



## 16-Channel Standalone Network Video Recorder



NVR1400 / NVR2400

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# LILIN NVR Start Guide

## Introduction

LILIN's latest NVR 1400/2400 is a 16-Channel standalone network video recorder solution for managing IP cameras and systems. The embedded HDMI (VGA) engine supports adaptive motion refinement technology, which provides a maximum resolution of 1080p. The NVR can be easily installed in all environments through the TCP/IP network, and the support of IPScan utility and Web Services Dynamic Discovery (WS-Discovery) protocol allows for locating all the cameras on the network and can generate a preview thumbnail of each channel.

NVR 1400/2400 supports RAID, which can effectively improve recording efficiency and safety of recorded data. RAID safeguards your data, preventing them from missing because of hard drive failure. With network redundancy, you can rest assured that the recorded data will remain intact. NVR 1400/2400 can be connected to 16 IP cameras, providing up to 48Mbps network bandwidth and 3M-resolution recording. Moreover, the timeline and event search functions allow you to find the record history you are looking for.

The built-in hard drives for NVR 1400/2400 support up to 24TB (48TB for NVR 2400), and you can connect one eSATA device (two for NVR 2400) to maximize the recording time. The NVR can be controlled with multiple methods; remote control, touchscreen monitor, or USB mouse. When connected to a touchscreen monitor, gestures such as "pinch-to-zoom" can be used to navigate the system.

Files recorded by the NVR can be exported to DVD and USB flash drive, or the files can be downloaded online via Backup Manager or Remote Player. Mobile support for iPhone, iPad, and Android allows for remote viewing of connected cameras at high frame rates. Browser-based live monitoring and video playback features are also supported.

## Features

- 16-channel IP camera input
- Supports dual Ethernet card for network redundancy
- Supports up to 3MP, 1080p, and 60 FPS IP cameras
- Supports up to 48 Mbps network throughput; full HD 1920\*1080p HDMI and VGA output
- Compatible with iOS and Android devices
- Compatible with single 6TB drive
- Supports RAID 0/1/5

- Supports one eSATA storage device (two for NVR 2400), capacity up to 16TB (32TB for NVR 2400)
- Supports IPScan utility and LILIN Navigator

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## Caution

- Do not drop or strike the equipment
- Do not install the equipment near naked flames or heat sources
- Do not expose this unit to rain, moisture, smoke or dusty environments
- Do not cover the opening of the cabinet with cloth or plastic or install this unit in a ventilated place. Allow 10cm between this unit and its surroundings
- Do not continue to operate the unit under abnormal conditions such as detection of smoke, strange smell or no display on screen whilst power is turned on
- Do not touch the power connection with wet hands
- Do not damage the power cord or leave it under pressure
- To avoid unnecessary magnetic interference, do not operate this unit near magnets, speaker system, etc.
- All connection cables must be grounded properly

### CAUTION

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.  
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS



## Front View

### NVR 1400



1. Power LED (Yellow)  
NVR power on/off indicator

2. LAN LED (Green)  
LAN activity indicator

3. HDD LED (Green, blinking)  
HDD activity indicator

4. Alarm LED (Red, blinking)  
Indicator of triggered alarms

5. USB 2.0 port  
USB flash drive/DVD recorder

6. HDD failure indicator

### NVR 2400



1. Power LED (Yellow)  
NVR power on/off indicator

2. LAN LED (Green)  
LAN activity indicator

3. HDD LED (Green, blinking)  
HDD activity indicator

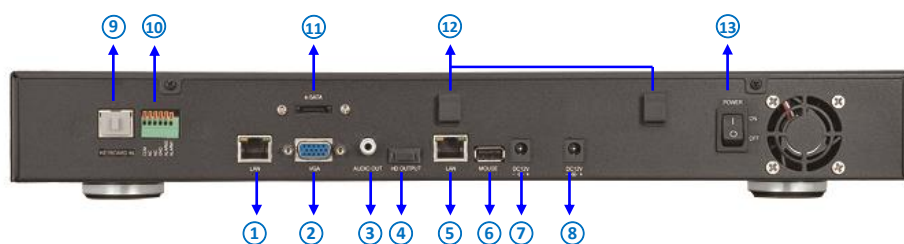
4. Alarm LED (Red, blinking)  
Indicator of triggered alarms

5. USB 2.0 port  
USB flash drive/DVD recorder

6. HDD failure indicator

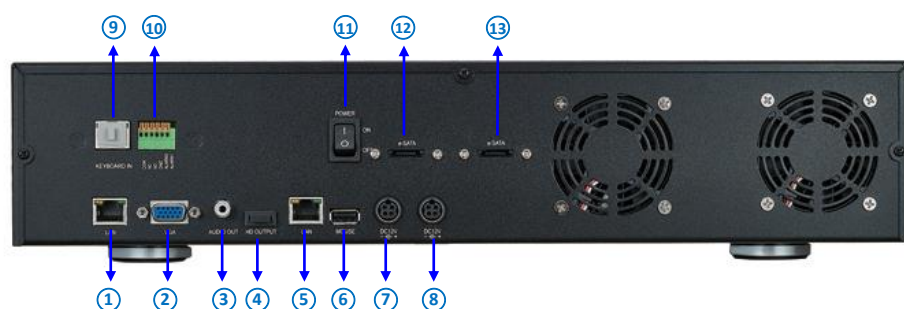
## Rear View

### NVR 1400



- |                                |                          |
|--------------------------------|--------------------------|
| 1. RJ-45 connector (1000 Mbps) | 8. Secondary power plug  |
| 2. VGA connector               | 9. Keyboard in           |
| 3. Audio connector             | 10. DI/DO terminal       |
| 4. HDMI connector              | 11. eSATA (external HDD) |
| 5. RJ-45 connector (100 Mbps)  | 12. Power cord hanger    |
| 6. USB port                    | 13. Power switch         |
| 7. Primary power plug          |                          |

### NVR 2400



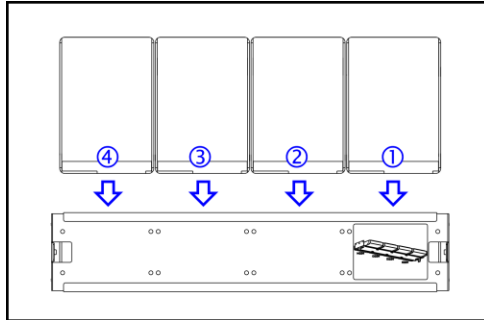
- |                                |                           |
|--------------------------------|---------------------------|
| 1. RJ-45 connector (1000 Mbps) | 8. Secondary power plug   |
| 2. VGA connector               | 9. Keyboard in            |
| 3. Audio connector             | 10. DI/DO terminal        |
| 4. HDMI connector              | 11. Power switch          |
| 5. RJ-45 connector (100 Mbps)  | 12. eSATA1 (external HDD) |
| 6. USB port                    | 13. eSATA2 (external HDD) |
| 7. Primary power plug          |                           |

**Note:** When using two power inputs, a one-minute pause is recommended after two consecutive power switching because of the physical properties of the transformer.

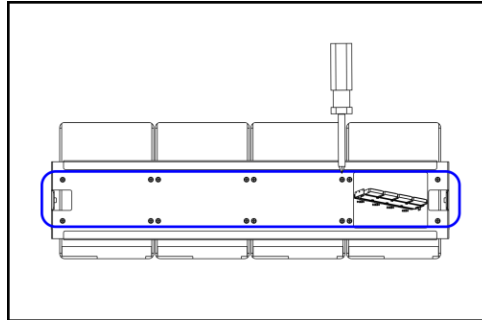
## NVR1400 Installation Instruction

### Hard Drive Installation

Remove the upper casing and loosen the screws on the both sides of the hard drive bracket to remove it. Install hard drives and tighten the hard drive screws as instructed by the image below.

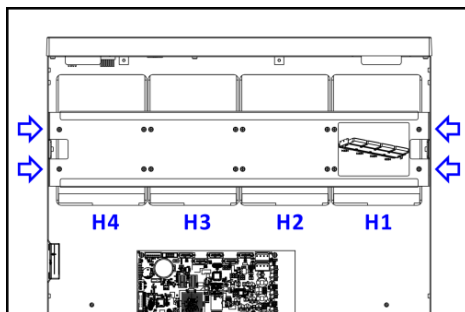


Screws loosened



Screws tightened

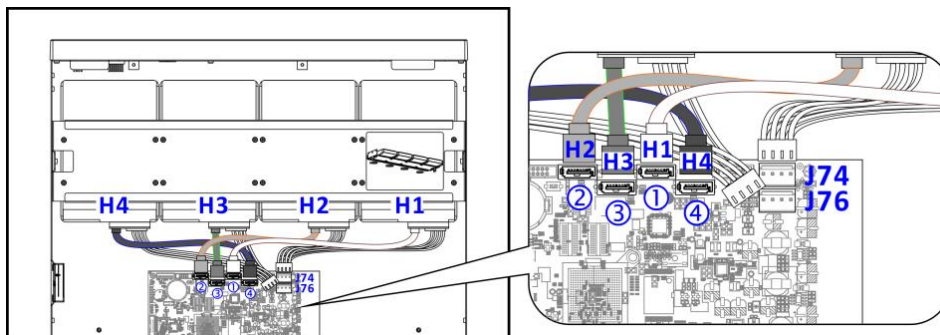
Secure the bracket and the hard drives, and the hard drive cables are, from right to left, H1, H2, H3, and H4, respectively (as shown in the image below).



### Wiring

Properly connect the SATA cables and power cables to the connectors following the instruction:

H1 ⇒ ①, H2 ⇒ ②, H1&H2 power cables ⇒ J74; H3 ⇒ ③, H4 ⇒ ④, H3&H4 power cables ⇒ J76

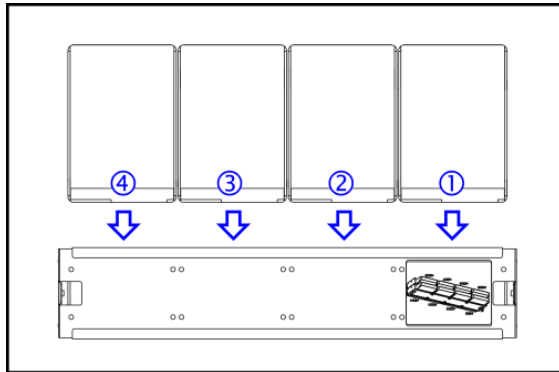


Finally, complete the hard drive installation by closing the upper casing and tightening the screws.

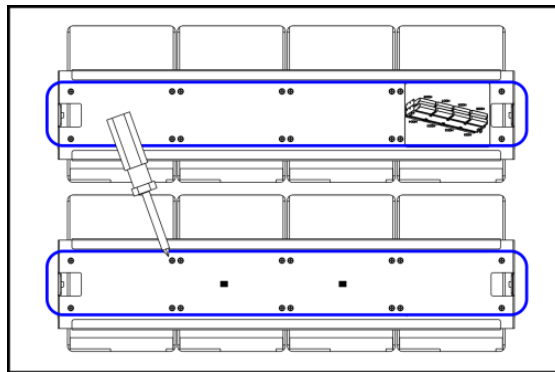
## NVR2400 Installation Instruction

### Hard Drive Installation

Remove the upper casing and loosen the screws on the both sides of the hard drive bracket to remove it. Install hard drives and tighten the hard drive screws as instructed by the image below.

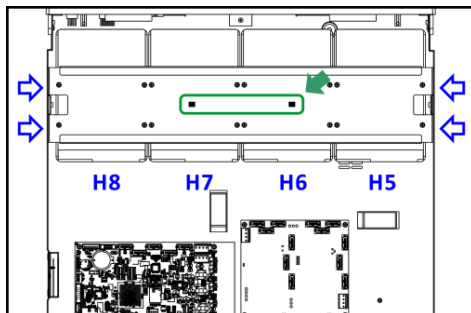


Screws loosened



Screws tightened

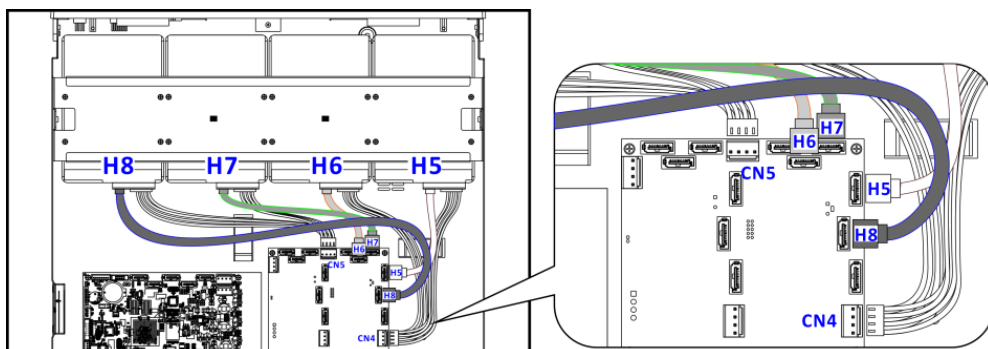
Use the included screws to secure the hard drive bracket attached with shock absorbers. The hard drive cables are, from right to left, H5, H6, H7, and H8, respectively (as shown in the image below).



