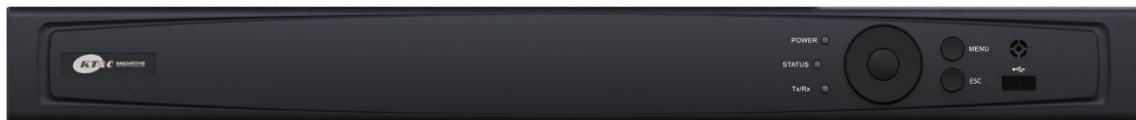




OMNI-IP

Scalable IP Solutions



KNR-p4Px4
KNR-p16Px8

Network Video Recorder

Quick Installation Guide

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Thank you for purchasing our product. If there is any question or request, please do not hesitate to contact your dealer. KT&C Certified Dealers can contact KT&C directly.

Series	Model	Type
Omni IP	KNR-p4Px4 KNR-p16Px8	Network Video Recorder

NVR Pre-Installation

The Omni IP series KNR-p4Px4 & KNR-p16Px8 NVRs are highly advanced surveillance equipment that should be installed with care. Please take into consideration the following precautionary steps before installation of the NVR.

1. Keep all liquids away from the NVR.
2. Install the NVR in a well-ventilated and dust-free area.
3. Ensure environmental conditions meet factory specifications.
4. Install a manufacturer recommended HDD.

NVR Installation

During the installation of the NVR:

1. Use the optional KA-ORM1 brackets for rack mounting.
2. Ensure there is ample room for audio and video cables.
3. When installing cables, ensure that the bend radius of the cables are no less than five times than its diameter.
4. Connect RS-485 cable if required.
5. Allow at least 2cm (~0.75-inch) of space between racks mounted devices.
6. Ensure the NVR is grounded.
7. Environmental temperature should be within the range of -10 °C ~ 55 °C, 14°F ~ 131°F.
8. Environmental humidity should be within the range of 10% ~ 90%.

Hard Disk Installation

Before you start:

Before installing a hard disk drive (HDD), please make sure the power is disconnected from the NVR. A factory recommended HDD should be used for this installation.

Up to 2 SATA hard disks can be installed on your NVR.

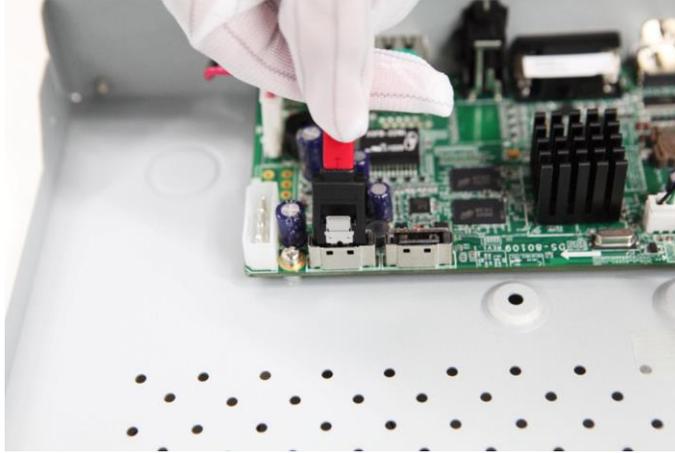
Tools Required: Screwdriver.

For KNR-p4Px4 & KNR-p16Px8:

