

HUBBLE series NVR

System Administrator's Manual

For V5.02.01 Firmware

Legal Notice

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Regulatory Compliance Information

Federal Communications Commission Statement



This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING: Changes or modifications to the equipment that are not expressly approved by the responsible party for compliance could void the user's authority to operate the equipment.

European Community Compliance Statement



This product has been tested and found to comply with the limits for Class B Information Technology Equipment according to European Standard EN 55022 and EN 55024. In a domestic environment, this product may cause radio interference in which case the user be require to take adequate measures.

About This Manual

Target Audience

This manual is intended for **System Administrators** who are responsible for installing and setting up video surveillance system. The reader is expected to know the fundamentals of IP surveillance system integration and to own the administrative privileges to install and configure all the devices.

Technical Support

If you have any questions during system installation, please feel free to contact our engineers via our mail Support@level1.com

TABLE OF CONTENTS

Legal Notice	2
About This Manual	4
1 Introduction	9
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Product Overview	9
NVR Server / Client Architecture	9
Remote Client PC Requirements	10
Supported Video Format	11
Installation.....	12
Prepare the Devices	12
Network Connection Architecture	14
LAN Port	14
WAN Port	15
2 Local Client Operations	16
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Log in to / out of NVR	16
Log In.....	16
Log Out.....	16
Input Devices	17
Onscreen Keyboard	17
Onscreen Keyboard Settings	17
Quick Setup.....	18
Step 1: Log in to NVR	18
Step 2: Format the Hard Disks	18
Step 3: Add Devices.....	19
Live Page Overview	20
Customize Live Screen Layout.....	21
Change Channel Position	22
Change Layout.....	23
Manage Device Live View	24
Quick Playback	25

Optical PTZ	26
Manage Devices.....	27
Cameras	27
Add Cameras	28
Add Cameras Manually	29
Add Cameras by RTSP	30
Delete Cameras	31
Change Camera Settings.....	31
Video Settings	32
Motion Setup	33
Point-of-Sales (POS) System.....	34
Add POS	34
Change POS Settings.....	35
Configure POS Event and Schedule	35
Set Event Rules	36
Delete POS	36
Parking System.....	37
Add Parking System	37
Change Parking System Settings	38
Configure Parking System Event and Schedule	39
Set Event Rules	39
Delete Parking System	40
Network Input Output Module	41
Add Network DIO	41
Change Network DIO Settings.....	42
Configure Network IO Event and Schedule	43
Set Event Rules	43
Delete Network DIO	44
Access Control	45
Add Access Control Device	45
Change Access Control Settings	46
Basic.....	46
Devices.....	47
Management	48
User	50
Time Period	51
Configure Access Control Event and Schedule	52
Set Event Rules	52

Delete Access Control Device	53
Schedule Recordings	54
Event-Recording File Length	55
Set the Recording Schedule	55
Set the Event Schedule	56
Event Management.....	57
Event-Handling Schedule	57
Set Event Rules	58
Beep.....	58
PTZ	59
Digital Output (DO)	59
Email	60
URL	60
ANS.....	61
Clear Event Rules	61
Playback Recording.....	62
Playback User Interface	62
Playback Video	63
Search by Time	63
Search by Event.....	64
Export Video	64
System Setup	65
System.....	65
Device Information	65
Date & Time	66
Setup Manually	66
Synchronize with Time Zone	66
Synchronize with NTP server	66
COM Port Settings	67
E-mail Settings.....	68
System Event.....	70
Local DIO	71
Local Audio Setup	72
Network Settings	73
Ethernet Settings	74
Web Port Setting.....	75

HUBBLE series System Administrator's Manual

Enable DHCP Server	76
Enable DDNS Service.....	77
Enable ANS Service.....	78
Enable Network Address Translation (NAT)	79
Power over Ethernet (PoE).....	80
Storage Settings	81
Storage Management	81
Format Hard Disks	82
Disk Deletion	82
Check Disk Status	82
iSCSI	83
Network Neighborhood	84
NFS Server	84
Controller	85
Software Keyboard	85
Joystick	85
User Management.....	86
Add a Group.....	86
Add a User	87
Edit a User	88
Delete a User	88
Maintenance.....	89
Firmware Upgrade	89
Backup / Restore Settings	90
Backup	90
Restore.....	91
Troubleshooting	91
Factory Default.....	92
Log.....	92

Introduction

Product Overview

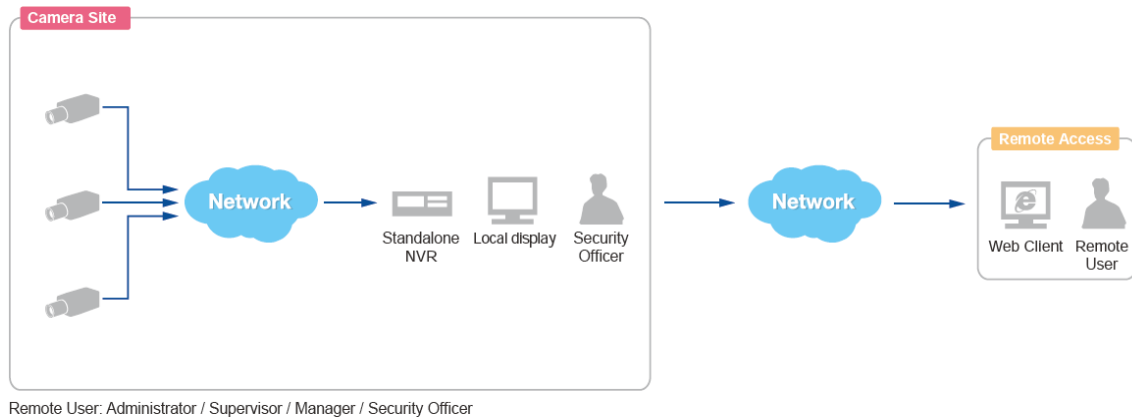
Levelone HUBBLE series (hereafter referred to as **NVR**) is a compact and reliable multi-channel standalone NVR. It features a stable embedded Linux operating system and capabilities of supporting mega-pixel resolution H.265 or H.264 streaming, an HDMI output for local display, PTZ control, scheduled / event-triggered / event speed-up recording, event management, synchronized playback, time / event-based playback search and video bookmarks. Its intuitive user interface allows the system installer to enjoy effortless installation experience, while making it easy for new users to get acquainted with the operation by first-time use. Other than the local client, the remote PC client may access the NVR system simultaneously, and experience user-friendly web interface customized for browser-based operations.

NVR Server / Client Architecture

In a video surveillance system architecture, **NVR** serves as service provider, aimed to run 24/7 non-stop video management service for clients. An **NVR** client makes requests for monitoring video stream or playing back recordings from **NVR**.

There are two types of **NVR** clients: **Local Client** and **Remote Client**. A client, connecting from whether a remote computer or from local, will be offered the same functionalities of NVR.

- **Local Client**: In the local site, the client user directly operates **NVR** by connecting an HDMI monitor and a USB mouse to the physical **NVR**.
- **Remote Client**: Over the TCP/IP network, the **Remote Client** communicates with **NVR** through HTTP Protocol. This client user will have to use a computer with Internet Explorer to access the **NVR** web interface, without the need of installing any client program beforehand. Logging in to **NVR** is as simple as visiting a website.



Remote Client PC Requirements

As NVR itself is a self-contained unit, the table below provides basic guidelines only for selecting proper hardware for the remote PC client. If your live view display quality is not satisfactory, please consider computers with more advanced spec as the decoding of multiple channels requires good hardware for smooth performance (*1).

PC Spec (*2)	Minimum Requirements
CPU Processor	Intel Core i3-3250 @ 3.50 Ghz
RAM	4GB (*3)
Network	Ethernet (1000 Base-T recommended)
Operating System	Windows 7, Windows 8, Windows 10 (All versions) (*4)
Display Resolution	1080p
Browser	Internet Explorer 11

*1 The quality of video display performance lies not only in the hardware but a few variables.

Please refer to [Supported Video Format](#) on page 11 for instructions on how to achieve ideal video performance.

*2 PC spec requirements are the same for 32-bit and 64-bit systems.

*3 Microsoft Windows operating system has limits on memory and address space, regardless of the real or virtual memory available on a particular computer.

Please use 64-bit system if your computer has more than 4GB RAM.

*4 Please make sure your operating system is fully patched with the latest service packs.

Supported Video Format

NVR is designed to conform to output 1080p video streams to HDMI monitors. Up to 16 channels of 3K~4K H.264 / H.265 / MJPEG / MPEG4 video streams can be displayed on both local live screen and live and remote playback screen.

With a client computer, you may still acquire full support for displaying these types of video codec – MPEG4, MJPEG, H.264, and H.265 and up to 12-megapixel video resolution from web client interface, in the meantime, the video stream is recorded at your desired format regardless of the displayed quality.

	Camera Management Export / Recording	Local Live View / Playback	Remote Live View / Playback
Codec	H.265 H.264 MPEG4 MJPEG		
Resolution	Up to 12M pixels		

Installation

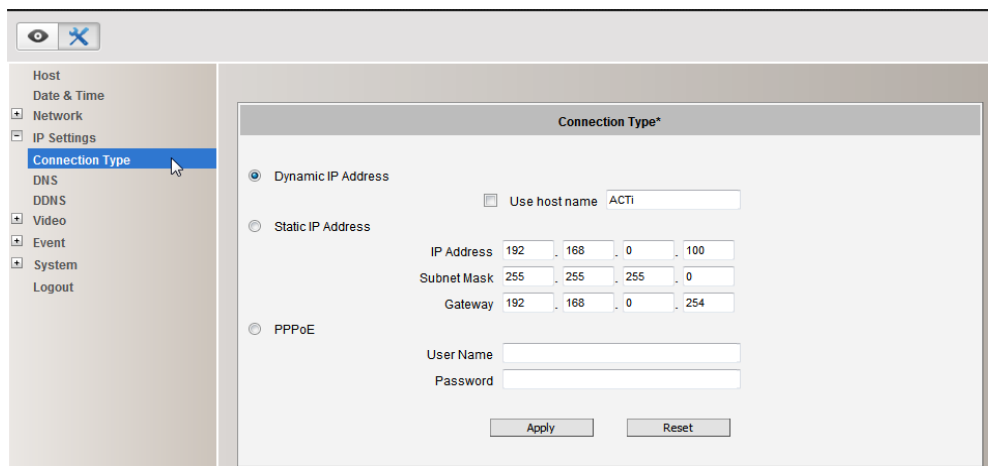
The installation procedures may vary depending on your site conditions. The procedures provided in this manual are based on an example consisting of (1) local network, (2) an NVR unit, (3) Levelone network cameras, (4) a POE network switch and (5) necessary peripherals.

Prepare the Devices

Before starting connecting all the devices together, please read the instructions below to make sure your devices are ready for NVR system.

Cameras

The camera's connection type is Dynamic mode (DHCP Client). Configure this connection settings via **Web Configurator**.



Levelone camera web configurator interface

Monitor

The monitor should supports HDMI port and 1080p full HD resolution display.

USB Devices

Please use a USB mouse, keyboard or joystick with a cable.

USB Storage Device

- The USB storage device is required for system backup and system log / snapshot / video export.
- NVR supports all FAT/FAT32/EXT2/EXT3/EXT4/NTFS file systems.

HUBBLE series System Administrator's Manual

Hard Disks

For video recordings, you should install **at least ONE** certified 3.5-inch SATA hard disk.

Please always use the hard disks Levelone tested to be compatible with NVR. You may find the certified models with **Levelone** <http://level1.com>.

Network Connection Architecture

When connecting NVR with your network, please make sure you plug the network cable into the right port.



LAN Port

Default: 192.168.0.10



WAN Port

Default: Dynamic /192.168.1.10

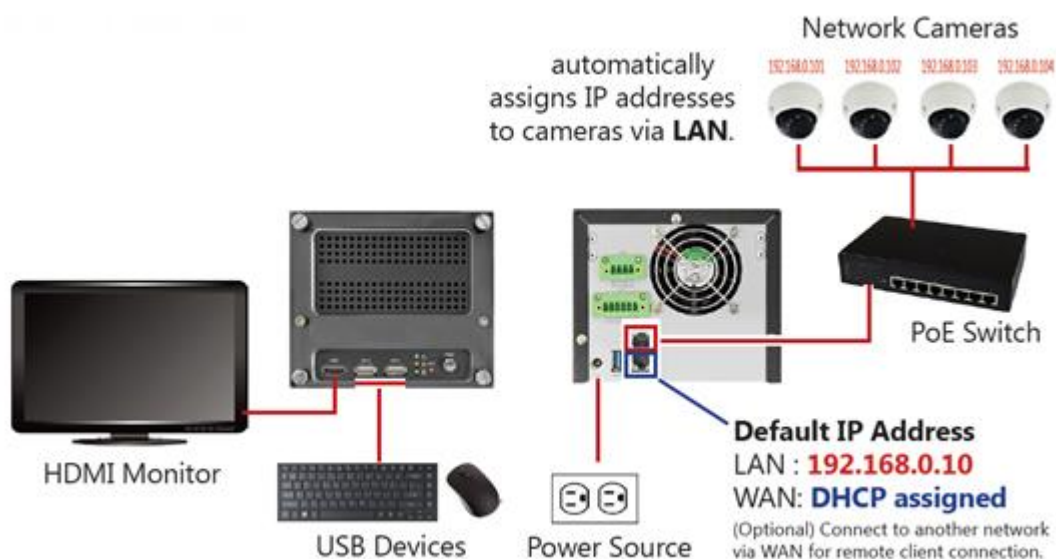
LAN Port

LAN port is the default camera port for a typical local network. Via this port, the DHCP server built in NVR automatically assigns IP addresses to network cameras once they are connected. With this feature, you do not have to bother arranging the camera IP addresses on your own. By default, this DHCP server is enabled, so please avoid connecting NVR to a network where exists another DHCP server via this port.

Connection Setting Example 1

Below diagram displays an example connection setting using only **LAN** to connect networks cameras.

In this setting, NVR altogether with cameras are within the same network segment; in the meantime, there is no need of referencing another DHCP server in this system.



WAN Port

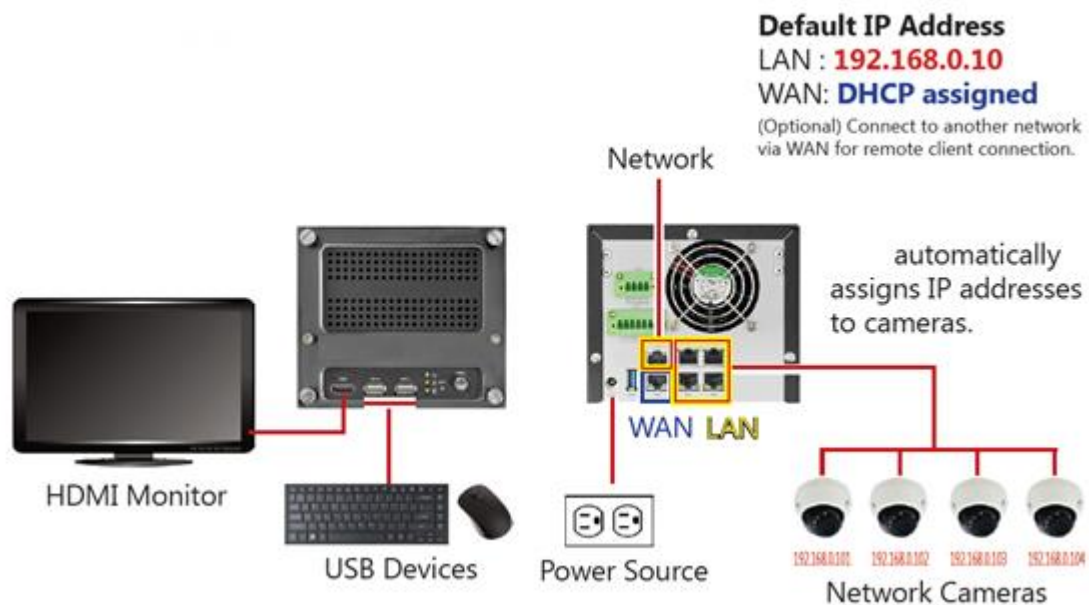
WAN port is a typical Ethernet port. You will have to use this port to connect with a different network segment when your system requires (1) the connection with a remote PC client or network cameras, (2) the use of event-triggered e-mail service via an external SMTP server (3) the use of date/time synchronization with external NTP server.

By default, once connecting to a network, it will first try to get an IP address assigned by your network router from DHCP server. If your network does not assign IP address automatically, then **WAN** port will assume IP address **192.168.1.10**.

Connection Setting Example 2

The diagram below displays an example connection setting using **LAN + WAN** to connect networks cameras within different network segments.

In this setting, NVR with three cameras are within the same network segment, while there is another camera locating in another network. In addition, this system requires the connection with an external SMTP server and a remote client.

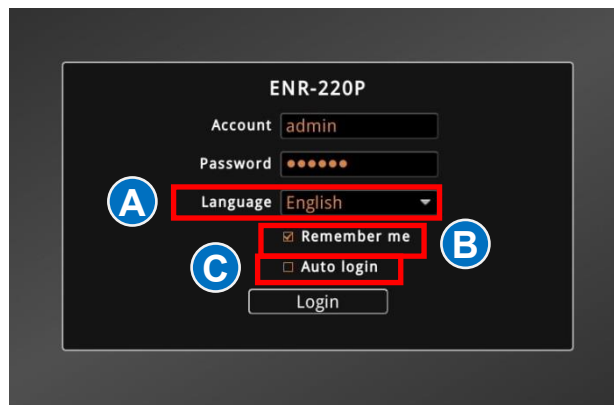


Local Client Operations

Log in to / out of NVR

By default, an administrator account has already been existing in your system. To log in to NVR for the first time, you will have to key in the password in **Login** window.

Log In



Change UI language **A**

To change UI language, select the desired language from “**Language**” dropdown list.

Remember Login Information **B**

To have the server remember your **Account**, **Password** and language setting for future, check “**Remember me**”.

Set Auto Login **C**

Check “**Remember me**” then “**Auto Login**”, you will skip the **Login** page and directly enter **Live** screen when accessing NVR in the future. This feature makes using NVR more convenient, however it may pose a security risk because any other user can enter NVR using the account you established. The **Remember me** and **Auto-login** function will be cancelled when you logout from NVR.

Log Out

On **Live** screen, click “**Logout NVR**” .

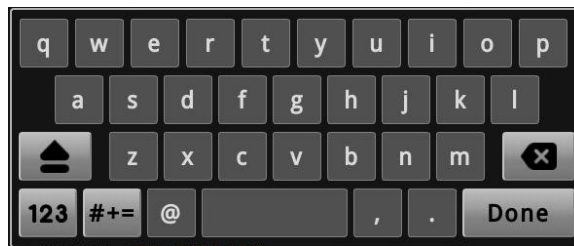
Input Devices

The physical input devices (e.g. USB mouse and USB keyboard) are ready to use when you connect them to NVR via USB ports.

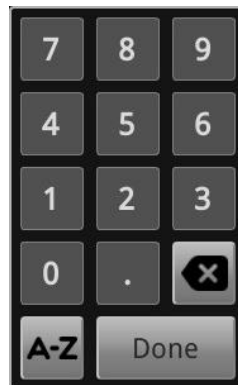
Onscreen Keyboard

The onscreen keyboards allow you to input characters without using a physical one. By clicking in a character field (e.g. **Account** or **Server** name) or number field (e.g. **IP address** or **Port**), the specific onscreen keyboard will be brought up.

Standard Alphabet + Symbol Keyboard



Number Keyboard



Symbol Keyboard



Onscreen Keyboard Settings

To disable the virtual keyboard if a physical one is already in use, on **Live** screen, click **Setup** → **System** tab → click **"Keyboard"**. Uncheck the box **"Always shows software keyboard"**.

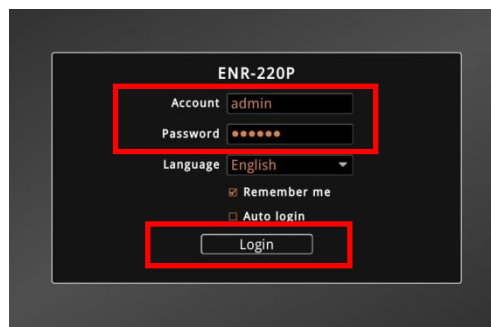
Quick Setup

When you login to the NVR for the first time, you need to do the following to complete the initial setup:

Step 1: Log in to NVR

After the device starts, you will first see Levelone splash screen then system interface.

On **Login** window. Click into the **Account** and **Password** fields to enter the default account information - **admin** / **123456**, then click “**Login**”.



Step 2: Format the Hard Disks

At present, the hard disks you installed in NVR are not ready for recording, they need formatting before use. See [Format Hard Disks](#) on page 82 for detailed instructions.



