AC-M3000 / AC-M1000

Network Access Controller

User's Manual

Version 1.00

The product you have purchased and the setup screen may appear slightly different from those shown in this QIG. For more detailed information about this product, please refer to the User's Manual on the CD-ROM.

Software and specifications subject to change without notice. Please visit our web site for the update.

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1. Before You Start

1.1 Preface

This manual is for Hotspot owners, SMBs, or administrators in enterprises to set up network environment using Edimax AC-M3000/AC-M1000. It contains step by step procedures and graphic examples to guide MIS staff or individuals with slight network system knowledge to complete the installation.

Note: *this manual is applicable to both AC-M3000 and AC-M1000. For a reference of differences between AC-M3000 and AC-M1000, please see* ***2.3.3 – Comparison between AC-M3000 and AC-M1000****.*

1.2 Document Convention

- For any caution or warning that requires special attention of readers, a highlight box with the eye-catching italic font is used as below:

Warning: *For security purposes, you should immediately change the Administrator's password.*

 Indicates that clicking this button will return to the homepage of this section.

 Indicates that clicking this button will return to the previous page.

Indicates that clicking this button will apply all of your settings.

Indicates that clicking this button will clear all inputs before clicking Apply button.

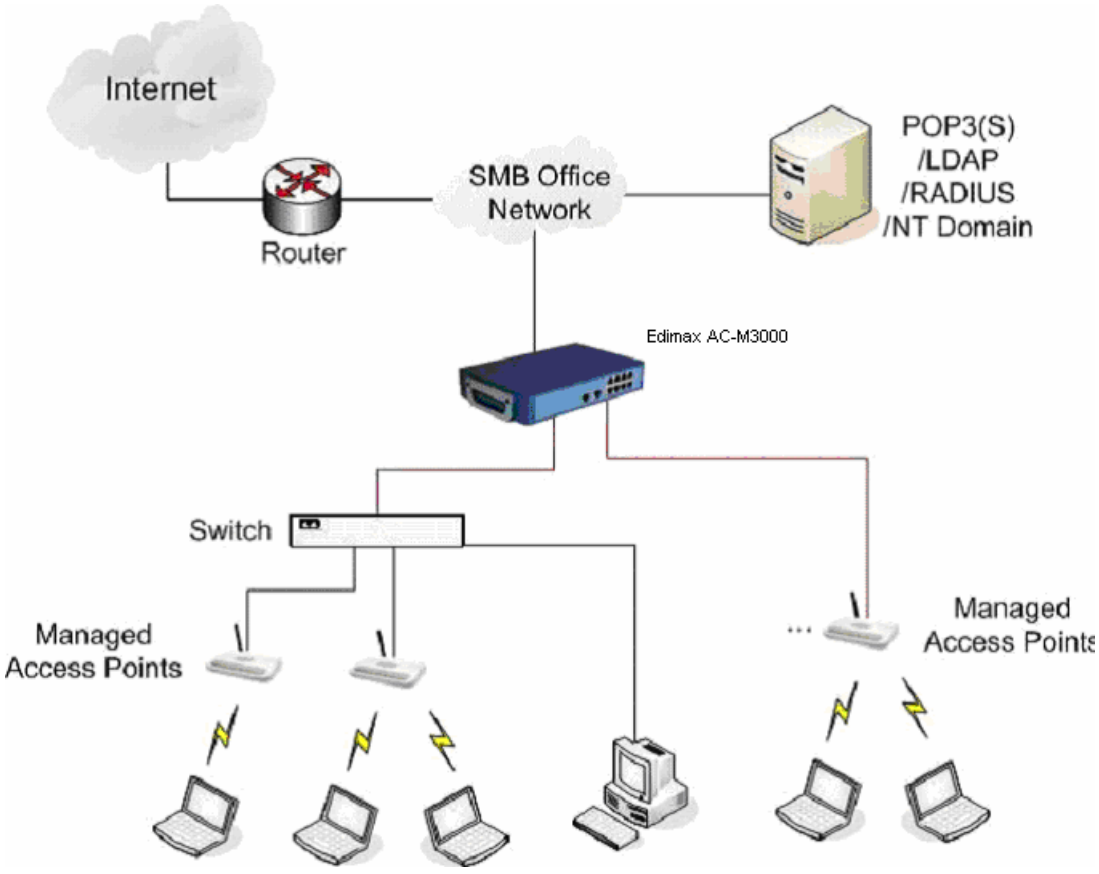
2. System Overview

2.1 Introduction of Edimax AC-M3000

Edimax AC-M3000 is a Network Access Controller, specially designed for the small scaled wireless and wired network management and access control. The major functional areas include user management, access control, AP management, and security management.

2.2 System Concept

Edimax AC-M3000 dedicates to user authentication, authorization and management. The user account information is stored in the local database or specified external databases server. User authentication is processed via the SSL encrypted web interface. This interface is compatible to most desktop devices and palm computers. The following figure is an example of Edimax AC-M3000 set to control a part of the company's intranet. The whole managed network includes the users in LAN and WLAN..



2.3 Specification

2.3.1 Hardware Specification

- **General**

  Form Factor: Mini-desktop

  Dimensions (W x D x H): 243 mm x 150 mm x 45.5 mm

  Weight: 1.4 Kg

  Operating Temperature: 0 ~ 45 ℃

  Storage Temperature: 0 ~ 65 ℃

  Power: 110~220 VAC, 50/60 Hz

  Ethernet Interfaces: 10 x Fast Ethernet (10/100 Mbps)

- **Connectors & Display**

  WAN Ports: 2 x 10BASE-T/100BASE-TX RJ-45

  LAN Ports: 8 x 10BASE-T/100BASE-TX RJ-45

  Console Port: 1 x RJ-11

  LED Indicators: 1 x Power, 1 x Status, 2 x WAN, 8 x LAN

2.3.2 Technical Specification

- **Networking**

  Supports Router, NAT mode

  Supports Static IP, DHCP, PPPoE on WAN interface

  Configurable LAN ports authentication

  Supports IP Plug and Play (IP PnP)

  Built-in DHCP server and supports DHCP relay

  Supports NAT:

  1. IP/Port Destination Redirection
  2. DMZ Server Mapping
  3. Virtual Server Mapping

  Supports static route

  Supports SMTP redirection

  Supports Walled Garden (free surfing zone)

  Supports MAC Address Pass-Through

  Supports HTTP Proxy

- **Security**

  Supports data encryption: WEP (64/128-bit), WPA, WPA2

  Supports authentication: WPA-PSK, WPA2-PSK, IEEE 802.1x (EAP-MD5, EAP-TLS, CHAP, PEAP)

  Supports VPN Pass-through(IPSec and PPTP)

Supports DoS attack protection

Supports user Black List

Allows user identity plus MAC address authentication for local accounts

- **User Management**

  Supports up to 120 concurrent users for AC-M3000 (50 concurrent users for AC-M1000)

  Provides 500 local accounts for AC-M3000 (250 local accounts for AC-M1000)

  Provides 2000 on-demand accounts

  Simultaneous support for multiple authentication methods (Local and On-demand accounts, POP3(S), LDAP, RADIUS, NT Domain)

  Role-based and policy-based access control (per-role assignments based on Firewall policies, Routing, Login Schedule, Bandwidth)

  Customizable login and logout portal page

  User Session Management:

  1. SSL protected login portal page
  2. Supports multiple logins with one single account
  3. Session idle timer
  4. Session/account expiration control
  5. Friendly notification email to provide a hyperlink to login portal page
  6. Windows domain transparent login
  7. Configurable login time frame

- **AP Management**

  Supports up to 12 (4 for AC-M1000) IEEE 802.11b/g APs (EW-7206APg)

  Centralized remote management via HTTP/SNMP interface

  Automatic discovery of managed APs and list of managed APs

  Allows administrators to add and delete APs from the AP list

  Allows administrators to enable or disable managed APs

  Provides MAC Access Control List of client stations for each managed AP

  Locally maintained configuration profiles of managed APs

  Single UI for upgrading and restoring managed APs' firmware

  System status monitoring of managed APs and associated client stations

  Automatic recovery of APs in case of system failure

  System alarms and status reports on managed APs

- **Monitoring and Reporting**

  Status monitoring of on-line users

  IP-based monitoring of network devices

  WAN connection failure alert

  Syslog support for diagnosing and troubleshooting

  User traffic history logging

- **Accounting and Billing**

  Support for RADIUS accounting, RADIUS VSA (Vendor Specific Attributes)

Built-in billing profiles for on-demand accounts

Enables session expiration control for on-demand accounts by time (hour) and data volume (MB)

Provides billing report on screen for on-demand accounts

Detailed per-user traffic history based on time and data volume for both local and on-demand accounts

Traffic history report in an automatic email to administrator

- **System Administration**

  Multi-lingual, web-based management UI

  SSH remote management

  Remote firmware upgrade

  NTP time synchronization

  Backup and restore of system configuration

2.3.3 Comparison of AC-M3000 and AC-M1000

Capacity and Performance	***AC-M3000***	***AC-M1000***
Concurrent Users	120	50
Local Accounts	500	250
On-demand user Accounts	2,000	2,000
Managed Access Points (EW-7206APg)	12	4
Monitored 3rd-Party Access Points	40	40
VPN Termination Tunnels	120	50
VPN 3DES/DES Throughput	30 Mbps	20 Mbps

3. Base Installation

3.1 Hardware Installation

3.1.1 System Requirements

- Standard 10/100BaseT network cables with RJ-45 connectors
- All PCs need to install the TCP/IP network protocol

3.1.2 Package Contents

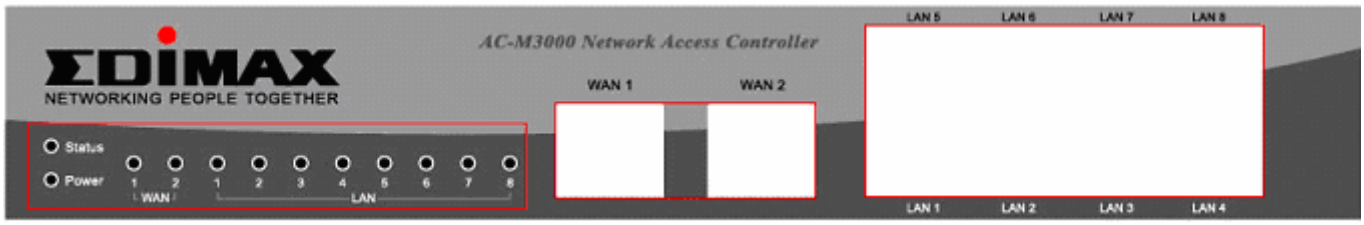
The standard package of Edimax AC-M3000 includes:

- Edimax AC-M3000 x 1
- CD-ROM x 1
- Quick Installation Guide x 1
- Power Adapter (DC 12V) x 1
- Cross Over Ethernet Cable x 1
- Console Cable x 1

Warning: *It is highly recommended to use all the supplies in the package instead of substituting any components by other suppliers to guarantee best performance.*

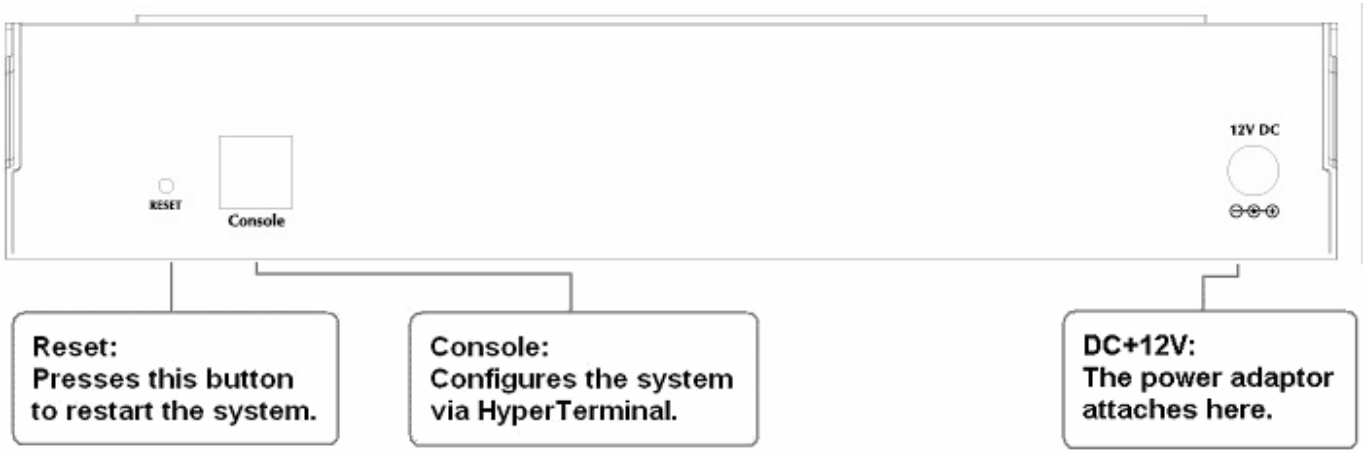
3.1.3 Panel Function Descriptions

Front Panel



- **LED:** There are four kinds of LED, Power, Status, WAN and LAN, to indicate different status of the system.
- **WAN1/WAN2:** The two WAN ports are connected to a network which is not managed by the Edimax AC-M3000 system, and this port can be used to connect the ATU-Router of the ADSL, the port of a cable modem, or a switch or a hub on the LAN of a company.
- **LAN1~LAN8:** Clients' machines connect to Edimax AC-M3000 via LAN ports. Each LAN port can be configured to one of the two roles, controlled or uncontrolled. The differences of these two roles for a client connected to are:
  - Clients connected to the controlled port need to be authenticated to access network.
  - Clients connected to uncontrolled port don't need to be authenticated to access network and can access the web management interface.

Rear Panel

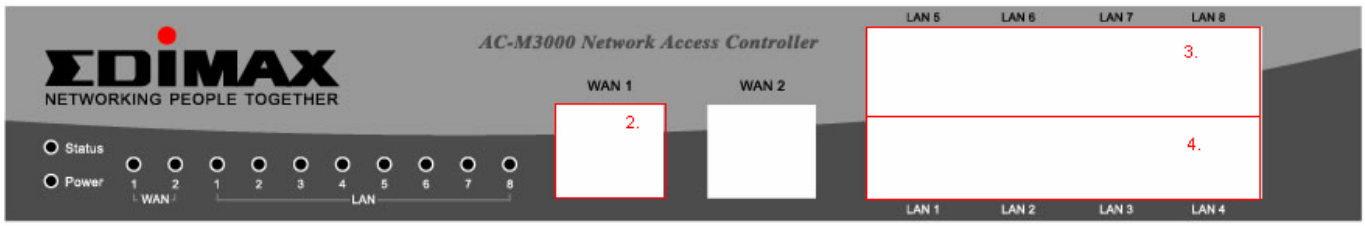


- **Reset:** Press this button to restart the system.
- **Console:** The system can be configured via a serial console port. The administrator can use a terminal emulation program such as Microsoft's HyperTerminal to login to the configuration console interface to change admin password or monitor system status, etc.
- **DC+12V:** The power adapter attaches here.

3.1.4 Installation Steps

Please follow the following steps to install Edimax AC-M3000:

1. Connect the 12V power adapter to the power socket on the rear panel. The Power LED should be on to indicate a proper connection.



2. Connect an Ethernet cable to the WAN1 Port on the front panel. Connect the other end of the Ethernet cable to a ADSL modem, a cable modem or a switch/hub of the network. The LED of WAN1 port should be on to indicate a proper connection.
3. Connect an Ethernet cable to one of the LAN5~LAN8 Ports on the front panel. Connect the other end of the Ethernet cable to an administrator's PC. The LED of the connected port should be on to indicate a proper connection. (Note: The default role of these four ports is ***Uncontrolled Port***.)
4. Connect an Ethernet cable to one of the LAN1~LAN4 Ports on the front panel. Connect the other end of the Ethernet cable to a client PC, AP or switch in managed network. The LED of the connected port should be on to indicate a proper connection. (Note: The default role of these four ports is ***Controlled Port***.)

Attention:

1. *Edimax AC-M3000 supports Auto Sensing MDI/MDIX. You may use either straight through or cross over cable to connect the Ethernet Port.*

2. *Usually a straight cable could be applied when Edimax AC-M3000 connects to an Access Point which supports automatic crossover. If after the AP hardware resets, the Edimax AC-M3000 could not be able to connect to the AP while connecting with a straight cable, the user have to pull out and plug-in the straight cable again. This scenario does NOT occur while using a crossover cable.*

After the hardware of Edimax AC-M3000 is installed completely, the system is ready to be configured in the following sections.

3.2 Software Configuration

3.2.1 Quick Configuration

There are two ways to configure the system: using **Configuration Wizard** or changing the setting by demands manually. The Configuration Wizard has 6 steps providing a simple and easy way to guide you through the setup of Edimax AC-M3000. Follow the procedures and instructions given by the Wizard to enter the required information step by step. After saving and restarting Edimax AC-M3000, it is ready to use. There will be **6** steps as listed below:

1. Change Admin's Password
2. Choose System's Time Zone
3. Set System Information
4. Select the Connection Type for WAN Port
5. Set Authentication Methods
6. Save and Restart Edimax AC-M3000

Please follow the following steps to complete the quick configuration.

1. Use the network cable of the 10/100BaseT to connect a PC to the uncontrolled port, and then open a browser (such as Microsoft IE 6.0 or Firefox). Next, enter the gateway IP address as the web management interface's URL, the default gateway IP address is https://192.168.2.254. In the opened webpage, you will see the login page. Enter ***"admin"***, the default username and ***"1234",*** the default password, in the ***User Name*** and ***Password*** field. Click ***Enter*** to log in.

Caution: *If you can't get the login screen, the reasons may be: 1. The PC is set incorrectly so that the PC can't obtain the IP address automatically from the LAN port; 2. The IP address and the default gateway are not under the same network segment. Please use default IP address such as 192.168.2.xx in your network and then try it again. For the PC configuration on PC, please refer to* ***6. Appendix B – Network Configuration on PC****.*

Edimax AC-M3000 supports three kinds of account interface. You can log in as **admin**, **manager** or **operator**. The default username and password as follows.

Admin: The administrator can access all area of the Edimax AC-M3000.

User Name: **admin**

Password: **1234**

Manager: The manager can access the area under ***User Authentication*** to manage the user account, but no permission to change the settings of the profiles of Firewall, Specific Route and Schedule.

User Name: **manager**

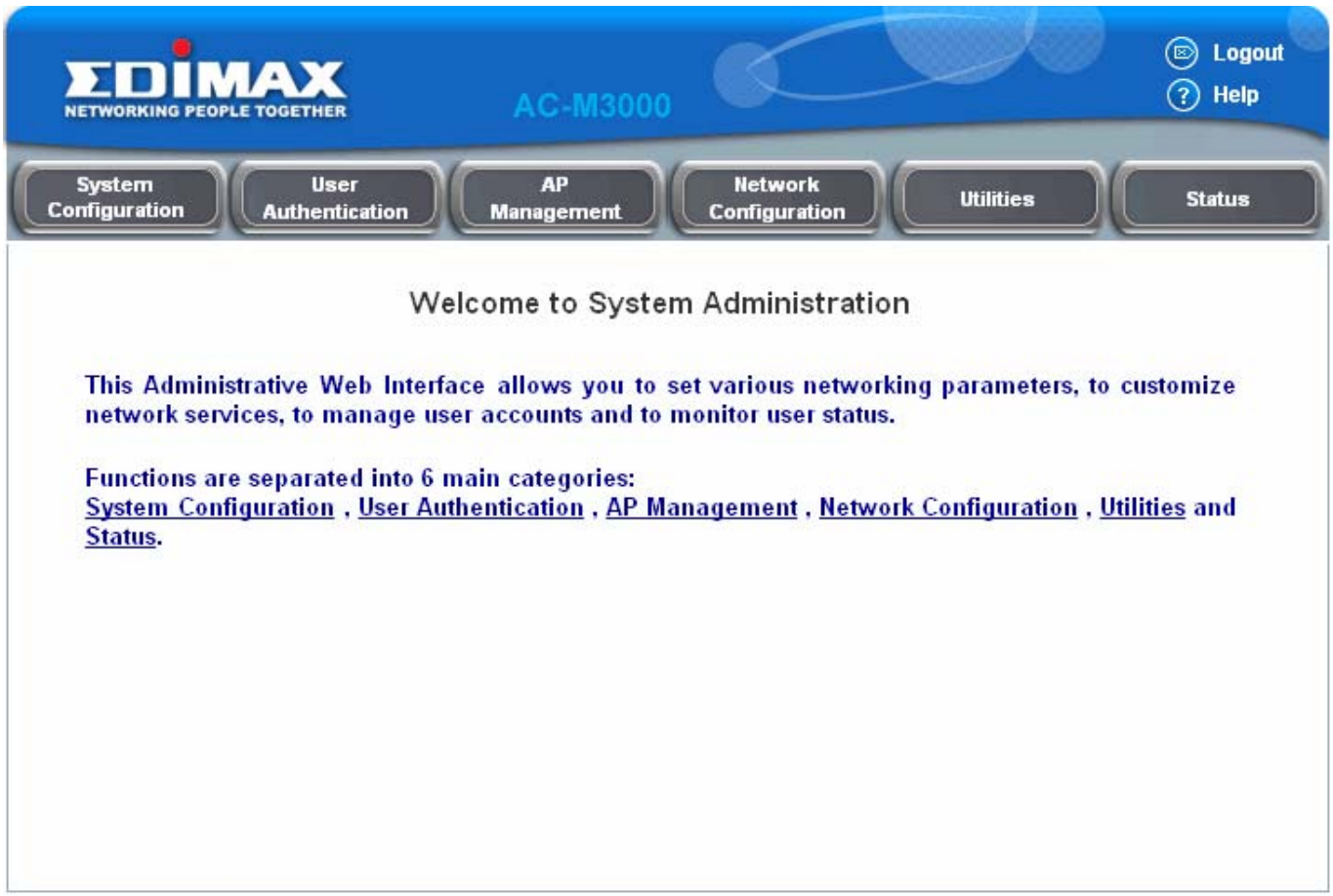
Password: **manager**

Operator: The operator can only access the area of ***Create On-demand User*** to create and print out the new on-demand user accounts.

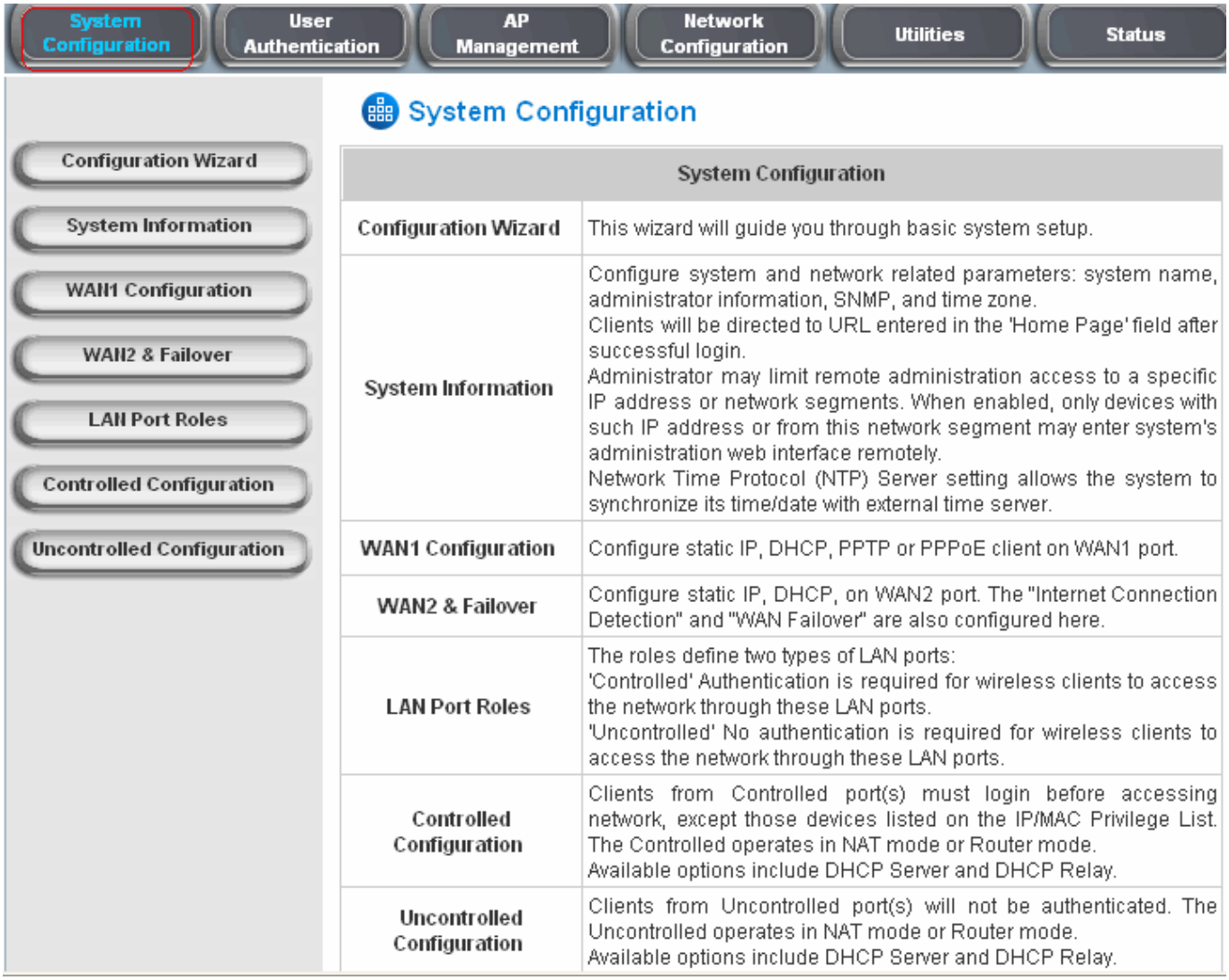
User Name: **operator**

Password: **operator**

2. After successfully logging into Edimax AC-M3000, enter the web management interface and see the welcome page. There is a ***Logout*** button on the upper right corner to log out the system when finished.



3. Then, run the configuration wizard to complete the configuration. Click ***System Configuration,*** the **System Configuration** page will appear.



4. Then, click on ***Configuration Wizard*** and click the ***Run Wizard*** to start the wizard.

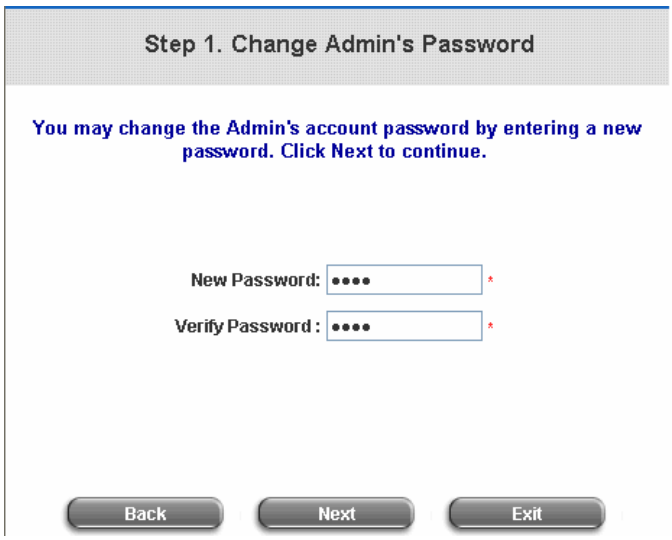
5. **Configuration Wizard**

A welcome page that briefly introduces the 6 steps will appear. Click ***Next*** to begin.

- **Step 1. Change Admin's Password**

Enter a new password for the admin account and retype it in the Verify Password field (twenty-character is the maximum and spaces are not allowed).

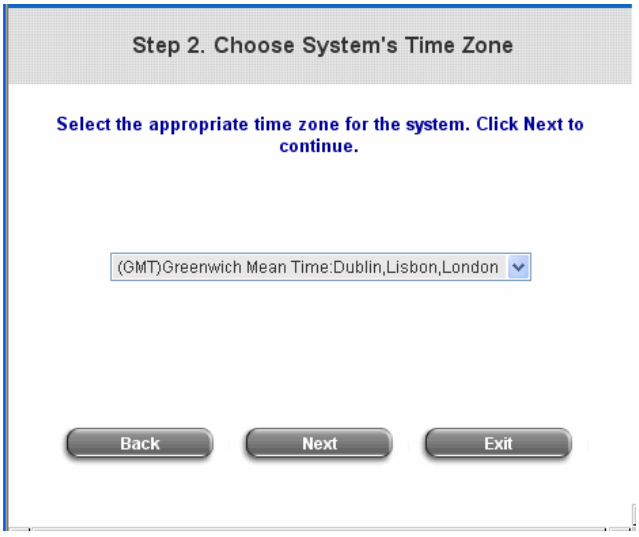
Click ***Next*** to continue.



- **Step 2. Choose System's Time Zone**

Select a proper time zone via the drop-down menu.

Click ***Next*** to continue.



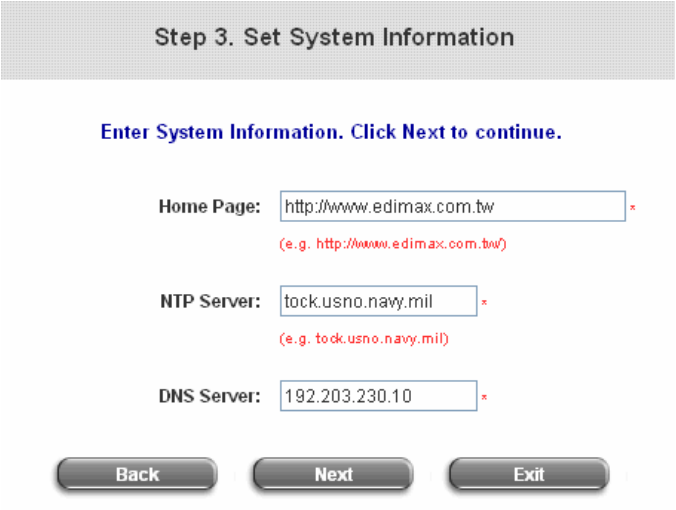
- **Step 3. Set System Information**

  Home Page: Enter the URL to where the users should be directed when they are successfully authenticated.

  NTP Server: Enter the IP address or the domain name of an external time server for Edimax AC-M3000 to do time synchronization or use the default.

  DNS Server: Enter a DNS Server provided by the ISP (Internet Service Provider). Contact the ISP if the DNS IP Address is unknown.

  Click ***Next*** to continue.



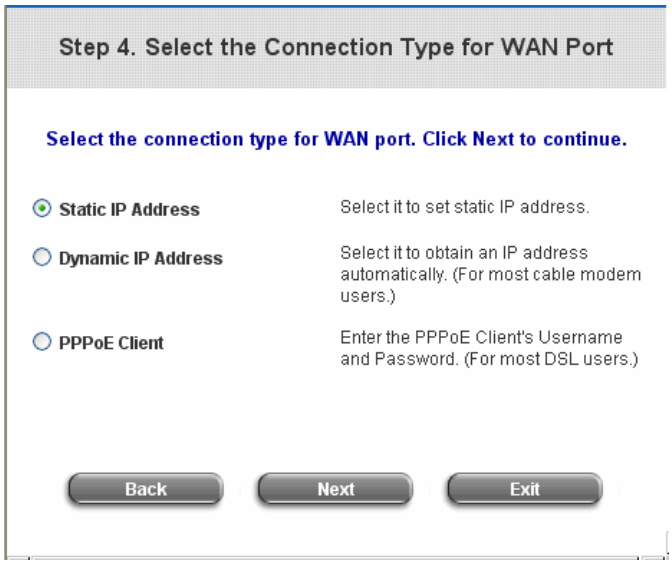
- **Step 4. Select the Connection Type for WAN Port**

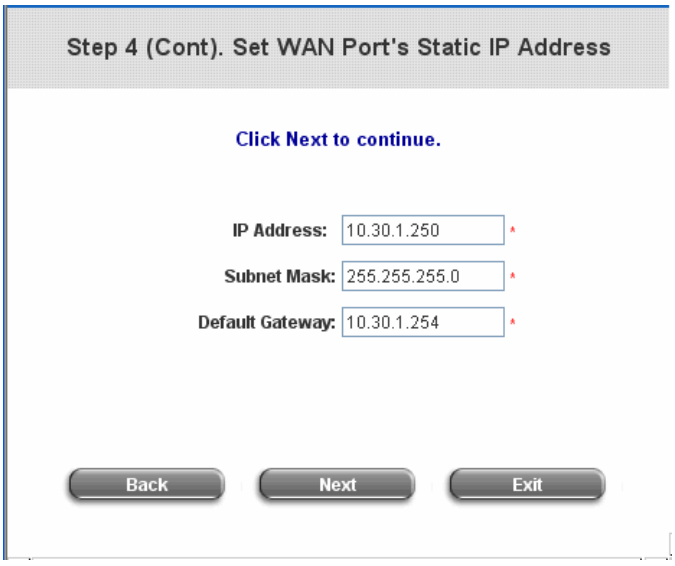
  There are three connection types of WAN1 port supported in the wizard: **Static IP Address**, **Dynamic IP Address** and **PPPoE Client**. Select a proper Internet connection type and click ***Next*** to continue.

  - **Static IP Address: Set WAN Port's Static IP Address**

    Enter the **"IP Address"**, **"Subnet Mask"** and **"Default Gateway"** provided by your ISP or network administrator.

    Click ***Next*** to continue.





  - **Dynamic IP Address**

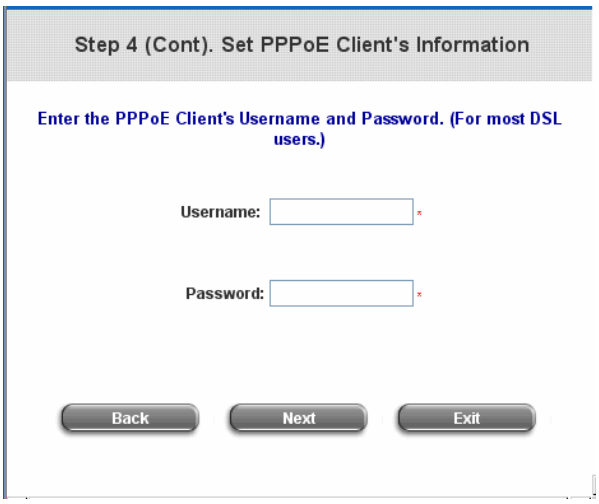
    If this option is selected, Edimax AC-M3000 will get an IP address for WAN1 from an external DHCP server automatically.

    Click ***Next*** to continue.

➢ **PPPoE Client: Set PPPoE Client's Information**

Enter the **"Username"** and **"Password"** provided by the ISP.

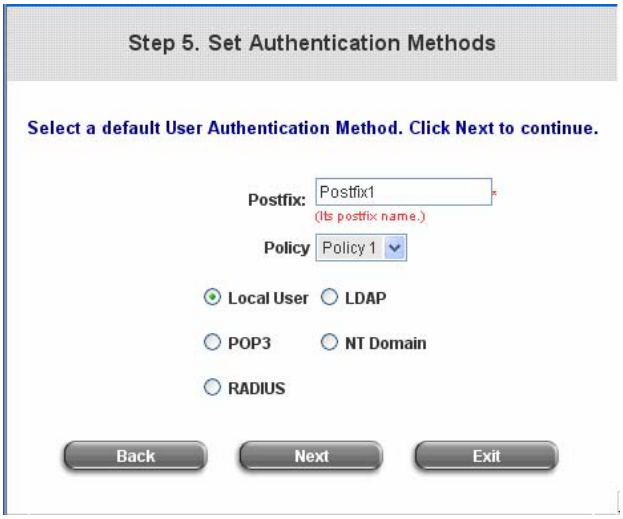
Click ***Next*** to continue.



- **Step 5. Set Authentication Methods**

Enter an identified name as the postfix name in the ***Postfix*** field (e.g. Local), select a policy to assign to, and choose an authentication method.

Click ***Next*** to continue. Different information needs be provided for each kind of authentication method respectively:



➢ **Local User: Add User**

A new user can be added to the local user data base. To add a user here, enter the ***Username*** (e.g. test), ***Password*** (e.g. test), ***MAC*** (optional, to specify a valid MAC address for this user) and assign a policy (or use the default). Click the ***ADD*** button to add this user..

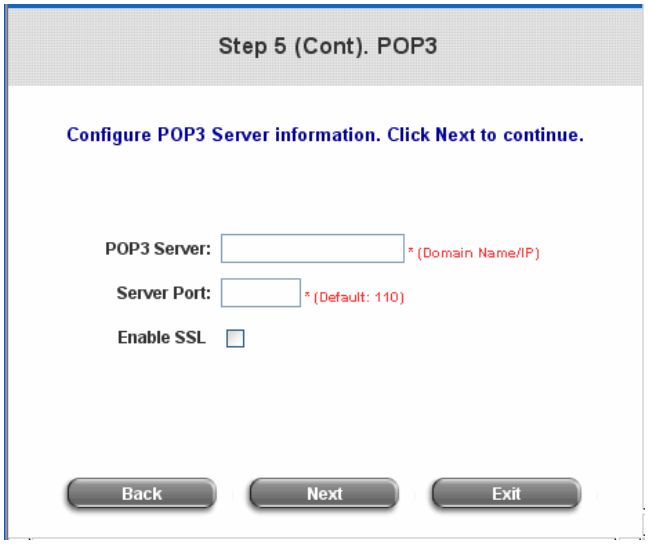
Attention: *The policy selected in this step is applied to this user only. Per-user policy setting takes over the group policy setting at precious step unless you select None here.*

Click ***Next*** to continue.

➢ **POP3 User: POP3**

Enter Domain Name/IP, Server Port of the POP3 server provided by the ISP, and then choose to enable SSL or not.

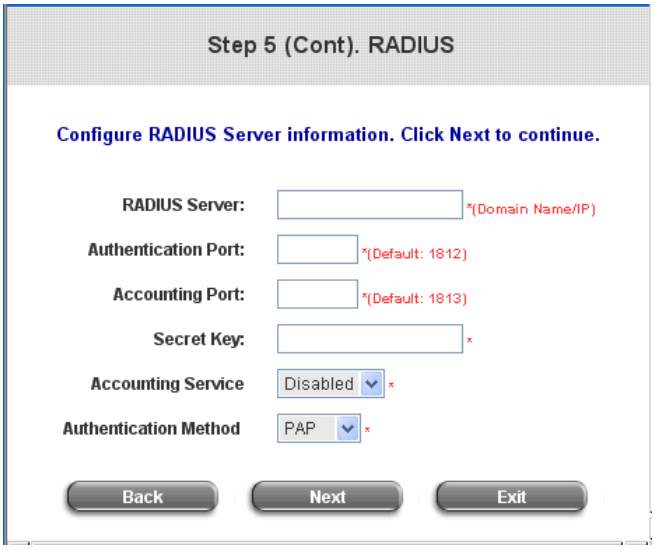
Click ***Next*** to continue.



➢ **RADIUS User: RADIUS**

Enter the Domain Name/IP of the **RADIUS server**, **Authentication Port**, **Accounting Port** and **Secret Key**. Then choose to enable the **Accounting Service** or not, and choose the desired **Authentication Method**.

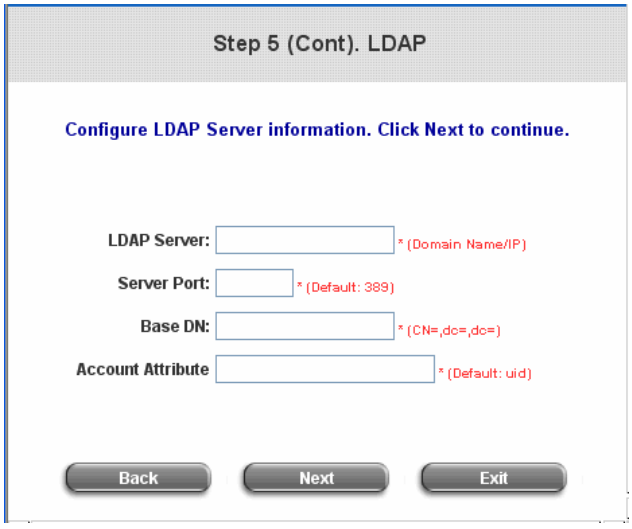
Click ***Next*** to continue.



➢ **LDAP User: LDAP**

Enter the **LDAP Server**, **Server Port**, **Base DN,** and **Account Attribute** of the LDAP server.

Click **Next** to continue.

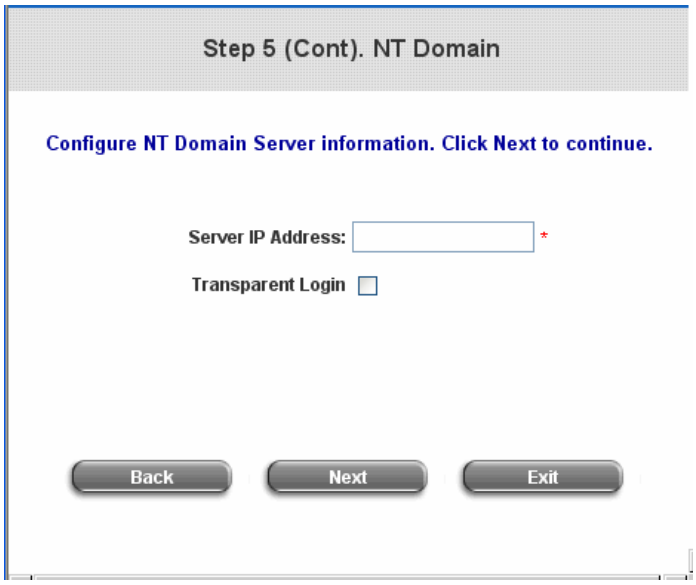


➢ **NT Domain User: NT Domain**

When NT Domain authentication method is selected, enter the **Server IP Address**, and choose to enable/disable **Transparent Login**.

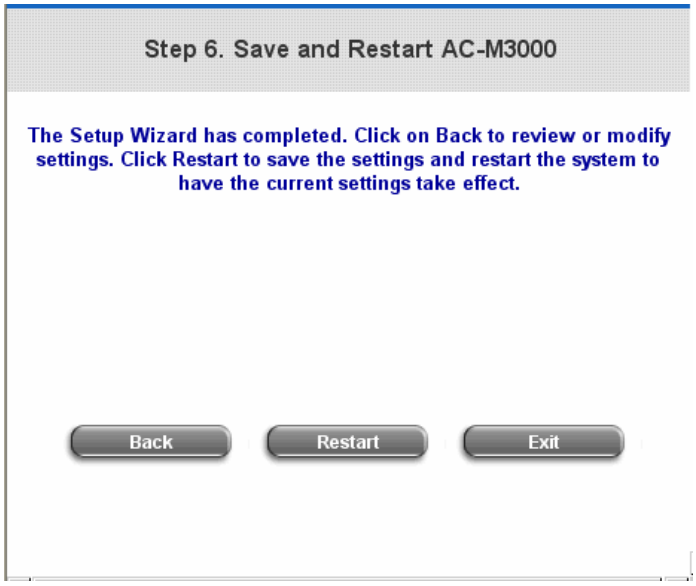
If "Transparent Login" is selected, users will be logged in Edimax AC-M3000's NT Domain active directory and authenticated automatically when they log into their Windows OS domain.

Click ***Next*** to continue.

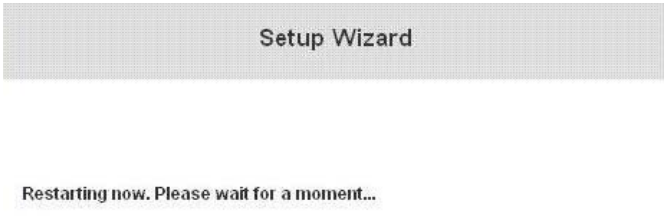


- **Step 6. Save and Restart Edimax AC-M3000**

  Click ***Restart*** to save the current setting and restart Edimax AC-M3000. The Setup Wizard is completed now.



- **Setup Wizard.** During Edimax AC-M3000 restart, a **"Restarting now. Please wait for a moment…"** message will appear on the screen. Please do not interrupt Edimax AC-M3000 until the message has disappeared. This indicates that a completed and successful restart process is finished.



Caution: *During each step of the wizard, if you want to go back to modify the setting, please click the* ***Back*** *button to go back to the previous step.*

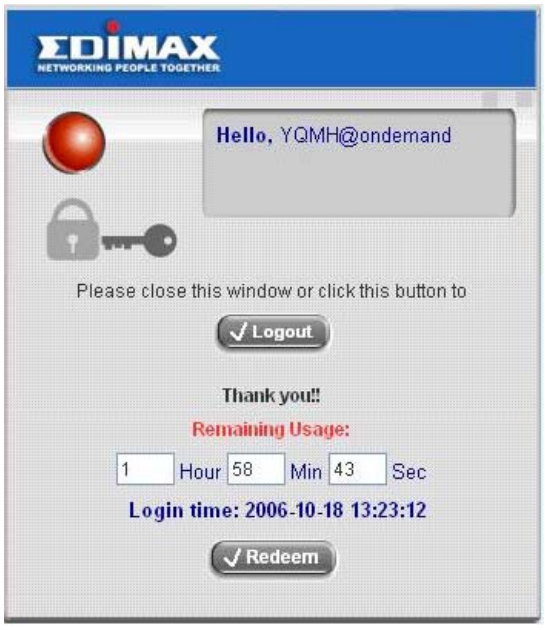
3.2.2 User Login Portal Page

To login from the login portal page via the controlled port, the user has to be authenticated by the username and password. The administrator also can verify if the configuration of Edimax AC-M3000 has been done properly.

1. First, connect a client's device (for example, a PC) to the controlled port of Edimax AC-M3000, and set the device to obtain an IP address automatically. After the client obtains the IP address, open an Internet browser. Try to launch any website and then the default **User Login Page** will appear. Enter a valid **User Name** and **Password** (e.g. ***test@local*** for the username and ***test*** for the password). Click ***Submit*** button.

2. Login succeed page will appear if Edimax AC-M3000 has been installed and configured successfully. Now, clients can access the network or surf on the Internet.

3. When an on-demand user logs in successfully, the following **Login Successfully** page will appear. There is an extra line showing **"Remaining usage"** and a **"Redeem"** button on the button.



   - **Remaining usage:** Show the remaining time or data volume that the on-demand user can use to surf Internet.

- **Redeem:** When the remaining time or data size is insufficient, the client has to pay for adding credit to the counter, and then, the client will get a new username and password. After clicking the ***Redeem*** button, a **Redeem Page** will appear. Please enter the new username and password obtained and click ***Enter*** button. The total available time or data size will be shown up after adding credit.

