



Quick Start Guide

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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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 Rom 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 Rom in the product package.

This Quick 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 Quick Guide carefully and retain it for future use.

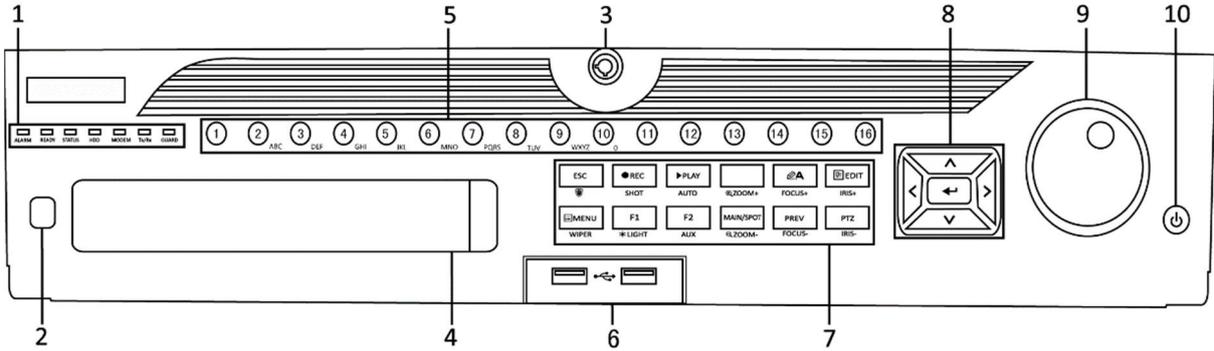
1.1 Model Overview

This Quick 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 Front Panel View

GD-RN-AT8864N and GD-RN-CT8832N:



GD-RN-AT8864N/GD-RN-CT8832N

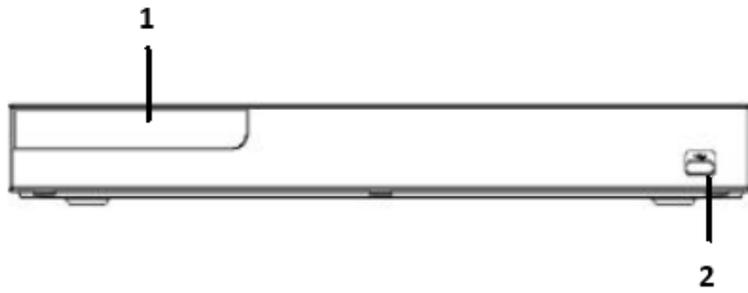
Panel Description (on the following page):

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 is in 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 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	N/A	
5	Alphanumeric Buttons	Switches to the corresponding channel in live view or PTZ control mode.	
		Inputs numbers and characters in edit mode.	
		Switches between different channels in playback mode.	
		Turns blue when the corresponding channel is recording; turns red when the channel is in 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 USB mouse and USB Hard Disk Drive (HDD).	
7	Composite Keys	ESC	Returns to the previous menu.
			Presses for arming/disarming the device in live view mode.
		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.

No.	Name	Function Description
		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 setting.
	A/FOCUS+	Adjusts 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 PTZ control mode.
		Generates video clips for backup in playback mode.
		Enters/exits the folder of USB device and eSATA HDD.
	MAIN/SPOT/ ZOOM	Switches between main and spot output.
		Zooms out the image in PTZ control mode.
	F1/ LIGHT	Selects all items on the list when used in a list field.
		Turns on/off PTZ light (if applicable) in PTZ control mode.
		Switches between play and reverse play in playback mode.
	F2/ AUX	Cycles through tab pages.
		Switches between channels in synchronous playback mode.
	MENU/WIPER	Returns to the Main menu (after successful login).
		Presses and holds the button for five seconds to turn off audible key beep.
		Starts wiper (if applicable) in PTZ control mode.
		Shows/hides the control interface in playback mode.
	PREV/FOCUS-	Switches between single screen and multi-screen mode.
		Adjusts the focus in conjunction with the A/FOCUS+ button in PTZ control mode.
	PTZ/IRIS-	Enters the PTZ Control mode.

No.	Name		Function Description
			Adjusts the iris of the PTZ camera in 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 recorded video. Use the Left and Right buttons to select the next and previous video files.
			Cycles through channels in live view mode.
			Controls the movement of the PTZ camera in PTZ control mode.
		ENTER	Confirms selection in any of the menu modes.
			Checks the checkbox fields.
			Plays or pauses the video playing in playback mode.
			Advances the video by a single frame in 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 live view mode.	
		Jumps 30s forward/backward in video files in the playback mode.	
		Controls the movement of the PTZ camera in PTZ control mode.	
10	POWER ON/OFF		Long press the button for more than 3 seconds to turn on/off the NVR.

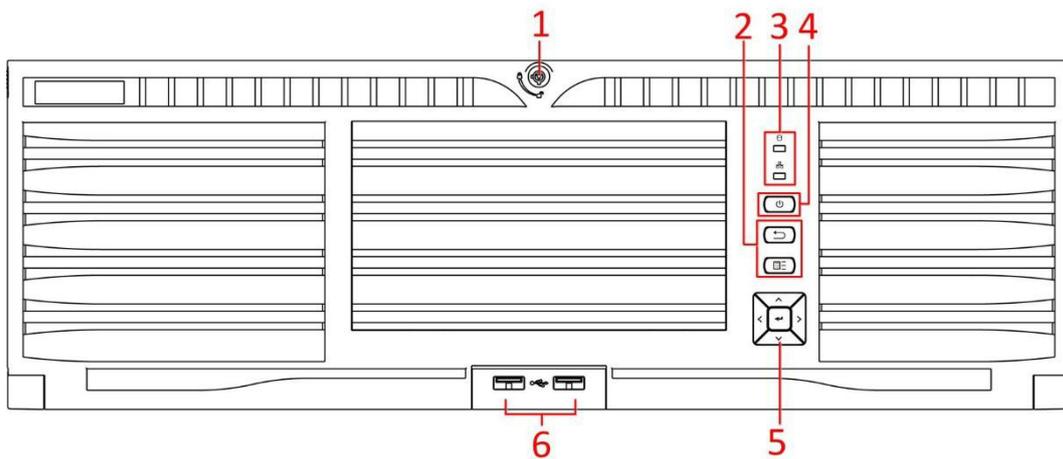
GD-RN-AC2416N, -AC2416P, -AP8616P and -AP8632P:



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 live view mode, press it to enter PTZ control interface.
		Menu	<ul style="list-style-type: none"> • Press it to pop up main menu. • Hold it for 5 seconds to turn on/off button sound. • During playback, press it to show/hide 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 network communication is normal.
4	Power switch		Powers on/off device. Solid blue indicates device is powered on. Solid red indicates device is shut down.
5	Control buttons	ENTER	<ul style="list-style-type: none"> • Confirms selection in any of the menu modes. • Checks the checkbox fields. • Switches on/off status. • Plays or pauses the video playing in playback mode. • Advances the video by a single frame in single-frame playback mode. • Stops/starts auto switch in 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 slow down recorded video. Use the Left and Right buttons to select the next and previous video files. • Cycles through channels in live view mode. • Controls the movement of the PTZ camera in PTZ control mode.
6	USB interfaces		Universal Serial Bus (USB) ports for additional devices such as USB mouse and USB Hard Disk Drive (HDD).

1.3 Remote Control

The NVR may also be controlled with the included IR remote control as shown below.

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:

Step 1 Go to General > More Settings.

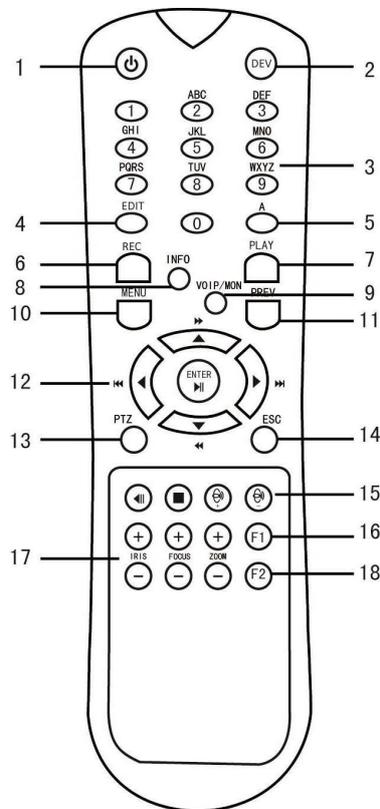
Step 2 Type a number (255 digits maximum) into the Device No. field.

On the IR Remote:

Step 1 Press the DEV button.

Step 2 Use the Number buttons to enter the Device ID# that was entered into the NVR.

Step 3 Press Enter button to accept the new Device ID#.