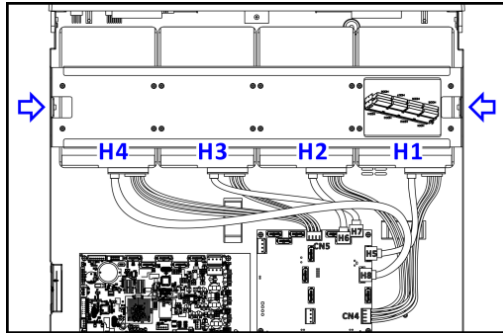
### Wiring

Properly connect the SATA cables and power cables to the connectors following the instruction:

H5 ⇒ H5, H6 ⇒ H6, H5&H6 power cables ⇒ CN4; H7 ⇒ H7H8 ⇒ H8, H7&H8 power cables ⇒ CN5

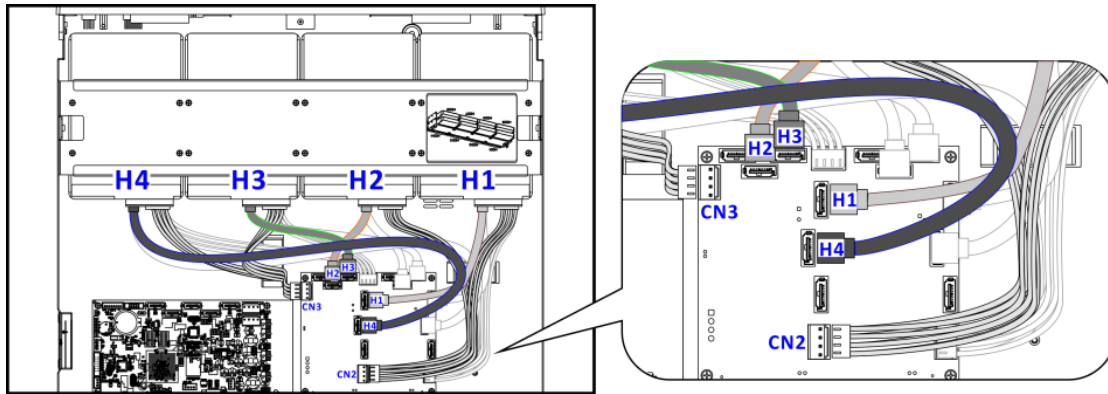


Secure the other hard drive bracket, and the hard drive cables are, from right to left, H1, H2, H3, and H4, respectively (as shown in the image below).

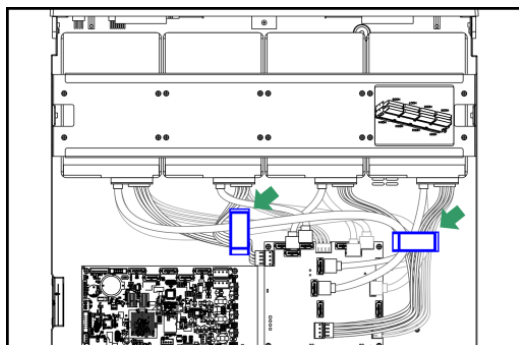


Properly connect the SATA cables and power cables to the connectors following the instruction:

H1 ⇨ H1, H2 ⇨ H2, H1&H2 power cables ⇨ CN2; H3 ⇨ H3, H4 ⇨ H4, H3&H4 power cables ⇨ CN3



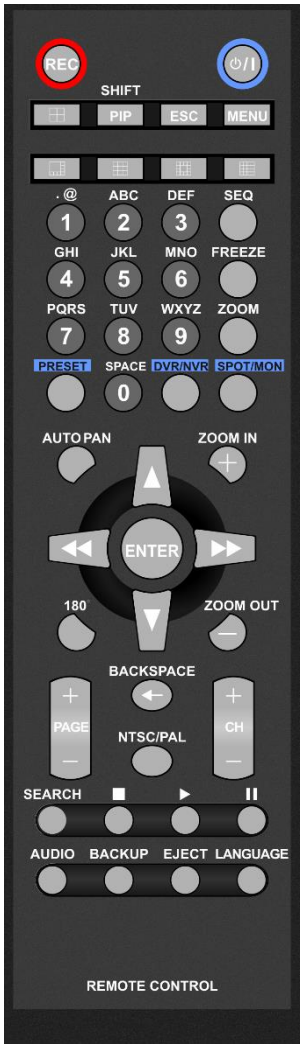
Use cable clips to organize the wires (as shown in the image below).



Finally, complete the hard drive installation by tightening the screws.

## Remote control

Keys and functions of the remote control are described as followed

|                                                                                    |                          | Key                                                                                 |  | Function                             |
|------------------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------|--|--------------------------------------|
|  |                          |    |  | Power switch                         |
|                                                                                    |                          | REC                                                                                 |  | Start/stop recording                 |
|                                                                                    |                          | MENU                                                                                |  | Setup menu                           |
|                                                                                    |                          | ESC                                                                                 |  | Escape/exit/stop                     |
|                                                                                    |                          | PIP (SHIFT)                                                                         |  | Switch between split and full screen |
|                                                                                    |                          | ZOOM                                                                                |  | Digital video zoom                   |
|                                                                                    |                          | FREEZE                                                                              |  | Freeze video                         |
|                                                                                    |                          |    |  | Pause                                |
|                                                                                    |                          |    |  | Playback                             |
|                                                                                    |                          |    |  | Stop                                 |
|                                                                                    |                          |    |  | Fast forward                         |
|                                                                                    |                          |   |  | Rewind                               |
|                                                                                    |                          |  |  | Next channel                         |
|                                                                                    |                          |  |  | Previous channel                     |
|                                                                                    |                          |  |  | 4 split screens                      |
|                                                                                    |                          |  |  | 8 split screens                      |
|                                                                                    |                          |  |  | 9 split screens                      |
|                                                                                    |                          |  |  | 13 split screens                     |
|                                                                                    |                          |  |  | 16 split screens                     |
|                                                                                    |                          | AUDIO                                                                               |  | Audio on/off                         |
|                                                                                    |                          | BACKUP                                                                              |  | Video backup                         |
|                                                                                    |                          | DVR/NVR                                                                             |  | Addressable NVR control              |
|                                                                                    |                          | LANGUAGE                                                                            |  | Language selection                   |
|                                                                                    |                          | BACKSPACE                                                                           |  | Delete character                     |
| Auto Pan                                                                           | Perform auto pan feature |  |  | Move up/tilt up                      |
| Zoom in                                                                            | Zoom in                  |  |  | Move down/tilt down                  |
| Zoom out                                                                           | Zoom out                 |  |  | Move left/pan left                   |
| Preset                                                                             | Call preset              |  |  | Move right/pan right                 |
| 0 to 9                                                                             | Numerical keys           |  |  | Enter/set                            |

## Touchscreen



Pinch to Zoom



Swipe to Navigate



### ***Pinch to zoom***

Put your thumb and index finger together and put them on your touchscreen. Glide them apart to zoom in, and glide them toward each other to zoom out.

### ***Swipe to Navigate***

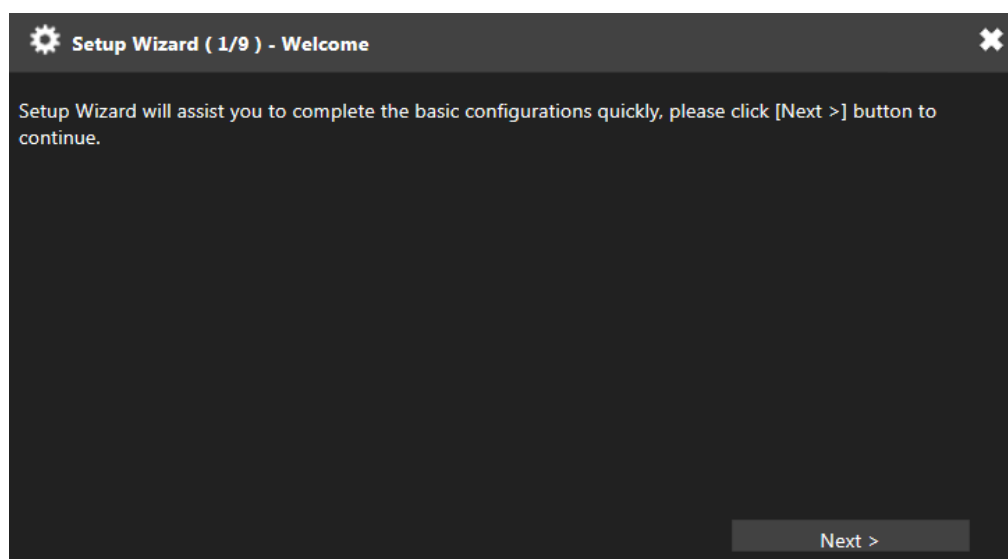
Swipe the screen left and right to navigate through the menus.

### ***Single Tap***

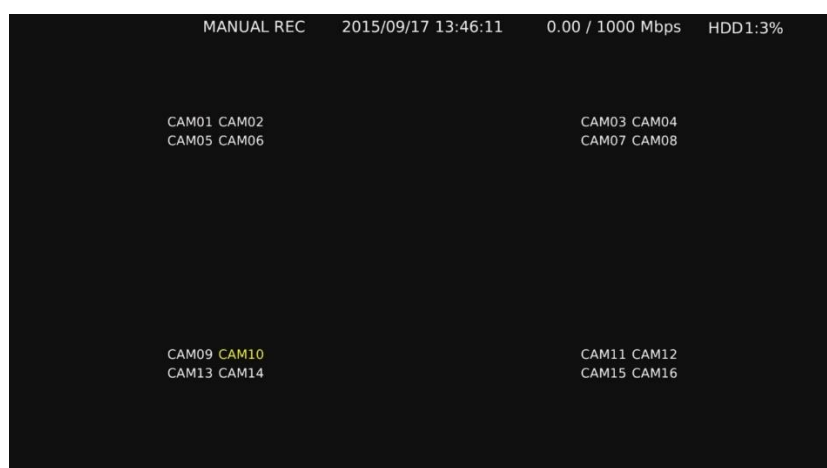
Tap icons to select.

## First Time Using LILIN NVR

When you first access the NVR, you will see **Setup Wizard** on the screen, which provides you the basis configurations for the NVR, including language, password, time/time zone, storage, network, P2P, and camera. Click **Next** to go through the steps, and be sure to check **No longer use Setup Wizard** if you don't want the wizard to appear again after you reboot the device. If the option is checked and you want to run **Setup Wizard** again, please go to **Setup Wizard** under **Maintenance**, and click **Run** to start the application again.



If you use the NVR through VGA or HDMI connection, you will see the following screen after the wizard is properly configured:



The information shown on the top of the screen is described as followed:

### ***Schedule/Manual***

Shows whether the current recording mode is Schedule or Manual. You can change

this setting later.

**0.00 / 1000 (100) Mbps:**

To the left of the slash is the combined transmission rate of all channels, and to the right your network speed.

**HDD 1 (2)**

Shows the current number of hard drive being used for recording and the storage capacity used.

