# wifiCAM

## User's Guide

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## Revision History

| Version | Date | Changes |
|---|---|---|
| 2.0.1 | October 4, 2004 | Release wifiCAM User Guides / Angus & James |
| 2.0.2 | October 21, 2004 | Re-edit, add appendix E / Andy |
| 2.0.3 | November 9, 2004 | Add details on wireless setup / Andy |

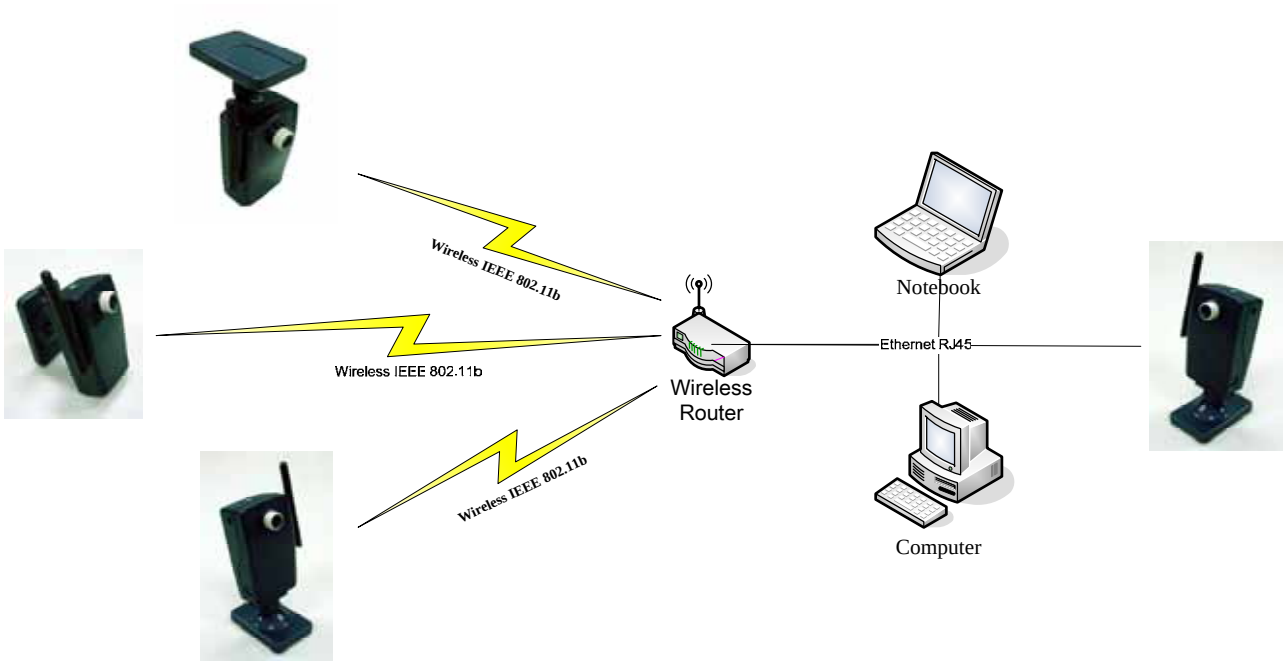
# Table of Contents:

# 1. Product Overview

## 1.1 Introduction

Thank you for choosing a 3JTech product!  wifiCAM is a color camera with Built-in IP address, Ethernet Software Stacks and Protocols. Plug wifiCAM directly to a RJ45 Ethernet port or wireless IEEE 802.11b and you will be able to view camera sites in real-time from anywhere in the world. You will also be able to control the camera from any PC/Notebook over the Internet through a standard web browser. Connecting directly to Ethernet network system, netCAM is a standalone digital network camera with a built-in CPU and web server transmitting high quality images.

## 1.2 Environment

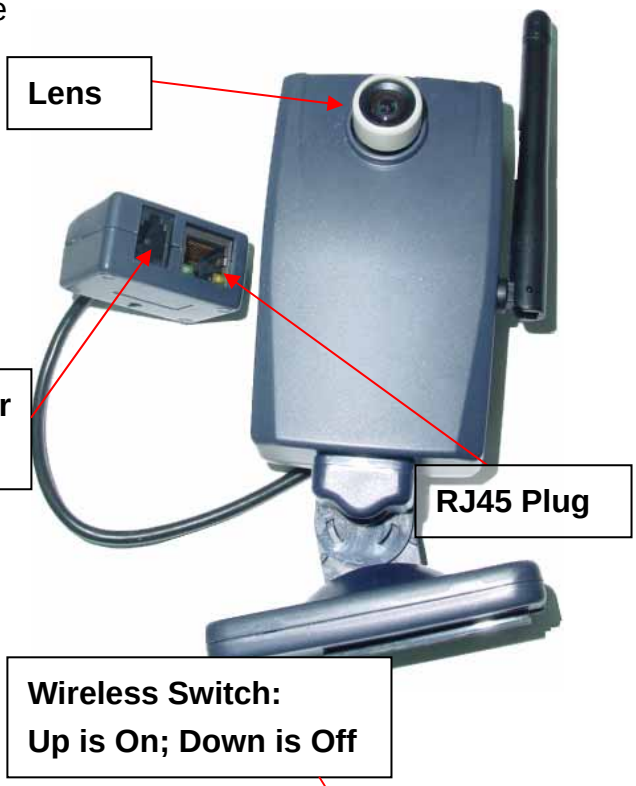



## 1.3 Package Contents

- 1 x wifiCAM Camera.
- 1 x Warranty Card.
- 1 x Operating CD (User's Manual/Software)
- 1X Quick Installation Guide.
- 1 x RJ45 Ethernet cable.
- 1 x RJ22 Power Adapter & Trigger I/O Connection.
- 1 x US standard AC plug

## 1.4 Hardware Features

The following information contains the physical description of wifiCAM. This includes the functions and the locations of each connector and indicator. The information provides useful reference when installing the product. Please familiarize yourself with wifiCAM.




### 1.4.1 Exterior

Camera Sensor Micron VGA CMOS Sensor 1/4
Resolution 640x480
Illumination 2.0 Lux
Lens F: 4.5 mm, F: 2.8

### 1.4.2 Image

Video Format JPEG/MJPEG
Frame Rate 30fps@QVGA, 20ftp, 15fps@VGA
Video Resolution 320x240, 640x480
Light Frequency 50Hz, 60Hz
Brightness control Yes
Contrast control Yes
Saturation Yes

### 1.4.3 Hardware/System

- CPU ARM7 32bit RISC CPU
- SDRAM 16 MB
- Flash ROM 2 MB
- OS Linux 2.4 kernel
- Image Processor TOPRO TP6800
- Ethernet RJ-45, 10/100 Base-T auto-sensed
- Wireless LAN 802.11b wireless LAN module


SW_1: H/W Power Reset

SW_2: Software reset and reset to **Default IP (192.168.1.100) for Ethernet** **Default IP (192.168.1.101) for Wireless** Parameter (Please Push 5 /Sec)

Note: User will be able to update to the latest firmware version downloaded by camera itself in the near future.

# 2. wifiCAM Installation

## 2.1 System Requirements

- ActiveX Enabled and Compliant Web Browser (e.g. Microsoft Internet Explore 5.0 or later)
- CPU: Pentium III, 450MHz or above
- Memory Size: 128MB recommended
- VGA card resolution: 800x600 or above (e.g. support Overlay function VGA card)
- OS (Operating System): Windows XP, 2000
- 10Base-T Ethernet or 100BaseTX Fast Ethernet
- IEEE 802.11b or higher

## 2.2 IP Address Configuration

wifiCAM requires an IP address for users to access via local or WiFi network. There are three different IP configurations; PPPoE, DHCP and Fixed IP to accommodate your network environment. If you are using dial up ADSL connecting to the Internet, it is recommended to select **PPPoE** as default connection. If your network supports DHCP, simply select **DHCP**. Otherwise, you have to assign a fixed IP for wifiCAM. The factory default is on fixed IP mode. Connect your wifiCAM to the network by plugging a RJ-45 Ethernet wire or through WiFi network between the device and your local network socket.

