AirGoggle™ NVS 440

Network Audio/Video Server

User's Manual

Inscape Data Corporation

Directions

NVS440 is designed for indoor use only. When using NVS440 outdoors or in an environment that exceeds the limited range, you must separately use a water-resistant case.

Be careful not to cause any physical damage by dropping or throwing the NVS440 A/V Server. Especially keep the A/V server out of reach from children.

Do not disassemble NVS440. You will be excluded from After Service when disassembled.

Use only the power adapter provided with the NVS440.

If you would like to use the NVS440 A/V server for security, monitoring, please check the legal regulations within the country.

Note

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

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

Caution

Any changes or modifications in construction of this device that are not expressly approved by Inscape Data could void the user's authority to operate the equipment.

Caution

None of the parameters in administrative page should be changed while NVS440 is recording video or while you are playing back recorded video from NVS440.

Table of Contents

1. Introduction

1.1. Overview

The Air Goggle NVS440 is a state-of-the-art 4-channel A/V server which transmits both video and audio data in real time with high-resolution at high frame rate. This feature is possible via the use of MPEG4 CODEC technology, which provides data transmission at high compression rates with high data resolution via networks. The NVR440 can be connected, controlled and monitored from a remote network location. Unlike CCTV or DVR, the NVS440 is easy to install and cuts costs and space without any additional installation. The feature packed NVS440 is based on Embedded Software Solution (Embedded Web Server, Embedded Streaming Server, Network Protocol). The NVS440 ensures high performance, stability, and provides integration of various Internet solutions.

1.2. Features of NVS440

• 4-channel real time Video/Audio streaming based on **MPEG-4 video and ADPCM audio**.
• 1-channel Full Duplex Audio between NVS440 and Client PC for two-way communication
• Viewer assisted **recording and playback functions**.
• 4 Alarm sensor inputs and 2 relay control outputs
Motion detection – Up to 3 motion detection regions per channel. Motion detection can initiate video recording, which has the option to be sent to the user through FTP and/or E-mail.
Resolution :
NTSC Video : 640x480(VGA) for one channel, 320x240(QVGA) for 4 channels.
PAL/SECAM : 704x576 for one channel, 352x288(CIF) for 4 channels
• Remote Software Upgrade over Network

1.3. Applications of NVS440

(Security surveillance (buildings, stores, factories, parking lots, banks, government facilities, military, etc.)
(Real time Internet broadcasting (resort areas, events, etc.)
(Remote monitoring (hospitals, kindergartens, traffic, public areas, etc.)
(Teleconference (Bi-directional video conference)
(Remote Learning
(Weather and environmental observation

2. Product Description

2.1. Contents

Open the package and check the following contents:

Contents	Description	Remarks
NVS440	A/V server	Main Unit
AC Power Adapter	Input : 100~250V 50-60Hz Output : +12V, 2.0A	
AC Power Cable	AC 250V, 10A~16A	
LAN Cable	2m LAN cable – Crossover type	For direct connection between the server and PC.
CD-ROM	Product Software & User's Guide	
Quick Install Guide	Easy to follow quick install guide	
Alarm/Relay Connector	Adapter to connect external sensors and alarm devices	2 sets

2.2. Content Preview

NVS440	IP-Installer	NVR100 Software
		
NVS440 Network A/V server	IP address management PC software	Full feature NVR100 PC software to view and record A/V streaming data and control the mode of operation.

2.3. Physical description

2.3.1. Front panel

Figure 2-1. Front panel of NVS440

Status indicator:

As shown in Figure 2-1, there are three status indicator LEDs. From left to right they are HDD, LAN and Power.

HDD : HDD access indicator, LED turn on when HDD is being busy.

LAN : Link indicator, continuous green light means that LAN is in normal state. When there is traffic on the LAN, orange light flickers.

Power : Status indicator shows the status of the NVS440 in three different colors.

① Green : The green light indicates that the NVS440 is operating properly. If the green light is continuously on, it means that the NVS440 is ready to transmit data via network. If the green light blinks, it means that there is traffic between LAN and NVS440.

② Red : The red light indicates that the hardware of the NVS440 is not operating properly.

③ Orange : The orange light indicates that the software of the NVS440 is not operating properly.

When applying power to NVS440, power indicator temporarily lights on with red color and then returns to green. This is the normal condition.

2.3.2. Rear panel

Figure 2-2. Rear Panel of NVS440

Ethernet : 10/100 Mbps Ethernet connector (RJ-45).

Line/Mic In: They are used to connect external audio source or microphone to NVS440. There are 4 Line/Mic. In connectors.
Use Standard stereo earphone jack for the connection.

- **Line Out** : It is used for connecting external speakers with built in amplifier. Audio from remote site is output through Line out in bi-directional audio mode.
  Use Standard stereo earphone jack for the connection.
- **Video1- Video4 :** 4 Video input (composite NTSC, PAL, SECAM)
- **Terminator** : Enable termination by 75 Ohm resister for each video input when switched on.
  Leave the terminator to ON position when no other device is sharing the same video line. In other words, if the NVS440 is not the last device in the video bus network, disable termination, otherwise enabled termination if it is the last device.
- **Reset Button** : Used for resetting the NVS440 to default factory parameters. The Button is a pin-hole located between Video4 and RS-485 connector. Use a pointed tool to press the button for 3 seconds and release. Shown in Figure 2-2 circled in red.
- **RS-485 and RS-232 interface** : Used for interfacing of Pan, Tilt, and Zoom (P/T/Z) devices
  The pin assignments for the shared interface are as follows:
  Pin 2 – RS-232 In
  Pin 3 – RS-232 Out
  Pin 5 – RS-232 GND
  Pin 8 – RS-485 Negative (-) input
  Pin 9 – RS-485 Plus (+) input
  (Either one type of RS-485 or RS-232 interface can be used at one time.)

- **Relay output** : Used for interfacing external alarm generators such as sirens, beacons, or alert equipments. When activated, the relay output interface provides a close circuit path which shorts the two terminals providing a complete electrical path. Two Relay output interface, A

and B, are provided.

Alarm Input : The 4 port alarm sensor input connections provides external alarm sensors such as infrared, heat, or magnetic sensors.

Power Connector: Accepts power of 12VDC and 3A

2.4. PC Requirements

Audio/Video monitoring and recording can be achieved with the use of NVR100 Software program running on a PC. The Minimum PC requirement follows:

	Minimum	Recommended
CPU*	Pentium III 700	Pentium IV 1.8G above
Memory	128 MB	256MB or more
Operating system**	Windows 98 SE.	Windows 2000 or later
Web browser	Internet Explorer 5.0	Internet Explorer 5.0 or later
Video Resolution	1024 X 768	1600 X 1200
Network	10 Base-T Ethernet	10/100 Base-T Ethernet

* CPU: Faster CPU is recommended to avoid unexpected delay in multi-channel real time video streaming

** Operating Systems supported : Windows 98 Second edition,
Windows NT Workstation 4.0 (SP 5.0 OVER)
Windows 2000 Professional
Windows XP Professional / Windows XP Home Edition

2.5 Quick Installation Guide

Brief information for rapid installation is provided in this section. For more detailed information you are recommended to refer to pertinent documentations provided with the product or refer to Inscape Data's home page (**http://www.InscapeData.com**).

1. **Install "IP installer" and "NVR100 Software" on your PC.**
   Detailed information for installing these programs can be found in **[IP-Installer User's Guide]** and **[NVR100 Software User's Guide],** respectively.

2. **Assign an IP address to NVS440 via the IP installer software.**
   Identify the type of the network environment and set up an IP address accordingly. Detailed process of setting up the IP address can be found in **[IP-Installer User's Guide]**. If the network type is xDSL or Cable modem you will need supplementary information provided by your ISP.

3. **Connect to NVS440 in Administrator Mode for initial parameter set-up.**

   All parameters are set to factory default state when NVS440 is delivered to you. Detailed information of using administration mode can be found in section 5 **[5. Configuring the A/V Server in Administrative Mode]**. The parameters in the following table should be set-up with proper values. Detailed information for the parameters in Administrator Mode can also be found in section 5 **[5. Configuring the A/V Server in Administrative Mode]**

   NOTE: The set-up values are preserved even the power is turned off.

Reference	Parameter	Setup value	Factory default value
Section 5.2	Max Upload Bandwidth	Set this value lower than allowed upload bandwidth.	10Mbps
Section 5.2	Max Users	Number of users allowed to share video	10users
Section 5.4	Administrator name & password	For security reasons, you are recommended to change these values from factory default settings. Please note these new values in a secure place.	Username : root Password : dw2001
Section 5.4	Current Time	Input correct time in this field.	2001/1/1

4. **Connect audio/video sources and output devices to the NVS440 accordingly.**

   NOTE: NVS440 does not function properly if there is no video and audio input. Please Reference to the following table for proper functional setup. You have to connect at least one Video source.

Connectors	Function	Signal description	Number
Video In	Input video connector	Analog video outputs from analog CCTV camera, DVD, TV etc., (NTSC/PAL/SECAM)	1 to 4
Line In/Mic	Audio in	Microphone or output from audio devices.	1 to 4
Line Out	Audio out for speaker	When in bi-directional audio mode, Audio signal from remote site is available from this connector. Use speaker with amplifier.	1
Alarm IN	Connecting Alarm Sensor	Example: IR sensor, Motion Sensor, Smoke Detector, and Many more type of sensor.	1 to 4
RLY Output	Connecting Alarm alerting device	Example: Siren, Beacon, External Relay.	1 to 2
RS485	PTZ device control	Output signal controlling an PTZ device	

5. Video connection to NVS440

You can connect to NVS440 in video mode by running "NVR100 Software" program on your PC. Detailed information of using "NVR100 Software" can be found in [NVR100 Software User's Guide].