Move your cursor slightly to display the NVR controls (as shown in the image below):

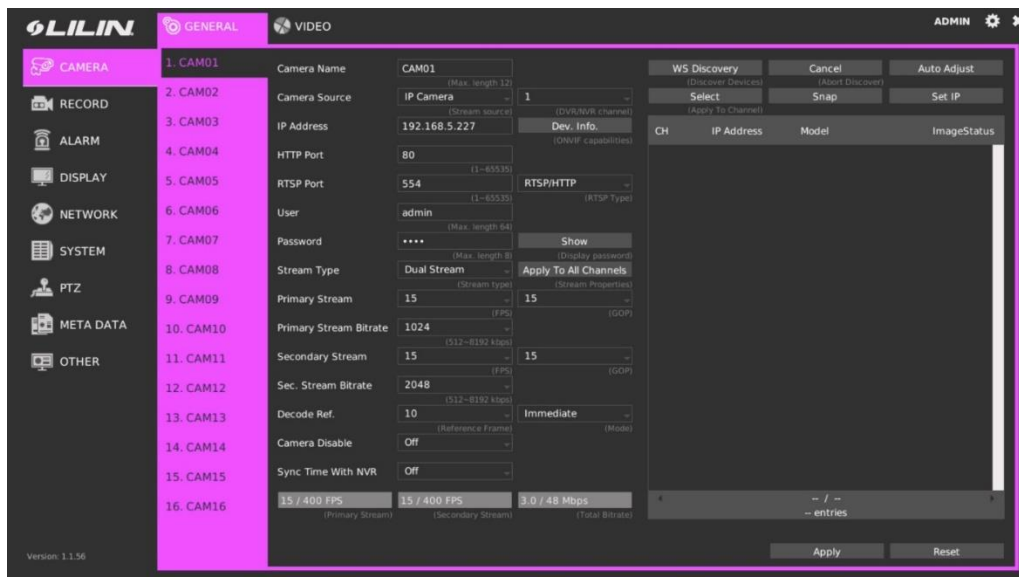


At the bottom of the screen is the number of split-screens (as shown in the image below).



From the left to the right the number of split-screens increases. The default number is 16 split-screens when you turn on the NVR, and you are allowed to change the settings later. At the upper-left corner of the screen is the NVR controls, which are, from left to right, **NVR Settings** , **Pause** , **Alarm Event** , **Playback/Backup** .

Click  to enter the following screen:



Click the gear icon at the upper-right of the screen to change the NVR display language.

Click  to pause the real-time video, and the icon will be highlighted . Click  to enter the following screen:



### **Motion / Sensor Event**

If the motion detection function is enabled for your camera, any motion alarms triggered will be recorded in motion event history, and the sensor alarms triggered in the sensor event history (as shown in the images below).

| PAGE 1 / 2          |                                                                                   |                     |               |
|---------------------|-----------------------------------------------------------------------------------|---------------------|---------------|
| ALL ALL             |                                                                                   |                     |               |
| USB E-MAIL PLAYBACK |                                                                                   |                     |               |
|                     | ICON                                                                              | DATETIME            | EVENT CONTENT |
| 000001              |  | 2015/09/16 14:30:30 | MOTION CH.1   |
| 000002              |  | 2015/09/16 14:29:50 | MOTION CH.1   |
| 000003              |  | 2015/09/16 14:29:44 | MOTION CH.1   |
| 000004              |  | 2015/09/16 14:29:26 | MOTION CH.1   |
| 000005              |  | 2015/09/16 14:28:58 | MOTION CH.1   |

| PAGE 1 / 498        |                                                                                     |                     |               |
|---------------------|-------------------------------------------------------------------------------------|---------------------|---------------|
| ALL ALL             |                                                                                     |                     |               |
| USB E-MAIL PLAYBACK |                                                                                     |                     |               |
|                     | ICON                                                                                | DATETIME            | EVENT CONTENT |
| 000001              |    | 2015/09/17 13:42:41 | SENSOR CH.1   |
| 000002              |    | 2015/09/17 13:42:35 | SENSOR CH.1   |
| 000003              |   | 2015/09/17 13:42:29 | SENSOR CH.1   |
| 000004              |  | 2015/09/17 13:42:23 | SENSOR CH.1   |
| 000005              |  | 2015/09/17 13:42:17 | SENSOR CH.1   |

Press the drop-down menu at the top to sort the alarm events by date or channel (as shown in the image below).



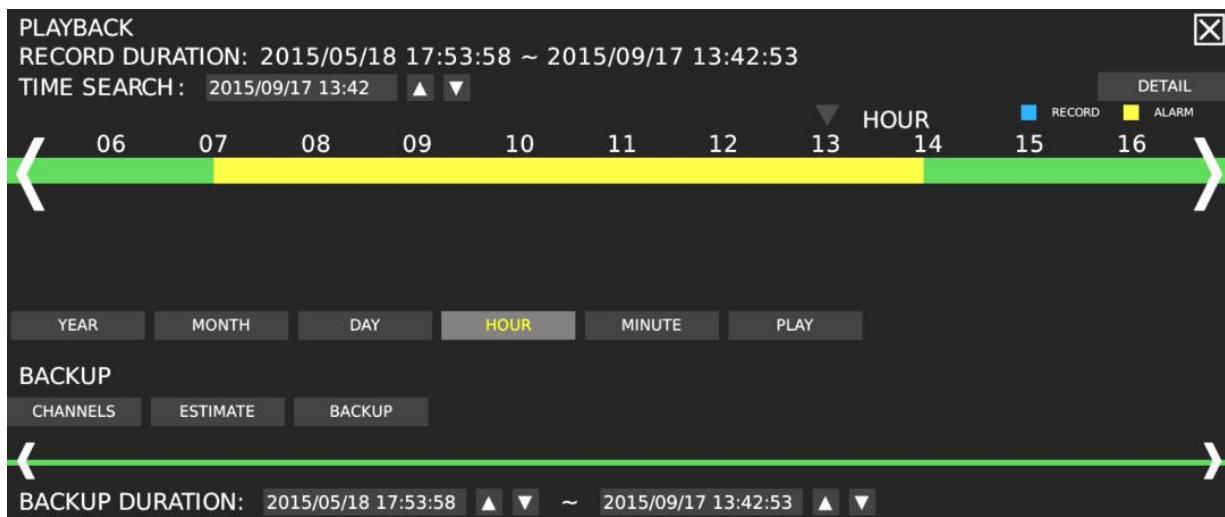
Double-click an event of your choosing, or choose an event before clicking Playback at the upper-right corner of the screen to playback or backup the selected video clip. Click any event before choosing USB or E-mail to export the video to a storage device or send notification email to a pre-determined email address.

### **Manual Event**

When the recording mode is switched from Schedule to Manual, the action will leave a record here (as shown in the image below).

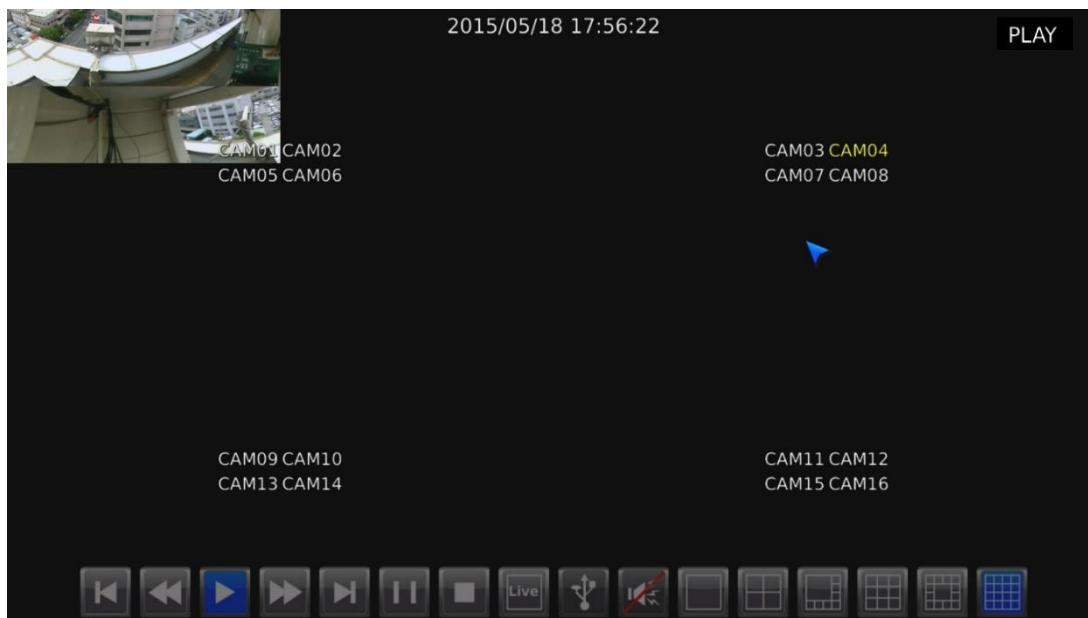


Click  to enter the following screen:



## Playback

You can find video clips by year, month, day, hour, and minute. From the upper timeline drag and select the time period you want to play recorded video or alarm video to enter the following screen:



Details of the controls at the bottom of the screen are described as followed:



: Indicates **Step Backward**, **Rewind**, **Play**, **Fast Forward**,

**Step Forward**, and **Pause**. Click **Rewind** and **Fast Forward** multiple times to adjust the speed of respective actions (up to 64x).



: Click to return to the **Playback / Backup** screen.



: Click to return to live video.



: Click to export the recorded video to a USB device.



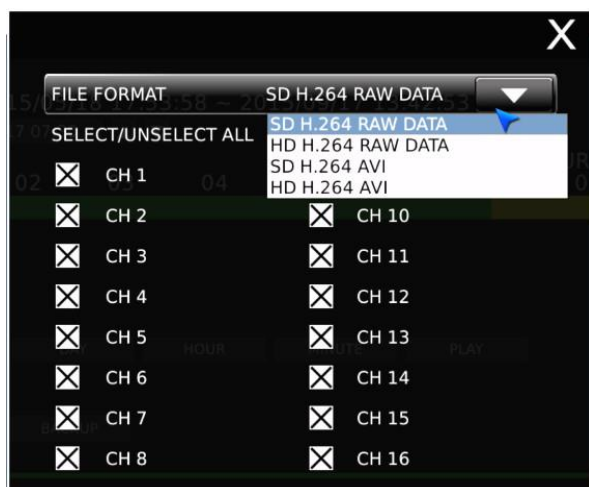
: Click to turn on/off sound.



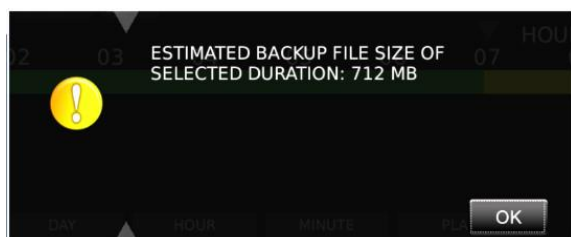
: Choose the number of split-screens according to your need.

## Backup

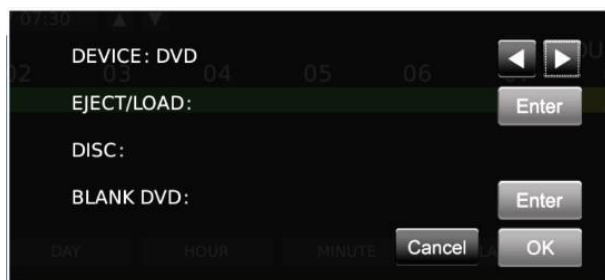
If you need to backup recorded files, drag from the timeline at the bottom of the screen to select the backup range. Press **Channels** to enter the below screen, where you can choose the channel(s) to backup and file format:



Choose **Estimate** to enter the below screen:



Choose **Backup** to enter the below screen:

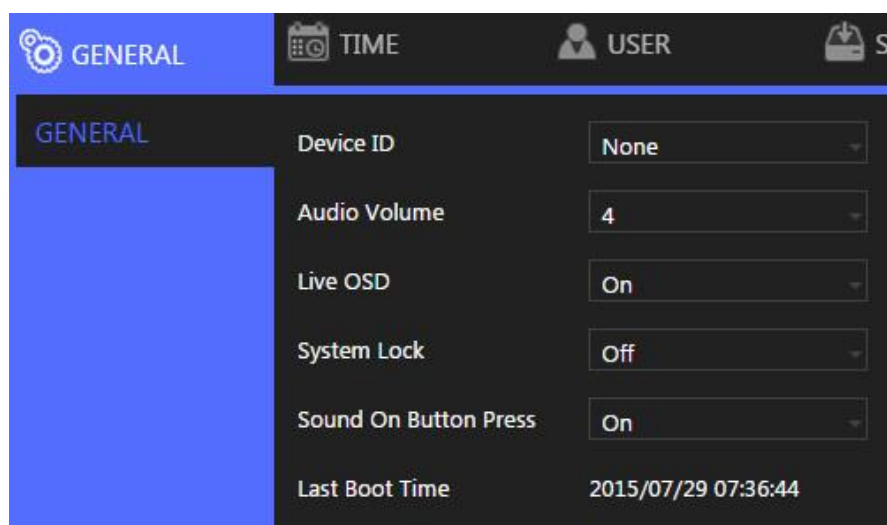


You may determine to backup the video to DVD, USB storage device, or the temporary space of the NVR.

