PiXORD 207

User's Manual

Version:1.0

Date:06/27/06

PiXORD

Catalog

1 Introduction

1.1 What is the Network Camera?

Network Camera (NC) is an Internet-based digital surveillance system with a built-in Web server. It runs on TCP/IP to distribute the compressed live video into Intranet/Internet through the Ethernet connection

You can easily manipulate and configure the NC with the Web-based control over the Internet via standard browsers such as Explorer ™ or Netscape ™

The NC contains an image compression chipset, capable of delivering standard JPEG, MJPEG, and real-time video, in order to distribute monitored images into the limited network bandwidth.

1.2 Advanced Features

- ➢ **Self-Contained HTTP Web Server, providing Internet capability**
- ➢ **IP assignment via IP Installer Software**
- ➢ **IP additional assignment feature via ARP**
- ➢ **JAVA-based web page providing maximum platform compatibility**
- ➢ **Active-X control for Internet Explorer ™ providing maximum performance**
- ➢ **Customized Event Triggering by Motion Detection / Date / Time / GPIO Input**
- ➢ **Email / FTP / Internal Buffer Storage / Relay Out for event action**
- ➢ **Programmable event script for various applications**
- ➢ **DDNS support for dynamic IP application**
- ➢ **3-Layer User Security Control**
- ➢ **Remote Upgradeable firmware and user content pages via FTP**
- ➢ **Server operating control through CGI base script allowing easy integration**
- ➢ **Green power, fan needless, and hardware watchdog providing robustness system in critical environment**
- ➢ **Including CCD module, this provides all in one system for Internet video application**
- ➢ **Providing live streaming voice via integrated the Voice Server (" VOS " hereinafter)**

2 Physical Characteristics

2.1.1 Front Panel & Rear Panel

Auto-Iris Connector
Lock Knob
Screw Holes
Lens

Rear Panel

Power Indicator
Power Connector
COM   GPIO   Ethernet   PS
COM Port
GPIO Port
Network Indicator
Network Connector
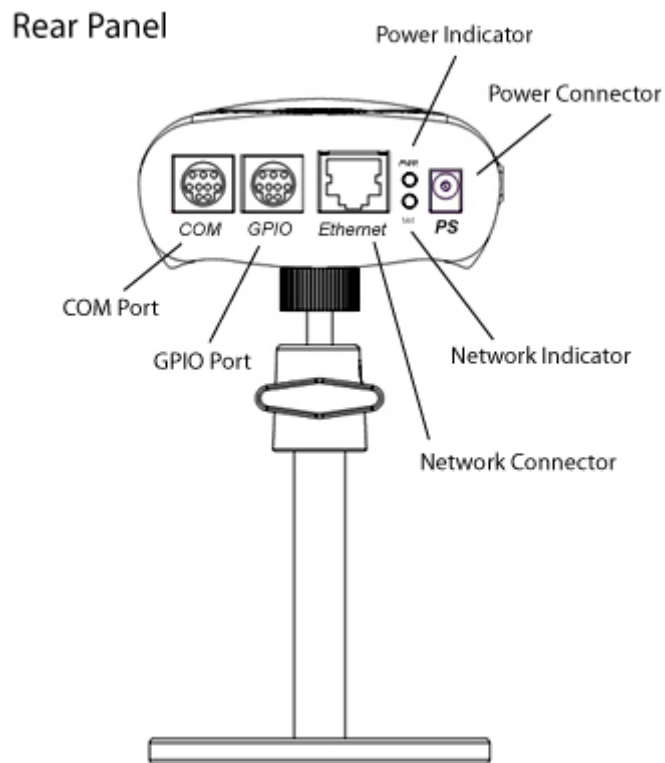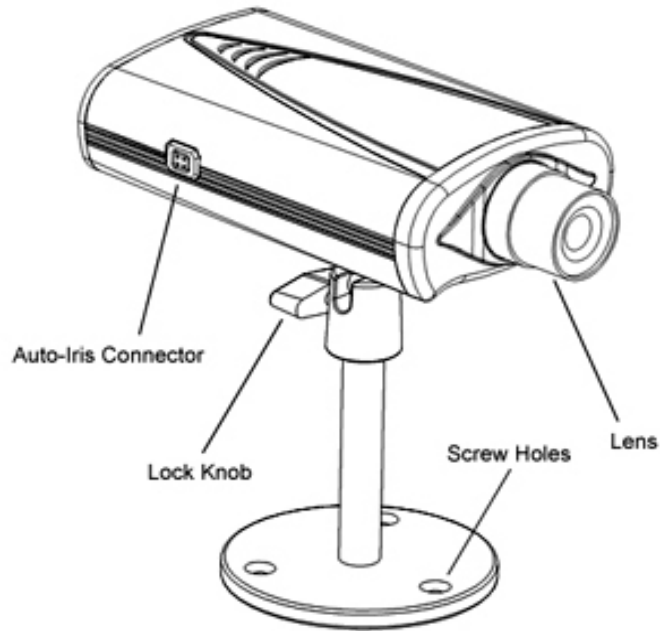
- **Camera: Built-in camera Module**

- **Video Adjustment through Brightness, Contrast, Hue, Saturation, Video Quality Adjustment**

- **Supports Remote Recording, Display Rotation, Full Screen Display, Multilanguages Support**

- **Build in support of DC-Driver auto iris lens, level adjustment supported**

- **Ethernet: RJ-45 Connector for connection of a twisted pair category 5 cable (Standard IEEE802.3 10BaseT)**

- **Power Input: DC Power input, specification with 12V DC 1A**

PWR LED:

Power On: constant red

Emergency factory default: Blinking orange (i.e. red mixed with green)

Networks have activities: Blinking red.

Data sent out from server: Blinking green

Network disconnected: Constant slow blinking green

Upgrading software: Blinking constantly orange from slow to fast

COM: 9 pin mini din, capable of connecting as a system console (default), voice server, or to external modem (optional)

GPIO : 9 pin mini din, 4 photo isolated input, 1 Relay output, RS485 signaling for PTZ devices

3 INSTALLATION

3.1 Network Camera Installation

Ensure the Network Camera is in power-off state.

Ethernet cable: Connect NC to your network using twisted pair (CAT5) terminated with a standard RJ-45 connector.

If it is connected to a hub/switch, use a pass-through cable. If it is connected directly to a PC, use crossover cable.

Ensure you power supply adapter specification (Input AC 110V or 220V, Output DC 12V 1A) matches to your power line, and connect the power supply to the Network Video Server.

Check the power LED (red) is constant lit, and the network LED (display link status) should light up (red) less than 10 seconds if your network connection is correct.

3.2 Network Camera Installation Procedure

3.2.1 Mount the Network Camera

The NC provides screw holes on both the top and bottom surfaces of the unit for mounting the stand assembly. You can mount your NC on a desktop, a wall, or ceiling by adjusting the linked way of stand assembly.
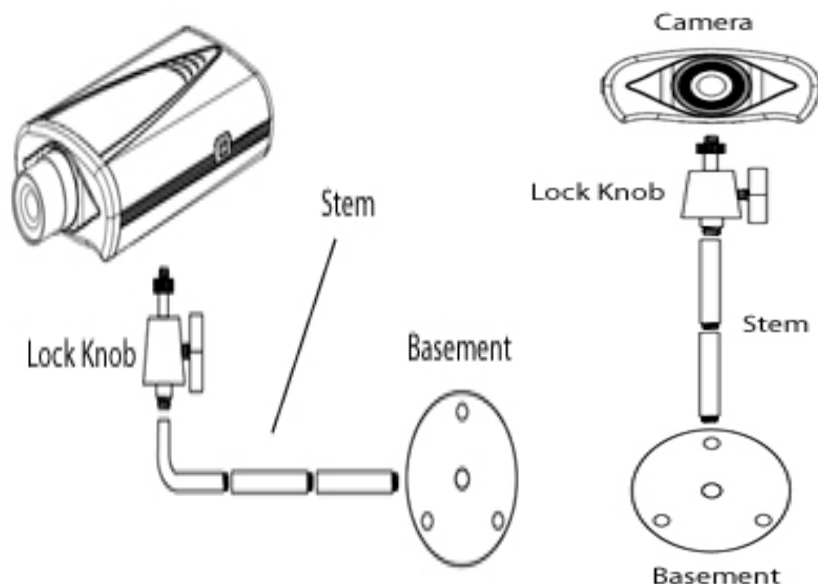
3.3 Connecting the Camera to the network

2 Connect Pixord NC to your network hub with standard pass through (CAT5) cable, or, connect directly to PC with cross over cable .

5 Check the power LED is red. (after power-on). And the network LED link status should be lit up (red) less than 10 seconds if your network connection is correct.

3 Connect power jack.

1 Prepare a PC with Ethernet link to your network.

4 Ensure your power adapter specification matches your power system.(ex:110V or 220V) Connect the adapter to the outlet.

Note: Ensure you power supply adapter specification. The Output DC 12V 1A. The Input Voltage must match to your power system, e.g. 110V/220V.

3.4 Focusing your Camera

Fix your preferred lens to the NC. Turning it clockwise fits the lens.

3.5 Integrating to the VOS

Though the VOS is a standalone streaming voice system, it can also be integrated with the NC as a voice module via connecting the COM port with each other. As a result, the NC would be able to have sending streaming voice capability by communicating with the VOS through COM port and streaming Video capability with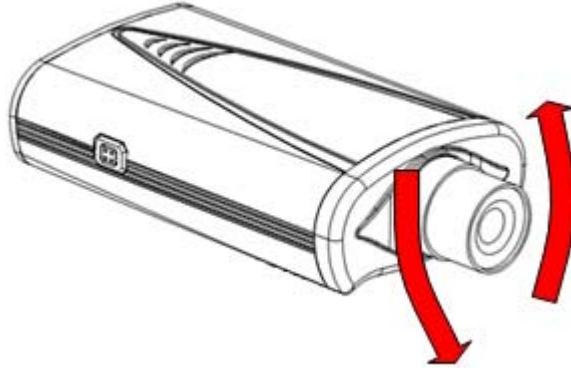 its built-in feature simultaneously. In this configuration, it doesn't matter if you having setting a static IP Address to the VOS since it uses COM port to communicate to the external. The schematic diagram below illustrates the installation for such a configuration:

Connect to the NC:
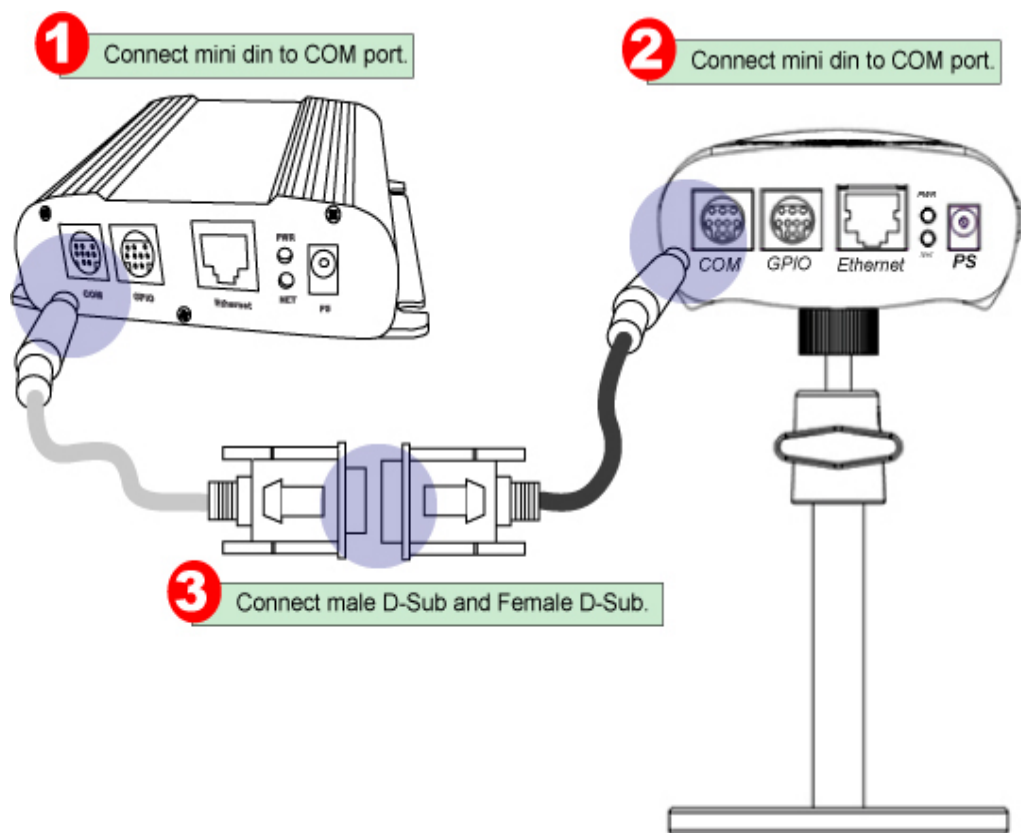
Having completed the setup, you can power on the VOS and check its power LED (red). If the PWR LED is constant lit, it means the setup is successful.

