

# Chapter 1 Overview

IP Cam is the most economic and efficient remote monitoring/management solution. It features simple installation, and a user can complete installation without the use of a computer. With a built-in Web server, it can conduct remote image monitoring and management by use of such browsers as IE and Netscape over an LAN or WAN anywhere anytime, so that you can fast master the real-time image conditions in a monitored area.

The single chip of the IP Cam system integrates CPU, CMOS sensor controller, image processor, JPEG codec and Ethernet MAC. In addition, it also support multiple network protocols such as PPPoE, DHCP, static IP, DDNS, SMTP, FTP and NTP, with cooperation of efficient SDRAM control and SD memory card access. Its built-in TV Out encoder can even display the most common home TV pictures (supporting both NTSC and PAL systems). With the combination of fast hardware motion detection, SD card and infrared LED, it also supports night viewing function. Therefore, it can implement professional security protection for remote monitoring and snapshot in home application.

IP Cam is the best cost-effective solution for you to develop network monitoring products or broadband network cameras. Your choice is surely a sagacious business decision.

## Product Application

- IP CAM - Web Server
- IP monitoring - IP DVR
- Network monitoring – real-time remote monitoring
- IP Video Server

## System Requirements

Computer system:

- Processor: Intel Pentium III ® 800 MHz or a processor of the same grade or above
- Memory: 64MB or above (256MB is recommended)
- Operating system: Windows 98, Windows 2000 ® or Windows XP ®
- Browser: Microsoft IE 6.0 ®
- Hard disk: At least 5 GB
- Network: a network with 10/100Mbps Ethernet interface.

# Chapter 2 Usage of External Tools

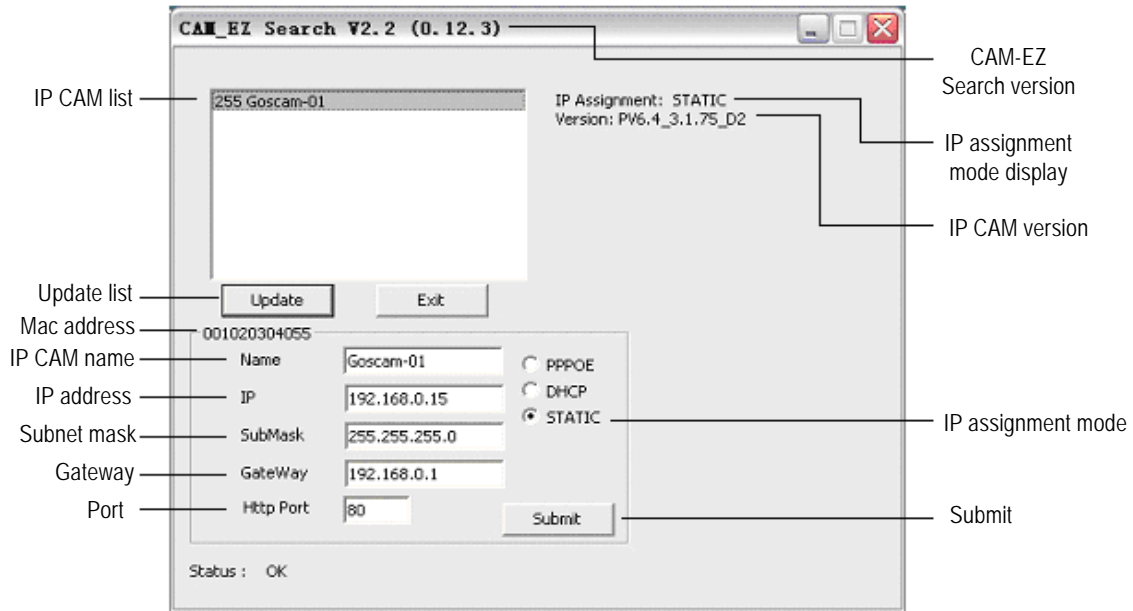
## 2.1 CAM\_EZ SEARCH

CAM\_EZ Search is a search application provided by our company, which can search for online IP CAM in a definite area. By sending an inquiry broadcast packet and receiving an IP CAM response, the window will display the list of all IP CAMs in the network area. Furthermore, it will also provide the function of changing the network settings of the designated IP CAM, such as changing an IP address, and special naming of an IP CAM.

### Operating procedures:

- 1) Start and run the search application CAM\_EZ Search.
- 2) Compare whether the IP values in the PC network and the CAM\_EZ Search belong to the same network section: To check the IP address, select Control Panel → Network and Internet Connections → Local Area Connections, right click, and select Properties (P) → Internet Protocol (TCP/IP) → select Properties (R). If they belong to different network sections, change the IP address of the EZ IPCAM as follows:
  - Step 1: **Name**: The user can define the name of the EZ IPCAM by himself/herself.
  - Step 2: **IP**: IP address of EZ IPCAM; take the IP address of PC (192.168.1.159) as an example, the IP address of the IPCAM can be set to 192.168.1.\* (\*=1~254).
  - Step 3: **SubMask**: subnet mask (U), normally set to 255.255.255.0.
  - Step 4: **GateWay**: preset communication gateway. Please change it to be the same as the default gateway (D) set by the PC network.
  - Step 5: **HTTP Port**: Http communication port, set to 80 by default;
- 3) After the setting is completed, click <Submit> to send it out, to change the network settings of the EZ IPCAM.
- 4) Click <Update> to update the EZ IPCAM list.
- 5) Click the name in the list twice, to automatically start the browser and enter the network monitoring picture.

CAM\_EZ Search is shown as follows:



## 2.2 Operation of the <AV SET> Button

During normal system operation, press and hold the <AV SET> button for a while and then release and the system will reboot. If you press and hold the button for over five seconds, the system will restore the default settings.

## 2.3 TV\_OUT Function

The operational procedures of the TV\_OUT function are as follows:

- 1) Connect the IP Cam to a TV set;
- 2) When the IP CAM is off, press and hold the <AV SET> button to turn on the power. If you press and hold the <AV SET> button for two seconds, the IP-CAM will enter the TV\_OUT mode.

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### Note:

The reset button is the < AV SET > button.

