IP Utility

User's Manual
For Version 4.3.03

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Overview

With the vast development of surveillance system, functions and features are introduced one after another thus lead to the complication of installation; hence, we are pleased to offer you **IP Utility** - a handy tool that allows you to easily manage multiple devices on your network.

What is IP Utility

IP Utility is a free, Windows-based application tool with friendly user interface. It helps you locate available devices including cameras, video encoders, and standalone NVRs in the network by showing its IP address. It also possesses the capability of concurrently editing essential camera settings such as automatically assign IP address, resolution change and motion detection region setups and more configuration for multiple cameras. Detailed information of each of those features will be covered in the later chapters.


Computer running IP Utility
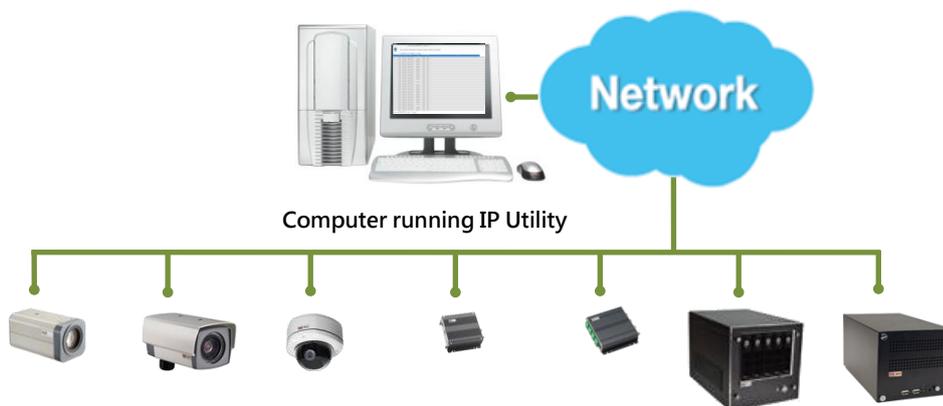
As we continue to deliver new products and technologies, **IP Utility** has also been streamlined to enhance essential functions to help you manage your devices.

Featured Functions

IP Utility is featured by the following functions:

1. Global Configuring Method

To achieve mass installation and configuration, "Global setting" delivers a new concept of multi-device setup in a speedy fashion. With this concept, you may select multiple devices for configuration instantly and simultaneously apply your desirable settings to all. Regardless of unique settings in different models, "Global setting" will automatically select the best and/or next immediate value individually for your selected devices to achieve the best and fastest way for your time-saving installation.
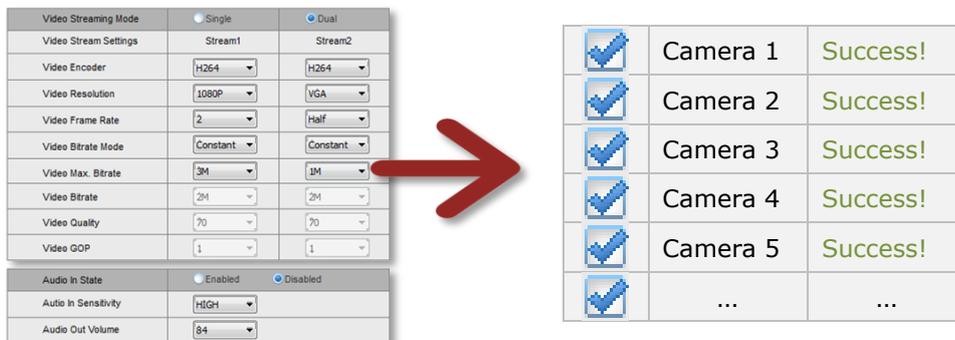
2. Smart Firmware Upgrade

Upgrading an individual device to its latest firmware version could be time-consuming and confusing. **IP Utility** supports one-step firmware upgrade for multiple devices. In addition, it would also pick the latest firmware that is available in selected folder and its subfolders.

3. URL Command Support

This version supports URL Command for specific controls and configurations.

4. Multi-language Support

IP Utility supports ten languages and will auto-select the UI language based on your operation system.

Getting Started

System Requirement

The operation of **IP Utility** will only consume limited system resources, but it should meet the following criteria:

Operation System
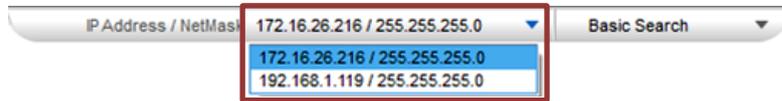Windows, XP, and Windows 7 (both 32 bit and 64-bit versions)

Running the Application

1. Unzip the compressed file.
2. Execute the application "**IP_Utility.exe**".

Searching Devices

IP Utility will search for devices based on the selected network interface card (NIC) and network segments it binds to. **IP Utility** will show a dropdown menu if there are multiple NICs available.

The default search mode - **Basic Search** will perform a quick search for available devices in no time, which does not require the input of account/password.