3. Connecting the NVS440

NVS440 supports LAN, xDSL, and Cable modem. It also support shared IP network where single public IP address is shared by many internal network clients. Refer to **[IP-Installer User's Guide]** for details of setting the IP address for the NVS440.

3.1. Connection to a LAN

Typically the NVS440 is connected to a LAN as follows:

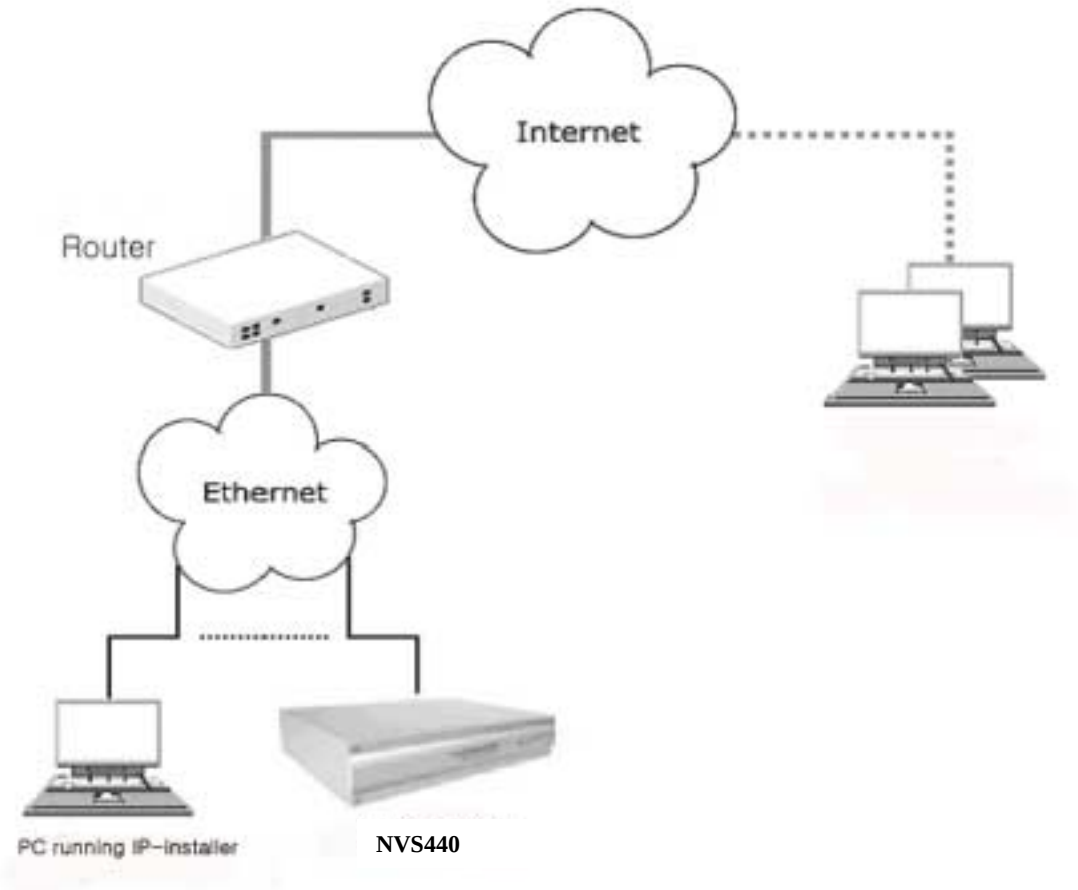

Figure 3-1. Connecting the NVS440 to LAN

1. After power on, connect the NVS440 to a LAN.
2. Assign an IP address to the NVS440 by using the IP-Installer. Make sure the PC running the IP-Installer is in the **same subnet** as NVS440.
3. Check if video streams can be viewed with NVR100 software.

3.2. Connecting to xDSL Modem

1. After power on, connect the NVS440 to a PC or Notebook via a crossover CAT 5 network cable provided with the system.
2. Setup network parameters by running "IP-Installer."

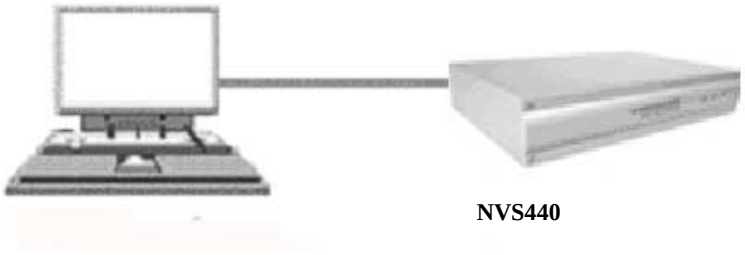

Figure 3-2. Direct connection using crossover LAN cable

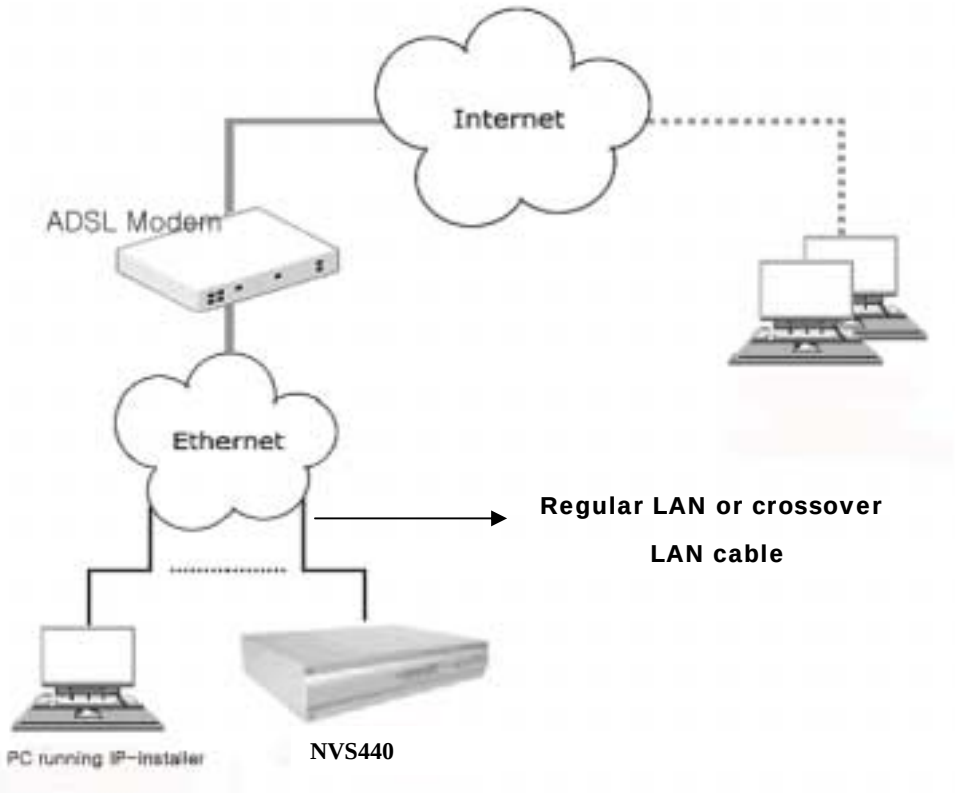

Figure 3-3. Connecting the NVS440 to xDSL

3.Remove the CAT 5 crossover network cable to the PC or Notebook and connect the NVS440 to the network using standard CAT 5 network cable. Verify the connection by using the NVR100 network video software to see if the video source is viewable.

In most cases when connecting the NVS440 to a xDSL Modem, a standard Ethernet network cable is required. But since a few xDSL Modems uses crossover connections, please verify the interface with your Modem manufacturer.

3.3. Connecting to Cable Modem

1. Apply power and connect the PC and NVS440 together via the crossover cable provided with the system.
2. Setup network parameters by running "IP-Installer". (Refer to Figure 6).

Figure 3-4. Direct connection using crossover LAN

3. Remove the crossover cable and connect the NVS440 to the network using standard LAN cable as shown in Figure 3-5. Check if you can receive video data when connecting to NVS440 using the viewer program.

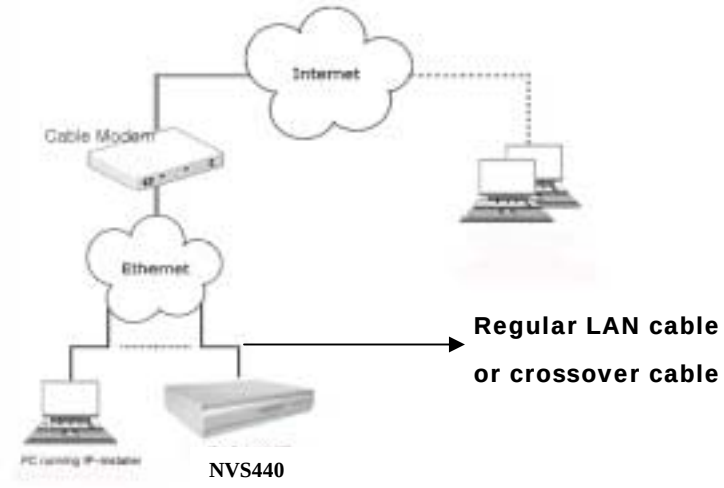

Figure 3-5 Connecting the NVS440 to a Cable Modem

In most cases when connecting the NVS440 to a Cable Modem, a standard Ethernet network cable is required. In some cases a crossover connection may be needed. Please verify the interface with your Cable Modem manufacturer.

