((ompressor

1 or 4 Channel
Network Video Encoder/Decoder

Instruction Manual

Before installing and using the product, please read this manual carefully.
Be sure to keep it handy for future reference.

Compressor

201010010

FEATURES

- Compressor is a Network Video Encoder that transmits real-time high-resolution digital video and audio data with H.264 high compression rate over the Internet or Intranet.

- Compressor supports decoder mode that takes a H.264 stream from our IP camera or video server via an Ethernet network and converts it in real-time with high quality analog video signals. This allows analog video devices such as TV system, analog monitors or existing analog video switches.

- Compressor contains digital video/audio compressor, web server and network interface. Users can simply connect power source and network cable for operation. Additional operation equipments or programs are not required.

- Compressor enables real-time web browser monitoring anytime and anywhere. It can be installed in various places, including child care facilities, education institutions, amusement parks, shopping malls, tourist attractions, construction and production sites, warehouses, and roads.

- **Easy to use** - Compressor does not require an additional PC for operation. Users can monitor video /audio data captured by the Compressor through your current PC. User can get direct access to the data through Web Browsers (i.e. Internet Explorer or Firefox). An IP address just needs to be assigned upon the first installation of the Compressor.

- **High compatibility** – Compressor supports TCP/IP for networking, SMTP for e-mail exchange, and FTP protocol for file Transmission. Other online communication protocols such as IMCP, DHCP, and HTTP are also supported. Thus, Compressor users can use any OS out of Window, Unix, Macintosh, and OS/2 to access the system.

- **Simple environment setting** - Internet Explorer or Firefox can be used to modify user environment settings for the Compressor.

- **Embedded Linux O/S** - Compressor uses the newest, leading networking technology. Digital Watchdog optimized Linux with a 32-bit RISC CPU for the operation of Compressor.

PRECAUTIONS

- Do not open or modify.
- Do not open the case, for it may be dangerous and cause damages.

- Do not put objects inside the unit.
- Make sure that no metal objects or flammable substances get inside the camera. It could cause fire, short-circuits, or damages.

- Be careful when handling the unit.
- To prevent damage, do not drop the camera or subject it to shock or vibration.

- Do not install near electric or magnetic fields.

- Protect from humidity, dust, and high temperature.
- Compressor is for indoor use and is vulnerable to water and/or moisture.
- For outdoor use, an additional case that is temperature-controllable, damp-proof, and waterproof is required.

- Cleaning:
- Dirt can be removed from the case only by wiping it with a soft cloth moistened with a soft detergent solution.

- Mounting Surface:
- The material of the mounting surface must be strong enough to support the camera.

- Compressor can be used for surveillance purpose.
- Be thoroughly informed of related regulations prior to installation to ensure compliance with such regulations.

WARNING:

**TO PREVENT THE RISK OF FIRE OR ELECTRIC SHOCK,
DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

TROUBLESHOOTING

Before sending the Compressor out for repair, check the items below.
If the problem persists after the items have been checked, contact your service center.

▲ If no image appears
- Is the LAN cable attached securely?
- Are the power and voltage normal?
- Is the connected camera normal?
- Is there adequate illumination?

▲ If the image is unclear
- Is the connected camera lens in focus?
- Is the connected camera lens dirty?
- Dirt or fingerprints on the lens can adversely affect the images.
  Gently wipe any dirt or fingerprints off the lens with a soft cloth or lens cleaning paper and some cleaning fluid (commercially available).
- Is the connected monitor adjusted correctly?

▲ If the audio is not working
- Is the audio cable attached securely?
- Are the connected devices (amplifier, microphone, speaker, etc.) normal?
- Are the Client software and devices normal?

▲ If the PTZ control is not working
- Is the RS485 cable attached securely?
- Is the connected PTZ Camera or PTZ driver normal?
- Is the RS485 control setting (Protocol, Baud Rate, Control ID, etc.) correct?

▲ If the DIO is not working
- Is the DIO cable attached securely?
- Is the connected sensor or alarm device normal?

EXTERNAL

▲ APPEARANCE

▶ Front

▶ Top   ▶ Side

▶ Rear

1 2   3 4   6   7   8

1. Reset (Factory Default Switch)
2. Sensor Input/Output
3.   Stereo Jack)
4.   Stereo Jack)

   Video Input (BNC Connector)
6. Video Output (BNC Connector)
7. 10/100 Base-T LAN

   CP-01 is PoE Ready.
8. Power (12V, 1000mA)

CAUTION:

Check for polarity when using a PoE (Power over Ethernet) power supply.

- Support: IEEE 802.3af

▲ DIMENSION (mm)

117

99

169

153

30.75

169

Compressor
Network Digital Camera Server
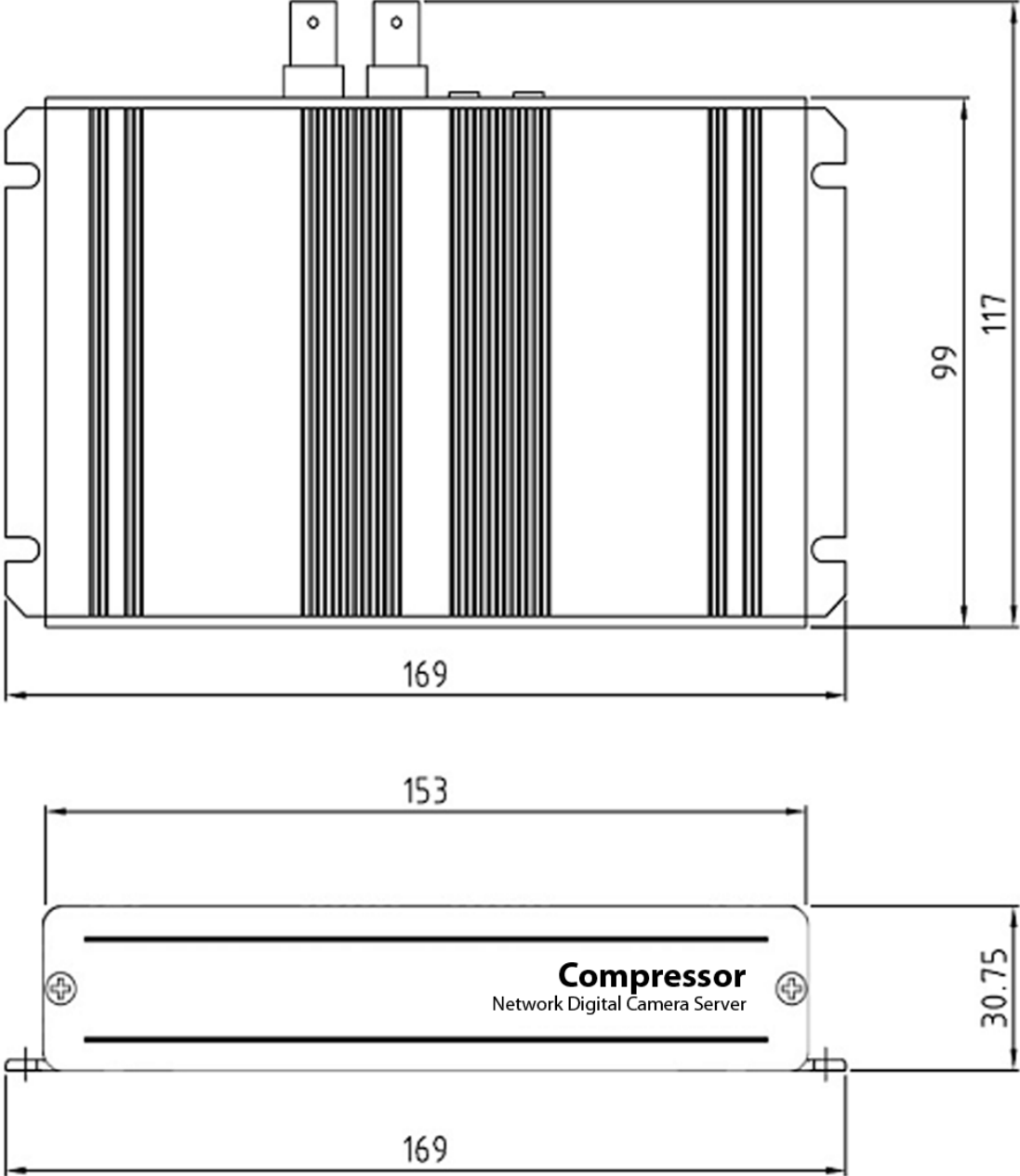
INSTALLATION

▲ CONNECTION

- **DC 12V** - Power (Adapter, DC 12V/1000mA)

- **ETHERNET** - LAN cable (RJ45 Jack)
  - A client PC or a network device is connected to the Compressor.

- **VIDEO** - Video cable (BNC Jack)
  - IN: Input
  - OUT: Mode Selectable Output
    (Connected Camera or Received Image Over IP)

- **AUDIO**
  - IN: Input from a microphone (Ø3.5 stereo jack)
  - OUT: Output to a speaker (Ø3.5 stereo jack)

- **DIO, PTZ** – Control Cable
  - DIO: In case a sensor or an alarm device is being used.
  - PTZ: In case pan/tilt/zoom control (RS485) is being used.

▶ Connections – Power, LAN, Video, Audio, P/T, DIO

NETWORK CONFIGURATION

▲ INSTALLATION PROCESS

1. Connecting power supply, LAN, and audio cables to the Compressor

※ Network Configuration Example
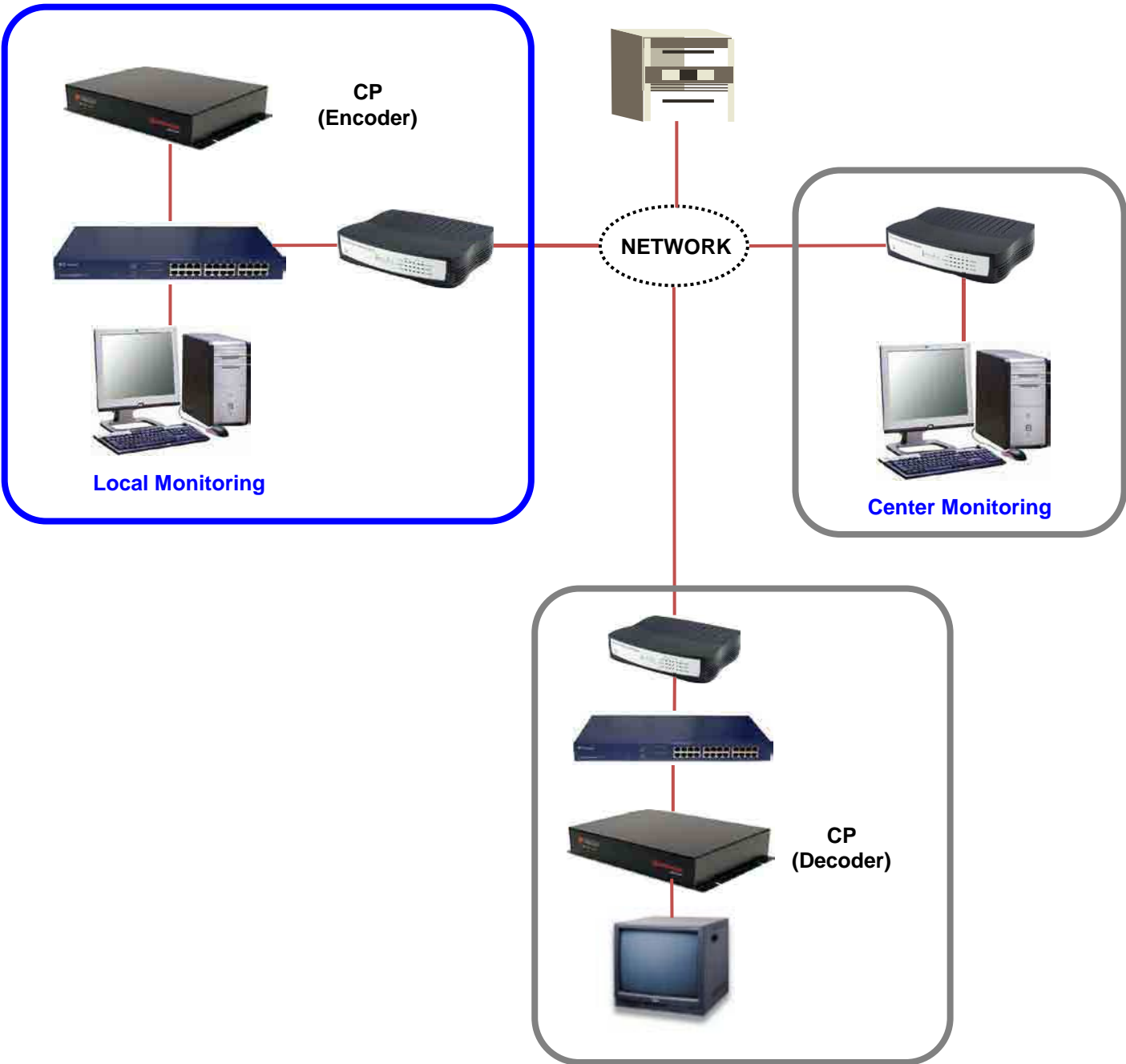
2. Assigning an IP Address to the Compressor

- Assign an IP address with Compass, which is an Easy Network Configuration Program
- Running **Start > Program > NVS 4.1 > Compass**
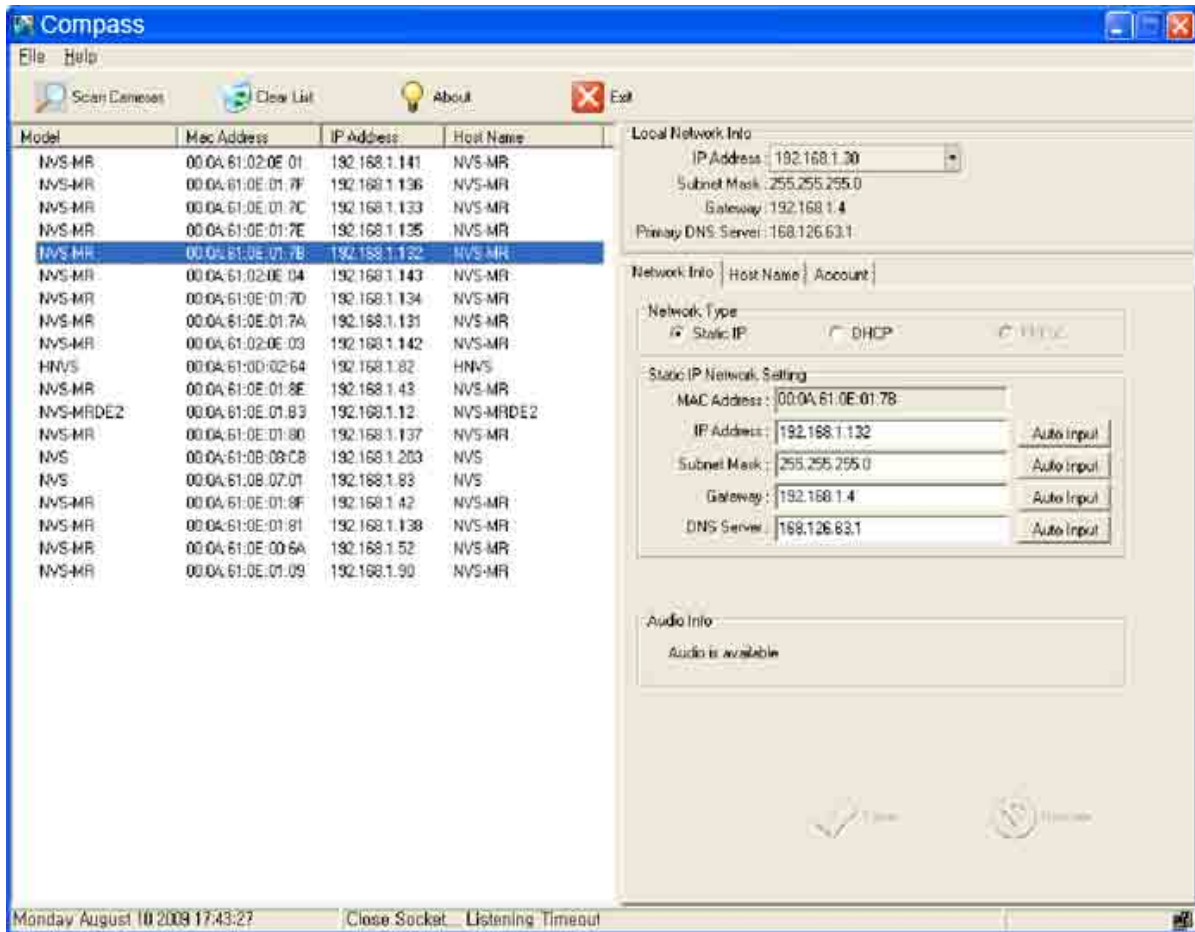
▶ Compass 2.0

3. Scan Compressor and Network Configuration

- Click "Scan Devices" button to search for Compressor, Network video Streamer, on the local network where Compass runs.
- The Device List displays the basic information of the searched Compressor on the local network. (Default IP address of the Compressor is **192.168.1.2**.)
- Select a Compressor and change the network setup appropriately.
- After the setup, click "Save" button.
- Refer to "Compass" manual for details.