Note: Generally, you can setup the VOS in both of the above two configurations concurrently because the VOS can work in dual mode. It's able to not only sending streaming voice to the Ethernet, but also to the COM port at the same time.

4 Assign IP using IP Installer

PIXORD IP Installer is the software that provides an easier way for setting the IP address and network configurations of the PIXORD's Network Camera. Using this tool, you can easily set multiple PIXORD NCs at the same time with the batch setting function. By utilizing IP Installer, the setting process is largely simplified and the setting time is effectively shortened. Moreover, IP installer can not only save all the configurations of PIXORD NC as a backup, but also it can restore the previous configurations of PIXORD NC.

Always consult your network administrator before assigning an IP address to your server.

Make sure the PIXORD NC is powered on and correctly connected to the network.

Obtain an IP address not yet used from your network administrator.

MAC Address: Each PIXORD NC has a unique Ethernet address (MAC address) shown on the bottom of the PIXORD NC as the serial number (S/N) with 12 digits (e.g. 000429-XXXXXX) .
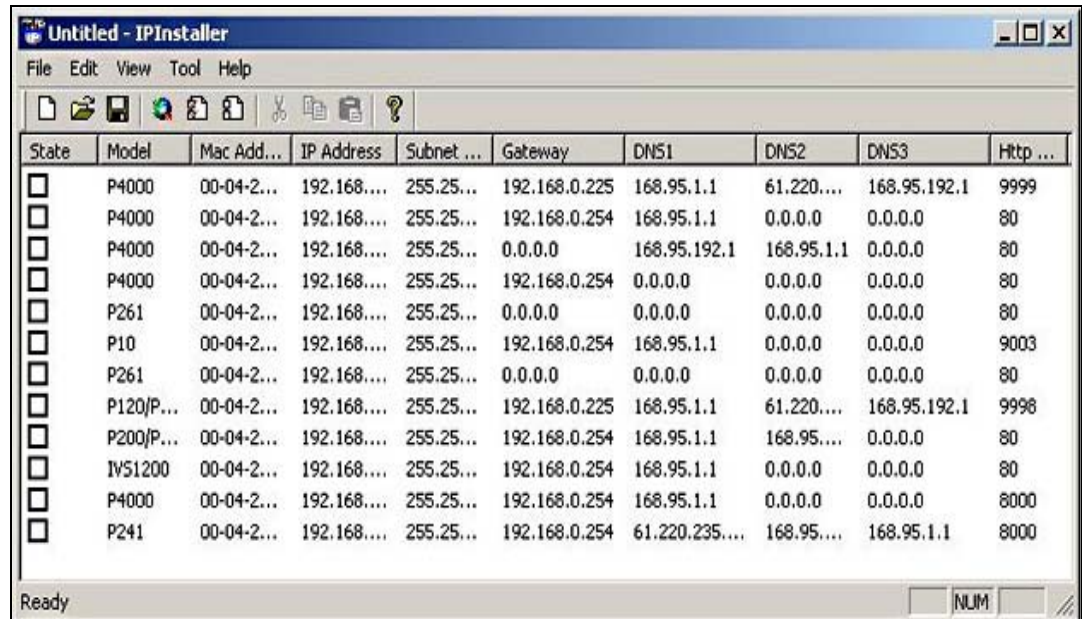
4.1 Executing IP Installer

Double click the mouse left button on the IP Installer icon.

IPInstaller.exe

The PIXORD IP Installer form is displayed on the screen.

4.2 Assign an IP Address to PiXORD Network Camera
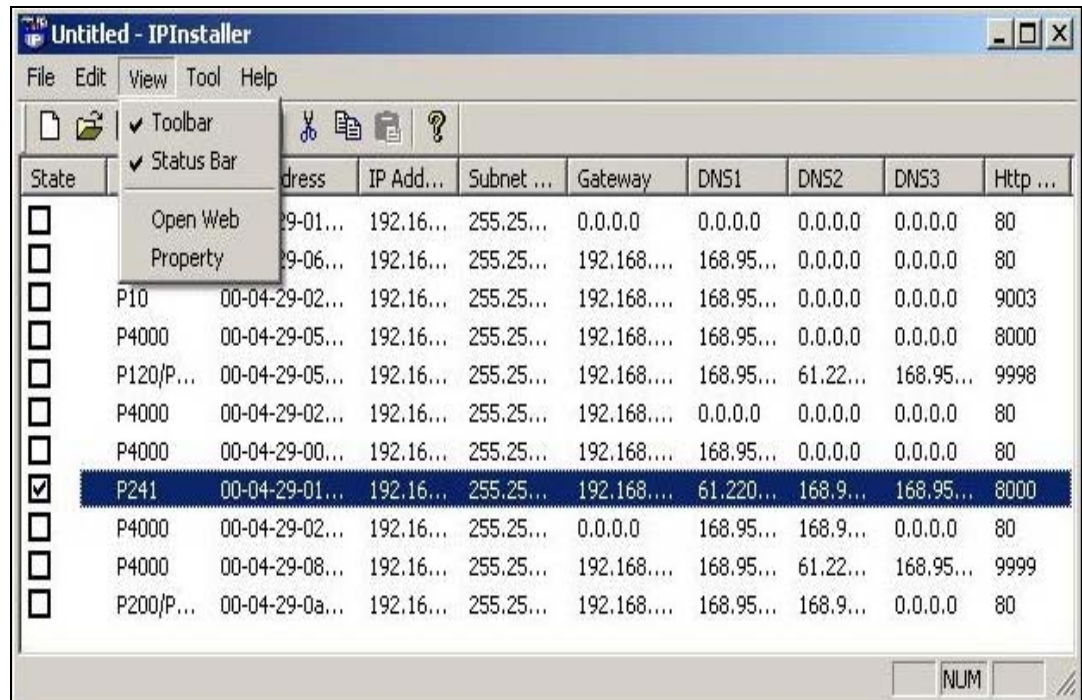
Select the MAC Address of your PIXORD NC in the list. The MAC Address is identical to the unit's S/N (Serial Number). And click the menu bar View/Property to open the Property Page for the selected item. After filling in the properties, click on Synchronize first in order to save the Properties, then click the OK button to submit the settings for the unit and the settings will be activated immediately.
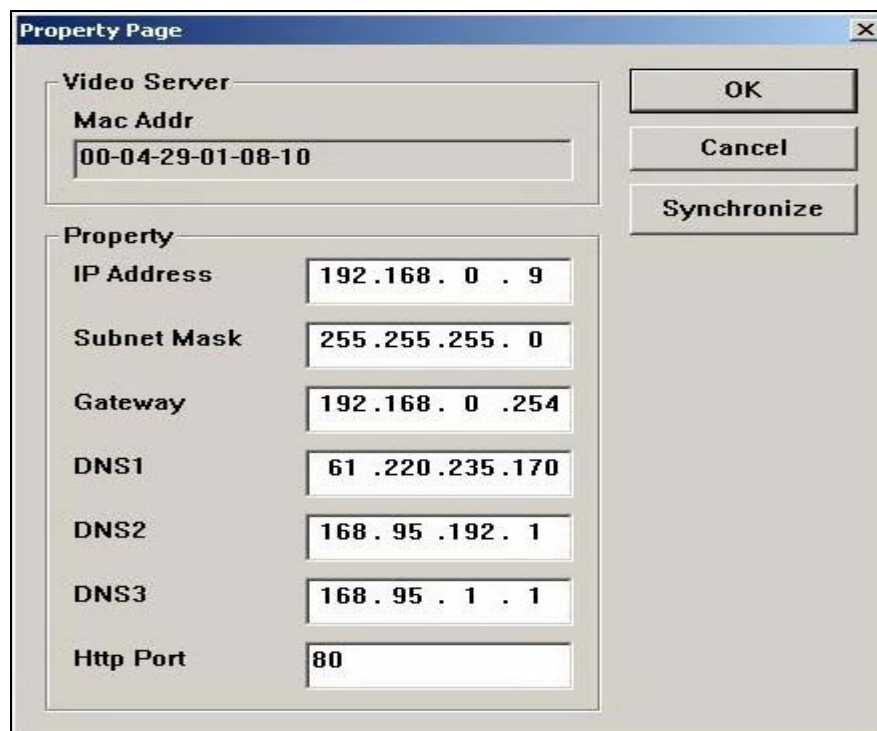
4.3 Verify the IP Address and Open the Home Page

To access the Home Page of the selected unit, run the View/Open Web on the menu bar. If you find your browser is opened and automatically connected to the PIXORD NC Home Page, it means you've assigned an IP Address to the unit successfully. Now you can close the IP Installer and start to use your PIXORD NC.
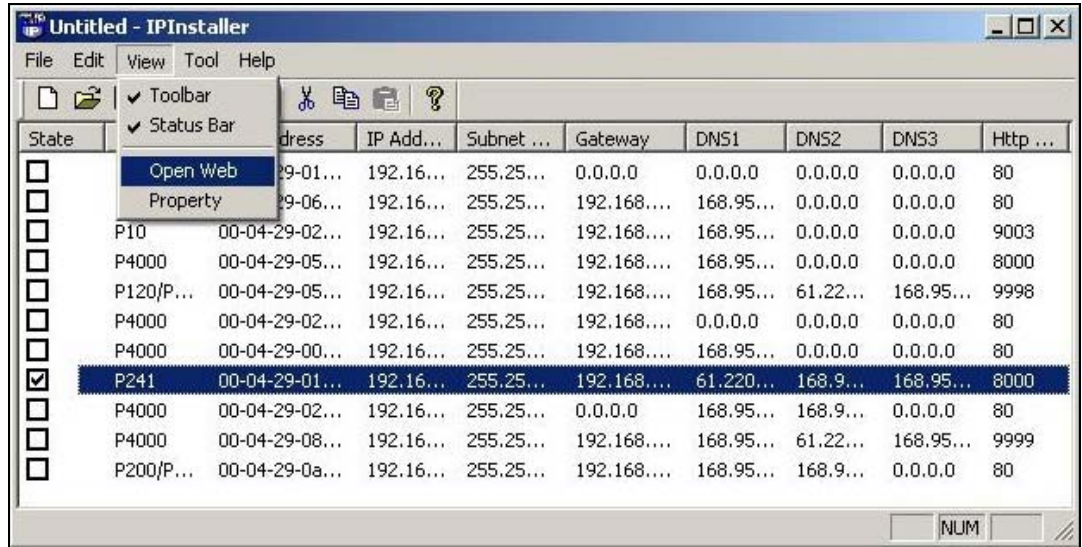
4.4 Verify and Complete the Installation from Your Browser

Start your browser and enter the IP Address of your PIXORD NC in the Address field

When the Web-based user interface runs for the first time through Internet Explorer, you must temporarily lower your security settings to perform a one-time-only installation of PIXORD's ActiveX component onto your workstation

The procedure is the following:

From the Tools menu, select Internet Options

Click the Security tab and take note of your current security settings

Set the security level to Low and click OK

Type the Internet Address or Host Name of your PIXORD NC into the Address field

A windows-dialog asking if you want to install a Pixord ActiveX Control will appear. Click yes to start the installation. Once the ActiveX installation is complete, return the security settings to their original value, as noted above

To continue the configuration of your own application, click the configure button in the top left corner of this window.
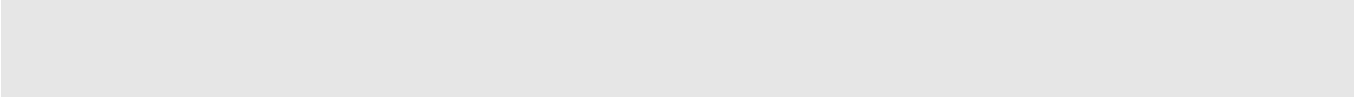
5 NC Home Page

Browsing Web User Interface

Start your Web browser and enter the URL（e.g.,"http://61.220.235.172"） in the Address field. The Home page of the NC is now displayed:

The Web User Interface is organized in two sections, the Basic settings and the Advanced settings,

5.1 1.IP Address

5.2 Video Source

	1.Select Source: Click on "Select Language" and a list of languages will be displayed. The following languages can be selected: English, Chinese Traditional, Chinese Simplified. Japanese and French options are reserved for future additions.
	2.Video Size: You can adjust the video size and appearance on the screen with the following sizes:

Video Size	NTSC Video	PAL Video
Small(Qsif)	176x1112	176x144
Default(Sif)	352x240	352x288
Large(Full)	704x480	704x576

Note: NTSC (60Hz) is the common standard in the USA, whereas PAL (50Hz) dominates in Europe. |
	3.Digital Size You can select the aspect ratio. Sizes will be based on the video source selection, and they can be the following aspect ratios: X1, X2, and X3.
	4.Snapshot Click to take a picture from the viewing video.
	5.Config Click on it in order to view Configuration pages of NC
7. Local Microphone Status (WEB UI from PC): This feature will be shown only if the VOS is connected to the NC COM port and displays the local microphone connection to the computer.	**6.Remote Voice Status:** This feature will be shown only if the VOS is connected to the NC COM port and the NC enable the streaming voice function.