4. Web Interface Configuration

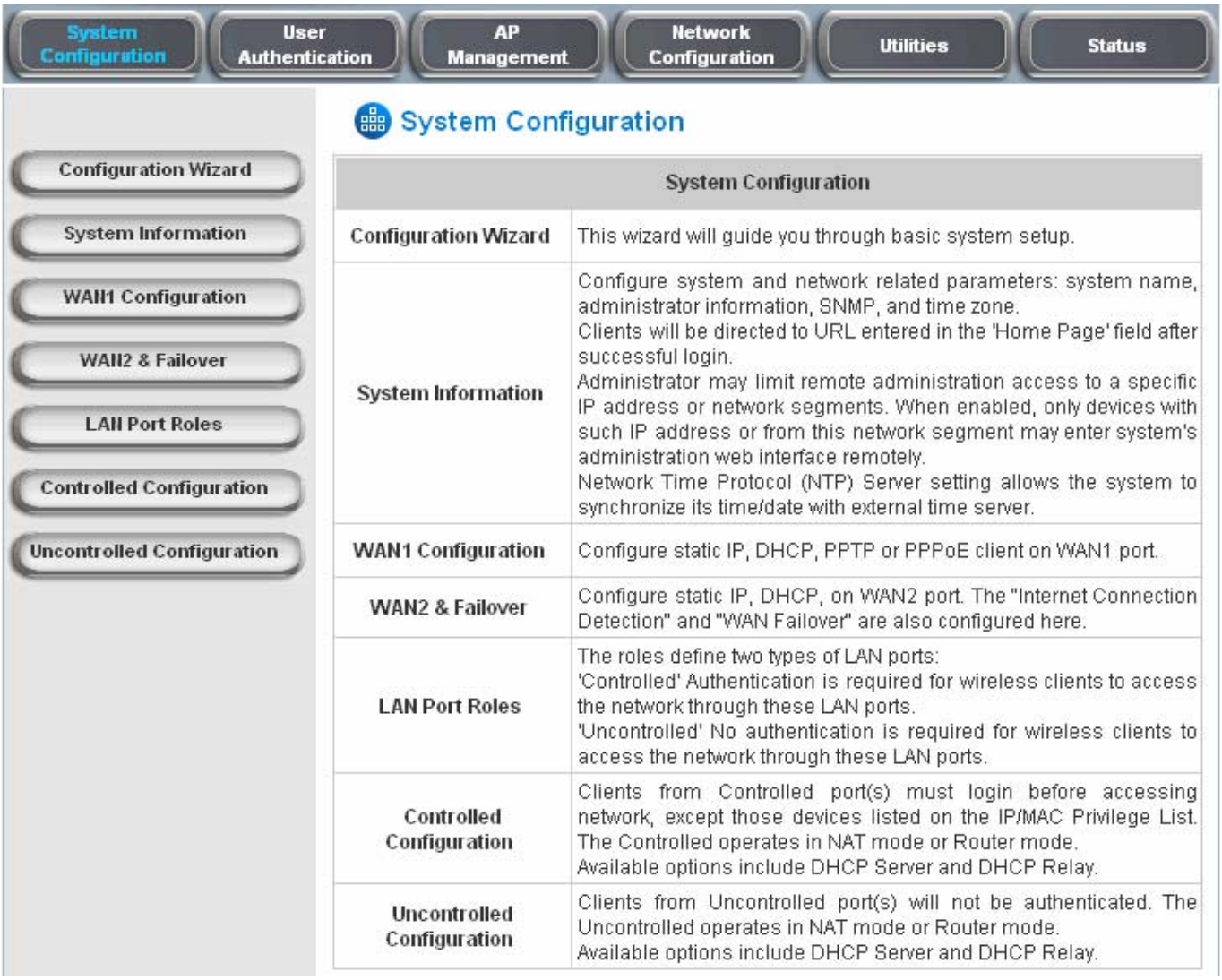
This chapter will guide you through further detailed settings. The following table is the UI and functions of Edimax AC-M3000.

OPTION	System Configuration	User Authentication	AP Management	Network Configuration	Utilities	Status
FUNCTION	Configuration Wizard	Authentication Configuration	AP List	Network Address Translation	Change Password	System Status
	System Information	Black List Configuration	AP Discovery	Privilege List	Backup/Restore Settings	Interface Status
	WAN1 Configuration	Policy Configuration	Manual Configuration	Monitor IP List	Firmware Upgrade	Current Users
	WAN2 & Failover	Additional Configuration	Template Settings	Walled Garden List	Restart	Traffic History
	LAN Port Roles		Firmware Management	Proxy Server Properties		Notification Configuration
	Controlled Configuration		AP Upgrade	Dynamic DNS		
	Uncontrolled Configuration			IP Mobility		
				VPN Termination		

Caution: *After finishing the configuration of the settings, please click* ***Apply*** *and pay attention to see if a restart message appears on the screen. If such message appears, system must be restarted to allow the settings to take effect. All on-line users will be disconnected during restart.*

4.1 System Configuration

This section includes the following functions: **Configuration Wizard**, **System Information**, **WAN1 Configuration**, **WAN2 & Failover**, **LAN Port Roles**, **Controlled Configuration** and **Uncontrolled Configuration**.

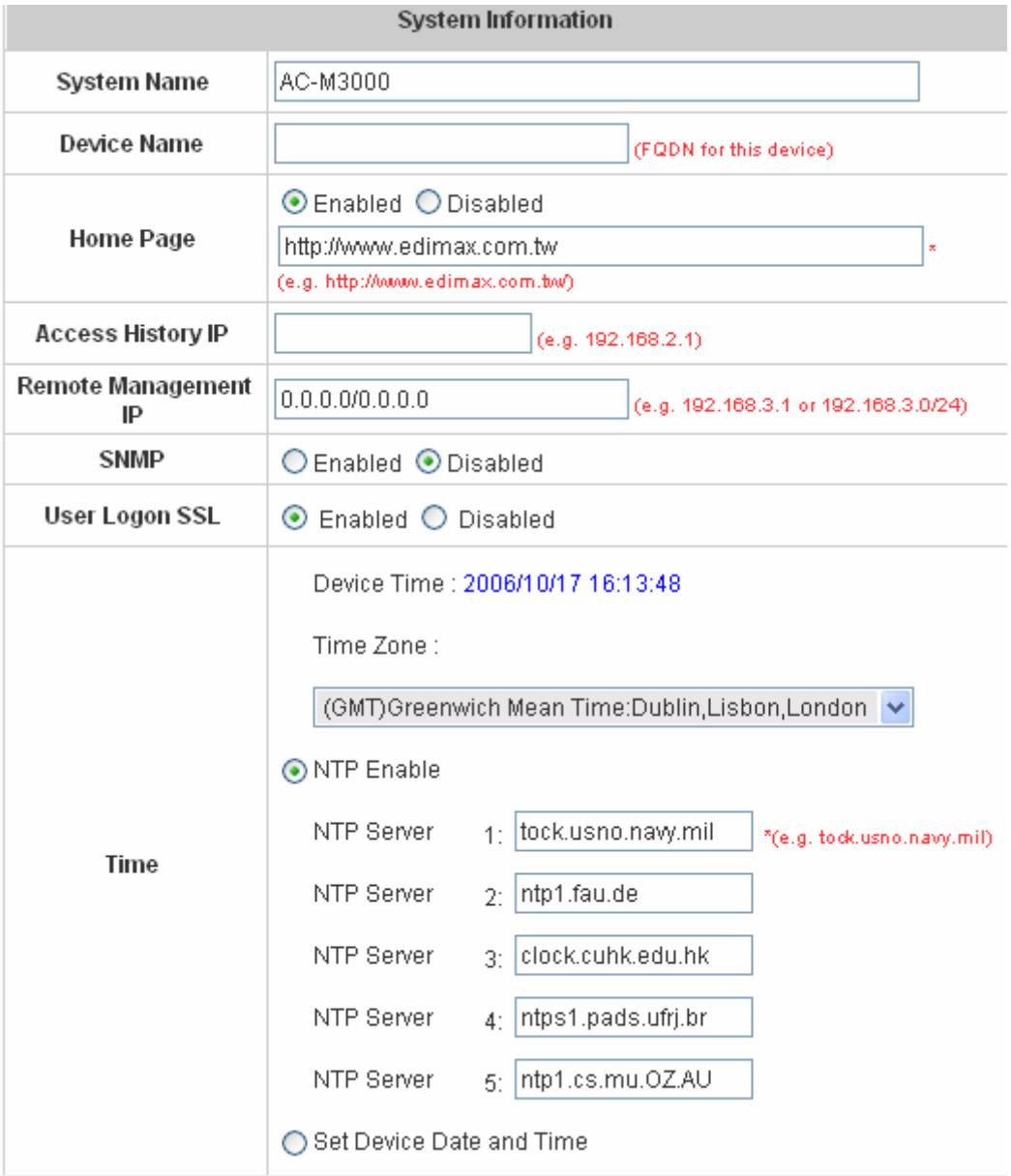


4.1.1 Configuration Wizard

There are two ways to configure the system: using **Configuration Wizard** or changing the setting by demands manually. The Configuration Wizard has 6 steps providing a simple and easy way to go through the basic setup of Edimax AC-M3000 and is served as **Quick Configuration**. Please refer to **3.2.1 Quick Configuration** for the introduction and description of **Configuration Wizard**.

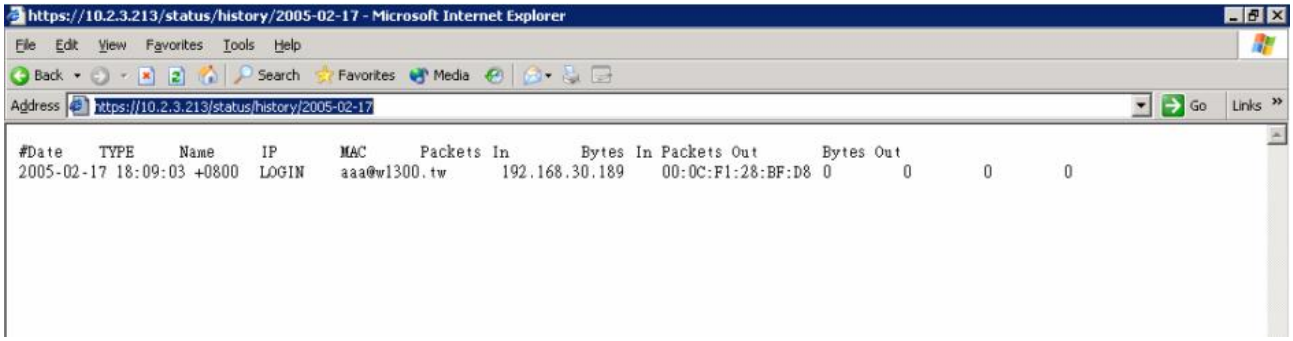
4.1.2 System Information

Most of the major system information about Edimax AC-M3000 can be set here. Please refer to the following description for each field:

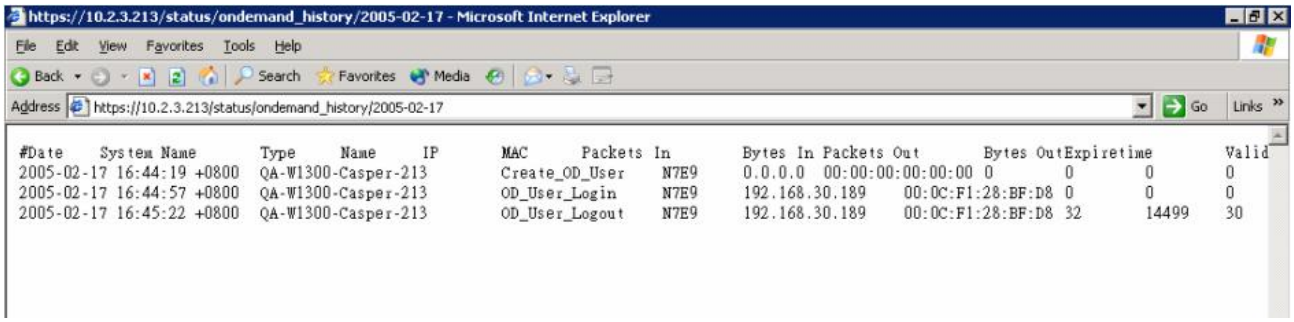


- **System Name:** Set the name of the system or use the default.
- **Device Name:** FQDN (Fully-Qualified Domain Name). This is used as the domain name used in login page. For example, if Device Name=ashop.com, the URL of login page will be https://ashop.com/loginpages/login.shtml.
- **Home Page:** Enter the website of a Web Server to be the homepage. When users log in successfully, they will be directed to the homepage set. Usually, the homepage is the company's website, such as http://www.yahoo.com. Regardless of the original webpage set in the clients' computers, they will be redirect to this page after login.
- **Access History IP:** Specify an IP address of the administrator's computer or to get history information of Edimax AC-M3000 with fix format URLs.

  Traffic History：https://10.2.3.213/status/history/2005-02-17

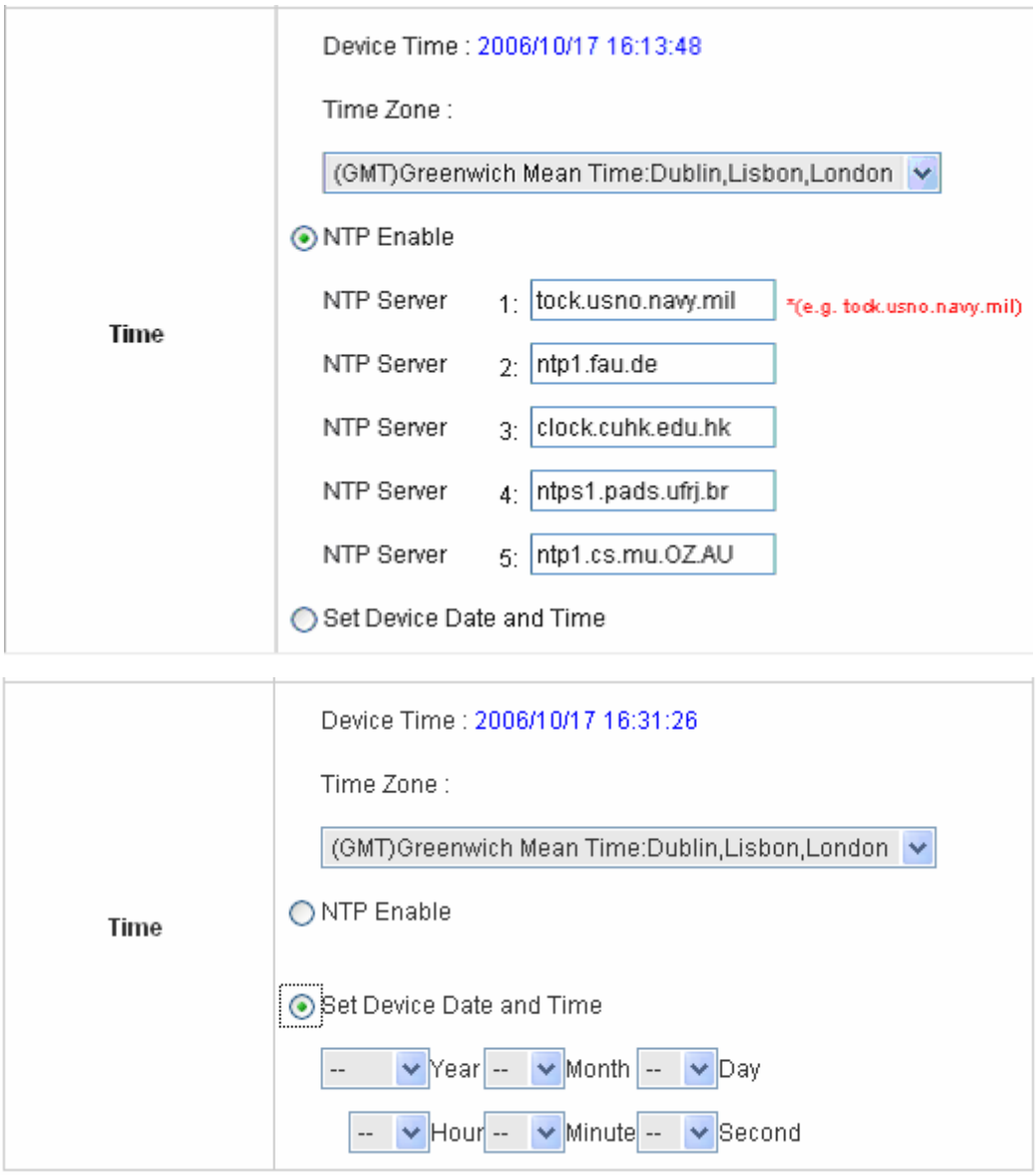


  On-demand History：https://10.2.3.213/status/ondemand_history/2005-02-17



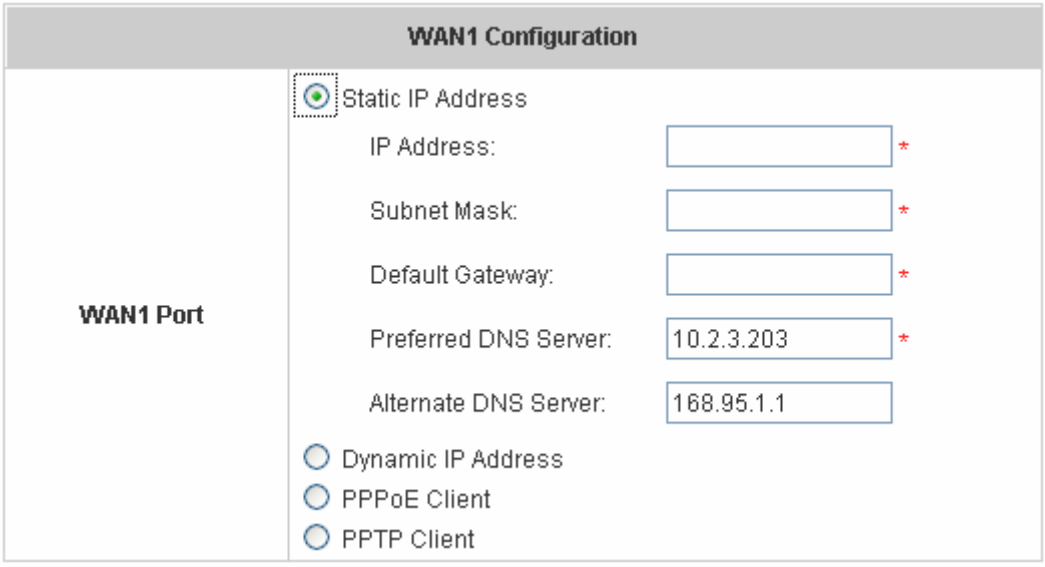
- **Remote Management IP:** Set the IP addresses within a range which are able to connect to the web management interface via WAN and/or controlled port. For example, 10.2.3.0/24 means that as long as you are within the IP address range of 10.2.3.0/24, you can reach the administration page of Edimax AC-M3000. If the IP range bit number is omitted, 32 is used to specify a single IP address.
- **SNMP:** Edimax AC-M3000 supports SNMPv2. If the function is enabled, it is able to assign the Manager IP address and the SNMP community name used to access the management information base (MIB) of the system.
- **User Logon SSL:** Enable this function to activate https (encryption) or disable this function to activate http (non encryption) user login page.
- **Time:** Edimax AC-M3000 supports NTP communication protocol to synchronize the system time with remote time servers. Please specify the time zone and IP address of at least one NTP server in the system configuration interface for adjusting the system time automatically. (Universal Time is Greenwich Mean Time, GMT). Time can also be set manually when selecting **"Set Device Date and Time"**. Please enter the date and

time into these fields.

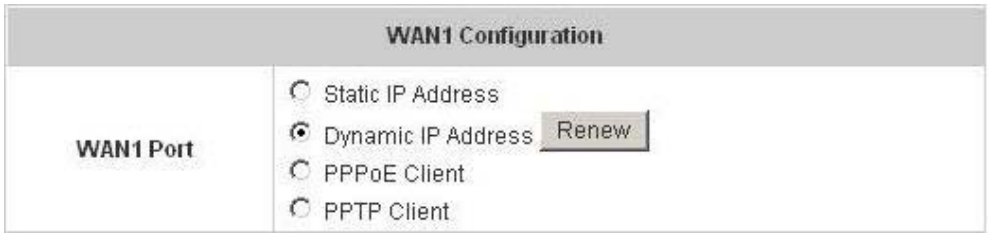


4.1.3 WAN1 Configuration

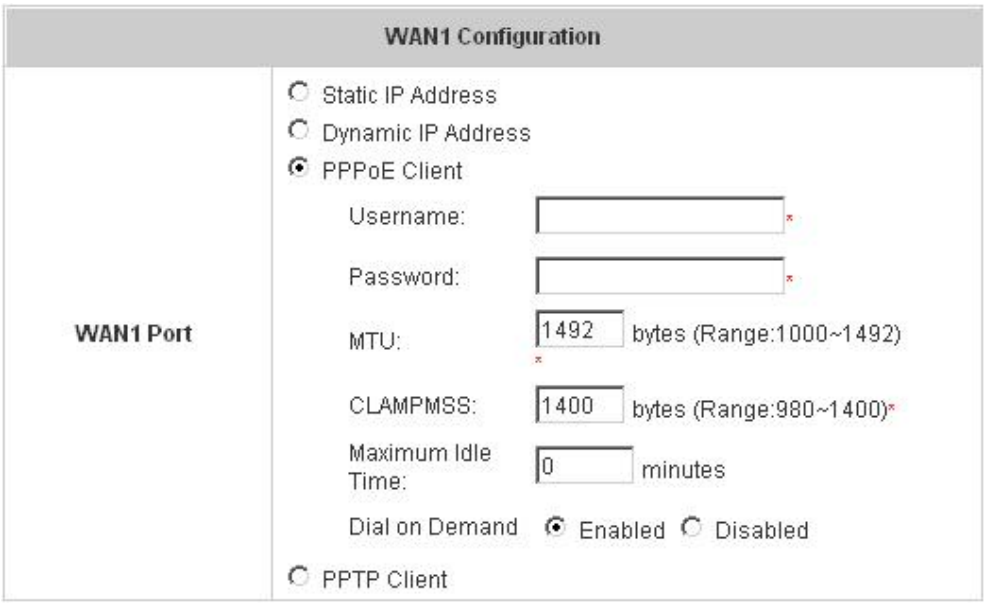
There are 4 connection types for the WAN1 Port: **Static IP Address**, **Dynamic IP Address**, **PPPoE Client** and **PPTP Client**.



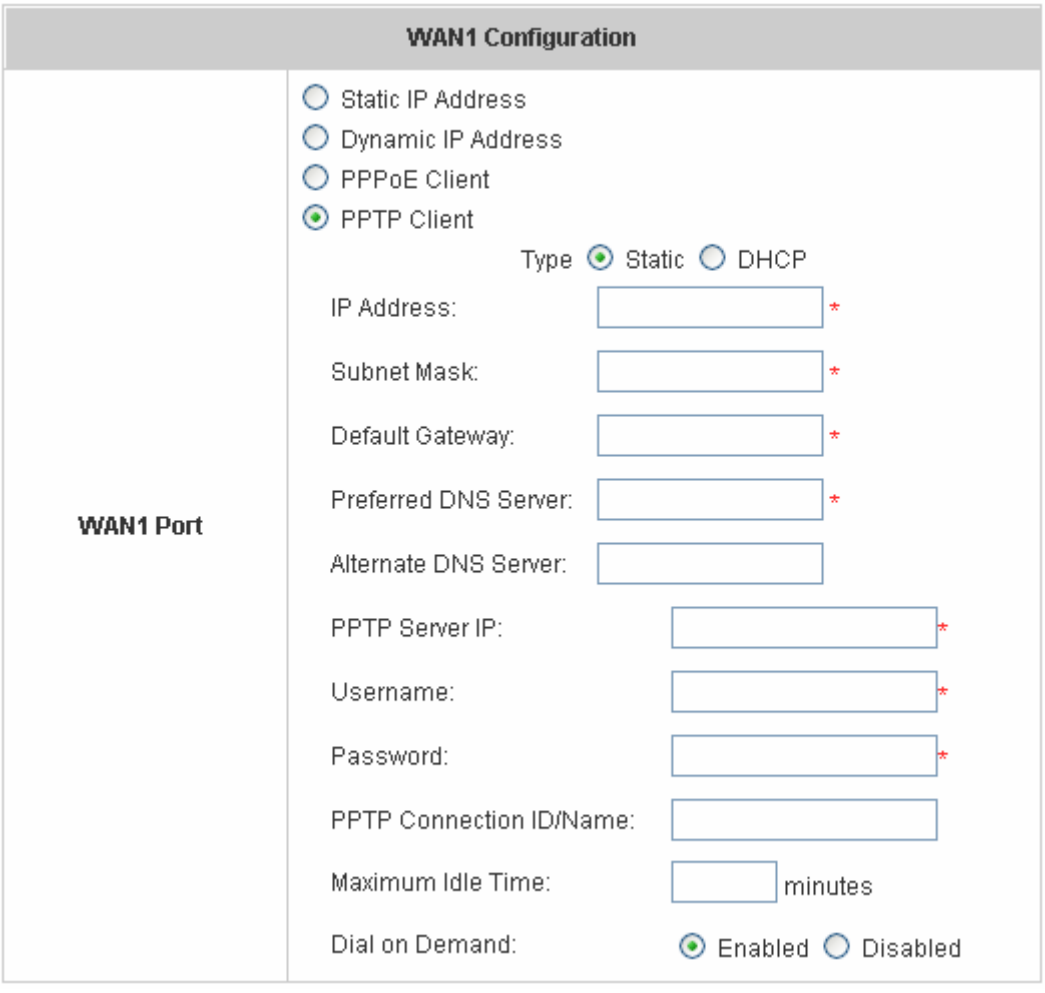
- **Static IP Address:** Manually specifying the IP address of the WAN1 Port is applicable for the network environment where the DHCP service is unavailable. The fields with red asterisks are required to be filled in.
  IP Address: the IP address of the WAN1 port.
  Subnet Mask: the subnet mask of the WAN1 port.
  Default Gateway: the gateway of the WAN1 port.
  Preferred DNS Server: The primary DNS Server of the WAN1 port.
  Alternate DNS Server: The substitute DNS Server of the WAN1 port. This is not required.
- **Dynamic IP address:** It is only applicable for the network environment where the DHCP Server is available in the network. Click the ***Renew*** button to get an IP address.

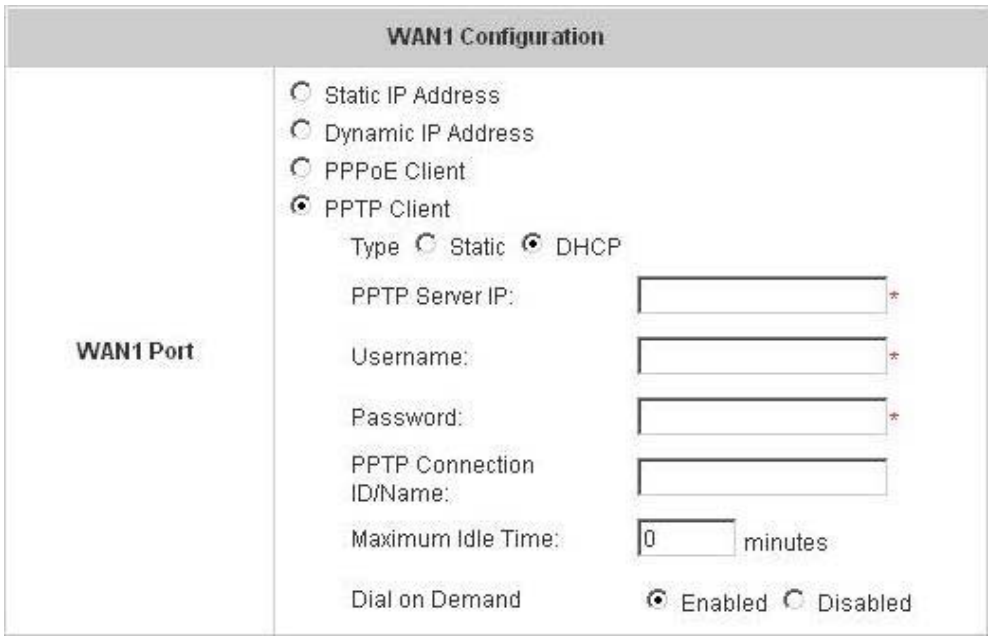


- **PPPoE Client:** This is the common connection type for ADSL. When selecting PPPoE to connect to the network, please enter the **Username**, **Password**, **MTU** and **CLAMPMSS**. There is a **Dial on Demand** function under PPPoE. If this function is enabled, a **Maximum Idle Time** can be set. When the idle time is reached, the system will automatically disconnect itself



- **PPTP Client:** Point to Point Tunneling Protocol is a service that applies to broadband connection used mainly in Europe and Israel. Select **Static** to specify the IP address of the PPTP Client manually or select **DHCP** to get the IP address automatically. The fields with red asterisks are required to be filled in. There is a **Dial on Demand** function under PPTP. If this function is enabled, a **Maximum Idle Time** can be set. When the idle time is reached, the system will automatically disconnect itself

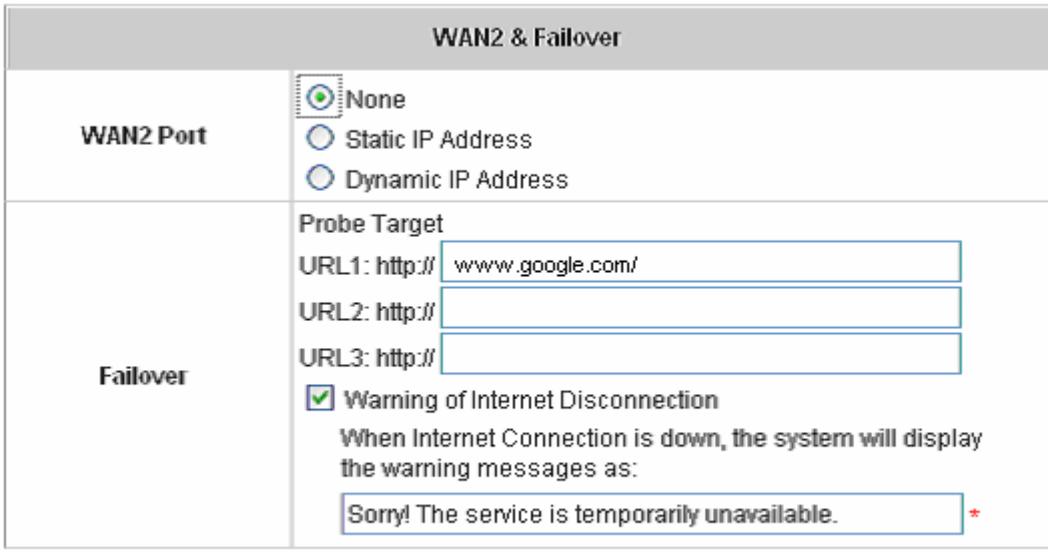




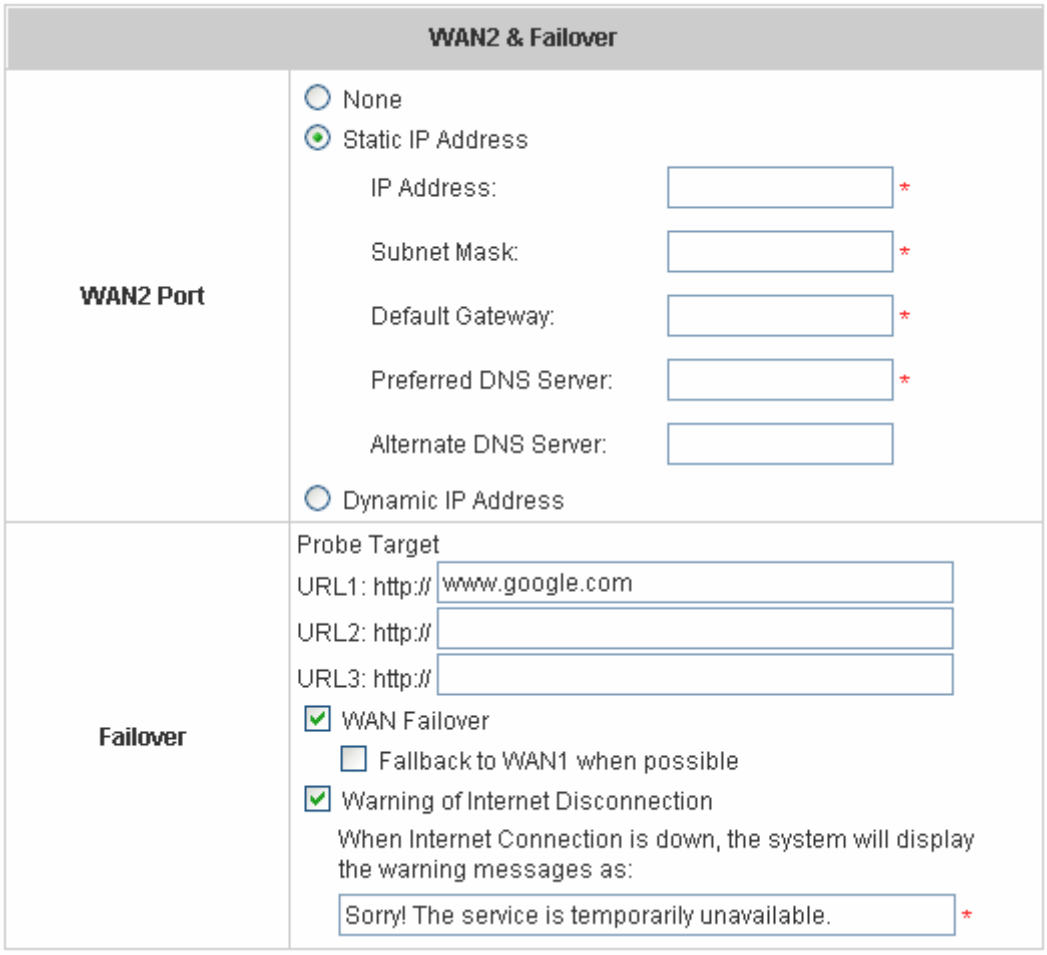
4.1.4 WAN2 & Failover

Except selecting **None** to disable WAN2 port, there are 2 connection types for the WAN2 port: **Static IP Address** and **Dynamic IP Address**. The probe target supports up to three URLs. Check **"Warning of Internet Disconnection"** to work with the WAN **Failover** function. When **Warning of Internet Disconnection** is enabled, the system will check the three URLs to detect the WAN ports connection status.

- **None**: The WAN2 Port is disabled. The probe target of up to three URLs can still be entered. Check **"Warning of Internet Disconnection"** to detect the WAN1 port connection status.

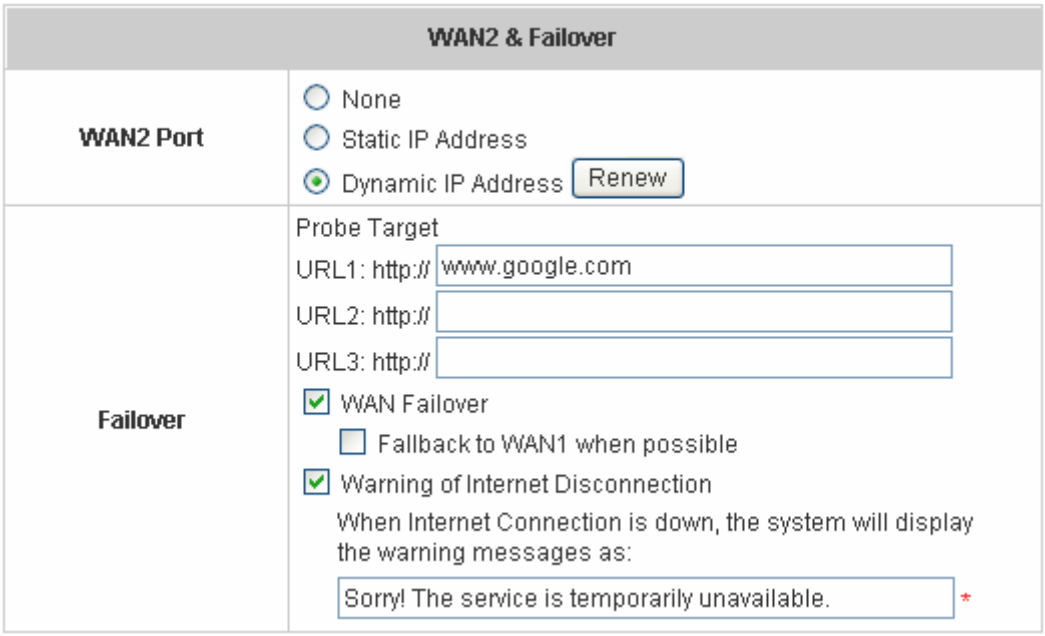


- **Static IP Address:** Specify the **IP Address**, **Subnet Mask** and **Default Gateway** of WAN2 Port, which should be applicable for the network environment. The probe target supports up to three URLs. Check the **"Warning of Internet Disconnection"** box to work with the **WAN Failover** function.



If **WAN Failover** function is enabled, when WAN1 connection fails, the traffic will be routed to WAN2 automatically. If **"Fallback to WAN1 when possible"** function is enabled, the routed traffic will be back to WAN1 when WAN1 connection is recovered.

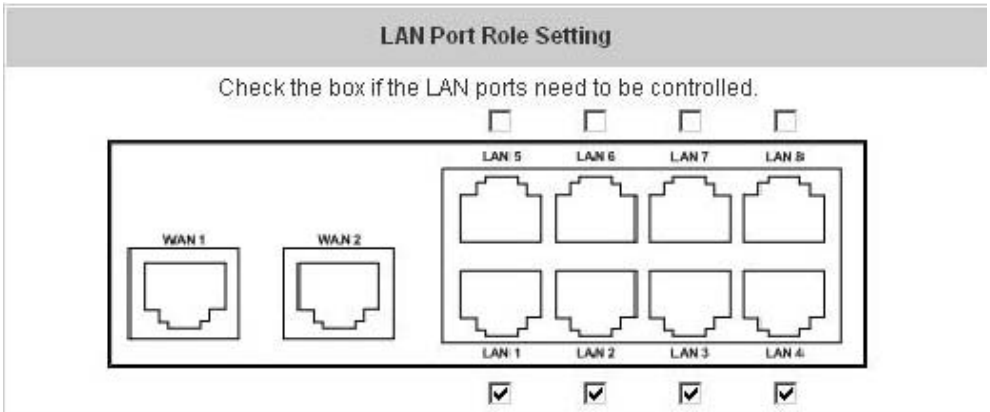
- **Dynamic IP Address:** Select this item when WAN2 Port can obtain an IP address automatically. For example, a DHCP Server is available for WAN2 Port. The probe target supports up to three URLs. Check **"Warning of Internet Disconnection"** box to work with the **WAN Failover** function.



For Dynamic IP Address, **WAN Failover** and **Fallback to WAN1 when possible** functions also can be enabled like as the functions for **Static IP Address**. If **Warning of Internet Disconnection** is enabled, a warning message can be entered to indicate what the system should display when Internet connection is down.

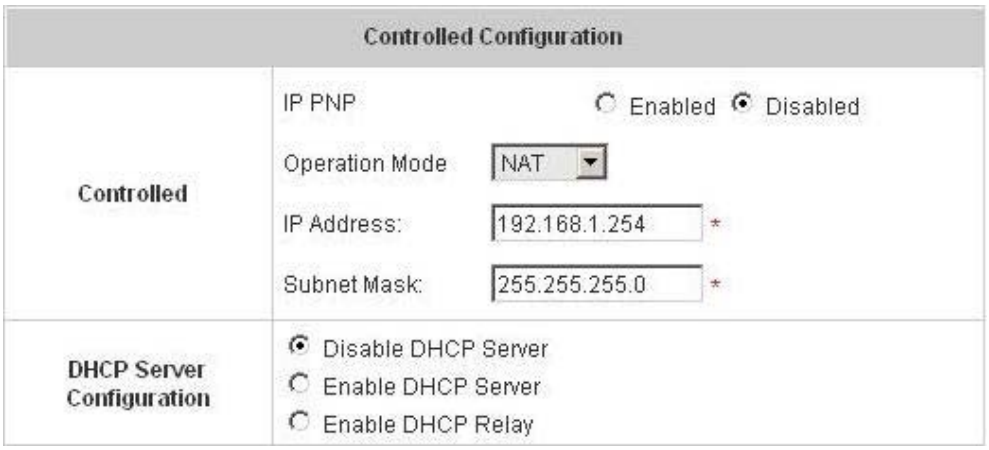
4.1.5 LAN Port Roles

Clients' devices usually connect to Edimax AC-M3000 via LAN ports. Each LAN port can be configured as one of two roles, controlled or uncontrolled. The differences of these two roles for a client connected to are: Clients connecting to the **Controlled Port** need authentication to access the network; Clients connecting to **Uncontrolled Port** don't need authentication to access the network and can also access the web management interface.

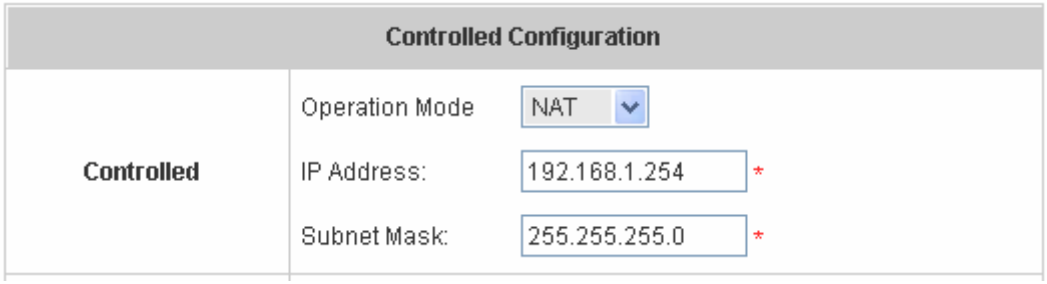


4.1.6 Controlled Configuration

The clients of Controlled Port need authentication before they can access the network. In this section, you can set the related configuration of Controlled Port.



- **Controlled**



Operation Mode: Choose one of the two modes, **NAT** mode and **Router** mode, according to requirements.

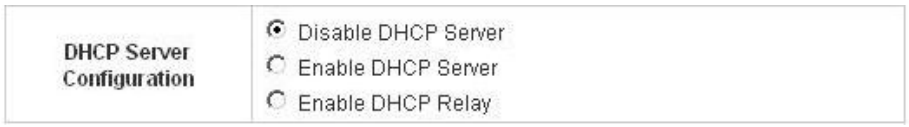
IP Address: Enter the desired IP address for the interface of the controlled port.

Subnet Mask: Enter the desired subnet mask for the controlled port.

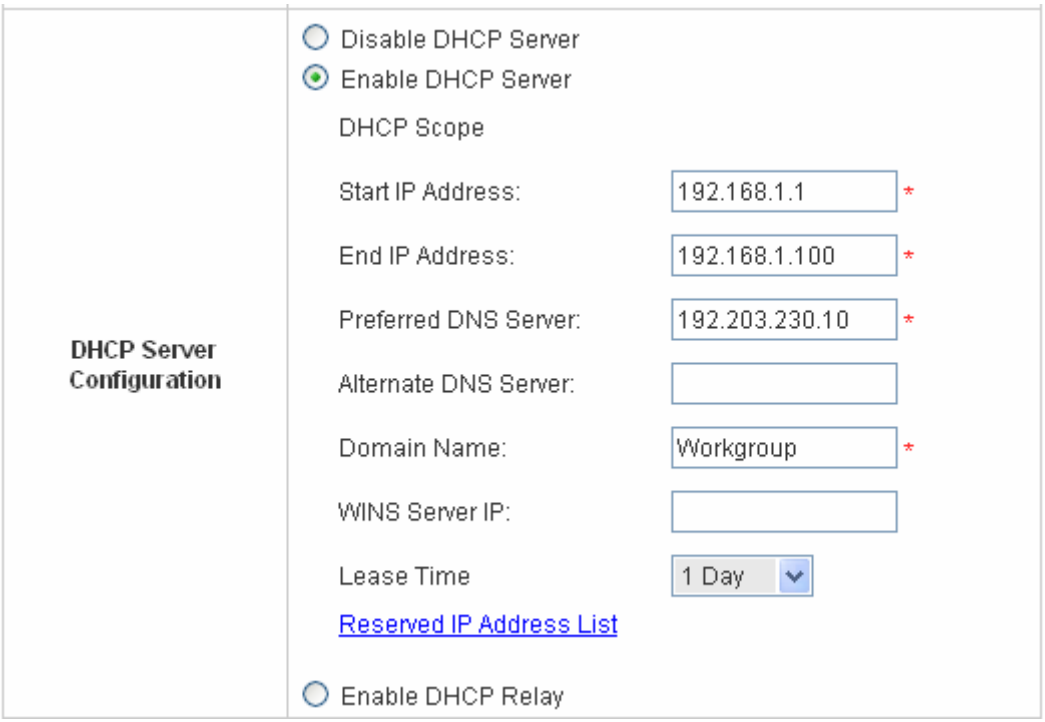
- **DHCP Server Configuration**

There are three types of DHCP server methods: **Disable DHCP Server**, **Enable DHCP Server** and **Enable DHCP Relay**.

1. **Disable DHCP Server:** Disable DHCP Server function of Edimax AC-M3000.



2. **Enable DHCP Server:** Choose **Enable DHCP Sever** function and set the appropriate configuration for the built-in DHCP server of Edimax AC-M3000. The fields with red asterisks are required. Please fill in these fields.



DHCP Scope: Enter the **"Start IP Address"** and the **"End IP Address"**. **Start IP Address** means the fist IP address of the DHCP scope. **End IP Address** means the last IP address of the DHCP scope. These two settings define the IP address range that will be assigned to the clients' of Controlled Port.

Preferred DNS Server: This means the primary DNS server for the DHCP of Controlled Port.

Alternate DNS Server: This means the substitute DNS server for the DHCP of Controlled Port.

Domain Name: This means the domain name of Controlled Port.

WINS Server IP: This means the IP address of the WINS server if used.

Lease Time: This means the time period that IP addresses got from the DHCP server are valid and available.

Reserved IP Address List: For the detail setting of Reserved IP Address List, please click the hyperlink of ***Reserved IP Address***. After clicking, the Reserved IP Address List as shown in the following figure will appear. Enter the related **Reserved IP Address**, **MAC**, and **Description** (not compulsory). When finished, click ***Apply*** to complete the setting.

Reserved IP Address List - Controlled			
Item	Reserved IP Address	MAC	Description
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
(Total:40) First Prev Next Last			

Enable DHCP Relay: The DHCP Server IP address must be entered when this function is enabled. For more details about DHCP Relay, please see ***Appendix G—DHCP Relay.***

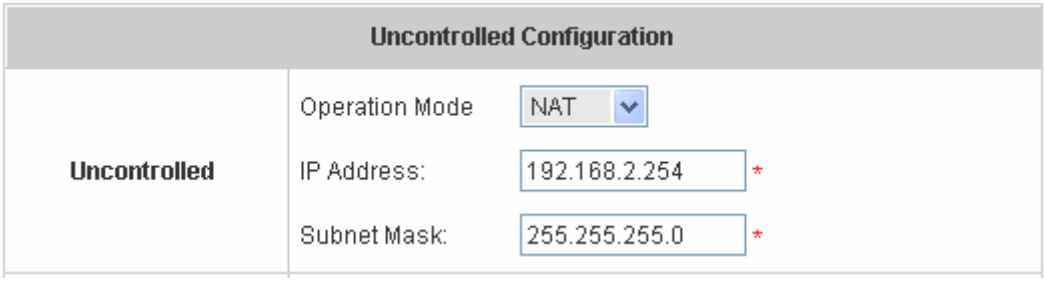
DHCP Server Configuration	○ Disable DHCP Server ○ Enable DHCP Server ◉ Enable DHCP Relay DHCP Server IP *

4.1.7 Uncontrolled Configuration

The clients of Uncontrolled Port don't need authentication before they can access the network. In this section, you can set the related configuration of Uncontrolled Port.

Uncontrolled Configuration	
Uncontrolled	Operation Mode: NAT IP Address: 192.168.2.254 * Subnet Mask: 255.255.255.0 *
DHCP Server Configuration	◉ Disable DHCP Server ○ Enable DHCP Server ○ Enable DHCP Relay

- **Uncontrolled**



Operation Mode: Choose one of the two modes, **NAT** mode and **Router** mode, according to requirements.

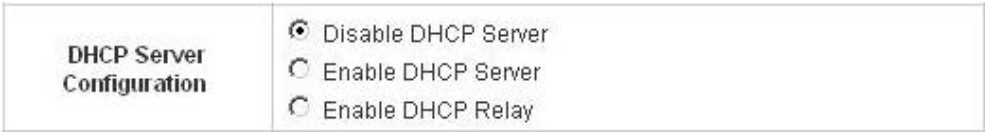
IP Address: Enter the desired IP address for the interface of the controlled port.

Subnet Mask: Enter the desired subnet mask for the controlled port.

