the time value is little, the network is normal.

2. Verify that the configuration parameters are correct.
 - 1) Select: Menu>Camera>Camera>IP Camera.
 - 2) Verify that the following parameters are the same with those of the connected IP devices, including the <IP Address>, the <Protocol>, the <Management Port>, the <User Name> and the <Password>.
3. Verify whether the bandwidth is enough.
 - 1) Select: Menu >Maintenance > Net Detect > Network Stat.
 - 2) Check the usage of the access bandwidth and see if the total bandwidth has reached its limit.
4. Check if the fault is solved by Steps 1 to 3.

If it is solved, finish the process.

If not, please contact the engineer from our company to do the further process.

- **The IP camera frequently goes online and offline and the status of it displays as <Disconnected>.**

Possible Reasons:

- The IP Camera and the NVR versions are not compatible.
 - Unstable power supply of IP Camera.
 - Unstable network between IP Camera and NVR.
 - Limited flow by the switch connected with IP Camera and NVR.
5. Verify that the IP Camera and the NVR versions are compatible.
 - 1) Enter the <IP Camera Management> interface: Menu > Camera > Camera> IP Camera, and view the firmware version of the connected IP Camera.
 - 2) Enter the <System Info> interface: Menu> Maintenance> System Info> Device Info and view the firmware version of the NVR.
 6. Verify that the power supply of IP Camera is stable.
 - 1) Verify that the power indicator is normal.
 - 2) When the IP Camera is offline, please try the <Ping Command> on the PC to check if the PC connects with the IP Camera.
 7. Verify that the network between the IP Camera and the NVR is stable.
 - 1) When the IP Camera is offline, connect the PC and the NVR with the <RS-232> cable.
 - 2) Open the <Super Terminal>, use the <Ping Command> and keep sending large data packages to the connected IP Camera, and check if there exists <Packet Loss>.

Note:

Simultaneously press <Ctrl> and <C> to exit the <Ping Command>.

Example: Enter “*ping 172.6.22.131 -l 1472 -f*”.

8. Verify that the <Switch> is not <Flow Control>.

Check the brand and the model of the <Switch> connecting the IP Camera with the NVR and contact the manufacturer of the <Switch> to check if it has the function of <Flow Control>. If so, please turn it down.
9. Check if the fault is solved by the Steps 1 to 4.

If it is solved, finish the process.

If not, please contact the engineer from our company to do the further process.

- **No monitor is connected with the NVR locally and when you manage the IP Camera to connect with the device by web browser remotely, of which the status displays as <Connected>. And then you connect the device with the monitor via the VGA or HDMI interface and reboot the device, there is a black screen with the mouse cursor.**

Connect the NVR with the monitor before startup via the VGA or HDMI interface, and manage the IP Camera to connect with the device locally or remotely, the status of the IP Camera displays as <Connect>. And then connect the device with the <CVBS>, and there is also a black screen.

Possible Reasons:

- After connecting the IP Camera to the NVR, the image is output via the main spot interface by default.
- 1. Enable the <Output Channel>.
- 2. Select: Menu > Configuration > Live View > View, and select <Video Output> interface in the drop-down list and configure the window you want to view.

Note:

The view settings can only be configured by the local operation of the NVR.

Different camera orders and window-division modes can be set for different output interfaces separately, and digits like <D1> and <D2> stands for the channel number, and <X> means that the selected window has no image output.

- 3. Check if the fault is solved by the above steps.

If it is solved, finish the process.

If not, please contact the engineer from our company to do the further process.

● Live View is stuck when <Video Output> locally.**Possible Reasons:**

- Poor network between the NVR and the IP Camera, and there exists <Packet Loss> during the transmission.
- The <Frame Rate> has not reached the <Real-time> <Frame Rate>.
- 1. Verify that the network between the NVR and the IP Camera is connected.
 - 1) When the image is stuck, connect the <RS-232 Ports> on the PC and the rear panel of the NVR with the <RS-232> cable.
 - 2) Open the <Super Terminal> and execute the command of “*ping 192.168.0.0 -l 1472 -f*” (the <IP Address> may change according to the real condition), and check if there exists <Packet Loss>.

Note:

Simultaneously press <Ctrl> and <C> to exit the <Ping Command>.

- 2. Verify that the <Frame Rate> is <Real-time> <Frame Rate>.
 - Select “Menu > Record > Parameters > Record”, and set the <Frame Rate> to Full Frame.
- 3. Check if the fault is solved by the above steps.
 - If it is solved, finish the process.
 - If not, please contact the engineer from our company to do the further process.

● <Live View> is stuck when <Video Output> remotely via the Internet Explorer or a platform software.**Possible Reasons:**

- Poor network between the NVR and the IP Camera, and there exists <Packet Loss> during the transmission.
- Poor network between the NVR and the PC, and there exists <Packet Loss> during the transmission.
- The performances of hardware are not good enough, including <CPU>, <Memory>, etc..

1. Verify that the network between the NVR and the IP Camera is connected.

- 1) When image is stuck, connect the <RS-232 Ports> on the PC and the rear panel of the NVR with the <RS-232> cable.
- 2) Open the <Super Terminal> and execute the command of “*ping 192.168.0.0 -l 1472 -f*” (the <IP Address> may change according to the real condition), and check if there exists <Packet Loss>.