When the   VOS is on, it can also be turned off. Both Remote Voice and Local Microphone can be turned off separately, once they are turned off by clicking on their icon, they will be showing the following figures:

5.3 video Source Display
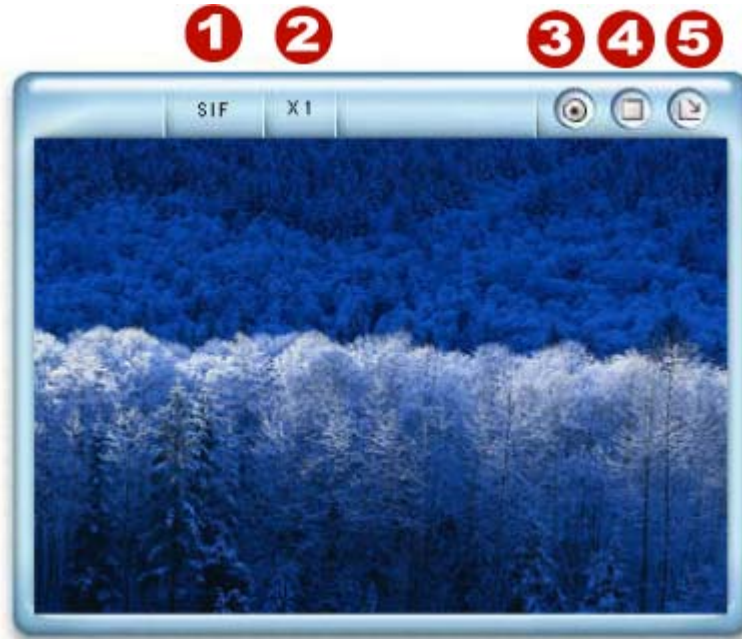
1. Indicates the selected Video Size

2. Indicates the selected Aspect Ratio

3. Recording: Clicking on this button, it will start to record live video. The file will be saved in a folder named   in your C Drive.
   The filename will be named under recPSVRecimage_ yyymmdd-hhmmss.avi
   Yyyy – Current Year
   Mm – Current Month
   Dd – Current Date
   Hh – Current Hour
   Mm – Current Minute
   Ss – Current second
   The file will be saved as an AVI file, which can be displayed with most media players.

4. Maximize to full screen

5. Rotation for 90 degrees. Clockwise direction

6 NC Configuration

6.1 Configuration Main Page

The NC Configuration page is separated in two sections:

After clicking on the Config Button from the Main User interface the followings icons will be displayed on the top-right corner of the Web User Interface

System   Advanced   Live Video

1. The System section which contains the following settings

General Clock Network CCD I/O Serial Video Quality Voice Adjust	1.	General: Set various information about the server name and the language type, etc.
	2.	Clock: Set the product Date and Time.
	3.	Network: Assigns an IP Address and configure the relevant network parameters to the server.
	4.	CCD (only for P201): Adjust the built-in CCD module status.
	5.	Serial: Select the operational modes for the COM1 and COM2.
	6.	Quality: Adjust the video quality and compression level.
	7.	Voice Adjust Adjust the Line In Gain, Line Out Gain, and Voice Activity Detection parameters, etc.

2. The Advanced Section contains the following settings:

System SMTP/DHCP User GPIO DDNS Motion Event Script Recording Setting	1	**System** Set various information about the server name and the language type, etc.
	2	**User** Create and delete user and passwords
	3	**DDNS** The DDNS (Dynamic Domain Name Service) is used to access NC with an easy memorized name such as http://demo.ddns.company.com instead of http://61.220.235.172 .
	4	**Event Script** The Script Editor offers advanced administrators and developers with an even greater level of flexibility for customizing the application specifically to meet their user needs. Using the on-line help as a reference, advanced users follow the instructions below to quickly develop programming scripts for time and/or alarm-triggered events.
	5	**SMTP/DHCP** DHCP (Dynamic Host Configuration Protocol) is a protocol that lets network administrators centrally manage and automate the assignment of Internet Protocol (IP) addresses in an organization's network. Notification can also be made through Mail or FTP when the IP changes.
	6	**GPIO** General Purpose Input / Output. These are for event triggers and actions
	7	**Motion** Create and enable in-picture motion detection windows. These are used to trigger alarms whenever significant movement occurs in the detection windows.
	8	**Recording Setting** Records the local camera

IMPORTANT: Make sure to click on it every time you made some changes to the features. For each feature that can be customized, on the right side you will have the following button:

Save Change
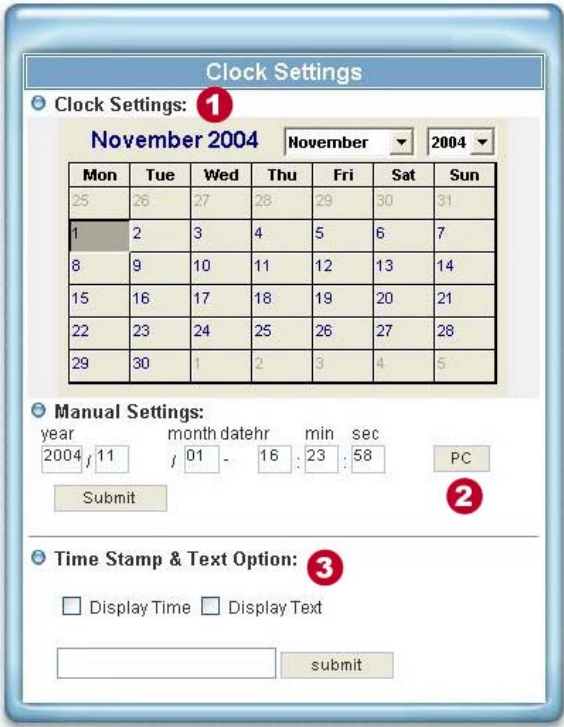
For example:

6.2 System Configuration
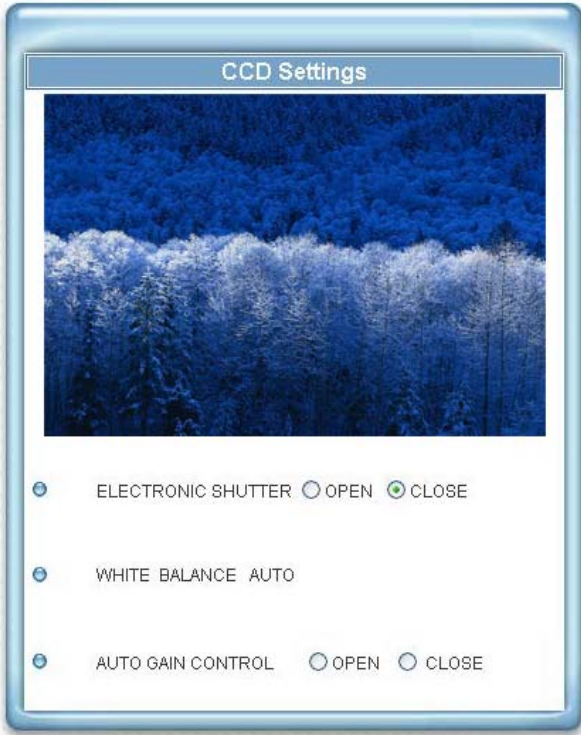
6.2.1 General Server Settings

	1. Specify server name. This name setting also used by DDNS service to recognize each server, e.g. if you configure the name as "user" at the DDNS address "ddns.comapny.com", then this NC can be accessed by the URL http://user.ddns.company.com after registering to the DDNS server.
	2. Displays the MAC address information for this NC. It's read only.
	3. Alternative language option. The user may change the language of web contents for different applications.
	4. Displays the firmware version's information.
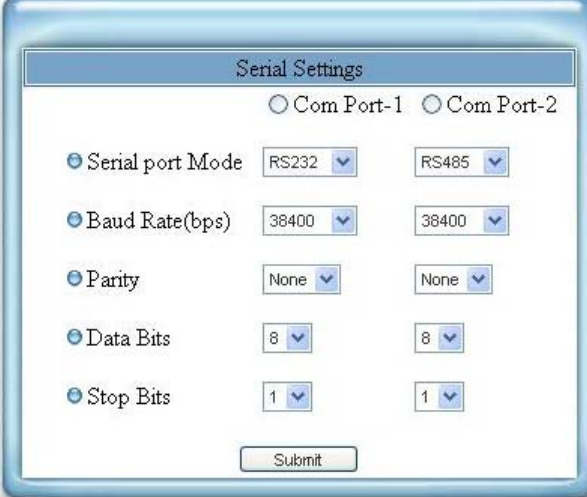
6.2.2 Clock Settings

	1.	The built-in real-time clock of NC provides accurate date/time of system even when power off. For different time zone or long period operation, you may need to adjust the clock --- just enter Time and Date information then click Submit.
	2	Click "PC" button to set the date/time of the NC as your PC's. Click on "Submit" in order to save the configurations.
	3	The Time Stamp & Text Options will allow you to display the time and display a text string in your camera. Make a checkmark on their respective boxes and then click on the "Submit" button. The valid characters are a – z, A – Z, 0 – 9, !, @, #, $, %, &, *, (, and). Note: The maximum display block area (Time + Text) are 12X4 characters. String length more than 12 will feed to next line, and totally 4 lines available. More than 4 lines will strip off.

6.2.3 Ccd module settings(only for P201)

	1.	Electronic Shutter : The shutter will automatically adjust the exposure of the built-in CCD to get the better illumination when set to Open.
	2.	Auto Gain Control : Normally "off" with maximum 10db gain, "on" will increase to maximum 24db. It's useful to increase sensitivity in low illumination environments (set to "on"), but more gain will produce more noise.
	3	Note: When using Lens with DC-Driver Auto IRIS capabilities, you must set ES to "off" state in order to get optimal Lens performance.

6.2.4 Serial Port Management

Change the serial port mode and configure the serial port settings

6.2.5 Video Adjustment(only for P201)
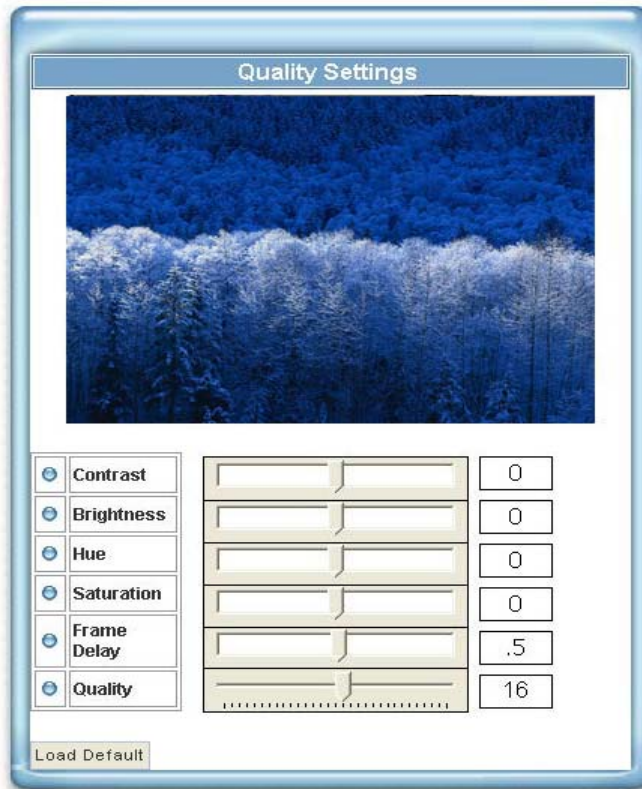
The NC is capable of detecting NTSC/PAL automatically, video signal active/lose, fully automatic (plug & see) and it doesn't need any user configuration.

Quality Adjustments : To adjust video contrast, brightness, hue, color saturation, and quality. Note that the quality level affects the compression ratio and file size of the video.

NTSC			PAL		
Resolution	File Size(kb)	Max fbs	Resolution	File Sze(kb)	Max fbs
Full(704x480)	7-160	3	Full(704x576)	9-200	3
Sif(352x240)	2-50	30	SIF(352x288)	2-60	25

(The Maximum performance is given in single user and only one video source in use.)

Frame Delay : To set the delay time between frames. The unit of delay time is 10 microseconds. You can limit the output bandwidth via setting the frame delay to do the flow control of the video stream. When the value is set to 0, it means no limitation on the video stream

Click " Save Changes " bottom if needed for existing data changed in NC when power off.

