COMPRO TECHNOLOGY

Network Camera

User's Manual

Model No. **TN2200**

V1-130906

Revision History
2013/09/06 Original Version (V1.06)

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Chapter 1: Important Notices

Regulatory Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

FCC Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

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

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Operation Safety

Before starting using the camera, please read and follow the steps below to protect your IP camera.

- The camera ought to be installed by a qualified technician.
- Place the camera on a steady surface whenever possible.
- Do not drop the camera body to the ground; it may cause the damage to main parts.
- Do not shake, move or disturb the camera when it is in operation, as such actions may result in the malfunction of the device.
- Power off the camera as soon as it is found smoking or smelt unusual.
- Please do not place the camera around the heat sources, such as television or microwave oven.
- Please do not remodel the camera; it may cause damage or fire.
- Please do not attempt to repair the camera on your own; contact Compro or your local distributor for repair service.

About this Manual

This manual is only intended for the users of Compro TN2200 mini dome network camera.

Conventions in this Manual

While you are using this manual, pay attention to some symbols and notations that are used to draw attention to special situations such as:

Caution!
Information provided here is critical to prevent damage to the product or injury to the user.

Important:
Here it provides instructions that a user must follow in order to complete a task.

Note:
Additional information or tips to help the user operate the product.

Chapter 2: Product Overview

Package Contents

The following is a list of items included in the package. Please check the package contents on your hand. If anything is missing, please don't hesitate to contact your local distributor.

Qty	Item	Description
1	Network camera	Compro NC2200 network camera
1	Wall mount base	For mounting the camera on the wall
4	Self-tapping screw	For fastening the wall mount base to the wall, or for ceiling mouting the camera without using wall mount base
4	Screw anchor	For fastening wall mount base in concrete
2	Screw for wall mount base	For fastening the camera to the wall mount base; must be used with rubber o-ring
2	Rubber O-ring	Prevents water from entering the casing
1	Hex key	For removing the camera's top cover
1	Installation Guide	Providing instructions on installation
1	Installation CD	Install IP camera via PC (Manual included)

Table 2-1. Package contents

Features

TN2200 Key Features

- Design for indoor and outdoor
- 2 megapixel CMOS sensor
- 105° ultra-wide angle lens
- H.264/MJPEG dual video streaming
- Exclusive C4Home cloud app
- Smart motion detection and smartphone Push Notification
- PoE design (IEEE 802.3af Class 3)
- microSDHC storage support (Pre-installed 4GB card inside)
- Built-in microphone
- Smartphone digital zoom control
- Air Firmware Update
- Share video and private mode
- Dropbox cloud storage support
- IP66-rated weather-resistant and IK09 impact-resistance casing

System Requirements

For Viewing PC:

- Computer with 2.8GHz Dual-Core processor and 2GB memory or above
- Supported Operating Systems: Windows XP SP3, Vista SP1, Windows 7, Windows 8, Mac OS 10.6 (Live view in M-JPEG mode only)
- PoE switch or PoE midspan (PoE injector) with IEEE 802.3af Class 3 support

For Internet Access:

- Cable or DSL Modem
- Subscription with an Internet Service Provider (ISP)

Camera Layout

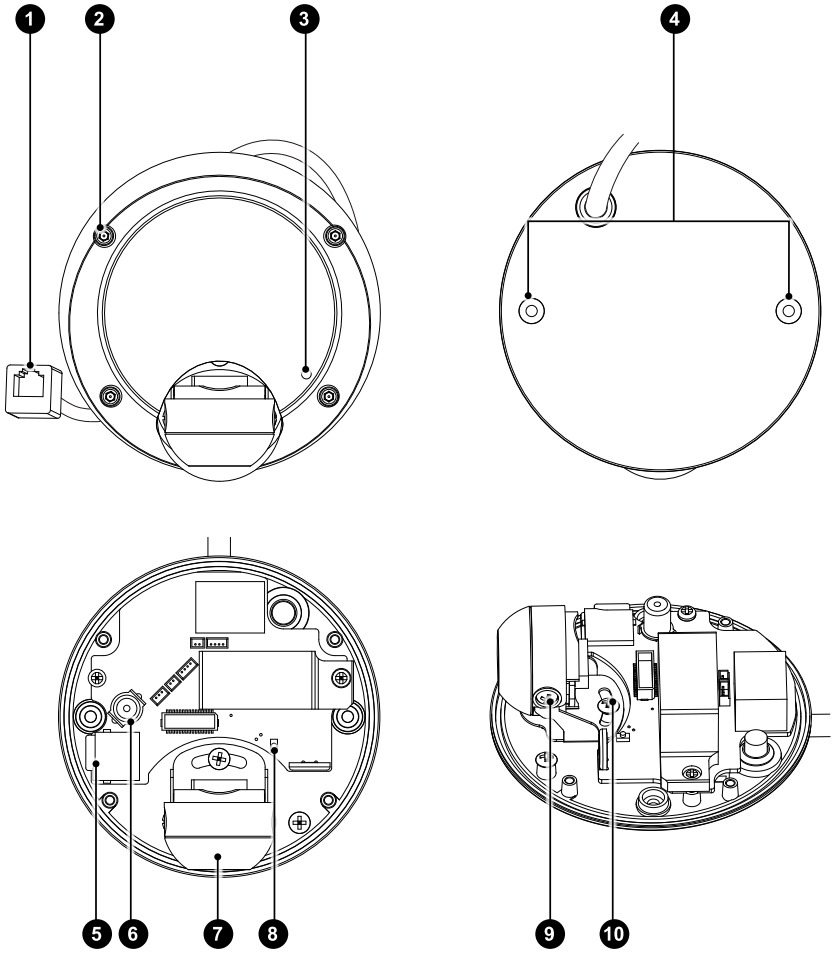


Figure 2-1. Hardware overview

1. **Ethernet port** – For connection to the network
2. **Socket head screw (4 in total)** – To remove the top cover, unscrew the 4 socket head screws with the supplied hex key.
3. **Microphone pinhole** – For receiving ambient sound.

4. **Screw holes for wall mount base/ceiling mounting** – For installing the wall mount base; for ceiling mounting the camera without the use of wall mount base.
5. **microSD card slot** – Push the memory card in order to release it.
6. **Composite video jack** – For connecting to a standard TV and helping you adjust camera angle during installation.
7. **Lens** – Fixed iris, F 2.0, f 1.96mm.
8. **Reset button** – Press and hold the button to reset the camera back to factory defaults.
9. **Tilt adjustment screw** – 2 tilt adjustment screws hold the tilting position of the camera.
10. **Pan adjustment screw** – For holding the panning position of the camera.

Chapter 3: Installation

Wall / Ceiling Mount

The camera can be mounted on a wall or ceiling with or without the supplied wall mount base installed. The wall mount base is generally used for wall mount applications when the camera's cable is not run through the mounting surface.

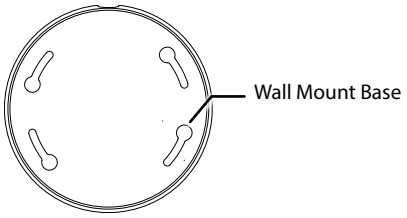


Figure 3-1. Wall Mount Base

If you want to feed the camera's cable through a dropped ceiling, you can drill a cable hole on the mounting surface and then mount the camera without using the wall mount base. The following sections explain 2 different mounting options.

Using Wall Mount Base

1. Use the supplied hex key to unscrew the top cover from the camera.

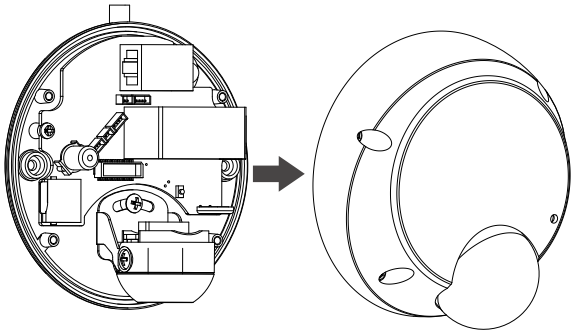


Figure 3-2. Remove top cover

2. Stick the supplied drill template A to the wall (or place the wall mount base against the wall to mark the screw hole locations). Then drill 4 mounting holes on the wall.

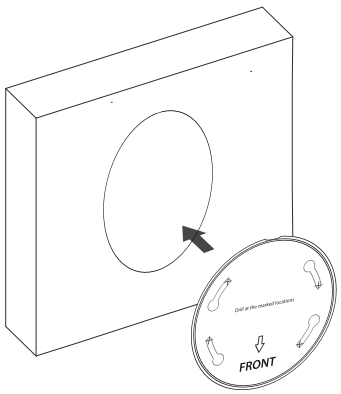


Figure 3-3. Drill template A

3. Then, if you're mounting on a concrete wall, insert a screw anchor into each of the mounting holes. After that, secure the wall mount base to the wall with the supplied self-tapping screws.

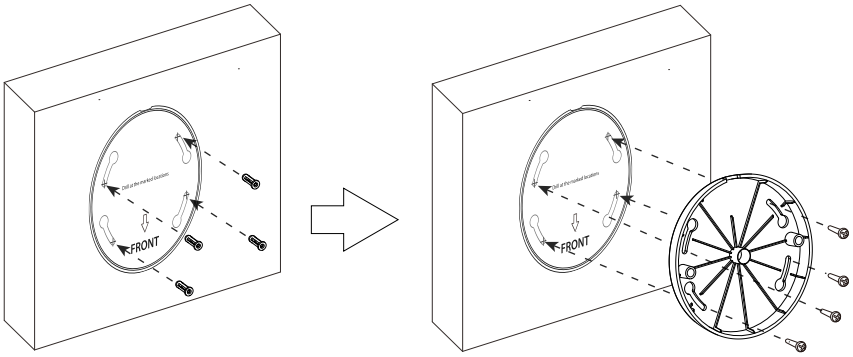


Figure 3-4. Fasten wall mount base

4. Fasten the camera to the wall mount base on the wall. Make sure you use a supplied rubber O-ring in between the screws and the screw holes (as circled) to avoid moisture entering the casing. Afterwards, re-attach the camera's top cover and secure the screws tightly with the supplied hex key.

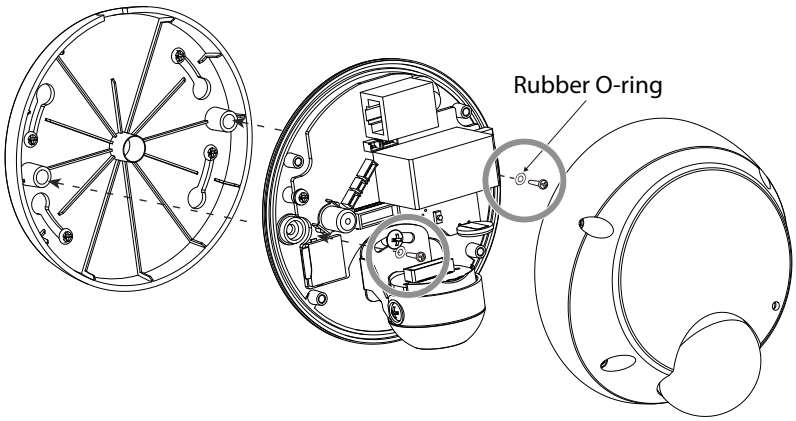


Figure 3-5. Rubber O-ring

Note: Should you ever need to detach the mounted camera from the wall in the future, simply twist the camera in counter-clockwise direction and then pull it off the wall.

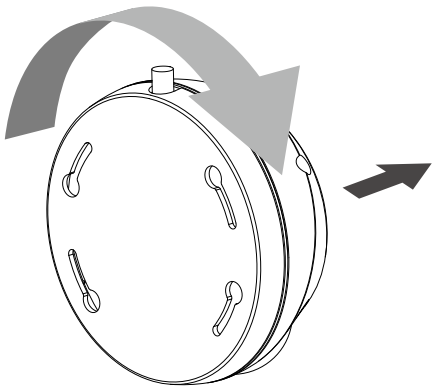


Figure 3-6. Detach camera from wall

Without Using Wall Mount Base

1. Use the supplied hex key to remove the top cover.

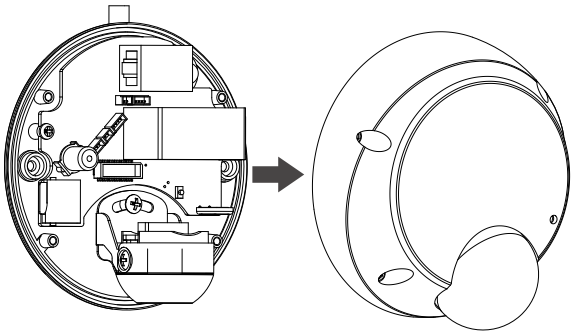


Figure 3-7. Remove top cover

2. Drill 2 mounting holes on the mounting surface. The 2 screw holes should be spaced exactly 80 mm (3.15 inch) apart to correspond to the position of mounting holes on the camera. (Or use the supplied drill template B to drill the mounting holes.) Then drill a cable hole if you need to run the cable through the mounting surface.

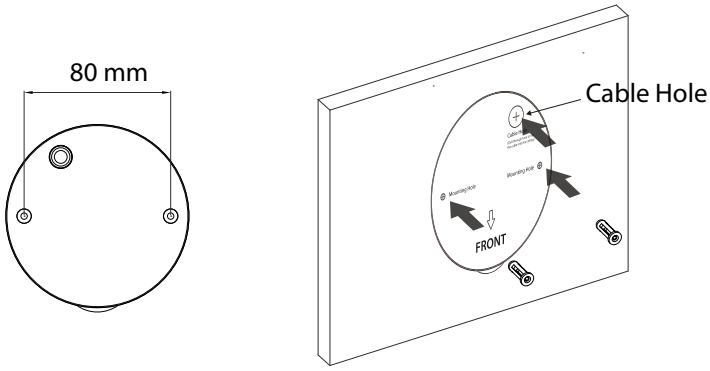


Figure 3-8. Drill mounting holes

3. Fix the camera to the mounting surface with the supplied self-tapping screws. Make sure you use a supplied rubber O-ring in between the screws and the screw holes (as circled) to avoid moisture entering the casing. Finally, re-attach the camera's top cover and secure the screws tightly with the supplied hex key.

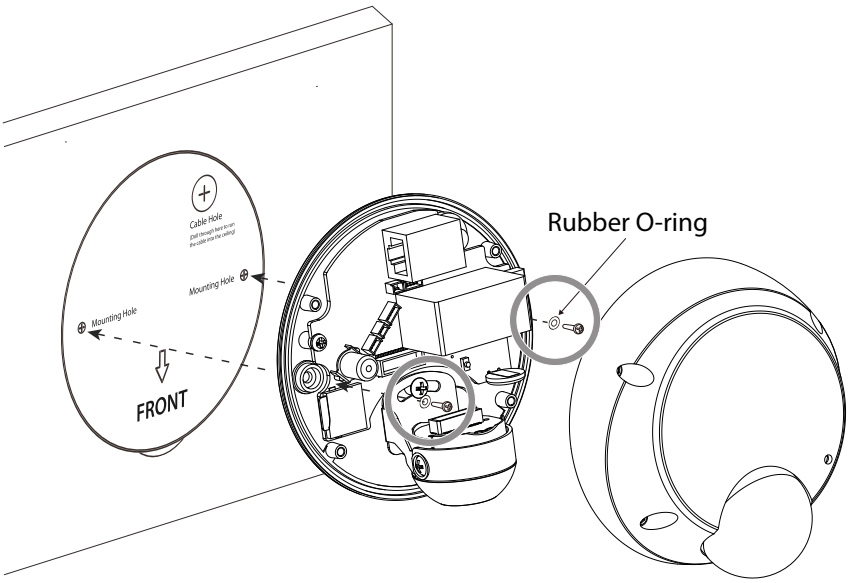


Figure 3-9. Fix camera to the wall

Adjust the Lens

To adjust the direction of the lens, you need to remove the camera's top cover first. You can connect the camera's composite video jack to the video input jack of your TV to aid you in lens adjustment.

