NVR 3 Enterprise

System Administrator's Manual

For Version 3.0.12

www.acti.com

2016/03/31

About This Manual

Target Audience

This manual is intended for **System Administrators** who are responsible for installing and setting up ACTi NVR 3 Enterprise surveillance system. The reader is expected to know the fundamentals of IP surveillance system integration and to own the administrative privileges to achieve all the tasks.

You may also visit http://www.acti.com/downloadcenter for updates or release information about this software and document.

Content Overview

This manual provides information needed for planning the installation, installing, setting up the system and configuring the video streaming devices. Its main content consists of the following three sections:

- **Getting Started** provides the preparatory knowledge you should study before starting installation, such as system requirements, license registration and backup/restore procedures.

- **Log in to the System** explains how to log in to the system right after a successful installation.

- **System Setup** gives instructions on the tasks such as adding cameras to the system, configuring the camera settings, scheduling the recordings, managing events, managing storage, managing groups/users and setting up Live View. For each major task, you will be given a brief introduction of operation principles, step-by-step instructions, and a simple method to check if you have done it correctly.

Related Documentation

Since this manual focuses on how to accomplish the tasks for system installation and configurations, there is very limited information about operation-wise directions for **End Users** who will be operating NVR server system. To obtain the instructions on use of NVR applications such as monitoring and playback, please download the latest ACTi NVR 3 Enterprise User's Manual from http://www.acti.com/downloadcenter

Technical Support

If you have any questions during system installation, please feel free to contact our engineers via our **Customer Help Desk** platform http://www.acti.com/CHD.

System Integration

NVR 3 Enterprise is supported by other products via integration tools. Please follow the instructions in the installation guide to complete the installation and system configuration.

Tool	Installation Documentation
Plug-in for Lenel OnGuard	*Plug-in for Lenel OnGuard Installation Guide*

You can find both the tool and its installation documentation on http://www.acti.com/downloadcenter

Conventions Used in This Manual

The following are typographic conventions used in this manual:

- **Bold**: Bold typeface is used for a keyword, major functions of NVR, or a title of a section/column.
- *Italic*: Italic typeface is used for a filename or location path.
- Underlined: Underlined typeface is used for a document name or hyperlink.
- "**Bold**": Bold interface enclosed in double quotation marks indicates the name of a button, a menu or a choice item.

Some notices are placed within the following boxes; each type of the box indicates different purposes or levels of importance for system:

Important Notice

The content within this box is an **important notice**. This notice is important for you to get certain functions to work properly, or to prevent from certain potential problems that may damage your system. Make sure you read this notice and follow the instructions.

Note

The content within this box is a **note**. A note is some necessary information you need to know about the action you are currently taking, like what will happen after you follow or don't follow certain procedure.

Tip

The content within this box is a **tip**. A tip gives you an alternative method to easily or quickly achieve an objective, usually for specific conditions.

Legal Notice

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- The information contained herein is subject to change without notice.

- The English version of this document is the official one for all purposes. All the translated versions are provided as a convenience. Any discrepancies or differences created in the translations of any other languages are not legally binding.

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Overview

ACTi NVR 3 Enterprise (hereafter referred to as **NVR 3**) is a Windows-based software that provides distributed network video surveillance solution with full functionality. This software offers centralized management, real-time monitoring and recording of up to **100** ACTi video streaming devices over local or remote network, with rule-based event service to trigger notifications.

ACTi NVR Server-Client Architecture

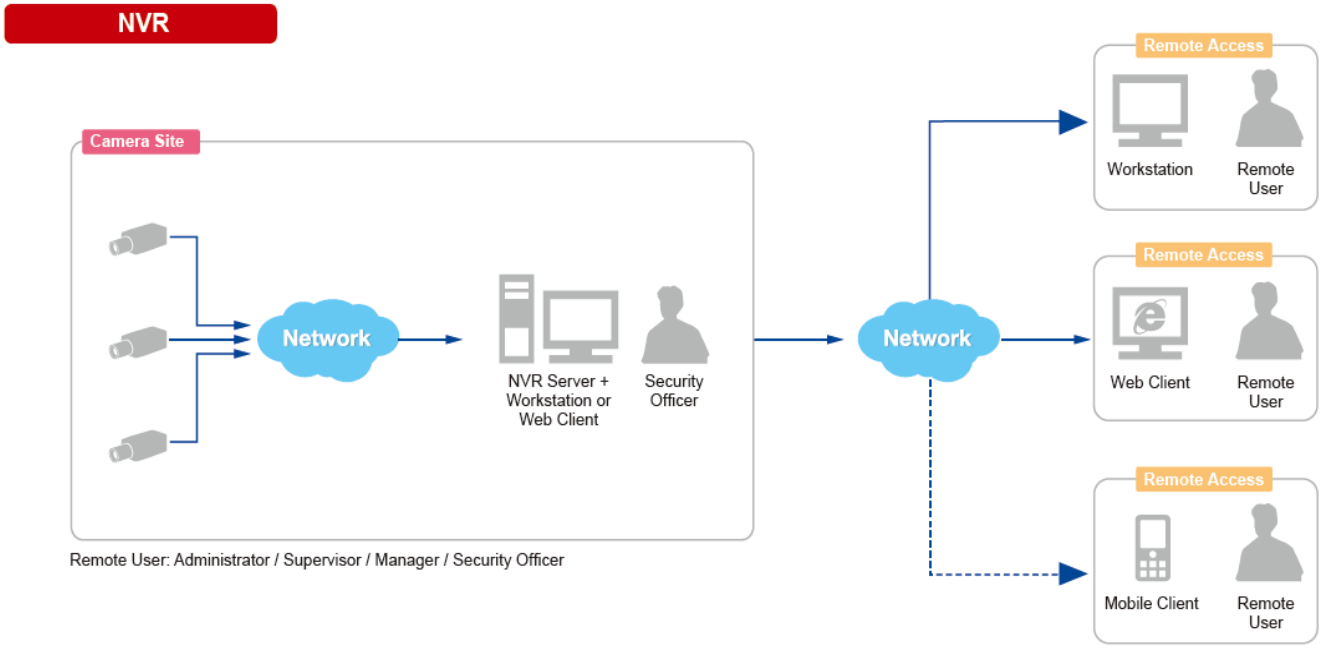
NVR 3 is a typical web-based server/client system. In a video surveillance system architecture, the **Server** serves as a video management service provider, aimed to run 24/7 offering non-stop services for clients. A **Client** makes requests of monitoring video streams or playback recordings to **Server**, which can reside on the same computer with server program (as from local) or on another computer (as from remote). **Server** starts automatically as soon as the **Server computer** (where it is installed) boots up, and operates in the background without requiring login by administrator. It can be connected by multiple **Clients** over the TCP/IP network through HTTP Protocol.

There are two types of **Clients** in NVR 3 system: **Web Client** and **Workstation Client**. A user, connecting from whether web browser or workstation, will enjoy the same user interface and NVR functions.

- **Workstation Client:** the client application that can make accessing NVR server free from counting on browser. The workstation contains a set of programs that provide interface between users and NVR server.

- **Web Client:** the web version of interface to access NVR server without need of installing any client program to become a client. Logging in NVR server is as simple as visiting a website through IE browser.

- **Mobile Client**: the mobile client app that enables the mobile devices (iOS and Android) to remotely access NVR server.


NVR
Camera Site
Network
NVR Server + Workstation or Web Client
Security Officer
Remote User: Administrator / Supervisor / Manager / Security Officer
Network
Remote Access
Workstation
Remote User
Remote Access
Web Client
Remote User
Remote Access
Mobile Client
Remote User

System Installation Check List

Pre-installation			
Item		**Task**	**Description**
1	☐	Prepare software license for video source devices	NVR 3 comes with **16-channel** free license for **16** ACTi cameras and **1-channel** free license for **1** non-ACTi camera each. For additional channels, please purchase the license from your system supplier and get the license information ready before activation.
2	☐	Prepare the server computer	Make sure the computer's hardware spec, operating system and IE browser version are compatible with software requirements.
3	☐	Assign a fixed IP for server computer	The server computer should possess a fixed IP for NVR server.
Installation			
Item		**Task**	**Description**
4	☐	Install NVR Server software	Follow the instructions to install the software on server computer.
5	☐	Check if the installation is successful	Log in to NVR server to check if you can see the login page. (On server computer, type http://localhost in browser's URL bar).
6	☐	Activate the license	Activate your license key to get your required number of channels ready.
Configuring the Cameras			
Item		**Task**	**Description**
7	☐	Get the cameras connected and ready for use	Finish the installation and basic settings of all cameras (IP address, usernames, passwords, ports, internal storage, etc.), and attach all external hardware devices (alarms or sensors) to the cameras if necessary.
8	☐	Connect external devices with the NVR Client PC	Attach necessary external hardware peripheral such as a joystick or a microphone to the client computer.
System Setup			
Item		**Task**	**Description**
9	☐	Configure the Storage Settings	Activate the disks for recording and make sure the total memory space is sufficient.
10	☐	Add cameras to NVR server	Add cameras and configure camera settings including camera name, GPS coordinates, video/motion/PTZ settings, etc.
11	☐	Configure Recording Schedule	By default, NVR will start 7/24 full-time recording for camera channel as soon as it is added. Set recording schedule for each camera.

12	☐	Configure E-mail & FTP settings	Complete the E-mail or FTP settings and test if NVR server succeeds in sending e-mails and uploading files. This step is necessary if you will need these services for Event Handling.
13	☐	Configure Event rules	Set the event rules to define which types of notifications to be delivered to notify the NVR users of events.
14	☐	Create Users Accounts & Groups	Configure User Group permissions and create User Accounts.

Live View Setup			
Item		**Task**	**Description**
15	☐	Create Views for Users	Customize and save views for Live monitoring as well as the view patrol patterns.

Back up System Settings			
Item		**Task**	**Description**
16	☐	Create backup of system settings	Create a backup file of current system settings for future re-installation or in case of critical system failure.

Post-installation Validation			
Item		**Task**	**Description**
17	☐	Check live view	Make sure if the Live screen displays the correct layout you have set, and test the basic Live operations (e.g. PTZ controls or instant playback).
18	☐	Check recording	Make sure the disk is recording normally according to the schedule.
19	☐	Check event handling	Check if the expected responses (e.g. sound alarms or e-mail notifications) are correctly triggered by events.
20	☐	Check user permissions	Make sure users can access NVR with the given account/password, and are only admitted to their permitted functionalities.
21	☐	Check playback	Make sure (1) the Playback screen can display recorded footages, (2) the search functions can filter your desired event, and (3) the export function can generate viewable files to the designated folder.

Getting Started

System Requirements

The **minimum** PC specifications provide acceptable performance for most surveillance systems; for those with more live channels and demands for higher video quality; please consider the **recommended** PC specifications or validate if the server computer's hardware is suitable through ACTi online **PC Selector**

- http://www.acti.com/pcselector

PC Spec		Server + Local Client PC		Server PC Only	Remote Client PC	
Number of Live Channels (*2)		**1-16**	**17-64**	**0**	**1-16**	**17-64**
CPU Processor	Minimum	Intel Core 2 Quad 2.4GHz	Intel i5 2.4 GHz	Intel Core 2 Quad 2.4GHz	Intel Core 2 Quad 2.4GHz	Intel i5 2.4 GHz
	Recommended	Intel i5 2.4 GHz	Intel Core i7-920 2.67 GHz	Intel i5 2.4 GHz	Intel i5 2.4 GHz	ntel Core i7-920 2.67 GHz
RAM		4GB (*3)				
Network		Ethernet (1000 Base-T recommended)				
Hard Disk (*4) Space		Minimum **40 GB** (*5)				
Operating System (*6)		Windows Vista, Windows 7, Windows 8, Windows 10, Windows Server 2008, Windows Server 2012				
Browser		Internet Explorer 10 and 11				

***1** These specifications are based on following camera settings:

Single stream mode →1280x1024, 3Mbps, 18fps, MPEG-4

Dual stream mode→1280x1024, 3Mbps, 18fps, H.264 (recording);
640x480, Quality: 100, 18fps, MJPEG (live view).

***2** Live monitoring of multiple channels requires good hardware for smooth performance. For more channels or heavy use of high resolution streaming, it is good to adopt computers with more advanced specifications than the requirements we suggest.

***3** Please use 64-bit system if your computer has more than 4GB RAM. Windows operating system has limits on memory and address space regardless of the real or virtual memory available on a particular computer. Take Windows 7 Professional for example, the maximum physical memory for a 32-bit(X86) system can address is 3.5 GB even though 16

GB of RAM has been installed on this computer. Therefore, if you consider increasing the computer's multi-tasking capability by adding more RAM, you will need a 64-bit version of Windows to take advantage of it all.

Please visit the link below for more memory limitations on various Windows platforms.
http://msdn.microsoft.com/en-us/library/aa366778%28VS.85%29.aspx#physical_memory_limits_windows_7

Besides the limitation mentioned above, you may find the usable memory of your computer displayed here: → **Computer** → **Properties** is still less than actual installed memory.

This is a common symptoms of all Windows platforms, please find explanations and solutions in this Windows official support document
http://support.microsoft.com/kb/978610/en-us and
http://windows.microsoft.com/en-us/windows7/taking-the-mystery-out-of-64-bit-windows

***4** Supports local hard drives and iSCSI NAS. For detailed information on how to use iSCSI NAS with NVR 3, please refer to our article on Using iSCSI NAS with NVR.

***5** The required free space of the disk drive where NVR is installed should be at least 40 GB at all times; however, the actual necessary space depends on number of cameras, recording and event rules settings. To get an approximate value, you may use the online tool **Bandwidth & Storage Calculator** - http://www.acti.com/storagecalculator. It is also advised to use a separate disk for video recordings.

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

Pre-requisites

These prerequisites below are necessary before installation:

1. Suitable System Specifications

Ensure that the server computer meets the minimum system requirements, and that the server computer has **C Drive**.

2. Uninstall Previous ACTi NVR Server

NVR Server cannot co-exist with another on the same server computer. You can find instructions on System Migration on page 125 for how to perform a NVR system migration.

3. More than 40 GB Space on Storage Drive

Please make at least 20 GB memory space on the storage disk drive. You may choose different disk drive on **Setup** page→**Storage** tab.

4. Turn Off Windows UAC Function

UAC (User Access Control) is a security setting that restricts access in Microsoft Windows. You must disable UAC before installing NVR in **Windows Vista** and **Windows 7**, for the installation of application components and certain program features would be interrupted by this security rule. You may disable UAC through Windows control panel.

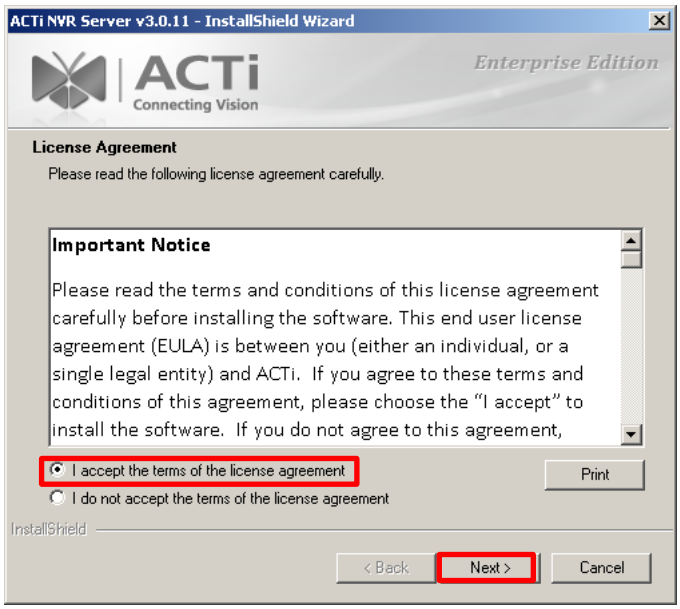
If you are using **Windows 8**, please enable the built-in **Administrator** account and log in with this identity, or add this NVR site to IE browser's trusted sites.

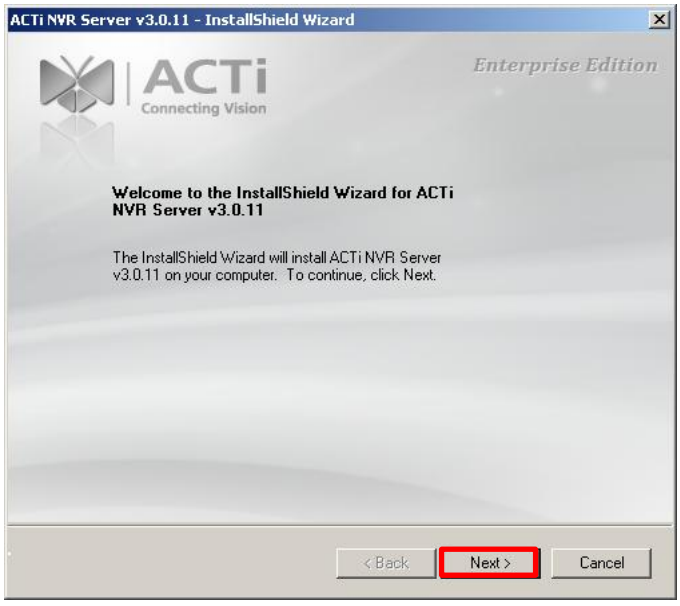
Server Installation

The server program installation is as easy as 1-2-3 by following the installation wizard's instructions. The server would start its service right after installation completes, without the need to restart the server computer.

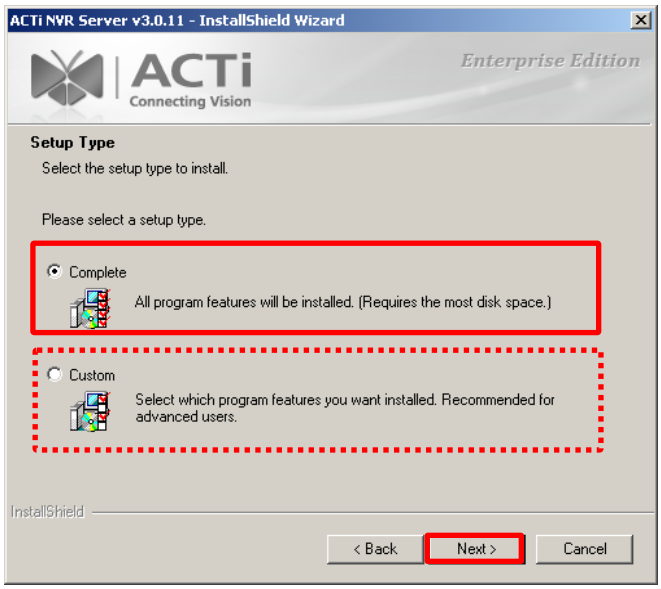
Install the Software

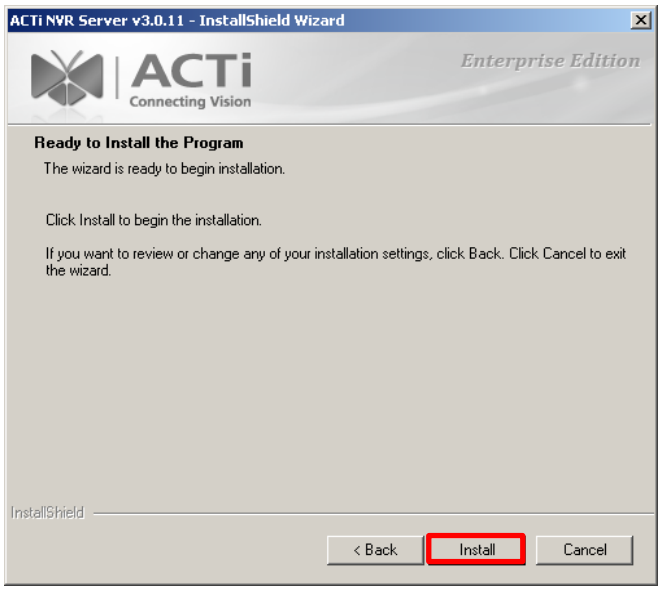
1. Execute the install shield application .
2. Follow the onscreen instructions of **Install Shield Wizard**, accept the license agreement and proceed.



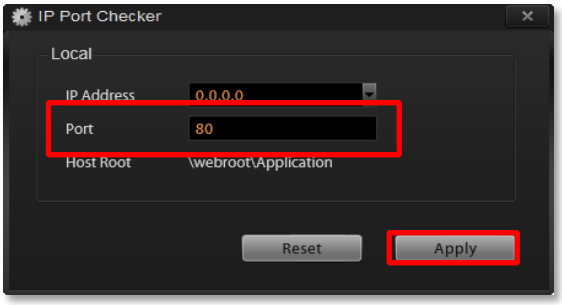


When selecting **Setup Type**, the default "**Complete**" will have the program installed on default **C drive**, you may select "**Custom**" to choose another program location.

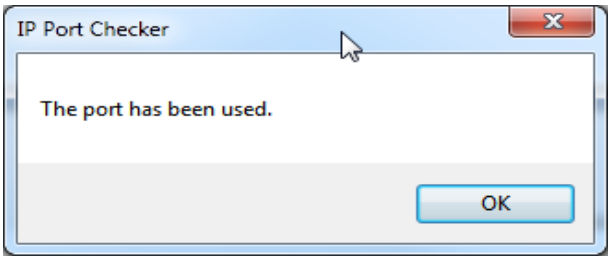




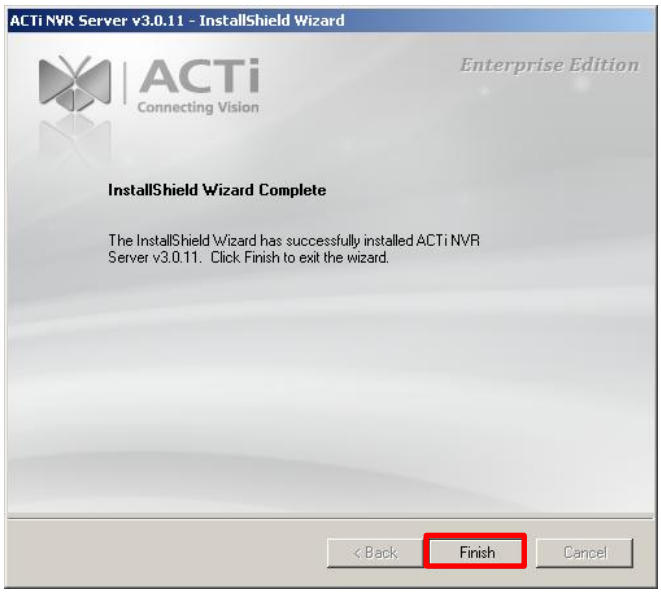
3. The **IP Port Checker** will pop up to confirm the NVR port number with you. The installation program will use **80** as default. You may enter another available port number in "**Listen Port**" field and click "**Apply**".



You may just click "**Apply**" if you are not sure whether this port is occupied by another application or not. If the port is being used by another service, you will be asked to input another available port number.



4. As the server port is confirmed, the installation process is done, click "**Finish**".



5. After the installation completes, connect to http://localhost:port_number with Internet Explorer browser, you will see NVR Login page.

Note

If IIS Web Server has been installed on the computer and you are asked to restart the computer during installation process, please

1. Choose Yes, I want to restart my computer now. to restart right away.
2. After the computer reboots, this install shield will continue to complete the installation.

Important Notice

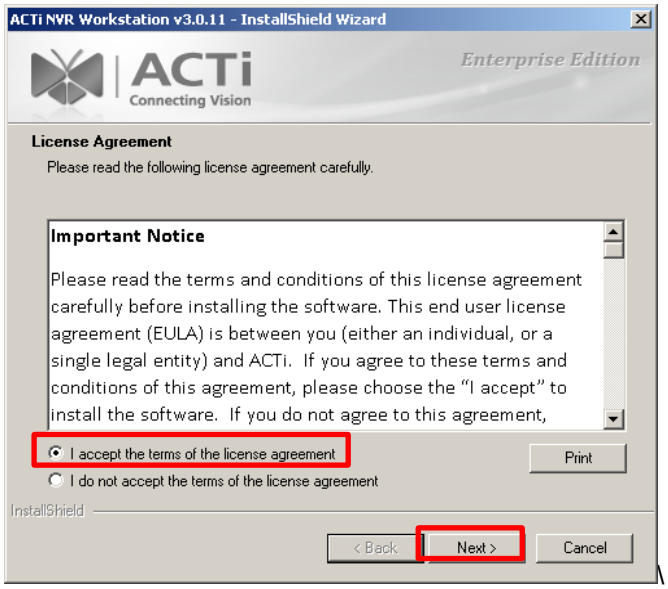
If the server computer has already installed previous ACTi NVR server versions, please remove the main program and patches from **Windows→ Control Panel** before installing ACTi NVR 3 Enterprise; or you should choose another computer as NVR 3 server

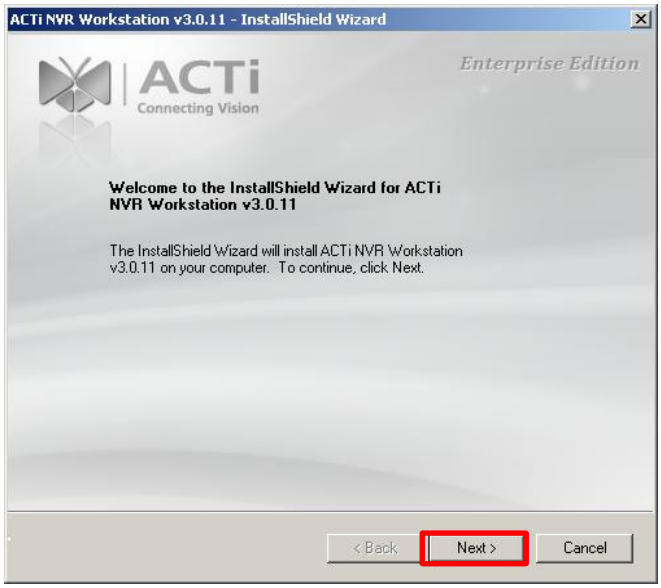
Workstation Installation

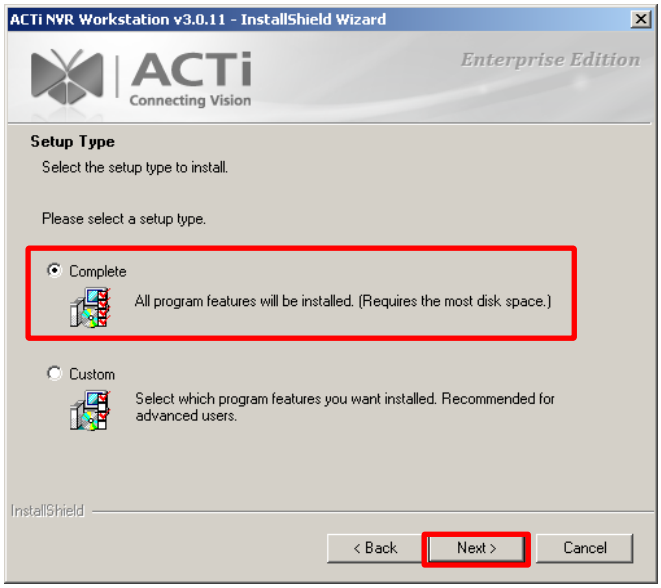
NVR Workstation includes a set of programs that provide interface between users and NVR server. It may be installed on the same PC as NVR server, or they may be installed separately and connect to NVR Server via network.

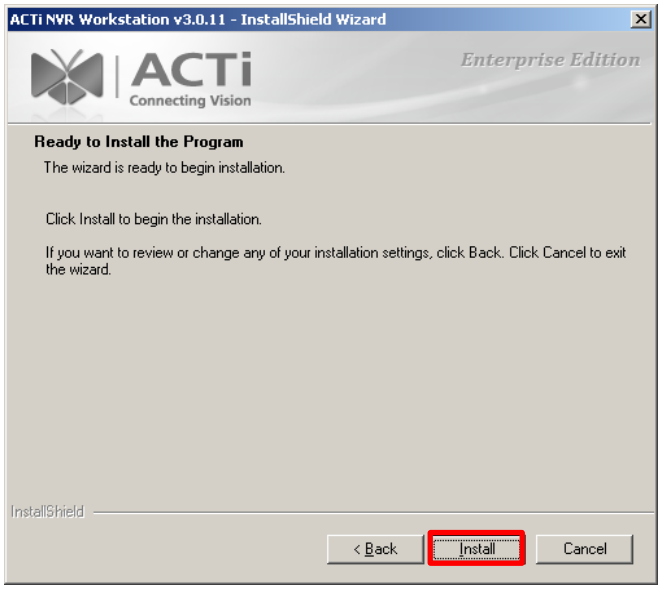
Install the Software

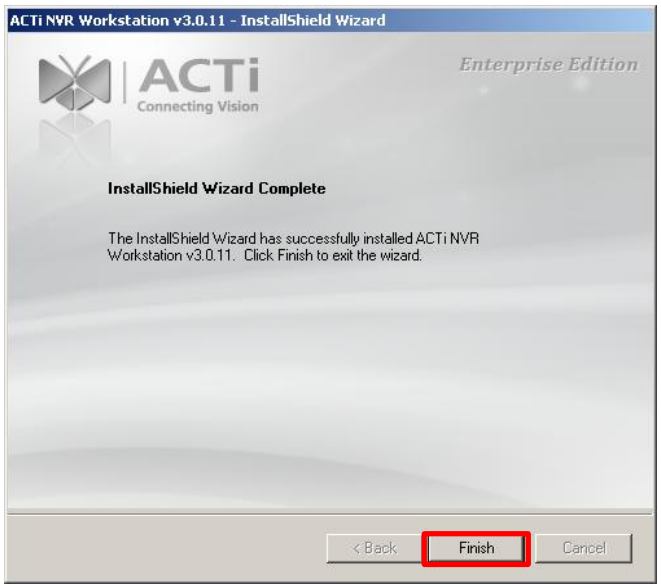
1. Execute the install shield application .
2. Follow the onscreen instructions of **Install Shield Wizard**, accept the license agreement and proceed.



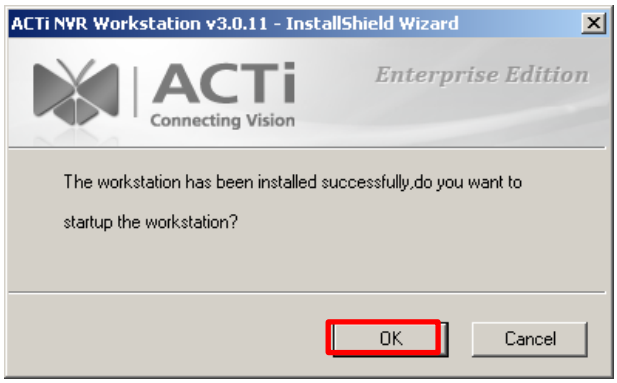


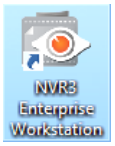

ACTi NVR Workstation v3.0.11 - InstallShield Wizard
ACTi
Connecting Vision
Enterprise Edition
Setup Type
Select the setup type to install.
Please select a setup type.
Complete
All program features will be installed. (Requires the most disk space.)
Custom
Select which program features you want installed. Recommended for advanced users.
InstallShield
< Back
Next >
Cancel


ACTi NVR Workstation v3.0.11 - InstallShield Wizard
ACTi
Connecting Vision
Enterprise Edition
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel


ACTi NVR Workstation v3.0.11 - InstallShield Wizard
ACTi
Connecting Vision
Enterprise Edition
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed ACTi NVR Workstation v3.0.11. Click Finish to exit the wizard.
< Back
Finish
Cancel

You can directly initiate Workstation application by clicking on "**OK**".



A shortcut 

will also appear on the Desktop.

License and Activation

In NVR 3 system, your required number of channels should be licensed and activated before the cameras are added to NVR server. The **License Key**, provided by ACTi sales representative once your purchase of license is carried out, will be used to activate the license. After the license activation, the channels on NVR server will automatically become available.

Aside from ACTi brand cameras, NVR 3 system is also able to support other vendors' cameras as well as all cameras that support ONVIF. All ACTi brand cameras and non-ACTi brand cameras are licensed by different license types:

- Standard License: ACTi brand cameras

- CDP License: Other vendors' cameras

(For more information about non-ACTi cameras supported by NVR 3, please refer to http://www.acti.com/3rdpartycamera)

Please note:

- The license is cumulative and perpetual.
- The license is not version-specific, upgrading software version will not influence the existing license you have
- CDP-licensed channels (for non-ACTi brand cameras) and standard-licensed channels (for ACTi cameras) are counted separately.
- Any camera added through ONVIF (either ACTi or non-ACTi cameras) will also need to be licensed. The license type used will solely be based on the brand of the camera.
- The maximum number of cameras (ACTi brand + non-ACTi brands that can be managed by NVR Server is **100**.
- After activating CDP license, please follow the instructions in Add Non-ACTi Cameras on page 46 to manually add those non-ACTi cameras to NVR system.

License activation is the process of unlocking the channels on NVR product with the received **License Key**. **License Key** is a serial number delivered as a printed card or an E-mail after the purchase is carried out.

During license activation, your **License Key** is matched against the MAC address of the Network Interface Card (NIC) on NVR server computer. Once this license key is used by the computer with given MAC, it cannot be activated with another MAC. This matching record will be stored on the ACTi license data server. If your computer has more than one network cards,

NVR server will detect them and provide you a dropdown list to select from.

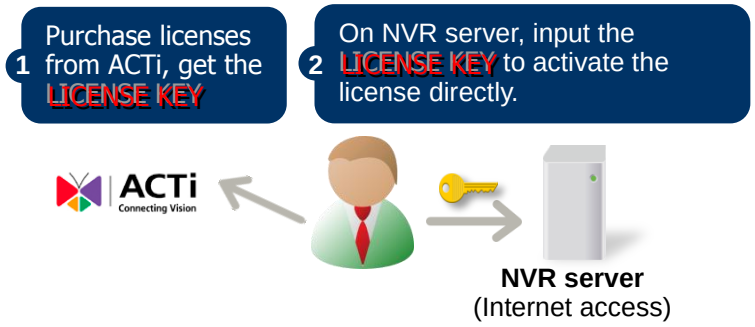
Note

Although certain fisheye camera view modes (e.g. **Quad** mode) display multiple regions in a view, they are still counted as one single channel in terms of licensing.

There are two ways to activate the licenses depending on your NVR server network condition: **Online Activation** and **Offline Activation**.

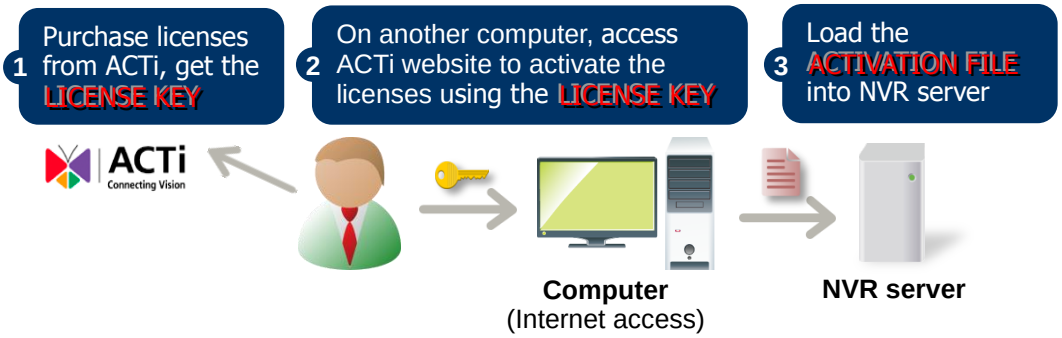
Online Activation

If your NVR server computer has Internet access, choose online activation.



Offline Activation

Offline activation does not require Internet access for NVR server. It is used when NVR is located in network not connected to public Internet (e.g. in a military base). You will need to get an activation file from another computer and transfer it to NVR server computer.

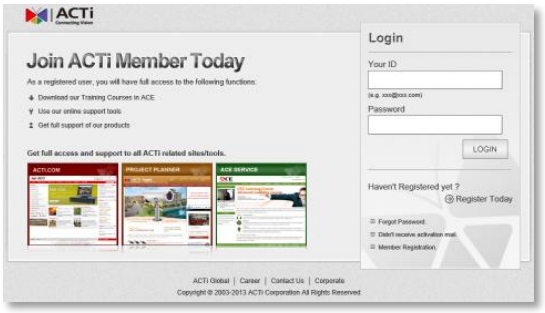


Step-by-step Activation Process

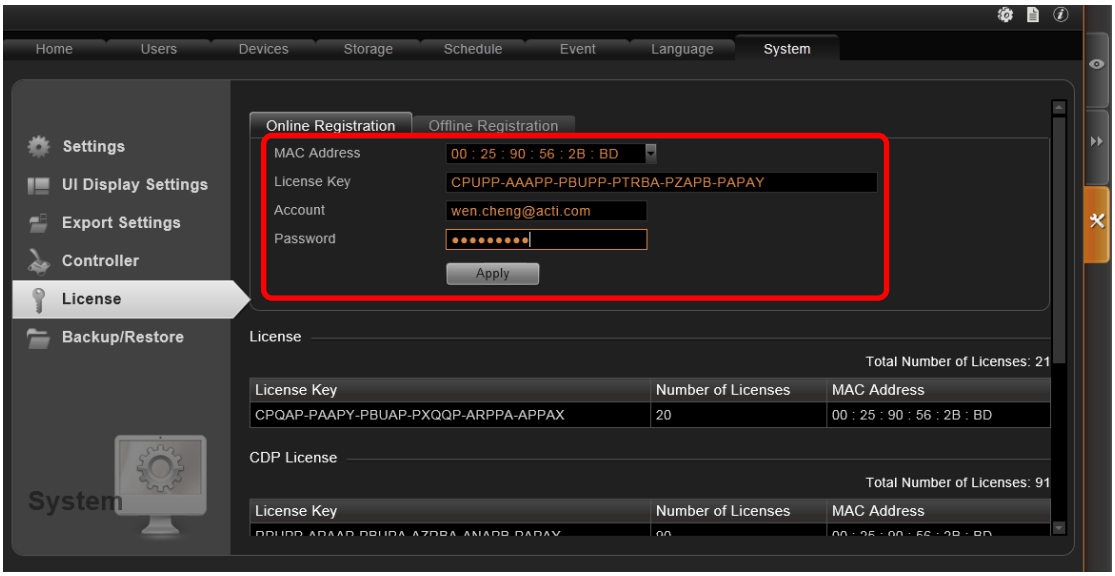
Based on the network conditions of your site, follow Online Activation SOP or Offline Activation SOP to activate your license.

Online Activation SOP

Step 1: Membership ID in **ACTi Member Center** is required for activation. Register one for free at http://member.acti.com/

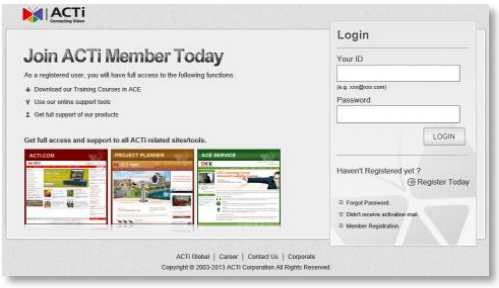


Step 2: Log in NVR server, go to **Setup** page→**System** tab→**License**→"**Online Registration**". Select the **MAC Address**, enter your **License Key**, ACTi member **Account** and **Password**, and then click "**Apply**". NVR server will connect to the license data server via Internet to register the license key, and unlock the channels.

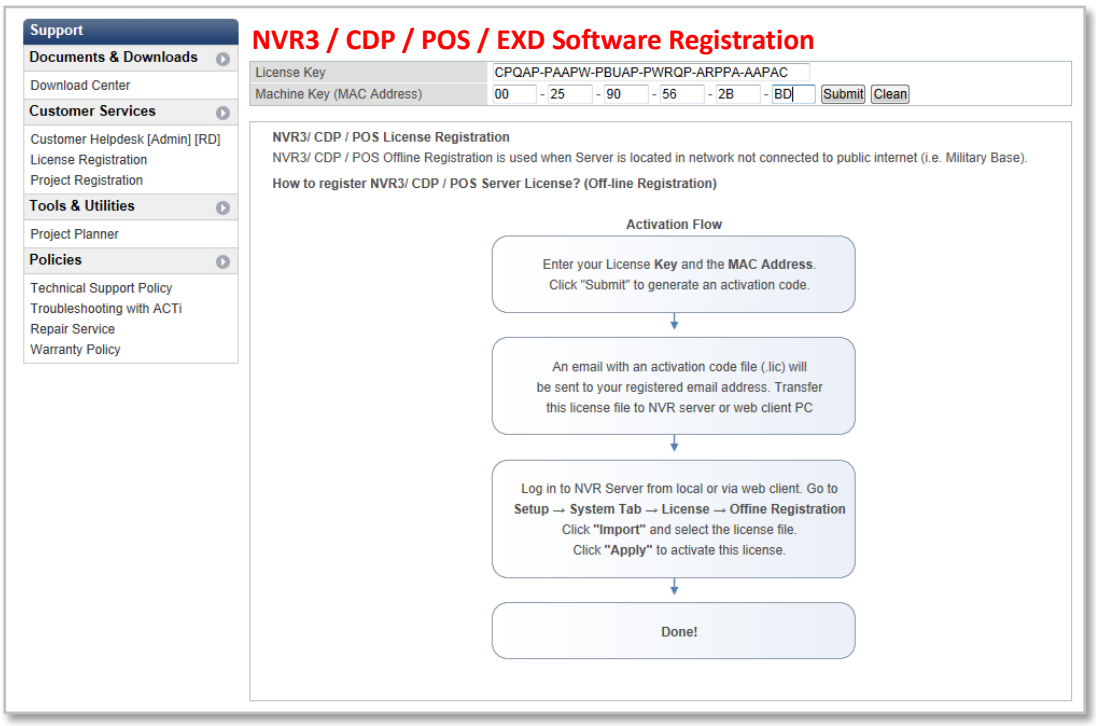


Offline Activation SOP

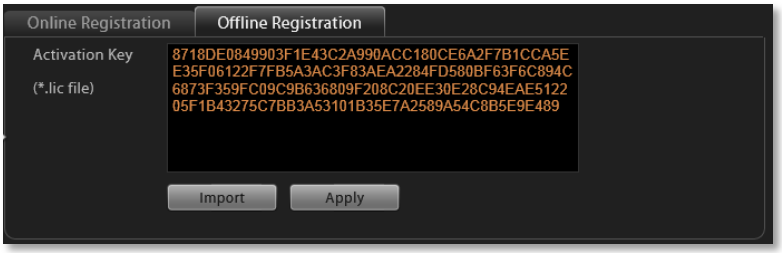
Step 1: Membership ID in **ACTi Member Center** is required for activation. Register one for free at http://member.acti.com/



Step 2: Access http://www.acti.com/support/LicenseMgt/NVR 3_registration.asp, enter the **License Key** and the **MAC address** of NVR server computer, and click "**Submit**". An e-mail with activation code file (.lic) will be sent to your registered E-mail account.

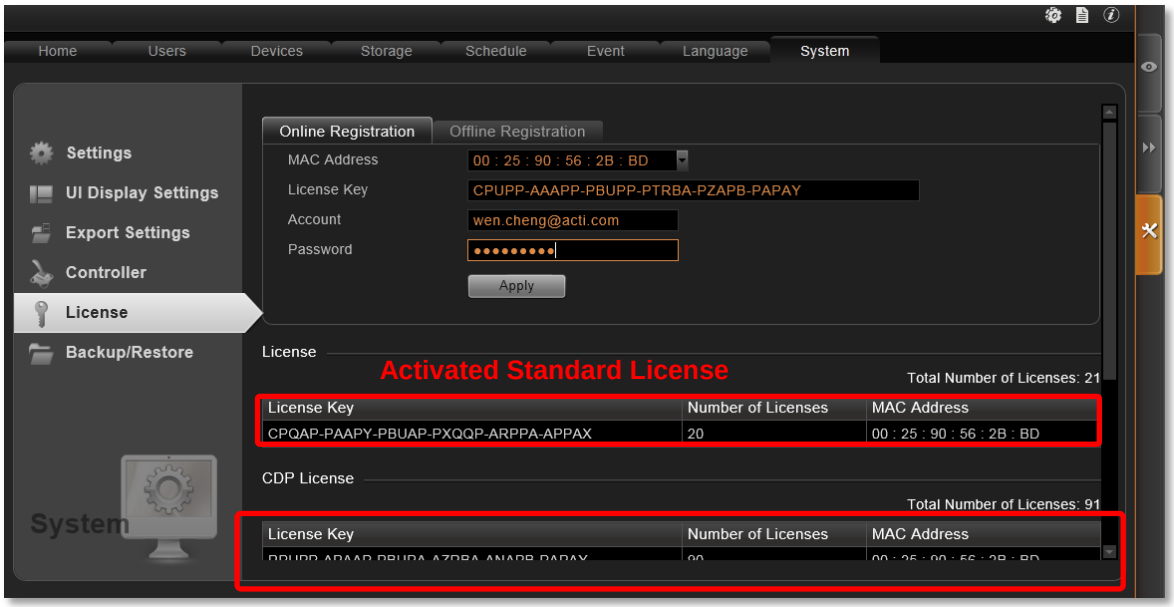


Step 3: Log in NVR server from local or via web client. Go to **Setup** page→ **System** tab → **License** → "**Offline Registration**"→ click "**Import**" and upload the license file (.lic). Click on "**Apply**" to activate this license.