6.2.6 Video adjustment (only for P207)
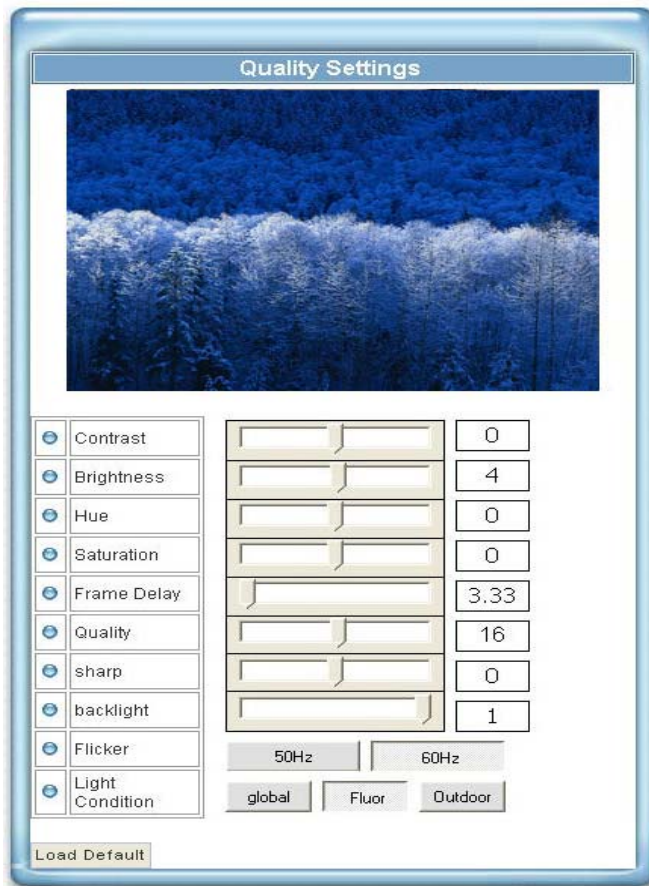
The NC is capable of detecting NTSC/PAL automatically, video signal active/lose, fully automatic (plug & see) and it doesn't need any user configuration.

Quality Adjustments : To adjust video contrast, brightness, hue, color saturation,quality, sharpness, backlight, flickerness and light condition.

Note that the quality level affects the compression ratio and file size of the video.

NTSC			PAL		
Resolution	File Size(kb)	Max fbs	Resolution	File Sze(kb)	Max fbs
VGA(704x480)	7-160	3	VGA(704x576)	9-200	3
SIF(352x240)	2-50	30	SIF(352x288)	2-60	25

(The Maximum performance is given in single user and only one video source in use.)

Frame Delay : To set the delay time between frames. The unit of delay time is 10 microseconds. You can limit the output bandwidth via setting the frame delay to do the flow control of the video stream. When the value is set to 0, it means no limitation on the video stream.

Click " Save Changes " bottom if needed for existing data changed in NC when power off.

6.2.7 Voice Management
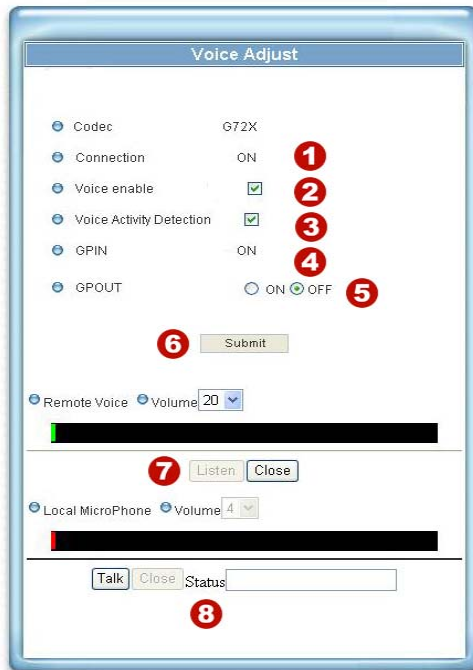
Codec : The Voice Codec. Now is fixed to G.72X.

1. Indicates the status of the VOS

2. Voice Enable : Click to enable transmitting streaming voice on the NC. Be sure to you have installed the VOS correctly before selecting this function.

3. Voice Activity Detection: If you enable this feature, the voice server would send voice data only when voice activity is detected on the voice server. As a result, it provides lowest bandwidth payload and good toll quality for Internet environment.

4. GPIN: The GPIN status of the voice server.

5. GPOUT: To invoke the voice server relay to on and off.

6. Click on Submit to make the changes

7. Remote Voice Volume: To adjust the Line In Gain on the voice server. The Line In Gain where equal to (value-2)*2 dB, e.g. Line In Gain db Table.

Value	Line in dB
0	-4dB
1	-2dB
2	0dB
3	2dB
….	….
20	36dB

Listen / Close: Click to listen to the remote voice acquired by the voice server or not.

8. Local Microphone Volume: To adjust the Line Out Gain on the voice server. The Line Out Gain where equal to value*(-6) dB, e.g. Line Out Gain db Table.

Value	Line out dB
0	0dB
1	-6dB
2	-12dB
3	-18dB
4	-24dB

Talk to remote / Close: Click to talk to remotely monitored areas or not.

Status : The status of the talk to remote action.

Status	Description
Free	The talk-connection of the voice server is free for everyone to complete the usufruct.
On-line	You have got the usufruct of the talk-connection and it is ready to talk.
Connection Occupied	The talk-connection is occupied by someone and could not be created. You have to wait for talk-connection released.

6.3 Advanced Settings

6.3.1 System Commands

1. The Reboot System forces NC to restart.

2. The Load Default recovers all factory settings except the network settings.

Note: The factory default just recovers the working setting but it isn't saved to the permanent memory (will back to previous setting after boot).To change the boot settings, you must set "Save Changes".

6.3.2 User Settings

1. As for factory default, no user is set.

   ➢ **Adding a User**
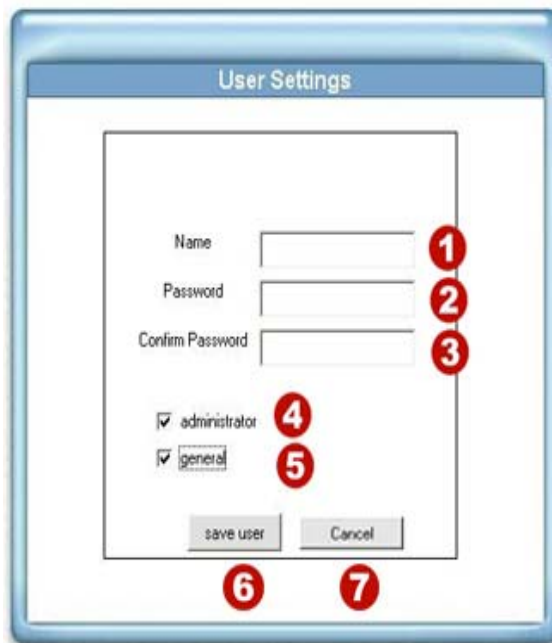
1. New user name to login.

2. Password for the user.

3. Retype the password to confirm.

4. Administrator User" is the user with administration permissions. The user has all permissions to operate the NC, such as managing, configuring, and upgrading the software

31   /   75

5. "General User" is the user without administration permissions. The user can be configured to have limited permissions to see video, for example, "capable of changing video size, etc".

6. Adds to the above new user into list.
   When entering "submit" at the first time, NC will ask for a new administrator to login. Once the users are in the list, you can choose the users in the list to be modified or removed

7. Aborts the above operation

NC provides 3- layer user security control

"Open for All" is a factory default when no user enters in User Configuration, it allows any user over Internet to monitor and configure the NC. Note: that the first user shall set and get administration privilege; otherwise, he can't get into administration page any more. If this happened, the unit must be set back to factory default.

> **Removing a User**
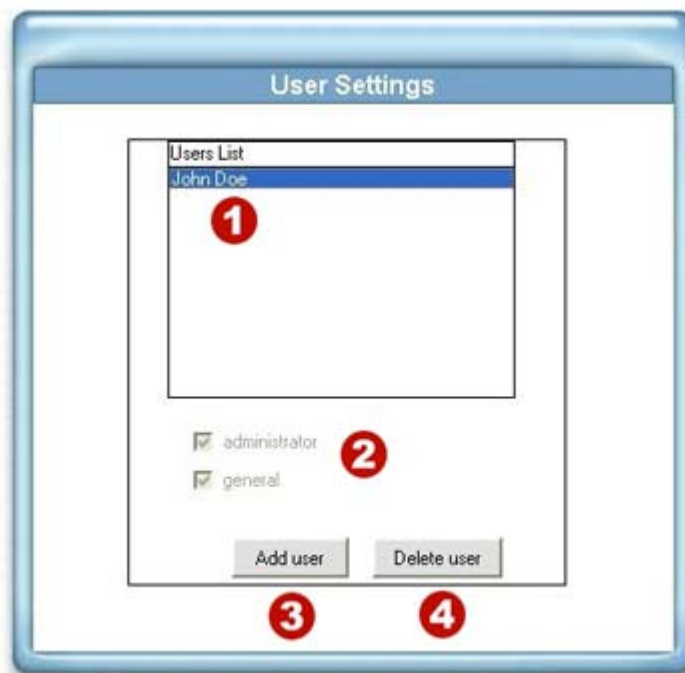
1.Displays a list for the available users

2.Displays the permission for the listed users. Notice that this is read-only.

3.Adds another user to the unit

4.Removes the selected user.

6.3.3 DDNS Settings

DDNS substitutes a network identification number for one that's easier for humans to use.

For Internet users to access your computer, they must know your IP address — for example, when you run your own Web server, or use your router to make a VPN connection. Since the IP address changes, your Internet users will need to keep up with the changes. (As an analogy of this problem, imagine that your telephone number frequently changed without warning. Your friends would always be phoning the wrong number.)冠

DDNS solves this problem. The company creates an account for you that register an unchanging name, such as myname.company.com, and it automatically substitutes the current IP address — no matter what your ISP has changed it to. For remote user access, you must also configure your router for port forwarding — for services you make available on your computer.

The DDNS (Dynamic Domain Name Service) can be used when the user wants to access NC with an easy memorized name such as http://demo.ddns.company.com instead of http://61.220.235.172 . This service is useful when the NC is located behind Dial-up ADSL and IP sharing devices, which don't have fix IP addresses and accessing the Camera server won't be easy since their IP addresses will change for every reconnection.

When the DDNS service is active in the NC, it registers to the Company DDNS server with its settings, such as server name, router virtual port number and updated frequency, and so on. Using a fixed frequency, the NC automatically updates the settings to the Company DDNS server. So even if the IP has been changed because of the reconnection, the Company DDNS server will be updated with the new settings.

Once the name is registered, e.g. "demo", accessing the camera can be done by simply typing http://demo.ddns.company.com

1. **Dynamic DNS Activate :**

  Click to activate DDNS service.

2. **Device Name:**

Assign a name for the camera that will be used for the DDNS service

3. **Dynamic DNS Sever Address :**

Specify address of DDNS server, and the default is "ddns.company.com"

4. **DDNS Connection Port :**

Specify DDNS server listen port, and the default is "80"

5. **Router Incoming Port :**

Specify your router listen port for DDNS server to redirect. The router may configure the different port for incoming (Internet request) and outgoing (Intranet request), e.g. it may configure to redirect Internet HTTP (port 80) request to Intranet port 8000, then, in this case, we must configure the "Router Incoming Port" to 80, and inside the NC Network settings should set HTTP port with 8000.

6. **Update Time :**

Specify the NC updated frequency in seconds, the default is 600 (10 minutes), this is the interval that the NC will automatically send to the DDNS server.

DDNS message:

Returns messages from the remote DDNS server, and displays some hints which will help to diagnose the reason why the registration fails.

-ddnsaddr CGI fail : It means that NC can't communicate with Internet. Make sure your Network Configuration has the correct subnet mask, default gateway, and DNS1 setting.

-Already registered : Another user had registered this name; please change your register name by changing "server name".

Example:

How to Setup a P200 (IP address 192.168.0.200) behind a dialup ADSL router, access it by the name http://demo.ddns.compamy.com .

Configure the ADSL router with PPPoE enable; Lan IP, 192.168.0.254; and subnet mask, 255.255.255.0. Assign the ADSL router's virtual server with service port 80 to server IP 192.168.0.200. Configure P200 network configuration with IP address 192.168.0.200; subnet 255.255.255.0; DNS1 with valid DNS address such as 168.95.192.1 or 168.95.1.1; gateway IP address with 192.168.0.254 (router's IP); HTTP port with port 80.

Configure server name with "demo".

Configure DDNS with Activate; Address "ddns.company.com"; DDNS with port 80; Router Incoming port 80; and update time with 600 (10 minutes). Finally, click on submit.

If DDNS message success, then enter URL http://demo.ddns.company.com on browser. Consequentially, it will show NC's home page.