Select the unformatted disk and click “**Format**”. Repeat this step to format the other disk, and then click “**OK**”. As NVR has successfully formatted a hard disk, a message will pop out to notify you. After a successful formatting, the file system of the disk will show “**NVR-FS**”, and this disk will immediately become ready for recording,

HUBBLE series System Administrator's Manual

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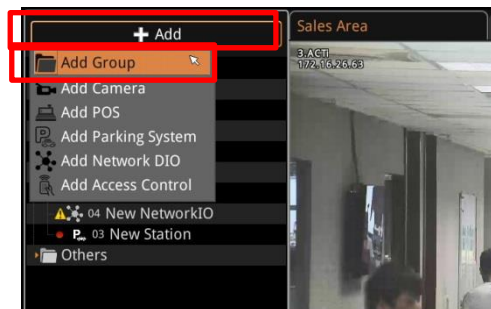
File System:	unknown	File System:	ENR-FS
Recordable:	NO	Recordable:	YES

Step 3: Add Devices

The following devices can be added to the NVR:

- Cameras, see [Cameras](#) on page 27
- Point-of-Sale Systems (POS), see [Point-of-Sales \(POS\) System](#) on page 34
- Parking Systems, see [Parking System](#) on page 37
- Network Input/Output (DIO), see [Network Input Output Module](#) on page 41
- Access Control, see [Access Control](#) on page 45

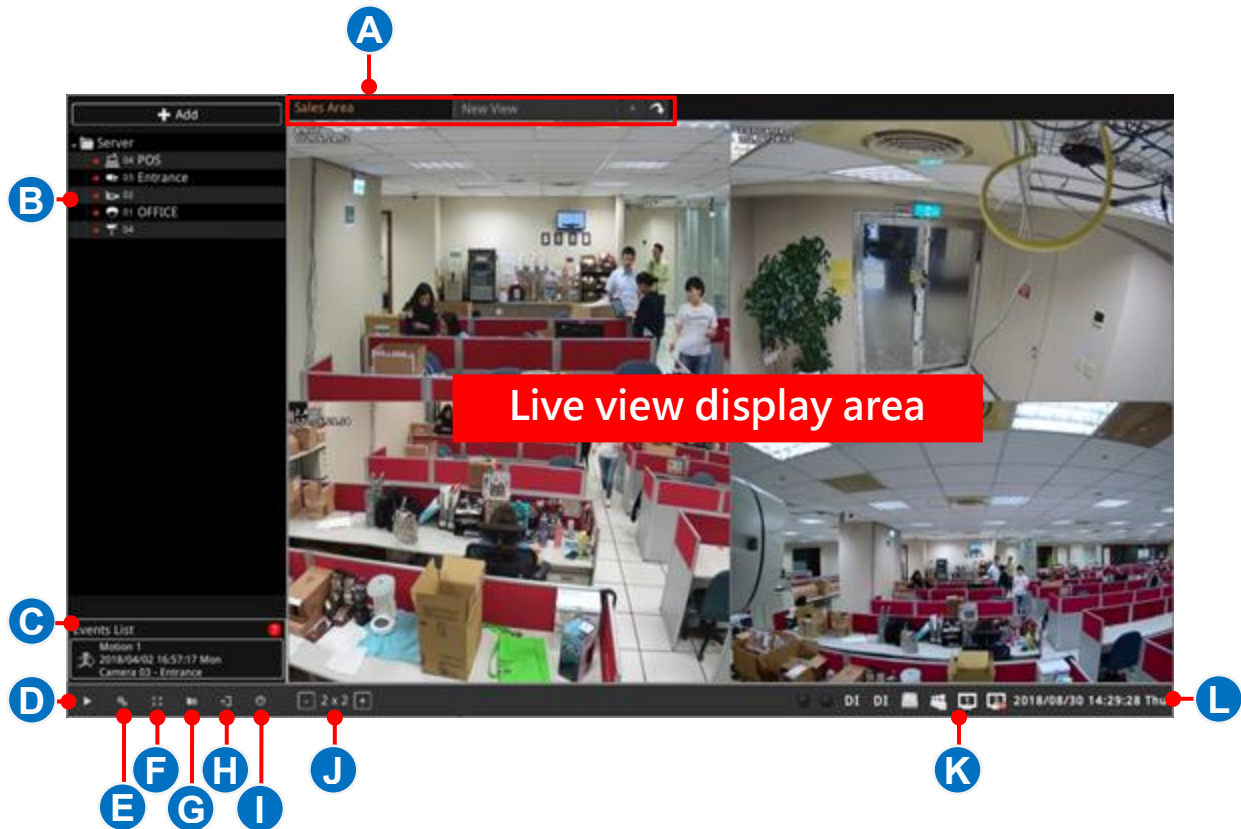
The NVR interface allows users to manage devices and add them into groups or folders, which can be used to classify the device types or any other purpose applicable to the users. The grouping folder can be found on the left side panel of the user interface.




The top most folder, called **Server**, is the default group and cannot be deleted or modified. A maximum of 10 groups can be created. After creating a group, click the right-mouse button to rename or delete the group folder. Devices can be dragged from one group to another.

Live Page Overview

After logging in, you will enter **Live** screen. **Live** screen is the interface where you see the live views from your cameras. It is where most of the security professionals access the surveillance system.



	Description
A	Layout Page Tab: Click a page tab to access a customized view. Double-click on the tab to rename the page tab.
B	Device List: Lists all the connected devices and their recording status.
C	Event List: Displays alerts of detected motion, recording and connection status. This part is important for users monitoring the sites.
D	Mode Switch: You may switch to the Playback or Live page by clicking the Play icon  . The Playback page is only accessible from Live page.
E	System Setup: Click to access the settings page.
F	Full Screen: Click to view the Live page in full screen. To exit full screen mode, double-click the mouse anywhere on the screen.

HUBBLE series System Administrator's Manual

G	Screenshot: Click to capture the snapshot of the current Live view screen and save it on a USB disk.
H	Logout: Click to logout.
I	Power: Click to turn off the power.
J	Layout Grid: Select the preferred view layout grid.
K	System Status: Displays the following system status from left to right – Digital Output (D), Digital Input (DI), total free hard disk space, user account, WAN connection status, LAN connection status, current system time.

Customize Live Screen Layout

You may customize the layout style and channel position. Your arrangement of **Live** screen layout will be the default view after any local user logs in to the NVR.

For first time use, the Live View display area is empty. Click “+” to add a **Layout** page tab.

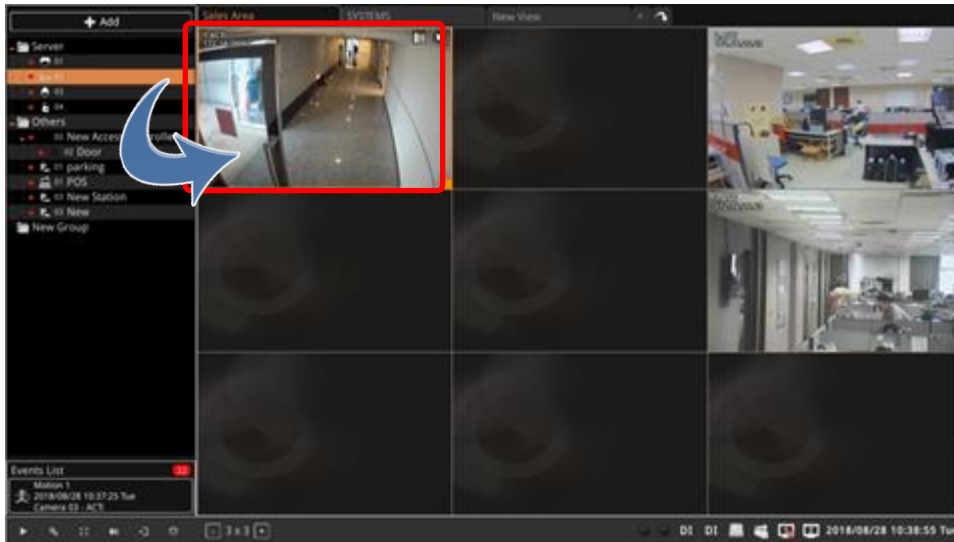


Note that **Live** screen and **Playback** screen share the same layout.

Double-click on the page tab to rename the page.

Change Channel Position

You may place any channel in your desired window, and NVR will remember this arrangement until you change it.



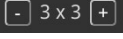
Click a device to highlight it. An orange highlight means the device is selected. To deselect a device, click the highlighted item again.

Drag a device to any position on the Live View. You may also change the position of a device by dragging it to another position.

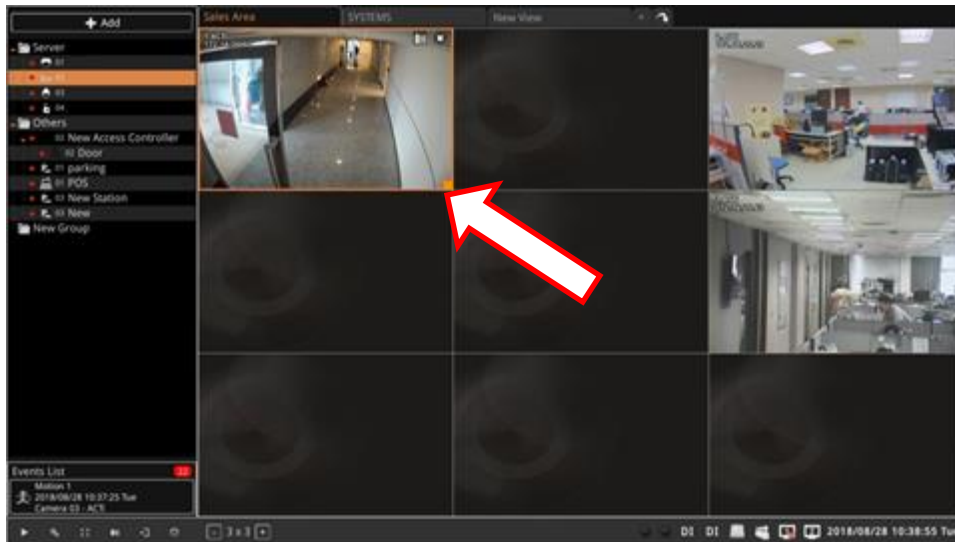
Take note that the number of video streams that you can drag to the layout to view depends on the bundled license included when you purchased the NVR. To purchase additional license, contact your sales agents.

Change Layout

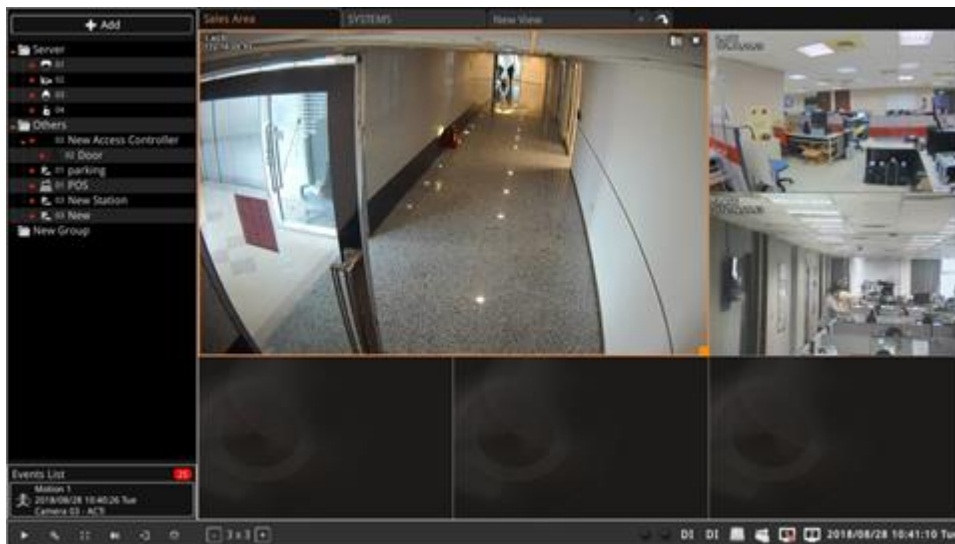
You can create different layout grid using the **Layout Page Tab**. Click a new page tab. You can double-click the page tab to rename it.


Click the **Layout Grid** buttons  to change the layout. A maximum of 6x6 grid can be the layout per page.


You can also drag a channel to occupy several grids for a bigger view.



After dragging the edge of the channel, the sample below now occupies a 2x2 space on the layout.



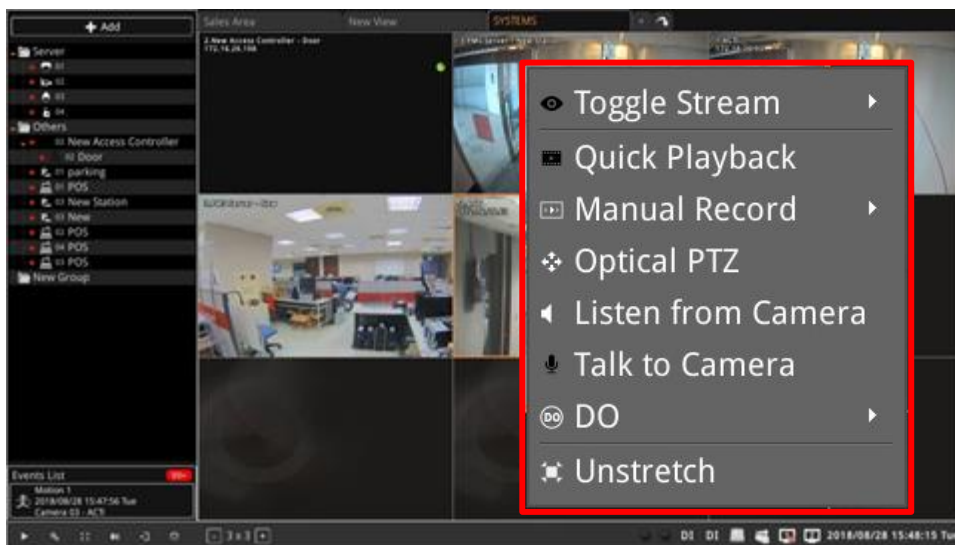
To capture a screenshot of a particular channel, click the snapshot  icon on the channel.

To view a channel in full screen, select the channel then click the full screen  icon.

Manage Device Live View

While viewing the device on the **Live View** screen, there are a number of functions that you can do with your device, such as take a snapshot, use digital the PTZ function, talk to the camera, etc.

On the **Live View** screen, mouse over and right-click on the channel to display the pop-up menu. The items on the pop-up menu vary depending on the device type and capability.



Menu Item	Description
Toggle Stream	Allows you to switch from one video stream to another. By default, the Default Live stream or stream 1 is displayed on the live view.
Quick Playback	Allows you to view the playback screen of the selected channel. See Quick Playback on page 25.
Manual Record	Allows you to turn manual record on or off.
Optical PTZ	Allows you to pan tilt or zoom the camera view through the NVR UI. This function is available only on select camera models. See Optical PTZ on page 26.
Listen from Camera	Allows you to hear the audio from an audio input source connected to the selected camera.
Talk to Camera	Allows you to talk to the person on the camera side.
DO	Allows you to manually trigger a digital output device.
Stretch / Unstretch	Select whether to stretch or not stretch the image as seen on the live view.

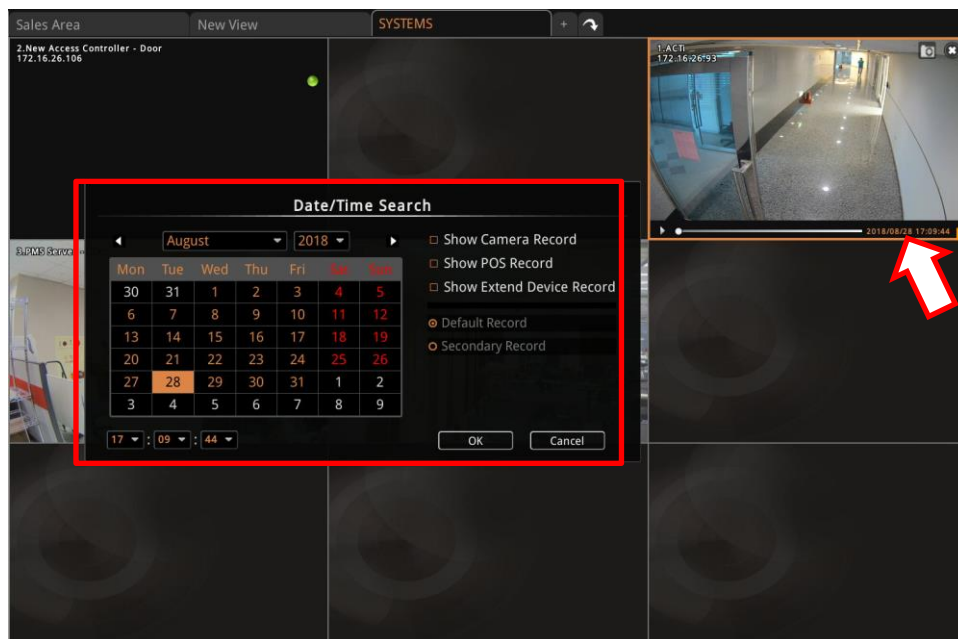
Quick Playback

Quick playback allows you to view the playback of a selected channel. By default, the playback timeline will be 10 minutes prior to the time you click on **Quick Playback**.



Click the play button to view the playback.

To change the time range of playback, click the date and time on the lower-right corner of the screen and set the date range.

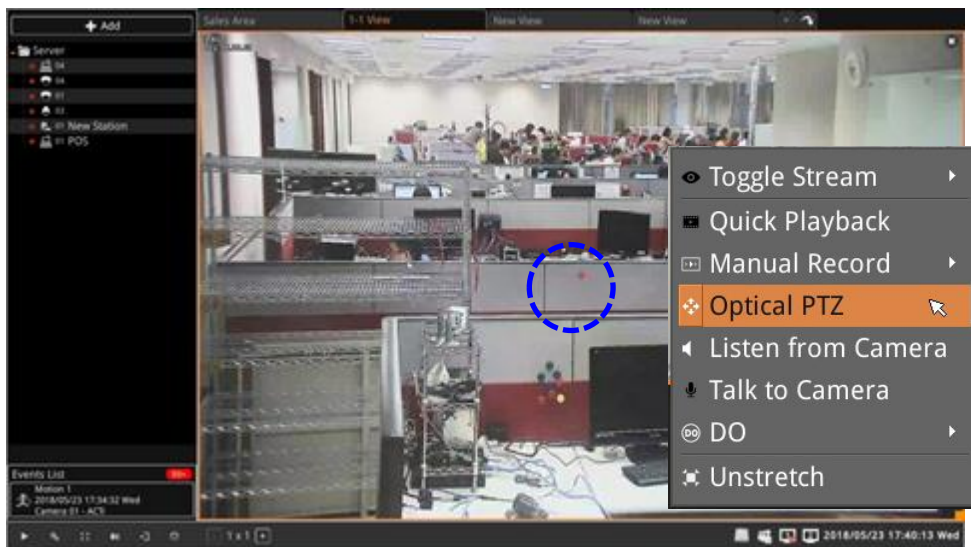


Set the date and time to search and check the other items you want to see on the playback, then click **OK**.

Optical PTZ

With PTZ cameras, you may define what area to see and how close to see the view through panning, tilting and zooming the camera lens. Specific areas with preferred pan, tilt, zoom settings can be defined and saved as present points. At the time of writing this documentation, preset points can be configured and saved thru the NVR remote client or the camera's web configurator. Once saved, the NVR can then be set to point to this view upon event triggering or user's command. Please note that, the PTZ-related settings you configure here will overwrite those on the camera's firmware.

Right-click on the channel to display the pop-up menu, then select **Optical PTZ**. A red cross-hair will appear on the live view screen to indicate it is on PTZ mode.



Click anywhere on the screen to pan the camera towards that direction.

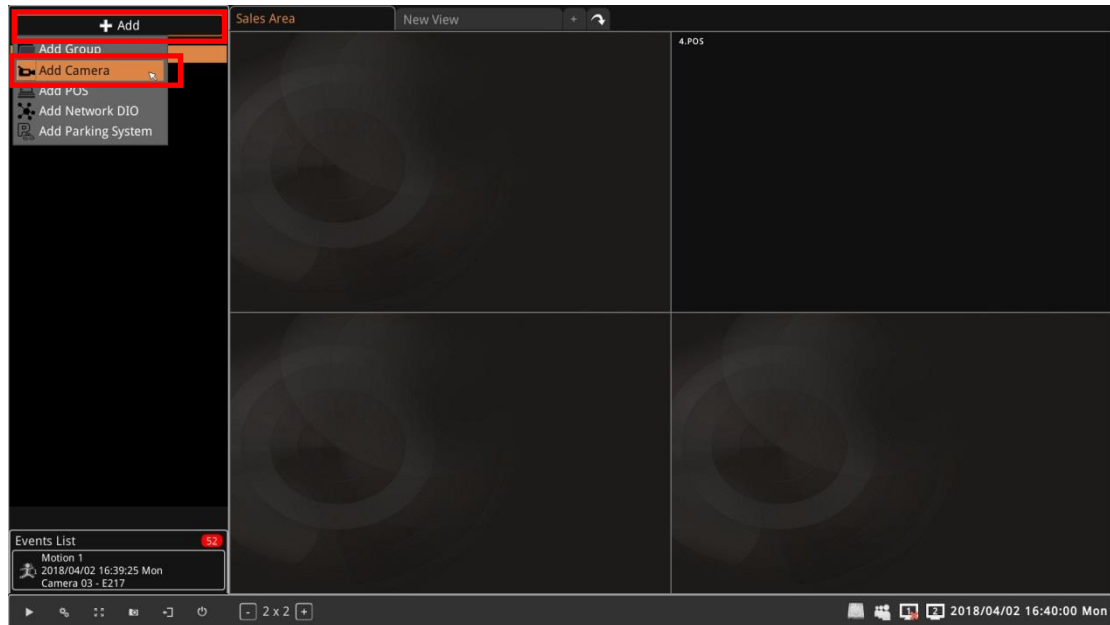
Use the mouse scroll wheel up and down to zoom in and zoom out on the image.

To close PTZ mode, right-click again on the channel to display the pop-up and click **Optical PTZ**.

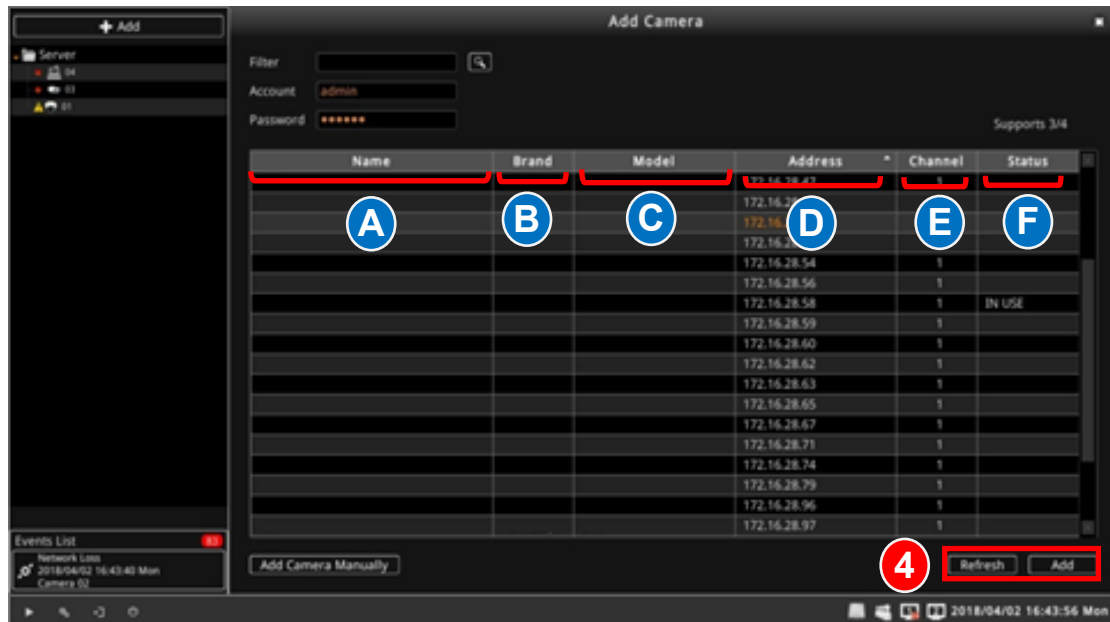
Manage Devices

Cameras

NVR user interface also allows you to easily configure, add or delete cameras without the use of another web browser. On **Live** page, click **Add > Add Camera**.