**Note: wifiCAM has to be setup by RJ-45 Ethernet** the first time used because the user has to setup SSID and the Router for wireless networking.

**The factory default settings of your wifiCAM for Ethernet are listed below:**

| | |
|---|---|
| **IP Address** | **192.168.1.100** |
| **Netmask** | **255.255.255.0** |
| **Gateway** | **disabled** |
| **DNS** | **disabled** |

You will need a client PC to configure the wifiCAM via network. It is recommended to use the following settings on your PC. (more details in ***Appendix D - How to setup IP address of your PC***)

| | |
|---|---|
| **IP Address** | **192.168.1.11** |
| **Subnet mask** | **255.255.255.0** |
| **Gateway** | **disabled** |
| **DNS** | **disabled** |

Launch your web browser (e.g. IE or NETSCAPE) and type the IP address http://192.168.1.100/ on the address bar of the browser and press “Enter”. Once successfully connected to wifiCAM, you will be able to see login page.

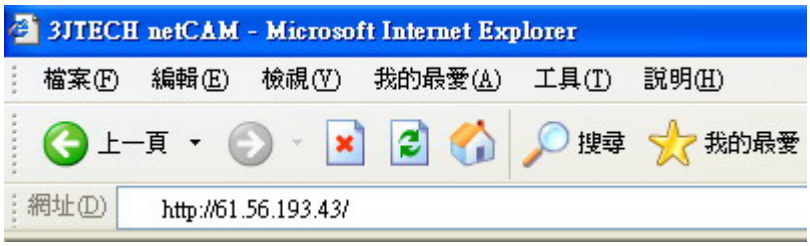

To start configuring the wifiCAM, please enter the default IP address (192.168.1.100) in your web browser. Enter the administrator **user’s name** and **password** when wifiCAM is accessed.

| | | |
|---|---|---|
| **Default** | **Use’s name:** | root |
| | **Password:** | admin |

If you cannot connect to the wifiCAM, you will have to modify your network settings. The wifiCAM can be used to manually configure the camera’s network settings. For more detail please see ***Appendix D - How to setup IP address of your PC.***

# 3 Windows AP Setup

Before using wifiCAM, user must install Active X control on your computer or notebook. User can connect to http://61.56.193.43 to download Active X control.




The camera's picture screen will appear as shown below. If the picture screen does not appear or Internet Explore shows an error page, refer to the troubleshooting section in ***Appendix C - How to Setup ActiveX functions of your PC.***

Note: ***ActiveX*** functions need to be activated in your computer with first setting netCAM. (More details in ***Appendix C - How to Setup ActiveX functions of your PC***)

wifiCAM has 2 main sections for its operation; **ActiveX** and **Config**.

**Supporting Web Browsers:**
Internet Explorer 5.0 or above
Netscape 6.0 or above

## 3.1 Functions

### 3.1.1 Camera View (Main Page)

wifiCAM will take a snapshot when initiated. The picture will be pasted on the webpage shown as the figure below. The picture size can be adjusted by using the **Image Control** function under the **Config** section.


On top of the screen, there are 2 main functions; **ActiveX** and **Config**.

### 3.1.1.1 ActiveX

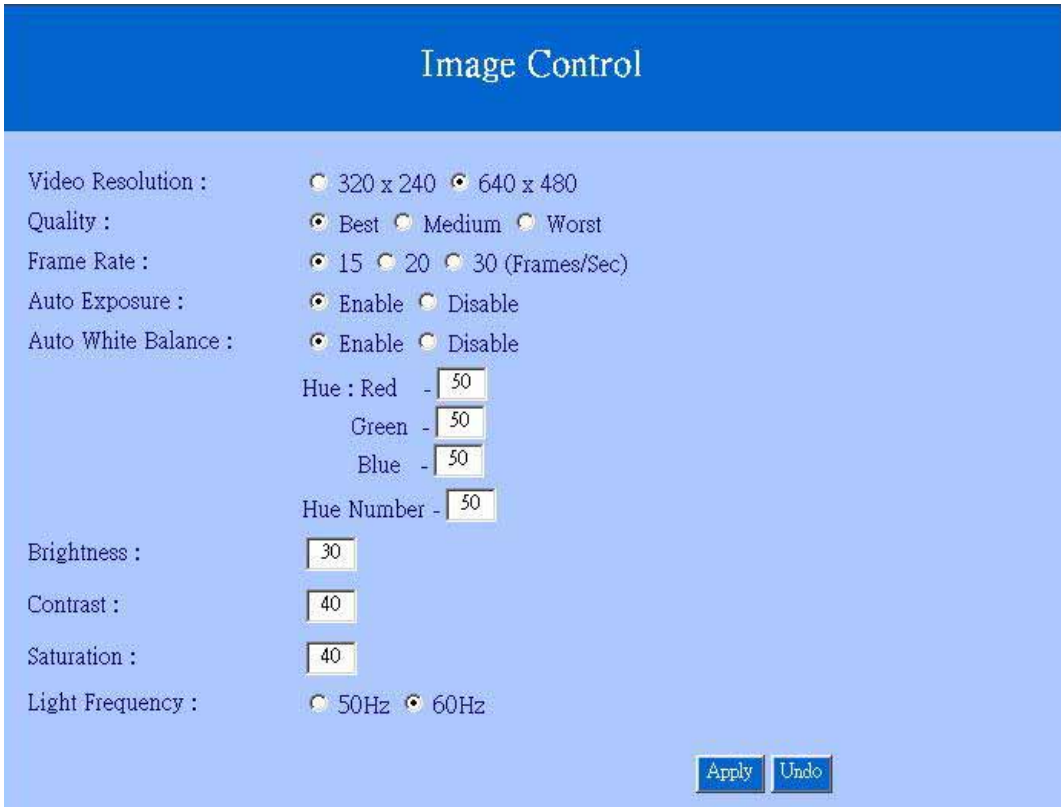
Clicking on **ActiveX** will initiate the live stream camera image. You will be able to view live feeding images through the website. If you wish to terminate the Live Video, click "***wifiCAM"*** to return the wifiCAM main page.


### 3.1.1.2 Config

You will be able to set up the camera through the **Config** function.

## 3.1.2 Image Control

You can adjust "**Video Resolution**" , "**Frame Rate**", "**Light Frequency** "and "**Color Control**" under **Image Control.** Doing so will change image color and illumination.



### 3.1.2.1 Video Resolution: 320*240 / 640*480:

Set the camera output video resolution size. Higher resolution will provide greater video details, but it will require higher bandwidth than lower resolution.


### 3.1.2.2 Quality: Best / Medium / Worst:

Select wifiCAM output Video quality. Better quality video will have a clearer image. It will also require higher bandwidth and more time to process.


### 3.1.2.3 Frame Rate: 15 / 20 / 30 (Frames/Sec):

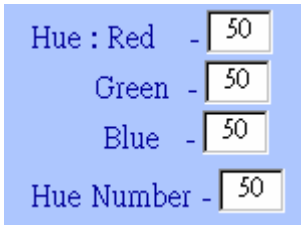
Higher frame rate will provide smoother image.


### 3.1.2.4 Auto Exposure: Enable / Disable:

Enabling wifiCAM Auto Exposure function will automatically adjust exposure levels.


### 3.1.2.5 Auto White Balance: Enable / Disable:

Enabling Auto White Balance will allow the camera to adjust to ideal white balance.


### 3.1.2.6 Hue: Red / Green / Blue / Number:

Manually adjust wifiCAM's Hue condition; you can modify the Red / Green and Blue color's hue or the total hue.