6.3.4 Event Script Edit

Application developers regularly wish to have different levels of customization within their own applications. Such customizations can be done through the event manager. The event system provides several trigger sources and action types, which allow administrators to record emergency images, such as Motion detection, IO control, FTP or EMAIL to the outside world in a simple process.

The NC's event manager provides an event control through programmable Event Scripts which are the combination of several events. Each event works simultaneously. If one of the trigger conditions in the event script is satisfied, then the corresponding action will start to be executed accordingly. A comprehensive set of "trigger conditions" and "action commands" are allowed to fit in several applications without limitation.

To start the event manager, simply click on the Event icon, then the event frame will pop up.

There are two ways to enter the event script. One is using the " Script Wizard " which follows the procedure of filling up some basic commands, generating and appending a new script code to the edit window. The other one is editing the form manually, which is meant for experienced users who want control deeply the functionalities of the events operation. Please refer to the " Event Script Programmers Guide ", which can be downloaded from the website.
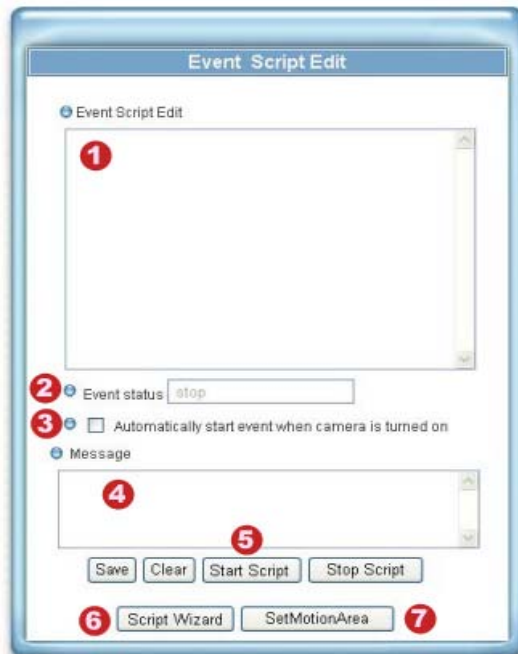
1.Event Script Edit : Text window to enter event script manually.

2.Event Status : Indicates the event status, "Stop Now" or "Start Now"

3.Event Auto Start when Power On : The flag is to set the event script auto start-up when the system is powered on.

4.Message : A window to show the results when below command icon pressed --- normally will show "OK", "Parsing", "Fail", Or "Err String" which indicates the syntax error of parsing, and starts from the error position in the script.

5.Save Script : Command to save and parse current scripts in the "Event Script Edit" window. If any syntax errors are detected, the error message, indicating the starting position of syntax error, will be shown in the "Message" window.

Note: Any changes in " Event Script Edit " window must " Save Script " before " Start Script "; otherwise, the new changes will be lost and won't take effective. Also the changes won't be saved into permanent memory unless you click the "Save Changes" .

6. Script Wizard : Command to start the script wizard. It helps user to make simple script automatically by wizard, but the wizard supports only partial trigger and action commands. To fully leverage the complete functionalities of event script, please refer to "Event Script Programmers Guide".

7. Set Motion Detection Area : In order to activate the motion detection, you must choose the detection area and start the motion detection script manually or by wizard.

6.3.5 SMTP/DHCP Settings

1.DHCP Settings :

If there is a DHCP server installed on your LAN, you can enable DHCP to automatically obtain network settings such as IP address, subnet mask, default gateway, and DNS servers. Because the assigned IP address can be dynamically changed every time it obtains from the DHCP server, we provide a method called IP Notification to notify users which IP address is acquired.

2.IP Notification by FTP:

If a FTP server is installed on your network, you can enable this option to obtain the newly assigned IP address of your NC. A HTML file named

NewIP_xxxxxx.htm will appear under the upload path for you to link to NC, where xxxxxx is the last six digits of the serial number.

FTP Host Name : FTP server address

Login Name : Name of your FTP account

Password : Password used to log in your FTP account

Upload Path : Path to put the file.

3.IP Notification by E-mail :

With this option enabled, your NC will send E-mail to you as soon as it obtains the IP address from DHCP.

SMTP Host Name : SMTP server.

Recipient : Your E-mail address.

From : Sender's E-mail address.

Message subject : Subject of this E-mail.

6.3.6 GPIO Status
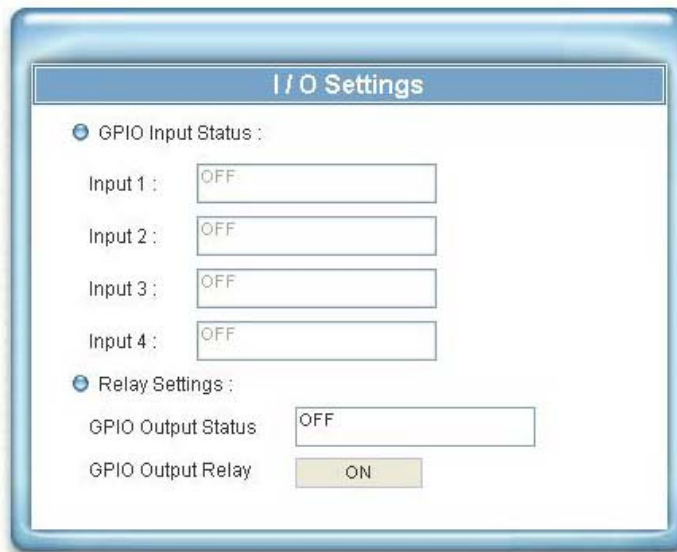
Displays the GPIO (General Purpose Input/Output) status. The GPIO Terminal Block / MINI DIN provides control signal input and output, which includes four GPIO inputs, one GPIO output as Relay junction. Set the relay : click the radio button to set the relay to ON or OFF.

6.3.7 Motion Area Selection

Motion Detection Region Selection: Move the mouse to the regions in video window with white blocks to determine the motion trigger areas. After setting with clicking the left button of the mouse, the selected areas will be marked.

6.3.8 Recording Settings

1.Total File Space:

Set the total file space for the recording. The unit is in MB.

2.Single File Space:

Set the file space that a single will be using. The unit is in MB.

3.File Name:

Input the name for the file

4.Save File Path:

Indicate which folder should be the file saved to.

5.Append Existing File:

Make a checkmark on the box if you choose that the new recording should be appended to the previous recorded file.

6.Recording Frame Rate:

Input the frame rate for the recording.

7.Snap To Time:

This feature enables the file to be saved according to the time. When the video file is displayed, the video will make a match between the frames and the time.

8.Recycle Recording:

This feature indicates if the old space should be used or not for the recording. Make a checkmark in order to enable this function. If you enable this feature, old files will be deleted.
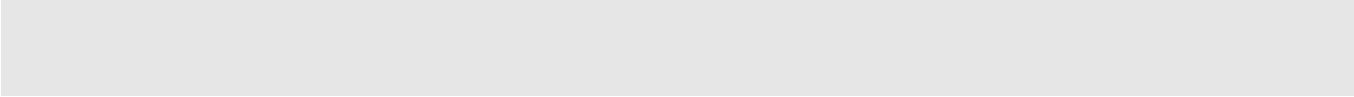
7 Connecting your Camera

The following figures display the ways that the Camera can be connected.
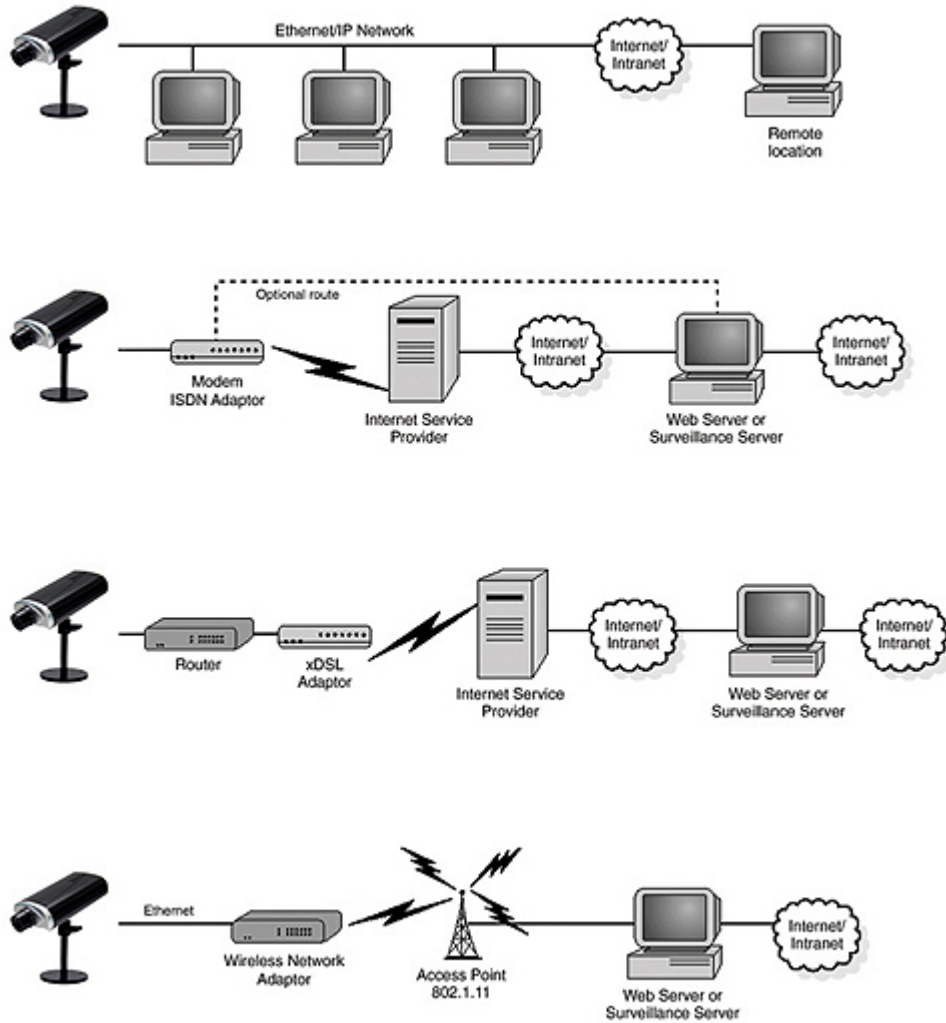
8 Setting your camera with ADSL connection

1. How can I setup my Network Camera with my ADSL connection?

When using an ADSL connection you have to know if your ISP assigned you a Static Public IP or Dynamic Public IP. Consult with your ISP for more information.

Question: What is the difference between Static Public IP and Dynamic Public IP?

Answer: It actually depends on what is purpose of using the Internet connection and what kind of applications are you going to run.

➤ **CASE: ADSL through PPPoE**

My ADSL connection uses PPPoE to get connected to the ISP, plus the fact that my ISP assigns me a different IP every time when I get connected (Dynamic Public IP).

Question: Can I plug directly my Camera to the ADSL Modem in one of the LAN ports?

Answer: No, the main reason is that presently, the Camera doesn't have the PPPoE feature, even if you plugged it in, there must be a feature present that dials to the ISP.

Question: I only have an ADSL connection and don't plan on getting a static Public IP. What can I do in order to make this work?

Answer: You can buy a Router which needs to have PPPoE and port forwarding capabilities. In the market, mostly all routers come with these features and they aren't expensive. Please consult with your provider regarding this matter. Refer to the next section for Port Forwarding settings.
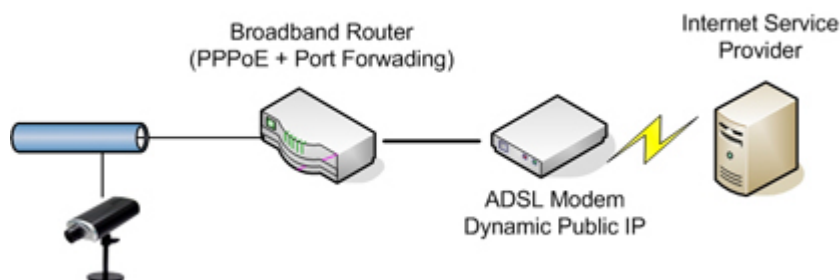
Question: Once I set this up, how can I view my camera through a remote location?

Answer: You can register your camera at our DDNS Service, and even if your Public IP changes, you can access it from a remote location. Refer to Network Configurations, DDNS settings in order to set it up.