Verify Your License

Once your license is successfully activated, the license information will be shown on **License** page.



Activated CDP License

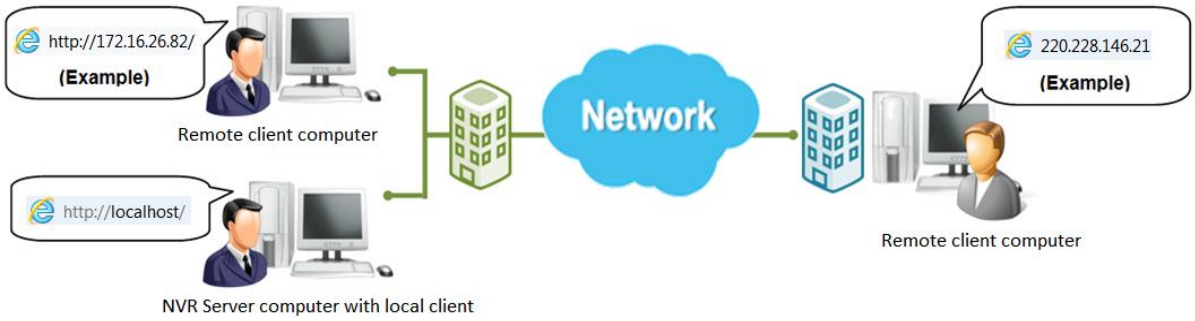
Tip

How to find MAC Address

1. Click **Windows Start**, in the run box on **Start** menu, input "**cmd**".
2. Execute the **cmd** program, and input the command "**ipconfig /all**" or "**getmac**"
3. The MAC address will be referred to as the **Physical Address**, made up of 12 characters
   e.g. **00-1E-65-FE-8E-98**

Log In to the System

Access NVR Server via Internet Explorer



From Server Computer (as Local Client)

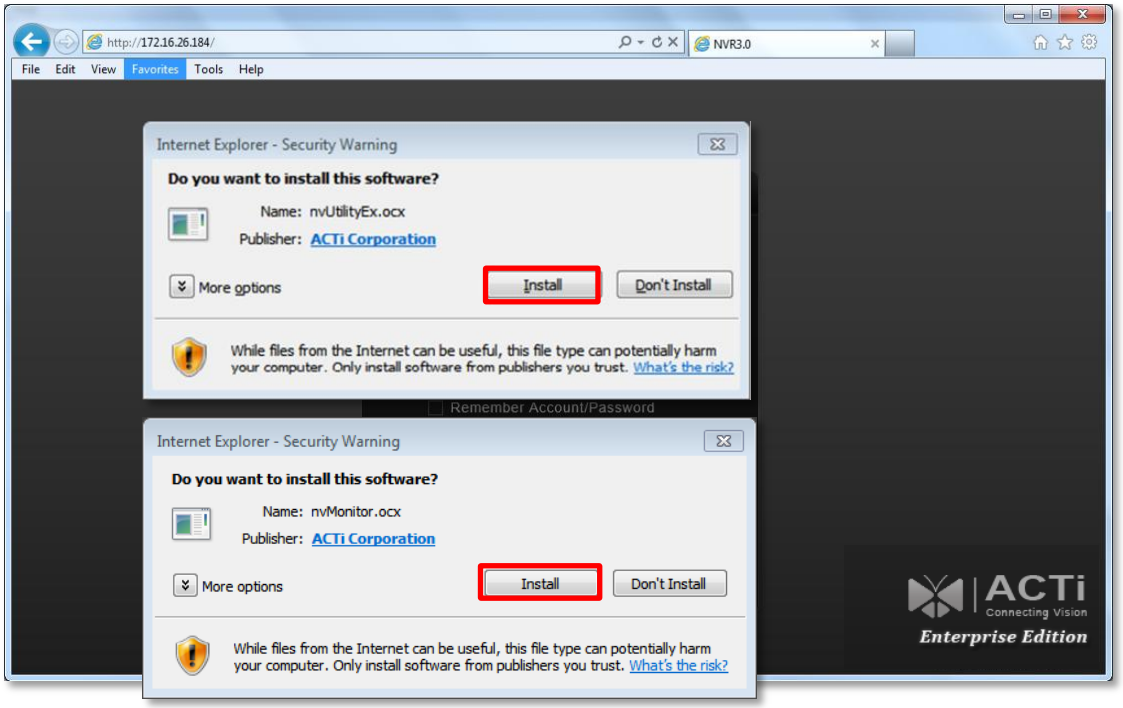
Open Internet Expolrer. If your computer is where NVR server is installed, type **http://localhost/** in URL box.

From Remote Computer (as Remote Client)

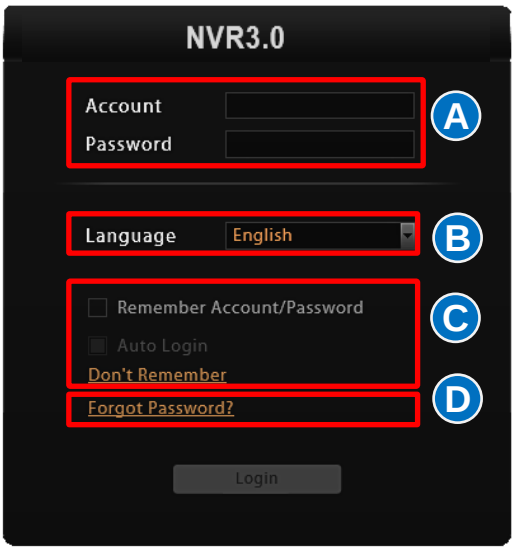
A remote client refers to any client using a computer over WAN or LAN other than the server computer to access NVR. If you are connecting to a NVR server as a remote client, please type server computer's ip (e.g. local network ip: **http://172.16.26.217** within LAN ;public IP **http://220.228.146.21** or domain name **http://nvr.acti.com** over WAN) in URL box. Remember to append a colon and the port number after the hostname or IP address.

Accept ActiveX Controls Installation Requests

NVR 3 interface requires the add-on ActiveX Control components, please make sure browser's security settings allow ActiveX controls to be downloaded and installed. When your browser asks if you allow ACTi Corporation's add-on components to run, please .


http://172.16.26.184/
NVR3.0
File Edit View Favorites Tools Help
Internet Explorer - Security Warning
Do you want to install this software?
Name: nvUtilityEx.ocx
Publisher: ACTi Corporation
More options
Install
Don't Install
While files from the Internet can be useful, this file type can potentially harm your computer. Only install software from publishers you trust. What's the risk?
Remember Account/Password
Internet Explorer - Security Warning
Do you want to install this software?
Name: nvMonitor.ocx
Publisher: ACTi Corporation
More options
Install
Don't Install
While files from the Internet can be useful, this file type can potentially harm your computer. Only install software from publishers you trust. What's the risk?
ACTi
Connecting Vision
Enterprise Edition

Login



A. Enter Account & Password

Account (not case-sensitive)**:**

Admin (default)

Password (case-sensitive)**:**

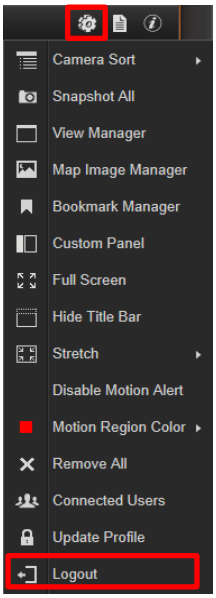
123456 (default)

B. Change UI language

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

C. Remember Account/Password

To have the server remember your Login **Account** and **Password**, check "**Remember Account/Password**". Enabling "**Don't Remember**" will clear your input text and reset to default.

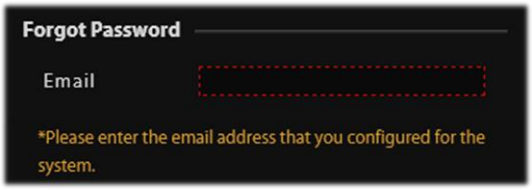


To directly enter the main page every time you log in from this PC in, check "**Remember Account/Password**" then "**Auto Login**" to skip the Login page. **If someone else without proper authority also has the access to this computer, please DO NOT enable either of these functions**.

To cancel auto-login, on title bar, click → "**Logout**" to return to login page, and this function is already cancelled.

D. Retrieve the Forgotten Password

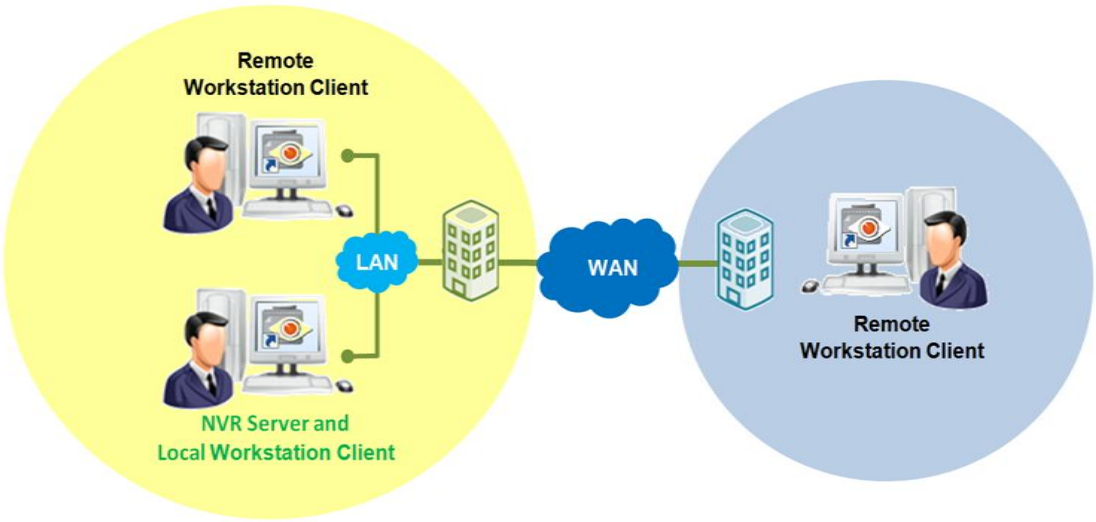
NVR can send the password of the User's account to the saved e-mail address. To ensure that Users are able to use this service, please make sure (1) the SMTP settings have been configured (refer to How to Setup SMTP Settings for Event Rules on page 88) and (2) a valid e-mail address has previously been saved in **Setup** page → **Users** tab → User list.



You will have to enter the e-mail address input in **Forgot Password** window should match the one under your User account saved in NVR server.

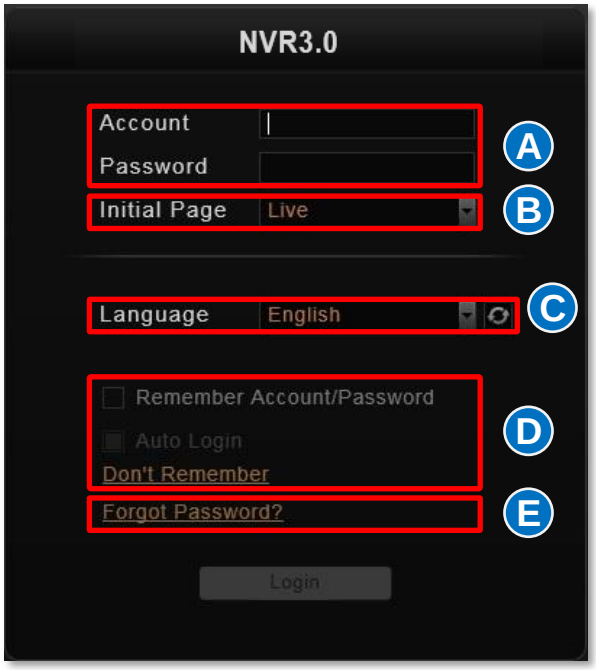
Access NVR Server via NVR 3 Enterprise Workstation

NVR 3 Enterprise Workstation includes a set of programs that provide the interface between users and NVR server. You can install this software on the remote client computer in order to access NVR server via network. You can download this software on ACTi website at http://www.acti.com/DownloadCenter, and it is wrapped together with the NVR system software. For the instructions on the installation of this software on the client computer, please refer to Workstation Installation on page 18.



From Server Computer (as Local Workstation Client)

Local Workstation Client refers to the user who runs Workstation on NVR server to log in to the NVR system. The login process is described as follows.



A. Enter Account & Password

Account (non case-sensitive)

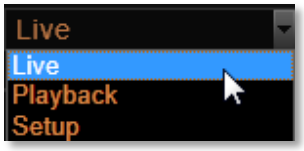
Admin (default)

Password (case-sensitive)

123456 (default)

B. Choose the Initial Page

The user interface consists of three main module screens, **Live View**, **Playback** and **Setup**. You may choose one where you would like to enter after login. Default is **Live View** screen.

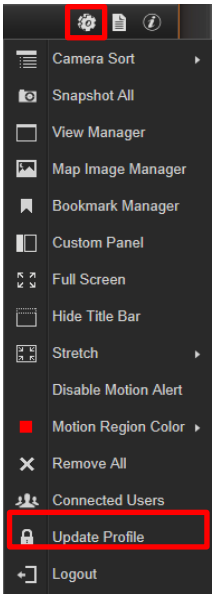


C. Language

Choose a UI language from the dropdown list.

D. Remember Login Information and Auto Login

To have **NVR 3 Enterprise Workstation** remember the **Account**, **Password, Initial Page** and UI **Language** settings, simply check "**Remember login info**". Enabling "**Don't Remember**" will clear your input text and reset to default.



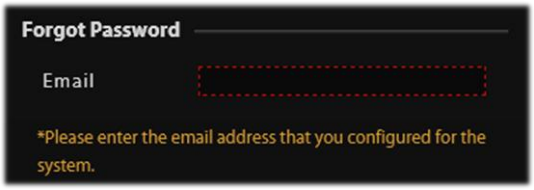
To automatically log in to NVR system, please check both "**Remember login info**" and "**Auto Login**" to skip the Login page. **If there is someone else without the system authority who also has access to this computer, you might consider not enabling this function**.

To cancel auto-login, on title bar, click → "**Logout**" to return to login page, and this function will be cancelled.

E. Retrieve the Forgotten Password

NVR server can send the password of the User's account to the saved email address. To

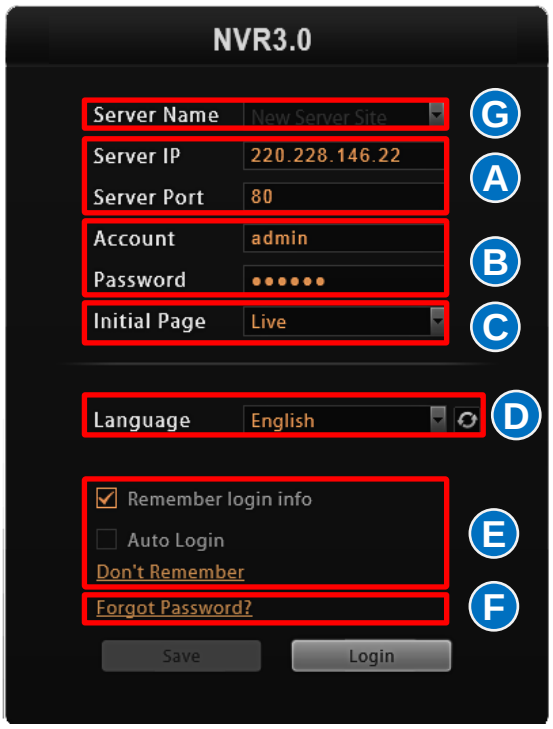
ensure that users are able to use this service, please make sure (1) the SMTP settings have been configured (refer to How to Setup SMTP Settings for Event Rules on page 88) and (2) a valid email address has previously been saved in **Setup** page → **Users** tab → User list.



You will have to enter the e-mail address input in **Forgot Password** window should match the one under your User account saved in NVR server.

From Remote Computer (as Remote Workstation Client)

Remote Workstation Client refers to the user who runs NVR 3 Enterprise Workstation on a computer rather than NVR server, and tries to reach NVR server via network. The login process is described as follows.



A. Server IP & Server Port

In **Server IP** field, please input the LAN or WAN IP address of NVR server.

In **Server Port** field, key in the port number. The default value is 80**.**

B. Enter Account & Password

Account (non case-sensitive)

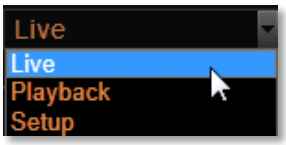
Admin (default)

Password (case-sensitive)

123456 (default)

C. Choose the Initial Page

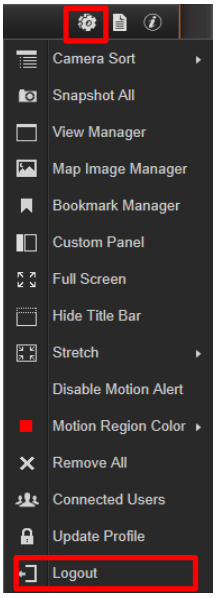
The user interface consists of three main module screens, **Live View**, **Playback** and **Setup**. You may choose one where you would like to enter after login. Default is **Live View** screen.



D. Language

Choose a UI language from the dropdown list.

E. Remember Login Information and Auto Login



To have **NVR 3 Enterprise Workstation** remember the **Account**, **Password, Initial Page** and UI **Language**, simply check "**Remember login info**". Click "**Don't Remember**" will clear your input text and reset to default. **If NVR server or remote client computer may be accessed by someone else, you might consider not to use this function**.

To automatically login to the NVR system, please check both "**Remember login info**" and "**Auto Login**" to skip the Login page. **If NVR server or remote client computer may be accessed by someone else, you might consider not to use this function**.

To cancel auto-login, on title bar, click → "**Logout**" to return to login page, and this function will be cancelled.

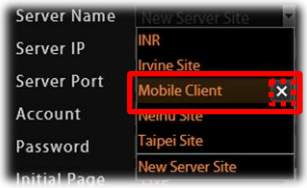
F. Retrieve the Forgotten Password

Please refer to E. Retrieve the Forgotten Password on page 30.

G. Server Name/Server Sites List

NVR 3 Enterprise Workstation can remember multiple server sites and their login credentials and show the site lists on **Login** window. To add a new site:

1. Click in the **Server Name** box and input the server site name.
2. Fill in the other fields. If you disable the "**Remember login info**", then only the **Server Name**, **Server IP** and **Server Port** of this server site will be remembered.
3. Click "**Save**".
4. After a server site is saved, it will be shown on **Server Name** dropdown list. You may click on its name to enter its Login window or ✕ to delete it from the list.



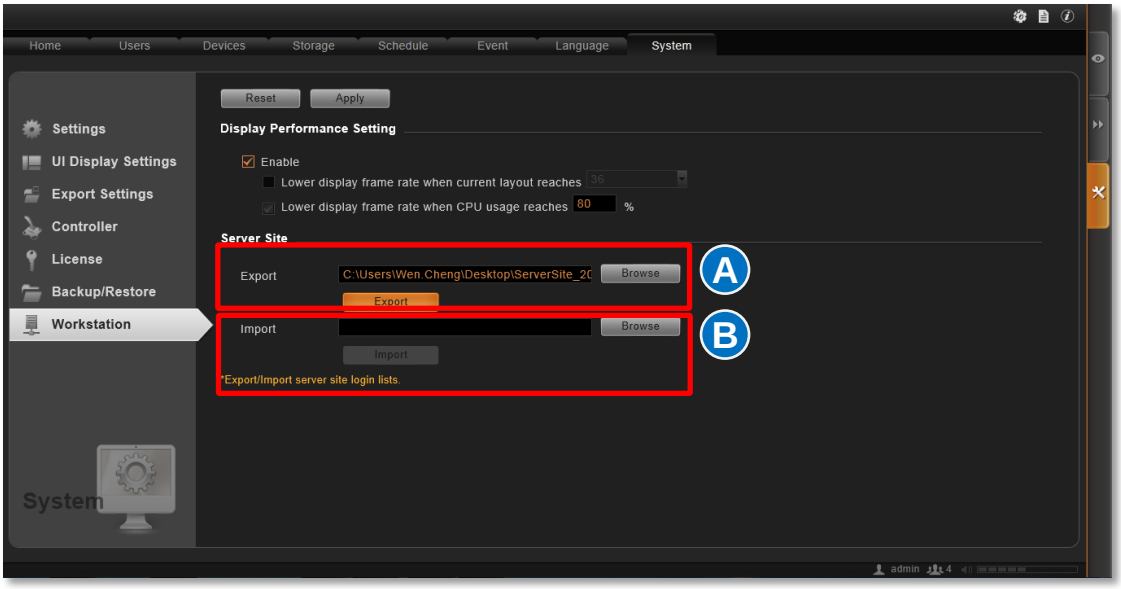
5. You can export the saved server sites, or import it to another Workstation client computer. Access NVR server via **NVR 3 Enterprise Workstation** , go to **Setup** page → **System** tab → **Workstation**.

A. Export current server sites list

Click "**Browse**" to select a folder to save the list, and then click "**Export**". This file will be saved as an *.xml file.

B. Import a server site list

Click "**Browse**" to select the *.xml file, and then click "**Import**". The server sites will appear in **Server Name** dropdown list on **Login** window of your next login.



Set up the System

This chapter will guide you through everything you need to know in **System Setup** starting from the first time you access NVR server to general system configurations.

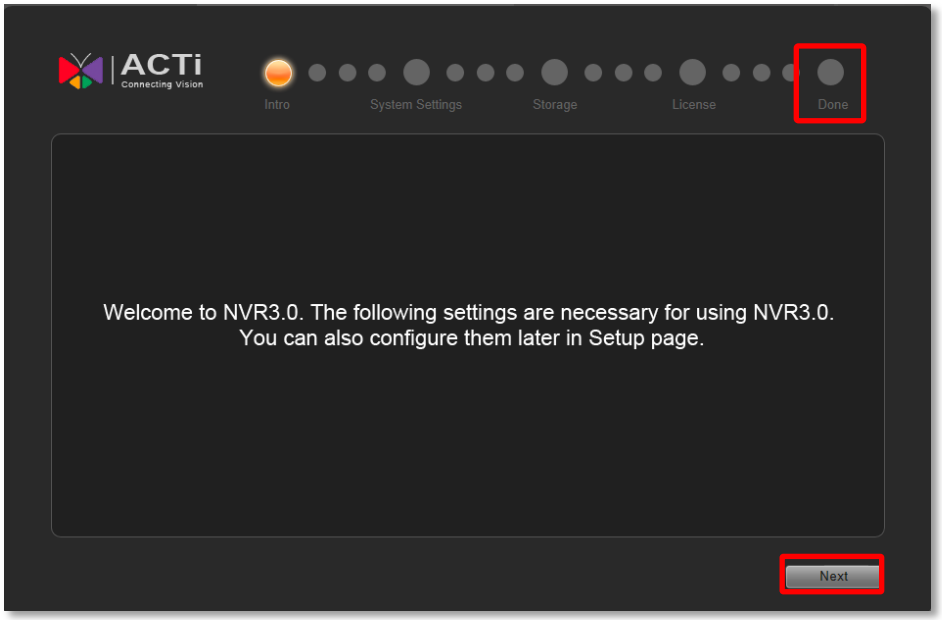
Instant Setup

The **Setup Wizard** and **Quick Setup** can provide you shortcuts to the essential system configurations.

Setup Wizard

The **Setup Wizard** will only make its appearance the first time you log in after installing NVR server; it will guide you through the initial setup stages. You may click "**Previous**" or "**Next**" button located on the lower right at any time. This will skip the current step so that you may come back to it later. All the settings in the **Setup Wizard** are available on **Setup** page.

To skip this wizard, click the bubble "**Done**" on top right corner.

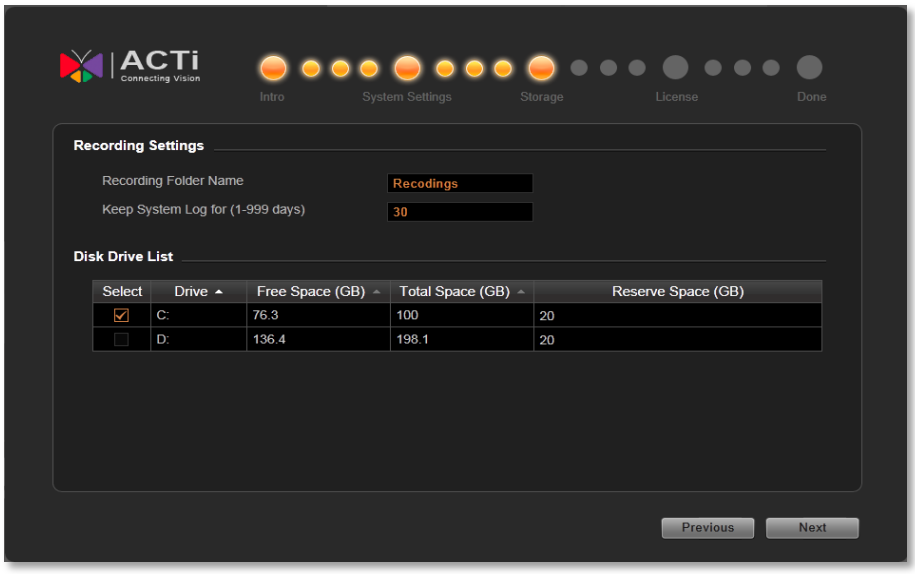


System Settings

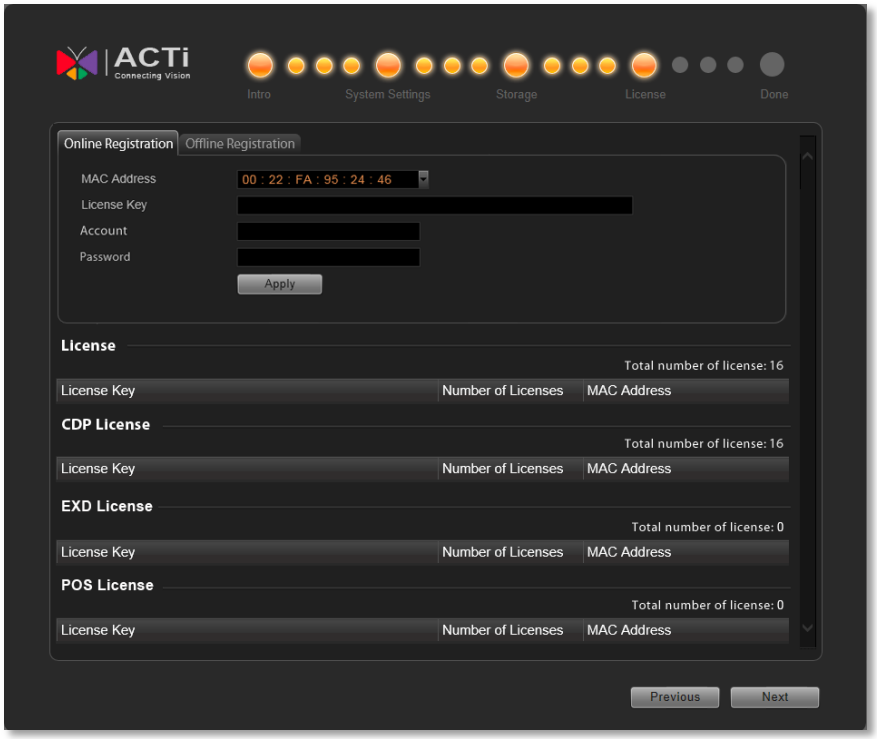
You can adjust the E-mail & SMTP settings, FTP settings for event rules now or later. For more details about the settings. please refer to How to Setup SMTP Settings for Event Rules on page 88 and How to Setup FTP Settings for Event Rules on page 89.

Storage

On NVR server, you may choose which disk drives to store the recording files, and decide how much memory space is left for all computer applications to run. You must configure the **Drive** and **Reserved Space** for recording. **Reserve Space** is the space on the drive that will not be used to save recording files, the deletion of earliest recording files will be performed if available space has decreased to reach below **Reserved Space** configuration; you may choose one or multiple disk drives in **Disk Drive List** to save the recordings. If you skip this step, **Drive C** will be the default drive. For more details about the settings, please refer to Storage Management on page 93.



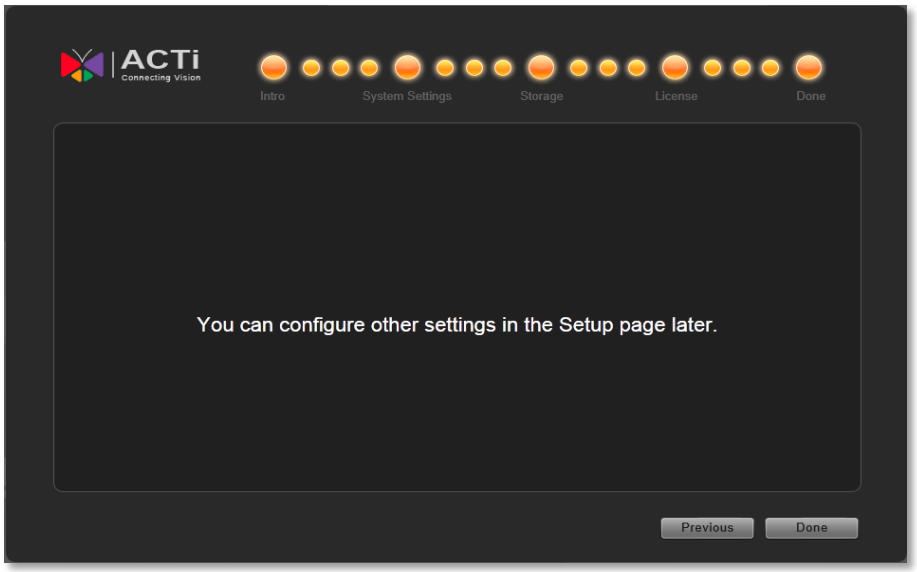
Licensing



This is the license management section. On lower right part of the screen shows number of channels allowed under your current license. Each NVR server has a license for **16** channels which is already activated. You can click "**Next**" to next setting if you do not want to add new license for now. For more details about the settings, please refer to License and Activation on page 21.

The End of Setup Wizard

Click "**Done**" to complete **Setup Wizard**, the previous configuration steps you have gone through are available in **Setup** page.



Quick Setup

Quick Setup

You can make immediate access to the live stream of a specific camera with the help of **Quick Setup**.

You can start by clicking on "**Add Camera Manually**" to manually add a camera by entering its IP address, account and password and use "**Modify Schedule**" to quickly adjust the recording schedule of all cameras; if the number of available licenses is not sufficient, click on "**Add License**" to add your required channel licenses.

NVR Main Screen

You will enter the live view screen after **Setup Wizard**. On the right are link buttons to three NVR major functions: (1) **Live**, (2) **Playback** and (3) **Setup**. You can click the orange button to enter the function page.

Live View

On Live screen, you can see live view from cameras, perform PTZ operations with mouse or Joystick, view system log, receive alerts on the event panel, setup view layouts, perform manual recording or take a snapshot.

Playback

You may search and view playback of multiple channels synchronously. Snapshots or video segments can be taken from playback files. Recorded files can also be exported to AVI format here.

Setup

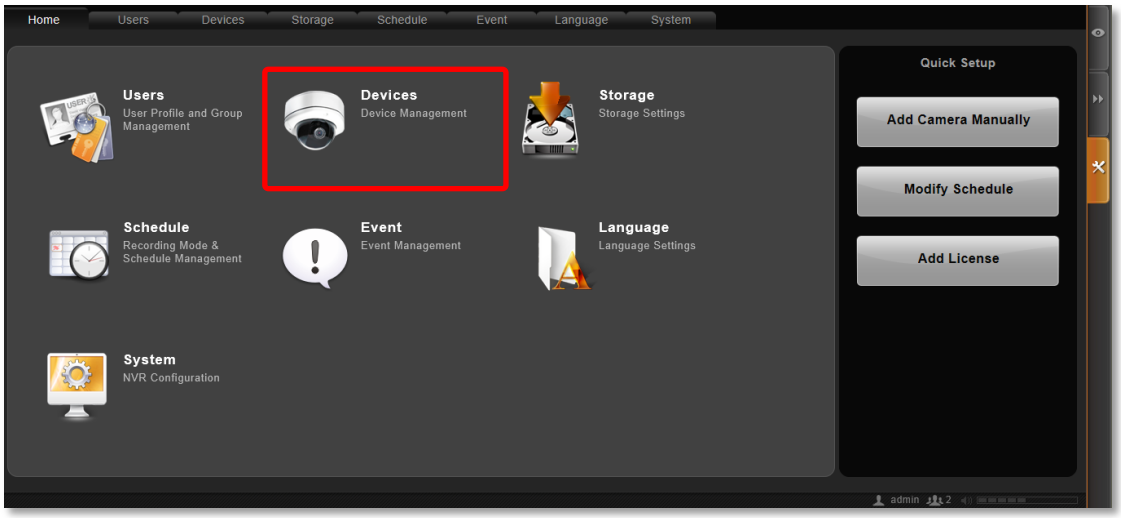
This screen allows you to perform user setup, device setup, event setup, schedule setup and system-wide settings.

Add Cameras

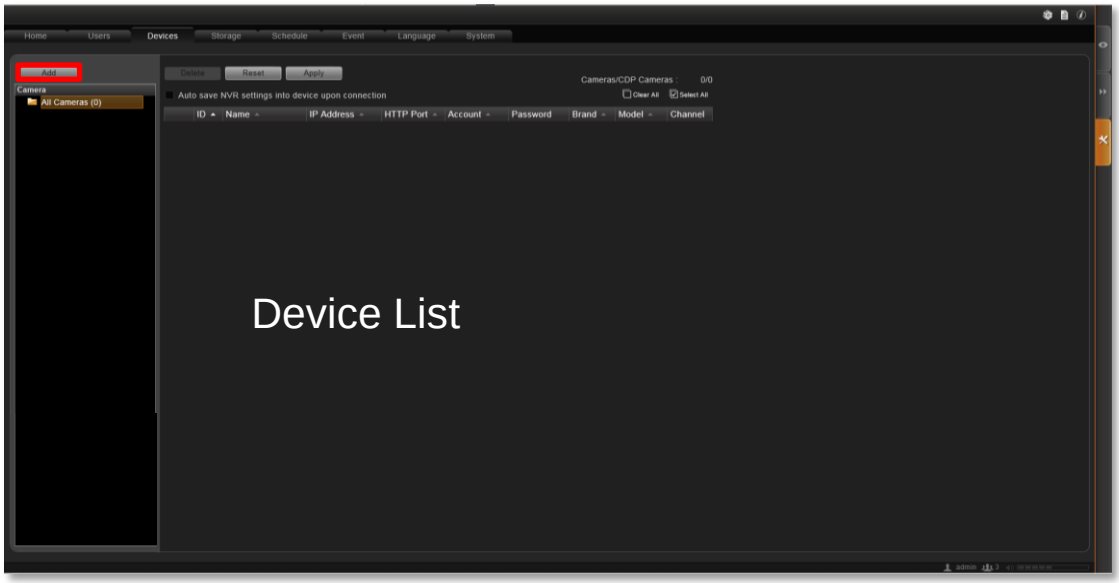
Cameras or video encoders are the fundamental building blocks of surveillance systems. To manage cameras on NVR server, you have to add cameras to it first. In this section, we will guide you through how to add or delete cameras on the NVR system.

To start adding new cameras, please follow these steps:

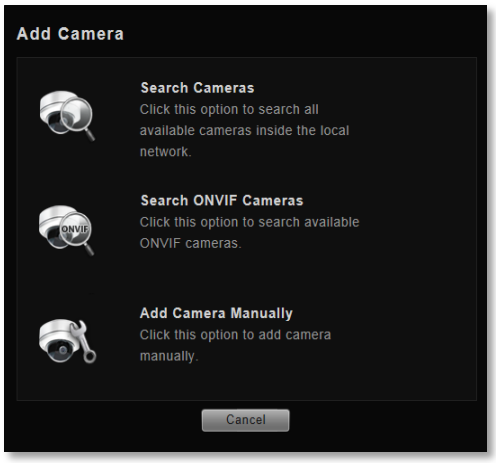
1. On **Setup** page→**Home** screen, click "**Devices**".



2. On **Devices** page, the **Camera List** is currently empty, and you need to add some video sources to it. Now click "**Add**".



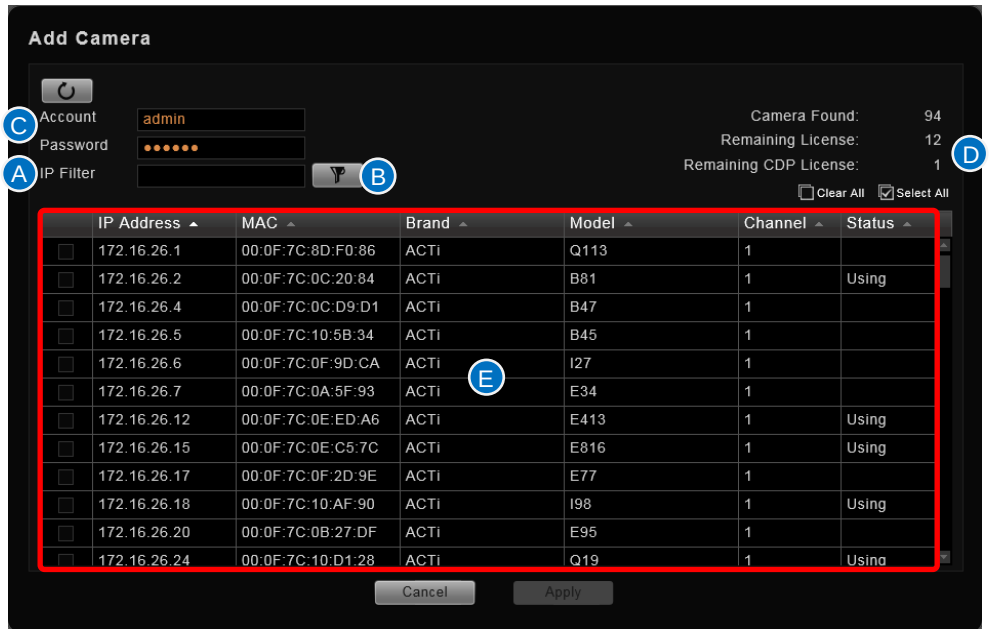
3. There are three ways to add cameras to the system, **Search Cameras**, **Search ONVIF Cameras**, and **Add Cameras Manually.**



- Use **Search Cameras** to auto search ACTi cameras located in the same subnet as your NVR server.
- Use **Search ONVIF Cameras** to find cameras that support ONVIF in the same subnet as your NVR server.
- If your cameras/video sources are located outside the local subnet or over WAN, add them to NVR server by using the **Add Cameras Manually** button.

Search Cameras within Local Area Network

1. Select "**Search Cameras**". Once the search is complete, a list of the cameras in your LAN will be shown. Click on the title header to sort by that column. Click on the header again to sort in reverse order**.** For faster search, you may type a specific IP address or a part of the IP address in **IP Filter** as a filter and click to narrow down the search result.



A. Account/Password text box
B. IP filter (for multiple networks)
C. **"Refresh"** button
D. Available Channels
E. Search result
F. **"Apply"** button

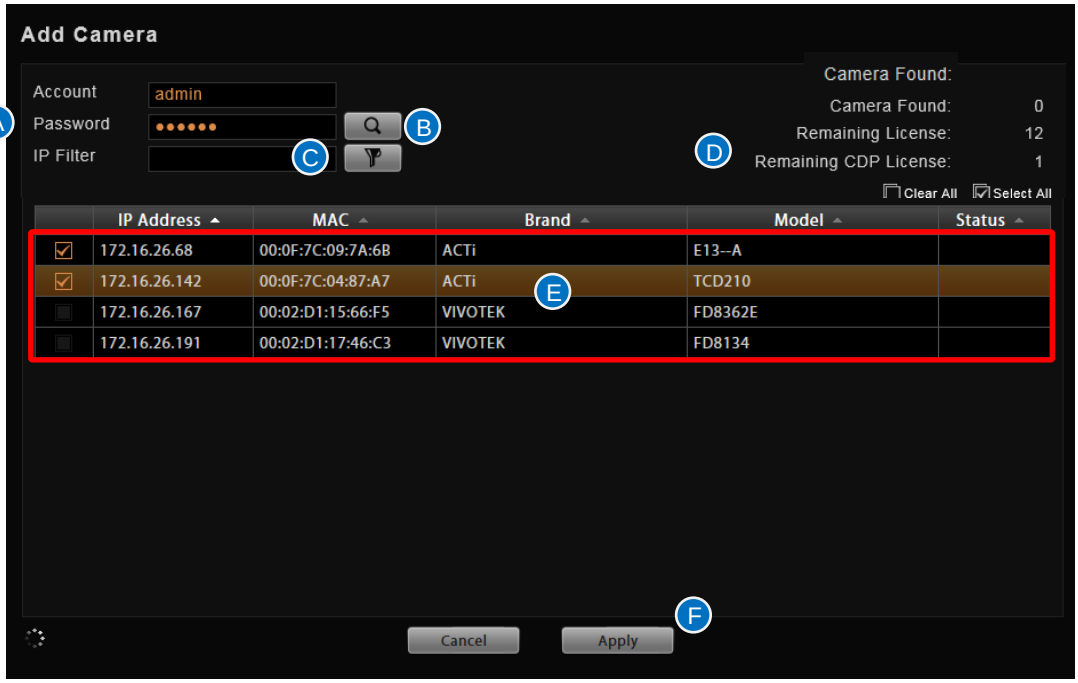
2. Check all the cameras you need. Please note that the list of cameras is shown regardless

of the account name and password. You can choose to add all shown cameras. For those with different account and password, you will be prompted to fill in the correct credentials in order to access the video feed. To perform the search using different credentials, fill in the new **Account** and **Password** and click the **"Refresh"** button .

3. Click "**Apply**" to add selected cameras to NVR 3 system.

Search Cameras within Local Area Network with ONVIF

1. After selecting "**Search ONVIF Cameras**", fill in the account name and password for the camera you want to add.
2. Click the "**Search**" button . Once the search is complete, a list of available cameras will be shown. You may click on the title header to sort by that column. Click the header again to sort in the reverse order. For a faster search, you may type a specific IP address or a part of the IP address in IP Filter field as a filter, and click to narrow down the search result.



A. Account/Password text box
B. **"Search"** button
C. IP filter (for multiple networks)
D. Available Channels
E. Search result
F. **"Apply"** button

3. Select the row of the camera you wish to add to the system and repeat this step until you have checked all the cameras you need.
4. Click "**Apply**" to add selected cameras to NVR 3 system.

Important Notice

1. For certain non-ACTi cameras, you may need to configure the ONVIF user credentials of the camera by accessing its Web Configuration page and managing the ONVIF Users List.
2. Functions supported for cameras added through ONVIF will depend on the camera capabilities.

Add Cameras on WAN or Other Local Area Networks

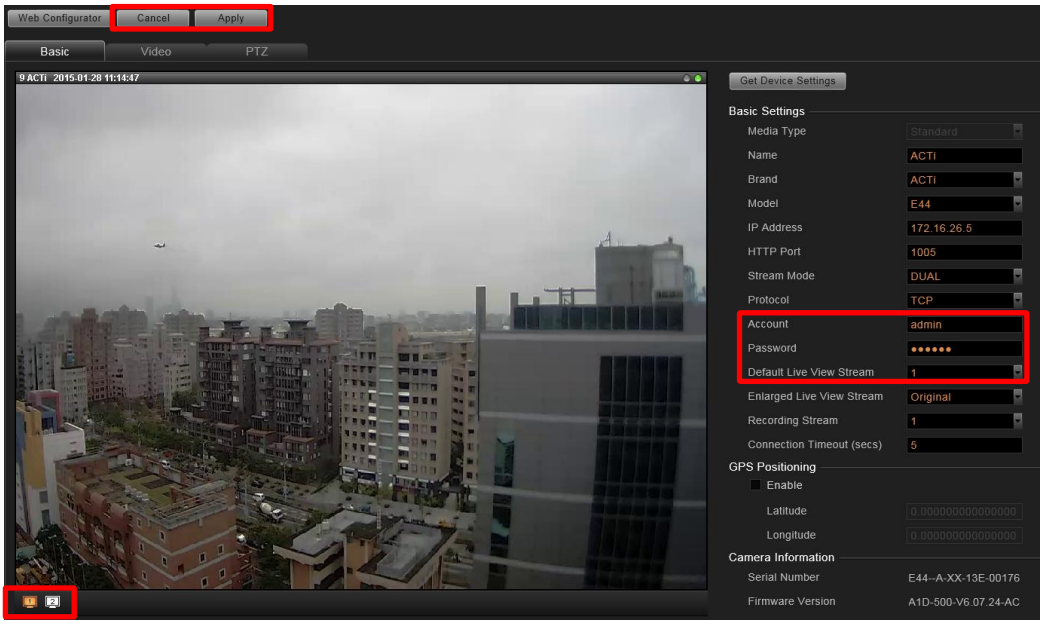
1. After selecting **"Add Camera Manually**", the camera settings page will appear as below. The most important settings are (1) **Media Type**, (2) **Protocol**, (3) **IP Address**, (4) **HTTP Port**, and (5) **User Name** & **Password**. Please fill in these required fields for NVR server to communicate with the camera.