Available cameras on the network are displayed on the list.



No	Column	Description
A	Name	The camera models will be listed in alphabet order based on their model names.
B	Brand	Camera manufacturer

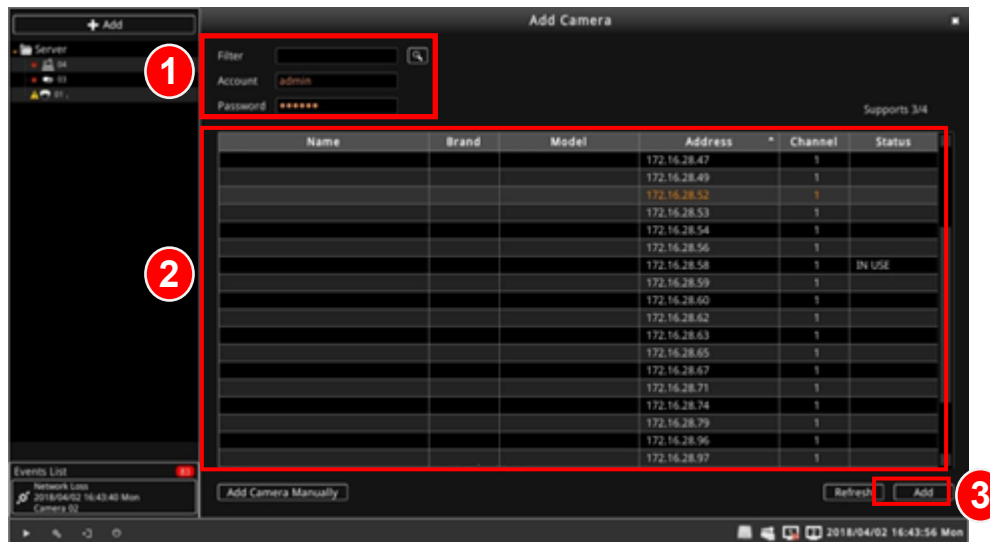
HUBBLE series System Administrator's Manual

No	Column	Description
C	Model	Camera model name
D	Address	Camera IP Address
E	Channel	Represents the video stream ID . For example, if a camera is in 4VGA mode, all four streams will be recognized as from four different devices, and so forth to a multi-channel video encoder.
F	Status	<u>Blank</u> : this camera is accessible and not added yet. <u>In Use</u> : this camera/stream has been added to the system. <u>Inaccessible</u> : this camera is inaccessible. You will have to try accessing it using another Username or Password , (make sure this account is that camera's root account), and click Search .

Add Cameras

Click on the camera model you wish to add; selected cameras will turn orange. Then, click **Add** to add the cameras. Added cameras will be displayed on the left.

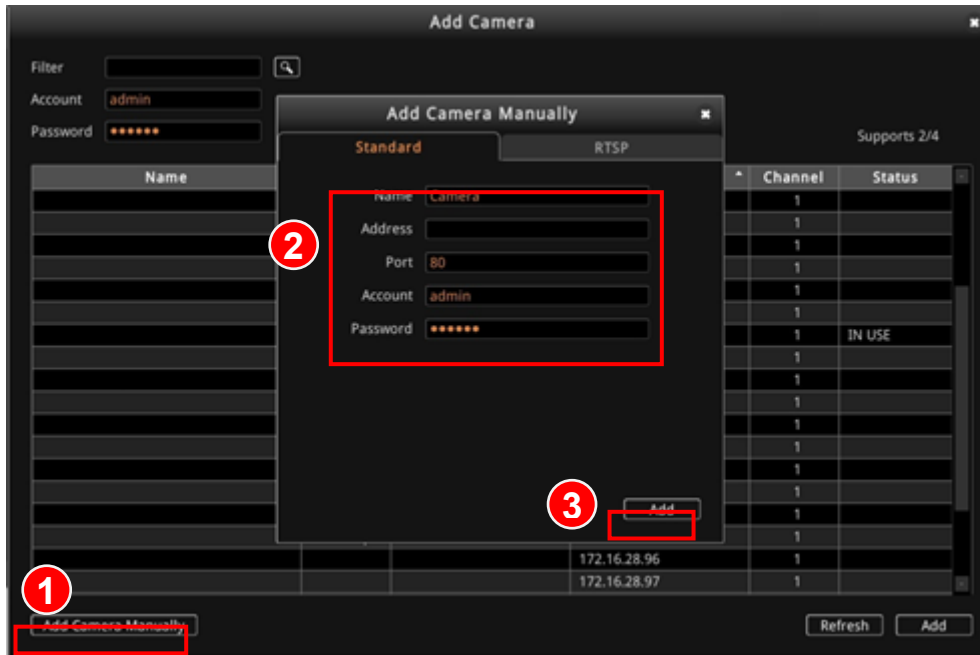
1. Input the **Account** and **Password** to access the cameras (this user account must be the camera's root account). Type a model name or part of a name to filter the search, as needed. Then, click the search icon.
2. Select the desired cameras. Please note that the clicking order will decide **Live View** channels arrangement. For example, you select cameras on the search list in this order: B45 → I51 → I98 → E78, which will exactly become the channel order: **01 Camera → 02 Camera → 03 Camera → 04 Camera**.
3. Click "**Add**".



Add Cameras Manually

You can add a camera by manually filling the connections properties. For cameras which are not located within the same network segment with the NVR server or to connect the camera through RTSP protocol, you may add it manually.

1. Click “**Add Camera Manually**”.
2. Fill in the connection properties such as properties **Name** (name to identify the camera), **IP Address**, **Port**, **Account** username and **Password**.

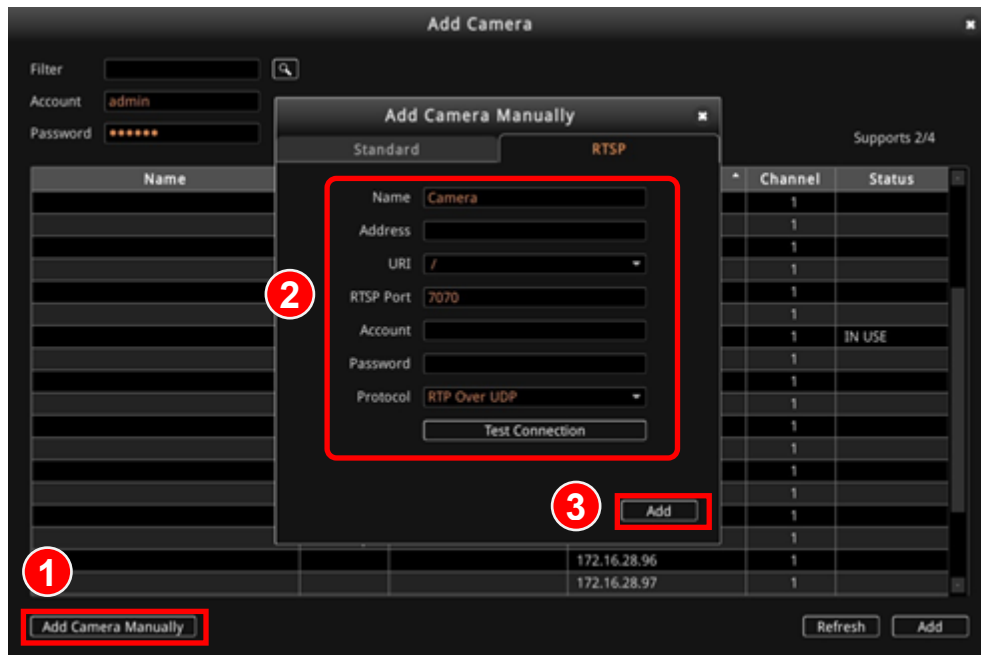


3. Click “**Add**”. The camera will appear on the list.

Add Cameras by RTSP

You can manually add a camera through RTSP protocol.

1. Click “Add Camera Manually”, then click the **RTSP** page tab.



2. Fill in the properties, make sure you select the correct **URI** type and **Protocol** type.
3. Click “Add” to complete.

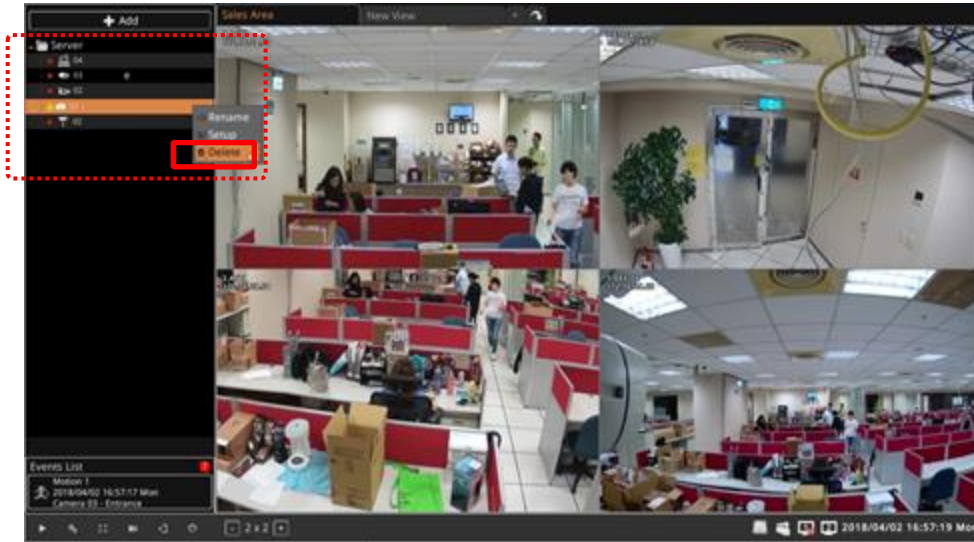
Delete Cameras

Cameras can be deleted one channel at a time.

1. From the camera list on the **Live** page, click to select the camera you want to delete.
The selected camera is highlighted.

NOTE: To deselect a camera, click the channel again.

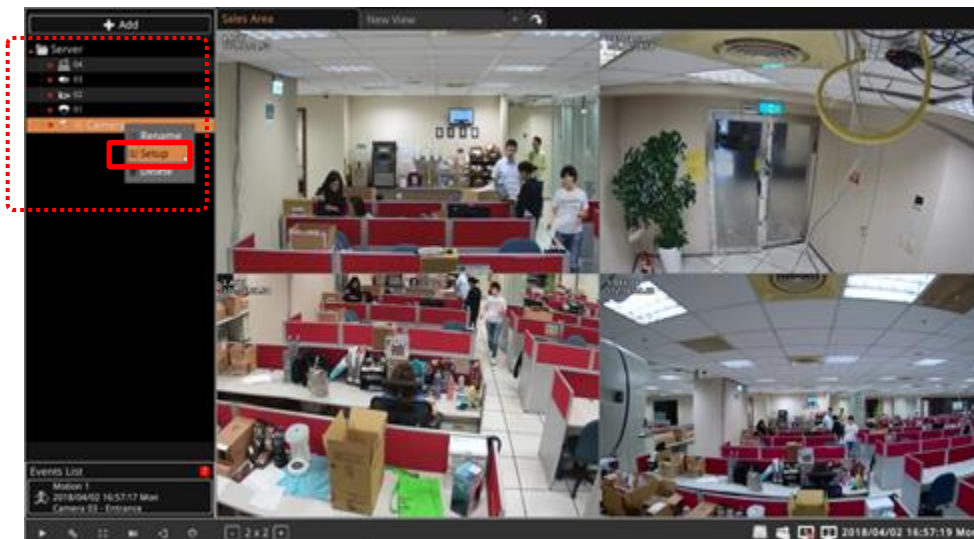
2. Right-click on the mouse button, and click "**Delete**".



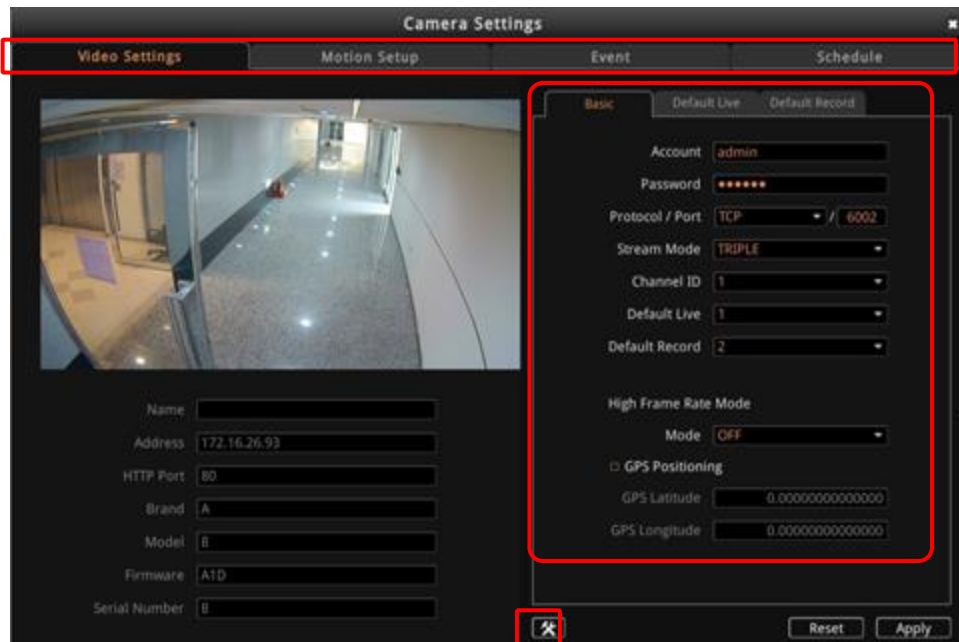
Change Camera Settings

After the cameras are added, you may change their properties on the **Device Settings** page.

To access the **Device Settings** page, right-click on the channel and click **Setup**.




HUBBLE series System Administrator's Manual



Click the page tab to access the corresponding functions like **Video Settings**, **Motion Setup**, **Event**, and **Schedule** setup.

Video Settings

Click the **Get Settings**  icon to modify the video format and transmission properties including **Account**, **Password**, **Protocol**, **Stream Mode**, **Channel ID**, **High Frame Rate Mode**, and **GPS Positioning**.

Default Live is defined as the live stream you see on the Live View. Select the video stream to set as the **Default Live**.

Default Record is the stream used to record the video. This stream can be set as the best quality video. Select the video stream to set as the **Default Record**.

After selecting the **Default Live** and **Default Record** streams, select its corresponding page tabs to configure the **Resolution**, **Frame Rate** and **Bitrate**.

After configuration, click "**Apply**" to save this setting to camera.

Motion Setup

On the **Live** screen, right-click on the camera and click "**Setup**". Then click the "**Motion Setup**" tab. If this camera is in dual stream mode, only **Channel ID 1** (Stream 1) supports motion detection feature. On the **Motion Setup** window, click "**Setup**".

1. To enable one motion region, check "**Enable**" to enable it.
2. A color frame will appear in the view. You may start setting the detection area by adjusting the yellow frame on the view. Use the mouse to move and resize the frame.
3. Configure the sensitivity, interval and threshold.
4. Click "**Apply**" to save the settings.

To move the entire frame
Place the mouse cursor over the **title bar**, and drag to move.

To adjust the region dimension
Place the mouse cursor over the **bottom right corner**, and drag to resize.

To disable this detection region
Place the mouse cursor over the **upper right corner**, and click the "**x**" to close this

The screenshot shows the Motion Setup window. On the left is a live camera feed of a room with a yellow rectangular detection frame. Callout 2 points to the title bar of the frame, and callout 3 points to the bottom right corner of the frame. On the right is the settings panel. Callout 1 points to the 'Motion 1' enable checkbox, which is checked. Callout 3 points to the Sensitivity, Trigger Interval, and Trigger Threshold settings for Motion 1. Callout 4 points to the 'Apply' button at the bottom right of the settings panel. Below the camera feed, camera details are listed: Brand: ACTI, Model: A92, Firmware: A1D-900-A2.03.01-AC, and Serial Number: A92-00AXXX-17I-0050.

Field Name	Description
Sensitivity (0-100%)	Determines how sensitive the camera reacts to the movement. The higher the sensitivity level is, the smaller motion will trigger the alarm, but may give false alarms. Default is 70%.
Trigger Interval (0-300 secs)	The interval before the next motion detection can be triggered again. Default is 1 second.
Trigger Threshold (0-100%)	The threshold level of this motion detection region. The lower threshold level is, smaller portion of the region would be considered as motions, which is more easily to be triggered, but may give more false alarms. Default is 10%.

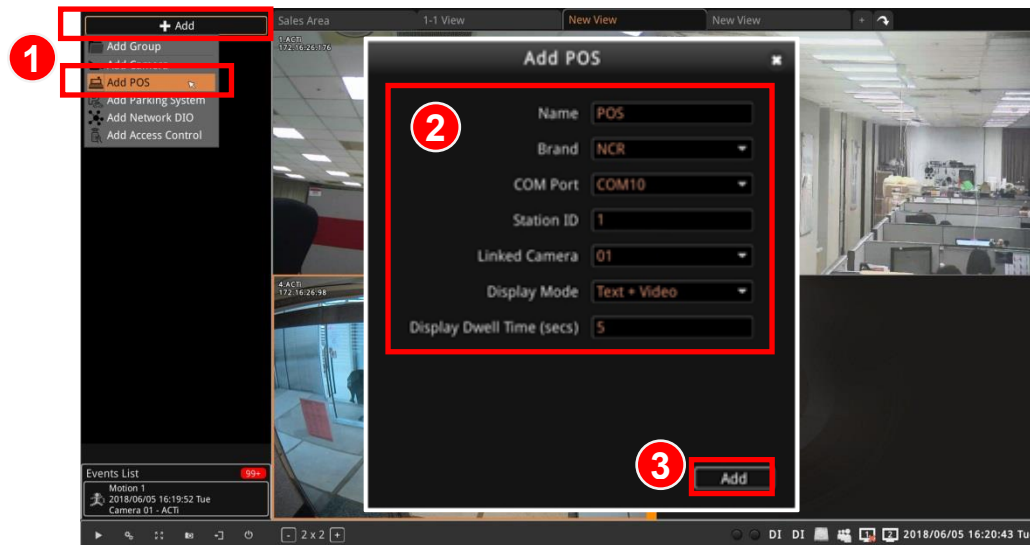
NOTE: For cameras that support video motion detection with 10 regions, motion detection can region can only be set through the remote client.

Point-of-Sales (POS) System

The NVR user interface also allows you to add point-of-sales (POS) systems and associate a camera view to items purchased.

Add POS

1. On the **Live** page, click **Add > Add POS**. The **Add POS** pop-up appears.



2. Input the necessary fields as below:
 - a. **Name:** Type the desired POS name to identify this device.
 - b. **Brand:** Select the supported POS brands from the list.
 - c. Select the **COM Port** to which the POS is connected.
 - d. **Station ID:** Type a numeric ID to assign to the POS system.
 - e. **Linked Camera:** Select the camera to associate with the POS system.
 - f. **Display Mode:** Select **Text Only** to show the POS transaction as text entries or **Text + Video** to display the linked camera view with the transaction entries and see the actual transaction scenario.
 - g. **Display Dwell Time:** The amount of time to display the transaction entries on the camera view.
3. Click **Add** to save the settings.

Change POS Settings

After the devices are added, you may change their properties on the **Device Settings** page.

To access the **Device Settings** page, right-click on the channel and click **Setup**.



Click the page tab to access the corresponding functions like **POS**, **Event**, and **Schedule** setup.

On the **POS** page, you can modify the configurations previously set when adding a POS system. The GPS Position can also be enabled and configure here. After modifying any settings, click “**Apply**” to save.

Configure POS Event and Schedule

Event rules become active or inactive based upon a weekly or specific schedule. By default, the POS system is enabled to record full time with event handling. The event-handling schedule of each POS system is enabled for 24 hours once it is added to the NVR system.


To configure the **Event Handling Schedule**, on the **Live** screen, right-click on the POS device to display the pop-up menu, then click **Setup**. Select the “**Schedule**” tab. Select Drag on the 24-hour time table.

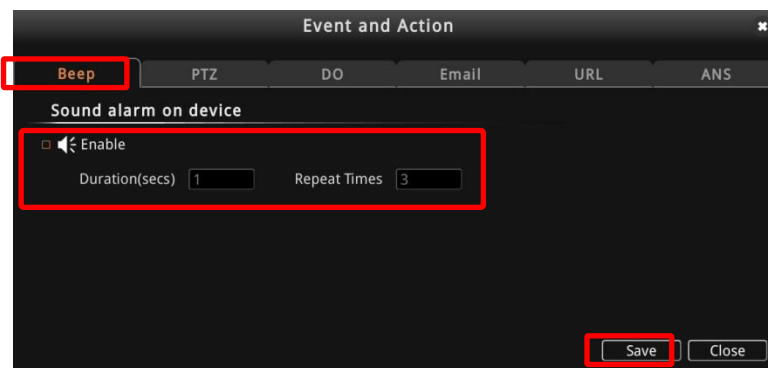


Set Event Rules

On the **Live** screen, right-click on the camera to display the pop-up menu, then click **Setup** → **Event**.