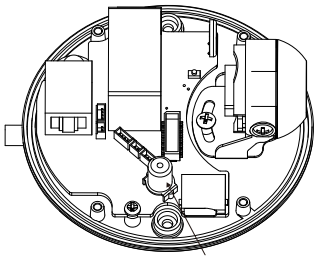


Figure 3-10. Composite video output

Adjust Pan/Tilt

To adjust the camera's panning or tilting position:

1. Loosen the pan adjustment screw and then gently twist the lens holder left or right to adjust the camera's panning position. The camera allows for 40 degrees of pan adjustment, as shown in below figure.

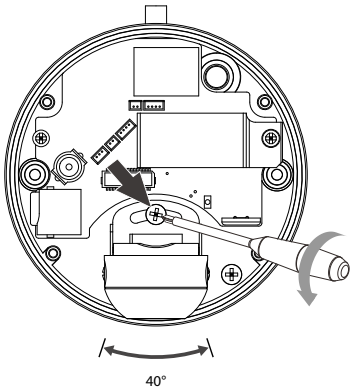


Figure 3-11. Pan adjustment

2. Tighten the pan adjustment screw and then, if necessary, go on to adjust the tilting position.
3. Loosen the tilt adjustment screw on both sides of the lens holder, as shown in below figure, and then gently tilt the lens holder up or down to adjust the camera's tilting position. The camera allows for 90 degrees of tilt adjustment.

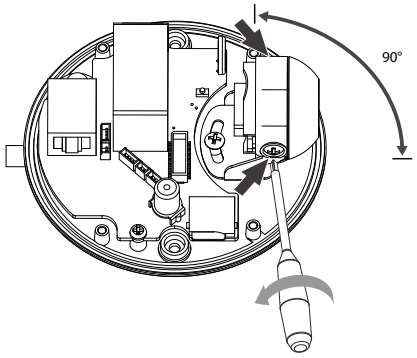


Figure 3-12. Tilt adjustment

4. Having obtained the optimal result, tighten the tilt adjustment screws and re-attach the top cover to complete the operation.

Change SD Memory Card

The camera comes with a 4GB microSD card pre-installed inside the housing. The SD memory card is user-upgradeable. The following explains how to change the SD memory card.

1. Power off the camera. Then loosen the fixing screws on the top cover with the supplied hex key and remove the top cover.
2. Locate the microSD card slot. Then push the pre-installed SD card gently to release it.

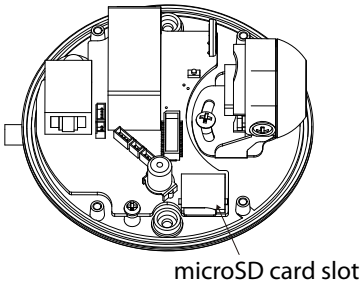


Figure 3-13. SD memory card slot

3. Pull the SD card out and insert a new one into the slot. Finally, re-install the top cover to complete the upgrade.

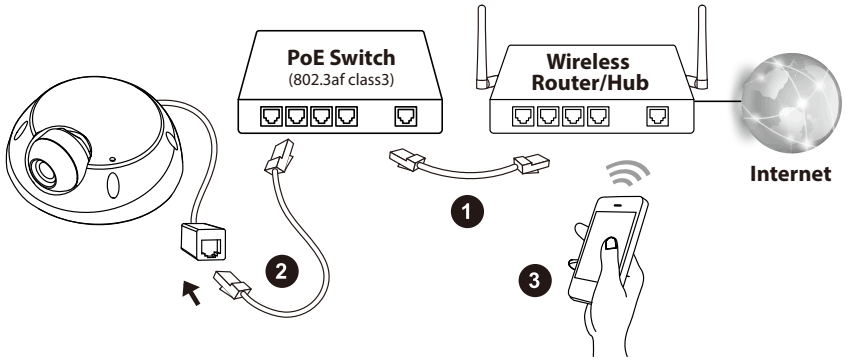
Install Camera from C4Home App

Connect the Cables

This camera can only be powered using PoE (Power-over-Ethernet), which allows electrical power and IP data to be both delivered on a single Ethernet cable. The following instructions explain ways to connect this PoE-enabeld network camera and install it from C4Home app.

Using a PoE Switch

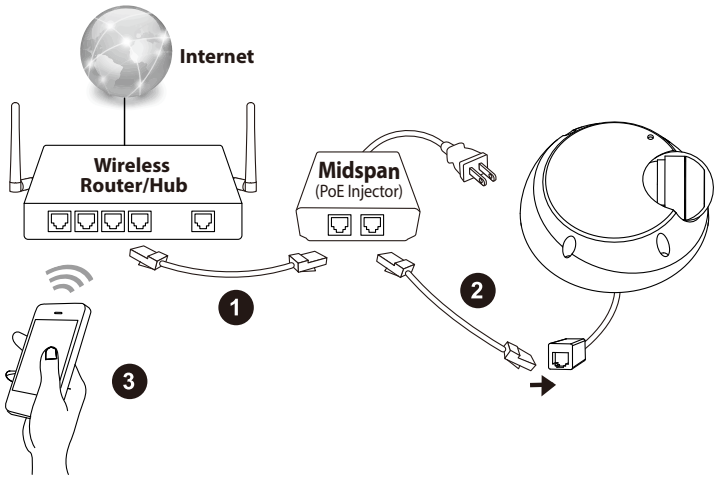
If the Ethernet ports on your network switch/router support PoE, connect your camera in the following way:



1. Ethernet cable from wireless router/hub to PoE switch/router: Connect the PoE switch/router with the wireless router/hub that has been connected to your Cable/ADSL modem for internet connecting.
2. Ethernet port of the camera: Use the RJ-45 Ethernet cable (not supplied in the package) to connect the Ethernet port of the network camera to the PoE port of your PoE switch/router.
3. Make sure your smartphone is able to go to internet via your wireless router.

Using a Non-PoE Switch

If you are using the camera with a non PoE capable network switch/router, please prepare a PoE injector (mid-span, optional) first in order to power the camera. Then connect your camera in the following way:



1. Ethernet port on PoE injector: Use a RJ-45 Ethernet cable (not supplied in the package) to connect the RJ-45 connector on PoE injector marked "IN". Then connect the wireless router/hub.
2. Ethernet port on camera: Attach a RJ-45 Ethernet cable (not supplied in the package) from the "OUT" RJ-45 connector on PoE injector to the Ethernet port of the network camera.
3. Make sure your smartphone is able to go to internet via your wireless router.

Install C4Home App and Add Camera

Make sure your smartphone is able to go to internet via your wireless router. Then download the C4Home app from Apple store or Google Play and install to your smartphone. Start C4Home app and register your personal C4Home account.
(You can scan the QR-code below on your smartphone to add C4home app.)

iPhone

Android

Login to the C4Home account and click "+" to add new camera, we provide 3 ways to add your camera:

- Scan the QR code on the Ethernet connect of camera (or the first page of this installation guide), it will automatically add your camera to the list.

- Direct input the camera ID (10 digitals under the QR code) and password (default: admin) to add your camera.
- Click "iWizard" button on add camera page to search the available network camera from your local network and setup.

Now you can watch live video of your network camera from your smartphone or tablet.

Install Camera from PC

Using a PoE Switch

If the Ethernet ports on your network switch/router support PoE, connect your camera in the following way:

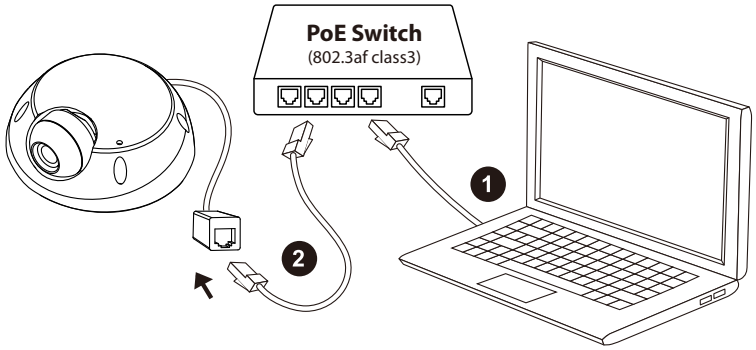


Figure 3-14. Connect the camera using PoE switch

1. **Ethernet cable from PC to PoE switch/router:** If your Ethernet cable from PC has been connected to your Cable/ADSL modem, please re-connect it to the non-PoE Ethernet port of your network switch/router.
2. **Ethernet port of the camera:** Use the bundled RJ-45 Ethernet cable to connect the Ethernet port of the network camera to the PoE port of your network switch/router.

Using a Non-PoE Switch

If you are using the camera with a non PoE capable network switch/router, please prepare a PoE injector (mid-span, not supplied) first in order to power the camera. Then connect your camera in the following way:

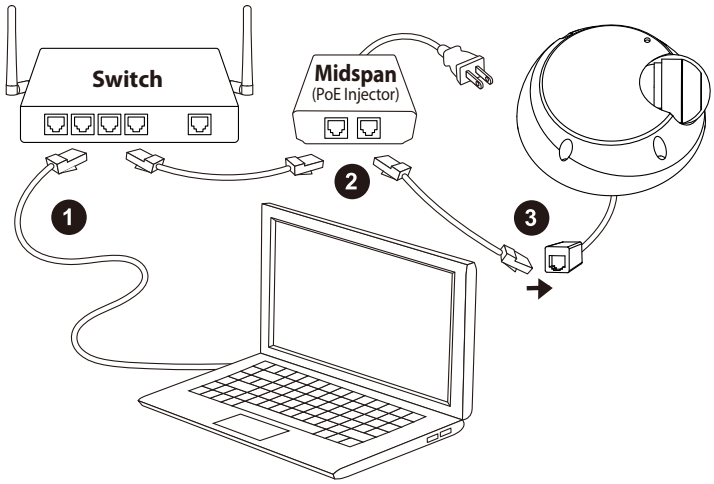


Figure 3-15. Connect the camera using PoE injector

1. **Ethernet cable from PC to switch/router:** If your Ethernet cable from PC has been connected to your Cable/ADSL modem, please re-connect it to the Ethernet port of your network switch/router.

2. **Ethernet port on PoE injector:** Use a RJ-45 Ethernet cable to connect the Ethernet port of the network switch/router to the RJ-45 connector on PoE injector marked "IN". Then connect the power of your PoE injector.
3. **Ethernet port on camera:** Attach a RJ-45 Ethernet cable from the "OUT" RJ-45 connector on PoE injector to the Ethernet port of the network camera.

Caution!
After you disconnect the camera's power while the camera is still in operation, wait for 4 seconds before powering on the camera again.

Important:
Compro PF-100 PoE injector is incompatible with Compro TN2200 network camera. See List of Compatible PoE Equipment in the appendix for the important compatibility information about TN2200.

Installing Camera Software

The software suite for your camera includes the following parts:

1. iWizard Installer and iWizard utility: For quick and convenient setup of your IP camera software/hardware in steps. Having installed the iWizard, double-click on the iWizard icon on your desktop and it will start to search the available cameras on your network.

Figure 3-16. iWizard

2. WebVUer: This provides Live View and controls via Internet Explorer or any other major web browsers.

Figure 3-17. 16-CH WebVUer

3. ComproView®: A professional PC-based surveillance software that supports up to 32 simultaneously channels and real-time recording, playback, event alerting and more.

Figure 3-18. 32-CH ComproView®

Running the iWizard Setup Utility

Before running Compro software, make sure you have the IP Camera beside you. To begin setup, insert the installation CD supplied with the camera into your CD-ROM drive, and the iWizard utility will start and guide you during the installation process of the hardware and software for your IP camera. You will be asked to select the displayed language first. Then please click on [IP Camera Setup] and select the camera you wish to install. The first step shows you how to connect the camera's cable and adjust its lens. Click [Next] twice and then refer to the following section for iWizard setup instructions.

1. The wizard searches for all available cameras on your local network. Click on a camera from connected camera list, and wait until the live video and camera information are displayed on the right side. (You can double-check the device name and the MAC ID which are printed on the serial number sticker at the back of IP camera and on the package). Then, click [Next].

Figure 3-19. Camera selection

2. The default password is *admin*. We strongly recommend you enter a new password to protect your system. (Please note down your new password) You can also click [Next] to skip this step and retain default password.

Figure 3-20. Password setup

3. Please check the camera name, date and time setting.

Figure 3-21. Camera configuration

4. Choose whether to use C4Home service to remotely access your camera. C4Home is a platform for viewing, managing and sharing network cameras over the internet. You may also use a different C4Home server by clicking on [Advanced Settings]. (Default server is www.c4home.com) (If C4Home service is enabled, iDDNS service will not be available for use on the camera.)

Figure 3-22. C4Home Setup

5. Choose to have the camera obtain IP address automatically (DHCP) or manually assign its IP address. Then set the connection port and local power line frequency settings (not available for change when C4Home service is enabled).

Figure 3-23. Device IP Obtain

6. Select the orientation of your IP camera between Wall Mount or Ceiling Mount. You can also change the orientation setting later via the camera's browser interface.

Figure 3-24. Flip Mode Selection

7. (Skip here if you didn't enable C4Home service.) You need to login to your C4Home account. If you don't have a C4Home account yet, choose to create a C4Home account and continue with account registration.

Figure 3-25. C4Home Account

8. The iWizard starts programming your camera based on your settings. Please wait patiently and do not interrupt the process.

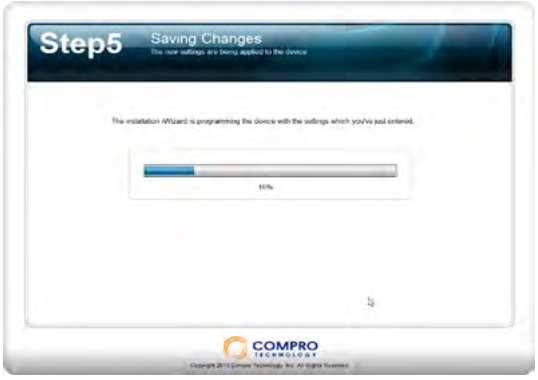


Figure 3-26. Programming camera

9. The iWizard performs system diagnosis based on your network settings and alert you for inappropriate settings (marked with a exclamation mark icon).

Figure 3-27. System diagnosis

10. The iWizard indicates the setup has been completed successfully. You can click on the URL to view the live video now. Click [Yes] if you wish you set up another camera from scratch.

Figure 3-28. Multi-camera setup

Chapter 4: Accessing the Camera

Ways of Viewing Live Video

There are a number of ways to view the live video feed from your Compro IP camera, which are as follows.

1. Use the C4Home service to access your IP camera. C4Home is a platform for viewing, managing and sharing camera feed over the Internet. Once the C4Home service has been successfully enabled, you can then use the C4Home camera viewer app, available on PC and smartphone, to view and manage all of your Compro cloud cameras. This is the easiest way to view the video of the network camera and no learning time required.
2. View the live video stream on the Internet Explorer (WebVUer), which comes with all Desktop/Laptop/Nettop/Tablet with Windows system. (Non-IE web browsers, such as FireFox and Safari, are also supported after a VLC plug-in installation.)
3. View the live video stream on the mobile web browser of your iPhone/iPod, Android phone, BlackBerry, PDA, MID or any other mobile phones with a built-in web browser. Through live Motion-JPEG video streaming, you can view your Compro IP camera while on the go. (On the camera end, the secondary video stream must be enabled; the Motion-JPEG mode only offers live viewing function.)
4. View the live video stream on a 3GPP-capable cellular phone over the internet. This is the preferred way of accessing your camera while you are away from home and have no access to a computer. However, due to some limitation of this technology, only video stream is provided in this mode. (On the camera end, the secondary video stream must be enabled.)