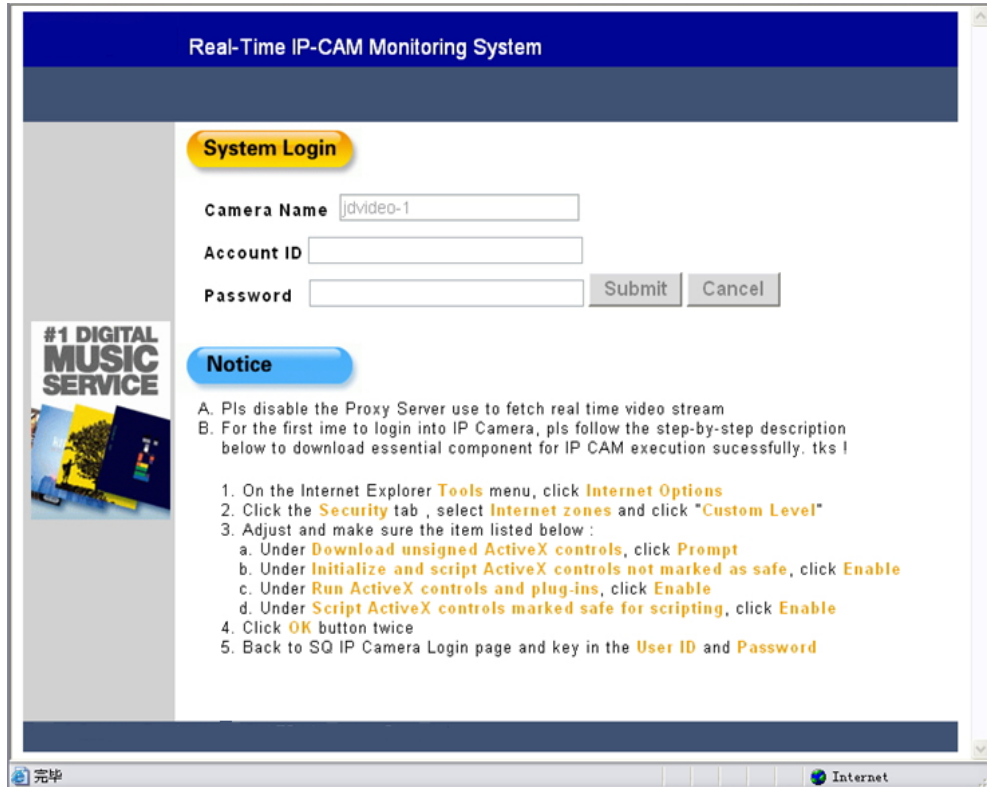
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# Chapter 3 Operational Mode

## 3.1 System Login

System login is used to identify and verify an authorized user who is allowed to enter the system and conduct related functions provided by the system. The system provides two levels of management modes: Administrator and General User. After successful login, the user can start network monitoring and setting as follows:

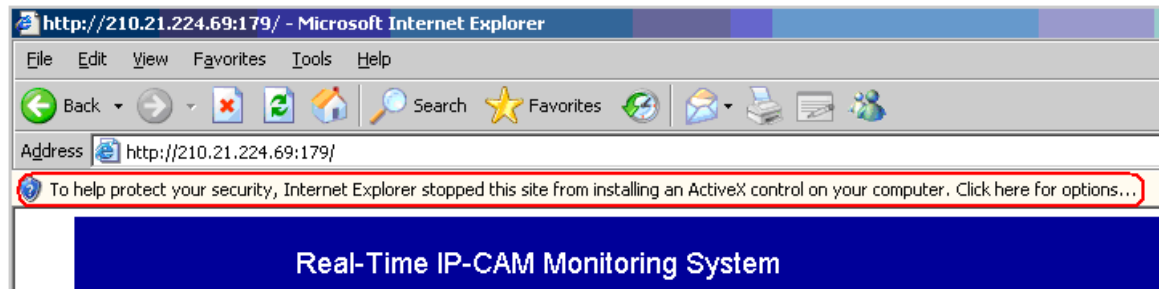
- 1) Step 1: Start the login window. Please refer to the following mode:
  - Mode 1: Run CAM\_EZ Search, double click on the corresponding IP CAM name in the IP Cam list.
  - Mode 2: Start the IE explorer, and directly enter the IP address of the IP CAM in the **Address** bar.
- 2) Step 2: The system login window will appear in the IE, as follows:



- 3) Step 3: Enter the **Account ID** and **Password**. The default **Account ID** is "admin", and the default **Password** is "password". Click **<Cancel>** to reenter in the case of any input error.
- 4) Step 4: Click **<Submit>** to log in, and the network monitoring window starts after proper verification.

## 3.2 LiveView

During the first use of the IP CAM, you need to modify the IE security setting parameters (for details refer to the setting procedures in Section 3.2.1); otherwise, the following prompt may appear in the IE, causing failure in image detection. After successful startup of the security parameter setting of the IP CAM for the first time, you do not need to conduct any setting any longer.



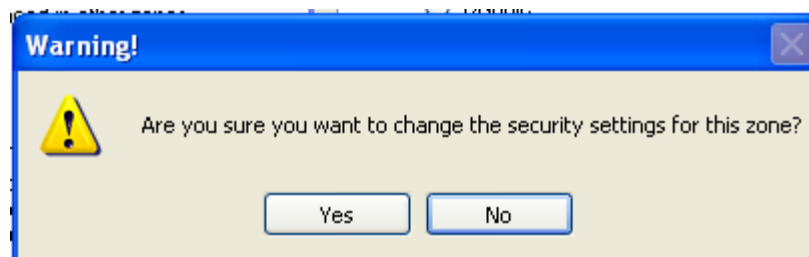
### 3.2.1 Procedures for Modifying IE Security Setting Parameters

Step 1: In an IE window, select the **Tools** → **Internet Options** menu;

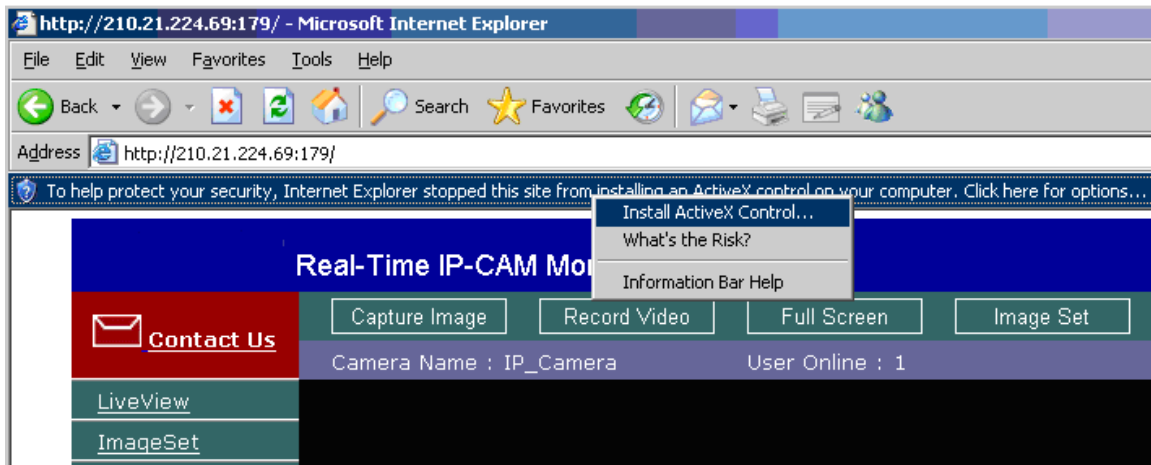
Step 2: Click the **Security** tab and then click <**Custom Level**>. In the pop-up window, select the following options:

- 1) **Download unsigned ActiveX controls**: Click **Prompt**
- 2) **Initialize and script ActiveX controls not marked as safe**: click **Enable**
- 3) **Run ActiveX controls and plug-ins**: click **Enable**
- 4) **Script ActiveX controls marked safe for scripting**: click **Enable**

Step 3: Click <**OK**>, and an alert box appears. Click <**Yes**> to return to the previous window, and then click <**OK**> to finish setting.