Remote Control

IR Remote Control Functions (on the following page):

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 User Has Not Changed the Default NVR Device ID# (255): Press Power On/Off button (1). - If User Has Changed the NVR Device ID#: <ol style="list-style-type: none"> 1. Press DEV button. 2. Press Number buttons to enter user-defined Device ID#. 3. Press Enter button. 4. Press Power button to start device. • To Turn NVR Off: <ul style="list-style-type: none"> - If User Is Logged On: <ol style="list-style-type: none"> 1. Hold Power On/Off button (1) down for five seconds to display the “Yes/No” verification prompt. 2. Use Up/Down Arrow buttons (12) to highlight desired selection. 3. Press Enter button (12) to accept selection. - If User Is <i>Not</i> Logged On: <ol style="list-style-type: none"> 1. Hold 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 input and dismiss the on-screen keyboard. 5. Use the Down Arrow button (12) to move to the “Password” field. 6. Input password (use on-screen keyboard or numeric buttons (3) for numbers). 7. Press the Enter button (12) to accept input and dismiss the on-screen keyboard. 8. Press the OK button on the screen to accept input and display the Yes/No” verification prompt (use Up/Down Arrow buttons (12) to move between fields) 9. Press Enter button (12) to accept selection. <p>User name/password prompt depends on NVR is configuration. See “System Configuration” section.</p>
2	DEV	Enable IR Remote: Press DEV button, enter NVR Device ID# with number keys, press Enter to pair unit with the NVR
		Disable IR Remote: Press DEV button to clear Device ID#; unit will no longer be paired with the NVR
3	Numerals	Switch to the corresponding channel in Live View or PTZ Control mode
		Input numbers in Edit mode
4	EDIT	Delete characters before cursor
		Check the checkbox and select the ON/OFF switch
5	A	Adjust focus in the PTZ Control menu
		Switch on-screen keyboards (upper and lower case alphabet, symbols, and numerals)

6	REC	Enter Manual Record setting menu
		Call a PTZ preset by using the numeric buttons in PTZ control settings
		Turn audio on/off in Playback mode
7	PLAY	Go to 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 PTZ control mode
10	MENU	Return to Main menu (after successful login)
		N/A
		Show/hide full screen in Playback mode
12	DIRECTION	Navigate between fields and menu items
		Use Up/Down buttons to speed up/slow down recorded video and Left/Right buttons to advance/rewind 30 s in Playback mode
		Cycle through channels in Live View mode
		Control PTZ camera movement in PTZ control mode
	ENTER	Confirm selection in any menu mode
		Checks checkbox
		Play or pause video in Playback mode
		Advance video a single frame in single-frame Playback mode
		Stop/start auto switch in auto-switch mode
13	PTZ	Enter PTZ Control mode
14	ESC	Go back to previous screen
		N/A
15	RESERVED	Reserved
16	F1	Select all items on a list
		N/A
		Switch between play and reverse play in Playback mode
17	PTZ Control	Adjust PTZ camera iris, focus, and zoom
18	F2	Cycle through tab pages
		Switch between channels in Synchronous Playback mode

1.4 USB Mouse

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

Step 1 Plug USB mouse into one of the USB interfaces on the front panel of the NVR.

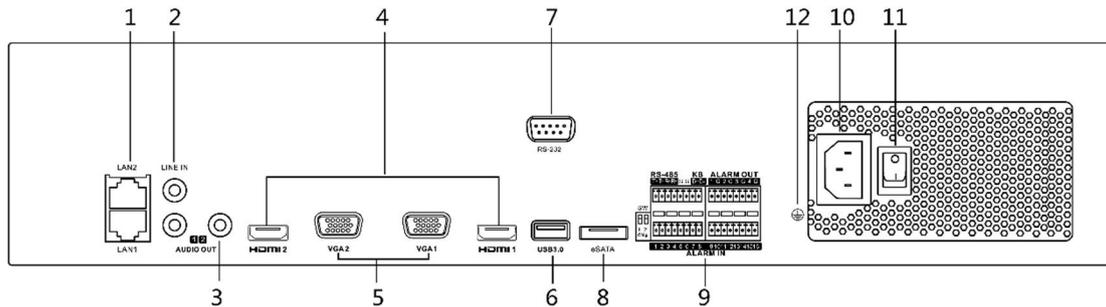
Step 2 The mouse should automatically be detected. If in a rare case that the mouse is not detected, the possible reason may be that the two devices are not compatible, please refer to the recommended device list from your provider.

Description of the Mouse Control:

Name	Action	Description
Left-Click	Single-Click	Live view: Select 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 target area. Digital zoom-in: Drag and select target area. Live view: Drag channel/time bar.
Right-Click	Single-Click	Live view: Show menu. Menu: Exit current menu to upper level menu.
Scroll-Wheel	Scrolling up	Live view: Previous screen. Menu: Previous item.
	Scrolling down	Live view: Next screen. Menu: Next item.

1.5 Rear Panel View

GD-RN-CT8832N and GD-RN-AT8864N:

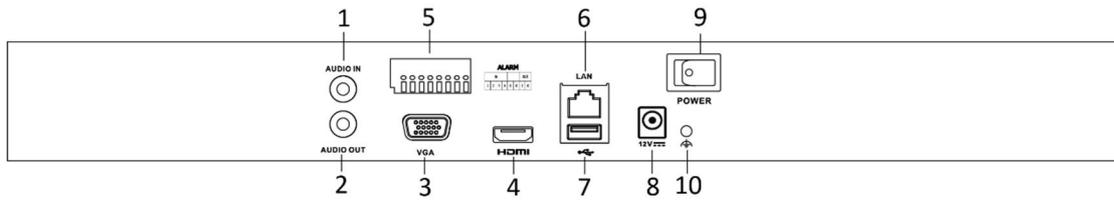


GD-RN-CT8832N / GD-RN-AT8864N

Panel Description:

No.	Name	Description
1	LAN1/LAN2 Interface	2 RJ-45 10/100/1000 Mbps self-adaptive Ethernet interfaces 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 USB mouse and 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	KB D+, KB D- pin connects to Ta, Tb pin of controller. For PTZ-control, the NVR's RS485+, RS485- pin should be connected with the D+, D- pin of the PTZ-camera.
	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 on/off the device.
12	GROUND	Ground (needs to be connected when NVR starts up).

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



GD-RN-AC2416N / GD-RN-AC2416P

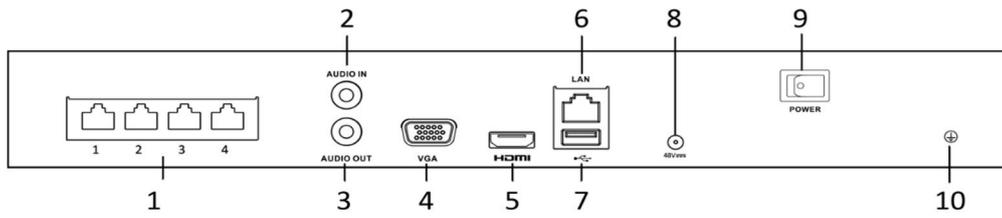
Note:

The GD-RN-AC2416P provides 16 PoE-ports.

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 NVR starts up).
9	Power Supply	See the Specification Sheet of the NVR.
10	Power Switch	Switch for turning on/off the device.

GD-RN-AC2004P:

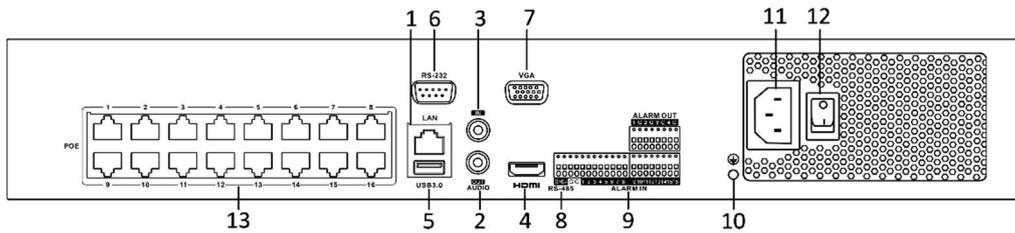


GD-RN-AC2004P

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 /4P.
7	USB Interface	Universal Serial Bus (USB) ports for additional devices such as USB mouse and USB Hard Disk Drive (HDD).
9	Power Supply	12VDC power supply for GD-RN-AC2004P and 48 VDC power supply for GD-RN-AC2004
10	Ground	Ground (needs to be connected when NVR starts up).

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

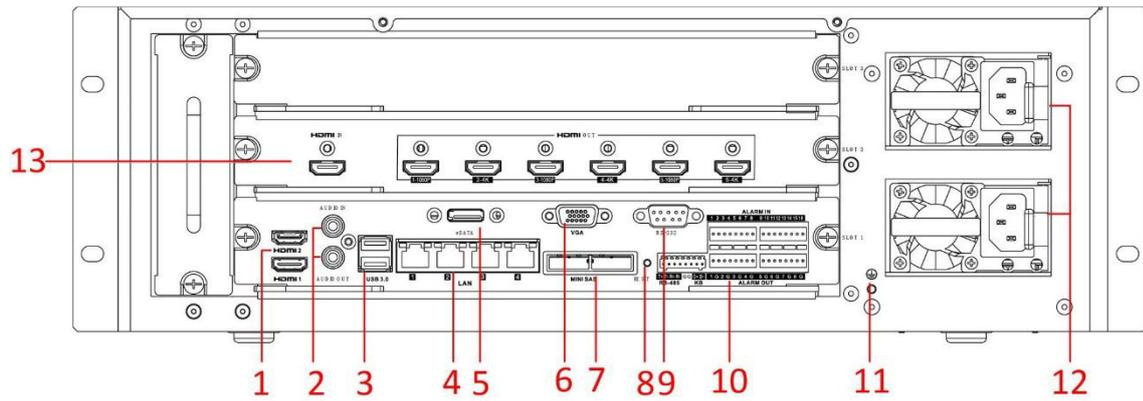


GD-RN-AP8616P and GD-RN-AP8632P

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 USB mouse and 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 NVR starts up).
11	AC 100V ~ 240V	100V to 240VAC power supply.
12	Power Switch	Switch for turning on/off the device.
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 USB mouse and 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 keyboard.
11	GND	Ground (needs to be connected when 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. Installation

2.1 NVR Installation

During installation of the NVR:

Use brackets for rack mounting.

Ensure ample room for audio and video cables.

When routing cables, ensure that the bend radius of the cables are no less than five times than its diameter.

Connect the alarm cable.

Allow at least 2cm (≈0.75-inch) of space between rack-mounted devices.

Ensure the NVR is grounded.

Environmental temperature should be within the range of -10 to +55° C or +14 to +131° F.

Environmental humidity should be within the range of 10% to 90%.

2.2 Hard Disk Installation

Before you start:

Disconnect the power from the NVR before installing a hard disk drive (HDD). A factory recommended HDD should be used for this installation.