### 3.1.2.7 Brightness:

Adjust wifiCAM's brightness of the camera manually.



### 3.1.2.8 Contrast:

Adjust wifiCAM's contrast manually.


### 3.1.2.9 Saturation:

Adjust wifiCAM's Saturation manually.

#### 3.1.2.10 Light Frequency:

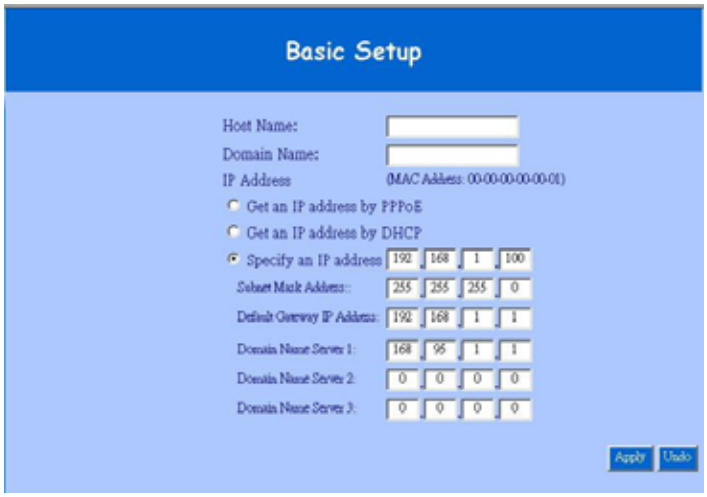
Adjust the light frequency to suit your area of operation. 50 Hz and 60 Hz variants are available to accommodate the different light frequencies found in USA (60 Hz) and Europe (50 Hz) for optimal image quality.


After the changes are complete, please click "***Apply***" button to store the settings. Otherwise clicking the "***Undo***" button will undo the changes.

## 3.2 Network/Admin

### 3.2.1 Basic Setup

You can select **PPPoE**, **DHCP** or **Fixed IP** according to the local network environment.




#### 3.2.1.1 Host Name & Domain Name:

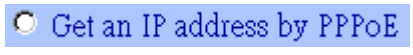
Some ISPs required these names as identifications to their network. You may have to check with your ISP to see if your Broadband Internet Service has been configured with a host and domain name. In most cases, leaving fields blank will work.


#### 3.2.1.2 MAC Address:

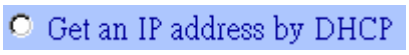
Shows the wifiCAM MAC address.


#### 3.2.1.3 Get an PPPoE IP address:

The IP address assigned by PPPoE may be outside your local area network. If the **Get an IP Address by PPPoE/Modem** is selected, you must set up the **PPPoE** configuration. It includes assigning the user name and password. You can set up to allocate **"Dynamic DNS"**.



### 3.2.1.4 Get an IP address by DHCP:

If your camera is set as **Get an IP address by DHCP**. Then 

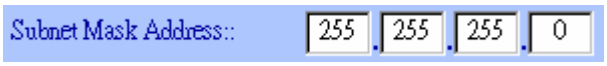
you do not need to assign an IP address. DHCP will automatically assign the IP address for wifiCAM. To avoid DHCP IP changed, you need to set the **"Dynamic DNS"**. Otherwise change of IP address will cause camera accessing error.

### 3.2.1.5 Specify an IP address:

Please specify your wifiCAM IP address. Please do not assign the same IP address as other Network devices.

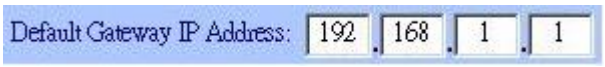

### 3.2.1.6 Subnet Mask Address:

Set only when necessary, else leave it as default. Default Subnet Mask Address is 255.255.255.0



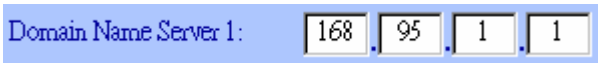

### 3.2.1.7 Default Gateway IP Address:

Your ISP will provide you with the Gateway IP Address. If the camera is set to **Get an IP Address by PPPoE**, these values will be assigned by your ISP.




### 3.2.1.8 Domain Name Servers:

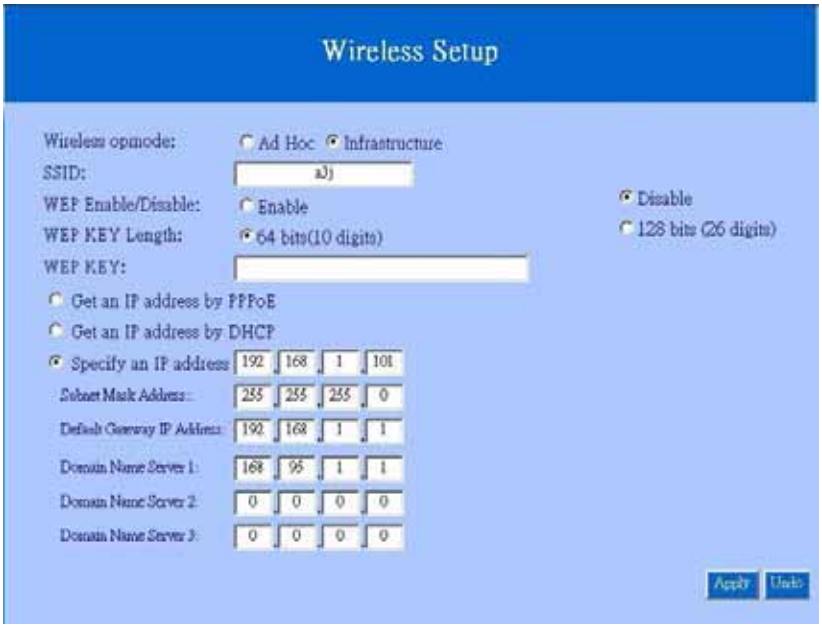
Your ISP will provide you with at least one DNS IP Address. Multiple DNS IP setting is also common. The first available DNS entry is used in most cases. If the device is set to **Get an IP Address by PPPoE/Modem**, these values will be assigned by your ISP.




After changes are done, click the "***Apply***" button to store the new settings. Otherwise clicking the "***Undo***" button will return it to previous settings.

## 3.2.2 Wireless Setup

**To setup wireless function, you will have to do the first time setup via wired mode. Enter the camera via wired mode for the first time and set up camera's wireless functions.** You can select PPPoE, DHCP or Fixed IP according to the network environment via Wireless.




### 3.2.2.1 Wireless opmode

**Ad Hoc / Infrastructure:** Switch the wifiCAM wireless mode as Ad Hoc mode (point to point), or Infrastructure mode (Broadcast).


### 3.2.2.2 SSID

Assign which wireless station for wifiCAM to link by entering the SSID the station you wish to be connected.


**Note: SSID is case sensitive; therefore, you must input identical SSID to your station.**

### 3.2.2.3 WEP Enable / Disable:

Enable/Disable Wireless WEP encryption.


### 3.2.2.4 WEP Key Length:

**64 bits (10 digits) / 128 bits (26 digits).** You will need to give a 10 digit number for 64 bits WEP encryption and 26 digits for 128 bits.

### 3.2.2.5 WEP Key

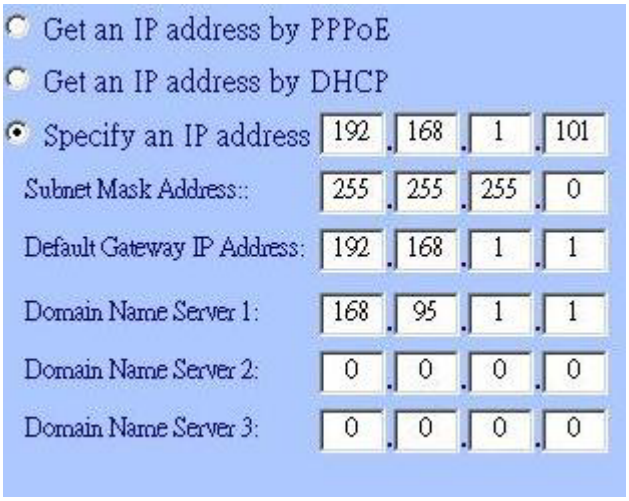
Assign WEP digital Number Key.