Step 4: Click the **Prompt** column, select **Install ActiveX Controls** from the pop-up menu, and you can browse for the first time after automatic refresh.



### 3.3 Take a Shot

This function can take a shot from PC images and store it in the PC by use of shortcut buttons.

Operating procedures:

Step 1: Enter the LiveView list, and the real-time monitoring window is as follows:

Step 2: Select an appropriate image, press and hold the <Ctrl> key on the keyboard.

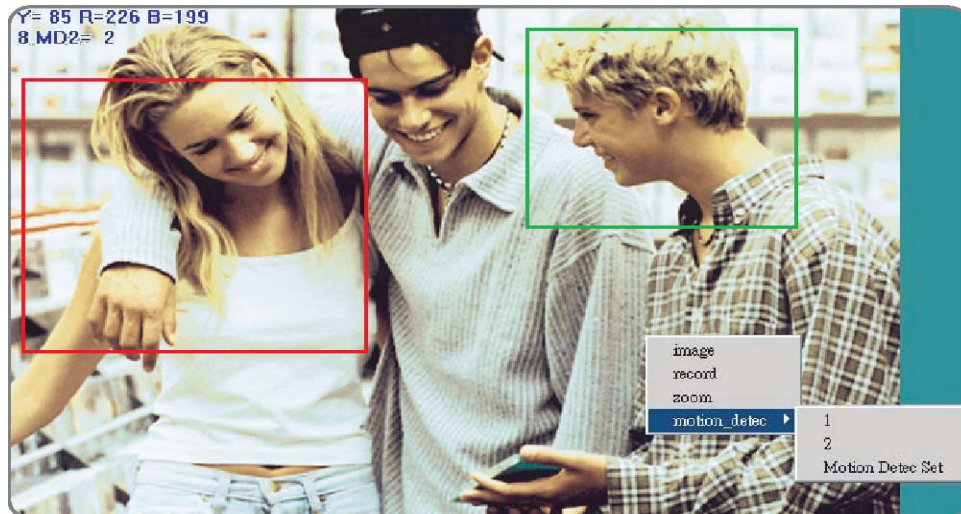
Step 3: Move the cursor to the monitoring image picture, and click (or press and hold the <Capture Image> button on the top), and shot taken will flash once.

Step 4: Release the <Ctrl> key to successfully take a single static shot. The pictures taken will be stored in the directory of **C:\tmp\webcam**.

Step 5: Click to select the <CaptureView> list on the left to view the shot taken. For details, refer to descriptions in Section 5.2.

## Chapter 4 Usage of Image Function

Move the cursor to a real-time monitoring image and right click, and at this moment four options appear:

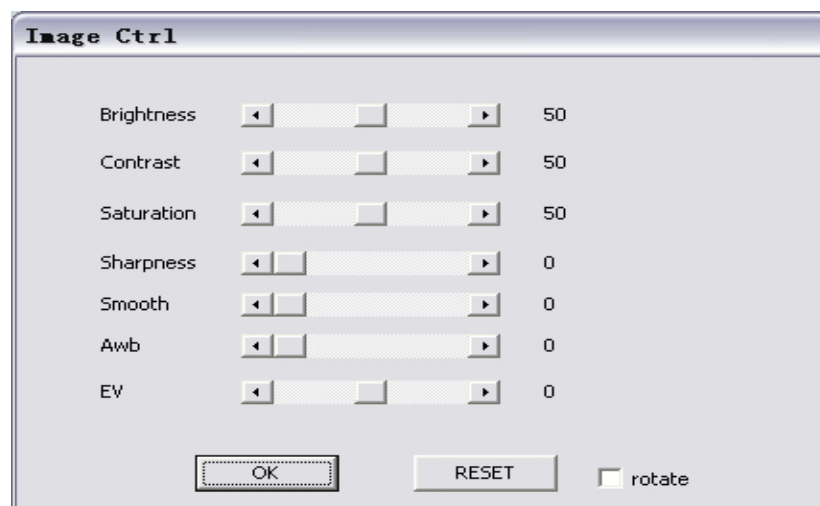


- **Image:** Adjusts image parameters;
- **Record:** Sets and records animation files in AVI format;
- **Zoom:** Zooms in an image in a selected box in digital mode;
- **Motion Detec Set:** Sets motion detection parameters.

The settings will be detailed respectively in the following sections.

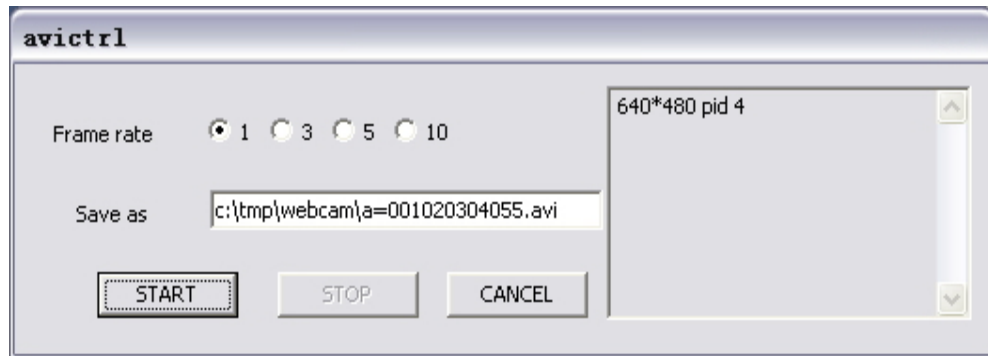
### 4.1 Image Adjustment

Click to select **Image**, the following window appears (corresponding to the <Image Set> button at the top of the screen), to set the individual image parameters as follows:



## 4.2 AVI Record Setup

Click to select **Record**, the following window appears (corresponding to the <Record Video> button at the top of the screen), and you can adjust **AVI Frame Rate**. Set the parameters and file name. (Note that the record file can only be saved in an existing folder. To create a new folder, conduct related operations in your PC by yourself.



## 4.3 Zoom Display

Click to select **Zoom**, the following window appears. Move the mouse to the monitoring image, click and hold your mouse, drag your mouse in the image area to be zoomed in, and release your mouse, and the selected image area will be zoomed in.