9 Viewing your camera from a Remote Location

9.1 Using default Settings
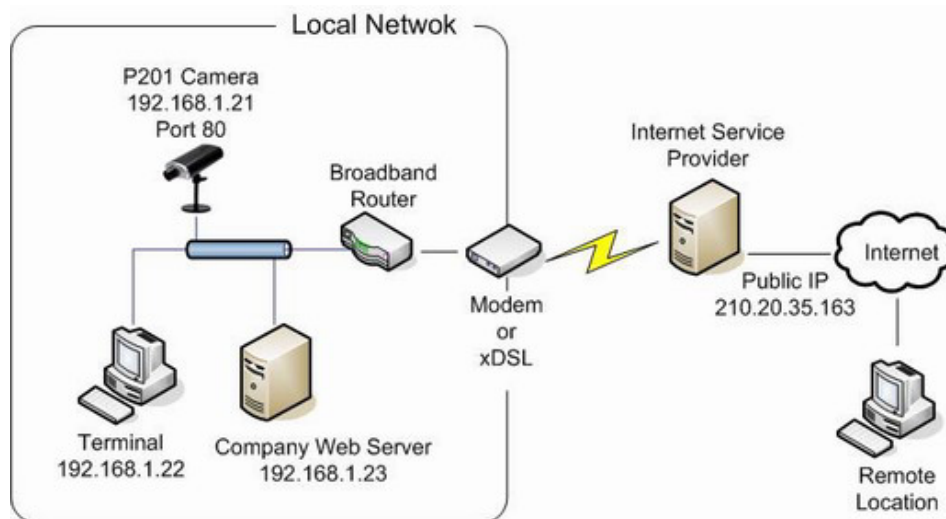
In this case what we have here is:

Public IP Address 210.20.35.163, assigned by the Internet Service Provider (ISP)

PiXORD Camera, with a local IP of 192.168.1.21

Broadband router

Since we are sharing only one single Internet connection through our Local Network, the Port Forwarding configuration in our Broadband Router for the camera will be as follows:

Private IP	Private Port	Type	Public Port
192.168.1.21	80	⦿ TCP ○ UDP	80

Notice that the Port 80 is the default port for any Web-Server, but this also can be changed. Since Port 80 is the default, when we type our IP address at the Address bar, there won't be any need to type the port number.

Once the broadband router's configurations are set, we can open the Internet Explorer and type in the Address bar the Public IP address.
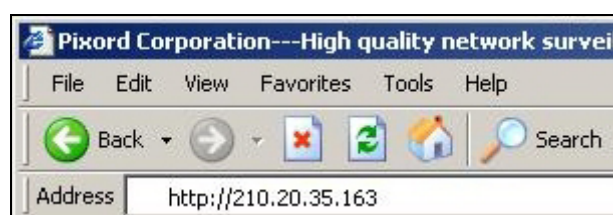
➢ **Question:**

Can I use DHCP from my router to assign an IP to my camera?

➢ **Answer:**

We don't suggest it, if you do this, every time you reboot your camera, a new IP will be assigned and you will have to configure again your router in your Port Forwarding configuration.

9.2 Assigning ports manually
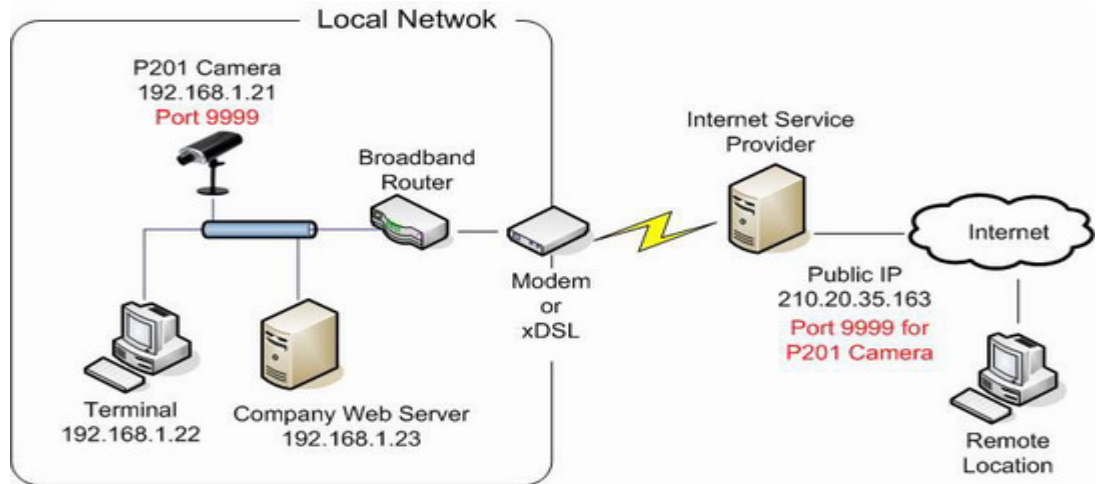
In this case what we have here is:

Public IP Address 210.20.35.163, assigned by the Internet Service Provider (ISP), but we will be using Port 9999 for accessing the camera from the Internet.

PiXORD Camera, with a local IP of 192.168.1.21, using port 9999 to get access to the camera through the Local Network

Broadband router

Since we are sharing only one single Internet connection through our Local Network, the Port Forwarding configuration in our Broadband Router for the camera will be as follows:

Private IP	Private Port	Type	Public Port
192.168.1.21	9999	⊙ TCP ○ UDP	9999

In this case we are using Port 9999 for the PiXORD Camera at 192.168.1.21, and using Port 9999 for the Internet access at 210.20.35.163.

When we are in a remote location, in order to access our camera through Internet, we have to specify the Public Port when typing the Public IP Address as the figure below:
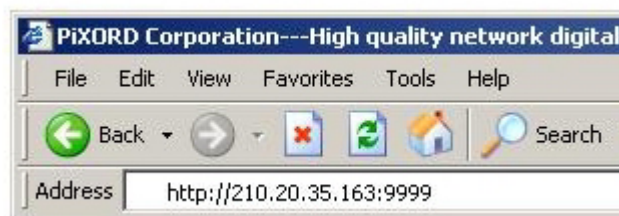
Note that if changes are made to the port assignation, some configurations at the PiXORD Camera also have to be changed, such as Network and DDNS settings

9.3 Using 2 or more Public Ips

The following figure is just an illustration on how the camera can be connected when 2 or more Public IPs are involved in a network infrastructure
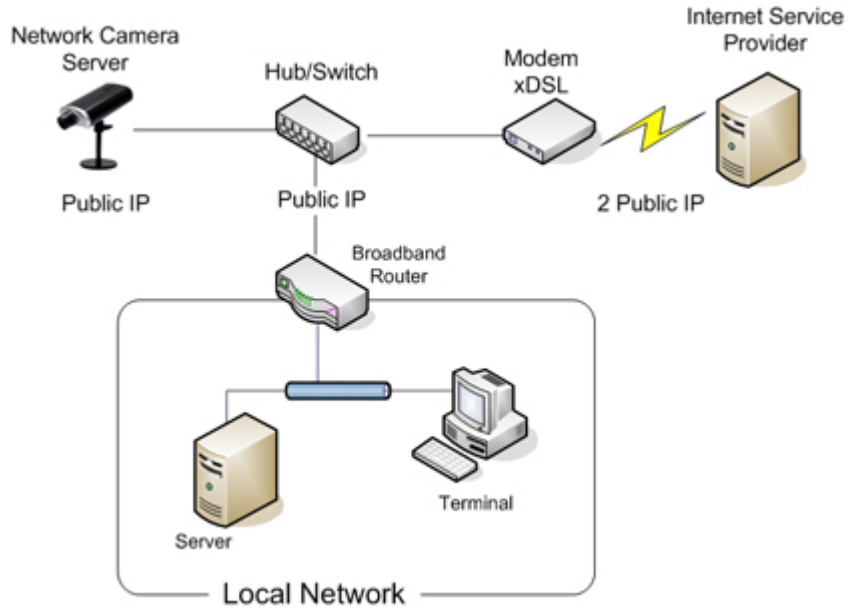
9.4 Assigning ports using User Datagram Protocol for the Camera with a Voice Server P10 attached

User Datagram Protocol (UDP) is a commonly used protocol on the Internet. However, UDP is never used to send important data such as web-pages, database information, etc; UDP is used for audio and video. Streaming media such as Windows Media Audio files, Real Player, and others use UDP because it offers speed! The reason UDP is faster than TCP is because there is no form of flow control or error correction. The data sent over the Internet is affected by collisions, and errors will be present. UDP is only concerned with speed. This is the main reason why streaming media is not high quality.

When setting the port forwarding in the broadband router using UDP, we have to make sure that the port used for the Public IP address has to be same port for the Local IP address; otherwise the UDP port will not understand where the packet should be sent to.

Note that when connecting the P10 using the COM Port to the Camera, will require to set as UDP for the streaming, but at the same time in order to view the Web user interface, it will also require to set it up using TCP; so when configuring the Port Forwarding in you router, allow both TCP and UDP to be directed to your private and public ports.

For some Routers, there will be a checkbox rather than an option box, in case that the checkbox is available, you can check on both TCP and UDP.

In case that there are option boxes, you would be able to add the same IP address, and mark on the option box as the figure below:

Private IP	Private Port	Type	Public Port
192.168.1.21	81	○ TCP ● UDP	81
192.168.1.21	81	● TCP ○ UDP	81

➢ **How can I view my camera from a remote location through Internet when running the camera through my Local Network?**

This will require some configuration on your broadband router.

Before setting up the network configuration, let's get familiar with some terms

◆ **Broadband Router**

A broadband router allows users to share a single Internet connection.

◆ **TCP/IP**

TCP/IP is the protocol that computers use to communicate on the Internet.

◆ **TCP/IP Ports**

Each "service" you use on the Internet communicates using one or more specific port numbers; your e-mail program uses port number 25 to send e-mail, and port 110 to receive e-mail from your e-mail server.

◆ **IP Address**

Everything that is connected to a TCP/IP network needs a unique address, an IP address. This is what happens when you browse the Internet with requests to view Web pages.

◆ **Public IP Address**

A Public IP Address is the only IP address that is recognized on the Internet, where the term Internet refers to the global network, the World Wide Web.

◆ **Local IP Address**

A local IP address can only be used internally, on a local network. A computer with a local IP address cannot access the Internet itself. It can however, access the Internet via another computing device, e.g. a broadband router.

◆ **Port Forwarding**

Port forwarding, is essentially a method for a broadband router to forward data traffic aimed for one port on its public network interface to a computer or network camera on the local network. Ports run from 0 to 65535. Note that ports 0 to 1024 are well known ports, which means that those ports are already assigned to specific services. So when you consider choosing your own ports, select those starting from 1025 to 65535.

As an example, you are a user with a network camera who wants to access it from a remote location through the Internet. The following equipment is available:

1 PiXORD Network Camera

1 PC running Windows

1 Broadband Router

We need to direct all incoming requests that reach port 80 the public network interface of the broadband router, so that these are forwarded to the camera's IP address on the local network. Consult your broadband router's manual for information on how to configure port forwarding. Depending on the router, it could be denominated as Port Forwarding/NAT/Virtual Server. Usually it will look like this:

Private IP	Private Port	Type	Public Port
		⊙ TCP ⊙ UDP	

10 Appendix

10.1 Appendix A -Trouble Shooting

Symptom

The PIXORD NC can not be accessed from a Web browser.

Possible Causes	Remedial Actions
The IP address is already used by another device.	Disconnect your PIXORD NC from the network. Run the PING utility and follow the appropriate recommendations. Note: The assigned IP number can be assumed valid if the PING utility returns "request timed out" - in which case you should set the IP address again, power on the PIXORD NC and then try accessing the unit again.
The IP address is located within a different subnet.	Run the PING utility, If the utility returns "no response" or similar, the diagnosis is probably correct. Then, you should proceed as follows: In Windows 95/98 or Windows NT, check that the IP address for your PIXORD NC is within the same subnet as your workstation: Click "Start", "Settings", "Control Panel" and "Network". Specify the TCP/IP adapter and click on Properties. Then, click "IP Address" in Properties. Check that the first 3 numbers within the IP address of your PIXORD NC matches the first 3 ones of your workstation. If not, your PIXORD NC may be on a different subnet and the IP address cannot be set from this workstation. You must set the IP address for the PIXORD NC from a workstation on the same

	subnet.
In Windows 95/98, the ARP table was empty when you tried to set the IP address	In Windows 95/98, the ARP command can't be used if your have an empty ARP table. Type "arp –a" to view the ARP table. If it is empty, you must ping an existing unit on your network before you can download the IP address to the NC
A programming script locks the unit.	Restore the unit to the factory default settings.

10.2 Appendix B-Upgrade the Firmware

NC software is contained in Flash Memory, a silicon chip allowed to be erased and re-written. It provides an easy way to update the software without change any parts; just simply load the newest software from network.

The following procedures are for updating the software:

1. Check software version

Enter URL "http://<NC IP address>/ver" in your web browser, which will show you the software version.

Example:

enter "http://192.168.0.200/ver" in Microsoft IE5 URL location, you will see the software version--" Software Version=1.11 Revision 0905.1641 ", which indicates the currently software version is 1.11.

2. Obtain the software (flash.bin)

The latest version of the NC software is free of charge from Corporation or your local distributor. Also you can obtain this software over the Internet. URL: http://www.Company.com .