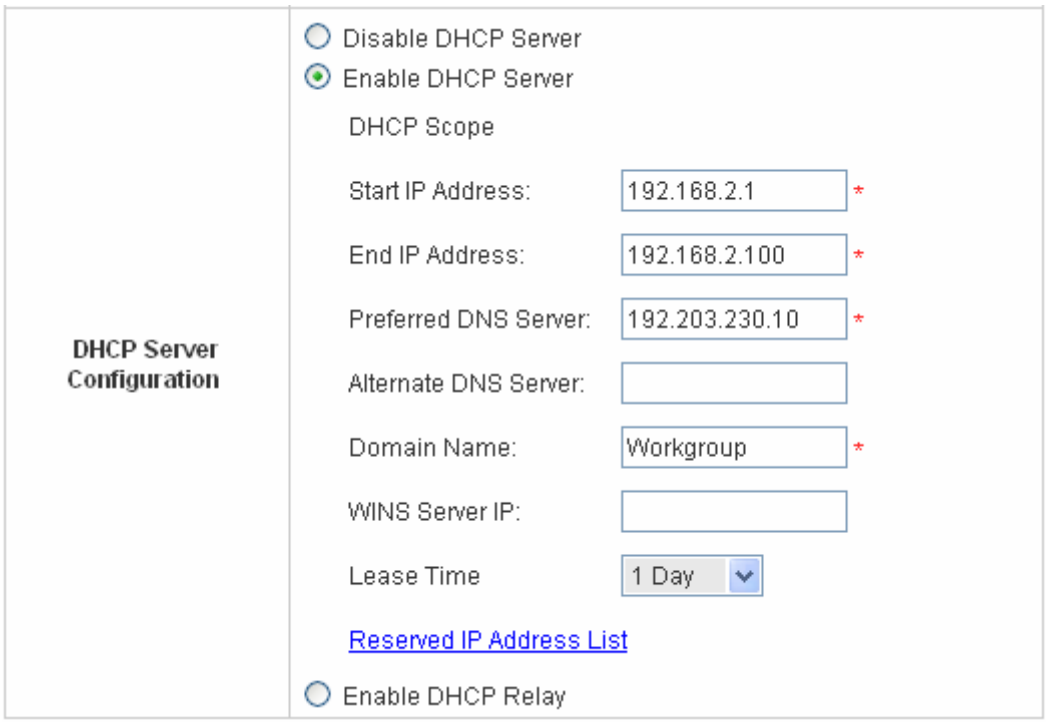
- **DHCP Server Configuration**

  There are three types of DHCP server methods: **Disable DHCP Server**, **Enable DHCP Server** and **Enable DHCP Relay**.

  1. **Disable DHCP Server:** Disable DHCP Server function of Edimax AC-M3000.



  2. **Enable DHCP Server:** Choose **Enable DHCP Sever** function and set the appropriate configuration for the built-in DHCP server of Edimax AC-M3000. The fields with red asterisks are required. Please fill in these fields.



DHCP Scope: Enter the **"Start IP Address"** and the **"End IP Address"**. **Start IP Address** means the fist IP address of the DHCP scope. **End IP Address** means the last IP address of the DHCP scope. These two settings define the IP address range that will be assigned to the clients' of Uncontrolled Port.

Preferred DNS Server: This means the primary DNS server for the DHCP of Uncontrolled Port.

Alternate DNS Server: This means the substitute DNS server for the DHCP of Uncontrolled Port.

Domain Name: This means the domain name of Uncontrolled Port.

WINS Server IP: This means the IP address of the WINS server if used.

Lease Time: This means the time period that IP addresses got from the DHCP server are valid and available.

Reserved IP Address List: For the detail setting of Reserved IP Address List, please click the hyperlink of ***Reserved IP Address***. After clicking, the Reserved IP Address List as shown in the following figure will appear. Enter the related **Reserved IP Address**, **MAC**, and **Description** (not compulsory). When finished, click ***Apply*** to complete the setting.

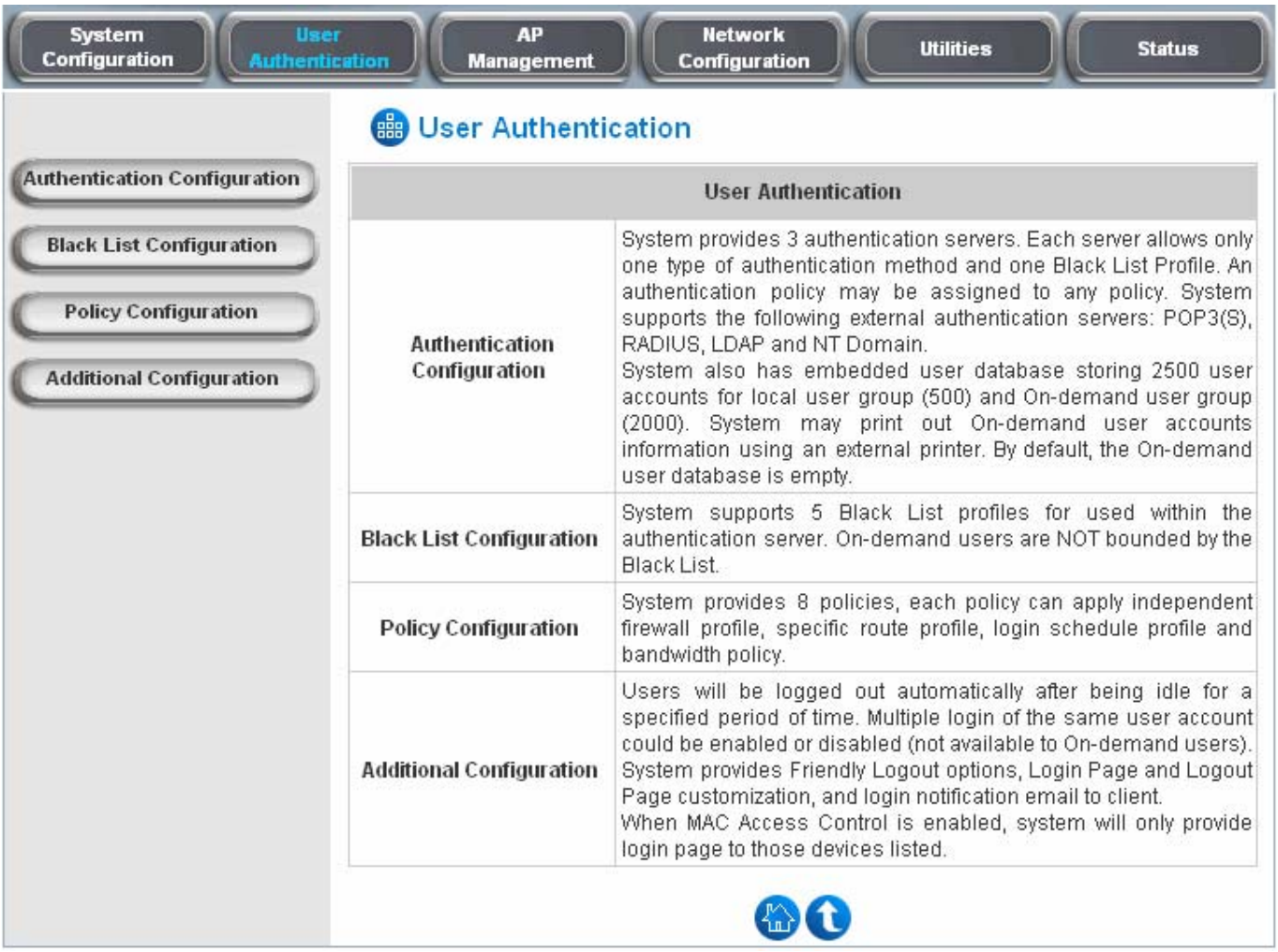
Reserved IP Address List - Uncontrolled			
Item	Reserved IP Address	MAC	Description
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
(Total:40) First Prev Next Last			

Enable DHCP Relay: The DHCP Server IP address must be entered when this function is enabled. For more details about DHCP Relay, please see ***Appendix G—DHCP Relay.***

DHCP Server Configuration	○ Disable DHCP Server ○ Enable DHCP Server ◉ Enable DHCP Relay DHCP Server IP *

4.2 User Authentication

This section includes the following functions: **Authentication Configuration**, **Black List Configuration**, **Policy Configuration**, and **Additional Configuration**.



4.2.1 Authentication Configuration

This function is used to configure the settings of authentication servers. Edimax AC-M3000 supports five types of authentication methods: Local User, POP3, Radius, LDAP, and NTDomain and provides up to three authentication servers and one on-demand user authentication server. Click the server name to set the related configurations for that particular authentication server. Without typing the postfix is allowed to fasten the login process when clients log into the default authentication server

Authentication Server Configuration					
Server Name	Auth Method	Postfix	Policy	Default	Enabled
Server 1	LOCAL	Postfix1	Policy 1	○	☐
Server 2	LOCAL	Postfix2	Policy 1	○	☐
Server 3	LOCAL	Postfix3	Policy 1	○	☐
On-demand User	ONDEMAND	ondemand	Policy 1	◉	☑

- **Server 1~3:** There are 5 kinds of authentication methods that Edimax AC-M3000 supports: Local User, POP3, RADIUS, LDAP and NTDomain. Click the server name to enter the **Authentication Server** page.

Authentication Server - Server 1	
Server Name	Server 1 *(Its server name)
Server Status	Enabled
Postfix	1 *(Its postfix name)
Black List	None
Authentication Method	Local User — Local User Setting
Policy	Policy A

Server Name: Set a name for the server using numbers (0 to 9), alphabets (a to z or A to Z), dash (-), underline (_) and dot (.) with a maximum of 40 characters, all other letters are not allowed.

Sever Status: The status shows that the server is enabled or disabled.

Postfix: Set a postfix that is easy to identify (e.g. Local) for the server by using numbers (0 to 9), alphabets (a to z or A to Z), dash (-), underline (_) and dot (.) with a maximum of 40 characters, all other letters are not allowed.

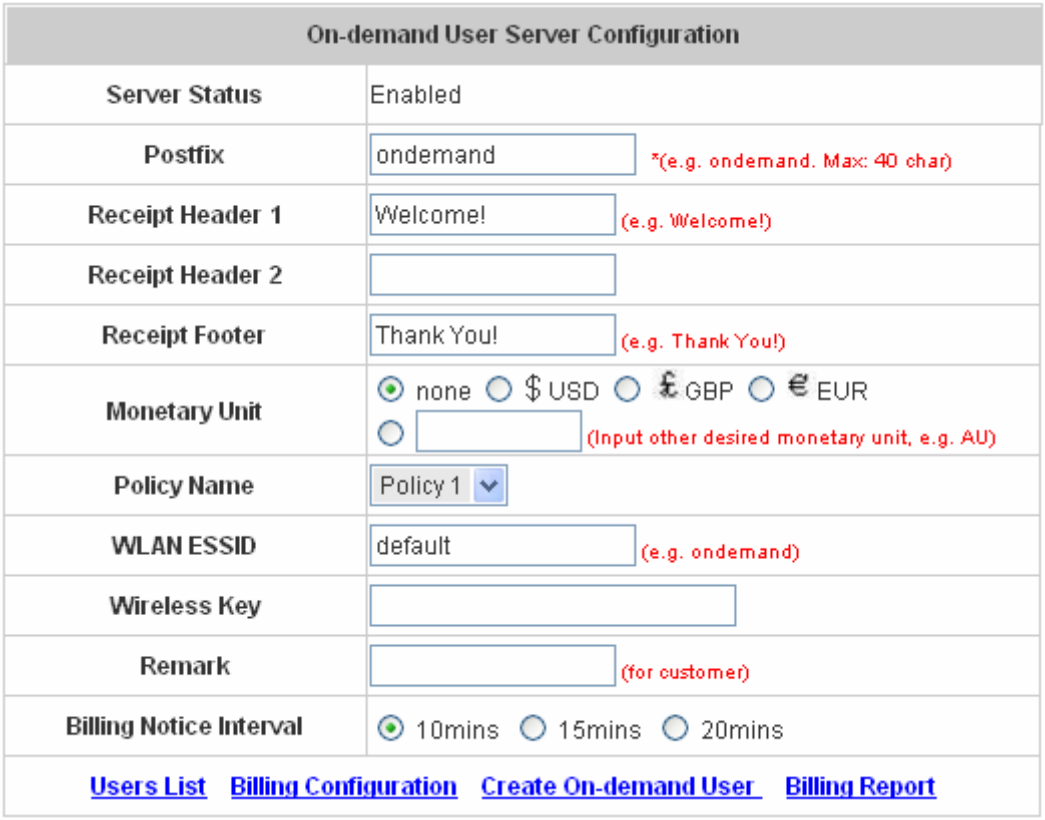
Black List: There are 5 sets of black lists. Select one of them or choose **"None"**. Please refer to **4.2.2 Black List Configuration** for more information.

Authentication Method: There are 5 authentication methods that Edimax AC-M3000 supports: **Local**, **POP3**, **Radius**, **LDAP** and **NTDomain**. Select the desired authentication method and then click the link next to the drop-down menu for more advanced configuration. For more details, please refer to **4.2.1.1~5 Authentication Configuration**.

Notice: *Enabling two or more servers of the same authentication method is not allowed.*

Policy: There are 8 policies that can be chosen from to apply to this particular server.

- **On-demand User:** When the customers need to use wireless Internet service in stores, they have to get printed receipts with usernames and passwords from the store to log in the system for wireless access. There are 2000 On-demand User accounts available.



Server Status: The status shows that the server is enabled or disabled.

Postfix: Set a postfix that is easy to identify (e.g. Local) for the server by using numbers (0 to 9), alphabets (a to z or A to Z), dash (-), underline (_) and dot (.) with a maximum of 40 characters, all other letters are not allowed.

Receipt Header: There are two fields, **Receipt Header 1** and **Receipt Header 2**, for the receipt's header. Enter receipt header message or use the default.

Receipt Footer: Enter receipt footer message here or use the default.

Monetary Unit: Select or enter the desired monetary unit.

Policy Name: Select a policy for the on-demand user.

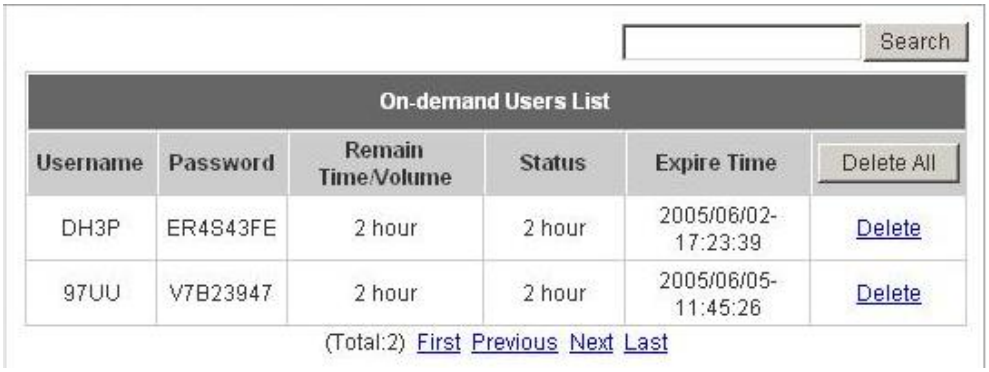
WLAN ESSID: Enter the ESSID of APs.

Wireless Key: Enter the Wireless key of APs.

Remark: Enter any additional information that will appear at the bottom of the receipt.

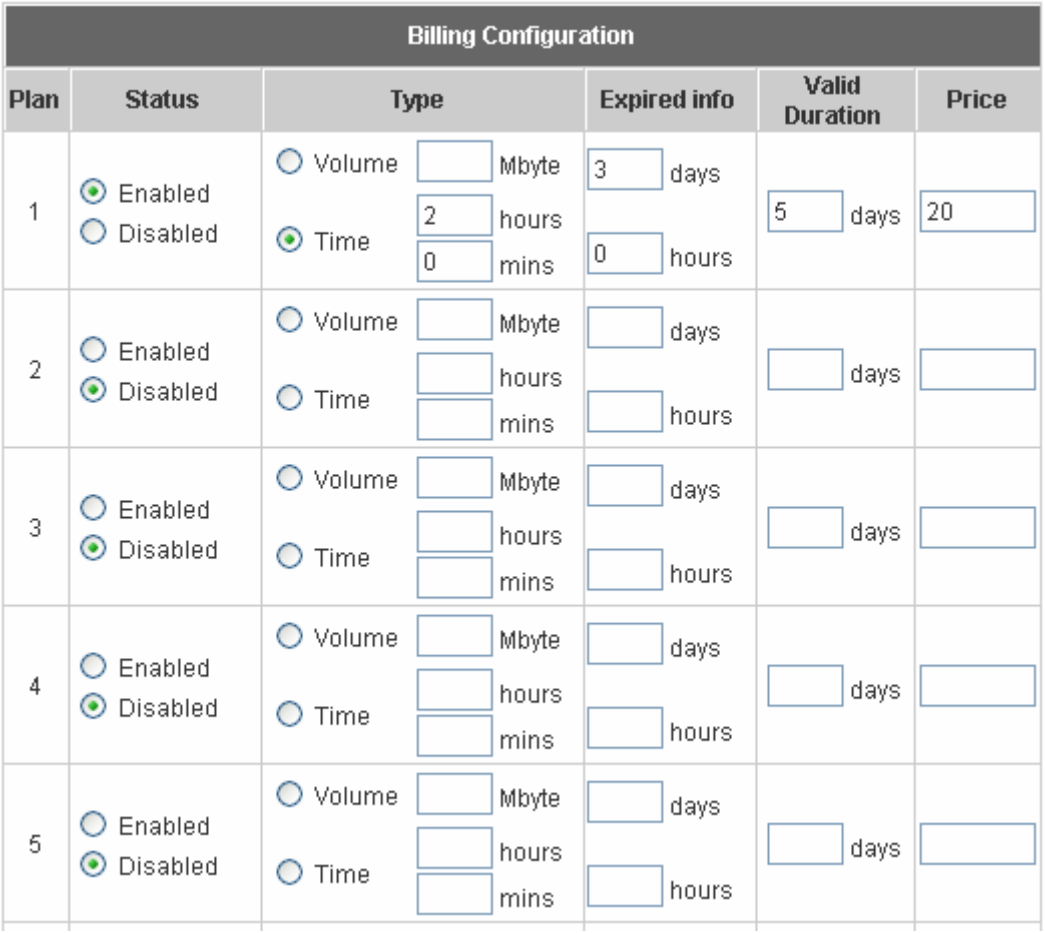
Billing Notice Interval: While an on-demand user is still logged in, the system will update the billing notice of the login successful page by the time interval defined here.

Users List: Click to enter the **On-demand Users List** page. In the **On-demand Users List**, detailed information will be shown here.



- **Search:** Enter a keyword of a username to be searched in the text field and click this button to perform the search. All usernames matching the keyword will be listed.
- **Username:** The login name of the on-demand user.
- **Password:** The login password of the on-demand user.
- **Remain Time/Volume:** The total time/Volume that the user still can use currently.
- **Status:** The status of the on-demand account. Normal indicates that the account is not in-use and not overdue. Online indicates that the account is in-use and not overdue. Expire indicates that the account is overdue and cannot be used.
- **Expire Time:** The expiration time of the account.
- **Delete All:** This will delete all users at once.
- **Delete:** This will delete a specific user individually.

Billing Configuration: Click this to enter the **Billing Configuration** page. In the **Billing Configuration** page, the administrator may configure up to 10 billing plans.



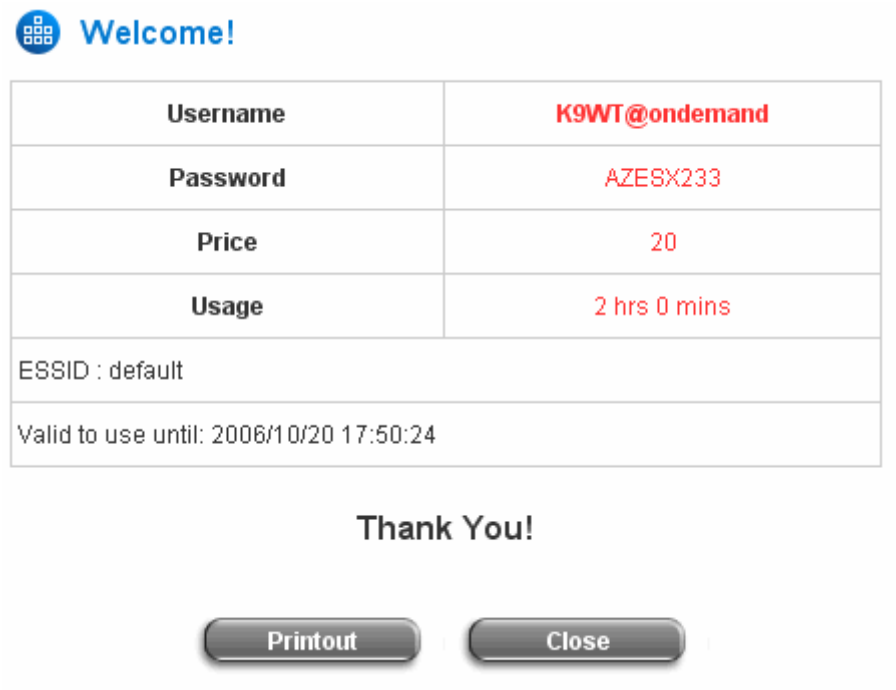
Billing Configuration					
Plan	Status	Type	Expired info	Valid Duration	Price
1	◉ Enabled ○ Disabled	○ Volume [ ] Mbyte ◉ Time [2] hours [0] mins	[3] days [0] hours	[5] days	[20]
2	○ Enabled ◉ Disabled	○ Volume [ ] Mbyte ○ Time [ ] hours [ ] mins	[ ] days [ ] hours	[ ] days	[ ]
3	○ Enabled ◉ Disabled	○ Volume [ ] Mbyte ○ Time [ ] hours [ ] mins	[ ] days [ ] hours	[ ] days	[ ]
4	○ Enabled ◉ Disabled	○ Volume [ ] Mbyte ○ Time [ ] hours [ ] mins	[ ] days [ ] hours	[ ] days	[ ]
5	○ Enabled ◉ Disabled	○ Volume [ ] Mbyte ○ Time [ ] hours [ ] mins	[ ] days [ ] hours	[ ] days	[ ]

- **Status:** Select to enable or disable this billing plan.
- **Type:** Set the billing plan by **"Volume"** (the maximum volume allowed is 9999999 Mbytes) or **"Time"** (the maximum time allowed is 999 hours and 59 minutes).
- **Expired info:** This is the duration of time that the user needs to activate the account after the generation of the account. If the account is not activated during this duration, the account will self-expire.
- **Valid Duration:** This is the duration of time that the user can use the account after the activation of the account. After this duration, the account will self-expire.
- **Price:** The price charged for this billing plan.

Create On-demand User: Click this to enter the **Create On-demand User** page.

Create On-demand User				
Plan	Type	Price	Status	Function
1	2 hrs 0 mins	20	Enabled	Create
2	N/A	N/A	Disabled	Create
3	N/A	N/A	Disabled	Create
4	N/A	N/A	Disabled	Create
5	N/A	N/A	Disabled	Create
6	N/A	N/A	Disabled	Create
7	N/A	N/A	Disabled	Create
8	N/A	N/A	Disabled	Create
9	N/A	N/A	Disabled	Create
0	N/A	N/A	Disabled	Create

Pressing the ***Create*** button for the desired plan, an on-demand user will be created, then click ***Printout*** to print a receipt which will contain this on-demand user's information. There are 2000 on-demand user accounts available.



Billing Report: Click this to enter the **On-demand users Summary report** page. In **On-demand users**

Summary report page, the administrator can get a complete report or a report within a particular period.

- **Report All:** Click this to get a complete report including all the on-demand records. This report shows the total expenses and individual accounting of each plan for all plans available.

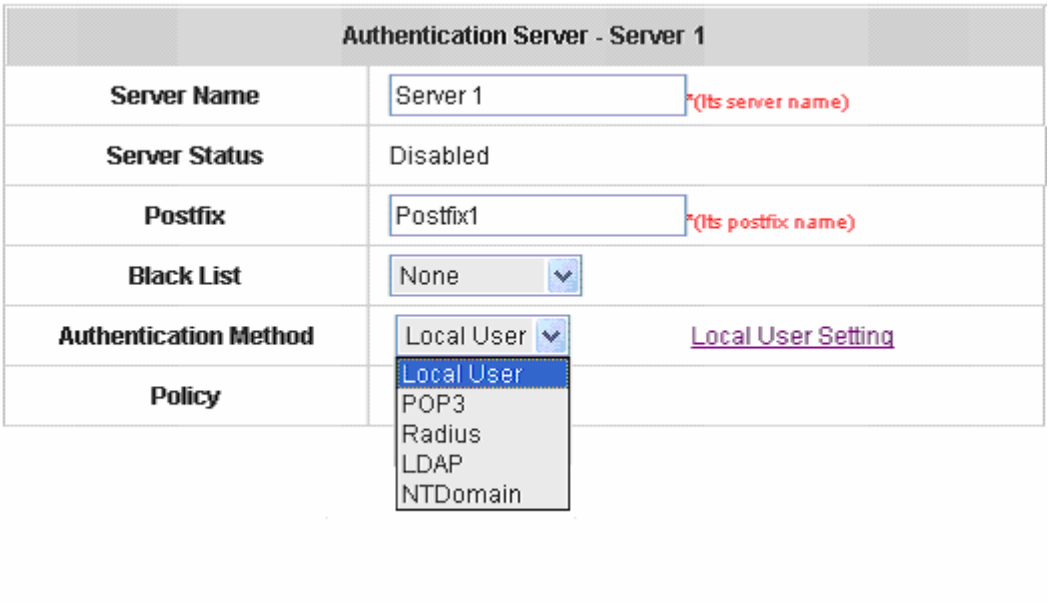
Report All	
Accounts sold in total	2
Plan1	2
Plan2	0
Plan3	0
Plan4	0
Plan5	0
Plan6	0
Plan7	0
Plan8	0
Plan9	0
Plan10	0
Total income	40
Income from tickets sold for time users	40
Income from tickets sold for volume users	0

- **Search:** Select a time period to get a periodical report. The report tells the total expenses and individual accounting of each plan for all plans available for that period of time.

Report from 2005/06/25 ~ 2005/06/28	
Accounts sold in total	2
Plan1	2
Plan2	0
Plan3	0
Plan4	0
Plan5	0
Plan6	0
Plan7	0
Plan8	0
Plan9	0
Plan10	0
Total income	40
Income from tickets sold for time users	40
Income from tickets sold for volume users	0

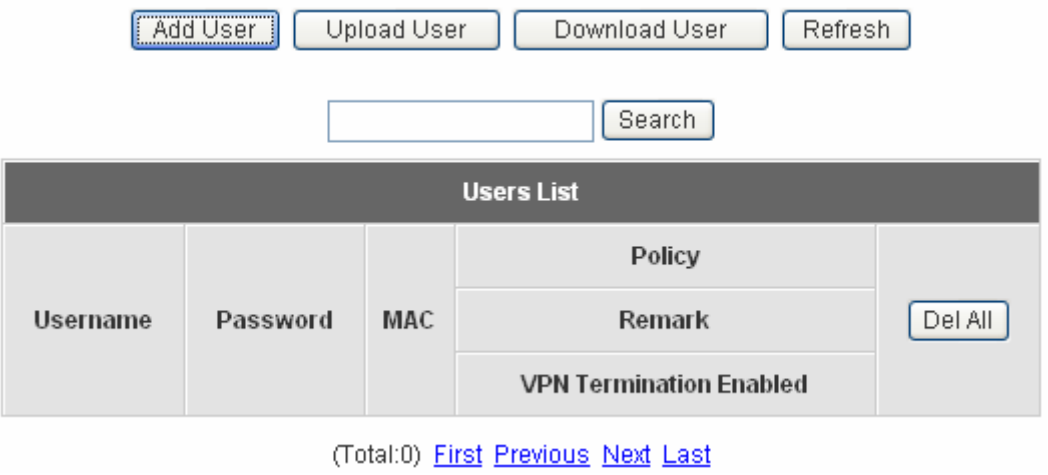
4.2.1.1 Authentication Method – Local User Setting

Choose **Local User** in the **Authentication Method** field, the hyperlink besides the drop-down menu will become to **Local User Setting**.



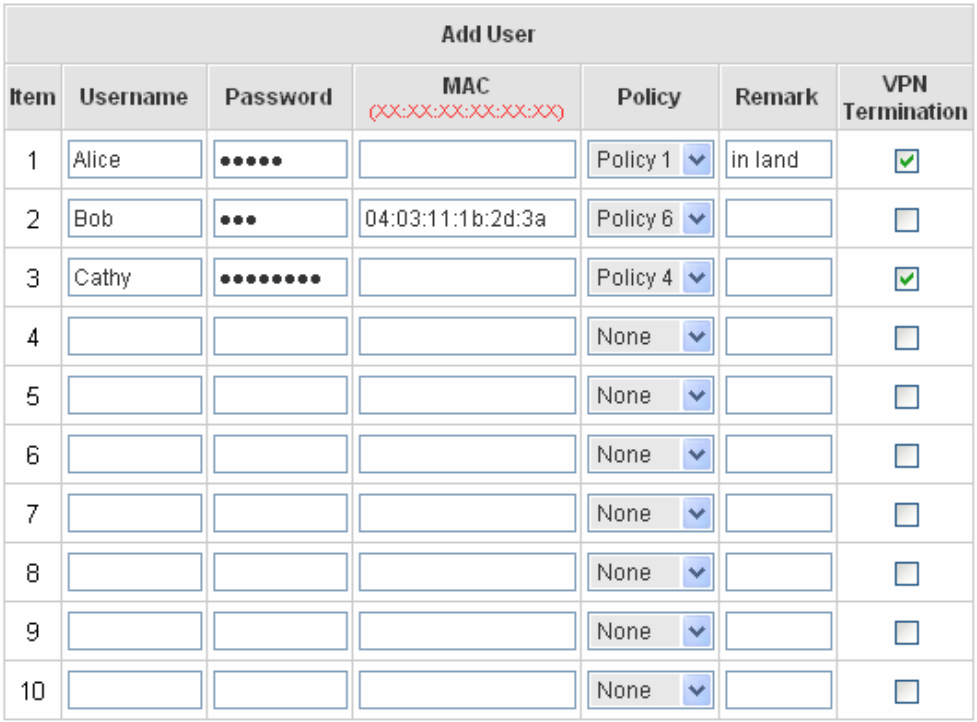
Click the hyperlink of **Local User Setting** for further configuration.

- **Edit Local User List:** Click the hyperlink of **Edit User Setting** to enter the **Local User List** page.

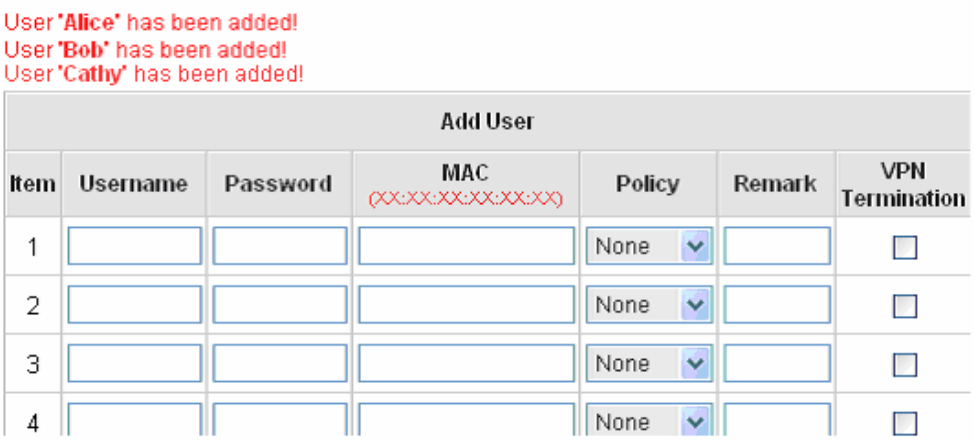


- **Add User:** Click this to enter the **Add User** interface. Fill in the necessary information such as **"Username"**, **"Password"**, **"MAC"** (optional) and **"Remark"** (optional). Select a desired **Policy**, check whether to enable

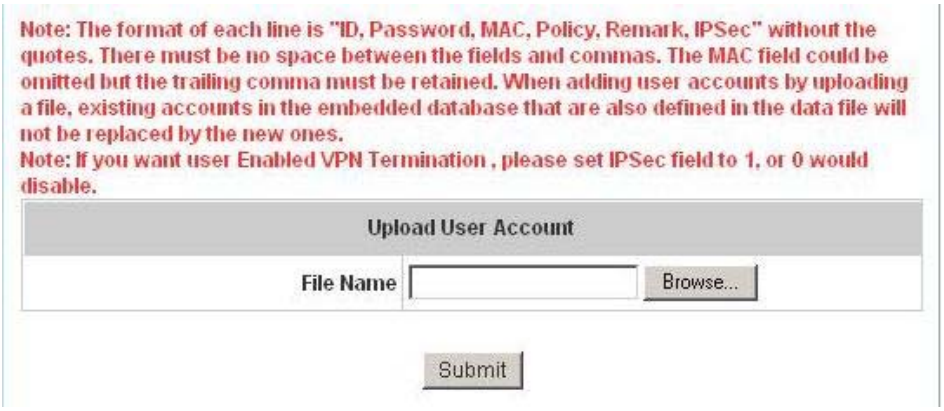
VPN Termination.



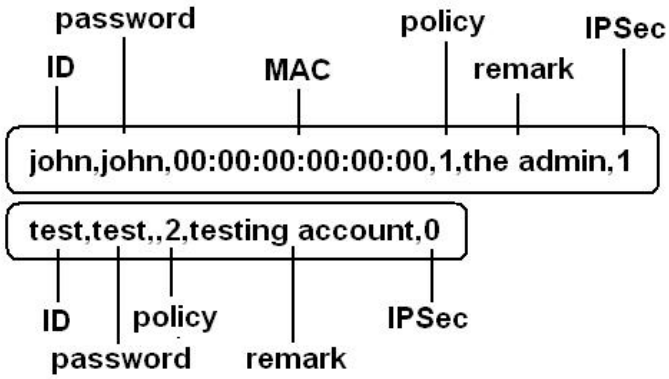
Click Apply to save all the settings after finishing to add users.



Upload User: Click this to enter the **Upload User** interface. Click the ***Browse*** button to select the text file for uploading the user accounts. Then click ***Submit*** to complete the upload process.



The uploading file should be a text file and the format of each line is ***"ID, Password, MAC, Policy, Remark, IPSec"*** without the quotes. There must be no spaces between the fields and commas. The MAC field could be omitted but the trailing comma must be retained. The Group field indicates policy number to use. When adding user accounts by uploading a file, the existing accounts in the embedded database will not be replaced by new ones. If you want user Enable VPN Termination, please set **IPSec** field to 1 to enable VPN, or 0 to disable VPN.



Download User: Click this to enter the **Users List** page and the system will directly show a list of all created user accounts. Click ***Download*** to create a .txt file and then save it on the disk.

Users List			
Username	Password	MAC	Policy Remark VPN Termination Enabled
Alice	alice		1 in land 1
Bob	123	04:03:11:1b:2d:3a	6 0
Cathy	asdfasdasdf		4 0

Download

Refresh: Click this to renew the **Users List** page.

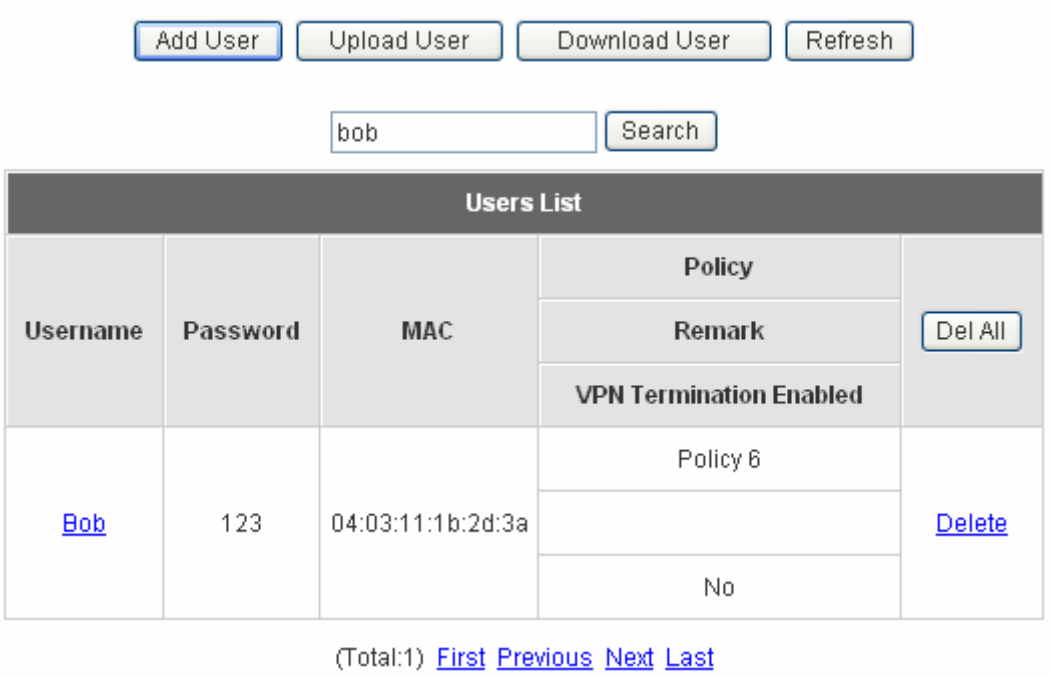
Add User | Upload User | Download User | Refresh

Search

Users List				
Username	Password	MAC	Policy Remark VPN Termination Enabled	Del All
Alice	alice		Policy 1 in land Yes	Delete
Bob	123	04:03:11:1b:2d:3a	Policy 6 No	Delete
Cathy	asdfasdasdf		Policy 4 No	Delete
Allen	al135		Policy 2 Yes	Delete

Search: Enter a keyword of a username that you want to search and click this button to perform the search. All

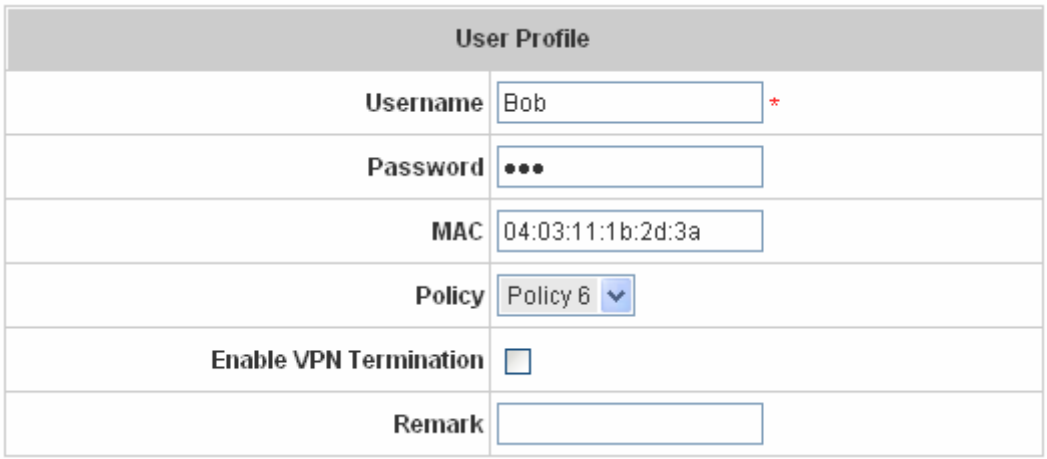
usernames matching the keyword will be listed.



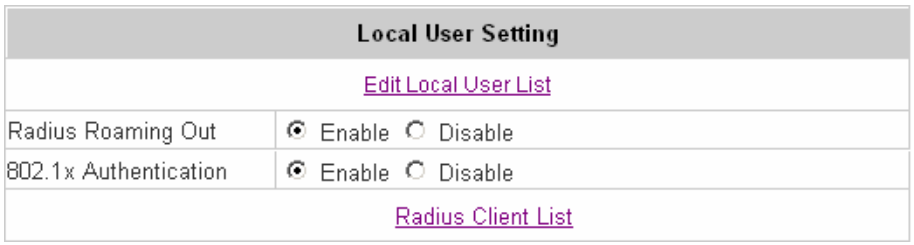
Del All: This will delete all users at once.

Delete: This will delete a specific user individually.

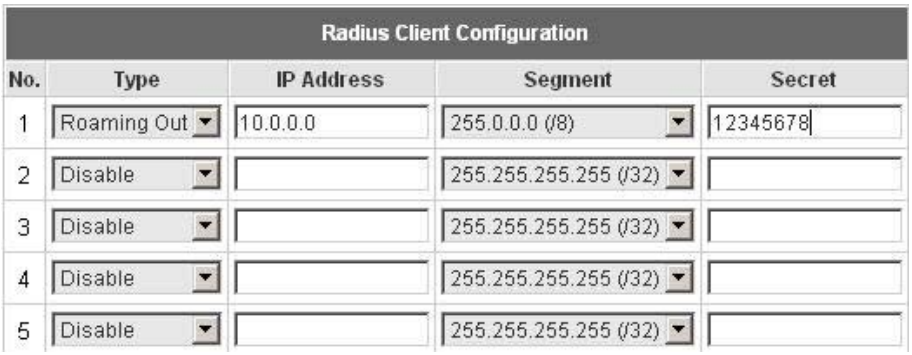
Edit User: If you want to edit the content of an individual user account, click the username of the desired user account to enter the **User Profile** page of the particular user, and then modify or add any desired information such as **Username**, **Password**, **MAC** (optional), **Policy** and **Remark** (optional). Then check **VPN Termination** to enable this function or not. Click ***Apply*** to complete the modification.



- **Radius Roaming Out / 802.1x Authentication: Radius Roaming Out / 802.1x Authentication:** These 2 functions can be enabled or disabled by checking the radio buttons. Checking either of them makes the hyperlink of ***Radius Client List*** appear.



Click the hyperlink of ***Radius Client List*** to enter the **Radius Client Configuration** page. Choose the desired type, **Disable**, **Roaming Out** or **802.1x** and key in the related data and then click ***Apply*** to complete the configurations.

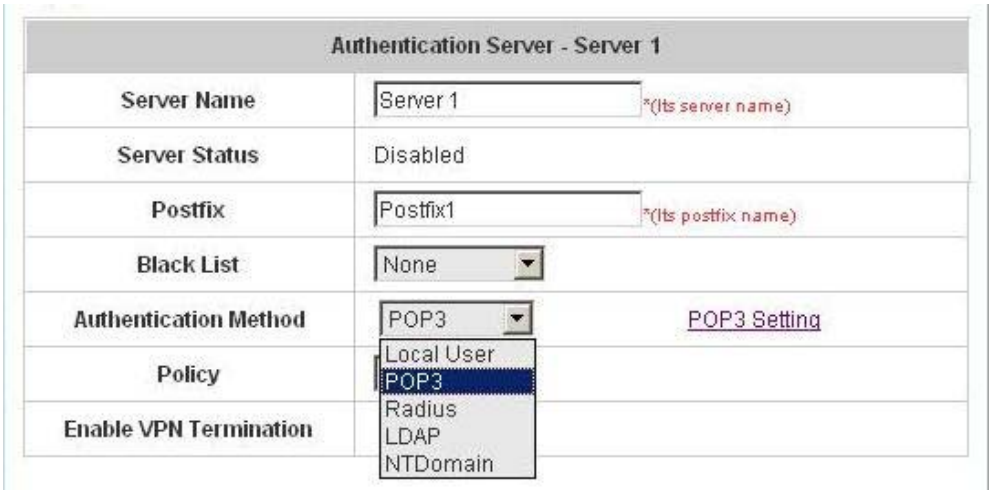


Radius Roaming Out: When **Radius Roaming Out** is enabled, local users can login from other domains by using their original local user accounts.

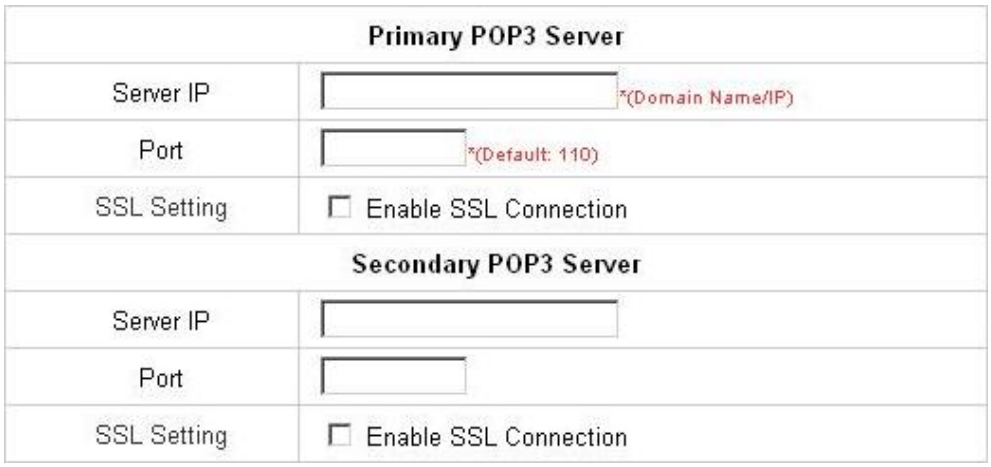
802.1x Authentication: 802.1x is a security standard for wired and wireless LANs. It encapsulates EAP (Extensible Authentication Protocol) processes into Ethernet packets instead of using the protocol's native PPP (Point-to-Point Protocol) environment, thus reducing some network overhead. It also puts the bulk of the processing burden upon the client (called a supplicant in 802.1x parlance) and the authentication server (such as a RADIUS), letting the "authenticator" middleman simply pass the packets back and forth.

4.2.1.2 Authentication Method – POP3

Choose **POP3** in the **Authentication Method** field, the hyperlink next to the drop-down menu will become **POP3 Setting**.



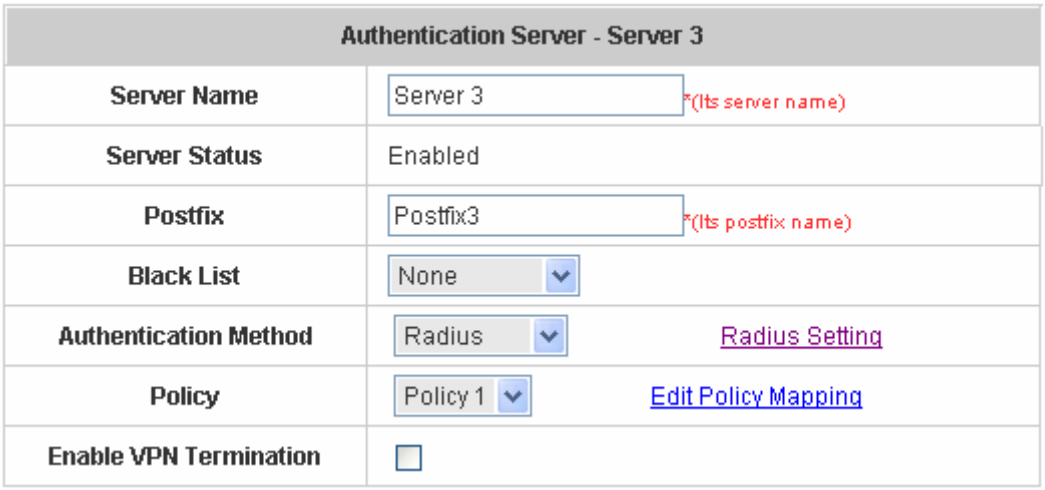
When **POP3**, **Radius**, **LDAP** or **NTDomain** is selected from the drop-down memu, the function of **Enable VPN Termination** will show up. Check **Enable VPN Termination** to enable this function. Click the hyperlink of **POP3 Setting** for further configuration. Enter the related information of the primary server and/or the secondary server (the secondary server is not required). The blanks with red asterisks are necessary information. These settings will become effective immediately after clicking the ***Apply*** button.