If the camera you wish to add supports ONVIF, you can select "**ONVIF**" for **Media Type**, and the settings page will appear as below. The most important settings are (1) **Media Type**, (2) **Camera IP**, (3) **HTTP Port**, and (4) **User Name** & **Password**. Please fill in these required fields for NVR server to communicate with the camera.

Important Notice

If any of the required fields is incorrect, NVR will not be able to connect the device. When you have any device connection problem, please check these settings. However, at this point, you may skip filling in the **Device Name**, **Brand, Model**, and **Stream Mode** configuration.

2. Click "**Get Device Settings**" to have NVR contact the camera and get the live view. Once connected to the camera, NVR will get all the camera properties like Brand, Model, Camera Serial Number, Firmware Version. If the camera supports dual stream, stream configuration fields (Default Live View Stream, Enlarged Live Stream and Recording Stream) will be revealed, and you may set different stream types for live view and recording (to configure individual stream format, please refer to Configure Video Format on page 52). Click on "**Apply**" to save this camera or "**Cancel**" to abort it.



Click on the stream name to display the live stream of a dual stream/multi-streaming device.

3. To directly access the camera configurator webpage, simply click "**Web Configurator**" on the top right to open it. Certain detailed settings can only be accessed through the web configurator and not through NVR.

Basic Settings Attributes

Field Name	Description
Media Type	Select the media type of the camera, choosing either **"Standard"** or **"ONVIF"**. By default, the setting is "**Standard**", which enables full function-wise support for ACTi cameras capabilities. To connect with an other-brand camera using ONVIF, please make sure the camera camera supports ONVIF.

Name	Enter the name of the camera, which will be shown in the **Camera** list on the left in Live View. This name should be descriptive so that you know where the camera is located.
Brand	Select the manufacturer of this camera.
Model	Select the camera model of the IP cameras / video servers. This is automatically filled in after you perform **Get Device Settings** for ACTi cameras.
IP address	Enter the camera's IP address or host name.
HTTP Port	Enter the HTTP port for IP cameras/ video servers. Most cameras use the default port number 80.
RTSP Port	This field is revealed as Protocol is "**RTP/RTSP TCP**" or "**RTP/RTSP UDP**" or **"RTP/RTSP HTTP**".
Stream Mode*1	Select one of the streaming modes this camera supports.
Protocol	Select a streaming protocol to connect the camera with.
Account	Enter the user name to access the camera.
Password	Enter the password to access the camera.
Channel No. *2	The channel ID you set for a stream of a multi-streaming camera.
Default Live View Stream*3	Choose the stream for Live View.
Enlarged Live View Stream*3	Choose the stream for 1x1 Live View layout. You can have a channel automatically switch to the stream of higher clarity once this channel is enlarged to 1x1 layout by your double-click or View Patrol.
Recording Stream*3	Choose the stream for recording.
Connection Timeout(0~99 secs)	Enter length of time allowed for a camera to respond to NVR. If the response is too late as not to respond in time, NVR will consider this camera "disconnected". We recommend you to set different values for different types of connection. The default setting is 5 seconds. For cameras located over the WAN, you may wish to increase this value to allow for occasional Internet lags.

*1 Available when NVR is connected to a multi-streaming device.

*2 Available when NVR is connected to a device that is concurrently in multi-streaming mode (Dual Stream mode excluded).

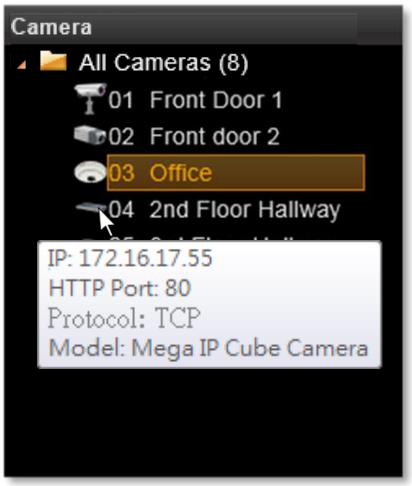
*3 Available when NVR is connected to a multi-streaming device in Dual Stream mode.

Note

Current NVR version does not support ePTZ operation of 6VGA streaming mode. Please define 6 VGA views through camera web configurator.

Camera Status

To validate if you have successfully added a camera to NVR system, simply check the **Camera List** on the left of **Setup** →**Cameras** tab to see if the camera name appears in the tree. Point your mouse cursor over the camera icon will bring up an information box containing the camera's **IP Address**, **HTTP Port**, **Protocol** and camera type.



Status Icon Description

Icon	Status Description
	NVR server cannot receive the video stream. This may be that a video server is not connected with cameras, or that the streaming is blocked by the firewall between the camera and NVR server. Please (1) ensure that the camera is correctly connected and can output video, (2) check the firewall and port forwarding settings.
	This camera's settings have been modified but not saved yet. If you leave these modifications unsaved, they will not take effect by next time the server starts. Please go to the page where these changes were made and save the settings.
	NVR cannot build up connection with this camera. Please check the camera connection settings (including IP Address, Port number, Account Name and Password); or increase the "**Connection Timeout**" to allow more time for the camera to respond.
	This camera is currently connected, video is being transmitted and no recording is proceeding.
	This camera is currently connected, and video is being recorded either manually or according to the schedule.
	The recording of the period when NVR was disconnected with this camera is now being restored to NVR server from SD Card.
	The "**Redundant Recording when Disconnected**" setting enabled for this camera.

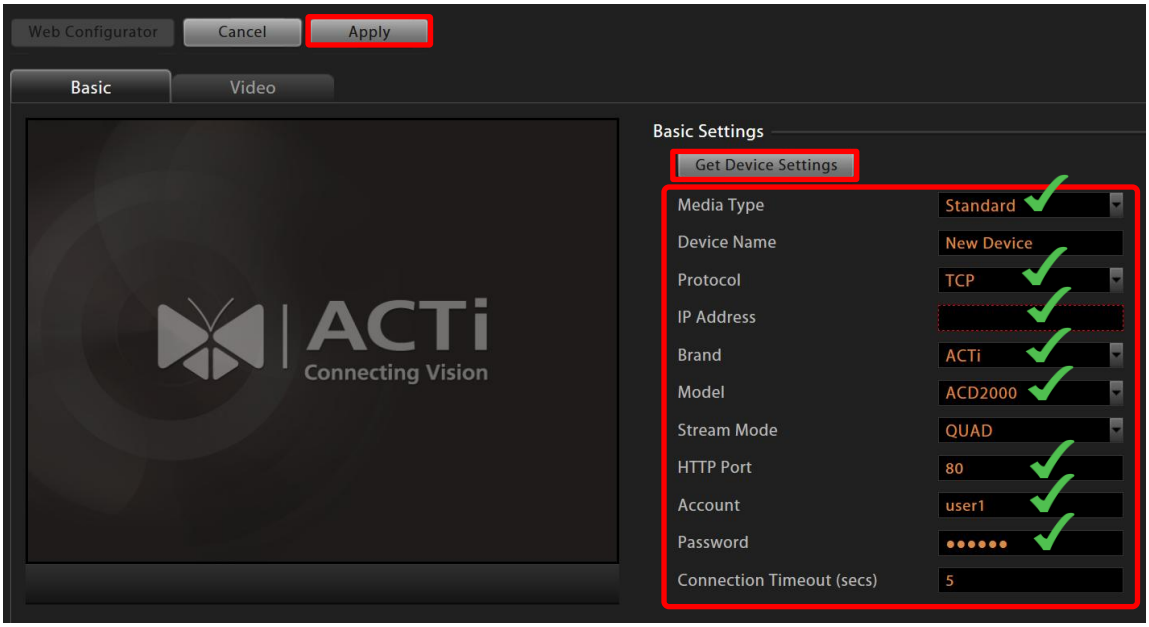
Add Non-ACTi Cameras

In this section, we will guide you through how to add cameras to NVR 3 system.

After the required CDP license is activated, please:

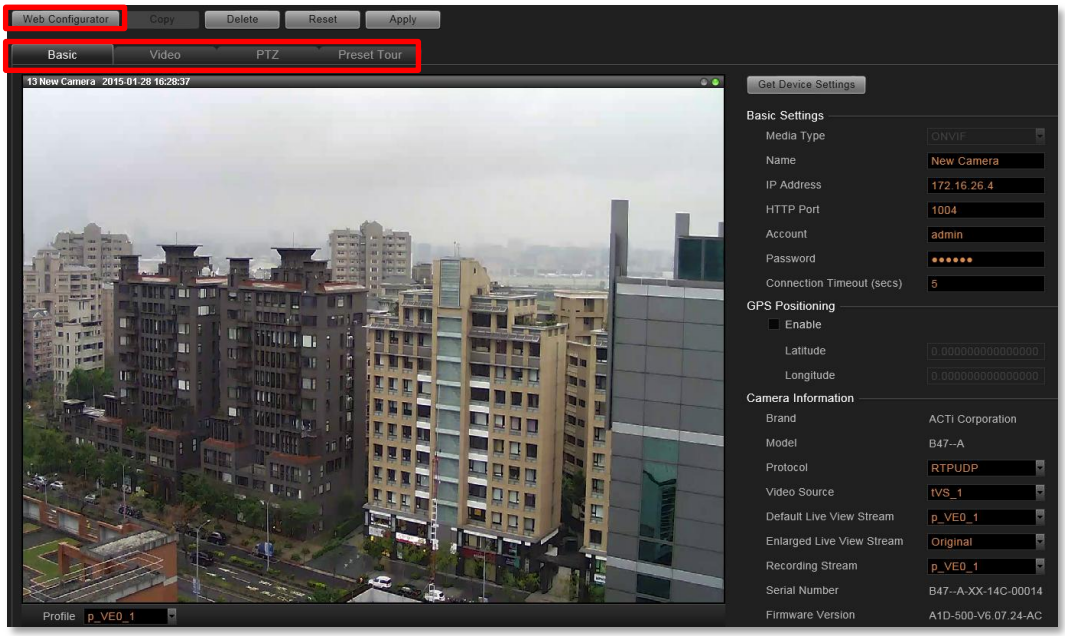
1. Use the utility provided by camera manufacturer to confirm the camera properties: (1) **Protocol**, (2) **IP Address**, (3) **HTTP Port**, and (4) **User Name** & **Password**.
2. Log in to NVR, go to **Setup** page→ "**Devices**" tab, click "**Add**", and select "**Add Camera Manually**".

3. After selecting **"Add Camera Manually"**, the camera settings page will appear as below. Please fill in the **eight** marked fields shown below that are required to communicate with the camera - **Media Type**, **Protocol**, **IP Address**, **Brand, Model, HTTP Port**, **Acount**, and **Password**, and then click "**Apply".**



If the camera you want to add supports ONVIF, you can select **"ONVIF"** for **Media Type**, and the settings page will appear as below. Please fill in the **five** marked fields shown below that are required to communicate with the camera - **Media Type**, **Camera IP**, **HTTP Port**, **Account**, and **Password**, and then click "**Apply".**

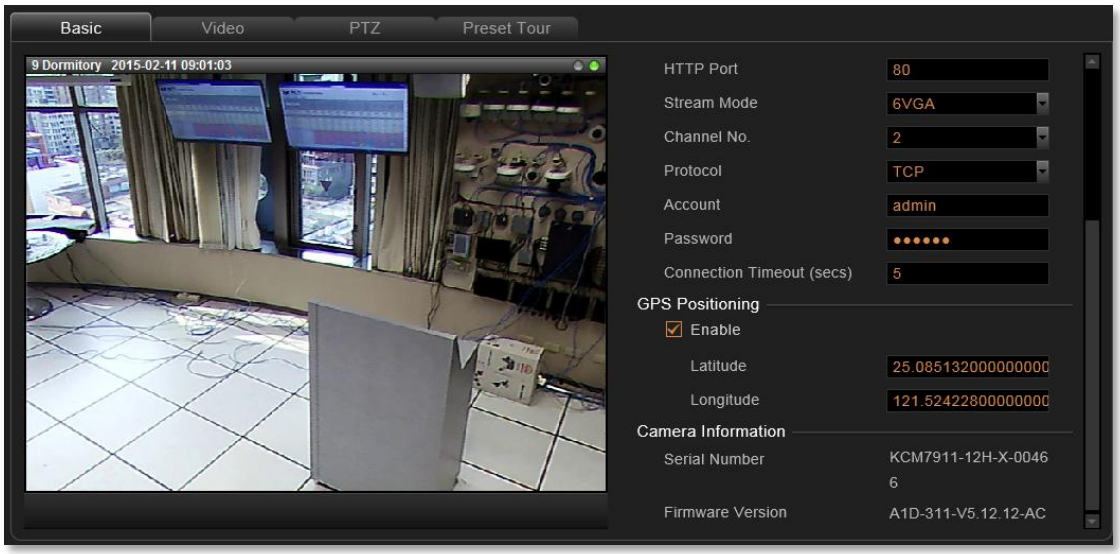
4. By applying the settings, NVR server will get the video stream, and the camera will be successfully added to the NVR 3 system. You may click **Video, PTZ,** or **Preset Tour** (available for cameras with pan/tilt/zoom capabilities) tabs to configure other properties. To directly access the camera via webpage, simply click "**Web Configurator**" on top left to open it. Certain advanced settings are only available through the camera's web interface and not through NVR.



Set Camera's Coordinates (optional)

This information is to allow a GPS-based management system to precisely obtain the camera's location.You can get the camera's coordinates from GPS module connected to your server computer or simply input the address of your site into **Googlemap**, rright-click the place or area shown on the map, and select "**What's here?**", the coordinates will appear in the Searchbox.

On **Basic** tab, enable the **GPS Positioning** and input the cooordinates.

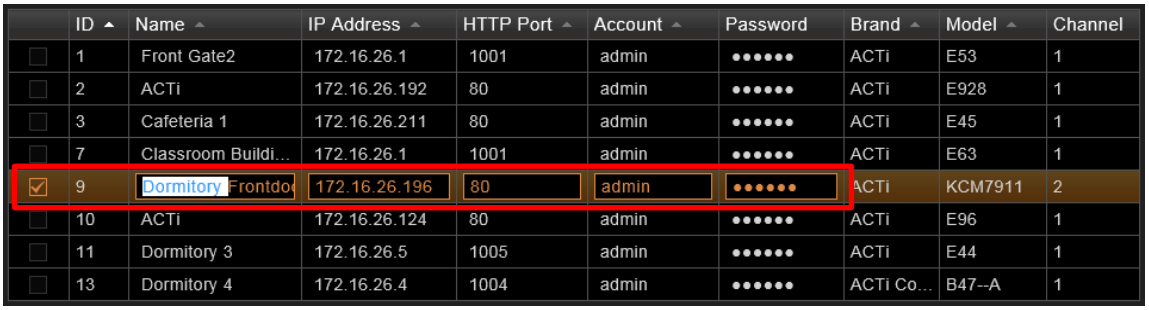


Manage Multiple Cameras

After adding several cameras to the system, you may get an overview of all cameras on **Setup** page→**Devices** tab; this is where you may use certain fast and convenient approaches to manage a number of cameras. In this section, we will guide you through how to quickly add or delete multiple cameras.

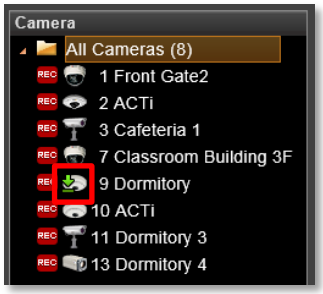
Modify Basic Connection Settings

Go to **Setup** page → **Devices** tab, and click **All Cameras** in **Camera List** to get the cameras overview in right column. Each basic connection setting field including Name, IP Address, HTTP Port, User Name and Password, is editable. Simply click in the field to modify it directly.



	ID	Name	IP Address	HTTP Port	Account	Password	Brand	Model	Channel
☐	1	Front Gate2	172.16.26.1	1001	admin	••••••	ACTi	E53	1
☐	2	ACTi	172.16.26.192	80	admin	••••••	ACTi	E928	1
☐	3	Cafeteria 1	172.16.26.211	80	admin	••••••	ACTi	E45	1
☐	7	Classroom Buildi...	172.16.26.1	1001	admin	••••••	ACTi	E63	1
☑	9	Dormitory Frontdo	172.16.26.196	80	admin	••••••	ACTi	KCM7911	2
☐	10	ACTi	172.16.26.124	80	admin	••••••	ACTi	E96	1
☐	11	Dormitory 3	172.16.26.5	1005	admin	••••••	ACTi	E44	1
☐	13	Dormitory 4	172.16.26.4	1004	admin	••••••	ACTi Co...	B47--A	1

Every time you modify a property without saving it, an icon will appear next to the camera in **Camera List**. You may click "**Reset**" to retrieve the settings you saved last time once you want to abort current modificaiton. After changing any field, please remember to click "**Apply**" before you leave this page.

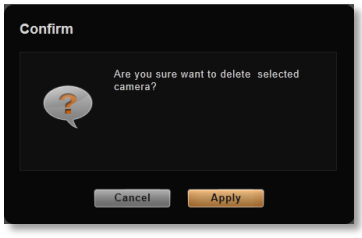


Tip

NVR will sync with devices upon connecting to them. To make sure the settings on NVR side are prior to and always overwrite those on device sides, please check "**Auto save NVR settings into devices upon connection**".

Delete Cameras

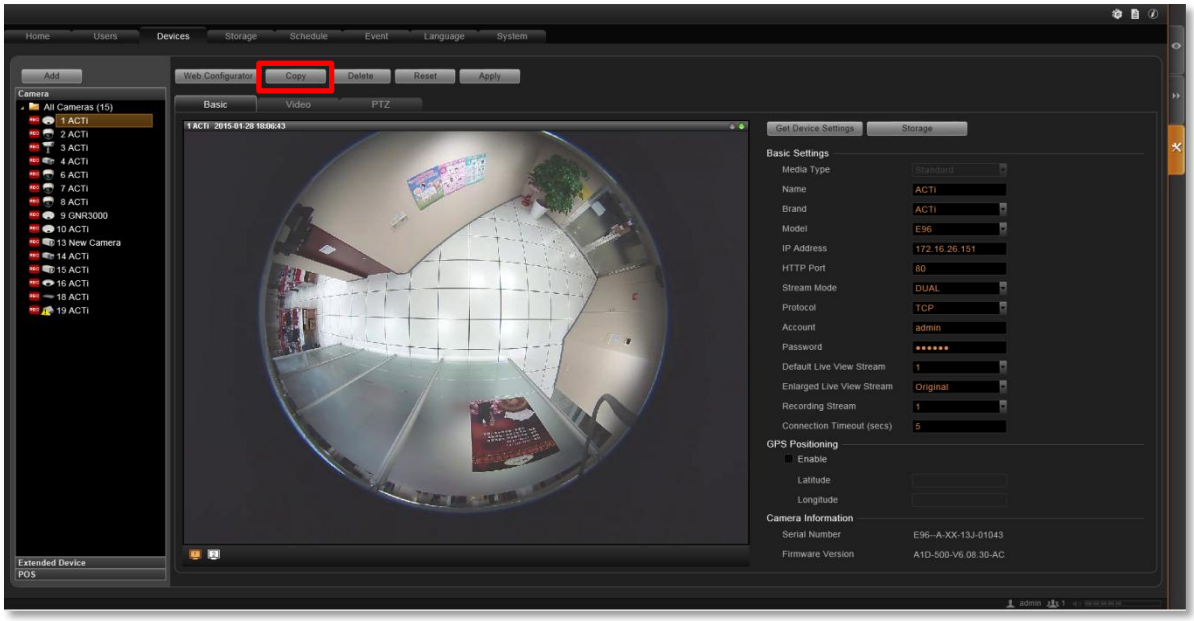
You may delete a single, multiple or all cameras on **All Cameras List**. The logs and video files of the cameras will be kept until deleted by server storage deletion rule. Select the camera(s) you wish to delete, click "**Delete**" button and confirm the deletion. If you want to delete all the existing cameras, simply click Select All on upper right to select them all at once. To validate if you have successfully deleted a camera on NVR system, simply



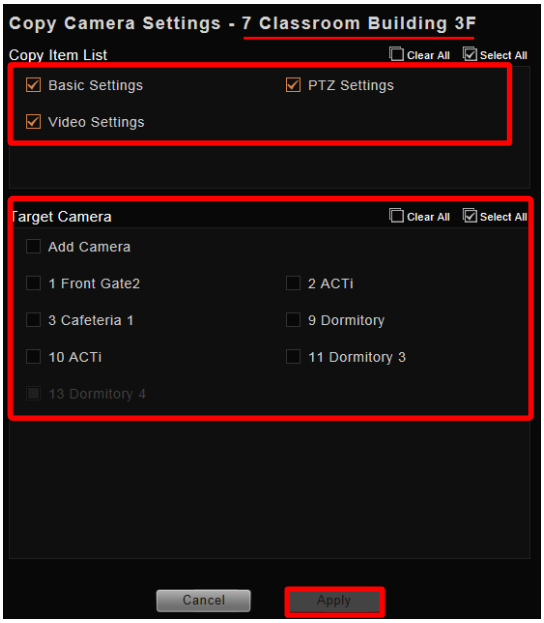
check the **Camera List** on the left of **Setup** page → **Cameras** tab to see if the camera name has been removed from the tree.

Copy Settings Across Cameras

When setting a large number of cameras, many settings will resemble other ones, and it is sometimes tiresome to repeat every setting again and again. You can use the **Copy** function to save the hassle of needless repetition.



1. On **Camera List**, select the source camera whose settings are to be copied from. You can select only one camera to be the source.
2. Click "**Copy**" to bring up the copy setting window.
3. On the window, below the source device name are the settings you may choose to copy, including **Basic Settings**, **PTZ Settings** and **Video Settings**.
4. Click "**Apply**", the settings will be written to target cameras.
5. To add a new camera with the same settings, choose "**Add Camera**" in **Target Camera** area, and then click "**Apply**" to go to a new device page. Each field on this page has already been filled with the source camera's properties. You may continue to modify the **Camera Name**, **IP Address**, get the live view by clicking "**Get Device Settings**", and then click "**Apply**" to add this camera to **Camera List**.
6. There are a few differences of the copied items between two target camera types:



Settings Copied to Target Cameras

Target Type / Settings	New Camera	Existing Camera
Basic	All	All except **Camera Name**, **IP Address**, **HTTP Port**, **RTSP Port**, **User Name** and **Password**
Video	All except **Motion Settings**, **Video Adjustment**	
PTZ	All except **PTZ Preset Points** and **Commands**	

Note

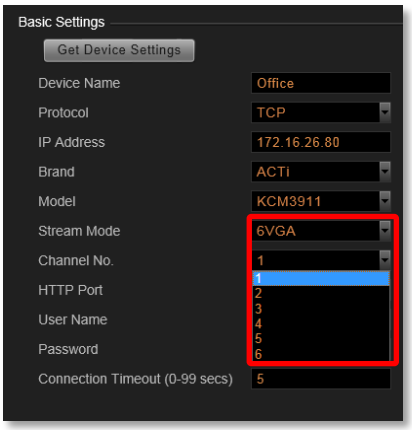
1. You can only choose either "**Add Camera**" (unused channels) or existing devices as target.
2. To add new devices by copying from an existing one, the user's group should be permitted to do so. To check the access rights, please go to **Setup** page→**Users** page→**User Groups**, select the user group, on **Basic** tab, enable the "**Device Setup**" -"**Add Camera**" in **Setup** section.

Add Video Streams from a Multi-channel Device

There are cameras that output more than one video streams to NVR. For example, a video encoder converts a number of analog video signals into the same amount of IP video streams; certain high megapixel cameras such as ACTi KCM-5111, supports outputting multiple VGA streams cropped from a single high-resolution video source. These multiple streams coming from a single camera are managed as different cameras by NVR server.

To add these streams as multiple channels for you to view and record, please:

1. Select the desired stream mode in "**Stream Mode**" field on **Setup** page →**Devices** tab →**Basic** tab.
2. The "**Channel No.**" column will display for you to input the stream ID (the same with your setting in camera's web configurator).
3. After configuration, click "**Apply**".
4. Go to **All Cameras** page, duplicate this camera to a new channel, repeat this step until all the channels you need are added.
5. Individually modify the **Channel No.** value of the channels.



Tip

Saving CPU loading with Your Dual Streaming devices

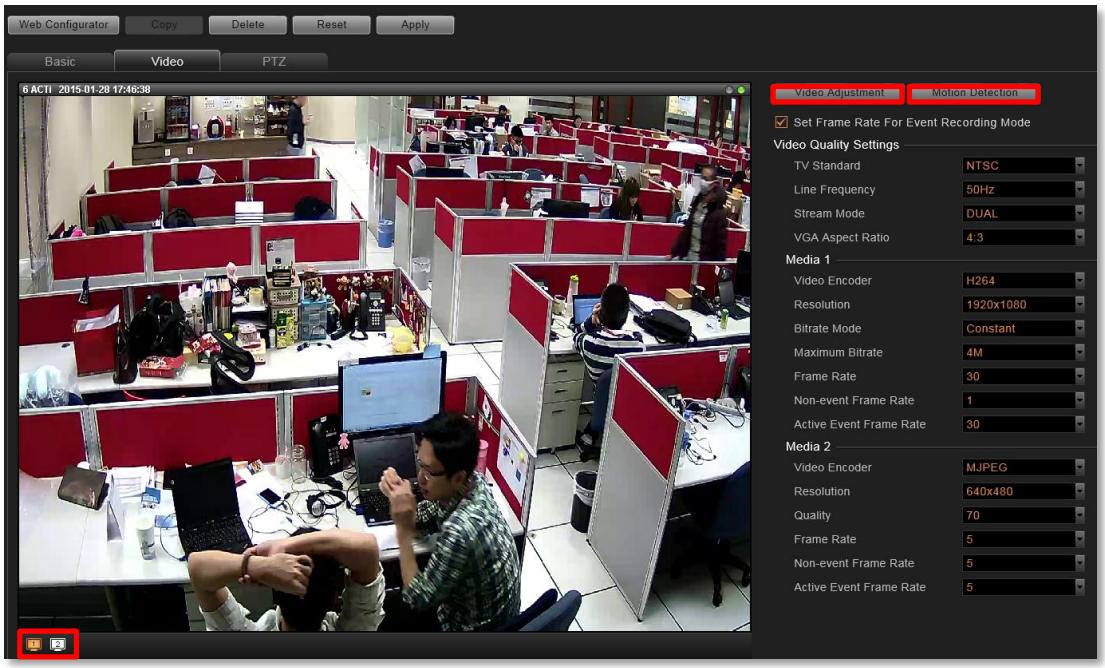
The device supporting dual-streaming function can output two video streams of different value. You may make the live view stream smaller in size with lesser frame rate to save decoding CPU power and bandwidth. Meanwhile the recording stream can be larger and have more FPS so that you have clear images when you need to retrieve evidence. For settings in both streams of devices with dual stream functionality, please refer to Configure Video Format on page 52.

Configure Camera Settings

After adding a camera to NVR, you may continue to configure its video, motion detection, PTZ or preset tour settings on **Setup** page→**Devices** tab. In this section, we will guide you through how to configure these settings and their corresponding functions.

Configure Video Format

Go to **Setup** page →**Devices** tab, select a camera from **Camera List**, and then go to **Video** tab to configure the video format of the stream output from this camera. If the camera is currently in Dual Stream mode, you may switch the stream in live view window by click on the switch below and configure individual settings for **Media 1** and **Media 2**.



Video Settings Attributes

Field Name	Description
TV Standard	Default is **NTSC**
Stream Mode[*1]	Select one of the streaming modes this camera supports
Mounting Type[*2]	Select the mounting position
Installation Angle[*3]	Input the angle for a camera mounted on the wall
Video encoder	Select one of the codec this device supports
Resolution	Select one of the resolutions this camera supports
Video Quality[*4]	Select your desired video quality of the image
Frame Rate(fps)	Select the (Frames Per Second) this camera supports
Maximum Bitrate	This puts a hard cap on the maximum bit rate allowed in any given second of streaming. Assigning a limited bit rate may cause a few dropped frames when the stream data overflows the allowed bit rate.
Bitrate[*5]	This is the target bitrate that the camera will attempt to provide when you have selected "**Unlimited**" for **Maximum Bitrate**. The actual value will fluctuate slightly based on scene changes.

*1 Available when NVR is connected to a multi-streaming device.
*2 Available when NVR is connected to a hemispheric camera.
*3 Available when NVR is connected to a hemispheric camera whose **Mount Type** is set to "**Wall**".
*4 Available when "Video Encoder" is selected as MJPEG.
*5 Available when "Maximum Bitrate" is selected as "Unlimited".

Save Storage by Setting Event Recording Frame Rate

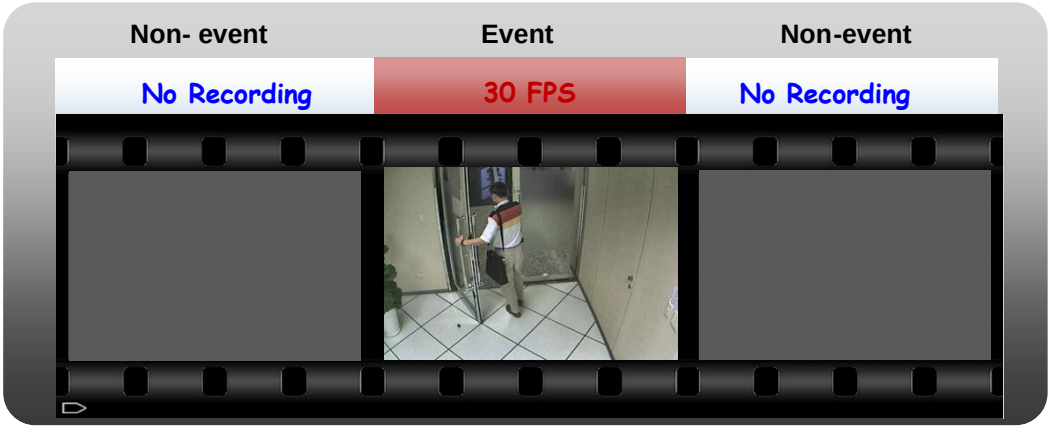
Video surveillance system aims to preserve as much evidence as possible, and you may want a view to be recorded 24/7 to capture every important moment; however, the general recording methods provided by most network recording systems, "Event-recording" and "Scheduled-recording", will either consume too much storage or result in missing important scenes. The "**Set Frame Rate for Event Recording Mode**" function allows NVR system to record everything in an economical way by automatically adjusting video frame rate during event recording period.

Schedule Recording

Continuous recording promises no loss of video evidence; **however, large data storage is required** because this video is always recorded at the high frame rate you set for the device.

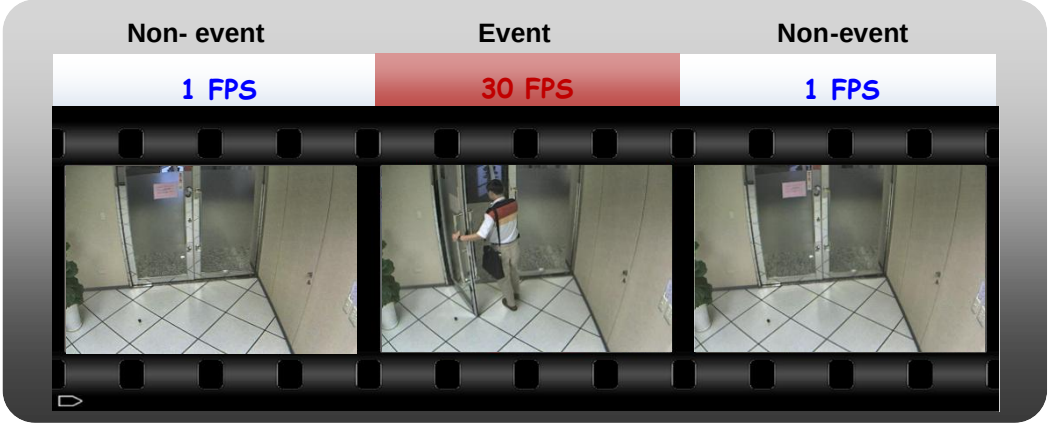
Event Recording

This mode is storage-efficient because recording would stop during the non-event moments, yet **certain vital video evidences may be missed if the trigger device fails to take effect.**



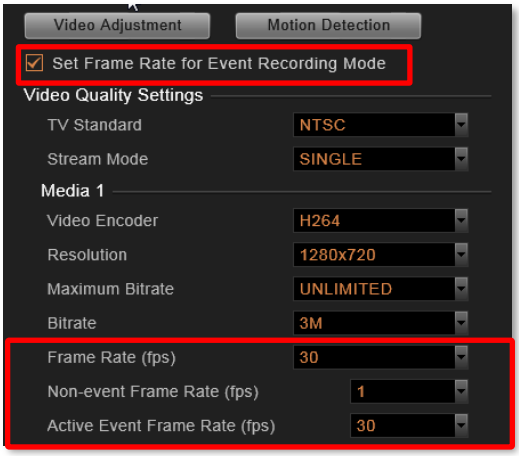
Event Recording with Frame Rate Adjustment

Keeps recording all the way without losing any single moment; lower frame rate can be set for non-event recording, which consumes only a little storage.



How to Make Use of Event Recording with Frame Rate Adjustment

To make use of **Event recording with Frame Rate Adjustment function**, you may configure the **Frame Rate** settings on **Setup** page →**Devices** tab →**Video** tab. The **Frame Rate (fps)** you set will always be applied to live view and schedule recording. Once **Set Frame Rate for Event Recording Mode** is checked, you may configure advanced settings for event recording. If the device is in **Dual** stream mode, you will only need to configure these settings of the **Recording Stream**.



Scenario A:

Suppose you wish all the videos are recorded at very high frame rate. With sufficient storage, you may not need this function. Set the video **Frame Rate** that will apply to all the recordings. In this way, NVR 3 will not record non-event during event recording period.

Frame Rate Setting Set Frame Rate for Event Recording Mode	Event Recording
Frame Rate (fps) 30	Non-Event: 0 FPS
	Event: 30 FPS

Scenario B:

Suppose you wish the system to record 24/7, the non-event recording to be kept at very low frame rate. Please set the event and schedule recordings at different frame rate, you will need to enable "**Set Frame Rate for Event Recording Mode**", and set the "**Non-event Frame Rate**" and "**Active Event Frame Rate**".

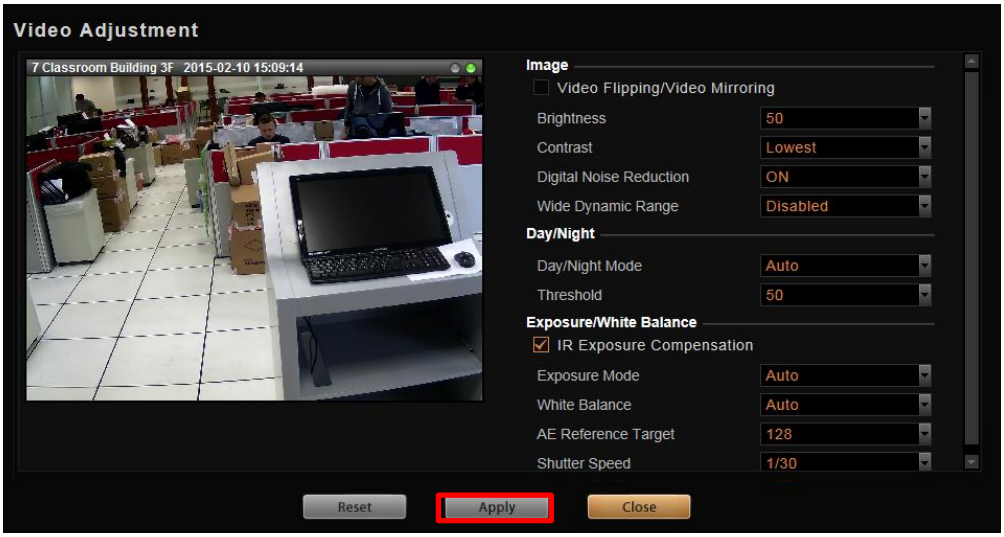
Frame Rate Setting	Event Recording
☑ Set Frame Rate for Event Recording Mode	
Frame Rate (fps): 30	Non-event:1 FPS
Non-event Frame Rate (fps): 1	
Active Event Frame Rate (fps): 30	Event: 30 FPS

Fine-tune the Image

When monitoring your cameras, it is essential to make the images as similar to the real scene as possible. The default settings of the camera are usually sufficient for most environments, but you may also make adjustments in case it is required to do so. For devices that support the configuration of properties related to image, day/night mode, or exposure/white balance settings, you may directly modify them and save your changes to the device using the NVR 3 system. The options available may vary depending on the device.

To start, on **Devices** tab → **Video** tab, click "**Video Adjustment**". Each field is only available when the device opens this property for modification. If the device is in Dual Stream mode, the video you get in this window will always be **Stream 1**.

1. At first, synchronize with the device to get the current settings by clicking "**Get Video Adjustment**".
2. After retrieving the settings from the device, the fields available for modification (depends on models) will be enabled. Select the desired value for the field.
3. Click "**Apply**".



Video Adjustment Attributes

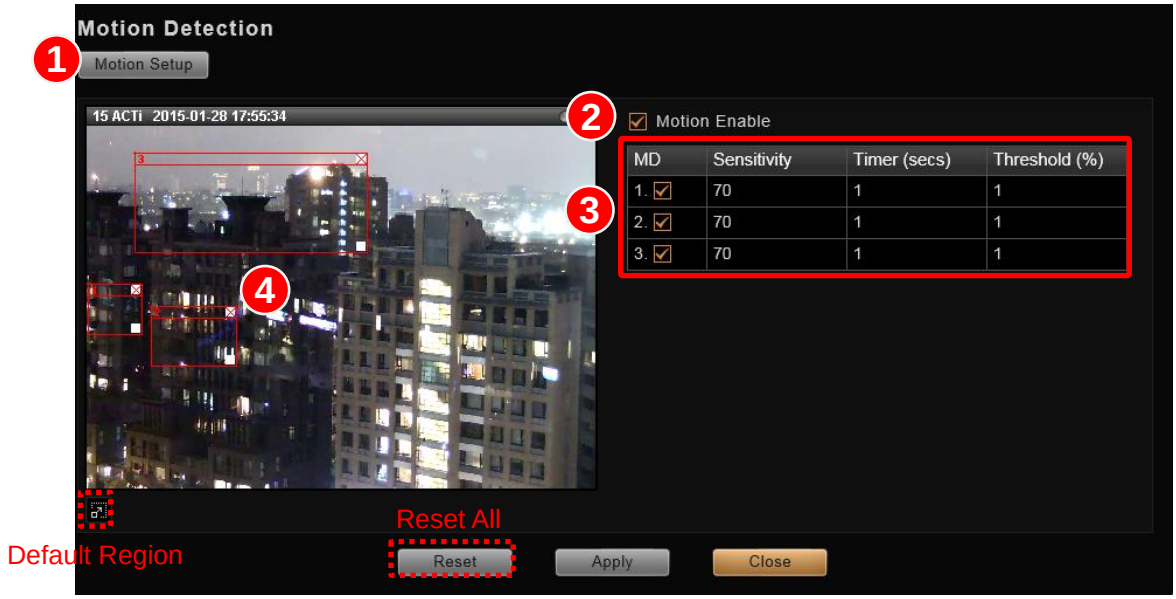
Field Category	Field Name	Description
Image	Video Flipping/ Video Mirroring	Check this box to flip the video vertically and horizontally to achieve a 180-degree rotation effect.
	Brightness	Select the Brightness value (0-100). The higher the value, the brighter the image.
	Contrast	Select the Contrast value (0-100). The higher the value, the more obvious the separation between light and dark.
	Saturation	Select the Saturation value (0-100). The higher the value, the more intense the color will appear; the lower the value, the more grayed-out the color will appear.
	Hue	Select the Hue value (0-100). "Hue" is the term used to refer to the pure spectrum colors. Adjust this value to find the color closest to the real scene.
	Digital Noise Reduction	Turn the Digital Noise Reduction **ON** or **OFF**. When turned on, the noise in the video (especially in low light) is reduced and the image will look smoother and clearer.
	Wide Dynamic Range	Select the WDR level from the following options: Disabled, low, medium, high, highest. Note: WDR is disabled and will not appear if Exposure Mode is set to "Manual".
Day/Night	Day/ Night Mode	Select one of three modes: **Auto**: The camera will automatically switch between day mode (color) and night mode (black/white) under exposure level defined by "Threshold". **Day**: The camera will always stay in the day (color) mode, regardless of exposure level. **Night**: The camera will always stay in night (black/white) mode regardless of exposure level.
	Threshold	The scale from 0-100 allows you to define the exposure level at which the day and night mode switch will happen. A higher value would require a darker environment to trigger a day to night switch and vice versa.
Exposure/ White Balance	Exposure Mode	Select between "**Auto**" or "**Manual**" exposure mode. In Auto mode, the intelligent system of the camera will find the best possible exposure settings. In Manual mode, you can manually adjust the White Balance, Exposure Gain, Shutter Speed, and Line frequency.

Exposure/ White Balance	White Balance	Select between "**Auto**" or "**Manual**" White Balance mode. White balance refers to the device's ability to accurately define "true white" color. In Auto mode, the camera will attempt to recognize the "true white" color and adjust the image accordingly. In Manual mode, you can configure the White Balance by adjusting the R Gain and B Gain value manually.
	R Gain	The scale from 1-255 allows you to define the R Gain level of the video frame. A higher value would adjust the image to have more red color value.
	B Gain	The scale from 1-255 allows you to define the B Gain level of the video frame. A higher value would adjust the image to have more blue color value.
	AE Reference Target	The scale from 1-255 allows you to define the Auto exposure reference target. A higher value will brighten the overall scene, although it may increase the amount of noise at night.
	Exposure Gain	The scale from 1-255 allows you to define the Exposure Gain level of the video frame. A higher value would make the video frame brighter.
	Shutter Speed	Shutter speed allows you to choose the speed of auto shutter.
	IRIS Control	IRIS control allows you to configure the size for the opening of the iris
	Line Frequency	Select between 50Hz or 60Hz to match with the frequency of artificial light source of a given country.

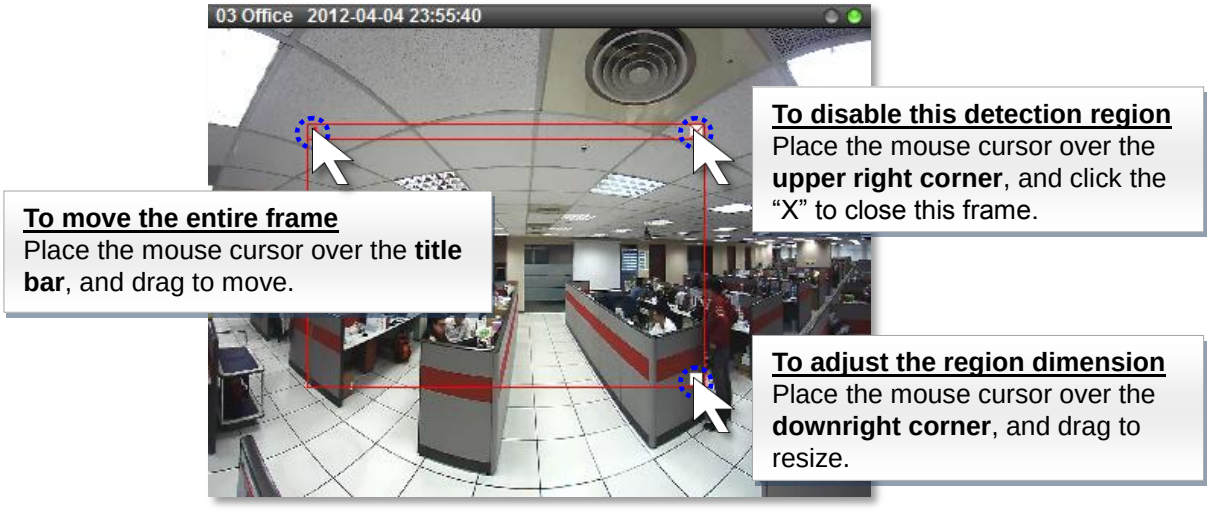
Configure Motion Settings

To make use of the motion and PIR detection functions supported by your devices, you need to configure the detection regions and settings. Once a motion is detected, NVR 3 can trigger events and recording, bring up instant pop-up windows and show the detected area on live view.