4. Accessing Compressor with a Web Browser

- Open a web browser on your PC and enter the IP address assigned to the Compressor in the following format:

http://72.243.193.232/
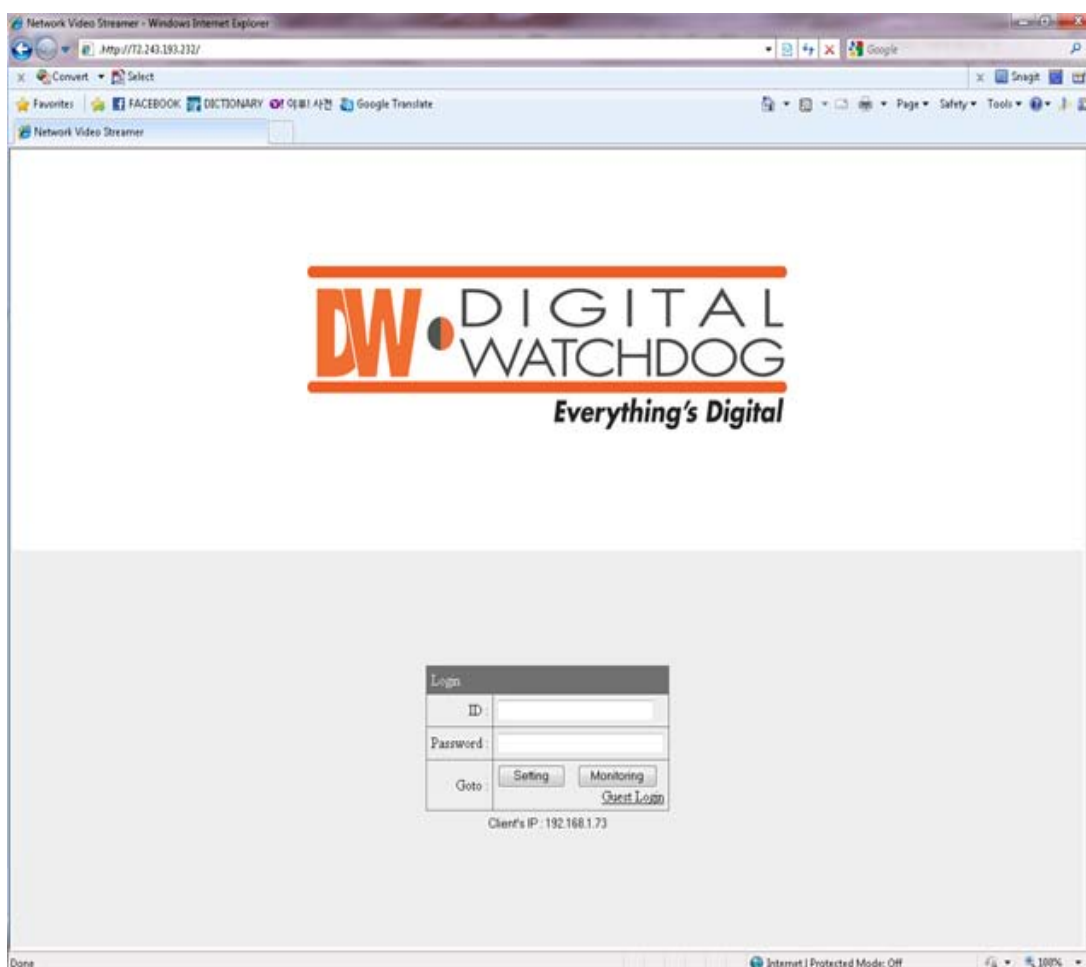
▶ Login Page

Using Web Browser

▲ OVERVIEW

- User can manage the Compressor and monitor the video and audio through a web browser or Pivot CMS.

- User can select the type of encoder mode and decoder mode through a web browser.

- Basic functions

Monitoring

- Monitoring the video and audio data from Compressor
- Changing the setup related to monitoring
- (Resolution, Information Display, D/O (Digital Output), Bitrate, Audio, PTZ, etc.)

Managing

- Confirming the status of Compressor
- (Network Status, Model Info, Connection List, Log)
- Changing the basic setting (Network, Video, Audio, Event, Date/Time, OSD)
- Changing the expert setting (RS485, RS232, Port, Security Level, Account,
- DDNS, UPnP, Motion Detect, Firmware Update)

<the initial page>
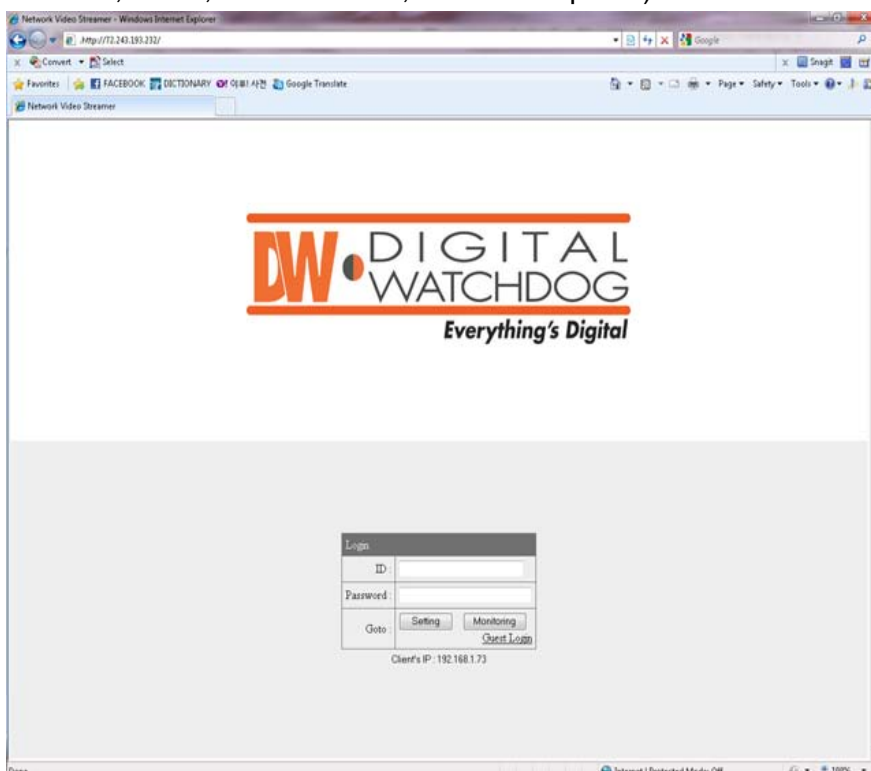
▲ CONNECTION

- To connect to the Compressor, type the given IP address on the address bar of a web browser in the same format that is given below.
  (Refer to "Compass" program manual to set IP address of the Compressor.)

http:// (Compressor IP Address)

► Type on the address bar of a web browser and press enter.

http:// 192.168.1.2

► Example: Default IP Address

- Connection and Accounts

① Administrator Account
   - The account is permitted to monitor and manage Compressor.
   - Default User ID/Password of the administrator is **root/pass**.
   - Only the password can be changed. Administrator's ID is fixed.

② Guest Account
   - The account is only permitted to use a limited number of monitoring functions.
   - In the monitoring page, it shows as inactive for the prohibited features.

► Login Window

Setting Page Login: Type the User ID and Password of the administrator and click "Setting" button.

Monitoring Page Login: Type the User ID and Password of the administrator and click "Monitoring" button.

Guest Login: Click "Guest Login" to enter the monitoring page of the guest account.

Client's IP: Displays the IP address of the connected PC.
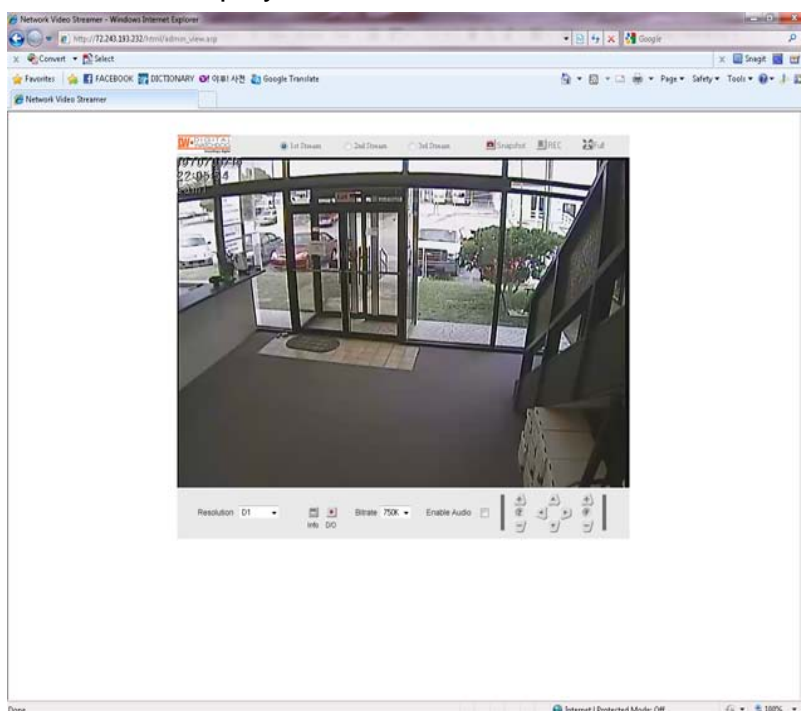
► Monitoring Page
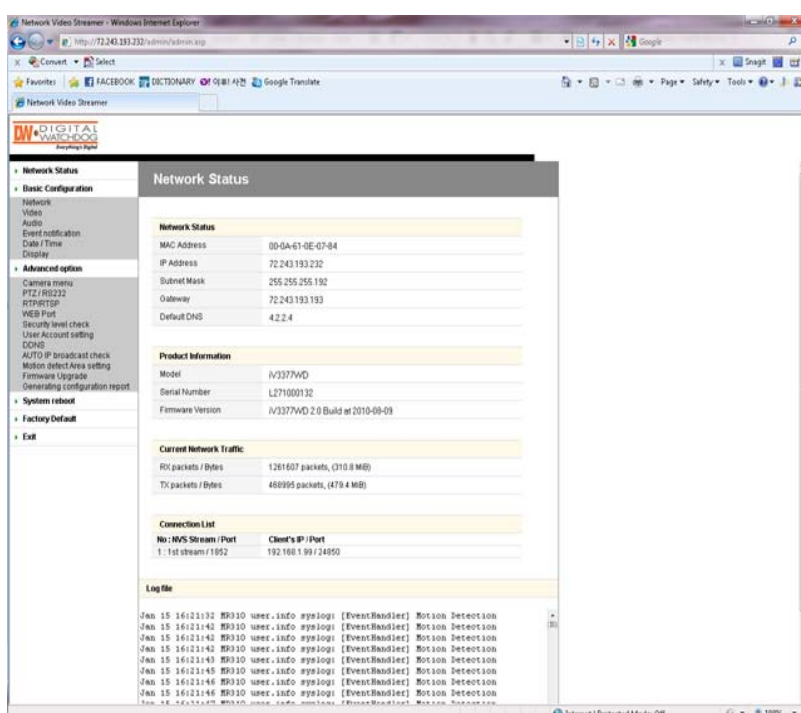
► Server Setting Page

• Note for Monitoring Page

  - CASE ①:

    If the "security warning" window appears when first connecting to the monitoring
    page, click "Yes" to download ActiveX.
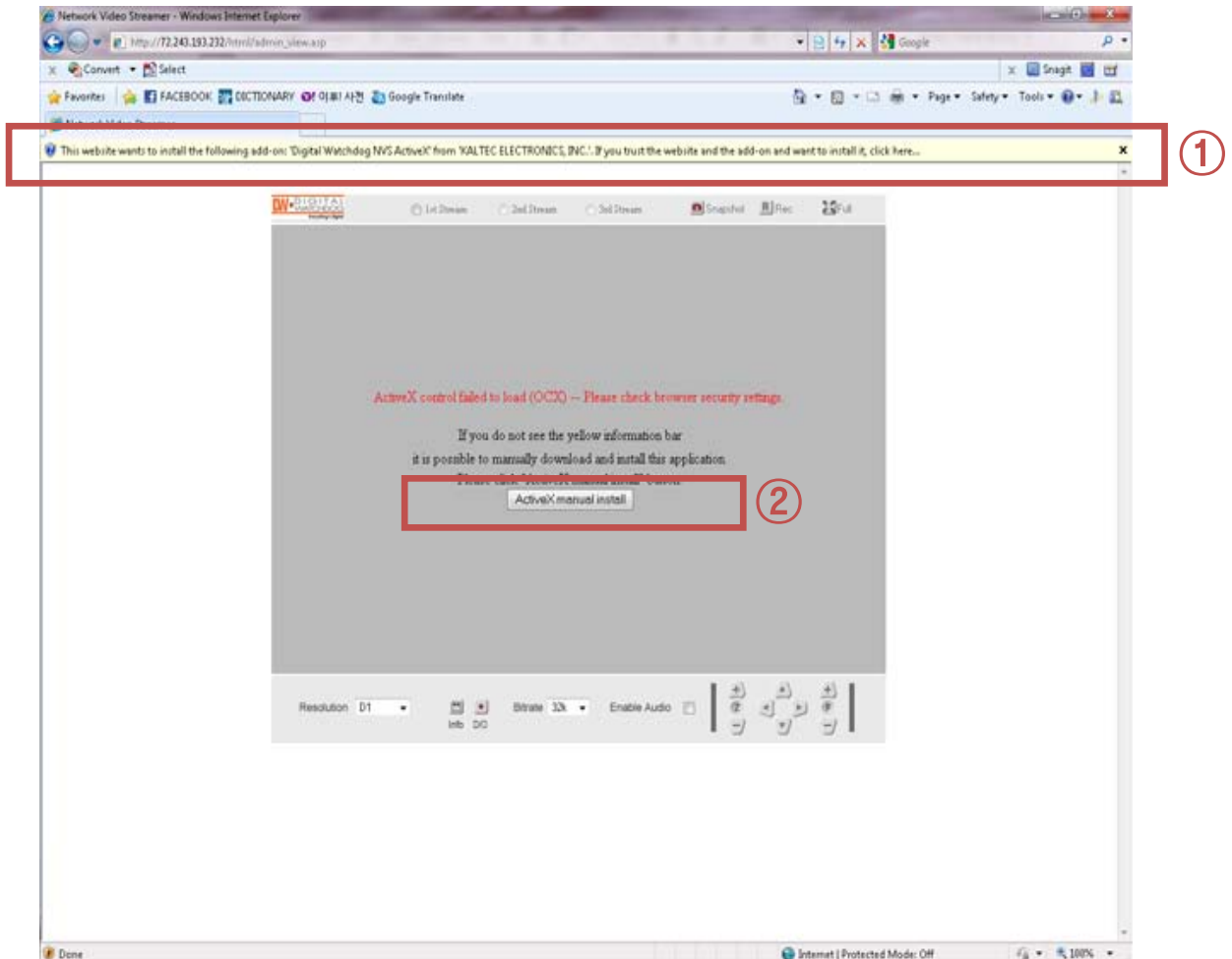
Click the yellow information bar to download ActiveX control.

- CASE ②:

User can download and install ActiveX manually if the information bar does not appear.

Click "Run" button to install ActiveX file manually. (NVSOCX.exe)

► ActiveX Setup Window

▲ MONITORING

Monitoring Page
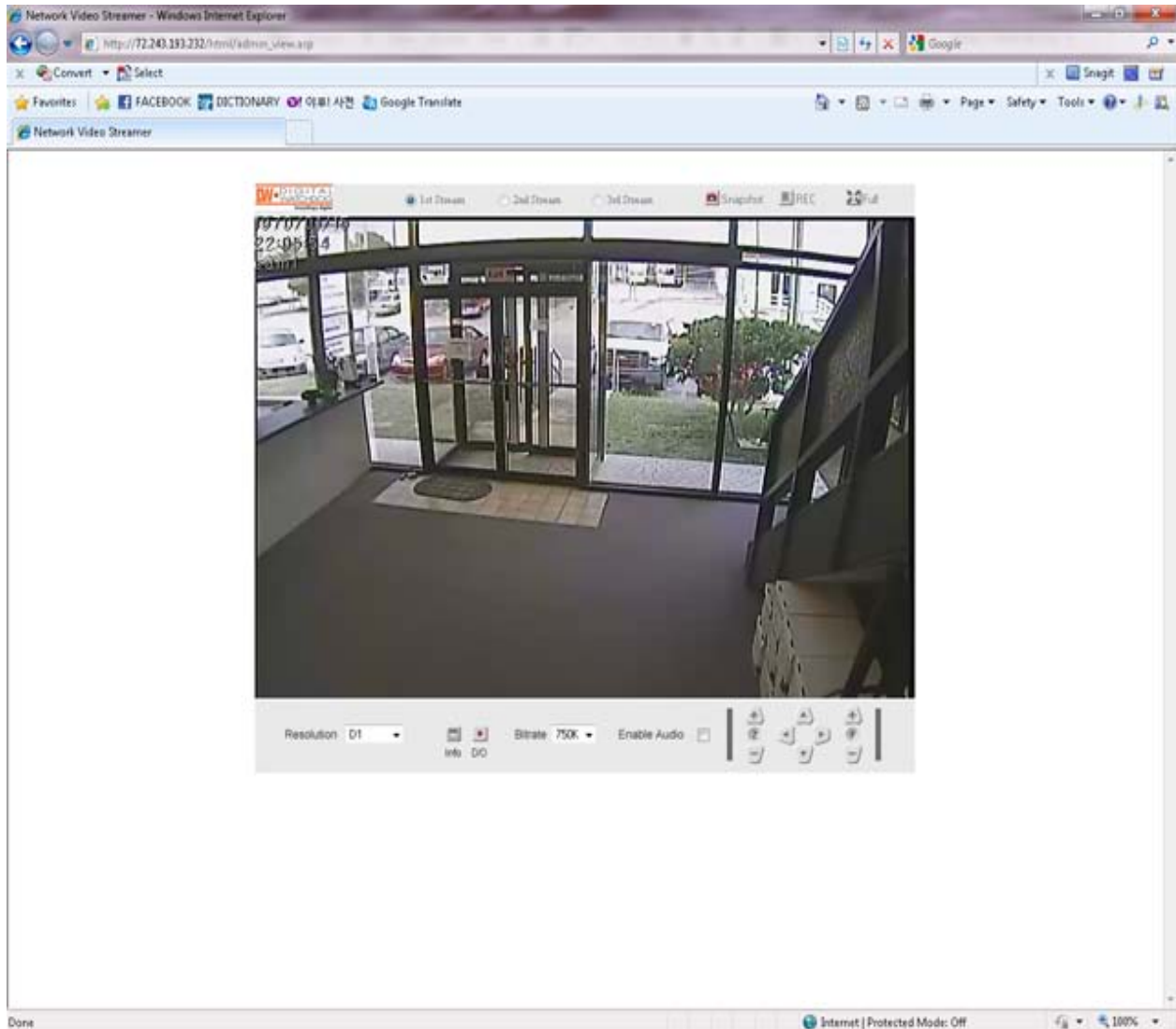
- **1st / 2nd / 3rd Stream**
  - Select a Stream to the monitor.
  - If the stream button is inactivated, check the video setting of "server setting page."