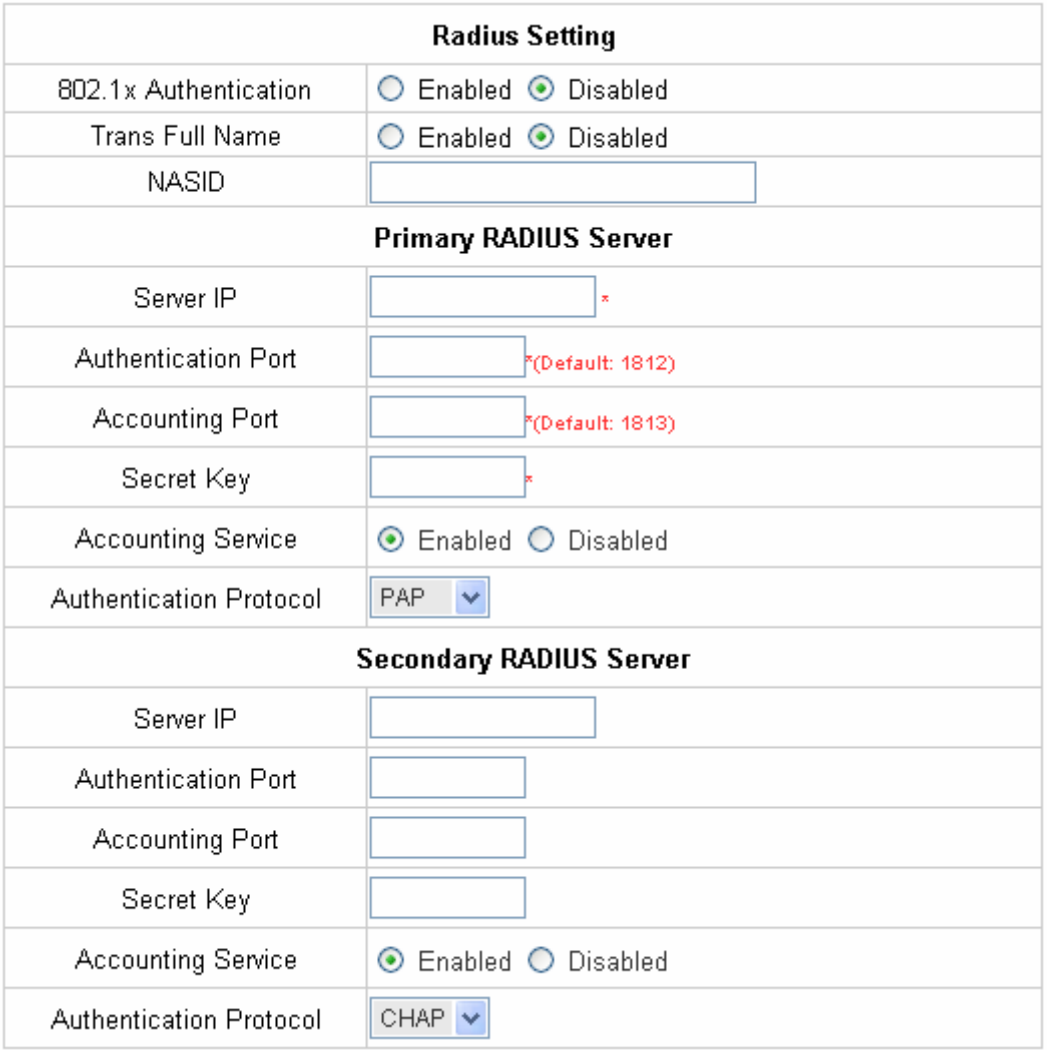
- **Server IP:** Enter the IP address/domain name given by the ISP.
- **Port:** Enter the Port given by the ISP. The default value is 110.
- **Enable SSL Connection:** If this function is enabled, the POP3s protocol will be used to encrypt the authentication.

4.2.1.3 Authentication Method – Radius

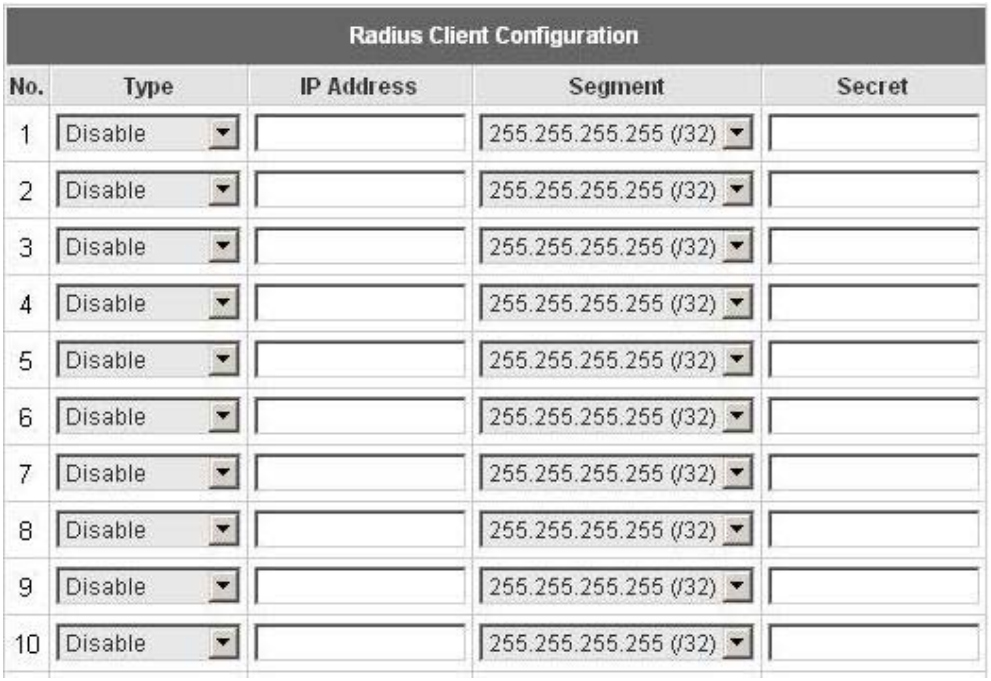
Choose **Radius** in the **Authentication Method** field, the hyperlink next to the drop-down menu will become to **Radius Setting**.



When **POP3**, **Radius**, **LDAP** or **NTDomain** is selected from the drop-down memu, the function of **Enable VPN Termination** will show up. Check **Enable VPN Termination** to enable this function. Click the hyperlink of **Radius Setting** for further configuration. Enter the related information of the primary server and/or the secondary server (the secondary server is not required). The blanks with red asterisks are necessary information. These settings will become effective immediately after clicking the ***Apply*** button.

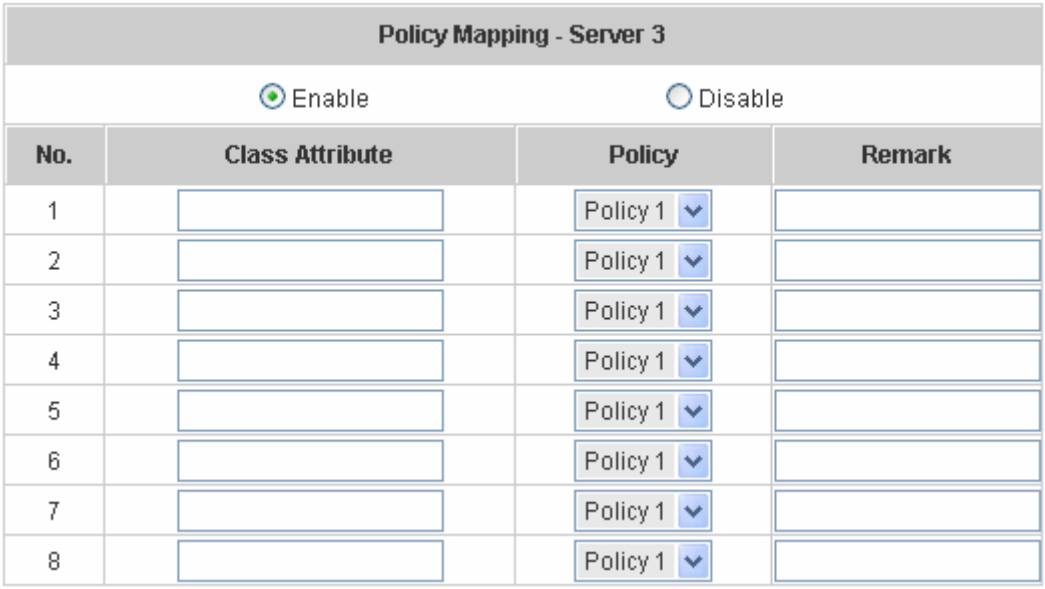


- **802.1X Authentication:** When enabling this function, the hyperlink of ***Radius Client List*** will appear. Click the hyperlink to get into the **Radius Client Configuration** page for further configuration. In the **Radius Client Configuration** page, the clients, which are using 802.1X as the authentication method, shall be put into this table. Edimax AC-M3000 will forward the authentication request from these clients to the configured Radius Server.



Radius Client Configuration				
No.	Type	IP Address	Segment	Secret
1	Disable		255.255.255.255 (/32)	
2	Disable		255.255.255.255 (/32)	
3	Disable		255.255.255.255 (/32)	
4	Disable		255.255.255.255 (/32)	
5	Disable		255.255.255.255 (/32)	
6	Disable		255.255.255.255 (/32)	
7	Disable		255.255.255.255 (/32)	
8	Disable		255.255.255.255 (/32)	
9	Disable		255.255.255.255 (/32)	
10	Disable		255.255.255.255 (/32)	

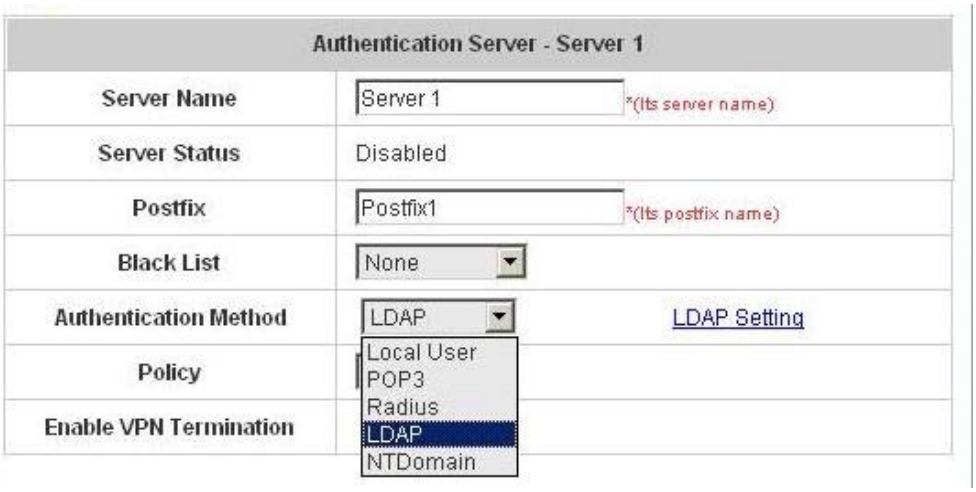
- **Trans Full Name:** When enabled, both the ID and postfix will be transferred to the RADIUS server for authentication. When disabled, only the ID will be transferred to RADIUS server for authentication.
- **NASID:** Enter the NASID of the Edimax AC-M3000 for the RADIUS server.
- **Server IP:** Enter the IP address/domain name of the RADIUS server.
- **Authentication Port:** Enter the authentication port of the RADIUS server and the default value is 1812.
- **Accounting Port:** Enter the accounting port of the RADIUS server and the default value is 1813.
- **Secret Key:** Enter the key for encryption and decryption.
- **Accounting Service:** Choose to enable or disable the accounting service for accounting capabilities.
- **Authentication Protocol:** There are two methods, CHAP and PAP, for selection.
- **Edit Policy Mapping:** Click the hyperlink of **Edit Policy Mapping** to enter the **Policy Mapping** page. Choose to enable or disable policy mapping by RADIUS class attributes.



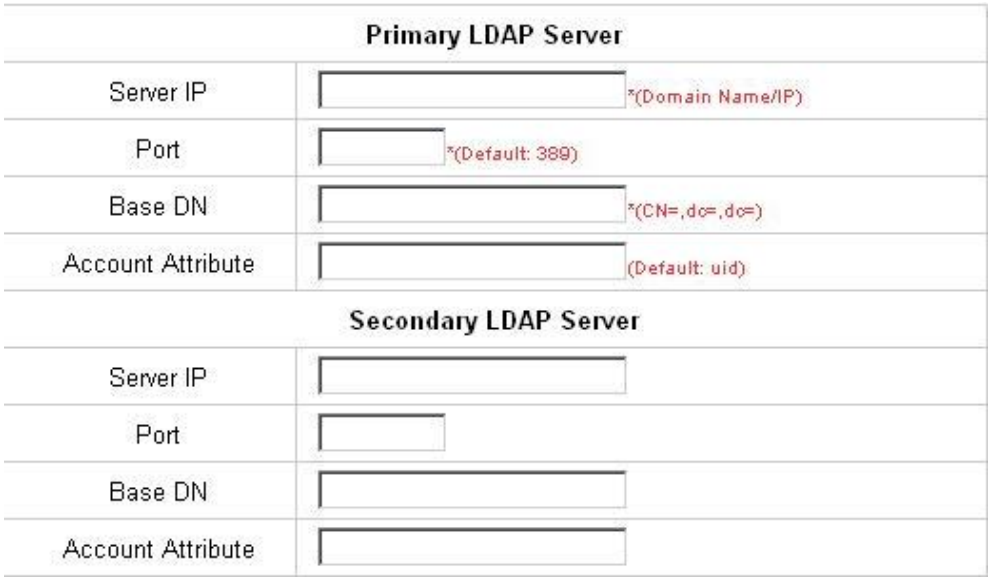
- **Class Attribute:** Class attribute sent from the RADIUS server.
- **Policy:** Select the mapping policy of this class attribute.
- **Remark:** Add some description if needed.

4.2.1.4 Authentication Method – LDAP

Choose **LDAP** in the **Authentication Method** field, the hyperlink next to the drop-down menu will become to **LDAP Setting**.



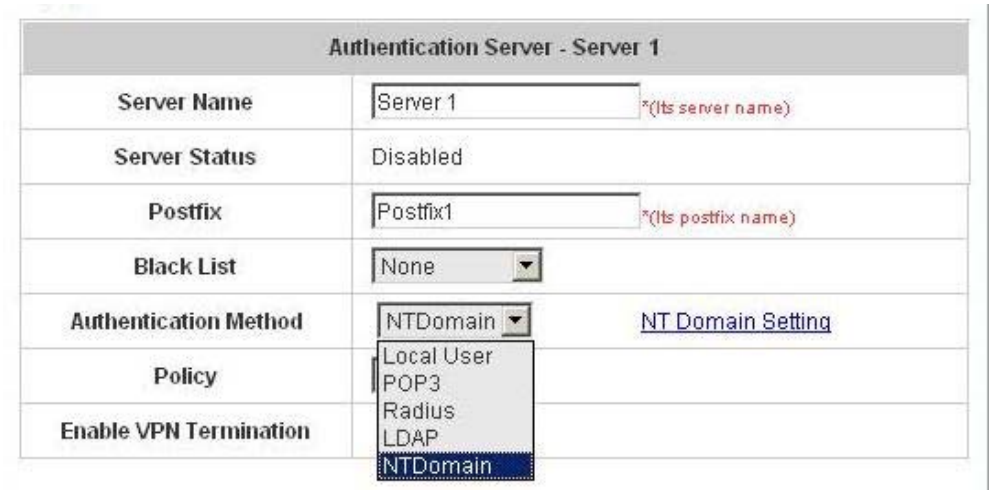
When **POP3**, **Radius**, **LDAP** or **NTDomain** is selected from the drop-down memu, the function of **Enable VPN Termination** will show up. Check **Enable VPN Termination** to enable this function. Click the hyperlink of **LDAP Setting** for further configuration. Enter the related information of the primary server and/or the secondary server (the secondary server is not required). The blanks with red asterisks are necessary information. These settings will become effective immediately after clicking the ***Apply*** button.



- **Server IP:** Enter the IP address/domain name of the LDAP server.
- **Port:** Enter the Port of the LDAP server, and the default value is 389.
- **Base DN:** Enter the base DN defined of the LDAP server.
- **Account Attribute:** Enter the account attribute of the LDAP server.

4.2.1.5 Authentication Method – NTDomain

Choose **NTDomain** in the **Authentication Method** field, the hyperlink next to the drop-down menu will become to **NTDomain Setting**.

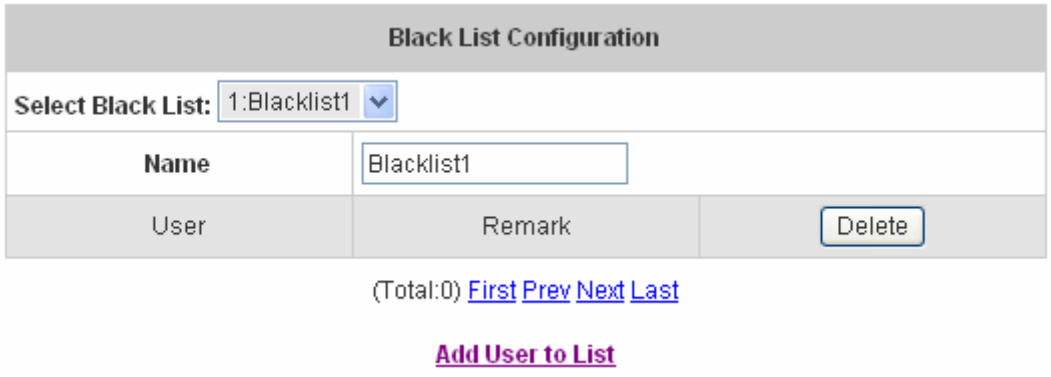


When **POP3**, **Radius**, **LDAP** or **NTDomain** is selected from the drop-down memu, the function of **Enable VPN Termination** will show up. Check **Enable VPN Termination** to enable this function. Click the hyperlink of **NT Domain Setting** for further configuration. Enter the related information of the primary server and/or the secondary server (the secondary server is not required). The blanks with red asterisks are necessary information. These settings will become effective immediately after clicking the ***Apply*** button.

- **Server IP address:** Enter the server IP address of the domain controller.
- **Transparent Login:** If the function is enabled, users will log into Edimax AC-M3000 automatically when they log into the Windows domain and the IP of NT Domain Server should be added into walled garden.

4.2.2 Black List Configuration

The administrator can add, delete, or edit the black list for user access control. Each black list can include 40 users at most. If a user in the black list wants to log into the system, the user's access will be denied. The administrator can use the pull-down menu to select the desired black list to edit adding users into the black list.



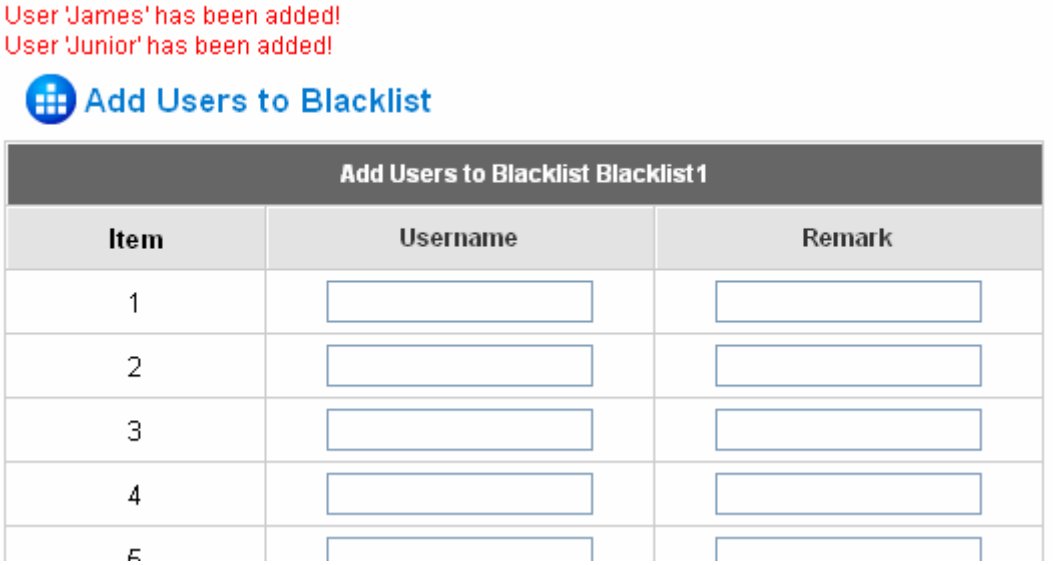
- **Select Black List:** There are 5 lists that Edimax AC-M3000 supports to select from.
- **Name:** Set the name of the black list and it will show in the pull-down menu above.
- **Add User to List:** Click the hyperlink of **Add User to List**, the **Add Users to Blacklist** page will appear for adding users to the selected black list.

Add Users to Blacklist Blacklist1		
No	Username	Remark
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

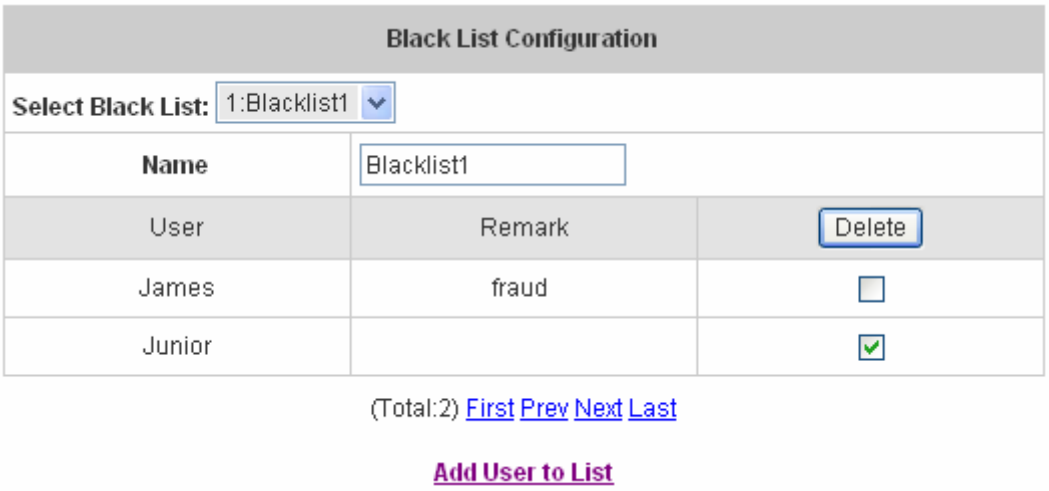
After entering the usernames in the **Username** field and the related information in the **Remark** field (not required).

Add Users to Blacklist Blacklist1		
Item	Username	Remark
1	James	fraud
2	Junior	
3		
4		
5		
6		
7		
8		
9		
10		

Click ***Apply*** to save the settings.

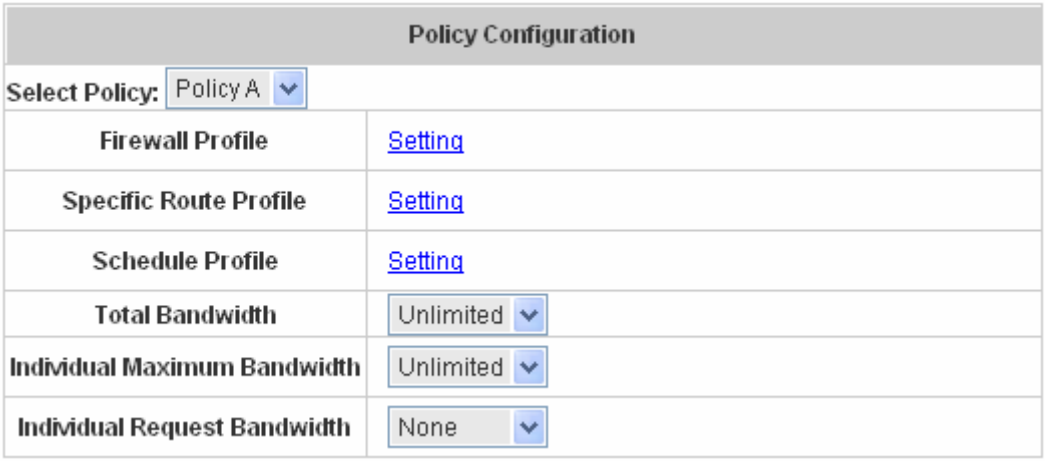


If the administrator wants to remove a user from the black list, just select the user's **"Delete"** check box and then click the ***Delete*** button to remove that user from the black list.



4.2.3 Policy Configuration

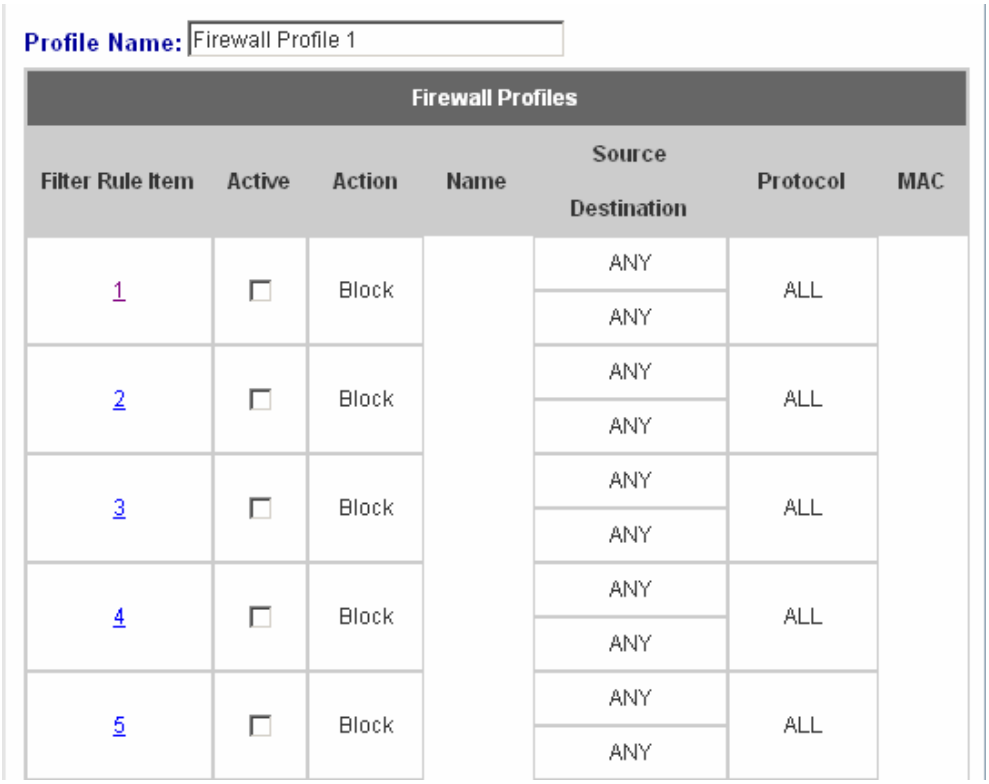
Each policy has three profiles, **Firewall Profile**, **Specific Route Profile**, and **Schedule Profile** as well as **Bandwidth** settings such as **Total Bandwidth**, **Individual Maximum Bandwidth**, and **Individual Request Bandwidth** for that policy.

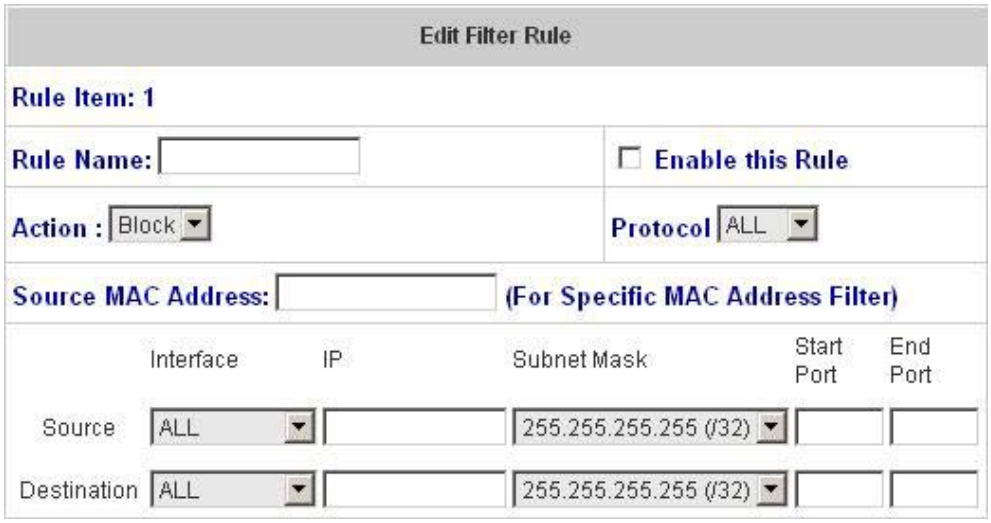


- **Firewall Profile**

  Click the hyperlink of ***Setting*** for **Firewall Profile**, the **Firewall Profile** page will appear. Click the numbers of ***Filter Rule Item*** to edit individual rules and click ***Apply*** to save the settings. The rule status will show on the list. Check **Active** to enable that rule.

Attention: *Filter Rule Item 1 is the highest priority, Filter Rule Item 2 is the second priority, and so on.*





Rule Item: This is the rule selected.

Rule Name: The rule name can be changed here. The rule name can be set to easily identify, for example: ***"from file server"***, ***"HTTP request"*** or ***"to web"***, etc.

Enable this Rule: After checking this function, the rule will be enabled.

Action: There are two options, **Block** and **Pass**. **Block** is to prevent packets from passing and **Pass** is to permit packets passing.

Protocol: There are three protocols to select, **TCP**, **UDP** and **ICMP**, or choose **ALL** to use all three protocols.

Source MAC Address: The MAC address of the source IP address. This is for specific MAC address filter.

Source/Destination Interface: There are four interfaces to choose, **ALL, WAN1**, **WAN2**, **Controlled Port** and **Uncontrolled Port**.

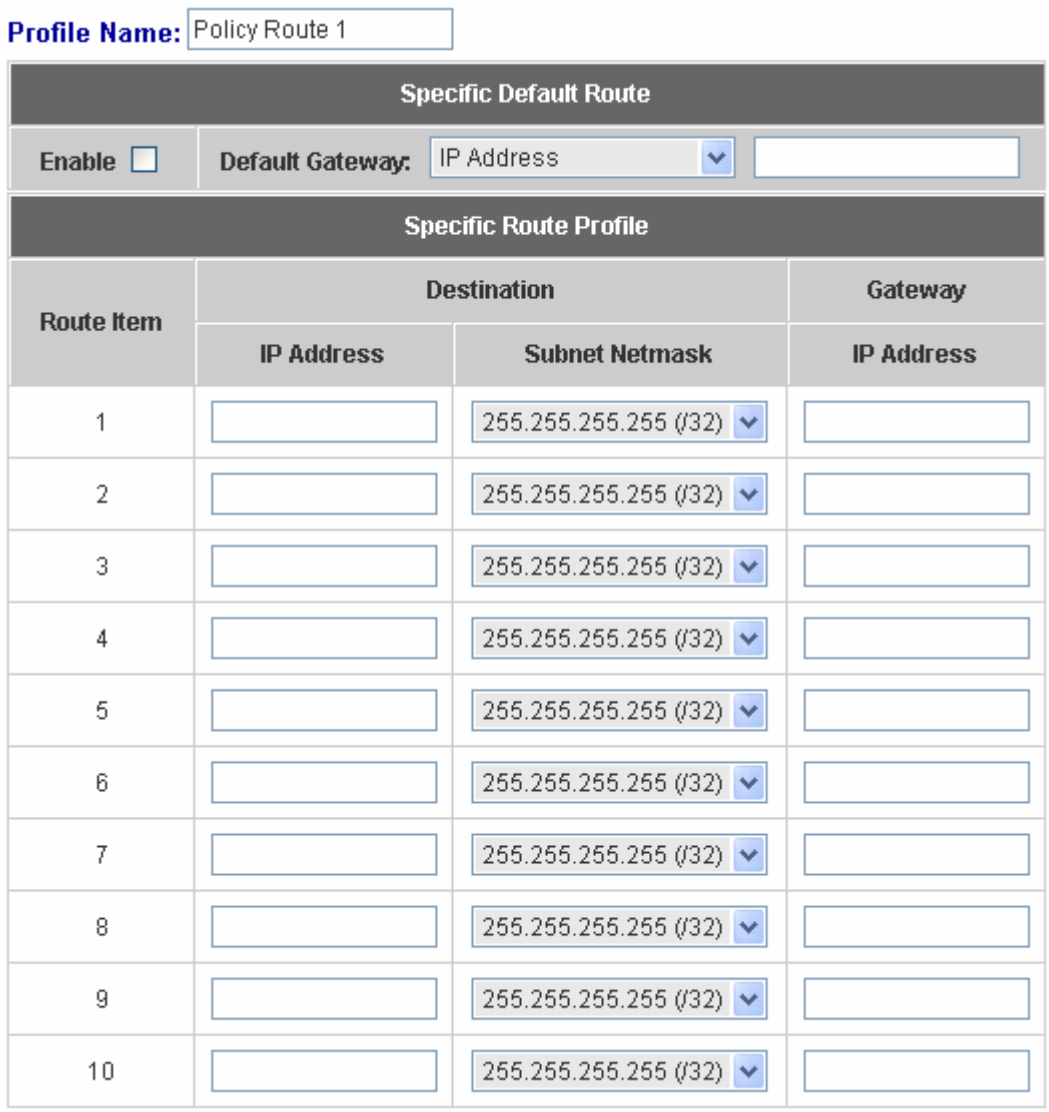
Source/Destination IP: Enter the source and destination IP addresses.

Source/Destination Subnet Mask: Enter the source and destination subnet masks.

Source/Destination Start/End Port: Enter the range of source and destination ports.

- **Specific Route Profile**

  Click the hyperlink of ***Setting*** for **Specific Route Profile**, the **Specific Default Route and Specific Route Profile** page will appear.



Specific Default Route

Enable: Click to enable the setting of specific default route.

Default Gateway: There are 3 methods of the default gateway that ***Specific Default Route*** supports. Select **WAN1 Default Gateway** to set WAN1 as the default gateway. Select **WAN2 Default Gateway** to set WAN2 as the default gateway. Select **IP Address** and enter the IP address of the specific router.

Specific Route Profile

Profile Name: The profile name can be changed here.

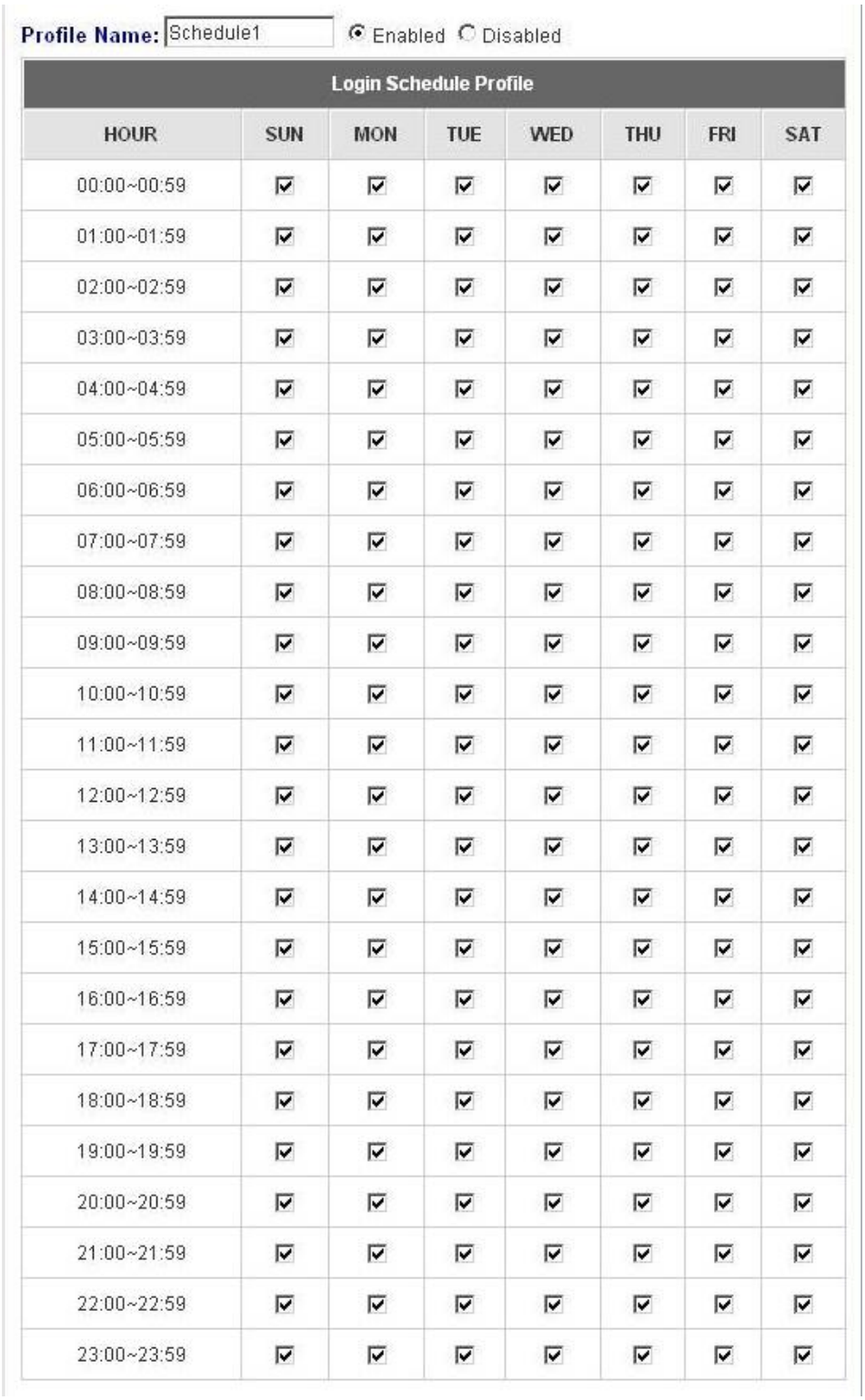
Destination IP Address: The destination IP address of the host or the network.

Destination Subnet Netmask: Select a destination subnet netmask of the host or the network.

Gateway IP Address: The IP address of the gateway or the router to the destination.

- **Schedule Profile**

  Click the hyperlink of ***Setting*** for **Schedule Profile** to enter the Schedule Profile list. Select **Enable** to show the list. This function is used to restrict the time for users to log in. Please enable/disable the desired time slot and click ***Apply*** to save the settings. These settings will become effective immediately after clicking the ***Apply*** button.



- **Total Bandwidth**

  Select the bandwidth from the drop-down menu. It's the total bandwidth the users under this particular policy need to share.

- **Individual Maximum Bandwidth**

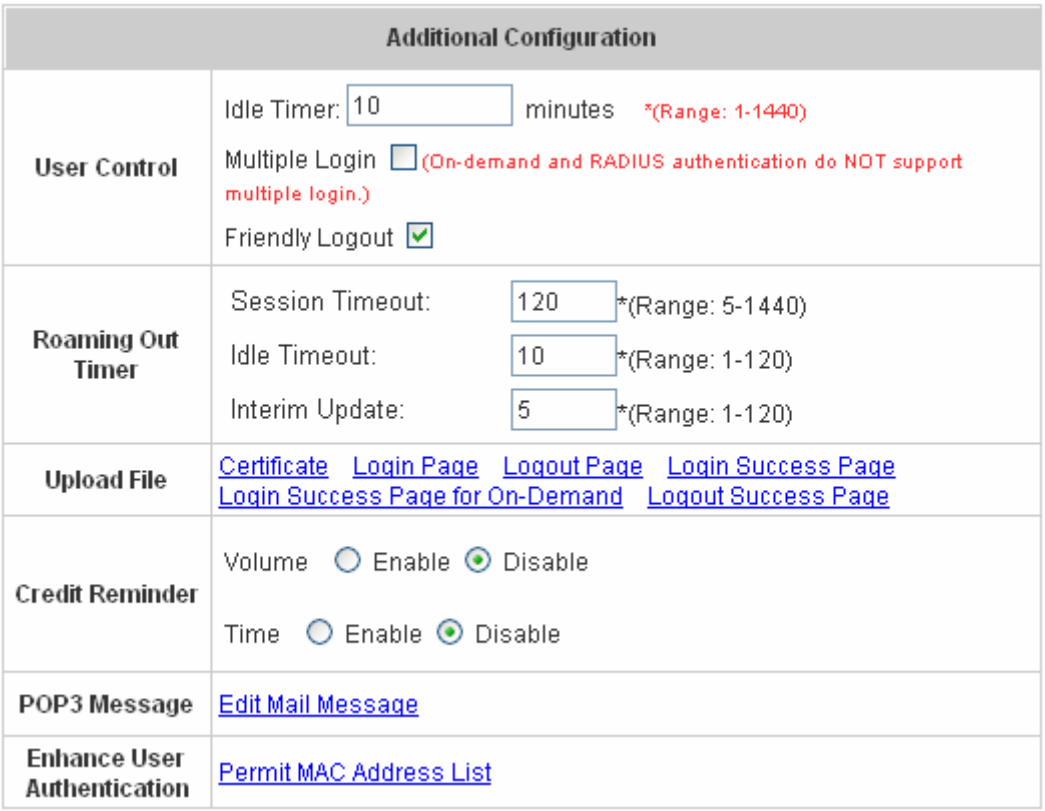
  Select the bandwidth from the drop-down menu. It's the most bandwidth an individual user can obtain under this

particular policy, which cannot exceed the value for **Total Bandwidth**.

- **Individual Request Bandwidth**

  Select the bandwidth from the drop-down menu. It's the requested bandwidth for a user under this particular policy, which cannot exceed the value for **Individual Maximum Bandwidth**.

4.2.4 Additional Configuration



- **User Control:** Functions under this section applies for all general users.

  Idle Timer: If a user has been idled with no network activities, the system will automatically kick out the user. The logout timer can be set in the range of 1~1440 minutes, and the default logout time is 10 minutes.

  Multiple Login: When enabled, the same account can be logged in by different clients at the same time. (This function doesn't support On-demand users and RADIUS server)

  Friendly Logout: When a user logs into the network, a small window will appear to show the user's information and there is a logout button for the logout. If enabled. When the users try to close the small window, there will be a new popup window to confirm the logout in case the users click the logout button by accident.

- **Roaming Out Timer**

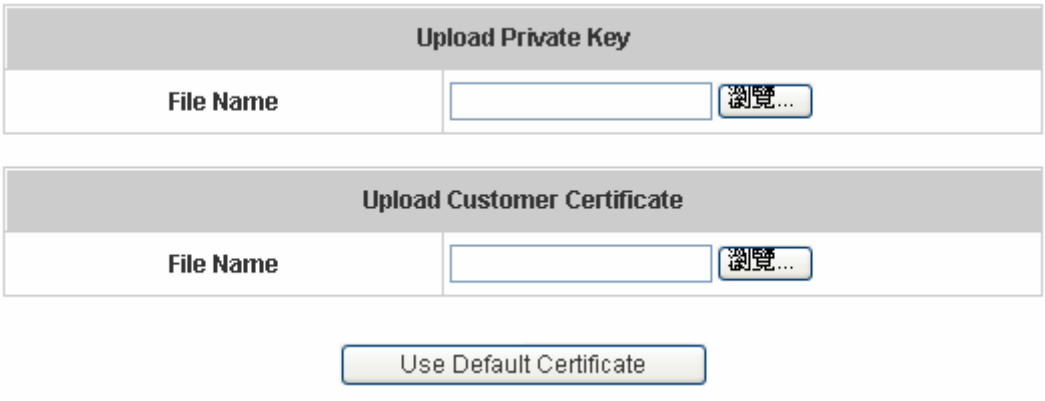
  Session Timeout: The time that the user can access the network while roaming. When the time is up, the user will be kicked out automatically.

  Idle Timeout: If a user has been idled with no network activities, the system will automatically kick out the user.

Interim Update: The system will update the users' current status and usage according to this time periodically.

- **Upload File**

1. **Certificate:** The administrator can upload new private key and customer certification. Click the ***Browse*** button to select the file for the certificate upload. Then click ***Submit*** to complete the upload process.

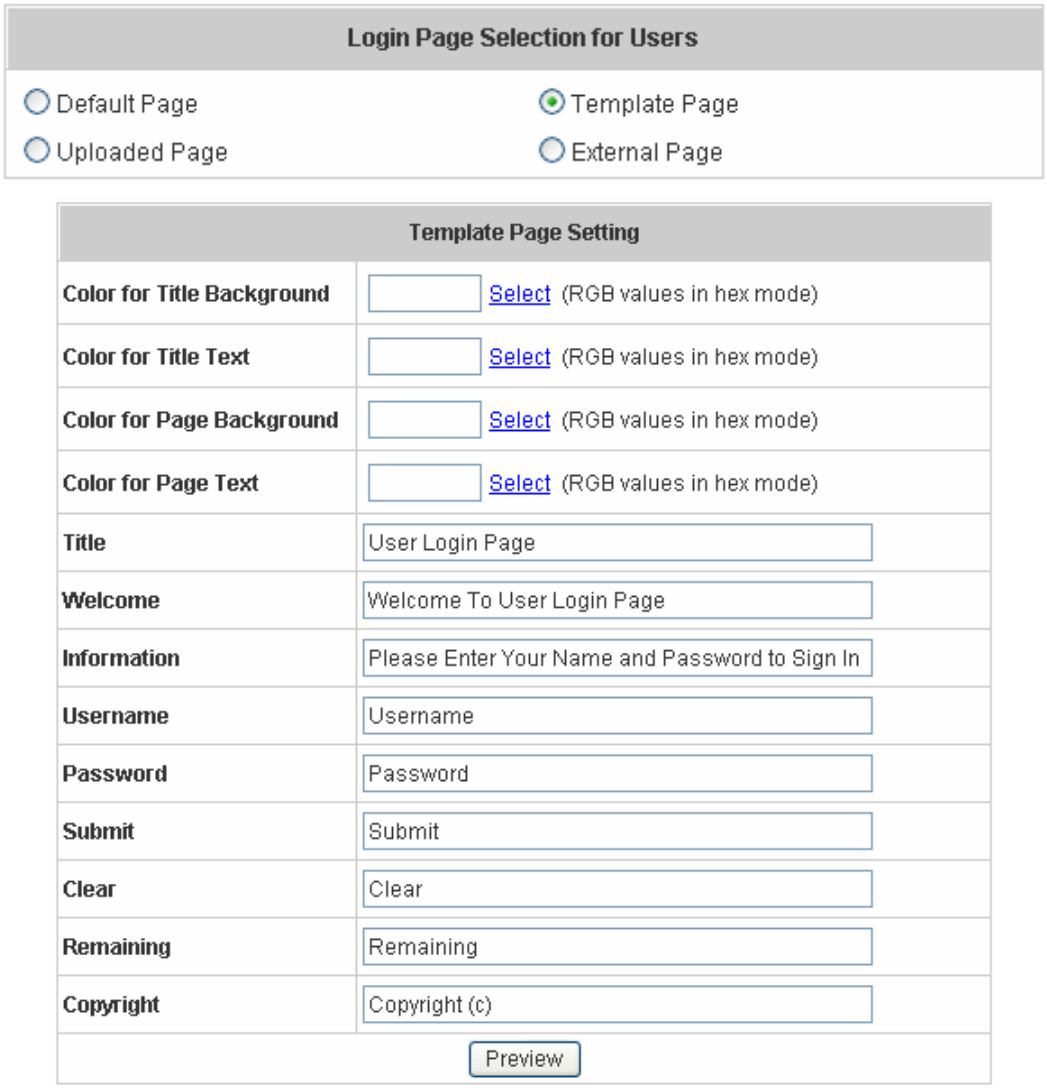


Click ***Use Default Certificate*** to use the default certificate and key.