Tools Required: 1 Screwdriver.

For GD-RN-CT8832N and GD-RN-AT8864N:

The following section introduces the HDD installation for GD-RN-CT8832N and GD-RN-AT8864N model. Pictures may differ to the actual model.

Steps:

1. Fasten the hard disk mounting handle to the hard disk with screws.



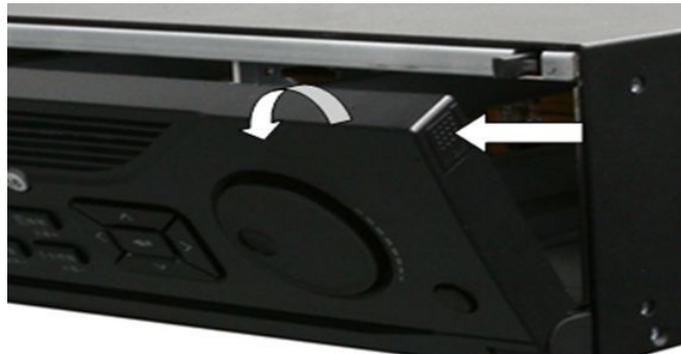
Fasten the Hard Disk

2. Insert the key and turn in clockwise direction to open the panel lock.



Insert the Panel Key

3. Press the buttons on the panel on two sides and open the front panel.



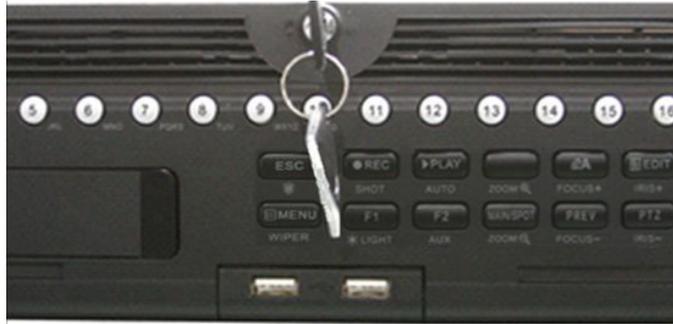
Open the Panel Lock

4. Insert the hard disk along the slot until it is placed into position.



Insert the Hard Disk

5. Repeat the above steps to install other hard disks onto the NVR. After having finished the installation of all hard disks, close the front panel and lock it with the key again.



Lock the Panel

For GD-RN-AT819128N:

The following section introduces the HDD installation for the GD-RN-AT819128N model.

Steps:

1. Fasten the hard disk mounting handle to the hard disk with screws.



Fasten Hard Disk

2. Insert the key and turn in the clockwise direction to open the panel lock.



Insert the Panel Key

3. Press the buttons on the panel on two sides and open the front panel.



Open the Panel Lock

4. Insert the hard disk along the slot until it is placed into position.



Insert the Hard Disk

5. Repeat the above steps to install other hard disks onto the NVR. After having finished the installation of all hard disks, close the front panel and lock it with the key again.



Lock the Panel

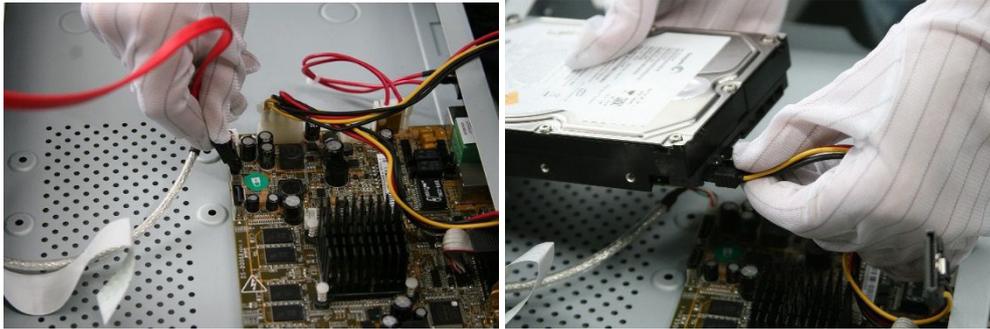
For the Other Models:

The following section introduces the HDD installation for the models GD-RN-AC2004P, GD-RN-AC2416N, GD-RN-AC2416P, GD-RN-AP8616P and GD-RN-AP8632P.

The pictures may differ to the actual models.

Steps:

1. Remove the cover from the NVR by unfastening the screws on the rear and side panel.
2. Connect one end of the data cable to the motherboard of the NVR and the other end to the HDD.



Connect the Data Cable

3. Connect the power cable to the HDD.



Connect the Power Cable

4. Place the HDD on the bottom of the device and then fasten the screws on the bottom to fix the HDD.



Fix the Hard Disk

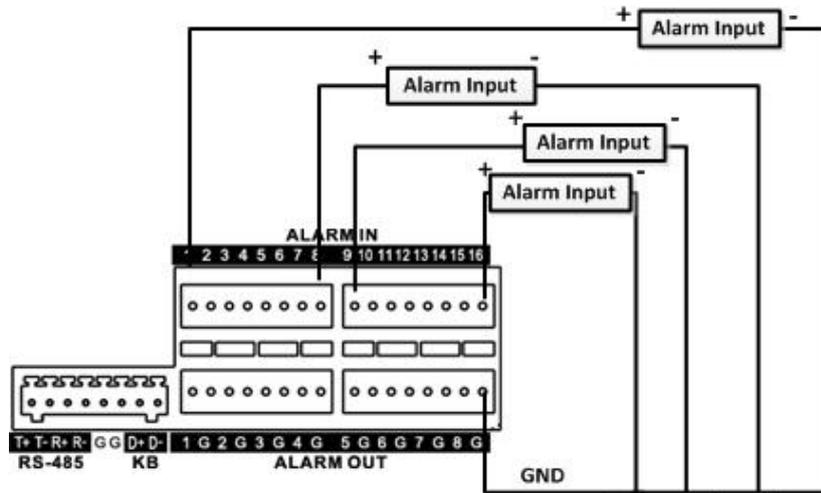
2.3 Connections

Alarm Input Wiring for GD-RN-AT819128N:

The alarm input is an open/closed relay. To connect the alarm input to the device, use the following diagram.

Note:

If the alarm input is not an open/close relay, please connect an external relay between the alarm input and the device.



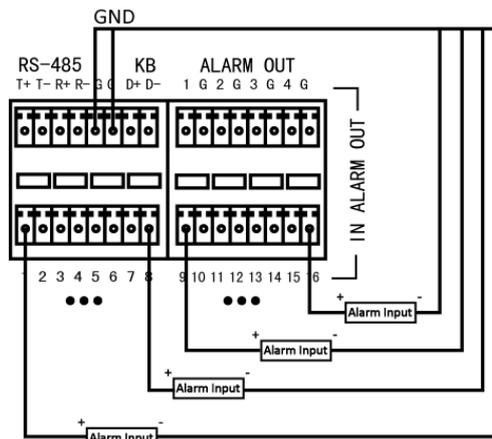
Alarm Input Wiring

Alarm Input Wiring for the Other Models:

The alarm input is an open/closed relay. To connect the alarm input to the device, use the following diagram.

Note:

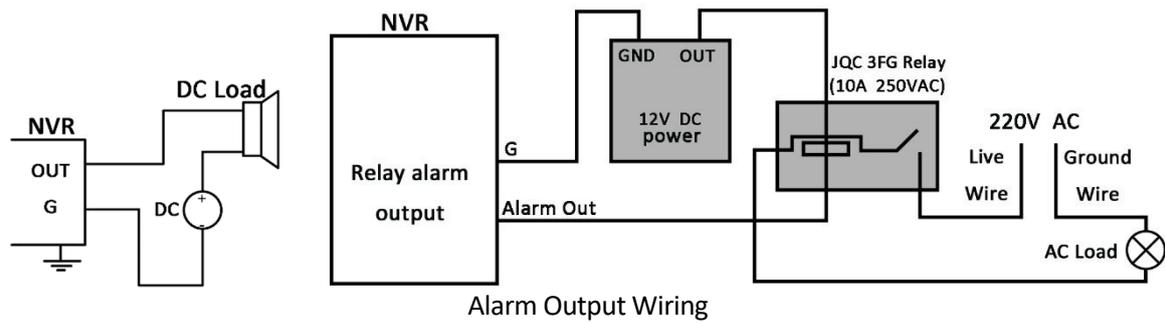
If the alarm input is not an open/close relay, please connect an external relay between the alarm input and the device.



Alarm Input Wiring

Alarm Output Wiring:

To connect to an alarm output (AC or DC load), use the following diagram:



For DC load, the jumpers can be used within the limit of 12V/1A safely.

To connect an AC load, jumpers should be left open (you must remove the jumper on the motherboard in the NVR). Use an external relay for safety (as shown in the figure above).

There are 4 jumpers (JP6, JP9, JP10, and JP11) on the motherboard, each corresponding with one alarm output. By default, jumpers are connected. To connect an AC load, the jumpers should be removed.