- **Snapshot**
  - Capture a JPEG Image of the current video stream.
    (JPG file creation route: C:/root)

• **REC**
- Record a video of the current video stream.
  (AVI file creation route: C:/root)

• **Full**
- Extend the image of the current video stream to fit monitor size.

• **Resolution**
- Display a current resolution.
- User can select other resolutions.
- If Compressor is rebooted, the resolution on the monitoring page is initialized to the designated value of "server setting page."
- Changing the resolution is not available on a guest account.

Resolution	QQVGA	QCIF	QVGA	CIF	VGA	4CIF	D1
NTSC	160x112	176x112	320x240	352x240	640x480	704x480	720x480
PAL	160x112	176x144	320x240	352x288	640x480	704x576	720x576

• **Information**
  • Shows the information of the transferred data from the Compressor above the image.
  • FPS / Camera (Channel) Name / Resolution
  • Event Status: Motion Detect (Red) / Digital IN (Blue) / Video Signal (Green)

Detect Motion Event ←

/30/cam1/720x480

Resolution of Current Image →

Channel Name →

Detect Video Signal ←

FPS of Current Video Stream →

Detect Sensor Input (Digital IN) ←
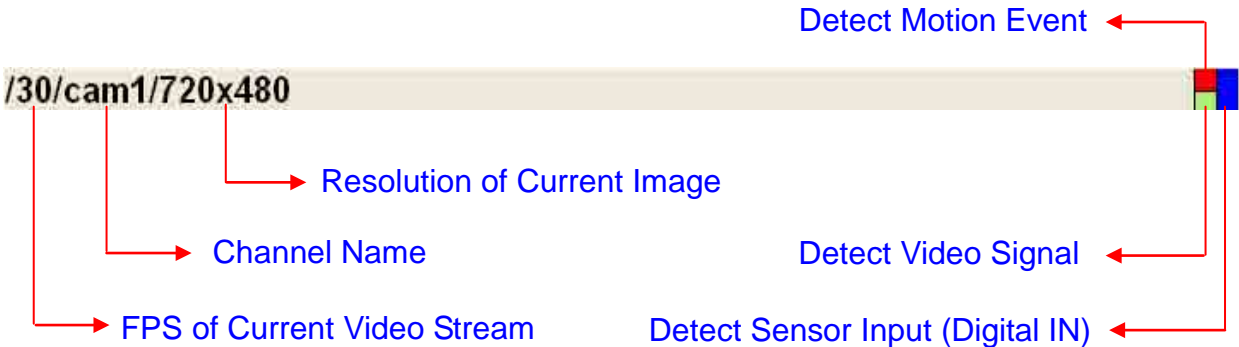
- **D/O**
  - Digital Out: Controls the device that is connected to the Compressor.

- **Bitrate**
  - Displays the bitrate of current video stream.
  - User can select other bitrate. (If Compressor is rebooted, the bitrate on the monitoring page is initialized to the designated value of "server setting page.")
  - Changing the bitrate is not available on a guest account.
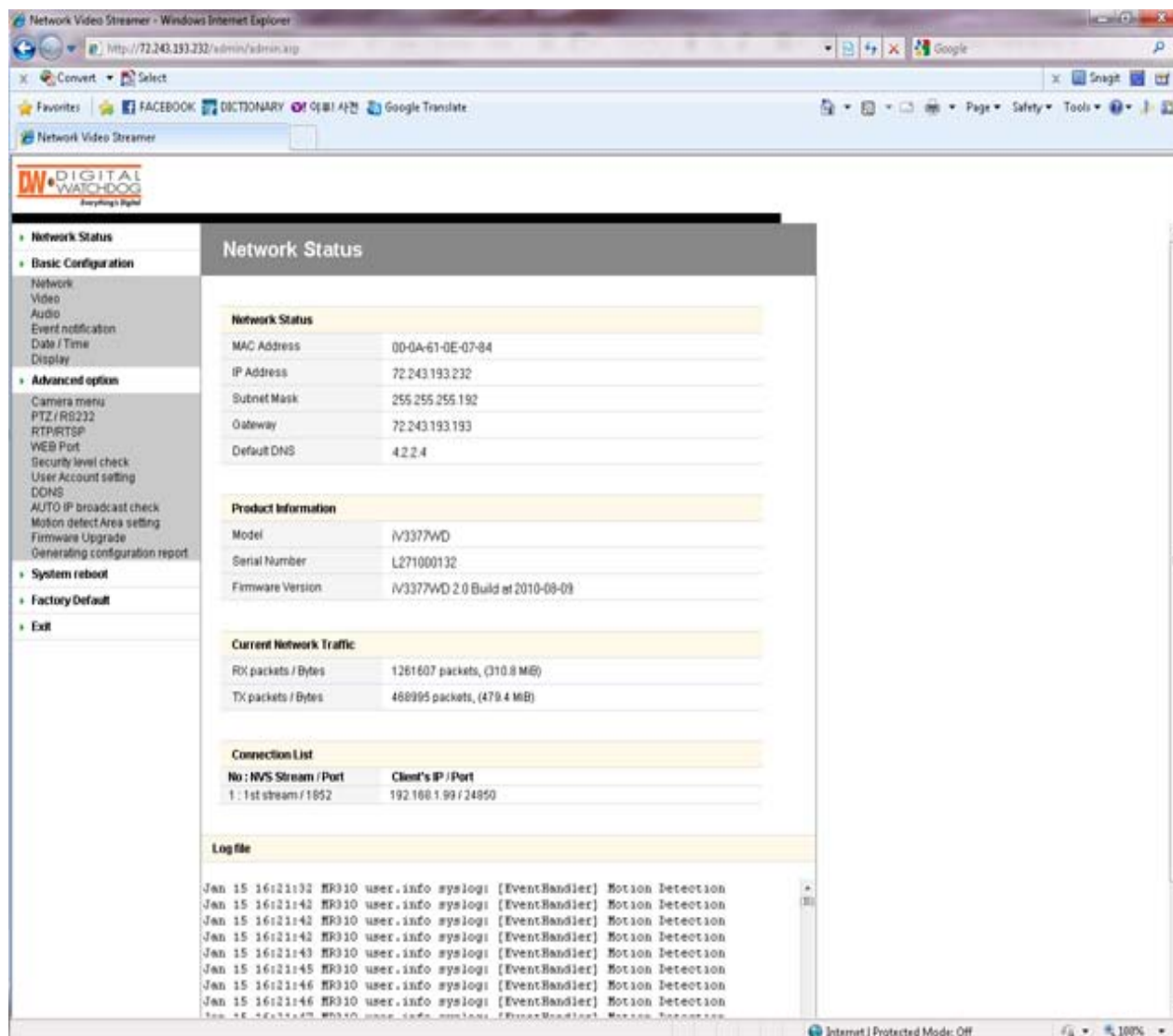
- **Enable Audio**
  - If the box is checked, the Compressor sends the audio data along with the video data.

- **PTZ Control**
  - User can control PTZ camera or receiver through RS485.
    - Z (Zoom): Zoom In (+) / Zoom Out (-)
    - Pan/Tilt: Compressor does not support Pan/Tilt function.
    - F (Focus): Focus In (+) / Focus Out (-)
    - PTZ control is not supported on a guest account.

▲ SERVER SETTING

- To apply the changed setting, reboot Compressor.
  (Click **Reboot** on the menu.)

- **Network Status**
  - The initial page of Server Setting
  - Shows network status, product information, current network traffic, connection list, and log file.

- **Network Status**
  - MAC Address: Media Access Control Address of Compressor (Unchangeable)
  - IP Address: The Assigned IP Address of Compressor
  - Subnet Mask: Subnetwork of the IPA
    (Use this value to fit the network environment.)
  - Gateway: Gateway Address (Use this value to fit the network environment.)
  - Default DNS: IP Address of Default DNS Server

- **Connection List**
  - User can check the number of connected clients and IP addresses.

- **Log**
  - "Log" displays the logs of general events of Compressor

• **Basic Configuration > Network (Wired)**

    • User can set Network Information of Compressor (IP Address, Subnet Mask, Gateway, and Default DNS).

① **Static IP**
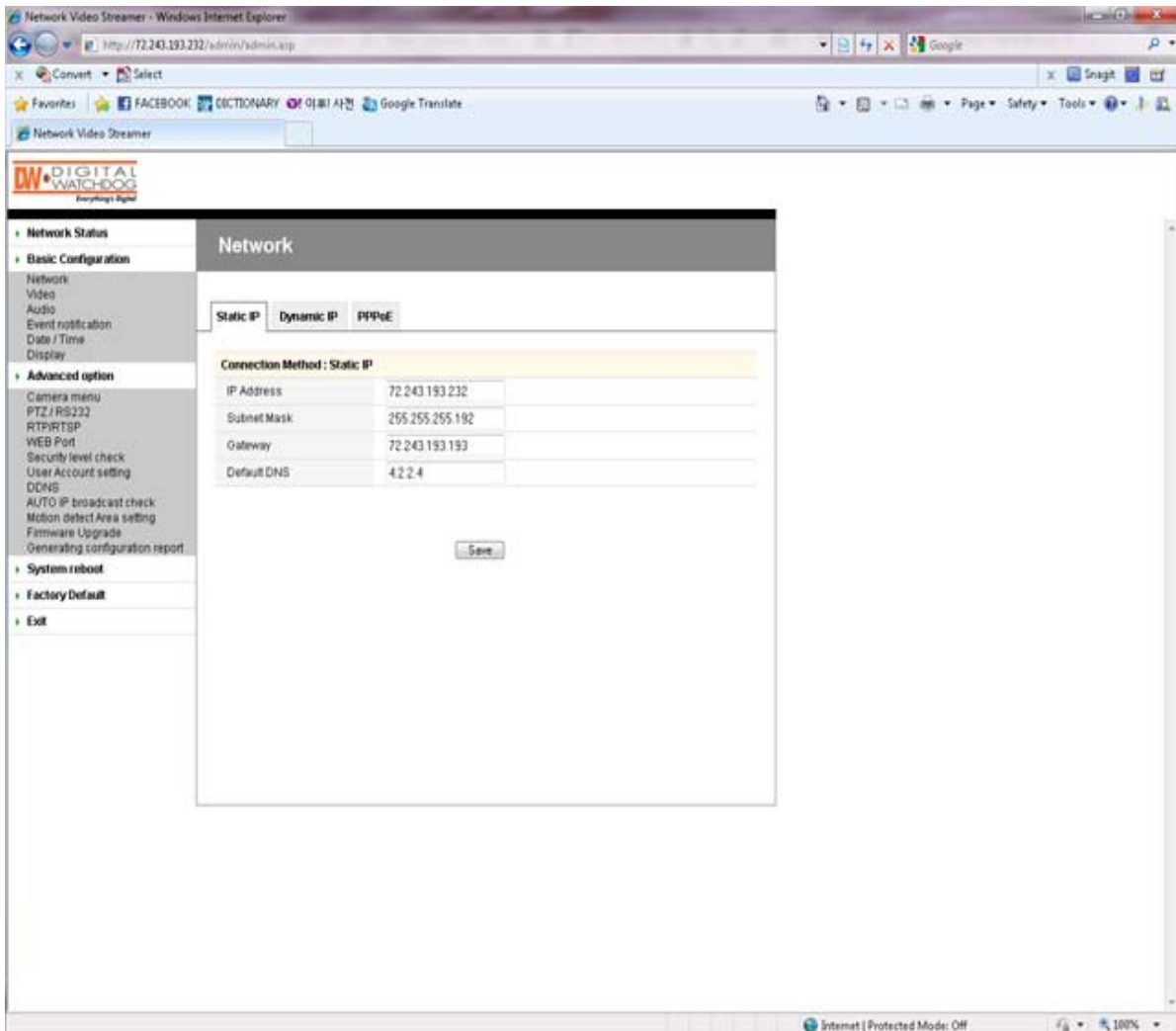
• IP Address: Ask network administrator for an appropriate address.

• Subnet Mask / Gateway / Default DNS: Ask network administrator.

• After setting, click "Save" button.

• Click "Reboot" to apply the setting(s) to Compressor.
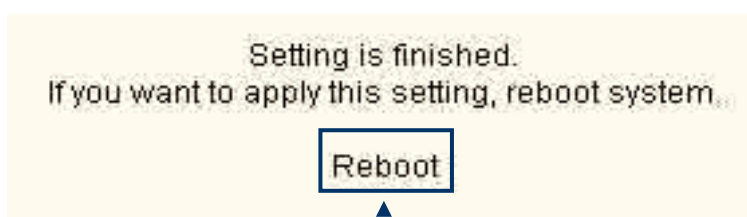
Click!

<Reboot Message>

② Dynamic IP
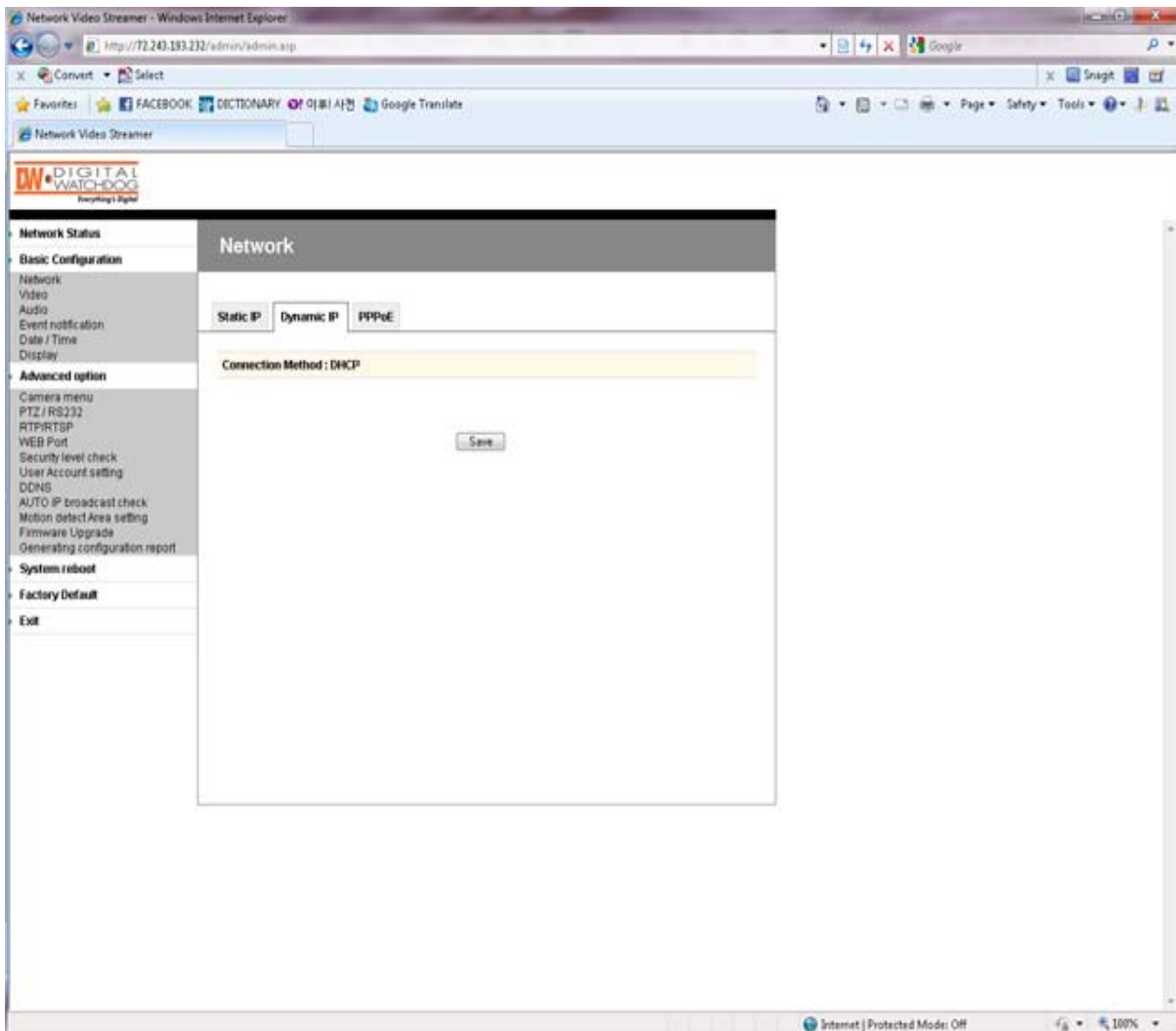
- If DHCP server is on the local network and you intend to allocate IP address dynamically, use the following method:
- Select **Dynamic IP** tab, click "Save" button, and reboot Compressor.
- If you want to select **Dynamic IP**, set Dynamic DNS to access Compressor.