Select the area to be inspected with the mouse and then release the mouse. The image will be zoomed in to the originally set size:



## 4.4 Motion Detection Setup

Set the environmental parameters in the case of **Motion Detection (MD)** trigger events, including the first group (red) and the second group (green). Please refer to the enable/disable of related options in the **Event Trigger** tab. You may make the following settings in the enabled mode:

- Reset MD range: Select **motion\_detec** → **1**, click and hold your mouse (in this case the upper left corner of the MD range is displayed), drag your mouse to select a range, and release your mouse to make resetting.
- Cancel MD: same as above, but you may only need to click and hold your mouse, and then release it to cancel MD.
- Motion\_detec\_set: Set MD sensitivity. The default value is 15. That is, the MD will be started in the case of 15% change in the MD range. The lower the value, the higher the sensitivity.

Upon MD startup, the prompt "Motion\_Detec Warning!!" will appear on the upper left corner of the window due to the MD change of MD1 or MD2, as shown in the following figure:

**Note:**

1. If the image resolution is 640x480 / 320x240, you may select a framed trigger range at will.
2. If the image resolution is 160x120, the trigger range is the entire image in a fixed manner.



## 4.5 Max Size

If the monitoring image resolution is 320\*240 or 160\*120, click the **<Max Size>** button at the top of the screen, you may directly set the monitoring image resolution to 640\*480.

## 4.6 Audio On/Off

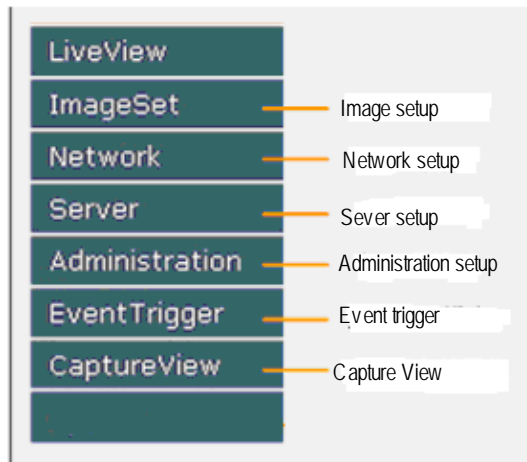
The **<Audio On/Off>** button at the top of the screen is used for audio control.

- The **<Audio Off>** button indicates that the current audio is in ON status. Click the button, and the audio will be turned off.
- The **<Audio On>** button indicates that the current audio is in OFF status. Click this button, and the audio will be turned on. When the **Audio** option in the **Imageset** tab is in **Off** status, the audio cannot be turned on if the **<Audio On>** button is clicked, and furthermore, the following prompt appears:



# Chapter 5 Description of Advanced Functions

This chapter describes the specific functions of the functional menus in the left of the main window.



## 5.1 Image Setup

The ImageSet window is shown in the figure below:



In this window, the user can perform the following settings:

- **Resolution:** Image output resolution; there are three options: 160×120, 320×240 and 640×480, and 320×240 by default
- **Quality:** Image quality; there are three options: Fine, Normal, and basic; the default value is Basic.
- **Anti-Flicker:** Anti-flicker power frequency; there are three options: 60Hz, 50Hz, and Out Door; the default value is 60Hz. Please select the Outdoor option when taking a picture outdoors.
- **Audio:** Audio output switch; the default value is off.

**Operating procedures:**

- Step 1: Click ImageSet to enter this menu.
- Step 2: Set the parameters properly and then click <Submit>.
- Step 3: To cancel the settings, click <Cancel>.

## 5.2 Network Setup

The Network window is shown in the figure below, including:

- IP Assignment: IP assignment mode, including Static, DHCP and PPPoE
- PPPoE setting
- Port setting of Http Server
- DNS setting

The screenshot displays the 'Network Setup' window within the 'Real-Time IP-CAM Monitoring System'. On the left, there is a navigation menu with options: Contact Us, LiveView, ImageSet, Network, Server, Administration, EventTrigger, and CaptureView. Below this is a 'Rotator Control' section with directional arrows and buttons labeled H, S, and V. The main content area is titled 'Network Setup' and contains the following configuration fields:

- IP Assignment:** Radio buttons for Static (selected), DHCP, and PPPoE. Below are input fields for IP (192.168.0.15), Subnet Mask (255.255.255.0), Gateway (192.168.0.1), and MAC Address (001020304055).
- PPPoE:** Input fields for Account (Account@pppoe.com) and Password (masked with asterisks). A note below reads: 'Notice! Click Re-boot button to initialize system is required once PPPoE connection selected'.
- HTTP Server:** Input field for Port (80).
- DNS Server:** Input fields for DNS 1 (168.95.1.1) and DNS 2 (0.0.0.0).

At the bottom right of the window, there are three buttons: 'Reboot', 'Submit', and 'Cancel'.

## 5.2.1 IP Assignment

This option can be used to change the network connection mode of IP CAM. The preset mode is **Static**.

The MAC Address field shows the MAC address of the IP CAM.

- If it is set to Static, enter the following parameters:
  - 1) **IP Address:** IP address of the IP CAM
  - 2) **Subnet Mask:** Subnet mask, preset to 255.255.255.0
  - 3) **Gateway:** Preset communication gateway
- If it is set to DHCP, it is not required to set the above parameters, but it is necessary to set the IP address of the DHCP Server in the Server menu.
- If it is set to PPPoE, it is necessary to enter the correct ID and Password. For details, refer to Section 5.2.2.

## 5.2.2 PPPoE

The option can be used to set the dial-up access settings in PPPoE IP assignment. In general, enter a correct ID Account and Password. It must cooperate with the ISP settings.

### Operating procedures:

- Step 1: Enter a correct ID in the Account text box.
- Step 2: Enter a correct password in the Password text box.
- Step 3: Click **<Submit >**.

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### Note:

Since PPPoE IP address is dynamically assigned by an ISP, the IP CAM may have a different IP address in each time. It is recommended that an IP router be configured for dial-up connection of PPPoE online settings or DDNS setting, to avoid the failure in finding the IP CAM.

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## 5.2.3 HTTP Server

The option is used to designate the port through which the connection to the built-in Web Server (or HTTP Server) of the IP CAM is made by the HTTP protocol. The default port is 80.

## 5.2.4 DNS Server

It is used to set the IP address of the DNS (Domain Name Server) Server. In this way, the http name (such as myIPCAM.XXX) can be used to replace the IP address of the IP CAM for easy memory. DNS1 is preset to 168.95.1.1 (Hinet). It will automatically connect to DNS2 is the connection fails.