1. Remove the cover from the NVR by unfastening the screws on the back and side.



2. Connect one end of the data cable to the motherboard of NVR and the other end to the HDD.



3. Connect the power cable to the HDD.

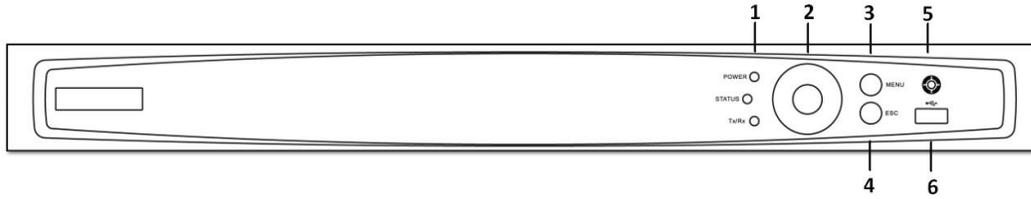


4. Place the HDD on the bottom of the device and then fasten the screws on the bottom to fix the HDD.



5. Re-install the cover of the NVR and fasten screws.

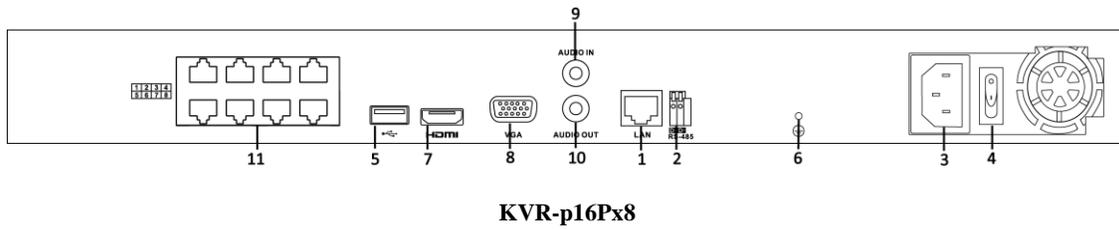
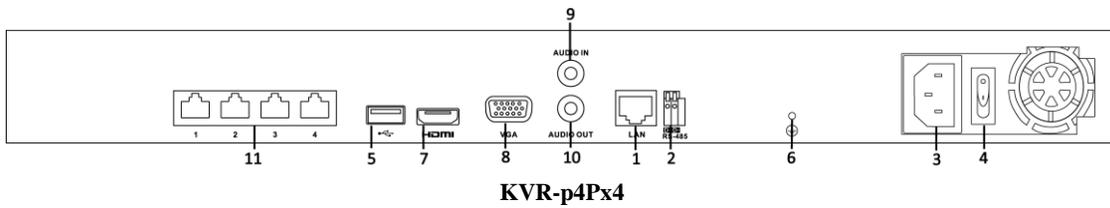
Front Panel



Description of Front Panel Controls

No.	Name	Function Description
1	POWER	POWER indicator turns green when NVR is powered up.
	STATUS	STATUS indicator lights in red when data is being read from or written to HDD.
	Tx/Rx	Tx/Rx indicator blinks green when network connection is functioning properly.
2	DIRECTION	<p>The DIRECTION buttons are used to navigate between different fields and items in menus.</p> <p>In the Playback mode, the Up and Down button is used to speed up and slow down recorded video. The Left and Right button will select the next and previous record files.</p> <p>In Live View mode, these buttons can be used to cycle through channels.</p> <p>In PTZ control mode, it can control the movement of the PTZ camera.</p>
	ENTER	<p>The ENTER button is used to confirm selection in any of the menu modes.</p> <p>It can also be used to <i>tick</i> checkbox fields.</p> <p>In Playback mode, it can be used to play or pause the video.</p> <p>In single-frame Playback mode, pressing the button will advance the video by a single frame.</p>
3	MENU	Access the main menu interface.
4	ESC	Exit and back to the previous menu.
5	IR Receiver	Receiver for IR remote.
6	USB Interface	Connects USB mouse or USB flash memory devices.

Rear Panel



No.	Item	Description
1	LAN Network Interface	Connector for LAN (Local Area Network).
2	RS-485 Interface	Connects to RS-485 devices.
3	Power Supply	100~240VAC power supply
4	Power Switch	Switch for turning on/off the device.
5	USB Interface	Universal Serial Bus (USB) ports for additional devices such as USB mouse and USB Hard Disk Drive (HDD).
6	GND	Ground (needs to be connected when NVR starts up).
7	HDMI Interface	HDMI video output connector.
8	VGA Output	DB9 connector for VGA output. Display local video output and menu.
9	Audio In	RCA connector for voice talk input
10	Audio Out	RCA connector for audio output
11	Network Interfaces with PoE function	Network interface for the cameras and to provide power over Ethernet. May be 4 or 8 ports depending on model.

Specifications

	KNR-p4Px4	KNR-p16Px8
Streaming Video Inputs & Recording		
Maximum Number of IP Cameras	4	16
Number of built in PnP/PoE Switch Ports	4	8
Supported Live View/ Record Resolutions	5MP / 3MP / 1080P / UXGA / 720P / VGA / 4CIF / DCIF / 2CIF / CIF / QCIF	
Sub-stream	Supported for recording, playback and live viewing	
Audio streaming	Supported from audio capable cameras	
Maximum FPS rate per camera (Live and Record)	30FPS Main stream; 30FPS Sub-stream Up to 120FPS total for 4 cameras	30FPS Main stream; 30FPS Sub-stream Up to 480FPS total for 16 cameras
Maximum Record Streaming Video Input Bandwidth (all cameras combined)	20 Mb/s	80 Mb/s
Recording Compression	Depends on IP Camera; typically H.264 for main stream, MJPEG for sub-stream	
Recording Modes	Continuous, Motion, Alarm, Motion+Alarm, Motion or Alarm	
Motion Detection	Camera Side, configurable from NVR for KNC-p3 Omni IP Series Cameras	
Schedule Period	Per day in 1 hour blocks; or 8 time periods per day, each with different record mode; plus holidays	
Pre- and Post- Event Recording	Pre-record 0~30 seconds; post record 5s~10 minutes	
Built in network switch port speed	10/100 Mb/s each port	
KT&C Omni-IP 'hands free Plug and Play' Cameras Fully Supported	KNC-p3BR4IR, KNC-p3BR6IR, KNC-p3BR12IR, KNC-p3DR4IR, KNC-p3DR3IR, KNC-p3DR6IR, KNC-p3DR12IR, KNC-p3BR4XIR, KNC-p3BR6XIR, KNC-p3BR12XIR, KNC-p3TR4XIR, KNC-p3TR3XIR, KNC-p3TR6XIR, KNC-p3LR4IR, KNC-p3LR3IR, KNC-p3LR6IR, KNC-p3BR28V12IR, KNC-p3DR28V12IR	
Third Party Cameras Supported (requires traditional configuration and setup)	Onvif; Acti, Arecont, Axis, Bosch, Brickcom, Canon, Hikvision, Hunt, Panasonic, Pelco, Samsung, Sanyo, Sony, Vivotek, Zavio	