3. Upgrade procedure via FTP

3.1 Download the newest software and unzip it into your local Driver, for example "C:\temp".

3.2 Then, confirm the "flash.bin" file exists in this directory.

3.3 Remove all event settings and Reset the NC:

You have two ways of removing the event scripts. One is choosing " Clear " and using the " Save " icon on the " Event Script Edit " page, in order to set the event script to be emptied; the other is clicking on the " Load Default " icon in the Server / System page to reset all settings.

However, it will not only delete events, but also all delete other settings. Then click the " Reboot System " to restart the NC or enter CGI command URL "http://< NC IP address>/control?reboot=1" in your web browser.

Caution : You must remove all even t s and reboot the NC before doing the following procedures; otherwise, some occasional internal conflicts may endanger the Flash devices. Start the FTP session and log in to the NC

For example, in our case for Windows98:

Enter DOS by "start->Program->MS-DOS Prompt"

Change to the directory where the latest flash.bin exist.

Start ftp session by enter "ftp < NVS IP Address>

Enter "root" as USERNAME, "pass" as PASSWORD if no user in User List record. In case any user list exists, you will have to use your administrator's USERNAME and PASSWORD to login

Set FTP to binary mode using the command "bin".

In FTP session window, Enter "bin"

Upload the software into NC by FTP "put" command.

In FTP session window, enter "put flash.bin"

In FTP session window, enter "bye" to quit FTP session.

FTP session may freeze for around 1 minute to transfer and automatically upgrade the software. During that time, ping the NC until get constant reply, which means system had completed upgrading and rebooting, then open browser to verify the software version been updated

Note : If FTP session quits immediately after issued by command, you should continue pinging NC instantly. If NC replies to the ping command right after pinging, it means NC may not enter the self-programming stage to verify the software version. If not updated, then you should reboot NC and back to step 3 to try again

C:\temp> ftp 192.168.0.200

Connected to 192.168.0.200.

220 192.168.0.200 FTP server (ARM_BE - V3.0.H) ready.

User (192.168.0.200:(none)): root

331 Password required for root.

Password: <=enter pass as default

230 User root logged in.

ftp> bin

200 Type set to I.

ftp> put flash.bin

200 PORT command successful.

150 Opening BINARY mode data connection for flash.bin

226 Transfer complete.

ftp: 2097152 bytes sent in 10.11Seconds 207.43Kbytes/sec.

ftp> bye

221 Goodbye. <=Quit ftp session immediately

<=if the window is frozen, please open another dos session

C:\temp> ping -t 192.168.0.200

Pinging 192.168.0.200 with 32 bytes of data:

Request timed out.

Request timed out.

Request timed out.

Request timed out.

Reply from 192.168.0.200: bytes=32 time=2ms TTL=255

Reply from 192.168.0.200: bytes=32 time=1ms TTL=255

Reply from 192.168.0.200: bytes=32 time<10ms TTL=255

Reply from 192.168.0.200: bytes=32 time<10ms TTL=255

Reply from 192.168.0.200: bytes=32 time<10ms TTL=255

Ping statistics for 192.168.0.200:

Packets: Sent = 13, Received = 5, Lost = 8 (61% loss),

Approximate round trip times in milliseconds:

Minimum = 0ms, Maximum = 2ms, Average = 0ms

Control-C

C:\temp>

C:\>

Note : Flash products can become damaged if the updating operation is not performed correctly. So please follow up above procedures carefully

10.3 Appendix C - Update Custom Web Pages

NC has a built-in web server, so the web contents are contained in Flash Memory, the same as software parts, allowed to erase and re-written. It provides an easy way to update the web pages --- just simply load and issue command from network (FTP and Telnet).

Caution : The update of content page is very sensitive to system operation; therefore, incorrect operation may cause system fail to response to any request. The following operations provided here are only for experienced system integrator. Remember that always consult to your distributor or dealer in advance to update the content.

The following procedures are to update the web page:

1) Clean up system

Before updating the pages, make the NC back to factory default stage --- click "Load Default" button , click "Save Changes" button , and then click "Reboot System" button in configuration page. Kee

the NC in an idle state, which stops all video requests from other station.

2) Download complete web pages

For backup purpose, we should download the complete built-in contents before updating. The pages layout is described as below:

3.0.0/WWW: Main video pages including static HTML pages and JAVA applets.

3.0.0/WWW/images: All graphical files.

3.0.0/WWW/lang1: All HTML pages for user defined language 1.

3.0.0/WWW/lang2: All HTML pages for user defined language 2.

3.0.0/Sys: Video bitmap font file (Time Stamp and Text Bitmap)

3.0.0/public: Internal message files.

Note : When you login the system, the default root directory is 3.0.0/. Do not change any file in 3.0.0/Sys, and 3.0.0/public, because these files are only used internally.

For convenience, some FTP utilities (e.g. CuteFTP, WSFTP) may be useful to download the complete pages.

3) Upload custom web pages

You can use FTP utilities to upload the updated/added contents to their original directory. For example, if you wish to replace the banner logo (logo.jpg) with your custom made image. First, prepare your own image, and then upload to 3.0.0/WWW/images.

Note : Any file upload to NC should be set to "binary" mode in FTP utility; otherwise, the file may be corrupted in NC.

4) Verify updated contents

After uploading the custom pages, open browser to verify the correctness of contents. If not correct, modify the pages and return to previous step to upload again.

5) Save the changes to flash

Telnet into the NC, and run the command "Up –w" to write the complete web pages into the flash. The detailed procedures are list as below,

Open DOS window

Enter "telnet <IP Address of NC>"

Enter "root" and "pass" as username and password

Enter "Up –w" to start the web content update program. The command is case sensitive. Don't enter the wrong case or you'll get the command not find error message. After processing about 30 seconds, the NC will restart automatically and complete the web content updating. Now you can open the browser to see the new web content.

Note : The limitation of overall size of content pages is around 700K Bytes. Any file added/updated plus original downloaded file (~550K Bytes) should not exceed this size; otherwise, some files will be truncated or corrupted. If the corruption of any page happens, you will have to reload the original binary (see 0 Appendix B - Upgrade the) in order to recover the corruption.

For example, the NVS IP address is 192.168.0.200, then

C:\temp> telnet 192.168.0.200

C:\temp>

Telnet session <------------Open Telnet session

Login: root

Password: <------------Enter " pass " as default

Welcome to VidSvr on Telnet ...

IVS> Up –w

Upgrade WWW Pages... <------------Frozen here, close and open browser

After 30 seconds to verify the changes.

10.4 Appendix D- Emergency Factory Default

In certain circumstances, to restore the server to the initial factory default state may be necessary, normally through webpage (Miscellaneous Operation). If the user can't get into webpage (e.g. Missing of Username and Password information), then he can use the Emergency Factory Default to restore the factory default.

Procedures are as below:

Turn the power off

Connect GPIO Input 4 to GND:

Short GPIO Mini-Din Pin 5 & Pin 9 with small wire or switch.

Turn the power on. When the Status LED starts to blink (orange) twice, and then open the wire or switch that set GPIO Input 4 back to open immediately.

Server will restore the factory default and restart.

Note : When status LED starts to blink during power up, if not to set GPIO Input 4 back to open within 3 seconds , server will continue the boot sequence and doesn't retrieve the factory default.
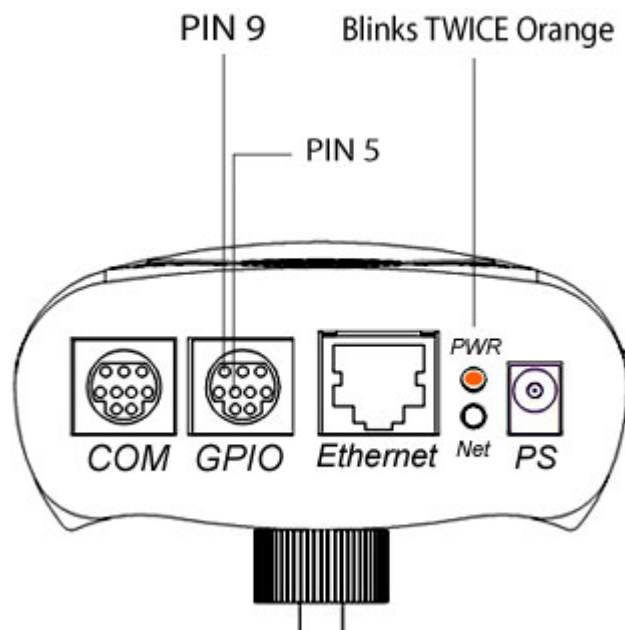
10.5 Appendix E - Assign IP Address by ARP

Note before IP assignment:

Make sure the NC is powered on and connected to the network correctly.

Obtain a unique IP address from your network administrator.

Each NC has unique Ethernet address (MAC address), which is recorded as 12 digits serial number labeled at the bottom side of NC (e.g. 000429xxxxxx).

The following examples uses a PC with IP address 192.168.0.1, and is going to setup the NC server to the IP address 192.168.0.200 which its MAC address is 000429000150. Do not use these addresses featured as examples in this document, always consult your network administrator before assigning an IP address.

The IP address assigned to the NC shall be the same IP domain (presented as same subnet mask) as the PC IP address. In our case, a PC IP address is 192.168.0.1 and the NC is 192.168.0.200, so the subnet mask shall be 255.255.255.0. If a PC subnet mask is 255.255.255.128 or higher, then the domain can't cover 192.168.0.200, so the setting won't take effective.

For speedily installing and easily setting the IP Address, the Corporation provides an IP Installer Wizard for you. Please install the application and see the user's manual for detailed description and usage.

In Windows, open DOS window.

Enter DOS by Start > Program > MS-DOS Prompt

Ensure the IP address assigned to NC doesn't occupy by other Host.

In DOS window, entering <ping 192.168.0.200> shall get "time out" message

C:\> ping 192.168.0.200

Pinging 192.168.0.200 with 32 bytes of data:

Request timed out.

Request timed out.

Request timed out.

Request timed out.

Ping statistics for 192.168.0.200:

Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

Approximate round trip times in milliseconds:

Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>

Enter command <arp –s [NC IP Address] [NVS MAC Address]>

In DOS, enter "arp –s 192.168.0.200 00-04-29-00-01-50"

Enter command <ping –t [NC IP Address]> shall get constant reply after 3~4 timeouts, then press CTRL-C to exit pinging.

In DOS, enter "ping –t 192.168.0.200"

C:\> arp -s 192.168.0.200 00-04-29-00-01-50

C:\> ping -t 192.168.0.200

Pinging 192.168.0.200 with 32 bytes of data:

Request timed out.

Request timed out.

Request timed out.

Reply from 192.168.0.200: bytes=32 time=5ms TTL=255

Reply from 192.168.0.200: bytes=32 time=4ms TTL=255

Reply from 192.168.0.200: bytes=32 time=4ms TTL=255

Reply from 192.168.0.200: bytes=32 time=4ms TTL=255

Ping statistics for 192.168.0.200:

Packets: Sent = 7, Received = 4, Lost = 3 (42% loss),

Approximate round trip times in milliseconds:

Minimum = 4ms, Maximum = 5ms, Average = 2ms

Control-C

C:\>

Complete the setup and verify the installation. Then, open your web browser (e.g. Internet Explore) and enter the IP address in the Location/Address field. Consequently, the NVS video home page will be opened.

Enter "http://192.168.0.200" in Location/Address field of Internet Explore, and then the Internet live video can be opened.

10.6 Appendix F - I/O & COM port Connectors

The GPIO MINI DIM contains four GPIO inputs, one GPIO output as relay junction, and one RS-485 port. A PTZ device can be connected directly to the NC via the RS-485 port. And, the following pictures indicate the Pin direction:
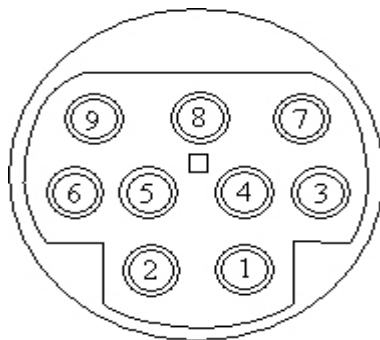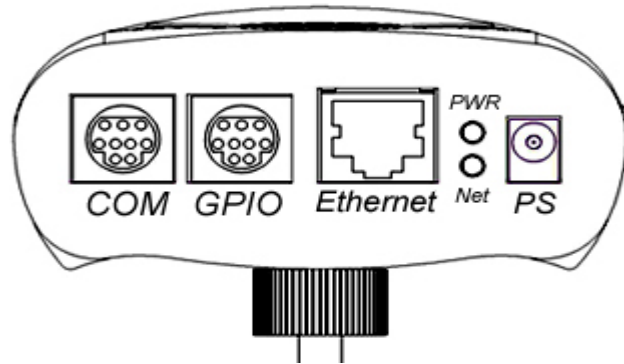
MINI-DIM

COM port MINI-DIN		GPIO MINI-DIN	
PIN	NAME	PIN	NAME
1	CD	1	GPIN1
2	RXD	2	GPIN2
3	TXD	3	485B
4	DSR	4	485A
5	GND	5	GND
6	DTR	6	Relay_COM
7	RTS	7	Relay_NO
8	CTS	8	GPIN3
9	RI	9	GPIN4

10.7 Appendix G - Lenses Replacement

The NC supports any standard C/CS lens, including full DC-Iris lens. You can replace the built-in lens with any lens you like. Since the NC is supplied with a CS-mount, any stand C or CS lens typically used in the surveillance industry can be used. Follow the instructions below to fit any C or CS type lens:

Use Normal Lenses

CS-mount lens mode is the standard type. When using C-mount lens, please use the CS-C conversion Ring.