4. IP-Installer

NVS440 is IP addressable therefore needs an IP address for connection to the network. Inscape Data's IP-Installer is a PC program developed to assign IP addresses and network parameters to digital video security network products such as Network Video Camera and Network Video Server from Inscape Data. IP-Installer is contained in the CD supplied with your product or it can be downloaded from **www.InscapeData.com**.

Detailed information of Installing and running IP-installer can be found in IP-installer user's guide contained in the product CD-ROM.

4.1. Main window of IP-Installer

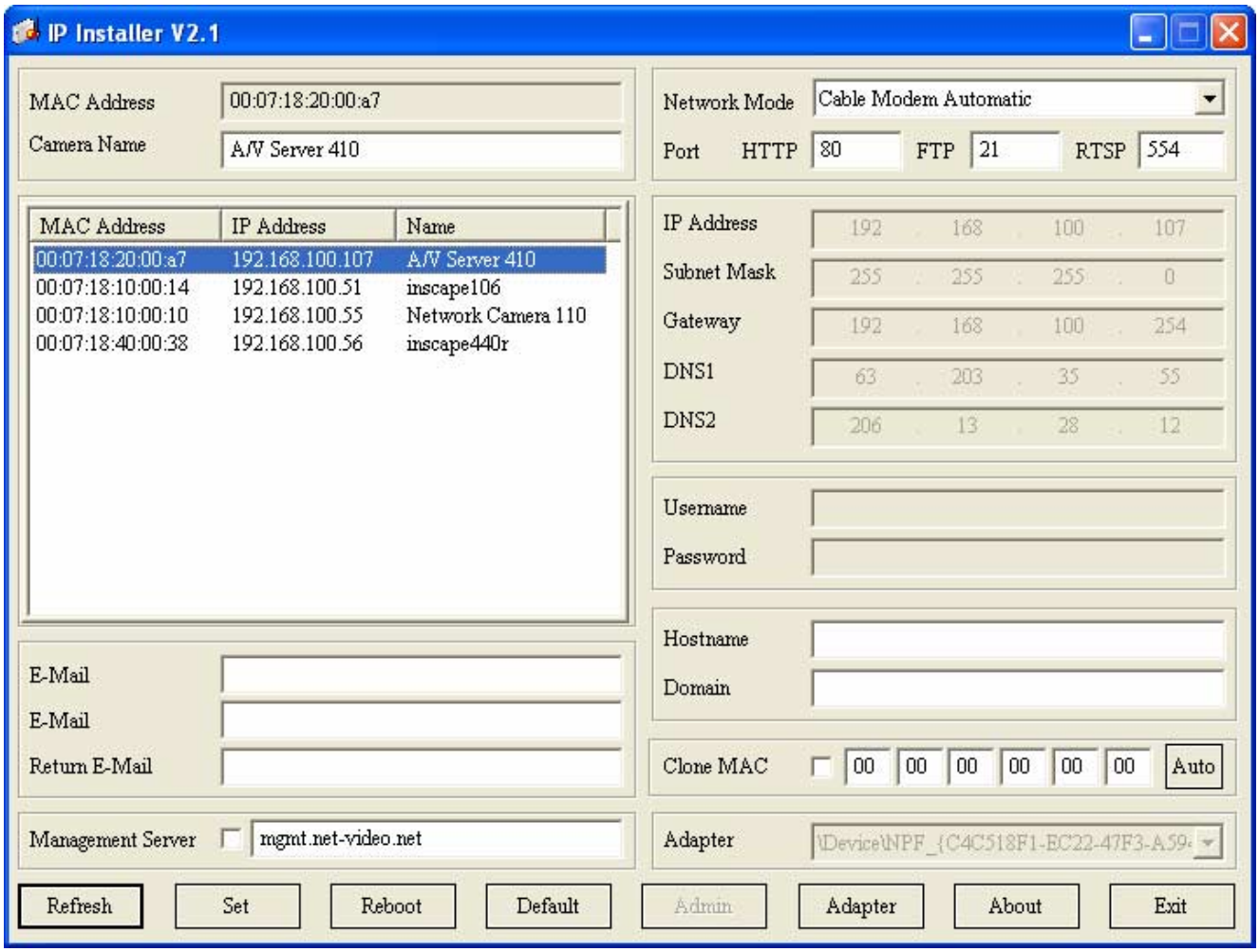

Figure 4-1. IP-Installer

5. Configuring the NVS440 in Administrative Mode

5.1. Log On

There are 2 methods of login into the NVS440 administrative console. One is through standard internet browser and the other is through "NVR100 Software" program.

5.1.1. Using Internet Explorer

You can log on to the server by clicking admin mode button or from your internet browser.
Type in the following URL in the address window of your favorite web browser.

http://[NVS440 IP address]/admin.htm

Example: **http://172.16.64.33/admin.htm**

If you changed the HTTP port from default value you can login by typing in:

http://[NVS440 IP address]:[port]/admin.htm

Example: **http://172.16.64.33:8080/admin.htm**

5.1.2. Log on from "NVR100 Software"

Select a video channel in the viewing window of "NVR100 Software" using your computer mouse. Selected video channel will be highlighted. Click  button on the right side of the display screen which is below shown circled in Figure 5-1.

Figure 5-1. Main Screen of "NVR100 Software"

5.1.3. User ID and Password

When initial login to the NVS440, a windows prompt for User Name and Password appears as shown below in Figure 5-2.

Figure 5-2. Log On Screen

Factory default User Name and Password are set as '**root**' and '**dw2001**', respectively. Click on "OK" button to enter into the Basic Setup page of Admin Mode. If you have changed the username and password of the Administrator, you must log on with the changed username and password.

5.2. Basic Setup

Setup the basic parameters of the NVS440. The web interface is shown below in Figure 5-3.

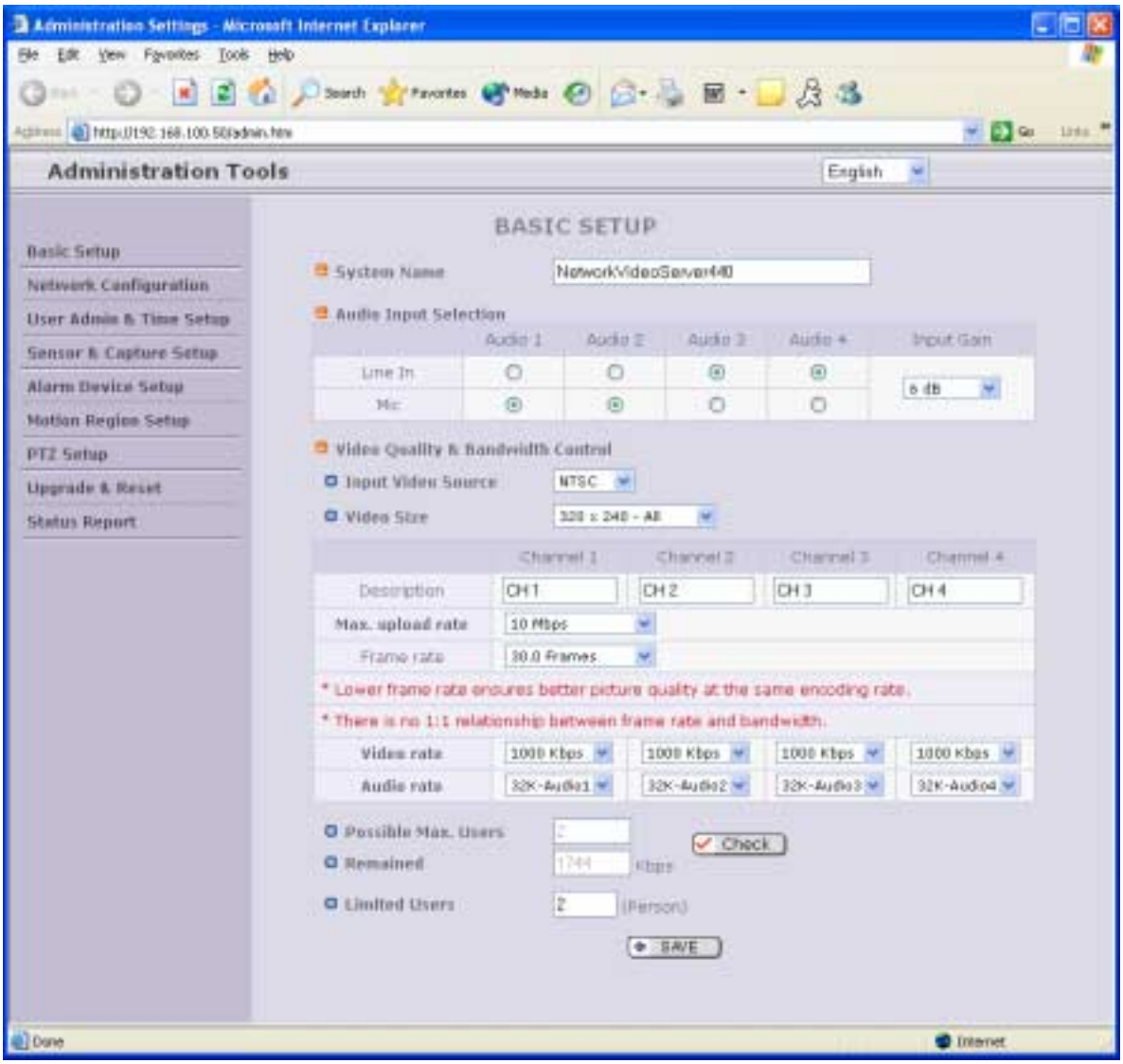

Figure 5-3. Basic Setup

• **Language Selection**: You can select a language in the admin page.