Local Live Presentation of Streaming Video/Audio	
Local Display Main Monitor Outputs	HDMI 60Hz: 1920×1080, 1600×1200, 1280×1024, 1280×720, 1024×768
	VGA 60Hz: 1920×1080P, 1600×1200, 1280×1024, 1280×720, 1024×768

Camera Display Layouts	1, 2x2	1, 2x2, 1+5, 1+7, 3x3, 4x4
Automatic Stream Selection	Single camera view and 720p 2x2 at main stream resolution; Automatic switching to sub-stream resolution in other multi-view displays to conserve CPU capacity and maintain parity between per-camera screen area and image size	
Audio Output (requires audio equipped cameras)	1-ch Line Level, RCA (Linear, 600Ω)	

Playback of Recorded Video/Audio		
Supported Playback Resolutions	5MP / 3MP / 1080P / UXGA / 720P / VGA / 4CIF / DCIF / 2CIF / CIF / QCIF	
Local Display Playback Maximum Video Bandwidth (all cameras combined)	~8Mb/s nominal	~8Mb/s nominal
Nominal Local Playback Capability (actual playback depends on decoding load which varies based on settings for recorded video bandwidth restrictions, resolution, image quality, FPS rate, compression efficiency, and complexity of pixel change in the scene)	4 channels 720p; 2 channels 1080p; 1 channel 5Mpix	8 channels 4CIF; 4 channels 720p; 2 channels 1080p; 1 channel 5Mpix
Playback search modes	Time/Date; Alarm (motion or other source); Manual Tags; Smart Search for motion events from recorded video	
Playback Controls	Play; Pause; Forward/Reverse; speed control for single~1.8~16X; Slide bar with overview of record type and snapshot display from slider position	
Digital Zoom During Playback	Supported on Local Displays and CMS	

Local Hard Drives and Other Storage	
Number of Internal Hard Drives	Up to 2 SATA HDD; up to 4TB each for 8TB maximum
Mirror Recording	Can clone pairs of disks
S.M.A.R.T	With extensive statistics, alarms, on demand tests and reporting
Optional DVD-RW	Replaces 2 HDD, limiting internal storage to 8TB maximum
Record to	HDD, eSATA, NAS or SAN
Archive to	USB, HDD, eSATA, NAS or SAN

Local Plug and Play Camera Network Support		
Integral PoE Switch	4 ports 10/100 Mb/s	8 ports 10/100 Mb/s
Camera Network Security	Camera network is isolated from LAN/WAN port	
PoE Type	802.3af 15W max per port	802.3af 15W max per port

Total Power Budget	50W all ports	100W all ports
PnP Network Support (Using KT&C KNC-p3 Omni-IP Series cameras connected to internal PnP PoE switch ports)	Integral DHCP function with address-per-port initial assignment	

Remote Viewing and Local/Remote Configuration

Built in Web Server Interface	Live view, playback and configuration via IE, Chrome, Firefox, Safari (with free plug-in/extension installed)
CMS	PC and MAC Client supports multiple device viewing, playback (with digital zoom) and configuration; user rights per camera; E-map support; live view up to 64 cameras in 4:3 and 48 cameras in 16:9; up to 16 cameras in playback
Mobile Apps	iOS and Android supported ; live 1 & 4 camera views; single camera playback; snapshots from live or play; copy clips/record to smartphone; audio support; PTZ control. HD version of app, optimized for tablets, is available
User Rights Control	Per user-per camera for multiple functions
Event Logging	Multiple types: alarm, exception, operation, information; dozens of sub-types within each major type
Firmware Upgrade	From USB or remotely
Backup/Restore Configuration	For NVR settings and for IP Camera settings; from USB or remotely

Network and Other Interfaces

LAN/WAN Network Port	One 10/100/1000Mb/s RJ-45 port
Connection of non-PnP IP cameras	Supported
Remote Monitoring Output Maximum Bandwidth	40Mb/s
Maximum number of remote connections	128
DST/NTP	Supported; choice of time zone, NTP server, DST start/end/offset
Port Mapping/uPnP	Automatic port forwarding/redirection using uPnP on routers with this capability
Serial Interfaces	1xRS-485
USB 2.0 Interfaces	Two: 1 front; 1 rear
Audio Input	1 RCA

General Mechanical and Environmental

Power Input	100~240VAC, 47~63Hz	100~240VAC, 47~63Hz
Continuous Power Consumption	67W including PoE	145W including PoE

Operating Temperature	14°F ~ 131°F (-10°C ~ +55°C)
Operating Humidity Range	10% ~ 90%
Cooling Fan	1, in power supply
Size	17.52" x 11.42" x 1.77" (445mm x 290mm x 45mm) Rack Mountable with optional KA-ORM1 brackets
Weight (without hard drives or ODD)	5.51b (2.5Kg) allow ~1.4 lb. per HDD
Certifications	FCC, CE, RoHS

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	1800M
8192K	3600M
16384K	7200M

Note: Please note that supplied values for storage space used is just for reference. Storage space used is estimated by formulas and may have some deviation from actual value.