## NVR System Settings

After you are familiar with the preliminary control of the LILIN NVR, we would like to introduce you to the system settings. First, click **System**  in the left pane, where you are allowed to adjust the configurations of the NVR. The details of the tabs are described as followed:

### General



#### **Device ID:**

Assign an ID for the NVR to be controlled by the remote controller.

#### **Audio Volume**

Adjust the volume of the NVR.

#### **Live OSD**

Switch on/off the OSD.

#### **System Lock**

Switch on/off the system lock.

#### **Sound On Button Press**

Switch on/off the sound when pressing remote control buttons.

**Last Boot Time**

The last time the system is rebooted.

## Time

| Setting            | Value               |
|--------------------|---------------------|
| Datetime           | 2015 07 29 09 33 35 |
| Date Format        | YYYY/MM/DD          |
| Time OSD           | On                  |
| Time Zone          | Off                 |
| Time Sync Mode     | Off                 |
| NTP Server         | time.stdtime.gov.tw |
| Time Sync Interval | 1                   |
| NTP Status         |                     |

**Date/Time**

Set the date/time of the NVR.

**Date Format**

Modify the date format.

**Time OSD**

Switch on/off the time to be displayed on the screen.

**Time Zone**

Change the time zone of the location where the NVR is installed.

**Time Sync Mode**

Choose how you would like the time to be synced (Keyboard, NTP, or GPS).

**NTP Server**

Enter the NTP server you want to use.

**Time Sync Interval**

Choose the interval for the time to be synced (1, 4, or 24 hours).

**NTP Status**

The status of the selected NTP server will appear here.

**Note:** click **Apply** for the changes to take effect.

## User

| User     | Old Password | New Password | Confirm Password | User Permission | Setup                               | Playback                            | Event                               | PTZ                                 | Backup                              | Shutdown                            | Alarm                               | Remote Live Video                   | Remote Playback                     | Load Default | Apply |
|----------|--------------|--------------|------------------|-----------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------|-------|
| ADMIN    |              |              |                  | Admin           | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Default      | Apply |
| OPERATOR |              |              |                  |                 |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |              |       |
| GUEST    |              |              |                  |                 |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |              |       |
| USER01   |              |              |                  |                 |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |              |       |
| USER02   |              |              |                  |                 |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |              |       |
| USER03   |              |              |                  |                 |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |              |       |
| USER04   |              |              |                  |                 |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |              |       |
| USER05   |              |              |                  |                 |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |              |       |
| USER06   |              |              |                  |                 |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |              |       |
| USER07   |              |              |                  |                 |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |              |       |
| USER08   |              |              |                  |                 |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |              |       |
| USER09   |              |              |                  |                 |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |              |       |
| USER10   |              |              |                  |                 |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |              |       |
| USER11   |              |              |                  |                 |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |              |       |
| USER12   |              |              |                  |                 |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |              |       |

LILIN NVR supports up to 15 sets of individual user settings (including administrator, operator, and guest), to which you can assign different access rights.

### User

Enter the name of the user (this field of administrator, operator, and guest cannot be changed).

### Old Password, New Password, and Confirm Password

If you would like to change the password, enter your previous password and enter the new password and confirm the password. Press Show to reveal the password. The default passwords for administrator, operator, and guest are 1111, 2222, and 3333, respectively.

### User Permission

Set the access rights of the user to administrator, operator, or guest.

### Load Default

Restore to the factory default settings.

**Note:** click **Apply** for the changes to take effect.

## Storage

### HDD INFO.

The screenshot shows the 'STORAGE' tab in the NVR interface. On the left sidebar, 'HDD INFO.' is selected. The main area displays RAID and HDD details. At the top, there are tabs for 'GENERAL', 'TIME', 'USER', 'STORAGE', 'EVENT', and 'MAINTENANCE'. The 'STORAGE' tab is active. Below the tabs, there are sections for 'RAID', 'HDD', and 'E-SATA'. The 'RAID' section shows two RAID configurations: RAID Control 1 (Non-RAID, 0 GB, Not Detected) and RAID Control 2 (RAID 0, 3725 GB, Normal). The 'HDD' section lists eight HDDs (HDD 1 to HDD 8) with their respective models and capacities. The 'E-SATA' section shows two E-SATA ports (E-SATA 1 and E-SATA 2) which are currently 'Not Installed'. At the bottom, there are fields for 'Record Start Time' (2015/07/20 14:00:00), 'Record End Time' (2015/07/30 10:17:15), 'HDD Usage' (99%), and 'Current Record HDD' (HDD#2 (Port 2)).

In **HDD INFO.**, you will see the information of the NVR's built-in RAID including the record start time, record end time, and HDD usage, etc. You can create or delete any RAID or adjust the settings of your eSATA devices. Also, you are allowed to format or defrag any of the devices. If you want to create a RAID storage, choose a RAID type in the drop-down menu at the upper-right corner and choose **Submit**.

The screenshot shows a drop-down menu for RAID configuration. The options are: RAID0 HDD1 HDD2, RAID0 HDD1~HDD4, RAID1 HDD1 HDD2, RAID1 HDD1 HDD2 + Spare HDD3, RAID5 HDD1~HDD3 + Spare HDD4, RAID5 HDD1~HDD4, and Delete.

If you would like to delete an established RAID or an eSATA device, click the device and click **Submit**. Check the device you want to format or defrag, and click **Format** or

**File System Defrag.**

### REGULAR CHECK

The screenshot shows the 'STORAGE' tab in the NVR interface. On the left sidebar, 'REGULAR CHECK' is selected. The main area displays the 'File System Check Interval' set to 12 (Hours).

Set the interval between file system checks.

**USB INFO.**

| GENERAL       | TIME | USER | STORAGE |  |
|---------------|------|------|---------|--|
| HDD INFO.     |      |      |         |  |
| S.M.A.R.T.    |      |      |         |  |
| REGULAR CHECK |      |      |         |  |
| USB INFO.     |      |      |         |  |

|   | Model | Size | Status | Select                   |
|---|-------|------|--------|--------------------------|
| 1 | None  | 0MB  | None   | <input type="checkbox"/> |
| 2 | None  | 0MB  | None   | <input type="checkbox"/> |
| 3 | None  | 0MB  | None   | <input type="checkbox"/> |

Connect a USB device (flash drive or hard drive) to the NVR, and then check the one you want to format under this page, then click **Format**.

**Event****SYSTEM**

| GENERAL   | TIME | USER | STORAGE | EVENT | MAIN |
|-----------|------|------|---------|-------|------|
| SYSTEM    |      |      |         |       |      |
| OPERATING |      |      |         |       |      |

| Time:               | Content:         |
|---------------------|------------------|
| 2015/07/29 09:40:43 | DDNS failed      |
| 2015/07/29 08:39:40 | DDNS failed      |
| 2015/07/29 08:14:13 | Ethernet link up |

The search field in this page allows you to search for specific event reports at different time and of different content. Press **Download** to export the event report.

**OPERATING**

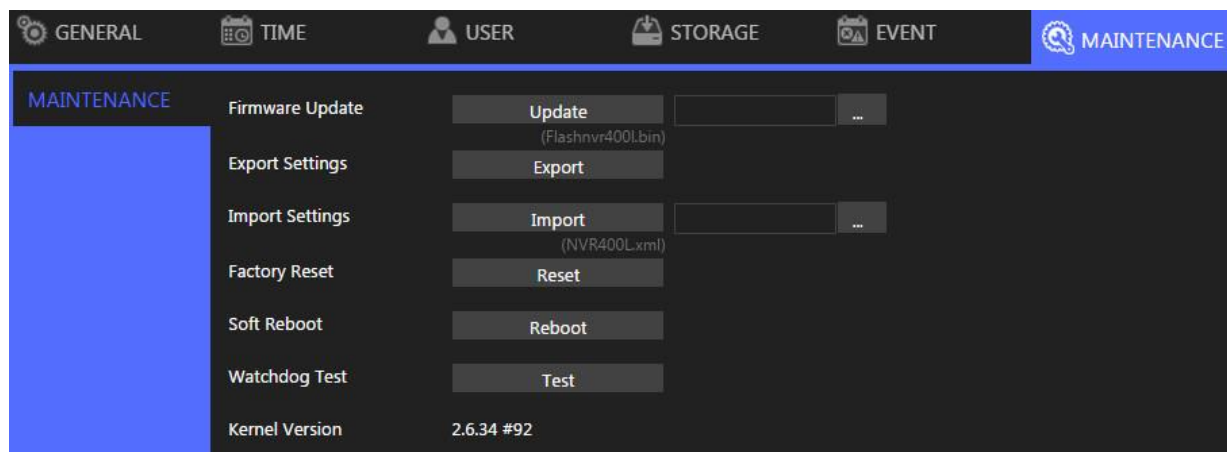
| GENERAL   | TIME | USER | STORAGE | EVENT | MAINTENANCE |
|-----------|------|------|---------|-------|-------------|
| SYSTEM    |      |      |         |       |             |
| OPERATING |      |      |         |       |             |

| Time:               | IP:           | User: | Content:             |
|---------------------|---------------|-------|----------------------|
| 2015/07/29 09:28:07 | 192.168.3.199 | ADMIN | Login                |
| 2015/07/28 14:15:59 | 192.168.3.199 | ADMIN | Camera video setup 1 |
| 2015/07/28 13:39:22 | 192.168.3.199 | ADMIN | Camera source 1      |
| 2015/07/28 11:47:03 | 192.168.3.199 | ADMIN | Login                |
| 2015/07/27 11:47:11 | 192.168.3.199 | ADMIN | Login                |

You can examine the operating status of different users under this page. Press **Download** to export the event report.

## Maintenance



### ***Firmware Update***

Choose a firmware file and click Update to proceed firmware update.

### ***Export Settings***

Click Export to save system settings as a configuration file (in XML format).

### ***Import Settings***

Insert a configuration file (in XML format) to a USB flash drive, then press Import to update the settings.

### ***Factory Reset***

Click Reset to restore the system to factory default settings.

### ***Soft Reboot***

Soft reboot the system.

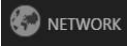
### ***Watchdog Test***

Watchdog is a hardware device that sends a reboot signal to the system if errors occur. Click to test the watchdog function. This may reboot the NVR.

### ***Kernel Version***

The kernel version of the system.

## Network Setup

After you completed setting up the system configurations, you will have to connect the NVR to a network before you can view video streams. Click **Network**  in the left pane.

## General

| Field           | Value                   | Notes            |
|-----------------|-------------------------|------------------|
| IP Mode         | Static                  |                  |
| IP Address      | 192.168.3.78            |                  |
| Subnet Mask     | 255.255.255.0           |                  |
| Default Gateway | 192.168.3.254           |                  |
| Primary DNS     | 8.8.8.8                 |                  |
| Secondary DNS   | 8.8.4.4                 |                  |
| Video Port      | 3100                    | (1~65535)        |
| HTTP Port       | 80                      | (1~65535)        |
| FTP Port        | 21                      | (1~65535)        |
| MAC             | 00:0F:FC:10:DD:DB       |                  |
| PPPoE Account   | user                    | (Max. length 64) |
| PPPoE Password  | ****                    | (Max. length 64) |
| PPPoE IP        |                         |                  |
| Hotspot IP      |                         |                  |
| P2P Enable      | Off                     |                  |
| P2P UID         | example@lilin.ipnet.net | (Max. length 64) |
| P2P Password    | ****                    | (Max. length 64) |
| P2P Status      |                         |                  |

Enter the required information in the fields:

### ***IP Mode***

Select the connection type of the NVR from Static, DHCP, and PPPoE.

### ***IP Address***

Enter the IP address you want to use, and press IP Test if necessary.

### ***Subnet Mask***

Enter the desired subnet mask.

### ***Default Gateway***

Enter the desired default gateway.

### ***Primary DNS***

Enter the first priority DNS server.

### ***Secondary DNS***

Enter the secondary DNS server in case if the primary DNS is not available.

### ***Video Port***

Specify the desired video port.

### ***HTTP Port***

Specify the desired HTTP port.

### ***FTP Port***

Specify the desired FTP port.

**MAC**

This is the MAC address of your NVR.

**PPPoE Account/Password**

If you choose to connect through PPPoE, enter the account name and password provided by your ISP here.

**PPPoE IP**

The dynamic or static IP assigned to the NVR by the ISP will be displayed here.

**Hotspot IP**

The IP assigned by the hotspot (Wi-Fi or your smartphone) will be displayed here.