Example:

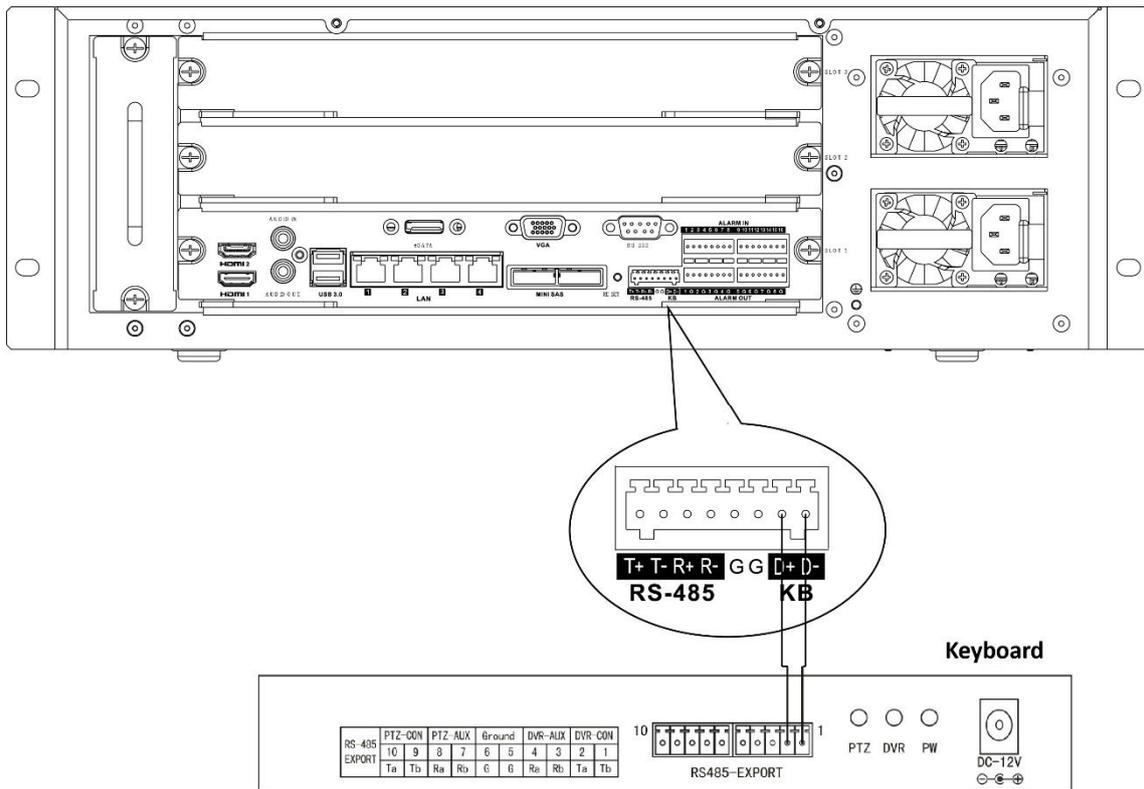
If you connect an AC load to the alarm output 3 of the NVR, then you must remove the JP 3 jumper.

Using Alarm Connectors:

To connect alarm devices to the NVR:

- Step 1 Disconnect the pluggable block from the ALARM IN /ALARM OUT terminal block.
- Step 2 Unfasten the stop screws from the *pluggable block*, insert the signal cables into the slots and fasten the stop screws. Ensure the signal cables are tight.
- Step 3 Connect the *pluggable block* back into the terminal block.

Controller Connection for GD-RN-AT819128N:



Controller Connection

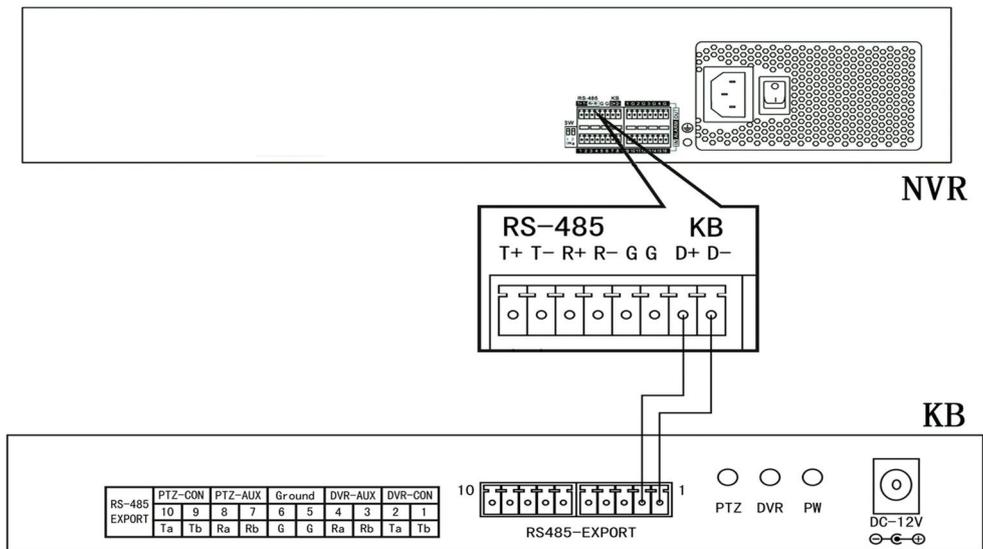
To connect a controller to the NVR:

1. Disconnect pluggable block from the KB terminal block.
2. Unfasten stop screws from the KB D+, D- *pluggable block*, insert signal cables into slots and fasten stop screws. Ensure signal cables are in tight.
3. Connect Ta on controller to D+ on terminal block and Tb on controller to D- on terminal block. Fasten stop screws.
4. Connect *pluggable block* back into terminal block.

Note:

Make sure both the controller and NVR are grounded.

Controller Connection for GD-RN-CT8832N and GD-RN-AT8864N:



Controller Connection

To connect a controller to the NVR:

- Step 1 Disconnect the pluggable block from the KB terminal block.
- Step 2 Unfasten the stop screws from the KB D+, D- *pluggable block*, insert the signal cables into the slots and fasten the stop screws. Ensure the signal cables are in tight.
- Step 3 Connect Ta on the controller to D+ on the terminal block and Tb on the controller to D- on the terminal block. Fasten the stop screws.
- Step 4 Connect the *pluggable block* back into the terminal block.

Note:

Make sure both the controller and NVR are grounded.

2.4 HDD Storage Calculation Chart

The following chart shows an estimation of storage space used based on recording at one channel for an hour at a fixed bit rate.

Bit Rate	Storage Used
96K	42M
128K	56M
160K	70M
192K	84M
224K	98M
256K	112M
320K	140M
384K	168M
448K	196M
512K	225M
640K	281M
768K	337M
896K	393M
1024K	450M
1280K	562M
1536K	675M
1792K	787M
2048K	900M
4096K	1.8G
8192K	3.6G
16384K	7.2G

Note:

Please note that the supplied values for storage space used are just for reference. The storage values in the chart are estimated by formulas and may have some deviation from the actual value.

3. Getting Started

3.1 Recorder Startup

Before you start:

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

Starting up the NVR:

1. Check 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 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 cannot be detected.

Shutting down the NVR:

Step 1 Enter the Shutdown menu: Menu > Shutdown



Shutdown Menu

Step 2 Click the **Shutdown** button.

Step 3 Click the **Yes** button.

Rebooting the NVR:

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

Step 1 Enter the Shutdown menu by clicking Menu > Shutdown.

Step 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 Web Browser or the Grundig IP-Finder tool.

Step 1 Input 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. 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.

Step 2 Click **OK** to save the password and activate the device.

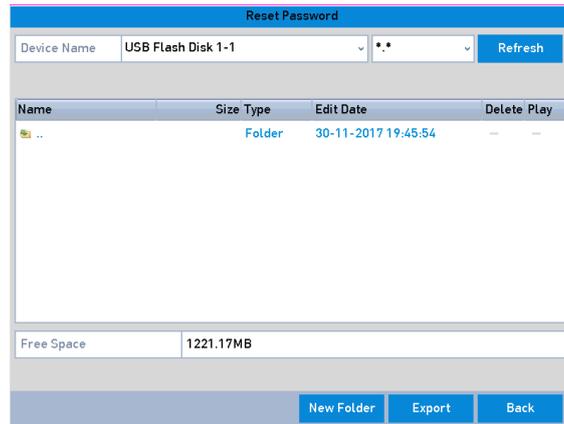
Step 3 When the device is activated, the system pops up the message box to remind you to remember the password. And you can click **Yes** to continue to export the GUID file for the future password resetting.



Export GUID File Remind

Step 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 Section

Step 5 **Resetting Your Password** for the instructions of password resetting.



Export GUID File

Note:

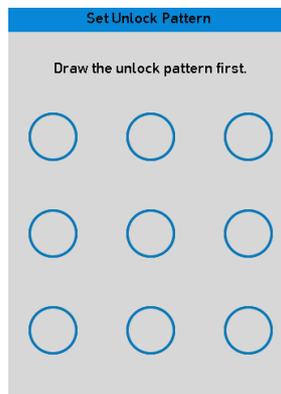
Please keep your GUID file properly for future password resetting. This GUID Export function may not be available for GD-RN-AT819128N.

Using the Unlock Pattern for Login:

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

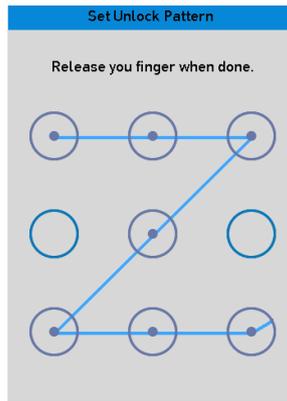
Configuring the Unlock Pattern:

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



Set Unlock Pattern

Step 2 Use the mouse to draw a pattern among the 9 dots on the screen. Release the mouse when the pattern is done.



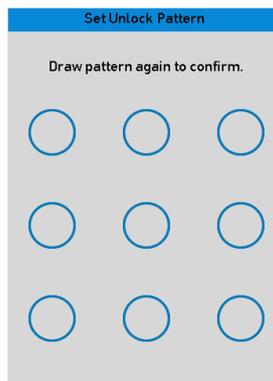
Draw the Pattern

Note:

Connect at least 4 dots to draw the pattern.

Each dot can be connected for once only.

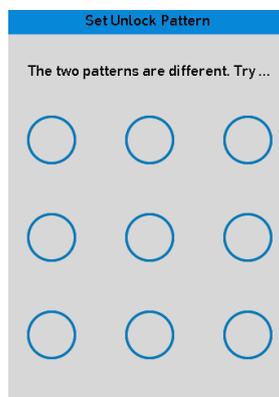
Step 3 Draw the same pattern again to confirm it. When the two patterns match, the pattern is configured successfully.