Accessing by Web Browser

Logging In

You can get access to the device via web browser. Open web browser, input the IP address of the device and then press Enter. The login interface appears.



Input the user name and password, and click the Login button.

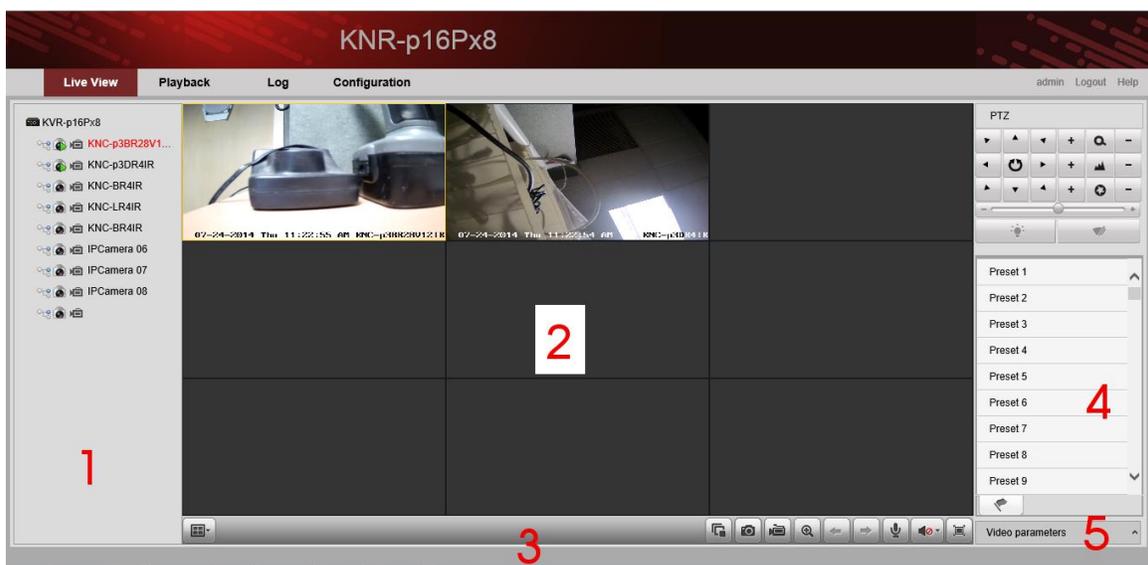
Notes:

1. The default IP address is 192.0.0.64.
2. The default user name is admin, and password is 12345.
3. You may use one of the following listed web browsers: Internet Explorer 6.0, Internet Explorer 7.0, Internet Explorer 8.0, Internet Explorer 9.0, Internet Explorer 10.0, Apple Safari, Mozilla Firefox, and Google Chrome.
4. The supported resolutions include 1024*768 and above.

When you log in for the first time, the system will remind you to install the Plug-in control. **Close the browser before installing.** After the installation, you can configure and manage the device remotely.

Live View

The live view interface appears by default when you log in the device.



Interface Introduction

- ① Channel List: Displays the list of channels and the playing and recording status of each channel.
- ② Live View Window: Displays the image of channel, and multi-window division is supported.
- ③ Play Control Bar: Play control operations are supported.
- ④ PTZ Control: Pan, tilt, zoom operations are supported, as well as preset editing and calling.

Note: PTZ function can only be realized if the connected camera supports PTZ control.

- ⑤ Video Parameters Configuration: Brightness, contrast, saturation and hue of the image can be modified.

Start Live View

Steps:

1. In the live view window, select a playing window by clicking the mouse.
2. Double click a camera from the device list to start the live view.
3. You can click the  button on the toolbar to start the live view of all cameras on the device list.