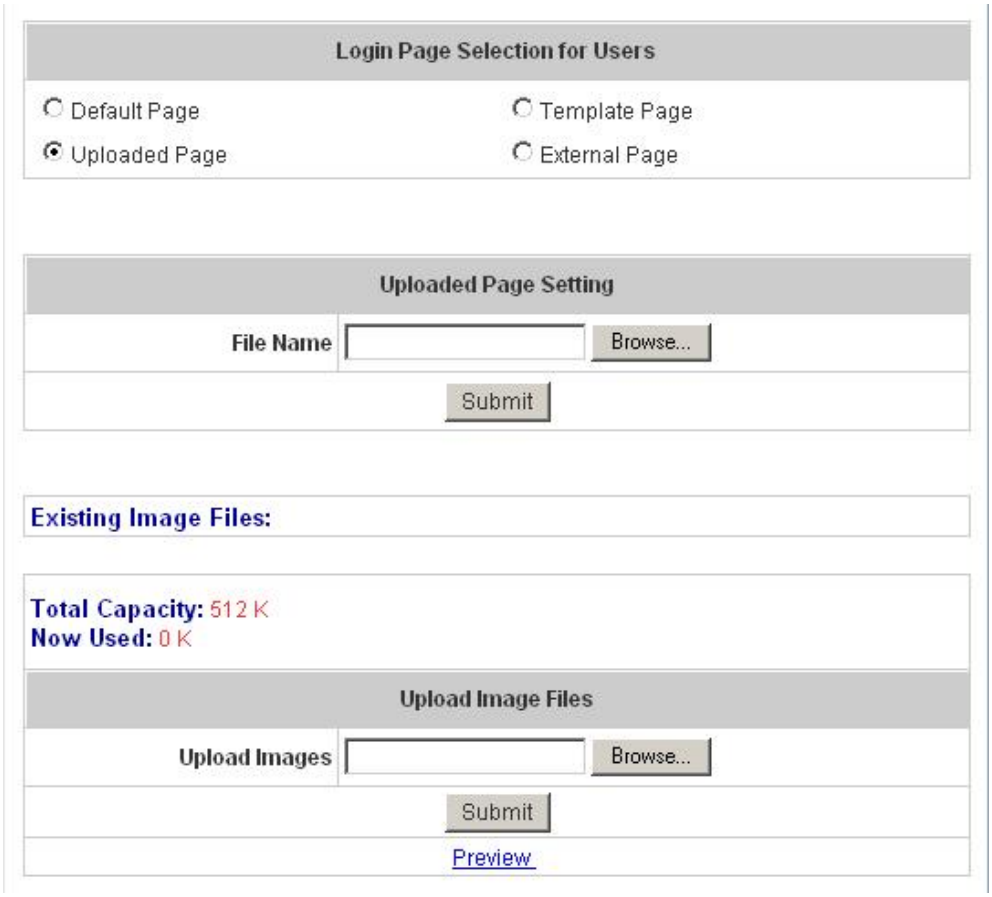
2. **Login Page:** The administrator can use the default login page or get the customized login page by setting the template page, uploading the page or downloading from the specific website. After finishing the setting, you can click ***Preview*** to see the login page.

a. Choose ***Default Page*** to use the default login page.

b. Choose ***Template Page*** to make a customized login page here. Click ***Select*** to pick up a color and then fill in all of the blanks. Click ***Preview*** to see the result first.



c. Choose ***Uploaded Page*** and upload a login page. Click the ***Browse*** button to select the file to upload. Then click ***Submit*** to complete the upload process.



After the upload process is completed, the new login page can be previewed by clicking ***Preview*** button at the bottom.

The user-defined login page must include the following HTML codes to provide the necessary fields for username and password.

```
<form action="userlogin.shtml" method="post" name="Enter">
<input type="text" name="myusername">
<input type="password" name="mypassword">
<input type="submit" name="submit" value="Enter">
<input type="reset" name="clear" value="Clear">
</form>
```

If the user-defined login page includes an image file, the image file path in the HTML code must be the image file you will upload.

```
<img src="images/xx.jpg">
```

Then, enter or browse the filename of the images to upload in the **Upload Images** field on the **Upload Images Files** page and then click ***Submit***. The system will show the used space and the maximum size of the image file of 512K. If the administrator wishes to restore the factory default of the login page, click the ***Use Default Page*** button to restore it to default.

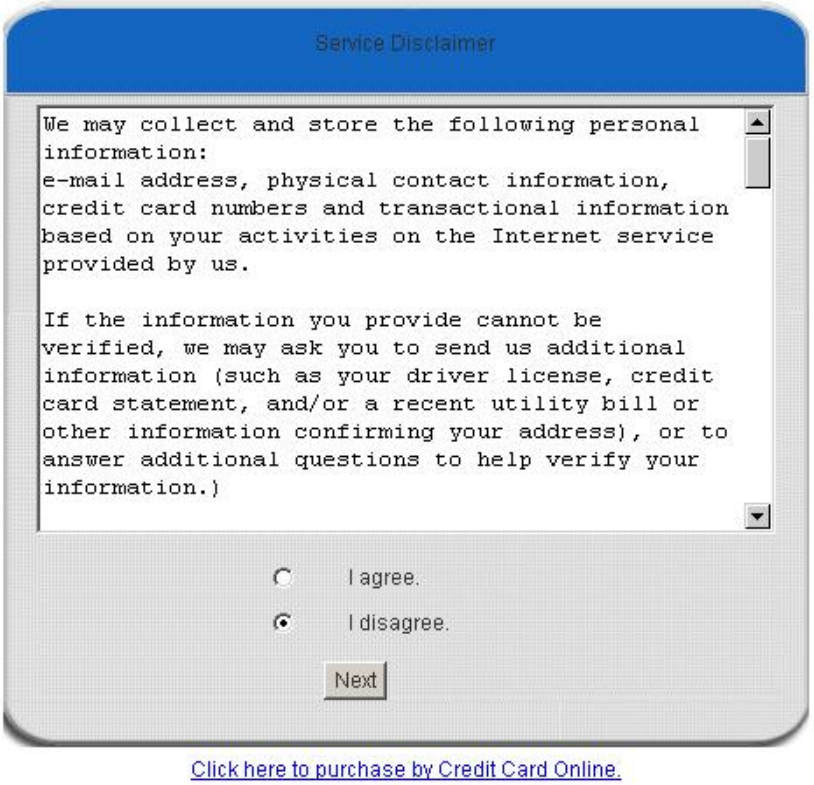
After the image file is uploaded, the file name will show on the **"Existing Image Files"** field. Check the file and click ***Delete*** to delete the file.

In Edimax AC-M3000, the end user first gets a login page when she/he opens its web browser right after associating with an access point. However, in some situations, the hotspot owners or MIS staff may want to display "terms of use" or announcement information before the login page. Hotspot owners or MIS staff can design a new disclaimer/announcement page and save the page in their local server. After the agreement shown on the page is read, users are asked whether they agree or disagree with the disclaimer. By clicking I agree, users are able to log in. If users choose to decline, they will get a popup window saying they are unable to log in. The basic design is to have the disclaimer and login function in the same page but with the login function hidden until users agree with the disclaimer.

For more details about the codes of the disclaimer, please refer to Appendix F.

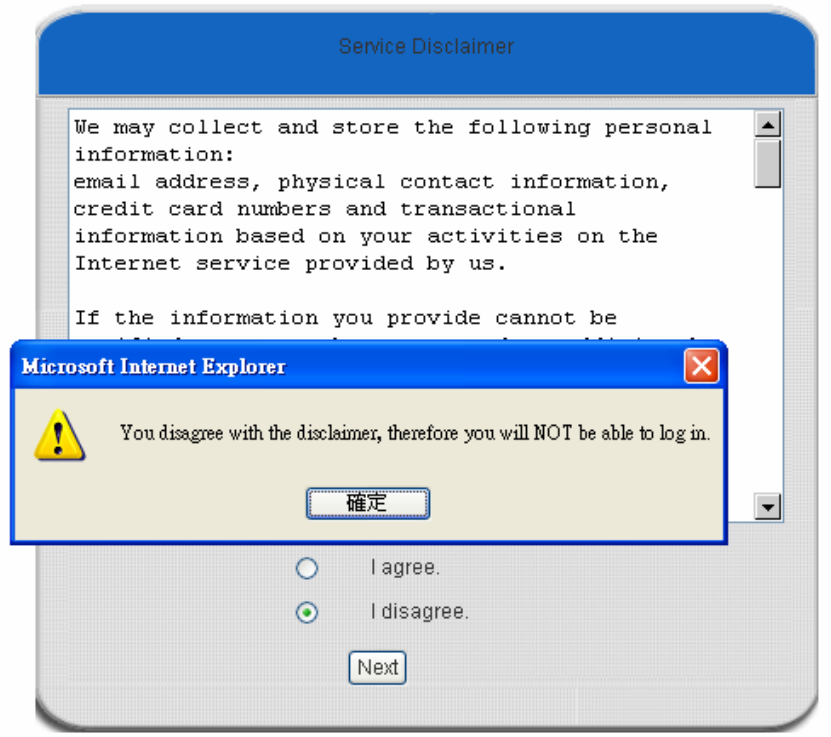
If the page is successfully loaded, an **upload success** page will show up.

"Preview" can be clicked to see the uploaded page.



If a user checks **"I agree"** and clicks ***Next***, then he/she is prompted to fill in the login name and password.

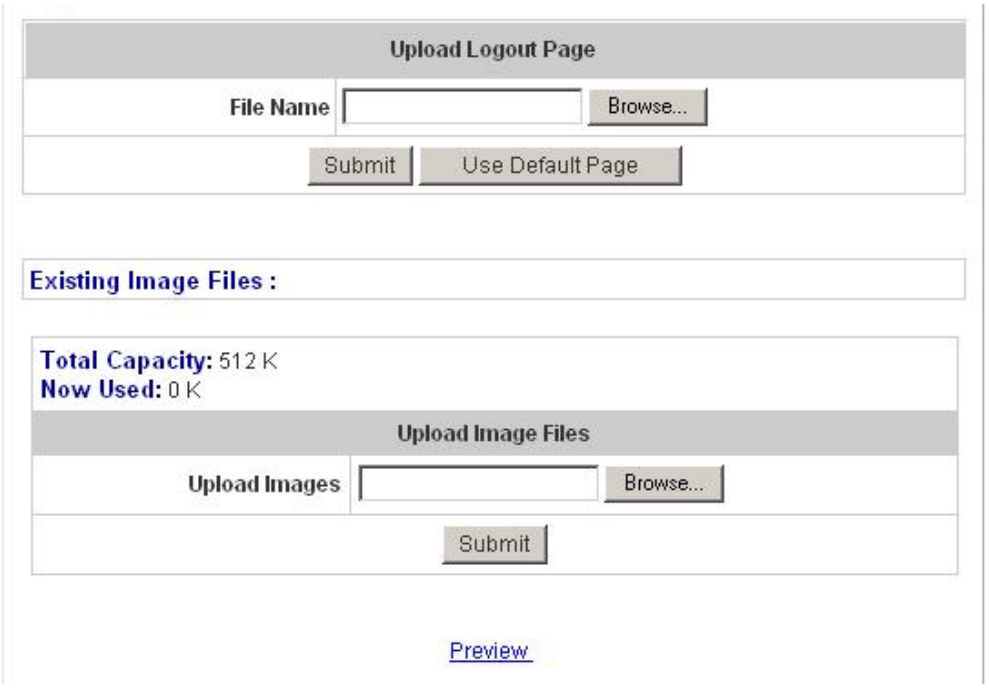
If a user checks **"I disagree"** and clicks ***Next***, a window will pop up to tell user that he/she cannot log in



d. Choose the ***External Page*** selection and get the login page from the specific website. Enter the website address in the **"External Page Setting"** field and then click ***Apply***.

After applying the setting, the new login page can be previewed by clicking ***Preview*** button at the bottom of this page.

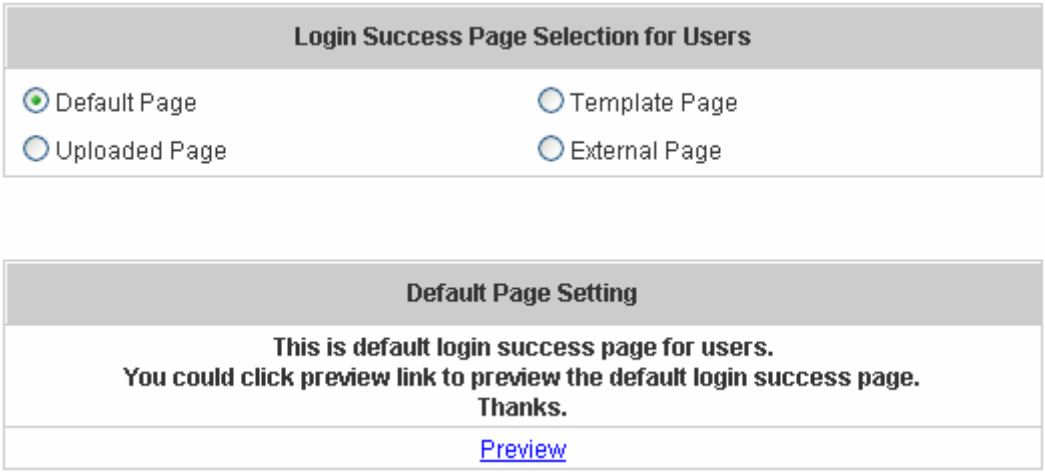
3. **Logout Page:** The administrator can apply customized logout page here. The process is similar to that of Login Page.



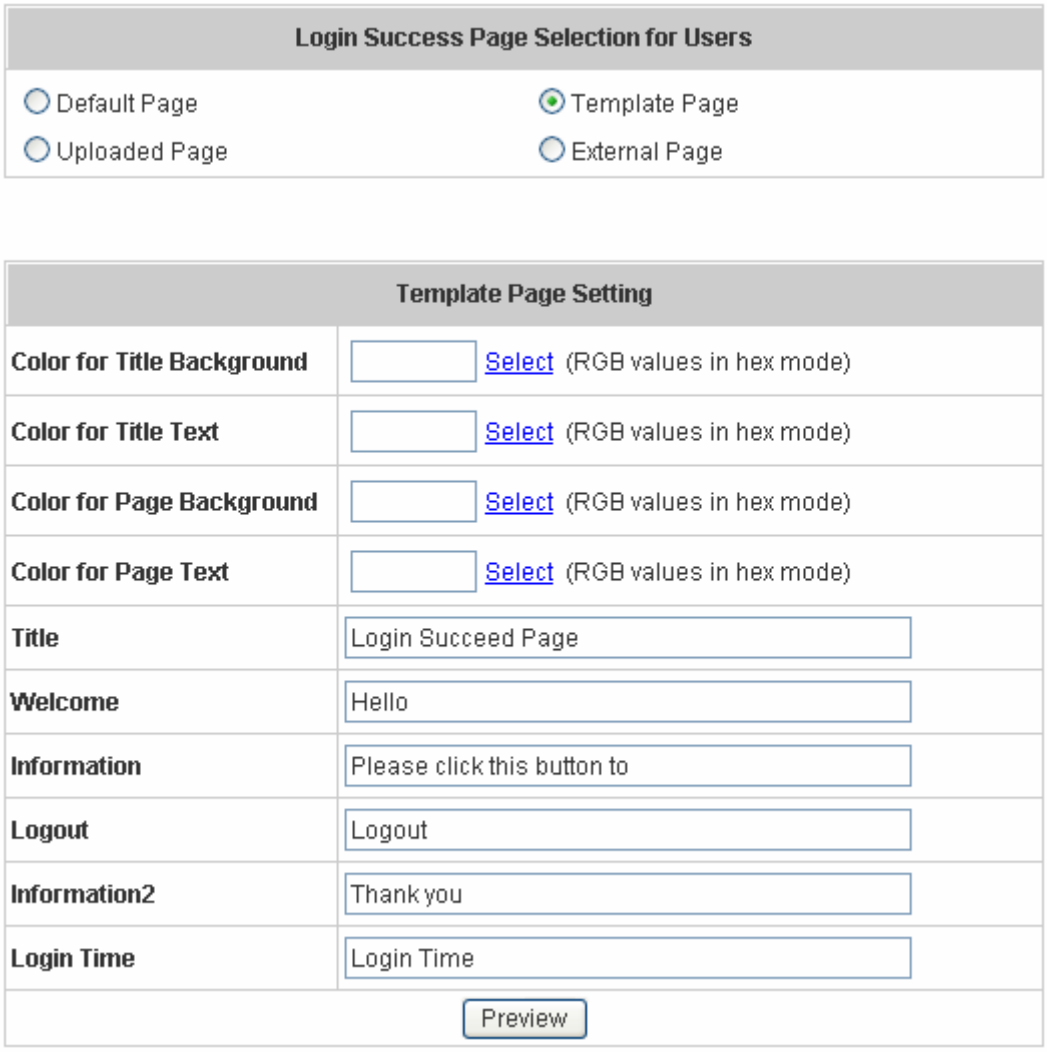
The different part is the HTML code of the user-defined logout interface must include the following HTML code that the user can enter the username and password. After the upload is completed, the user-defined login user interface can be previewed by clicking ***Preview*** at the bottom of this page. If want to restore the factory default setting of the logout interface, click the "**Use Default Page"** button.

```
<form action="userlogout.shtml" method="post" name="Enter">
<input type="text" name="myusername">
<input type="password" name="mypassword">
<input type="submit" name="submit" value="Logout">
<input type="reset" name="clear" value="Clear">
</form>
```

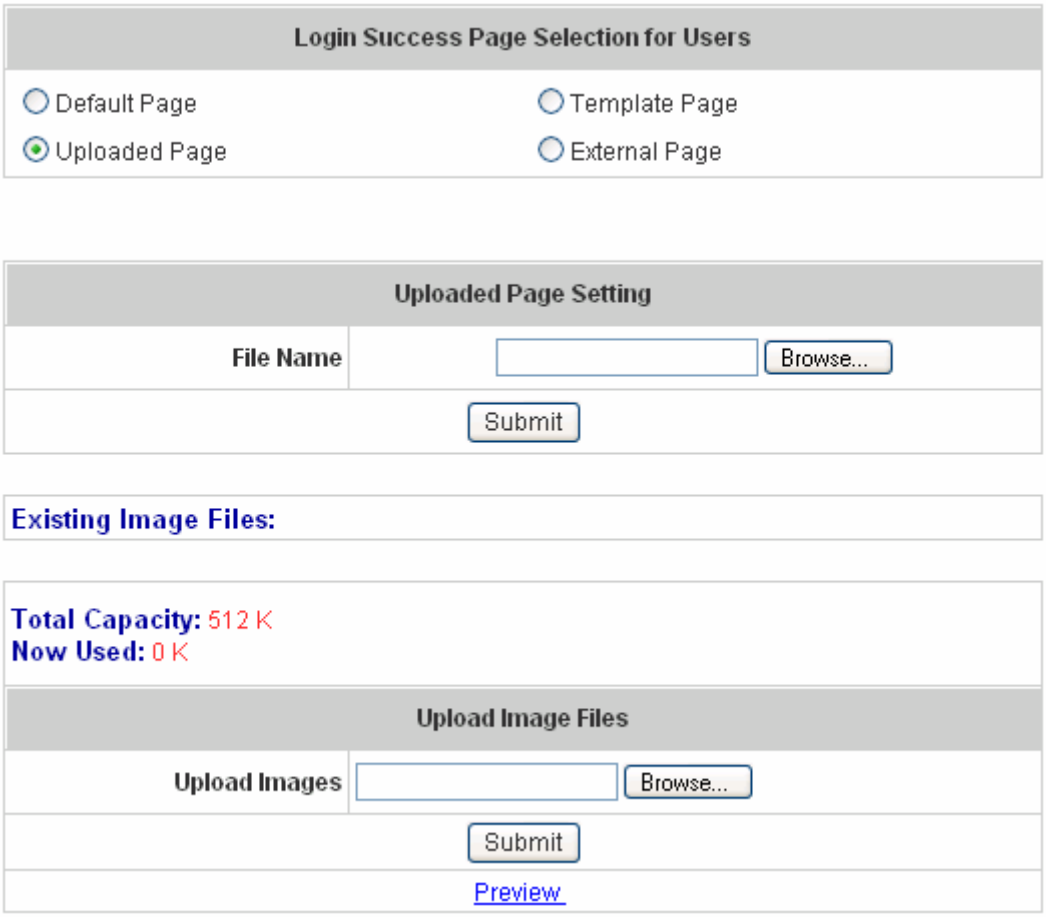
4. **Login Success Page:** The administrator can use the default login success page or get the customized login success page by setting the template page, uploading the page or using the external website. After finishing the setting, you can click ***Preview*** to see the login success page.
   a. Choose ***Default Page*** to use the default login success page.



   b. Choose ***Template Page*** to make a customized login success page here. Click ***Select*** to pick up a color and then fill in all of the blanks. You can click ***Preview*** to see the result first.



c. Choose ***Uploaded Page*** and you can get the login success page by uploading. Click the ***Browse*** button to select the file for the login success page upload. Then click ***Submit*** to complete the upload process.



After the upload process is completed, the new login success page can be previewed by clicking ***Preview*** button at the bottom.

If the user-defined login success page includes an image file, the image file path in the HTML code must be the image file you will upload.

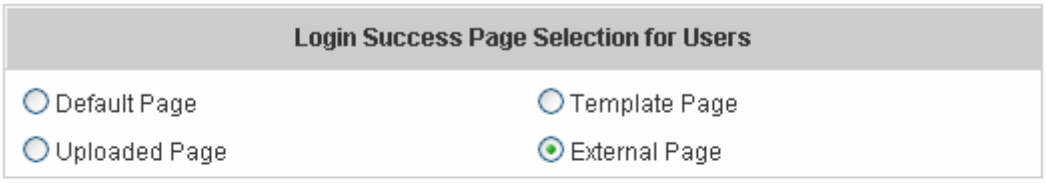
```
<img src="images/xx.jpg">
```

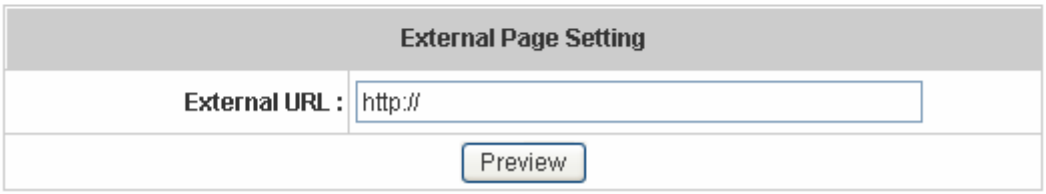
Then, enter or browse the filename of the images to upload in the **Upload Images** field on the **Upload Images Files** page and then click ***Submit***. The system will show the used space and the maximum size of the image file of 512K. If the administrator wishes to restore the factory default of the login success page, click the ***Use Default Page*** button to restore it to default.

After the image file is uploaded, the file name will show on the **"Existing Image Files"** field. Check the file

and click ***Delete*** to delete the file.

d. Choose the ***External Page*** selection and you can get the login success page e from the specific website. Enter the website address in the **External Page Setting** field and then click ***Apply***. After applying the setting, the new login success page can be previewed by clicking ***Preview*** button at the bottom of this page.

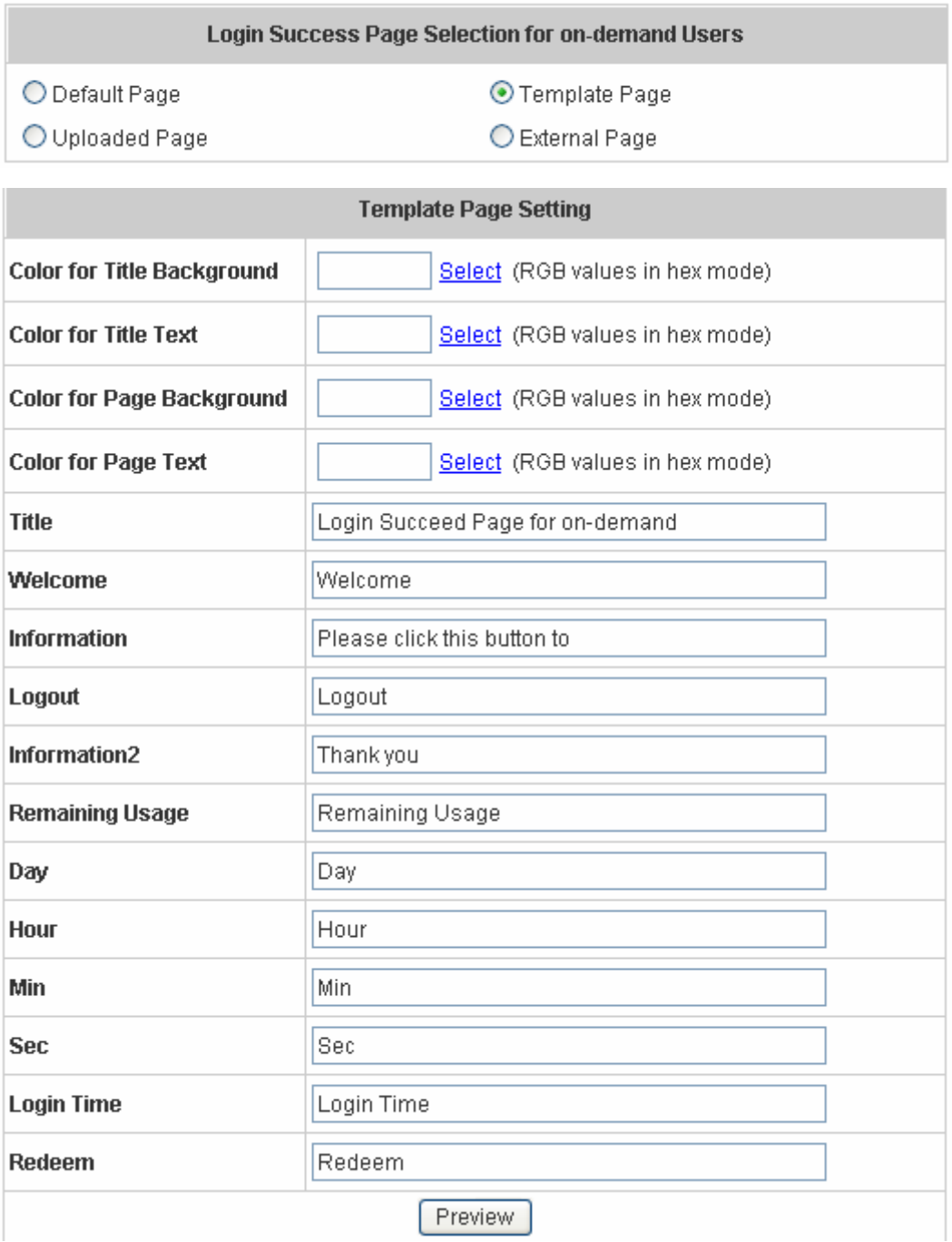




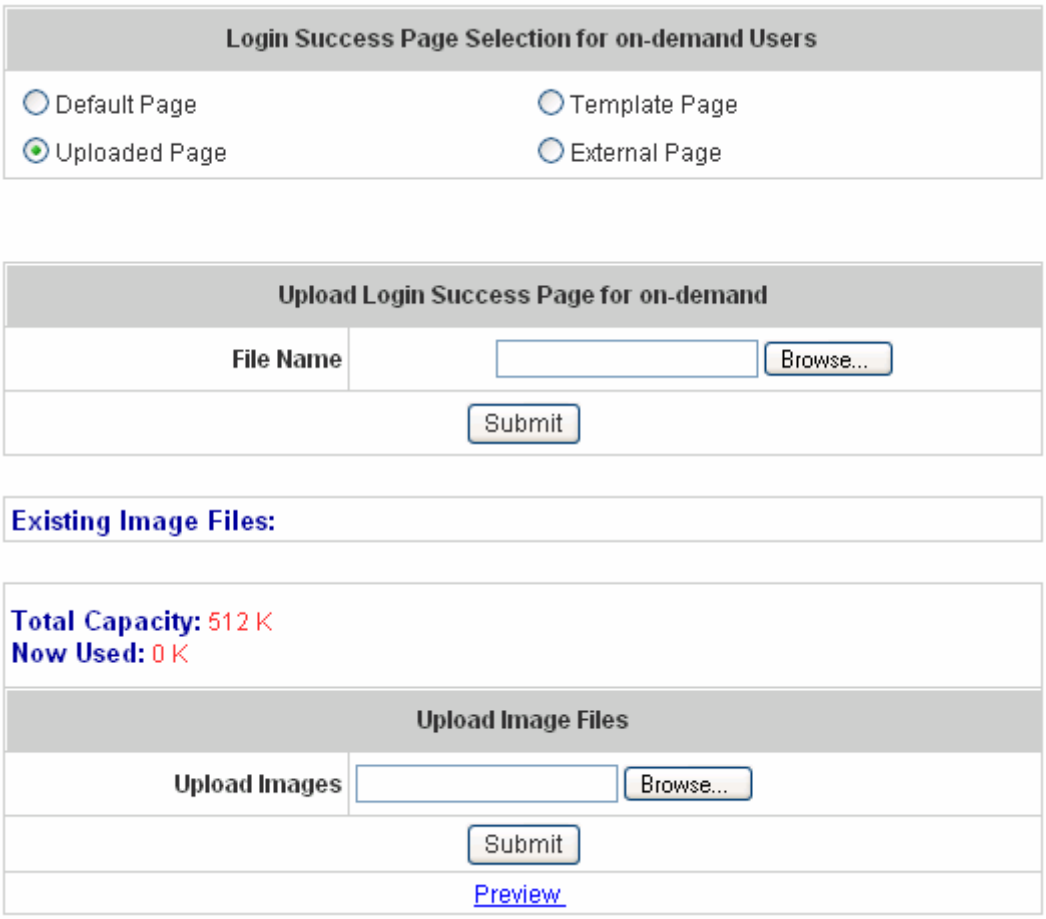
5. **Login Success Page for On-Demand:** The administrator can use the default login success page for On-Demand or get the customized login success page for On-Demand by setting the template page, uploading the page or using the external website. After finishing the setting, you can click ***Preview*** to see the login success page for On-Demand.

a. Choose ***Default Page*** to use the default login success page for On-Demand.

b. Choose ***Template Page*** to make a customized login success page for On-Demand here. Click ***Select*** to pick up a color and then fill in all of the blanks. You can click ***Preview*** to see the result first.



c. Choose ***Uploaded Page*** and you can get the **Login Success Page Section for On-Demand Users**. Click the ***Browse*** button to select the file for the login success page for On-Demand. Then click ***Submit*** to complete the upload process.



After the upload process is completed, the new login success page for On-Demand can be previewed by clicking ***Preview*** button at the bottom.

If the user-defined login success page for On-Demand includes an image file, the image file path in the HTML code must be the image file you will upload.

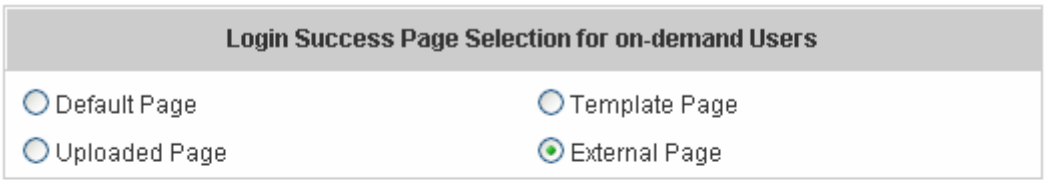
```
<img src="images/xx.jpg">
```

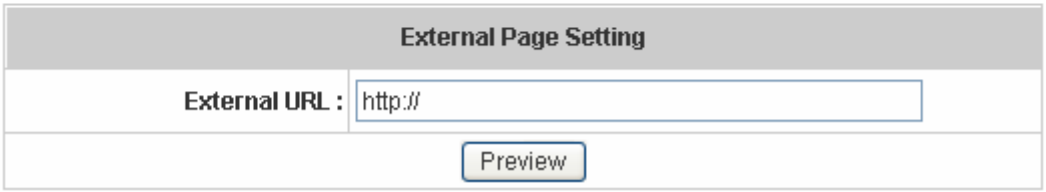
Then, enter or browse the filename of the images to upload in the **Upload Images** field on the **Upload Images Files** page and then click ***Submit***. The system will show the used space and the maximum size of the image file of 512K. If the administrator wishes to restore the factory default of the login success page for On-Demand, click the ***Use Default Page*** button to restore it to default.

After the image file is uploaded, the file name will show on the **"Existing Image Files"** field. Check the file

and click ***Delete*** to delete the file.

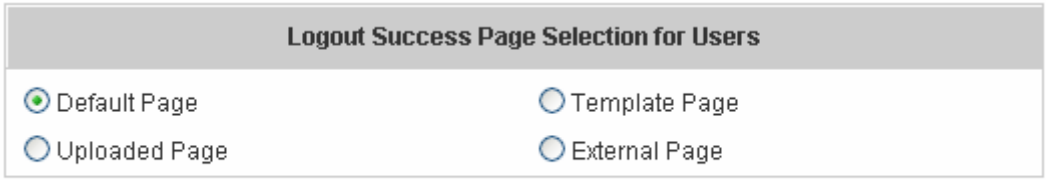
d. Choose the ***External Page*** selection and you can get the login success page for On-Demand from the specific website. Enter the website address in the **"External Page Setting"** field and then click ***Apply***. After applying the setting, the new login success page for On-Demand can be previewed by clicking ***Preview*** button at the bottom of this page.

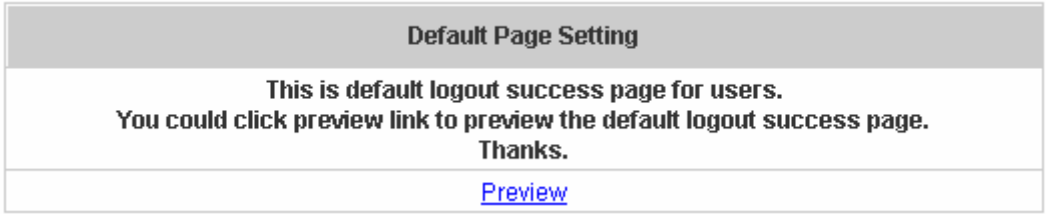




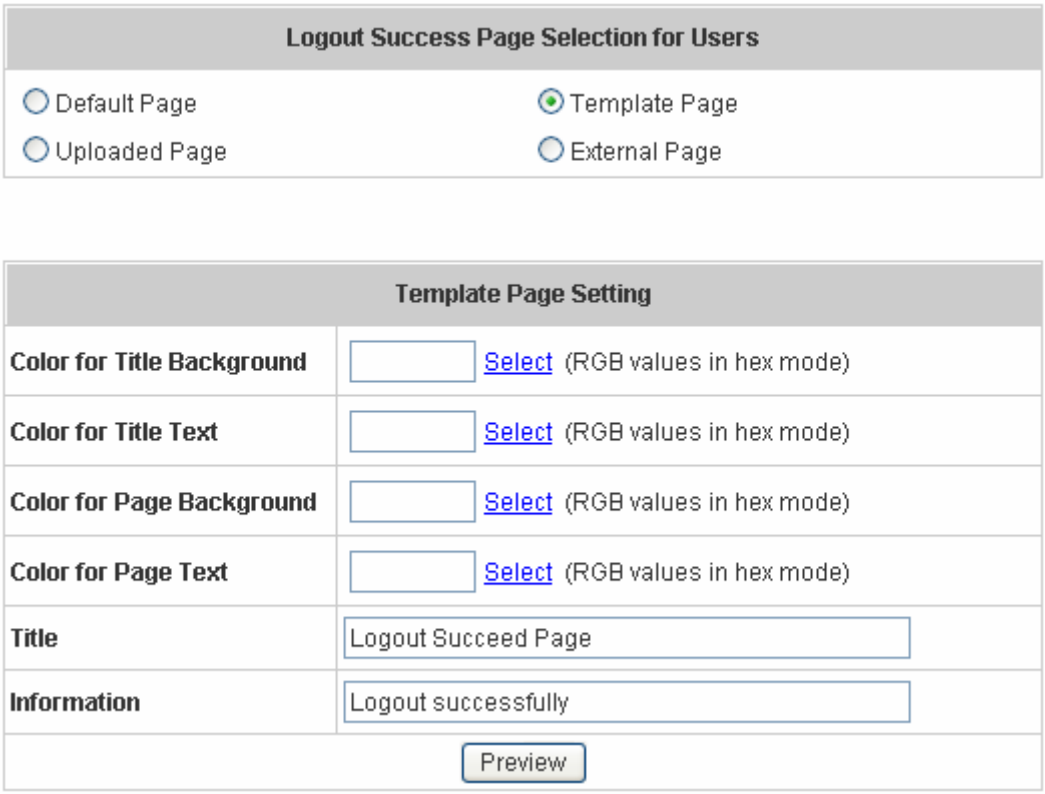
6. **Logout Success Page:** The administrator can use the default logout success page or get the customized logout success page by setting the template page, uploading the page or using the external website. After finishing the setting, you can click ***Preview*** to see the logout success page.

a. Choose ***Default Page*** to use the default logout success page.

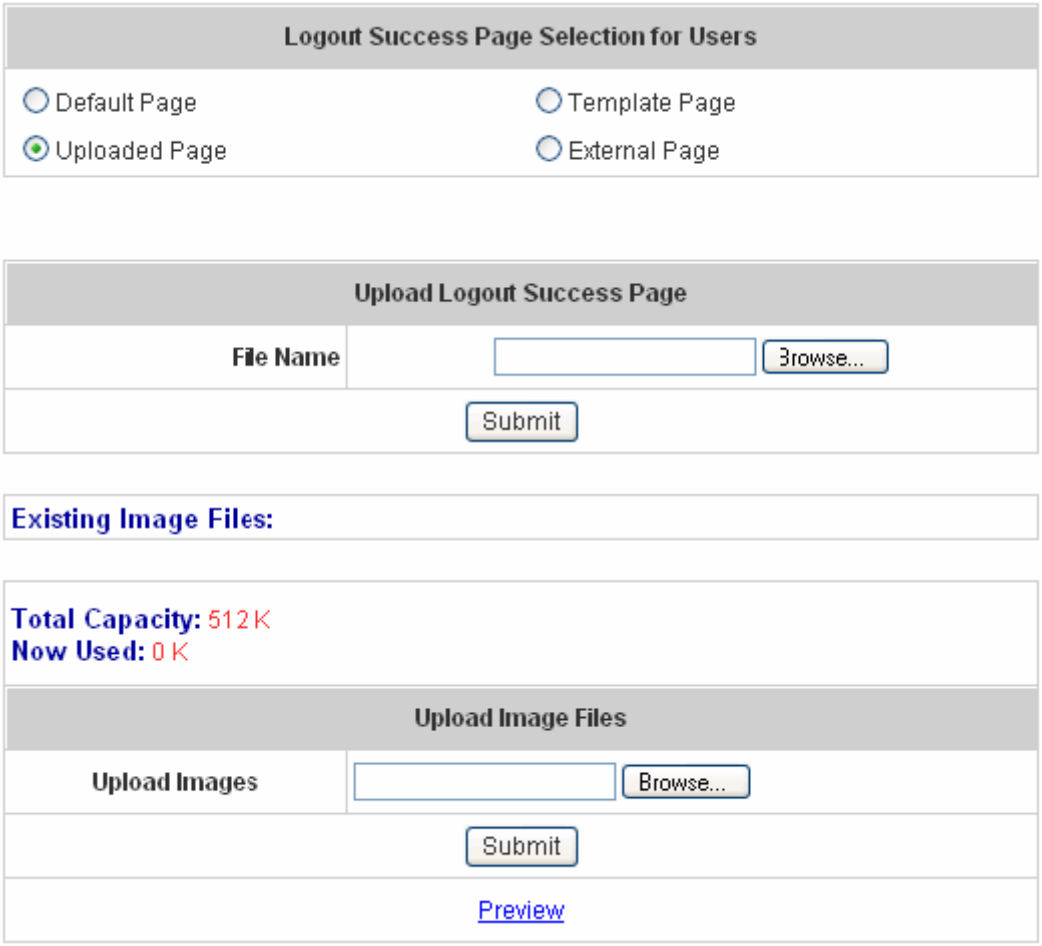




b. Choose ***Template Page*** to make a customized logout success page here. Click ***Select*** to pick up a color and then fill in all of the blanks. You can click ***Preview*** to see the result first.



c. Choose ***Uploaded Page*** and you can get the logout success page by uploading. Click the ***Browse*** button to select the file for the logout success page upload. Then click ***Submit*** to complete the upload process.



After the upload process is completed, the new logout success page can be previewed by clicking ***Preview*** button at the bottom.

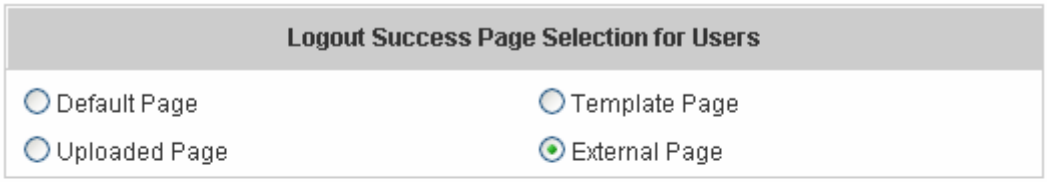
If the user-defined logout success page includes an image file, the image file path in the HTML code must be the image file you will upload.

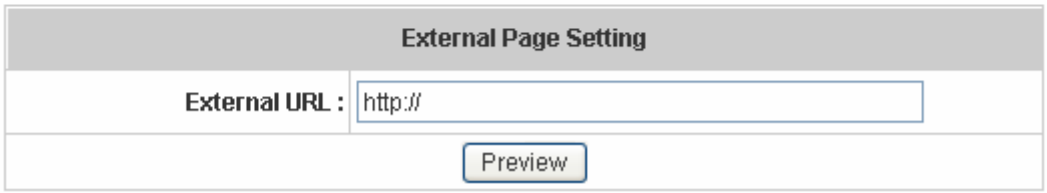
```
<img src="images/xx.jpg">
```

Then, enter or browse the filename of the images to upload in the **Upload Images** field on the **Upload Images Files** page and then click ***Submit***. The system will show the used space and the maximum size of the image file of 512K. If the administrator wishes to restore the factory default of the login success page, click the ***Use Default Page*** button to restore it to default.

After the image file is uploaded, the file name will show on the **"Existing Image Files"** field. Check the file and click ***Delete*** to delete the file.

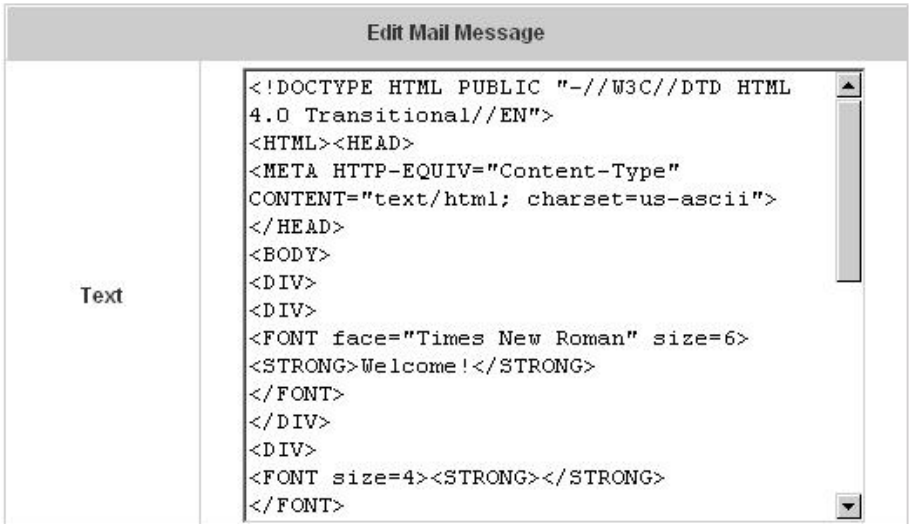
d. Choose the ***External Page*** selection and you can get the logout success page from the specific website. Enter the website address in the **"External Page Setting"** field and then click ***Apply***. After applying the setting, the new logout success page can be previewed by clicking ***Preview*** button at the bottom of this page.



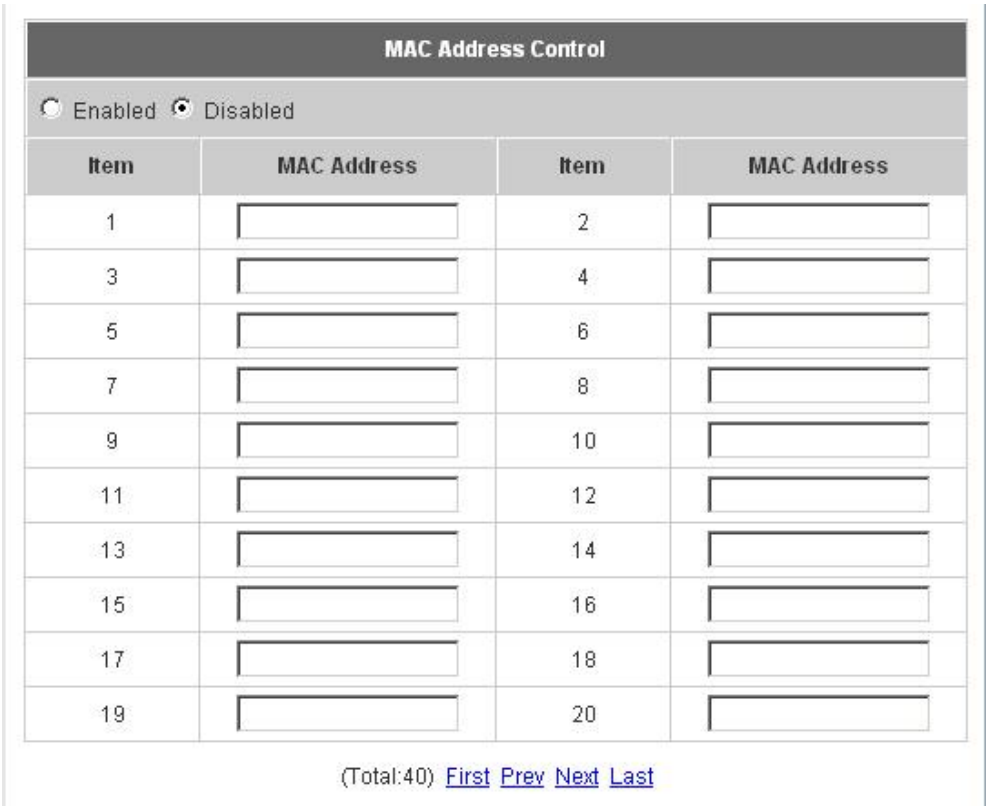


- **Credit Reminder:** The administrator can enable this function to remind the on-demand users before their credit run out. There are two kinds of reminder, **Volume** and **Time**. The default reminding trigger level for **Volume** is 1Mbyte and the level for **Time** is 5 minutes.

- **POP3 Message:** If a user tries to retrieve mail from POP3 mail server before login, the users will receive a welcome mail from Edimax AC-M3000. The administrator can edit the content of this welcome mail.