## Advance

**TCP/IP**

The screenshot shows the NVR web interface with the 'ADVANCE' tab selected. On the left sidebar, 'TCP/IP' is highlighted. The main area displays settings for three TCP/IP configurations. The first configuration is 'On', with IP Address '192.168.5.122' and Subnet Mask '255.255.255.0'. The second configuration is 'Off', with IP Address '192.168.2.111' and Subnet Mask '255.255.255.0'. The third configuration is 'Off', with IP Address '192.168.3.111' and Subnet Mask '255.255.255.0'. Each IP address field has an 'IP Test' button next to it.

| Setting         | Value         | Action  |
|-----------------|---------------|---------|
| 1st TCP/IP      | On            |         |
| 1st IP Address  | 192.168.5.122 | IP Test |
| 1st Subnet Mask | 255.255.255.0 |         |
| 2nd TCP/IP      | Off           |         |
| 2nd IP Address  | 192.168.2.111 | IP Test |
| 2nd Subnet Mask | 255.255.255.0 |         |
| 3rd TCP/IP      | Off           |         |
| 3rd IP Address  | 192.168.3.111 | IP Test |
| 3rd Subnet Mask | 255.255.255.0 |         |

Our NVR supports three sets of virtual IP addresses. When **TCP/IP** is switched to **On**, the NVR can access the camera or another NVR using the specific IP.

**Mobile**

The screenshot shows the NVR web interface with the 'ADVANCE' tab selected. On the left sidebar, 'MOBILE' is highlighted. The main area displays settings for mobile connectivity. The 'Enable' checkbox is checked. The 'SIM PIN Code' field is empty. The 'IP Mode' dropdown is set to '---'. The 'IP Address' field is '0.0.0.0'. The 'Signal Strength' field is '---'. A '2G/3G/4G' label is visible next to the IP Address field.

| Setting         | Value   |
|-----------------|---------|
| Enable          | On      |
| SIM PIN Code    | ....    |
| IP Mode         | ---     |
| IP Address      | 0.0.0.0 |
| Signal Strength | ---     |

Our NVR is compatible with several mobile data adaptors (D-Link DWM-221, HUAWEI E3372h, ALCATEL L800, etc.). Plug in the device and adjust the settings below.

- Enable: Choose **On** to activate the service.
- SIM PIN Code: Enter the PIN of the SIM card you use to connect to the mobile network.
- IP Mode: The connection status of your mobile network.
- IP Address: The IP address of your connection.
- Signal Strength: The signal strength of your connection.

### P2P

When enabled, a QR code will appear on the screen. Access the QR code to complete the required registration.

### E-Mail

When an alarm is triggered, LILIN NVR can automatically send e-mail notifications to

the recipients you designated. The setting options are described below:

***Send E-Mail***

Check the box to enable sending e-mail notifications when an alarms is triggered.

***E-Mail List***

The list shows all saved e-mail addresses.

***Edit Contact***

Enter the email address you want to save as contacts and click Modify.

***Authorization***

Check if your e-mail account requires login authorization.

***SSL***

Check if you want to send/receive e-mail over SSL.

***E-Mail Account***

Enter the account name of your e-mail.

***E-Mail Password***

Enter the password of your e-mail.

***Sender***

Enter the name you would like to display in the e-mail.

***E-Mail Host***

Enter the IP address of your e-mail server.

***Port***

Enter the port of your e-mail server.

***JPEG File***

Check to also send JPEG photos when an alarm is triggered.

***Motion, Sensor, and S.M.A.R.T. Err/HDD Err***

Check to send e-mail notifications if any one of these occasions occurs.

***Video Loss***

Choose how many seconds the NVR would wait before sending out e-mail notifications.

***Candidate***

Choose an email address and press Down or Up arrows to add contacts as recipients.

***Receiver***

The list of recipient(s).

***Annotation***

Content of the email notification.

**Note:** Click **Send** to send out the notification and click **Apply** for the changes to take effect.

## FTP

When an alarm is triggered, LILIN NVR can automatically send snapshots to the FTP server you designated. The setting options are described below:

### **FTP Server**

Enter the IP address of the FTP server.

### **Port**

Enter the port of the FTP server.

### **Account**

Enter the account name of the FTP server.

### **Password**

Enter the password of the FTP server

### **Prefix & Postfix**

The prefix and postfix of the FTP server.

### **File Name Format**

Change the file name format to suit your need.

### **Continuously Send**

Check to enable this function.

### **Continuously Send Dwell**

Set the frequency of sent notification.

### **Alarm FTP Send**

Check to send alarm notification to the designated FTP address.

### **Alarm FTP Send Dwell**

Set the frequency of alarm notification sent to the FTP.

#### **Camera**

|           |                                     |                          |
|-----------|-------------------------------------|--------------------------|
| 1. CAM 01 | <input type="text" value="/CAM01"/> | <input type="checkbox"/> |
|           | (Max. length 63)                    |                          |
| 2. CAM02  | <input type="text" value="/CAM02"/> | <input type="checkbox"/> |
|           | (Max. length 63)                    |                          |

Check the cameras that you want to send notifications to the FTP when an alarm is triggered, and specify the folder name where the images are saved.

## **DDNS**

With DDNS, you can access an NVR connected to the Internet through the DDNS URL, whatever the actual IP is. The setting options are described below:

| DDNS           |                                                               |
|----------------|---------------------------------------------------------------|
| Server         | ddnsipcam.com                                                 |
| Hostname       | 10DDDB<br>(Max. length 64)                                    |
| User           | 10DDDB<br>(Max. length 64)                                    |
| Password       | ....<br>(Max. length 16) <span>Show (Display password)</span> |
| WAN IP         | <br>(Max. length 32)                                          |
| Check Interval | 1<br>(Hour(s))                                                |
| Status         | Unable to resolve status. (0)                                 |

#### **Server**

Choose the DDNS server you want to use.

#### **Hostname**

Enter the hostname of the DDNS server.

#### **User**

Enter the username to log in the DDNS server.

#### **Password**

Enter the password to log in the DDNS server.

#### **WAN IP**

Enter you WAN IP.

### **Check Interval**

Choose the time interval you want the system to check DDNS connection.

**Note:** The DDNS feature requires Internet connection.

## **Other**

LILIN NVR also supports other protocols such as UPnP and SDDP, and related configurations can be modified in the **OTHER** tab. The setting options are described below:

The screenshot displays the 'OTHER' configuration tab in the LILIN NVR web interface. The settings are as follows:

- UPnP Device Name:** LILIN NVR400L 192.168.3.78
- Disable HTTP Auth.:** Off
- UPnP Service:** On
- SDDP Device Name:** NVR400L\_10DDDB
- SDDP Service:** On
- Network Places:** On
- Workgroup:** workgroup (Max. length 31)
- Device Name:** NVR400L (Max. length 31)
- Description:** NVR400L\_192.168.3.78 (max. length 31)
- IE Default Liveview:** H.264
- Reset On Ethernet Error:** Off
- JPEG Mode:** Single JPEG
- Max Connections:** 10
- Browser Auto Logout:** Off (30 minutes)

### **UPnP Device Name**

Your device name shown on the UPnP network.

### **UPnP Service**

Switch on/off the UPnP service.

### **SDDP Device Name**

Your device name shown on the SDDP network.

### **SDDP Service**

Switch on/off the SDDP service.

### **Network Places**

Switch on/off Network Places to display shortcuts to shared devices.

### **Workgroup**

Your workgroup name displayed in Network Places.

### **Device Name**

Your device name displayed in Network Places.

### **IE Default Live View**

Choose the default streaming type (H.264 or MJPEG) when streaming using Internet Explorer.

### **Reset on Ethernet Error**

Reset the network card when an Ethernet error is detected, and leave a record entry in the event table.

### **JPEG Mode**

Choose Single JPEG to attach JPEG snapshots.

### **Max Connections**

Set the maximum number of simultaneous connections when streaming using Internet Explorer.

### **Browser Auto Logout (30 Minutes)**

Check to log out after 30 minutes of inactivity.

### **Disable HTTP Auth.**

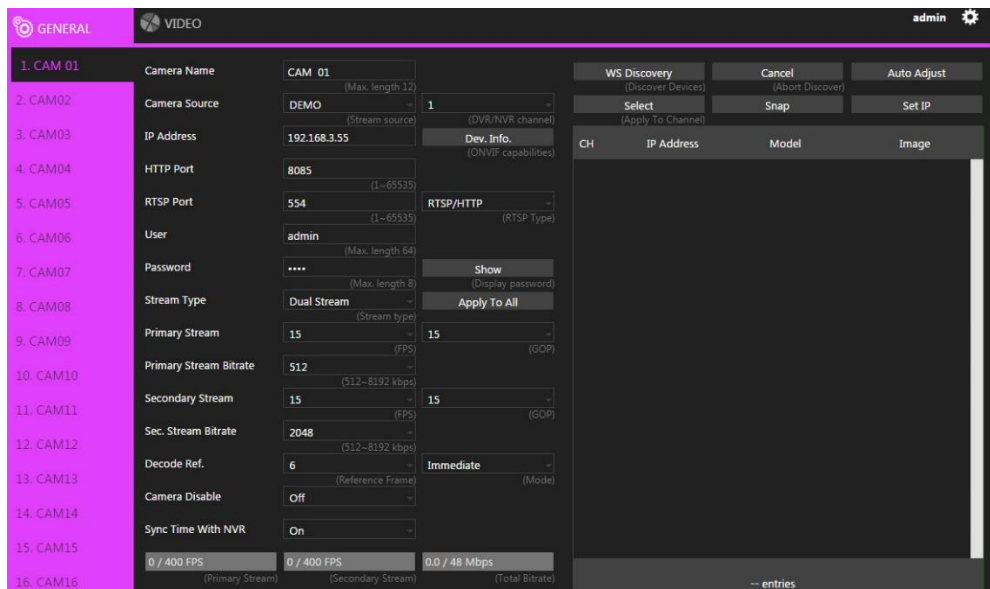
Check to disable the required authorization when accessing the NVR through the HTTP.

## Connecting to Cameras

After you complete setting up **System** and **Network**, now you should connect to the cameras. Press **Camera**  in the left pane to enter the camera setup page.

The setting options are described below.

## General



The screenshot shows the 'GENERAL' settings page for 'CAM 01'. The left sidebar lists cameras 01 through 16. The main area contains various configuration options for the selected camera.

| Setting                                                                                                | Value        | Additional Info      |
|--------------------------------------------------------------------------------------------------------|--------------|----------------------|
| Camera Name                                                                                            | CAM 01       | (Max. length 12)     |
| Camera Source                                                                                          | DEMO         | (Stream source)      |
| IP Address                                                                                             | 192.168.3.55 | (ONVIF capabilities) |
| HTTP Port                                                                                              | 8085         | (1~65535)            |
| RTSP Port                                                                                              | 554          | (1~65535)            |
| User                                                                                                   | admin        | (Max. length 64)     |
| Password                                                                                               | ****         | (Max. length 8)      |
| Stream Type                                                                                            | Dual Stream  | (Stream type)        |
| Primary Stream                                                                                         | 15           | (FPS)                |
| Primary Stream Bitrate                                                                                 | 512          | (512~8192 kbps)      |
| Secondary Stream                                                                                       | 15           | (FPS)                |
| Sec. Stream Bitrate                                                                                    | 2048         | (512~8192 kbps)      |
| Decode Ref.                                                                                            | 6            | (Reference Frame)    |
| Camera Disable                                                                                         | Off          |                      |
| Sync Time With NVR                                                                                     | On           |                      |
| <div> 0 / 400 FPS (Primary Stream) 0 / 400 FPS (Secondary Stream) 0.0 / 48 Mbps (Total Bitrate) </div> |              |                      |

Buttons and options on the right side of the form include: WS Discovery (Discover Devices), Cancel (Abort Discover), Auto Adjust, Select (Apply To Channel), Snap, Set IP, and a table with columns CH, IP Address, Model, and Image.

**Camera Name**

Enter the camera name to be displayed on Live and Play screens.

**Camera Source**

Select the video source of the channel.

**IP Address**

Enter the IP address of the camera you want to connect to, and press Dev. Info. to check ONVIF capability.

**HTTP/RTSP Port**

Enter the HTTP/RTSP port to access the camera (the number must match the port as set in the camera setting).

**User**

Enter the username required for camera authorization.

**Password**

Enter the password required for camera authorization.

**Stream Type**

Choose whether to stream only SD video or dual (SD & HD) video.

**Primary Stream**

Select the FPS and GOP for the primary stream.

**Primary Stream Bitrate**

Select the bitrate for the primary stream.

**Secondary Stream**

Select the FPS and GOP for the secondary stream (available only if you choose Dual Stream in Stream Type).

**Sec. Stream Bitrate**

Select the bitrate for the secondary stream.