Using Advanced Search for Detailed Device Properties
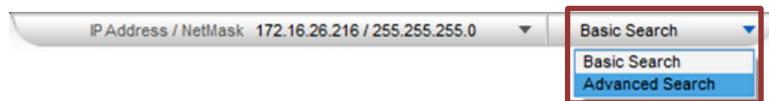
For the purposes of installation, system inspection or trouble-shooting, you may need a glance of device basic audio/video properties without accessing the cameras' firmware one by one, which are available through **Advanced Search**. However, it would take longer to finish searching. The search result will show as picture below which contains four sections-A, B, C and D:

A   **Configuration Tool Bar**: All the functions listed here are configurable through **IP Utility**.
    Other than "**Refresh**", each option can be executed on multiple devices with global
    setting.
    NOTE: All the configuration tools here are only applied to the cameras / video servers
    you selected from the **Device List** below.

B   **Global Setting Parameter**: Input proper account/password here to access selected
    devices.

C   **Device List**: Shows device information.
    ● The checkboxes of camera / video server products are enabled for selections when
    executing functions listed on Configuration Tool bar. For standalone network recorder
    products, the checkboxes are disabled; you may connect to the discovered network
    recorders y clicking on the IP addresses.

☐	ℹ	172.16.26.228	Camera-1	00:0F:7C:09:AC:D8	A1D-311-V5.09.04-AC
☐	ℹ	192.168.0.10	ENR	00:1D:B6:0B:0A:13	ENR-010-V1.00.02-AC
☐	ℹ	192.168.0.95	XNR4200	00:19:0F:06:BF:9A	XNR4200
☐	ℹ	192.168.1.10	GNR2000	00:19:0F:07:39:65	GNR2000

● For multiple-channel devices (e.g., video encoder), a ⊞ icon would be available.
  Click on it to expand the channel list, click ⊟ icon again to collapse list.
● Move your mouse cursor over the ℹ icon to reveal device properties in a floating
  window.

		172.16.26.7	Camera-
☐			a-
☐	VIDEO_ENCODER=H264	a-
☐	VIDEO_RESOLUTION=N720x480	a-
☐	VIDEO_FPS_NUM=30	
☐	V2_AUDIO_ENABLED=0	a-
☐	PORT_VIDEO=3007	
☐	PORT_CONTROL=2007	20
☐	V2_PORT_RTSP=7070	20
☐	PORT_HTTP=1007	

D   **Manual Input Bar**: You can manually input IP address here for device that is reachable
    from your network but not showing up in search result. As long as you successfully add a
    device and connect to it, it will be remembered in the device list until you remove it.

Observing the Device Status

Each device status is shown in the **Status** column behind every entry.

Device Connection Status

Connection status:

● Gray-out → this device is not reachable via global setting parameter.
● Black → this device is reachable.

Status Message:

- The device IP address has conflict with another devices → Ip address conflict.

- This device is added manually → this device was added manually.

- Fail in authentication for querying device information → Wrong account/password.

Configuration Status

Each time you apply settings to devices with global settings, the status column would display the result. For example, if you reboot a camera, its status would appear as "Rebooting" during the process, and turns to "Success in save&reboot device" when finished. On the other hand, if the configuration fails, the status would show "Fail to save & reboot device".

Configuring Device Settings

For configurations including Date / Time, Motion, Video / Audio and URL, they are available when the checkbox is checked.

In **IP Utility**, selected the device(s), and click "**Device Settings**".
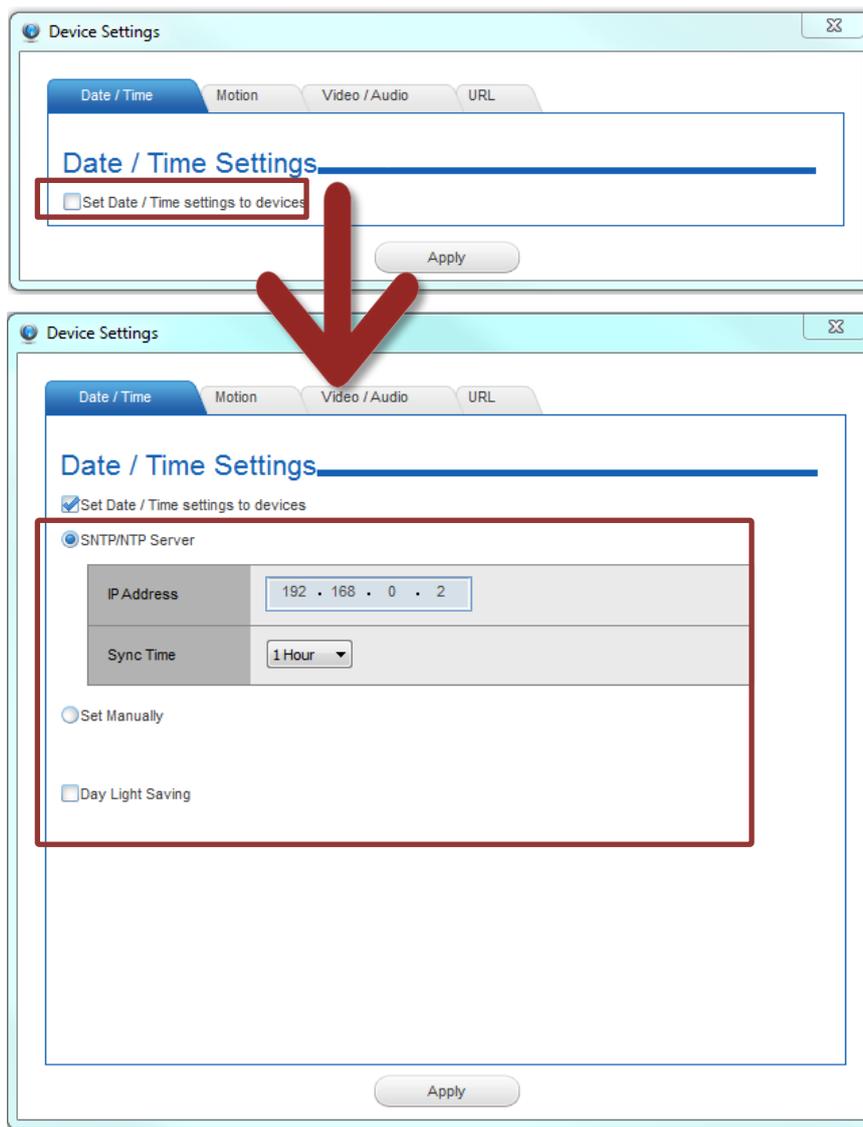
Configuring Date/Time