The digital numbers must match the WEP Key Length.

Note: WEP Key characters **must** be between 0~9 and A~F.

**wifiCAM support HEX encryption only.**

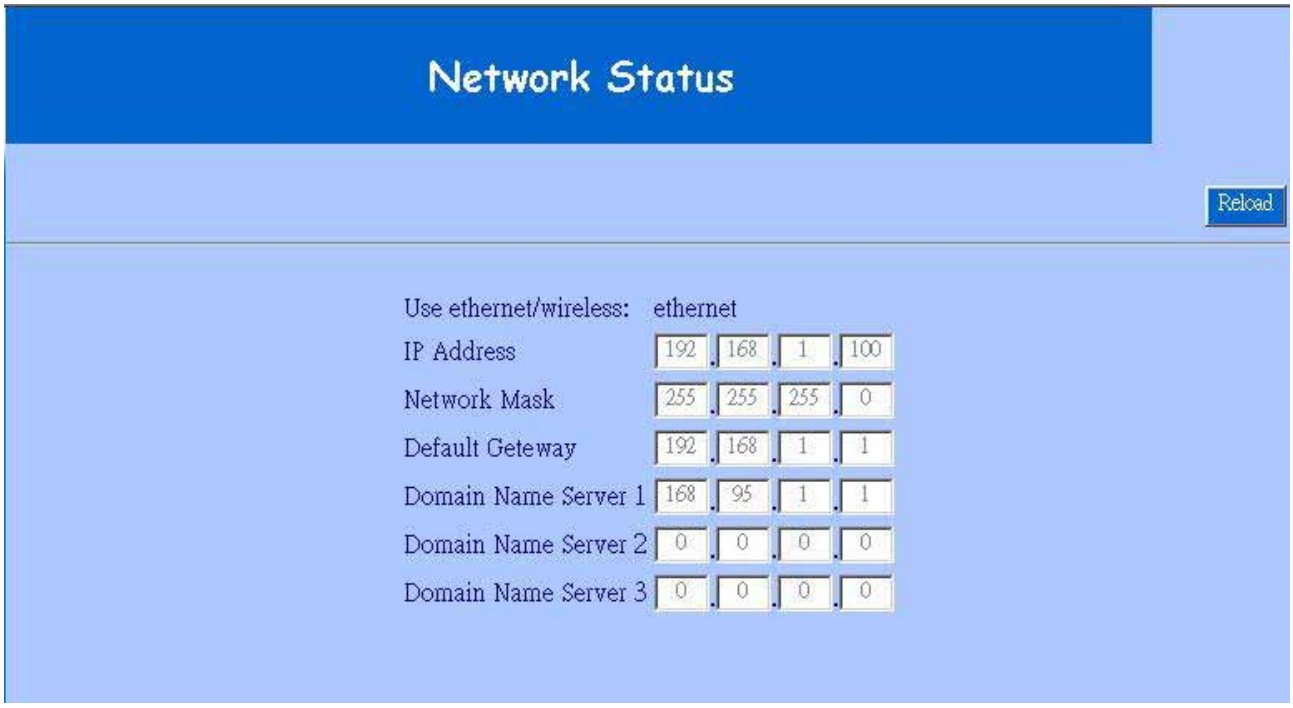
**3.2.2.6. IP setup:** The device IP Address of the router address used by the external WAN. If the **"Get an IP Address by PPPoE"** is selected, you must set up the **PPPoE** configuration (please refer to Advanced Setup). If the **"Get an IP Address by DHCP"** is selected, your router/server will assign an IP address for the wifiCAM. If **"Specify an IP Address"** is selected, please set up the IP address/ Subnet Mask Address/ Default Gateway Ip Address / Domain Name Server as described earlier.




After modifications are complete, click the "***Apply***" button to store the updated configuration.. Otherwise clicking the "***Undo***" button will undo the changes.

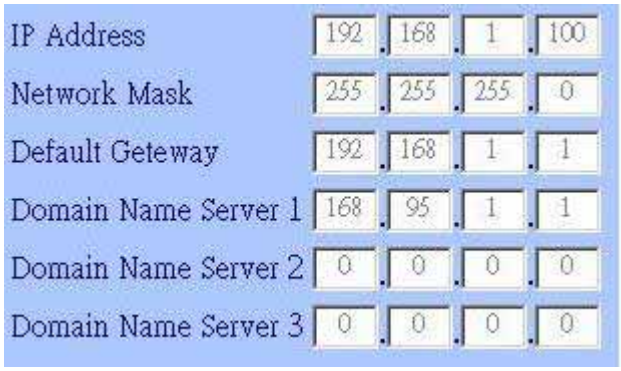
**When the camera data is stored, please turn wireless mode on by switch up the switch on the left of the camera as shown in the hardware/system section. When the switch is done unplug the power chord or do a software reset. Wait for the camera to reboot, and you should be able to connect to the camera wirelessly.**

## 3.2.3 Network Status




### 3.2.3.1 User Ethernet / Wireless

Shows the current network status (Ethernet/wireless). To change mode, please refer to hardware features.


### 3.2.3.2. IP address

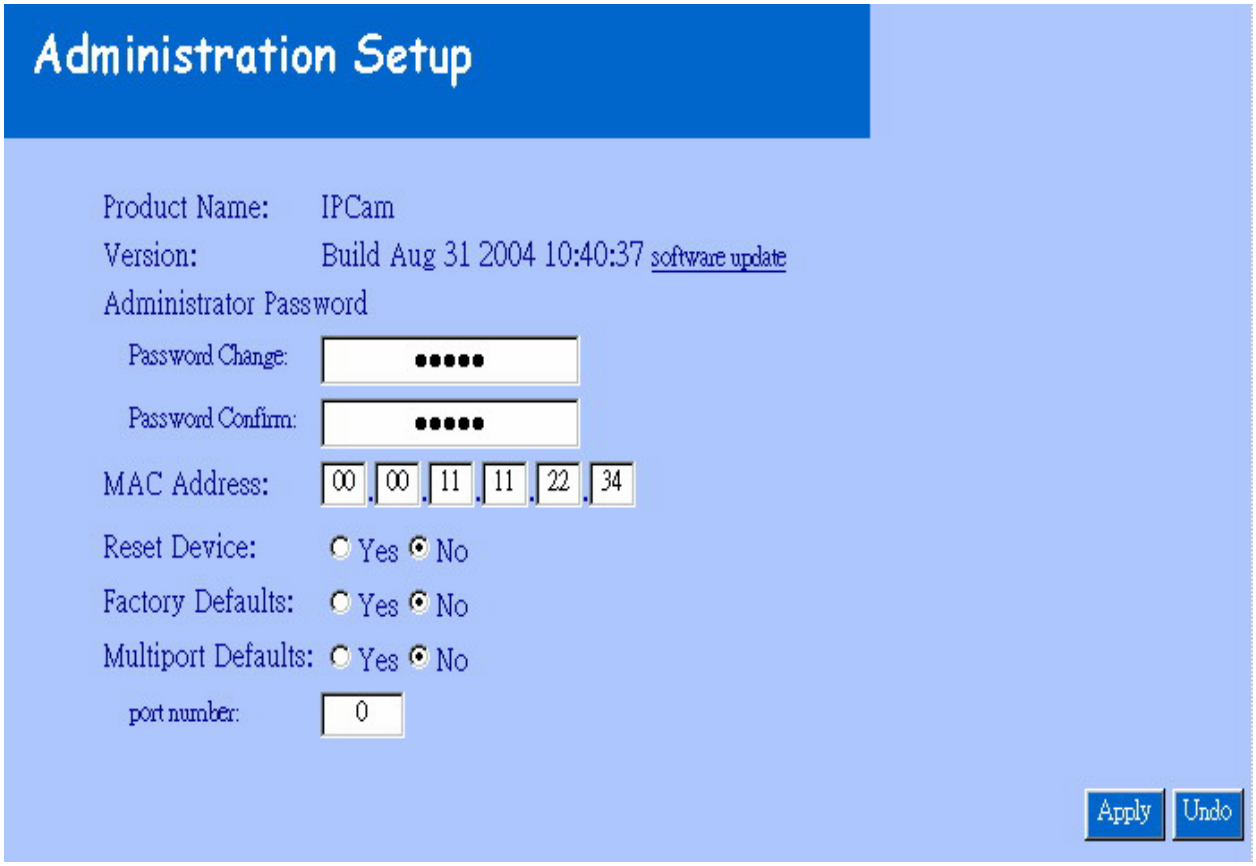
Display Currently IP addresses. If you wish to modify these settings, please set them up at basic setting. Click the "***Reload***" button to load the latest details.