③ **PPPoE**
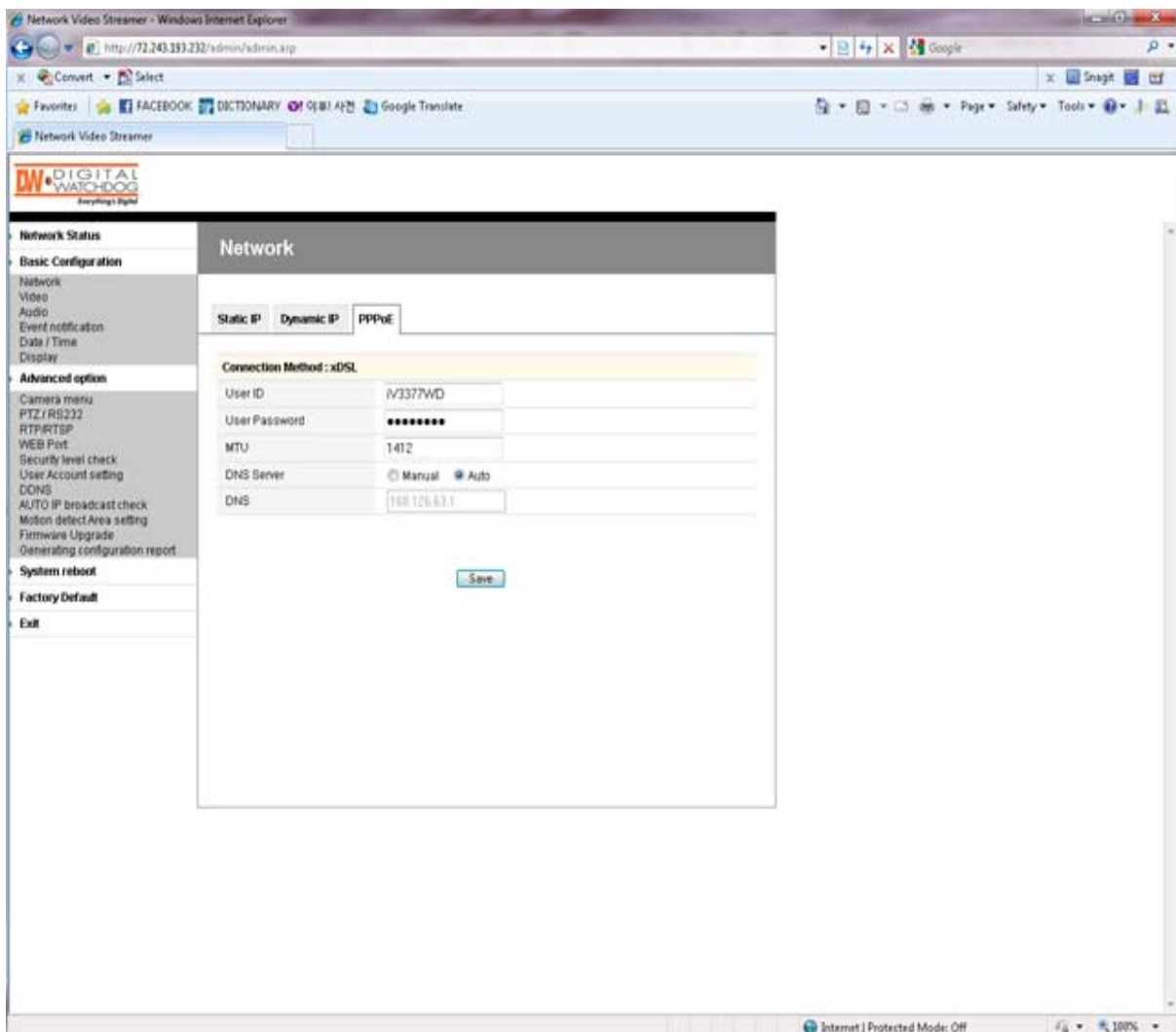
- Use in case the network supports PPPoE like ADSL.

- Ask ISP (Internet Service Provider) for details.

- User ID: ADSL user ID

- User Password: ADSL user password

- MTU: Maximum Transmission Unit of Data

- IP address of DNS sever can be set to create automatically.

- If your ADSL does not use static IP type, you should use Dynamic DNS setting like DHCP.

• **Basic Configuration > Video**

- User can select the streaming type (Encoder or Decoder Mode).
- Compressor supports only an Encoder mode

① **Encoder Mode**

Video Setting

- Preview: User can check the current video setting through the preview images.

  1st / 2nd / 3rd Stream are selectable.

- Video Compression Type: H.264 / MJPEG

  Compression Type of 3rd Stream is MPEG4.

- Resolution: QQVGA / QCIF / QVGA / CIF / VGA / 4CIF / D1

  Resolution of 3rd Stream: QCIF Fixed

- Bitrate Type: CBR / VBR
    - Constant Bitrate: 8M / 7M / 6M / 5M / 4M / 2M / 1.5M / 1M / 750K / 500K / 384K / 256K / 128K / 64K / 32K
    - Variable Bitrate: 1~6 (The highest quality is "1.")

- Frame Per Sec : 1 ~ 30 (NTSC) / 1~25 (PAL)

- Group Size: 1~200 (NTSC / PAL)

- Port: Video and Audio Streaming Port (Each stream must use a different port.)

- Video Type: NTSC / PAL

- Video Color: Auto / Color / B&W

- Aperture: 0~15 (Maximum Emphasis Value is "15.")

- Brightness / Contrast / Saturation / Hue: 0~255

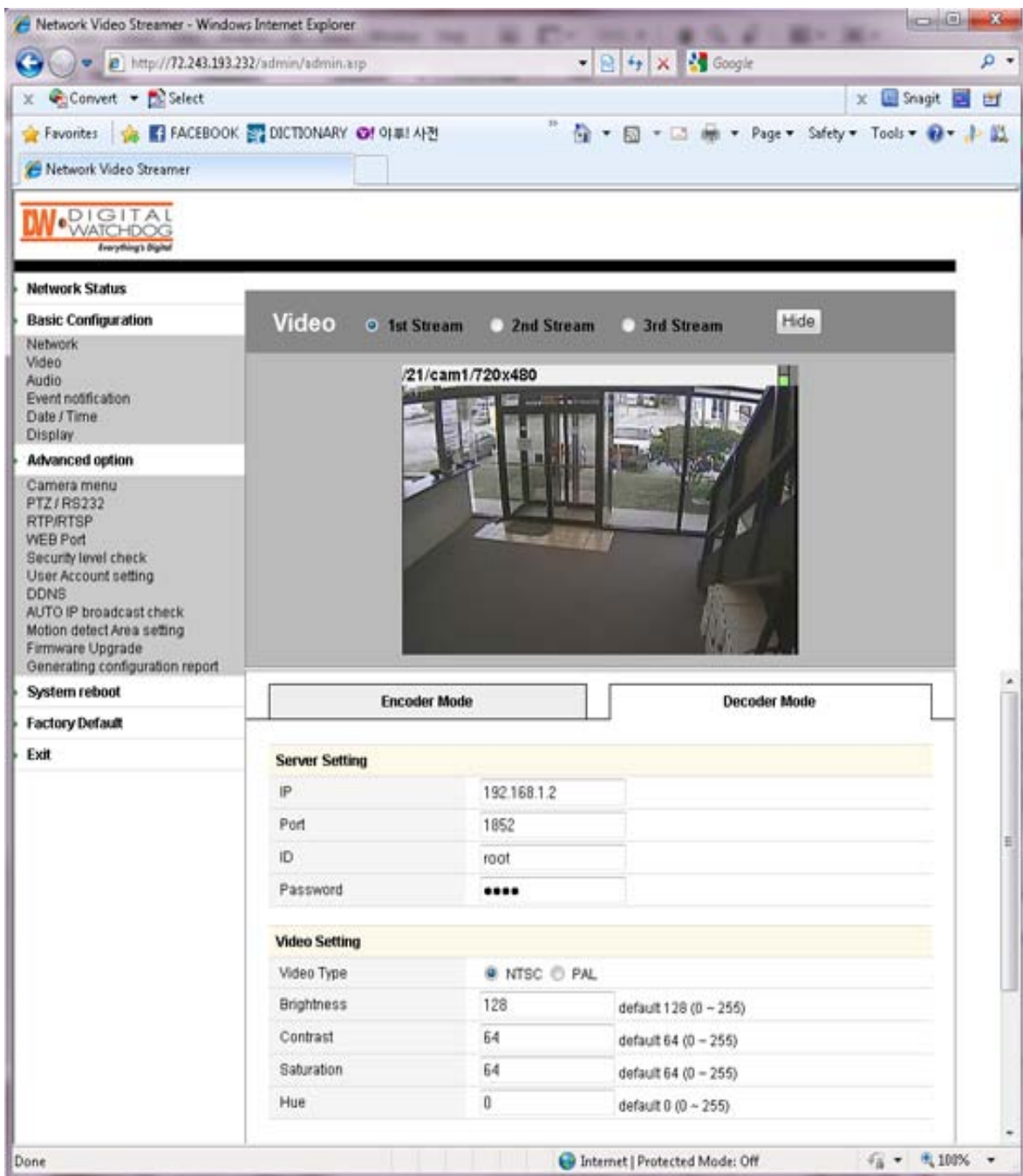- X / Y Offset: 1~21

JPEG Capture

- Enable: Send JPEG Image via HTTP Protocol. (1fps fixed)

- Resolution: Select a resolution (QQVGA~D1).

- Quality: High / 1 / 2 / 3 / 4 / Low

| Jpeg Capture		
Enable	☑	
Resolution	D1	
Quality	High	default 3 (High, 1, 2, 3, 4, Low)

▶ JPEG Capture

② **Decoder Mode**

Server Setting

- IP : IP Address of the Encoder
- Port: Video/Audio Port of the Encoder
- ID: ID of the Encoder
- Password: Password of the Encoder
  *User can check the received video of the Encoder through the preview images.

Video Setting

- Brightness / Contrast / Saturation / Hue: 0~255
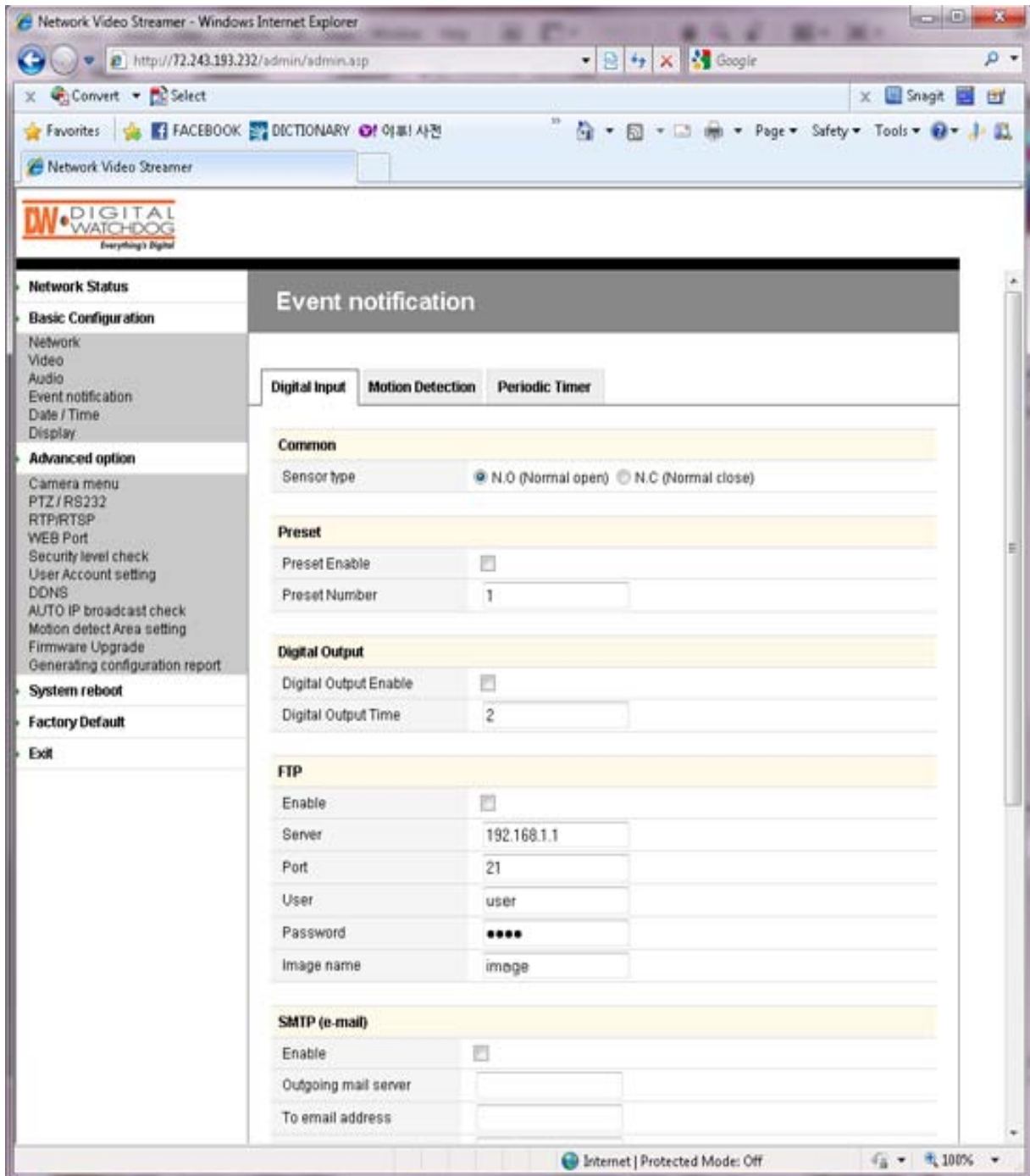
• Basic Configuration > Audio
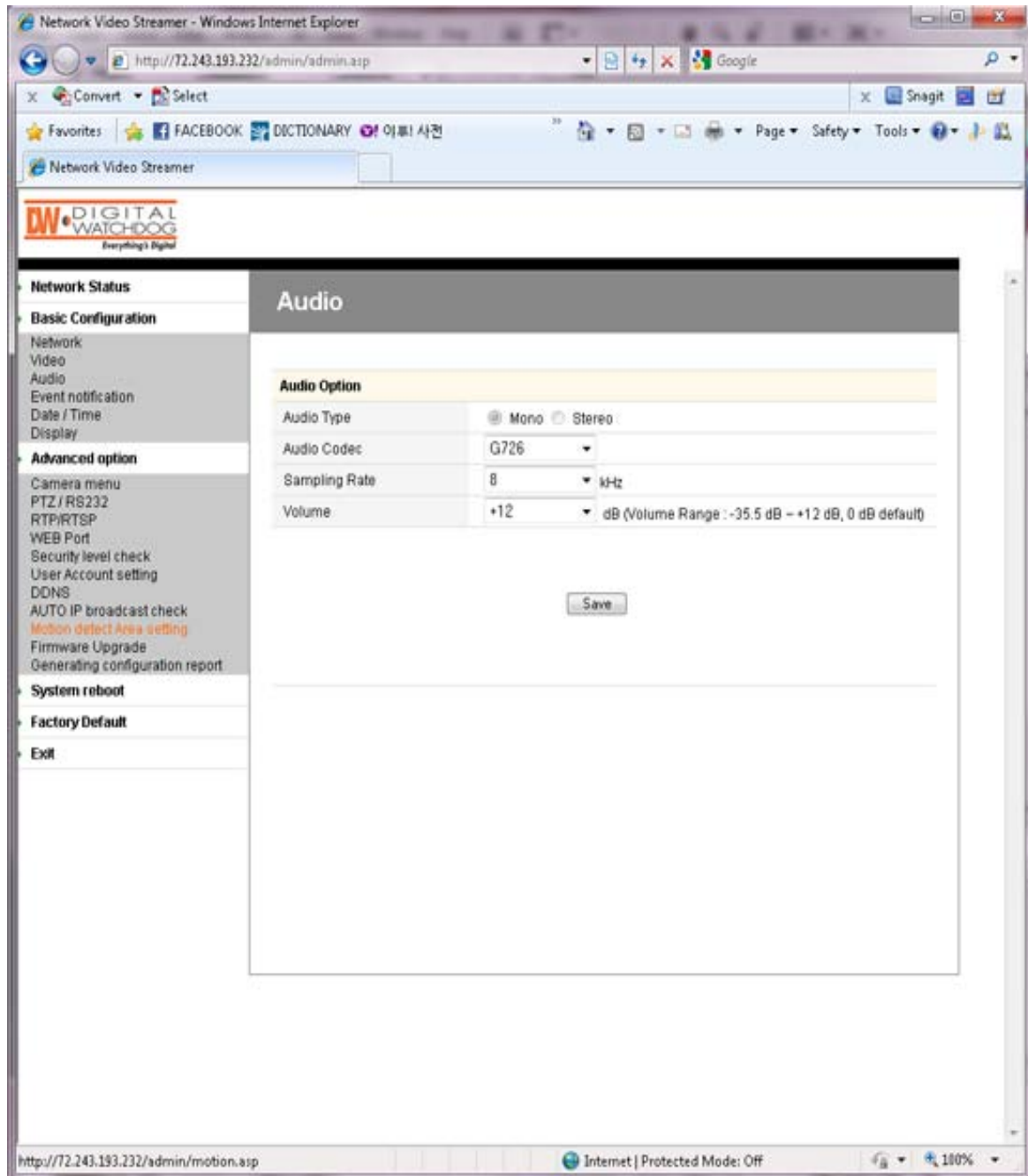
Server to PC Audio Option

- Audio Type: Mono (Fixed)

- Audio Codec: G.711 / G.726

- Sampling Rate: 8kHz / 32kHz

- Volume: -34.5~12dB

• Basic Configuration > Event Notification

① **Digital Input**

Common

- Sensor Type: Select from two types.