**Decode Ref.**

Select the number of reference frame for the decoder, and choose Immediate for real-time streaming (the video may delay or be fractured) or Smooth for stable streaming.

**Camera Disable**

Disable the video (live and playback) of the selected camera.

**Sync Time with NVR**

Turn On for the camera to sync time with the NVR.

| WS Discovery<br>(Discover Devices) |            | Cancel<br>(Abort Discover) | Auto Adjust |
|------------------------------------|------------|----------------------------|-------------|
| Select<br>(Apply To Channel)       | Snap       | Set IP                     |             |
| CH                                 | IP Address | Model                      | ImageStatus |
|                                    |            |                            |             |

**WS Discovery**

Click WS Discovery to scan for connected devices on the network. Click Cancel to stop scanning.

**Auto Adjust**

Automatically assign IP for detected cameras.

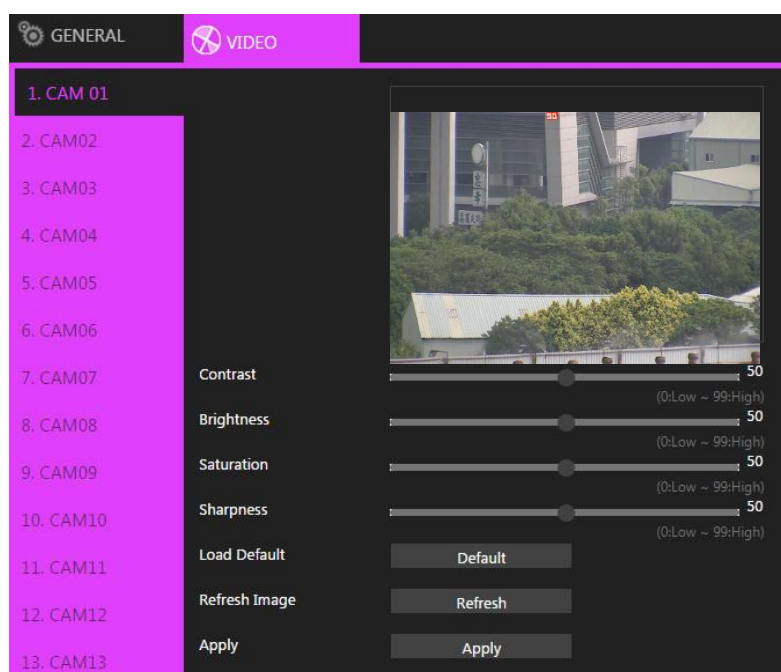
**Snap**

Show snapshot thumbnails for all the cameras.

**Set IP**

Assign camera IP.

## Video



In this page, you can adjust several camera parameters including contrast, brightness, saturation, and sharpness.

Click **Load Default** to restore the NVR to its default settings. Click **Refresh Image** to update to the latest video..

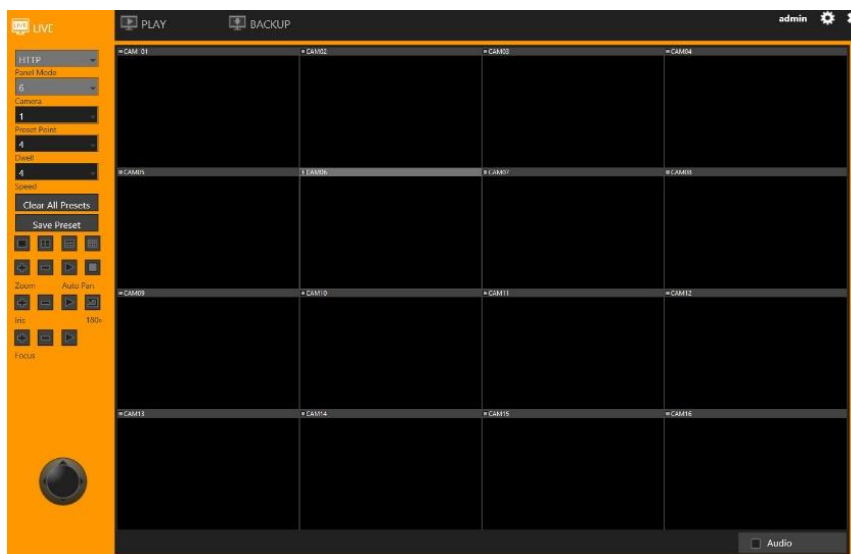
**Note:** click **Apply** for the changes to take effect.

## Live View, Playback, and Backup

Once the network configurations are completed and cameras connected, you can view the live streams of cameras, in addition to access other functions such as playing recorded video and backing up video files.

To access camera live view, go to **Stream**  **STREAM** in the left pane.

## Live



The **LIVE** tab displays the streams of all connected cameras. With the control buttons and joystick you can control the movement of the selected camera. The settings options are as followed:

### **Camera**

The number of the selected camera.

### **Preset Point**

Choose a preset point.

### **Dwell**

Determine the dwell time of the preset point.

### **Speed**

Determine the moving speed to the next preset points.

### **Clear All Presets**

Clear all configured preset points.

### **Save Preset**

Click to save the preset point after you complete setting the camera position, well time, and moving speed.



: Choose the number of split screens.



Zoom Auto Pan : Zoom in, zoom out, auto, or pan.



Iris 180° : Increase/decrease aperture value, auto aperture, or flip 180°.



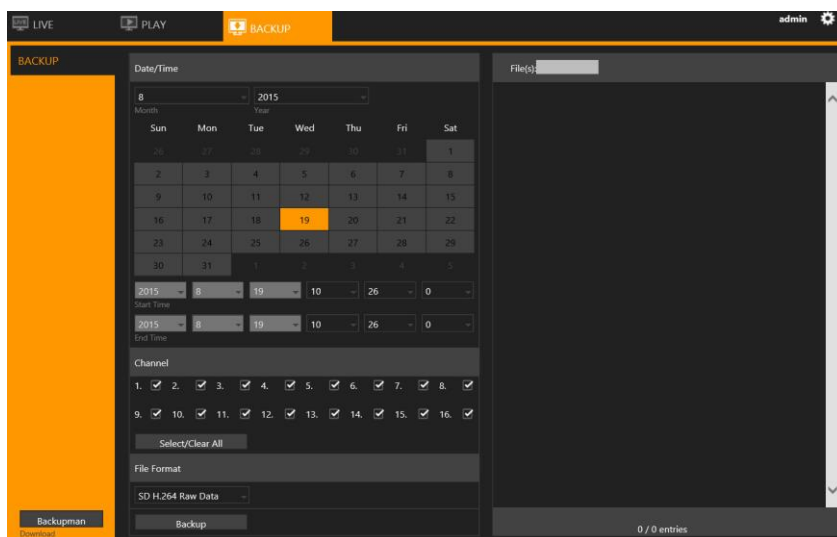
Focus : Adjust focus or auto focus.

## Play



In this tab, you can choose a specific camera and select the date/time information to play the recorded video. You can also display different playback contents by selecting **Day List**, **Motion Event**, **Sensor Event**, and **Manual Event**.

## Backup

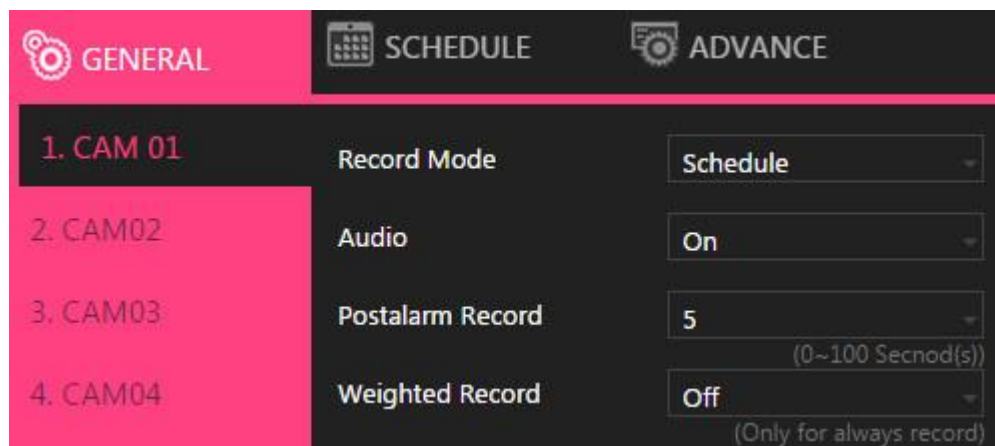


Here you are allowed to backup the recorded videos by choosing the time, channel, and format of the backup. Click **Backup** to start the backup process.

## Recording and Scheduling

To adjust recording settings or schedule recording, click **Record**  in the left pane. The setting options are described below:

## General



### Record Mode

Switch on/off scheduled recording.

### Audio

Switch on/off audio recording.

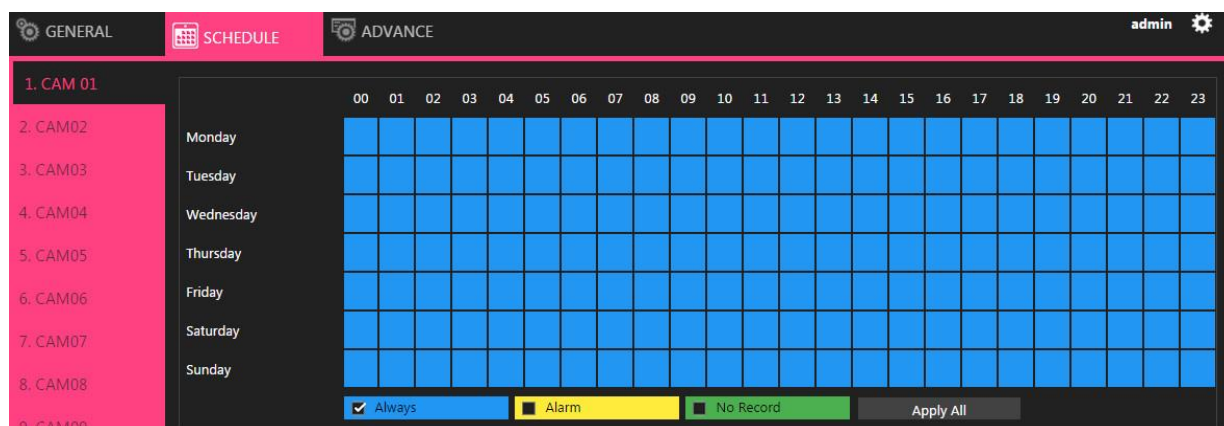
### Post-alarm Record

Enable to start recording after an event takes place. Set the time period (second) for the NVR to continue recording after the alarm is triggered.

### Weighted Record (only available if Always is selected in Schedule)

When turned on, the recording frame rate will be adjusted to the pre-determined rate when an alarm is triggered (which can be set in your camera setup interface; refer to the user manual of your camera). Otherwise, the camera will record at a lower frame rate to save storage (approximately 4–5 FPS).

## Schedule

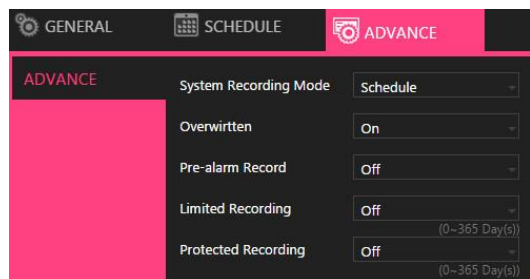


To modify the recording schedule, check the recording type from **Always** (continuous recording), **Alarm** (record only when an alarm is triggered), or **No Record** (disable recording), and highlight the desired date and time accordingly. Click **Apply All** to apply

your selection of recording type to all dates and time.

**Note:** click **Apply** for the changes to take effect.

## Advance



### System Recording Mode

Choose between Manual or Schedule recording. The Manual mode will continue recording regardless of the schedule, while the Schedule mode performs continuous, alarm, and no recording at the designated time period.

### Overwritten

Switch on to overwrite old data when the storage is full.

### Pre-alarm Record

Switch On to start recording for a period before an alarm occurs.

### Limited Recording

Set the number of days of recorded data to be preserved. When the designated days are reached, the NVR will continue recording and delete the earliest video to maintain the amount of recorded data according to your selection.

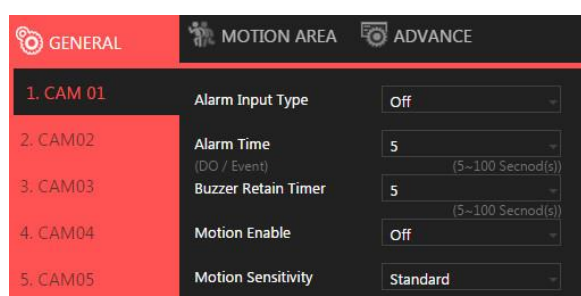
### Protected Recording (only available if Always is selected in Schedule)

Set the number of days of recorded data to be preserved. When the designated days are reached, the NVR will stop recording.