On **Date/Time** tab, choose the SNTP/NTP Server if you want the device to sync with the time server of your choice; or choose "Set Manually" to give specific time setting to the device.

For certain time-sensitive surveillance systems, you may modify the Daylight Saving Time according to the DST rule of that country or region.
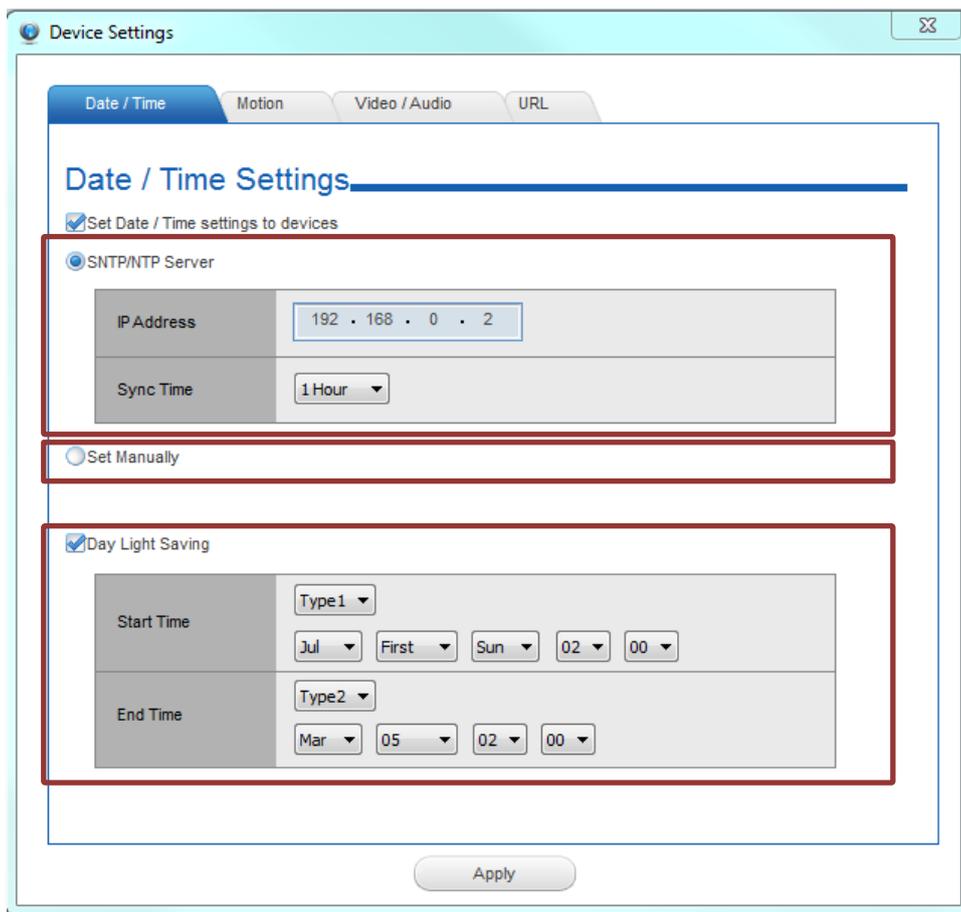
Configuring Motion Settings

Motion detection is a key element in most surveillance systems; it can be used as a trigger for events such as sending notifications or alarms to system monitor. The camera motion detection regions configurable through **IP Utility**.

In Motion tab, check "**Set Motion Detection Settings to devices**".