### 3.2.4 System/Client Logs

System/Client Logs will display detail of the [Client Login Time], [IP address] and [MAC Address] information. Click the "***Reload***" button to load the latest details.

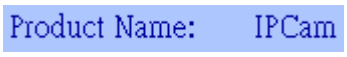
## 3.2.5 Administration Setup

All the information about wifiCAM will be shown as the picture below. You can change administrator password and the Multiport functions.




### 3.2.5.1 Product Name:

This is the products name in wifiCAM's firmware.




### 3.2.5.2 Version:

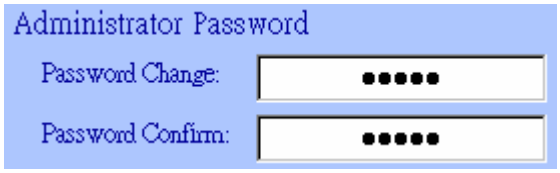
This is the current firmware version in wifiCAM (with date and time).


You can also click "***software update***" to upload the latest firmware onto your wifiCAM.

Note: When updating firmware, it is important **NOT TO UNPLUG** the camera's power source or Ethernet connection. Interrupting firmware uploading may cause permanent damage to the camera.

### 3.2.5.3 Administrator Password:

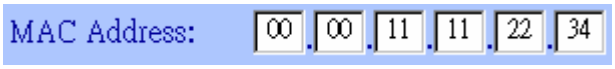
Please type the new password and again at the confirming section to reconfirm in order to change the Administrator's login password,. Click "***Apply***" button for update.




Note: Please remember your Administrator password. If the password is forgotten, please restore netCAM's Factory setting by referring to ***Appendix A - Restore Factory Default Settings***)

### 3.2.5.4 MAC Address:

Camera Mac Address is given upon factory and cannot be modified.





### 3.2.4.5 Reset Device:

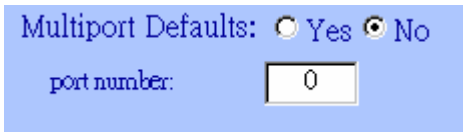
Reset your wifiCAM and restart without losing any stored information. Please select "***Yes***", and then click the "***Apply***" button.

### 3.2.5.6 Factory Defaults:

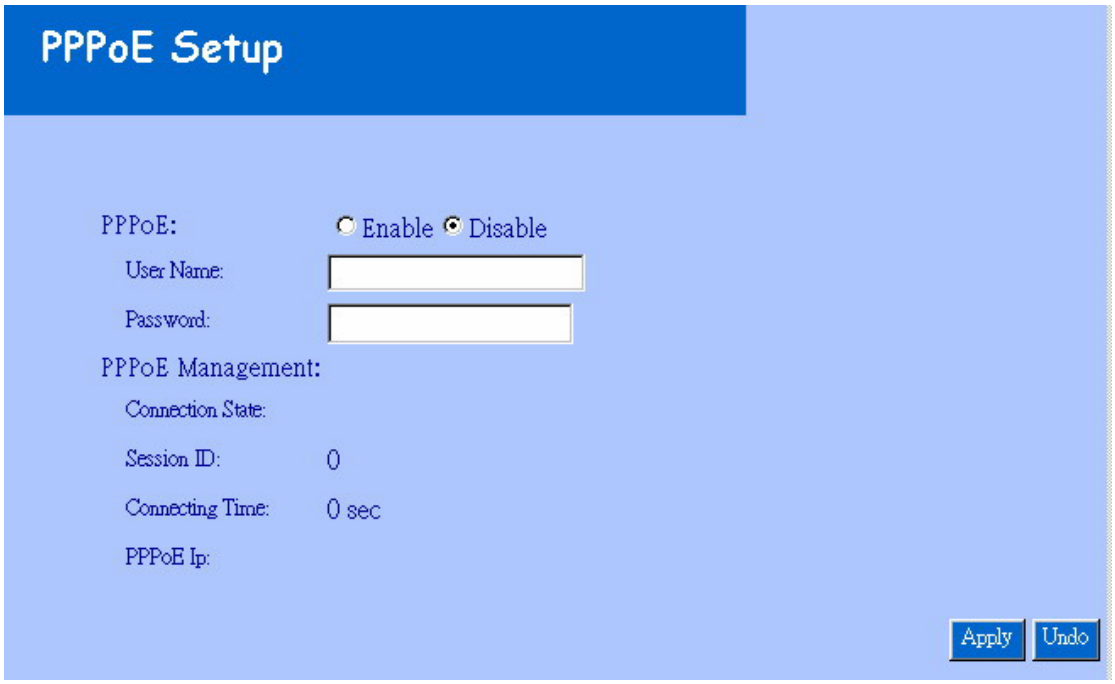
Reset your wifiCAM and restore factory default settings. All storage information will be cleared. Please select "***Yes***", and then click the "***Apply***" button. This will function as hardware factory reset.


### 3.2.5.7 Multiport Defaults:

Check **"Yes"** to allow opening additional ports for accessing the camera. After enabling new access port, enter **eg. http://<CAMERA IP Address>: 8080** on web browser address column to access the camera.



## 3.2.6 PPPoE Setup




### 3.2.6.1 PPPoE:

Check ***Enable*** to enable PPPoE function. Click "***Disable***" to disable this function.


### 3.2.6.2 User Name / Password:

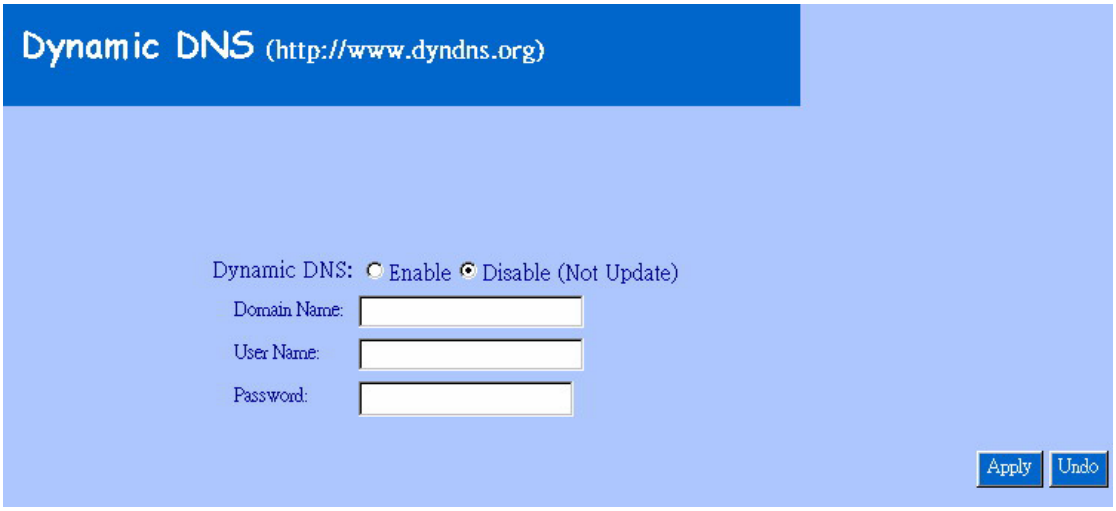
Input PPPoE User Name and Password for PPPoE account provided by your ISP. Click "***Apply***" button to update. This entry is required by certain ISPs when using PPPoE connection.