- Supported languages : English, Korean, Japanese, Chinese, Spanish

• **System Name**

It is the name of the NVS440. It is same as the one set-up by IP-installer. You can reassign the system name in admin mode.

• **Audio Input Selection**

- Select the type of input audio for each channel. Line In is used for connecting audio output from

audio devices. Mic is used for connecting the output of microphone.

- Input Gain : Set the gain of the input audio.

• **Video Quality & Bandwidth Control**

- Input Video Source : Select the analog video standard for input. Select one from NTSC, PAL, SECAM.

- Video Size : Select a video size for transmission. Allowed video size are different for each video standard.
  - NTSC(30 frames/sec Max.) : 320x240 / 640x480.
  - PAL (25 frames/sec Max.) : 352x288 / 704x576.
  - SECAM (25 frames/sec Max.) : 352x288 / 704x576.

- Description : Assign name for each channel. Assigned names are shown on corresponding view window of the viewer. The name consists of maximum 79 alphanumeric characters.
- Max upload rate
  Assign maximum bandwidth of the uplink for the network connected to NVS440.
- Frame rate
  Assign number of video frames transmitted for each second. You can improve picture quality by lowering frame rate for the same bandwidth.
- Video rate
  Assign bandwidth for transmitting video data for each channel.
- Audio rate
  Assign bandwidth for transmitting audio data for each channel. Audio data is not transmitted if you select NA.

• **Check**

After you finish set up of video and audio for all the channels, click on this button to obtain the possible maximum number of users (Possible Max Users) and network bandwidth margin (Remained) remaining. The Check tool will calculate the number of users able to view the video stream without any quality degradation or network congestion.

• **Possible Max Users**

It shows the number of maximum simultaneous connections for the network connection set-up.

• **Remained**

It shows the network bandwidth margin when Possible Max Users are connected.

- **Limited users**

  Useful network bandwidth varies according to the condition of the network. This parameter is used to limit the number of the simultaneous connections below the number shown in Possible Max Users. In all cases, this value will be below Possible Max Users for optimal performance.

- **Save**

  Save the set-up parameters when the set-up parameters are done.

5.3. Network Configuration

Setup the network parameters appropriately in accordance with your network environment. Many of the parameters in this page is the same as those used by "IP-Installer".

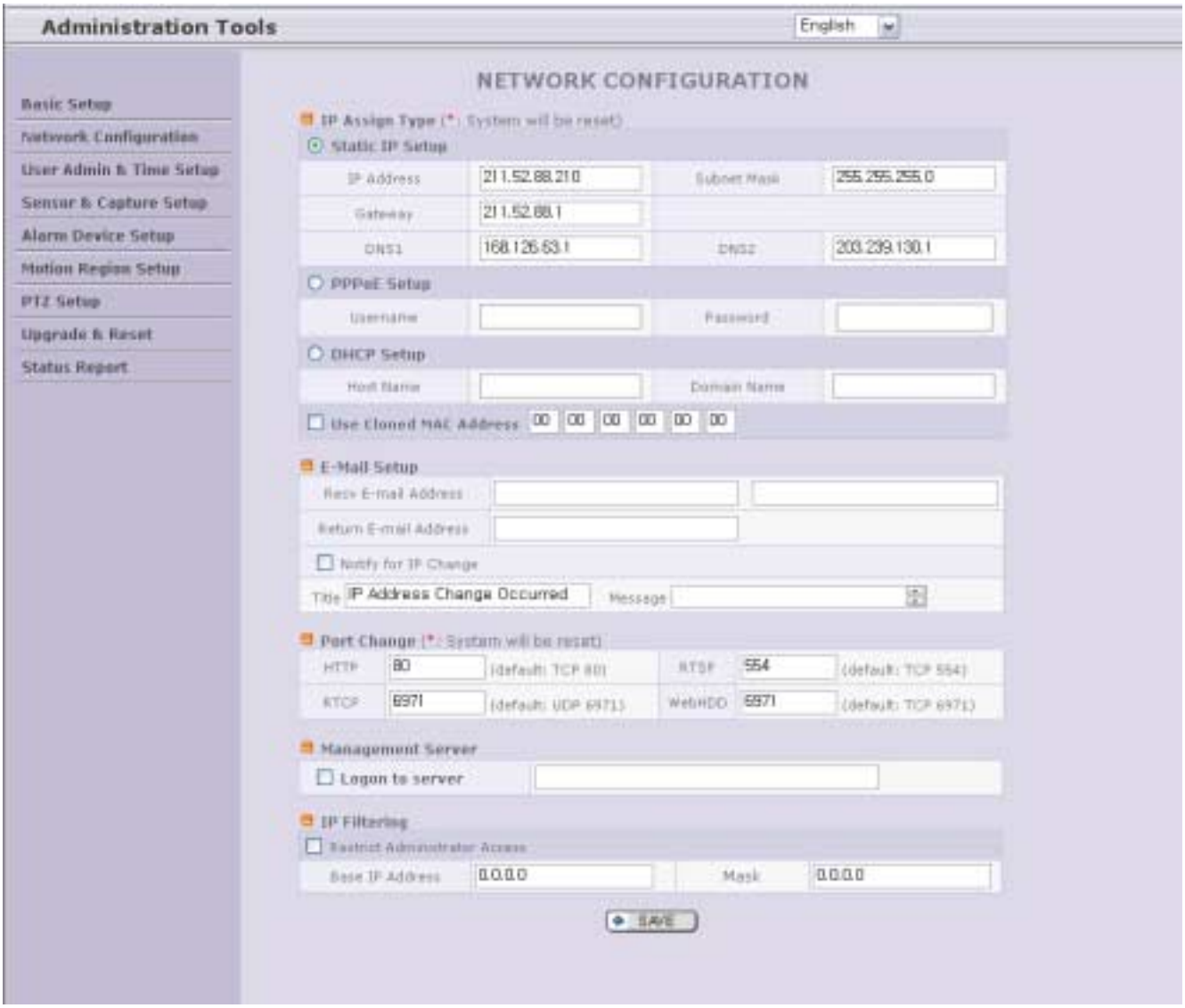

Figure 5-4. Network Configuration

- **IP Assign Type :** The network connection types supported by the NVS440 are Static, PPPoE, and DHCP.

  - Select 'Static IP Setup' for static IP address configuration and enter the IP address, Subnet Mask, Gateway, DNS1 and DNS2 into the appropriate field. Typically these values will be assigned by the network administrator or ISP provider. DNS2 is used when DNS1 is unreachable and is recommended.

  - Select 'PPPoE' in the network connection type if the NSV440 will be directly connected to a WAN.

Typically xDSL or broadband service providers will need this setting. Fill in the 'User Name' and 'Password' fields with the values assigned by the internet service provider.

- When the network connection type is "automatic IP allocation by DHCP", select 'DHCP' in the network type.
  - Refer to **[IP-installer user's guide]** for "Clone MAC".
  - Refer to **[IP-installer user's guide]** for "Host name and domain for Cable Modem".

• **E-Mail Setup**

- **Recv E-Mail Address:** Refer to **[IP-installer user's guide]** for "Recv E-Mail Address".

- **Return E-Mail Address:** Refer to **[IP-installer user's guide]** for "Return E-Mail Address".

- **Notify for IP Changed**: If you check this, the IP address will be sent via E-mail to this address whenever the IP address of the NVS440 changes.

- **Title**: It is the predefined subject of the e-mail message sent to user.

- **Message**: It is the pre-defined content of the e-mail message sent to user.

• **Port Change :** You can change the HTTP port, RTSP port and RTCP port numbers. The RTSP port is used to connect the "Viewer" to the NVS440.
Each port should have a number below # 65535.

- **HTTP :** default "80"
- **RTSP :** default "554**"**
- **RTCP** : default "6971"

Management Server : This feature enables the built-in dynamic DNS client to automatically update the IP address of the NVS440 to a remote management web server. Currently mgmt-net-video.net is a free Dynamic DNS registration server for the NVS440. Simple web management interface keeps all your network cameras and servers in one easy to track interface. This is a great option if you have multiple cameras and are using Dynamic DNS.

IP Filtering : You can restrict the access to the administrator page utilizing IP address filtering.

- **Restrict Administrator Access** : Check this box to restrict administrative log on priviledges.
- **Base IP Address** : Input an IP address of the PC which will be used for administrative access.
- **Mask** : This is same as subnet mask. It is used to allow administrative log on only from PCs located in the same subnet as the base IP address. If only one PC is allowed to access the administrative mode, set this value to 255.255.255.255.

5.4. User Admin & Time Setup

You can change the ID and password of users and also assign different attributes for each user.