1. Select the region, input the X coordinate(X), Y coordinate(Y), width (W) and height (H) value into the four boxes.
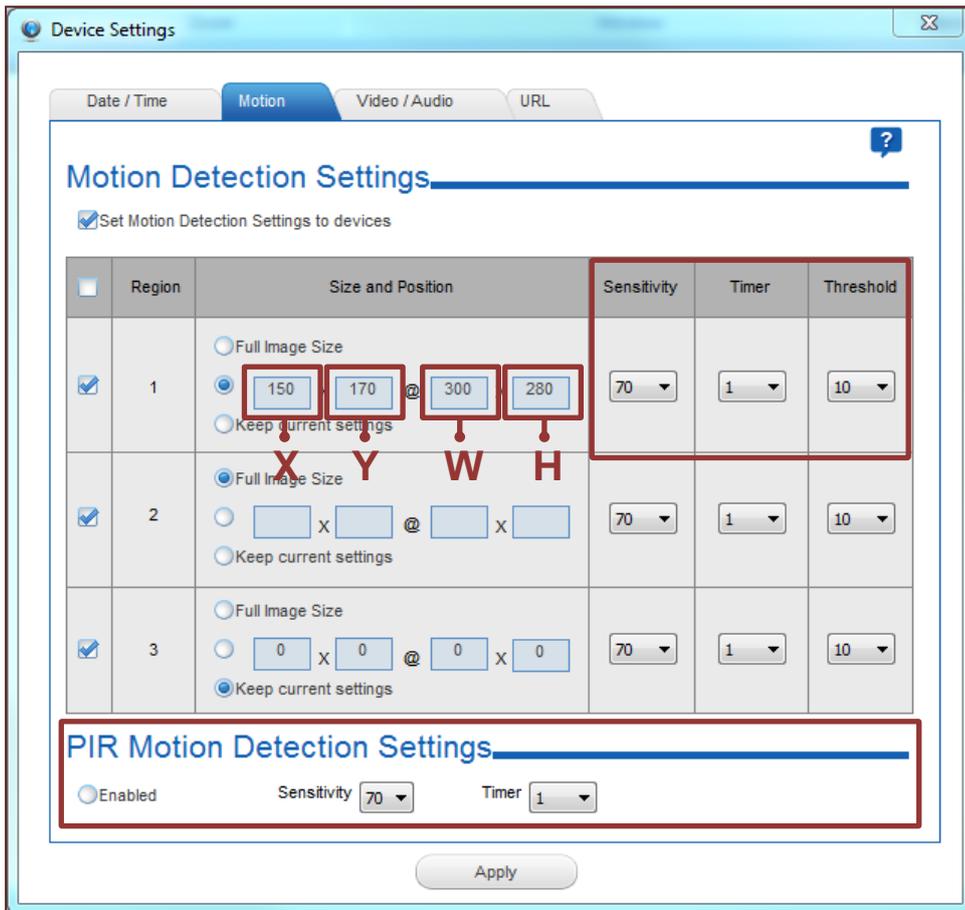
> **NOTE**: **The default motion region setting is "Full image size". Please select "Keep current settings" if motion regions have been modified and you do not wish to change them.**
>
> **NOTE: You can click** 🔲 **on top right of this window to bring up detailed instructions on setting motion regions.**

2. Sensitivity, Timer and Threshold configurations:

   Sensitivity – Determines how sensitive the camera reacts to the movement. The higher is the sensitivity level, the smaller motion will trigger the alarm, default is **70**.

   Timer - The time period from the beginning of the triggered event during which the all motion activities are ignored by the camera, default is **1 second**.

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Threshold – Determines at what point the motion detection feature is triggered. The higher threshold means more variance of pixels in view is needed to trigger the **alarm**, default is **10%**.

Configuring the PIR Settings

Not all devices support PIR motion detection. For devices that are built-in with this function, you can configure the Sensitivity and Timer of the PIR detector here.