Preset

- Preset Enable: Enables the Compressor to send the preset signal to the connected camera that supports preset function.
- Preset Number: A number assigned to the camera to support preset function

Digital Output

- Digital Output Enable: Enables the Compressor to send the digital signal to the connected device.
- Digital Output Time: Adjusts the time for when the Compressor should send the signal (unit:sec).

FTP

- Enable: Enables the Compressor to send a captured image to the FTP server.
- *JPEG Capture is available in the video setting page.*
- Server: IP Address of FTP Server
- Port: FTP Server Port
- User: Account of FTP Server
- Password: Password of FTP Server
- Image Name: File Name of Captured Image
- *Time information will be added with the image name.*

SMTP (e-mail)

- Enable: Enables the Compressor to send a captured image via e-mail.
- Outgoing mail server: SMTP Server
- To e-mail address: E-mail address of receiver
- From e-mail address: E-mail address of sender
- Subject: User can specify e-mail title.
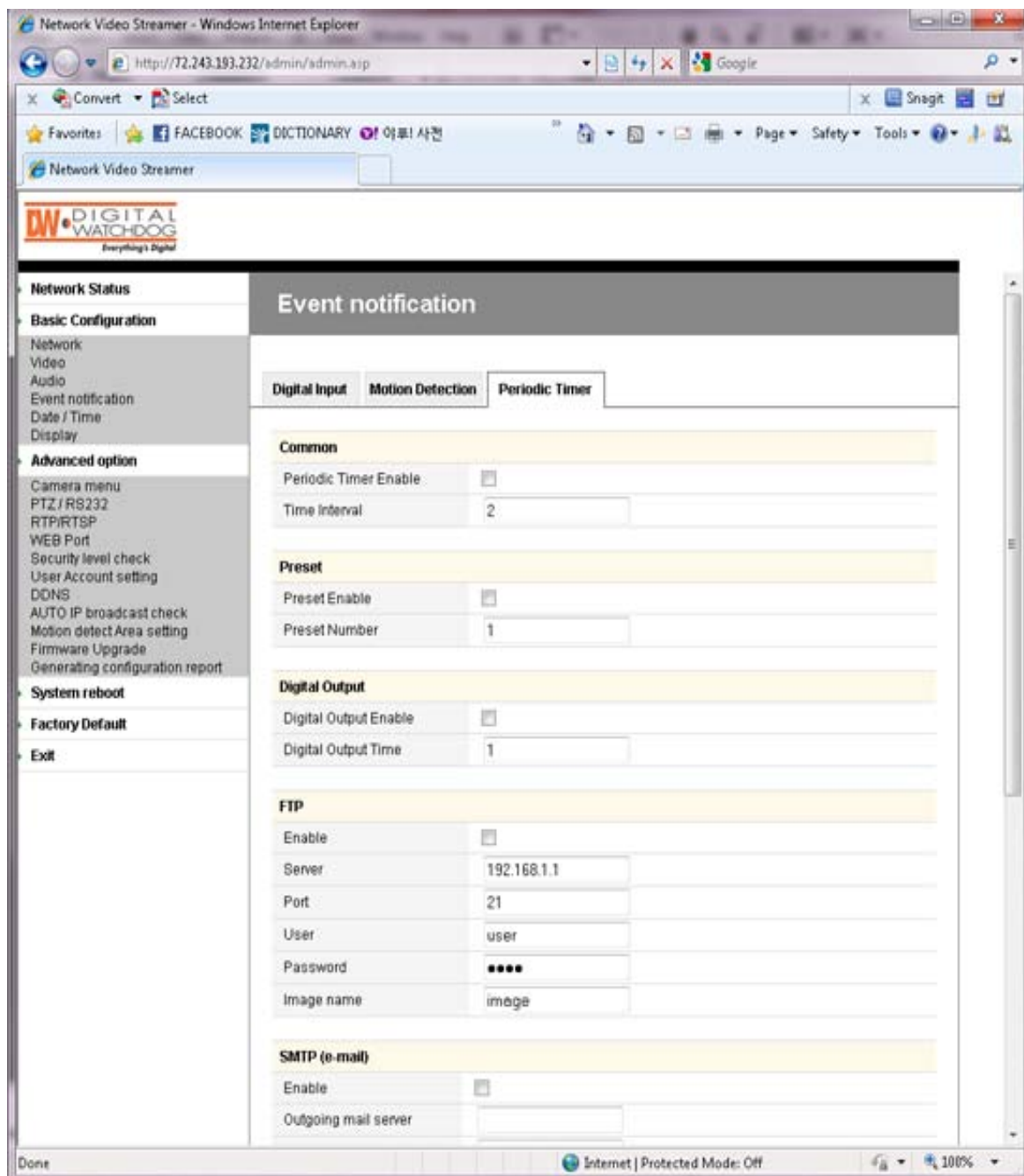- Body: User can specify e-mail message.

② **Motion Detection**
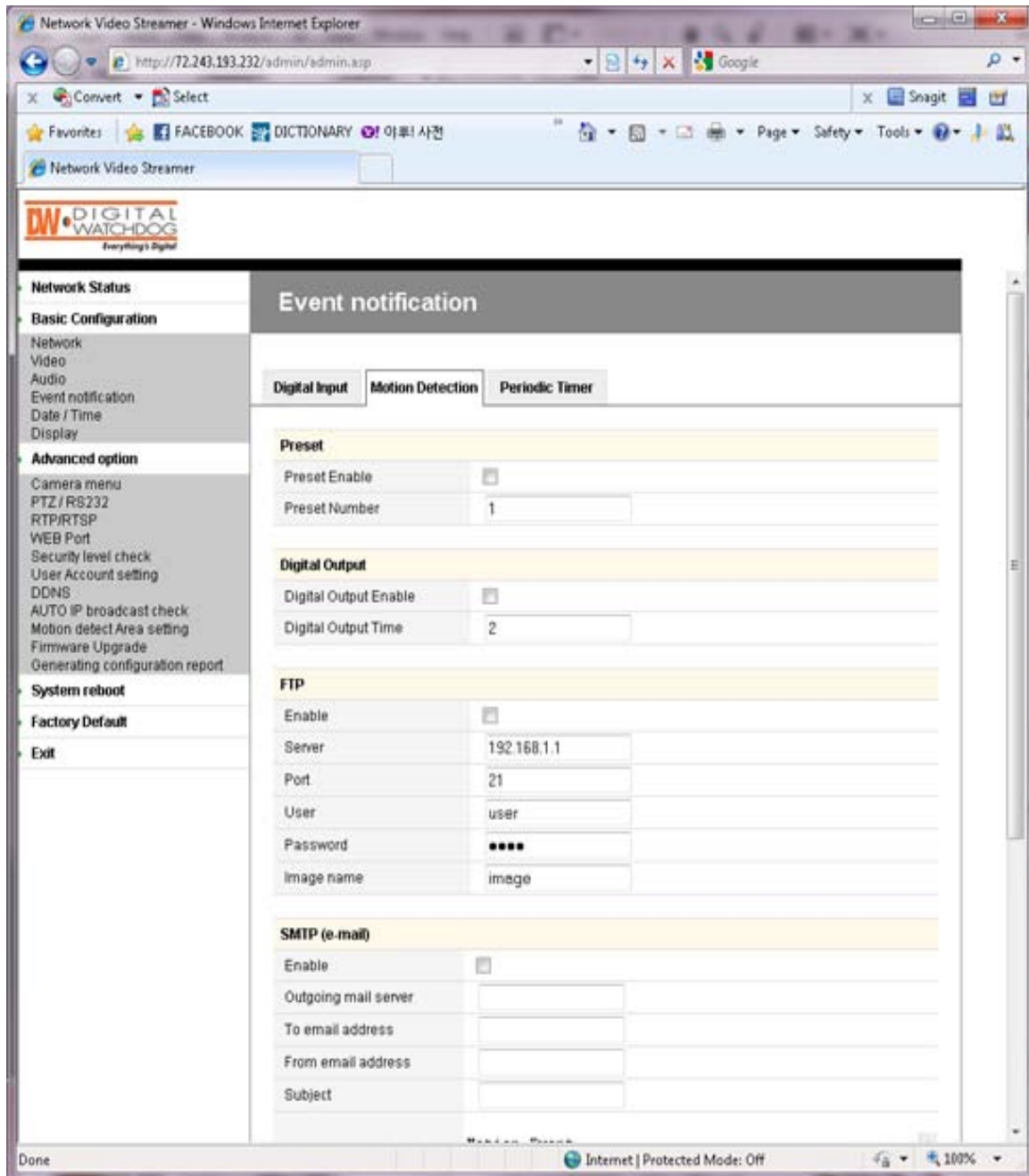
Preset: Same as "Digital Input" Setting

Digital Output: Same as "Digital Input" Setting

FTP: Same as "Digital Input" Setting

SMTP (E-mail): Same as "Digital Input" Setting

③ Periodic Timer

Common

- Periodic Timer Enable: Enables the Compressor to send the signal to the client PC periodically
- Time Interval: Period in Seconds

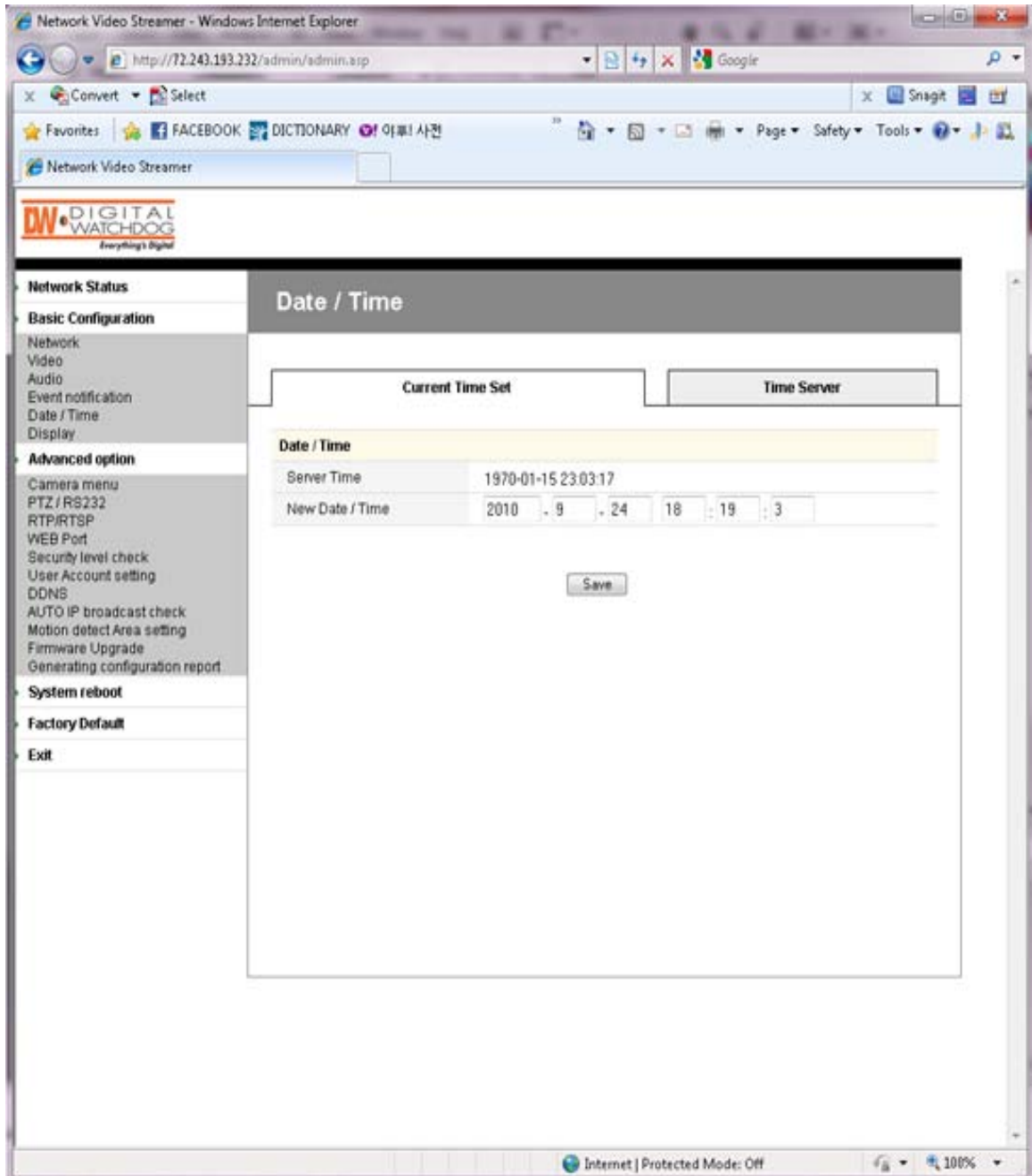**Preset:** Same as "Digital Input" Setting Form

Digital Output : Same as "Digital Input" Setting Form

FTP: Same as "Digital Input" Setting Form

SMTP (E-mail): Same as "Digital Input" Setting

• **Basic Configuration > Date / Time**

① **Current Time Set**

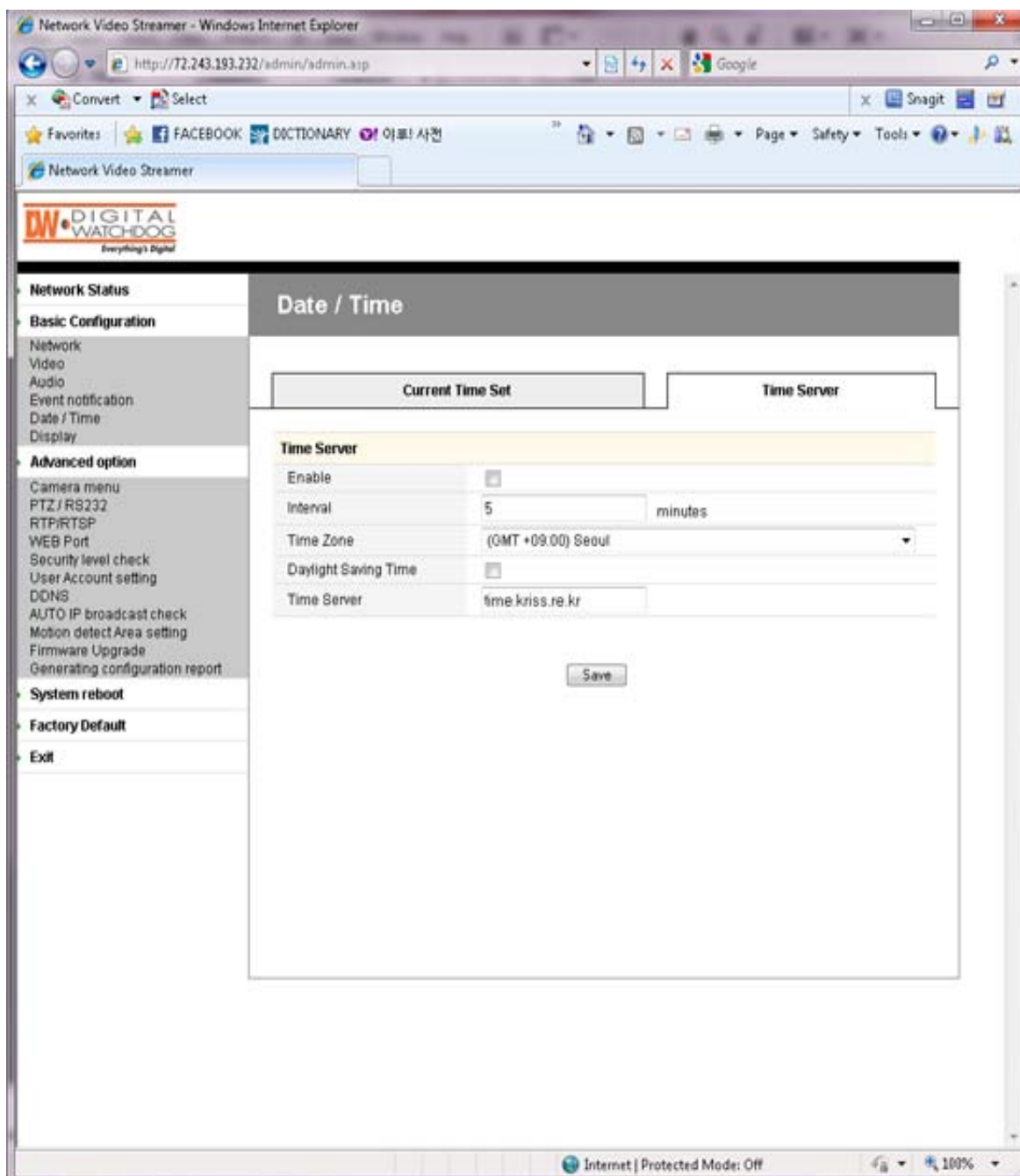

Date / Time

- Server Time: Time that the Compressor internally keeps
- New Date/Time: Specific time that is voluntarily assigned by the user

② **Time Server**

Time Server

- Enable: Enables the time of the Compressor to synchronize with the time server periodically.
- Interval: Period in Seconds
- Time Zone: Selected by the user.
- Daylight Saving Time: Check this box if using daylight savings time.
- Time Server: User assigns a Time Server to apply the current time to the Compressor.
- When finished setting, click the "Save" button and reboot the Compressor.