## 5.3 Server Setup

This window is used to set the parameters of the IP CAM related to the server, as shown in the figure below:

### 5.3.1 Mail Server

It is used to set the parameters related to the mail server and the sending of mails with images. It depends on whether the **MAIL Image** setting in Section 5.5 **EventTrigger** is enabled. The event-triggered images will be sent to the designated e-mail address by e-mails. The system supports **SMTP Server**.

#### Setting steps:

- Step 1: **IP/Host**: Enter the IP address of the Mail Server or Http address.
- Step 2: **Mail From**: Enter the e-mail address of the sender.
- Step 3: **Receipt to**: Enter the e-mail address of the recipient.
- Step 4: **Account ID**: Enter the Account ID for login to the mail host.
- Step 5: **Password**: Enter the password for login to the mail host.
- Step 6: **Authorization**: Indicates whether the mail host will perform authentication.
- Step 7: Click <**Submit**>.

### 5.3.2 FTP Server

It is used for the settings related to FTP (File Transfer Protocol) server. It depends on whether the **MAIL Image** setting in Section 5.5 **EventTrigger** is enabled. The event-triggered images will be transferred to the designated FTP Server in FTP mode. This system supports **Port Mode** and **Passive Mode**.

#### Setting steps:

- Step 1: **IP/Host**: Enter the IP address of the FTP server or HTTP address.
- Step 2: **Port**: Enter the designated port number of the FTP server.
- Step 3: **Account ID**: Enter the account ID for login to the FTP host.
- Step 4: **Password**: Enter the password for login to the FTP host.
- Step 5: Set the FTP transfer mode to **Port Mode** or **Pasv Mode**.
- Step 6: Click <**Submit**>.

**Real-Time IP-CAM Monitoring System**

**Server Setup**

**Mail Server**

IP/Host: 1      Authorization:  ON  OFF

Mail From: 1

Receipt to: 1

Account ID: 1      Password: ●●●●●●

**FTP Server**

IP/Host: FtpServer.com.tw      Port: 21

Account ID: FtpUserName      Password: ●●●●●●

FTP Mode:  Port Mode  Pasv Mode

**DDNS Server**

Host Name: domain.dyndns.org (Link to <http://www.dyndns.org>)

Account ID: domain\_name      Password: ●●●●●●

Status: \_\_\_\_\_

**SNTP SERVER**

IP/Host: 192.5.41.40 (Learn more...)

Time Zone: (GMT+08:00) China, Hong Kong, Australia Western, Singapore, Taiwan, Russia

Submit    Cancel

### 5.3.3 DDNS Server

DDNS (Dynamic Domain Name Server) provides dynamic DNS settings. With the designated DDNS server, pre-entered HTTP address, and related settings, the IP CAM using PPPoE dial up connection (with dynamic IP) can only use the http address (such as sqipcam.dyndns.org) to implement connection, which is easy to memorize and facilitates the view of IP CAM without a fixed IP address.

#### Operating procedures:

- Step 1: Register a group of user accounts, passwords and Http address in the website providing DDNS service (like <http://www.dyndns.org>);
- Step 2: **Host Name** : Enter the website, account and password applied with the address (IP address or HTTP address) of the DDNS host respectively in the fields of Host Name, Account ID, and Password;
- Step 3: **Account ID**: Enter the account ID for login to the DDNS host;
- Step 4: **Password**: Enter the password for login to the DDNS host;
- Step 5: **Status**: Automatically display the status of connection with the DDNS host;
- Step 6: Click <Submit>.

### 5.3.4 SNTP Server

NTP (Network Time Protocol) server is the time server, which provides time calibration function for IP CAM.

**Setting steps:**

- Step 1: **IP/Host:** Enter the IP Address or HTTP address of the NTP server;
- Step 2: Select a time zone in the Time Zone drop-down list box.
- Step 3: Click <Submit>.

## 5.4 Administration Setup

This window is used to set IP CAM name, administrator account and password, and general user account and password. An administrator can use all functions and settings of the IP CAM. A general user can only use the LiveView function and cannot set any parameters, as shown in the figure below:

Real-Time IP-CAM Monitoring System

Contact Us Administration Setup

LiveView  
ImageSet  
Network  
Server  
Administration  
EventTrigger  
CaptureView

Rotator Control

Camera Name Goscam-01

**General User**  
Account ID guest  
Old Password \*\*\*\*\*  
New Password (3 to 16 characters required)  
Re-type

**Administrator**  
Account ID admin  
Old Password \*\*\*\*\*  
New Password (3 to 16 characters required)  
Re-type

Submit Cancel

↑  
← □ →  
↓  
H S V

### 5.4.1 Camera Name: Set the Name of IP CAM

The name set here will be displayed in the upper part of the image for identification.

### 5.4.2 General User: Set the Account and Password of General User

**Setting steps:**

- Step 1: **Account ID:** Enter the login name of the IP CAM;
- Step 2: **Old Password:** Enter the old password;

- Step 3: **New Password:** Enter the new password;
- Step 4: **Re-type:** Enter the new password again for verification;
- Step 5: Click <Submit>.

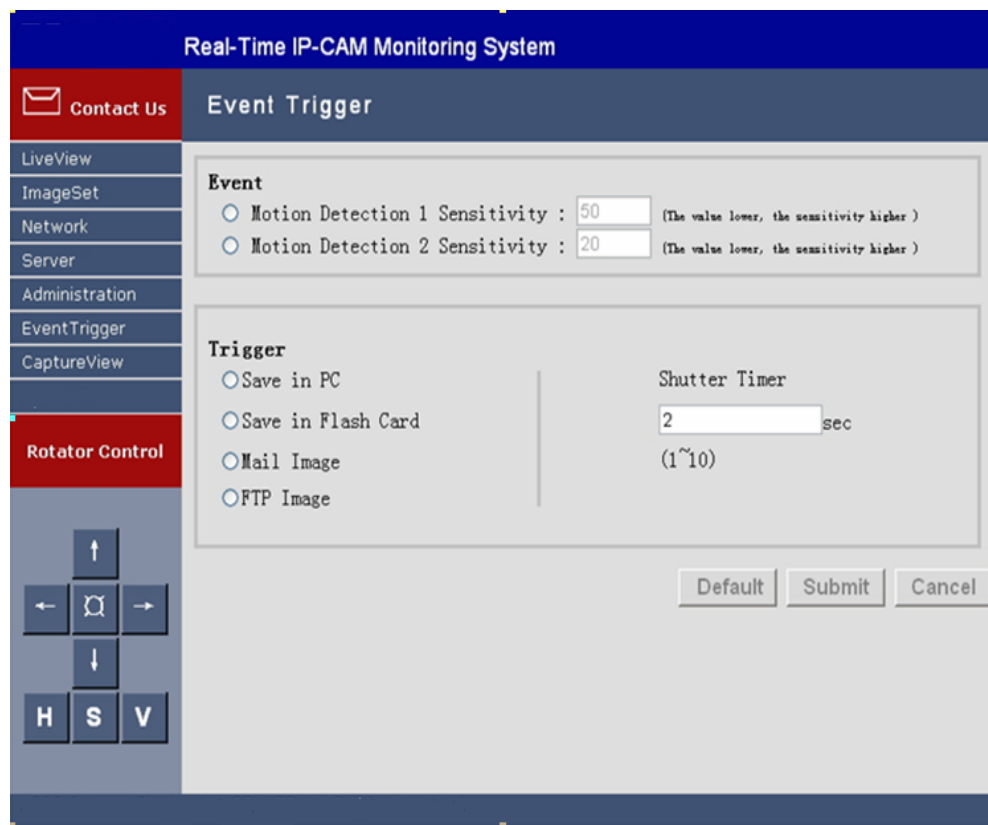
### 5.4.3 Administrator: Set the Administrator Account and Password