Configuring the Video / Audio Settings

The video configurations such as resolution, frame rate or encoder type are the keys in user's application. However, they vary by different platforms and camera capabilities. To let user manage various devices regardless of those configuration differences, **IP Utility** provides complete lists of options for both video and audio configurations; if the option you choose is not supported by the model, **IP Utility** will apply the next mediate value.
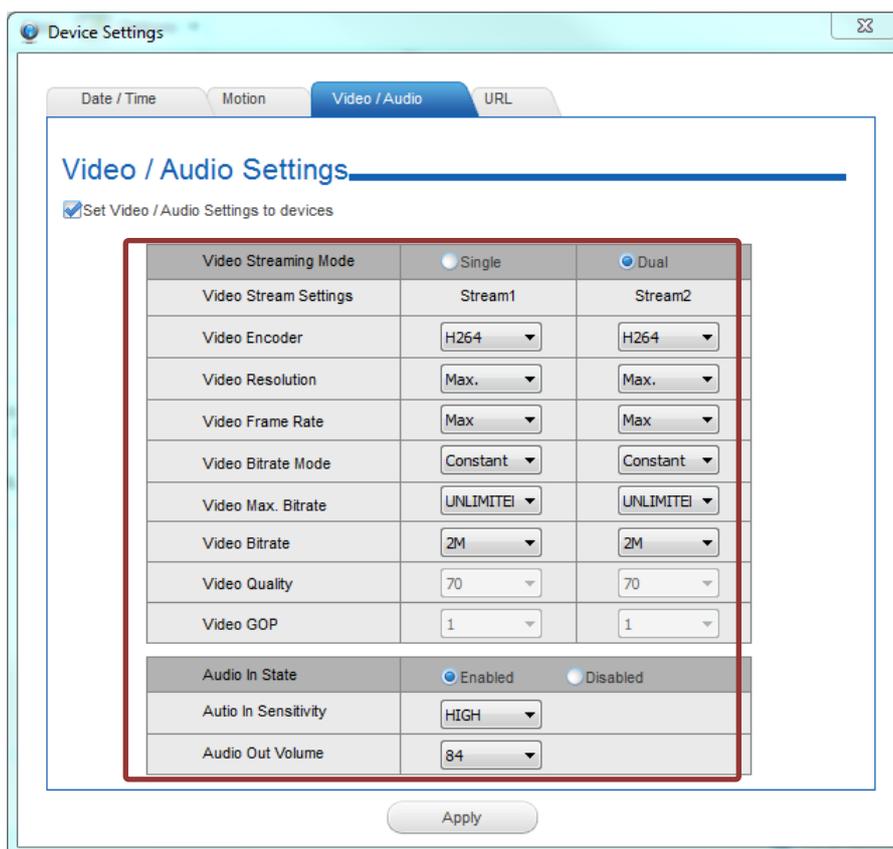
| Configuration	Description
Video Streaming Mode	For devices with dual stream functionality, they can use a smaller video stream for live view with lesser frame rate to save CPU power. Meanwhile the recording stream can be larger and have more FPS to retrieve evidence when needed.
Video Encoder	Select the encoder's compression type.
Video Resolution	Select the video resolution of the device. "**Max**" will automatically pick the max resolution of each device's capability.
Video Frame Rate	Select the available frame rate. "**Max**" will automatically pick the max frame rate of each device's capability. "**Half** "will use the half of the device's max supported value ,as "**Quarter**" will use the quarter of the device's max

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	supported value.
Video Bitrate Mode	Constant Bit Rate: The bit rate remains constant at all conditions, Video quality will be better when image is still. Large amount of motion or complex scene will degrade quality slightly. Variable Bit Rate: The video bit rate will vary based upon scene complexity and amount of movement. The quality will remain the same.
Video Max Bitrate (Constant Bitrate only)	This puts a hard cap on the maximum bit rate allowed in any given second of video streaming. Assigning a limited bit rate may result in a few dropped frames rate when the stream data overflows the allowed bit rate. Doing so will also disable Bit Rate setting below.
Video Bitrate (Constant Bitrate only)	This is the target bitrate that the camera will attempt to provide when using Constant Bitrate mode, only enable when you selected "Unlimited" for Video Max Bitrate. The actual value will fluctuate slightly based on scene changes.
Video Quality	This configuration is only available if the video encoder is H.264 or MPEG4 and the video bitrate mode is Variable Bitrate Mode. For devices that use Low/Medium/High settings for video quality, the settings 1~100 in this configuration will be converted to those three levels like this: 1~33→ Low; 34~66→Medium; 67~100→High
GOP Length (Variable Bit Rate Only)	When encoder type is MPEG4 or H.264 and video bitrate mode is "Variable Bit Rate". Select the Interval between two I-frames. This is also called GOP Length. (Group of Picture).
Audio In State	Enable or disable Audio In via the check box.
Audio In Sensitivity	Choose the sensitivity level of line-in audio
Audio Out Volume	Control the output volume of Audio Out here

NOTE: If the device does not support audio function, IP Utility should skip audio setup to the device.

The Simplest Way to Command Multiple Devices

As the devices support URL API, through **IP Utility**, you can setup multiple devices simultaneously by inputting corresponding URL command and send to selected devices. For example, adding two different user accounts to multiple devices would take you several steps a firmware page. By using URL command, you only have to do setup once and apply to all.

1. On Configuration tool bar, click "**Device Settings**".
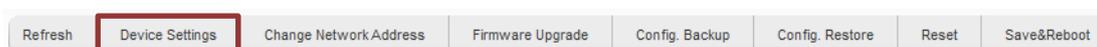
2. In URL tab, check "**Send URLs to device**".

3. Select the CGI and input the command, then click "**Apply**".
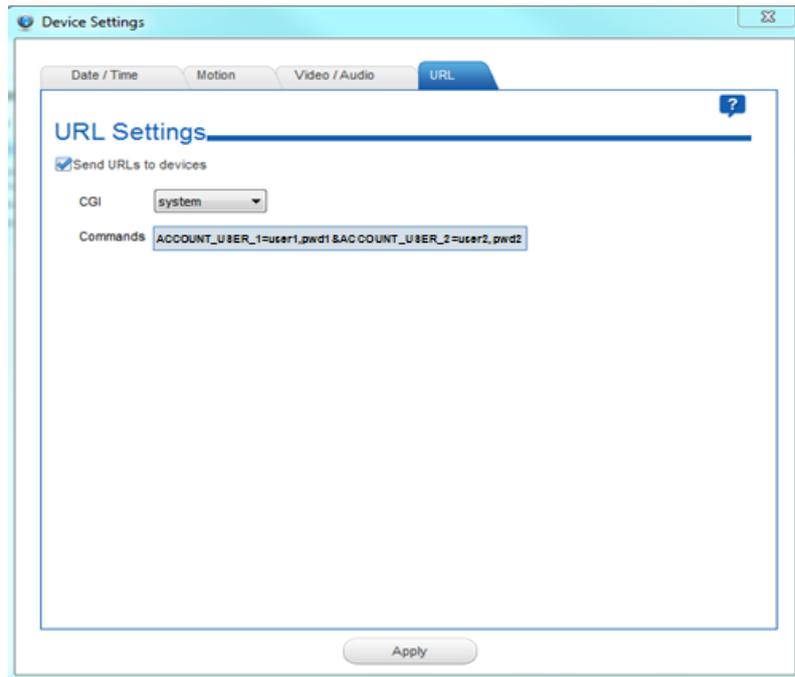
NOTE: You can click [?] on top right of this window for more descriptions and examples of URL settings.