### 3.2.6.3. PPPoE Management:

Display current PPPoE status.

## 3.2.7 Dynamic DNS




### 3.2.7.1 Enable / Disable Dynamic DNS:


Select ***"Enable"*** or ***"Disable"*** to start or stop the Dynamic DNS mechanism. ISP will dynamically allocate an IP address for the camera/router. Use this function if you connect to the Internet by ADSL/Cable modem and wish to map the dynamic IP address to a Domain Name.

### 3.2.7.2 Domain Name:


Enter a domain name in this field to map the IP address of your broadband router.

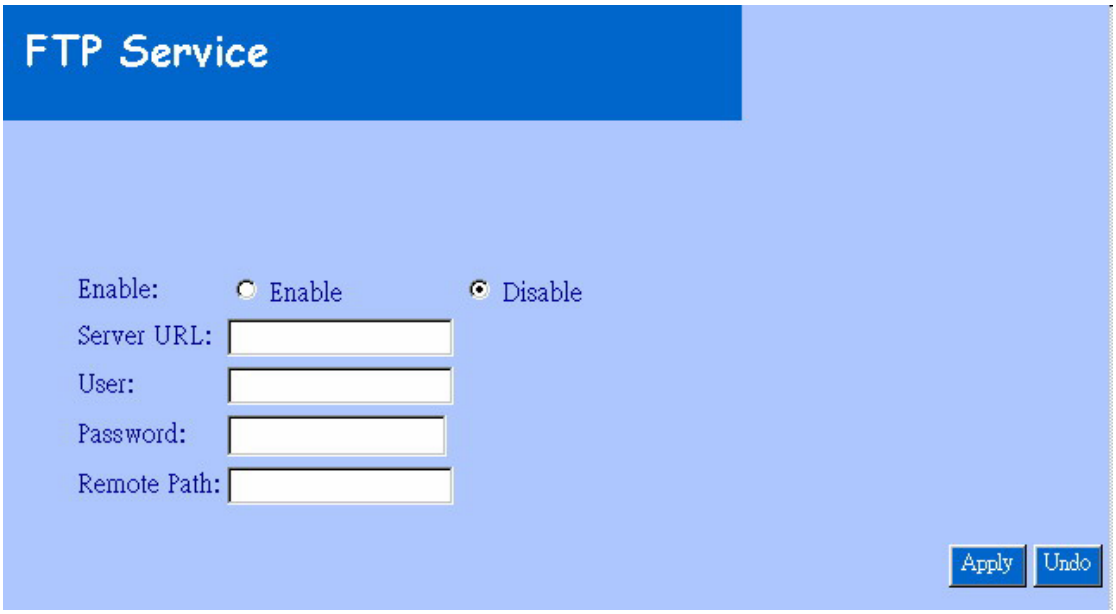
### 3.2.7.3 User Name:


Enter the username of your Dynamic DNS Service

### 3.2.7.4 Password:


Enter the password in the "Password" field to access the dynamic DNS.

## 3.2.8 FTP Service




### 3.2.8.1 FTP service:

wifiCAM is able to upload images/video captures at the rate of 1 picture per second to a FTP site specified by the user. Select ***"Enable"*** or ***"Disable"*** use the FTP service.


### 3.2.8.2 Server URL:

Define Upload FTP URL address. (Without the path of the FTP server)



### 3.2.7.3 User & Password:

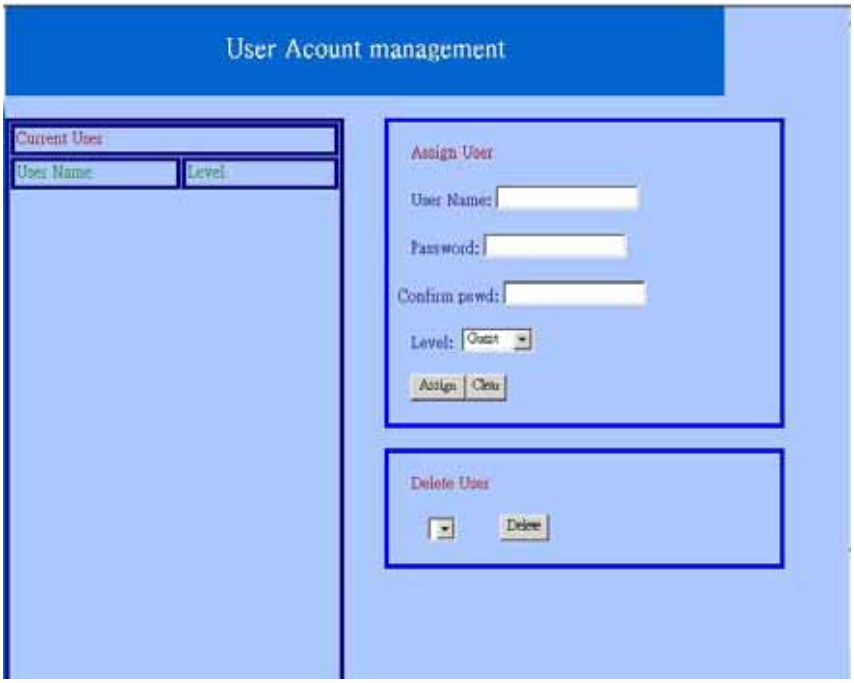
Input the user name and the password required to log in the FTP server.

### 3.2.8.4 Remote Path:

Please enter the remote FTP path which the images will be stored.

## 3.2.9 User Management

You can create accounts to restrict anonymous users from accessing the camera. There are three security levels; Admin, User and Guest. You can create up to maximum of 16 accounts for different level users.




### 3.2.9.1 Security Levels:

**1. Admin: Highest**

Admin will be able to enter all setups and change the settings.

**2. User: Medium**

User can change settings such as Camera View, Image Control, Ftp Service, Email Service, and NTP service.

**3. Guest: Lowest**

Guests are only allowed to view the camera.

> Admin accounts cannot be changed to Guest or User level.
>
> The maximum account is 16 (excluding root).

# Appendix A - Restore Factory Default Settings

Press and hold the **Reset** button for 5 seconds to reset the camera to its factory defaults. The Green indictor LED will light when it has finished the reset procedure.


SW_2: Software reset to
**Default IP (192.168.1.100) for Ethernet**
**Default IP (192.168.1.101) for Wireless**
Parameter (Please Push 5 /Sec)

SW_1: H/W Power Reset

Note: You will need to reconfigure your camera settings after resetting the camera. The wifiCAM will recover to the factory default username **(root)** and password **(admin)**. The network settings on your camera will also be restored to the default value. Therefore you may need to reconfigure the camera using the wifiCAM default IP address.