Once a device is added to the NVR server, the server would provide empty rules with compatible trigger types for you to configure. Available POS triggers are the following: **VoidItem**, **DrawerOpenWithoutPayment**, **DiscountAndComps**, **TaxExempt**, **DeleteEvent**, **ReopenCheck**, **Refund**, **CashInOut**.

To configure the event response, double-click on the corresponding  **Edit** icon. The **Event and Action** window appears. Click on the corresponding page tab to configure the event response.



For more details about setting event rules, see [Set Event Rules](#) on page 58.

Delete POS

POS can be deleted one channel at a time.

1. From the device list on the **Live** page, click to select the device you want to delete.
The selected POS is highlighted.

NOTE: To deselect a device, click the channel again.

Right-click on the mouse button, and click "**Delete**".

Parking System

The NVR user interface also allows you to add parking management systems.

Add Parking System

1. On the **Live** page, click **Add > Add Parking System**. The **Add Parking System** pop-up appears.



2. Input the necessary information:
 - Name:** Type the desired parking system name to identify this device.
 - Brand:** Select the parking system brand from the list.
 - Model:** Select the model name of the device from the list.
 - Protocol Mode:** Select the protocol used by the parking system
 - Port:** Select the port to which the device is connected.
3. Click “+” to add a station.
4. Type the **Name** of the station, select a **Station ID**, and select a camera to link it to the station.
5. Click **Add** to save the settings.

Change Parking System Settings

After a device is added, you may change its properties on the **Device Settings** page. To access the **Device Settings** page, right-click on the channel and click **Setup**. Click the page tab to access the corresponding functions like **PMS**, **Event**, and **Schedule** setup.

The screenshot displays the PMS (Parking Management System) configuration interface. It is divided into three main sections: **Basic Configs**, **Text Style**, and **Device Items**.

Basic Configs (under the 'Basic' tab) includes the following settings:

- Name: PMS Server
- Brand: SunPark
- Model: SunPark
- Protocol Mode: Mode1
- Display Mode: Text Only

Text Style includes the following settings:

- Display Dwell Time (secs): 5
- Font: Arial
- Font Size: 10
- Font Color: ORANGE
- Text Alignment: Left

Device Items is a table with the following columns: Edit, Name, Station ID, Linked Camera ID, Enable GPS, GPS Latitude, and GPS Longitude. The first row shows a 'New Station' with Station ID '1', Linked Camera ID 'None', Enable GPS 'Disable', GPS Latitude '0.0000000000000000', and GPS Longitude '0.0000000000000000'. A red box highlights the Edit icon in the first row of the Device Items table.


At the bottom right, there are 'Reset' and 'Apply' buttons.

Modify the configurations on the **PMS** (Parking Management System) page.

Under **Basic Configs**, you can select the **Protocol Mode** and **Display Mode**. **Protocol Mode** depends on the protocol used by the parking system. **Display Mode** allows you to select:

- **Text Only** which shows only the text notifications on the screen
- **Text + Video** which displays the associated camera with the Parking System notifications.

Under **Text Style**, you can also define how the notifications appear on the NVR. Text styles like font, font size, font color, and text alignment can be configured on this page.

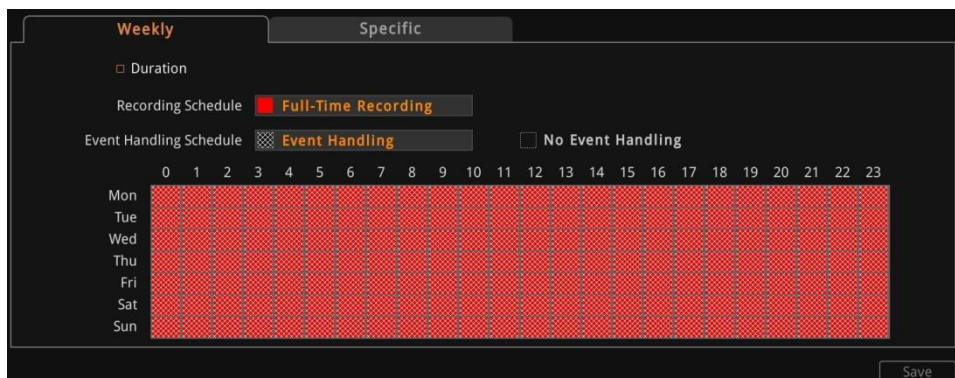
On the **Device Items**, double-click the Edit  icon to modify the **Name** and **Station ID**, assign a camera to link to the parking system and enable **GPS**. When GPS is enabled, then define the **Latitude** and **Longitude**.

After modifying any settings, click "**Apply**" to save.

Configure Parking System Event and Schedule

Event rules become active or inactive based upon a weekly or specific schedule. By default, the parking system is enabled to record full time with event handling. The event-handling schedule of each network IO is enabled for 24 hours once it is added to the NVR system. To configure the **Event Handling Schedule**, on the **Live** screen, right-click on the device to display the pop-up menu, then click **Setup**. Select the **"Schedule"** tab.

Select recording with or without event handling then drag on the 24-hour time table. You can also check **Duration** to set a range of dates for recording.




Set Event Rules

On the **Live** screen, right-click on the device to display the pop-up menu, then click **Setup** → **Event**.

Once a device is added to the NVR server, the server would provide empty rules with compatible trigger types for you to configure. Available network IO triggers are the following: **IU Detected, Fire Engine, Intercom, Open Manually, Open Remotely, Tailgate, Stop, Connection Loss and Connection Recovery**.



To configure the event response, double-click on the corresponding  **Edit** icon. The **Event and Action** window appears. Click on the corresponding page tab to configure the event response. For more details about setting event rules, see [Set Event Rules](#) on page 58.

Delete Parking System

Parking systems can be deleted one channel at a time.

1. From the device list on the **Live** page, click to select the device you want to delete.

The selected device is highlighted.

NOTE: To deselect a device, click the channel again.

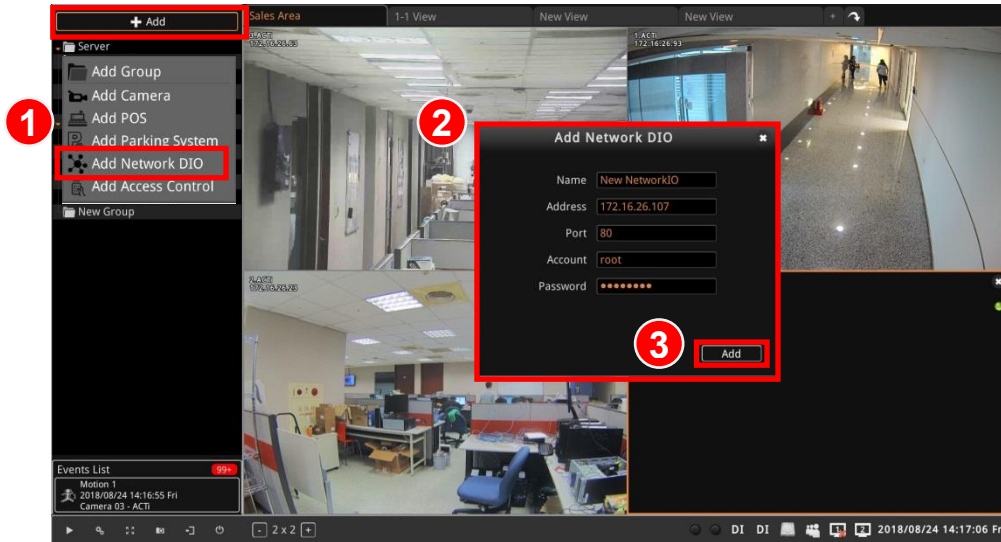
2. Right-click on the mouse button, and click "**Delete**".

Network Input Output Module

The NVR user interface also allows you to add Network Digital Input-Output (DIO) module.

Add Network DIO

1. On the **Live** page, click **Add > Add Network DIO**. The **Add Network DIO** pop-up appears.



2. Input the necessary fields as below:
 - a. **Name:** Type the desired network DIO module name to identify this device.
 - b. **IP Address:** Type the IP address of the device.
 - c. **Port:** Type the COM Port to which the device is connected.
 - d. **Account:** This is the user account to use to login to the device.
 - e. **Password:** Type the password to access the device.
3. Click **Add** to save the settings.

Change Network DIO Settings

After a device is added, you may change its properties on the **Device Settings** page. To access the **Device Settings** page, right-click on the device from the left panel and click **Setup**.

Click the page tab to access the corresponding functions like **Network IO**, **Event**, and **Schedule** setup.

Modify the configurations on the **Network IO** page. The parameters may vary depending on the input/output specifications of the network DIO module.

The screenshot shows the 'Network IO' configuration page. It has three tabs: 'Network IO', 'Event', and 'Schedule'. The 'Network IO' tab is selected and contains the following sections:

- Basic Configs:** Fields for Name (New NetworkIO), Model (AD), Address (172.16.26.121), Port (80), Account (root), Password (masked), Connection Timeout(sec) (10), and Polling Period(sec) (1).
- GPS Positioning:** An 'Enable' checkbox and fields for GPS Latitude (0.0000000000000000) and GPS Longitude (0.0000000000000000).
- Network Items:** A table with two columns: Port and Name. It lists ports from DI 0 to DI 11, DO 0 to DO 1, and CNT 0 to CNT 1 with their corresponding names.
- Text Style:** Fields for Font (Arial), Font Size (10), Font Color (ORANGE), and Text Alignment (Left).

At the bottom right, there are 'Reset' and 'Apply' buttons.

Under **Basic Configs**, you can modify the **Port**, **Account**, and **Password**, and set the **Connection Timeout (sec)** and **Polling Period**.

Set **Connection Timeout (sec)**, this is the time that NVR will wait for the network IO device for a response. **Polling Period (sec)** is the time period when NVR will fetch data from the network IO device.

Under **Text Style**, you can define how the notifications appear on the NVR. Text styles like font, font size, font color, and text alignment can be configured here.

Under **GPS Positioning**, check the “**Enable**” box to enable GPS positioning of the device, then define the **Latitude** and **Longitude**.

Network Items displays the available ports on the network IO device. You can modify the name of each port as well.

After modifying any settings, click “**Apply**” to save.

Configure Network IO Event and Schedule

Event rules become active or inactive based upon a weekly or specific schedule. By default, the network IO is enabled to record full time with event handling. The event-handling schedule of each network IO is enabled for 24 hours once it is added to the NVR system. To configure the **Event Handling Schedule**, on the **Live** screen, right-click on the device to display the pop-up menu, then click **Setup**. Select the “**Schedule**” tab.

Select recording with or without event handling then drag on the 24-hour time table. You can also check **Duration** to set a range of dates for recording.




Set Event Rules

On the **Live** screen, right-click on the device to display the pop-up menu, then click **Setup** → **Event**.

Once a device is added to the NVR server, the server would provide empty rules with compatible trigger types for you to configure. Available network IO triggers are the following:
DI (port number) ON, DI (port number) OFF, etc.

Network IO			Event	Schedule
Configuration Event and Action				
Event		Response	Edit	
<input type="checkbox"/> DI 0 ON	⊕		✎	
<input type="checkbox"/> DI 1 ON	⊕		✎	
<input type="checkbox"/> DI 2 ON			✎	
<input type="checkbox"/> DI 3 ON			✎	
<input type="checkbox"/> DI 4 ON			✎	
<input type="checkbox"/> DI 5 ON			✎	
<input type="checkbox"/> DI 6 ON			✎	
<input type="checkbox"/> DI 7 ON			✎	
<input type="checkbox"/> DI 8 ON			✎	
<input type="checkbox"/> DI 9 ON			✎	
<input type="checkbox"/> DI 10 ON			✎	
<input type="checkbox"/> DI 11 ON			✎	
<input type="checkbox"/> DI 0 OFF			✎	
<input type="checkbox"/> DI 1 OFF			✎	
<input type="checkbox"/> DI 2 OFF			✎	
<input type="checkbox"/> DI 3 OFF			✎	

To configure the event response, double-click on the corresponding  **Edit** icon. The **Event and Action** window appears. Click on the corresponding page tab to configure the event response. For more details about setting event rules, see [Set Event Rules](#) on page 58.

Delete Network DIO

Network DIO devices can be deleted one channel at a time.

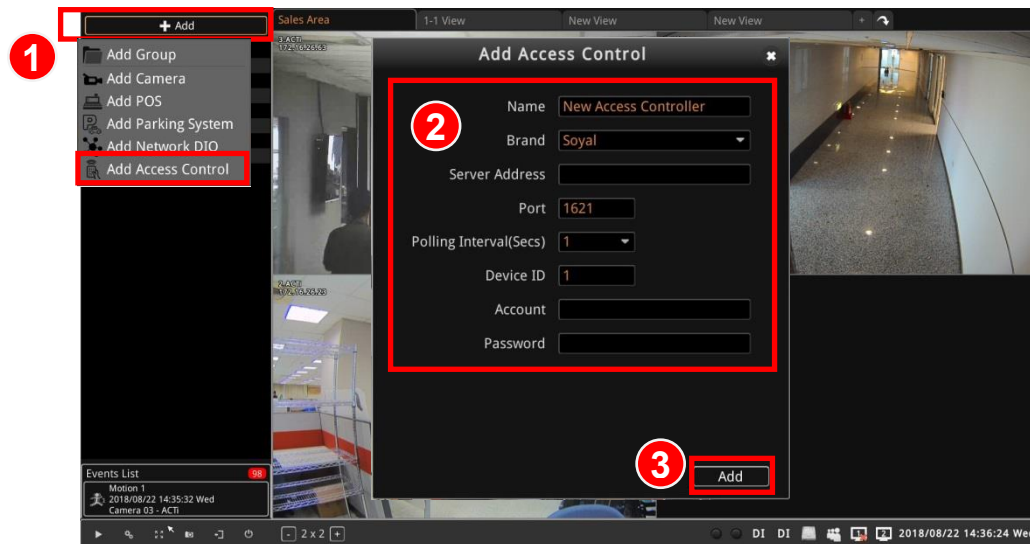
1. From the device list on the **Live** page, click to select the device you want to delete.
The selected device is highlighted.
NOTE: To deselect a device, click the channel again.
2. Right-click on the mouse button, and click "**Delete**".

Access Control

The NVR user interface also allows you to add access control devices.

Add Access Control Device

1. On the **Live** page, click **Add > Add Access Control**. The **Access Control** pop-up appears.



2. Input the necessary fields as below:
 - a. **Name:** Type the desired POS name to identify this device.
 - b. **Brand:** Select the access control device brand name. Depending on the device brand, the succeeding fields may vary.
 - c. **Server Address:** Type the IP address of the access control device.
 - d. **Port:** Type the COM Port to which the device is connected.
 - e. **Polling Interval (Secs):** The amount of time to display the transaction entries on the camera view.
 - f. **Device ID:** Type the ID to assign to the device.
 - g. **Account and Password:** If required by the device, type the Account or User Name and Password to access the access control device.
3. Click **Add** to save the settings.

Change Access Control Settings

After an access control device is added, you may change its properties on the **Device Settings** page. To access the **Device Settings** page, right-click on the channel and click **Setup**.



Click the page tab to access the corresponding functions like **Access Control**, **Event**, and **Schedule**, and **Door User** setup. Available functions vary depending on the device model.

The **Access Control** page is further divided into subpages like: **Basic Configs**, **Devices**, **Management**, **User** and **Time Period**. Available functions vary depending on the device model.

Basic

On the **Basic Configs** page, you can find the pertinent information of the device such as model, firmware version, etc.. Modifying any of the settings after adding the device can be done on this page. Settings include: server **Address**, **Port**, **Account**, **Password** and **Display Mode**: **Text only** or **Text + Video**. When **Text + Video** is selected on **Display Mode**, a separate camera must be defined or linked to the access control device. See [Devices](#) on page 47 for information.

You can also define how the notifications appear on the NVR. Text styles like font, font size, font color, and text alignment can be configured on this page. Set **Dwell Time** to define how long the text should appear on the live view.

After modifying any settings, click "**Apply**" to save.

Devices

Under **Devices**, you can define the door and link the camera to the access control device. Select the door from the left panel to show its current settings on the right.

The screenshot shows the 'Device Settings' window with the 'Access Control' tab selected. Under the 'Devices' sub-tab, the 'Device Items' list on the left has 'Door' selected. The right panel displays the configuration for this door: 'Door Number' is 1, 'Name' is FRONTDOOR, and 'Linked Camera' is 01. ACTI. Below these are the 'Common Settings' for the 'Facial Recognition Set', including 'Operating Mode', 'I/O Control Set', 'Wiegand Set', and 'Recognition Threshold'. A 'Modify' button is at the bottom right.

To modify any setting, click **Modify**.

Door Number: Type a 3-character door number to identify where the access control device is.

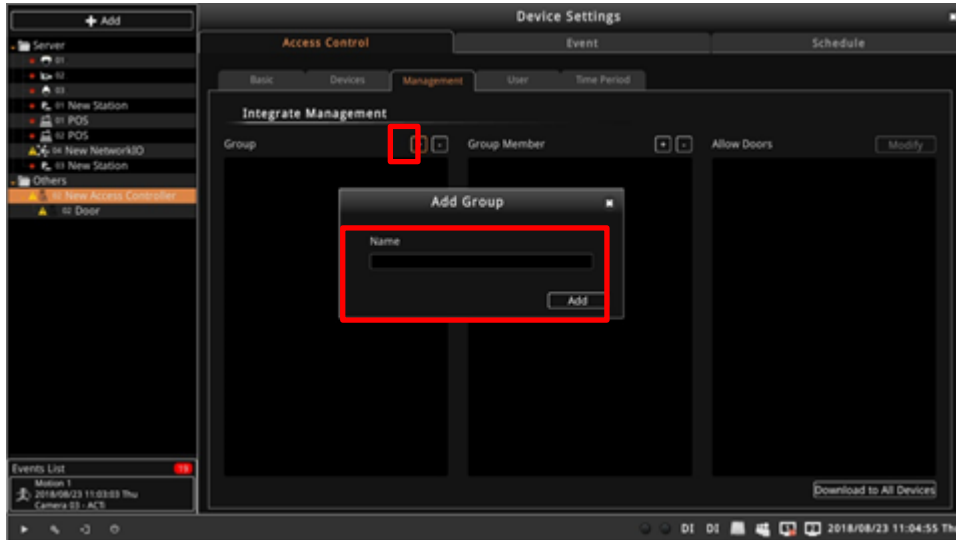
Name: Type the name of the door to identify it.

Linked Camera: Select the camera to link to the access control device. This camera must be added to the NVR first to appear on the list.

The **Common Settings** parameters may vary depending on device model. **I/O Control Set** defines the type of identification mode which will be used by the device. If the device supports **Wiegand**, select the **Recognition Threshold** from the list. See the device documentation for more information on these functions.

Management

Manage users and group access on the **Management** page. To access the page, right-click on the access control device to display the pop-up menu, click **Setup > Access Control > Management**.



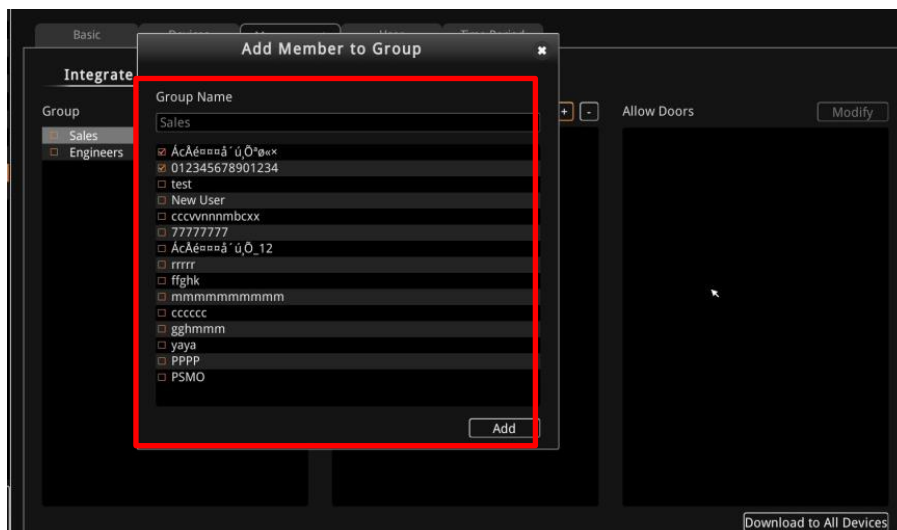
Add Groups

Click the **Group +** button to display the pop-up. Type the name of the group and click **Add**. The new group will be listed on the page. Click the group name to select it.

Add Group Member

Once a group is created, users or members can be grouped together to define the access rights. First, add users to the access control device. A user can either be added directly from the access control device interface (see access control device documentation for details) or thru the NVR, see [User](#) on page 50 for details.

After adding groups and users, click a group name then click the **Group Member +** button to start adding users to that group. Check the users you wish to add to the group, then click **Add** when done.

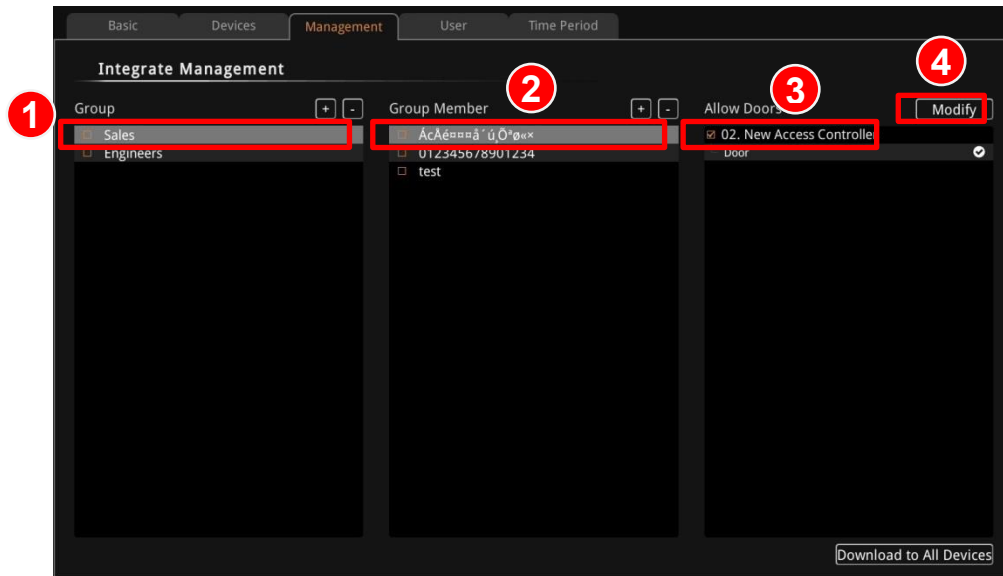


HUBBLE series System Administrator's Manual

Allow Door Access to Users

You can assign or limit door access to the particular users. Select the user from the **Group Member** panel, the associated door (configured in [Devices](#) on page 47), will be displayed under the **Allow Doors** panel.