Before configuring motion detection settings, first make sure you can connect properly to the device and get device settings. On **Devices** tab →**Video** tab, and click "**Motion Detection**" to start.



1. Click "**Motion Setup**" to retrieve the live view. For Dual Mode, the video you get in this window will always be **Stream 1**
2. Click "**Motion Enable**" to enable the property fields.
3. There are three motion regions for you to set. To enable one, check it in the **MD** box, a red frame will appear in the view. You may start setting the detection area by adjusting this red frame on the view. Simply use your mouse to move and resize the frame.



You can easily resize the selected regions to the original dimension by clicking on "Default Region" button ; to reset all the motion regions and settings, simply click on "Reset".

4. When the setting is finished, click "**Apply**" to save, then "**Close**" to exit this page.

Adjustment Attributes

Field Name	Description
Sensitivity(1-100)	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.
Timer(0-300 secs)	The interval before the next motion detection can be triggered again. Default is 1 second.
Threshold (%)	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.

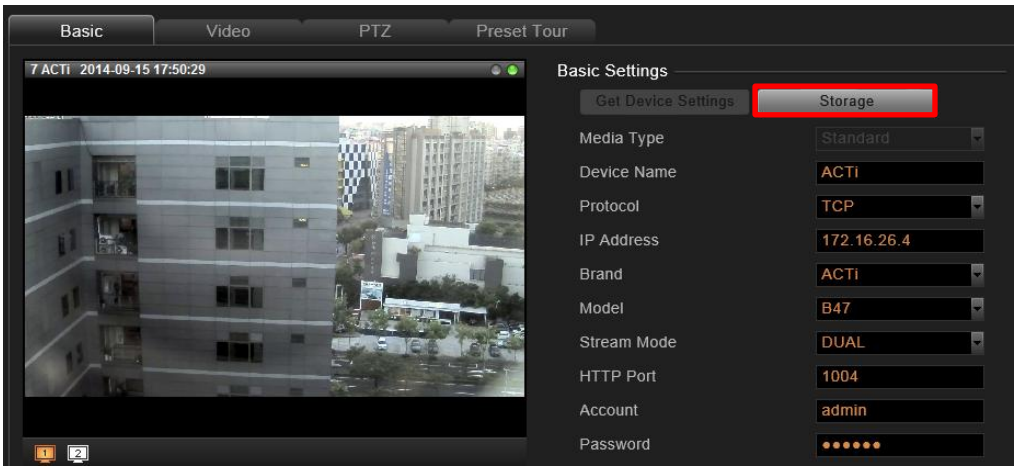
Note

1. If you have changed the motion detection settings via the web configurator, please remember to come back to NVR and press "**Get Device Settings**", then "**Apply**" to save to NVR. This is to ensure that the settings in NVR are always in sync with the device.
2. If a motion region is set, once a movement is detected in this region, in live view:
   (1) the red region frame will blink, and (2) a new alert entry will be generated in the event list.
3. PIR detection is available only for models with this function.

Configure Storage Card Settings

Certain camera models come with the internal storage feature. Via NVR interface, you can observe the storage card's memory status, and configure related settings.

1. Make sure the SD card is installed properly in the camera.
2. On **Setup** page → **Devices** tab, select the device form **Camera List**. Click "**Storage**".

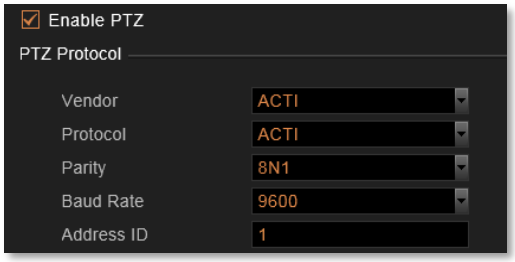


3. On **Storage** window, click "**Get Storage Setting**" to sync with the SD card.
4. You can enable "**Redundant Recording when Disconnected**" function to have this SD card take over the recording service for this channel when this device is disconnected with NVR server. The video recorded on SD card during the disconnection period will automatically be restored back to NVR server upon the recovery of the connection. Before you enable this function, please do the following: (1) upgrade the camera firmware to **6.07** or later version, and then (2) format the SD card either on camera firmware interface or on NVR interface. (3) Synchronize the camera time and server time. You can do this by manually setting the time on either side to match the other's; however, it is strongly recommend that you make use of the NTP service to make both clocks are precisely synchronized.
5. Click "**Apply**" to save the setting.

Configure PTZ Device

PTZ devices can do panning, tilting and zooming automatically or through manipulation. The PTZ-related applications are broadly supported by NVR 3. For example, you may control the movements of a PTZ camera with user interface panel controls or a joystick; the device can be programmed to execute a continuous tour or triggered by events to go to a preset position. Once an ACTi PTZ device is added to the system, NVR 3 will use the default settings of the device model and enable PTZ functions, so that you may immediately start PTZ operations.

If you have previously changed the communication parameters of PTZ devices, please make sure these parameters on NVR side and device side match.



The list below shows PTZ devices supported by ACTi solutions and the required settings. When you configure PTZ protocol properties for ACTi Pan/Tilt/Zoom devices, please make sure the required settings are correct.

ACTi Pan/Tilt/Zoom devices	Vendor	Protocol	Baud rate	Parity	Address ID
IP Zoom Camera/ IP PTZ Camera	V	V			V
IP Speed Dome / IP Camera mounted on Scanner/ Analog PTZ camera attached to Video Server	V	V	V	V	V

To start matching up the parameters, please follow the procedures below:

1. If the device is a speed dome camera or an analog camera attached to video server, configure the parameters on physical device according to the product's installation instructions.
2. On the device's (camera or video server)web configurator, configure the parameters to match the setting on physical device, and test the PTZ operations to make sure the device is properly set to be connected
3. In NVR Server, go to **Setup** page →**Devices** tab, select the device from **Camera List**, and click **PTZ** tab. In **PTZ Protocol** section, fill in the communication parameters.

Adjustment Attributes

<table>
<tr><th>Field Name</th><th>Description</th></tr>
<tr><td>Vendor</td><td>Vendor is the provider of Protocol. The selectable vendors would vary depending on different device models.</td></tr>
<tr><td>Protocol</td><td>Protocol is a set of rules to define the communication format between the device and controller. Different protocols are provided for selection according to the Vendor you choose.</td></tr>
<tr><td>Parity</td><td>Parity is the data validation mechanism for analog devices that use serial port interface to send or receive data. When choosing parity mode other than "none", the data packets will be validated for possible data losses so that failed command could be re-sent if necessary. Please refer to the parity setting of the analog device and choose exactly the same parity setting also in NVR. When setting up ACTi Zoom, PTZ or Speed Dome cameras using "ACTi" protocol, you may ignore the parity setting.
Available parity modes are:
<table>
<tr><th>Parity mode name in NVR</th><th>Serial data, represented by given amount of bits</th><th>Parity mode (none, odd, even)</th><th>Number of stop bits</th></tr>
<tr><td>8N1</td><td>8</td><td>N</td><td>1</td></tr>
<tr><td>8O1</td><td>8</td><td>O</td><td>1</td></tr>
<tr><td>8E1</td><td>8</td><td>E</td><td>1</td></tr>
<tr><td>8N2</td><td>8</td><td>N</td><td>2</td></tr>
<tr><td>8O2</td><td>8</td><td>O</td><td>2</td></tr>
<tr><td>8E2</td><td>8</td><td>E</td><td>2</td></tr>
<tr><td>7N2</td><td>7</td><td>N</td><td>2</td></tr>
<tr><td>7O2</td><td>7</td><td>O</td><td>2</td></tr>
<tr><td>7E2</td><td>7</td><td>E</td><td>2</td></tr>
</table>
</td></tr>
<tr><td>Baud rate</td><td>Baud rate defines the data speed through serial port interface – the rate value represents the number of symbols that can be transmitted within 1 second. Please refer to the baud rate setting of the analog device and choose exactly the same baud rate setting also in NVR. When setting up ACTi Zoom, PTZ or Speed Dome cameras using "ACTi" protocol, you may ignore the baud rate setting.</td></tr>
<tr><td>Address ID</td><td>Address ID represents the identity of the device, only analog devices or speed dome cameras require this configuration. Please refer to the Address ID of the device and choose exactly the same baud rate setting also in NVR 3. Available value is from 1~99. By default, ACTi devices will use "1" as Address ID, it is suggested not to change it.</td></tr>
</table>

Important Notice

Note that the functions supported for devices connected using ONVIF are live streaming and adjustments to video image settings.

How to Do Live PTZ Operation

To configure PTZ settings, you need to view the live streaming while manipulating the PTZ controls simultaneously in this window.

There are two kinds of PTZ navigation:

Optical PTZ Navigation

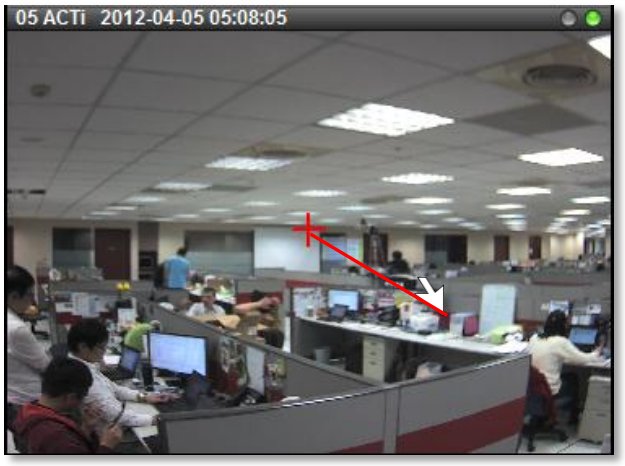
1. Get the live view from **Live Preview** window:

   Make sure the "**Enable PTZ**" is checked, a red crosshair will appear on the **Live Preview** window, if the device is in Dual Stream mode, this window will always shows the stream set for live view. You may click on to switch between the streams.

2. Use the mouse to do the following PTZ operations:

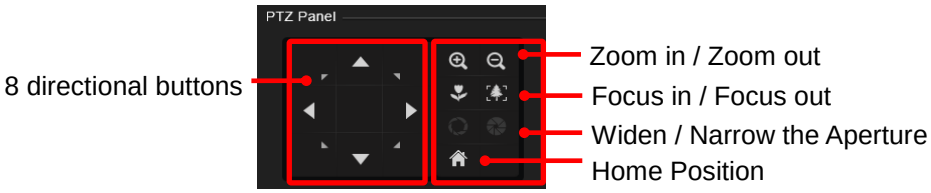
   ●To execute optical **Panning** and **Tilting**, click anywhere on the live window to allow the camera to move in that direction. The length of the direction indicator is proportional to the Pan and Tilt speed. The farther you place the cursor from the center, the faster the Pan/Tilt movement.

   ●To execute optical **Zoom in** or **Zoom out**, scroll the mouse wheel forward to zoom in; scroll the mouse wheel backward to zoom out.



3. Use panel controls to operate PTZ movements:

   Click a button on the panel to start, the red crosshair will appear in the view.



Note

1. The zoom buttons are only applicable for those devices supporting optical zooming.
2. The focus buttons are only applicable for devices with controllable zoom lens, e.g. KCM5211. Please remember to turn off the autofocus mode on device firmware before using these buttons.
3. The device should be equipped with DC-Iris or P-iris and has been switched to manual iris mode before you use the buttons for widening or narrowing aperture.

Digital PTZ Navigation

Digital PTZ allows you to zoom into part of the video and enlarge it to display on screen. This PTZ function is applied to every camera model in NVR 3 system.

1. Get the live view from **Live Preview** window:

   Make sure the "**Enable PTZ**" is unchecked.

2. Click and drag a highlight rectangle over any channel, and the area highlighted will be displayed in the full live video window. In this mode, a picture-in-picture view will show in the lower right of live view window. A red rectangle will mark the currently enlarged view area within the full size video. You may click and drag the red rectangle to see another area.

3. To go back to the original full video view, just right-click on the minimized Picture in Picture view.

Set PTZ Preset Points

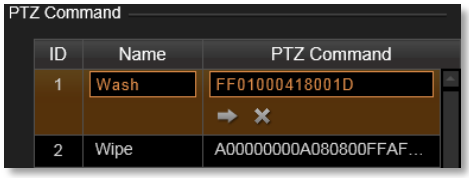
With PTZ devices, you may define a view by where to look (through panning and tilting) and how close (through zooming) to zoom. Once these views have been saved in NVR server as preset points, the device can always point to this view upon the event triggering or user's command.

1. Go to **Setup** page →**Devices** tab, select the device from **Camera List**, and click **PTZ** tab.
2. By PTZ operation, control the device to point at your desired view, and adjust the zoom level (if available). In **PTZ Preset Point** section, click a preset point name field to start editing the name (only ASCII A~Z, a~z, 0~9, minus sign "-", underscore "_" and period "."are allowed) then click "**+**" to set this point. After finishing setting your desired preset points, click "**Apply**". You may review the points you set by clicking "→" to go to the point, or "**X**" to delete it. You may modify an existing point with following procedure: **1**. Select it **2**. Define a new view **3**. Click the "**+**" to set it **4**. Click "**Apply**" to save it.

3. After the preset points are set, they are available on **Live View** screen →**PTZ** panel.

Set PTZ Command

If your speed dome or PTZ device has a special function not supported in the standard protocol, you may input it in **PTZ Command** list and execute it. Ex: Activate the wiper to clean the window of the PTZ.



1. To add a PTZ action command, go to **Setup** page → **Devices** tab, select the device from **Camera List**, on **PTZ** tab, check the "**Enable PTZ**".
2. In "**PTZ Command**" area, click in a command entry; input the name, command and then click "**Apply**" to save it. You may also click "→" to execute it or "**X**" to clear it.

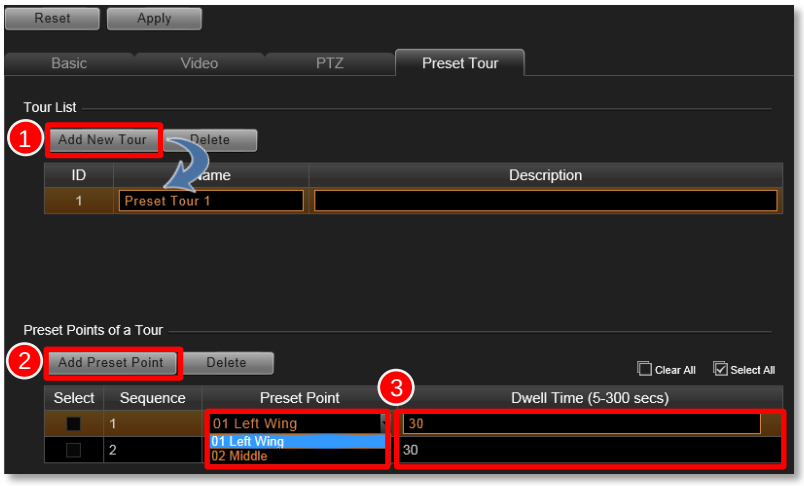
Set PTZ Preset Tour

Preset Tour is a preconfigured PTZ sequence that directs the camera to cycle through multiple preset points, including where to look and how long to look at each location. With this preset tour, your PTZ device can perform an automatic patrol to scan through your cared areas.

For example, a Preset Tour should include two or more preset points. Once a tour is started, the device will automatically point to the preset points based on the sequence and stay at that view according to the duration you set.

Before setting up Preset Tours, please make sure you have configured PTZ settings and set PTZ Preset Points. To start setting the Preset Tour:

1. Go to **Setup** page →**Devices** tab, select the device from **Camera List**, and click **Preset Tour** tab.
2. In the "**Tour List**", as there is currently no existing tour, click "**Add New Tour**" to add one. The default tour name is "**Preset Tour 1**".
3. In the "**Preset Points of a Tour**" area, click "**Add Preset Point**" to add the number of points for this tour. The number of points may outnumber the actual preset points you set, for the same preset point might be gone through more than one time in a single tour. For each point, click in the "**Preset Point**" field to bring up the dropdown list, and select one preset point and define the dwell time which represents the time the device would stay in a certain view. Finally, click "**Apply**" to save the tour.



4. After a tour is saved, it is available on **Live View** screen→**PTZ** panel.

Configure Fisheye Cameras

With hemispherical lenses, fisheye cameras generate images at up to 360-degree width, which can cover all four corners of a room or both sides of a long aisle. As the original image captured by wide-angle lens is much distorted, to suit most monitoring purposes, the **Dewarping** process is required to alter the uneven lines and shapes before the images are displayed. Nowadays, the fisheye cameras come in two types in terms of the image-correction capability:

- Fisheye Cameras ***with*** in-camera dewarping function

  The video is dewarped in camera before it is output to NVR server. Since the image correction is handled by the camera itself, NVR server will not bear much extra loading, which benefits the system requiring many fisheye cameras (e.g. ACTi KCM-3911, KCM-7911)

- Fisheye Cameras ***without*** dewarping function

  These fisheye cameras output only original global images, which rely on software algorithm provided by NVR sever to correct the images. They are suitable for a system with limited bandwidth, for NVR server processes and responds to User's ePTZ manipulation or demands for changing view modes without waiting for camera side to constantly deliver updated frames (e.g. ACTi E96).

NVR 3 makes it possible to integrate both kinds of fisheye cameras into your system with the following advantages:

- Full support for all types of dewarped video stream output from fisheye cameras with in-camera dewarping capability.
- NVR's software algorithm can perfectly corrects the original fisheye images, generating **6 specific fisheye view modes** which suit human eye's accustomed perspective.
- Based on user's instant request for changing view mode or PTZ view point, NVR server processes the original fisheye image and responds to the clients individually. In this way, what one client sees on Live View will not affect playback, recording, as well as another concurrent client's connection.
- The virtualized **ePTZ** manipulation also allows User to dynamically explore any region of interest within the hemispheric view like operating a genuine PTZ device.

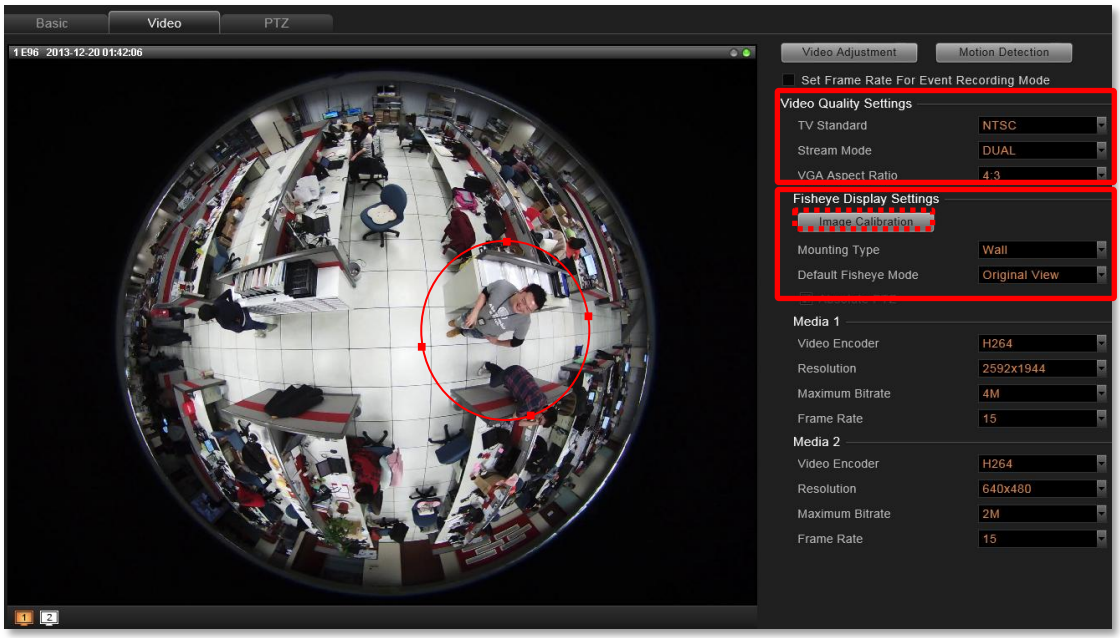
To make use of NVR's dewarping features for your fisheye cameras, please

1. Adjust **Video Quality Settings**

After the fisheye camera is successfully added, go to **Setup** page →**Devices** tab, select the device and then **Video** tab, make sure you set the **Stream Mode** as "**FISHEYE**" for a hemispheric camera (KCM-3911, KCM-7911) .This is to make sure this hemispheric camera is outputting fisheye original video stream as a mini fisheye dome camera does.

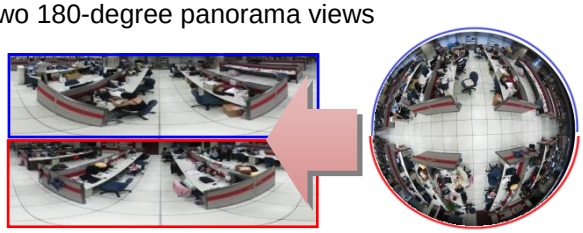
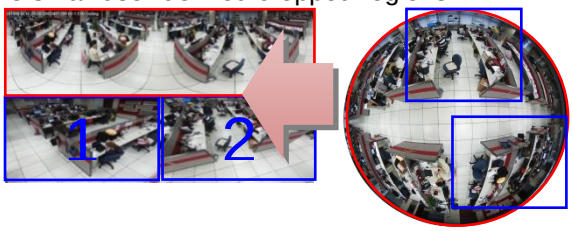
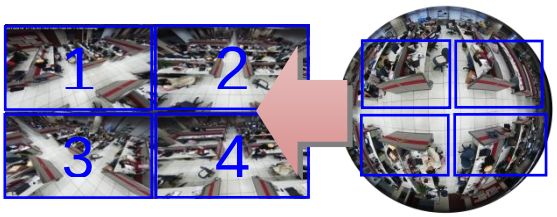
2. Adjust **Fisheye Display Settings**

Select your **Mounting Type**, and then **Default Fisheye Mode**. For a Fisheye Mode containing panorama view, you may want to configure the **Default Rotate X** (width of view) and **Default Rotate Y** (height of view) configurations to enlarge your interested area.



You may adjust the dewarped area by clicking "**Image Calibration**". In the edit mode, move or resize the red ring to define the dewarped area, and then click "**Set**" to save the setting.

Fisheye Mode	Description	PTZ Navigation
Original View	The very raw fisheye view	Digital PTZ
Dewarping	One large user-defined cropped area	ePTZ

Panorama	360-degree panorama view for ceiling mount 180-degree panorama view for wall mount 	Digital PTZ
Double Panorama	Two 180-degree panorama views 	Digital PTZ
Panorama /Focus	One panorama view Two small user-defined cropped regions 	ePTZ
Quad	Four small user-defined cropped regions 	ePTZ

3. After the configuration is done, remember to click "**Apply**" to save the settings.

Schedule the Recordings

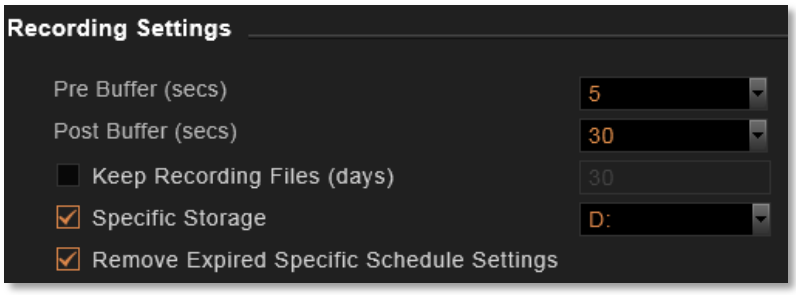
Unlike the traditional analog surveillance system, IP surveillance system provides a more flexible recording schedule for devices; the video streams captured by individual device can be recorded based on your required time segments and event types. For example, you may have a camera installed on the office ceiling perform continuous recording during work hours, and record only upon triggers (integrated digital inputs such as the PIR sensor) during the night. In this way, the system does not waste disk space storing meaningless parts of footage, and you save lots of effort browsing playback for specific events.

NVR 3 supports schedule recording for and Event recording modes, which are set up on a week-based timetable; the event-handling schedule can also be configured on it. This section describes how to setup the recording schedule for the IP cameras/video servers.

Configure the Recording File Properties

Before setting the recording schedule, you may define (1) where the recordings are stored, (2) how long an event recording is and (3) how long a recording file will be kept in the system.

1. To set the saved recordings folder, go to **Setup** page→**Storage** tab, make sure you have assigned the disk drives to store recorded files. For related recording settings, please refer to Storage Management on page 93.
2. To define how long an event recording is and the recording's lifecycle, go to **Setup** page→**Schedule** tab, and select the device from **Camera List**, and then a week schedule will appear on the right. Configure the recording file related settings. The settings below will make an event recording as long as 5+30 seconds, which will be kept on server for 30 days.



Attributes Explanation

Field Name	Description
Pre-event Recording Buffer (sec):	NVR server keeps a short cache of video received from the devices. If an event is triggered, NVR server will automatically store the pre-event buffer along with the recording of the event itself. The maximum length is **60** seconds.
Post-event Recording Buffer (sec):	This will determine how long after the event is triggered should be included in the event recording file. The maximum length is **3600** seconds.
Keep Recording Files for (1-999 days):	NVR server will keep recording file of specific device for the number of days you set here. The default value is **30**, and if you want to modify it, please check the box to start configuring it. Available value is among **1~999** days.
Specific Storage	You can assign a dedicated storage disk for a camera. By enabling this option and assigning a specific disk, the video footages will be recorded only to this selected disk rather than those you select on **Setup** page→ **Storage** tab. Please remember to configure the storage-related settings for this specific disk on **Setup** page→ **Storage** tab after you enable this option.
Remove Expired Specific Schedule Settings	By enabling this function, NVR will automatically remove the expired recording schedule you set for a specific day.

Tip

How to make proper storage arrangement

In NVR 3.0 system, there are two file-deleting mechanisms you can use based on different needs. If both rules are set, the threshold reached earlier will execute the deletion first.

1. "**Keep Recording Files for (1-999 days)"** – Set this rule if you have more concern in how long the recordings are kept, especially when you don't want the old recordings to stay longer in the system than a certain period.
2. **"Reserve space"** in the **Disk Drive List** on **Setup** page →**Storage** tab –If the disk space is more critical in your system, please give an approximate value here, the system will always reserve this amount of space to store the newer recordings.

Given that you set the **Reserve space** as **30G**, while **Keeping Recording Files** setting is **5 days**, certain recording file will be deleted when it has been kept on disk for 5 days, despite that there is still plenty of available disk space.

Before setting up the rules, you can make use of a handy storage calculator provided by ACTi to find out the estimated storage your system requires on ACTi corporate website: http://www2.acti.com/project_planner

Set Routine Schedule

Here you can configure camera's recording schedule on 7 days / 24 hours basis. The schedule is split into segments of 20-minute-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.

Go to **Setup →Schedule** tab, click on **Routine Schedule** tab:

1. Select the recording mode from **Recording Mode Selection Bar**

   Schedule Recording :Continuously records this channel

   Event Recording : Records only the period of a detected motion (the length of which is defined in **Recording Settings**, see Configure the Recording File Properties on page 71). Please make sure you have configured the motion settings on **Setup** page → **Devices** tab in advance.

   Event Handling :Event handling is activated.

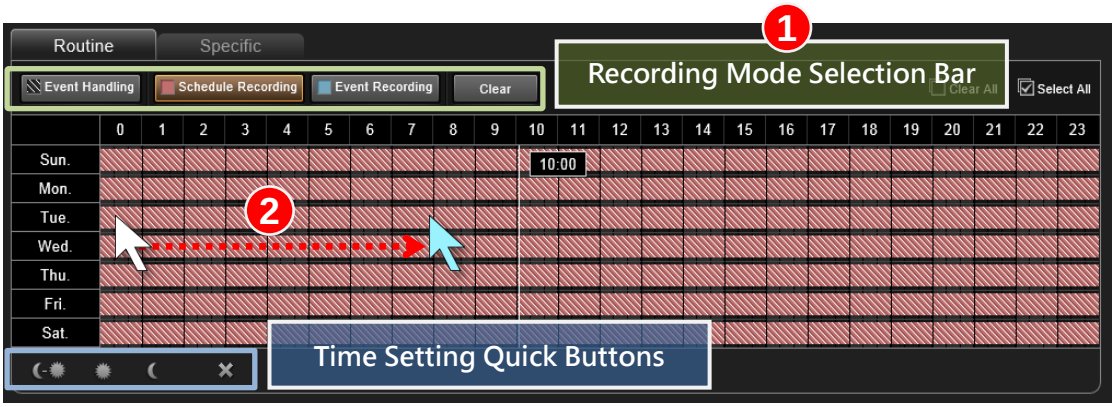
   (Please refer to Event Management on page 79)

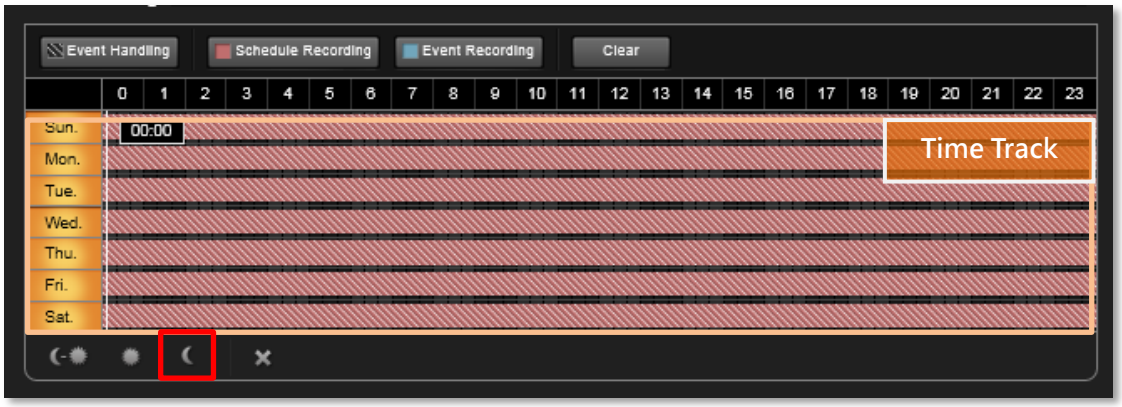
   Clear : Clear the setting

   Schedule Recording + Event Handling : Continuous recording + event handling

   Event Recording + Event Handling : Event recording + event handling

2. Click and drag over the "**Time Track**" to set time period.

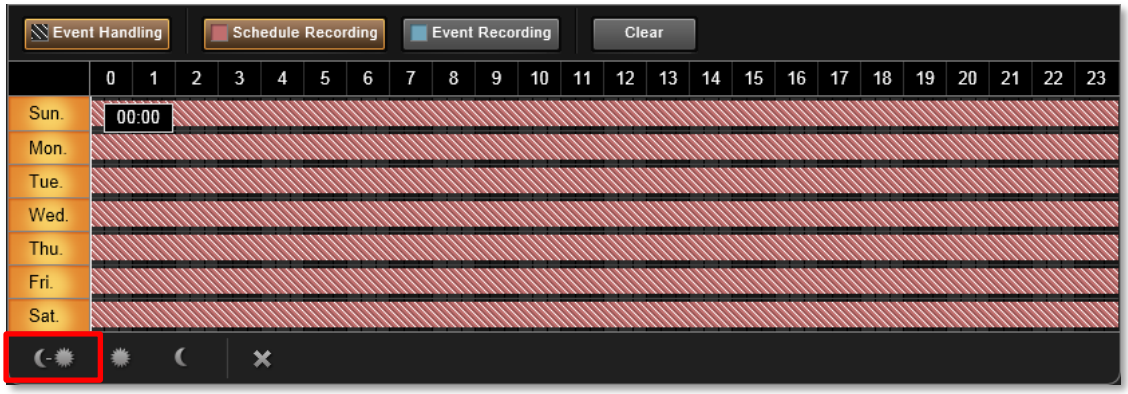




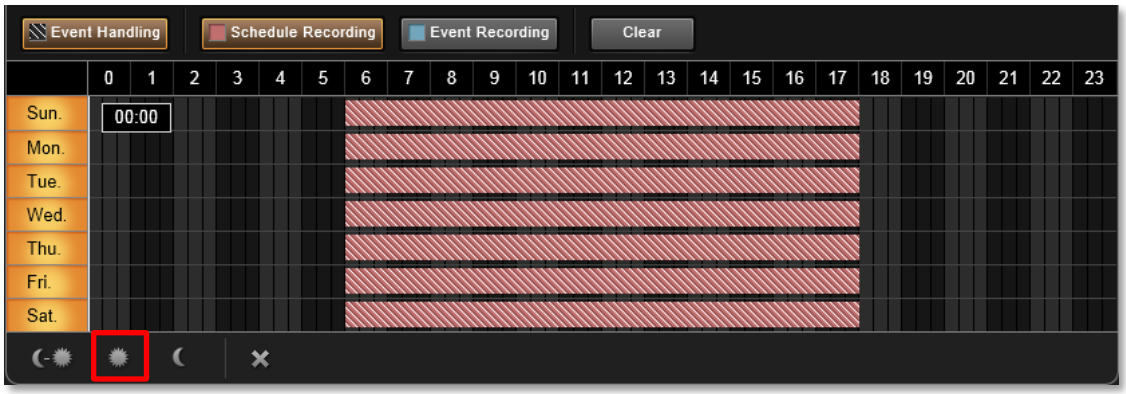
Use Time Setting Quick Buttons to Set the Time

Select the recording mode, then click one of these buttons to apply the mostly-used time settings.

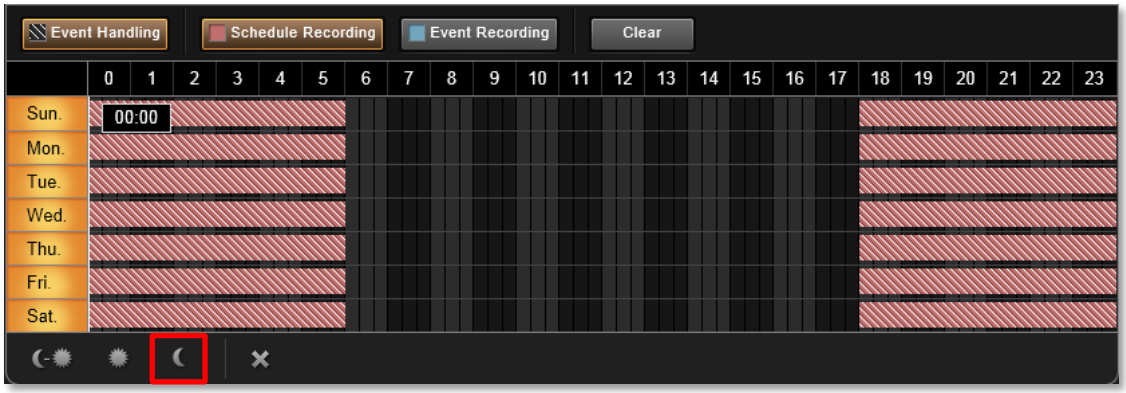
Click to apply schedule **for all day**.



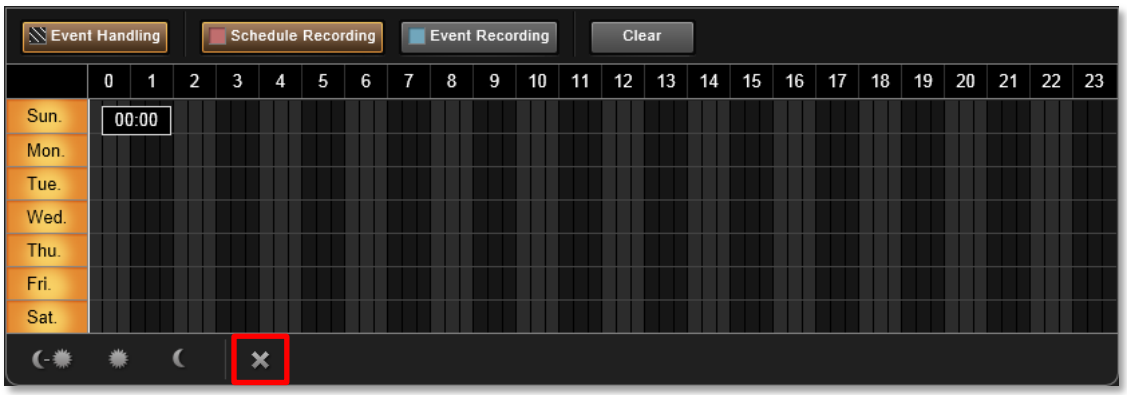
Click to apply schedule **from 06:00 to 18:00 every day**, with the settings for the rest of the time track being cleared.



Click to apply schedule **from 18:00 to 06:00 every day**, with the settings for the rest of the time track being cleared.



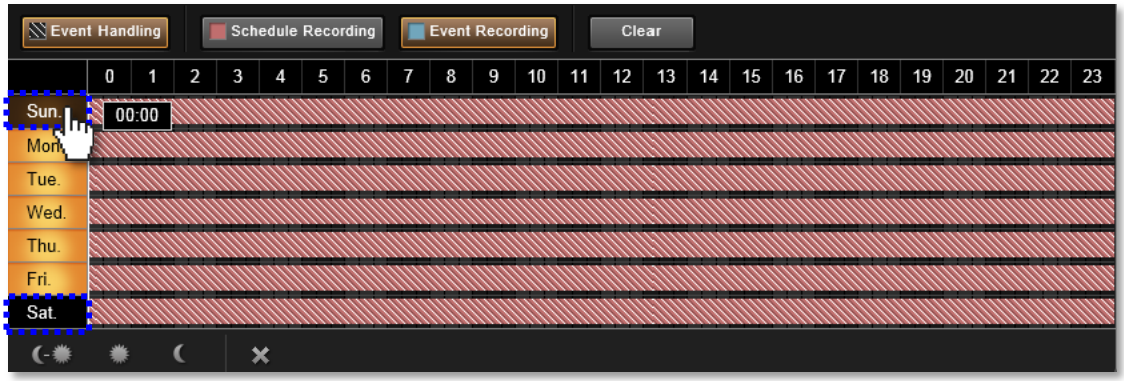
Click **to clear all schedule setting in this device**.



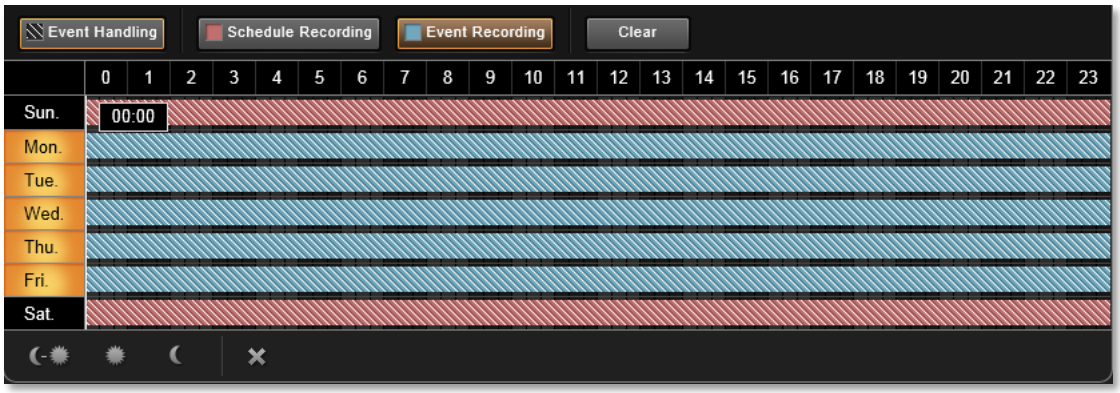
Lock Specific Days

Clicking the day of the week will lock/unlock that day from schedule setting. You can shield schedule on a certain day from being changed by changes in other weekdays. You may easily set just the weekdays or the same time over the same week this way. To do this:

1. Click the days to shield them.



2. As you drag any settings over the time track, it will not apply to those shielded days.



Set Specific Schedule

You can set a specific recording schedule for a single date or a period as long as 400 days.

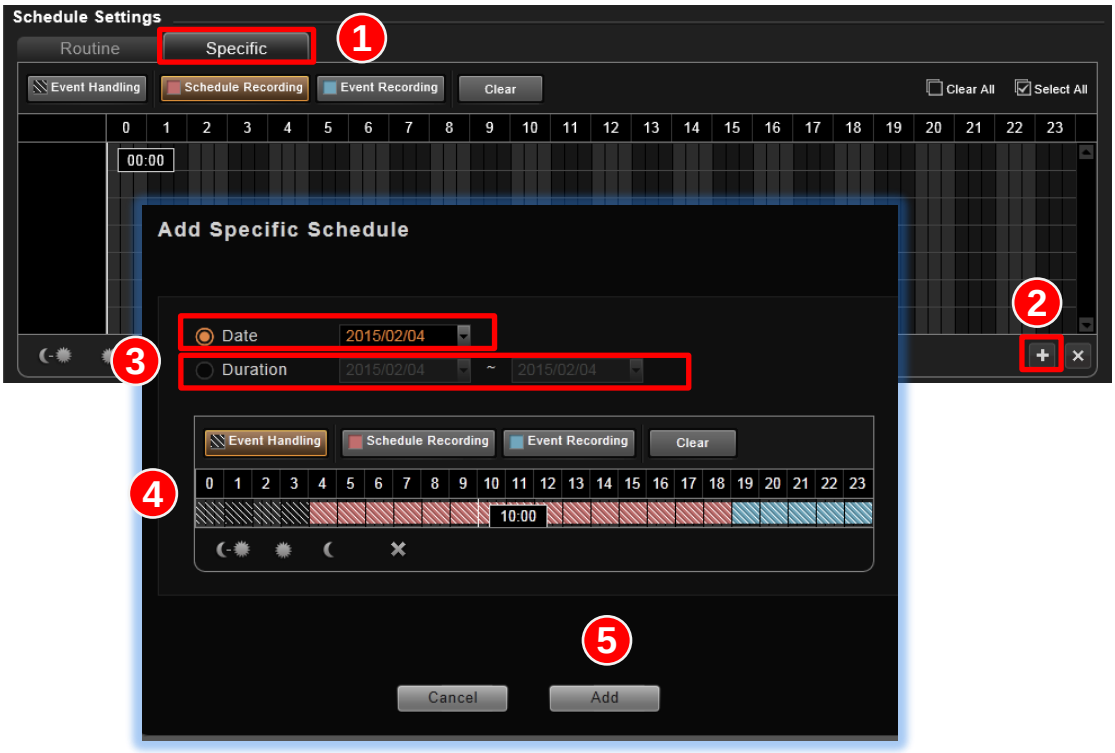
1. Click on **Specific** tab.

2. Click on "**+**" to start adding a new schedule.

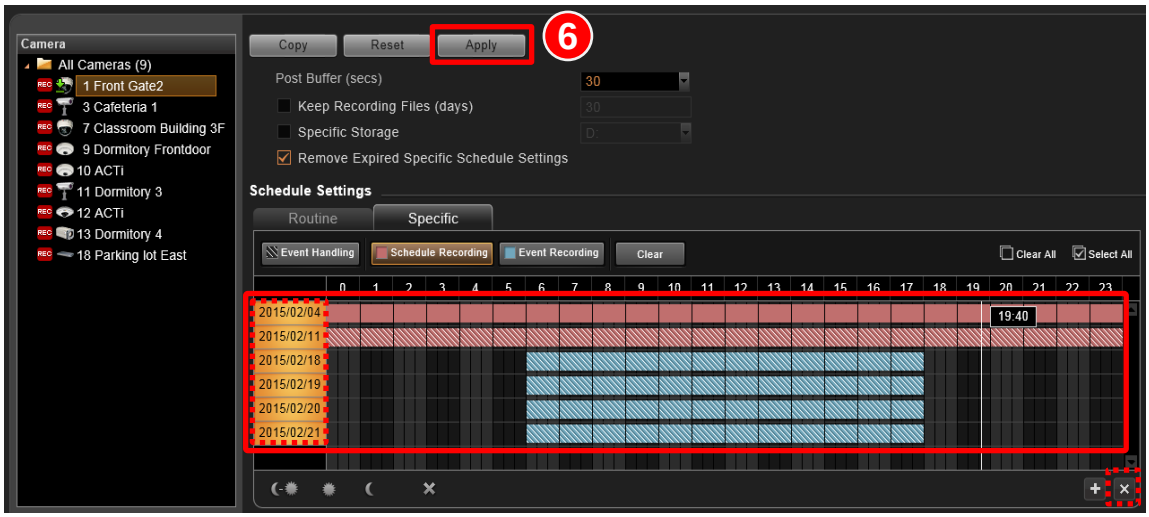
3. On **Add Specific Schedule** window, select **Date** to define a specific date or **Duration** to define a time period.