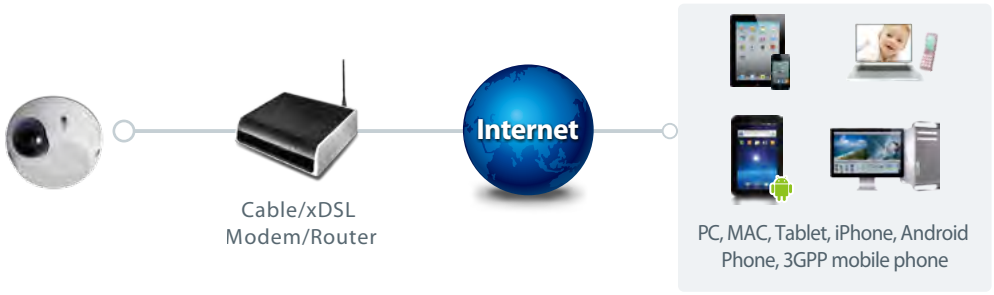


Figure 4-1. Ways of accessing camera

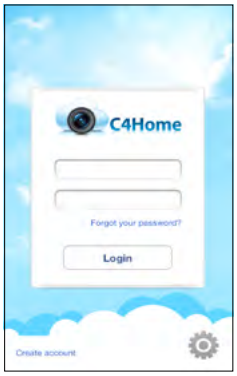
Instant Monitoring

From C4Home iPhone/Android App

When you enable and register the C4Home service, you can use the C4Home app on your iPhone, Android phone or tablet to manage and watch live video of Compro cloud network cameras.

The C4Home app is a safe and easy way to monitor your home, office and your valuable possessions from anywhere in the world. No router setup required, only needs to start your C4Home app and login with your account, you can watch live video of your network camera and manage multiple cameras from your smart-phone or tablet on hand.

C4Home Login Page



Start the C4Home app from your smartphone, you can login here with your own Account ID and Password. If you forgot your password, please click the "Forgot your password" button, the system will send the password to your register email account.

Icon	Name	Description
Create account	Create account	Here you can create the new account, please input the new account ID, password and email account for account registration.
	Setup	Here you can input your account ID, password and server address (default server: www.c4home.com) for enable/disable auto-login. And you can choose the display language here.

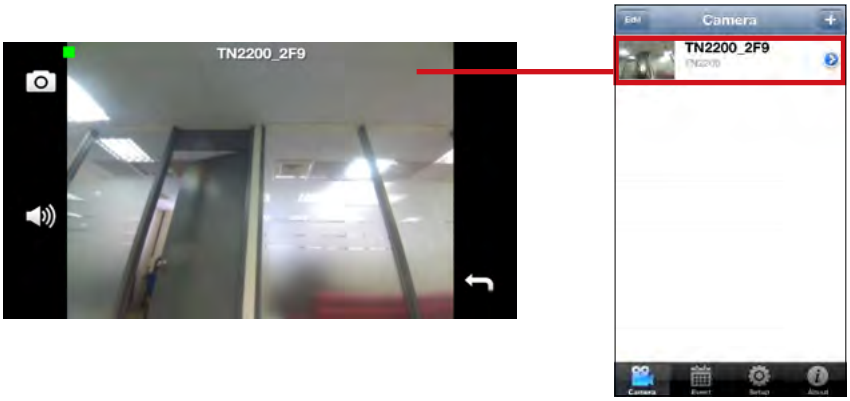
Camera Page

After login the C4Home app, you will see the camera page, here shows the camera list, you can click to watch the live video or you can click the buttons below for more features.

Icon	Name	Description
	Edit	Click here to remove the installed network camera from list.
	Add Camera	Click here to add camera to the list.
	Camera Setup	Here you can setup more details for each camera: • **Camera Settings:** Setup the camera name and password • **Stream Settings:** Seup the Codec, Resolution, Frame rate for video streaming and Enable/Disable audio and Codec for audio streaming. • **Notification Settings:** Enable/Disable motion detection and select the sensitivity level for motion detection. • **Sharing Settings:** Enable/Disable the camera sharing to others. You can add your friends' account ID to share the live video watching. • **Firmware Update:** Firmware update direct from your smartphone. • **Private Mode:** Enable/Disable private mode to protect your privacy.
	Camera Page	List all the available camera here and you can click to watch the live video.
	Event Page	List all the happened events by time, includes the camera online/offline and motion detection. You can click the listed event to watch: • **iveview:** Watch the live video of network camera. • **Snapshot Playback/Download:** Playback and download the snapshots. When the event trigger, the camera will take 3 snapshots for record and you can know what's happened. • **Video Playback/Download:** Playback and download the event video. (With microSD card installed.).
	Setup Page	Click here for basic settings of C4Home app: • **Language:** Select the display language for C4Home app. • **Stream Buffer Size:** Setup the stream buffer size for low, median or high. • **Auto Login:** Enable/Disable auto login for C4Home app. • **Push Notification:** Enable/Disable the push notification for your device. If you enable it, it will send you the push notification when event triggered.  • **Logout:** Logout the C4Home app.
	About Camera	Here will shows the version number of C4Home app and copyright information.

Note:
For complete C4Home app introduction, please refer to the C4Home user's manual on the installation CD.

Live Monitoring
In camera page, you can click the camera on the list to watch live video for monitoring.



Network connection quality indicator:
In the live video screen, the network connection quality will shows on the upper-left:
Green : The response time < 0.5 Sec.
Orange : The response time > 0.5 Sec. and < 1.0 Sec.
Red : The response time > 1.0 Sec.

On the buttom of live video screen , you can click the camera icon to take snapshot to your device, turn on/mute the audio from microphone of network camera, and back to the camera list.

From Android Phone/Tablet App

The Android system C4Home app is almost the same features with iOS version, the Android version app also provide "Enable/Disable Vibrate" and "Refresh Media Store" in app setup page. And also, the Android version app support 4 camera monitoring at one screen as below.

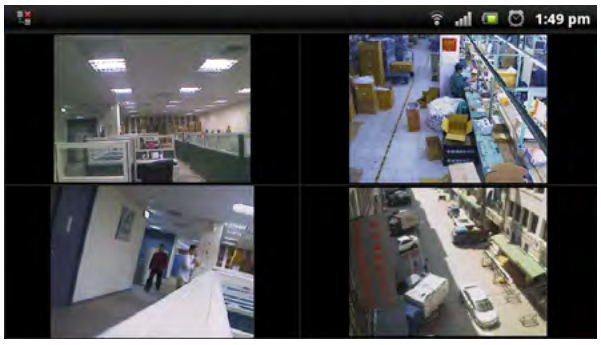


Figure 4-2. C4Home app in Android phone

From C4Home Website

If you already enable the C4Home service in the installation procedure, you can open the Internet Explorer on your PC and login to the C4Home website (www.c4home.com), than you can manage your network cameras, watch live video and share video with your friends. When you login the C4Home website in the first time, the Internet Explorer will remind you to install the ActiveX components, please follow the instruction to install it. After installed the ActiveX, please add the www.c4home.com to your safe website list in Internet Explorer.

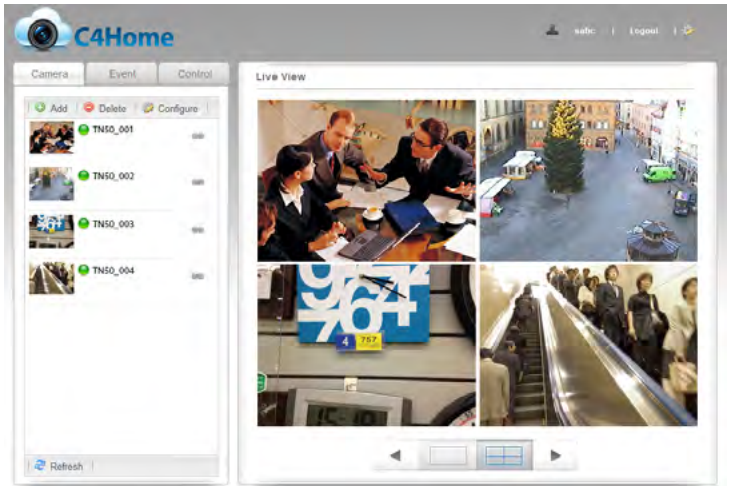


Figure 4-3. Viewing from C4Home Website

Caution:
The ActiveX components of C4Home™ website only support 32-bits Internet Explorer. If you are using the 64-bits operation system, please use the 32-bits Internet Explorer for viewing network cameras on your PC.

Accessing via PC Web Browser

User can check the current condition of the monitored area via Internet Explorer which comes with all Windows-based computer system. Please refer to the following steps to watch live view on WebVUer:

1. Open the Internet Explorer.
2. Enter the camera's IP address in the address bar. (e.g. 192.168.0.100). If you don't know the IP address of your camera, use Compro iWizard to scan for your camera on your LAN network.
3. A dialog box that requests the user name and password appears; enter a valid user name and password, and then press OK. The default user name and password are both `admin.'

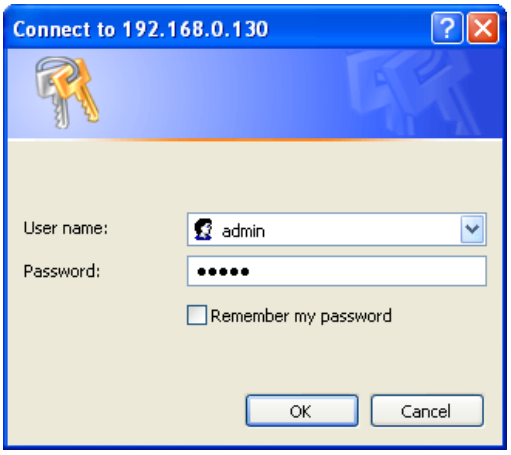


Figure 4-4. Login dialog box

Note:
If you forget your user name and password, you need to reset your camera back to factory default settings (see Troubleshooting chapter).

4. After valid user name and password are entered, Internet Explorer will prompt the installation of camera software from `Compro technology, Inc.'
5. Click on the warning message and choose to install the ActiveX.

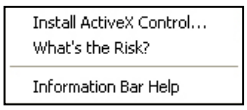


Figure 4-5. Installing Compro ActiveX

6. And then the reconfirmation dialog box will come up. Please press [Install] to install the `ComproClientActiveX.cab' on your system.

Note:
Compro ActiveX components only support 32-bit Internet Explorer. Hence, if the viewing computer system is running 64-bit version of Windows, the 32-bit version of Internet Explorer must still be used to access the camera.

7. Meanwhile, the Windows Security Alert dialog box may appear. Please click [Unblock] to unblock it from firewall.

Figure 4-6. Unblocking application

8. Now you can start using WebVUer on Internet Explorer to watch live video and manage your network camera.

Figure 4-7. Live view

Note:
If your IP camera falls behind a firewall, you will need to enable ports 80 and 554 (default HTTP/RTSP port used by the camera) in your firewall and link them to the internal IP address of the camera. Should you have more than one IP cameras, please increase the value of the above port by 1, e.g. the second camera will have port 81 and 555. Please refer to the manual of your router or firewall.

Accessing via M-JPEG Mode

As long as your handset comes with a built-in web browser, you can use it to view the live video feed in M-JPEG format (video only). Viewing of M-JPEG video stream is supported on popular smartphones, such as iPhone or Android phone, as well as on a variety of mobile Internet devices such as Laptop, Tablet, PDA, Nettop, MID, etc. with built-in web browser.

Platforms and supported web browsers are as follows:

- Windows: IE, Google Chrome, Safari, FireFox (non-IE browsers require VLC plug-in)
- Linux: FireFox
- Mobile Device: iPhone, iPod Touch, BlackBerry, Android, WM and major-brand mobile phones.

However, before you can successfully view your camera video from a remote location over the Internet, first you need to configure port forwarding on the network router to which your IP camera is connected (see the remote viewing section in the Troubleshooting chapter). Afterwards, follow the steps below to enable the camera's secondary video stream for viewing on mobile devices.

1. Use a PC to log on to the camera, and go to [Setup] > [Video Settings], and check the [Enable 2nd Stream (include 3GPP)] box to enable the secondary video stream.
2. For the Stream-2, set the Codec as "Motion-JPEG."
3. Launch the web browser on your iPhone, Android phone, or any other mobile Internet devices, and enter "(IP-address)/mjpeg.html" into the address field of your phone's web browser to watch live video on your mobile device. You can also click on the link at the bottom of the Video Settings page to preview the M-JPEG stream on your PC.

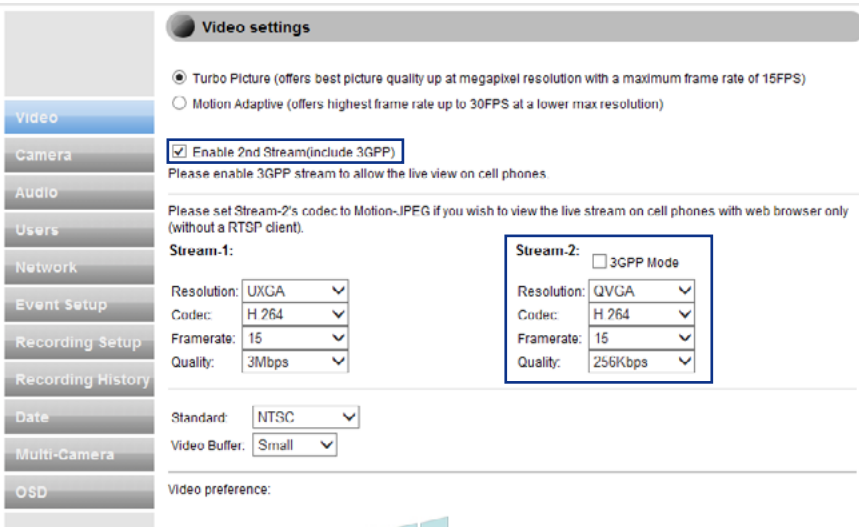


Figure 4-8. Enable 2nd stream

Accessing via 3GPP Mobile Phone

You can access your IP camera via 3GPP-compatible mobile phones provided that the IP camera has a stable Internet connection and the mobile device has a good connection to GPRS or to 3G network. There are several prerequisites that need to be met before using the 3GPP function successfully.

1. User should turn on the 2nd stream of the IP camera and set the resolution as QQVGA, FPS as 5, codec as MPEG-4 and select a medium bit rate for Quality. In addition, after enabling the 2nd stream, you will notice a drop in the frame rate for the primary stream. This is a normal behavior since the camera system has to process two streams instead of just one.
2. User needs to enable DDNS function and obtain a valid Dynamic DNS (DDNS) address as detailed in earlier sections of this manual.
3. Ensure that an active internet connection is available for both the IP camera and the intended mobile phone.
4. Port forwarding on the network router to which your IP camera is connected must be configured properly in order to enable remote viewing on your IP camera.

Having taken above actions, enter the camera's RTSP streaming address into the address field of your mobile web browser or streaming software in order to view the live image. For example, enter "rtsp://ipcamera-ip/medias2" (the "ipcamera-ip" is the DDNS address that you've obtained in the installation process).

Note:
Compro does not guarantee the successful viewing of live video on every 3GPP-compatible cell phone. You may also need to consult with the mobile network service provider about the usage and availability of 3GPP format.

Chapter 5: Live View

Page Layout

On the first page, you can see the basic control panel at the top and on the left-hand side, and the live video on the right-hand side. Click on the ▲ icon to hide or show the control panels.