Use the Zoom Lens (adjustment of the back focus)

The camera is set at the standard back focus position when shipped from factory. Depending on the types of zoom lenses, slight adjustment may be necessary. Adjust the lens back-focus by turning the focusing knob in either direction.

Place an object at any fixed distance and set the focus ring of the zoom lens to be used with.

Set the zoom lens to fully TELE position and obtain the best focus position by turning the focus ring of the zoom.

Then set the zoom lens to fully WIDE position and obtain the best focus position by turning the focusing knob.

Repeat the procedures 2 and 3 until focus remains in constant among the zooming ranges.

When auto iris lens is used, connect the plug of the lens (for iris terminal) to the IRIS terminal at the side of camera.

Note: If you use a DC-Iris lens, be sure to change the AES (Auto Electronic Shutter) to off mode. To do this change, please open the NC Home Page and go to the Configuration page. Select the CCD module setting function to change the AES mode.

10.8 Appendix H – Specifications

Hardware	
System	CPU: 32 Bits RISC Processor ROM: 2M Bytes Flash ROM RAM: 16M Bytes SDRAM WatchDog: Chip to monitor out tolerance system voltage and abnormal program execution
Connectors	Two LEDs to indicate network and power/system status One RJ-45 for Ethernet One RS-232 serial port for external console One RS-485 port for PTZ (pan/tilt/zoom) camera control Four fully opto-isolated alarm inputs and one 3A, 125VAC/ 30VDC Relay output
Video Channel	1 internal CCD (P201)
	1 internal CMOS (P207)
	HORIZONTAL resolution: More than 380 lines
	1 Lux (F2.0) - P201
	2.5 Lux (F 1.4) - P207
Video	
Lens	Standard Package: equipped with CS mount Focal length 6.0mm F1.8 Lens.Supporting of Direct Drive Lens; Build-in VR for DC level adjustment. • Optional: • i. Focal lens 4.0mm, Auto DC Iris F1.2~64 Lens • ii. Vari-Focal lens 3.2~10mm, Auto DC Iris F1.4~360 Lens
Lens adjustment (only for P201)	White Balance: Auto Automatic Gain Control: Auto

	Electronic Shutter: Up to 1/100,000 sec. (Linear) Auto / Off DC IRIS
Image Compression	JPEG/MJPEG
Video Adjustment (P201)	Brightness, Contrast, Hue, Saturation, Video quality adjustment
Video Adjustment (P207)	Brightness, Contrast, Hue, Saturation, Video quality, sharpness, backlight, flickerness and light condition adjustment
Resolutions (P201)	NTSC: 704x480, 352x240, 176x112 PAL: 704x576, 352x288, 176x144
Resolutions (P207)	640x480, 320x240, 160x120
Network	
Network Interface	Ethernet (10/100 Base-T)
Protocols	TCP/IP, UDP, ARP, ICMP, HTTP, FTP, Telnet, SMTP, DHCP
Performance	• Network throughput: Max. Up to 800K bytes / sec. • 30 connections simultaneously • Up to 30/ 25 fps
Management	
Function	• Supports remote recording • Supports display rotation • Supports full screen display • Multi-Languages support
Event management	Programmable Event Scripting Triggered: • Time (Frequency) • Sensor Input • Motion Detection • Video/ Network status • CGI trigger Action: • Store image to internal buffer (2M Bytes pre and post-alarm) • FTP image to remote site • E-mail image to specific account • HTTP server push to remote site • Relay output to control external devices • Alert

	transmission to an HTTP listen server (for developers)
Installation	Using ARP & Ping or IP-Installer software to assign the IP address
Firmware Upgrade	‧ Remote upgrade by FTP • Customized web UI is upgradeable via FTP and Telnet
Client PC Requirements	Standard browser such as Microsoft 5.x or above, or Netscape Navigator 7.x running on Windows Me/ 2000/XP, Linux.
Security	Multi-tiered access control
Operating Environment	
Operating Temperature	5 O ~50 O C (40 O ~ 125 O F)
Input Voltage	DC 12V 1.5A
Power Consumption	6 watts
Mechanical Design	
Dimension	135(L)*85(W)*40(H) mm
Accessories	‧ CD Title with anual/software • Quick Installation Guide • Ethernet Cable • CS Ring adjust tool • Power Adapter • Stand for Desktop/Wall/Ceiling • One cable convert MiniDin to Dsub, to connect Com port or GPIO

10.9 Appendix I - Glossary of Terms

➢ **ActiveX**

A control (or set of rules) used by a browser. ActiveX controls are often downloaded and installed automatically as required

➢ **ADSL - (Asymmetric Digital Subscriber Line).**

In an ADSL line, the upload speed is different from the download speed. Usually the download speed is much greater.

➢ **Applet**

A small Java program that can be embedded in a HTML page. Applets differ from full-fledged Java applications in that they are not allowed to access certain resources on the local computer, such as files and serial devices (modems, printers, etc.), and are prohibited from communicating with most other computers across a network.

➢ **ARP - (Address Resolution Protocol).**

Protocol for mapping an Internet Protocol address (IP address) to a physical machine address that is recognized in the local network.

➢ **Bandwidth**

Width of a band of electromagnetic frequencies. Is used to mean (1) how fast data flows on a given transmission path, and (2), somewhat more technically, the width of the range of frequencies that an electronic signal occupies on a given transmission medium. Any digital or analog signal has a bandwidth.

➢ **Binary**

Information consisting entirely of ones and zeros. Also, commonly used to refer to files that are not simply text files, e.g. images

➢ **Browser**

A Client program (software) that is used to look at various kinds of Internet resources.

➢ **Byte**

A set of Bits that represent a single character. Usually there are 8 Bits in a Byte, sometimes more, depending on how the measurement is being made

CGI - (Common Gateway Interface). A set of rules that describe how a Web Server communicates with another piece of software on the same machine, and how the other piece of software talks to the web server.

➢ **CGI - (Common Gateway Interface).**

A set of rules that describe how a Web Server communicates with another piece of software on the same machine, and how the other piece of software talks to the web server.

➢ **Domain Name**

The unique name that identifies an Internet site. Domain Names always have 2 or more parts, separated by dots. The part on the left is the most specific, and the part on the right is the most general

➢ **DDNS - (dynamic domain name system).**

A dynamic DNS (domain name system) service is a company that charges a small fee to allow a user connecting to the Internet with a dynamic IP address to be able to use applications that require a static IP address.

➢ **DNS - (domain name system).**

The domain name system (DNS) is the way that Internet domain names are located and translated into Internet Protocol addresses. A domain name is a meaningful and easy-to-remember "handle" for an Internet address

➢ **DHCP - (Dynamic Host Configuration Protocol)**

Is a communications protocol that lets network administrators manage centrally and automate the assignment of Internet Protocol (IP) addresses in an organization's network.

➢ **Email - (Electronic Mail).**

Messages, usually text, sent from one person to another via computer. E-mail can also be sent automatically to a large number of addresses.

➢ **Ethernet**

Is the most widely-installed local area network (LAN) technology. An Ethernet LAN typically uses coaxial cable or special grades of twisted pair wires. Ethernet is also used in wireless LANs. The most commonly installed Ethernet systems are called 10BASE-T and provide transmission speeds up to 10 Mbps.

➢ **Extranet**

An intranet that is accessible to computers that are not physically part of a company's' own private network, but that is not accessible to the general public, for example to allow vendors and business partners to access a company web site.

> **Firewall**

A set of related programs, located at a network gateway server, which protects the resources of a private network from users from other networks.

> **FTP - (File Transfer Protocol)**

FTP is a way to login to another Internet site for the purposes of retrieving and/or sending files

> **Firmware**

A program that is inserted into programmable read-only memory (programmable ROM), thus becoming a permanent part of a computing device. Firmware is created and tested like software (using microcode simulation).

> **Gateway**

A network point that acts as an entrance to another network.

> **HTML - (Hyper Text Markup Language).**

The coding language used to create Hypertext documents for use on the

> **HTTP -- (Hyper Text Transfer Protocol).**

The protocol for moving hypertext files across the Internet. Requires a HTTP client program on one end, and an HTTP server program on the other end. HTTP is the most important protocol used in the World Wide Web (WWW).

> **ICMP--(Internet Control Message Protocol).**

A message control and error-reporting protocol between a host server and a gateway to the Internet. ICMP uses Internet Protocol (IP) datagrams, but the messages are processed by the IP software and are not directly apparent to the application user.

> **Intranet**

A private network inside a company or organization that uses the same kinds of software that you would find on the public Internet, but that is only for internal use. Compare with extranet.

> **IP Number - (Internet Protocol Number).**

A unique number consisting of 4 parts separated by dots, e.g.165.113.245.2

Every machine that is on the Internet has a unique IP number - if a machine does not have an IP number, it is not really on the Internet

> **ISP - (Internet Service Provider).**

A company that provides individuals and other companies access to the Internet and other related services such as Web site building and virtual hosting.

> **Java**

A network-friendly programming language invented by Sun Microsystems, often used to build large, complex systems that involve several different computers interacting across networks, for example transaction processing systems

> **JPEG - (Joint Photographic Experts Group).**

Commonly mentioned as a format for image files. JPEG format is preferred to the GIF format for photographic images as opposed to line art or simple logo art.

> **LAN - (Local Area Network).**

A group of computers and associated devices that share a common communications line and typically share the resources of a single processor or server within a small geographic area (for example, within an office building). Usually, the server has applications and data storage that are shared in common by multiple computer users

> **MJPEG**

Motion JPEG (M-JPEG) is a video codec where each video field is separately compressed into a JPEG image. The resulting quality is independent from the motion in the image which differs from MPEG video where quality often decreases when footage contains lots of movement.

> **Modem - (MOdulator, DEModulator).**

A device that connects a computer to a phone line. A telephone for a computer. A modem allows a computer to talk to other computers through the phone system. Basically, modems do for computers what a telephone does for humans.

> **NTSC -(National Television Standards Committee).**

The NTSC (National Television Standards Committee) was responsible for developing, in 1953, a set of standard protocol for television (TV) broadcast transmission and reception in the United States.

> **PAL - (Phase Alternation Line)**

Analog television display standard that is used in Europe and certain other parts of the world.

> **Ping**

To check if a server is running. From the sound that a sonar systems makes in movies, you know, when they are searching for a submarine

- **PPP- (Point-to-Point Protocol).**

  A protocol for communication between two computers using a serial interface, typically a personal computer connected by phone line to a server.

- **Router**

  A special-purpose computer (or software package) that handles the connection between 2 or more Packet-Switched networks. Routers spend all their time looking at the source and destination addresses of the packets passing through them and deciding which route to send them on.

- **SMTP - (Simple Mail Transfer Protocol)**

  The main protocol used to send electronic mail from server to server on the Internet

- **SNMP - (Simple Network Management Protocol).**

  A set of standards for communication with devices connected to a TCP/IP network. Examples of these devices include routers, hubs, and switches

- **Subnet**

  A subnet (short for "subnetwork") is an identifiably separate part of an organization's network. Typically, a subnet may represent all the machines at one geographic location, in one building, or on the same local area network (LAN).

- **Subnet mask**

  An IP Address consists of two components: the network address and the host address. "Subnetting" enables a network administrator to further divide the host part into two or more subnets. The subnet mask identifies the subnet to which an IP address belongs.

- **TCP/IP - (Transmission Control Protocol/Internet Protocol)**

  This is the suiteof protocols that defines the Internet. Originally designed for the UNIX operating system, TCP/IP software is now included with every major kind of computer operating system. To be truly on the Internet, your computer must have TCP/IP software.

- **Telnet**

  The command and program used to login from one Internet site to another. The telnet command/program gets you to the login: prompt of another host.

➢ **UDP - (User Datagram Protocol).**

One of the protocols for data transfer that is part of the TCP/IP suite of protocols. UDP is a "stateless" protocol in that UDP makes no provision for acknowledgement of packets received.

➢ **URL - (Uniform Resource Locator)**

The term URL is basically synonymous with URI. URI has replaced URL in technical specifications.