Check the box to allow the user to access or uncheck the box to bar the user from this door, then click the **Modify** button to save the changes.



Click the **Download to All Devices** button to sync the groups, users and door access information to the access control device.

User

From the **User** page, you can fetch data from the access control device to sync with NVR or add the required information to add a new user. The required fields on this page may vary depending on the functions and capabilities of the access control device. Below is a reference.

The following parameters are related to other pages under the device settings:

- **Time Period:** You can select the time period wherein the user is granted door access. See [Time Period](#) on page 51. This feature may appear on the NVR however, the availability of this function depends on the access control device capability to support this feature.
- **Group:** Set this to assign the user to a particular group. See [Management](#) on page 48.

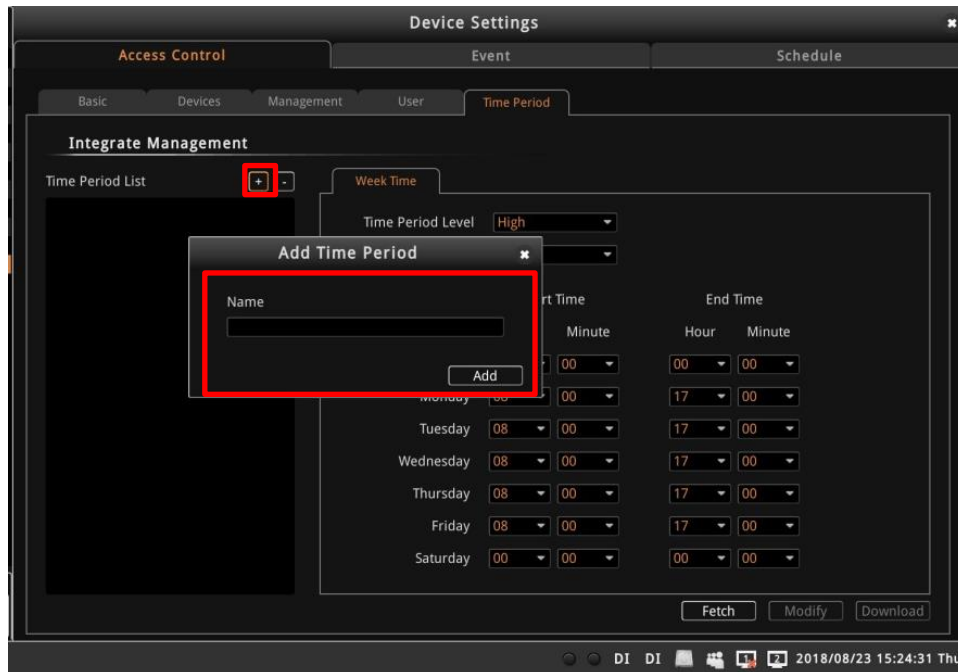
You can perform the following actions on this page:

- Use the **Date Limit** option to grant temporary access to guests. When enabled, you can select the start and end date access.
- To get the user data from the access control device to NVR, click the **Fetch** button.
- To add new users, click the **Add** button, then fill up the required fields.
- To modify a user information, select the user from the left panel, modify the information then click the **Modify** button to save changes.
- To delete a user, select the user from the left panel then click the **Delete** button.

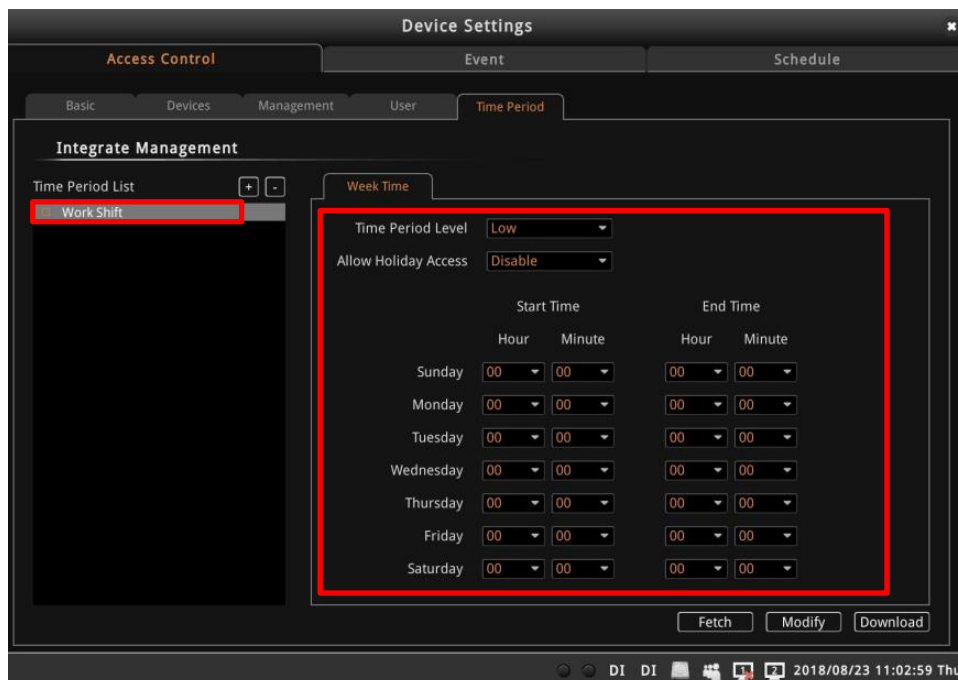
After adding new user or modifying any information, click the **Download** button to sync the data to the access control device.

Time Period

This page allows you to set the scope of time to grant access. This feature is useful if there are different working shifts and access to particular areas are limited to a certain time only. Use the **+** button on the left panel to add a new Time Period. Or, click the **Fetch** button to get the time period already configured on the access control device.



To configure a time period, select the time period from the left panel, set the days and time of access. When done, click the **Modify** button to save the changes.



NOTE: Although **Time Period** may appear on the NVR interface, the availability of this function depends on the capability of the access control device.

Configure Access Control Event and Schedule

Event rules become active or inactive based upon a weekly or specific schedule. By default, the access control is enabled to record full time with event handling. The event-handling schedule of each access control system is enabled for 24 hours once it is added to the NVR system. To configure the **Event Handling Schedule**, on the **Live** screen, right-click on the device to display the pop-up menu, then click **Setup**. Select the “**Schedule**” tab.

Select recording with or without event handling then drag on the 24-hour time table.




Set Event Rules

On the **Live** screen, right-click on the device to display the pop-up menu, then click **Setup** → **Event**.

Once a device is added to the NVR server, the server would provide empty rules with compatible trigger types for you to configure. Available access control triggers are the following: **Access Allow**, **Access Deny**, **Force Open**, **Connection Loss**, **Connection Recovery**.



To configure the event response, double-click on the corresponding  **Edit** icon. The **Event and Action** window appears. Click on the corresponding page tab to configure the event response. For more details about setting event rules, see [Set Event Rules](#) on page 58.

Delete Access Control Device

Access Control devices can be deleted one channel at a time.

1. From the device list on the **Live** page, click to select the device you want to delete.
The selected device is highlighted.
NOTE: To deselect a device, click the channel again.
2. Right-click on the mouse button, and click "**Delete**".

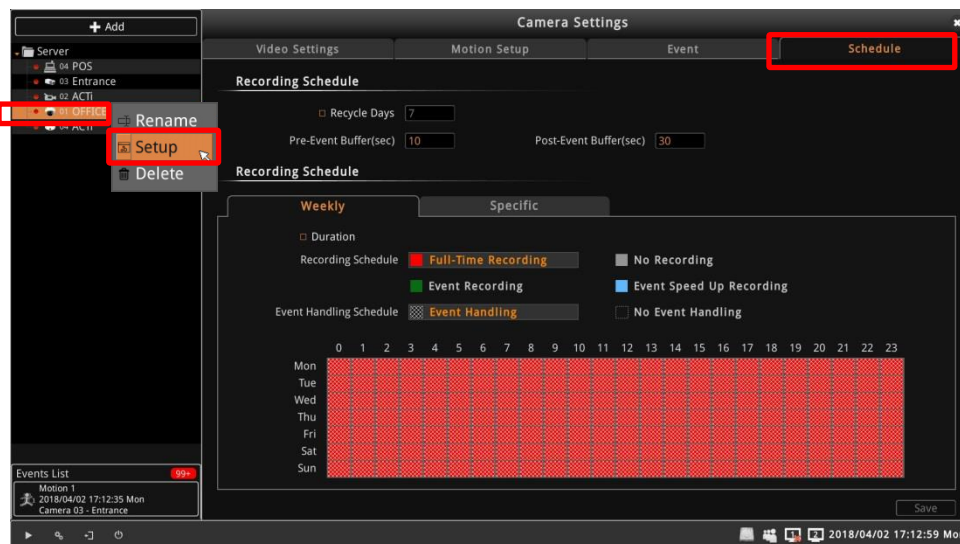
Schedule Recordings

Unlike the traditional analog surveillance system, the IP surveillance system provides a target-oriented recording schedule for devices; the view of each device can be recorded based on your required time segments and event types. For example, you may have a camera installed on the office ceiling do continuous recording during work hours, and record only upon the triggers (incidents that detected by system) at night. In this way, the system does not waste disk space storing meaningless parts, and you save lots of effort browsing playback for specific events.

For the **Recording Schedule** of cameras, NVR supports **Full-time recording**, **No Schedule**, **Event recording** and **Event Speed-up Recording** modes, which are set up on a week-based timetable; the event-handling schedule is configured here. For other devices like POS, Parking Systems, etc., only full-time recording is available.

On NVR, you can configure the device recording schedule on 7 days / 24 hours basis. The schedule is split into segments of one-hour-length. By default, once a device is added to the system, its schedule is automatically set to full-time schedule recording and event handling. You should configure it according to your system plan.

On the **Live** screen, right-click on the device to display the pop-up menu, then click **Setup**. Select the “**Schedule**” tab.



NOTE: The above interface shows the Schedule page of cameras. The interface of other devices may vary depending on the available functions on the device.

Event-Recording File Length

Before setting the recording schedule, you may define the length of an event recording. To do this, configure the following properties shown as below, which will make an event recording as long as 10+30 second:

Recording Schedule

☐ Recycle Days

Pre-Event Buffer(sec)

Post-Event Buffer(sec)

Field	Description
Recycle Days	NVR always records data into the HDD, when the HDD is full, it then deletes the oldest data by default to save the new recordings. If Recycle Days is enabled, NVR will only maintain the last specified days even if the HDD still has empty spaces.
Pre-event Recording Buffer (sec):	NVR keeps a short cache of video received from devices. If an event is triggered, NVR will automatically store the pre-event buffer along with the recording of the event itself. NOTE: Function available only on cameras.
Post-event Recording Buffer (sec):	This will determine how long after the event is triggered should be included in the event recording file. NOTE: Function available only on cameras.

Set the Recording Schedule

On the time table

- Click on the recording mode from **Recording Schedule**.

Recording Schedule

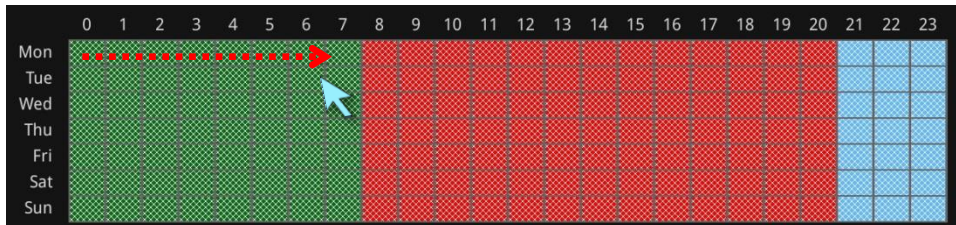
☒ Full-Time Recording
 ☐ No Recording

☒ Event Recording
 ☐ Event Speed Up Recording

Field	Description
Full-Time Recording	Continuously record at the video frame rate you define in Camera Settings .
Event Speed Up Recording	Continuously record everything at 1FPS, when an event occurs, the frame rate will switch to the value you define in Camera Settings , and automatically switch back to 1FPS after the event ends. NOTE: Function available only on cameras.

Field	Description
Event Recording	Only events are recorded, at the video frame rate you define in Camera Settings . NOTE: Function available only on cameras.

- Click and drag over the “Time Track” to set time period.



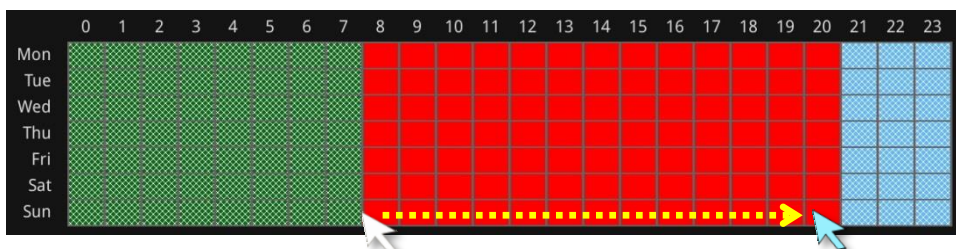
- Click “Save”.

Set the Event Schedule

The **Event Schedule** defines when the event handling is activated. To set the event rules, please refer to [Set Event Rules](#) on page 58 for Event Rules settings. By default, the event handling is full-time activated; you may disable it during certain time period.



- Click on the recording mode “No Event Handling”.
- Click and drag over the “Time Track” to set time period.



The color and pattern on the time track indicate the type of schedule and event recording. For example, the green dotted box means that recording is done when an event occur, NVR will not record when there is no event. The red plain box, on the other hand, means that full time recording is done all throughout the time range regardless whether there is an event or not.

- Click “Save”.

Event Management

When something happens on the camera site, such as someone walks by, the door opens or a fire breaks out – these are all **Events**. The event which occurs in the environment and was pre-programmed in the camera serves as **Triggers**. Triggers cause the device to react with **Responses**. The link between trigger and response is governed by **Event Rules**. Each event rule detects one specific trigger and may initiate multiple responses. An example rule would be for NVR to send an e-mail to alert the manager (**Response 1**) and trigger the alarm (**Response 2**) when motion on camera site is detected (**Trigger**) during the event handling active period (**Schedule**).

Each device can be involved in several event rules. As different camera models possess various capabilities, the supported response types would vary. For example, a PTZ camera can execute a go-to preset point response, while this option is not available for other models without this feature.

Event-Handling Schedule

Event rules become active or inactive based upon a weekly schedule, to enable event-handling service, you will have to make sure the event-handling schedule of certain device is well configured. By default, the event-handling schedule of each camera is enabled for 24 hours once it is added to the NVR system.

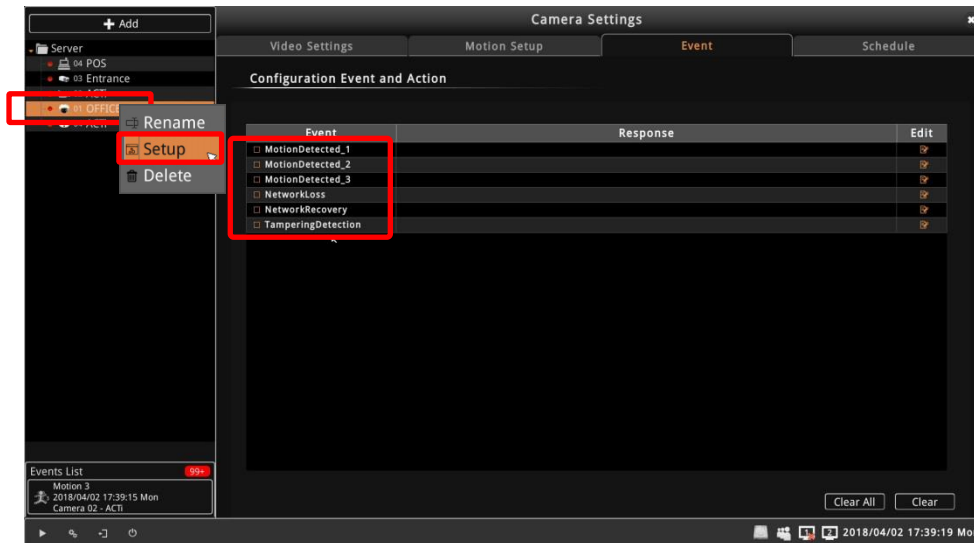
To configure the **Event Handling Schedule**, on the **Live** screen, right-click on the camera to display the pop-up menu, then click **Setup**. Select the **"Schedule"** tab. Drag on the 24-hour time table.




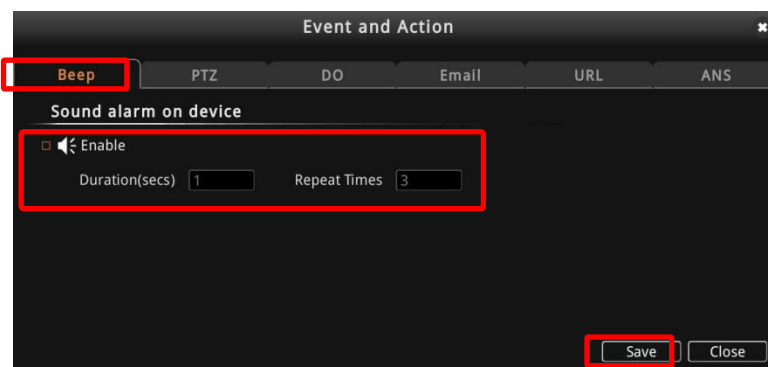
Set Event Rules

On the **Live** screen, right-click on the camera to display the pop-up menu, then click **Setup** → **Event**.

Once a device is added to the NVR server, the server would provide empty rules with compatible trigger types for you to configure such as **MotionDetected_1**, **MotionDetected_2**, **MotionDetected_3**, **NetworkLoss**, **Network Recovery**, **TamperingDetection**, and others. Available events vary depending on the camera models or device type.



To configure the event response, double-click on the corresponding  **Edit** icon. The **Event and Action** window appears. Click on the corresponding page tab to configure the event response.



Beep

When enabled, the NVR will beep for a period of time when the event is triggered. On the **Beep** tab, check “**Enable**” to enable this function. Input the duration time and repeat times of the beep. Click “**Save**” to confirm.

PTZ

For the use with PTZ cameras to make movements toward certain triggers, please configure the preset points thru the remote client or the camera web configurator before you set the event rule.

On the **PTZ** tab, check “**Enable**” to enable this function. Select which PTZ camera in the NVR server to make the movement, then the preset points and duration time between them. Click “**Save**” to save the configuration.

The screenshot shows the 'Event and Action' configuration window with the 'PTZ' tab selected. The 'PTZ to preset point' section is highlighted with a red box. It includes an 'Enable' checkbox, a 'Camera' dropdown menu, a 'Preset Point' dropdown menu, and a 'Duration(secs)' input field set to 5. There is also an 'Another Preset Point' dropdown menu. The 'Save' button is highlighted with a red box at the bottom right.

Digital Output (DO)

On the **DO** tab, check “**Enable**” to enable this function. Select the device: **Camera**, **Network IO** or **NVR System** (only the devices that support DO functions will be shown) and the device whose DO(s) are connected will be triggered. Select **Low** to turn OFF the DO or **High** to turn ON the DO. You may select one DO to be activated after the other and the duration time between them. To add the trigger to the list, click the **+** button. Repeat the above procedures to add more DO triggers.

The screenshot shows the 'Event and Action' configuration window with the 'DO' tab selected. The 'Trigger DO' section is highlighted with a red box. It includes an 'Enable' checkbox, radio buttons for 'Camera', 'Network IO', and 'System', a dropdown menu for selecting a device, and input fields for 'Port', 'Level', and 'Duration(secs)' set to 5. A table with columns 'Target', 'Port', 'Level', and 'Duration(secs)' is visible. The 'Save' button is highlighted with a red box at the bottom right.

Email

Enable NVR to send e-mail notifications via SMTP service. Check the “**Enable**” to enable this function, and fill in the mail recipient’s e-mail address in “**To**” field, notification title in “**Subject**” field and mail body in “**Body**” field, check “**Attach a Snapshot**” then choose a camera whose snapshot will be attached from the **Camera** dropdown list. Click “**Save**” to save the configuration.

The screenshot shows the 'Event and Action' configuration window with the 'Email' tab selected. The 'Send Mail' section is highlighted with a red box. It contains the following fields and options:

- ☒ Enable
- To: myemail@acti.com
- Subject: Camera Event Detected
- Body: (empty text area)
- ☒ Attach a Snapshot
- Camera: 3. Entrance (dropdown menu)
- Save (highlighted with a red box)
- Close

Please note that if you want to attach a snapshot to the notification e-mail, make sure your local display stays on **Live** screen during the event handling period, in this way, NVR can take the snapshots for motion events.

To enable this service, you have to configure the e-mail setting (see [E-mail Settings](#) on page 68) before this trigger is enabled.

URL

When an event is triggered, the event handler can send a URL command to another device. An example would be when the access control device at the entrance detects an entry, this device provides a DI signal to the PTZ camera, and triggers an event.