4. Configure the recording time.

5. Click "**Apply**" to save this schedule.



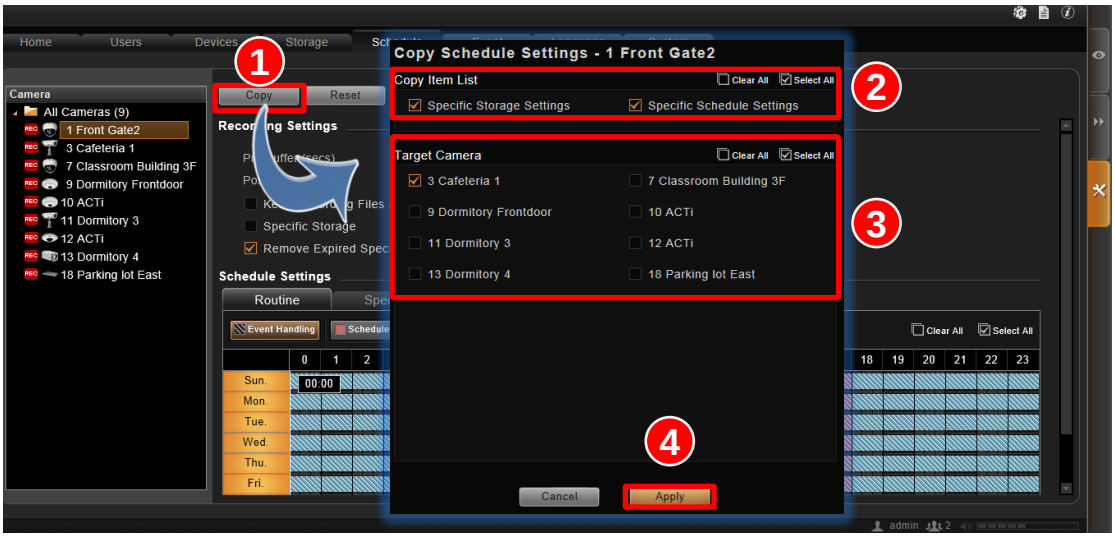
6. The specific schedules you set will appear on the list. You can clear them all by clicking on "**X**" or disable any of them by clicking on the date. Finally, click on "Apply" to save the schedules



Copy an Existing Schedule to Others

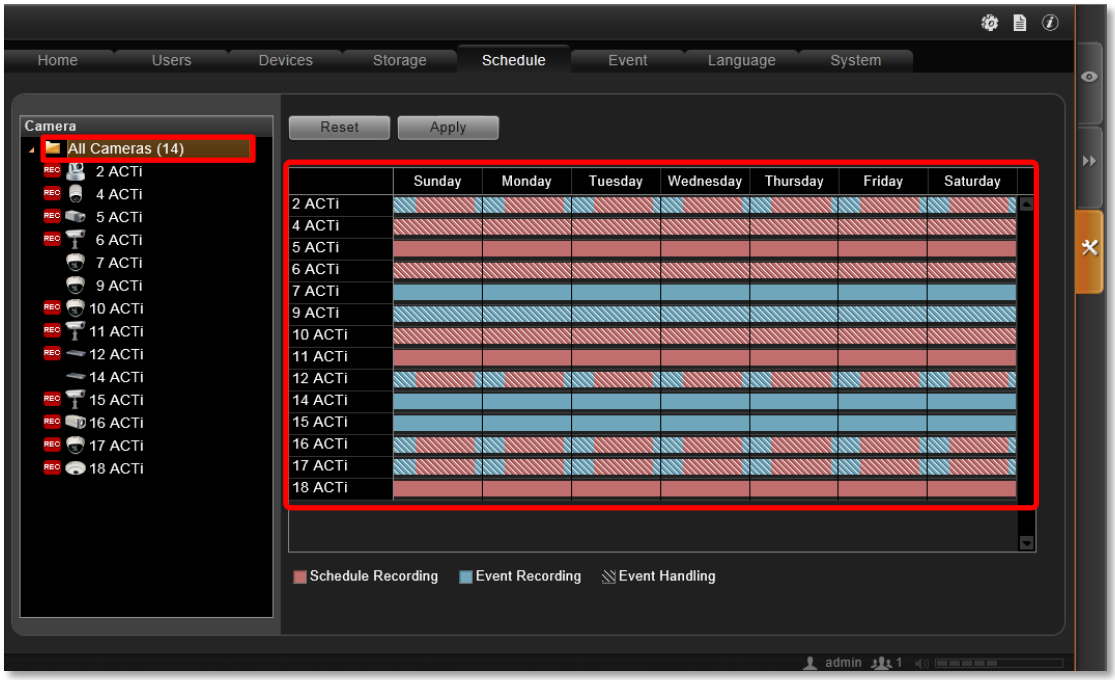
With plenty of devices in your system, it happens that you want to apply the same schedule to multiple cameras. After creating a schedule for one device, you can copy it to other cameras.

1. Go to **Setup** page →**Schedule** tab, on **Camera List**, select the camera you want to copy schedule settings from, and then click on "**Copy**" button.
2. On popup window, select the "Specific" settings from "**Copy Item List**" that you want to be copied along with the routine recording schedule.
3. Select the target cameras you want to copy schedule settings to.
4. Click the "**Apply**" button.



Check the Recording Schedule Overview

On **Setup** page →**Schedule** tab, click **All Cameras** on **Camera List**, an overview of all device schedules will be listed on the right.



The list below explains the status of different bar patterns:

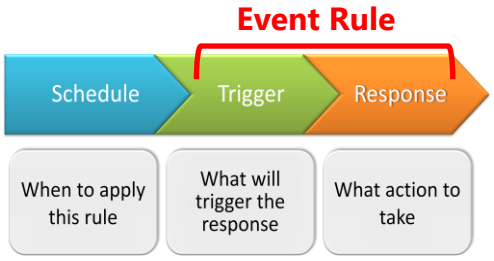
Icon	Recording Function Description
	Schedule recording. During this period, device view will be recorded continuously.
	Event handling. During this schedule, the event rules you set are active.
	Schedule recording and Event handling are both active during this period.
	Event recording. During this period, only detected events (e.g. Motion/PIR) will be recorded.
	Event recording and Event handling are both active during this period.

Is the Recording Taking Place?

As the recording is taking place (scheduled, event-triggered or manually-triggered recording), you can observe the status on the **All Cameras** list. There will be an icon REC appearing next to the device. On **Playback** screen, you can drag the playback bar to current time position to check the latest recording.

Event Management

When something happens on camera site, such as someone walks by, the door opens or closes, someone breaks into the house – these are all **Events**. Events which occur in the environment or were preprogrammed in the camera can be used as **Triggers**. Triggers cause the camera to react with **Responses**. The link between a trigger and its response is governed by **Event Rules**. Event rules become active or inactive based upon the **Schedule**. Each event rule is designated to one certain trigger type from a specific camera and can carry out multiple responses. An example rule would be for NVR to send an e-mail to alert the supervisor (**Response 1**) and trigger alarm (**Response 2**) when a motion is detected by the camera shooting the house's backdoor (**Trigger**) during nighttime (**Schedule**).



How Does NVR 3 Handle Events?

In NVR 3, each camera can be involved in several event rules. As different camera models possess various capabilities, the supported event trigger types would vary. For example, a PIR built-in camera can execute a PIR-triggered event rule, while this option is not available to other models without this feature; similarly, the supported response types would vary by camera models, for example, go-to-preset behavior can only be executed by PTZ devices. The chart below shows NVR server supported **Trigger** types and **Response** types:

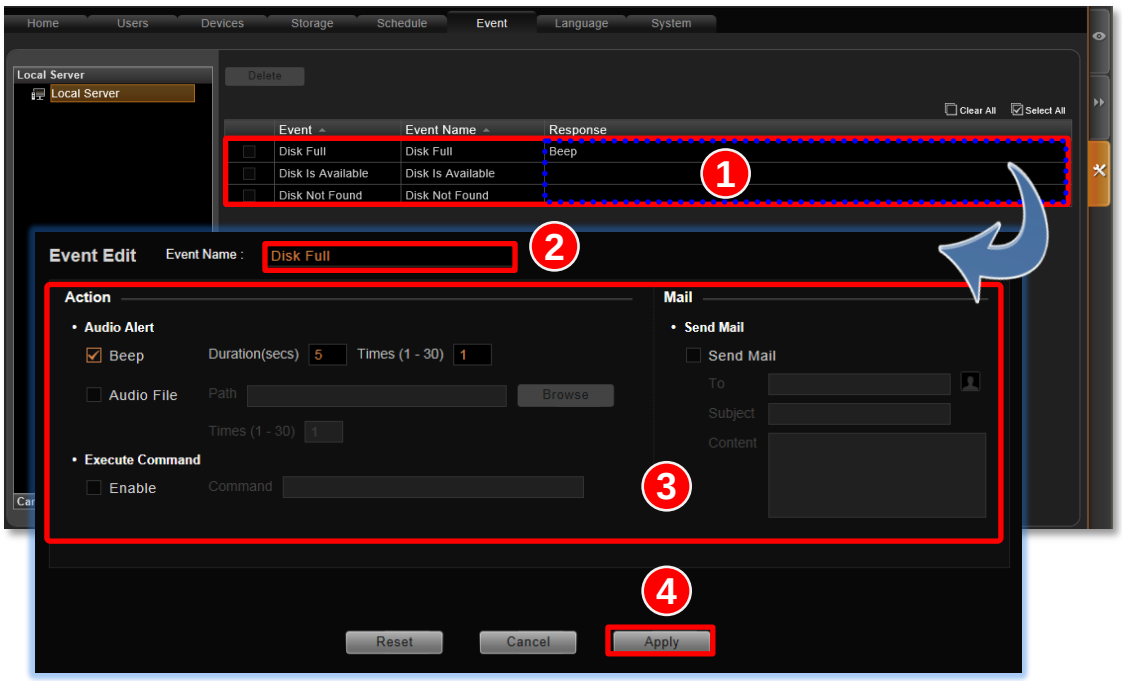
Source of Event	Event Type	Response Type (on client computer)
NVR Server Status	•Storage disk is full •Storage disk is avalable for recording •NVR server can't detect the storage disk	•Produces audio alert (beep sound or pre-loaded audio file) •Executes a command •Sends email notification

Camera	•Video motion is detected •PIR motion is detected •Digital input signal is detected •NVR server can't detect the camera via network •The camera's network connection is recovered •NVR server does not receive the camera's video strean •The camera's video stream is back	•Produces audio alert (beep sound or pre-loaded audio file) •Executes a command •Sends email notification On **Live View** screen •Displays a designated camera view in a pop-up window •Displays a designated camera view in a designated channel •Switches to designated layout •Triggers a designated PTZ camera to move to a preset point •Triggers a designated digital output •Uploads snapshots to FTP server

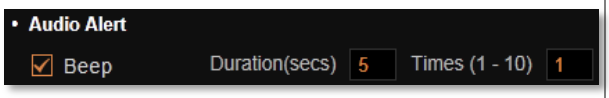
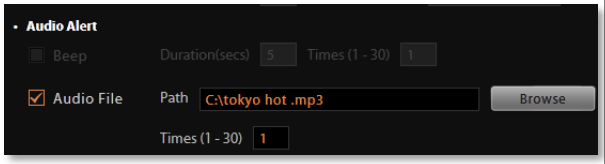
Create an Event Rule Based on NVR Server Events

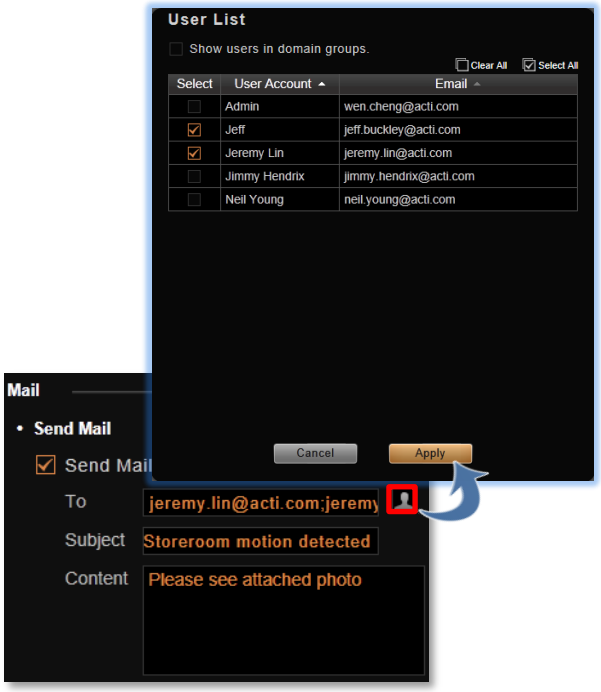
In NVR3, the abnormal status of NVR server is also considered a trigger that is worth your attention.

1. Go to **Setup** page → **Event** tab. In **Local Server** panel, there are already three types of server event: **Disk Full**, **Disk Is Available** and **Disk Not Found**. Highlight the rule you want to edit. Double-click on the "**Response**" column to edit the response action.
2. On Edit Event window, you can rename this event in **Event Name** field.



3. You can enable multiple responses by first checking the box (es) to enable the items:

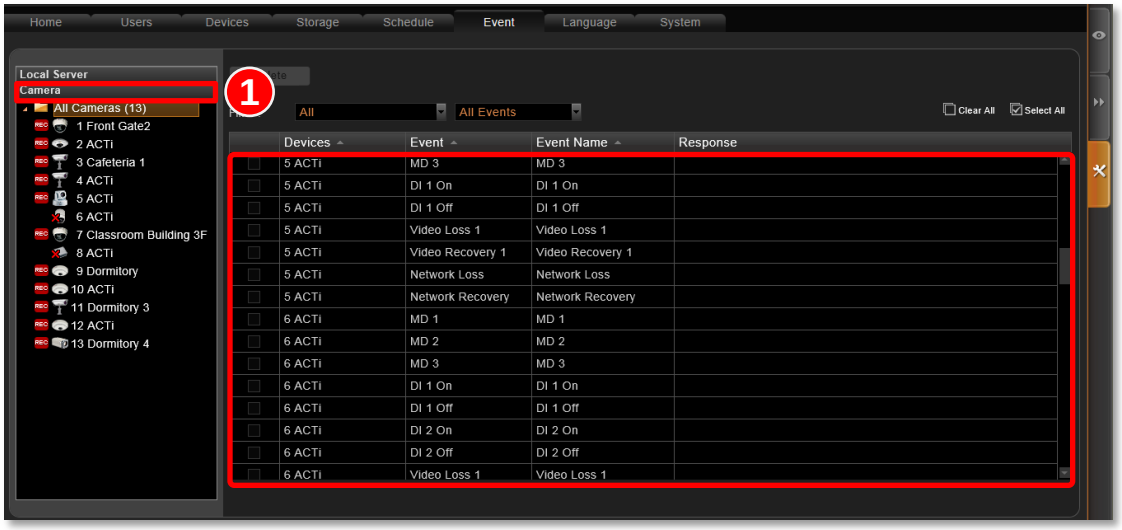
Action Items	Function Description
 	Makes NVR play beep sound or an audio file for a number of repetitions. On **NVR 3 Enterprise Workstation** client computer, you can upload a WAV file or an MP3 file as the alert sound, and set how many times this audio file is repeated when the event occurs. (This NVR server has to be already on **Server Site list**, refer to G. Server Name/Server Sites List on page 32 for how to save a server site). Please note that **Beep** and **Audio file** responses cannot be executed at the same time.

	Enable NVR to execute a certain command upon this event. You can use it to integrate NVR's event handling with other programs. Enter the path of the command to be executed upon event.
	Enable NVR to send e-mail notification via SMTP server. The default SMTP and sender's e-mail settings can be set in advance i n **Setup** page →**System** tab→**Settings** → **E-mail& SMTP Settings**. **1.** Type one or more recipients' e-mail addresses in "**To**" column (if more than one, please separate them by "**;**" symbol) or click the icon to select recipients from existing NVR User list. The E-mail address should be set in advance (in **Setup** page→**Users** tab→**Users**) for an NVR User so that it can be selected in this list. **2.** Edit the e-mail subject and content.

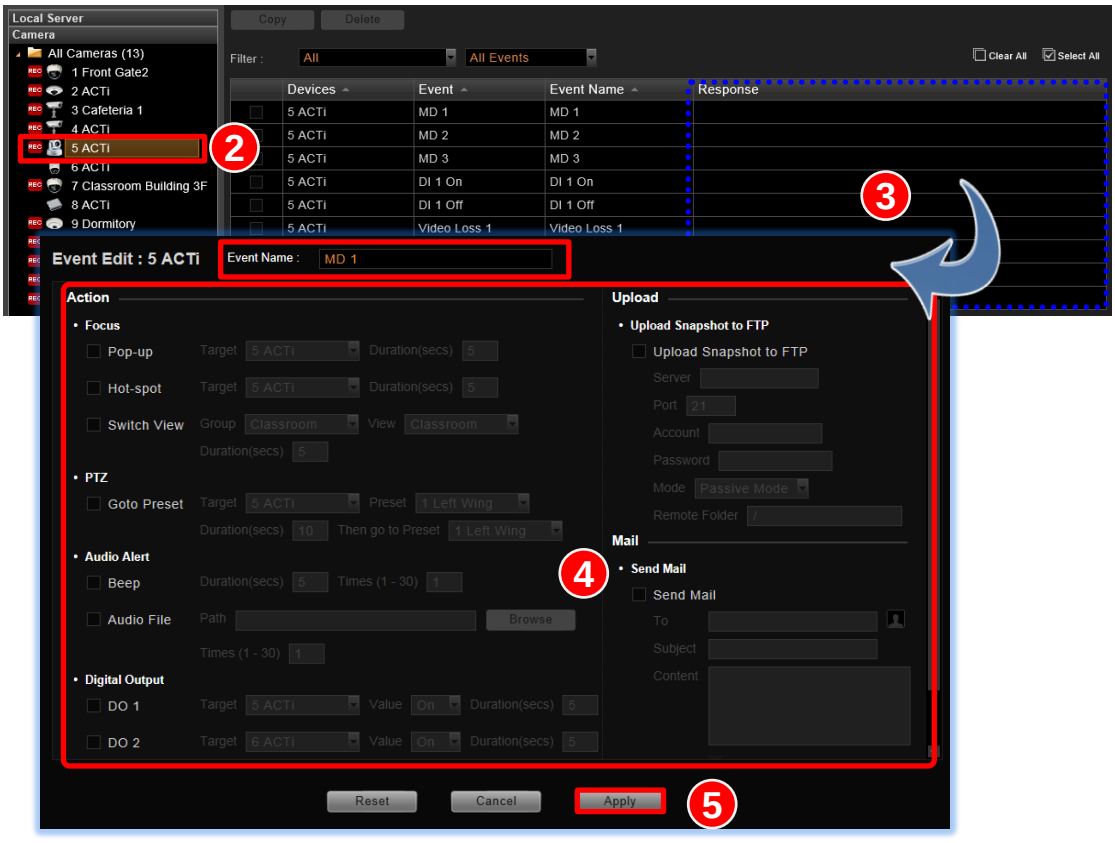
4. Click "**Apply**" to save this rule.

Create an Event Rule Based on Camera Events

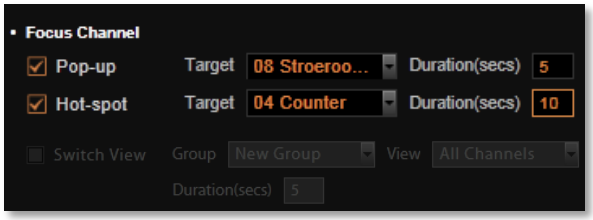
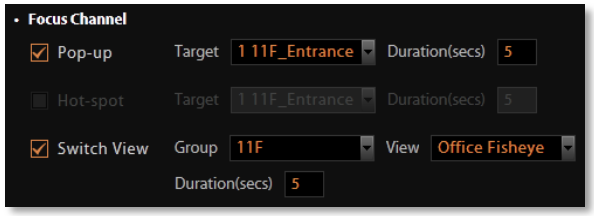
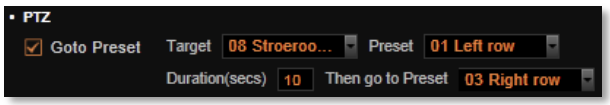
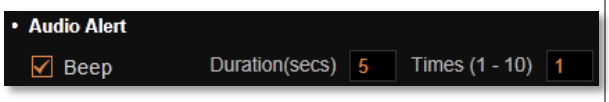
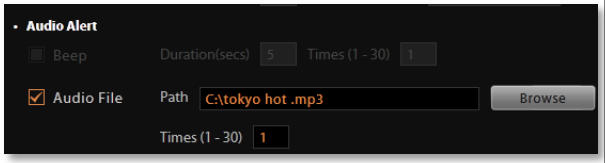
1. Go to **Setup** page → **Event** tab. Click on the title bar of **Camera** list, all the editable event rules are listed in the device ID order.
2. Select a camera from the **Camera** list on the left. Based on the trigger types this device supports, the corresponding events rules are listed accordingly on the right. In this example, this selected camera model supports three motion detection regions, and hence three MD trigger event rules are available.

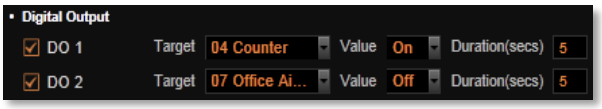
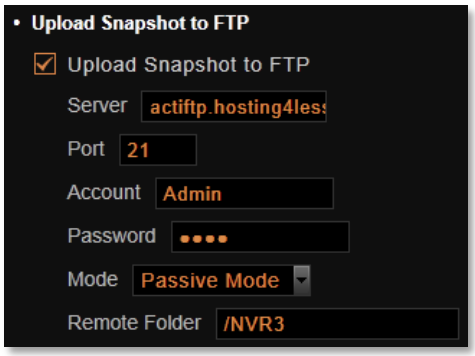
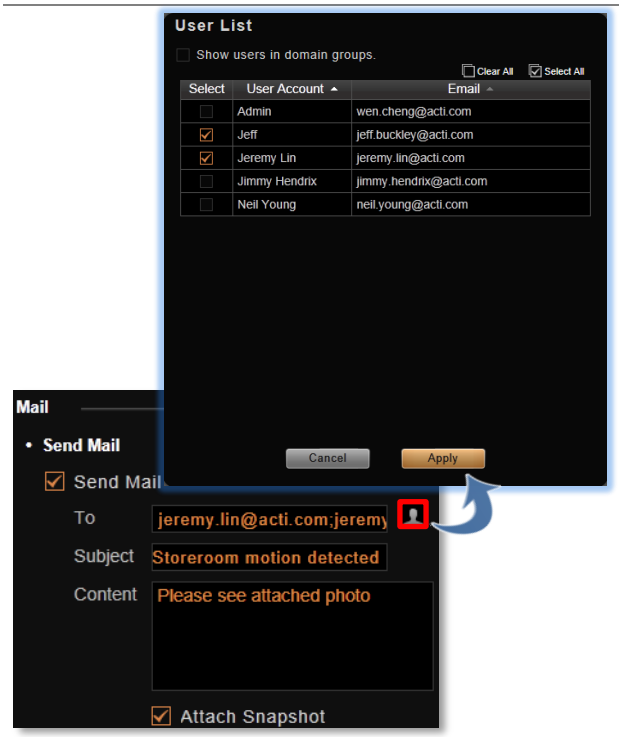


3. Highlight the rule you want to edit. Double-click the "**Response**" column to edit the response action.



4. You can enable multiple responses by first checking the box (ers) to enable the items:

Action Items	Function Description
 	This kind of action will focus your attention on the channel when triggered. **Pop-up**: Brings up event pop-up instant playback window of selected channel upon trigger. You may also define the display duration of video on the window. **Hot-spot**: Displays video in Hot-Spot window (red flashing frame) upon event. You may also define display duration of video on the Hot-spot window. **Switch View**: The current Live View will be switched to another one for a while. To enable this option, you will need to customize and save Views on Live View screen first. You may also define duration of the temporary View. Only **Public** Views are selectable for Switch View event rule. **Hot-spot** and **Switch View** responses cannot be executed at the same time.
	Upon being triggered, specific camera can make PTZ movements like going to specific PTZ presets as responses. You may set both the start / end point and the duration. **This action is only available when you have set the preset points**. **for a PTZ device**.
 	Makes NVR play beep sound or an audio file for a number of repetitions. On **NVR 3 Enterprise Workstation** client computer, you can upload a WAV file or an MP3 file as the alert sound, and set how many times this audio file is repeated when the event occurs. (This NVR server has to be already on **Server Site list**, refer to G. Server Name/Server Sites List on page 32 for how to save a server site). Please note that **Beep** and **Audio file** responses cannot be executed at the same time.

	Enable NVR to execute a certain command upon this event. You can use it to integrate NVR's event handling with other programs. Enter the path of the command to be executed upon event.
	Set the DO to become ON or OFF upon trigger, only the devices supporting DO functions can be the target devices.
	Enable NVR to upload snapshots to a FTP site upon this event. The default FTP settings can be set in advance in **Setup** page→**System** tab→ **Settings** → **FTP Settings**. You may set another FTP destination here for this single event. Please also make sure the FTP server setting is correct and the folder access rights are properly configured.
	Enable NVR to send e-mail notification via SMTP server. The default SMTP and sender's e-mail settings can be set in advance i n **Setup** page →**System** tab→**Settings** → **E-mail& SMTP Settings**. **1.** Type one or more recipients' e-mail addresses in "**To**" column (if more than one, please separate them by "**;**" symbol) or click the icon to select recipients from existing NVR User list. The E-mail address should be set in advance (in **Setup** page→**Users** tab→**Users**) for an NVR User so that it can be selected in this list. **2.** Edit the e-mail subject and content. **3.** Enable "**Attach Snapshot**" if you want.

5. After configuring the actions, click "**Apply**" to save this response.

6. Go to **Setup** page→**Schedule** tab and set the **Event Handling** schedule for this camera. Event responses will only be triggered when the trigger time falls within either the **Event Handling** recording or the **Event Handling with Schedule** recording period.

7. To check if this rule is successfully set, please make sure you have properly configured the involved (1) triggering side settings like **Motion Detection Region**s or **DI**, (2) response

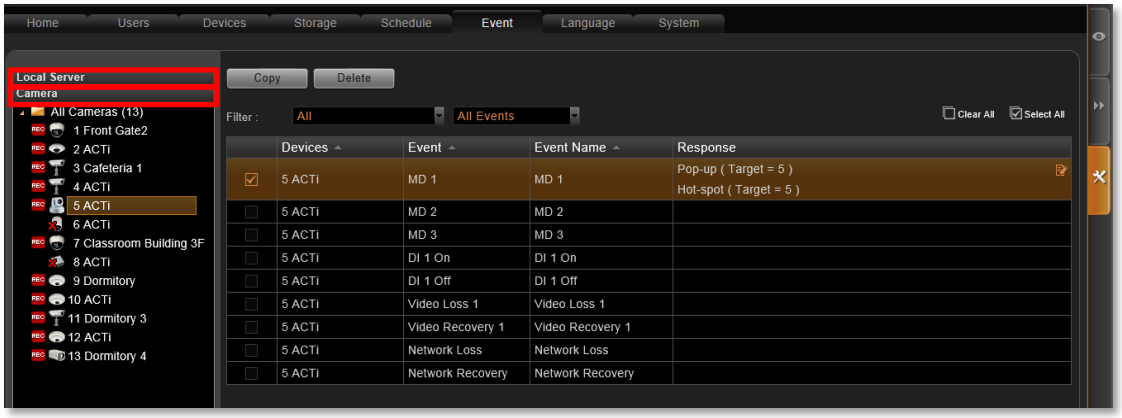
side settings like **PTZ Preset Point**s, **SMTP Server** and **E-mail Recipient**s, **FTP Server** or **DO**. Then set the **Event Handling** schedule to try triggering this rule.

Note

1. **Sending E-mail**, **Uploading snapshot to FTP** and **Executing command** actions are executed on the server computer, not from the client computer.
2. There must be a video stream from the camera when the event happens for event responses to work.
3. Internet Explorer browser may become unstable due to frequent pop-up instant playback windows, please avoid setting the "**Pop-up**" action as the event rule for a camera which is too frequently triggered. The next server version NVR 3.1 will improve the program efficiency with Internet Explorer browser.

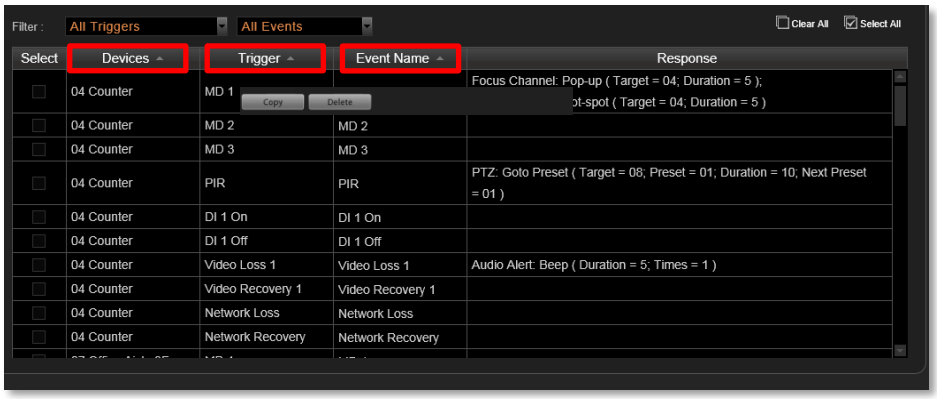
Manage the Event Rules

Event List panel gives an overview on event rules set on NVR server. Go to **Setup** page → **Event** tab → click on **Camera** or **Local Server** on the left.

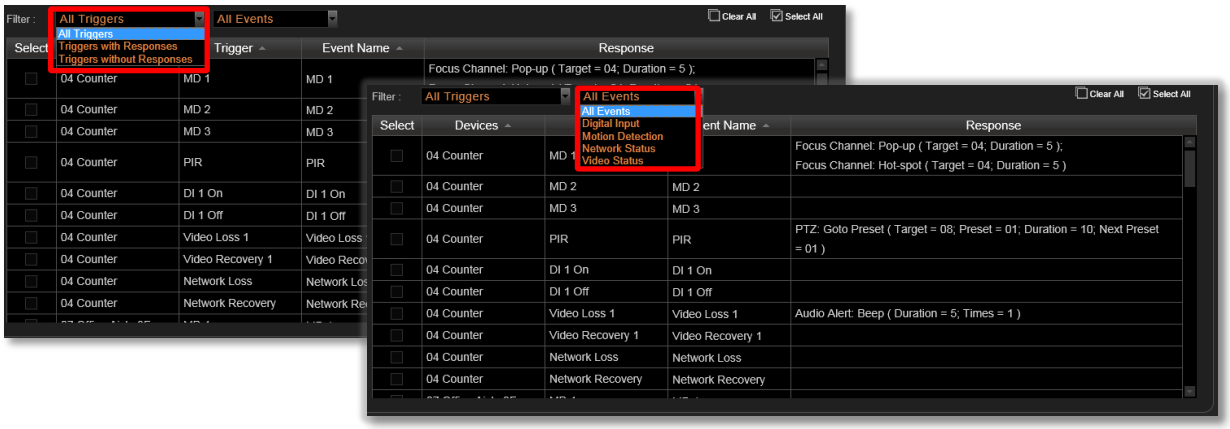


View the Event Rules

To sort by **Device** name, **Trigger** type or **Event Name**, click the titles to list the entries in ascending or descending alphabetic order.

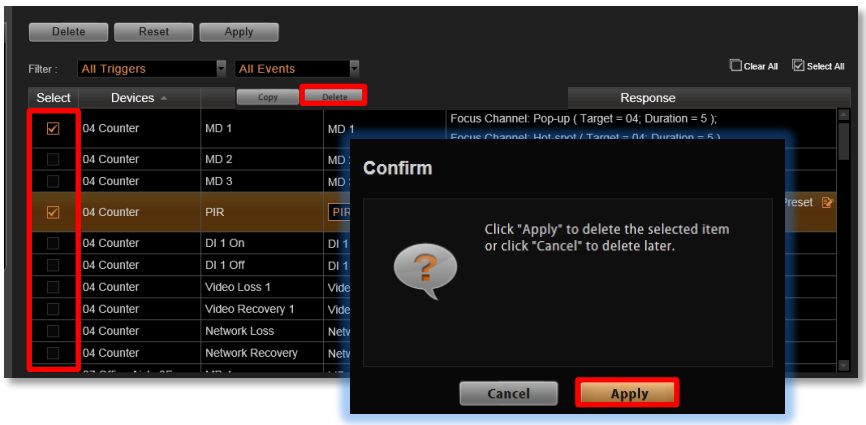


To filter out the configured events, select from the "**All Triggers**" dropdown list; or filter by the event type by selecting from the "**All Events**" dropdown list.



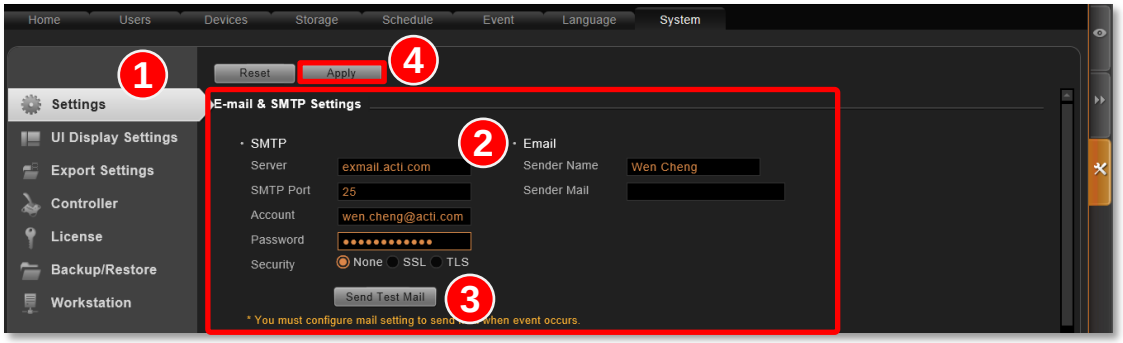
Delete the Event Rules

On **Event List**, select the rules you wish to delete, and then click "**Delete**" to clear this rule.



How to Setup SMTP Settings for Event Rules

NVR 3 supports e-mail notification for **Event Handling** sent through an SMTP server. You can specify the e-mail and server settings here.



1. Go to **Setup** page→**System** tab→**Settings** → **E-mail& SMTP Settings**.
2. Fill in **each** of the following fields.

Field Name	Description
Server	Input the sender's SMTP server address. Only alphabets, numbers, and the symbols (.), (_), (-) are valid.
SMTP Port	Set the SMTP port, allowed value is from 1~65535, default is **25**.
Account	Input the name of the SMTP server account. Only alphabets, numbers, and the symbols (@), (.), (_), (-) are valid.
Password	Input the password of the SMTP server account. Only alphabets and numbers are valid.
Security	Certain webmail providers provide the SSL/TLS-encrypted SMTP connections to secure your data when sending/receiving e-mails. Please check if the SMTP connection settings you use (especially the **SMTP Port**) now require to enable either SSL or TLS.
Sender Name	Input the name or title of the sender. You may input a name different from the account name.
Sender Mail	Input the sender's e-mail address, which should the same account you set for SMTP server.

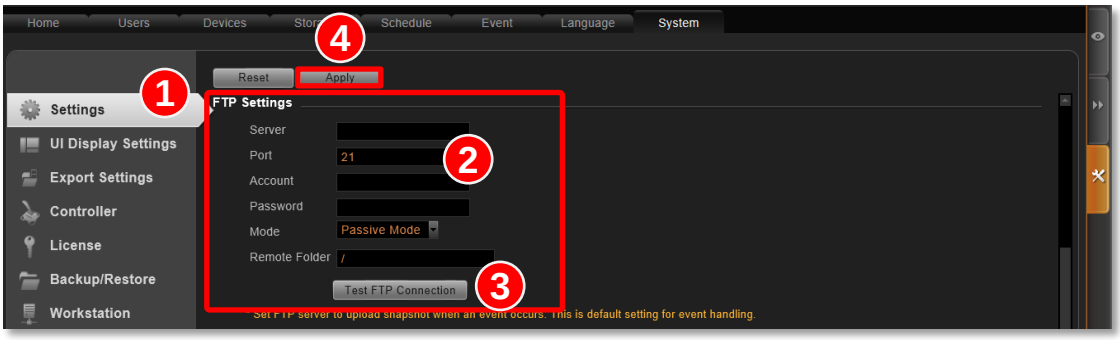
3. As all necessary information is filled, click "**Send Test Mail**" to try sending an e-mail according to your settings, and then log in to your SMTP server to check incoming e-mails. If the test mail is sent successfully, NVR server is ready to send out e-mails.
4. As the settings are confirmed, click "**Apply**" to save.

How to Setup FTP Settings for Event Rules

NVR 3 supports uploading snapshots to FTP servers for Event Handling.

You can specify the e-mail and server settings here.

1. Go to **Setup** page→**System** tab→**Settings** → **FTP Settings**.



2. Fill in **each** of the following fields.

Field Name	Description
Server	Input the FTP server address. Only alphabets, numbers, and the symbols (.), (_), (-) are valid
Port	Set the FTP port, allowed value is from 1~65535, default is **21**.
Account	Input the name of the FTP server account. Only alphabets, numbers, and the symbols (@), (.), (_), (-) are valid.
Password	Input the password of the FTP server account. Only alphabets and numbers are valid.
Mode	The FTP works in two very different manners, **Active** mode and **Passive** mode. If your FTP server is behind the firewall or a NAT router, you have to use "**Passive**" mode.
Remote Folder	Input the upload path of the file. Default will be "**/**" to represent the root folder.

3. As all necessary information is filled in, click "**Test FTP Connection**" to test the connection. If NVR server pops up a "Testing **FTP connection was successful**" message, NVR server is ready to upload to this FTP.
4. As the settings are confirmed, click "**Apply**" to save. The FTP settings here will be default for every event rule.

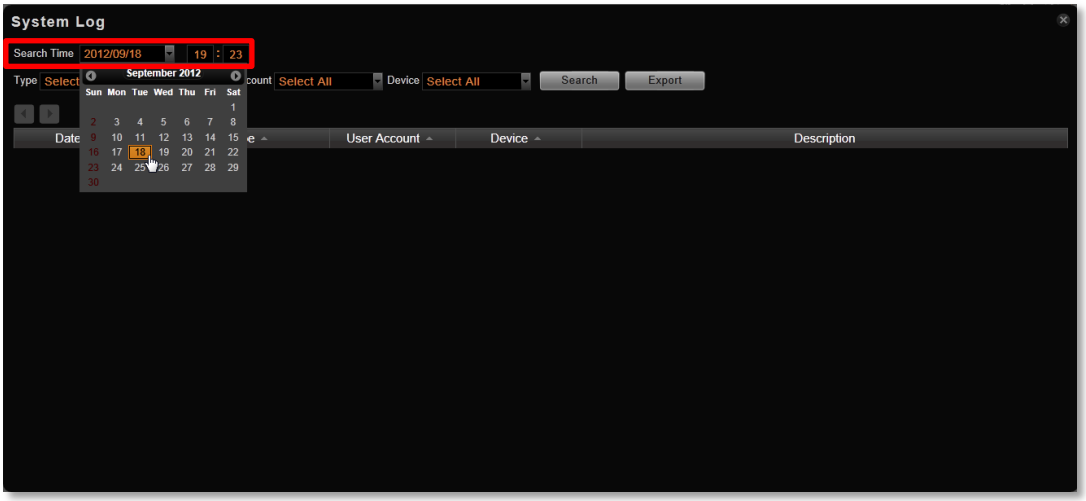
System Log

The activities performed by logged-in Users are recorded on server as **System Log**. With the access permission, a user may view, search and export this record for analysis or investigation. This section will provide the instructions on how to read and search data in the system log.

"**System Log**" is one of the resident buttons on top of NVR server user interface, click it to enter search window.

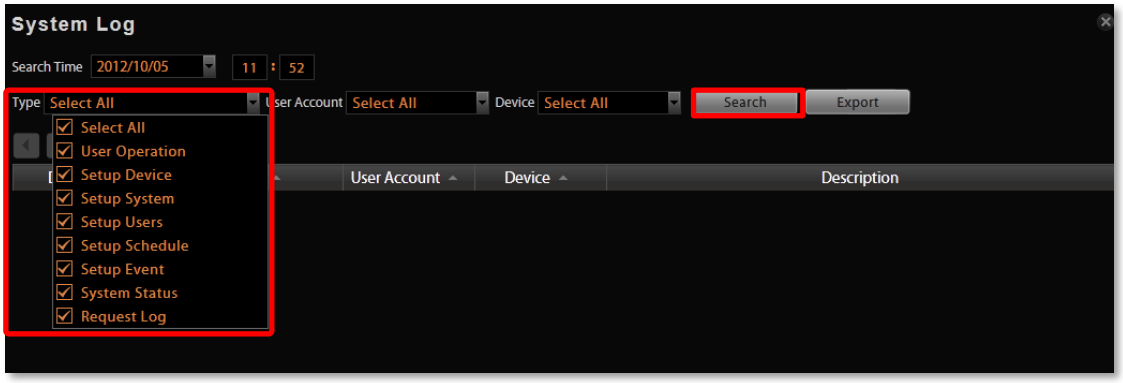
Define Search Time

You need to first define the time of the logs you would like to search for. On **Search Time** bar, define the date and time. Default is your current client time.



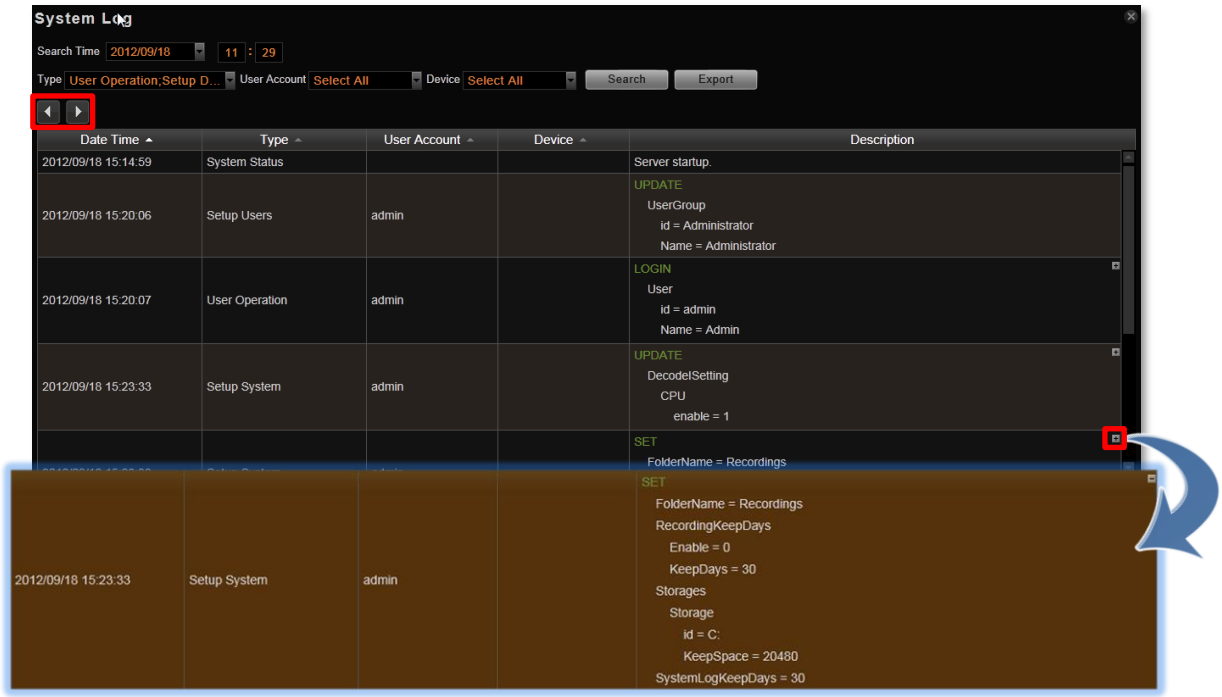
Choose Log Type

You may filter the logs by **Type**, **User Account**, and **Device** by selecting from dropdown list, then click "**Search**". By default, all types are selected.