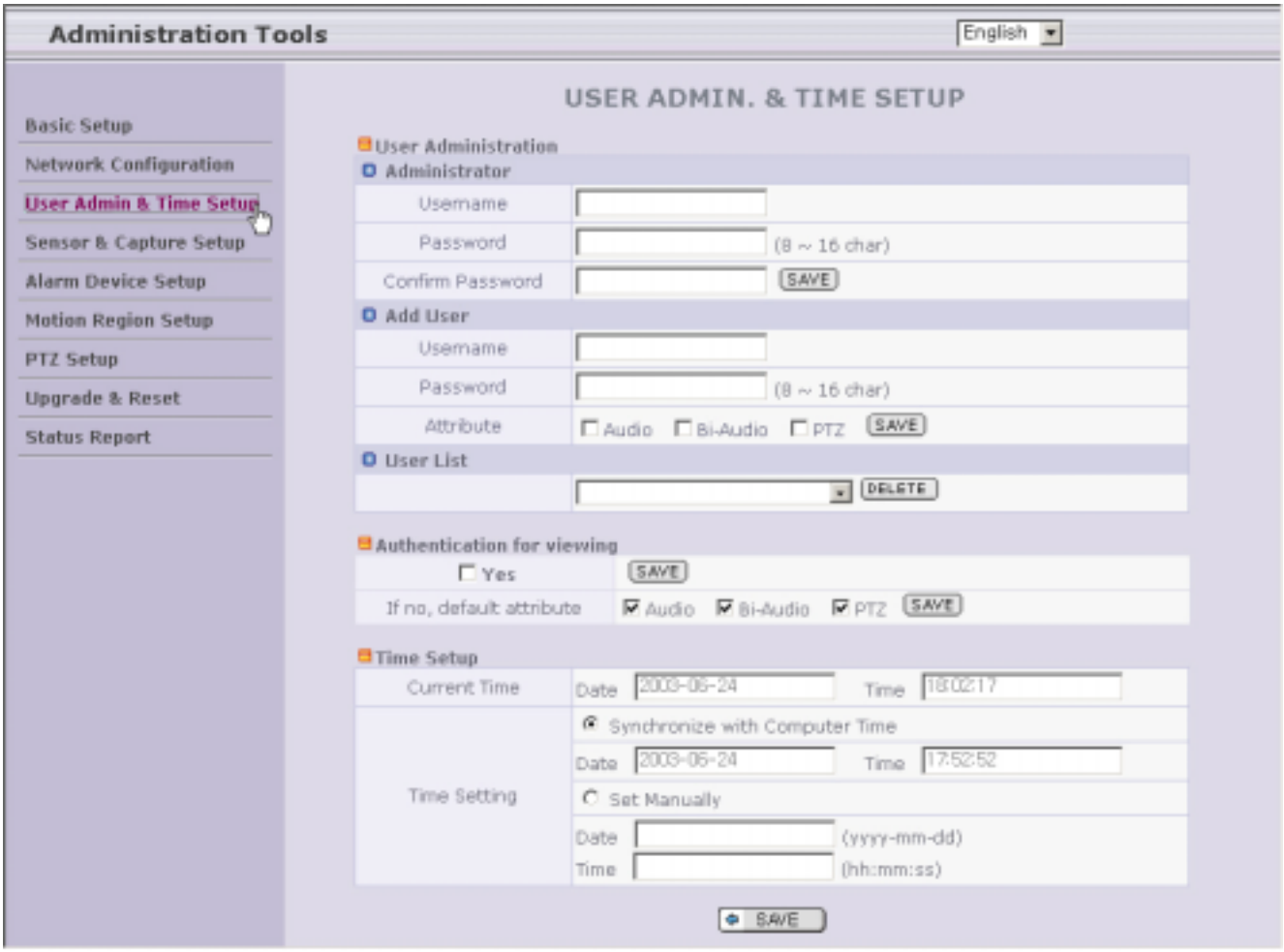

Figure 5-5. User Admin. & Time Setup

User Administration

- **Administrator**

  . **Username** : Admin ID. Default ID is "root"

. Password : Admin password. The default password is "dw2001".

. Confirm Password : Enter the password once more to confirm the password.

> If you have forgotten the Administrator's ID and password, the only means of recovery is to reset the settings to factory default. Doing so will lose your previous settings.

- **Add User**

  . **Username** : Enter the user ID you want to add. Up to 100 users are supported by NVS440.

  . **Password**: Enter the user password.

  . **Attribute** : You can set different system resource access capabilities for each of the user.

  Attributes are Audio, Bi-directional Audio and Pan/Tilt.

  For example, if you want a specified user to hear the audio from the NVS440, check Audio in the check box.

- **User List** : You can list "user ids" and " their attributes" here.

  List format are as follows: user id[A, BA, P] : A – audio, BA – bi-directional audio, P – P/T/Z.

  you can delete specific user by selecting and clicking the "DELETE" button.

• **Authentication for Viewing** : If you want to restrict viewing access to the NVS440, check "Yes" box and click "Save". Users will need to input User ID and password to connect to the NVS440 in viewing mode. (Figure 5-6.)

Figure 5-6. User Authentication in NVS440

- **If No[default attribute] :** If you uncheck "**Yes**" in "Authentication for viewing", every user can access the NVS440 without restriction or with the same attributes. You can enable the common attributes by selecting each attribute and clicking the "**Save**" button.

Please Note: By adding users for authentication does not automatically enable the authentication service for the NVS440. It is a combination of adding user and selecting "YES" for Authentication will the authentication service be enabled.

• Time Setup

- **Current Time**: It displays the current time of NVS440.

- **Time Settings** : Options for setting the time manually or synchronize to the PC.

Options	Description
"Synchronize With Computer Time"	Synchronize the time with the PC time.
"Set Manually"	You can manually set the time.

5.5. Sensor & Capture Setup

This is the setup page for conditions of video capture. The video capture can be triggered either by activated alarm sensor or motion detection as setup by this page. When the sensor is triggered the event is ported to the NVR100 Software.

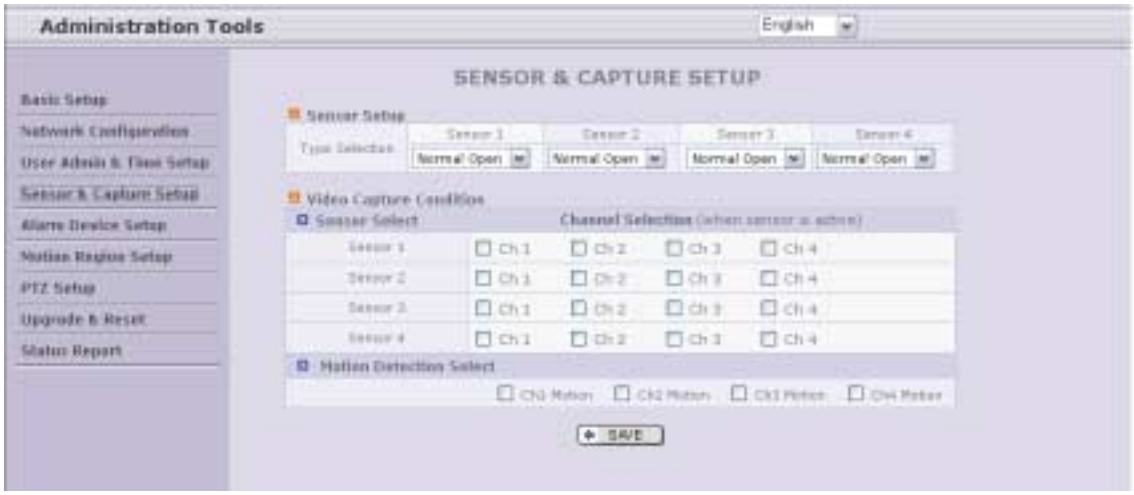

Figure 5-7. Sensor & Capture Setup

• Sensor Setup : Up to 4 external sensors can be connected to the NVS440.

- **Type Selection** : Select sensor type. There are two sensor operating mode.

. **Normal Open** : Open circuit in normal operation. Closed circuit indicates alarm triggered condition.

. **Normal Close** : Closed circuit in normal operation. Open circuit indicates alarm triggered condition.

• Video Capture Condition : It sets which sensor will trigger video recording for channels 1-4. The NVS440 supports 2 types of sensor event trigger.

1. Sensor : when at least one of the sensor detects a trigger event.
2. Motion-detected : Motion triggered event from the video channel
3. Periodic : Video is recorded during pre-defined time zone.

NOTE: Above 3 conditions are mutually independent in operation.

• **Video Capture Condition:** Select a way of sending captured video. You can send captured video through FTP or E-mail, or both.

NOTE: If the ftp server is not properly assigned in "Network Configuration" mode, this method will be ignored. Captured video data for E-mail consists of intra frames only in consideration of the limited storage space for E-mail account, where as, FTP data contains entire video frames. Video for periodic recording is sent only to the FTP server..

5.6. Alarm Device Setup

The configuration of alarm device output when triggered by an alarm device input (sensor or motion detection) can be configured in this page, including output device port test and triggered condition.