Refer to the following table for the description of buttons on the live view window:

Icon	Description	Icon	Description
	Select the window-division mode		Start/Stop all live view
	Capture pictures in the live view mode		Start/Stop all recording
	Previous page		Next page
	Open/Close audio		Start/Stop two-way audio
	Adjust volume		Enable/Disable digital zoom
	Full-screen		

Recording

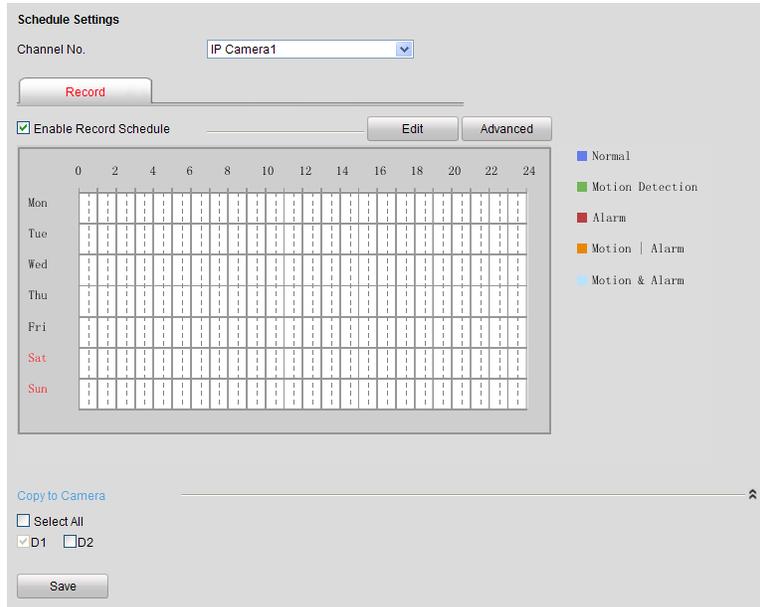
Before you start

Make sure the device is connected with HDD or network disk, and the HDD or network disk has been initialized for the first time to use.

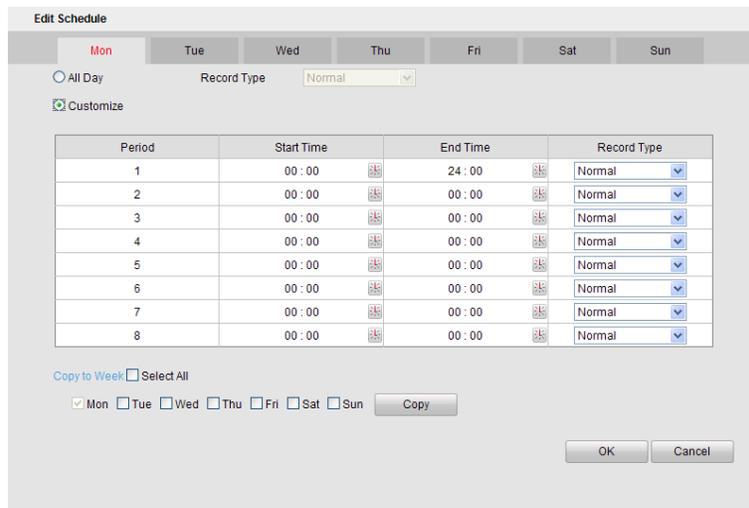
Two recording types can be configured: Manual and Scheduled. The following section introduces the configuration of scheduled recording.

Steps:

1. Click Remote Configuration> Camera Settings> Record Schedule to enter Record Schedule settings interface.
2. Select the camera to configure the record schedule.
3. Check the checkbox of **Enable Schedule** to enable recording schedule.



4. Choose the day in a week to configure scheduled recording.
5. Click **Edit** to edit record schedule.



- 1) Configure All Day or Customize record:
 - If you want to configure the all-day recording, please check the **All Day** checkbox.
 - If you want to record in different time sections, check the **Customize** checkbox. Set the **Start Time** and **End Time**.

Note: The time of each segment can't be overlapped. Up to 8 segments can be configured.

- 2) Select a **Record Type**. The record type can be Normal, Motion, Alarm, Motion & Alarm, and Motion | Alarm.
- 3) Check the checkbox of **Select All** and click **Copy** to copy settings of this day to the whole week. You can also check any of the checkboxes before the date and click **Copy**.

- 4) Click **OK** to save the settings and exit the **Edit Schedule** interface.
6. Click **Advanced** to configure advanced record parameters.
7. Click **Save** to validate the above settings.

Playback



Interface Introduction

- ① Channel List: Displays the list of channels and the playing status of each channel.
- ② Playback Window: Displays the image of channel.
- ③ Play Control Bar: Play control operations are supported.
- ④ Time Line: Displays the time bar and the records marked with different colors.
- ⑤ Playback Status: Displays the playback status, including channel number and playback speed.
- ⑥ Calendar: You can select the date to play.

Start Playback

Steps:

1. Click **Playback** on the menu bar to enter playback interface.
2. Click the camera from the device list for playback.
3. Select the date from the calendar and click **Search**.
4. Click the **Play** button to play the video file searched on the current date.
5. Use the buttons on the toolbar to operate in playback mode.

Button	Description	Button	Description
	Play/Pause		Stop
	Slow down		Speed up
	Play by single frame		Capture
	Stop All Playback		Download
	Video Clip		Open/Close audio
	Full-screen		

- You can drag the progress bar with the mouse to locate the exact playback point. You can also input the time in the textbox : : and click button to locate the playback point.