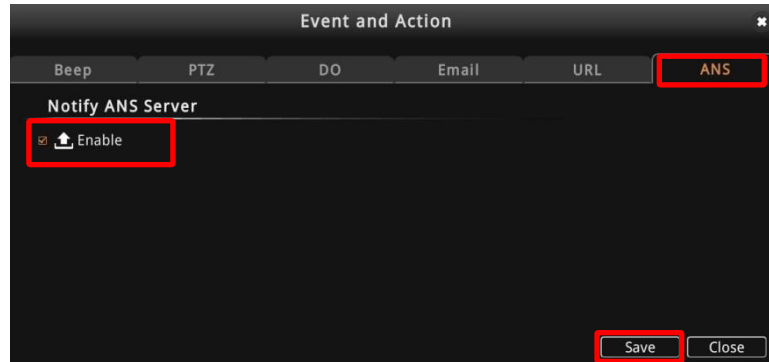
On the **URL** tab, check the “**Enable**” to enable this function. Enter the target device IP address, URL command to issue, target device port number, account and password. Click “**Save**” to save the configuration.

The screenshot shows the 'Event and Action' configuration window with the 'URL' tab selected. The 'Send URL command' section is highlighted with a red box. It contains the following fields and options:

- ☒ Enable
- Address: (empty text field)
- URL: (empty text field)
- Port: 80
- Account: (empty text field)
- Password: (empty text field)
- Save (highlighted with a red box)
- Close

ANS

This page allows you to enable or disable the ANS notification server. When enabled, ANS notification server sends notifications to your mobile when an event occur. You must configure the ANS server before using this function, see [Enable ANS Service](#) on page 78 for details. ANS Server is a paid service, contact your sales agent for more information.



Clear Event Rules

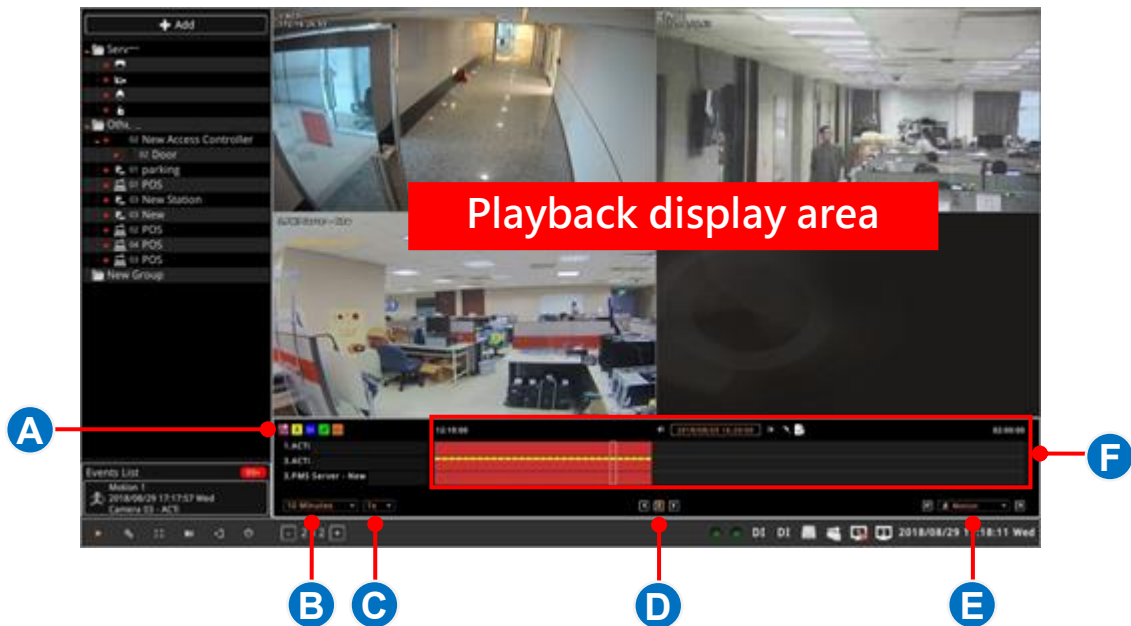
On the **Event** page, check the checkbox of the event you want to clear. You may select more than one event at a time, then click "**Clear**" to delete the selected events.






To delete all the event rules of this camera, click "**Clear All**".

Playback Recording



The Playback function of the NVR allows you to search, review, and export the recorded videos. Multiple channels can be played simultaneously and video clips can be exported in either RAW or AVI formats.

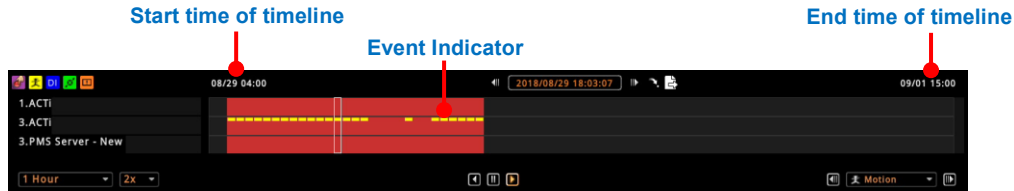
Playback User Interface




Item		Description
A	Event Type	<p>The icons indicate the type of event to show on the timeline. Click to enable or disable displaying the event on the timeline. A colored icon indicates the function is enabled.</p> <p>  Manual Record,  Motion Detection,  Digital Input triggered,  Network Loss,  Video Loss </p>
B	Time Frame	The time selected here is the time frame per block on the timeline. For example, the selected time is 10 minutes. Each block on the timeline represents a 10-minute video.
C	Playback Speed	Select how slow or how fast you want the video clips to be played. 1x is the normal playback speed.
D	Playback Controls	Click the playback controls to rewind, pause or play the video forward.
E	Event Search	This field allows you to search the video clips by event. Select the event and then press the control icons to go back to the previous event or go forward to the next.
F	Timeline	The timeline indicates the time range and type of recording. The color-coded bars indicate the events that happened within the recording.

Playback Video





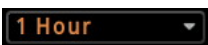
From the Live screen, press the **Play**  icon to go to the **Playback** screen. The icon turns orange  and the timeline appears to indicate it is in Playback mode.



The Live view display area and Playback display area share the same layout. The layout you will see on the Playback display area will be the same Live view layout when you press the **Play**  icon.

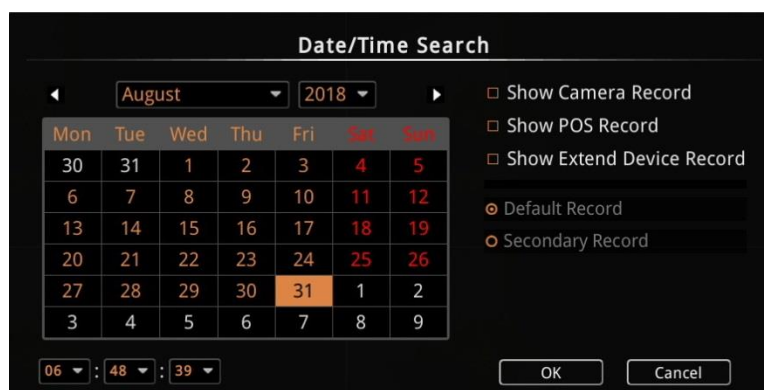
So if you want to view a different set of channels or a bigger frame of a channel on playback, it is recommended to create a new page tab from the Live screen for Playback purposes. See [Customize Live Screen Layout](#) on page 21.

The following are the basic playback controls you need to know to playback the videos.

- To play the videos, click .
- To pause the video playback, click .
- To rewind video playback, click .
- To speed up or slow down the playback, select the preferred playback speed from the **Playback Speed** list .
- To change the timeframe of videos on the timeline, select the preferred time frame from .




Search by Time

The timeline date and time is shown on . Click the date and time to display the Date/Time Search window.



HUBBLE series System Administrator's Manual


Set the calendar to search the date and time, check other properties to like **Show Camera Record**, **Show POS Record**, or **Show Extended Device Record** (as applicable) to include in the search. Click **OK** to close the window. The timeline will show the selected date and time.

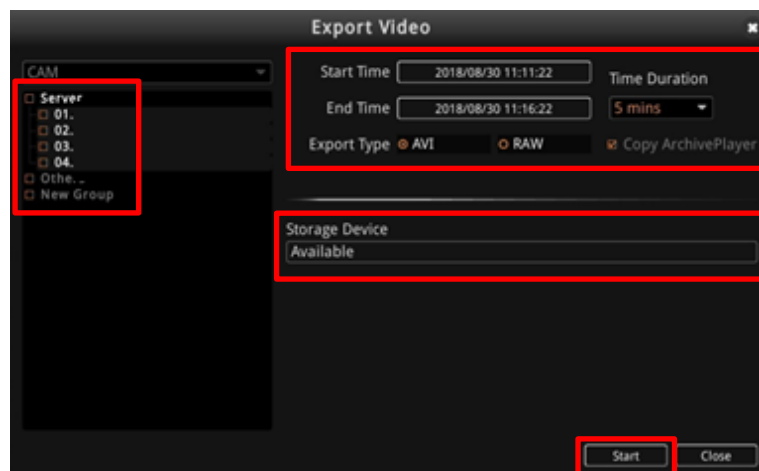
- To scroll the timeline and go back to the previous 5 hours or advance to the next 5 hours, click  or .
- To go back to the current date and time, click .
- To jump from one time frame to another, click anywhere on the timeline to manually search on the timeline.

Search by Event

You can search the recording by the event that happened. On the bottom-right of the screen, select the **Event Search** list   **Motion** . Click the  or  to go the previous or next event.

Export Video

You can export the video to a RAW or AVI file format. Click  to display the **Export Video** window.



Before exporting, make sure there is an external USB drive connected to the NVR.

Select the devices you wish to export, set the **Start Time** and **End Time** range or define the **Time Duration** of the video to export. Select the file format as **AVI** or **RAW**. If there is more than one external drive connected to the NVR, select the drive to save the file. Click **Start** to start exporting video.

System Setup

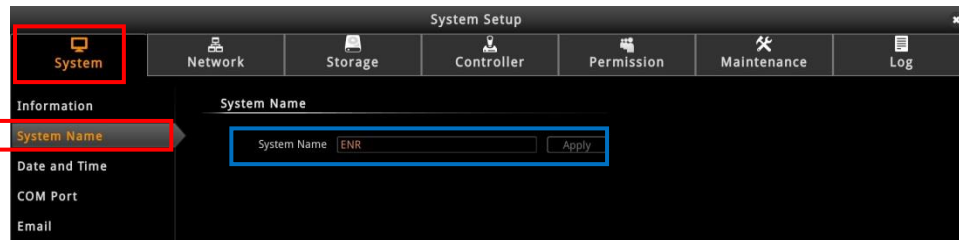
System

Device Information

To check the firmware version information or Mac address, go to **System Setup** page → **System** → **Information**.



To change the device name, go to **System Setup** page → **System** → **System Name**.

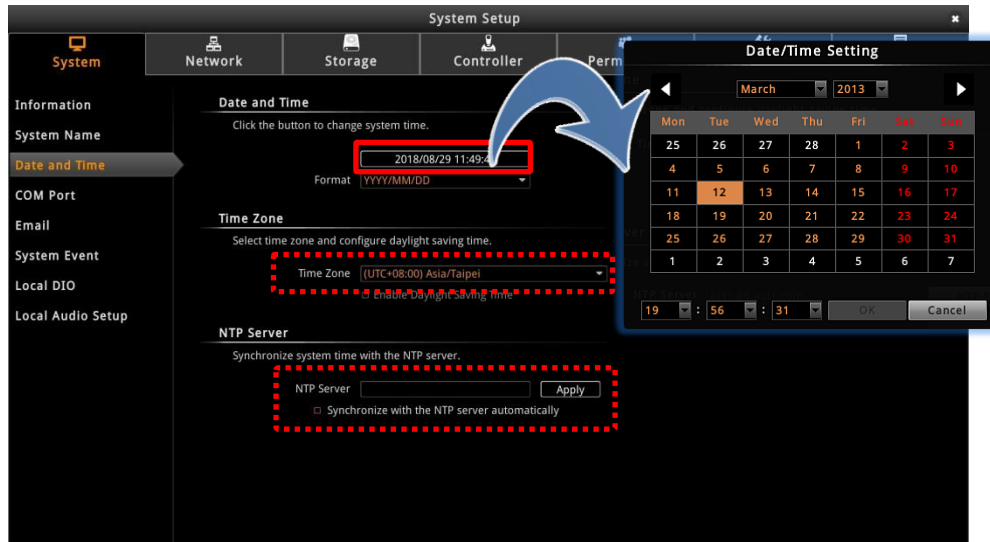


After modifying the **System Name**, click “**Apply**” to save the settings.

Date & Time

NVR provides three methods to synchronize the time setting; you can (1) manually set the date and time, (2) sync with Time Zone or (3) synchronize with NTP server.

Go to **System Setup** → **System** tab → click “**Date and Time**”.



Setup Manually

In **Date & Time** section, click the button that shows date and time information on it. On the popped-out calendar, select the correct date and time, then click “**OK**”.

Synchronize with Time Zone

In **Time Zone** section, select your zone from the **Time Zone** drop-down list. If your time zone falls in Daylight Saving Time area, you may check the box “**Enable Daylight Saving Time**”, and then system time will automatically adapt itself to daylight saving time clock.

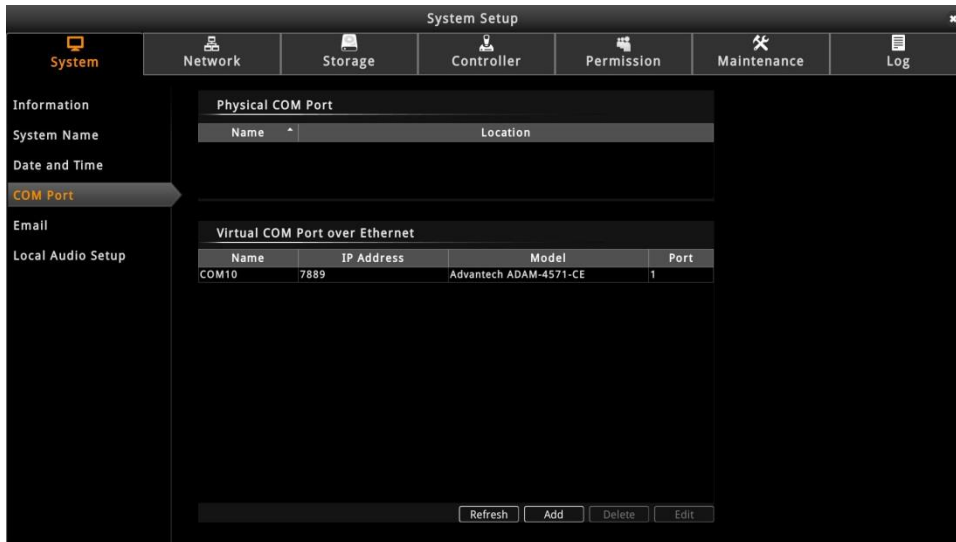
Synchronize with NTP server

In **NTP Server** section, fill in the NTP server IP or domain name in the NTP Server field, and click “**Apply**” to start synchronizing.

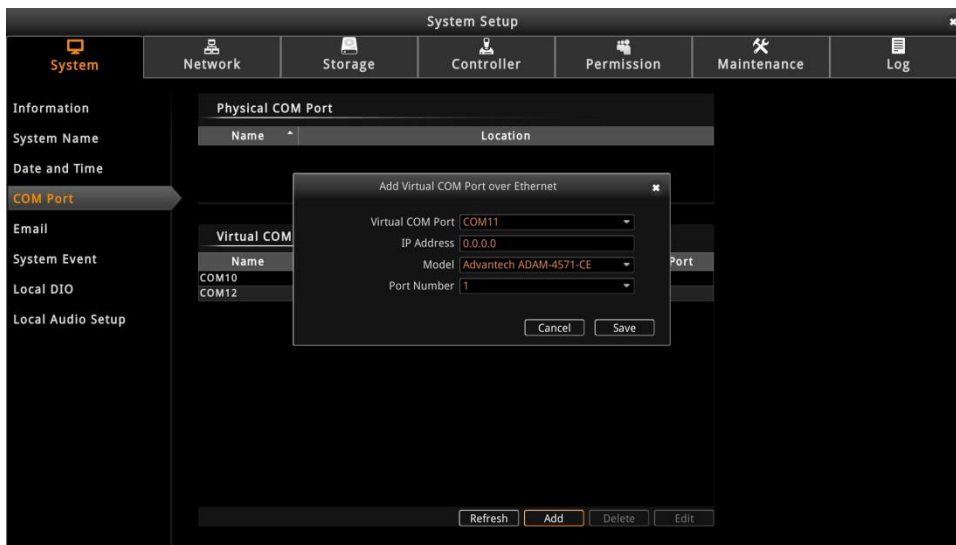
COM Port Settings

The COM Port menu page allows you to manage other devices physically connected through the NVR COM port or connected over the network such as I/O module, etc.

1. Go to **System Setup** → **System** tab → click “**COM Port**”.



2. To add devices over the network, click “**Add**”.

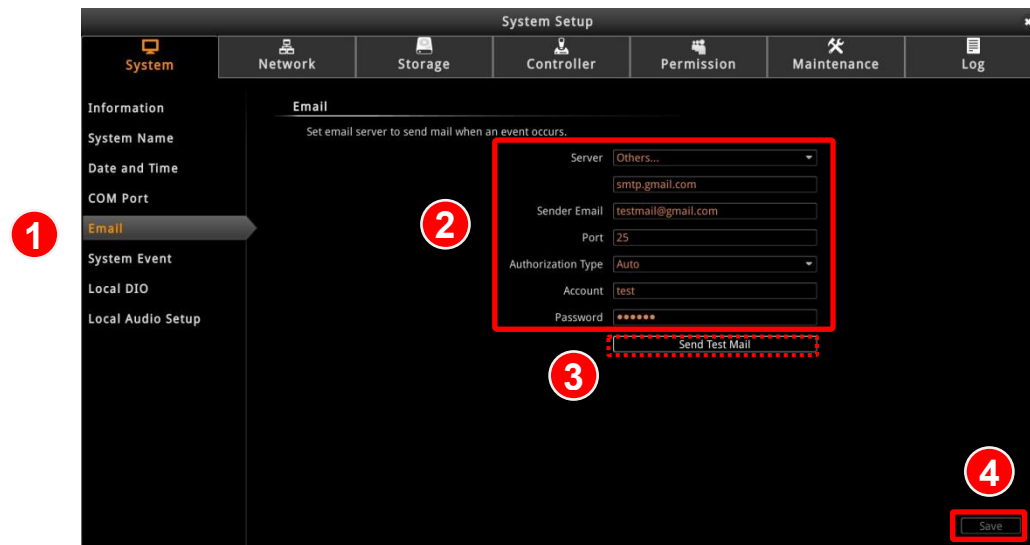


3. On the pop-up window, input the **IP Address** of the device, then select the **Virtual COM Port**, device **Model**, and **Port Number** to assign to the device.
4. Click “**Save**” to save the settings.

E-mail Settings

NVR supports e-mail notification for **Event Handling** sent through an SMTP server. To enable this service, you will have to configure the SMTP mail settings in advance. For SMTP service, please go to **System Setup** page → **System** tab → **Network** and make sure the **Default Gateway** adopts the setting of the LAN connection that has access to the SMTP server.

1. Go to **System Setup** → **System** tab → click “**Email**”.



2. Fill in **every** field according to the detailed instructions in the table below.
3. Click “**Send Test Mail**” to send a test mail to this e-mail account. If the test mail is sent successfully, a message saying so will pop up, which means your NVR server is ready to send out e-mail notifications when being triggered by an event.
4. Click “**Save**” to save these properties.

Field Name	Description
Sender Email	Input the sender's e-mail address, should be the same account you set for SMTP server.
Server	Input the sender's SMTP server address. Only alphabets, numbers, and the symbols (.), (_), (-) are valid. NVR server <u>supports the SMTP services with SSL protocol</u> . If you wish to use a free webmail SMTP service, you may choose certain webmail providers such as Yahoo (SMTP: smtp.mail.yahoo.com Port:25) or Gmail (SMTP: smtp.gmail.com Port:25 or 465 for SSL protocol / 587 for TLS protocol)
Port	Set the SMTP port, allowed value is from 1~65535, default is 25 .

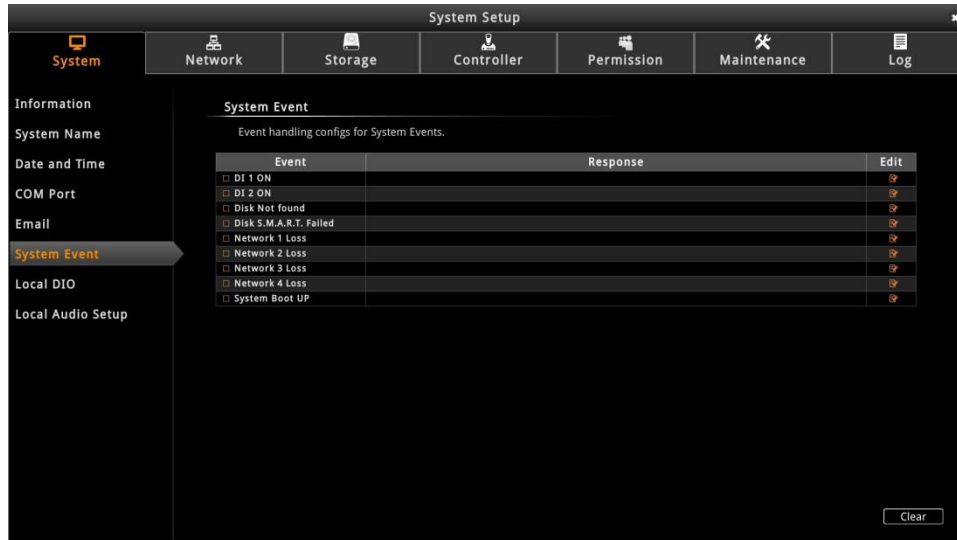
HUBBLE series System Administrator's Manual

Field Name	Description
Authentication Type	Select the authentication method from the list. If you are not sure, select "Auto" .
Account	Input the name of the SMTP server account. The form of account name depends on mail server, e.g. a Hotmail account name is a complete e-mail address, while other mail servers' are not. Only alphabets, numbers, and the symbols (@), (.), (_), (-) are valid.
Password	Input the password of the SMTP server account. Only alphabets and numbers are valid.

System Event

The System Event menu page allows you to configure the rules on what the action will be when an event is triggered.