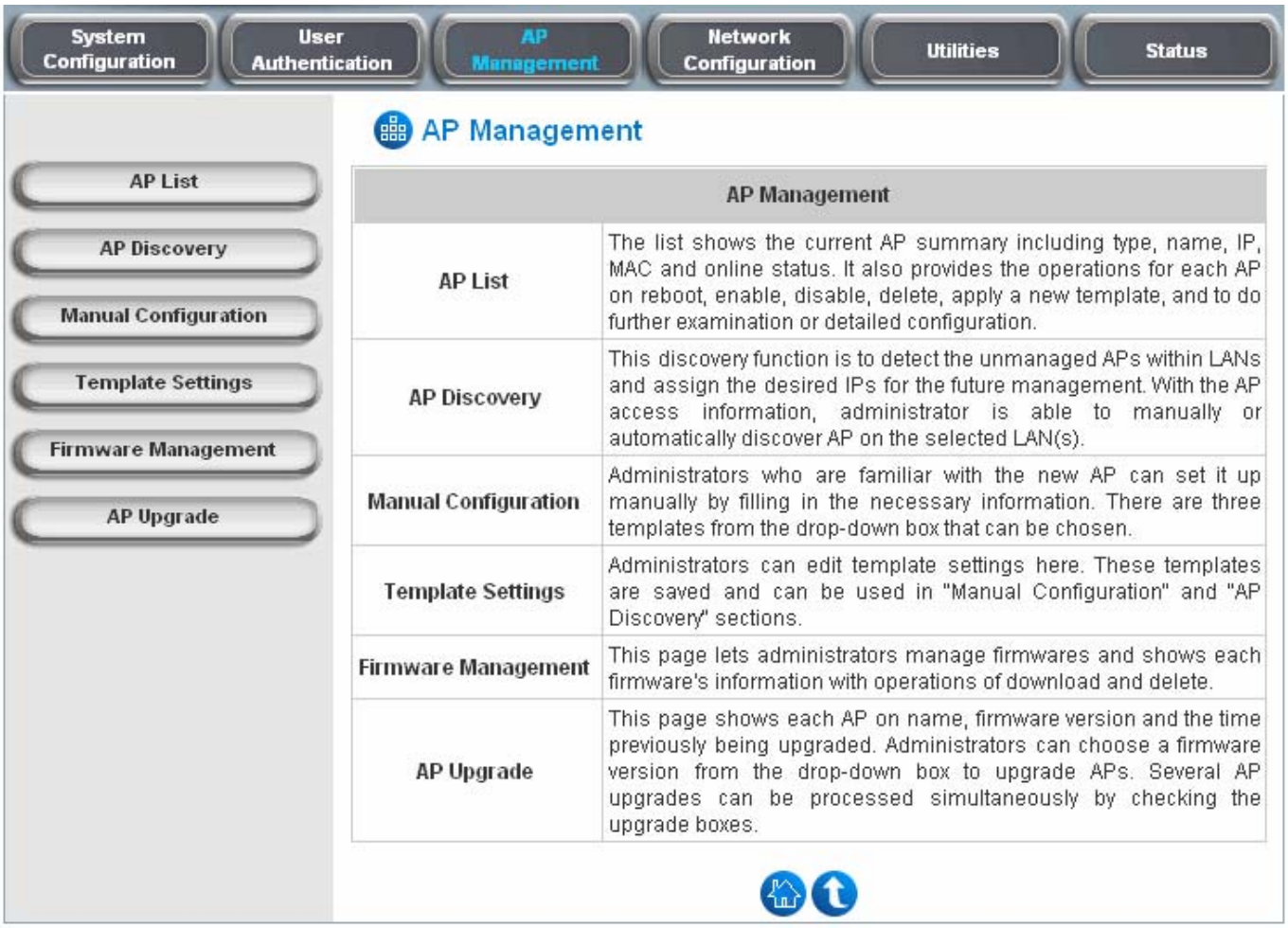
- **Enhance User Authentication:** With this function enabled, only the users with their MAC addresses in this list can log into Edimax AC-M3000. There will only be 40 users allowed in this MAC address list. User authentication is still required for these users. Please click the **Permit MAC Address List** to fill in these MAC addresses, select **Enable**, and then click ***Apply***.



Caution: *The format of the MAC address is: xx:xx:xx:xx:xx:xx or xx-xx-xx-xx-xx-xx.*

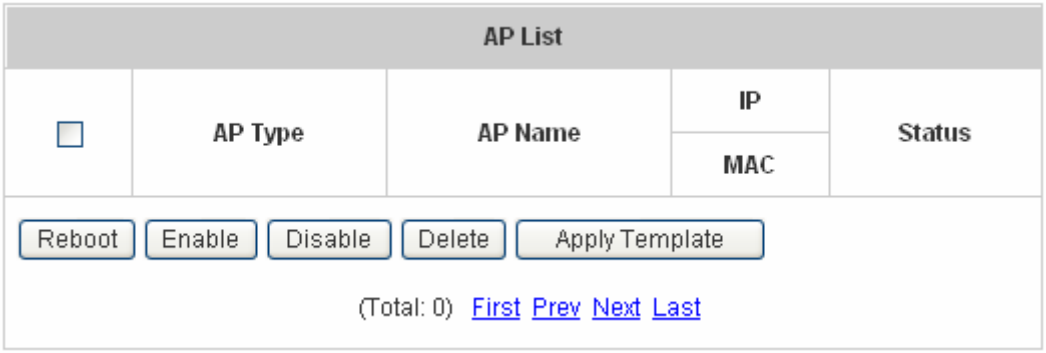
4.3 AP Management

This section includes the following functions: **AP List**, **AP Discovery**, **Manual Configuration**, **Template Settings**, **Firmware Management** and **AP Upgrade**.

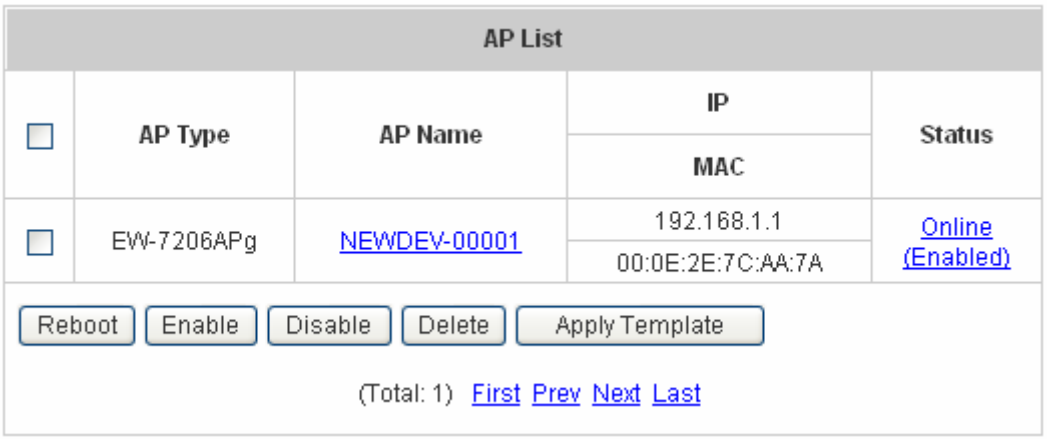


4.3.1 AP List

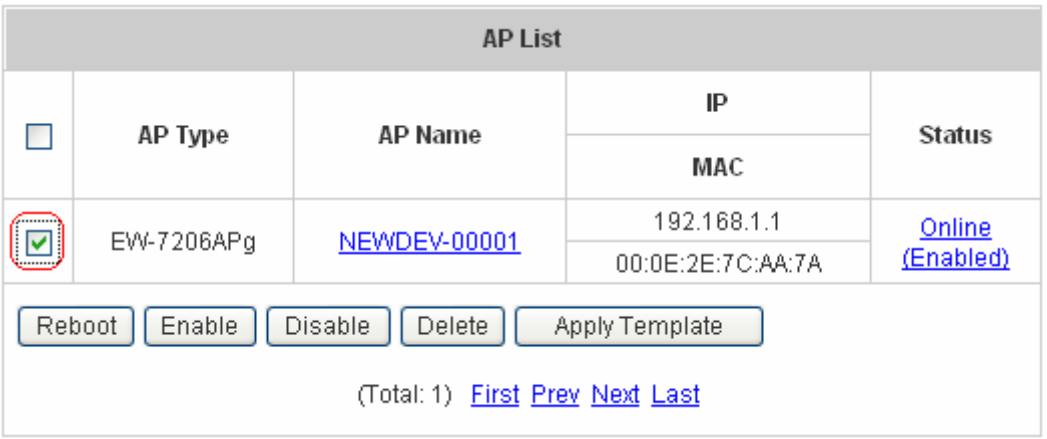
All of the supported APs under the management of Edimax AC-M3000 will be shown in the list. At first the list is empty; administrators can add APs from AP Discovery page (see **4.3.2. AP Discovery** for details) or Manual Configuration page (see **4.3.3. Manual Configuration** for details)



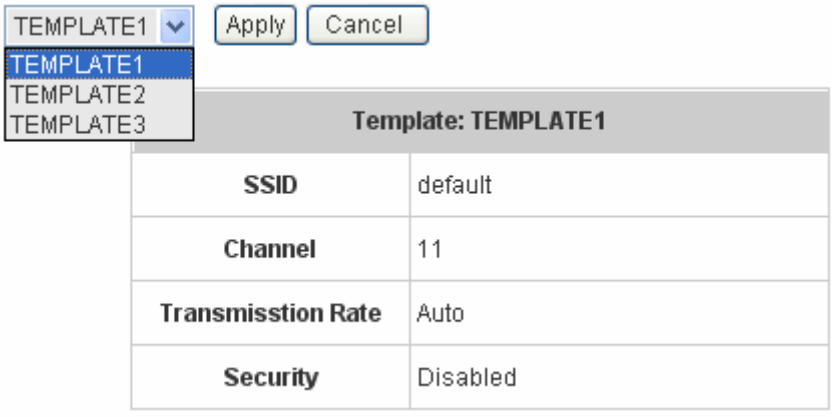
After adding an AP:



Check any AP and click the button below to **Reboot**, **Enable**, **Disable** and **Delete** the checked AP.



Click **Apply Template** to select one template to apply to the AP.



- **AP Name**

  Click ***AP Name*** and enter the interface about related settings. There four kinds of settings, **General Settings**, **LAN Interface Setting**, **Wireless Interface Setting** and **Access Control Setting**. Click the hyperlink of each individual setting to have further configurations.

General Settings		
Setting	Name	NEWDEV-00001
	Remark	None
	Firmware	1.23

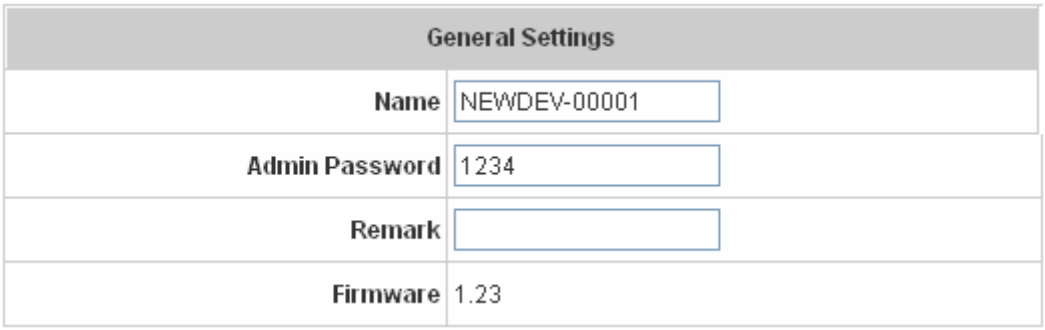
LAN Interface Setting		
LAN	IP	192.168.1.1
	Mode	Static IP

Wireless Interface Setting		
Wireless LAN	SSID	default
	Channel	11
	Security Type	Disabled

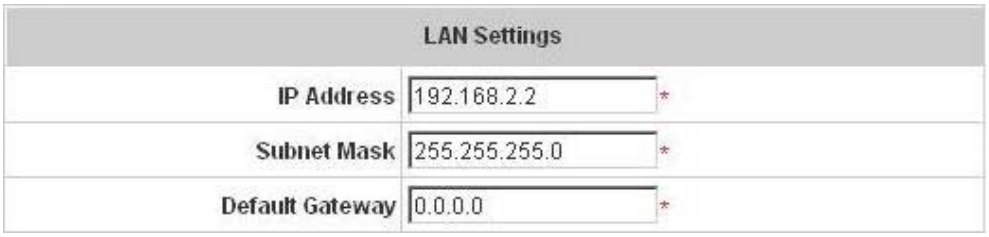
Access Control Setting		
Access Control	Status	Disabled
	Mode	Allowed
	Number of MAC Addresses	0

  - **General Setting:** Click ***Setting*** to enter the **General Setting** interface. Revise the AP **Name**, **Admin**

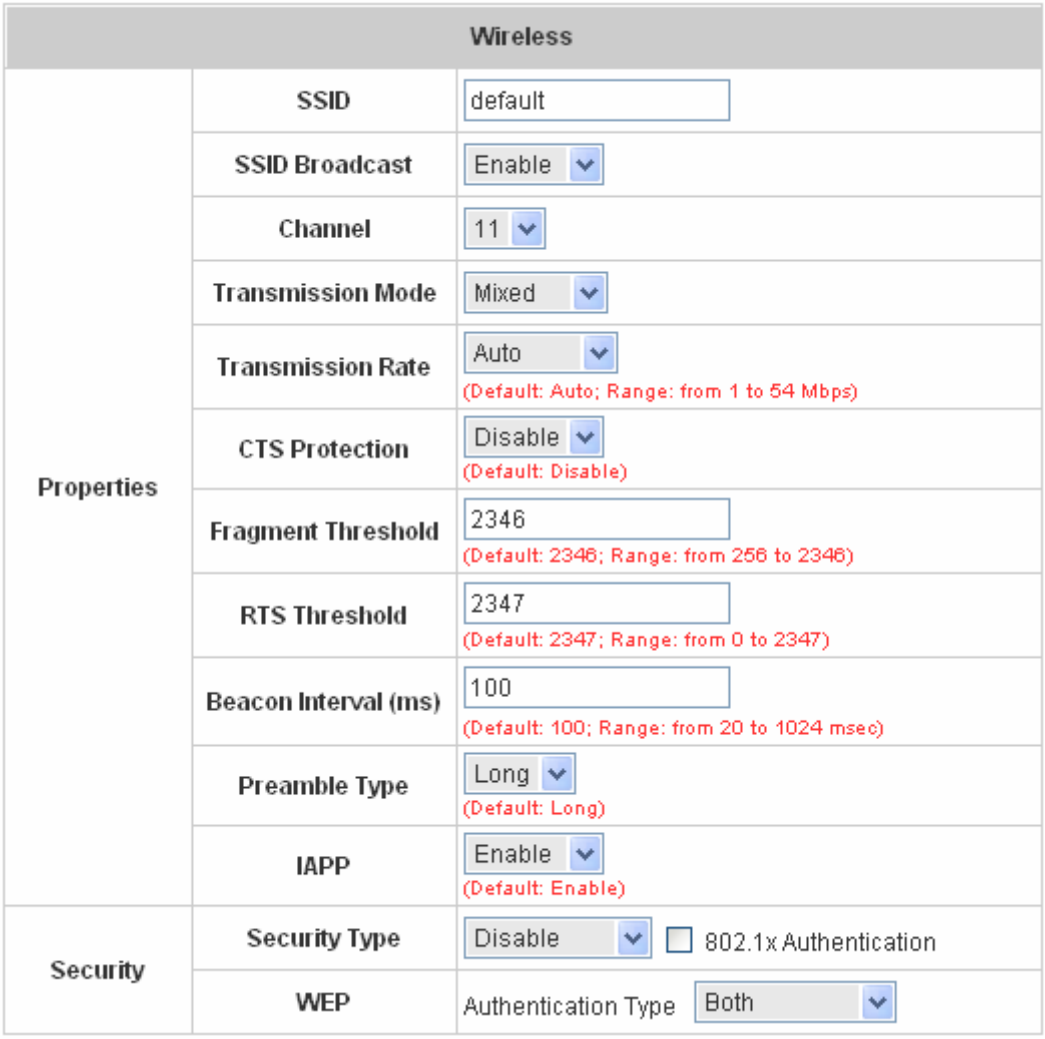
Password and **Remark** here if desired. Firmware information can also be viewed here.



- **LAN Setting:** Click ***LAN*** to enter the **LAN Setting** interface. Input the data of LAN including **IP address**, **Subnet Mask** and **Default Gateway** of AP.



- **Wireless LAN:** Click ***Wireless LAN*** to enter the **Wireless** interface. The data of Properties and Security need to be filled.



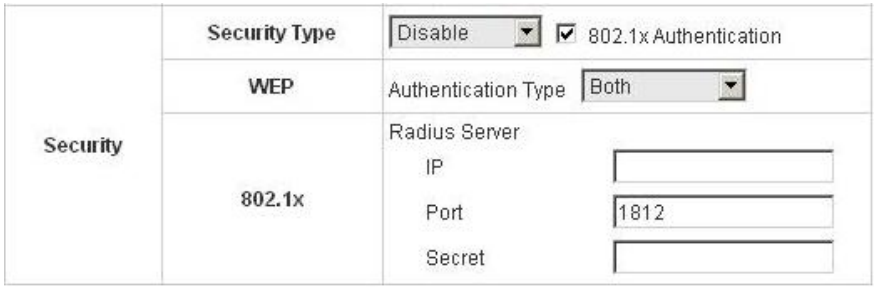
Properties

- **SSID:** The SSID is the unique name shared among all devices in a wireless network. The SSID must be the same for all devices in the wireless network. It is case sensitive and has a maximum length of 32 bytes.
- **SSID Broadcast:** Select this option to enable the SSID to broadcast in your network. When configuring the network, it is suggested to enable this function but disable it when the configuration is complete. With this enabled, someone could easily obtain the SSID information with the site survey software and get unauthorized access to a private network. With this disabled, network security is enhanced and can prevent the SSID from being seen on networked.
- **Channel:** Select the appropriate channel from the list to correspond with the network settings; for example, 1 to 11 channels are suitable for the North America area.
- **Transmission Mode:** There are 3 modes to select, **802.11b** (2.4G, 1~11Mbps)**, 802.11g** (2.4G, 54Mbps) and **Mix mode** (b and g).
- **Transmission Rate:** The default is **Auto**. Available range is from 1 to 54Mbps. The rate of data transmission should be set depending on the speed of the wireless network. Select from a range of transmission speed or keep the default setting, **Auto**, to make the Access Point automatically use the fastest rate possible.

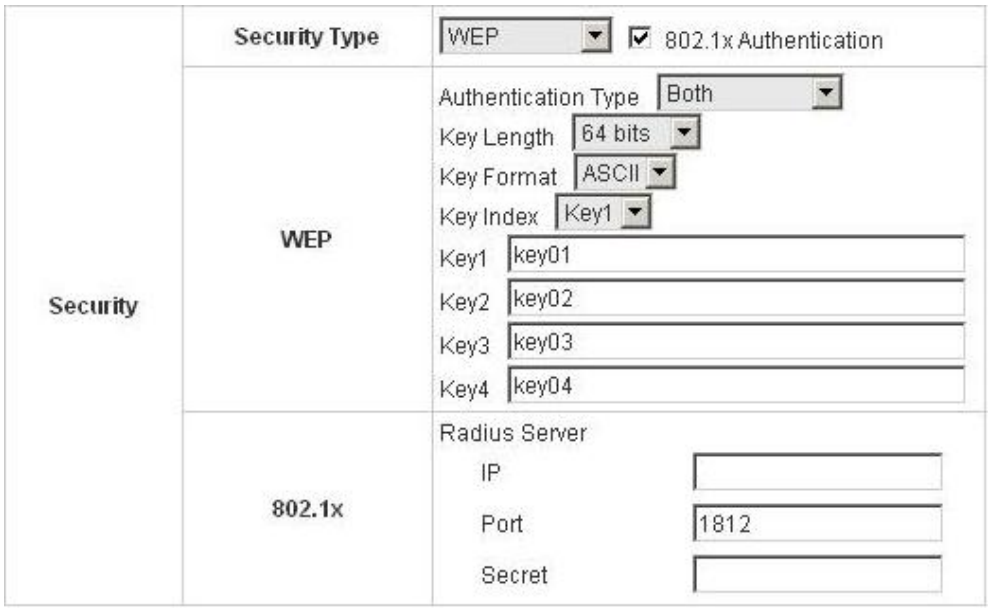
- **CTS Protection:** The default value is **Disable**. When select **"Enable"**, a protection mechanism will decrease collision probability when many 802.11g devices exist simultaneously. However, performance of the 802.11g devices may decrease.
- **Fragment Threshold:** Breaking a packet into smaller units when transmitting over a network medium that cannot support the original size of the packet.
- **RTS Threshold:** Request To Send. A packet sent when a computer has data to transmit. The computer will wait for a CTS (Clear To Send) message before sending data.
- **Beacon Interval (ms):** Enter a value between 20 and 1000 msec. The default value is 100 milliseconds. The entered time means how often the beacon signal transmission between the access point and the wireless network.
- **Preamble Type:** The length of the CRC (Cyclic Redundancy Check) block for communication between the Access Point and roaming wireless adapters. Select either Short Preamble or Long Preamble.
- **IAPP:** Inter Access-Point Protocol is designed for the enforcement of unique association throughout a ESS (Extended Service Set) and for secure exchange of station's security context between current access point (AP) and new AP during handoff period.
- **Block Relay:** Select whether to enable this function.
- **Tx Power Level:** Choose which Tx power level desired from the drop-down menu.

Security:

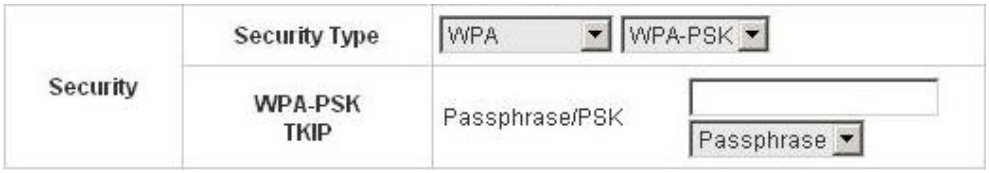
- **Security Type:** Choose one security type from the drop-down menu.
- **WEP:** Choose WEP authentication type here.

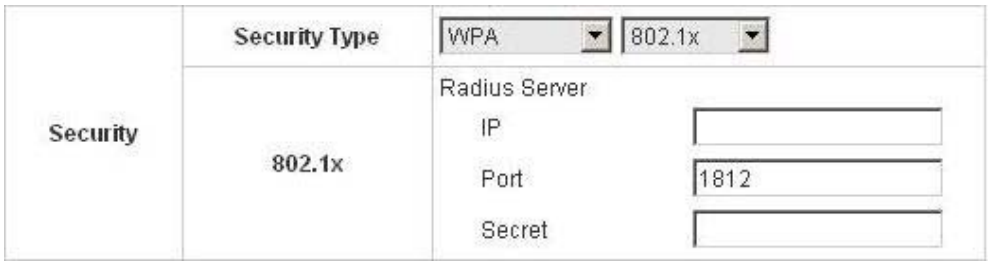


- **WEP:** WEP uses an encryption key that automatically encrypts outgoing wireless data. On the receiving side, the same encryption key enables the computer to automatically decrypt the information so it can be read. Select **Authentication Type** (Open System, Shared Key or Both), **Key Length** (64 bits or 128 bits), **Key Index** (Key1~Key4) and then input the **Key**. Check **802.1x Authentication** to enable this function and enter the related data, if necessary.

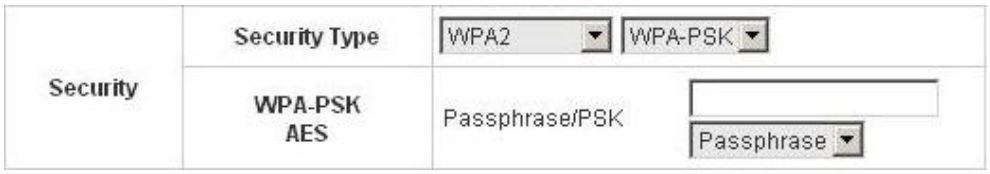


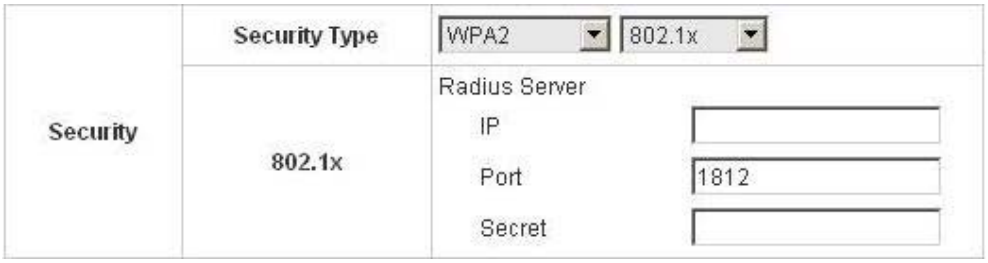
- **WPA:** WPA is Wi-Fi's encryption method that protects unauthorized network access by verifying network users through a server. Select 802.1x or WPA-PSK security type and enter the related information below.



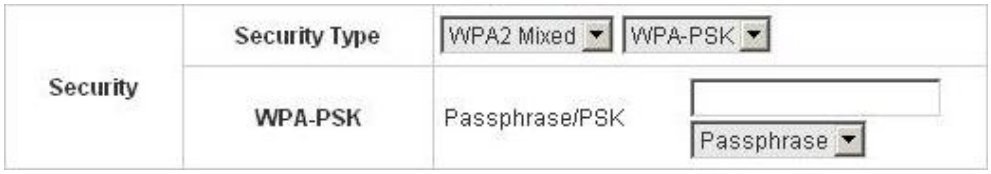


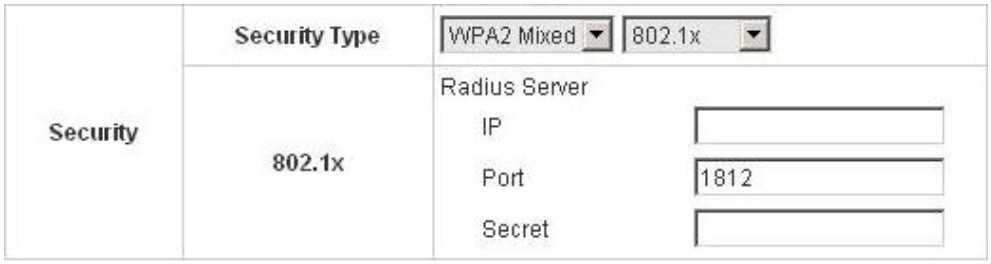
- **WPA2**: Wi-Fi Protected Access version 2. The follow on security method to WPA for Wi-Fi networks that provides stronger data protection and network access control. Select 802.1x or WPA-PSK security type and enter the related information below. WPA2 only can use AES encryption type.



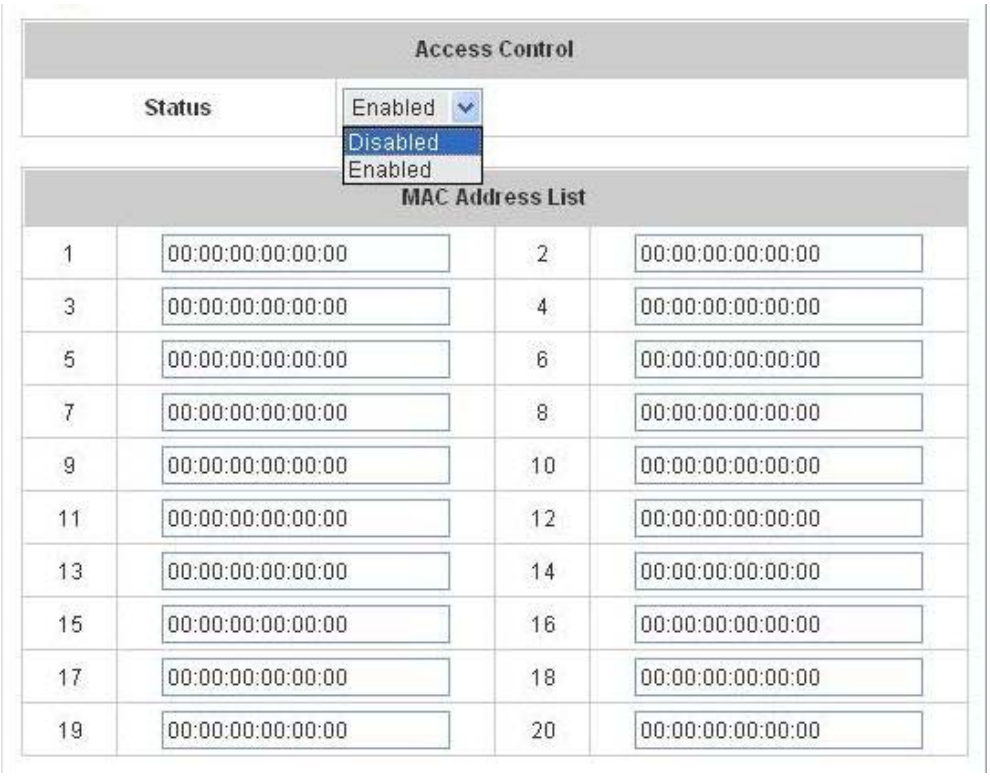


- **WPA Mixed:** If using TKIP and AES encryption type at the same time is desired, choose this security type. Select 802.1x or WPA-PSK security type and enter the related information below.





- **Access Control:** In this function, when the status is **Enabled**, only these clients which MAC addresses are listed in the list can be allowed to connect Edimax AC-M3000. When **Disabled** is selected, all clients can connect Edimax AC-M3000. The default is **Disabled**.



- **Status**

  After clicking the hyperlink of Status, the basic information of the AP including **AP Name**, **AP Type**, **LAN MAC**, **LAN MAC**, **Wireless LAN MAC**, **Up Time**, **Report Time**, **SSID**, **Number of Associated Clients** and **Remark** will be shown. In the below of the **AP Status Detail**, there are the related detailed information, **System Status**, **LAN Status**, **Wireless LAN Status**, **Access Control Status** and **Associated Client Status**.

AP Status Summary	
AP Name	NEWDEV-00001
AP Type	EW-7206APg
LAN MAC	00:0e:2e:7c:aa:7a
Wireless LAN MAC	00:0e:2e:7c:aa:7a
Up Time	0day:14h:47m:10s
Report Time	2006-10-25 03:00:33
SSID	default
Number of Associated Clients	0
Remark	

AP Status Detail
System Status
LAN Status
Wireless LAN Status
Access Control Status
Associated Client Status

- **System Status:** The table shows the information about **AP Name**, **AP Status** and **Last Reporting Time**.

System Information	
AP Name	NEWDEV-00002
AP Status	Online
Last Reporting Time	2006-06-28 10:27:37

- **LAN Status:** The table shows the information about **IP Address**, **Subnet Mask** and **Gateway**.

LAN Interface	
IP Address	192.168.2.2
Subnet Mask	255.255.255.0
Gateway	0.0.0.0

- **Wireless LAN Status:** The table shows all of the related wireless information.

Wireless Interface	
Up Time	0day:15h:45m:48s
SSID	default
Beacon Interval (ms)	100
RTS Threshold	2347
Channel	11
Transmission Rate	Auto
Preamble Type	Long Preamble
IAPP	Enabled
Security	Disable

- **Access Control Status:** The table shows the status of MAC of clients under the control of the AP.

Access Control	
Status	Disabled

Access Control	
Status	Enabled

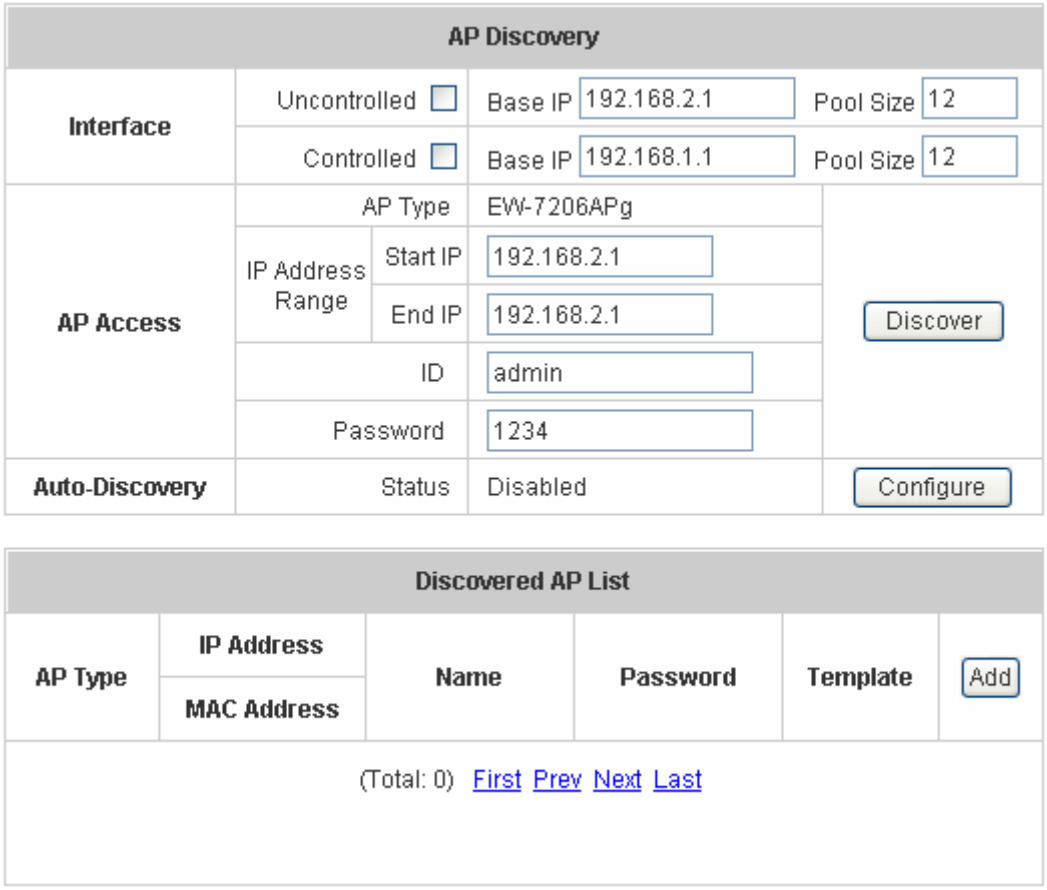
Control List	
00:00:00:00:00:01	00:00:00:00:00:02
00:00:00:00:00:03	00:00:00:00:00:04
00:00:00:00:00:05	00:00:00:00:00:06
00:00:00:00:00:07	00:00:00:00:00:08
00:00:00:00:00:09	00:00:00:00:00:10
00:00:00:00:00:11	00:00:00:00:00:12
00:00:00:00:00:13	00:00:00:00:00:14
00:00:00:00:00:15	00:00:00:00:00:16
00:00:00:00:00:17	00:00:00:00:00:18
00:00:00:00:00:19	00:40:96:A1:AF:dd

- **Associated Client Status:** The table shows the clients connecting to the AP and the related information of the client.

Client List							
No	MAC	User ID	TX Packet (s)	RX Packet (s)	Rate	Power Saving	Expiration countdown
1	00:02:8a:f3:aa:a4	N/A	2	6	11	No	300

4.3.2 AP Discovery

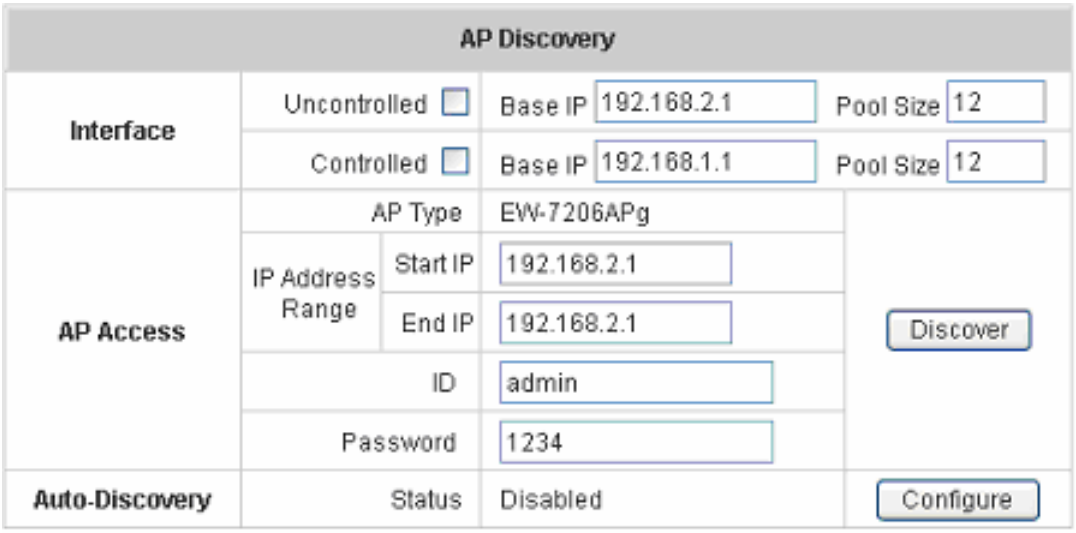
Use this function to detect and manage all the supported APs in the network segments.



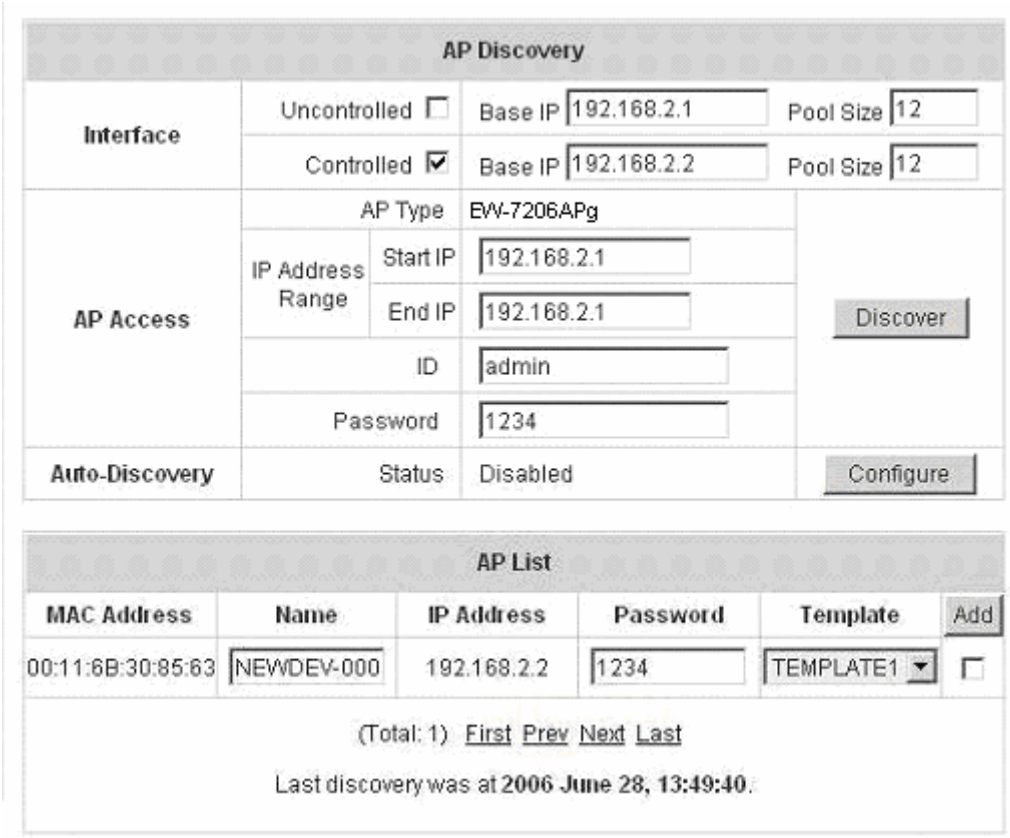
- To discover AP manually, please fill in the required data.
  - **Interface:** Check **Uncontrolled** or/and **Controlled** and enter the **Base IP** and **Pool Size** (the discovered APs will be given an IP address among the pool).
  - **AP Access:** Input the **IP Address Range** of the AP to be discovered, (the default is 192.168.2.1/192.168.2.1), **ID** (the default is admin) and **Password** (the default is 1234) of the AP.

  Then click the ***Discover*** button and the APs that match the given settings will show in the **Discovered AP List** below. If any IP address among the IP range assigned for a specific AP is used, there will be a warning message showing up. Please change the **Base IP** or **Pool Size** of the desired Interface to provide available IP addresses

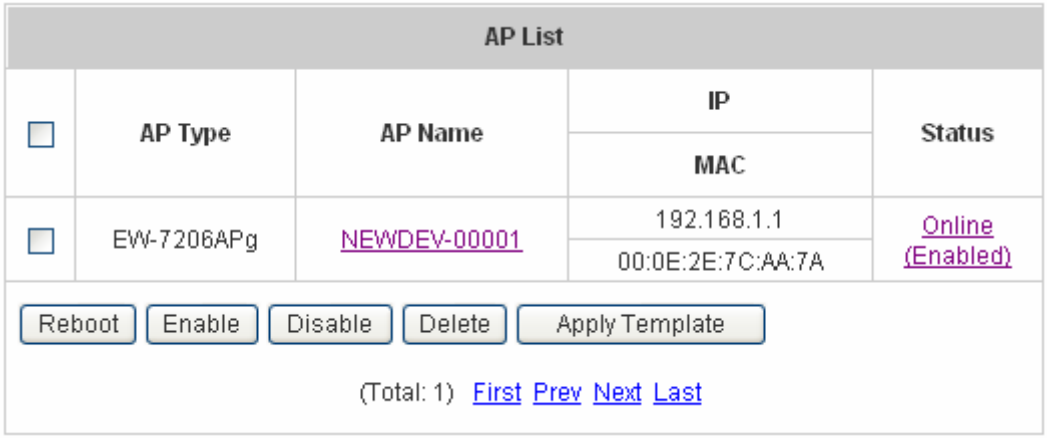
for APs and then click ***Discover*** again. For the desired AP, input the desired name and password, select one template to apply, select the check box, and click ***Add*** to add the AP to the AP List. (About the template, please see **4.3.4 Template Settings**).



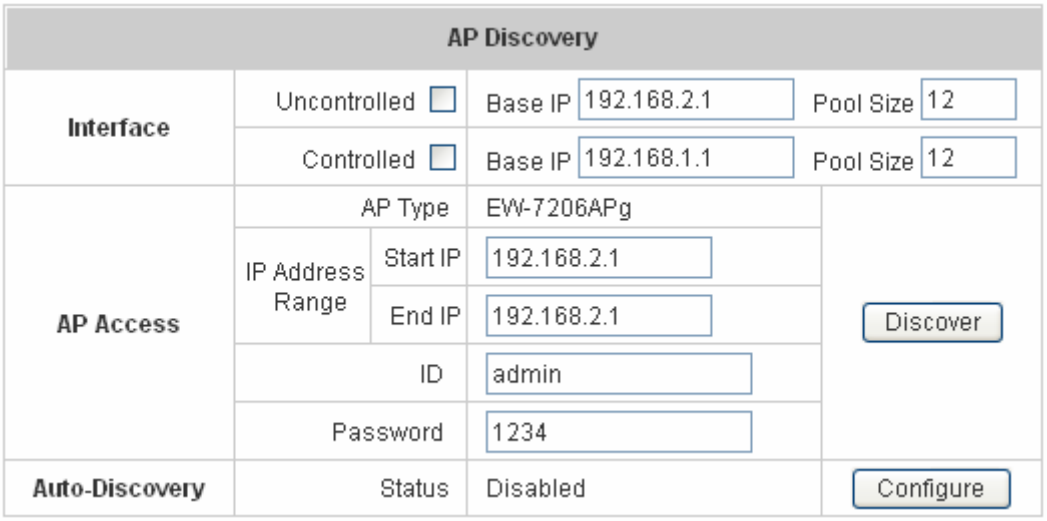
When the matched AP is discovered, it will be shown in the **AP List** below and be given a new IP address as set previously (ex: 192.168.2.2). Check the Add box to add the AP, and it will be listed in the **AP List**.



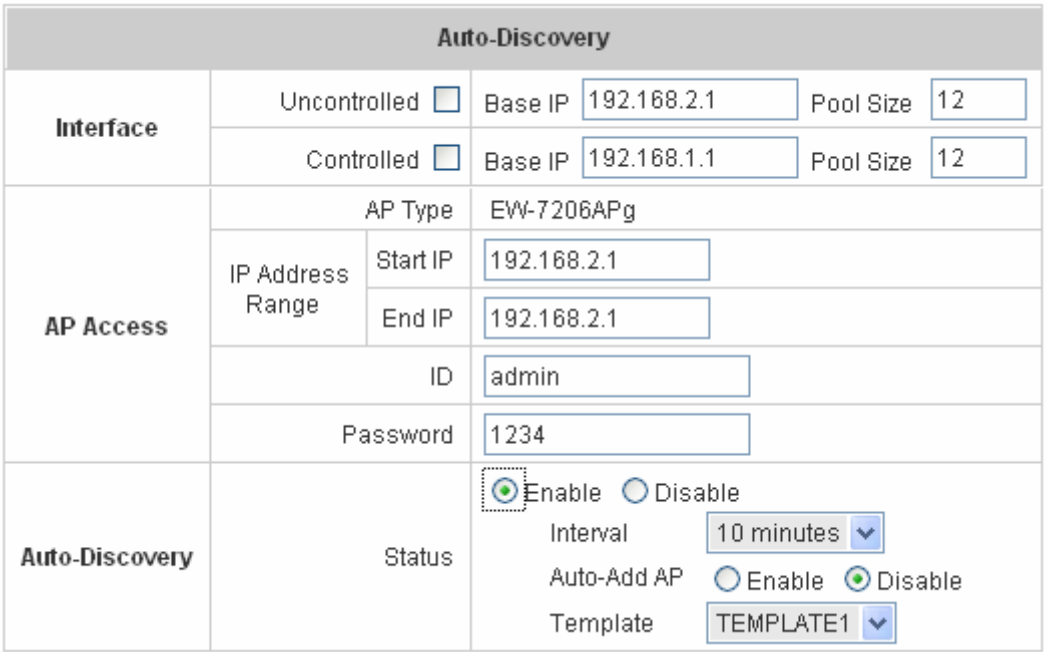
Click Configuring to go to the related configuration. For the details, please refer to **4.3.1 AP List**.



- **Auto-Discovery:** Click **Configure** to enter the **Auto-Discovery** interface and have further configuration.

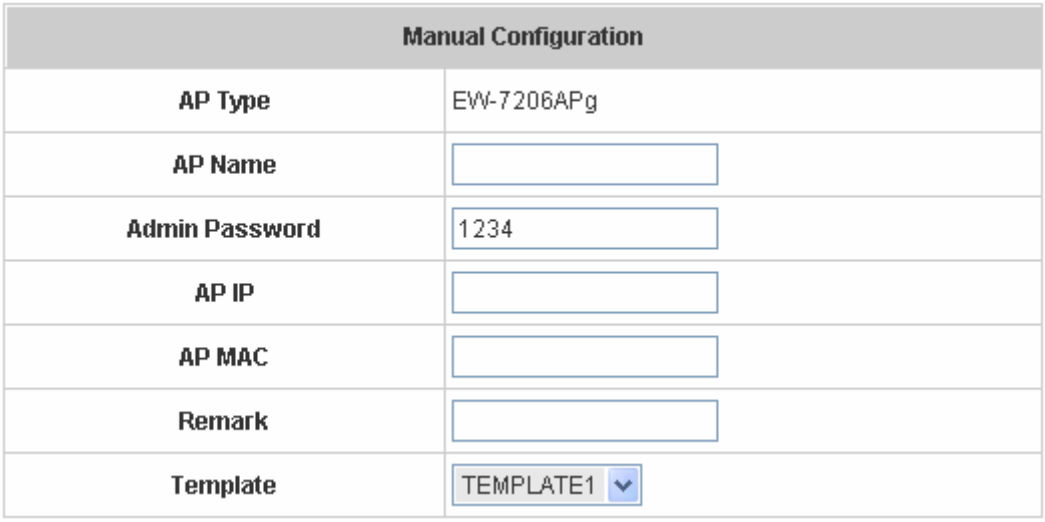


The **Interface** and **AP Access** configuration is the same as the settings mentioned above. Click "Configure" button for more Auto-Discovery functions. A selection known as "**Interval**" can be selected from the drop-down box, and the system will scan periodically according to the its setting (the default value is 10 minutes). If **Auto-Add AP** is enabled, a new detected AP will be assigned an available IP address from the IP address range set in **Interface** and applied with the selected template.



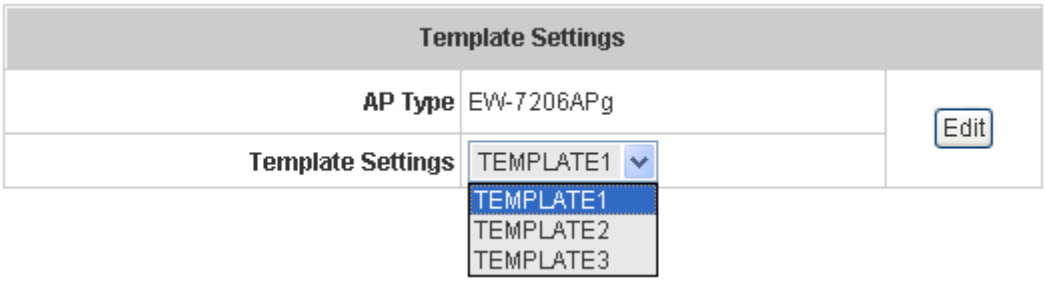
4.3.3 Manual Configuration

The supported APs can also be added manually. Enter the related information of the AP and select a **Template**. Click ***ADD*** and then the AP will be added to the **AP List**.