The color of the video on the progress bar stands for the different video types.



Log

You can view and export the log files at any time, including operation, alarm, exception and information of device.

Before you start

The Log function can be realized only when the device is connected with HDD or network disk. And make sure the HDD or network disk has been initialized for the first time to use.

Steps:

- Click **Log** on the menu bar to enter the Log interface.

No.	Time	Major Type	Minor Type	Channel No.	Local/Remote User	Remote Host IP
1	2013-02-28 09:38:38	Operation	Remote: Get Parameters		admin	192.168.1.12
2	2013-02-28 09:38:38	Operation	Remote: Get Parameters		admin	192.168.1.12
3	2013-02-28 09:38:38	Operation	Remote: Get Parameters		admin	192.168.1.12
4	2013-02-28 09:38:38	Operation	Remote: Get Parameters		admin	192.168.1.12
5	2013-02-28 09:38:38	Operation	Remote: Get Parameters		admin	192.168.1.12
6	2013-02-28 09:38:38	Operation	Remote: Get Parameters		admin	192.168.1.12
7	2013-02-28 09:38:38	Operation	Remote: Get Parameters		admin	192.168.1.12
8	2013-02-28 09:38:38	Operation	Remote: Get Parameters		admin	192.168.1.12
9	2013-02-28 09:38:38	Operation	Remote: Get Parameters		admin	192.168.1.12
10	2013-02-28 09:38:38	Operation	Remote: Get Parameters		admin	192.168.1.12
11	2013-02-28 09:38:38	Operation	Remote: Configure Parameters	A4	admin	192.168.1.12
12	2013-02-28 09:38:38	Operation	Remote: Configure Parameters	A4	admin	192.168.1.12
13	2013-02-28 09:38:38	Operation	Remote: Configure Parameters	A4	admin	192.168.1.12
14	2013-02-28 09:38:38	Operation	Remote: Get Parameters		admin	192.168.1.12
15	2013-02-28 09:38:38	Operation	Remote: Get Parameters		admin	192.168.1.12
16	2013-02-28 09:38:38	Operation	Remote: Get Parameters		admin	192.168.1.12
17	2013-02-28 09:38:39	Operation	Remote: Get Parameters		admin	192.168.1.12
18	2013-02-28 09:38:40	Operation	Remote: Get Parameters		admin	192.168.1.12
19	2013-02-28 09:38:41	Operation	Remote: Get Parameters		admin	192.168.1.12
20	2013-02-28 09:38:41	Operation	Remote: Get Parameters		admin	192.168.1.12
21	2013-02-28 09:38:41	Operation	Remote: Get Parameters		admin	192.168.1.12
22	2013-02-28 09:38:42	Operation	Remote: Configure Parameters	A3	admin	192.168.1.12
23	2013-02-28 09:38:42	Operation	Remote: Configure Parameters	A3	admin	192.168.1.12
24	2013-02-28 09:38:42	Operation	Remote: Configure Parameters	A3	admin	192.168.1.12
25	2013-02-28 09:38:42	Operation	Remote: Get Parameters		admin	192.168.1.12
26	2013-02-28 09:38:42	Operation	Remote: Get Parameters		admin	192.168.1.12
27	2013-02-28 09:38:42	Operation	Remote: Get Parameters		admin	192.168.1.12
28	2013-02-28 09:38:42	Operation	Remote: Get Parameters		admin	192.168.1.12
29	2013-02-28 09:38:47	Operation	Remote: Get Parameters		admin	192.168.1.12
30	2013-02-28 09:38:47	Operation	Remote: Get Parameters		admin	192.168.1.12