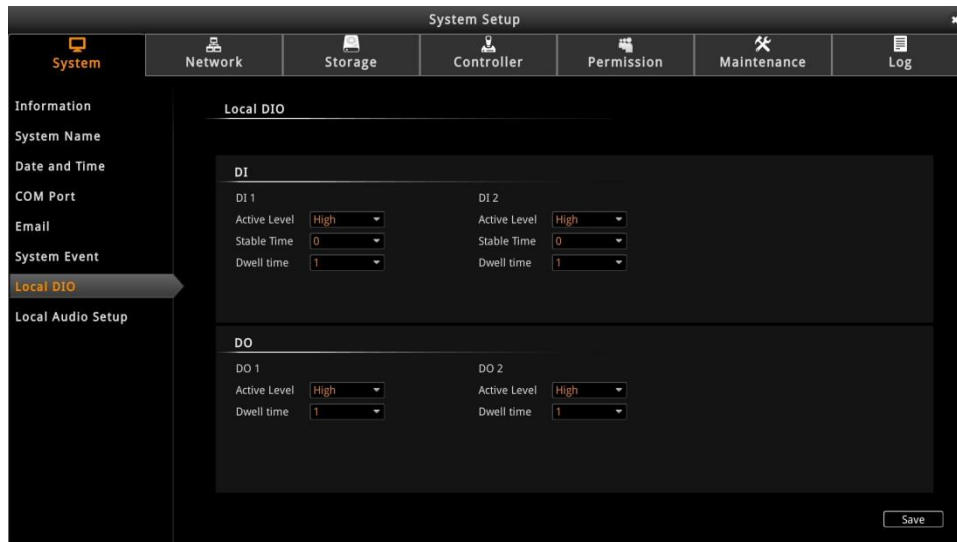
1. Go go **System Setup** → **System** tab → click “**System Event**”.



2. Double-click the **Edit** button of an event to configure its response.
3. Configure the event response, see [Set Event Rules](#) on page 58 for details.

Local DIO

The Local DIO page allows you to configure the digital input (DI) and digital output (DO) of the NVR.



Field Name	Description
Active Level	Set whether the active device level is high or low. This can be interpreted as On or Off.
Stable Time	This is the amount of time used by the NVR to filter out false signals which may be caused by power surge. For example, setting the Stable Time to 2 seconds will require a digital input device like a push button to be pressed for 2 seconds. If the button is pressed only for 1 second then the DI is not triggered.
Dwell Time	This is the amount of time when the device stays in active level. If Dwell Time is set to 5 seconds, and if an input device like a push button is repeatedly pressed within 5 seconds, the NVR only accepts interprets that signal as one input signal and not five.

Local Audio Setup

The Local Audio Setup menu page allows you to manage the connected audio input / output devices.

1. Go to **System Setup** → **System** tab → click “**Local Audio Port**”.



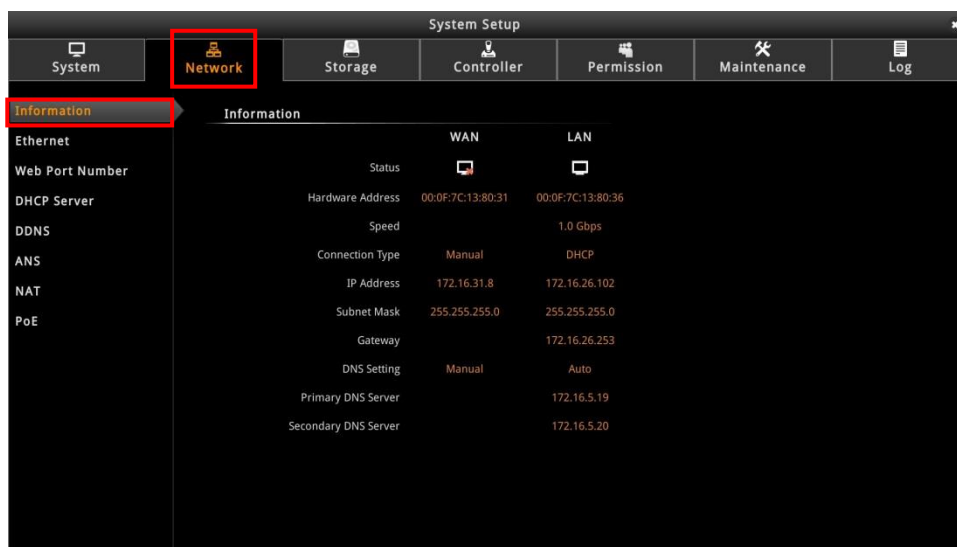
2. Check “**Enable**” to enable the audio input function. Adjust the volume and select the format as needed.
3. To adjust the audio output volume, select the desired volume level.
4. Click “**Save**” to save the settings.

Network Settings

There are two network interface cards in NVR. Either of these cards can be supported by the built-in DHCP server feature, which enables NVR to assign IP addresses to cameras via **WAN** or **LAN** port without another DHCP on the router.

To access the current settings of the Ethernet ports, go to **System Setup** page → **Network** tab → **Information**.

By default, **WAN** card is set to **Manual** mode with a fixed IP address **192.168.0.10**, while **LAN** is in **DHCP** client mode.



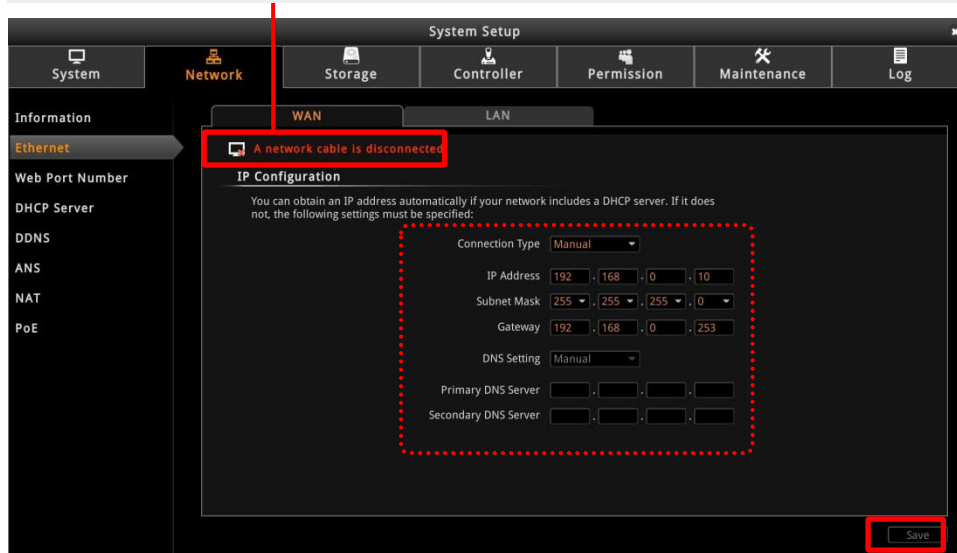
Ethernet Settings

Go to **System Setup** page → **Network** tab → **Ethernet** and select the interface card that you wish to set up. After setting up, please click “**Save**” to save the settings.

Connection Status

Shows “**Activated**” when connected to a network.

Shows “**A network cable is disconnected**” when not connected to a network.



Field Name	Description
Connection Type	<p>Choose one connection type for the Ethernet port. DHCP and PPPoE service will assign an IP Address to NVR, and there is no need for you to define other network information.</p> <p>Manual: Obtain a static IP address and other network information including Subnet Mask, Gateway and DNS server from your network administrator. And input the properties on this page.</p> <p>DHCP: Use this connection type if you have a DHCP server on your network router.</p> <p>WAN default is <i>Manual</i>; LAN default is <i>DHCP</i>.</p>
IP Address	Fixed IP Address. WAN default is <i>192.168.0.10</i> ; LAN default is <i>Auto</i> .
Subnet Mask	Used to define if the destination is in the same subnet. WAN default is <i>255.255.255.0</i> ; LAN default is <i>Auto</i> .
Gateway	A valid gateway setting is essential for data transmission between different subnets, such as accessing the DNS service or SMTP server on the Internet. WAN default is <i>192.168.0.254</i> ; LAN default is <i>Auto</i> .

HUBBLE series System Administrator's Manual

Field Name	Description
DNS Setting Primary DNS Server Secondary DNS Server	The DNS server that translates domain names to actual IP addresses. If the port is in Manual mode, and you will set an SMTP server for event notification, be sure to set the Primary DNS and Secondary DNS.
Default Gateway	Choose the gateway of the LAN card whose network is to connect with Internet.

Web Port Setting

The default connection port used for remote web client to communicate with NVR is [80](#). To change it, click “**Web Port Number**” to modify and save the setting.



Enable DHCP Server

You may enable the built-in DHCP server for either **WAN** or **LAN** port.

Go to **System Setup** page → **Network** tab → click “**DHCP Server**”:

1. Check “**Enable**” and select a LAN, this LAN has to be in **Manual** mode.
2. Set the **Beginning IP Address** and **Ending Address**, and click “**Save**”. NVR will assign IP addresses within this range to the cameras connected to the selected LAN port.
Please (1) make sure the cameras are in DHCP client mode, (2) connect and power the cameras up after you enable this service.

The screenshot displays the 'System Setup' window with the 'Network' tab active. The 'DHCP Server' configuration is shown, including a sidebar with options like Information, Ethernet, Web Port Number, DDNS, ANS, NAT, and PoE. The main configuration area includes a 'DHCP Server' section with a 'Please enable DHCP server to automatically assign IP addresses to all DHCP clients on the specified network.' instruction. A red dashed box highlights the 'Enable' checkbox (checked), the 'Network' dropdown (set to LAN), and the 'Beginning IP Address' and 'Ending IP Address' fields (set to 192.168.1.100 and 192.168.1.200 respectively). A 'Save' button is located at the bottom right of the configuration area.

Enable DDNS Service

NVR has built-in DDNS update client feature, which saves NVR domain name address information and actively update its IP address to the DDNS provider's server.

1. Visit the dynamic DNS service provider's website and register the domain name for your NVR.

NVR supports the following service providers:

- DynDNS: <http://www.dyndns.com>
- NO-IP: <http://www.noip.com/>

2. Go to **System Setup** page → **Network** tab → click **"DDNS"**.
3. Check **"Enable"**, select the service provider, and input the **Host Name**, **User Name** and Password.
4. Click **"Save"** to save the settings.

The screenshot shows the 'System Setup' window with the 'Network' tab selected. The 'DDNS' sub-tab is active. A red dashed box highlights the configuration fields: 'Enable' (checked), 'Service Provider' (vmsaas.com), 'Host Name' (ENR30BB98D6E.vmsaas.com), 'User Name' (hqao.test@gmail.com), and 'Password' (masked with dots). A red box highlights the 'Save' button at the bottom right.

System Setup						
System	Network	Storage	Controller	Permission	Maintenance	Log
Information	DDNS					
Ethernet	Dynamic DNS allows your server to have a unique address on the Internet, even though it does not possess a static IP address.					
Web Port Number	<input checked="" type="checkbox"/> Enable					
DHCP Server	Service Provider: vmsaas.com					
DDNS	Host Name: ENR30BB98D6E.vmsaas.com					
ANS	User Name: hqao.test@gmail.com					
NAT	Password:					
PoE	Save					

Enable ANS Service

ANS Service is used to setup a specialized mobile notification service (for a fee) for project-based requirements.

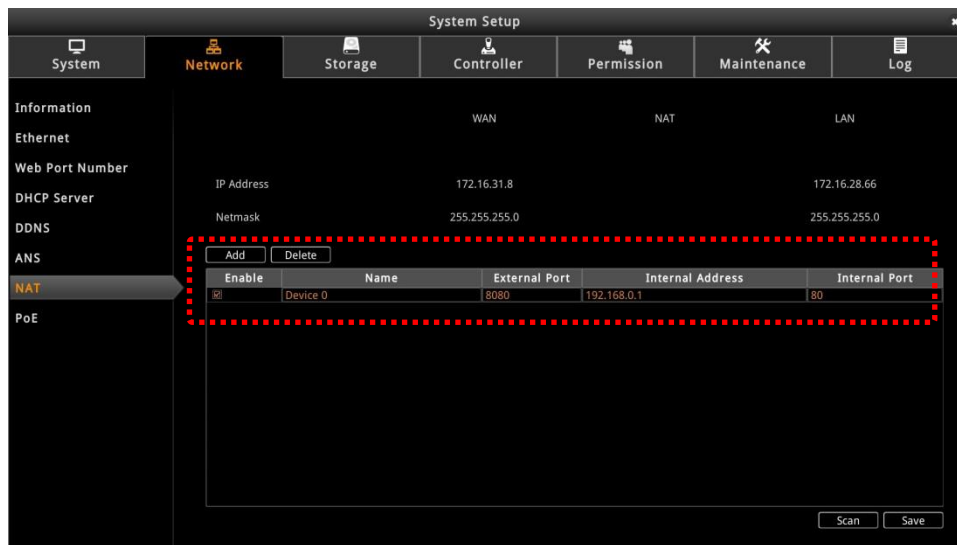
1. Go to **System Setup** page → **Network** tab → click **“ANS”**.
2. Check **“Enable”**, then input the required fields.
3. Click **“Save”** to save the settings.

The screenshot shows the 'System Setup' window with the 'Network' tab selected. The left sidebar lists various settings: Information, Ethernet, Web Port Number, DHCP Server, DDNS, **ANS** (highlighted), NAT, and PoE. The main content area is titled 'ANS' and 'Configuration to connect ANS Notification Server'. It features a red dashed border around the configuration fields. The 'Enable' checkbox is checked. The fields include: User Name, Password, Host Name, Max Connection Time (set to 10), Port (set to 80), Project Key, and TopicArn. At the bottom right, there are 'Refresh' and 'Save' buttons, with the 'Save' button highlighted by a red box.

Enable Network Address Translation (NAT)

Enable Network Address Translation (NAT) to allow NVR to assign a public address to a network device.

1. Go to **System Setup** page → **Network** tab → click **"NAT"**.
2. Click **"Scan"** to list the devices on the network and assign an address. Or, to manually add a device, click **"Add"**, then input the required fields.
3. Check **"Enable"** to enable NAT on a particular device.
4. Click **"Save"** to save the settings.

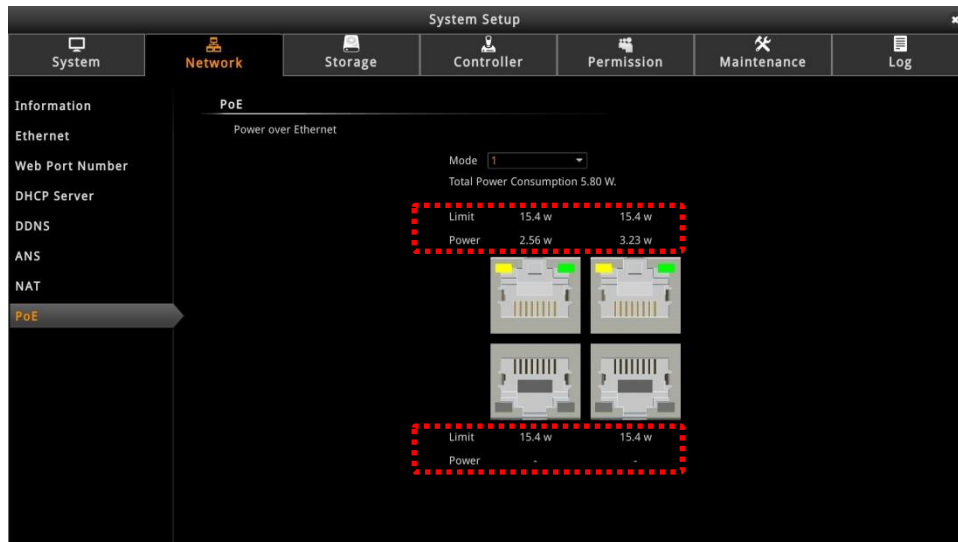


Power over Ethernet (PoE)

This menu page is available only on NVR models with PoE function. PoE page allows users to select the PoE mode and view the power consumption of each connected device.

Go to **System Setup** page → **Network** tab → click **"PoE"**.

With **"Mode 1"**, the total power budget of the device is equally distributed to each PoE port.



With **"Mode 2"**, one or more ports is allotted with its maximum power, e.g. 30W. This is useful if a high PoE powered device will be connected. However, the remaining total PoE budget will then be distributed among the remaining ports. Note that this may result with a port having no Ethernet power.



Storage Settings

NVR keeps the recordings on SATA hard disks installed in it. Whenever recording is taking place, NVR writes data to one of the disks, and switch to the other as the original one is full. Once the available space of the whole system is less than the reserved size, NVR will start deleting the oldest file to make the amount of space allowing each active channel to record for another 10 minutes.

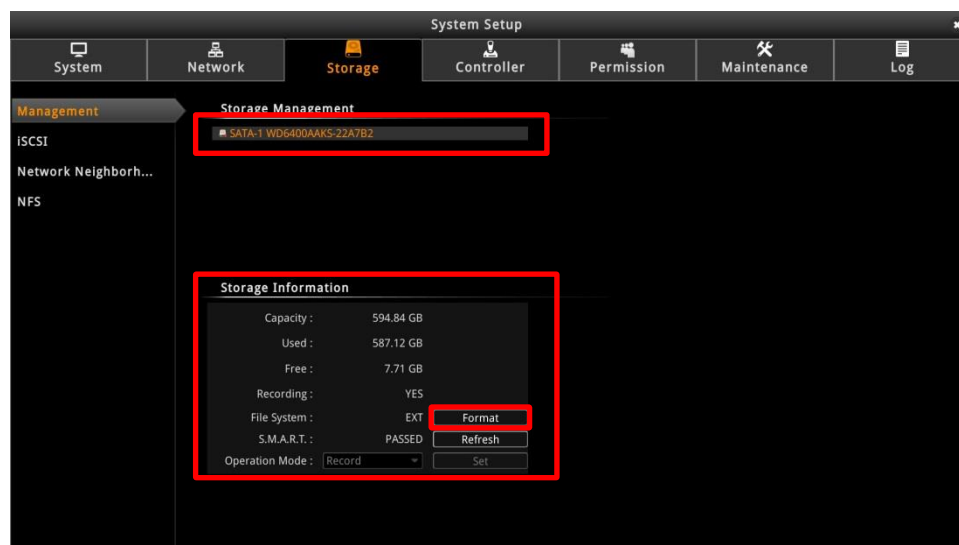
You may observe the disk memory and recording status on **Storage** page.

Go to **System Setup** → click **System** tab → click “**Storage**”. The connected storage devices will be shown in the **Storage Device** list. Select a storage device to check its **Storage** Information.

Storage Management

- **SATA1** represents the disk installed in upper bay for saving recordings.
- **SATA2** represents the disk installed in lower bay for saving recordings.
- **Storage Media** represents the connected USB disk that you inserted for carrying firmware image file, backup file, exported system log file, snapshots or video.

The storage device only appears on the list when it is installed on the NVR.



Format Hard Disks

Any newly-installed hard disk has to be formatted into NVR file system format. Click **"Format"** to start formatting a new disk. After formatting, this disk will become ready for recording.

During normal operation, **DO NOT REMOVE ANY DISK FROM THIS UNIT**, or it might cause damage to the disks. You can only remove or install a disk when the device is shut down.

Please note that the system will stop recording during the disk formation.

Disk Deletion

When the total recordable disk space is full, NVR will automatically delete the oldest files. An amount of disk space equivalent with a ten-minute long recording will be cleared to save new recordings.

Check Disk Status

Hard disk failure often comes after detectable signs and thus can be predictable, thus it is important to detect these signs long before they really cause disk failures.

NVR performs **S.M.A.R.T.** Disk check on 24-hour basis since last check. This technology enables a system to monitor the disk status and anticipate disk failures, helping the system administrator to prevent from unexpected outage and data loss.

You may manually perform an instant **S.M.A.R.T** check by clicking **"Refresh"**.

Once the disk appears in **"WARNING"**, **"FAILED"**, or **"UNKNOWN"** status, it is not reliable for recording, and may fail when the number of bad sectors on the disk has grown high enough.



S.M.A.R.T Status	Description	Solution
PASSED	This disk is in normal condition.	--
WARNING	Certain error has been found on this disk.	On "Storage" page, select the disk and click "Disable" .

HUBBLE series System Administrator's Manual

S.M.A.R.T Status	Description	Solution
FAILED	A number of errors have been found on this disk.	
UNKNOWN	Unable to get the disk information.	

Manage Abnormal Disks

A disk that is not recognized as “**PASSED**” by **S.M.A.R.T.** check may have unexpected failures anytime. However, it will still continue recording until it finally fails.

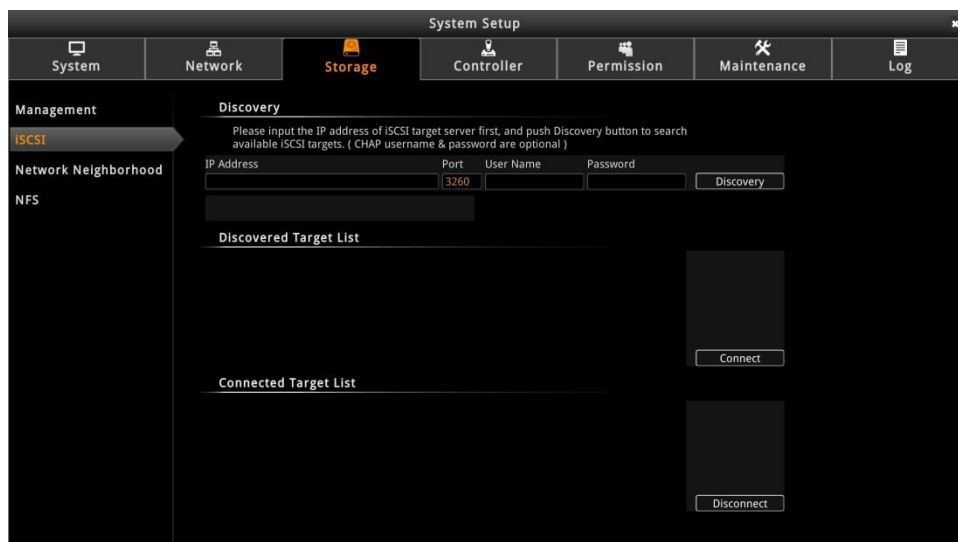
After you disabled the recording on this disk and review important recordings,

1. Turn off the device.
2. Replace the abnormal disk with a new one, and turn on the device.
3. Go to **System Setup** → click **Storage** tab → click “**Management**”, and click “**Format**” to format the new disk.

iSCSI

Use this page to manage iSCSI device.