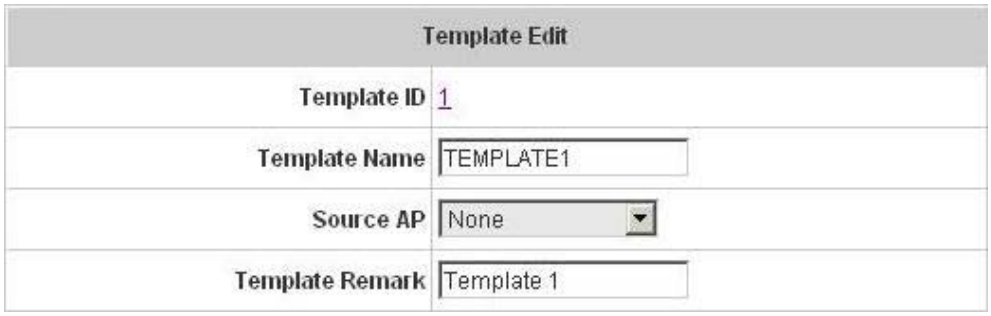


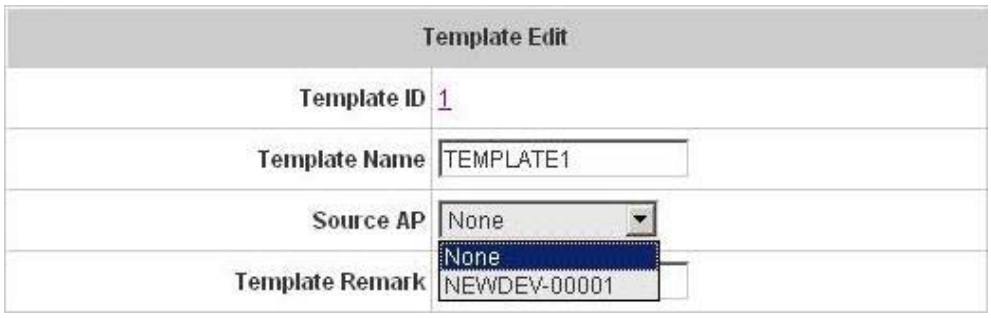
4.3.4 Template Settings

Template is a model that can be copied to every AP without having to configure the each AP individually. There are three templates provided. Click ***Edit*** to go to configuration.

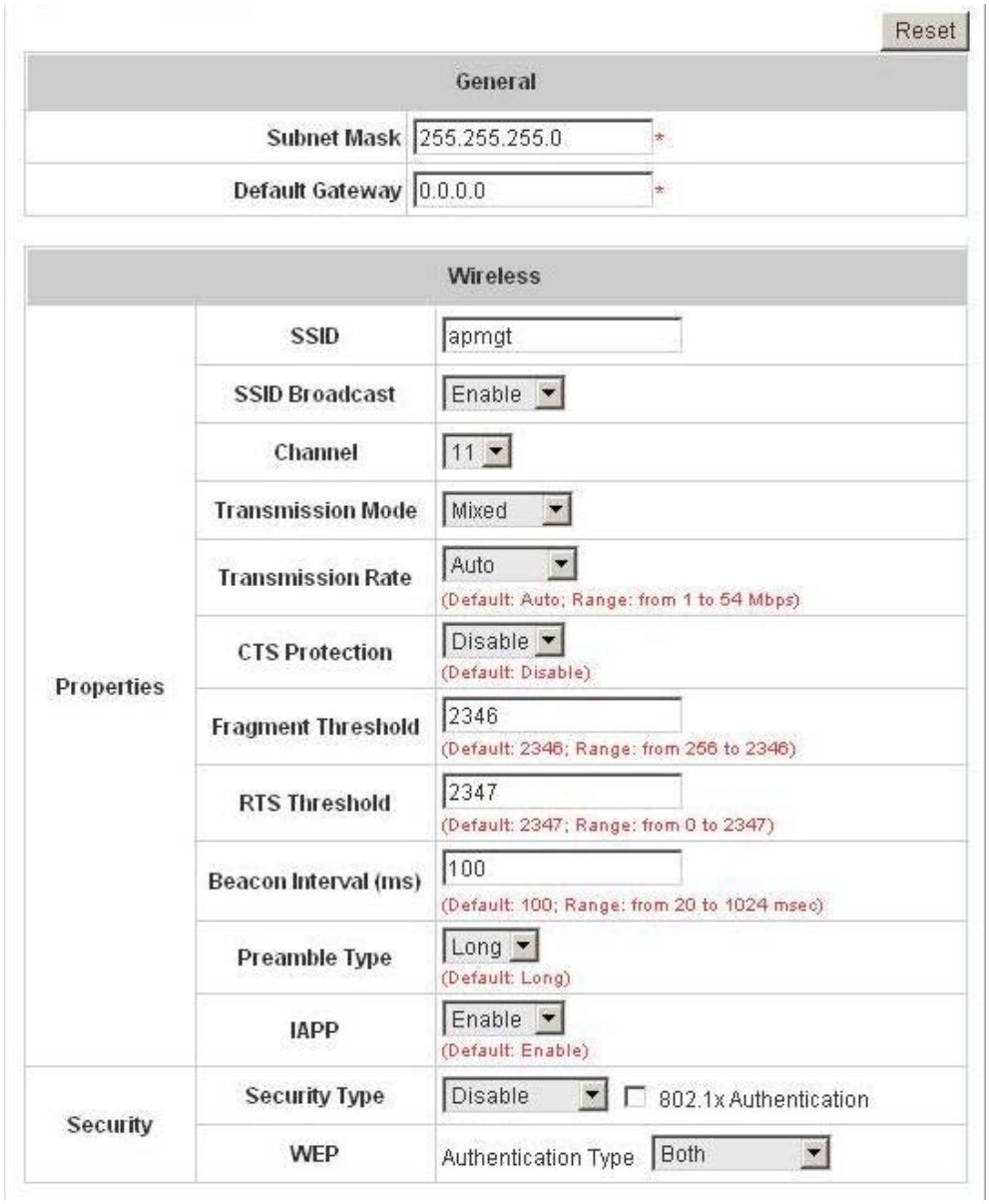


Except configuring all the template setting, copy the configuration of an AP to the template by selecting a **Source AP** and revise some settings is also acceptable. Please select **None** if configuring the whole template from the draft is desired. Enter the **Template Name** and **Template Remark** (optional) and click the hyperlink of ***Template ID*** to have further configuration.

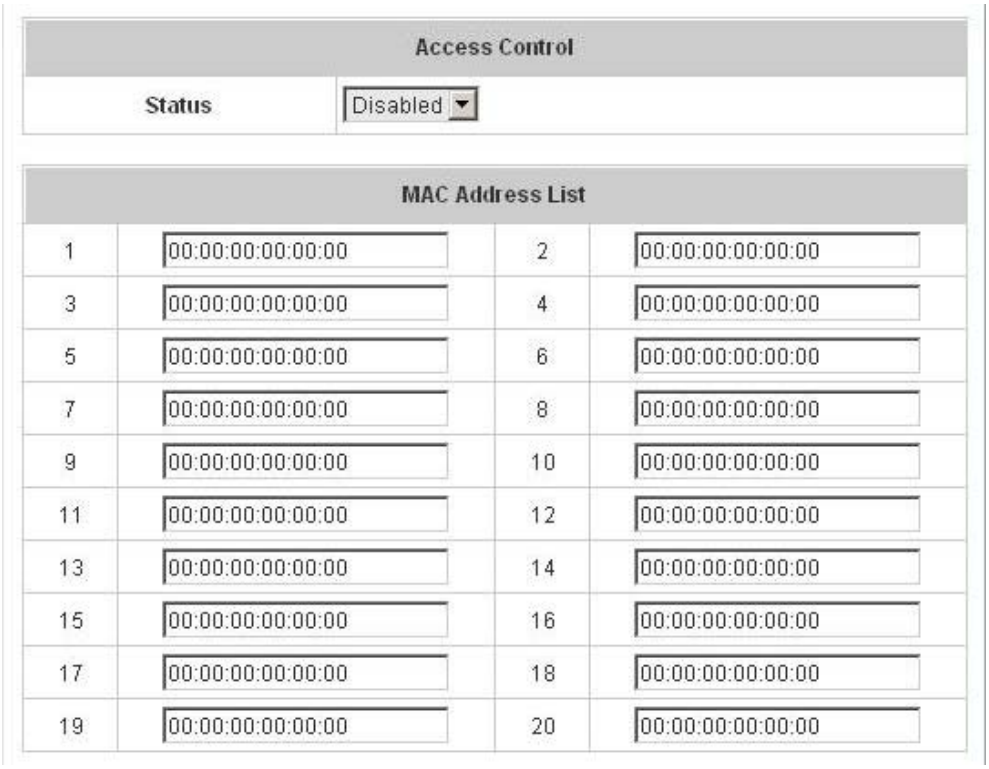




After click the hyperlink of **Template ID** to enter the **Template Edit** page, revise the configuration for demand such as **SSID** or **Channel**. About other functions of **Wireless** section, please refer to **4.3.1 AP List**.



Access Control function provides to control the clients' devices that are allowed to associate with the APs applied with the desired template setting. Choose **Disabled** or **Enabled** this function and enter the desired clients' MAC addresses in the MAC Address List. There are up to 20 MAC addresses available. When this function is enabled, please make sure the MAC Address List is not empty.



Access Control	
Status	Disabled

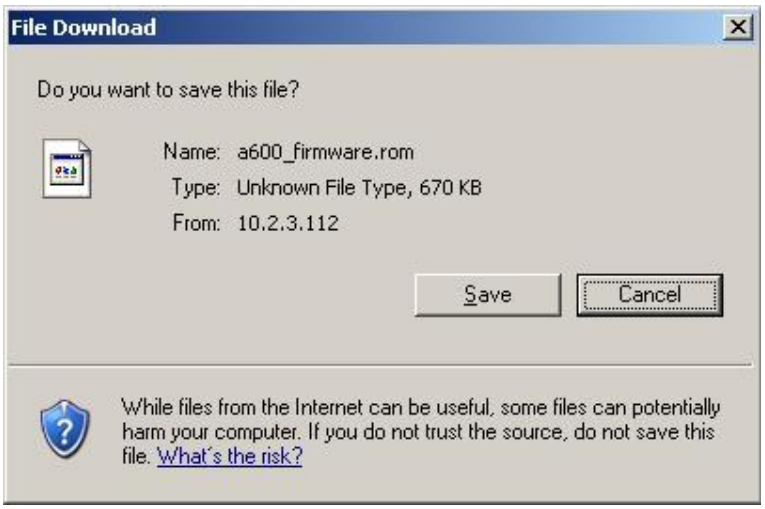
MAC Address List			
1	00:00:00:00:00:00	2	00:00:00:00:00:00
3	00:00:00:00:00:00	4	00:00:00:00:00:00
5	00:00:00:00:00:00	6	00:00:00:00:00:00
7	00:00:00:00:00:00	8	00:00:00:00:00:00
9	00:00:00:00:00:00	10	00:00:00:00:00:00
11	00:00:00:00:00:00	12	00:00:00:00:00:00
13	00:00:00:00:00:00	14	00:00:00:00:00:00
15	00:00:00:00:00:00	16	00:00:00:00:00:00
17	00:00:00:00:00:00	18	00:00:00:00:00:00
19	00:00:00:00:00:00	20	00:00:00:00:00:00

4.3.5 Firmware Management

In this function, AP's firmware can be uploaded. The current firmware can also be downloaded to the local storage.

Firmware Upload		
File Name	Browse...	Upload

Firmware List				
File Name	AP Type	Version	Size	Download
Checksum				Delete



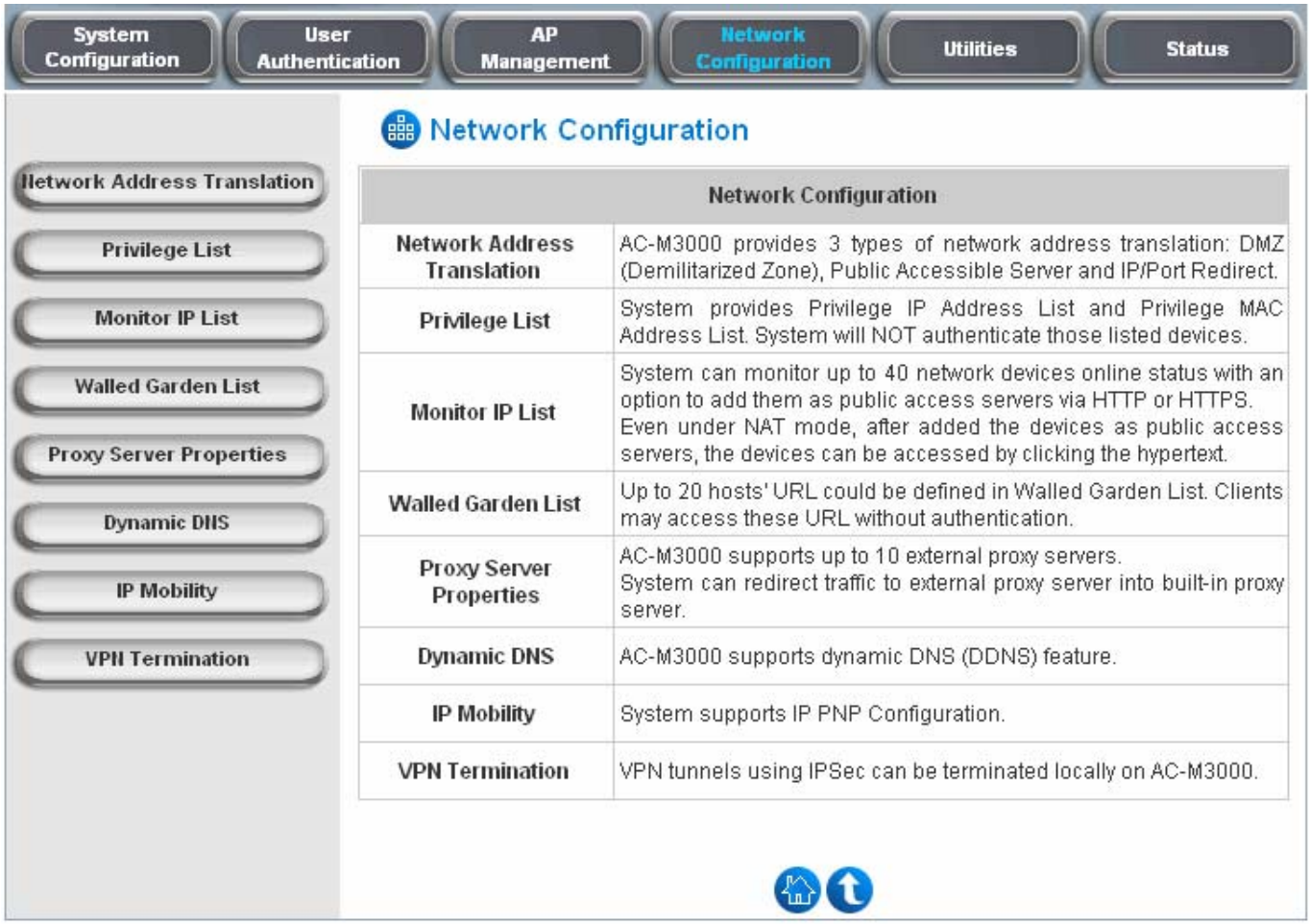
4.3.6 AP Upgrade

Check the APs which need to be upgraded and select the upgrade version of firmware, and click ***Apply*** to upgrade firmware.

AP List					
Name	Type	Version	Upgraded Time	New Version	Upgrade
NEWDEV-00001	EW-7206APg	1.23	N/A	N/A	☐

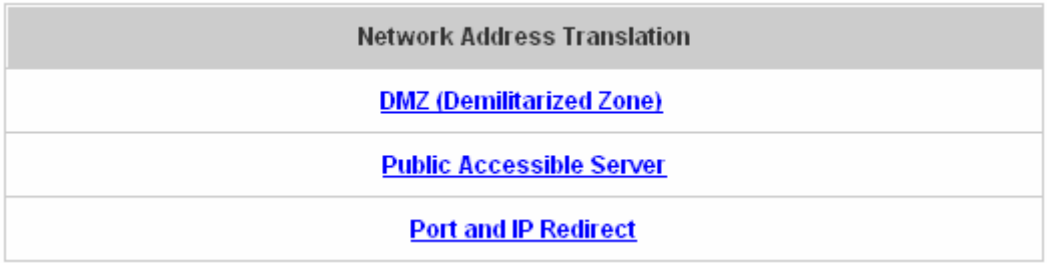
4.4 Network Configuration

This section includes the following functions: **Network Address Translation**, **Privilege List**, **Monitor IP List**, **Walled Garden List**, **Proxy Server Properties** and **Dynamic DNS**, **IP Mobility** and **VPN Termination**.



4.4.1 Network Address Translation

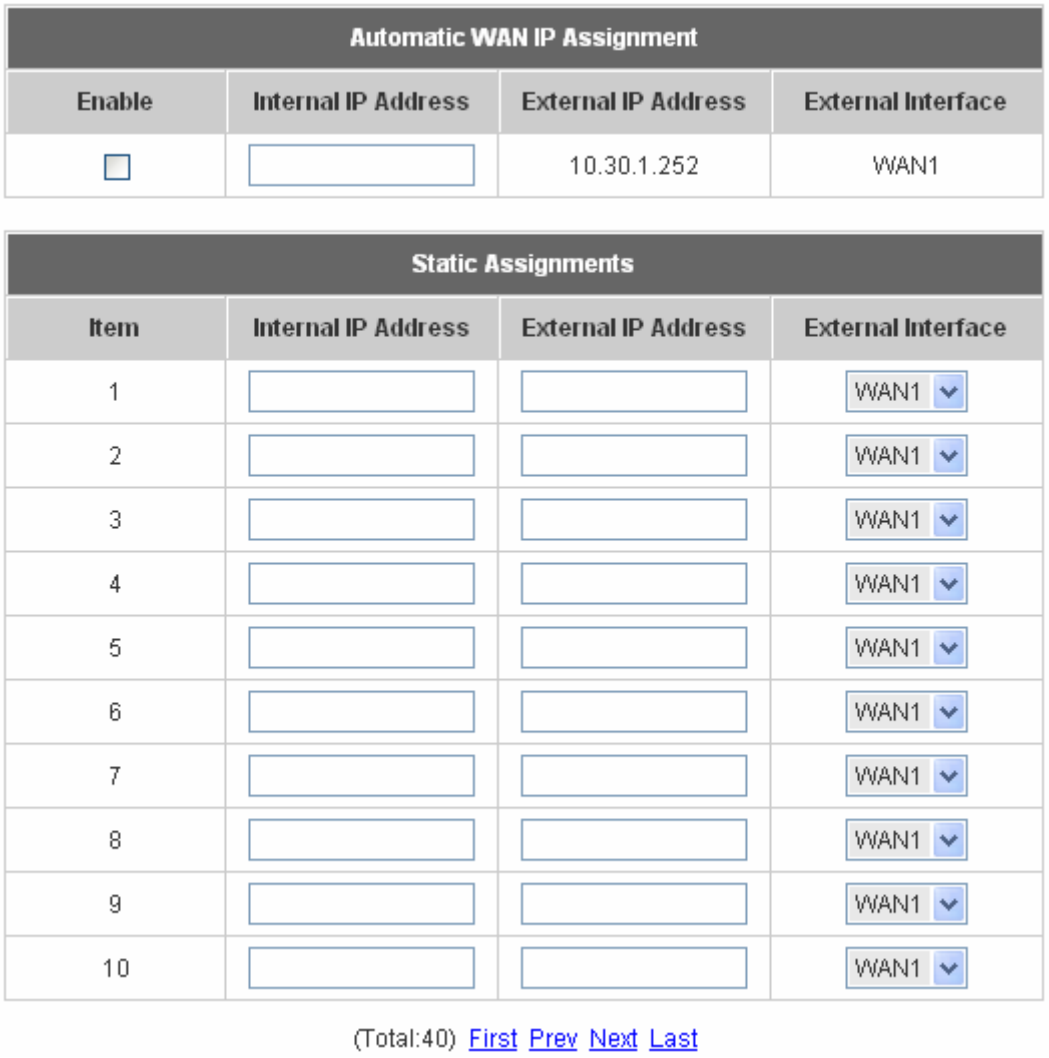
There are three parts, **DMZ (Demilitarized Zone), Public Accessible Server** and **Port and Redirect**, need to be set.



- **DMZ (Demilitarized Zone)**

  In the DMZ functions, the administrator can define mandatory external to internal IP mapping, hence a user on

WAN side network can access the private machine by accessing the external IP. Choose to enable Automatic WAN IP Assignment by checking the **Enable** check box and enter the **Internal IP address**. When **Automatic WAN IP Address** function is enabled, accessing WAN1 will be mapped to access the **Internal IP Address**. For **Static Assignments**, enter **Internal** and **External** IP Addresses as a set and choose to use WAN1 or WAN2 for the **External Interface** from the drop-down menu. These settings will become effective immediately after clicking the ***Apply*** button.



Automatic WAN IP Assignment

Enable	Internal IP Address	External IP Address	External Interface
☐		10.30.1.252	WAN1

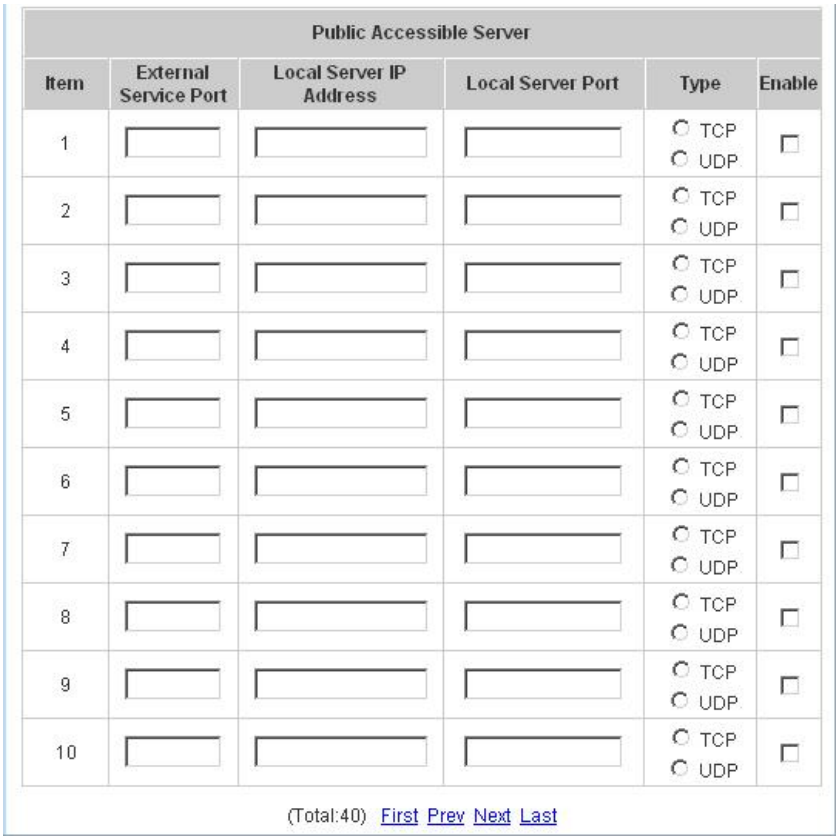
Static Assignments

Item	Internal IP Address	External IP Address	External Interface
1			WAN1
2			WAN1
3			WAN1
4			WAN1
5			WAN1
6			WAN1
7			WAN1
8			WAN1
9			WAN1
10			WAN1

(Total:40) First Prev Next Last

- **Public Accessible Server**

  In this function, the administrator can set 40 virtual servers at most, so that the computers not belonging to the managed network can access the servers in the managed network via WAN1 port IP of Edimax AC-M3000. Please enter the **External Service Port**, **Local Server IP Address** and **Local Server Port**. According to the different services provided, the network service can use the **TCP** protocol or the **UDP** protocol. In the **Enable** column, check the desired server to enable. These settings will become effective immediately after clicking the ***Apply*** button.



Public Accessible Server					
Item	External Service Port	Local Server IP Address	Local Server Port	Type	Enable
1				TCP UDP	
2				TCP UDP	
3				TCP UDP	
4				TCP UDP	
5				TCP UDP	
6				TCP UDP	
7				TCP UDP	
8				TCP UDP	
9				TCP UDP	
10				TCP UDP	

(Total:40) First Prev Next Last

- **Port and IP Redirect**

  In this function, the administrator can set up to 40 sets of the IP address ports for redirection purpose. When users attempt to connect to the port of a **Destination IP Address** listed here, the connection packet will be converted and redirected to the port of the **Translated to Destination IP Address**. Please enter the **IP Address** and **Port** of **Destination**, and the **IP Address** and **Port** of **Translated to Destination**. According to the different services provided, choose **TCP** or **UDP** protocol. These settings will become effective immediately after clicking ***Apply***.

Item	Destination		Translated to Destination		Type
	IP Address	Port	IP Address	Port	
1					TCP UDP
2					TCP UDP
3					TCP UDP
4					TCP UDP
5					TCP UDP
6					TCP UDP
7					TCP UDP
8					TCP UDP
9					TCP UDP
10					TCP UDP

(Total:40) First Prev Next Last

4.4.2 Privilege List

Edimax AC-M3000 provides two privilege lists, **Privilege IP Address List** and **Privilege MAC Address List**. In the Privilege List function, the administrator can add desired IP addresses and MAC addresses in these lists. The IP addresses and MAC addresses in these lists are allowed to access the network without authentication.

Privilege List
Privilege IP Address List
Privilege MAC Address List

- **Privilege IP Address List**

  If there are some clients belonging to the managed server that need to access the network without authentication, enter the IP addresses of these clients in this list. The **Remark** is optional but useful to keep track. Edimax AC-M3000 provides up to 100 privilege IP addresses. These settings will become effective immediately after clicking ***Apply***.

Pivilege IP Address List		
Item	Privilege IP Address	Remark
1		
2		
3		
4		
5		

Warning: *Permitting specific IP addresses to have network access rights without going through standard authentication process at the controlled port may cause security problems.*

- **Privilege MAC Address List**

  In addition to the IP addresses, you can also set the clients' MAC addresses in this list, so authentication is not required when they use the network. Edimax AC-M3000 allows 100 privilege MAC addresses at most.

  If you want to manually create the list, enter the MAC address (the format is xx:xx:xx:xx:xx:xx) as well as the remark (not necessary). These settings will become effective immediately after clicking ***Apply***.

Privilege MAC Address List		
Item	MAC Address	Remark
1		
2		
3		
4		
5		

Warning: *Permitting specific MAC addresses to have network access rights without going through standard authentication process at the controlled port may cause security problems.*

4.4.3 Monitor IP List

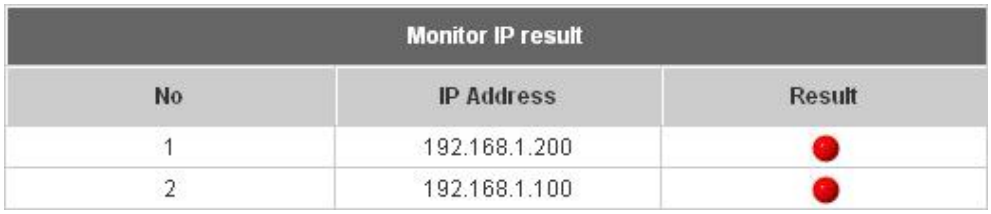
Edimax AC-M3000 will send out a packet periodically to monitor the connection status of the IP addresses on the list. If the monitored IP address does not respond, the system will send an e-mail to notify the administrator that such destination is not reachable. After entering the related information, click ***Apply*** and these settings will become

effective immediately.

When the monitored devices have built-in Web servers and connect to the LAN interfaces operating under NAT mode, they can be accessed by the hyperlink of theirs IP addresses. To add the monitored IP addresses as hyperlink accessible mode by clicking **Add** button in Link column.

Monitor IP List							
Item	Protocol	IP Address	Link	Item	Protocol	IP Address	Link
1	http		Add	2	http		Add
3	http		Add	4	http		Add
5	http		Add	6	http		Add
7	http		Add	8	http		Add
9	http		Add	10	http		Add
11	http		Add	12	http		Add
13	http		Add	14	http		Add
15	http		Add	16	http		Add
17	http		Add	18	http		Add
19	http		Add	20	http		Add

When **Monitor** button is clicked, **Monitor IP Result** page will appear. If the entered IP address is unreachable, a red dot under Result field will appear. A green dot indicates that the IP address is reachable and alive..



Monitor IP result		
No	IP Address	Result
1	192.168.1.200	
2	192.168.1.100	

4.4.4 Walled Garden List

This function provides some free surfing areas that users can access before login and authenticated. Up to 20 addresses or domain names of the websites can be defined in this list. Users without the network access right can still have a chance to experience the actual network service free of charge. Please enter the **IP Address** or **Domain Name** of the website in the list and these settings will become effective immediately after clicking ***Apply***.

Walled Garden List			
Item	Addres	Item	Addres
1		2	
3		4	
5		6	
7		8	
9		10	
11		12	
13		14	
15		16	
17		18	
19		20	

Caution: *To use the domain name, the Edimax AC-M3000 has to connect to DNS server first or this function will not work.*

4.4.5 Proxy Server Properties

Edimax AC-M3000 supports External Proxy Server functions and provides a built-in Internal Proxy Server

External Proxy Server

Item	Server IP	Port
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Internal Proxy Server

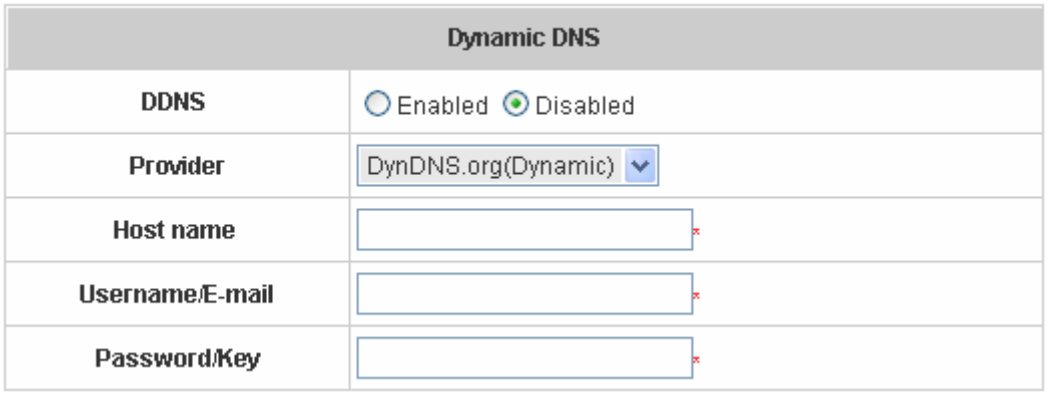
Built-in Proxy Server	○ Enable ◉ Disable

- **External Proxy Server:** Under the Edimax AC-M3000 security management, the system will match the proxy setting of **External Proxy Server** list to the clients' proxy setting when clients' have proxy setting in their browsers. If there is no matching, the clients will not be able to get the login page and then unable to access the network. If there is a matching, then the clients will be directed to the system first for authentication. After successful authentication, the clients' will be redirected back to the desired proxy servers.
- **Internal Proxy Server:** Edimax AC-M3000 has a built-in proxy server. If this function is enabled, the clients will be forced to treat Edimax AC-M3000 as the proxy server regardless of the clients' original proxy settings.

  For more details about how to set up the proxy servers, please refer to Appendix D and Appendix E.

4.4.6 Dynamic DNS

Edimax AC-M3000 provides a convenient DNS function to translate a domain name to the corresponding IP address of WAN port that helps the administrator memorize and connect to WAN port. If the DHCP is activated at WAN port, this function will also update the newest IP address regularly to the DNS server. These settings will become effective immediately after clicking ***Apply***.



- **DDNS:** Choose to enable or disable this function.
- **Provider:** Select the DNS provider.
- **Host name:** The IP address/domain name of the WAN port.
- **Username/E-mail:** The register ID (username or e-mail) for the DNS provider.
- **Password/Key:** The register password for the DNS provider.

The fields with red asterisks are necessary to fill in.

4.4.7 IP Mobility

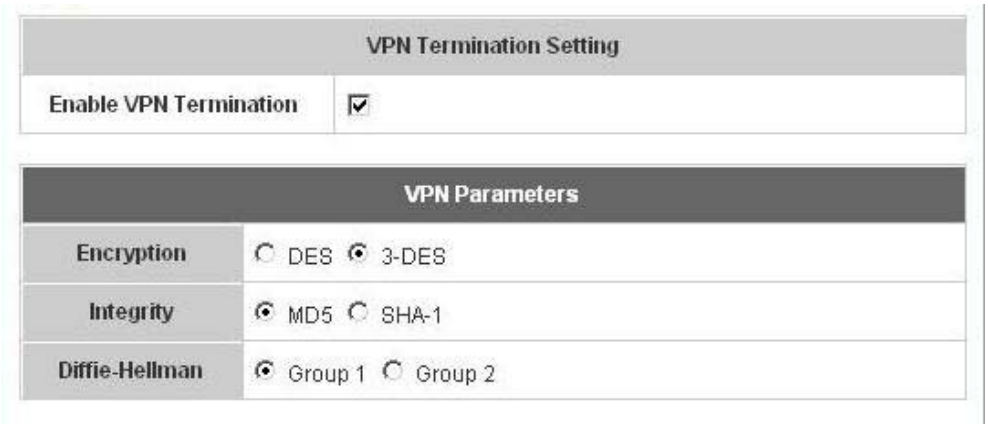
Edimax AC-M3000 supports IP PNP function.

If this function is enabled, a client can use any reasonable IP address to connect to the system. Regardless of what the IP address at the user end is, the client can still be authenticated through Edimax AC-M3000 and access the network.

4.4.8 VPN Termination

***V**irtual **P**rivate **N**etwork*, or **VPN**, a type of technology designed to increase the security of information transferred over the Internet. VPN can work with either wired or wireless networks, as well as with dial-up connections over

POPS. VPN creates a private encrypted tunnel from the end user's computer, through the local wireless network, through the Internet, all the way to the corporate servers and database.

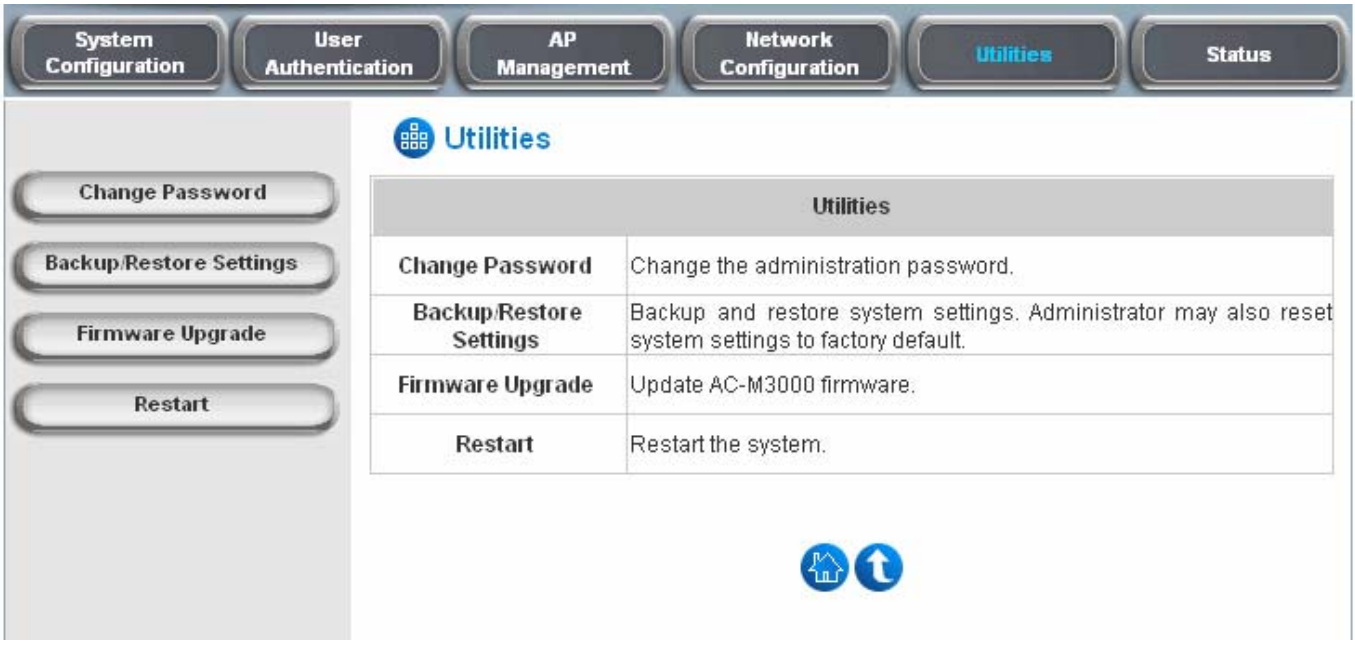


VPN has serveral kinds of protocols and Edimax AC-M3000 supports **IPSec**. IPSec is a technology provided by Windows 2000 that allows you to create encrypted channels between two servers. IPSec can be used to filter IP traffic and to authenticate servers. If you need to use this function, check **Enable VPN Termination** and choose the desired parameters. Then click ***Apply*** to enable VPN Termination.
In Edimax AC-M3000, there are several functions with **VPN** or **IPSec** selection. When you enable them, they will apply the VPN settings you configured here.

For the details of IPSec VPN, please see ***Appendix C -- IPSec VPN***.

4.5 Utilities

This section provides four utilities to customize and maintain the system including **Change Password**, **Backup/Restore Settings**, **Firmware Upgrade** and **Restart**.



4.5.1 Change Password

Edimax AC-M3000 supports three types of account interface. You can log in as **admin**, **manager** or **operator**. The default usernames and passwords are as follow:

Admin: The administrator can access all configuration pages of the Edimax AC-M3000.

User Name: **admin**

Password: **1234**

Manager: The manager can only access the configuration pages under ***User Authentication*** to manage the user accounts, but has no permission to change the settings of the profiles for Firewall, Specific Route and Schedule.

User Name: **manager**

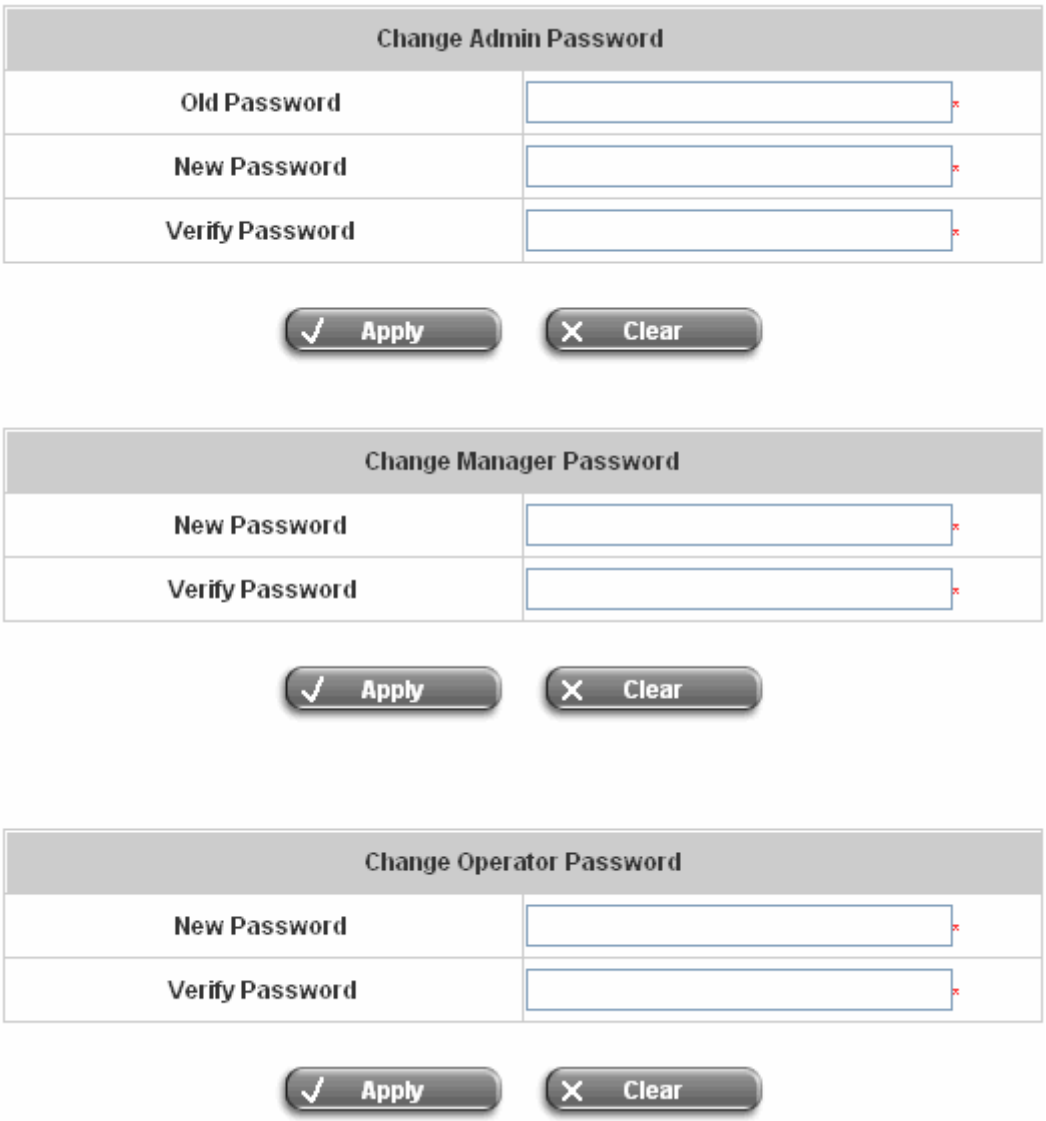
Password: **manager**

Operator: The operator can only access the configuration page of ***Create On-demand User*** to create and print out the new on-demand user accounts.

User Name: **operator**

Password: **operator**

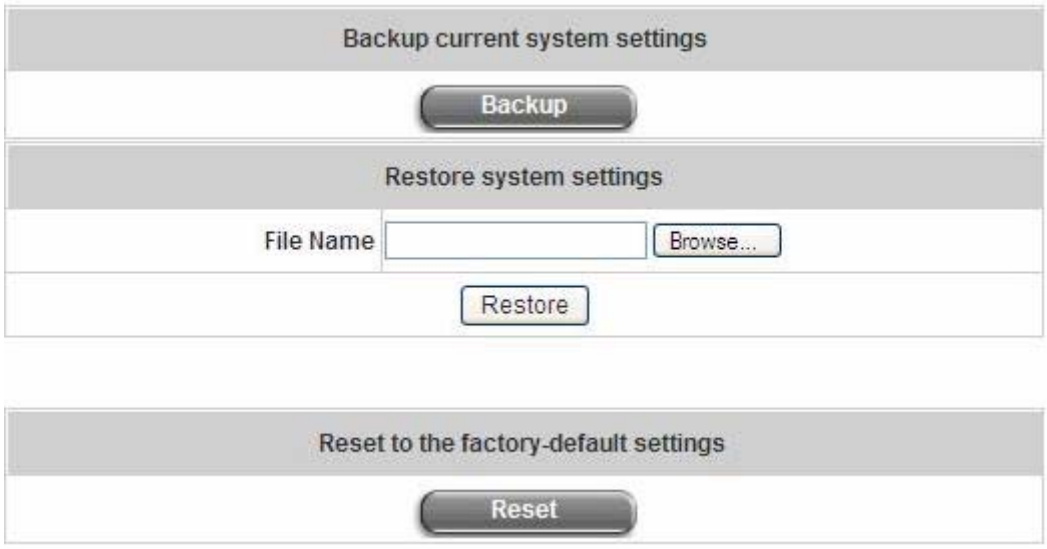
The administrator can change the passwords here. Please enter all the required fields with red asterisks if changing the password is desired. Click ***Apply*** to activate this new password.



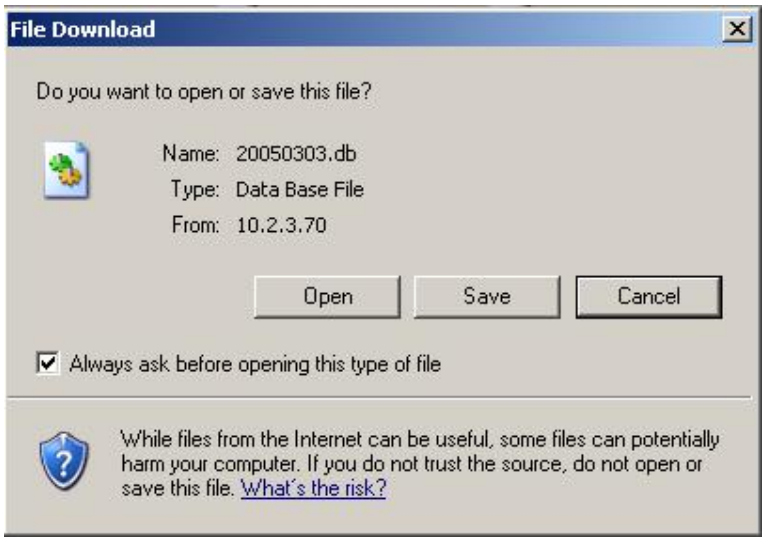
Caution: *If the administrator's password is lost, the administrator's password still can be changed through the text mode management interface on the serial port, console/printer port.*

4.5.2 Backup/Restore Settings

This function is used to backup/restore the settings of Edimax AC-M3000. Also, Edimax AC-M3000 can be reset to the factory default settings here.



- **Backup current system settings:** Click ***Backup*** to create a .db database backup file and save it on disk.



- **Restore system settings:** Click ***Browse*** to search for a .db database backup file created by Edimax AC-M3000 and click ***Restore*** to restore to the same settings at the time the backup file was created.
- **Reset to the factory-default settings:** Click ***Reset*** to load the factory default settings of Edimax AC-M3000.

4.5.3 Firmware Upgrade

The administrator can download the latest firmware from website and upgrade the system here. Click ***Browse*** to search for the firmware file and click ***Apply*** to go on with the firmware upgrade process. It might take a few minutes before the upgrade process completes and the system needs to be restarted afterwards to make the new firmware effective.