## Alarm Configurations

To change the alarm settings, click **Alarm**  in the left pane. The setting options are described below:

### General



**Alarm Input Type**

Set the alarm sensor to Normally Open (NO), Normally Closed (NC), or IP Camera. The last selection will trigger the alarm only when receiving the signal from IP cameras.

**Alarm Time (DO/Event)**

Set the time period to activate the relay circuit when an alarm is triggered.

**Buzzer Retain Timer**

Set the time period to activate the NVR's built-in buzzer when an alarm is triggered.

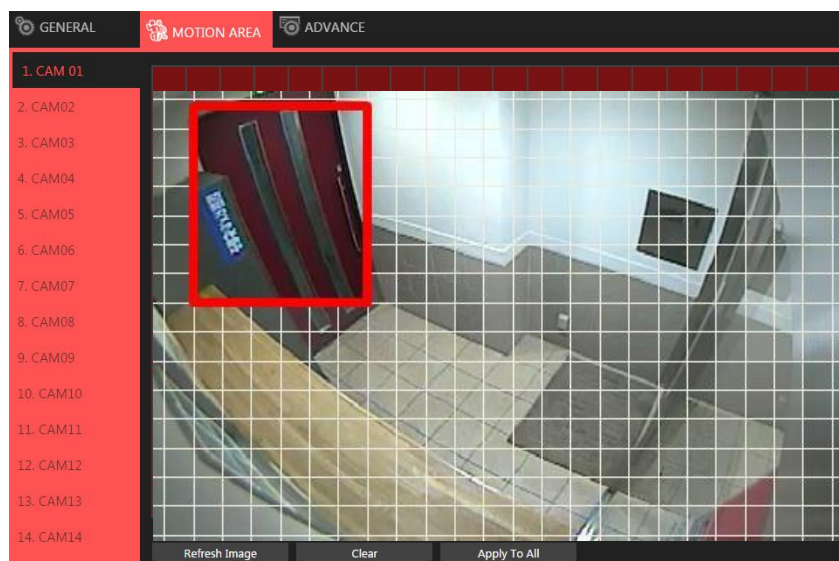
**Motion Enable**

Switch on/off motion detection recording. Remember also to set the motion detection area in the tab Motion Area.

**Motion Sensitivity**

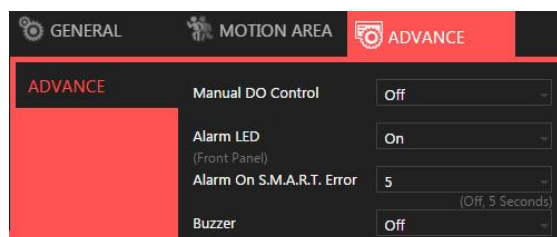
Adjust the sensitivity of motion detection. Higher sensitivity indicates that the alarm can be more easily triggered.

## Motion Area



Click or drag your mouse across any areas to highlight the motion detection areas. Click **Apply All Channels** to apply the areas to all camera channels.

## Advance

**Manual DO Control**

Turn On to enable DO control. After a DI/DO-enabled device is connected to the NVR,

control keys will appear at the bottom-right corner on the Live screen.

#### **Alarm LED (Front Panel)**

When set to **On**, the LED on the front panel of the NVR will start blinking when an alarm is triggered.

#### **Alarm On S.M.A.R.T. Error**

Turn On to trigger the alarm when an HDD S.M.A.R.T. error is detected.

#### **Buzzer**

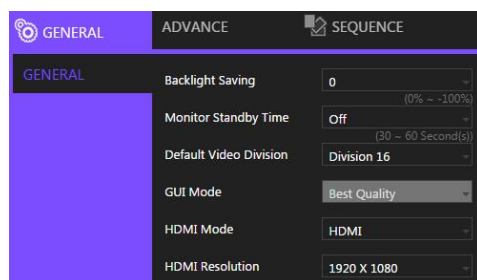
Switch On to activate the buzzer when an alarm is triggered.

**Note:** click **Apply** for the changes to take effect.

## Display Configurations

**Display**  provides several adjustable NVR parameters such as resolution, number of split screens, and contrast. The details of these settings are described followed:

### General



#### **Backlight Saving**

Adjust the level of screen brightness reduction once the Monitor Standby Time is reached.

#### **Monitor Standby Time**

Set the time of inactivity for the monitor to enter the standby mode.

#### **Default Video Division**

Select the number of split screens you see when the NVR is turned on.

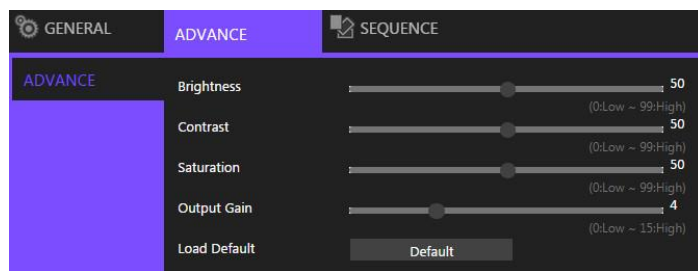
#### **HDMI Mode**

Switch the output mode between DVI or HDMI.

#### **HDMI Resolution**

Select a screen resolution that fits your screen.

## Advance



In this page, you can adjust the NVR's output of brightness, contrast, saturation, and gain. Click **Load Default** to restore to the factory default settings.

## Sequence



You are allowed to view videos of multiple cameras in sequence. Check the cameras you want to monitor and choose the number of split screens in the drop-down menu in **Sequence Mode**. Specify the time interval for the NVR to switch to the next camera for monitoring.

**Note:** click **Apply** for the changes to take effect.

## PTZ Camera Configurations

Select **PTZ**  in the left pane to enter the setting page for PTZ cameras.

### General



#### Transfer Mode

Choose a communication method according to the type of your camera.

**Control ID**

Choose a corresponding device ID to control the camera.

Click **Preset** and the below controls will appear at the bottom of the screen:

**HTTP or ONVIF is selected as the Transfer Mode****Dwell**

Determine the dwell time of the preset point.

**Speed**

Determine the moving speed to the next preset points.

**Clear All Presets**

Clear all configured preset points.

**Save Preset**

Click to save the preset point after you complete setting the camera position, well time, and moving speed.

**OSD On / Off**

Turn on/off the OSD.

**Iris**

Click + to increase aperture value, - to decrease it.

**Auto Iris**

Click to adjust the aperture value automatically.

**Auto Pan**

Pan the camera automatically along the preset points.

**Focus**

Click + or - to adjust the focus.

**Auto Focus**

Click to focus automatically.

**Zoom**

Click + to zoom in, - to zoom out.

**ESC**

Click to return to the previous page.

**Preset Point**

Use to drop-down menu to configure up to 255 preset points. Press the preset button to access the first four frequently used preset points.

## Fish Eye is selected as the Transfer Mode



### **Dwell**

Determine the dwell time of the preset point.

### **Speed**

Determine the moving speed to the next preset points.

### **Clear All Presets**

Clear all configured preset points.

### **Save Preset**

Click to save the preset point after you complete setting the camera position, well time, and moving speed.

### **Auto Pan**

Pan the camera automatically along the preset points.

### **Zoom**

Click + to zoom in, – to zoom out.

### **Home**

Return to the previous page.

In the live view of fisheye cameras, you will see the two icons below:



Click the upper icon to collapse the menu at the bottom of the screen; click again to expand. Click the lower icon to show a drop-down menu, where you can choose one of the camera installation types. Choose **Ceil** (ceiling) or **Wall** to reveal more options:

The arrows and magnifying glass icons allow you to move around and zoom in and out the view of the fisheye camera.



Select a layout and choose the camera views you want to show on the screen.

## NVR Cascade

|     | IP Address   | HTTP | User  | Password |
|-----|--------------|------|-------|----------|
| 1.  | 192.168.3.1  | 80   | admin | ****     |
| 2.  | 192.168.3.2  | 80   | admin | ****     |
| 3.  | 192.168.3.3  | 80   | admin | ****     |
| 4.  | 192.168.3.4  | 80   | admin | ****     |
| 5.  | 192.168.3.5  | 80   | admin | ****     |
| 6.  | 192.168.3.6  | 80   | admin | ****     |
| 7.  | 192.168.3.7  | 80   | admin | ****     |
| 8.  | 192.168.3.8  | 80   | admin | ****     |
| 9.  | 192.168.3.9  | 80   | admin | ****     |
| 10. | 192.168.3.10 | 80   | admin | ****     |

255 / 255 entries

192.168.3.1 80 admin \*\*\*\* Show Modify

Default Search Cancel

Enable Off

Export Import ...

Apply Reset

This tab allows you to cascade multiple NVRs or adjust relevant settings. If you own a 931-D keyboard, you can use it for controlling the NVR cascade. If you have to NVR systems, which are assigned with two different IP addresses, you should enter the IP address of the second system to the fourth column in the cascade table. Remember to set the keyboard ID to 4 to control the second NVR. For detailed instructions on how to use the NVR cascade function, visit our official website, enter **Support > SDK**, and download the document named **DVR/NVR IR/keyboard serial commands over HTTP**. The settings listed in this tab are described in details as followed:

192.168.3.1 80 admin \*\*\*\* Show Modify

Default Search Cancel

Enable Off

Export Import ...

Apply Reset

### Show/Hide

Reveal or hide the password.

### Modify

Apply the changes you've made.

### Default

Restore to factory settings.

### Search

Find all NVR/DVR on your LAN and display them in the cascade list.

**Export**

Export the settings to any USB device you connect to the NVR.

**Import**

Load the settings from the USB device connected to the NVR.

## Metadata

| GENERAL   |                      | EVENT                                              |
|-----------|----------------------|----------------------------------------------------|
| 1. CAM 01 | Serial Input         | Off                                                |
| 2. CAM02  | Metadata Service     | Off                                                |
| 3. CAM03  | Serial Device Server | 192.168.127.254<br><small>(Max. length 31)</small> |
| 4. CAM04  | Server Data Port     | 950<br><small>(1~65535)</small>                    |
| 5. CAM05  | Server Command Port  | 966<br><small>(1~65535)</small>                    |
| 6. CAM06  | Protocol             | POS/GPS/ATM                                        |
| 7. CAM07  | Emulated Mode        | ESC/POS                                            |
| 8. CAM08  | Encoding Mode        | ASCII                                              |
| 9. CAM09  | Baud Rate            | 9600                                               |
| 10. CAM10 | Data Size            | 8                                                  |
| 11. CAM11 | Parity               | None                                               |
| 12. CAM12 | Stop Bit             | 1                                                  |
| 13. CAM13 | Flow Control         | None                                               |

## General

LILIN NVR supports various external devices such as GPS or POS, and in this page you are allowed to change the settings for these devices. The setting options are described as follows:

**Serial Input**

Select the USB port to which your external device is connected.

**Metadata Service**

Turn On to enable using external devices.

**Serial Device Server**

Enter the server IP for your serial device.

**Server Data Port**

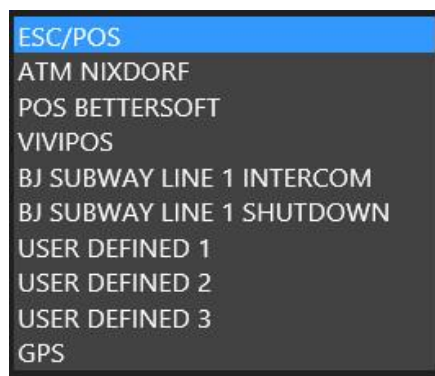
Enter the port of your serial device.

**Server Command Port**

Enter the command port of the device.

**Emulated Mode**

Choose an emulation type from the drop-down menu (see image below).

**Encoding Mode**

Choose between ASCII and UTF-8.

**Baud Rate**

Select an option suitable for your device.

**Data Size**

Select an option suitable for your device.

**Parity**

Select an option suitable for your device.

**Stop Bit**

Select an option suitable for your device.

**Flow Control**

Select an option suitable for your device.

**OSD Font Color**

Choose a color from the spectrum for use of metadata font (see image below).