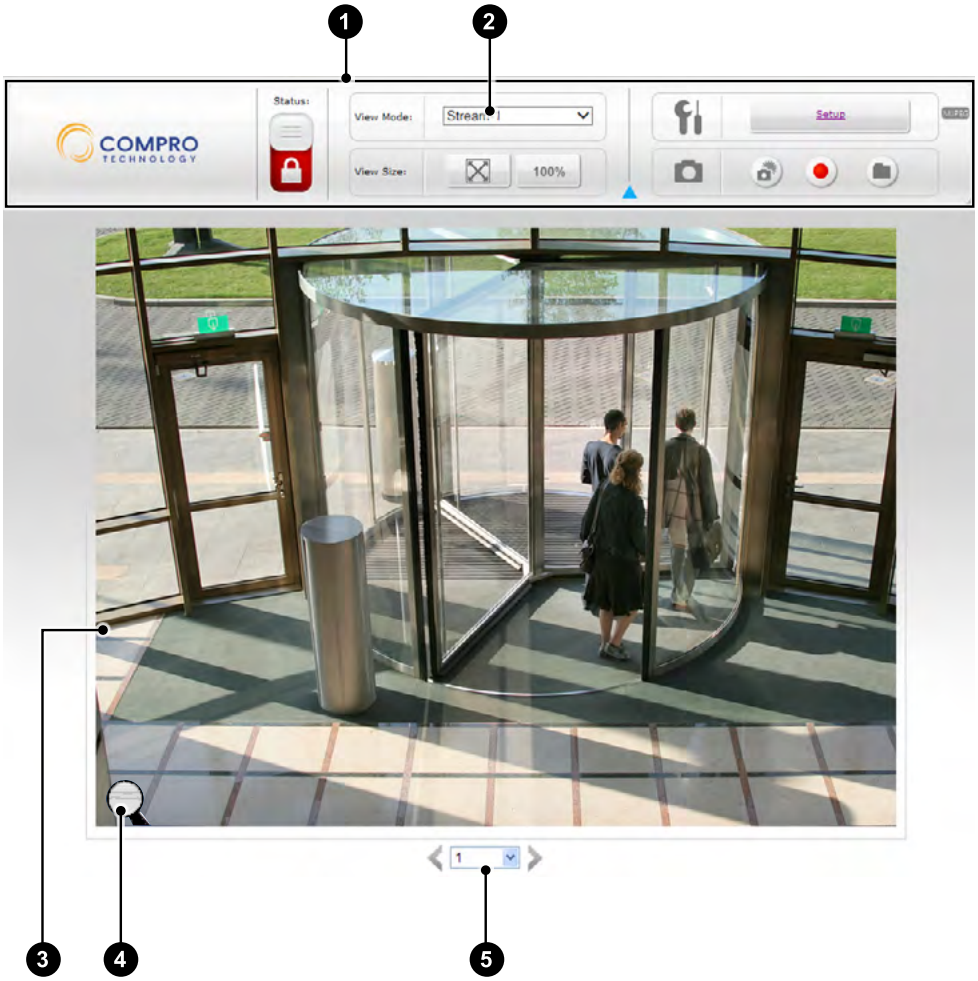


Figure 5-1. Layout of LiveView page

1. **Top control panel** – This gives you access to video settings.
2. **Video stream selector** – You can switch between Stream-1 and Stream-2, or switch to multi-channel mode or auto scan mode. (Stream-2 can be enabled and configured in video settings.)
3. **Live video panel –** Live video feed from the camera. You can switch to full-screen mode by right-clicking on the video pane and select "Fullscreen".
4. **Magnifier icon (digital zoom)** – Click on the magnifier icon to bring up the digital zoom control window.
5. **Channel selector** – Select a channel from the drop-down list, or click on the arrow icon to switch to next/previous channel. Up to 16 cameras can be added to your channel list, and using the "Multiple" video mode allows you to monitor 4 channels at the same time.

Icons on Live View Page

Icons seen on the top control panel:

Icon	Name	Description
	Private mode switch	You can switch the private mode on/off to protect your privacy.
	Fit Browser	One of the view size button; the **Fit Browser** button resizes the live video pane to fit browser window size.
	Actual Size	One of the view size button; the **Actual Size** button resizes the live video pane to original size.
	Setup	Click the [**Setup**] button next to the icon to access the main setup page of your camera.
	Snapshot	Click the **Snapshot** button to take a snapshot from live view. A preview window will pop up upon hitting this button (the size of the preview image is forced as 320 by 240 pixels). Right-click on the preview image and choose 'Save Image As' to save the snapshot to your PC (the resolution of the saved snapshot depends on the video resolution you configured in the'video settings' page).
	Recording	Record live video by pressing the [**Record**] button. (If your computer can not play .mkv file format, please download and install VLC media player or KMPlayer from the Internet.)
	Open File	**Open** a file browser to search and play back video files captured by the camera. (File format is .mkv)

Other icons seen on this page:

Icon	Name	Description
	Digital Zoom	**Digital Zoom** button. Available zoom factor: 1~10x.
	Switch Channel	Click on the left/right arrow to **Switch Channel**.

Enable Digital Zoom

To enable the digital zoom feature:

1. Click on the magnifier icon located on the lower-left corner of real-time video display, and then the digital zoom control window will pop up.
2. Check [Enable Digital Zoom] option and set desired zoom ratio by dragging the adjustment bar. Then set the area to be enlarged by dragging the black square shown on preview window. Click on the [X] button shown above or press [Esc] key to save the changes and/or close the preview window

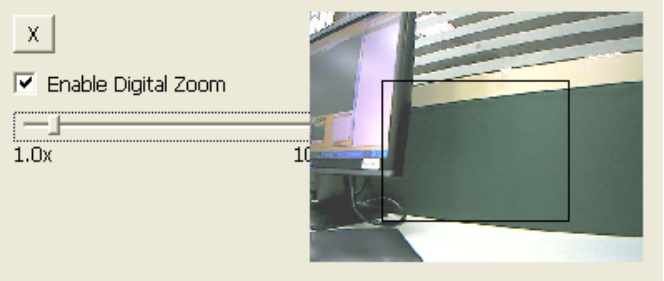


Figure 5-2. Digital zoom window

Chapter 6: Configuration

Main Setup Page

The main setup screen consists of all the basic settings options. To access the main setup page, click on the Setup button seen at the top-right location in the live view screen. Then the setup page as shown in the picture below will be displayed. You can configure the detailed settings of your IP camera here.

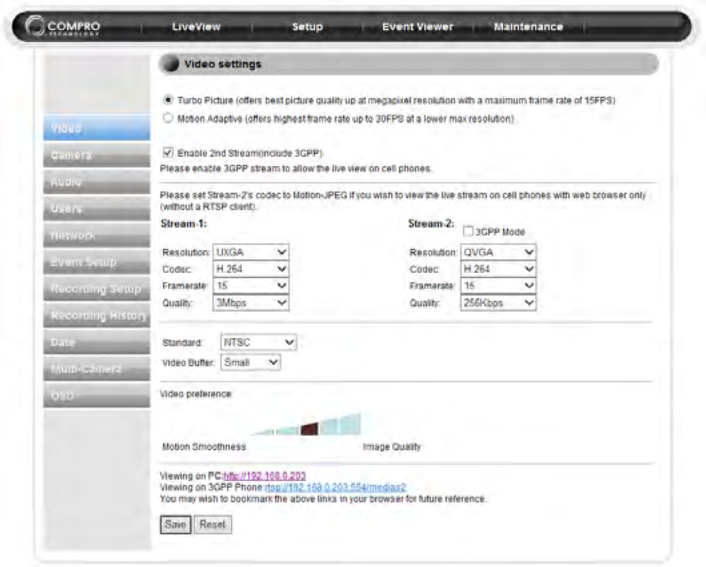


Figure 6-1. Main setup page

You also can go back to live view screen by choosing LiveView from the top menu. The top menu also allows you to go to the Event Viewer and Maintenance of the camera. The main setup menu on the left contains several parts.

Video Settings

Here you can configure the settings for video stream.

Figure 6-2. Video Settings page

Video Mode

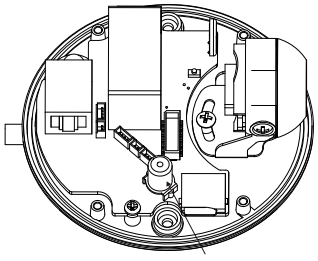
- **Turbo picture** - This mode will provide you with the best video quality, but max. frame rate will be limited to 15.
- **Motion adaptive** - This mode will provide up to 30 FPS at maximum 640 by 480 resolution.

Stream Setting

You can change the setting of resolution, codec, frame rate, and quality for the video stream. If you need to watch the live video on your mobile phone or PDA, please check the [Enable 2nd stream (include 3GPP)] checkbox to enable the secondary video stream, and then the stream setting for the 2nd stream will be displayed. Check [3GPP Mode] box to enable the viewing of secondary stream on a 3GPP-capable cell phone.

Standard

If you have connected the camera's video output to the video input of your TV, select analog television system used in your region (NTSC or PAL). The NTSC system is mainly used in North America, South America, and some Asian countries. The PAL system is mostly used in Europe and many other countries. Image won't be displayed properly if the wrong system is selected.



Composite Video Output

Figure 6-3. Composite video output of this camera

Video Buffer

Here it allows you to adjust the video buffer size. If you experience occasional network congestion during live viewing, using a small or large buffer setting, instead of the standard setting, may improve video smoothness. But the larger the buffer size is, the higher the video latency will be.

Video Preference

The video preference bar provides adjustment over the interval between each "I-frame" in the compressed MPEG-4/H.264 video stream (IP55 does not support H.264 compression). In a sequence of images, there are inserted I-frames that can show the complete representation of the picture one sees at a particular moment. Between I-frames are what are called P-frames (which can be decompressed using the data from preceding frames) and B-frames (which utilizes the data from the preceding and following frames for achieving higher compression ratio). In essence, the shorter the interval between the I-frames is, the higher the video quality will be (motion in video will also be smoother). However, shorter I-frame interval will raise the bandwidth consumption of the video stream and lead to larger file size of the recorded clips.

Also, if you have set up the iDDNS service during the installation of IP camera, you can directly enter the web address of your IP camera into a web browser's address field and don't bother with remembering the IP address. (In this example below, replace the "compromk" with what you entered in the installation process.)

Viewing on PC : http://compromk.iDDNS.org/
Viewing on 3GPP Phone : rtsp://compromk.iDDNS.org/medias2
You may wish to bookmark the above links in your browser for future reference.

Camera Settings

Here you can control the image color and related settings. All the changes you have made with regard to video properties will be reflected in the preview window after you click [Save].

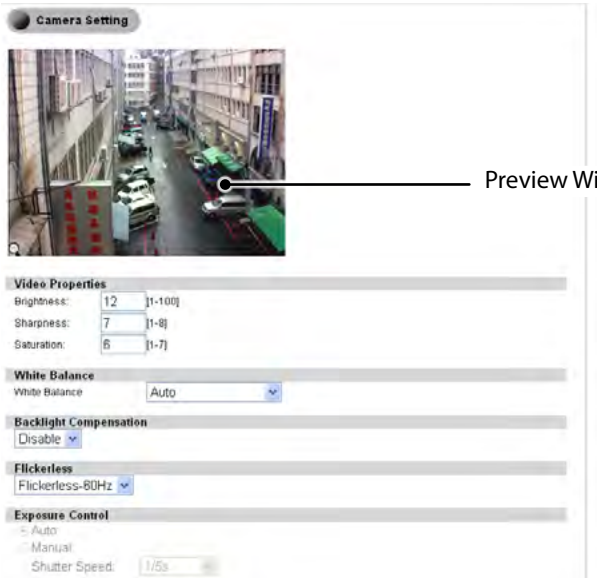


Figure 6-4. Camera setting page

Video Properties

Here you can adjust the Brightness, Sharpness and Saturation on your IP camera.

White Balance

This controls the camera's white balance function. Different light source has different colors. White balance function can make the dominant color light in a scene appear as normal white light no matter what the true color of the light source is. Available selection: Auto (default), Sunny, Cloudy, Fluorescent Lamp, and Incandescent Lamp.

Backlight Compensation

This lets you turn on or turn off backlight compensation and select the strength of the backlight compensation, which when enabled can make the subject appear clearer in the image when the backlight is too bright or the subject is too dark. (Default: Disabled)

Flickerless

Here controls the flickerless mode: 60 (default) or 50 Hz.

Exposure Control

This allows you to control the exposure time of the camera, which affects how much light is exposed to the sensor. Default: Auto mode. You can manually set the shutter speed within the range of 1/5s to 1/16000s to suit your lighting conditions. In Auto mode, the gain level is automatically determined by the camera under normal lighting condition. When [Auto] is selected and low environmental lighting is detected, the shutter speed and gain level will be set as 1/30s and 7.5 respectively unless you have enabled the Low Light Behavior option and manually specified exposure and gain value.

Low Light Behavior

Switching on the Low Light Behavior will produce better and clearer image when the camera detects low environment lighting. When the Exposure Control is set as [manual], the Low Light Behavior control will be dimmed and inaccessible. Here the default setting is [Off], and the shutter speed and gain level will be set as 1/30s and 7.5 by default on the condition that low environment lighting is detected. Switching on the low light behavior allows you to manually set the shutter speed and gain level in the case of low environment lighting. There are two adjustable parameters for low light behavior.

- **Maximum Exposure** - Adjust the shutter speed by selecting between "Disable" and "30 fps". Lower frame rate means longer exposure time, which allows more light to be captured by the image sensor. However if there is fast motion in the scene, increased exposure time will result in motion blurs in the captured image. Choosing [Disable] will use the default value of max. exposure and max. gain in low-light setting, which are 30 fps and 7.5 respectively.
- **Maximum Gain** - This allows you to adjust the gain level between 1 and 8.5 dB. Higher gain level increases the brightness of the picture but also increases the noise in the picture.

Embed Text and Image

You can embed text and/or image at 4 different locations on the live screen. (Upper Left, Upper Right, Lower Left, Lower Right). To embed an image, click on the Upload Image text link and choose a suitable image (limited to JPEG/BMP, 100x30 pixels, 128KB.) To remove an embedded image, press the [Clear] button.

Flip Mode

Enabling this option will flip the image vertically, making the image appear rotated 180 degrees. Enable this

Audio Settings

Here you can choose to enable or disable the audio and also adjust the volume. The Stream-2 audio is only available for adjustment when you turn on the 2nd Stream and check its 3GPP mode option under video settings.

Figure 6-5. Audio settings page

User Settings

Here you can add, modify or remove viewers/administrators. The viewers are only allowed to view live video and can't change any of the camera settings. On the flip side, the administrators have the rights to make any changes.

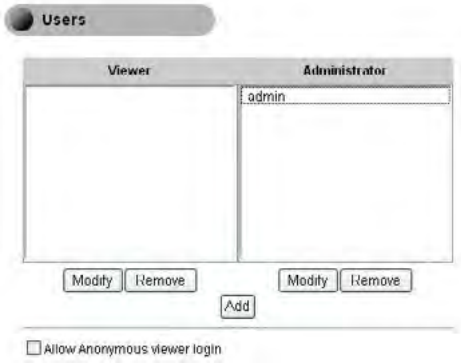


Figure 6-6. Users Setting

- **Modify/Remove** - Click here to Modify or Remove an existing viewer.
- **Add** - Click here to add a new viewer or administrator
- **Allow anonymous login** - Click here to allow anonymous viewer login without requiring user name and password, but enabling this will only allow them to view the live video.

When you add a new user, you need to provide the information on user name, password and group type.

Figure 6-7. Adding/Modifying user

Network Settings

Here you can check your network settings and adjust the detailed settings.