Confirm the Pattern

Note:

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



Re-set the Pattern

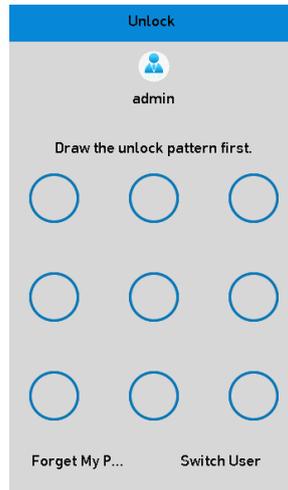
Logging in via Unlock Pattern:

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

Step 1 Right click the mouse on the screen and select the menu to enter the interface as shown below.



Draw the Unlock Pattern

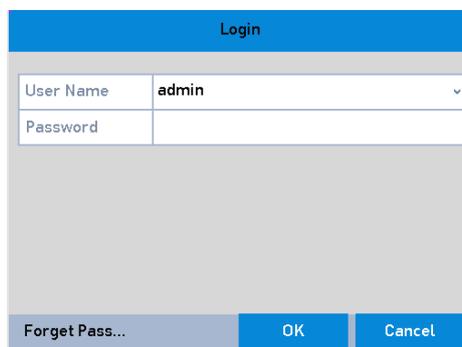
Step 2 Draw the pre-defined pattern to unlock to enter the menu operation.

Note:

If you have forgotten your pattern, you can select the **Forget My Pattern** or **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, the system will switch to the normal login mode automatically.



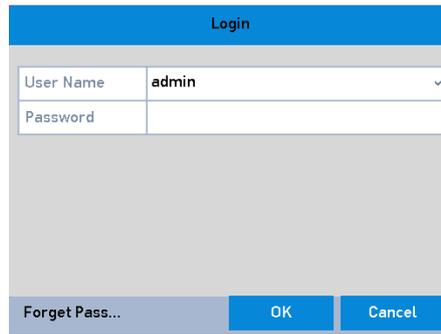
Normal Login Dialog Box

Login and Logout:

- User Login:

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

Step 1 Select the User Name in the dropdown list.



Login Interface

Step 2 Input password.

Step 3 Click **OK** to log in.

Note:

When you forget the password of the admin, you can click **Forget Password** to reset the password. Please refer to the Section **Resetting Your Password** for details.

Note:

In the Login dialog box, if you enter the wrong password 7 times, 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 user name and password log in again.

Step 4 Enter the Shutdown menu: Menu > Shutdown



Logout

Step 5 Click **Logout**.

Note:

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

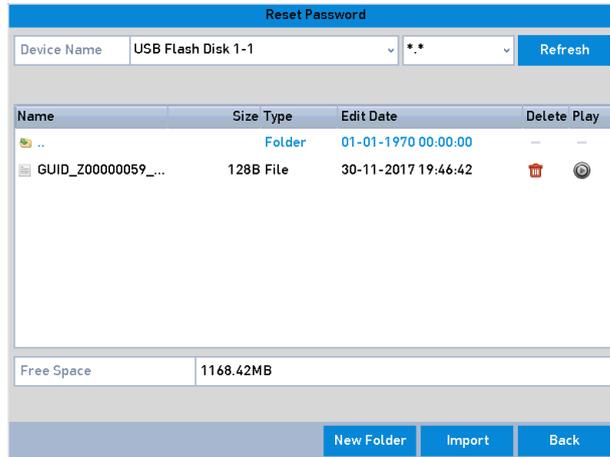
Resetting Your Password:

When you forget the password of the admin, 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 Section **Activating your Recorder**).

Step 1 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 password.



Reset Password

Step 2 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 GUIE file for 7 times, you will be not allowed to reset the password for 30 minutes.

Step 3 After the GUID file is successfully imported, enter the reset password interface to set the new admin password. Refer to Section **Activating your Recorder** for details.

Step 4 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 export the GUID file.

3.2 Using the Wizard for Basic Configuration

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

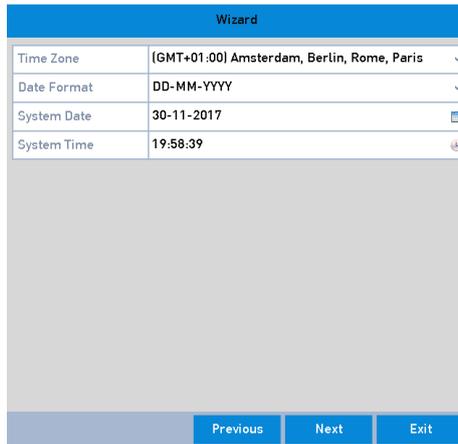


Start Wizard Interface

Operating the Setup Wizard:

Step 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.

Step 2 Click **Next** button to enter the date and time settings window, as shown below.



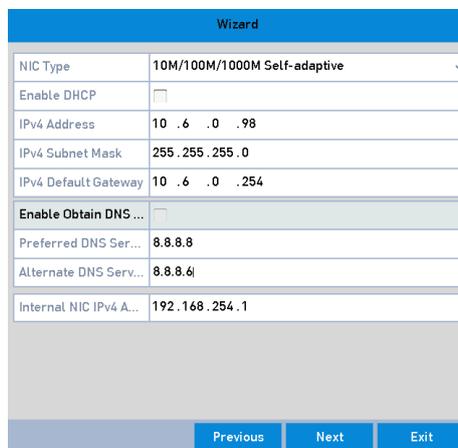
The screenshot shows a window titled "Wizard" with a blue header. It contains a table with the following settings:

Field	Value
Time Zone	(GMT+01:00) Amsterdam, Berlin, Rome, Paris
Date Format	DD-MM-YYYY
System Date	30-11-2017
System Time	19:58:39

At the bottom of the window, there are three buttons: "Previous", "Next", and "Exit".

Date and Time Settings

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



The screenshot shows a window titled "Wizard" with a blue header. It contains a table with the following settings:

Field	Value
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

At the bottom of the window, there are three buttons: "Previous", "Next", and "Exit".

Network Setting

Note:

Two self-adaptive 10M/100M/1000M network interfaces provided for GD-RN-CT8832N, GD-RN-AT8864N, GD-RN-AP8616P and GD-RN-AP8632P and two working modes are configurable: multi-address and network fault tolerance. And one self-adaptive 10M/100M/1000M network interface for GD-RN-AC2416N, GD-RN-AC2416P, GD-RN-AP8616P and GD-RN-AP8632P.

Step 4 Click **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	
<input type="button" value="Previous"/> <input type="button" value="Next"/> <input type="button" value="Exit"/>	

Advanced Network Parameters

Step 5 Click **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	
<input type="button" value="Previous"/> <input type="button" value="Next"/> <input type="button" value="Exit"/>	

Advanced Network Parameters

Step 6 Click **Next** button after you configured the network parameters, which takes you to the RAID configuration window.

Note:

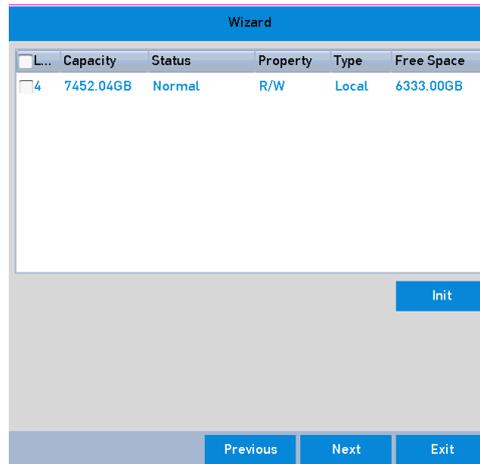
The RAID is supported by GD-RN-CT8832N, GD-RN-AT8864N and GD-RN-AT819128N only.

Wizard					
L...	Capacity	Status	Property	Type	Free Space
					<input type="button" value="Init"/>
<input type="button" value="Previous"/> <input type="button" value="Next"/> <input type="button" value="Exit"/>					

Array Management

Step 7 Click **Next** button to enter the Array Management window.

Step 8 Click **Next** button after you configured the network parameters, which takes you to the **HDD Management** window, shown below.



HDD Management

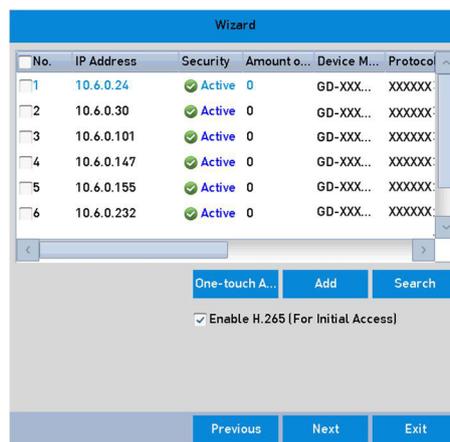
Step 9 To initialize the HDD, click the **Init** button. Initialization removes all the data saved in the HDD.

Step 10 Click **Next** button. You enter the **Adding IP Camera** interface.

Step 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 is in active status.

If the camera is in inactive status, 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** to add the camera.

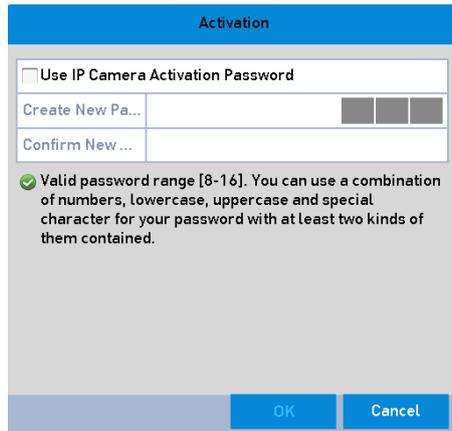


Search for IP Cameras

Note:

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

Step 12 Click **Next** button. Configure the recording for the added IP Cameras.