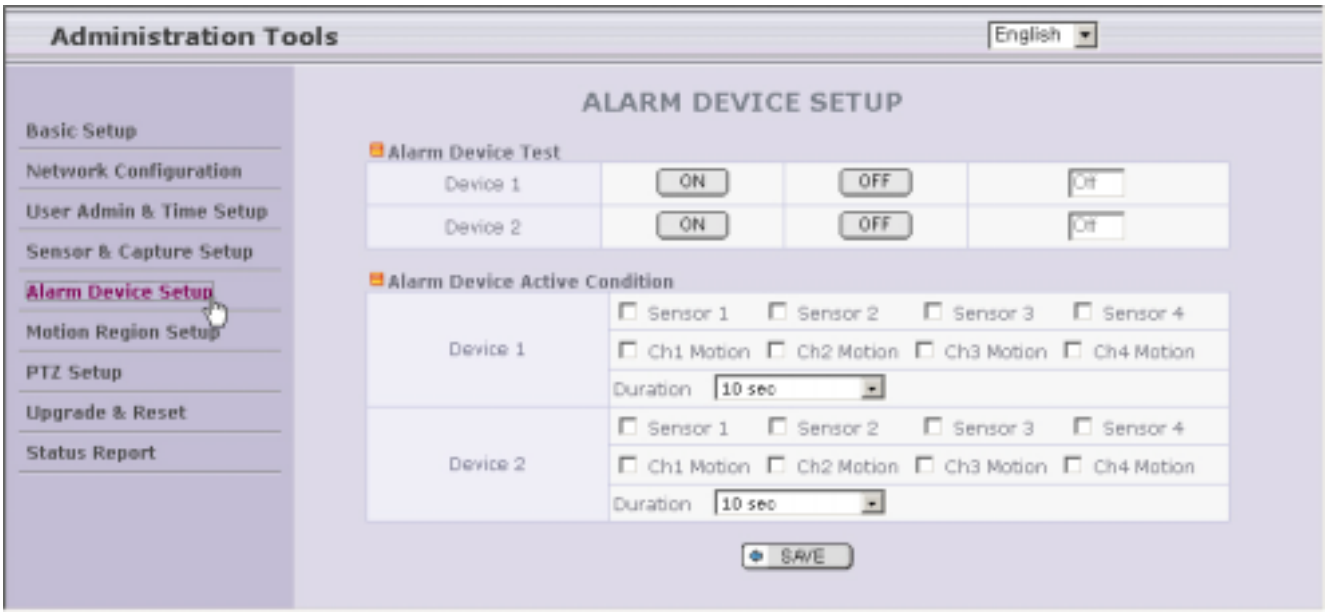

Figure 5-8. Alarm Output Setup

• **Alarm Device Test** : Test alarm devices. Press On/Off for testing. This option will manually trigger the output device 1 and 2 to "ON" and "OFF" state. It can be used in new setup or troubleshooting external devices.

• **Alarm Device Active Condition** : Setup the condition in which to trigger the output device 1 and 2. A combination of input sensor and motion detection can trigger the output device to activate.

- **Duration** : Set the active duration of Alarm out from the moment of the trigger.
  10 sec, 30 sec, 1 min, 2 min, 5 min, 10 min, 30 min, 1 hour.

5.7. Motion Region Setup

Set the motion detection regions. Up to 3 separate regions can be defined.

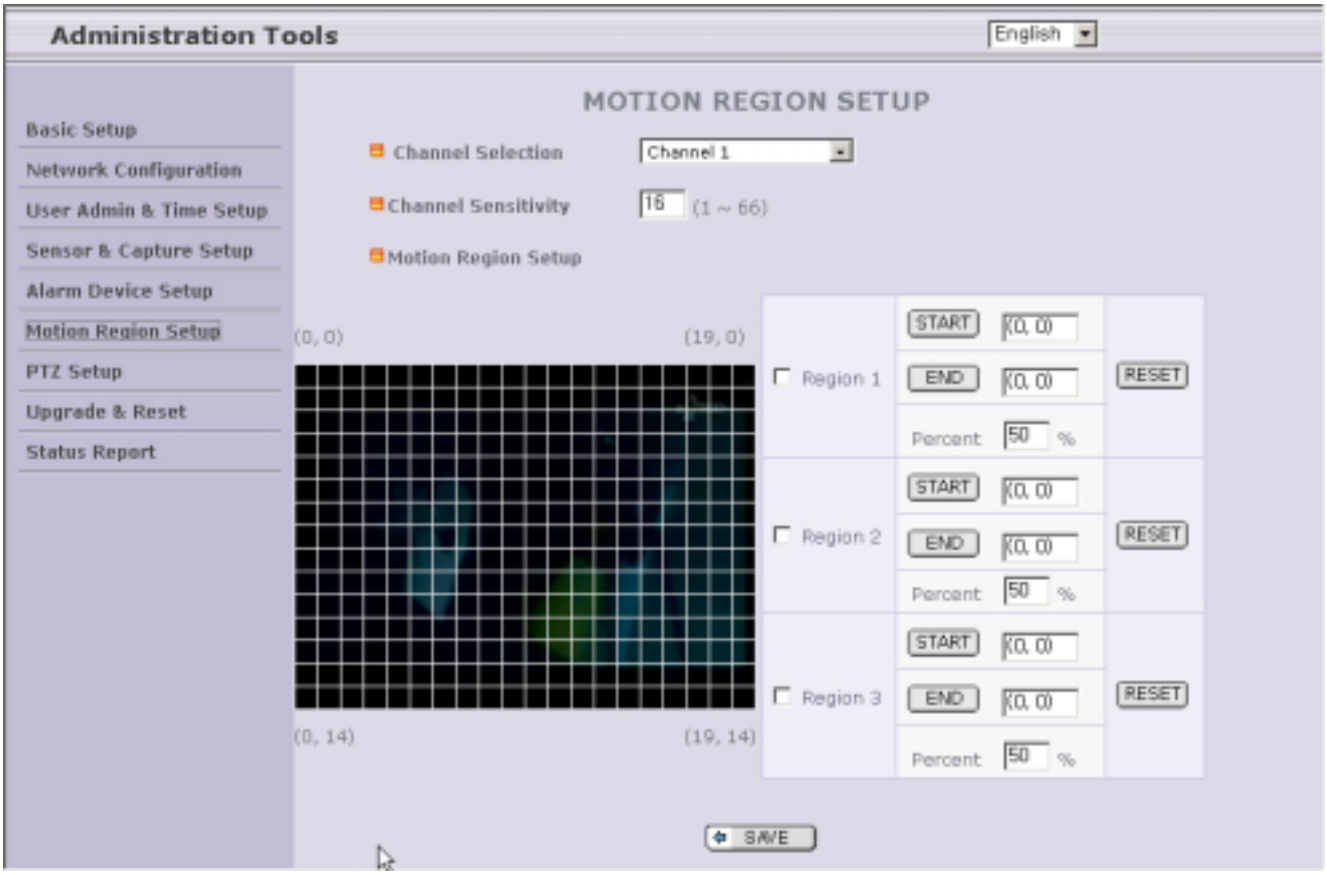

Figure 5-9. Motion Region Setup

• **Channel Selection** : Choose the channel you wish to enable the motion detection feature.

• **Channel Sensitivity** : Set the sensitivity in motion detection for each channel.

- 1 is the least sensitive and 66 is the most sensitive.
- Sensitivity values can be set to different values among different channels, but same sensitivity is applied for the regions within the same channel.

• **Motion Region Setup** : Set up to 3 motion detection region per each video channel

- **Region 1, 2, or 3** : Motion detection is enabled for the channels by checking each box.
  . You can set the region by pressing the "START" button, and click one corner of region in the left viewing. It will show the coordinate value automatically. Next you press the

"END" button, and click the opposite diagonal corner.

Regions are shown in three different transparent colors for easy identification:

red(region 1), green(region 2), blue(region3)

"RESET**"** button clears the start & end point to (0,0) & (0,0)

. Percent : This value controls the sensitivity of each region.

1 is the most sensitive and 100 is the least sensitive.

5.8. PTZ Setup

Setup and test the P/T/Z(Pan, Tilt, Zoom) devices.