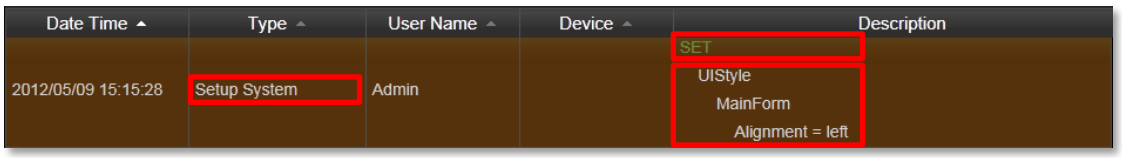


Read the Log

The search result will show 1000 records before and after your query time. You may click the pagination buttons to navigate earlier or later records. If there is an icon on the right top corner of an entry, click it to view the full description content.



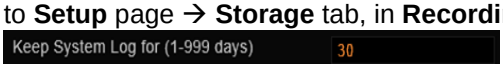
A log entry contains several kinds of information including **Date Time**, **Type, User Account**, **Device** and **Description**. Check **Type** and **Description** fields to know what the user has done or what happened to the whole system. In **Type** field shows what major functions user engaged in, in **Description** field narrates how the change was done (in green font color, uppercase) and the result (in white font color).



The following user behaviors are recorded in NVR server:

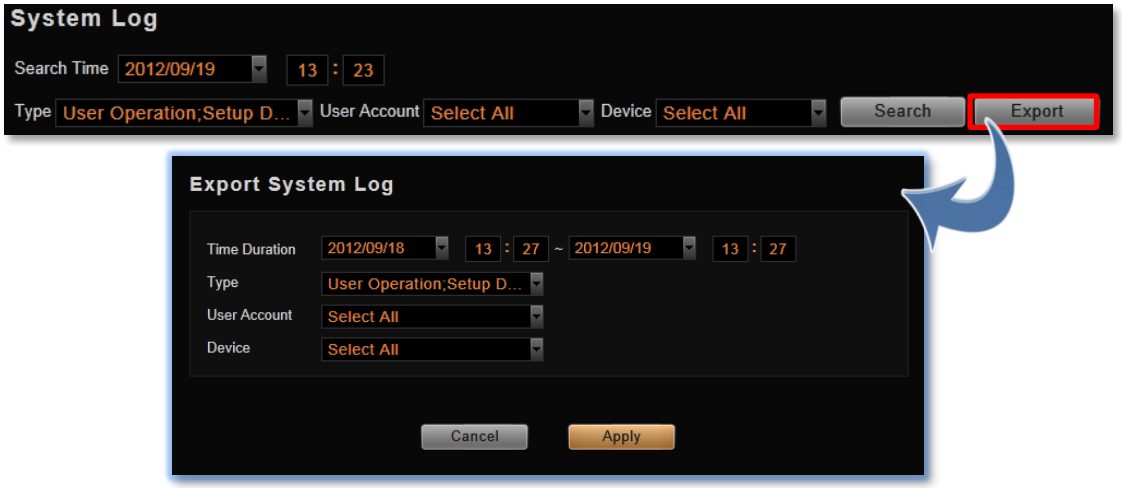
Type	Description
User Operation	Login, Logout, Manual Record,Trigger DO
Setup System	Recording Configure, Storage System Setting
Setup Users	User – Add,Delete,Modify User Groups – Add, Delete, Modify
Setup Schedule	Modify
Setup Event	Modify
System Status	Server starst up, disk is full, disk is not found, disk is available
Request Log	Time, source ip address, /SYS/SystemMgmt/xxxxx ,200

Note

If the pagination button appears to be disabled, that means no more records found on NVR server. By default, the server will keep the logs for 30 days. If you wish to adjust the period, please go to **Setup** page → **Storage** tab, in **Recording Settings** section, key in the value in this field: 

Export the Log

Click "**Export**" button to export the log as .csv file. You can specify the time duration, engaged User Account and devices of the logs, and click "**Apply**".

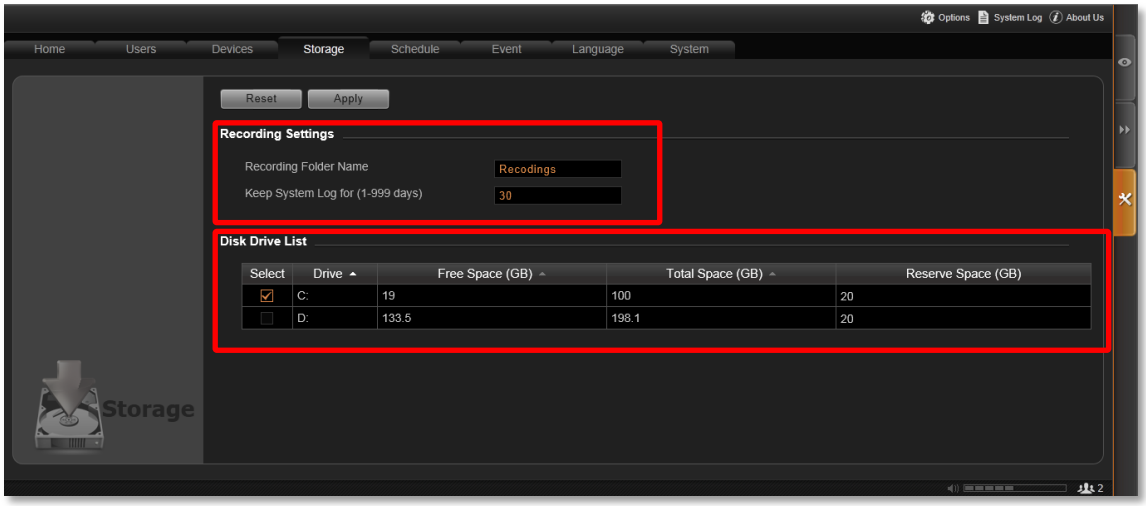


Storage Management

This section describes how to manage storage space in NVR. Please note that this section only deals with the overall storage rules, and not storage of individual channels.

Please note that as NVR continuously writes and deletes file from the disk drive, using a removable disk may risk losing recording when device is removed while being accessed.

Go to **Setup** page→**Storage** tab.



Change Recordings Folder Name

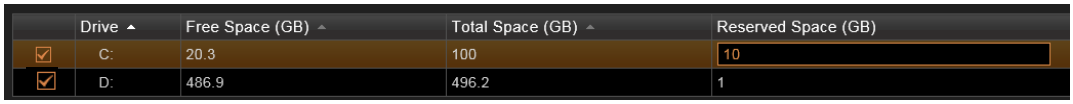
In "**Recording Settings**" section, you may change the name of video recordings folder. The video files are saved in a folder named "**Recordings**" under hard drive root directory. You may change the name here.

Set System Log Lifecycle

System Log is the record of User activities and events that took place on the server. In "**Recording Settings**" section, you may set how long this record is kept on the server. Default is **30** days.

Set Hard Drives for the Recorded Files Deletion Rule

1. On **Disk Drive List** displays the detected storage devices in your server computer. You may select the storage location of the recording files and set the deletion threshold. By default, NVR server will select **C** drive as storage location; however, it is recommended that you prepare one or more disks to store the recording files instead of using **C** drive as the sole storage place.



2. After selecting the disk drive, please set the deletion rule. There are two mechanisms of the automatic file deletion; if both are active, NVR server will start to delete old files when either criteria below is met:

   (1) For a specific channel, you can choose to keep its recordings for a number of days, and delete files older than this period by 1 GB at a time. Please go to **Setup** page →**Schedule** tab to set it.

   (2) Keep the overall recordings until the disk is almost full, and then delete the earliest recording files by 1 GB at a time. NVR server will delete old files when free space is lower than **Reserved Space** you set in **Disk Drive List**.

Item	Description
Free Space (GB)	Currently available space of the chosen disk drive.
Total Space (GB)	The total capacity of the chosen disk drive.
Reserved Space (GB)	This is the amount of space to be kept for other applications and files. If the free space is used up and hence the remaining space reaches the threshold of reserved space, NVR system will start deleting the earliest recordings. It is suggested that **10 % of the disk capacity** be set as Reserved Space.

3. When you finish the settings, click "**Apply**".

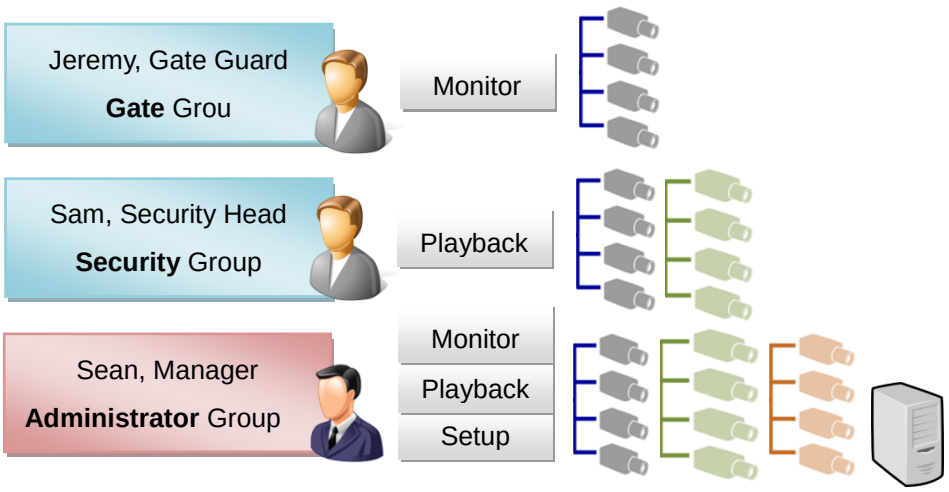
Manage User Groups/ Users

The User Groups/Users page allows you to (1) manage the access permissions of different user groups, (2) add users to or delete them from user groups, (3) and assign users to specific user group. This chapter will take you through these settings.

Access Permissions

In NVR 3, the access permissions are managed by **User Groups**. **User Groups** defines what functions and devices are allowed for each user. Different **User Groups** will have different access rights in terms of permitted operations with each device like **Live View**, **Playback**, and NVR server management operations like **Device Setup**, **Schedule Setup**, **Event Setup** and **System Setup**. For example, an Administrator User is allowed for all the operations in NVR, while a standard User may only be permitted to do **Live View** and **Playback** with limited devices.

The chart below displays different employees as NVR Users and their access rights in this system:



Overview

Go to **Setup** page →**Users** tab. There are two sections to manage User Groups and Users individually.

User Groups: To setup user groups and its permissions.

Users: To manage user accounts and configure user information.

NVR 3 has integrated **Microsoft Active Directory®** service to provide network administrators a more convenient choice for user management. Active Directory is a directory service built in Microsoft Server products to manage user identities and privileges within the domain network.

As NVR 3 runs on a server computer logged on to the same domain with Active Directory server, you can import a user account or a group from those concurrently existing in Active Directory into NVR server. In this way, the user identification is processed by Active Directory centrally; there is no need for NVR administrator to maintain user accounts as long as they are under management of Active Directory service.

User Groups

You can specify access permissions to each device for a whole user group. This user grouping can save you significant amount of works if you have multiple users performing similar tasks and acting as similar roles.

There are already two default User groups

- **Administrator**: With full permissions in NVR server.
- **User**: With the permissions to watch all camera live view and playback.

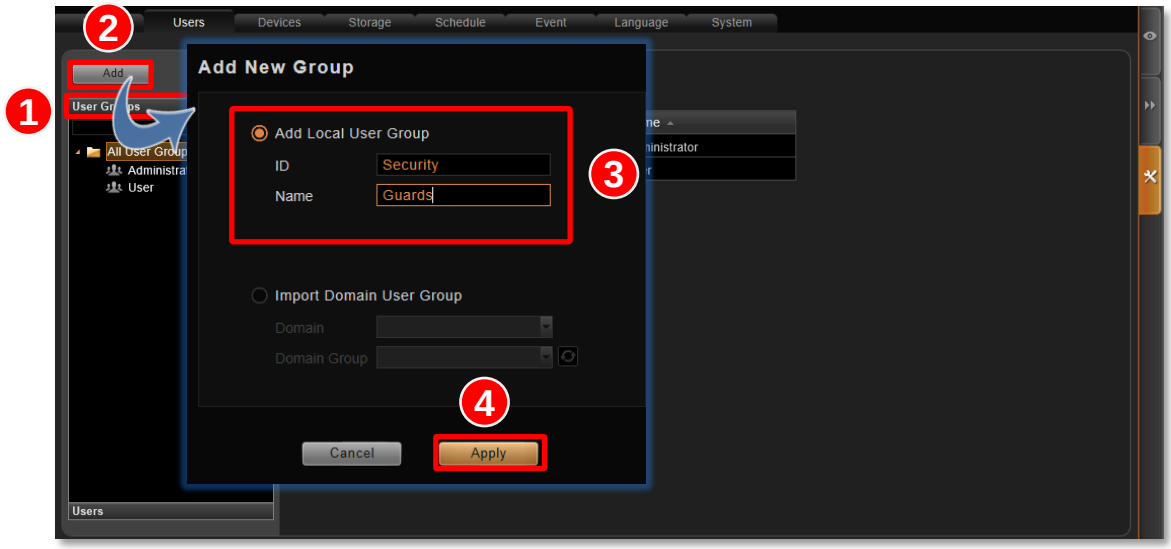
You can create a new user group on NVR server or import an existing group from the Active Directory database within your domain.

1. Click on

2. Click on "**Add**".
3. On **Add New Group** window, choose the group type:

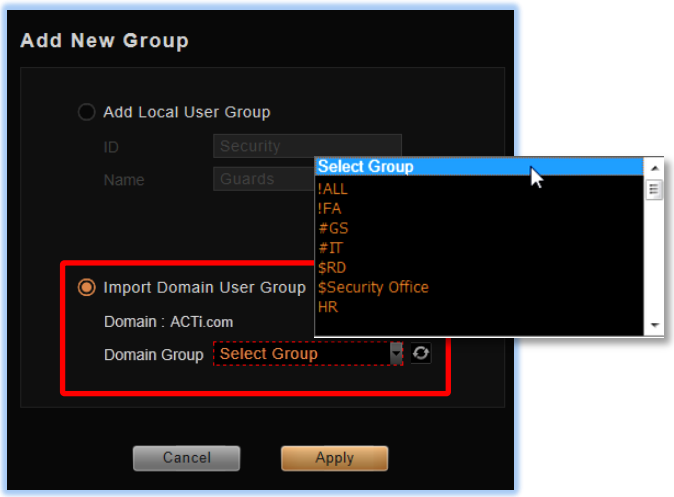
●Add a new local user group:

Insert **ID**, and group **Name**, your input in the **Name** field will be the name of this User group. Click "**Apply**" to finish.



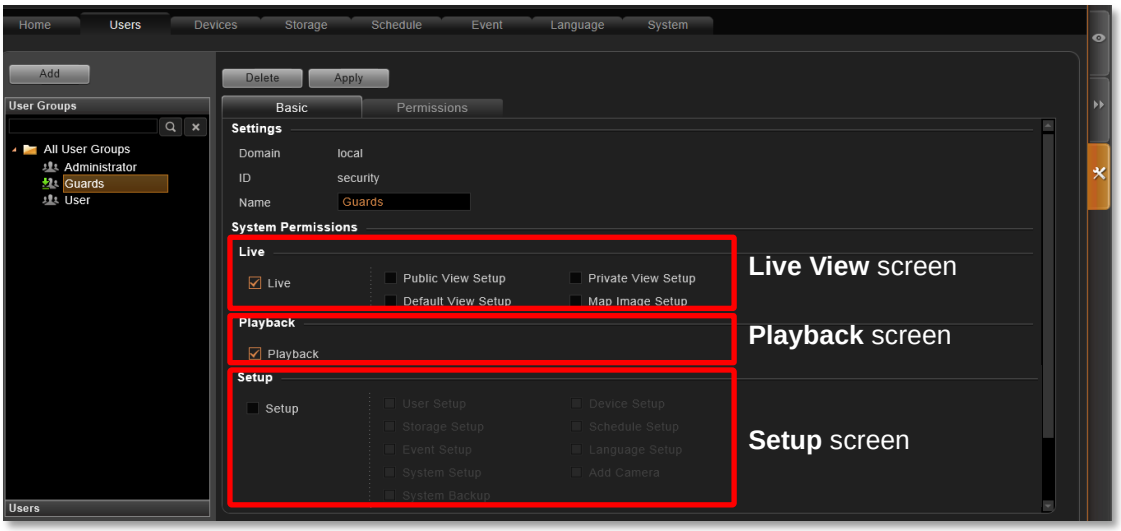
● Import a new domain user group:

Choose an existing user group from your domain, and click "**Apply**" to finish.

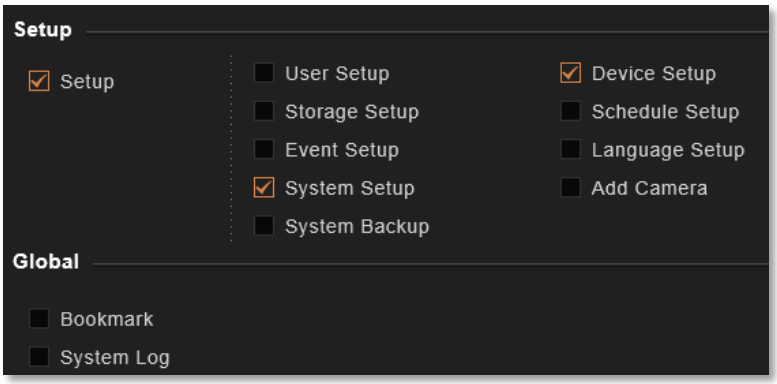


1. Click "**Apply**" to save this group.
2. The domain users within that group will all be added to NVR server. To view the whole users within this group, please select **Users** on the left. The account information of these domain users, unlike those user accounts you add one by one to NVR server, are not editable on **Users** page.

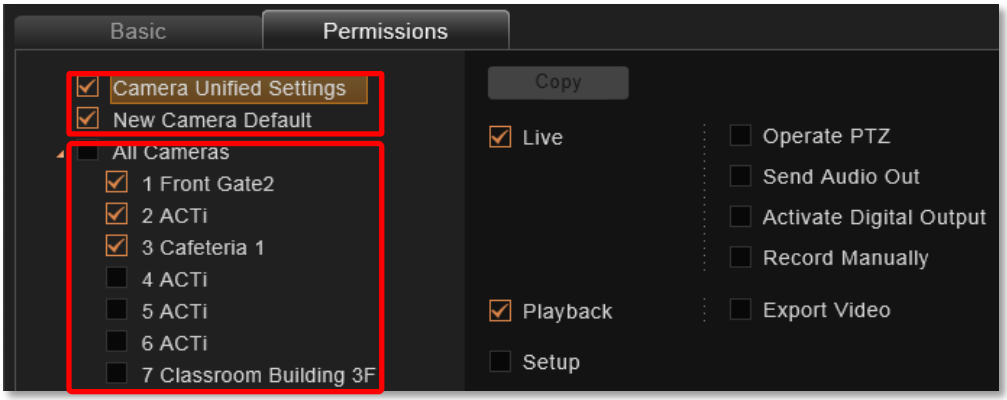
3. Assign **Permissions** for created group. This will define what functions this User group is allowed to access. On **Basic** tab, by default, a new User group will initially be allowed to access only **Live View** screen and **Playback** page, but without any permission to change a certain camera's setting, so you will have to assign the camera permissions later.



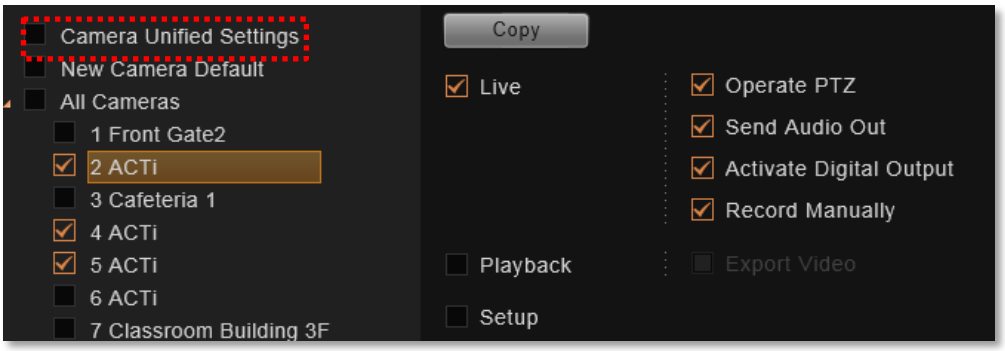
You can assign more administrative permissions to change system settings to a group in **Setup** section and **Global** section.



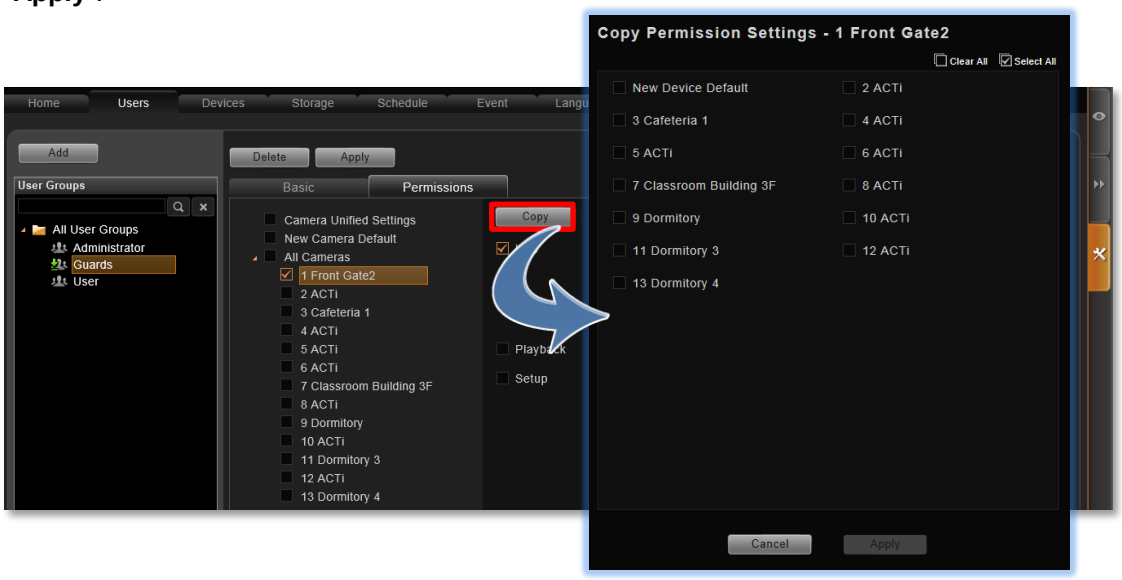
4. Assign camera permissions on **Permissions** tab for the created group. This will define which cameras this User group is allowed to access. You can define the common permissions for the existing cameras with "**Camera Unified Settings**" and for the new cameras with "**New Camera Default**" (if this User group is allowed to access all newly-added cameras, check "**New Device Default**" and edit the permissions, these default settings will be applied to any camera added in the future), and then select the cameras from the list below.



If this user group is given more advanced permissions to certain cameras, instead of enabling "**Camera Unified Settings**", you should select the cameras and define the permissions individually.



You may copy a certain **camera's permissions settings** to other devices. Select a camera and click "**Copy**" to bring up the target device menu, check the target devices, and click "**Apply**".



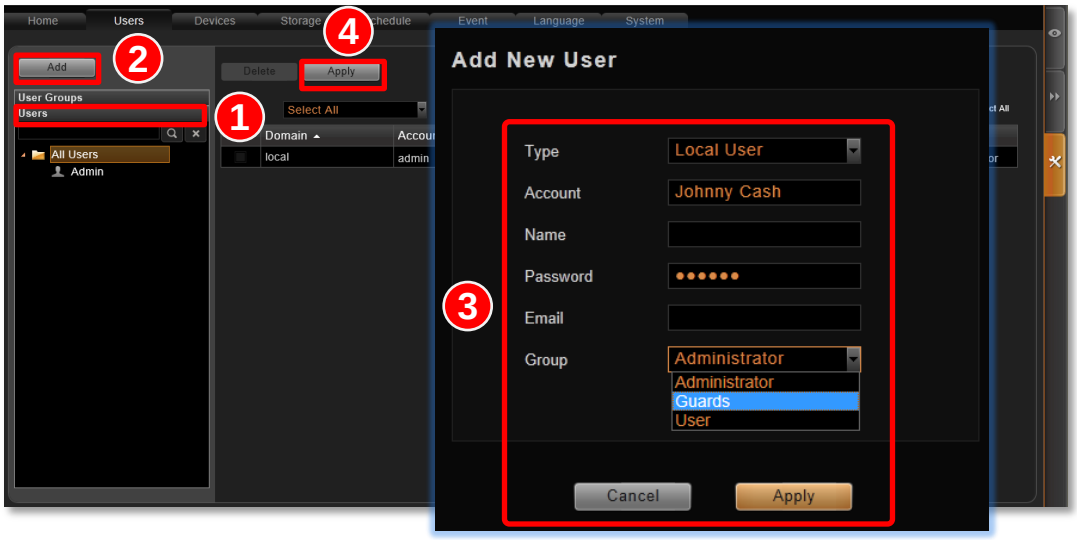
Add Users

To create a user account with on NVR server.

1. Click on Users
2. Select User Type as Customized User or Domain User.

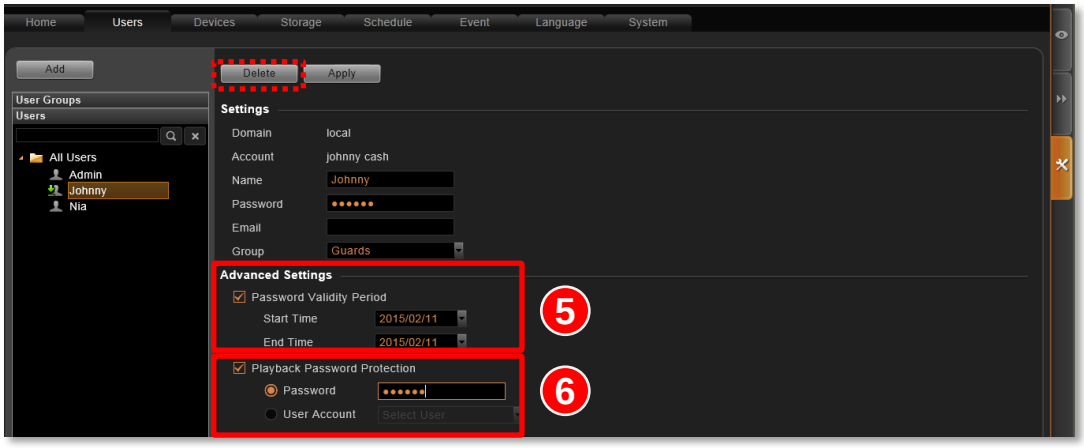
   ●**Local User**: an account created and managed on NVR server only. You will input an account name, its password and e-mail address for this User.

   ●**Domain User**: an account that already exists in Active Directory database within the domain. Since this is an existing account in your domain, you will have to select this account from **Account** dropdown list.



3. Insert user account, name, password, and the account mail (For **Local User**). Assign this created user account to a specific user group.

4. After you click "**Apply**", this new user will be added to the list on the left. You can modify the account settings in **Settings** section, or click on "**Delete**" to remove this account.
5. As an administrator, you can set the validity period of thus user account by enabling "**Password Validity Period**" and set the duration time, thus enabling you to give a user temporary access and effectively control the account's validity.
6. If this user's group is permitted to accessing **Playback** screen, you can even add a password protection to protect your video data by enabling "**Playback Password Protection**". The password can be a specific one or the same as the account's.



Note

NVR server provides a procedure to help Users who have forgotten the password retrieving the original information, which relies solely on the "e-mail address" authentication. It is strongly recommended that you input an e-mail address that this User has access to when you establish the User account. To update the e-mail address of an account, go to **Setup** page→ **Users** tab → edit "**E-mail**" of an selected User account; the Users can also update the e-mail addresses themselves after logging in to NVR on **Live View** page → ⚙ → **Update Profile**

Note

Account /Password Rules

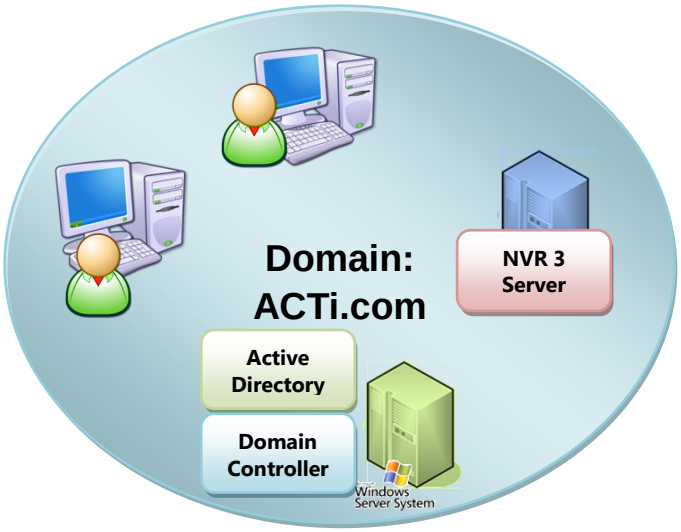
1. **Account** and **Password** fields allow alphabets, numbers, and symbols except the following: **/ \ [ ] : ; | = , + * ? < > "**
2. In **Account** field, for alphabets, the input will be recognized as lowercase letters. Space is only allowed between characters; the space in the beginning or at the end will be deleted as it is saved.
3. The **Password** field is case-sensitive, and the space is allowed.

Note

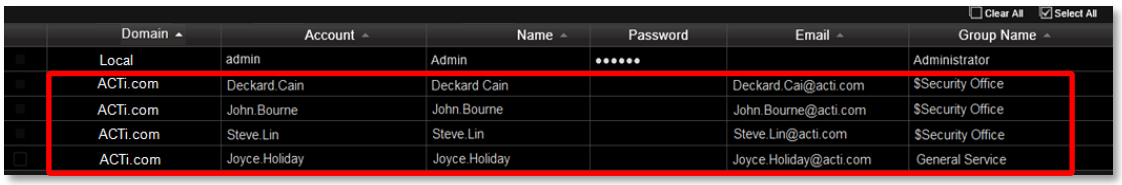
Admin is the default user account and belongs to "**Administrator**" user group. Hence, the user **Admin** and the group **Administrator** cannot be deleted; it possesses full permissions to all devices and NVR settings.

Domain Users Management

As NVR server computer is logged on to a domain Active Directory, it can import a user account from Active Directory.



This type of User account is "**Domain User**". Upon being added to NVR server, the User properties stored on Active Directory database including (1) account name (2) e-mail address will be imported to NVR server.



Clear All Select All

Domain	Account	Name	Password	Email	Group Name
Local	admin	Admin	••••••		Administrator
ACTi.com	Deckard.Cain	Deckard.Cain		Deckard.Cai@acti.com	$Security Office
ACTi.com	John.Bourne	John.Bourne		John.Bourne@acti.com	$Security Office
ACTi.com	Steve.Lin	Steve.Lin		Steve.Lin@acti.com	$Security Office
ACTi.com	Joyce.Holiday	Joyce.Holiday		Joyce.Holiday@acti.com	General Service

Whenever a domain User client tries to log in to NVR server, NVR server will first verify if this account exists in NVR server database, and then have Active Directory verify the user account and password.

As Active Directory owns the privilege to create, edit and delete domain users, **the Domain User's account and password are not editable through NVR user interface but via Active Directory Administrative Tool**.

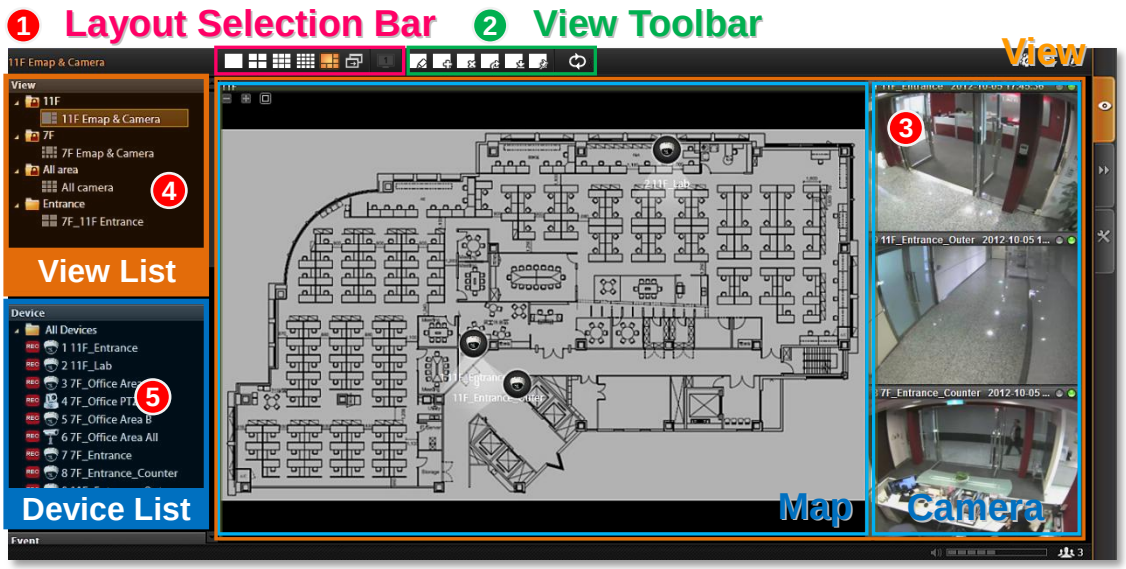
Customize Views

After all cameras are configured, you may start customizing the views for different users and purposes. This chapter will teach you how to add video source, arrange the channels and manage live view layouts.

In NVR 3 system, a **View** refers to the layout where the live images of **Cameras** or **Maps** are placed in proper positions to suit the monitoring purpose. This is very similar to a camera group, which often consists of cameras in the same physical location. For example, a View named **11F Emap & Camera** may contain the 11F floor plan and the cameras actually placed on 11F.

On NVR Live View, a saved View not only remembers (1) layout style, (2) which channel to display which camera, (3) but the fisheye view mode (for fisheye cameras only.

Live View interface overview

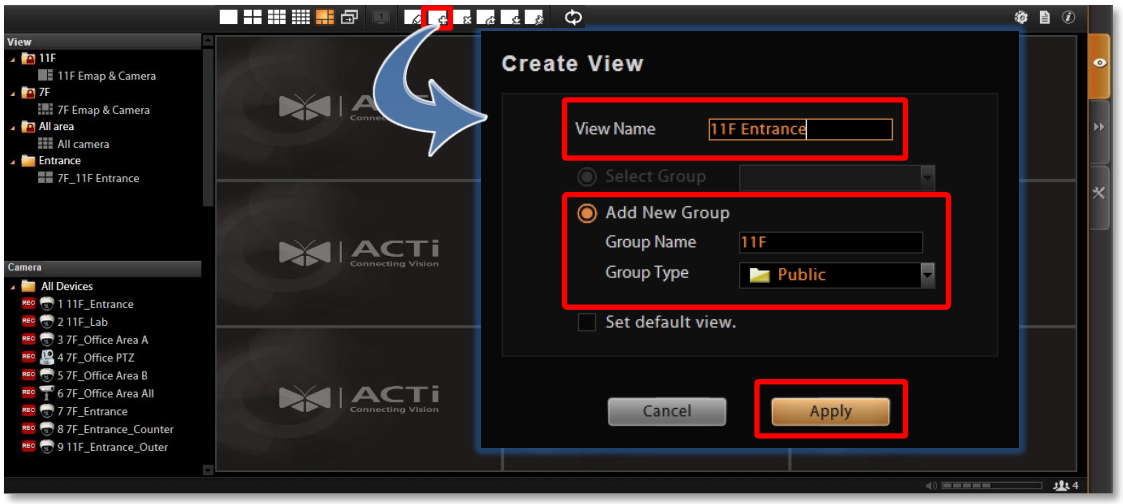


1. **Layout Selection Bar**: Provides 24 options for layout styles.
2. **View Toolbar**: Provides functions keys for editing.
3. **Channels**: Each channel window may display a camera view or a map. In edit mode, you can adjust the channel size at will.
4. **View List**: All the saved Views are shown here. On **Live View**, you can go to → **View Manager** to group and manage these views (refer to Manage the Views on page 109).
5. **Camera List**: In edit mode, drag camera from here to your desired channel.

Step 1: Create a New View

On **View Tool Bar**, click the **Create View** button , input the **View Name**, add a **New Group** for this View and decide whether this group is to be **Public** or **Private**, and then click "**Apply**".

- The views under **Private View Group** are only available to the User who created them.
- The views under **Public View Group** are open to every User.



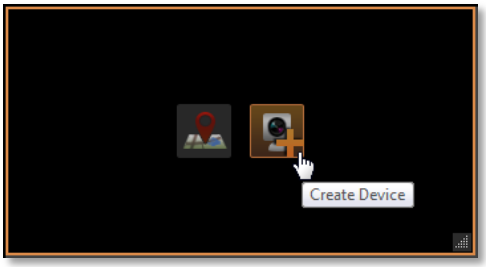
Step 2: Enter Edit Mode

On **View Tool Bar**, click the **Edit View** button , this view will turn into edit mode. In edit mode, you may add a video source to a channel, and adjust the channel size.

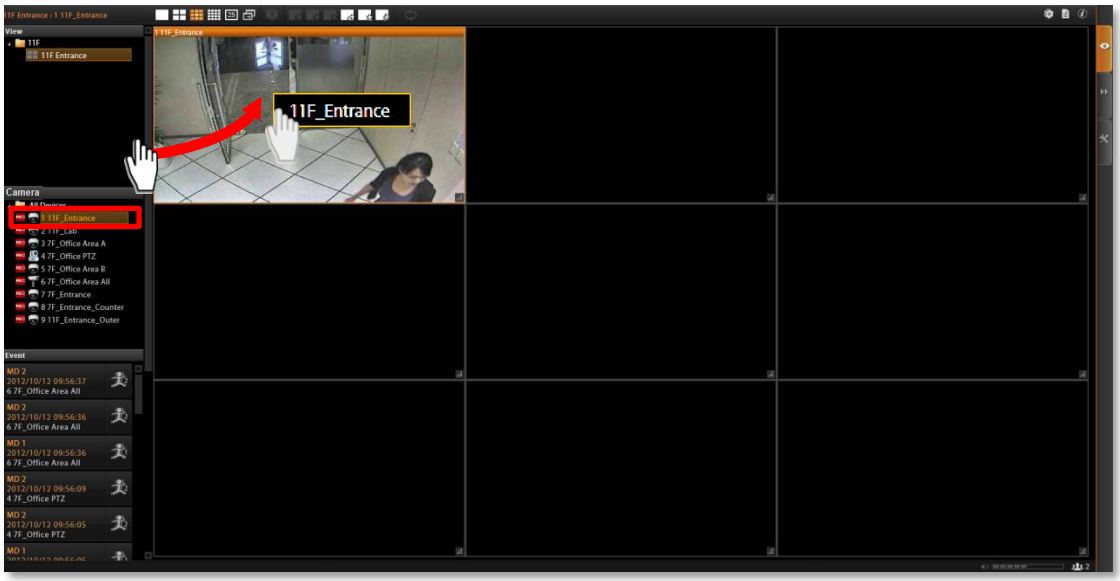
Step 3: Select a Layout

On **Layout Selection Bar**, click the **Expand** button to find all provided layout styles. Select a layout that is perfect for your required channel number and ideal arrangement.

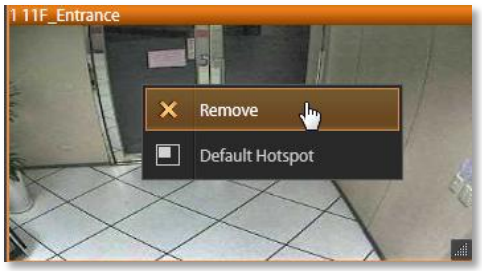
Step 4: Add Video Source



In edit mode, move the mouse over the channel and click . You may also directly pull a camera from the **Device** panel to your desired channel.

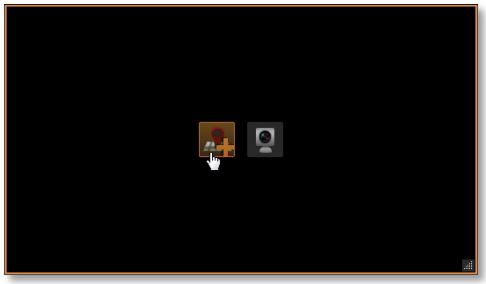


●**Remove the camera view:** right-click on the channel and select "**Remove**".

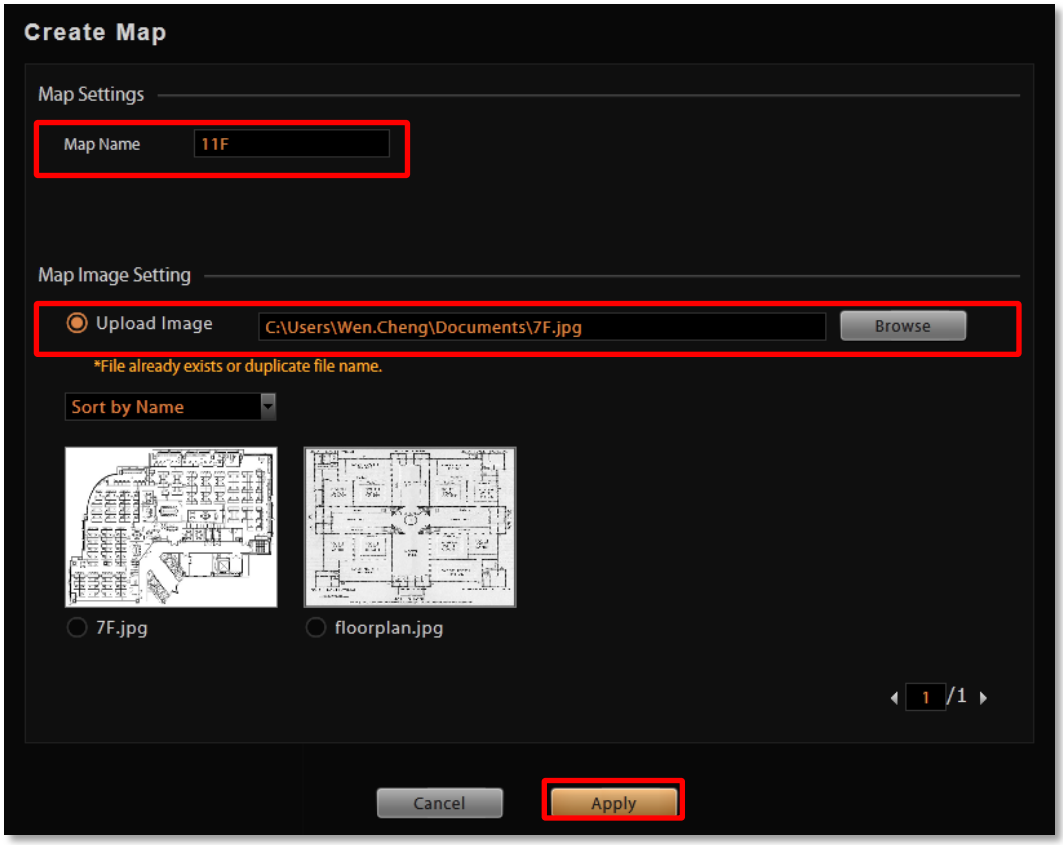


Step 5: Add a Map

By adding a map, you put a picture on the channel, where you may place camera icons to make it an "**e-Map**.



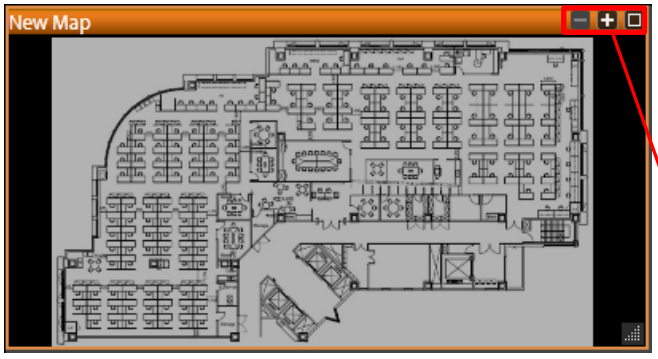
In edit mode, move the mouse over the channel and click to upload a map. Please input the **Map Name**, select the image location (file format must be JPG) and click "**Apply**".



●**Map brightness**:

To change the map brightness, right-click on the map, select "**Map Mask**" and the brightness percentage level.

●**Map size**:



By default, the map will be displayed in its original size. Use the button s on upper right to adjust the map size.