How to Change Device IP Address

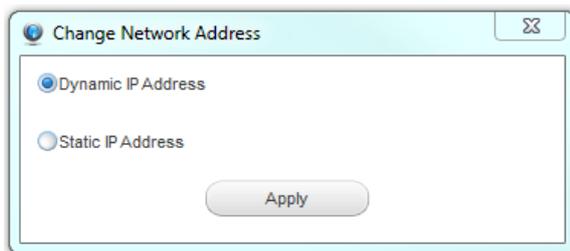**IP Utility** provides a convenient way for you to modify IP addresses of a group of devices in merely few steps.

1. Select devices you wish to configure, and make sure they use the same global settings (account and password).

2. On Configuration Tool Bar, click "**Change Network Address**".
   If you are using DHCP sever for your network, please choose "**Dynamic IP Address**"

3. Or you can assign static IP addresses by giving a starting address. Bases on the starting IP address, **IP Utility** will search for availible IP addresses and assign them to selected devices.

   For example, with the given starting address as "*192.168.0.100*", selected three devices are individually assigned *192.168.0.100*, *192.168.0.101* and *192.168.0.103*, as *192.168.0.102* has beend used by another device in the network.
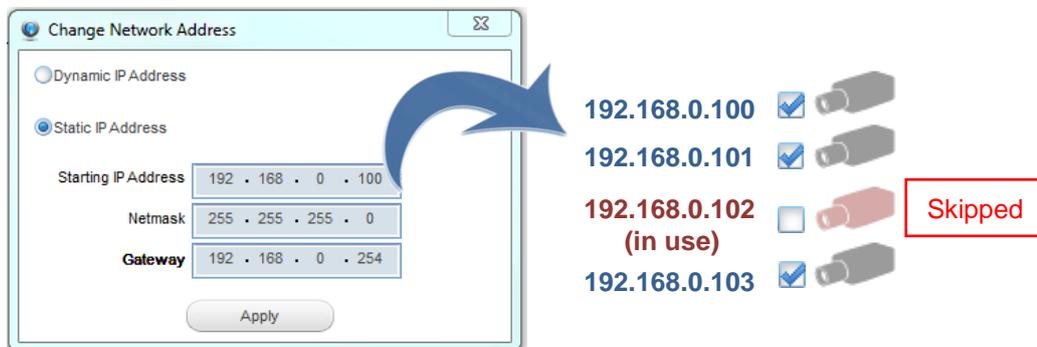
NOTE: **Before assigning static addresses to a number of devices, please make sure:**
1. **There are enough IP addresses available in the subnet.**
2. **The starting address and gateway address are in the same subnet.**
3. **The starting address and gateway address are unicast IP addresses.**

Upgrading Firmware

As later generation models often come with newer designs, the firmware system of different platforms would vary. Your devices may carry one, two or three kinds of firmware to respectively enhance different performances. However, these firmware files are not compatible to all devices. IP Utility's "Smart firmware upgrade" design helps you choose the appropriate firmware file. Before upgrading device firmware, it is important that you (1) are totally aware of the platform and versions of the firmware of the device (2) have read though and understood the device firmware manual and release note (3) have downloaded the proper firmware files to be upgrade with.

1. Put the downloaded firmware files in the same folder, and keep their filenames unchanged.

2. On Configuration tool bar, click "Firmware Upgrade".

3. **IP Utility** can detect your device firmware version and bring you through appropriate upgrading process. Firstly, you get to choose what kind of firmware file to upgrade. For example, you device carries two types of firmware files, the popup window will provide you two file type selections:
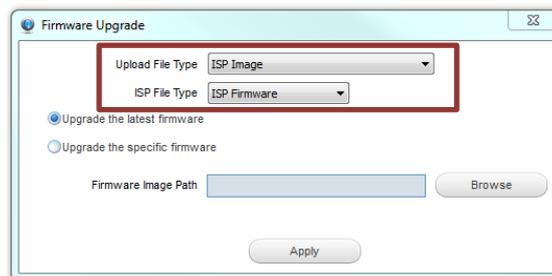
If your device only carries one type, then only one type selection is provided.
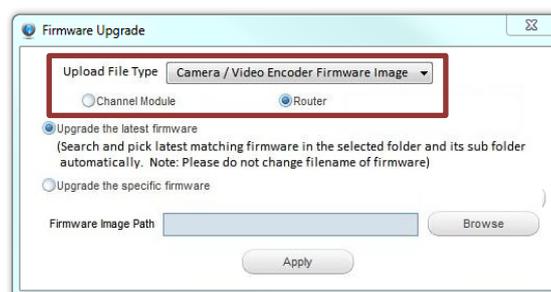
"Router" will be enabled if you have selected any multi-channel video encoder.