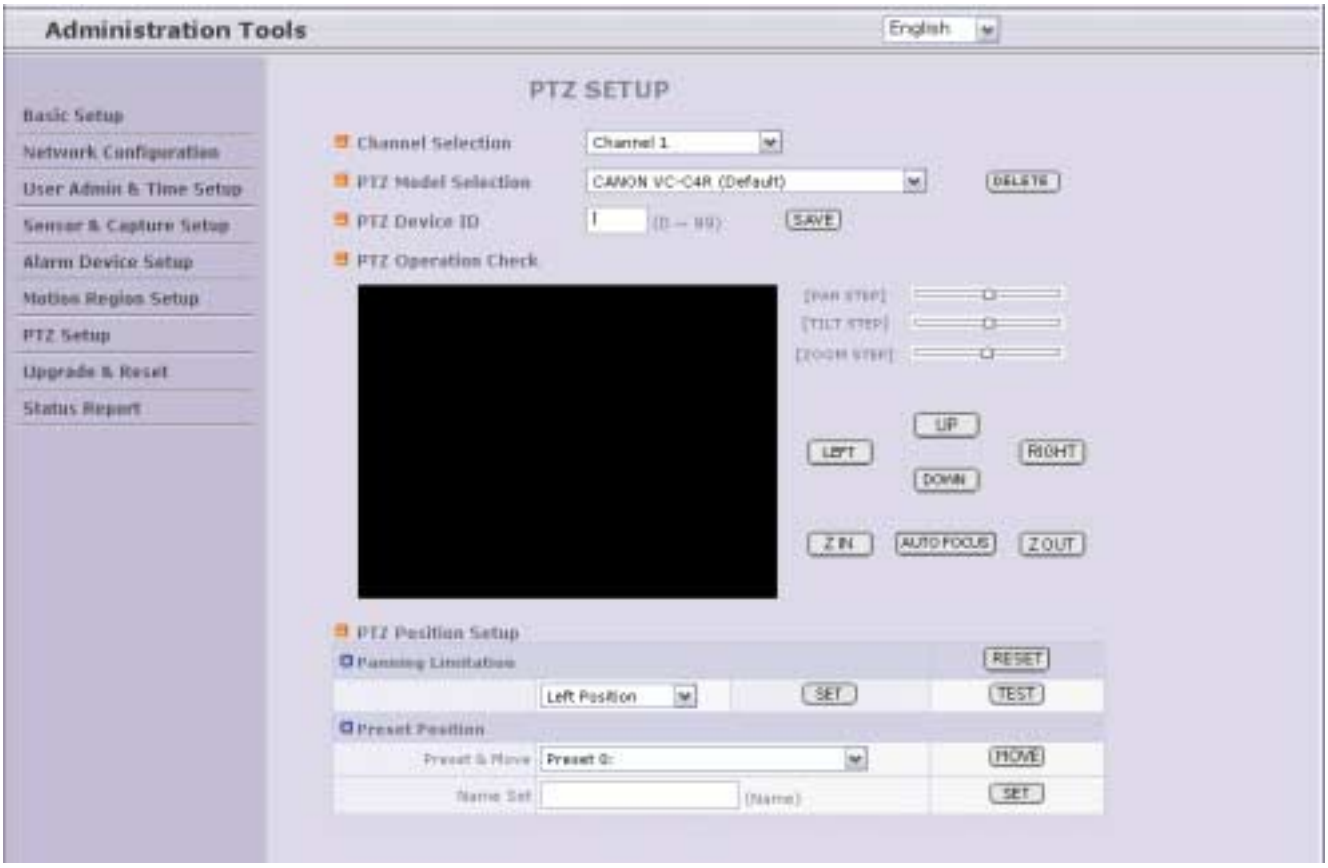

Figure 5-10. PTZ Setup

• **Channel Selection** : Choose the channel having PTZ device.

• **PTZ Model Selection** : Choose the PTZ model for each channel.

Different PTZ model can be applied for each channel.

- **Delete Button :** Press this button to delete the setup of PTZ.

• **PTZ Device ID** : PTZ device can have ID, set PTZ ID accordingly.

Refer to **[5.9 Upgrade & Reset]** for adding new PTZ device.

• **PTZ Operation Check** : You can check the various operation of the PTZ devices.

"LEFT"/"RIGHT"/"UP"/"DOWN" , "AUTO FOCUS"/"ZIN"/"ZOUT"

• **PTZ Position Setup** : You can set up the PTZ limitation & preset positions if the PTZ device supports it.

- **Panning Limitation :** set the left/right limitation and test.
- **Preset Position :** set the preset position and test.

NOTE : "PTZ Position Setup" feature is applicable only for the PTZ devices that support it.

5.9. Upgrade & Reset

You can upgrade the NVS440 via the network.

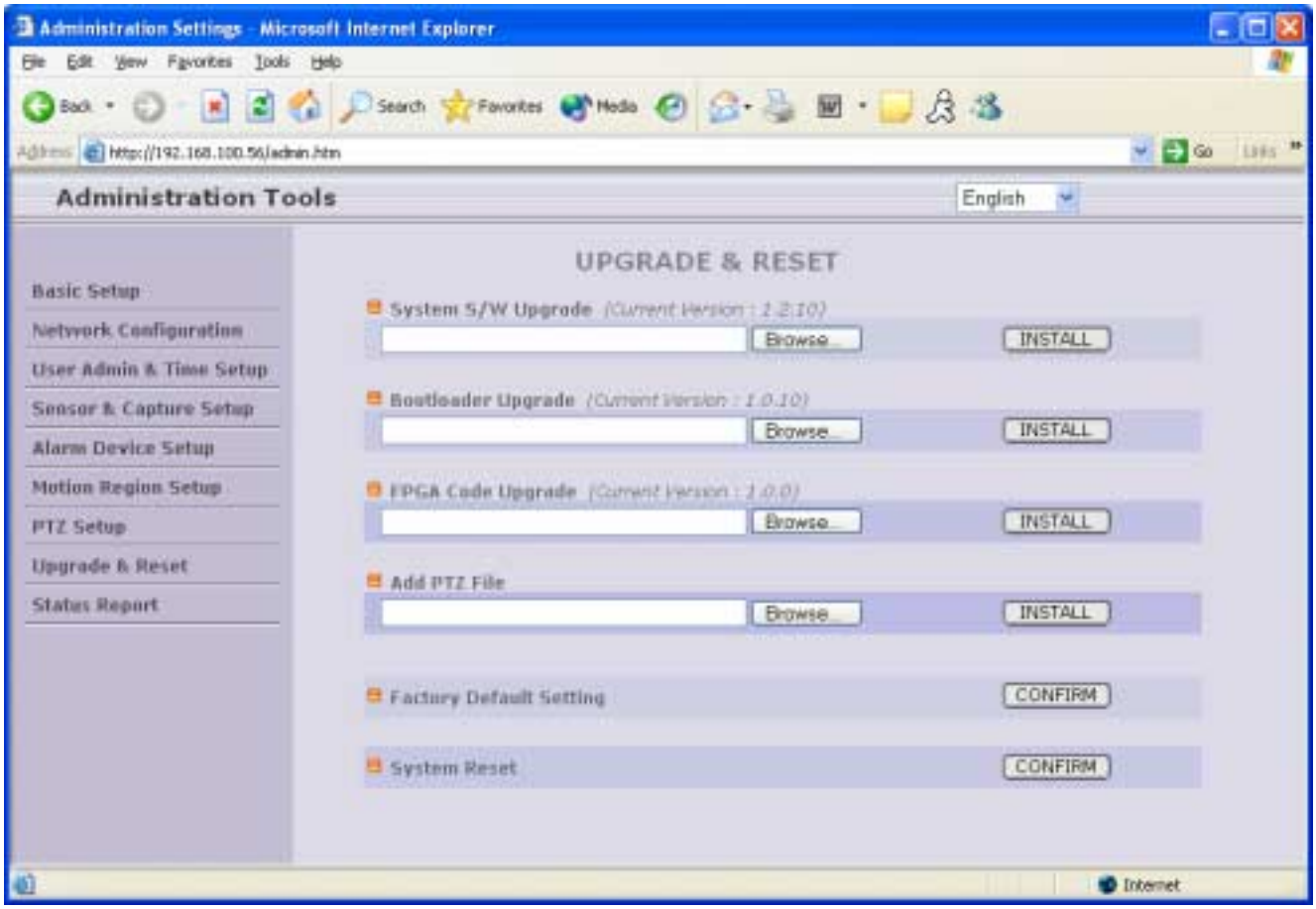

Figure 5-11. Upgrade & Reset

The upgrade software, after release, may be downloaded from Inscape Data's web site.

(Refer to **[6.3. How To Upgrade Your NVS440 System]**

• **System S/W Upgrade :** Upgrade the system software installed in the server via the network.

NOTE: To apply the upgraded S/W, you should reset the system after system S/W upgrade.

- **Bootloader Upgrade**: Upgrade the bootloader installed in the server via the network.

- **FPGA Code Upgrade**: Upgrade the FPGA software in the server via the network.

- **Add PTZ File** : Add a new PTZ descriptor via the network.

- **Factory Default Setting** : Re-initialize NVS440 to factory default state.
- **NOTE: To apply Factory Default Setting, you should reset the system.**

> Once the NVS440 is re-initialized to factory default state, it should be set-up again using IP-Installer.

- **System Reset** : Perform remote reset by clicking the "CONFIRM" button.

> All users logged on to the NVS440 will be disconnected upon reset. NVS440 does not resume the connections automatically. The users must re-connect to the server manually.

- **NOTE: To apply the upgraded S/W, you should reset the system after system S/W upgrade.**

5.10. Status Report

It reports the system records since the system started.

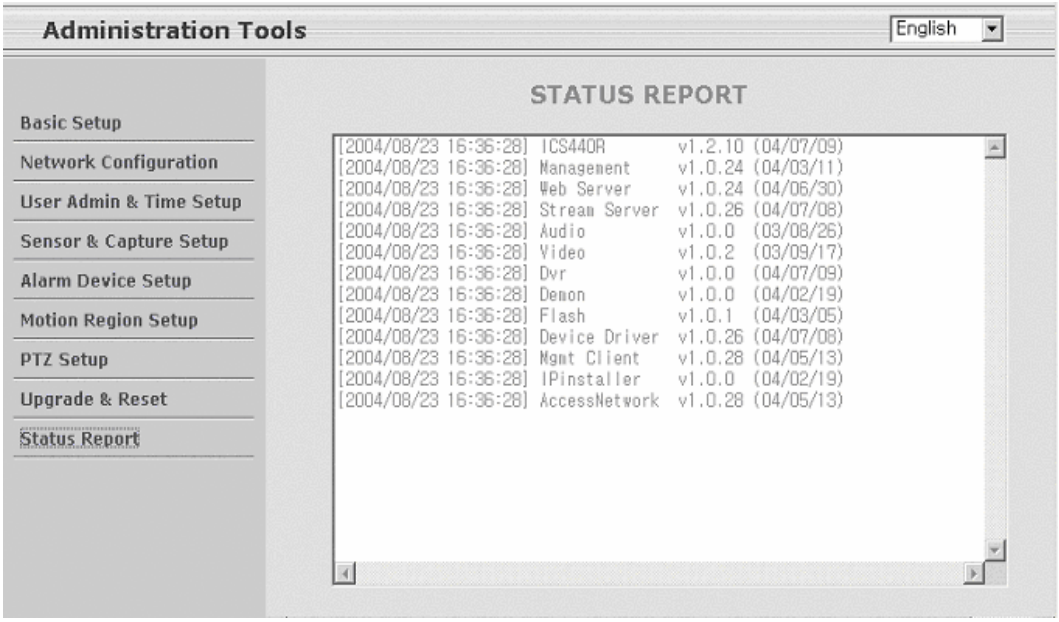

Figure 5-12. Status Report

You can use the status report page to troubleshoot or diagnose the NVS440 or to monitor the software versions and event status of the whole system.