# Appendix B - Factory Default Value

### Image Control Setup

| Item | Default Value |
|---|---|
| Video Resolution | 640 x 480 |
| Quality | Best |
| Frame Rate | 15 |
| Auto Exposure | Enable |
| Auto White Balance | Enable |
| Hue: Red | 50 |
| Hue: Green | 50 |
| Hue: Blue | 50 |
| Hue:General Number | 50 |
| Brightness | 30 |
| Contrast | 40 |
| Saturation | 40 |
| Light Frequency | 60 Hz |

### Basic Setup

| Item | Default Value |
|---|---|
| Host Name | *Blank |
| Domain Name | *Blank |
| IP Address | Specify an IP address 192.168.1.100 |
| Subnet Mask Address | 255.255.255.0 |
| Default Gateway IP address | 192.168.1.254 |
| Domain Name Server 1 | 168.95.1.1 |
| Domain Name Server 2 | *Blank |
| Domain Name Server 3 | *Blank |

**Wireless Setup**

| Item | Default Value |
|---|---|
| Wireless Mode | Infrastructure |
| SSID | a3j |
| WEP | Disable |
| WEP Key Length | 64 bits (10 digitals) |
| WEP Key | *Blank |
| IP Address | Specify an IP address 192.168.1.101 |
| Subnet Mask Address | 255.255.255.0 |
| Default Gateway IP address | 192.168.1.254 |
| Domain Name Server 1 | 168.95.1.1 |
| Domain Name Server 2 | *Blank |
| Domain Name Server 3 | *Blank |

**Device Admin**

| Item | Default Value |
|---|---|
| Administrator Password | admin |
| MAC Address | *Default by factory |
| Reset Device | No |
| Factory Defaults | No |
| Multiport Defaults | No |
| Multiport Defaults Port Number | 0 |

**PPPoE Setup**

| Item | Default Value |
|---|---|
| PPPoE | Disable |
| User Name | *Blank |
| Password | *Blank |

### Dynamic DNS Setup

| Item | Default Value |
|---|---|
| Dynamic DNS | Disable |
| Domain Name | *Blank |
| User Name | *Blank |
| Password | *Blank |

### FTP Service setup

| Item | Default Value |
|---|---|
| FTP Service | Disable |
| Server URL | *Blank |
| User Name | *Blank |
| Password | *Blank |
| Remote Path | *Blank |

### User Account Management

| Item | Default Value |
|---|---|
| User Name | *Blank |
| Password | *Blank |
| Confirm Password | *Blank |
| Level | Guest |

Note: Blank means there is no Value.
Mac address will be assigned by the 3JTech and cannot be changed

# Appendix C - How to Setup *ActiveX* functions for your PC

All the ***ActiveX*** functions must be enabled in the computer. To ensure ***ActiveX*** is enabled, please follow the steps as below:

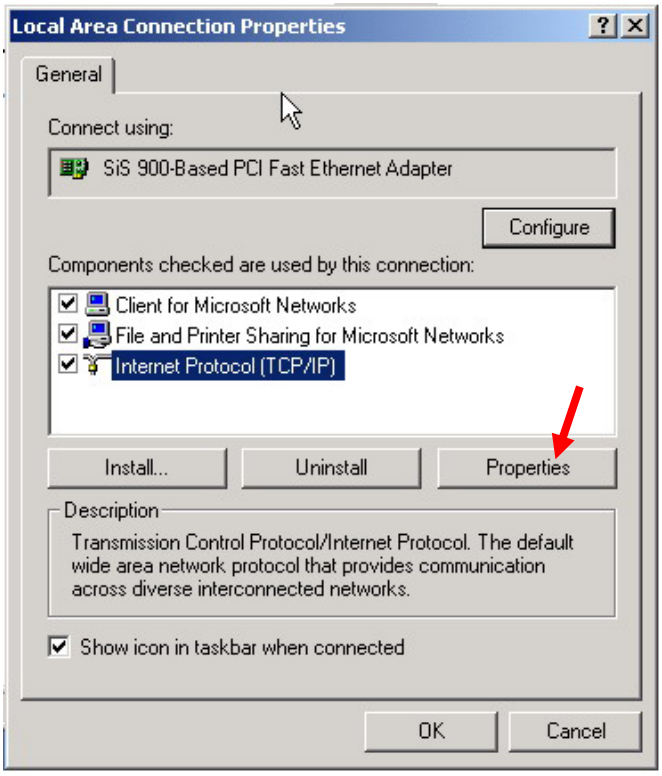
1) Open Internet Explorer,
2) Select ***Tools*** on top of the IE menu bar,
3) Select ***Internet Options,***
4) Go to ***Security,***
5) Select ***Custom Levels,***
6) Activate all the ***ActiveX*** controls and click ***OK,***
7) Go to our ***wifiCAM*** site.
   (3JTech wifiCAM website IP address： http://61.56.193.43
   Dynamic DNS：http://3jtech.dyndns.org. )
   **Please wait few seconds for the Applet to download**.

Once the ActiveX controls are activated and downloaded, you are ready to browse the camera sites! And NOW, you can connect to your wifiCAM for configuration.
(wifiCAM website the default IP address http://192.168.1.100/ .)

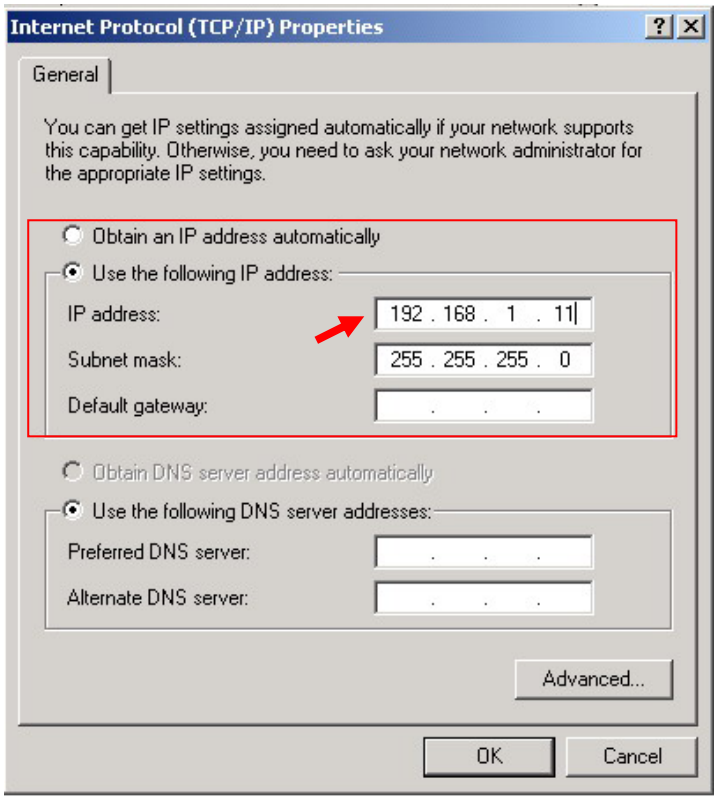

There are two methods to view camera sites via the Internet Explorer. You can either input the IP address with port number or enter the Domain Name to connect camera site.

# Appendix D - How to set up IP address of your PC

Please follow the following illustration procedure to set up IP address on your PC.