4. Select "Upgrade the latest firmware" to have **IP Utility** automatically decide the firmware file from the location you give; or "Upgrade the specific firmware" if you know which file to use. Then choose the file or folder location, and click "Apply".

NOTE: **The device will reboot automatically after an image upload completes. Do not disconnect the device until the completion of firmware upgrade**.
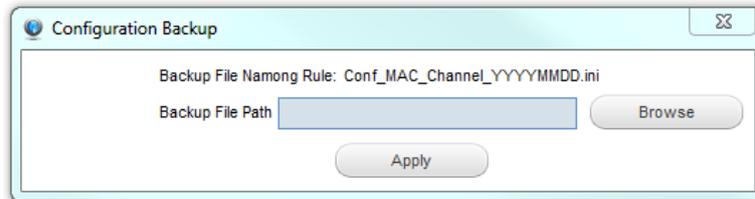
Making Backup of the Device Configurations

For security need, a backup of the device settings is good to help you troubleshoot or recover it. It is strongly recommended that you save backup files of devices after the configurations.

1. Select the devices.
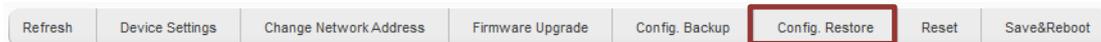2. On Configuration Tool Bar, click "Config. Backup".

Refresh	Device Settings	Change Network Address	Firmware Upgrade	Config. Backup	Config. Restore	Reset	Save&Reboot

3. Choose a location to save the backup files. It will be saved as an **.ini** file.

Restoring the Device Configurations

To restore the configuration to a device, select the device to perform "Config Restore". Before proceeding, please carefully check if the backup file matches your selected device.

1. Select the device.
2. On Configuration Tool Bar, click "Config". Restore".

Refresh	Device Settings	Change Network Address	Firmware Upgrade	Config. Backup	Config. Restore	Reset	Save&Reboot

3. Choose the location of the backup file to perform restoring. If you can't tell from the file names which to use, simply choose the folder where it is, **IP Utility** is able to recognize the matching file and locate it.
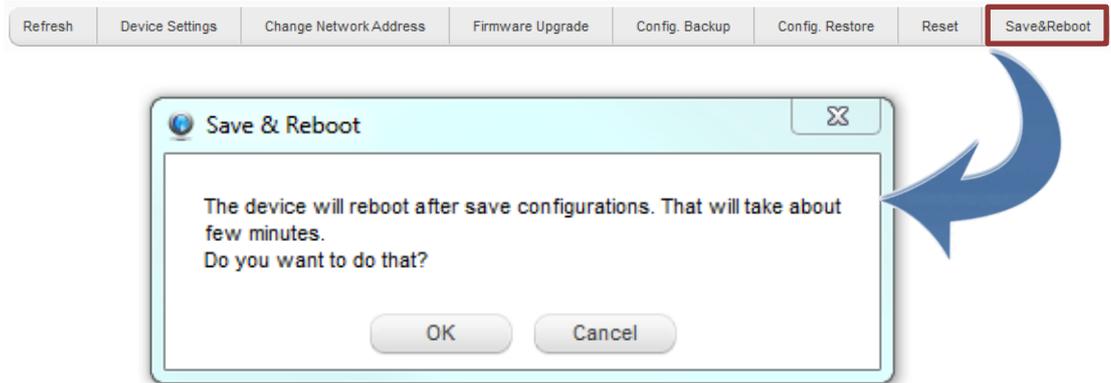

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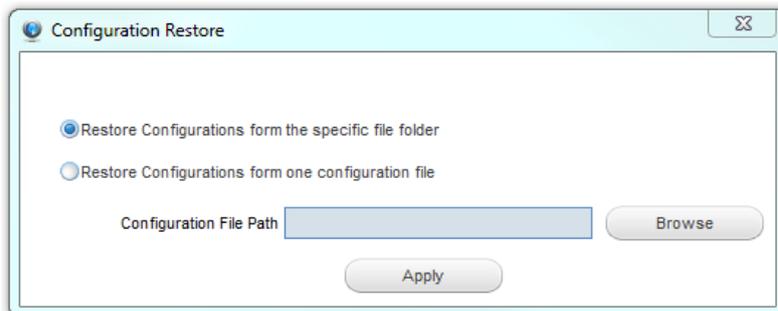
Rebooting the Devices

There are chances that certain devices need a refresh cycle; **IP Utility** allows you to save & reboot many devices in a go.

1. Select the devices.
2. On Configuration Tool Bar, click "Save & Reboot". In this case, you may choose to reboot the device while saving all current setting.