**Setting steps:**

- Step 1: **Account ID:** Enter the login name of the IP CAM;
- Step 2: **Old Password:** Enter the old password;
- Step 3: **New Password:** Enter the new password;
- Step 4: **Re-type:** Enter the new password again for verification;
- Step 5: Click <Submit>.

## 5.5 Event Trigger

This window is for event trigger settings and display, as shown in the figure below:



### 5.5.1 Event

It is used to set the triggering events, including:

- Motion Detection 1
- Motion Detection 2

Either group of trigger input signal can be enabled.

**Setting steps:**

- Step 1: Enable either group of events (MD will automatically display the trigger sensitivity) ;
  - Step 2: Click <**Submit**> upon confirmation; or
  - Step 3: Click <**Default**> to return to the original settings (none enabled).
- 

**Note:**

If any event item is enabled, **Save In PC** will automatically be enabled and will be saved to the directory of **C:\tmp\webmd**.

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## 5.5.2 Trigger

It is used to set the event trigger image transfer mode, including:

- **Save in PC:** Save image files to a PC.
  - **Save in Flash Card:** Save image files to SD memory card.
  - **Mail Image:** Send event trigger image files by e-mail.
  - **FTP Image:** Transfer event trigger image files in FTP mode.
  - **Shutter Timer:** Event trigger image capture interval, 2 seconds by default.
- 

**Note:**

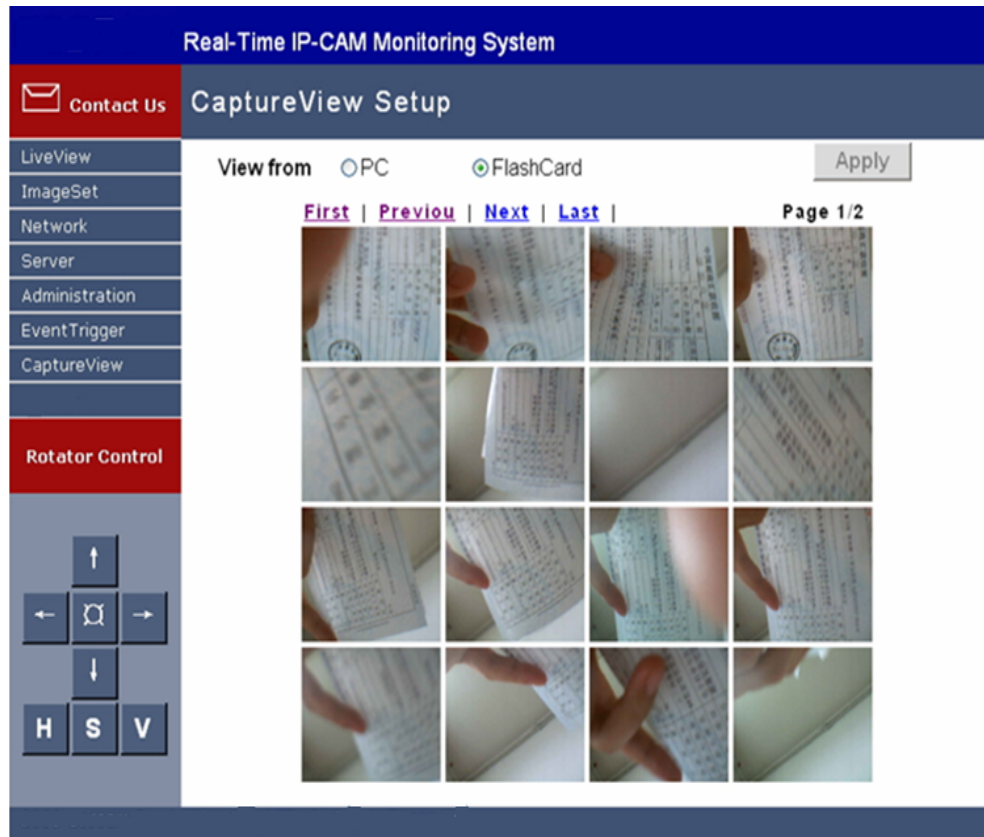
The capacity of the SD memory card shall not be less than 1 GB.

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## 5.6 Capture View

The view includes:

- **PC:** Static images manually captured in LiveView
- **FlashCard:** Static images automatically captured in LiveView when MD is enabled



**Operating procedures:**

- Step 1: Select **CaptureView** to enter this manual. The fault value is PC. A maximum of 48 thumbnail images can be previewed in three pages.
- Step 2: It can be read from a PC or a SD memory card, depending on the setting, and then click **<Apply>**.
- Step 3: Move the cursor to the designated thumbnail image and select it with the mouse. You can then view the image in preset size.

## Chapter 6 Connecting IP Camera to the Internet

The user has to set parameters of the IP Camera before it is put into normal use. All functions of the IP Camera will be available only when parameters of the IP Camera have been properly set and it is connected to the Internet. The installation procedures of the IP Camera may vary with specific network connection conditions of the user.

Parameter setting of IP Camera covers two major steps: 1) IP Camera initialization, and 2) access to the Internet, as detailed below:

### Step 1: IP Camera Initialization

- 1) Connect the IP Camera to the power supply and then connect it to the PC of the user with the supplied crossover cable (marked as Intersect ant cable). Turn on the power switch of the IP Camera.
- 2) Search the IP Camera connected with the user PC with the CAM\_EZ Search tool included in the CD-ROM and set network settings of the IP Camera. The operating procedures are shown in Section 2.1.

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#### Note:

If the user PC is in a LAN, the user can also connect the IP Camera to an idle port of the switch with the supplied straight-through cable (marked as IP Network cable). The setting methods are the same as above.

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### Step 2: Access to the Internet

Upon the completion of settings in step 1, the user can view the monitored pictures of the IP Camera in the LAN. If the user plans to connect the IP Camera to the Internet to perform remote monitoring, it is necessary to perform further settings.