Note:

Simultaneously press <Ctrl> and <C> to exit the <Ping Command>.

2. Verify that the network between the NVR and the PC is connected.

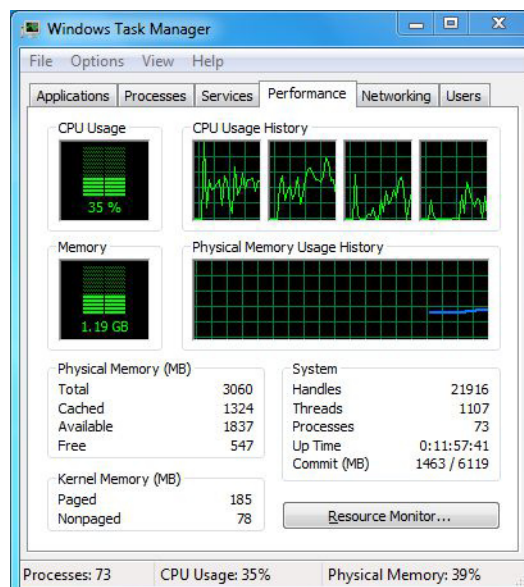
- 1) Open the <cmd> window in the <Start> menu, or you can press the “windows+R” shortcut key to open it.
- 2) Use the <Ping Command> to send a large packet to the NVR, execute the command of “*ping 192.168.0.0 -l 1472 -f*” (the <IP Address> may change according to the real condition), and check if there exists <Packet Loss>.

Note:

Simultaneously press <Ctrl> and <C> to exit the <Ping Command>.

3. Verify that the hardware of the PC is good enough.

Simultaneously press <Ctrl>, <Alt> and <Delete> to enter the windows <Task Management> interface, as shown in the following Picture.



Windows task management interface

- 1) Select the <Performance> tab and check the status of the <CPU> and of the <Memory>.
- 2) If the resource is not enough, please end some unnecessary processes.

4. Check if the fault is solved by the above steps.

If it is solved, finish the process.

If not, please contact the engineer from our company to do the further process.

- **When using the NVR to get the <Live View> audio, there is no sound or there is too much noise or the volume is too low.**

Possible Reasons:

- The cable between the pickup and the IP Camera is not connected well; impedance mismatches or incompatible.
- The Stream Type is not set as <Video & Audio>.
- The encoding standard is not supported with the NVR.

1. Verify the cable between the pickup and IP Camera is connected well; impedance matches and compatible.

Log in the IP Camera directly, and turn the audio on, check if the sound is normal. If not, please contact the manufacturer of the IP Camera.

2. Verify the setting parameters are correct.

Select “Menu > Record > Parameters > Record”, and set the Stream Type as “Audio & Video”.

3. Verify that the audio encoding standard of the IP Camera is supported by the NVR.

The NVR supports G722.1 and G711 standards, and if the encoding parameter of the input audio is not one of the previous two standards, you can log in the IP Camera to configure it to the supported standard.

4. Check if the fault is solved by the above steps.

If it is solved, finish the process.

If not, please contact the engineer from our company to do the further process.

- **The image gets stuck when the NVR is playing back by <Single> or <Multi-channel>.**

Possible Reasons:

- Poor network between the NVR and the IP Camera, and there exists <Packet Loss> during the transmission.
- The <Frame Rate> is not the <Real-time> <Frame Rate>.
- The NVR supports up to <16-channel Synchronized Playback> at the resolution of <4CIF>, if you want a <16-channel Synchronized Playback> at the resolution of <720p>, the frame extracting may occur, which leads to a slight stuck.

1. Verify that the network between the NVR and the IP Camera is connected.

- 1) When the image is stuck, connect the <RS-232 Ports> on the PC and the rear panel of the NVR with the <RS-232> cable.

- 2) Open the <Super Terminal> and execute the command of “*ping 192.168.0.0 -l 1472 -f*” (the <IP Address> may change according to the real condition) and check if there exists <Packet Loss>.

Note:

Simultaneously press the <Ctrl> and <C> to exit the <Ping Command>.

2. Verify that the <Frame Rate> is the <Real-time> <Frame Rate>.

Select: Menu > Record > Parameters > Record and set the <Frame Rate> to <Full Frame>.

3. Verify that the hardware can afford the <Playback>.

Reduce the channel number of <Playback>.

Select: Menu > Record > Encoding > Record and set the <Resolution> and the <Bitrate to> a lower level.

4. Reduce the number of the local <Playback> channel.

5. Select: Menu > Playback”, and uncheck the checkbox of unnecessary channels.

6. Check if the fault is solved by the above steps.

If it is solved, finish the process.

If not, please contact the engineer from our company to do the further process.

● **No record file found in the NVR local HDD, and prompt “No record file found”.**

Possible Reasons:

- The time setting of the system is incorrect.
- The search condition is incorrect.
- The HDD has an error or was not detected.

1. Verify the system time setting is correct.

Select: Menu > Configuration > General > General and verify that the <Device Time> is correct.

2. Verify that the search condition is correct.

Select <Playback> and verify that the <Channel> and the <Time> are correct.

3. Verify that the HDD status is <Normal>.

Select: Menu > HDD > General to view the <HDD Status> and verify that the HDD is detected and can be read and written normally.

4. Check if the fault is solved by the above steps.

If it is solved, finish the process.

If not, please contact the engineer from our company to do the further process.

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