Record Settings

Step 13 Click **OK** to complete the startup Setup Wizard.

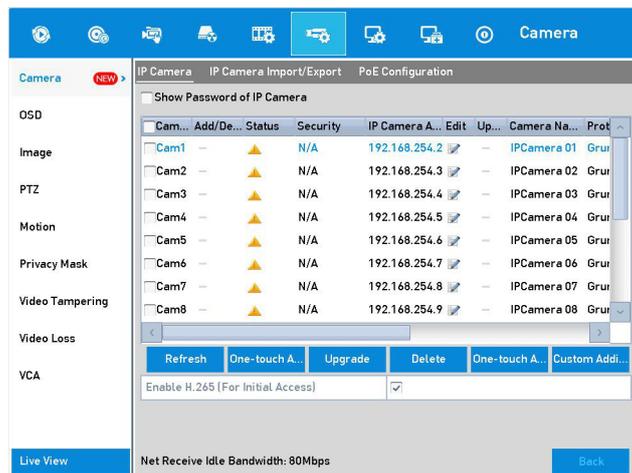
3.3 Adding and Connecting the IP Cameras

3.3.1 Activating the IP Camera

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

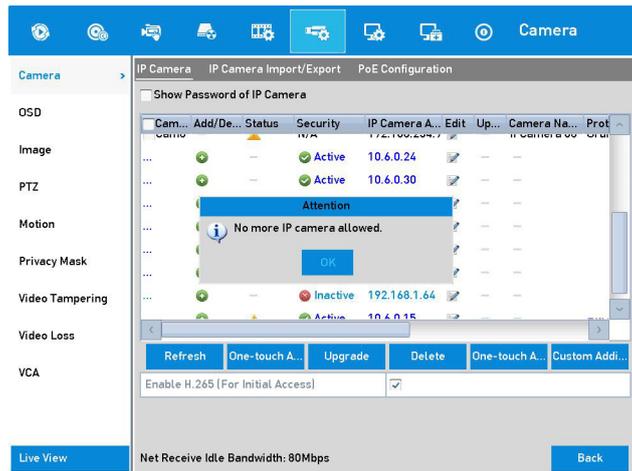
Step 1 Select the Add IP Camera option from the right-click menu in live view mode or click Menu> Camera> Camera to enter the IP camera management interface.

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

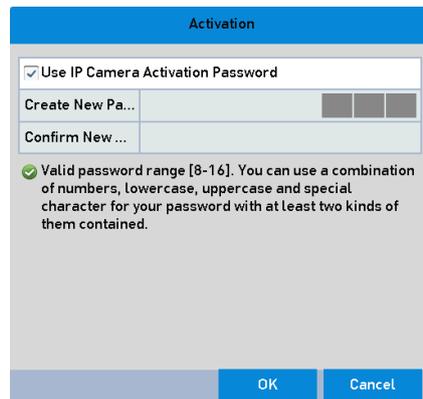
Step 2 Click the inactive icon of the camera to enter the following interface to activate it. You can also select multiple cameras from the list and click the **One-touch Activate** to activate the cameras in batch.



Activate the Camera

Step 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.

Step 4 Click **OK** to finish the activating of the IP camera. And the security status of camera will be changed to **Active**.

3.3.2 Adding the Online IP Cameras

The main function of the NVR is to connect the network cameras and record the video got from it. So before you can get a live view or 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 in the User Guide the Chapter *Network*.

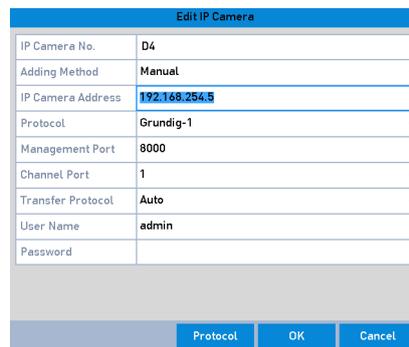
Adding the IP Cameras:

- OPTION 1:

Step 1 Click to select an idle window in the live view mode.

Step 2 Click the  icon in the center of the window to pop up the adding IP camera interface.

Step 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.



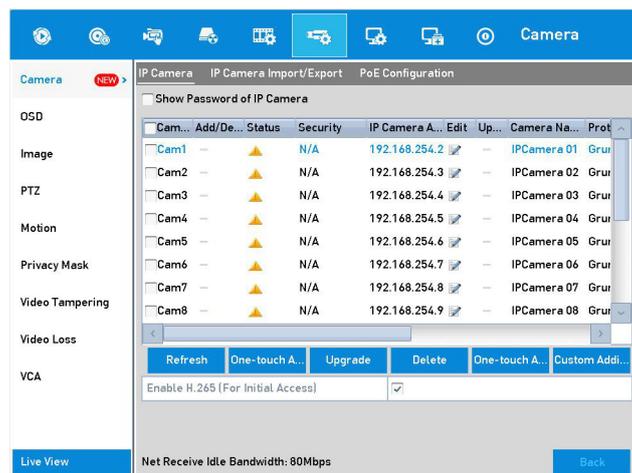
Edit IP Camera	
IP Camera No.	D4
Adding Method	Manual
IP Camera Address	192.168.254.5
Protocol	Grundig-1
Management Port	8000
Channel Port	1
Transfer Protocol	Auto
User Name	admin
Password	

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:

Step 4 Select the **Add IP Camera** option from the right-click menu in live view mode or click Menu> Camera> Camera to enter the IP camera management interface.



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

Adding IP Camera Interface

Step 5 The online cameras with same network segment will be detected and displayed in the camera list.

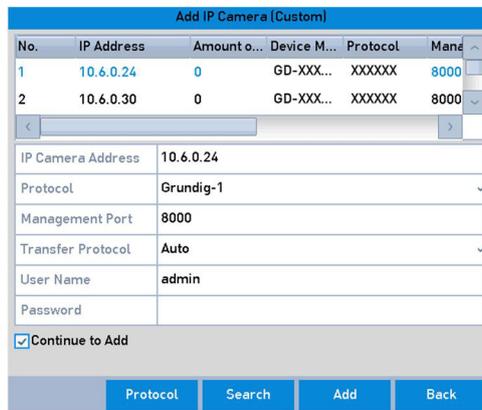
Step 6 Select the IP camera from the list and click the  button to add the camera. Or you can click the **One-touch Adding** button to add all cameras (with the same login password) from the list.

Note:

Make sure the camera to add has already been activated.

- OPTION 3:

Step 7 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

Step 8 You can edit the IP address, protocol, management port, and other information of the IP camera to be added.

Note:

If the IP camera to add has not been activated, you can activate it from the IP camera list on the camera management interface.

Step 9 (Optional) Check the checkbox of **Continue to Add** to add other IP cameras.

Step 10 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.		Shows the security status of the camera to be active/inactive or the password strength (strong/medium/weak/risky)

Note:

For the added IP cameras, the Security status shows the security level of the password of camera: strong password, weak password and risk password.

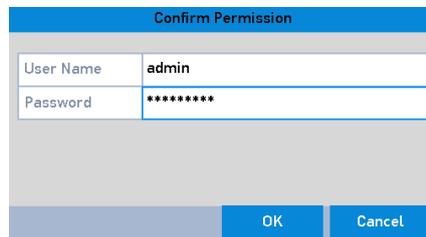
Cam...	Add/De...	Status	Security	IP Camera A...	Edit	Up...	Camera Na...	Prot
Cam1	-		Weak Pass...	10.6.0.23			Camera 01	Grur
Cam2	-		N/A	192.168.254.3		-	IPCamera 02	Grur
Cam3	-		N/A	192.168.254.4		-	IPCamera 03	Grur

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 show the passwords of the successfully added IP cameras in the list.

You must enter the admin password to confirm permission.



A dialog box titled "Confirm Permission" with a blue header. It contains two input fields: "User Name" with the value "admin" and "Password" with masked characters "*****". At the bottom right, there are "OK" and "Cancel" buttons.

List of Added IP Cameras

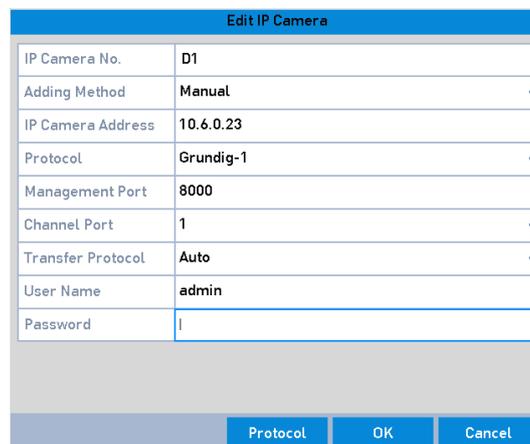
Enabling the H.265 Stream Access:

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

3.3.3 Editing the Connected IP Cameras and Configuring the 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.

Step 1 Click the  icon to edit the parameters; you can edit the IP address, protocol and other parameters.



A dialog box titled "Edit IP Camera" with a blue header. It contains several fields: "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), and "Password" (|). At the bottom right, there are "Protocol", "OK", and "Cancel" buttons.

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 No. in the dropdown list.

Step 2 Click **OK** to save the settings and exit the editing interface.

To edit advanced parameters:

Step 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

Step 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

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

Step 4 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.

Step 5 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: rtsp://<IP address of device>:<RTSP port>/Streaming/channels/<channel number><stream number>

1. **Example:** rtsp://192.168.1.100:554/Streaming/channels/101 – to get the stream from the 1st channel
 2. **Protocol Name:** Edit the name for the custom protocol.
- **Enable Substream:** If the network camera does not support sub-stream or 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 No. 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, please refer to 0.

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

Protocol Setting

Step 6 Choose the protocols you just added to validate the connection of the network camera.