• Basic Configuration > Display

Text Color

- Background Color: Select a background color.
- Foreground Color: Select a text color.
- Transparency: 0~10

OSD

- Font Size: Normal or Big
- Date Enable: Display Date
- Time Enable: Display Time.
- Channel Enable: Display channel name.
- X Axis: Input a point on the X coordinate / Horizontal.
- Y Axis: Input a point on the Y coordinate / Vertical.

Logo

- *This is the image that is displayed on the OSD of the transferred image.*
- First, upload the logo image (BMP file) on "Expert/Firmware Update/OSD Logo Upload."
- Enable: Check the box to display the image.
- X Axis: Input a point on the X coordinate / Horizontal.
- Y Axis: Input a point on the Y coordinate / Vertical.

Date / Time / Channel Name

OSD Logo
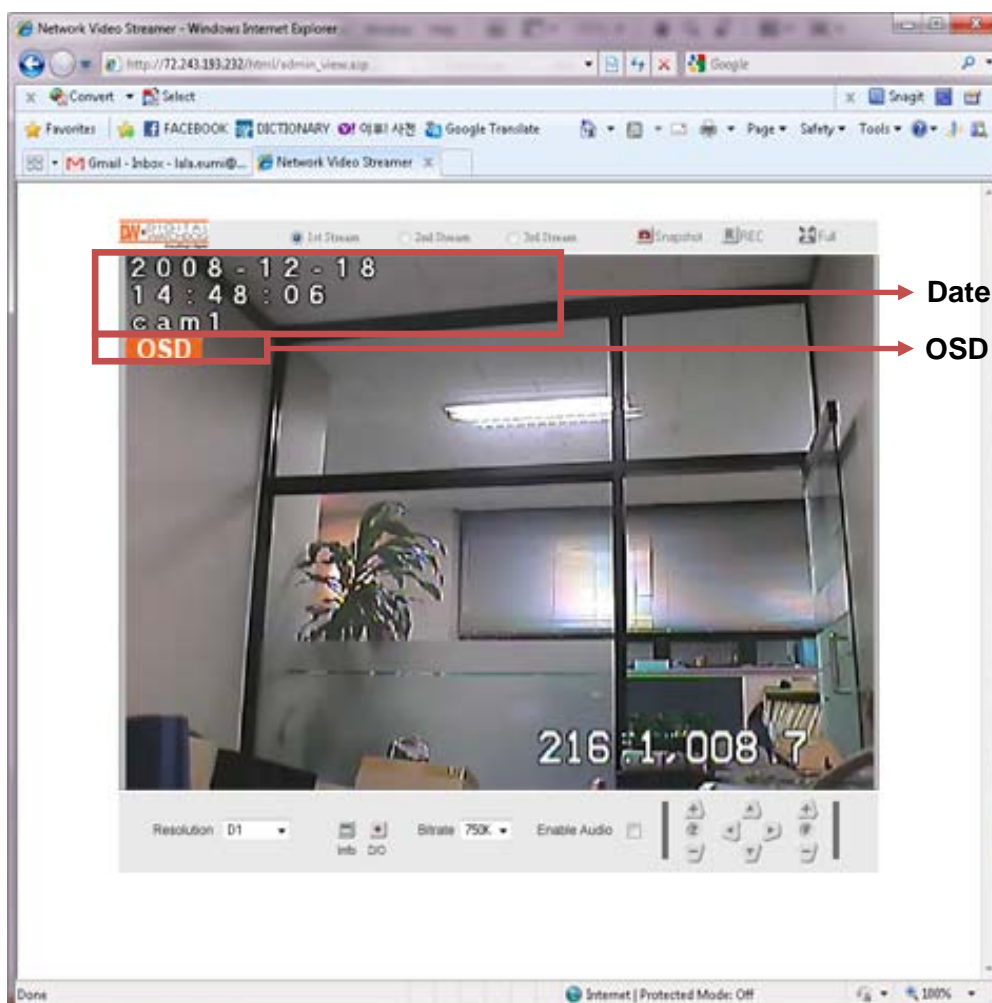
• **Advanced Option > PTZ / RS232**
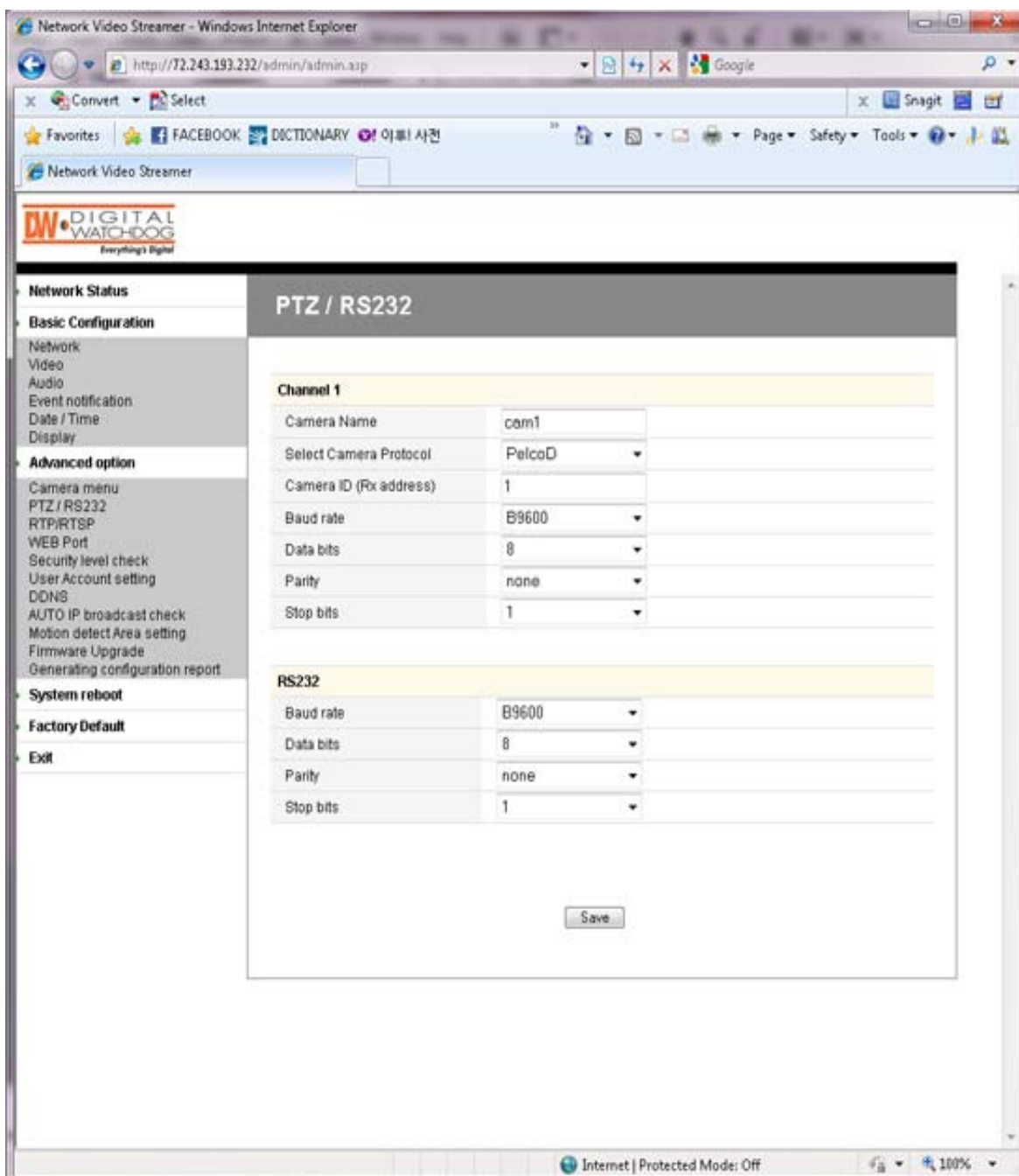
Channel 1

- Camera Name: The channel name of the OSD
- Select Camera Protocol: Select a model of the connected PTZ camera or receiver.
- Camera ID (Rx Address): The Rx Address of the connected PTZ camera or receiver
- Baud Rate / Data Bits / Parity / Stop Bits: Properly select the value by the receiver type.

RS232

- Baud Rate / Data Bits / Parity / Stop Bits: Properly select the value by the receiver type.
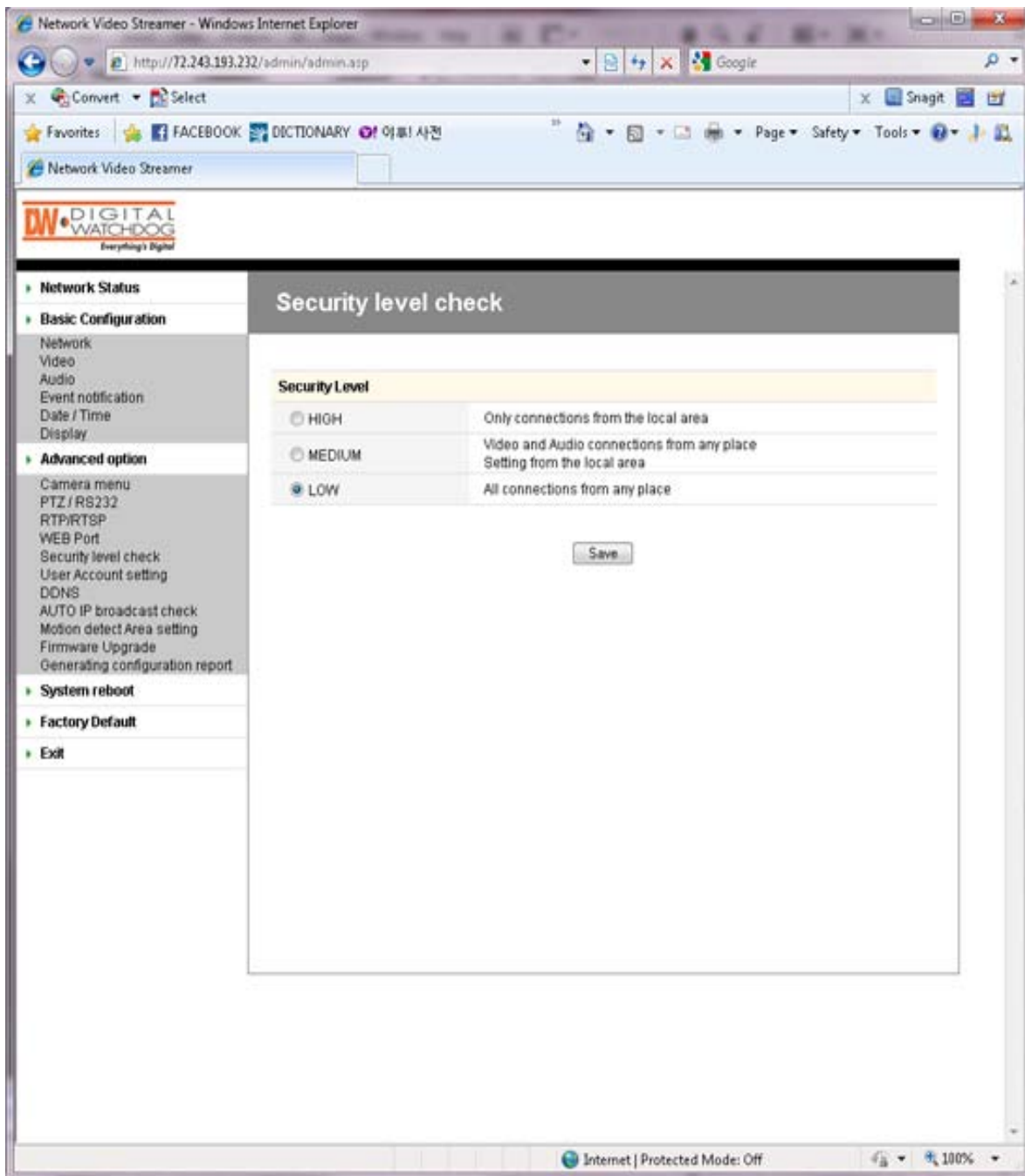
• **Advanced Option > WEB Port**
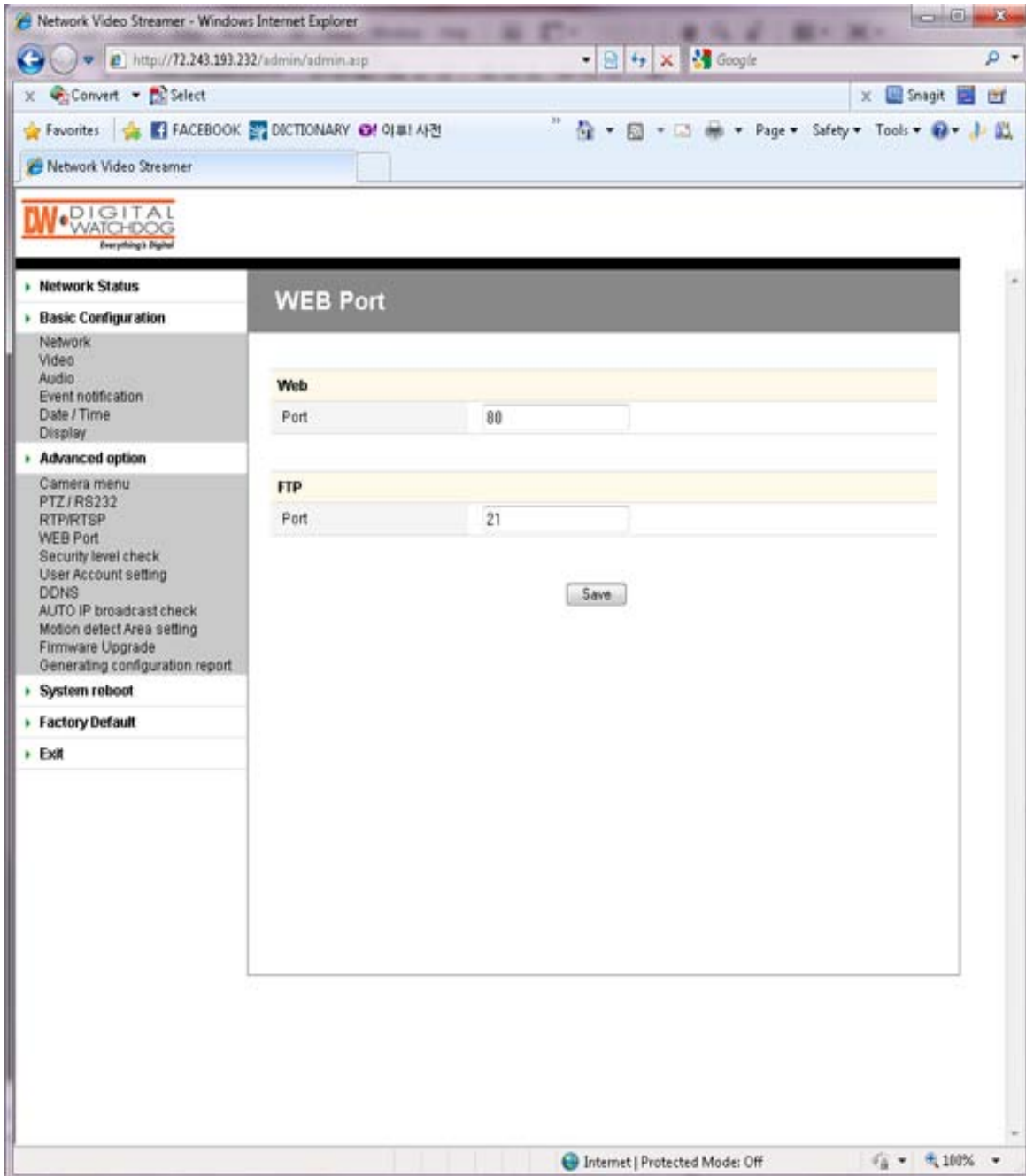
Web