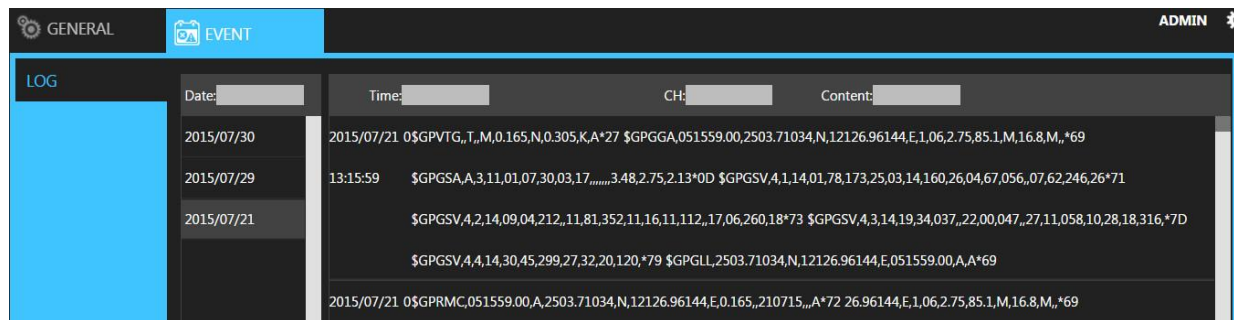
**OSD Font Size**

Determine the metadata font size to be displayed in Live view..

**OSD Rows Displayed**

Determine the number of rows for the metadata.

## Event



This tab displays a history of detected events. You are allowed to search for events based on time, channel, or content.

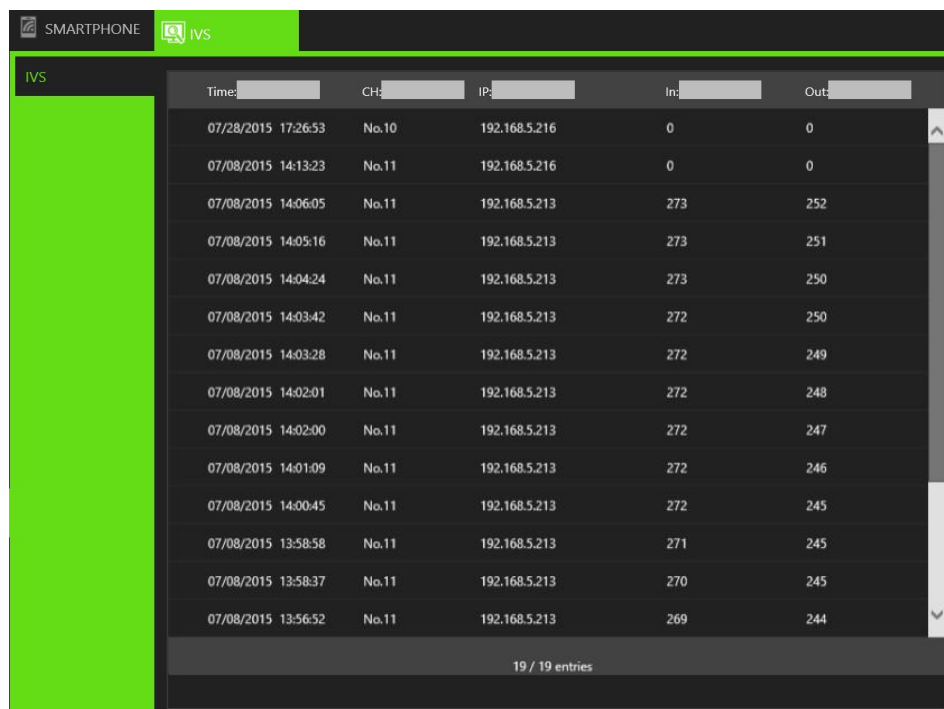
## Other

### Smartphone



This tab provides settings for sending alarm notifications to your smartphone that is paired with the NVR. You can download LILINViewer on Apple App Store or Google Play for your iPhone, iPad, and other Android devices.

## IVS



| Time                | CH    | IP            | In  | Out |
|---------------------|-------|---------------|-----|-----|
| 07/28/2015 17:26:53 | No.10 | 192.168.5.216 | 0   | 0   |
| 07/08/2015 14:13:23 | No.11 | 192.168.5.216 | 0   | 0   |
| 07/08/2015 14:06:05 | No.11 | 192.168.5.213 | 273 | 252 |
| 07/08/2015 14:05:16 | No.11 | 192.168.5.213 | 273 | 251 |
| 07/08/2015 14:04:24 | No.11 | 192.168.5.213 | 273 | 250 |
| 07/08/2015 14:03:42 | No.11 | 192.168.5.213 | 272 | 250 |
| 07/08/2015 14:03:28 | No.11 | 192.168.5.213 | 272 | 249 |
| 07/08/2015 14:02:01 | No.11 | 192.168.5.213 | 272 | 248 |
| 07/08/2015 14:02:00 | No.11 | 192.168.5.213 | 272 | 247 |
| 07/08/2015 14:01:09 | No.11 | 192.168.5.213 | 272 | 246 |
| 07/08/2015 14:00:45 | No.11 | 192.168.5.213 | 272 | 245 |
| 07/08/2015 13:58:58 | No.11 | 192.168.5.213 | 271 | 245 |
| 07/08/2015 13:58:37 | No.11 | 192.168.5.213 | 270 | 245 |
| 07/08/2015 13:56:52 | No.11 | 192.168.5.213 | 269 | 244 |

19 / 19 entries

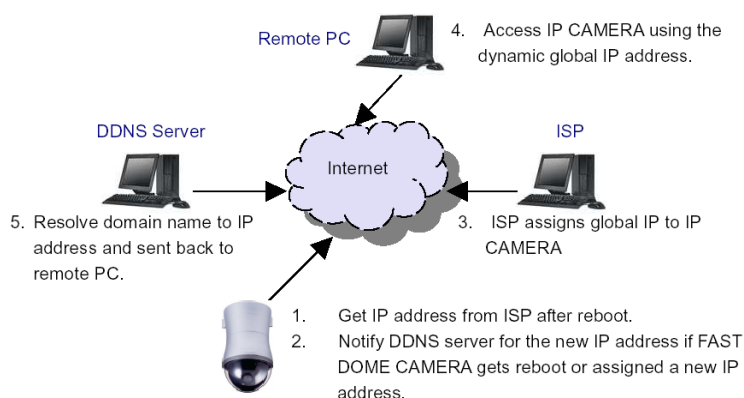
LILIN NVR supports IVS-enabled cameras. Connect an IVS-enabled IP camera to the NVR and turn on the IVS function (refer to the user manual of your camera). When an object enters and leaves a designated area in the camera view, the NVR will record the time of entrance/exit and the number of entrance/exit in the database. For this function to work properly, you must first enable **Motion Detection** in the NVR or the alert function in your IP camera. Any movement will not trigger the **Motion Detection** function of the NVR, but will leave a record in the IVS history table.

## Appendix

### DDNS and PPPoE Network Settings

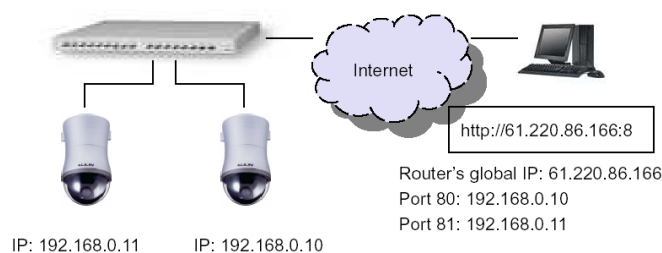
One of the advantages of adopting DDNS and PPPoE services is to save the cost of renting a global IP address. When you power on a camera with a video server and connect to the Internet with the PPPoE service, the camera asks your ISP for a dynamic global IP address. This Internet-accessible IP address will be renewed by the ISP every time you log on the Internet.

Whenever the IP is changed, the camera with the video server will notify the DDNS server of your new IP address. A remote user who intends to connect to the camera with the video server can enter the domain name in the web browser. The domain name will be translated to a new IP address to be used by the camera.



### Advanced Port Forwarding Technology

Communication port forwarding technology has been widely used to share a global Internet IP to other devices on the network. The infrastructure of this technology is shown in the below figure, in which the port 80 of the IP router is forwarded to the device with an IP of 192.168.0.10, and the port 81 of the router is forwarded to the device with an IP of 192.168.0.11. When a remote PC on the Internet tries to access the port 81, the user is actually accessing 192.168.0.11, private IP of given by the router.



## Restore to Factory Default

To restore the IP camera to the factory default, follow the below procedures:

1. Short the "Restore to Factory Default RESET" cable for 10 seconds before releasing.
2. The camera will restart.
3. Launch to IPScan Utility to search for the IP camera.
4. Access the IP camera via an Internet browser.
5. Enter the default username and password.

## SD Card Compatibility

| Manufacturer | Capacity | SDHC/SDSC |
|--------------|----------|-----------|
| Sandisk      | 16GB     | SDHC      |
| Sandisk      | 8GB      | SDHC      |
| Transcend    | 8GB      | SDHC      |
| Transcend    | 4GB      | SDHC      |
| Sandisk      | 32GB     | SDHC      |

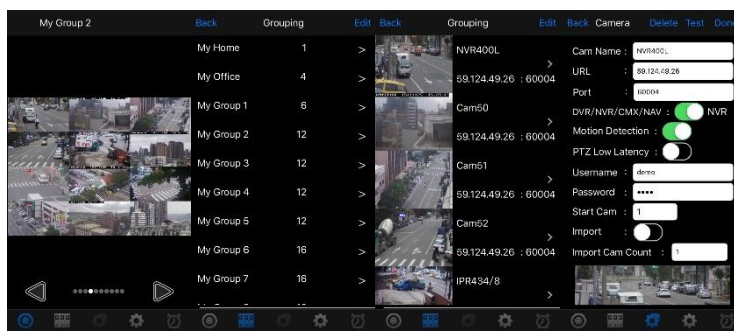
## For iPhone Users

Tap **App Store**, and search and download **LILINViewer** by Merit LILIN Ent. Co., Ltd.

Or, you can scan the QR Code below.



Open **LILINViewer**, then choose tab **Groupings**. Select a group, choose a camera type, and add a camera.



Next, enter camera information as follows:

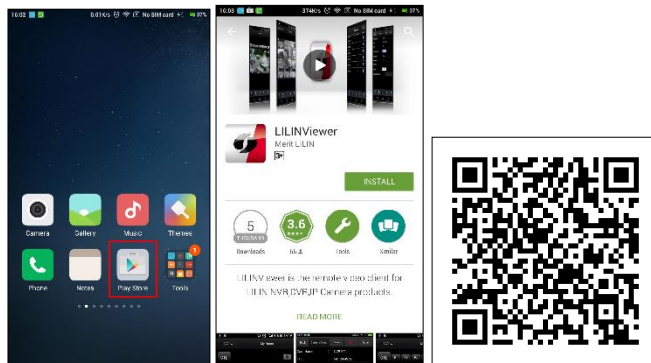
1. Cam Name: IP Camera or DVR camera name
2. URL: IP address
3. Port

4. Enter your username and password. The default IP camera user name is **admin**, password **pass**. The default DVR user name is **admin**, password **1111**.

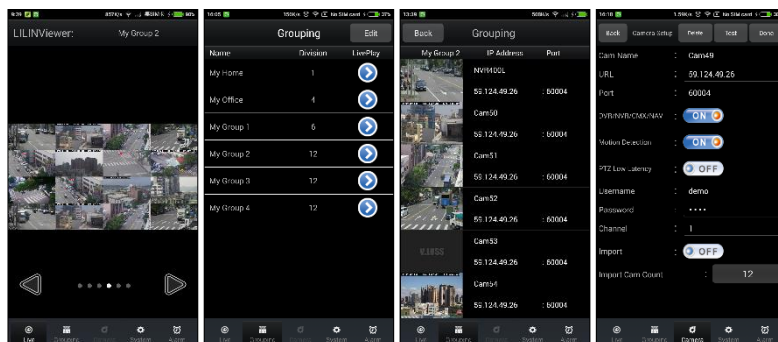
After you enter the above information, tap **Done** to save the changes, and the live view of your IP camera or DVR will appear.

## For Android Users

Tap **Play Store** to download **LILINViewer** by Merit LILIN, or scan the following QR code.



Open **LILINViewer**, then choose tab **Groupings**. Select a group, choose a camera type, and add a camera.



Next, enter camera information as follows:

1. Cam Name: IP Camera or DVR camera name
2. URL: IP address
3. Port

4. Enter your username and password. The default IP camera user name is **admin**, password **pass**. The default DVR user name is **admin**, password **1111**.

After you enter the above information, tap **Done** to save the changes, and the live view of your IP camera or DVR will appear.