4. Live View

4.1 Introduction of Live View

Live view shows you the video image getting from each camera in real time. The NVR automatically enters Live View mode when powered on. It is also at the very top of the menu hierarchy, thus pressing the ESC 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 whether the channel is recorded, or whether there are alarms occur as soon as possible.

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 in the User Guide to <i>Chapter Setting Alarm Response Actions</i> for details.)

4.2 Operations in Live View Mode

In 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:** the shortcut to the IP camera management interface.
- **Playback:** playback the recorded videos for 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 GD-RN-CT8832N) and HDMI > VGA (for GD-RN-AC2416N, GD-RN-AC2416P, GD-RN-AC2004P, GD-RN-AP8616P and GD-RN-AP8632).

GD-RN-AT8864N, GD-RN-CT8832N: 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 Enter button.
Playback	Press Play button.
Switch between main and aux output	Press 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 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 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 Aux monitor mode and the Aux monitor is not connected, the mouse operation is disabled; you need to switch back to the Main output with the MAIN/AUX button on the front panel or remote.

If the corresponding camera supports intelligent function, the Reboot Intelligence option is included when right-clicking 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 Live View, clicking this feature will switch to the next set of displays.

Playback: Enter into Playback mode.

PTZ Control: Enter PTZ Control mode.

Main Monitor: Enter 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 Live View Mode:

On the screen of each channel, there is a quick setting toolbar which shows 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 in 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, GD-RN-CT8832N, GD-RN-AT8864N, GD-RN-AT819128N) is for zooming in/out the specific area of 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 mouse to drag a rectangle area in the upper left direction to move the position to the center and enable the rectangle area to zoom out.



Digital Zoom is for zooming in the live image. 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.



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.

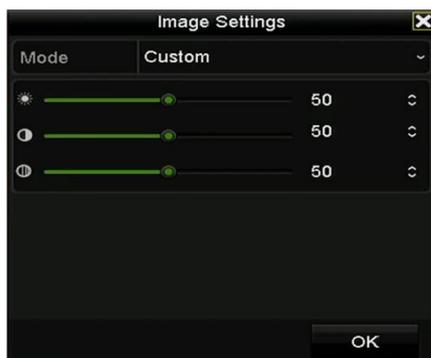
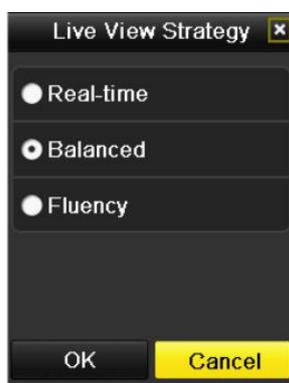


Image Settings- Customize



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



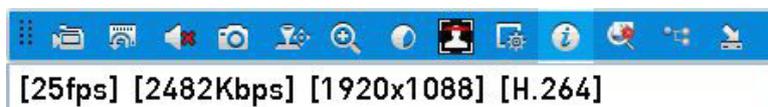
Live View Strategy



Face detection function can be used to detect the human faces in live view mode and save 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 in HDD.



Move the mouse onto the icon to show the real-time stream information, including the frame rate, bitrate, resolution and stream type.



Information

Fisheye Expansion View:

Some NVR recorders (GD-RN-AP8616P, GD-RN-AP8632P, GD-RN-AT8864N) support the fisheye expansion for a connected fisheye camera in live view or playback mode.

Click on the icon  to enter the fisheye expansion mode.

Fisheye Display Mode:

	Button	Operation
Fisheye expansion		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 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.

5. Recording and Capture Settings

5.1 Configuring Recording and Capture Schedule

Set the record schedule, and then the camera automatically starts/stops recording according to the configured schedule.

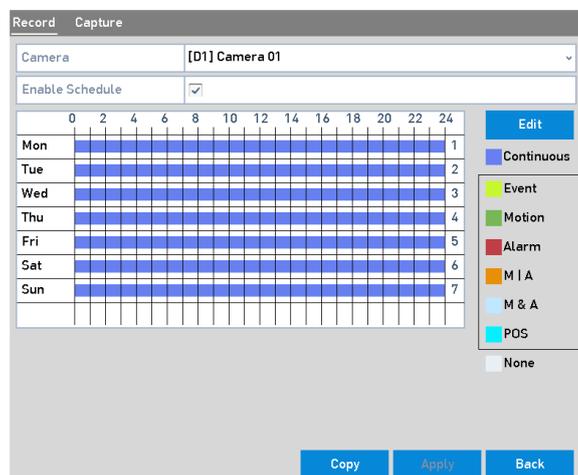
Note:

In this chapter, we take the record schedule procedure as an example, and the same procedure can be applied to configure schedule for both recording and capture. To schedule the automatic capture, you need to choose the Capture tab in the **Schedule** interface.

Step 1 Enter the Record Schedule interface: Menu>Record/Capture>Schedule

Step 2 Configure Record Schedule

Select Record/Capture Schedule.



Record Schedule

Different recording types are marked in different color icons.

Continuous: scheduled recording.

Event: recording triggered by all event triggered alarm.

Motion: recording triggered by motion detection.

Alarm: recording triggered by alarm.

M/A: recording triggered by either motion detection or alarm.

M&A: recording triggered by motion detection and alarm.

POS: recording triggered by POS and alarm. (Supported by GD-RN-AP8616P, GD-RN-AP8632P, GD-RN-AT8864N only)

Note:

You can delete the set schedule by clicking the **None** icon.

Choose the camera you want to configure.

Select the check box after the **Enable Schedule** item.

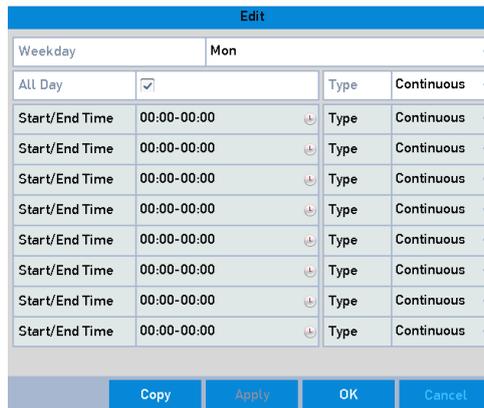
Click **Edit** button or click on the color icon under the edit button and draw the schedule line on the panel.

Edit the schedule:

Note:

The all-day continuous recording is configured for the device by factory default.

- I. In the message box, you can choose the day to which you want to set schedule.



Recording Schedule Interface

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

- II. To schedule an all-day recording, check the checkbox after the **All-Day** item.



Edit Schedule

- III. 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.

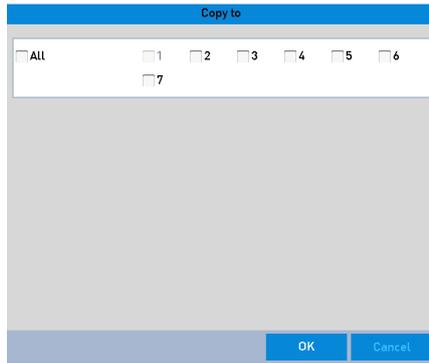
- IV. Select the record type in the dropdown list.

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 VCA settings as well. For detailed information, refer in the User Guide to *Chapter 8.1* and *Chapter 9*.

The VCA settings are not available to all 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**.

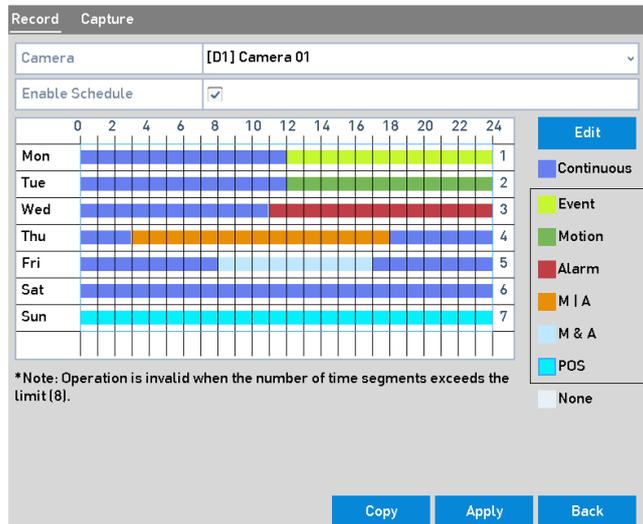


Copy Schedule to Other Days

- V. Click **OK** to save setting and back to upper level menu.
- VI. 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.

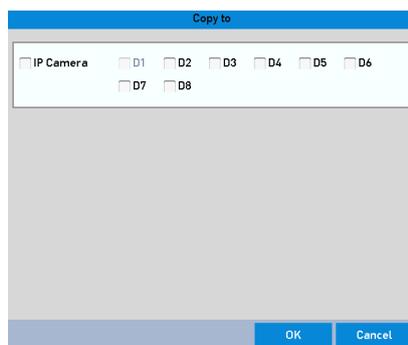


Draw the Schedule

- II. Click the **Apply** button to validate the settings.

Step 3 (Optional) If the settings can also be used to other channels, click **Copy**, and then choose the channel to which you want to copy.

Step 4 Click **Apply** to save the settings.

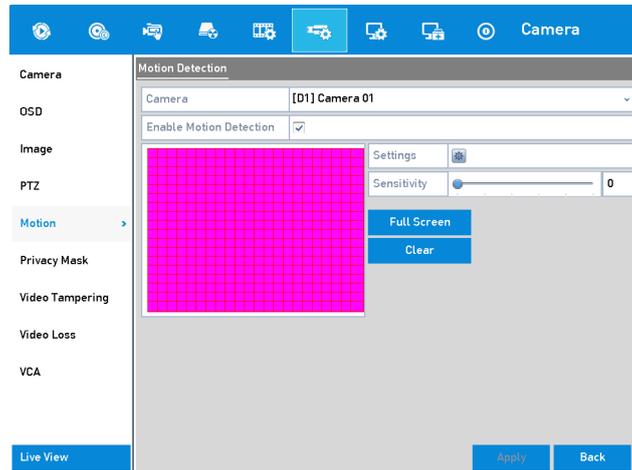


Copy Schedule to Other Channels

5.2 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 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 triggered by the detected motion.