Enlarge to fill channel height

Original image size

Zoom in

Zoom out

●**Edit map title**:

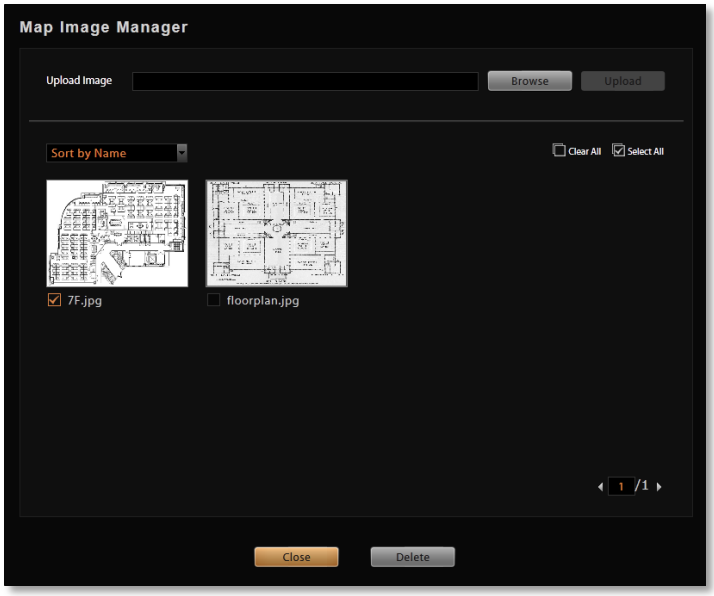
The map title will be shown on channel title bar. In edit mode, right-click on a map channel and select "**Edit Map Information**"

●**Remove the whole map**:

Right-click on the map and select "**Remove**".

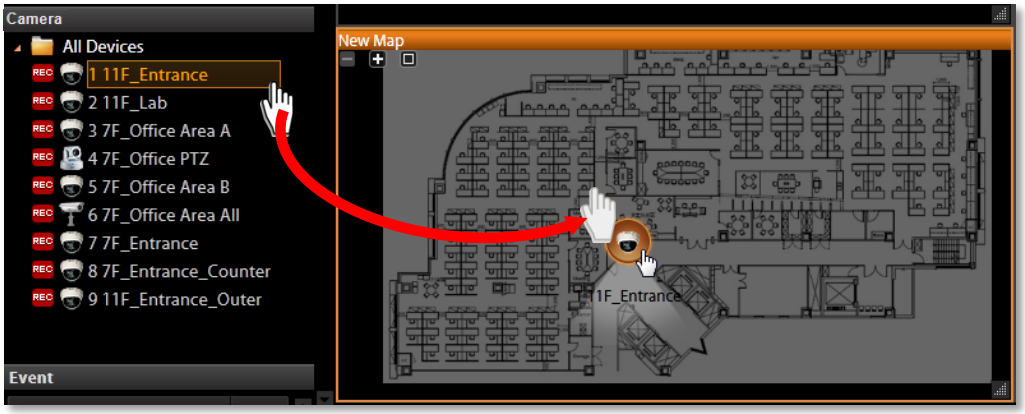
●**Manage maps**:

All the uploaded images are managed under **Map Image Manager**. On **Live View** screen, you may go to → **Map Image Manager** to view, upload or delete the maps.



Step 6: Add Cameras to the Map

Pull a device from **Camera List** to the map.



●To remove this device from map:

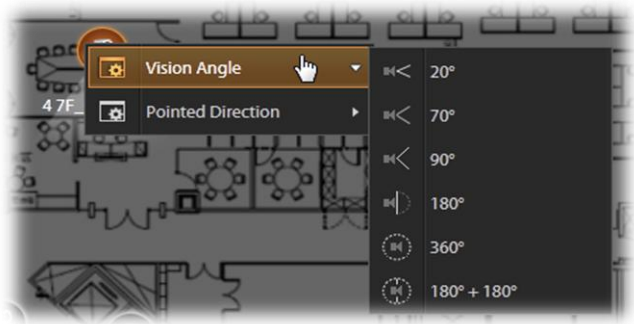
Click

●To move this device:

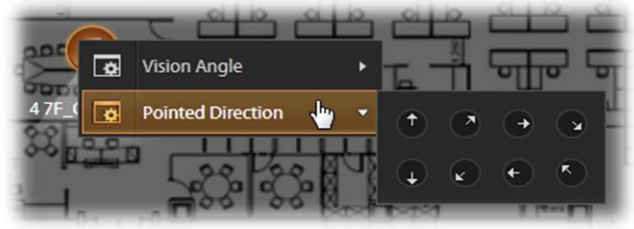
Left-click on the device icon and drag.

●To turn the pointed direction:

Mouse over the viewing angle area, left-click on the clockwise arrow to turn the direction.



●To adjust precise pointed direction: Right-click on the device icon, select "**Pointed Direction**".

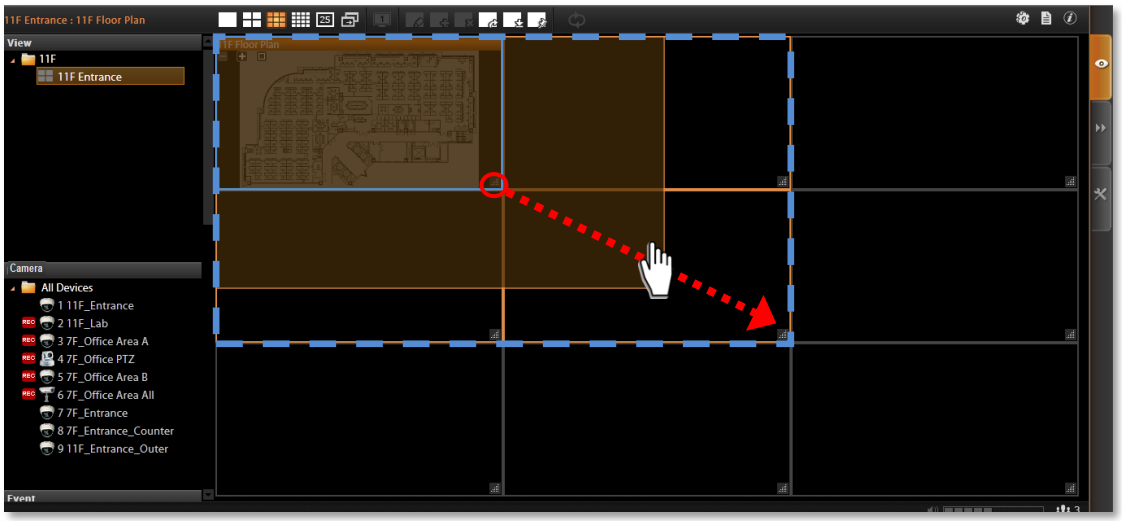


●To adjust device's viewing angle: Right-click on the device icon, select "**Vision Angle**".

Step 7: Adjust the Channel Size & Layout

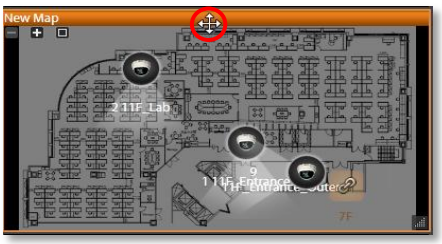
●**Adjust the channel size**:

Click on right lower corner of the channel window, drag and then release.



●**Switch channel windows**:

Click on a channel title until the cross arrow appears, hold it to drag this device or map to your desired channel.



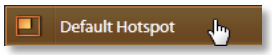
Step 8: Save the View

Click on **View Tool Bar** to save it.

Step 9: Set Default View

To set a View as default, select it in the **View List** panel and then click **on View Tool Bar**. By next time you log in, you will directly enter this View.

Step 10: Set Default Hotspot Channel (Optional)

By system default, the global hotspot channel will always be the top left one. You can set any other channel on your live view screen to be the default hotspot channel. Right-click on the channel and select **"Default Hotspot"** 

, then click on **View Tool Bar** to save it.

Step 11: Set Fisheye Camera Mode

Define a view for a fisheye camera channel by selecting its mode and using ePTZ control. Please note that the maximum number of fisheye channels on the same View is **16**.

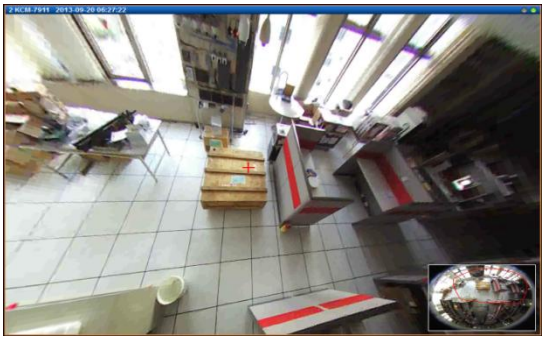
1. On this channel, right-click to bring up channel menu, click "**Fisheye Mode**" and select one mode.

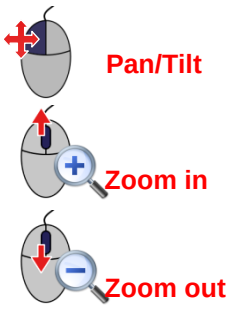
2. After the fisheye mode is selected, click the entire channel or a region of interest.

- Use **PTZ Panel** controls to operate PTZ movements:

ePTZ Controls on PTZ Panel

- Click the mouse anywhere on the view to pan/tilt, scroll the mouse wheel to zoom in/out.





●To reset the ePTZ navigation area back to default viewing angle, right-click to bring up channel menu, and then click "**Reset**".

3. click on **View Tool Bar** to save the configuration.

Note

Once a channel is changed to any of the following fisheye modes: **Dewarping**, **Panorama**, **Double Panorama**, **Panorama/Focus** or **Quad**, the resolution of this live stream will become 1920x1080, while NVR still records the live stream at the resolution you set on **Setup** page.

Manage the Views

Each View belongs to a specific **View Group**. With the group management, NVR Server makes it easy to deal with Views you created for multiple Users.

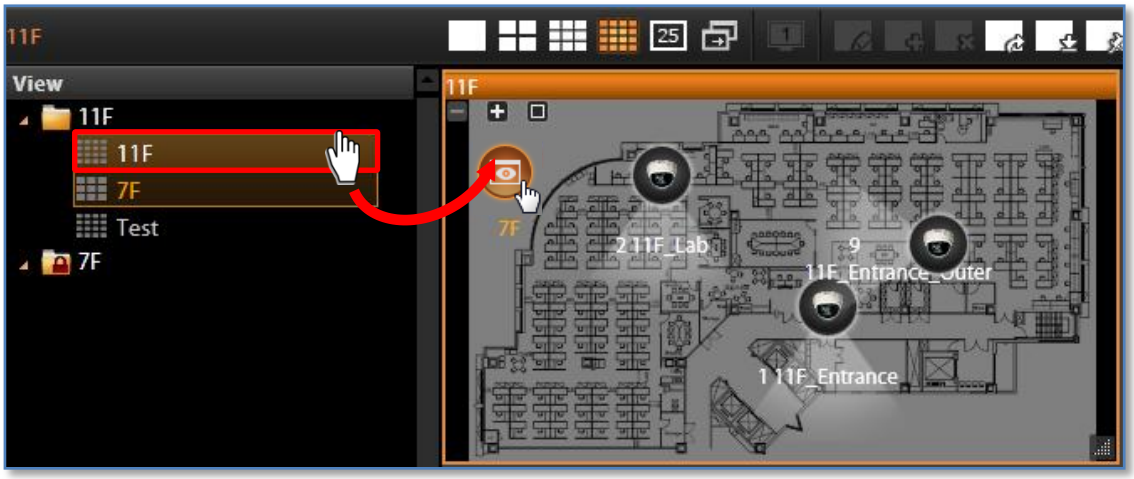
After you created and saved the Views on **Live View** screen, click → **View Manager**.

1. Click on the right arrow icon in front of a group folder to reveal its **Views**.
2. By selecting a **View**, you may directly modify its name in **Name** field.
3. You may change a group's **Group Type**. Upon the change, for example, by changing a group from "**Private**" to "**Public**", all the views belonging to it will be open to every User.
4. Click this icon to add a new group.

5. Click this icon to delete a selected group.
6. Click this icon to copy a selected group to another group.
7. Click this icon to move a selected group to another group.

Set View Link

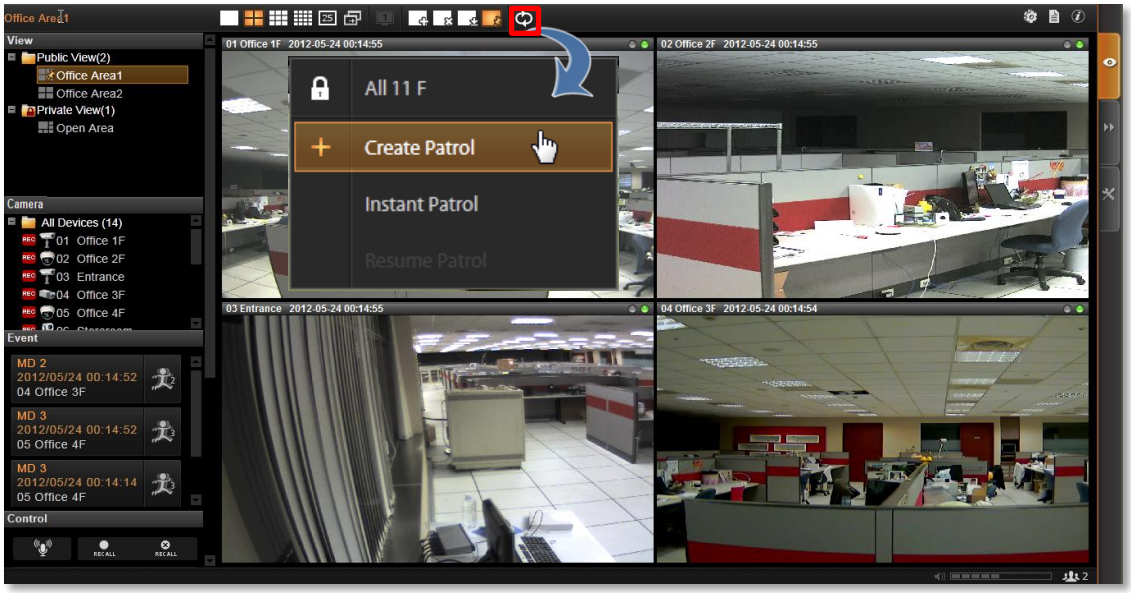
By creating a link button on a map view, you can directly be linked to another specific view by clicking the button. On the picture below shows how to create a link buttor to 7F View on 11F View.



1. Select a View, on which you will place a link button to another view.
2. Click on **View Toolbar** to enter edit mode.
3. From **View List**, drag the target View to current View, a link button will appear.
4. Click on **View Toolbar** to save it.

Set View Patrol

You may have the saved Views patrol in turns. In this way, the views in different area in your site may cycle through themselves for you automatically.



On **View Toolbar**, click then select **Create Patrol**.

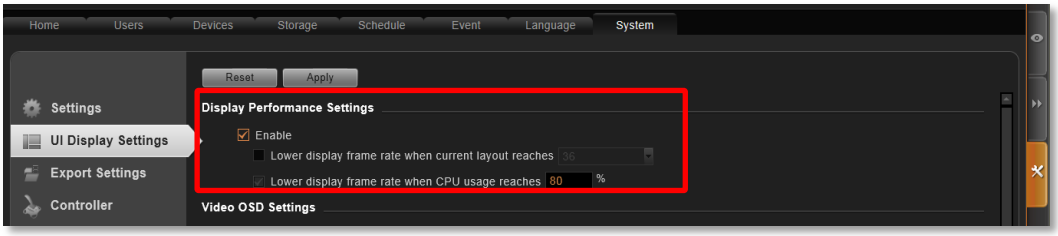
1. Input **the Patrol Name**
2. Select the **Patrol Type** to be either available for all Users or to the creator's account only.
3. Define the **Global Dwell Time** between the views. If you want to set different dwell time length for individual Views, do not check this option, and configure them separately in the table below.
4. Choose the **Views** to display in patrol. If you select the **All Cameras** group, you will also need to select "**All Cameras Layout Style**" for it.
5. Click "**Apply**" to save the settings.

6. The saved patrols will be shown on the patrol list after you click on **View Tool Bar**, you may delete and edit a saved patrol or select it to start patrolling.

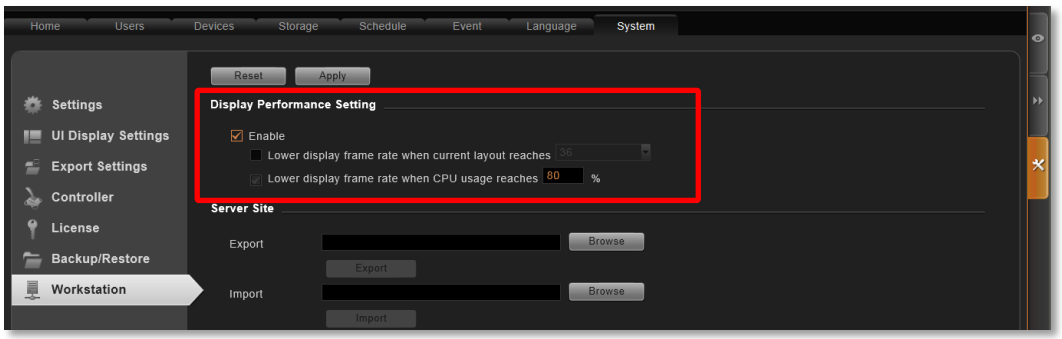
Tips to Enhance Live View Performance

Live view for multiple channels requires a great amount of computing power. In certain extreme cases, like when viewing several megapixel H.264 video streams at the same time, client computer will be overloaded and hence affect browser's performance. This is a common limitation imposed upon all Windows based video management programs and web browser. To enhance live view performance, below are several tips you may try:

1. Use dual stream mode for those devices supporting this function. Enable the dual stream mode and use the stream of lower resolution/frame rate/bit rate for live view, and megapixel resolution stream for recording.
2. Use another browser client to share these high-resolution channels. Given that there are 32 megapixel channels to be monitored, you may have Layout 1 to display channel 1~16, set Layout 2 to display channel 17~32, then open one browser client to show Layout 1 and the second browser on an extended monitor to show Layout 2.
3. Have NVR automatically lower the frame rate of live streams when system loading is high. Go to **Setup** page → **System** tab→ **UI Display Settings** and enable this function. Basically, this setting will lower frame rate when the CPU usage is above certain percentage. You may also enable "**Lower the frame rate when current layout is above_**", in this way, when the layout is displaying over certain number of channels, the frame rate of all live streams will be declined. By default, this setting will be applied to the live display of all connected web clients and Workstation clients.



A **Workstation** client computer can have its own specific display configuration without being affected by NVR universal setting. Log in as **NVR 3 Enterprise Workstation** client, go to **Setup** page → **System** tab→ **Workstation** and configure the **Display Performance Setting**.

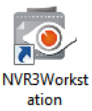


Let Windows Automatically Start with NVR Live View

You may have the client application automatically run and open the live view after Windows starts. In this way, you may save steps and time before you eventually see the desired live view screen. Additionally, whenever a power breakdown takes place, the live view may recover as soon as your computer resumes.

If more than one users would log in to this computer, this tip might not be suitable due to account security issues.

1. On NVR Server, set a **default View** for your account. For detailed procedures, please refer to this section in this manual: Customize Views on page 102.
2. Set **Auto-login** for your Workstation client or web browser client. For detailed procedures, please refer to this section in this manual: C. Remember Account/Password on page 28.
3. If you are using a browser client, open the browser, and set NVR server ip as default homepage.
4. Set your browser or Workstation application to start right after Windows has started. Click **Windows Start** → **Programs** → **Startup** to open the **Startup** folder, and drag the application shortcut into it. In your case, you will have to drag the Internet Explorer shortcut or NVR 3 Enterprise Workstation shortcut into the **Startup** folder.



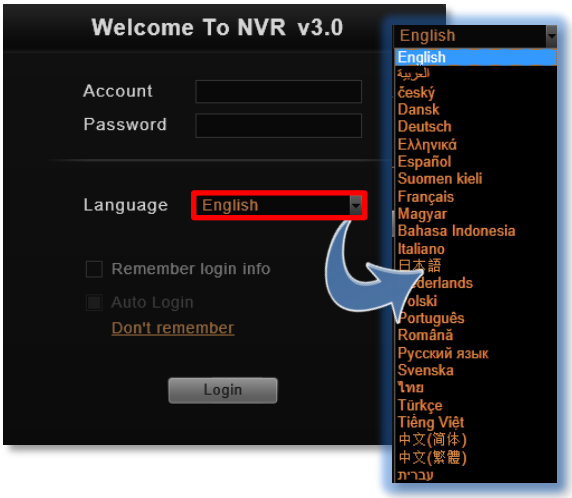
5. The next time you start Windows, NVR 3 live view will be running automatically, and you may start monitoring the system in no time.

Customize System Language

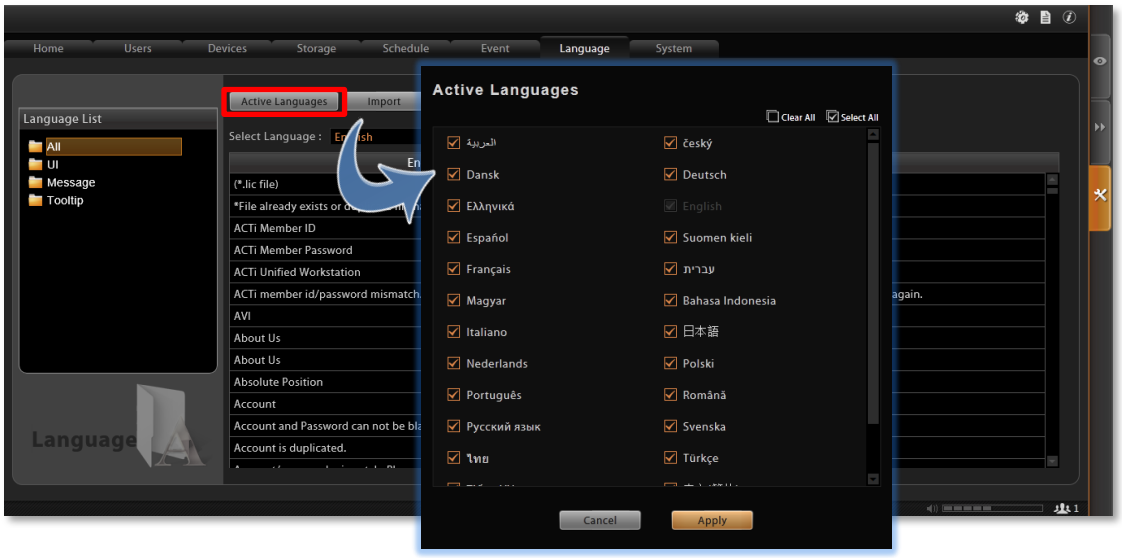
NVR server supports multiple languages for user interface display. There are already **10** translated language files in the server system. Each language is open to customization based on your own needs. This section will describe how to choose or customize language strings for your site.

System Languages List

You may decide which languages to be selectable on Login screen. The chosen languages will appear on the "**Language**" dropdown list.



Go to **Setup** page →**Language** tab, click "**Active Languages**". On popup window, check the languages you need, and click "**Apply**". By default, all languages are selected, as the default system language, **English** and **Traditional Chinese** are not removable from this list.

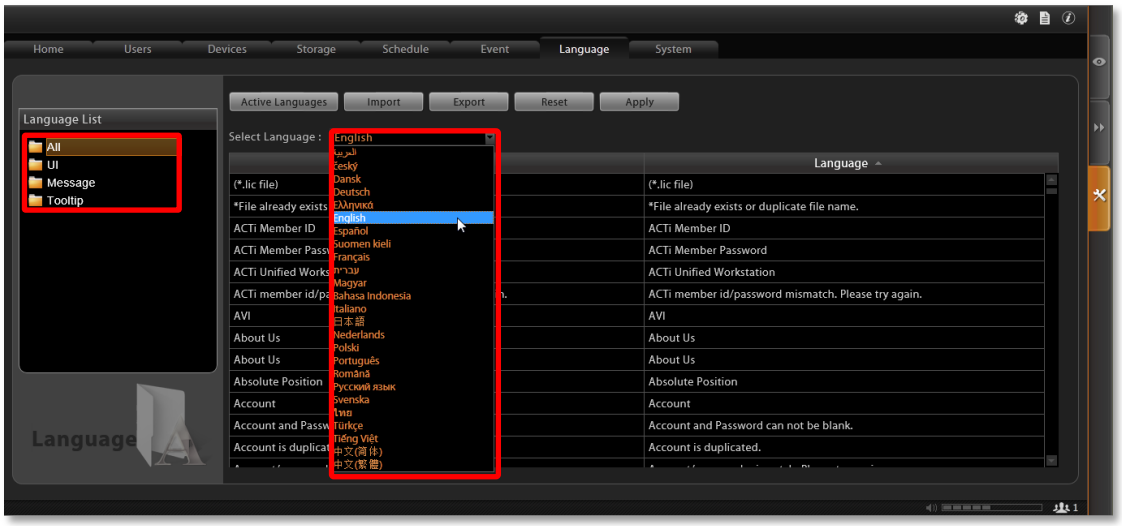


Edit User Interface Wordings

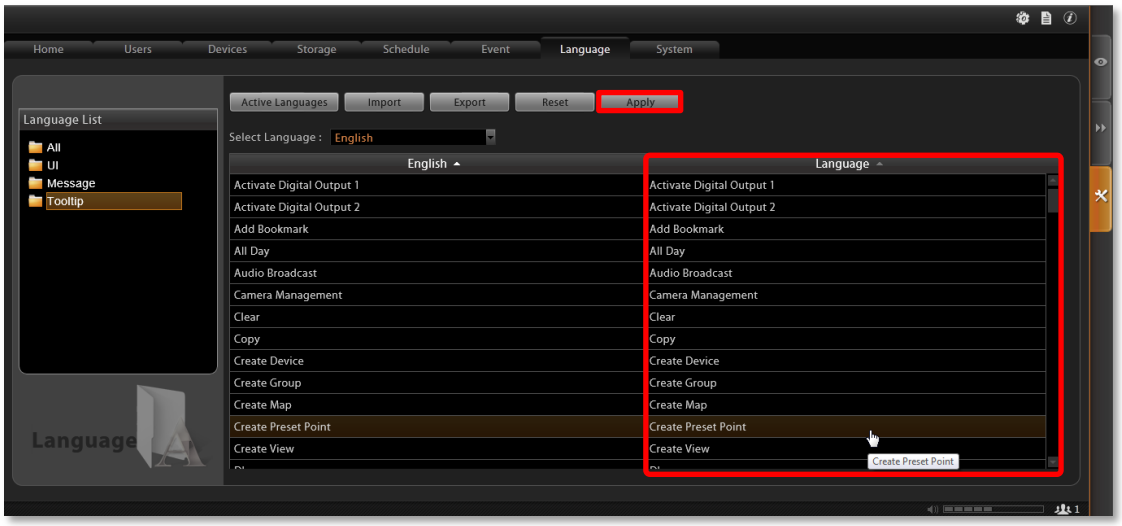
Each language file contains four editable string tables. Each table displays the default wordings in English and the translation in target language.

To view each table:

1. Select the language from "**Select Language**" dropdown list, then select a table from the "**Language List**" list on the left column.



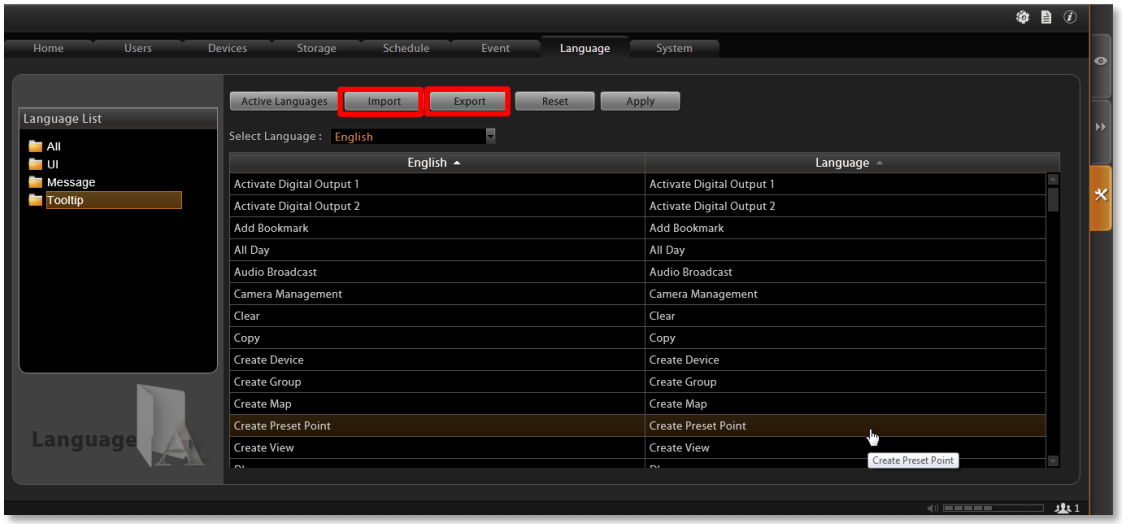
2. Your target language will be displayed on the right column, while the default system language "**English**" appears on the left for reference. Click in any field on right column to customize your desired wordings, and click "**Apply**" to overwrite the current wordings.



The new string will be applied by next time you log in. If you log in as an **NVR 3 Enterprise Workstation client**, please press button on **Login** page to synchronize with the latest modified language file, then log in to the system.

Export / Import Language String File

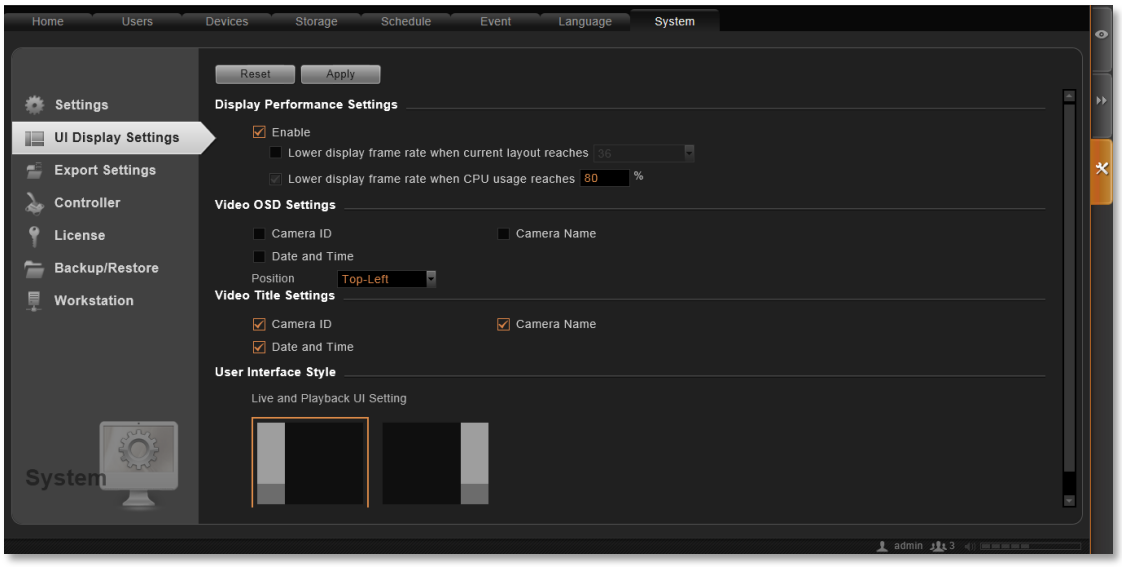
You may also click "**Export**" to export the language file as .xml format to edit in **Notepad**, or "**Import**" to import a language file to use in the system.



In general, it is suggested that you always save a modified language table with a different file name in a location other than default system language folder *C:\Program Files\ACTi Corporation\NVR 3\Language*, then import it to use. In this way, you can avoid overwriting the original language file.

Display Configurations

You can change the user interface style by arranging the main screen and **Panel/Camera List** on the right or left. Go to **Setup** page→**System** tab→**UI Display Settings**. The change will be applied upon your next login.

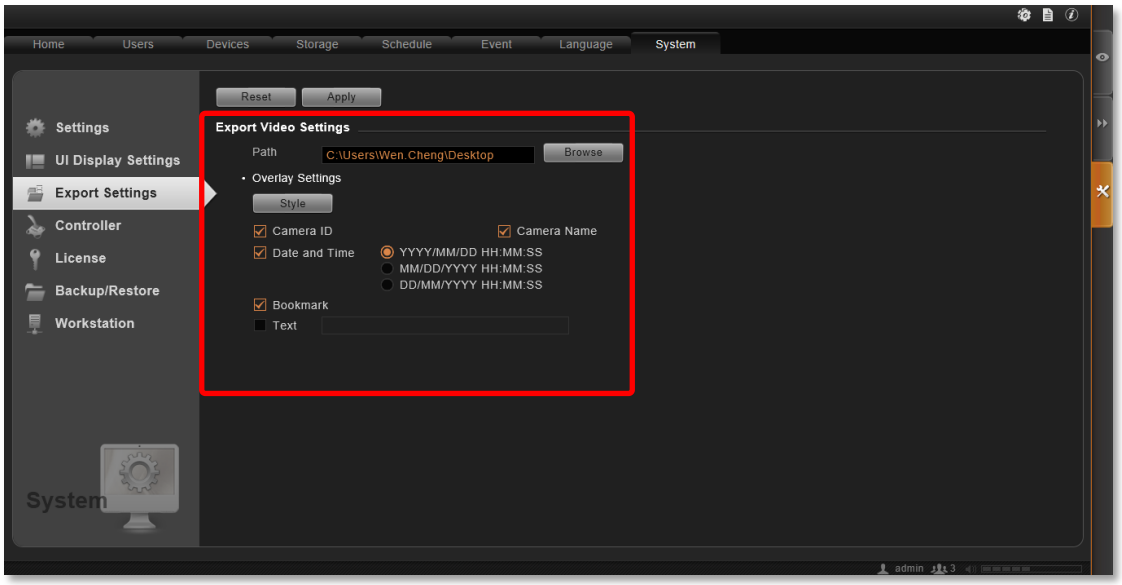


Video & Snapshot Export Configurations

The snapshots taken by Users on **Live View** and all exported video files are saved to a default file location, and you may configure the destination on NVR server. Go to **Setup** page→**System** tab→**Export Settings**, click"**Browse**" to choose the Export file path.

You may also define what information is printed on each snapshot by checking the items: **Date and time, Device ID** and **Camera Name**.

These configurations will take place after you click "**Apply**".



Joystick

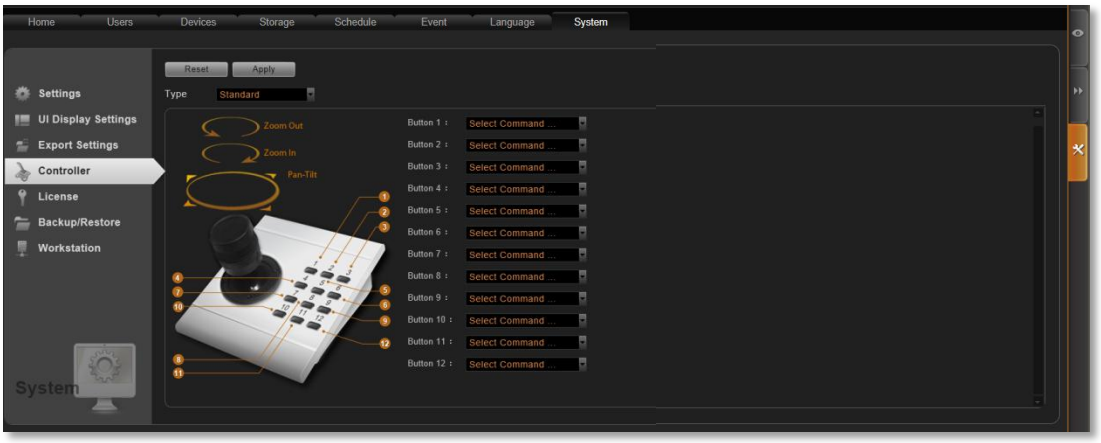
On NVR 3, other than user interface PTZ panel and mouse operation, you may also control the PTZ movements by physical controllers. NVR 3 supports two types of controllers, which both feature in a joystick and twelve buttons for users to assign specific actions.

Model: **IP Desktop**
Manufacturer: CH Products

Model**: Extreme™ 3D Pro**
Manufacturer: Logitech

Joystick Configurations

1. Log out from NVR server.
2. Connect the controller device to your computer. To make sure the device is installed properly, open **Windows Start menu** and enter **Devices and Printers** to check the status.
3. Log in to NVR server, go to **Setup** page →**System** tab, enter "**Controller**" section and select your product from **Type** list.
4. You may assign specific commands from dropdown list to buttons 1~12 of the controller. When setting is done, click "**Apply**". The modification you did on one controller model will be applied to the other joystick model as well.



5. To validate its function, go to **Live View** screen and focus on a PTZ device channel to operate the supported PTZ operations.

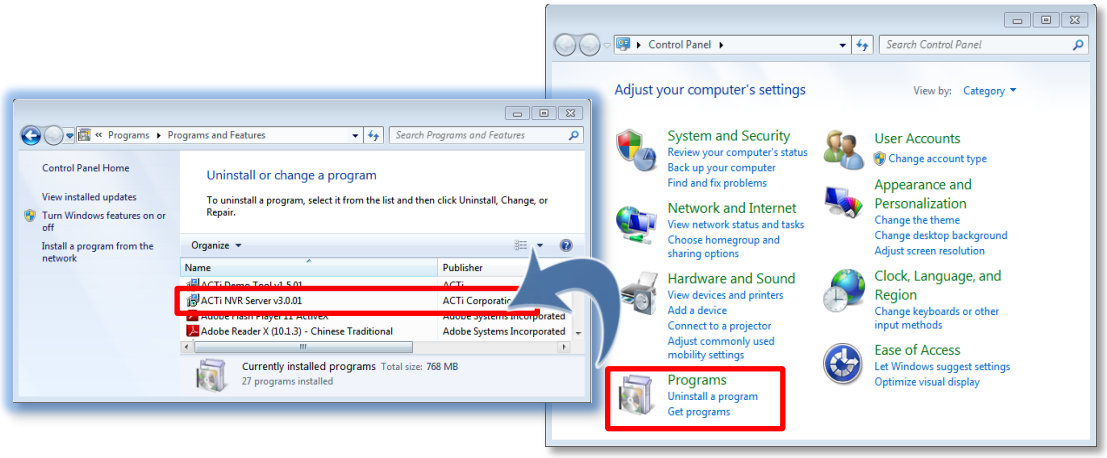
Un-install Server Software

In certain cases, un-installation of NVR system is necessary, for example, (1) you want to terminate NVR server and clear all the evidence due to privacy and security reasons, (2) you need to reinstall the system due to an unsuccessful installation.

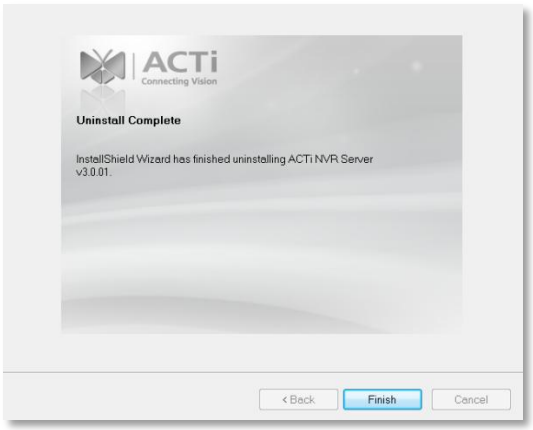
Before starting un-installation, **please back up important data** (please refer to Back Up System Data on page 122) first and prepare NVR server install shield application. This chapter will describe un-installation process.

Step 1: Remove NVR Server Program

1. Go to **Windows Control Panel→ Add/Remove Programs** (in Windows Server 2003/Windows XP) or **Programs→ Programs and Features** (in Windows Vista /Windows 7/Windows 2008) to remove it. When you un-install NVR server program, the web client will be terminated at the same time.



2. After you choose to uninstall "**ACTi NVR Server**" program, the uninstallshield will execute and notify you when it is completed.

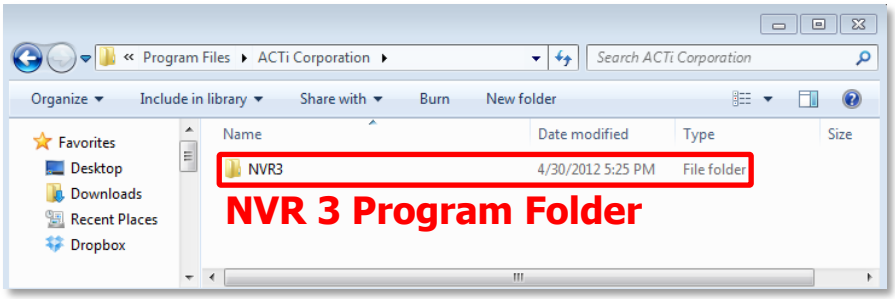


Step 2: Remove NVR Server Program Folder (Optional)

If you are performing a complete un-installation without leaving any NVR server related data on the current computer, you may consider deleting this folder.

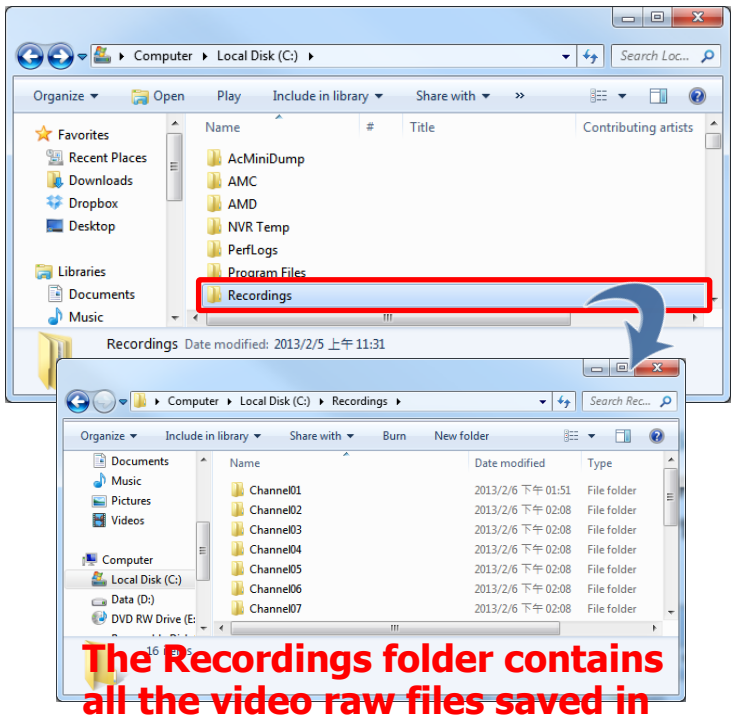
After un-installation, the **NVR 3** system folder will remain under ACTi product folder **ACTi Corporation** on your hard drive, the system configuration data here will not be removed until you delete them manually. By default, the path of **NVR 3** system folder is *C:\Program Files\ACTi Corporation*.

However, keeping this folder is convenient for a un-installation followed by an instant re-installation, for the previous system settings can directly be applied to the new server.



Step 3: Remove the Recordings Folder (Optional)

Remove the whole **Recordings** folder(s) that saves the recorded video files on storage hard drive(s). If you selected multiple storage hard drives via **Setup** page → **Storage** tab → "**Disk Drive List**", then the server may have generated one **Recordings** folder under each selected drive. If you have renamed the folders or change the locations, please make sure you find the correct path.



Back Up System Data

Making regular system backups is always recommended in case of unexpected disasters or accidents that may damage NVR server. Other than this, you may need to perform an on-demand backing up to (1) migrate the whole NVR server data to another computer, or (2) re-install NVR server on current computer. There are several types of data on NVR server essential to your surveillance system, please consider your purpose and follow the below instructions to create their backups:

Regular Backup (system settings only)

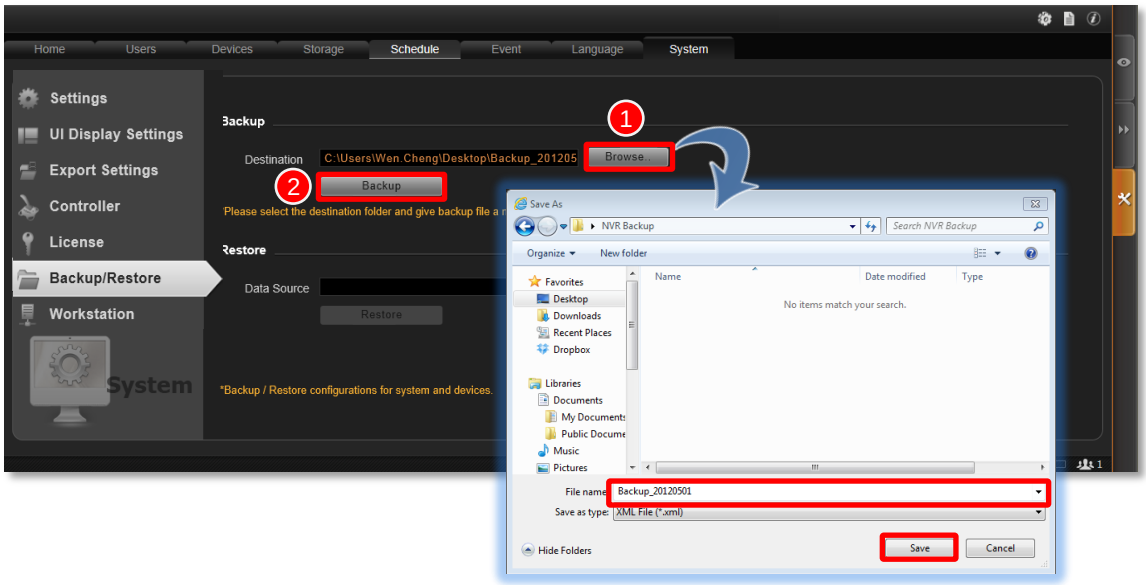
NVR server can create a backup file of the whole system settings within one click. The settings being backed up include the following properties you set for system: (1) **Users** (2) **Device** (3) **Storage** (4) **Schedule** (5) **Event** (6) **System** →**Settings** / **User Interface Style** / **Joystick**, and (7) the saved **Views** in **Live View** screen.