1. Go to **System Setup** → click **Storage** tab → click “**iSCSI**”.
2. Input the IP Address of the target iSCSI server.
3. Click “**Discovery**”.
4. Select the discovered server and click “**Connect**”.



Network Neighborhood

Use this page to add a network neighborhood.

1. Go to **System Setup** → click **Storage** tab → click “**Network Neighborhood**”.
2. Input the **Network Neighborhood Path**, **User Name**, and **Password**.
3. Click “**Connect**”.

The screenshot shows the 'System Setup' application window. The 'Storage' tab is selected in the top navigation bar. On the left sidebar, under the 'Management' section, 'Network Neighborhood' is highlighted. The main content area is titled 'Network Neighborhood' and contains the following elements:

- A sub-header 'Network Neighborhood' with a description: 'Please fill in the network neighborhood path, username & password and then click the connect button to add network neighborhood.'
- Three input fields: 'Network Neighborhood Path' (with a 'W' icon), 'User Name', and 'Password'.
- A 'Connect' button to the right of the input fields.
- A section titled 'Network Neighborhood Connection' containing a large empty rectangular box and a 'Disconnect' button on the right.

NFS Server

Use this page to add an NFS server.

1. Go to **System Setup** → click **Storage** tab → click “**NFS**”.
2. Input the IP address of the NFS server and path directory.
3. Click “**Connect**”.

The screenshot shows the 'System Setup' application window. The 'Storage' tab is selected in the top navigation bar. On the left sidebar, under the 'Management' section, 'NFS' is highlighted. The main content area is titled 'NFS' and contains the following elements:

- A sub-header 'NFS' with a description: 'Please fill in the NFS server IP, directory and then click the connect button to add NFS.'
- An 'NFS Path' input field with a placeholder showing IP address and directory format (e.g., '192.168.1.100:/export').
- A 'Connect' button to the right of the input field.
- A section titled 'NFS Connection' containing a large empty rectangular box and a 'Disconnect' button on the right.

Controller

The Controller page allows you to configure the keyboard and joystick controller.

Software Keyboard

The software keyboard can be displayed or hidden from the screen. Enabling or disabling the software keyboard does not affect the use of a physical keyboard.

1. Go to **System Setup** → click **Controller** tab → click **"Keyboard"**.
2. Check **"Always show software keyboard"** to display the keyboard or uncheck to hide the keyboard.



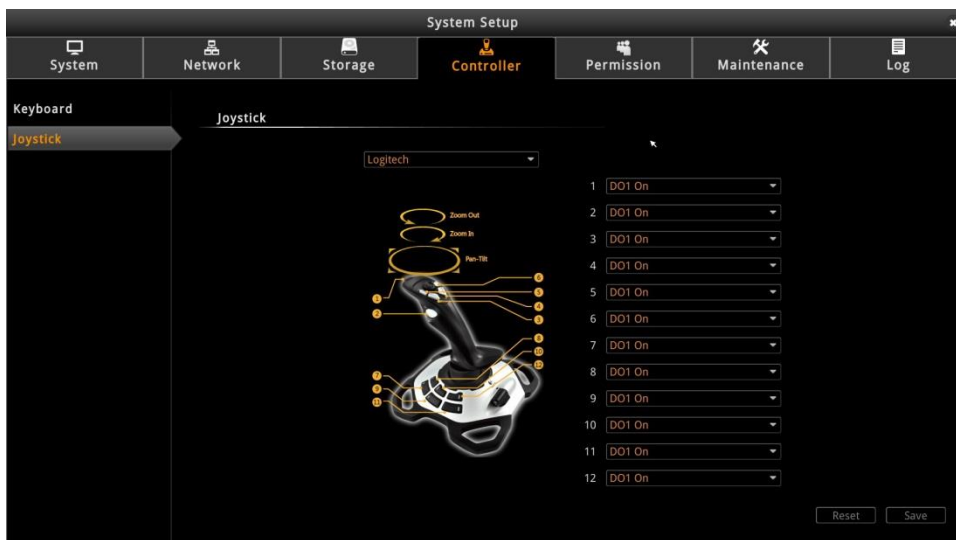
Joystick

NVR supports two types of joystick controller for local operations:

- **IP Desktop**, manufactured by **CH Products**
- **Extreme™ 3D Pro**, manufactured by **Logitech**

Go to **System Setup** → click **Controller** tab → click **"Joystick"**.

Select the joystick model from the dropdown list. There are **12** buttons available on each controller; you may assign a function selected from dropdown list to any button. Every time you change the settings on this page, please click **"Save"** to save the settings to a particular joystick.



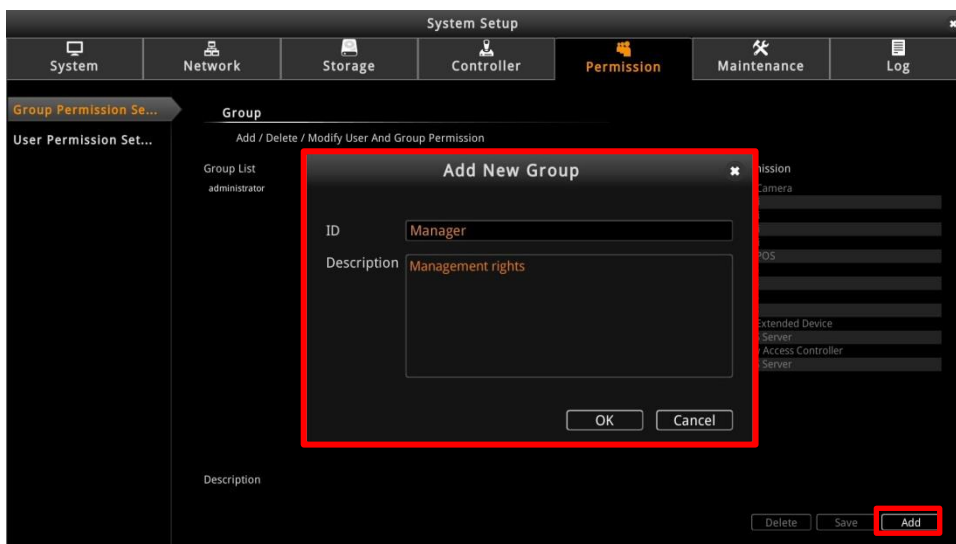
User Management

With the Permission page tab, you can create a group and define its access permission. All users belonging to that group will have the same access permission.

By default, “Administrators” have full permission, meaning they have access to the **Live** screen, **Playback** and modify the configurations on the **System Setup** page. Upon receiving the NVR, there is already one administrator account. Except for the password and e-mail settings, you cannot delete this account.

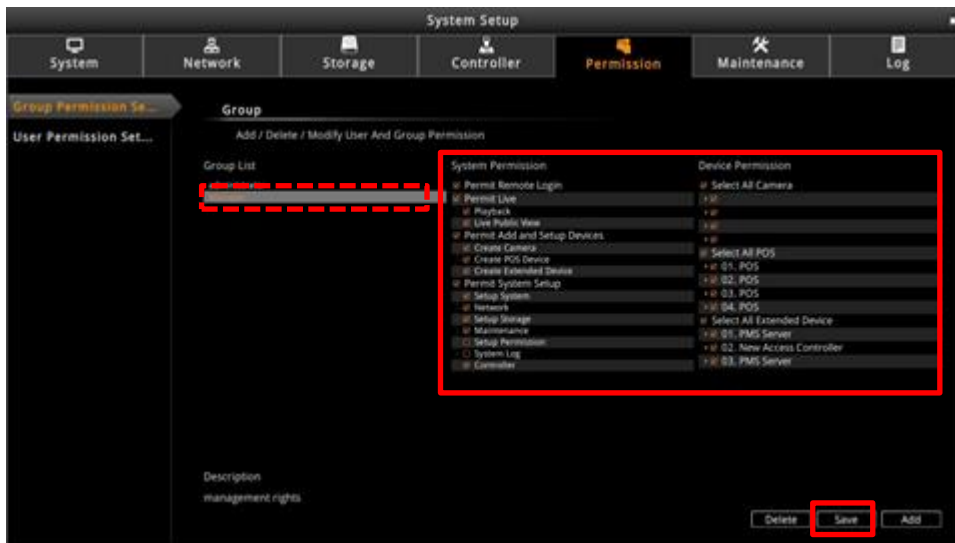
Add a Group

1. On **Live** screen, go to **System Setup** → click **Permission** tab to enter **Group Permission Setup** page.
2. Click “**Add**” to bring up **Add New Group** window, enter the **ID** and add a description, then click **OK**.



HUBBLE series System Administrator's Manual

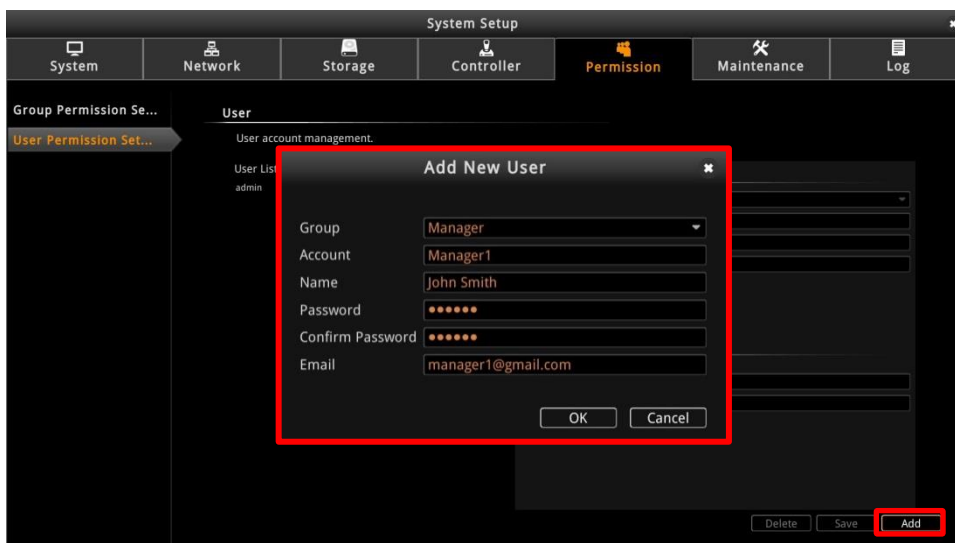
3. Select the new group from the **Group** panel, then click the boxes under **System Permission** and **Device Permission** panels to grant the group the right to access and modify them.



4. Click **Save** to complete.

Add a User

1. On **Live** screen, go to **System Setup** → click **Permission** tab → **User Permission Setup** page.
2. Click **Add** to bring up **Add New User** window. Select the group, enter the **Account**, this is the account name that will be shown on the User List. Enter **Name** of user, **Password**, and **Email**.



3. Click **OK**.

HUBBLE series System Administrator's Manual

Account and Password Rules

1. **Account** field allows alphabets, numbers, and symbols except the following: * < > ? | " \ : .
The maximum length of characters is 30.
2. **Password** field allows alphabets, numbers and symbols. The maximum length of characters is 20.
3. Both the **Account** and **Password** fields are case-sensitive.

Edit a User

You may edit the user name, password and email of an existing user.

1. Select the user on **User List**.
2. Click on the field directly and modify the text.

The screenshot shows the 'System Setup' window with the 'User' tab selected. On the left, there's a sidebar with 'User Permission Set...' and 'User Permission Set...'. The main area is titled 'User' and 'User account management'. Below this is a 'User List' table with one entry highlighted by a red box. To the right of the table is a 'Basic Informations' form, also outlined in red, containing fields for Group (Manager), Account (Manager1), Name (John Smith), and Email (manager1@gmail.com). Below this is a 'Modify Password' section with fields for New Password and Confirm Password. At the bottom right of the form, there are buttons for 'Delete', 'Save' (highlighted with a red box), and 'Add'.

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

Delete a User

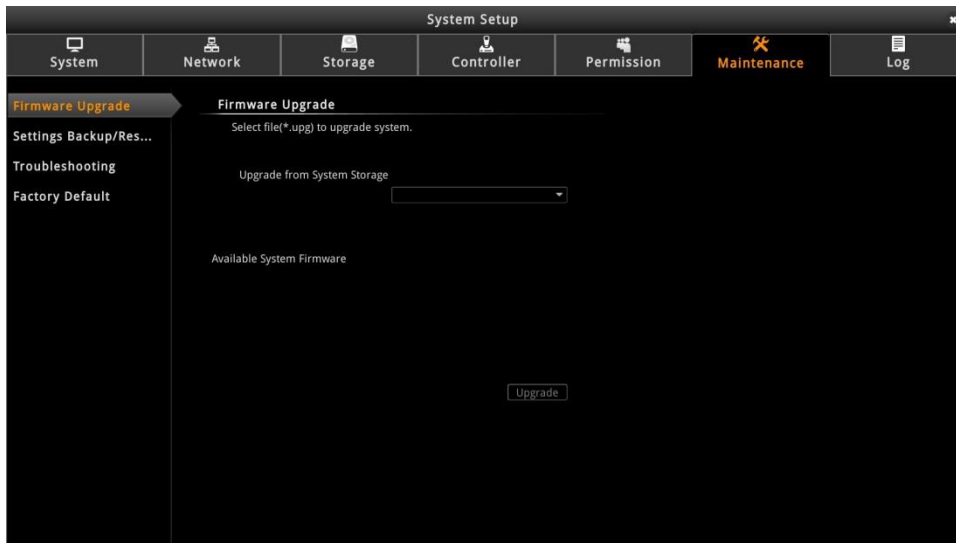
1. Select the user on the **User List**, then click **Delete**.
2. Click **OK** to confirm deletion.

Maintenance

Firmware Upgrade

You may check Levelone corporate website for the latest NVR firmware package and download it. Unzip the package and save the *.upg file to the root directory of a USB disk and insert it into NVR USB port.

1. Go to **System Setup** → click **Maintenance** tab → select **"Firmware Upgrade"**.



2. Select the source disk where you saved the *.upg file.
3. When NVR identifies the file, the **"Upgrade"** button will be enabled.
4. Click **"Upgrade"**. While upgrading, the system will stop every other activity including recording and event handling. The system will auto-restart after the upgrading completes.

After upgrading has started, **DO NOT cut off the system power or eject the USB disk until the NVR restarts.**

Please note that

The USB disk carrying the firmware image should at least have **200 MB** free space.

Backup / Restore Settings

Making regular system backups is always recommended in case of unexpected disasters or accidents that may damage the NVR server.

NVR server can create a backup file of the whole system settings as

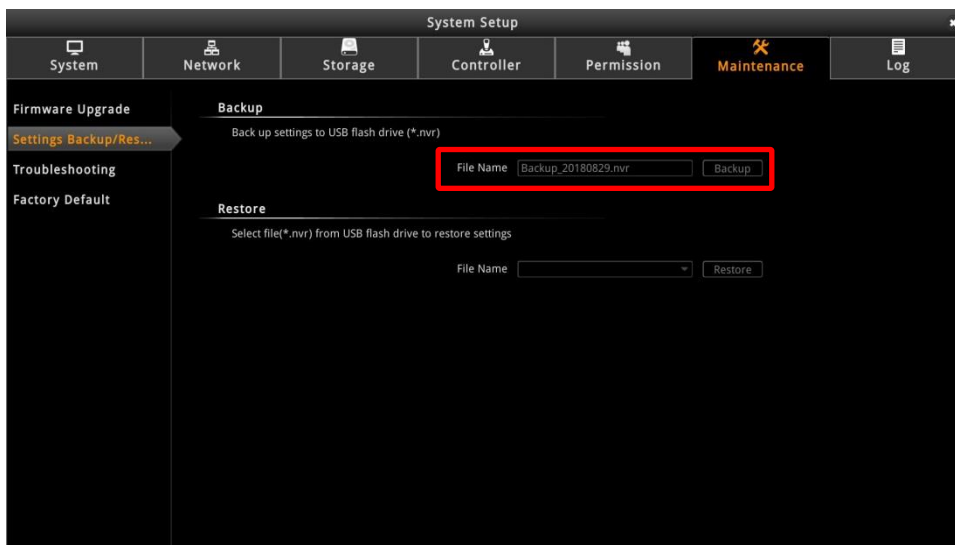
Backup_[yyyymmdd].nvr file and save it to a connected USB disk within one click. The backed up settings include the following properties: (1) **System Settings** including **System Name, Date & Time, Network, Email, Mouse and Keyboard**, (2) **Camera Settings**, (3) **Schedule Settings**, and (4) **Event Management**.

The recordings will be kept on the hard disks.

Backup

To start backing up system setting, please insert a USB disk into the NVR.

1. Go to **System Setup** → click **Maintenance** tab → click “**Settings Backup / Restore**”.

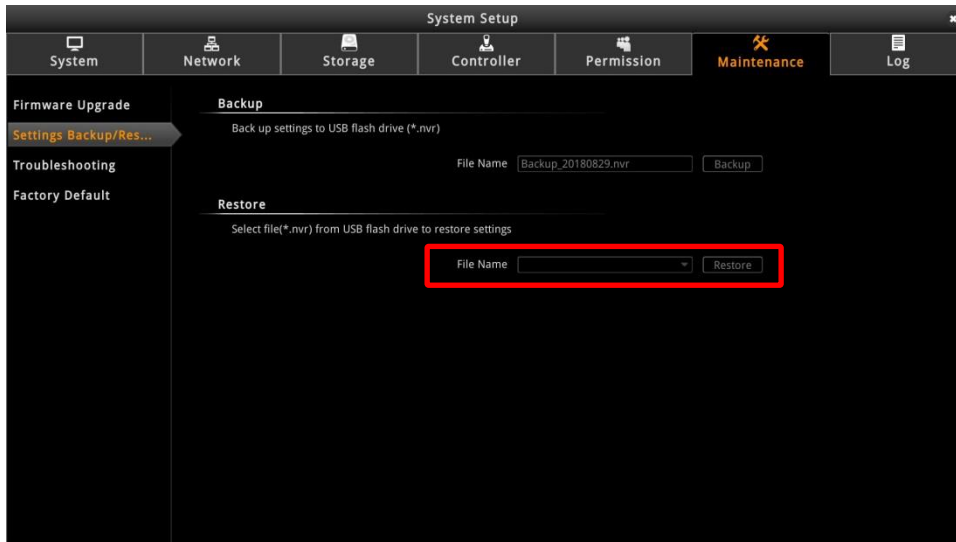


2. Click “**Backup**”, the backup file will be saved to your USB disk as .nvr file.

Restore

Before starting restoring the system, make sure you have connected the USB disk with the desired .nvr backup file in it, and the backup file is saved in the root directory.

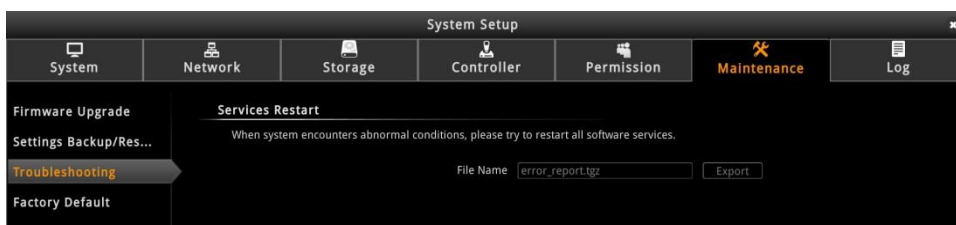
1. Go to **System Setup** → click **Maintenance** tab → click “**Setting Backup / Restore**”.



2. All the .nvr file detected from your USB disk root directory will be shown on the **File Name** dropdown list, select your desired one.
3. Click “**Restore**” to start restoring the settings. The server will restore the settings from the backup file and reboot.

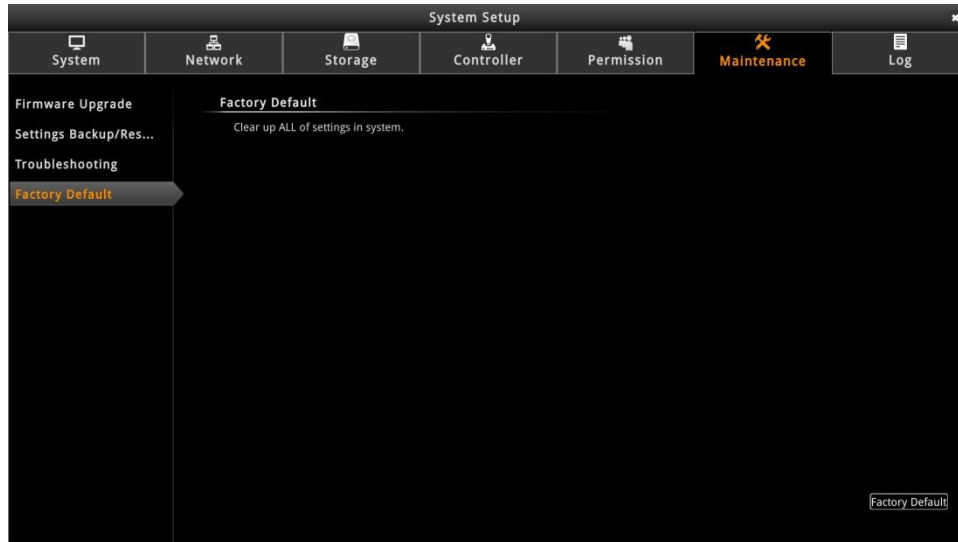
Troubleshooting

In order to continuously improve the device, when the system encounters any abnormal condition, go to **System Setup** → click **Maintenance** tab → click “**Troubleshooting**”. Then, click “**Export**” to export an error log report and send this report to the customer help desk.



Factory Default

To reset the NVR to its factory default settings, go to **System Setup** → click **Maintenance** tab → click “**Factory Default**”, then click “**Factory Default**”. All settings will revert to original default settings.



Log

The Log page allows you to view the system log and export the file for future reference.