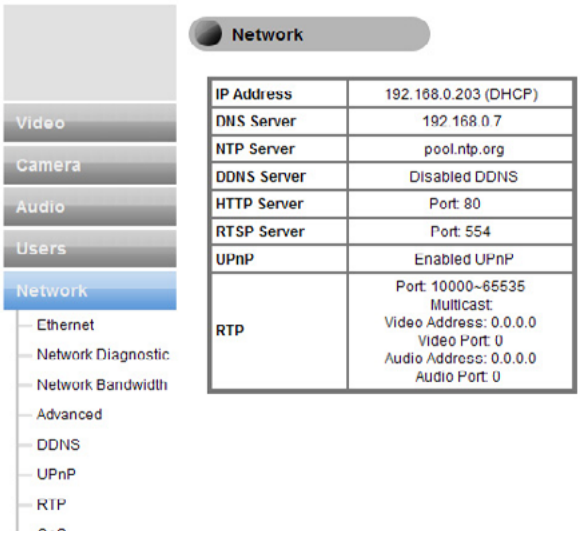


Figure 6-8. Network settings

Ethernet

Choose the IP address configuration. The camera can obtain IP address via DHCP (recommended), use the manually inputted static IP address, or obtain IP address via PPPoE for which you need to provide valid user name and password.

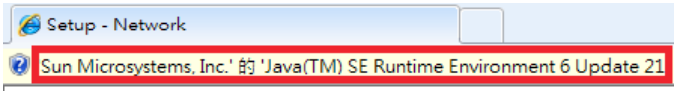
Network Diagnostic

Here you can run the diagnostic tool for your current network settings and it will show error messages if any anomaly is detected. For further information on error messages, please refer to the FAQ section at www.comprosecurity.com for more information.

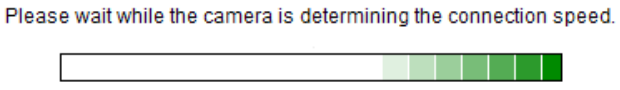
Network Bandwidth

This automatic network connection speed test is to help users better define appropriate video bit rate for their applications. To perform network bandwidth test:

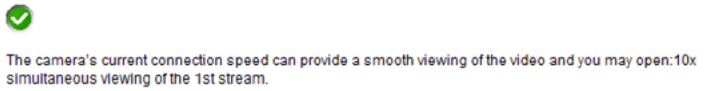
1. Go to [Setup] > [Network], and click on [Network Bandwidth] located on the left menu to start.
2. Wait for Internet Explorer to prompt for the installation of Java plug-in. Then click on the text to accept.



3. Camera begins testing connection speed.



4. Once speed diagnostics is done, camera will advise on current network connection speed. See below example:



The message indicates that currently connected network has the network capacity to support up to 10 network cameras of identical bit rate settings (either on Stream 1 or Stream 2). If the message shows a less favorable result, go to [Setup] > [Video] to select a lower current video bit rate setting

Advanced

Adjust the advanced network settings here.

DNS server

Set the DNS server address to be via DHCP or choose to use user-specified DNS address.

NTP Configuration

Set the NTP (Network Time Protocol) server address to ensure the clock of the camera system is synchronized to show accurate time. To synchronize camera clock via NTP server, choose either to obtain NTP server address via DHCP server whose address needs to be provided manually, or to use an external/public NTP server whose default address is set as pool.ntp.org.

HTTP server

Set the HTTP port for your IP camera to be viewed and controlled over the Internet. The default port is 80. Valid port numbers are between 1 and 32767. If you need to use port forwarding, please refer to the Port Forwarding section in this manual.

RTSP server

Set the RTSP (Real-Time Streaming Protocol) port for your IP camera to enable the support of 3GPP streaming for mobile phones. Default: 554. If you need to use port forwarding, please refer to the trouble-shooting section for port forwarding setup.

DDNS

Click here to enable the DDNS (Dynamic Domain Name Service) service if you are using floating/dynamic IP and want to tie your camera's current IP address to a domain name. And instead of remembering a string of IP address, you can use the easier-to-remember domain name to access your camera over the Internet. Compro iDDNS service is recommended here for use. If you already have an account with DynDNS or no-ip, you can also input its domain name here for easier access to your IP camera.

Note:
Compro's iDDNS server will automatically delete addresses that haven't been updated for more than 3 months.

UPnP

Check here to enable/disable the UPnP function on your IP camera installed on your local network. Also, you can change the device name here. If your operating system supports Universal Plug and Play (UPnP™) and DHCP is in use on current network, this Compro network camera will be automatically detected and added to the My Network Places in your Windows. If you want to use the IGD (Internet Gateway Device) protocol on your IP camera, please check the [Enable IGD] box to enable it.

Note:
If you want to enable the UPnP™ service on your Windows, please execute the "Add or Remove Programs" item found in "Control Panel", and after "Add or Remove Programs" window appears, click on "Add/Remove Windows Components" and then double-click on "Networking Services" item and check "UPnP User Interface" box and proceed to install the component.

RTP

If you want to broadcast video using RTP (Real-time Transport Protocol), you can set up the port range, video/audio address and port number here.

QoS

QoS (Quality of Service) helps prioritize network traffic and reserve necessary bandwidth resource for critical applications. Here you can customize the packet priority for different types of packet data (video/audio stream, event/alarm, web page) by specifying a different value for the DSCP (Differentiated Services Code Point) field in their IP packets. The DSCP value that represents the top priority is 46. The default DSCP value is 0, which indicates normal priority (meaning not using QoS).

The following is a table of the recommended DSCP values. The drop precedence indicates the order in which IP packets shall be dropped when the network is congested. Packets of higher drop precedence will be dropped first. Each class in the table is assigned a certain amount of network bandwidth.

Drop Precedence	Class1	Class2	Class3	Class4
High drop precedence (3)	10	18	26	34
Medium drop precedence (2)	12	20	28	36
Low drop precedence (1)	14	22	30	38

Table 6-1. Recommended DSCP values

Important:
For the QoS function to work as it should, all the switches/routers in your network environment must also support and enable QoS.

Event Setup

When an event happens, like detected motion, a snapshot can be instantly sent to your E-mail account, ftp server, image server, notification server, HTTP server, or SMS server to warn you about what's happened. In order to properly set up the event function, you must:

1. First set up the event server based on your needs: E-mail, FTP, Image or ComproView® Notification.
2. Once the event servers are configured, you can then go to the trigger setup page to create an event trigger and the event action(s) in response.
3. In the motion detection page, click and drag on the preview image to create a detection region and then click [Save].

Event Server Setup

Here provides the configurations of 6 different event servers including E-mail, FTP, Image or ComproView® Notify, HTTP, and SMS. Please click on the event server you want to configure and provide necessary information.

Email server

Email server supports standard SMTP on SSL-protected webmail platforms such as Hotmail (Windows Live) and Google Mail (Gmail). To use this function, go to [Event Server Setup] > [Email Event Server Setup], and enter the SMTP server address and port respectively. Then enter your user name and password, and the E-mail subject as you like. As of August 2010, SMTP and SSL settings for Hotmail and Gmail are as follows:

Platform	SMTP Server	Port (for SSL)
Hotmail	smtp.live.com	587
Google Mail	smtp.gmail.com	465

Table 6-2. Webmail setting

For [Authentication Method], select [Login]. Enter a complete email address into sender/receiver field: xxxx@xxxx.com. Other SSL webmail platforms have not been tested.

FTP server

Here it provides the settings of the FTP server that can be used to store event snapshots taken by the camera when an event is triggered. To start saving snapshots to a FTP server, click on the text link to set up the FTP server. Ensure that you have put in correct server information before saving the changes. You may try using the default FTP port number, 21, if you don't know the server's port number. After that, set up the image server and then go ahead to create an event trigger and choose "FTP" as one of the event actions. (Depending on your network environment, it may take a certain amount of time to upload snapshots to the FTP server.)

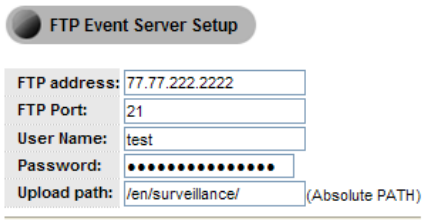


Figure 6-9. FTP server setup example

Image server

This page allows you define the naming rules of the snapshots taken by the camera and saved to the server or SD memory card when an event is triggered.

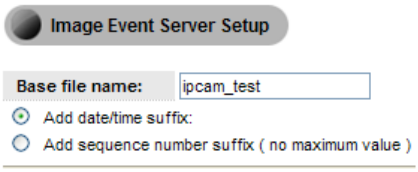


Figure 6-10. Image server setup example

Notify server

This function is meant for integration with ComproView®, which is 32-channel video management software. Here you put in the IP address of a PC running the ComproView® program, and then you set up event detection and event trigger, and choose "Notification" as an event action. Later when an event is triggered, the camera can notify the PC running ComproView® that an event has been triggered, and the ComproView® can then sound alarms, start recording, etc., in response. The advantage of using this function is that it allows you to move some workload of doing video analytics from the PC running ComproView® to the edge devices such as IP cameras. So the video analytics and event detection would not take up too many CPU resources on the PC running video management software like ComproView®.

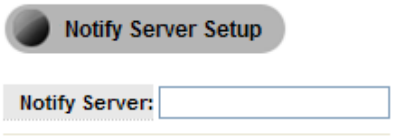


Figure 6-11. Notify server setup

HTTP server

If available, enter the address of your NVR's HTTP server. The HTTP URL entered here is meant for the camera to use HTTP protocol to send a notification message to your network video recorder's HTTP server when unusual events are detected by the camera. The NVR can then respond to the notification message.

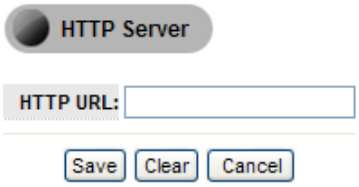


Figure 6-12. HTTP server setup

SMS server

Here it provides the configuration for SMS notification feature that allows the camera to send a SMS (Short Message Service) alert message to one or more pre-defined recipients when a pre-defined event scenario is being triggered. This feature does not require additional hardware GPRS modem and SIM card installed. Users only need to first apply an account with a third-party, web-based SMS gateway service provider. To properly configure SMS server:

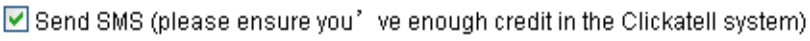
1. Under [Setup] > [Event Setup] > [Event Server Setup], click on [SMS server] to start configuration.
2. Provide the required data for the following field:

Field	Description
Service provider	Default: Clickatell
User name	User name registered at Clickatell
API ID	API ID provided by Clicktatell
Target country	The country code for recipient's mobile phone number
Target cell phone	Recipient's mobile phone number. Enter only one recipient number in each field.

Table 6-3. SMS server setting

   If you do not have a Clickatell account yet, please visit [www.clickatell.com], and click [SIGN UP]. Then go ahead to sign up to the "Clickatell Central (API)" service and follow Clickatell's online instructions to obtain an API ID.
3. Choose [Next] to save the setting.
4. Customize the SMS message content if wanted. Choose [Next].
5. To receive a test message, click on [Send me a SMS message to the SMS Gateway]. Or choose [Finish] to save the configuration.
6. To enable SMS notification, go to [Setup] > [Event Setup], and click on [Trigger Setup] to create a new

event trigger or modify an existing one. Then under [Event Actions], check [Send SMS] and choose [Finish]. Note that you must have enough credit at Clickatell in order to send SMS message.



Trigger Setup

You can create, modify, or delete event triggers and set the trigger mechanism to be by schedule, motion/audio detection, or tampering/loitering detection (available types of event trigger depend on camera support). To create a new event trigger, press [Create] and select an event trigger from the "Event Trigger" list.

When creating an event trigger by Schedule, you can set up scheduled time and period. When setting event trigger by Motion Detection, you can select the trigger area defined in the "Motion Detection" setup. To create an event based on tampering detection or loitering detection, select "Camera Tampering Detection" or "Loitering Detection" from the "Event Trigger" list.

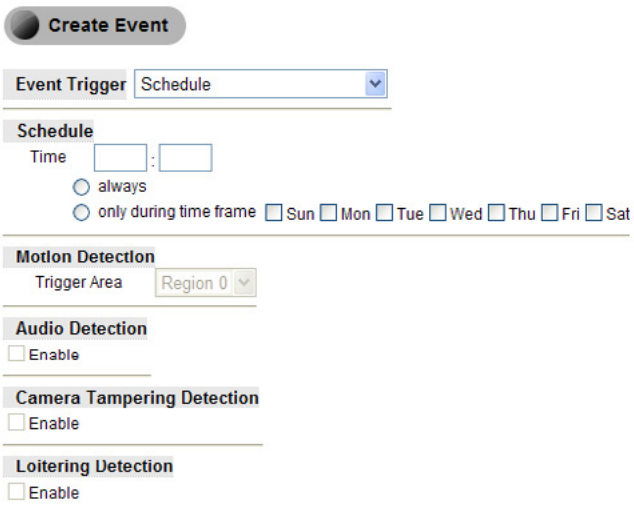


Figure 6-13. Creating events

After finishing event trigger setup, click [Next] to select event actions so your camera will take snapshots, send e-mails, upload images to ftp, or etc.

Note:
If you like to create an event trigger based on motion detection, you must configure a motion detection region first in "Motion Detection" setup.

Motion Detection Setup

Motion detection function provides a selection of 3 regions for detection. You can directly click and drag on the preview screen to set a detection region. Prior to that, please select the region (0, 1 or 2) and the sensitivity level (S1: Lowest, S2: Low, S3: Medium, S4: High, S5: Highest) from their drop down list. Press [Save] button for the settings to take effect.

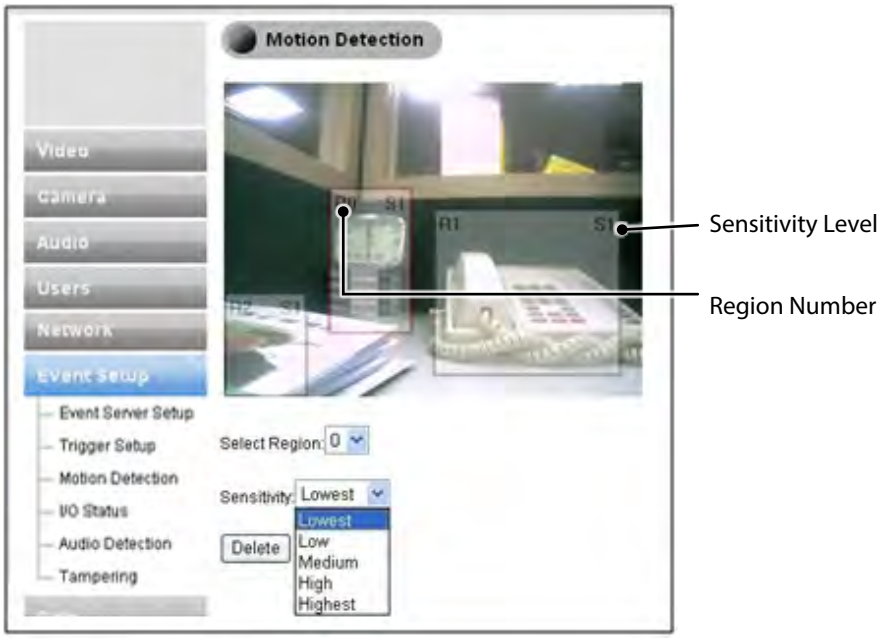


Figure 6-14. Motion detection setting

If you want to delete an existing motion detection region, please select the region number and click [Delete] to delete it.

Note:
If you want to record video onto SD card whenever motion in the scene is detected, you need to set at least a motion detection region before setting up event-based recording under Recording Setup.

Audio Detection

Configure the sensitivity level in audio detection used by event trigger. Available options: low, medium, high. The audio detection function on this IP camera works by measuring the volume level. Each different sensitivity stands for a particular threshold of triggering.

Sensitivity	Threshold of Triggering
Low	Approx. 65~70 dB
Medium	Approx. 80~85 dB
High	Approx. 100~105 dB

Recording Setup

In addition to the capability of storing event snapshots to local SD Card slot (Pre-installed 4GB card), this camera also supports storage of video clips (audio may be included if enabled) to the local storage device. To configure the recording function, go to the main setup page and click [Recording Setup]. Then follow the steps below.