At present, there are different Internet access modes. The settings of the IP Camera vary with the Internet access modes. Two common access methods are described as follows:

#### Method 1: Directly connected to the Internet through ADSL Modem

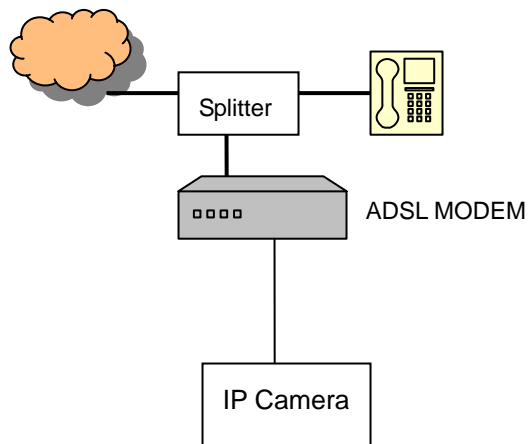
IP Camera provides built-in support for PPPoE and DDNS network protocols. The user can directly connect the IP Camera to the ADSL Modem to access the Internet.

The setting method is as follows:

- 1) Upon completion of settings in Step 1, open the browser in the PC and log in to the IP Camera.

- 2) Enter the Server setting page and set the account and password in the **DDNS Server** field (It is necessary to apply for a DDNS service account in the link on the Server page), and click **<Submit>**.
- 3) The Network setting page appears. Select **PPPoE** for **IP Assignment**, set the account and password for the Internet access in the **PPPoE** field, and then click **<Submit>**.
- 4) Turn off the power of the IP camera, and connect it to the network port of the ADSL Modem with the crossover cable.
- 5) Turn on the power of the ADSL Modem, and switch on the IP Camera only when the link indicator light of the Modem lights up. Upon the completion of dial-up, the user can visit the IP Camera from any PC connected with the Internet. To visit the IP Camera, enter the set dynamic domain name in the **Address** bar of the browser.

The connection diagram is shown as follows:



### Method 2: Connected to the Internet through LAN

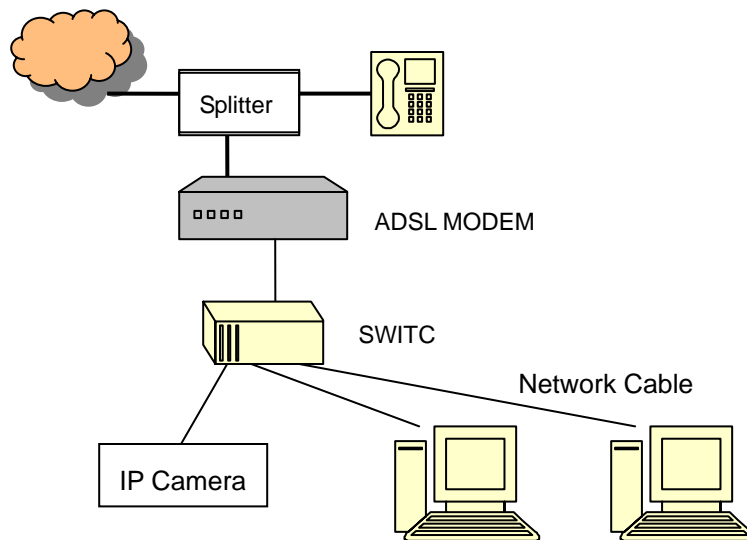
To connect the IP Camera to a LAN and to access the Internet through the same ADSL broadband line shared with other PCs in the LAN, use an ADSL Modem with routing function and a switch. The IP Camera and other PCs can be connected to the switch to form a small LAN. Connect the ADSL Modem to the switch.

The setting method is as follows:

- 1) Configure the IP Camera according to step 1.
  - IP assignment mode: Select the STATIC option and set an IP address in the same network segment of the ADSL Modem (for example, if the default IP address of the ADSL Modem is 192.168.1.1, set the IP address of the IP Camera to 192.168.1.2).
  - Subnet mask: Sets to 255.255.255.0.
  - Default gateway: Sets to the IP address of the ADSL.

- 2) Configure ATM setting options of the ADSL and enter the PPPoE dial-up account and password.
  - Enter the IP address of the ADSL Modem in the **Address** bar of the browser, and then enter account and password in the dialog box appeared to enter the Modem setting page.
  - Enter the ATM setting page of the Modem and set ATM parameters: VPI/VCI values to be queried from local telecom service provider; encapsulation type is LLC; connection type is PPPoE; security protocol is PAP.
  - Enter the ADSL account and password in the user name and password fields, and then click <**Submit**>.
- 3) Set the NAT function of the ADSL Modem.
  - Enter the Network Address Translation (NAT) setting page of the ADSL Modem.
  - Select the option of adding new rules, select **REDIRECT** for **Rule Flavor** and **TCP** for **Protocol**.
  - Set destination port and local port to 80, set local address to the IP address of the IP Camera, for example, 192.168.1.2, and set the IP address of the public network to 0.0.0.0.
- 4) Enter the Server setting page and enter account and password in the **DDNS Server** field ((It is necessary to apply for a DDNS service account in the link on the Server page), and click <**Submit**>.

The connection diagram is shown as follows:




---

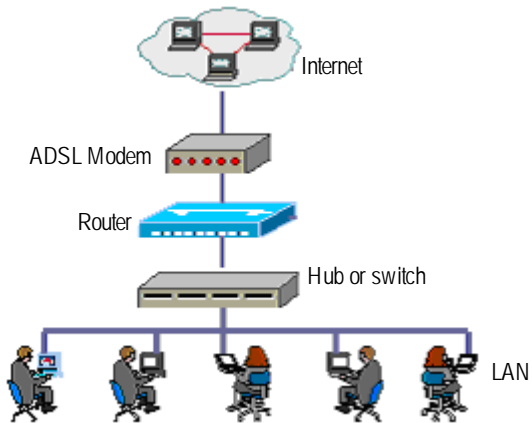
**Note:**

In the above figure, the interconnection between the switch and the ADSL Modem depends on the port of the switch in use: If it is connected to a common port of the switch, use the straight-through cable; if it is connected to the UPLINK port of the switch, use the cross-over cable.

In addition to the above connection methods, the user can also adopt the ADSL without routing function plus a router to enable the IP Camera and other PCs in the LAN to share the broadband line to access the Internet.

---

The connection diagram is shown as follows:



To make the IP Camera accessible to Internet users, it is necessary to set the NAT function of the router and to map the IP Camera to the 80 port of the public network. For detailed setting methods, see Appendix 2.

## Appendix 1

### Example of settings of Huawei MT800:

Enter 192.168.1.1 (default IP address) in the **Address** bar of the IE Explorer. Enter the user name (admin) and the password (default value: admin) to open the setting window of the MT800.