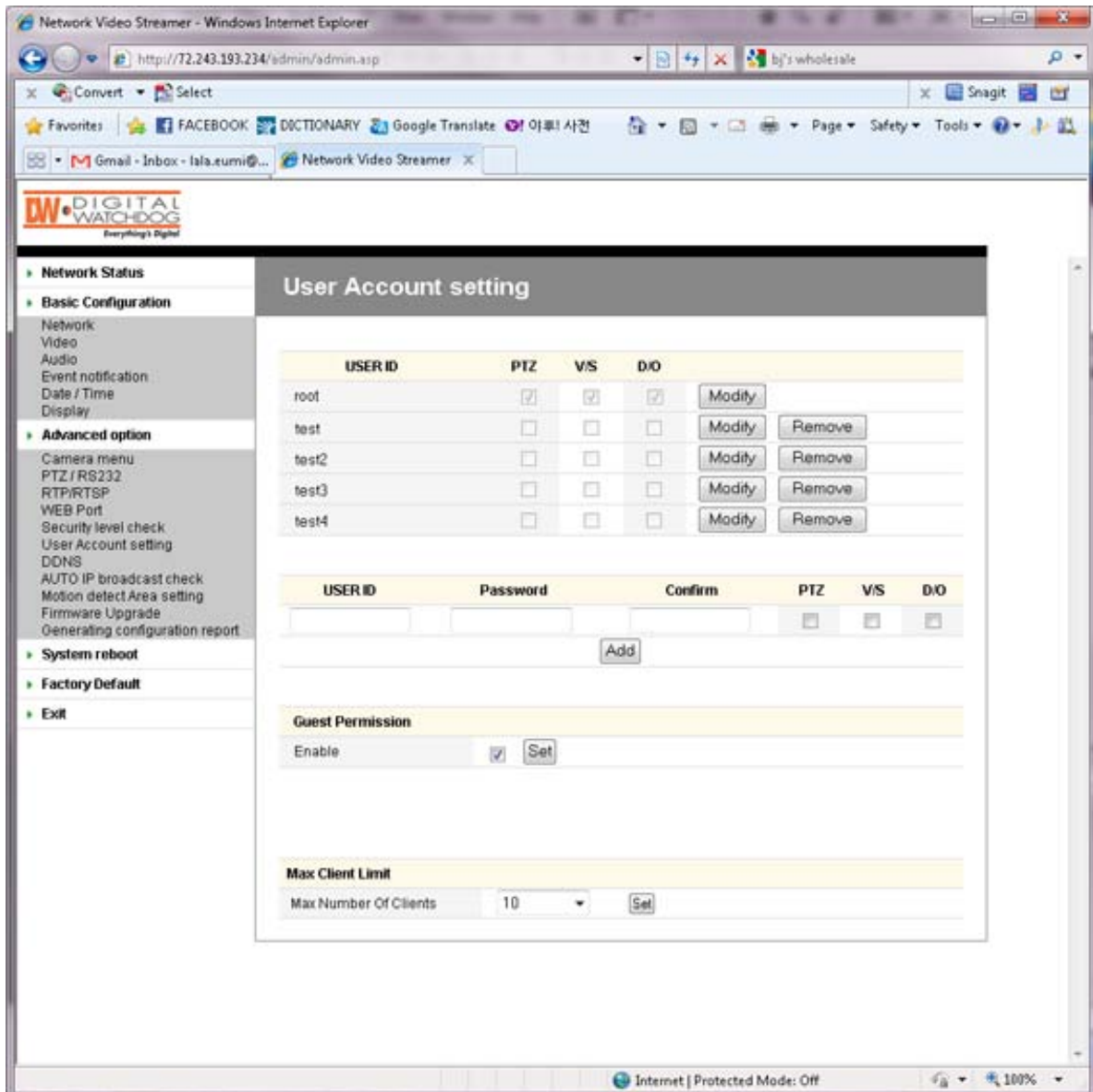- Web Port: Default is 80.

FTP

- FTP Port: Default is 21.

• **Advanced Option > Security Level Check**

Security Level

- HIGH: Only connections from the local area are permitted.

- MEDIUM: Connections from anywhere in the local area are permitted.

- LOW: Connections from anywhere are permitted.

• **Advanced Option > User Account Settings**

Account

- The password amendment of administrator account is available.
- The administrator can add up to 5 users and modify the properties for each user.

Guest Permission

- Determines whether or not the guest is given permission to access the Compressor
- Video and audio monitoring is permitted on guest accounts.

Max Client Limit

- The administrator can restrict the number of simultaneous access. (1~20)

• **Advanced Option > DDNS**

- DDNS is the function that matches an IP address and a host name.
- If a Compressor has the dynamic IP address, the host name by DDNS (Dynamic Domain Name Service) must be used instead of the IP address for the credibility of the network connection.

IPv4 DDNS
- Check the "Enable" box and select one of the following services.
- Both services require some items to be registered on its own service site.
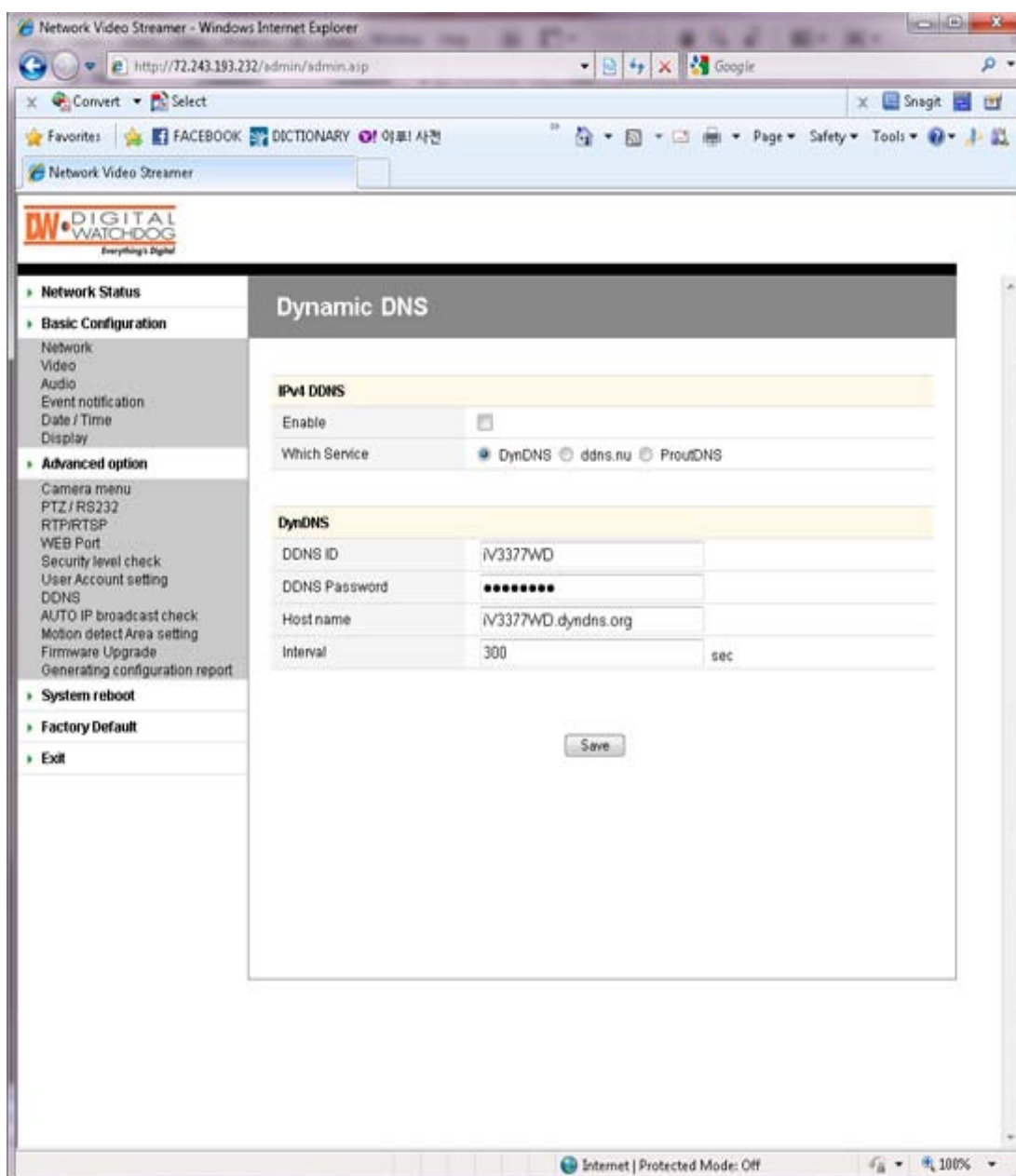
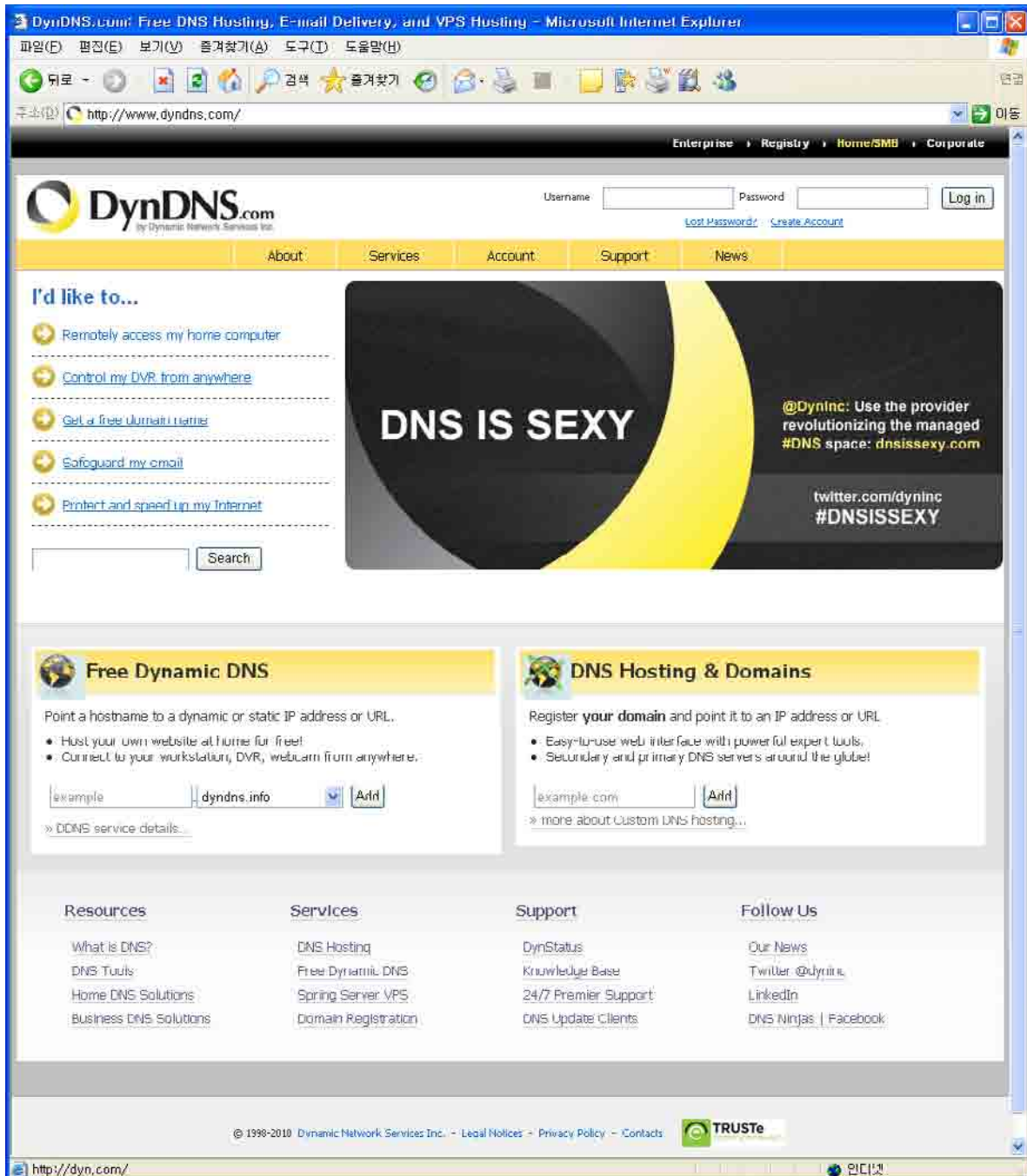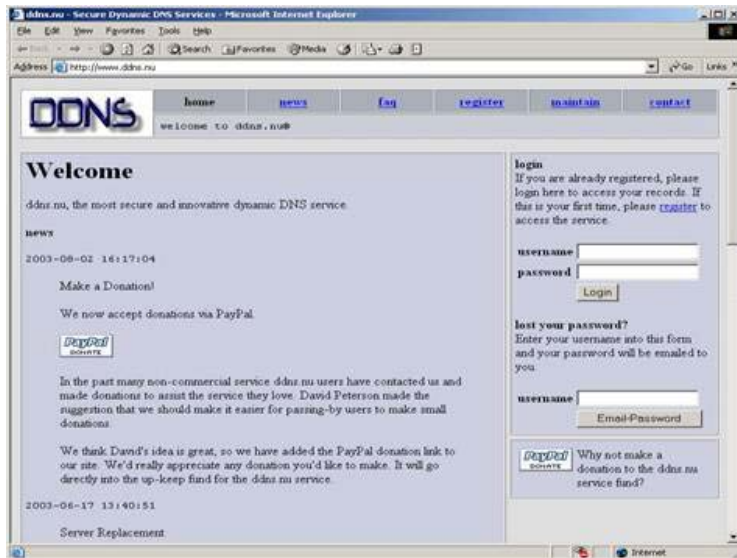

► Using "ddns.nu"

DynDNS

- For use of "ddns.nu," register at www.dyndns.com
- Type the registered DDNS ID, DDNS Password, Host Name, and Interval for updating; click "Save" button; and then reboot the Compressor.

▶ Main Page of "DynDNS"

ddns.nu

- For use of "ddns.nu," register at www.ddns.nu
- Type the registered DDNS ID, DDNS Password, and DDNS handle; click "Ok" button; and then reboot the Compressor.

▶ Main Page of "ddns.nu"

ProutDNS

- ProutDNS is a set of PHP scripts available for you to create your own Dynamic DNS service.
- Type the DDNS server, the registered DDNS ID, DDNS Password, Host Name, and Interval for updating; click "Ok" button; and then reboot the Compressor.
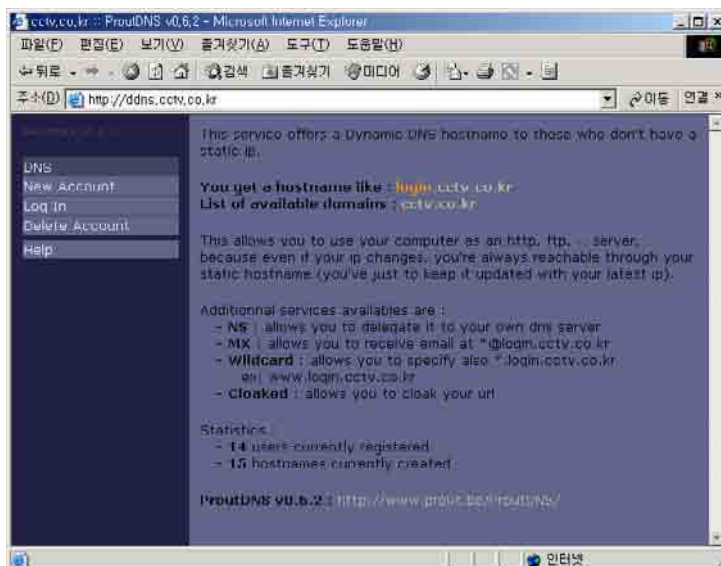

▶Main Page of "ProutDNS"

※ For details, please refer to user's guide "DDNS setup."