Step 1 Enter the Motion Detection interface: Menu>Camera>Motion



Motion Detection

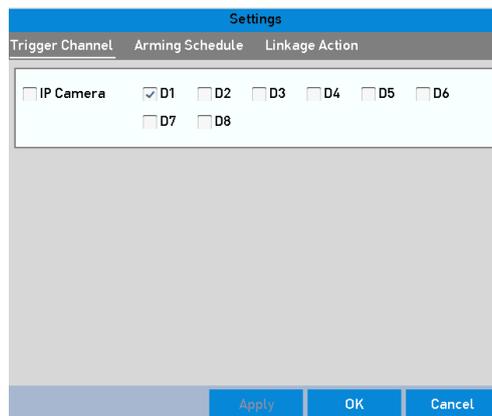
Step 2 Configure Motion Detection:

Choose camera you want to configure.

Check the checkbox after **Enable Motion Detection**.

Drag and draw the area for motion detection by mouse. If you want to set the motion detection for all the area shot by the camera, click **Full Screen**. To clear the motion detection area, click **Clear**.

Click **Settings**, and the message box for channel information pops up.



Motion Detection Handling

Select the channels which you want the motion detection event to trigger recording.

Click **Apply** to save the settings.

Click **OK** to back to the upper level menu.

Exit the Motion Detection menu.

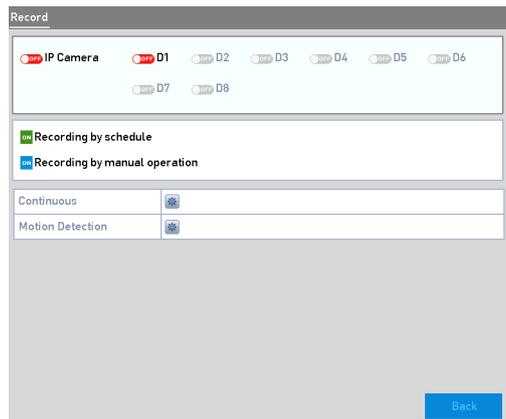
Step 3 Edit the Motion Detection Record Schedule. For the detailed information of the schedule configuration, see the Chapter about **5.1 Configuring Recording and Capture Schedule**.

5.3 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.

Step 1 Enter the Manual settings interface: Menu> Manual

Or press the **REC/SHOT** button on the front panel.



Manual Record

Step 2 Enable the Manual Recording.

Select **Record** on the left bar.

Click the status button before camera number to change **OFF** to **ON**.

Step 3 Disable manual record.

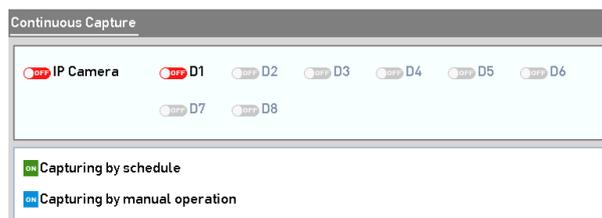
Click the status button to change **OFF** to **ON**.

Note:

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

Step 4 Enabling and disabling the continuous capture

Select **Continuous Capture** on the left bar.



Continuous Capture

Click the status button before camera number to change **OFF** to **ON**.

Disable continuous capture.

Click the status button to change  to .

Note:

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

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

Step 1 Choose a channel in live view mode and click the  button 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 live view mode and select Playback from the menu, as shown in 0.



Right-click Menu under Live View

Note:

Pressing numerical buttons will switch playback to the corresponding channels during playback process.

Playback by Time:

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

Step 1 Enter playback interface: Menu>Playback

Step 2 Select the Normal/Smart in the drop-down list on the top-left side.

Step 3 Select the stream to Main Stream or Sub Stream. (GD-RN-AP8616P, GD-RN-AP8632P, GD-RN-AT8864N, GD-RN-CT8832N and GD-RN-AT819128N)

Step 4 Select a camera in the camera list.

Note:

The main stream or sub stream for recording is configurable in Menu>Record>Parameters.

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



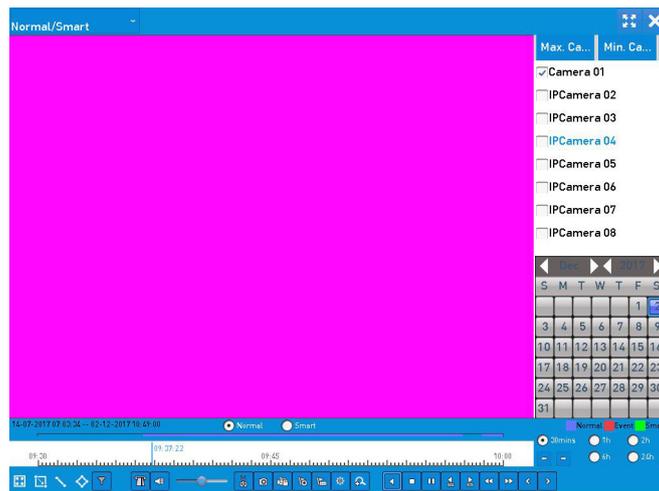
Playback Calendar

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.

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

Playback Interface:

You can use the toolbar in the bottom part of Playback interface to control 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:

The **14-07-2017 07:03:34 -- 02-12-2017 10:49:00** indicates the start/end time of the recorded video files.

Playback progress bar: use the mouse to click any point of the progress bar or drag the progress 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
		30s forward		30s reverse
		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 models)		180° panorama		360° panorama
		PTZ expansion		Fisheye
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 in the User Guide to *Chapter 3.2.5 Fisheye Expansion* for the description and operation of the fisheye expansion.

Note:

The playing speed of 256X is supported.

When the playing speed is higher than 2X, the POS information cannot be overlain on the video.

7. Network Settings

7.1 Configuring the General Settings

Network settings must be properly configured before you operate NVR over network.

Step 1 Enter the Network Settings interface.

Configuration>Network

Step 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							

Network Settings Interface

Step 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 - 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 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.

Step 4 After having configured the general settings, click **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 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. And then the system is connecting with the extranet 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.

8. RAID

Note:

This chapter is only applicable to GR-RN-CT8832N, GD-RN-AT8864N and GD-RN-AT819128N.

8.1 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:

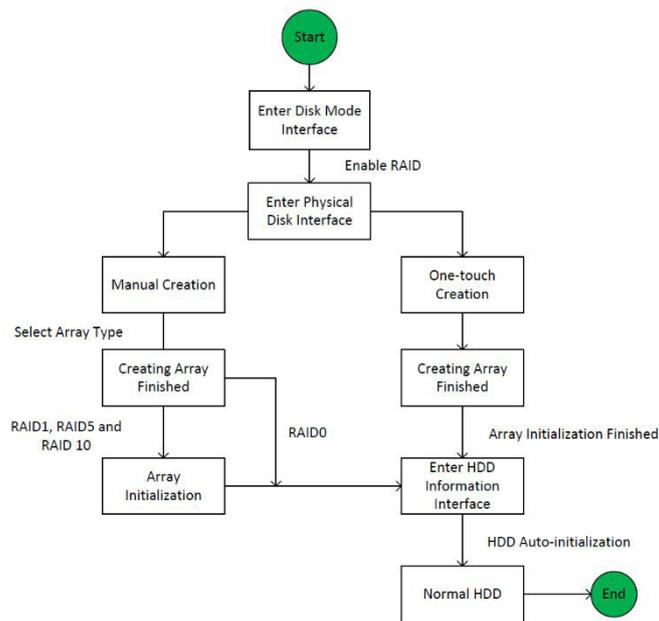
The GD-RN-CT8832N, GD-RN-AT8864N and GD-RN-AT819128N support the RAID0, RAID1, RAID5, RAID6 and RAID 10 array types.

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 array creation and configuration so as to maintain reliable and stable running of the disks.

Introduction:

The NVR can store the data (such as record, picture, log information) in the HDD only after you have created the array or you have configured a network HDD (refer in the User Guide to Chapter **Fehler! Verweisquelle konnte nicht gefunden werden.** in the User Guide). Our device provides two ways for creating array, including one-touch configuration and manual configuration. The following flow chart shows the process of creating array.



RAID Working Flow

8.1.1 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 startup, please refer to step 6 of Chapter 3.2.

- OPTION 2:

Enable the RAID function in the HDD Management Interface.

Step 1 Enter the disk mode configuration interface.

Menu > HDD > Advanced

Step 2 Check the checkbox of **Enable RAID**.

Step 3 Click the **Apply** button to save the settings.

8.1.2 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 the Chapter 8.1.1 for details.

As the default array type is RAID 5, please install at least 3 HDDs in your device.

If more than 10 HDDs are installed, 2 arrays can be configured.

Step 1 Enter the RAID configuration interface.

Menu > HDD > RAID

Step 2 Check the checkbox of corresponding HDD No. to select it.

Step 3 Click the **One-touch Create** button to enter the One-touch Array Configuration interface.

Step 4 Edit the array name in the **Array Name** text field and click **OK** button to start configuring array.

Note:

If you install 4 HDDs or above for one-touch configuration, a hot spare disk will be set by default. It is recommended to set hot spare disk for automatically rebuilding the array when the array is abnormal.

Step 5 When the array configuration is completed, click **OK** in the pop-up message box to finish the settings.

Step 6 You can click **Array** tab to view the information of the successfully created array.

Note:

By default, one-touch configuration creates an array and a virtual disk.

Step 7 A created array displays as an HDD in the HDD information interface.

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