1. Recording Setting: Here it displays the status of your SD card among other options. Click [Next] to proceed.

SD Card Status	Status verification
SD Card Capacity	Show available and total space in the card
Format	Click to format SD card
Enable Recording during network failure	Check to allow forced recording to SD card when network connection fails

Table 6-4. SD card setup

2. Recording Setup: Click on [Next] to setup recording methods: Event-based or Scheduled.
   - **Event-based Recording**: Records when motion, or audio (or any other available types of event) are triggered (multiple choices). Recording length: 60~3,600 sec, default 60 sec.
   - **Schedule Recording**: Allows non-stop recording for selected weekday(s) and start/end time.
   - **Disable Recording**: Turns off recording function.
3. Afterwards, to play back recordings that have been made, go to [Setup], and click on [Recording History] located on the left menu.

Important:
If you want to record video clips of detected motion to SD card, you need to set at least a motion detection region before setting up event-based recording under Recording Setup.

Recording History

Recording History lets you manage the video clips that have been recorded and stored on SD card by the camera. You will also see a playback menu as shown below.

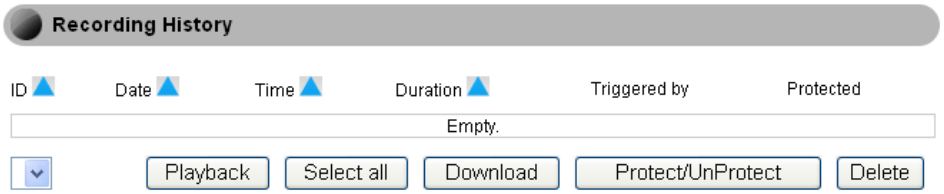


Figure 6-15. Recording history

To play a video clip, first select a video clip on the list and press [Playback]. (File format: AVI)

Function Key	Description
Playback	Click to download then playback
Download	Click to download the video clip on your PC
Protect/Unprotect	Selected clip(s) will never be erased
Select All / Deselect / Delete	File management

Table 6-5. Management of recording history

Date Setup

Here it displays the current time information stored in your IP camera, and you can set up the Time Zone for your current region or country, obtain time information from NTP server, and synchronize the clock of your

camera system with that of your PC, or manually adjust system clock.

Multi-Camera

Here you can add, modify, or delete additional IP cameras on your camera list, and later switch between camera channels listed here on the LiveView screen. When you add a new IP camera, you need to input the required information into the IP address, user name, and password field (port numbers may be required if they have been set differently). After pressing the [Save] button, you will see the status of the cameras on the list. To modify an existing camera, simply choose a camera from the list and click [Modify].

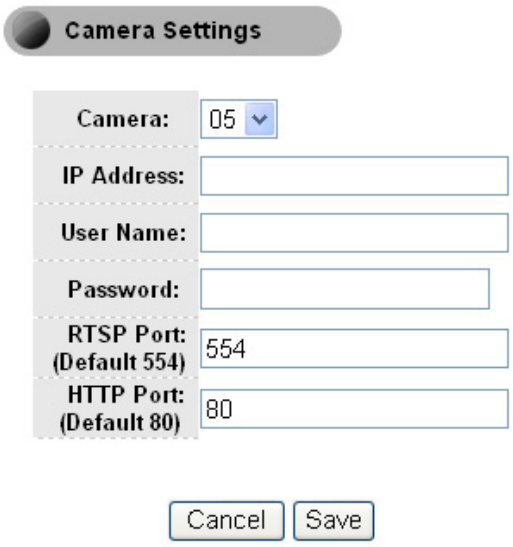


Figure 6-16. Multi-Camera setting

OSD Setting

Here you can enable/disable the On-Screen Display on the video display. It's easier to know when the event happened. You can select the OSD font, font size, font color, background color, OSD position on video Stream-1 or Stream-2, and type in the text you want to shown on the video display.

Chapter 7: Event Viewer

Here it displays the history of past events successfully triggered by motion, or schedule (the available types of event trigger depend on camera support). Click on any type of event trigger to view its history.

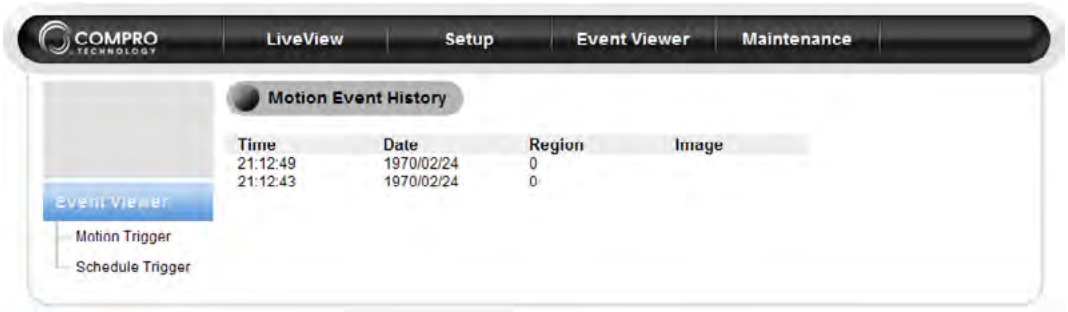


Figure 7-1. Event Viewer

Chapter 8: Maintenance

Here it provides the current information about your IP camera and the access to history log as well as system maintenance functions.

Information

Here you can check the firmware version as well as various settings of your IP camera.

Log

Here you can check the system log of your network camera. Press [Clear Log] to clean up system log.

Maintenance

You can reboot your IP camera, change UI language, export/import user profile, reset to factory default settings, or update camera firmware (after you download the latest firmware from Compro's website).

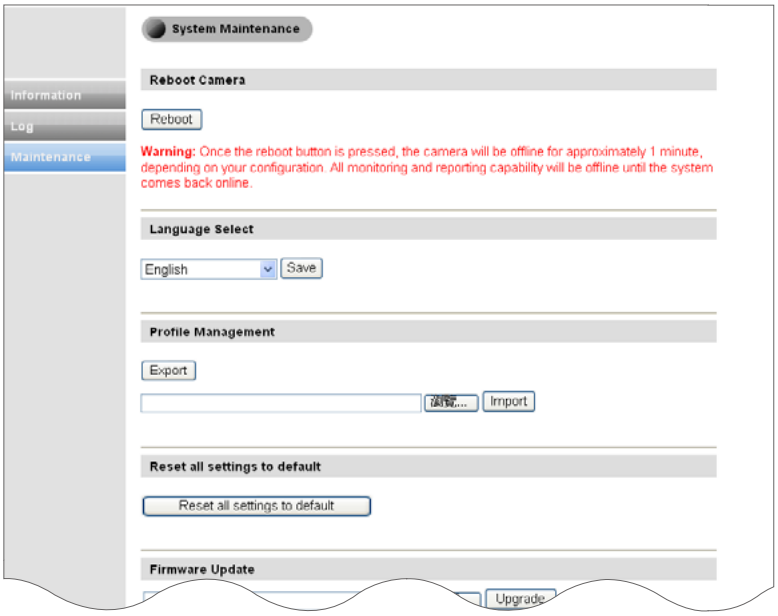


Figure 8-1. Maintenance page

Reboot Camera

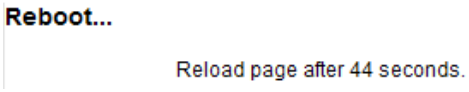
Press the [Reboot] button to reboot your camera system. You can also opt for power cycling your camera in case you find your camera has been acting weird.

Profile Management

The profile management feature allows installers and users to set up a group of cameras with similar configurations at great ease. After the current camera is properly configured, users can export current camera's configuration to a profile on PC and then load it into other cameras, thereby making least changes possible like changes on IP address or a few other settings that might need to be modified individually when installing a surveillance system. In addition, this feature can also be considered as a backup mechanism for future service need. For instance:

1. After the current camera is properly configured, go to [Maintenance] > [Profile Management], and click on [Export] to download camera profile to a user-specified location.
2. To load an existing profile into a different camera, log in to the maintenance page of a different camera, press [Browse…] and locate the profile you wish to load, and then click on [Import] to proceed.
3. Camera will start to reboot, which will take approximately 60 seconds to complete. Do not interrupt

browser action during the process as doing so may cause problems to your camera system.



Caution!
You may only cross-import profile among identical camera models.

Reset All Settings to Default

This will reset IP camera to its factory default settings, producing the same result as pressing the hardware reset button at the back of camera. If you need to perform hardware reset, refer to the Troubleshooting chapter.

Firmware Update

You can download the latest firmware from Compro's website (www.comprousa.com/en/supports.html). After downloading the firmware, please log in to the setup page of your IP camera and click [Maintenance] on the top menu and then look for firmware update section. Press the [Browse] button and locate the downloaded firmware file and press [Upgrade] button to update camera firmware. Once the update process begins, it must not be interrupted.

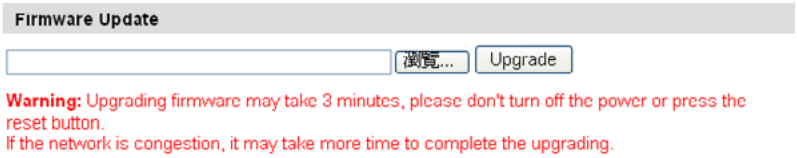


Figure 8-2. Firmware update

If you log in to the live view page after camera is rebooted and find that some icons are in the wrong place, try pressing [Ctrl] + [F5] to force a cache refresh of your browser.

Caution!
Before updating firmware, please close all other browser windows and background applications that are consuming network bandwidth.

Note:
Should you inadvertently close the browser window during firmware upgrade, DO NOT unplug the power cable or reset the camera immediately. Instead, try waiting for 3-5 minutes to see if the camera can complete the upgrade process, as the new firmware might have been successfully uploaded to the camera system and is still in the process of being written into the flash memory.

Chapter 9: Troubleshooting

During the course of installation, you might encounter various issues in regard to the usage of either the camera or the ComproView® software. The following sections contain some troubleshooting procedures to help you solve the problems.

Re-configuring Your Device

Anytime you need to re-configure your IP camera, you can simply double-click on the iWizard to launch the iWizard configuration tool. During the configuration, the iWizard will automatically scan for all of the available Compro IP surveillance products installed on your LAN network (even if they are not on the same subnet). The scanning generally takes around 1 minute to complete, and once the scanning completes, you will see the available IP cameras populating the list.

Figure 9-1. Camera selection

Cabling Check

If you didn't see your IP camera on the connected device list in iWizard, go through the following steps to check your cabling.

1. Check that the IP camera has been connected to the LAN network and has been powered on for over 1 minute.
2. Check if your computer has a successful connection to the network.

Computer is connected	Computer is not connected
	

Table 9-1. Windows network connection

Note:
You may also check your router's connection status by logging onto your router's maintenance page.

Reset to Factory Default Settings

If you forget your system password or if you feel your IP camera has been acting weird, you can follow the steps below to reset the camera to its default state in which it will be obtaining IP address from the available local DHCP server. To reset the camera:

1. Detach the camera's top cover. Locate the reset button as shown in below figure.

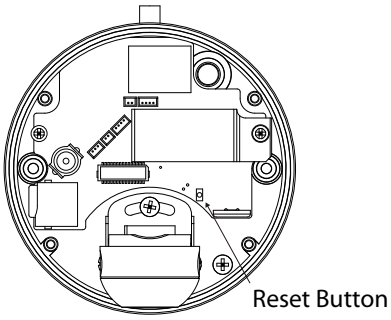


Figure 9-2. Reset button

2. Press and hold the reset button for about 10 seconds.
3. After the camera is reset, it will take 1 minute to reboot. Please wait patiently and start the Compro iWizard later again to scan for and re-configure the camera.

Trouble with the ActiveX Client

When you launch the Internet Explorer and enter the camera's IP address in the address field, you'll be asked for the user name and password combination (the default is admin/admin, case sensitive). After that, you will be prompted to install Compro ActiveX components required for accessing the camera.

Note:
Compro ActiveX components only support 32-bit Internet Explorer. Hence, if the viewing computer system is running 64-bit version of Windows, the 32-bit version of Internet Explorer must still be used to access the camera.

No User Interface on the Browser

This could be related to three possible causes.

1. ActiveX was not installed: Please install the ActiveX component by following on-screen instructions. This component must be installed. Otherwise you will not have access to the user interface.

Figure 9-3. ActiveX warning

Figure 9-4. ActiveX installation

Figure 9-5. ActiveX installation

2. ActiveX was installed but not enabled: Ensure that the ActiveX had been correctly registered with your Internet Explorer. Please open Internet Explorer and check that you've got both the "ComproClientActivex" and "USActiveX" control components registered and enabled under Tools -> Manage Add-ons.

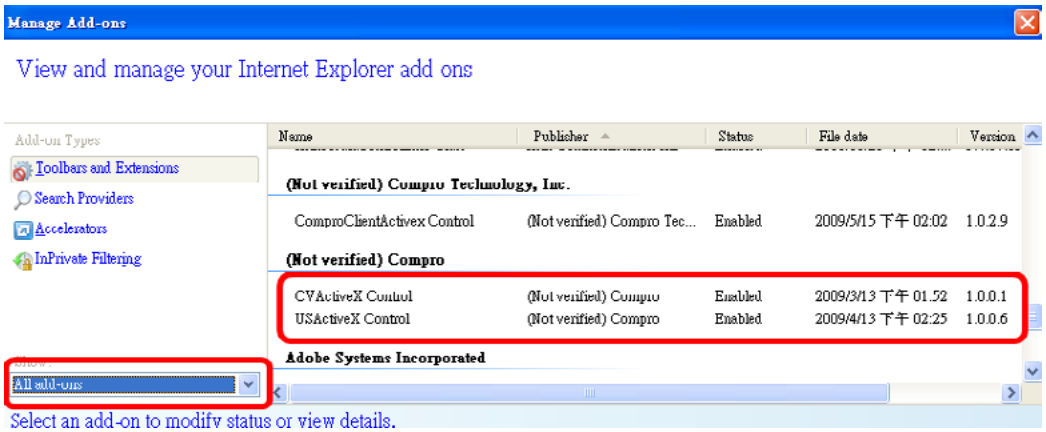


Figure 9-6. Add-on management

3. Inappropriate browser security setting: Please ensure that your security setting in Internet Explorer al-

lows the installation of ActiveX component by adding the IP address of the camera to the list of trusted sites in Internet Explorer.

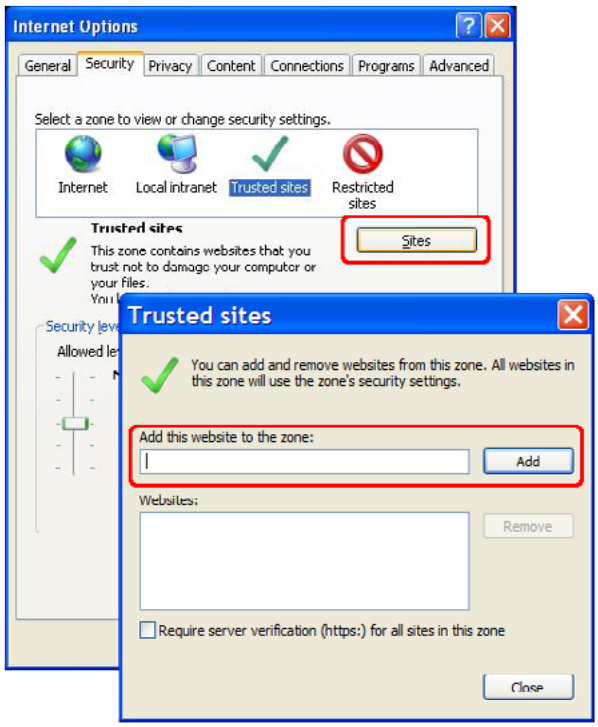


Figure 9-7. Browser security setting

If you've gone through all of the above steps but are still unable to receive video/audio on the browser, please close all the browser windows and delete the "Compro Embedded" folder found under "(OS Drive):\Program Files". (If you're using 64-bit windows, look for "(OS Drive):\Program Files (x86)".) And open your web browser and log in to the IP camera again to reinstall the ActiveX client. In addition, if you encountered the error which the browser returns "213 file not found", please restart your computer, as it should help in this situation.