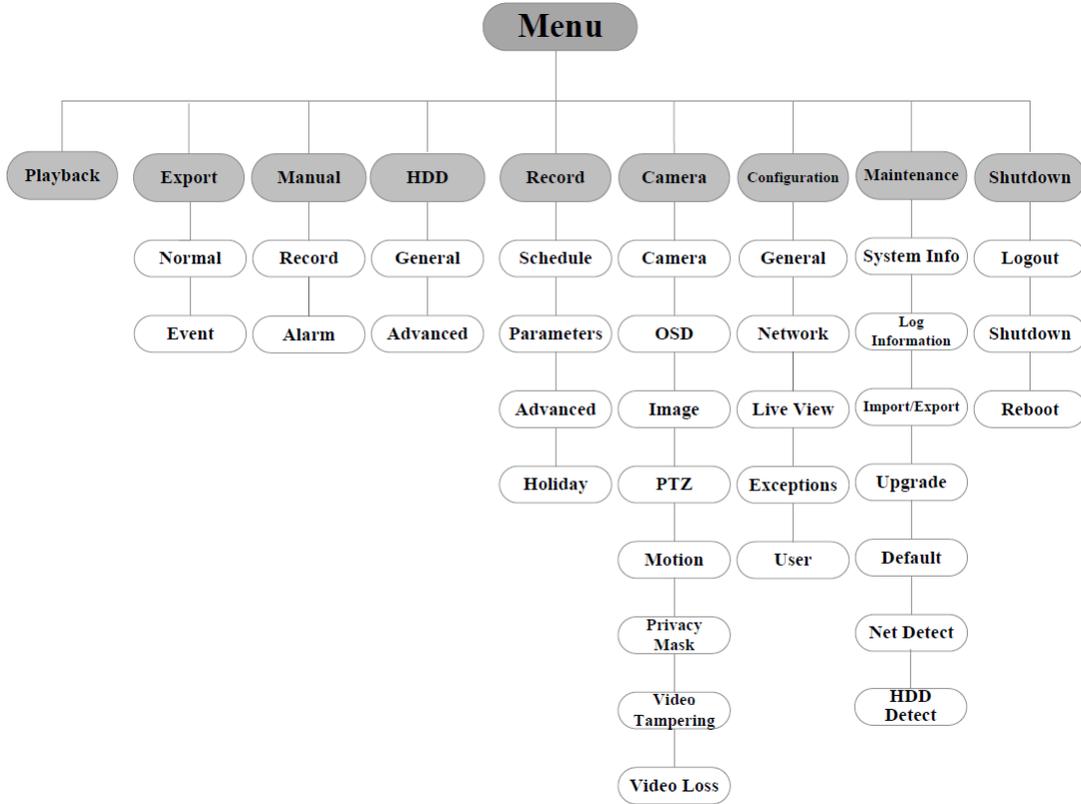
- Set the log search conditions to refine your search, including the Major Type, Minor Type, Start Time and End Time.
- Click the **Search** button to start searching log files.
- The matched log files will be displayed on the list shown below.

Note: Up to 100 log files can be displayed each time.

You can click the button to save the searched log files to local directory.

Menu Operation

Menu Structure



Startup and Shutdown

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

To start your 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. Turn on the power switch on the rear panel to start the NVR immediately.

To shut down the NVR:

1. Enter the Shutdown menu.
Menu > Shutdown



2. Select the **Shutdown** button.
3. Click the **Yes** button.
4. Shut the power switch down when the shutdown attention pops up.

After the device starting up, the wizard will guide you through the initial settings, including modifying password, date and time settings, network settings, HDD initializing, and recording.

Live View

Some icons are provided on screen in Live View mode to indicate different camera status. These icons include:

Live View Icons

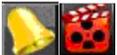
In the live view mode, there are icons at the right top of the screen for each channel, showing the status of the record and alarm in the channel, so that you can find problems as soon as possible.



Alarm (video loss, tampering, motion detection or sensor alarm).



Record (manual record, schedule record, motion detection or alarm triggered record)



Alarm & Record

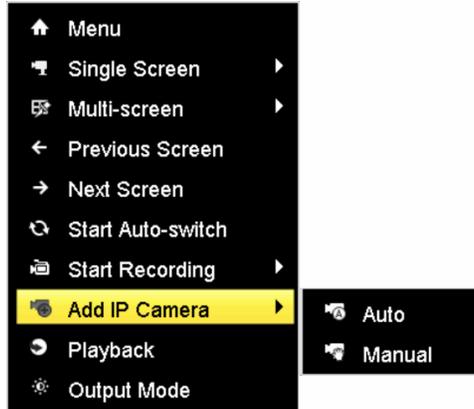
Adding IP Cameras

You should add the online IP cameras to enable the live view and recording function.

You can search and add the online IP cameras by following the startup wizard, or according to the following steps.

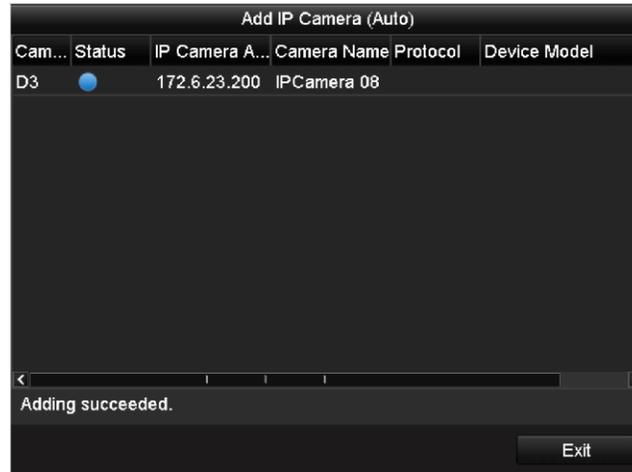
Steps:

1. Right-click the mouse when you in the live view mode to show the right-click menu.
2. Select **Add IP Camera** in the pop-up menu and select **Auto** or **Manual** on your demand.



- **Auto**

The device will add the detected IP cameras or encoders automatically by the default user name and password of administrator.