Complete Backup (system settings + video files)

Besides system settings, some organizations may want to back up the video recording occasionally in case that the recording hard drives may fail. The recording files (*.raw) can only be played on the playback utility **Archive Player**. You may download it from http://www.acti.com/utility

Step 1: Back up System Settings

1. Go to **Setup** page →**System** tab→ **Backup / Restore**
2. In **Backup** section, click "**Browse**" to select the destination for backup file, the file will be saved as *Backup_YYYYMMDD.xml* file. Then click "**Backup**" to export the file.

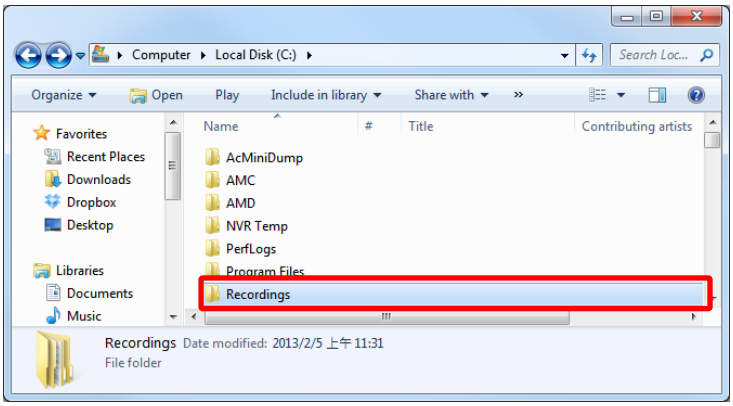


Important Notice

The license data is not included in the system backup file. You have to preserve the license key information provided in e-mail or printed card to you after the purchase takes place.

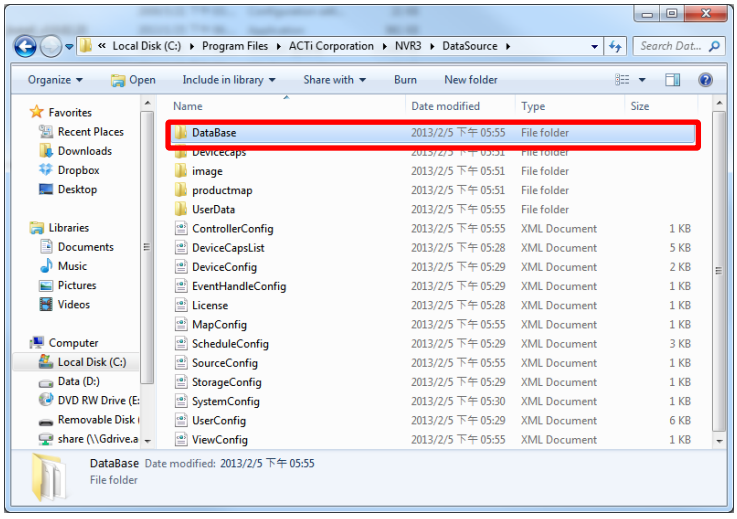
Step 2: Back up Recording Files Folder (Optional)

Back up the whole **Recordings** folder(s) that saves the recorded video files on storage hard drive(s). If you selected multiple storage hard drives via **Setup** page → **Storage** tab → "**Disk Drive List**", then the server may have generated one **Recordings** folder under each selected drive. If you have renamed the folders or change the locations, please make sure you find the correct path.



Step 3: Back up Recording Files Index Folder (Optional)

This step is necessary for NVR Server migration between two server computers. The recording files index folder contains important video index data NVR server needs to process recorded video clips. Enter the server program folder **ACTi Corporation\NVR 3\DataSource**, and back up the **DataBase** folder (where stores the recording files index data).



Step 4: System Log (Optional)

The system log records the operations Users perform during logging in to NVR server. You may export the system log of latest three days as *.csv file as backup. Please refer to the section in this manual: Export the Log on page 92 for instructions.

Restore System Data

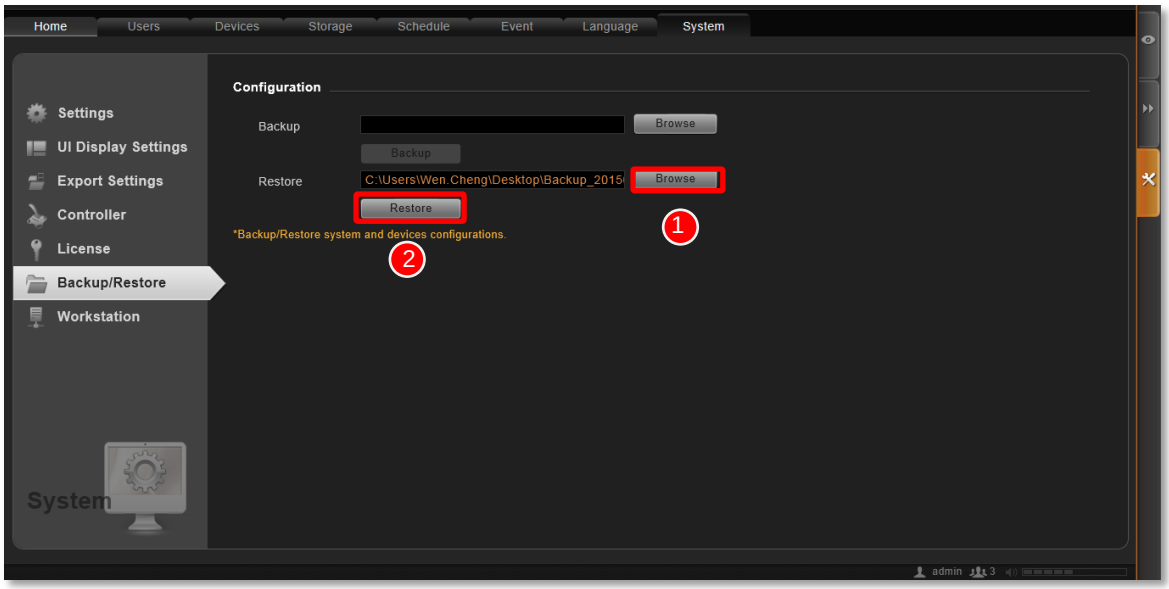
Before starting restoring the system, make sure you have done the following:

(1) **Re-activate the license**. If you have done un-installation previously, and the number of channels to be recovered is over **16**. Please prepare the license key information for online activation or the activation file(.lic) for offline activation, and follow the instructions in License and Activation on page 21 to activate your license. The license should be activated before settings are restored so that the licensed channels are ready for recovery.

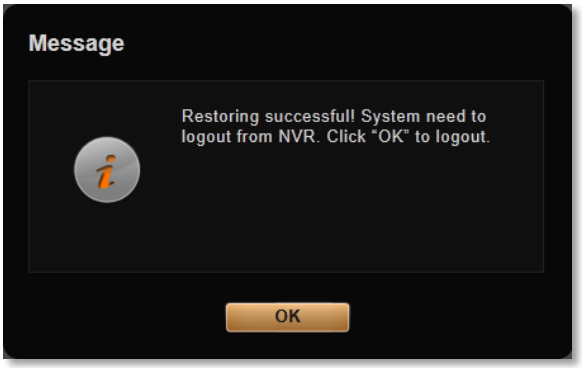
(2) The backup file(.xml).

To start,

1. Go to **Setup** page →**System** tab→ **Backup / Restore**
2. In **Restore** section, click "**Browse**" to select the backup file, and then click "**Restore**" to start restoring the settings.



3. The restoring process requires logging out of NVR server. After restoring is done, you may log in using your previous user account properties.



System Migration

NVR server system migration is necessary when there is a need to replace the current server computer. The migration process will involve a series of different procedures including backup, un-installation, installation and restoration, which should be executed carefully to prevent from loss of important data. You should go though the instructions of required procedures before the migration starts. This chapter will lead you through the procedures for managing a safe migration process.

Migrate NVR Server to another Computer

For the migration of NVR Server between two computers, make sure you have contacted ACTi Customer Help Desk for assistance in resetting your previous activation record on ACTi license data server, so that this license key can be activated again with another MAC address.

Please have the following data prepared before migration takes place: (1) NVR 3 install shield application file, (2) NVR 3 license key or activation file (.lic) (3) NVR Server backup file(.xml). (4) make sure you have made a copy of previous NVR 3 recordings folder, (5) a copy of NVR 3 recording index file folder.

To start,

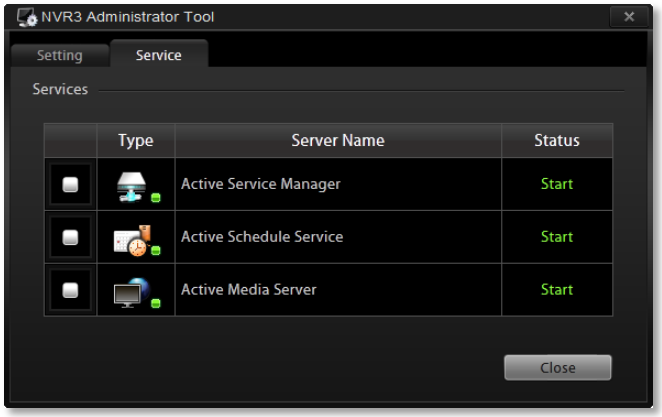
1. Install NVR Server on new server computer (refer to Server Installation on page 15).
2. Activate NVR 3 Enterprise license on new server computer (refer to License and Activation on page 21).
3. Copy the whole backup recordings folder(s) to the storage hard drive(s).
4. Copy the whole backup **DataBase** folder to **ACTi Corporation\DataSource** folder on server computer (default path is C:\Program Files\ACTi Corporation\NVR 3\ DataSource\). Remember to replace the existing folders that are with the same folder names (refer to Back Up System Data on page 122).
5. Restore the system settings with backup file (refer to Restore System Data on page 124).
6. Uninstall NVR server on previous computer and remove sensitive files if needed (refer to Un-install Server Software on page 120).

Advanced Administrative Tasks

To assist the NVR administrator in monitoring the server status and basic trouble-shooting, the **NVR 3 Administrator Tool** is installed along with NVR server program on the server computer. This tool will start running as the server computer starts up, and resides in the system tray. You may double-click the icon to open this tool.

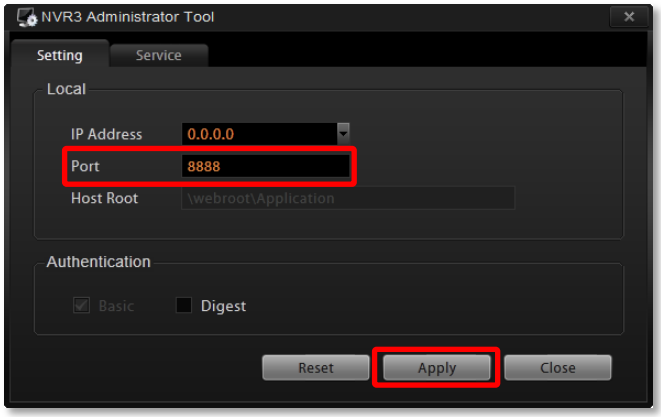
NVR Server Status

You may observe the NVR services status on **Service** tab.



Change Server Port

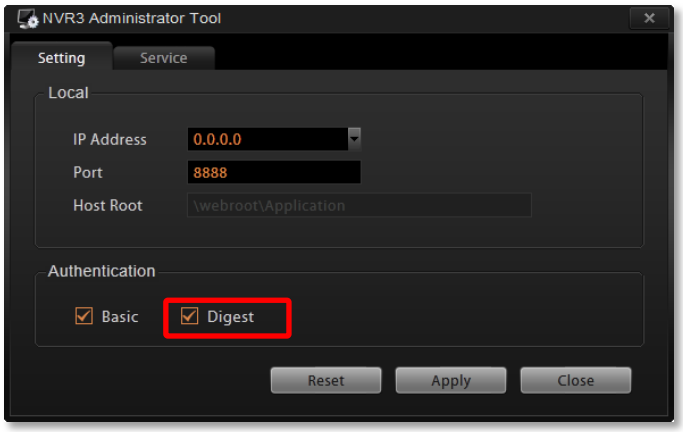
On **Settings** tab, input a new port and then click "**Apply**".



Change Authentication Method

You may enable the **Digest** authentication other than the basic way. With this method, User's credentials are encrypted using MD5 algorithm. In this way, there is more secure protection to prevent from unauthorized access.

Please also note that, with **Digest** authentication method enabled, a mobile client user or a domain user will be blocked from NVR system.



Switch to Redundancy Storage

An NVR server can serve as Redundancy Storage for other NVR servers. It records all surveillance videos directly from camera devices, logs and performs actions for real-time event notifications on behalf of NVR server during system downtime. Authorized users may also access the Redundancy Storage when it is in use for live-monitoring or playback options. After NVR server becomes available, the Redundancy Storage service will then automatically synchronize all recorded video and events back to NVR server.

Before you start,

1. Prepare a specific computer to be dedicated to carrying out the redundancy tasks.
2. Purchase the redundancy storage service license from ACTi sales representative. One redundancy storage computer will require one license, which can serve maximum **sixteen (16)** NVR servers.
3. If your are going to install the redundancy storage on a computer, please go to http://www.acti.com/DownloadCenter to download and install NVR server program on the computer.

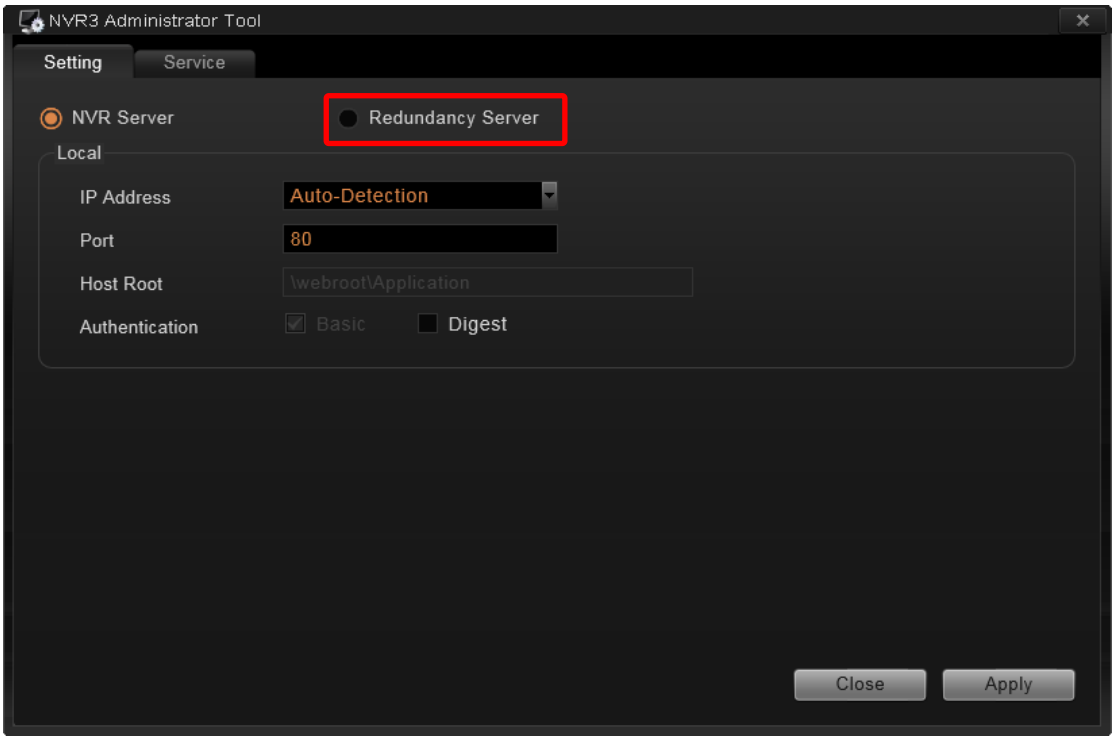
Remember, by switching an NVR server into a redundancy storage, the original settings and recordings of it will all be overwritten.

License Registration

With a successful purchase, you will receive a license key for registration

1. Enter **Administrative Tool** interface by clicking the icon on Windows taskbar.

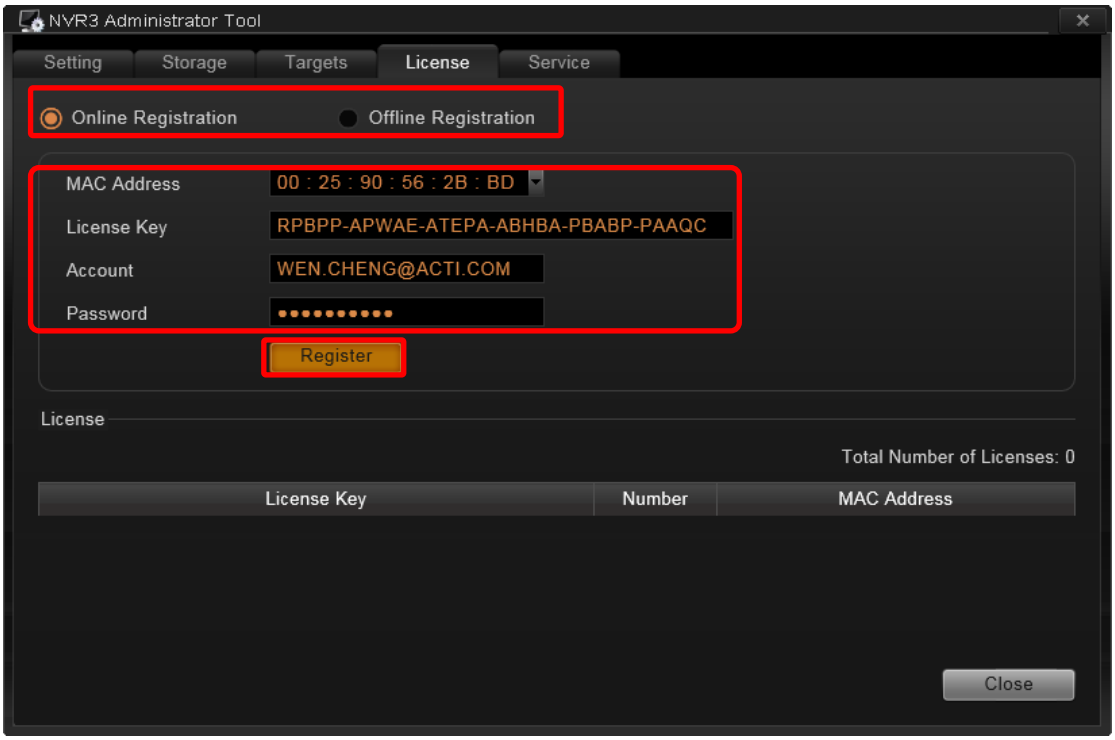
2. On **Settings** page, select "**Redundancy Server**". You can switch the server mode back to **NVR Server** here.



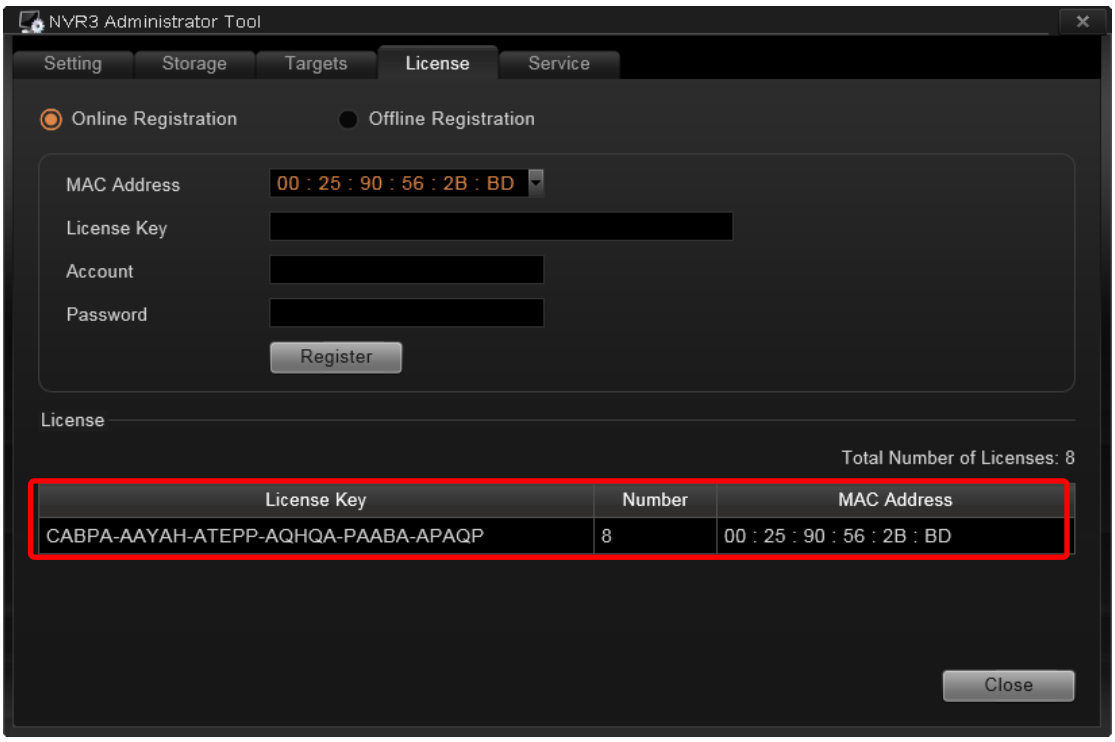
3. The other relevant settings pages will then appear. Enter "**License**" to start registering. If this server has access to Internet, please select "**Online Registration**" or you can perform "**Offline Registration**" by obtaining an activation file from http://www.acti.com/support/LicenseMgt beforehand. Fill in the required fields and click "**Register**".

Important Notice

If you are trying to switch an NVR server which has been operating for a while to a Redundancy server, please be aware that, by doing so, the original NVR relevant settings and recordings saved previously will ALL be erased.

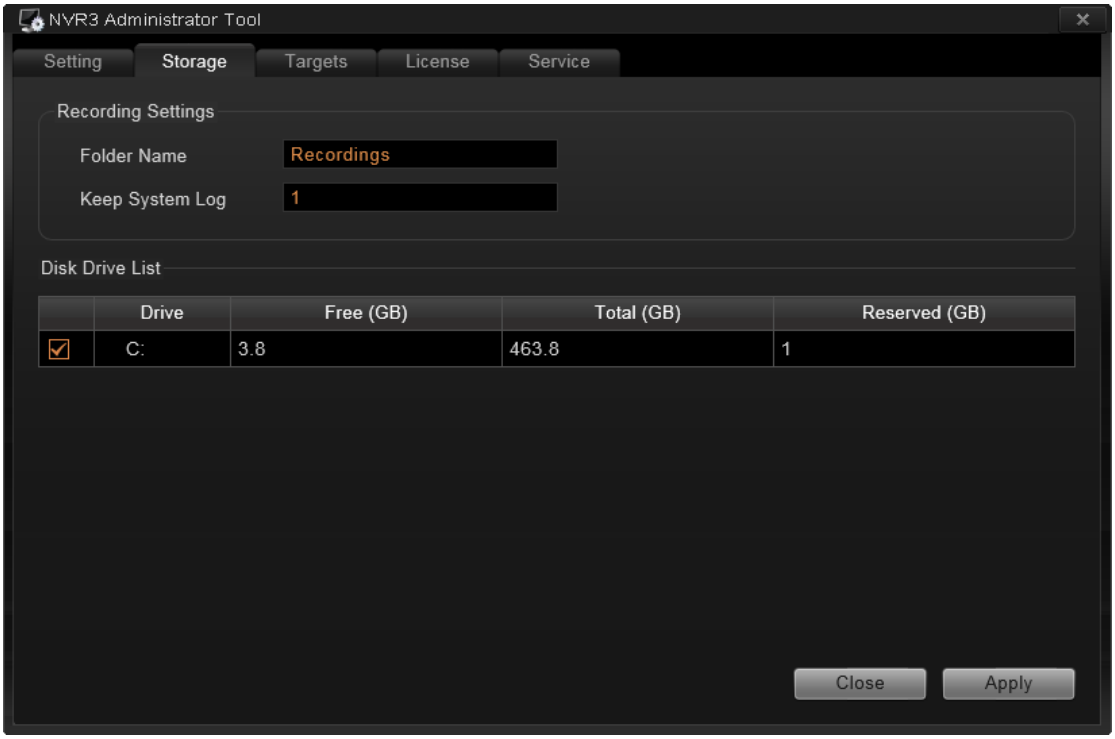


After the registration, the license information will appear on this page.

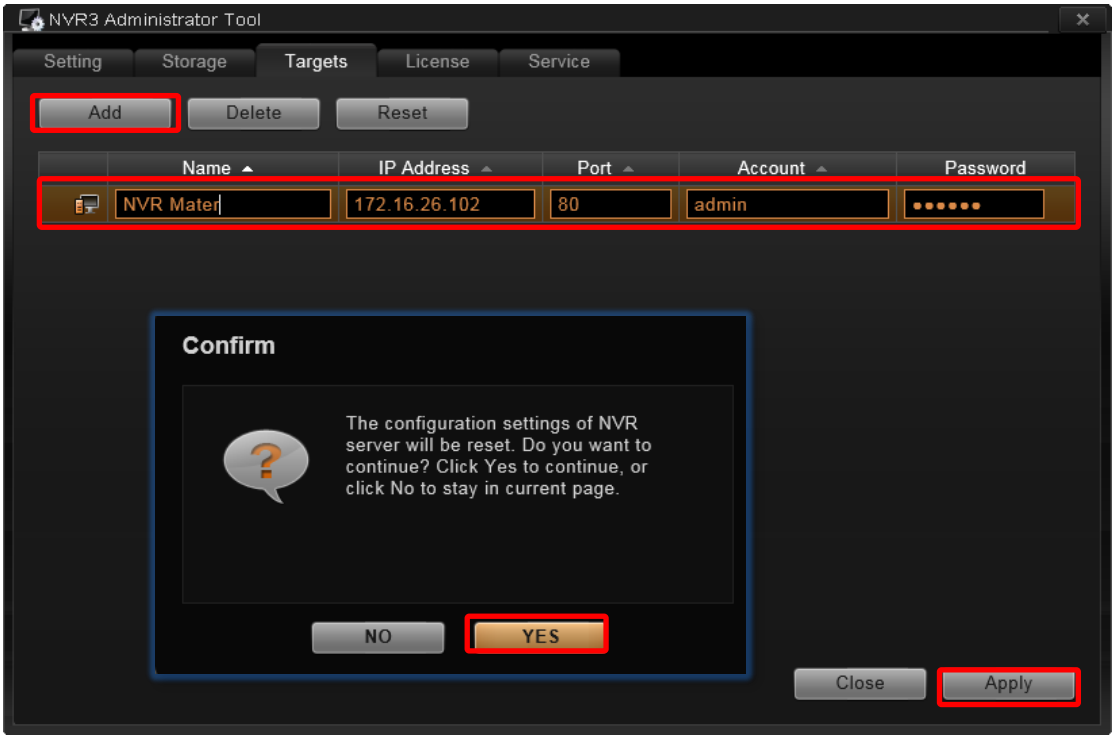


Set up Redundancy Storage Service

1. Go to "**Storage**" page to set up the storage space configuration.

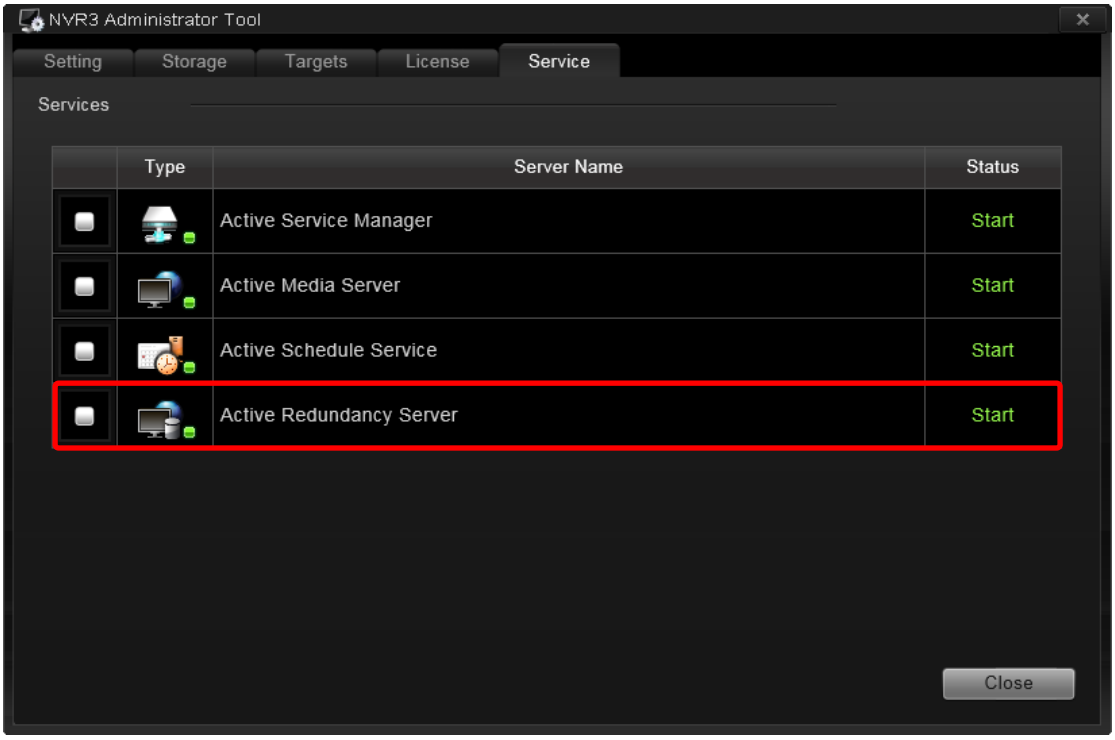


2. Go to "**Target**" page to edit the list of the target NVR servers. Click "**Add**" and fill in the connection properties of NVR server and click "**Apply**".



3. After you click "**Yes**" to confirm this configuration, this NVR will immediately turn into a redundancy storage on a first-come-first-served basis.

   By entering "**Service**" page, you can observe the service status.



Troubleshooting

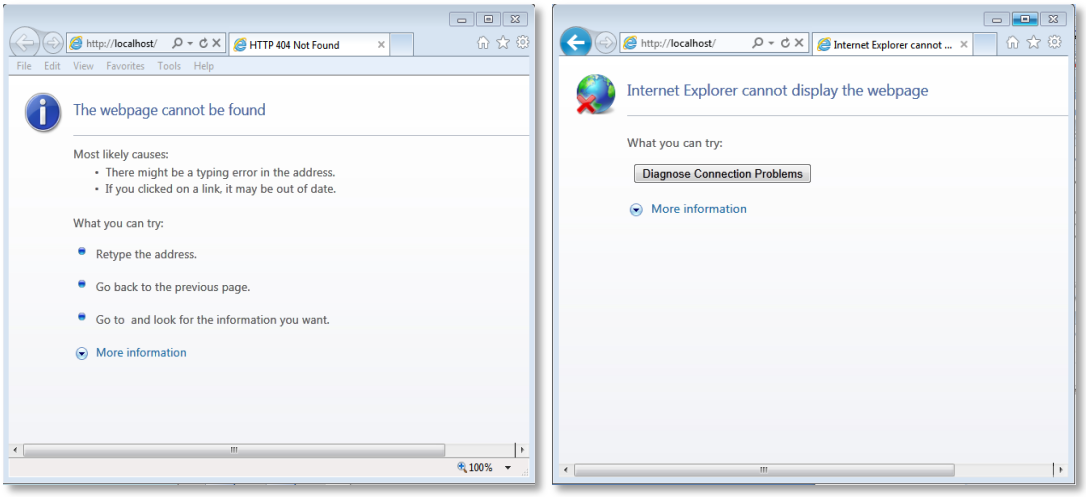
This chapter describes the methods to troubleshoot the general problems when using NVR server system such as login failures,

Log in Failures

Once you confront with problems accessing NVR server, refer to the possible conditions below and follow the instruction to solve your issues.

Condition 1: Cannot access NVR server via web browser.

After typing in the correct NVR server IP, if you cannot access NVR Login page, you might get the browser screens shown below:



Cause 1: NVR server is not ready

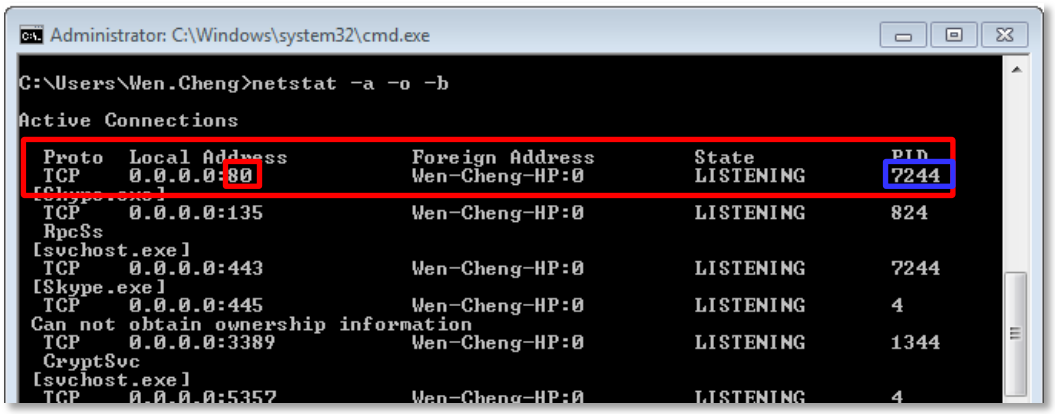
Solution: It may happen when you just start NVR server and it is still booting up. Please wait a few seconds and connect again.

Cause 2: NVR server is not able to respond to your request through current path because port 80 has been seized by another service running on the server computer. This may happen when that service has been executed right before NVR server starts its services.

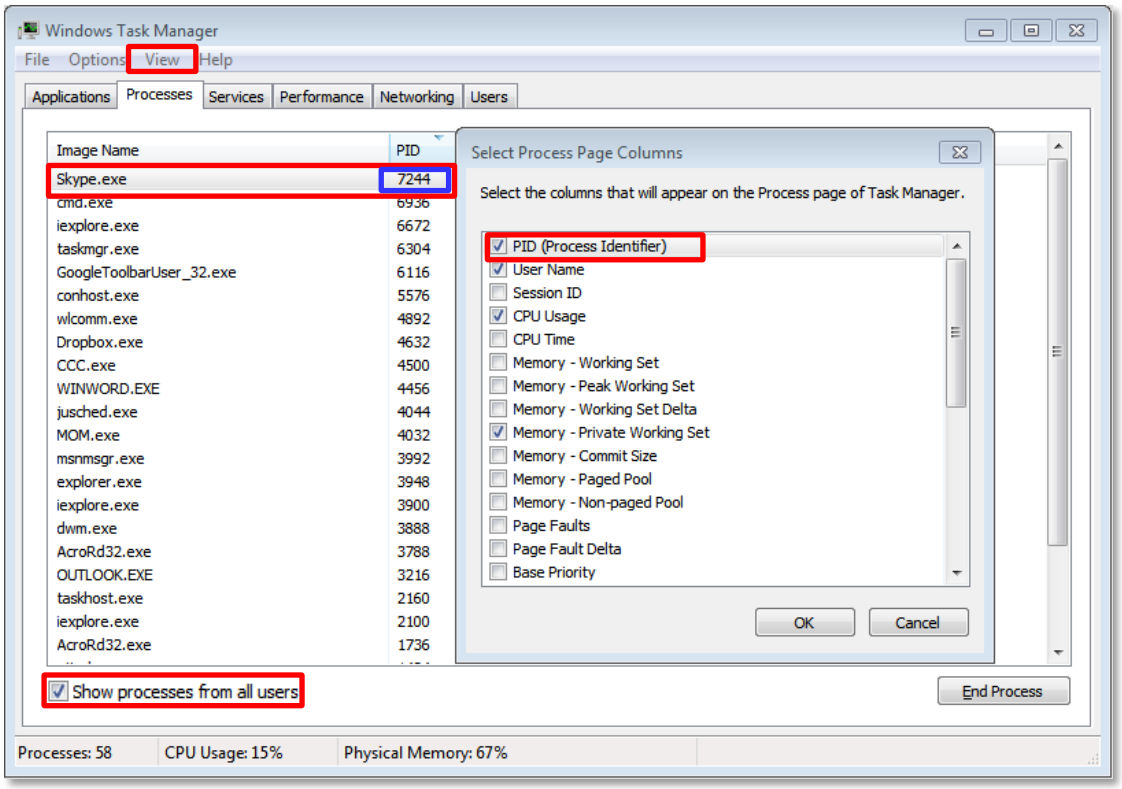
Solution: Please check if there is another service currently using port 80, and change the setting in that program to release port 80 for NVR server. The followings are the steps to find the service:

1. Click on "**Windows Start**", then enter "**cmd.exe**" in the run box and execute it.

2. Input the command "**netstat -a -o -b**". You will be provided with the ports in use and the services using them. Find the **Local Address** that has taken port **80**, and the **PID** number.

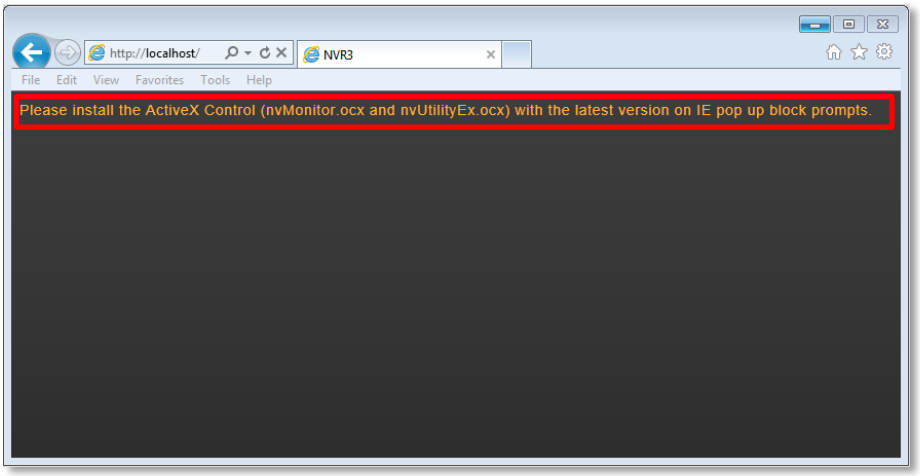


3. Press down "**ctrl**"+ "**alt**" + "**Delete**" keys to bring up **Windows Task Manager**. Select "**View"**, then "**Select columns**", and enable the **"PID (Process Identifier)**" to appear on search results. Please also make sure "**Show process from all users**" is enabled.
4. On **Task Manager Process** tab, locate the PID number of the service using port 80. The service name is shown under "**Image Name**" column.



Condition 2: Cannot install Active X controls after logging in.

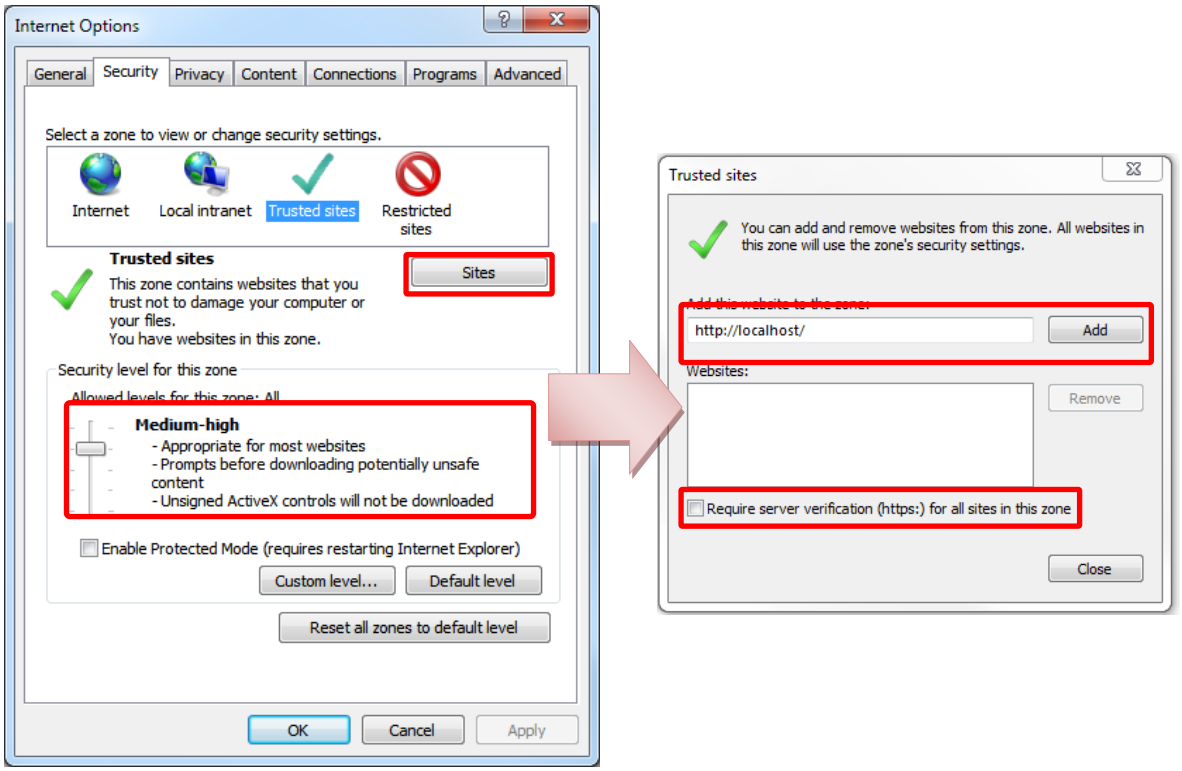
ActiveX Control components are essential for NVR server to present user interface. The message below will show if these controls were not installed. Please try refreshing the browser first, making IE pop up the prompts again.



Cause 1: Your **Internet Explorer** browser version does not support NVR 3 system.
Solution: Make sure your browser is **32-bit** version.

Cause 2: Your browser restricts the installation of add-on components.
Solution: Internet Explorer security settings may restrict the installation of add-on components. To ensure NVR server is always accessible from your web client regardless of any change in browser's overall Internet security settings, you may add NVR server site to Internet Explorer's trusted sites. Trusted sites are the sites which you consider safe and wish to visit with low security restrictions while maintaining higher security for the rest of the Internet.

1. On IE browser, click **Tools → Safety** and make sure **ActiveX Filtering** is unchecked.
2. On IE browser, go to **Tools** →**Internet Options**→**Security** tab, select "**Trusted sites**", set the security level to "**Medium High**", and then click "**Sites**".
3. Add http://localhost or the NVR server IP to the zone, and **clear** the box "**Require server verification (https:) for all sites in this zone**".
4. Back on **Security** tab, click "**Apply**" to apply the changes. This will allow ActiveX and scripting to be available for the chosen sites but not for the Internet as a whole.


Internet Options
General
Security
Privacy
Content
Connections
Programs
Advanced
Select a zone to view or change security settings.
Internet
Local intranet
Trusted sites
Restricted sites
Trusted sites
This zone contains websites that you trust not to damage your computer or your files.
You have websites in this zone.
Sites
Security level for this zone
Medium-high
- Appropriate for most websites
- Prompts before downloading potentially unsafe content
- Unsigned ActiveX controls will not be downloaded
Enable Protected Mode (requires restarting Internet Explorer)
Custom level...
Default level
Reset all zones to default level
OK
Cancel
Apply
Trusted sites
You can add and remove websites from this zone. All websites in this zone will use the zone's security settings.
http://localhost/
Add
Websites:
Remove
Require server verification (https:) for all sites in this zone
Close