#### 1) Setting ATM

The screenshot displays the 'MT800 Configuration Manager GUI' in a web browser. The address bar shows 'http://192.168.1.1/hag/pages/home.ssi'. The left sidebar shows a tree view with 'SmartAX MT800' expanded and 'ATM Setting' selected. The main content area contains the following settings:

- PVCC:** 0
- VPI/VCI:** 0 / 35 (Annotated: To inquire your network service provider)
- Running Mode:**  Enable  Disable
- Encapsulation:**  LLC  VC MUX
- Connection Type:**  RFC2684 bridging  RFC2684 routing (IPoA)  ppp (Annotated: User name and password allocated by your network service provider)
- PPPOA/PPPOE:**  PPPoA  PPPoE
- Default Path:**  Enable  Disable
- PPP**
- Security Protocol:**  PAP  CHAP
- User Name:** [Empty field]
- Password:** [Empty field]
- Enable  Disable
- Status:** [Refresh icon]

Buttons at the bottom: Submit, Delete, Cancel.

#### 2) Setting NAT

Select **NAT** from **Other Settings** and click <Add>. The NAT Rules-Add window appears, as shown below:

NAT Rules-Add				
NAT Rule Information				
Rule Flavor:	RDR			
Rule ID:	20			
IF Name:	ppp-0			
Protocol:	TCP			
Local Address From:	192	168	1	2
Local Address To:	192	168	1	2
Global Address From:	0	0	0	0
Global Address To:	0	0	0	0
Destination Port From:	80			
Destination Port To:	80			
Local Port:	80			

Select **REDIRECT** for **Rule Flavor** and **TCP** for **Protocol**. Enter the IP address of the IP Camera **192.168.1.2** as the local address, and set the starting destination port and the ending destination port to **80**. Click **<Submit>** to return to the NAT interface.

3. Select **Save & Reboot** in the left of the window, and select **Save→ Submit**, and **Reboot→Submit** in turn. The setting is complete when the ADSL reboots.

## Appendix 2

Example of settings of a Cisco router:

- 1) After the router has reloaded, enter enable mode again.

```
Router>enable
Router#
```

- 2) Configure service timestamp to properly log and display debug output in the troubleshooting section.

```
Router#configure terminal
Router(config)#service timestamps debug datetime msec
Router(config)#service timestamps log datetime msec
Router(config)#end
```

- 3) Disable logging console on your Cisco DSL Router to suppress console messages that may be triggered while you are configuring the router.

```
Router#configure terminal
Router(config)#no logging console
Router(config)#end
```

- 4) Configure IP routing, IP subnet-zero, and IP classless to provide flexibility in routing configuration options.

```
Router#configure terminal
Router(config)#ip routing
Router(config)#ip subnet-zero
Router(config)#ip classless
Router(config)#end
```

- 5) Configure global Point-to-Point Protocol over Ethernet (PPPoE) parameters.

```
Router#configure terminal
Router(config)#vpdn enable
Router(config)#no vpdn logging
Router(config)#vpdn-group pppoe
Router(config-vpdn)#request-dialin
Router(config-vpdn-req-in)#protocol pppoe
Router(config-vpdn-req-in)#end
```

- 6) Configure an IP address and subnet mask on the Cisco DSL Router Ethernet interface.

(Optional) Enable NAT inside on the Ethernet interface.

```
Router#configure terminal
Router(config)#interface ethernet 0
Router(config-if)#ip tcp adjust-mss 1452/ip adjust-mss 1452
Router(config-if)#ip address 192.168.1.2 255.255.255.252
Router(config-if)#ip nat inside
Router(config-if)#no shut
Router(config-if)#end
```

- 7) Configure the ATM interface of your Cisco DSL Router with an ATM permanent virtual circuit (PVC), encapsulation type, and Dialer pool.

```
Router#configure terminal
Router(config)#interface atm 0
Router(config-if)#pvc 0/35 (Guizhou Province)
Router(config-if-atm-vc)#pppoe-client dial-pool-number 1
Router(config-if-atm-vc)#no shut
Router(config-if-atm-vc)#end
```

- 8) Configure the Dialer interface of your Cisco DSL Router for Point-to-Point Protocol over ATM (PPPoA) to enable a dynamic IP address to be assigned.

(Optional) Enable NAT outside on the Dialer interface.

```
Router#configure terminal
Router(config)#interface dialer 1
Router(config-if)#ip address negotiated
Router(config-if)#mtu 1492
Router(config-if)#no ip directed-broadcast
Router(config-if)#ip nat outside
Router(config-if)#encapsulation ppp
Router(config-if)#dialer pool 1
Router(config-if)#ppp auth chap hostname heiye
Router(config-if)#ppp auth chap password heiye
Router(config-if)#ppp auth pap sent-username heiye password heiye
Router(config-if)#end
```

- 9) Configure a default route using Dialer1 as the outbound interface.

```
Router#configure terminal
Router(config)#ip route 0.0.0.0 0.0.0.0 dialer1
Router(config)#end
```

- 10) Configure global NAT commands on the Cisco DSL Router to allow sharing of the dynamic public IP address of the Dialer interface.

```
Router#configure terminal
Router(config)#ip nat inside source list 1 interface dialer1
overload
Router(config)#access-list 1 permit 192.168.1.3 0.0.0.255
Router(config)#end
```

#### 11) Optional Configurations

NAT Pool. if additional IP addresses have been provided by your ISP.

```
Router(config)#ip nat inside source list 1 pool ciscooverload
Router(config)#ip nat pool cisco 200.1.1. 200.1.1.254 netmask
255.255.255. 0
Router(config)#end
```

- 12) Static NAT. if Internet users require access to internal servers.

```
Router(config)#ip nat inside source static tcp 192.168.1.5 80
200.1.1.5 80 extendable
Router(config)#end
```

- 13) (Optional) Configure the Cisco DSL Router as a DHCP server with a pool of IP addresses to assign to hosts connected to the Ethernet interface of the Cisco DSL Router. The DHCP server dynamically assigns an IP address, Domain Name Server (DNS), and the default gateway IP address to your hosts.

```
Router#configure terminal
Router(config)#ip dhcp excluded-address 192.168.21.2(E0 ip
address)
Router(config)#ip dhcp pool wang
Router(dhcp-config)#network 192.168.1.2 255.255.255.0
Router(dhcp-config)#default-router 192.168.1.2
Router(dhcp-config)#dns-server 202.98.198.168 202.98.192.68
Router(dhcp-config)#end
```

- 14) Enable the logging console on the Cisco DSL Router, and write all the changes to memory.

```
Router#configure terminal
Router(config)#logging console
Router(config)#end
*Jan 1 00:00:00.100: %SYS-5-CONFIG_I: Configured from console by
console
Router#write memory/copy run start
Building configuration... [OK]
Router#show run
Router#show ip int brief
to view the IP interface status.
```