Trouble with Remote Viewing on Browser

You can view your camera video remotely over the Internet. If you have problem in remote viewing, refer to the section below for preliminary troubleshooting.

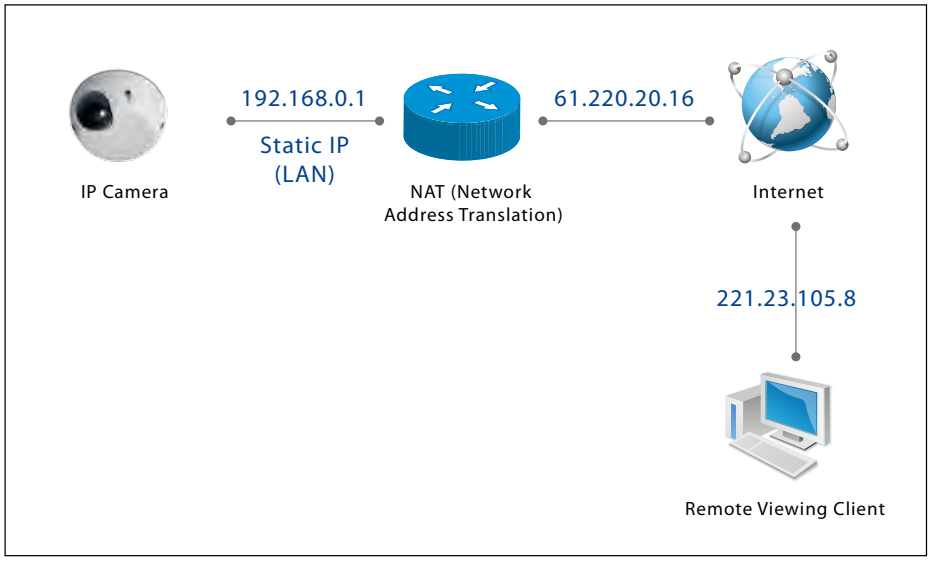


Figure 9-8. Remote viewing via browser

The figure above shows a typical connection setup in which:

- the IP camera has a static virtual IP address of 192.168.0.1
- the WAN IP address at the IP camera site is 61.220.20.16.
- the client (user) is trying to receive the video / audio stream remotely.

To successfully view the live video streamed from the IP camera, you need to:

1. Ensure that the camera's image quality setting stays within the bandwidth limit. Check the camera's image quality setting in [Setup] > [Video]. If the quality setting exceeds the upstream bandwidth limit, stuttering video or even blank screen may occur.
2. Check the network ports used by the camera by going to [Setup] > [Network] and note down the HTTP and RTSP port number, which are 80 and 554 respectively by default.

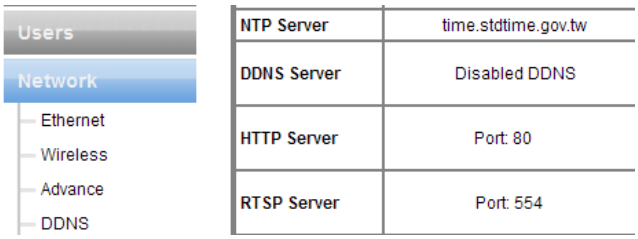


Figure 9-9. Advanced network setup

3. Set up port forwarding on the router that the camera connects to, and allow traffic on ports the IP camera is using. Consult the user manual of your router for port forwarding setup instructions.

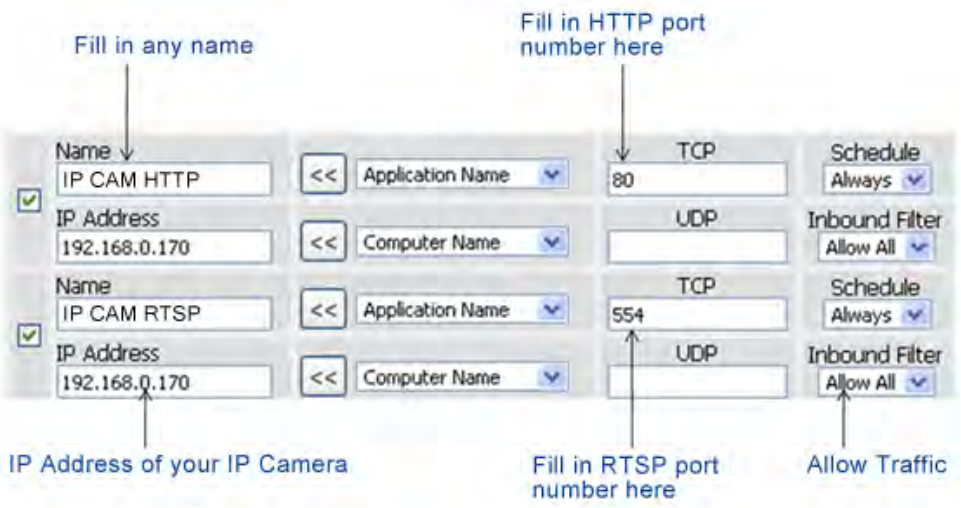


Figure 9-10. Port forwarding setup on router

Having taken the above steps, you should be able to log in to the IP camera from a remote location by entering the DDNS address or the static IP address in the location field of a web browser (depending on your configuration). For example, in this case, you should enter "http://61.220.20.16:80" into the location field of Internet Explorer to access the IP camera.

Important:

- If you have multiple IP cameras installed on a network, you will need to change the HTTP and RTSP port on them manually so each one of them will use a different port. E.g. changing the HTTP and RTSP port for the 2nd device to 81 and 555 respectively and accessing the 2nd device by logging on to http://61.220.20.16:81.
- When configuring port forwarding/mapping on your router, note that the public RTSP port must be equal to the internal RTSP port used by the IP camera. For instance, if the IP camera uses RTSP port 554 internally, then its mapped public RTSP port on the router should be 554 too. Though the same does no apply to the camera's HTTP port. The camera using HTTP port 80 can have 8080 as its mapped public HTTP port on the router.

DDNS Configuration

DDNS allows you to tie your IP camera's IP address to a hostname with which you can access your camera over the Internet. If your IP camera obtains IP address via DHCP mode (automatic assignment of IP address), you can enable the DDNS feature under the IP camera's network setting and register for a DDNS (Dynamic DNS) service. The hostname can be obtained from Compro's free iDDNS service or by applying from other DDNS service providers such as DynDNS or no-ip. After you complete DDNS service application, you can then log in to the IP camera's setup page, and look for [Network] > [DDNS] and provide all the required information and save the settings.

Using Compro iDDNS Service

If you want to use Compro iDDNS service, you can run the Compro iWizard again and choose [Yes] in the step for iDDNS setup and then input your preferred address and click [Check Availability] to check whether the inputted address has been used. When successful, you can click [Create Shortcut] button to create a shortcut on your desktop for convenient access.

Figure 9-11. DDNS setup in iWizard

The iDDNS is a free DDNS service provided by Compro. If you are using dynamic IP, you may want to apply for DDNS (Dynamic Domain Name Server) service to create a hostname that links to the IP address on your home or office network. So even if the IP address changes, you can still use an easy-to-remember URL to quickly access your IP camera anytime, anywhere. After successfully obtaining the iDDNS address, you only need to log on to http://xxx (your preferred address).iddns.org to access your IP camera on a web browser.

If your local LAN network and router sit behind a firewall, you'll have to set a HTTP port (that the IP camera will use) and allows inbound access on this port. For example, if you set the HTTP port "2001" for your IP camera, your IP camera's address will be "http://xxx (your preferred address).iddns.org:2001".

If you see the orange exclamation mark next to the HTTP or RTSP port field after performing system diagnosis with iWizard, it means you have to set up the port forwarding on your router to enables access to the IP camera from external network (the Internet). Refer to the "Remote Viewing via Internet Explorer" section of this manual and look for "Port Forwarding". You may also need to consult the manufacturer of your router for setting instructions.

Symptoms, Causes and Solutions

Listed below are some other frequently asked questions and their answers.

Symptom	Possible Cause / Solution
Problem accessing on the LAN network using web browser.	**The camera is not powered on.** Make sure the camera has been powered on for over 1 minute.
	The Ethernet cable is not firmly connected to the camera. Check if the Ethernet cable is securely connected to the Ethernet port of the camera and to the network switch.
	The Ethernet cable is damaged. Try using a different Ethernet cable to determine whether the current cable is faulty. Sometimes the a faulty Ethernet cable can result in weird connection issues.
	The entered IP address is incorrect. Check if the IP address you entered matches the IP address of your camera. If you are certain that your camera is configured with the same subnet mask as that of your PC, you can first disconnect other cameras, and then run the iWizard to scan the camera on your network. You shall then see the camera's IP address on your network. (Note if you are running Windows 7/ Vista, you need to run iWizard tool with system administrator rights. Simply right click on the iWizard icon on your desktop, and select "Run as administrator") If you're not sure whether your camera is on the same subnet with your PC, reconnect your camera to your PC directly (configure the IP address of your PC as 192.168.0.X), and run iWizard again to re-configure its subnet address to match that of your PC. Then reconnect it back to the router or switch and run iWizard again.
	The viewing PC is not connected to the LAN network. Check if your viewing PC has a successful connection to the LAN network. You can open a command prompt window (by pressing Winkey + R and input "cmd" and hit OK) and then input "ipconfig" and press [Enter]. When your PC is connected to the network, it will display information on your IP address, subnet mask, etc.
Successful login to the camera but no image is displayed	**The Compro ActiveX component is not installed.** If you are viewing the camera video on Internet Explorer, make sure you have installed and enabled Compro ActiveX component. Open your Internet Explorer browser and go to [Tools] > [Manage Add-ons] and check that you've got both the "ComproClientActivex" and "USActiveX" control components registered and enabled. Refer to the "Trouble with the ActiveX Client" section of this manual for further help.
	The VLC plugin is not installed for non-IE browser. If you are viewing camera video on Firefox, Safari, or Chrome, make sure your VLC plugin is properly installed. (Visit www.videolan.org/vlc/ to download the plugin.)

Symptom	Possible Cause / Solution
Successful access on local network but having problem accessing from the Internet.	**The entered hostname/WAN IP address is incorrect.** Make sure you entered the correct hostname (if you use iDDNS) or the WAN(Internet) IP address of your camera in the location field of the web browser.
	The LAN network is not connected to Internet. You need to have access to the Internet when trying to view your network camera remotely. Equally speaking, your camera installed on a LAN network also needs to have access to the Internet for it to be accessed remotely. Check if you can browse the Internet on your LAN network. If not, contact your network administrator for assistance.
	The camera's WAN IP address has changed but yet to be updated into DNS cache. If you use DDNS service, the information of your camera's IP address and the domain name the IP address is linked to is stored in the DNS cache. The cache is used to retrieve the IP information by the DNS server which translates entered hostname into the camera's IP address. Though the information is updated every few minutes (determined by the value of TTL, Time to Live), occasionally the DNS information changes (e.g. your camera acquires a new IP address) but the old information is still stored in the cache, resulting in connection failure. When this happens, try waiting a few minutes for the new IP information to be updated onto DNS server and then retry connection, or try to decrease the TTL value. If it still doesn't work, refer to other possible causes and solutions, or contact Compro for technical support.
	The router's configuration does not allow incoming traffic to the camera. If you want to make your camera located on a LAN network accessible from the Internet, you need to enable port forwarding on your router and allow incoming traffic on the HTTP and RTSP port your camera is using (your router may require a reboot after port forwarding is set). Refer to the "Remote Viewing via Internet Explorer" section in the user manual for detailed information. If you don't know how to enable port forwarding on the router, consult the manufacturer of your router for instruction.
Video appears very blocky	**Video bit rate is set too low.** Blocky video is usually caused by non-correspondence of video resolution and bit rate. Simply put, the video bit rate is too low. Please try to set the bit rate to a higher one or set the video resolution to a lower one.

Symptom	Possible Cause / Solution
Network diagnosis shows error icon.	**Network connection error.** The network connection test verifies if the camera has successfully connected to the LAN network. When the diagnosis result shows a red exclamation mark icon ( ) for network connection, it means the camera fails to connect to LAN network. Check if the LAN cable is securely connected to the Ethernet port of the camera and to your hub/ router, or check if the LAN cable is functioning normally. Also check whether the gateway address your camera uses is identical to that of your router.
	Internet connection error. The Internet connection test verifies if the camera is connected to the Internet. When the diagnosis result shows a red exclamation mark icon ( ) for Internet connection, it may represent a failed connection to the LAN network. It could also be caused by inappropriate settings on your router that makes your router unable to connect to the Internet, such as wrong PPPoE user name/password, or wrong WAN IP setting (when your ISP provides you with fixed IP address). See if your PC connected to your router can also access the Internet. If not, consult your ISP/ router manufacturer for correct Internet setting. If your router can connect to the Internet but your camera connected to your router cannot, check whether the IP, subnet mask and gateway is correctly set on your camera.
	HTTP/RTSP port error. HTTP port is used for transmitting web pages, commands over the Internet. RTSP port is used for sending video/audio data. These two test items will fail whenever port forwarding is not enabled. Make sure you have enabled port forwarding on your router and have allowed traffic on ports your IP camera is using. Refer to the "Remote Viewing via Internet Explorer" section of this manual for more information.
Problem using DDNS service.	**The user information is incorrect.** Go to setup page. On the left menu, select [Network] > [DDNS], and check if the ID/ password is correct. Also check with your service provider for your service account is active.
	The entered address is incorrect. Go to main setup page and select [Network] > [DDNS] on the left menu, and then check if the iDDNS service is enabled and if you have the correct address.
	Incoming traffic to the network camera is not allowed. Please refer to the "Remote Viewing via Internet Explorer" section in the troubleshooting chapter of this manual and look for instruction on enabling port forwarding.
Problem using iWizard.	**The IP camera's IP address is repeatedly displayed as "DHCP mode" in iWizard.** This either means the camera cannot obtain an IP address from DHCP Server, or indicates that the IP address assigned to the camera is not on the same subnet as the LAN network. Please try to set the camera's IP address to a static one. Note that you have to set the DNS server for your camera (in the advanced network settings) if your camera uses a static IP address. Consult with your ISP (Internet Service Provider) for the most appropriate DNS server setting; or simply set DNS server as 8.8.8.8 or 8.8.4.4, which is the address of a free DNS server powered by Google.
	The camera's IP address is shown as "169.254.x.x" in iWizard. When Compro IP Camera fails to obtain an IP Address from a DHCP server (typically a network router, which has the ability to assign an IP address to IP camera automatically), the camera will generate an IP address itself so that it can be found on the network using Compro iWizard. In order to resolve this, you need to check the physical connection between your Compro IP Camera and the router, or consult your network administrator about the function of DHCP server.