6. Tips for Using NVS440

6.1. Alarm Input/Output

The Alarm In/RLY OUT Connector is used to connect the various sensing and alerting devices. Examples of sensing devices are infrared sensors, motion sensors, heat/smoke sensors, and magnetic sensor. Examples of alerting devices are Sirens or Beacons. It can also be used to lock doors or trigger a call to the police department. The options are limitless since the output can also be ported to an solid state relay to drive high voltage devices like garage door openers, motors, sprinkler systems and much more.

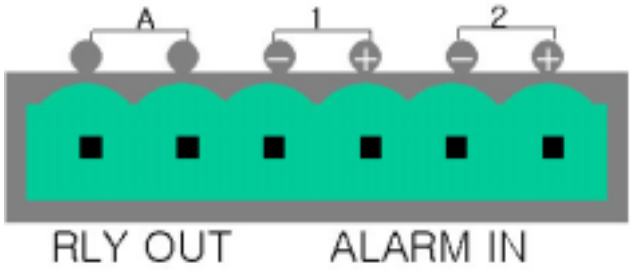

Figure 6-1. Alarm IN/RLY OUT Connector

No.	Name	Description
1	In -	Input signal from external sensor device (-)
2	In +	Input signal from external sensor device (+)
3	Out -	Output signal to external alerting device (-)
4	Out +	Output signal to external alerting device (+)

1. Alarm Input(ALARM IN)

Connect the two wires of the sensors. The sensor type can be set in Administrative Mode(Ref. 5.5 & 5.6). Output lines providing on-off switching are connected between "In-" and "In+" pins. Figure 6-2 shows the input circuit of "Alarm In".

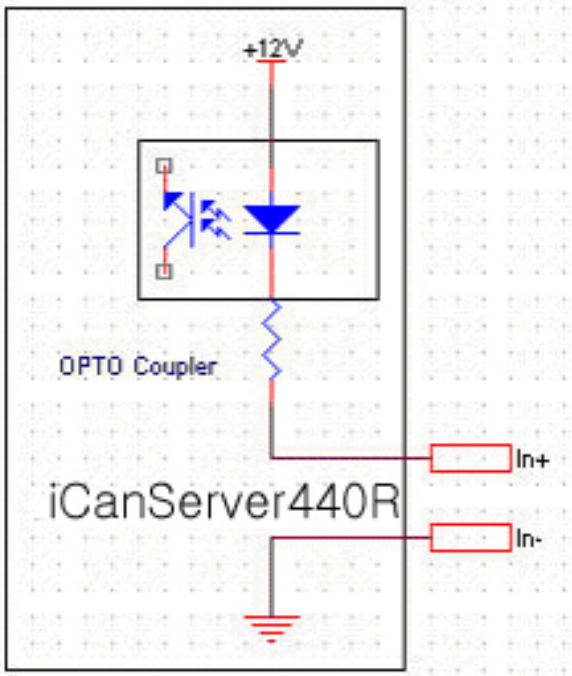

Figure 6-2. Alarm input circuit of NVS440

2. Alarm Output(RLY OUT)

Alarm output is configured as a relay circuit. Relay circuit in normal operation is open and circuit is closed upon input trigger from motion or external sensor. The relay is capable of switching 30V/2A electrical signal.

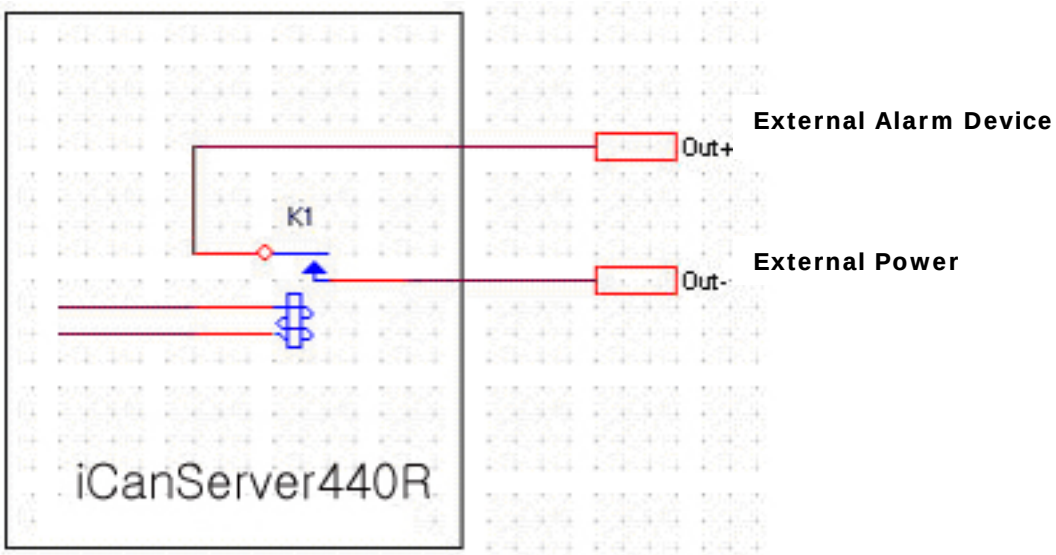

Figure 6-3. Alarm Output of NVS440

6.2. Trouble Shooting

• **NVS440 in viewing mode, neither channel name nor video is display and eventually timeout message is shown up.**

Check the power and network connection of NVS440.

To check if the network is properly operating, open the browser and try to connect to any server.

Example) http://www.InscapeData.com

Or open the MS-DOS Prompt and type the following.

ping www.InscapeData.com

Then press Enter. If you see the " Reply from …" message it means that the network is working properly. To check if the NVS440 is connected, open the MS-DOS Prompt and type the following.

ping [the IP of the server]

Example) ping 192.168.1.112

If you see the "Reply from …" message, it means that the server is properly connected.

If you do not see a Reply message, check if the network cable and power cable are properly connected.

• **Name of the channel on NVS440 is displayed but there is no video.**

Check if there is input video source to the channel. And check if there is a firewall in the network. Check if the network is NAT type.

In case there is a firewall in the network:

Please refer to "Firewall" Application Note in the CD.

If the network is NAT type, you need port mapping.

Please refer to "IP sharing device" Application Note in the CD.

2. After Successfully Connecting to the NVS440

• **Video movement is slow.**

- In Basic Setup of Admin Mode, lower the "Quality". High quality means more data. You can also set the "Max. Bandwidth" to higher value. But this value must be lower than the maximum upload speed of your network. For example, if the maximum uploading bandwidth of the network is

400Kbps, set the total "Max. Bandwidth" of the 4 channels to 384Kbps. If you set it higher, the video image can be corrupted with artifacts.
Ask your network manager or ISP for maximum uploading bandwidth of the network.

- Check whether dual streaming mode is enabled and NVS440 is recording video. Dual streaming mode is enabled by selecting "Enable High Quality Video Recording" in basic set-up page (Refer to Section 5.2). When dual streaming mode is enabled, NVS440 provides low speed video to connected user while recording high quality video into HDD.

• **The image is dull and I see green, pink dots.**

This could be caused by performance limitation of the PC. Do not run too many programs while running viewer program. The other reason could be missing data while transmission from NVS440.

• **Mosaic phenomenon.**

Mosaic phenomenon occurs when not enough network bandwidth is available considering the resolution and frame rate of the video.
Example is 640x480 video with low Max. Bandwidth.
Users are recommended to adjust resolution and frame rates to lower values for lower bandwidth network.

3. How can I maintain high quality video recording when I'm using low speed network

NVS440 has Dual streaming mode that enables high quality video recording on the HDD, while providing lower quality video to on-line users. This feature is enabled by selecting "Enable High Quality Recording" in basic set-up mode. (Refer to 5.2 for more detailed information.)

6.3. How To Upgrade software on your NVS440 System

1. Log on to administration mode and select “Update & Reset” menu.

2. Click "Browse..." to find the files you want to use for upgrade. This will open a "Choose file" dialogue window. The file extension is “.ief”.

3. When you've found the file, click "Open." This will select the file and close the "Choose file" dialogue window.

4. Click the "INSTALL" button. An alert message box will pop up. Click “OK” button then it will start uploading the file. This may take some time.

5. Upgrade completion message will appear after the system upgrade has been completed.

6. Reboot NVS440 by performing “System Reset”.

7. After rebooting, log on to the administration mode again and click the “Status Report” in the left side.

8. Check the version and release date of the NVS440 ™.

You can download NVS440 system software from
Inscape Data’s homepage.
http://www.InscapeData.com/product/download.html