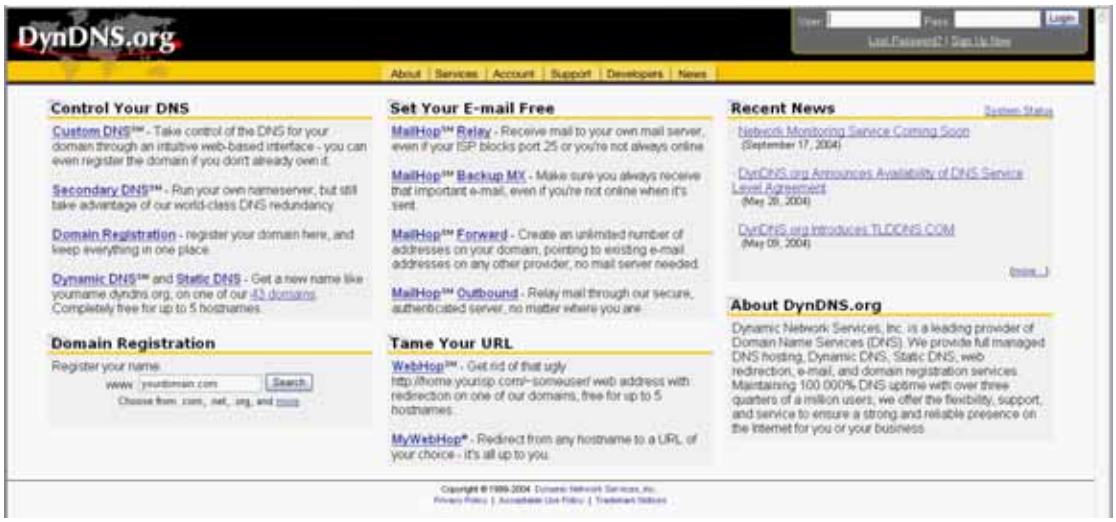

1. Open **"Control Panel",** execute **"Network and Dial-up connection"**.
2. Click **"Local Area Connection"**, right click and select **Properties**.
3. Choose **"Internet Protocol（TCP/IP）"**, click **Properties**.



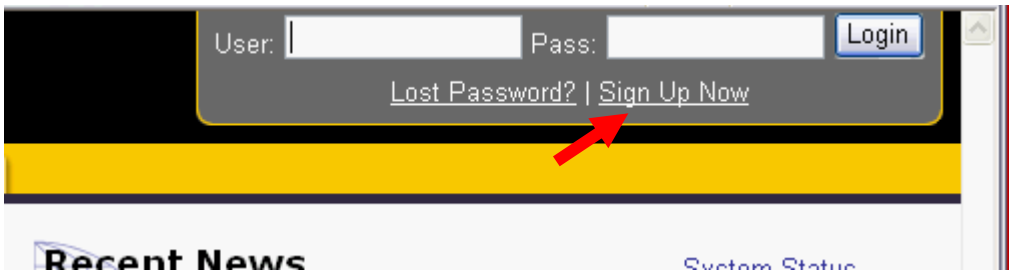

4. After configuring **IP Address** and **Subnet mask**, press **"OK"**.
5. Press **"OK"** in **"Internet Protocol（TCP/IP）"**.

# Appendix E – Applying DynsDNS accounts

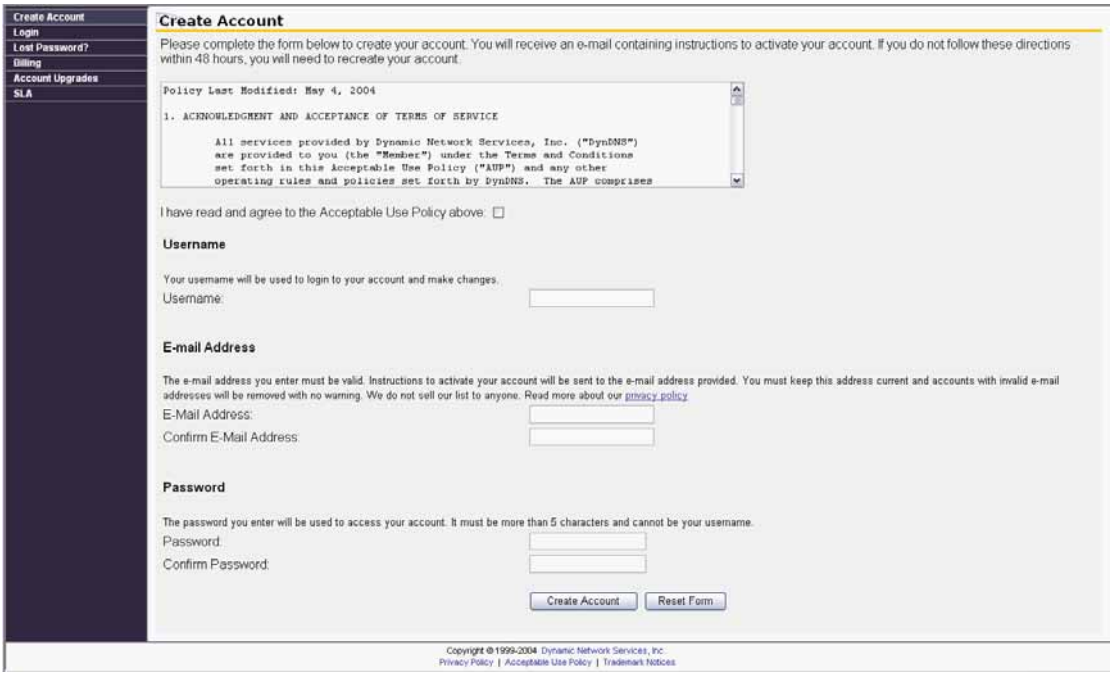
Please connect to http://www.dyndns.org. Once it is connected, the following screen should appear.




First, please click on the “Sign Up Now” on top right of the screen.



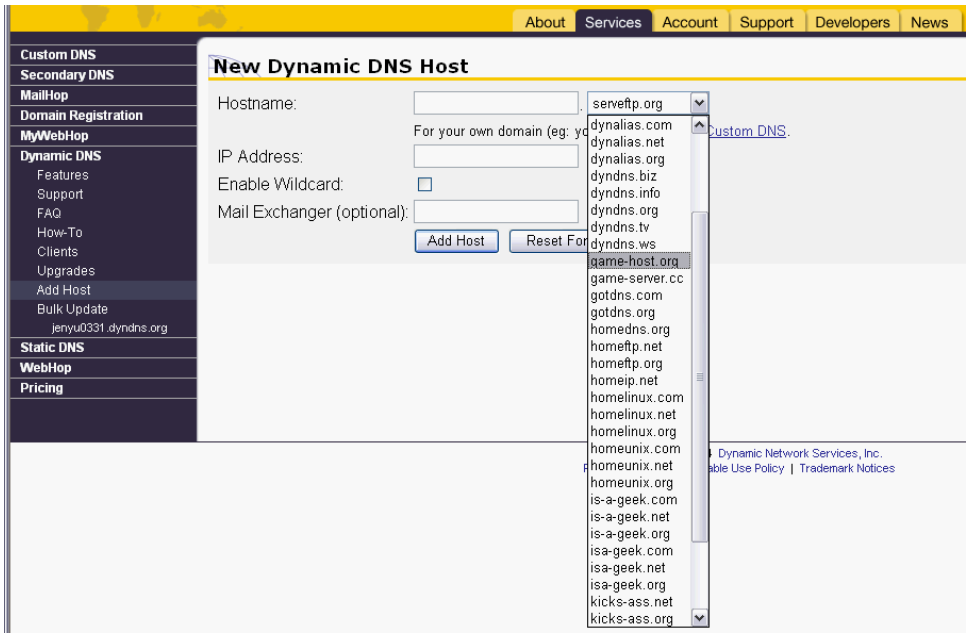

Please fill in all the information accordingly.



After your account is created and enabled, please type in your login name and password to log in the system.


After you log in, the following screen should appear. Please click “Dynamic DNS (add host)” to create your own dynamic DNS.


Please fill in the host name of your choice, and select a suffix of your dynamic DNS by pulling down the selection box. When done click “Add Host” and the dynamic DNS should be created.




To use this function, please input the username, password and the host name of your dynDNS account in the DynDNS setup of your wifiCAM/netCAM.

Thank you for choosing 3JTech products; we hope you enjoy this netCAM and keep your eyes open for additional functions for our products! If you have any questions, please email us at tech@3jtech.com or tech@3jtech.com.tw.