Symptom	Possible Cause / Solution
Part of image becomes pixelated / Square color blocks are seen	**Network bandwidth is insufficient.** Without sufficient bandwidth, video quality will deteriorate and image errors like pixelation or frame-drop may occur. When you view your camera remotely from the Internet, your camera needs sufficient upload bandwidth to transmit video stream and you need sufficient download bandwidth to download video stream at the remote location. To gain satisfactory video quality, ensure there is sufficient upload bandwidth available to your network camera by taking the following actions: 1. Contact your Internet Service Provider (ISP) to confirm the upload/download speed limit of your service. If the bit rate of the video stream is set at 512Kbps or higher but your Internet service only provides a max. of 512Kbps for upload bandwidth, then try to lower the bit rate setting in [Setup] > [Video]. 2. Run a network speed diagnostics on WebVUer to determine the bandwidth level of the currently connected network. To do so, log in to your camera using WebVUer and go to [Setup] > [Network] > [Network Bandwidth]. When the speed diagnostics is done, the WebVUer will advise you of the appropriate setting. Consider the following actions to ensure sufficient download bandwidth at your remote viewing location: 1. Contact your Internet Service Provider (ISP) to confirm the upload/download speed limit of your service. If the bit rate of the video stream is set at 3Mbps or higher but your Internet service only provides a max. of 2Mbps download bandwidth, then try to lower the bit rate setting in [Setup] > [Video]. 2. Upgrade to Gigabit network switch. Regular 10/100 Mbps network switch cannot handle multiple megapixel streams, thus you may consider upgrading to Gigabit network switch when building up your network infrastructure. 3. While you are viewing the network camera remotely, shutting down any other applications that are also consuming the network bandwidth in the background.
Gray images are seen repeatedly	**The network quality is not good.** Seeing lots of gray images in live view mode indicates that many data packets which carry video data are dropped during the transmission. This might be caused by network congestion, wireless congestion, or the limited upload/download bandwidth of your network. To measure the upload/download capability of your network, you can use either the "Network Bandwidth" testing tool in the network settings page, or visit speedtest.net (http://speedtest.net/). Please test your bandwidth in the aforementioned way to determine whether this has been the result of poor network quality. Or try connecting your camera to your viewing computer directly to see if there are any faulty devices on your network.
Ghost image is seen	**Network quality is not good enough.** This is a common phenomenon when the quality of network is not good or the video setting is too high. Please try to set the bit rate of the camera to a lower one and see if the problem remains.

Symptom	Possible Cause / Solution
Video is not real-time	**Network is congested.** First, check if the network latency is too long. If the network is too congested, this may happen. Second, check the video buffer setting in the video settings page (setup > video > video buffer). Please set it as standard.
A warning message saying "Your video quality is too high for your internet bandwidth" popped up	**Network quality is not good enough.** This means the camera's browser interface, WebVUer, could not receive a steady stream of video data from your camera. The loss of video data might also be caused by network congestion or insufficient bandwidth. Please refer to other related troubleshooting tips. Additionally, if the CPU usage on your viewing computer is too high, the same warning message will be showed. You can monitor the CPU usage by right clicking on your Windows taskbar and choose "task manager", and then click the Performance tab.
Video stream is lost over a short span	**Network quality is not good enough.** This could be caused either by the unstable connection between the camera and the WebVUer or by the insufficient network bandwidth. Please try to set the bit rate of the camera to a lower one and try again.
Cannot store recordings on microSD card.	**The microSD card is not inserted firmly into position.** Remove the memory card and re-insert it back to the card slot. To verify if your SD card is properly installed, go to [Setup] > [Recording Setup] > [Micro SD], and check if [SD Card Status] and [SD Card Capacity] shows correct information. If "not detected" is shown, remove and re-insert the card again, and refresh the WebVUer, and verify again.
	The **microSD card is not properly formatted.** Go to main setup page, and choose [Recording Setup] from the left menu. Choose [Micro SD] for the "Destination" field, and then press the [Format] button. If it still doesn't function properly, try storing still snapshots onto the SD card. Failure in storing snapshots often suggests problem with the memory card.
	The **microSD card is not supported by the device.** Your IP camera may not fully support high capacity memory cards from all the manufacturers. Contact Compro technical support when you think you have encountered a SD card compatibility problem.
	The speed class of SD card does not meet the requirement. You might experience minor issue in video recording when your SD card does not meet the writing speed requirement. Compro recommends using class 4 or above SD card for video recording.
	A motion detection region has not been configured for recording triggered motion events. If you want to record video clips of detected motion to SD card, you need to set at least a motion detection region before setting up event-based recording in Recording Setup.

Contacting Compro Technical Support

Before you submit an email for support, please check the troubleshooting section in the user manual. You may fill out the form (http://comprousa.com/en/form.htm) or directly email to support@comprousa.com.

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Chapter 10: Technical Specifications

TN2200 Technical Specifications

CAMERA	Sensor	1/3" CMOS 2-Megapixel sensor
	Lens	Fixed iris, F 2.0, f 1.96mm
	Zoom	10x digital
	Angle of View	105°
	Min Illumination	1.0 lux
	Shutter Time	1/5 ~ 1/16000 Sec.
	Camera Angle Adjustment	40° pan, 90° tilt
VIDEO	Video Format	M-JPEG, H.264
	Resolutions	160x120, 320 x 240, 640 x 480, 1280 x 1024, 1600 x 1200
	Frame Rate	• WebVUer: Up to 15 FPS at 1600x1200 • C4Home App: Up to 30 FPS at 640x480
	Video Streaming	Dual video stream supported
	Image Settings	• Adjustable image size and quality • AGC, AWB, AES • Configurable brightness, saturation and sharpness
	Analog Video Output	Yes, RCA output for lens adjustment
AUDIO	Compression Format	G.711 PCM 64 Kbit/sec, AAC
	Audio Input / Output	Built-in microphone
Network	Security	User ID / Password protection
	Ethernet	10/100 Base-T, autosensing, RJ-45
	Support Protocols	3GPP, ARP, DDNS, DHCP, DNS, FTP, ICMP/IPv4, IGP, HTTP, NTP, PPPoE, QoS, RSP, RTSP, SMTP, TCP/IP, UDP, UPnP
Firmware	Firmware	• Support UPnP • Support online firmware update
Web Browser	Internet Explorer (ActiveX)	• Remotely viewing and adjust camera settings • Capture snapshots and recording video
	Supported Viewing Devices	• PC, laptop, tablet, nettop with IE8 • iPhone®/iPad, BlackBerry, Android™, WM, PDA, or cell phones with web browser (MJPEG mode) • Mac OS 10.6 (Live view in M-JPEG mode only)

Mobile Monitor	C4Home App	Free mobile applications for iPhone and Android • Smart motion detection and push notification • Private mode • Mobile digital zoom control • Air firmware update • Dropbox cloud storage for event snapshot • SD card playback for event recording • Share video to others • Watch 4 channels at the same screen (Android only, not support iOS)
	MJPEG Mode	Viewing of camera image via phone browsers
	3GPP Mode	Viewing of camera image via 3G phones (3GPP Streaming)
General	Video Surveillance	Free bundles ComproView 32-channels video management software
	Local Storage	Built-in microSD memory slot (inside case) (with a pre-installed 4GB memory card)
	Operating Condition	Temperature: -20 °C ~ 50 °C (-4 °F ~ 122 °F) Humidity: 20~80% RH non-condensing
	Weather Resistance	IP66-Rated
	Impact Protection	IK09-Rated
	Power Supply	PoE (Power-over-Ethernet) only IEEE 802.3af Class 3 Type B
	System Requirements	• Computer with 2.8GHz Dual-Core processor and 2GB memory or above • Supported Operating Systems: Windows XP SP3, Vista SP1, Windows 7, Windows 8, Mac OS 10.6 (Live view in M-JPEG mode only) • PoE switch or PoE midspan (PoE injector) with IEEE 802.3af Class 3 Type B support
	Package Contents	• Network camera • Software CD • Quick installation guide • Wall mount base • Selp-tapping screw • Screw anchor • Screws for wall mount base • Rubber O-ring • Hex key
	Dimensions	103mm x Ø100 x 56 mm (L x W x H)
	Weight (Net)	270g

* Specifications are subject to change without prior notice.

Chapter 11: Appendix

List of Compatible PoE Equipment

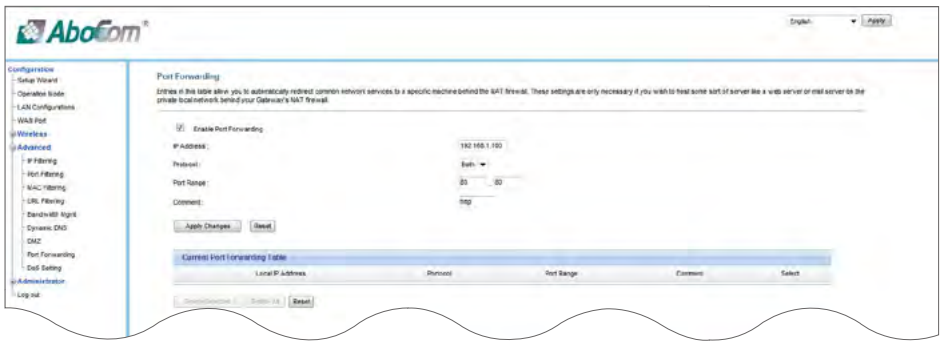
The following PoE equipment has been tested and found compatible with Compro TN2200 network camera. Compro does not guarantee other PoE devices not listed in the table will work properly with Compro TN2200 network camera.

Manufacturer	Type	Model
MITS	PoE injector	MS-POE-IJAF
MITS	PoE injector	POE-F01-1748DG
Eten	PoE injector	PS-101D
Eten	PoE injector	PS-201G
D-link	PoE switch Hub	DES-1316
Cerio	PoE injector	POE-S48G
Cerio	PoE injector	POE-S48F

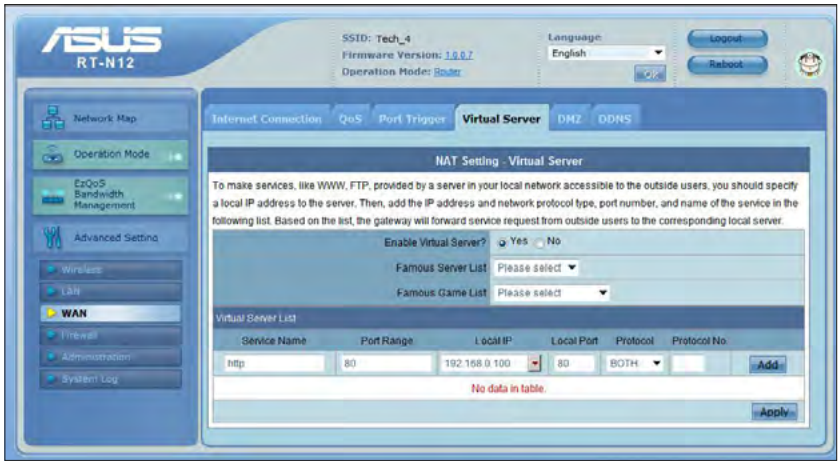
Examples of Port Forwarding Setup on Routers

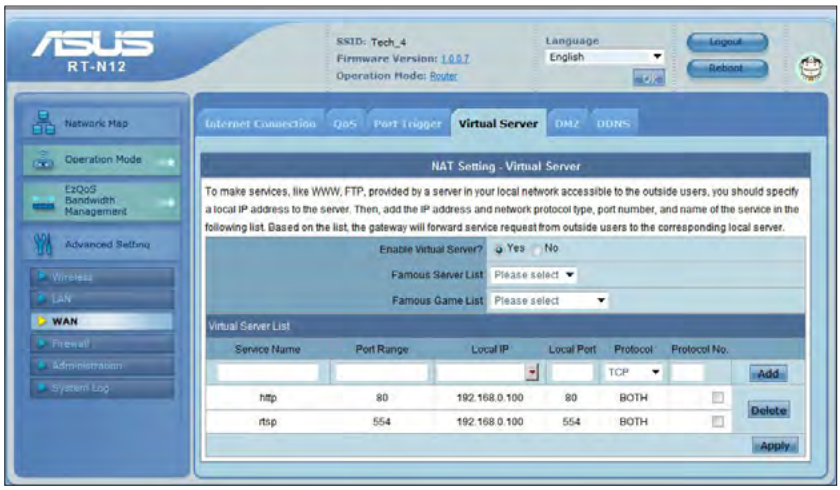
The following are some examples of router configurations with reagrd to port forwarding / port mapping / virtual server on some popular router products. You can also log on to portforward.com for more port forwarding setup examples on other router products.

Abocom WAA813rn Port Forwarding Setup

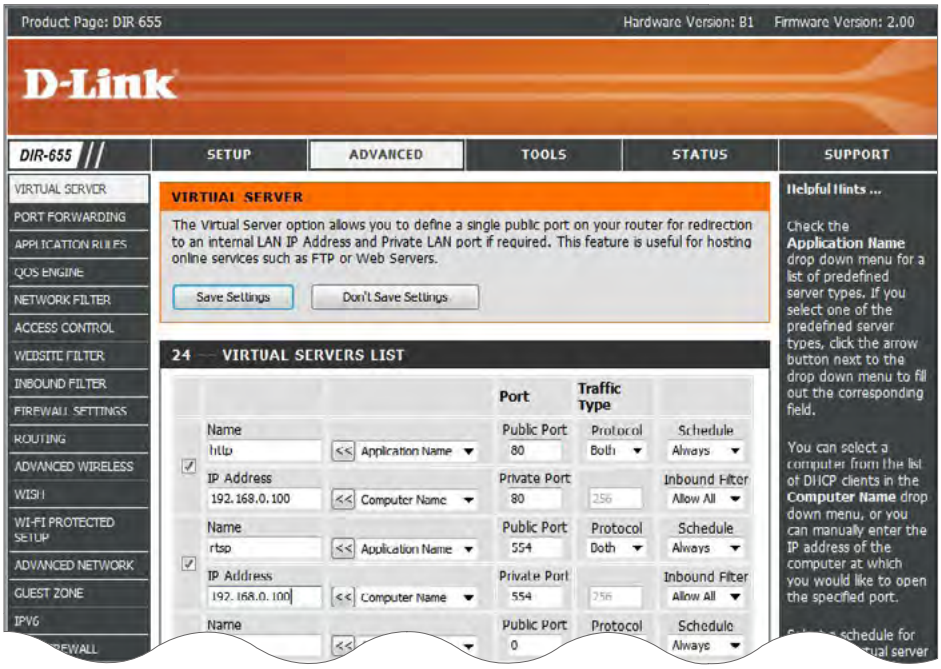


ASUS RT-N12 Virtual Server Setup

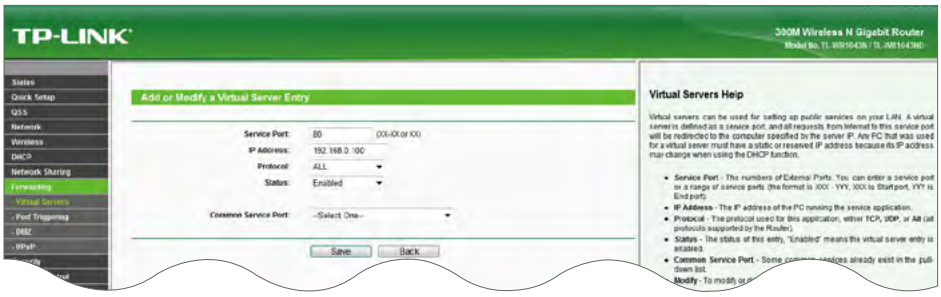


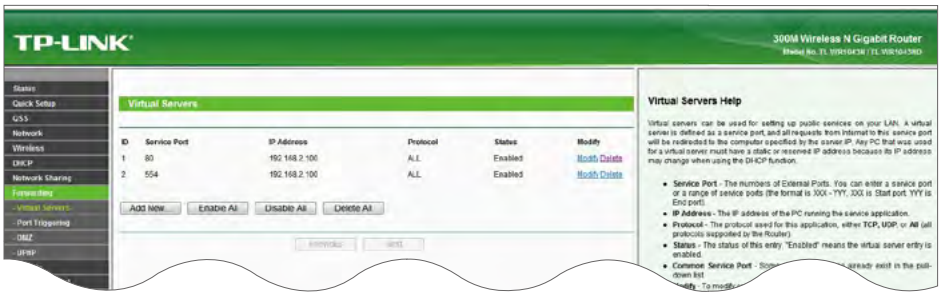


D-Link DIR-655 Virtual Serve Setup



TP-LINK wr1043n Virtual Server Setup





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