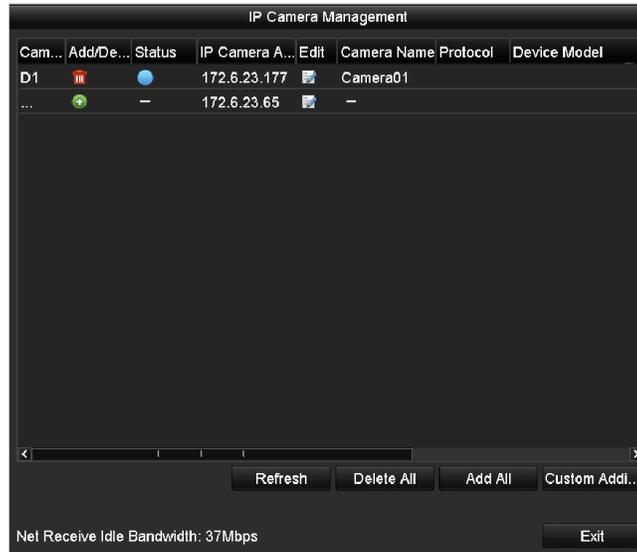


Note: If the user name and password is changed, the auto adding of IP camera will be failed, you may add it manually.

- **Manual**

Steps:

1. To add the online cameras with same network segment:
 - 1) The detected online camera will be listed in the camera list, as shown in the figure below.



- 2) Click the  button to add the camera.

Explanation of the icons:

Icon	Explanation	Icon	Explanation
	Edit basic parameters of the camera		Add the detected IP camera.
	The camera is connected; you can click the icon to get the live view of the camera.		The camera is disconnected; you can click the icon to get the exception information of camera.
	The camera is connected.		Advanced settings of the camera.
	Delete the IP camera		

2. To custom add the online cameras:

- (1) Click the **Custom Adding** button in the manual add interface to pop up the Add IP Camera (Custom) interface.



- (2) You can edit the IP address, protocol, management port, and other information of the IP camera to be added.
- (3) Click **Add** to add the camera.

Record Settings

Before you start:

Make sure that the HDD has already been installed. If not, please install a HDD and initialize it. You may refer to the user manual for detailed information.

Purpose:

Two kinds of record types are introduced in the following section, including Instant Record and All-day Record. And for other record types, you may refer to the user manual for detailed information.

Note: After rebooting all the manual records enabled are canceled.

Instant Record

On the live view window of each channel, there is a quick setting toolbar which shows on the bottom of the window when you click on it.

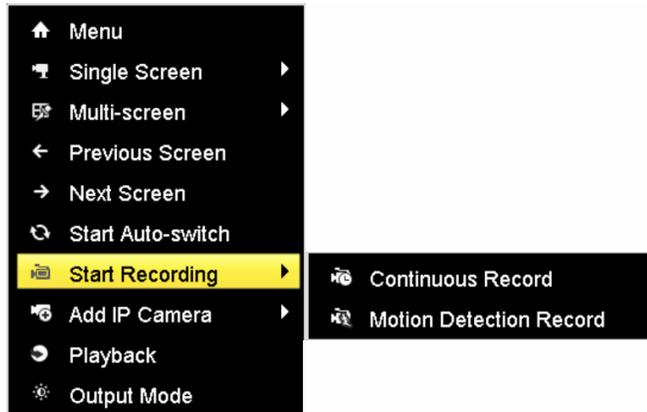


Click the  icon to enable the record, and the icon turns to . And click  icon to disable the record, then the icon turns to .

All-day Record

Perform the following steps to set the all-day recording.

On the live view window, right-click the window and move the cursor to the Start Recording option, and select Continuous Record or Motion Detection Record on your demand.



And click the **Yes** button in the popup Attention message box to confirm the settings. Then all the channels will start to record in the selected mode.

Playback

Play back the record files of a specific channel in the live view menu. Channel switch is supported.

- **OPTION 1**

Choose a channel under live view using the mouse and click the  button in the shortcut operation menu.

Note: Only record files recorded during the past five minutes on this channel will be played back.

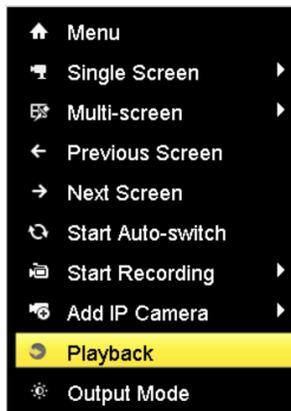


• **OPTION 2**

Steps:

1. Enter the Playback menu.

Right click a channel in live view mode and select Playback from the menu.



Under multi-screen live view, record files of the top left channel (not masked) will be played back.

2. Playback management.

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



Just check the channel or channels if you want to switch playback to another channel or execute simultaneous playback of multiple channels.

Backup

Recorded files can be backed up to various devices, such as USB flash drives, USB HDDs or a DVD writer.

Steps:

1. Enter Video Export interface.

Choose the channel(s) you want to back up and click on the **Search** button.



2. Enter Export interface, choose backup device and press **Export** button to start exporting.



3. Check backup result.

Choose the record file in Export interface and press button  to check it.