If you simply want to clear all the settings on the device to start over again, "Resetting" can restore its factory default values except network settings. Therefore, this device still uses the same IP address after resetting.
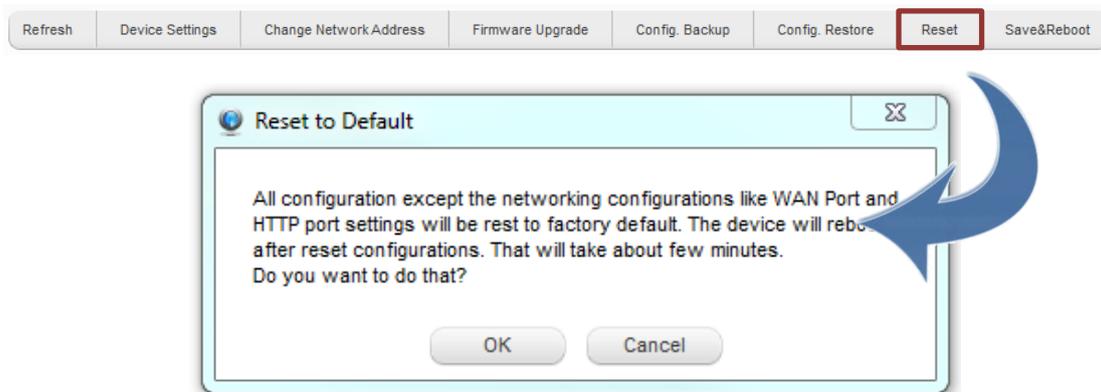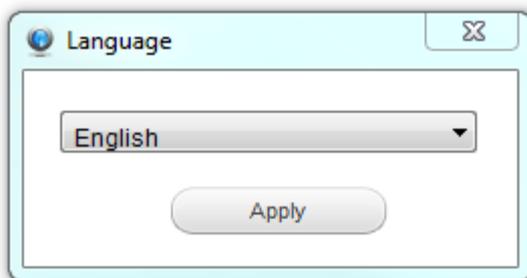

NOTE: **The "Save & Reboot" or "Reset" process isn't completed until the device status displays a success message. During this period, please do not disconnect the device.**

Changing UI Language

IP Utility supports multiple languages. You can select your desired language by pressing this combination of three keys: **ctrl+alt+j**.
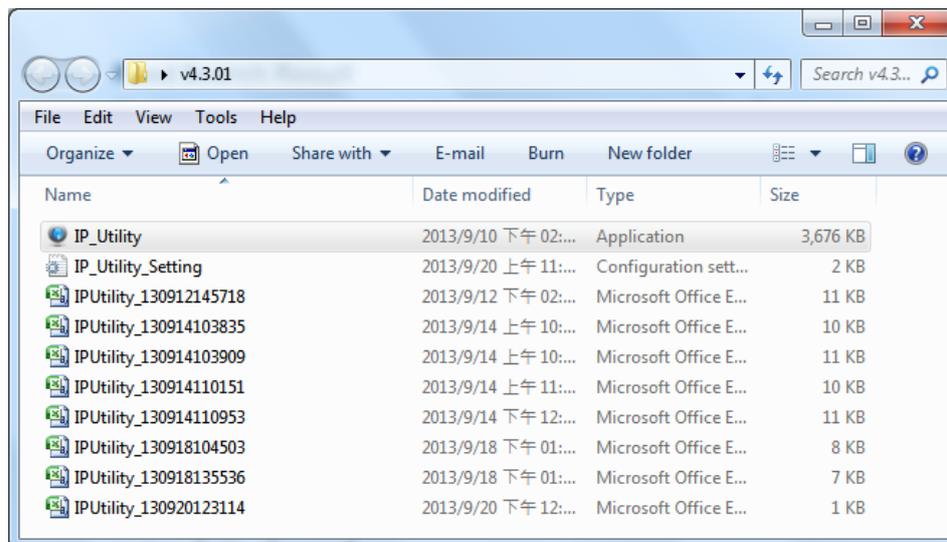

Read Search Result

IP Utility saves the search result after every device search process. That helps user to keep the camera installation information. The record file is saved in the same folder of IP Utility application.

The file name indicates the time of device search:

IPUtility_YY_MM_DD_HH_mm_ss

Use **Microsoft Office Excel** to open this report, which records the every device's IP Address, Serial Number, MAC Address, FW Version, Model and Multicast IP information

	A	B	C	D	E	F
	IP Address	Serial No.	MAC Address	FW Version	Model	Multicast IP
	172.16.15.150	PAP-BOOTTESTER-0102	00:0F:7C:EF:28:43	PAP-BootTester-V1.00.01-AC	PAP Boot Tester	
	172.16.15.148	ENR1000-A-12J-00082	00:0F:7C:11:22:34	ENR-010-V3.99.15-AC	4 CH Embedded NVR-ENR1000	
	172.16.15.90	PAP-BOOTTESTER-0104	00:0F:7C:EF:25:63	PAP-BootTester-V1.00.01-AC	PAP Boot Tester	
	172.16.15.133	PAP-BOOTTESTER-0103	00:0F:7C:EF:E7:23	PAP-BootTester-V1.00.01-AC	PAP Boot Tester	
	172.16.15.114	E89--A-01-12A-89001	00:0F:7C:E8:90:01	A1D-500-V6.05.08-AC	Megapixel IP Dome	228.5.6.1