• **Advanced Option > AUTO IP Broadcast Check**
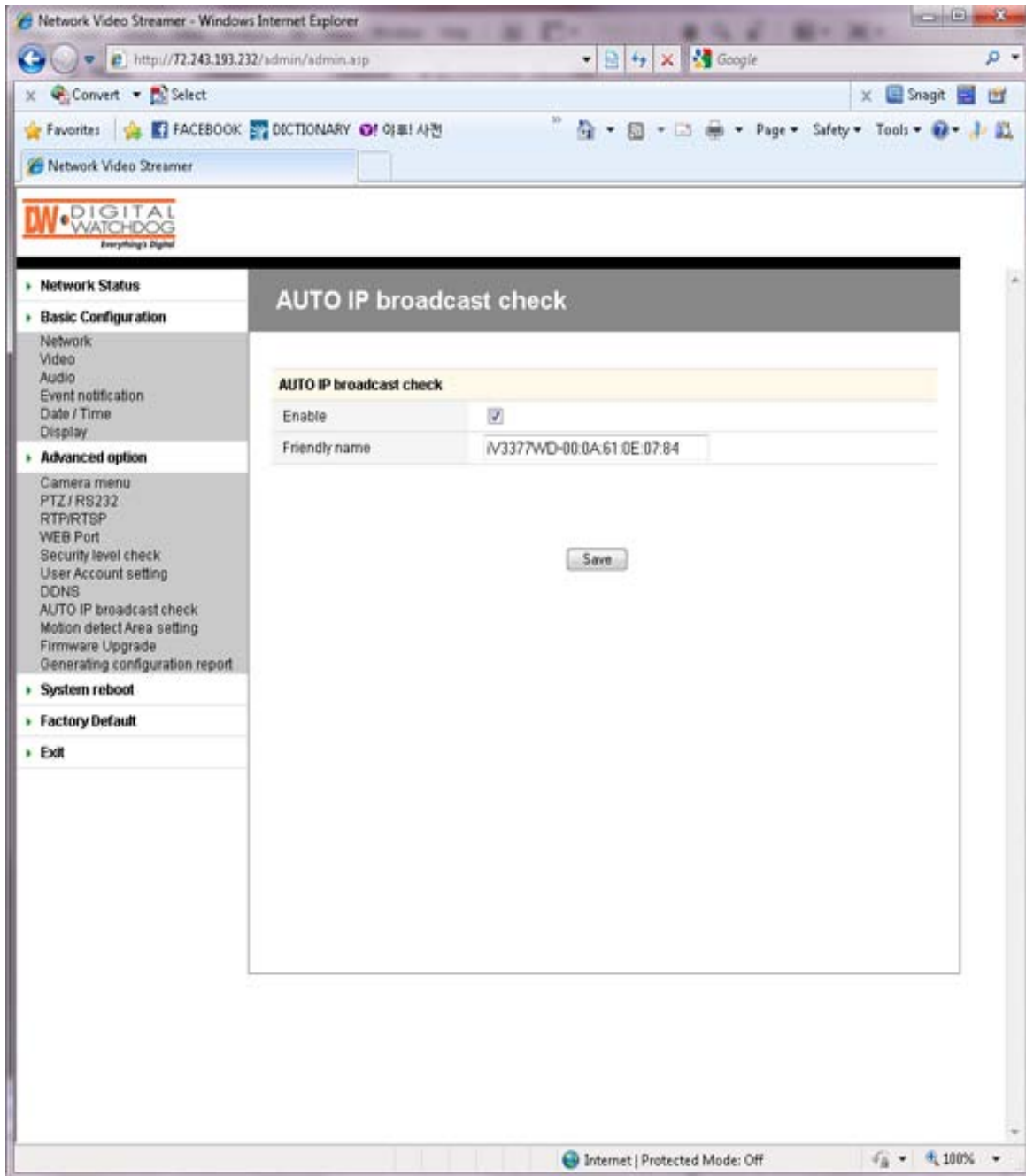
AUTO IP Broadcast Check

- Enable: Check the box to use Compressor's UPnP (Universal Plug and Play).
- Friendly Name: User can change Compressor's friendly name.

- **Advanced Option > Motion Detect Area Setting**
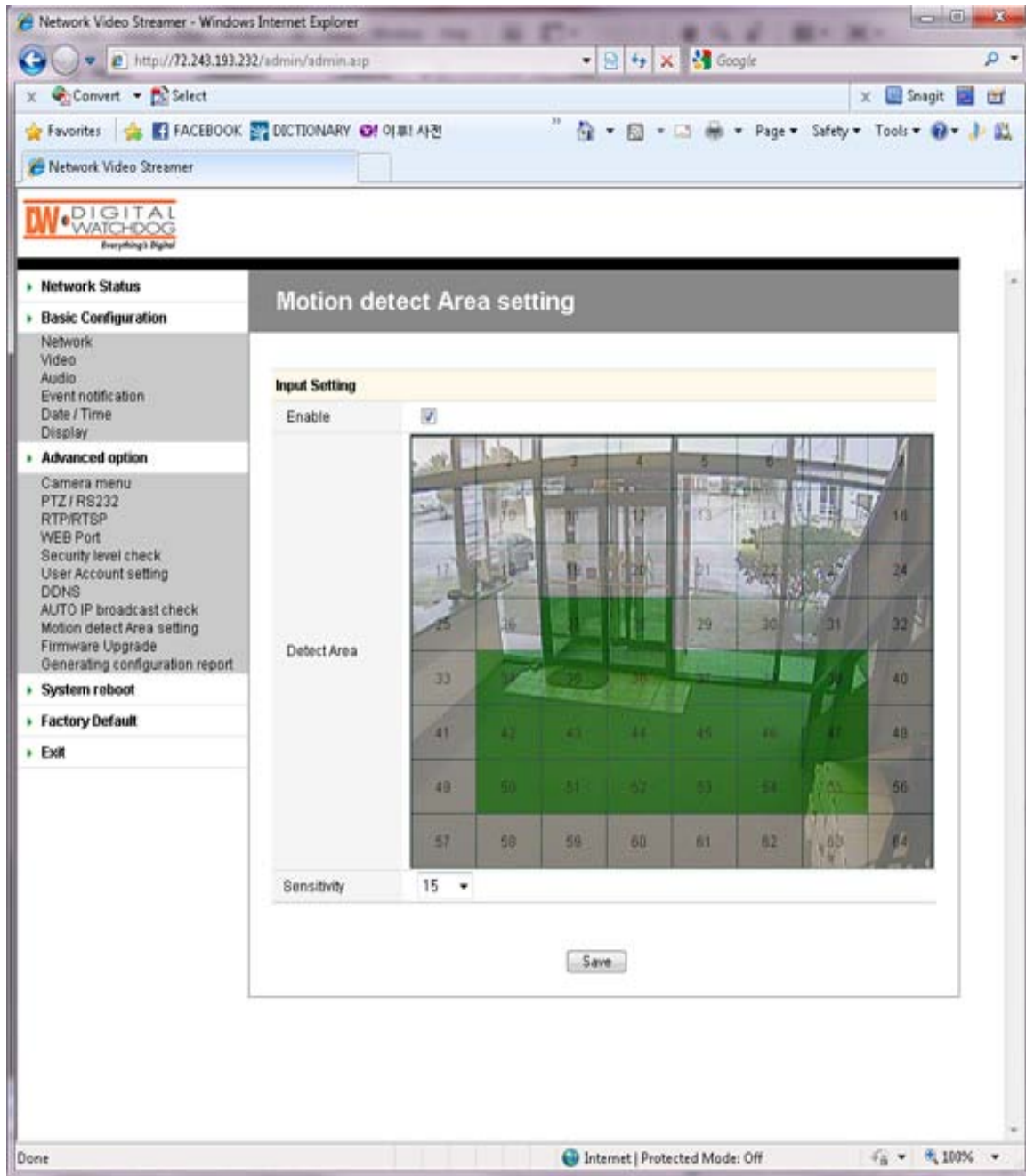
Input Setting

- Check "Enable" box for use of motion detection.
- Detect Area: If the detection area is selected, the color turns green. (If JPEG capture is enabled on the video setting page, user can check a preview image.)
- Sensitivity: 1~30 (Maximum sensitivity in case of the value "1")

• **Advanced Option > Firmware Upgrade**

Language
- Language Select: Select a language file.

  (After selecting a language file, refresh the web browser. Please push F5 button.)
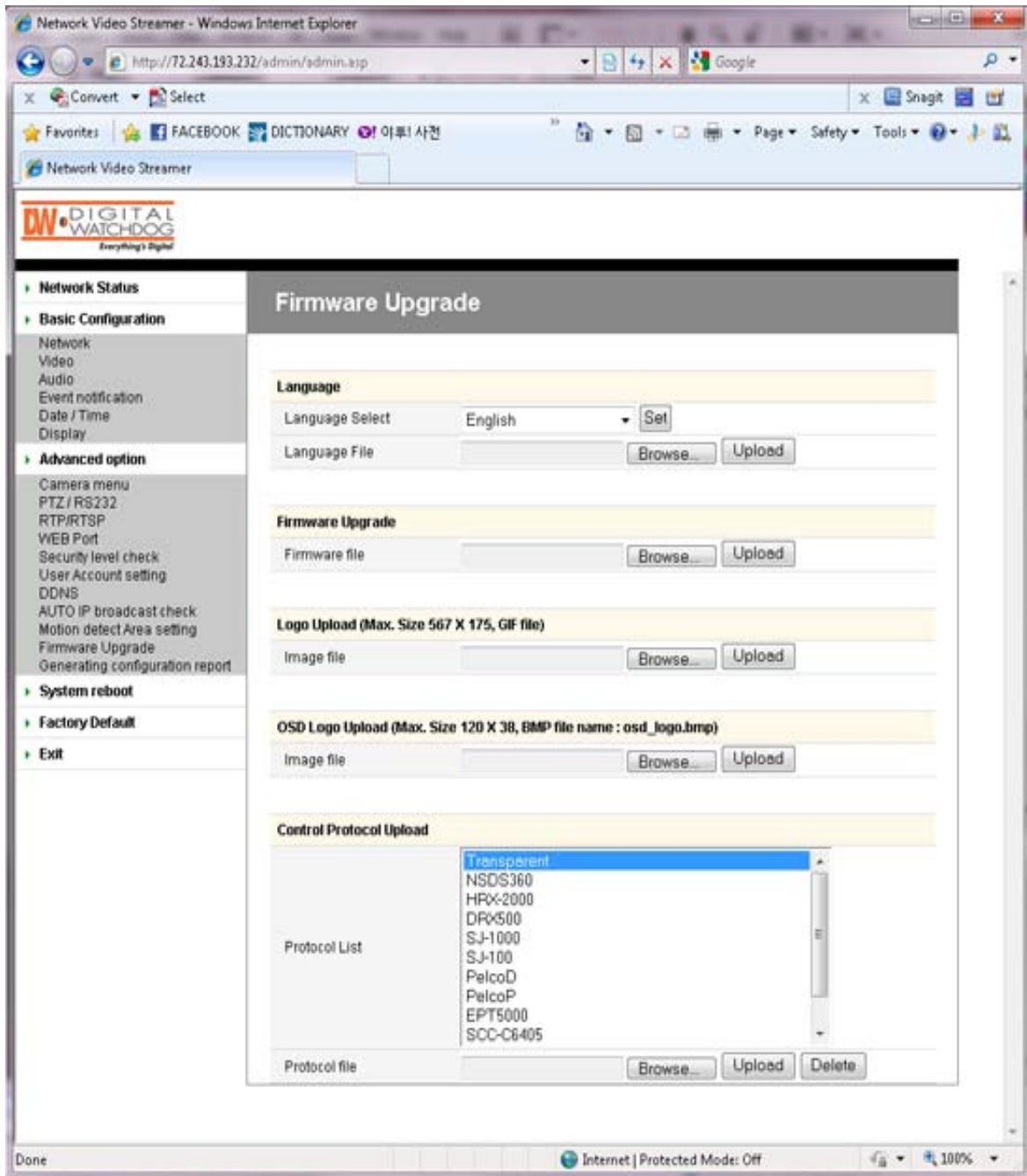- Language File: Add a language file.

Firmware Update
- Uploads the newest firmware, when the browsing button is clicked and the new firmware is found.

Logo Upload
- Changes the logo image file.
- The process is same as "Firmware Update."
- Use GIF file. (maximum size: 567x175)

OSD Logo Upload
- Changes the logo image on OSD.
- The process is same as "Firmware Update."
- User has to use file name by "osd_logo.bmp".
- (maximum size: 120x38)

Control Protocol Upload
- Add a camera control protocol.

• **Advanced Option > Generating Configuration Report**
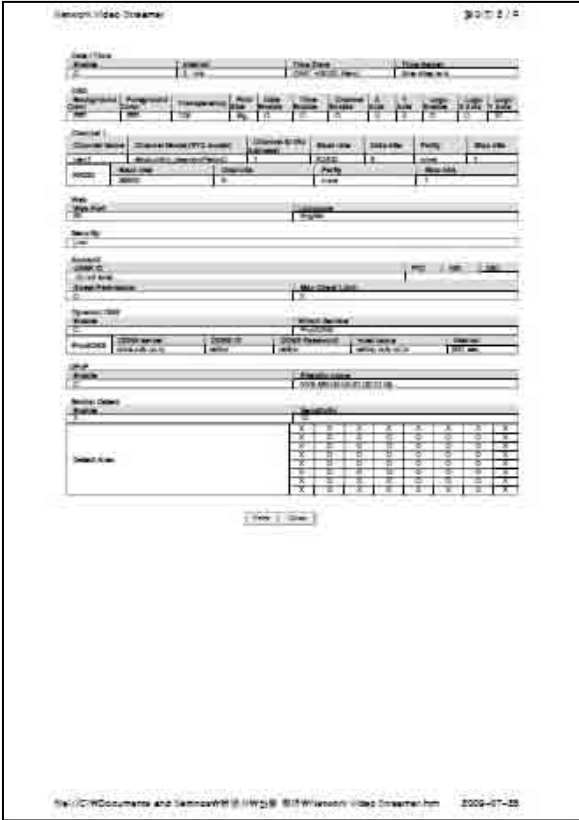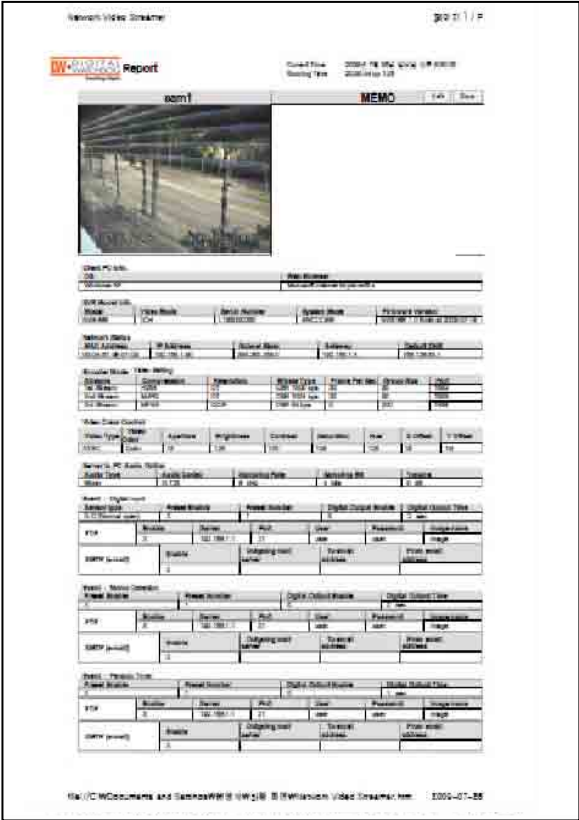
Report

- User can check all the settings for the Compressor.
- User or installer can write memos on the report page.
- User or installer can print out the pages and use it.

Reboot

- To apply the changed setting(s), reboot the Compressor.

► Confirmation Dialog

Logout

- -Go back to the initial connection page.

SPECFICATION

▲ Product Specification

Model		Compressor (CP)	
		CP-01	CP-04
O/S	Operating System	Linux	
Video	Compression Algorithm	H.264/MJPEG	
	Resolution	D1/Half D1/2CIF/CIF/QVGA/QCIF	
	Bitrate	32Kbps ~ 4Mbps	
	Frame Rate	30 fps in All Resolutions	
	Streaming	H.264 Dual Stream or Simultaneous H.264 and MJPEG	
	Input	1 Ch	4 Ch
Audio	Compression Algorithm	G.711/G.726	G.711/G.726/ADPCM
	Bi-Directional	Two Way, Full Duplex	
	Input / Output Compression	1 Ch Input / 1 Ch Output	4 Ch Input / 1 Ch Output
	Line Input	1.0 VRMS	
	Line Output	1.0VRMS	
IO Control	Alarm Input / Relay Output	I Ch Input / 1 Ch Output	
	RS-232 Port	1 Ch for External Control Device	
	RS-485 Port	1 Ch for PTZ Camera	
Network	LAN	10/100 Based-T (RJ45) - Fixed IP, DHCP, & DDNS	
	Mobile Device Support	iPhone, Blackberry, 3G Mobile	
	Remote Management — Software	DW-NEXUS, DW-Pivot, DW-Hybrid DVR, Web Browser	
	Remote Management — Web (IE)	Live Monitoring, Playback, and System Configuration	
Backup	External	Local Backup by SD/SDHC Card	
Power	AC/DC Adapter	12V x1A D/C Adapter, PoE	12vx1A D/C Adapter
	Consumption	300 mA	400 mA
Physical	Dimension and Weight	169mmx117mmx31mm / 345	224mmx160mm44mm / 930
	Storage Temperature	-20°C ~ 74°C	-20°C ~ +74°C
	Operating Temperature and Humidity	-10°C ~ 55°C / 20 ~ 90% RH	0°C ~ 40°C / 20 ~ 90% RH

▲ Recommended Specifications of External Devices

Item		Specification
Network		10/100 Base-T LAN (Dedicated IP line, ADSL, Cable Modem)
Client PC	Processor	Pentium Dual Core or Above
	RAM	2GB or Above
	Graphic Card	512MB or Above
	OS	Windows 2003 / XP / Vista / 7
	Monitor	1024 X 768 Pixels or Above