Warning: *1. Firmware upgrade may cause the loss of some of the data. Please refer to the release notes for the limitation before upgrading the firmware. 2. Please restart the system after upgrading the firmware. Do not power on/off the system during the upgrade or the restart process. It may damage the system and cause it to malfunction.*

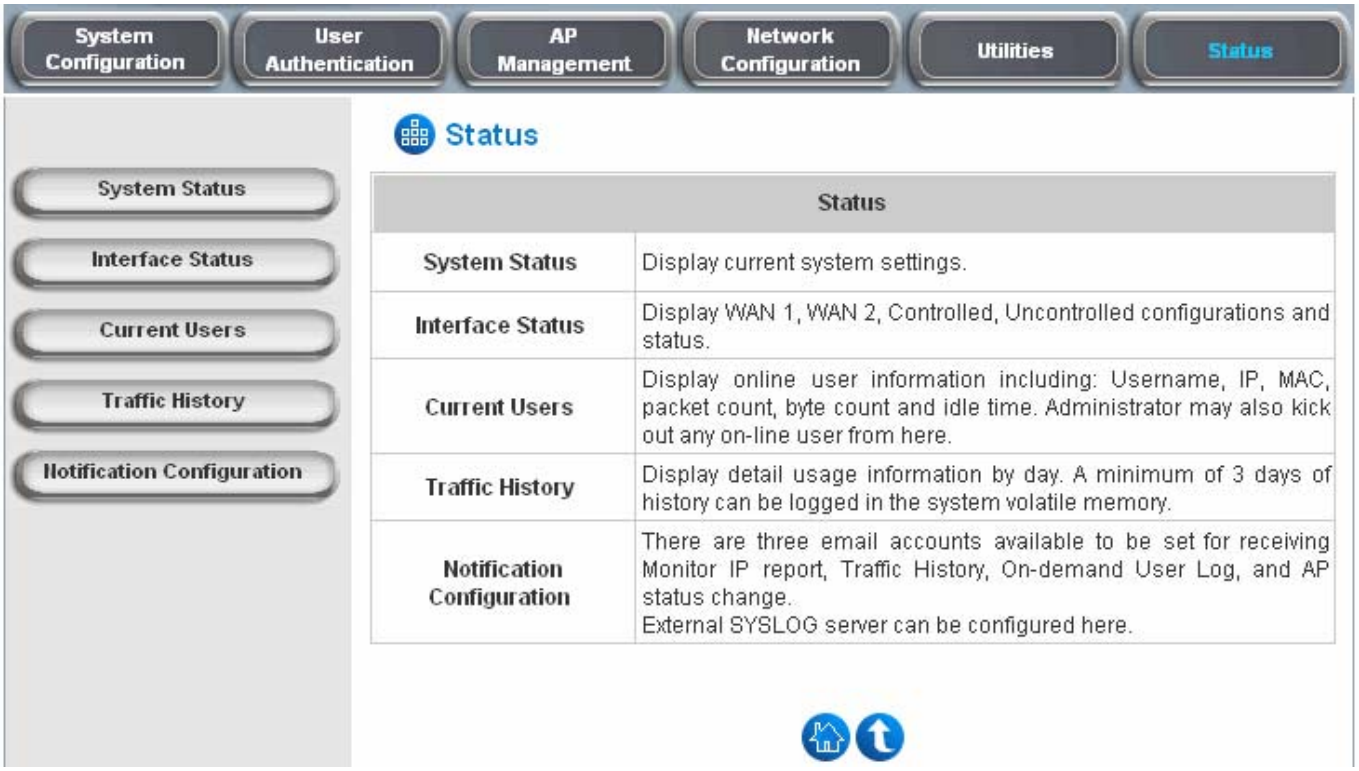
4.5.4 Restart

This function allows the administrator to safely restart Edimax AC-M3000 and the process should take about 100 seconds. Click ***YES*** to restart Edimax AC-M3000; click ***NO*** to go back to the previous screen. Please don't power off the system until this restart process has finished.

Caution: *The connection of all online users of the system will be disconnected when system is in the process of restarting.*

4.6 Status

This section includes **System Status**, **Interface Status**, **Current Users**, **Traffic History**, and **Notification Configuration** to provide system status information and online user status.



4.6.1 System Status

This section provides an overview of the system for the administrator.

System Status		
Current Firmware Version		1.00.A1
System Name		AC-M3000
Home Page		http://www.edimax.com.tw
Syslog server-Traffic History		N/A:N/A
Syslog server-On demand User log		N/A:N/A
Proxy Server		Disabled
Friendly Logout		Enabled
Warning of Internet Disconnection		Disabled
WAN Failover		Disabled
Management	Remote Management IP	0.0.0.0/0.0.0.0
	SNMP	Disabled
History	Retained Days	3 days
	Email To	N/A
		N/A
		N/A
History	Retained Days	3 days
	Email To	N/A
		N/A
		N/A
Time	NTP Server	(tock.usno.navy.mil)
	Date Time	2006/10/24 08:36:36 +0100
User	Idle Timer	10 Min(s)
	Multiple Login	Disabled
DNS	Preferred DNS Server	10.2.3.203
	Alternate DNS Server	168.95.1.1

The description of the table is as follows:

Item	***Description***
Current Firmware Version	The present firmware version of Edimax AC-M3000
System Name	The system name. The default is Edimax AC-M3000

Home Page		The page to which the users are directed after initial login success.
Syslog server-Traffic History		The IP address and port number of the external Syslog Server. **N/A** means that it is not configured.
Syslog server-On demand User log		The IP address and port number of the external Syslog Server. **N/A** means that it is not configured.
Proxy Server		Enabled/disabled stands for that the system is currently using the proxy server or not.
Friendly Logout		Enabled/disabled stands for the setting of hiding/displaying an extra confirmation window when users try to close the login successful window .
Warning of Internet Disconnection		Enabled/Disabled stands for the connection at WAN is normal or abnormal and all online users are allowed/disallowed to log in the network.
Management	**Remote Management IP**	The IP or IPs that is allowed for accessing the management interface.
	SNMP	Enabled/disabled stands for the current status of the SNMP management function.
History	**Retained Days**	The maximum number of days for the system to retain the users' information.
	Email To	The email address that the traffic history information will be sent to.
Time	**NTP Server**	The network time server that the system is set to align.
	Date Time	The system time is shown as the local time.
User	**Idle Timer**	The number of minutes allowed for the users to be inactive.
	Multiple Login	Enabled/disabled stands for the current setting to allow/disallow multiple logins form the same account.
DNS	**Preferred DNS Server**	IP address of the preferred DNS Server.
	Alternate DNS Server	IP address of the alternate DNS Server.

4.6.2 Interface Status

This section provides an overview of the interface for the administrator including **WAN1**, **WAN2**, **Controlled Port** and **Uncontrolled Port**.

Interface Status		
WAN1	MAC Address	00:06:78:AA:BB:CE
	IP Address	10.2.3.127
	Subnet Mask	255.255.255.0
WAN2	MAC Address	00:06:78:AA:BB:CD
	IP Address	10.0.2.2
	Subnet Mask	255.255.0.0
Controlled	Mode	NAT
	MAC Address	00:06:78:AA:BB:CC
	IP Address	192.168.10.254
	Subnet Mask	255.255.255.0
Controlled DHCP Server	Status	Enabled
	WINS IP Address	N/A
	Start IP Address	192.168.10.1
	End IP Address	192.168.10.100
	Lease Time	1440 Min(s)
Uncontrolled	Mode	NAT
	MAC Address	00:06:78:AA:BB:CC
	IP Address	192.168.2.254
	Subnet Mask	255.255.255.0
Uncontrolled DHCP Server	Status	Enabled
	WINS IP Address	N/A
	Start IP Address	192.168.2.1
	End IP Address	192.168.2.100
	Lease Time	1440 Min(s)

The description of the table is as follows.

Item		***Description***
WAN1	**MAC Address**	The MAC address of the WAN1 port.
	IP Address	The IP address of the WAN1 port.
	Subnet Mask	The Subnet Mask of the WAN1 port.

WAN2	**MAC Address**	The MAC address of the WAN2 port.
	IP Address	The IP address of the WAN2 port.
	Subnet Mask	The Subnet Mask of the WAN2 port.
Controlled	**Mode**	The mode of the controlled port.
	MAC Address	The MAC address of the controlled port.
	IP Address	The IP address of the controlled port.
	Subnet Mask	The Subnet Mask of the controlled port.
Controlled DHCP Server	**Status**	Enable/disable stands for status of the DHCP server on the controlled port.
	WINS IP Address	The WINS server IP. **N/A** means that it is not configured.
	Start IP Address	The start IP address of the DHCP IP range.
	End IP address	The end IP address of the DHCP IP range.
	Lease Time	Minutes of the lease time of the IP address.
Uncontrolled	**Mode**	The mode of the uncontrolled port.
	MAC Address	The MAC address of the uncontrolled port.
	IP Address	The IP address of the uncontrolled port.
	Subnet Mask	The Subnet Mask of the uncontrolled port.
Uncontrolled DHCP Server	**Status**	Enable/disable stands for status of the DHCP server on the uncontrolled port
	WINS IP Address	The WINS server IP. **N/A** means that it is not configured.
	Start IP Address	The start IP address of the DHCP IP range.
	End IP address	The end IP Address of the DHCP IP range.
	Lease Time	Minutes of the lease time of the IP address.

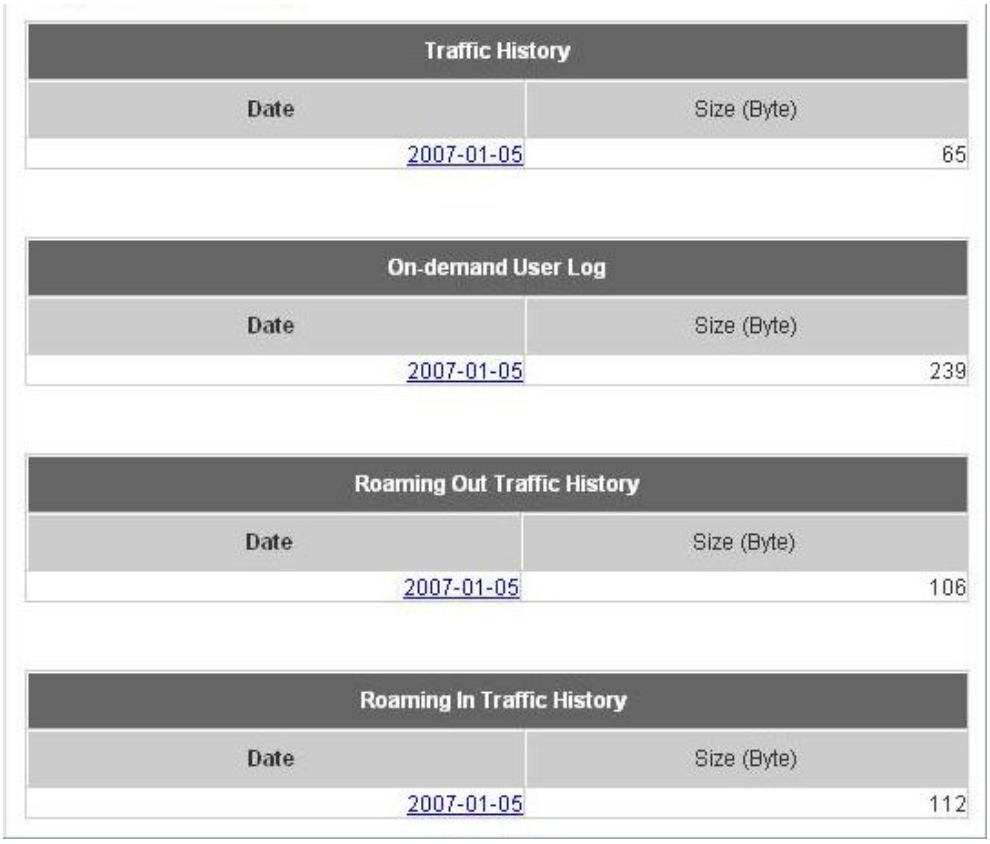
4.6.3 Current Users

In this function, each online user's information including **Username**, **IP**, **MAC**, **Pkts In**, **Bytes In**, **Pkts Out**, **Bytes Out, Idle, Source AP** and **Kick Out** can be obtained. Administrator can use this function to force a specific online user to log out. Just click the hyperlink of ***Kick Out*** next to the online user's name to logout that particular user. Click ***Refresh*** to renew the current users list.

Current Users List						
Item	Username		Pkts In	Bytes In	Idle	Source AP
	IP	MAC	Pkts Out	Bytes Out		Kick Out

4.6.4 Traffic History

This function is used to check the history of Edimax AC-M3000. The history of each day will be saved separately in the DRAM for 3 days.



Traffic History	
Date	Size (Byte)
2007-01-05	65

On-demand User Log	
Date	Size (Byte)
2007-01-05	239

Roaming Out Traffic History	
Date	Size (Byte)
2007-01-05	106

Roaming In Traffic History	
Date	Size (Byte)
2007-01-05	112

Caution: *Since the history is saved in the DRAM, if you need to restart the system and also keep the history, then please manually copy and save the information before restarting.*

If the **History Email** has been entered under the **Notify Configuration** page, then the system will automatically send out the history information to that email address.

- **Traffic History**

  As shown in the following figure, each line is a traffic history record consisting of 9 fields, **Date**, **Type, Name**, **IP**, **MAC**, **Pkts In**, **Bytes In**, **Pkts Out,** and **Bytes Out**, of user activities.

Traffic History 2005-03-22								
Date	Type	Name	IP	MAC	Pkts In	Bytes In	Pkts Out	Bytes Out
2005-03-22 19:12:21 +0800	LOGIN	user1@local.tw	192.168.1.143	00:D0:C9:42:37:20	0	0	0	0
2005-03-22 19:12:24 +0800	LOGOUT	user1@local.tw	192.168.1.143	00:D0:C9:42:37:20	3	252	3	252
2005-03-22 19:12:29 +0800	LOGIN	user2@local.tw	192.168.1.143	00:D0:C9:42:37:20	0	0	0	0
2005-03-22 19:12:32 +0800	LOGOUT	user2@local.tw	192.168.1.143	00:D0:C9:42:37:20	3	252	3	252
2005-03-22 19:13:51 +0800	LOGIN	user1@local.tw	192.168.1.1	00:D0:C9:60:01:01	0	0	0	0

- **On-demand User Log**

  As shown in the following figure, each line is a on-demand user log record consisting of 13 fields, **Date**, **System Name**, **Type**, **Name**, **IP**, **MAC**, **Pkts In**, **Bytes In**, **Pkts Out, Bytes Out, Expiretime**, **Validtime** and **Remark**, of user activities.

On-demand User Log 2005-03-22												
Date	System Name	Type	Name	IP	MAC	Pkts In	Bytes In	Pkts Out	Bytes Out	Expiretime	Validtime	Remark
2005-03-22 17:55:58 +0800	My Service	Create_OD_User	P4SP	0.0.0.0	00:00:00:00:00:00	0	0	0	0	2005-03-25 17:55:58	None	2 hrs 0 mins
2005-03-22 17:56:03 +0800	My Service	Create_OD_User	62H6	0.0.0.0	00:00:00:00:00:00	0	0	0	0	2005-03-25 17:56:03	None	2 hrs 0 mins
2005-03-22 17:56:07 +0800	My Service	Create_OD_User	886D	0.0.0.0	00:00:00:00:00:00	0	0	0	0	2005-03-25 17:56:07	None	2 hrs 0 mins

- **Roaming Out Traffic History**

  As shown in the following figure, each line is a roaming out traffic history record consisting of 14 fields, **Date**, **Type, Name**, **NSID**, **NASIP**, **NASPort**, **UserMAC**, **SessionID**, **SessionTime**, **Bytes in**, **Bytes Out**, **Pkts In**, **Pkts Out** and **Message**, of user activities.

Roaming Out Traffic History 2005-03-22												
Date	Type	Name	NASID	NASIP	NASPort	UserMAC	sessionID	sessionTime	Bytes In	Bytes Out	Pkts In	Pkts Out	Message

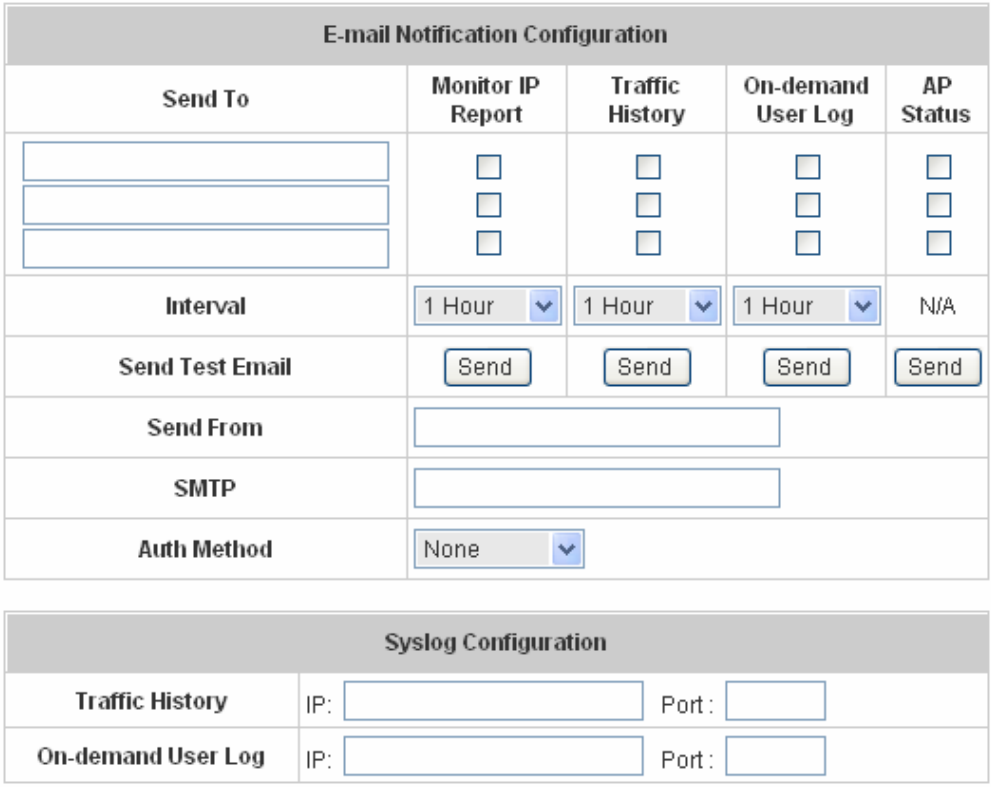
- **Roaming In Traffic History**

  As shown in the following figure, each line is a roaming in traffic history record consisting of 15 fields, **Date**, **Type, Name**, **NSID**, **NASIP**, **NASPort**, **UserMAC**, **UserIP**, **SessionID**, **SessionTime**, **Bytes in**, **Bytes Out**, **Pkts In**, **Pkts Out** and **Message**, of user activities.

Roaming In Traffic History 2005-03-22													
Date	Type	Name	NASID	NASIP	NASPort	UserMAC	UserIP	SessionID	SessionTime	Bytes In	Bytes Out	Pkts In	Pkts Out	Message

4.6.5 Notification Configuration

The Edimax AC-M3000 will save the traffic history into the internal DRAM. If the administrator wants the system to automatically send out the history to a particular email address, please enter the related information in these fields.



- **Send To:** The e-mail address of the person whom the history email is for. This will be the receiver's e-mail. Check which type of report to be sent—Monitor IP Report, Traffic History, On-demand User Log, and AP Status.
- **Interval:** The time interval to send the e-mail report. Choose a proper number from the drop-down box.
- **Send Test Email:** To test the settings correct or not.
- **Send From:** The e-mail address of the administrator in charge of the monitoring. This will show up as the sender's e-mail.
- **SMTP Server:** The IP address of the SMTP server.
- **Auth Method:** The system provides four authentication methods, **Plain**, **Login**, **CRAM-MD5** and **NTLMv1**, or **"None"** to use none of the above. Depending on which authentication method you select, you have to enter the **Account Name**, **Password** and **Domain**.

  NTLMv1 is not currently available for general use.

  Plain and **CRAM-MD5** are standardized authentication mechanisms while **Login** and **NTLMv1** are Microsoft proprietary mechanisms. Only **Plain** and **Login** can use the UNIX login password. Netscape uses **Plain**. Outlook and Outlook express uses **Login** as default, although they can be set to use **NTLMv1**.

  Pegasus uses **CRAM-MD5** or **Login** but can not be configured which method to use.

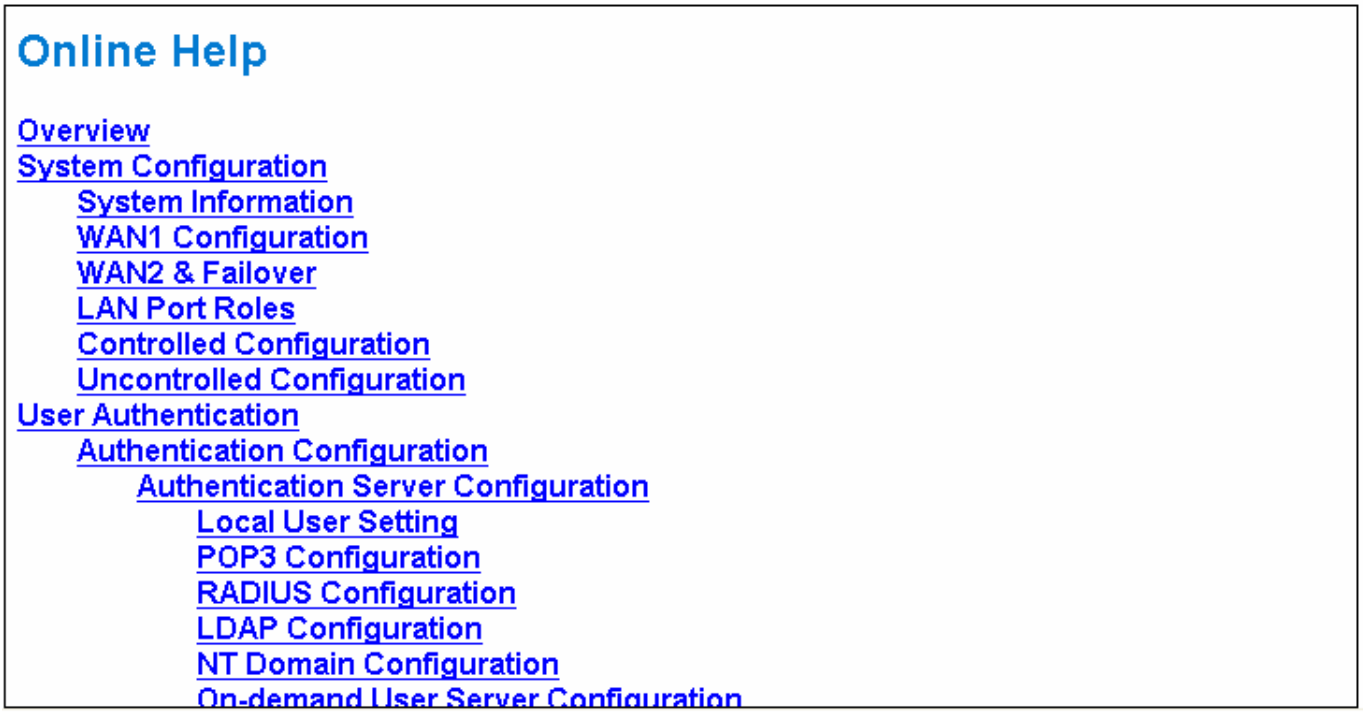
Syslog Configuration: There are 2 parts: Traffic History and On-demand User Log. Enter the IP address and Port to specify which and from where the report should be sent. .

-

4.7 Help

On the screen, the **Help** button is on the upper right corner.

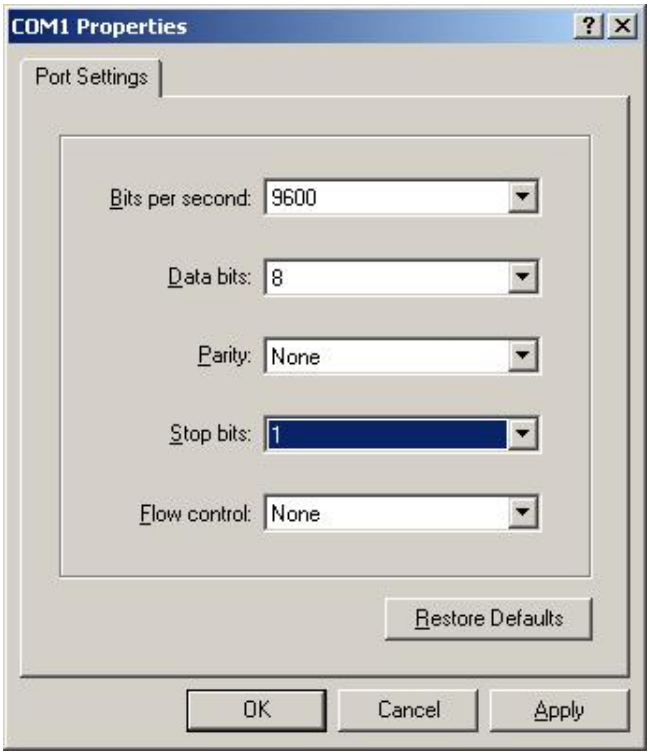
Click ***Help*** to the **Online Help** window and then click the hyperlink of the items to get the information.



5. Appendix A – Console Interface

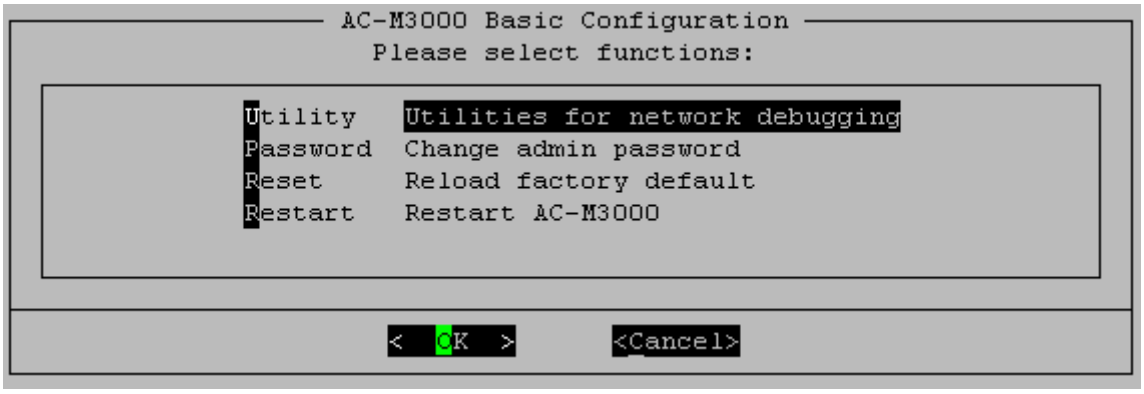
Via this port to enter the console interface for the administrator to handle the problems and situations occurred during operation.

1. To connect the console port of Edimax AC-M3000, you need a console, modem cable and a terminal simulation program, such as the Hyper Terminal.
2. If you use Hyper Terminal, please set the parameters as **9600,8,n,1**.



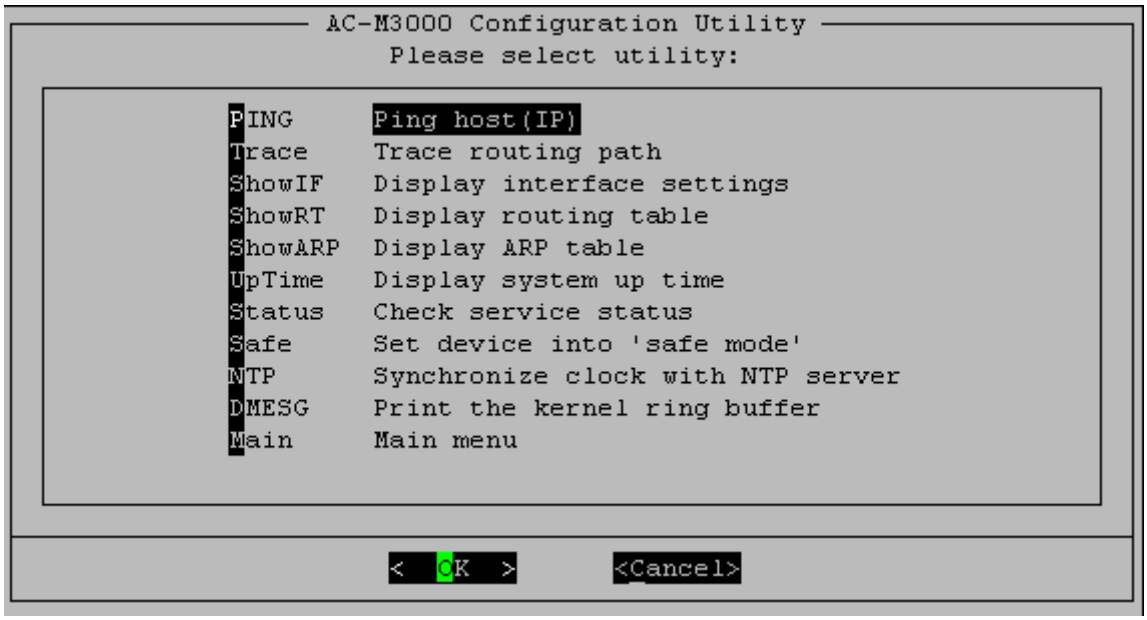
Caution: *the main console is a menu-driven text interface with dialog boxes. Please use arrow keys on the keyboard to browse the menu and press the* ***Enter*** *key to make selection or confirm what you enter.*

3. Once the console port of Edimax AC-M3000 is connected properly, the console main screen will appear automatically. If the screen does not appear in the terminal simulation program automatically, please try to press the arrow keys, so that the terminal simulation program will send some messages to the system and the welcome screen or the main menu should appear. If you are still unable to see the welcome screen or the main menu of the console, please check the connection of the cables and the settings of the terminal simulation program.



- **Utilities for network debugging**

  The console interface provides several utilities to assist the Administrator to check the system conditions and to debug any problems. The utilities are described as follow:



  - Ping host (IP): By sending ICMP echo request to a specified host and wait for the response to test the network status.
  - Trace routing path: Trace and inquire the routing path to a specific target.
  - Display interface settings: It displays the information of each network interface setting including the MAC address, IP address, and netmask.
  - Display the routing table: The internal routing table of the system is displayed, which may help to confirm the Static Route settings.
  - Display ARP table: The internal ARP table of the system is displayed.
  - Display system up time: The system live time (time for system being turn on) is displayed.
  - Check service status: Check and display the status of the system.
  - Set device into "safe mode": If administrator is unable to use Web Management Interface via the browser for the system failed inexplicitly. Administrator can choose this utility and set Edimax AC-M3000 into safe mode, then administrator can management this device with browser again.
  - Synchronize clock with NTP server: Immediately synchronize the clock through the NTP protocol and the specified network time server. Since this interface does not support manual setup for its internal clock, therefore we must reset the internal clock through the NTP.
  - Print the kernel ring buffer: It is used to examine or control the kernel ring buffer. The program helps users to print out their bootup messages instead of copying the messages by hand.
  - Main menu: Go back to the main menu.

- **Change admin password**

  Besides supporting the use of console management interface through the connection of null modem, the

system also supports the SSH online connection for the setup. When using a null modem to connect to the system console, we do not need to enter administrator's password to enter the console management interface. But connecting the system by SSH, we have to enter the username and password.

The username is "admin" and the default password is also "admin", which is the same as for the web management interface. You can use this option to change the administrator's password. Even if you forgot the password and are unable to log in the management interface from the web or the remote end of the SSH, you can still use the null modem to connect the console management interface and set the administrator's password again.

Caution: *Although it does not require a username and password for the connection via the serial port, the same management interface can be accessed via SSH. Therefore, we recommend you to immediately change the Edimax AC-M3000 Admin username and password after logging in the system for the first time.*

- **Reload factory default**
  Choosing this option will reset the system configuration to the factory defaults.
- **Restart Cipherium Edimax AC-M3000**
  Choosing this option will restart Edimax AC-M3000.

6. Appendix B – Network Configuration on PC

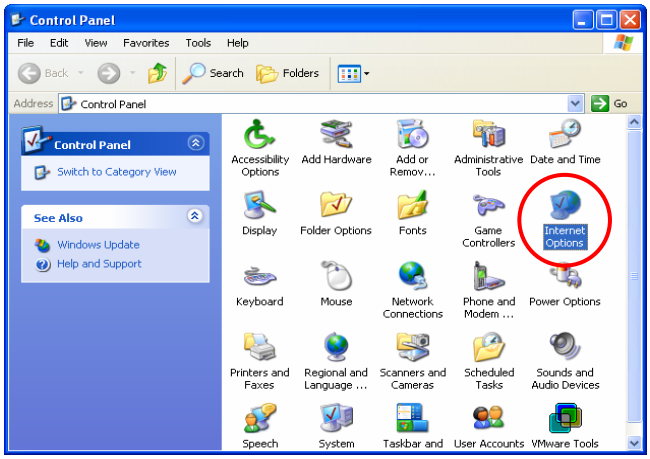
After Edimax AC-M3000 is installed, the following configurations must be set up on the PC: **Internet Connection Setup** and **TCP/IP Network Setup**.

- **Internet Connection Setup**

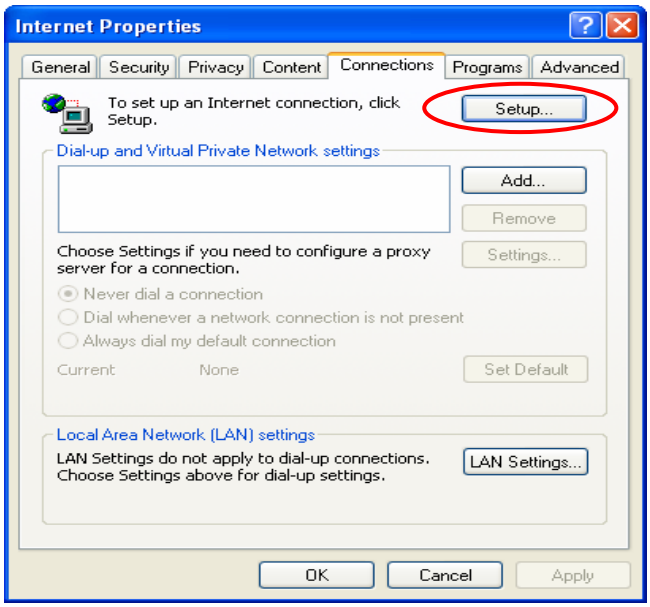
  If the Internet Connection of this client PC has been configured as use local area network already, you can skip this setup.

  ◆ **Windows XP**

  1. Choose **Start** > **Control Panel** > **Internet Option**.

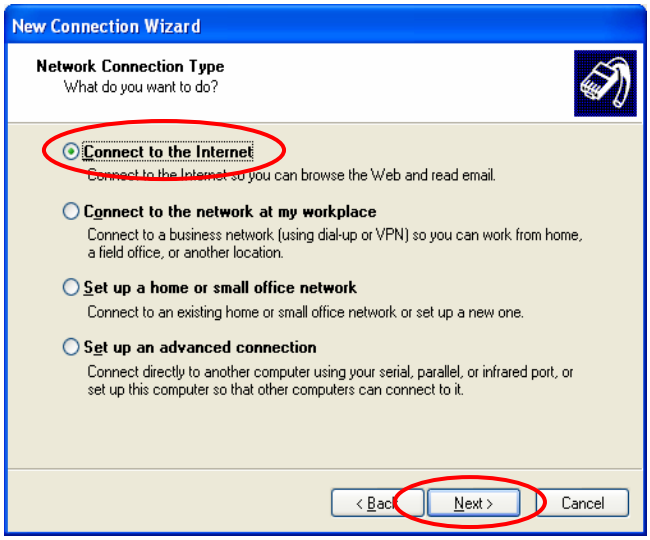


  2. Choose the **"Connections"** label, and then click ***Setup***.

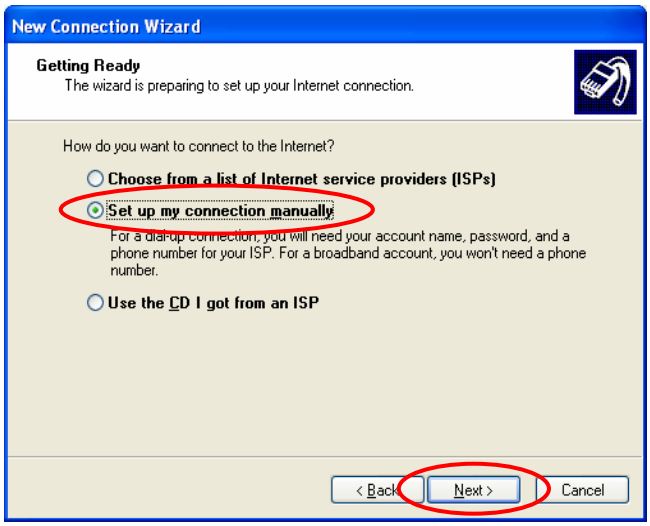


3. Click ***Next*** when **Welcome to the New Connection Wizard** screen appears.

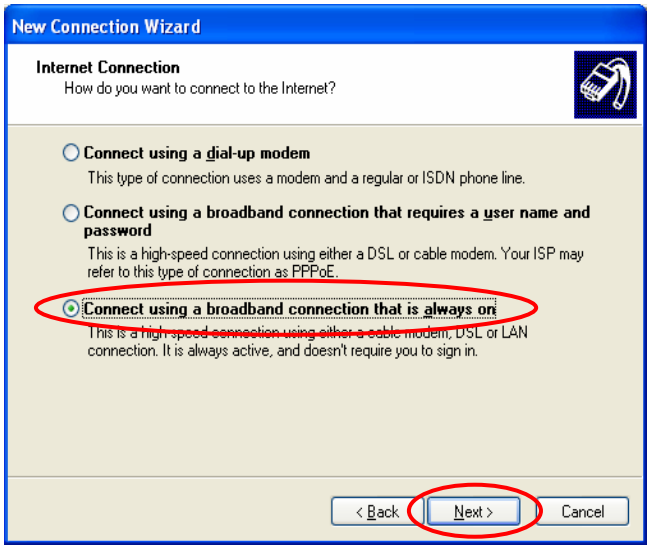
4. Choose **"Connect to the Internet"** and then click ***Next***.



5. Choose **"Set up my connection manually"** and then click ***Next***.



6. Choose **"Connect using a broadband connection that is always on"** and then click ***Next***.



7. Finally, click ***Finish*** to exit the **Connection Wizard**. Now, you have completed the setup.

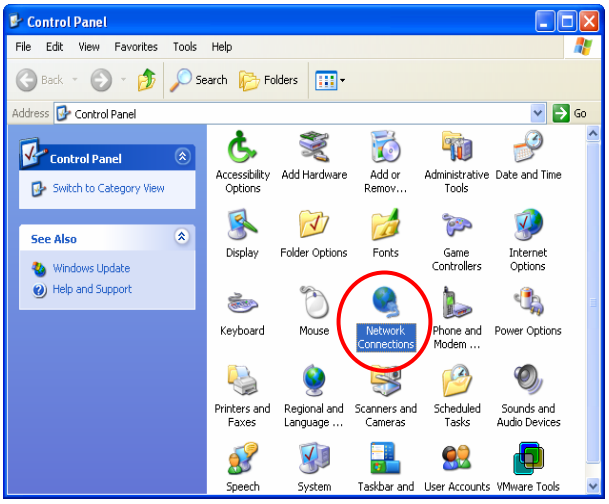
- **TCP/IP Network Setup**

  In the default configuration, Edimax AC-M3000 will assign an appropriate IP address to a client PC which uses DHCP to obtain IP address automatically. Windows 95/98/2000/XP configures IP setup to **"Obtain an IP address automatically"** in default settings.

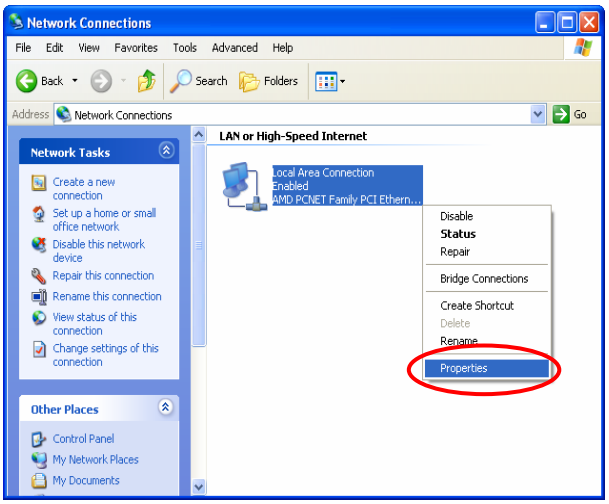
  If you want to check the TCP/IP setup or use a static IP to connect to Edimax AC-M3000 LAN port, please follow the following steps:

◆ **Check the TCP/IP Setup of Window XP**

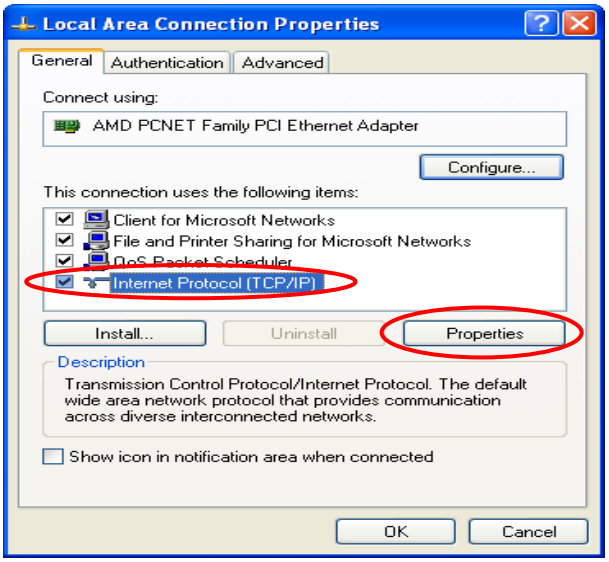
1. Select **Start > Control Panel > Network Connection**.



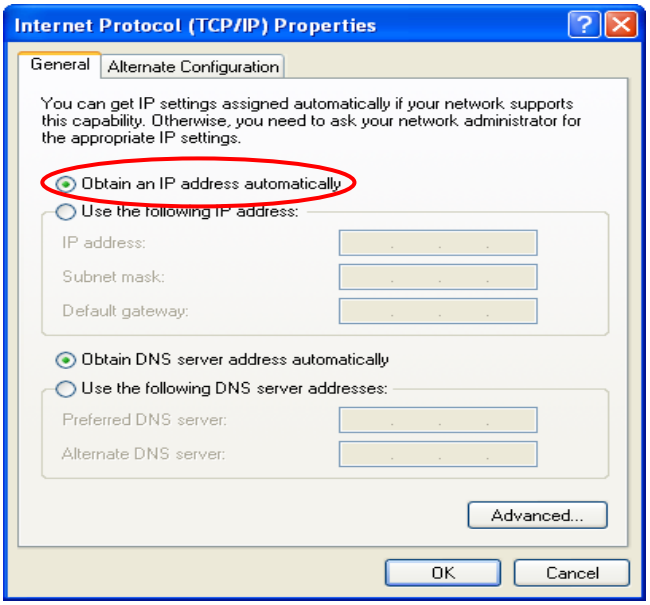
2. Click the right button of the mouse on the **"Local Area Connection"** icon and select **"Properties"**



3. Select **"General"** label and choose **"Internet Protocol (TCP/IP)"** and then click ***Properties***. Now, you can choose to use **DHCP** or **specific IP address**, please proceed to the following steps.

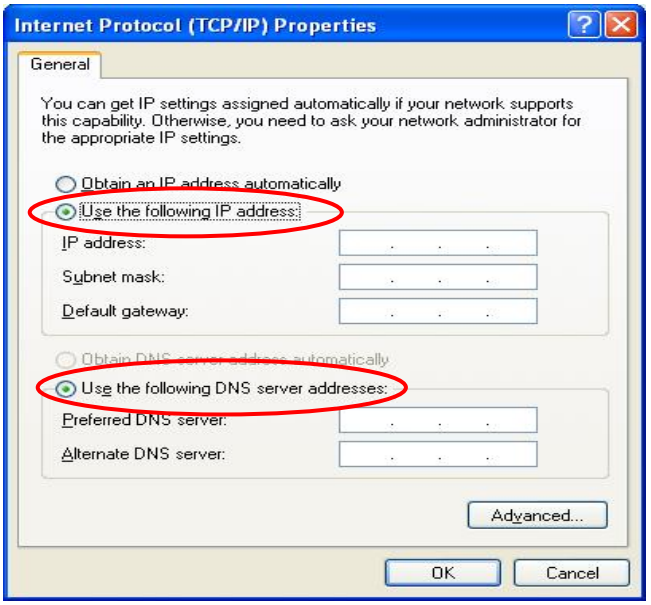


1-2. **Using DHCP:** If want to use DHCP, please choose **"Obtain an IP address automatically"** and click ***OK***. This is also the default setting of Windows. Then, reboot the PC to make sure an IP address is obtained from Edimax AC-M3000.



2-2. **Using Specific IP Address:** If want to use specific IP address, you have to ask the network administrator for the information of the Edimax AC-M3000: ***IP address***, ***Subnet Mask***, ***New gateway*** and ***DNS server address***.

- Please choose **"Use the following IP address"** and enter the information given from the network administrator in **"IP address"**, **"Subnet mask"** and the **"DNS address(es)"** and then click ***OK***.



7. Appendix C – IPSec VPN

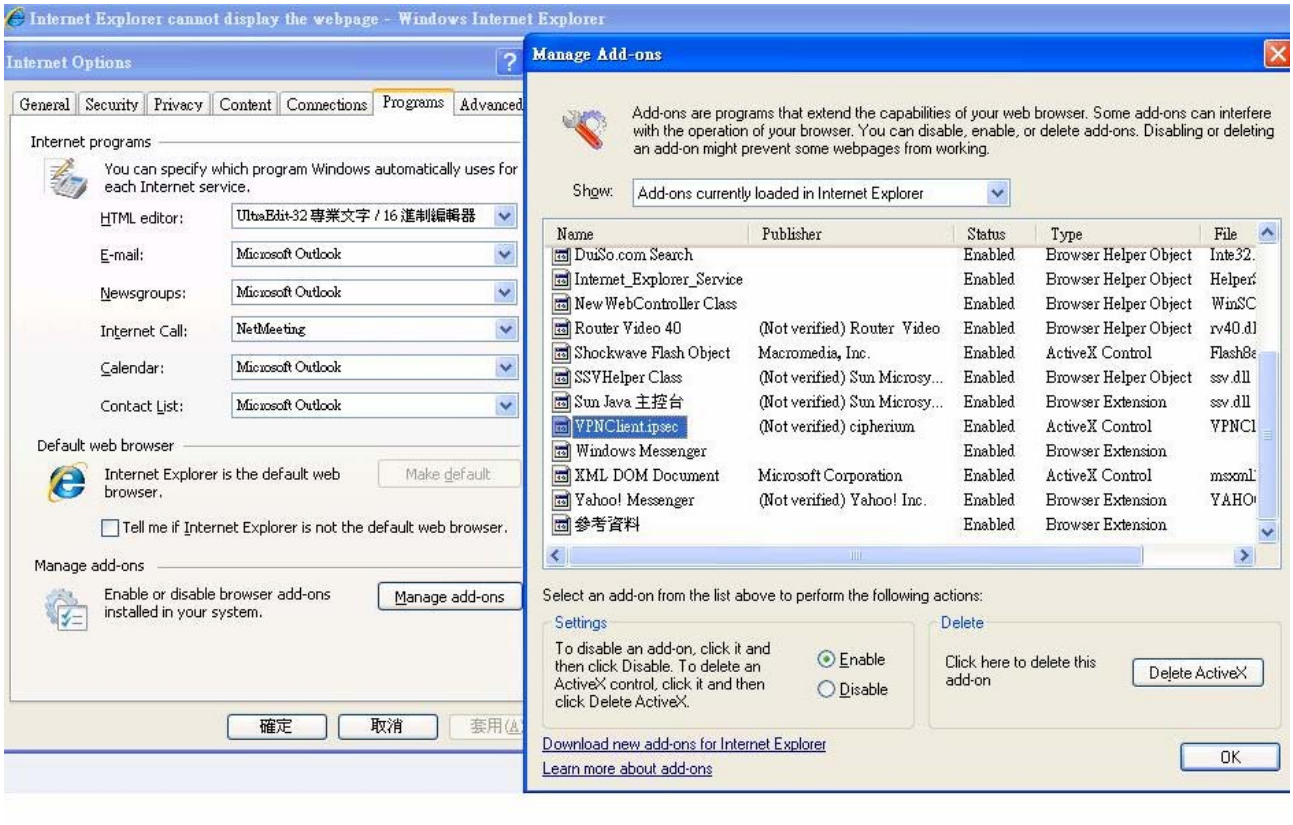
Edimax AC-M3000 has equipped with IPSec VPN feature starts from release version v1.00. To fully utilize the nature supported IPSec VPN by Microsoft Windows XP SP2(with patch) and Windows 2000 operating systems, Edimax AC-M3000 implement IPSec VPN tunneling technology between client's windows devices and Edimax AC-M3000 itself, no matter of through wired or wireless network.

By pushing down ActiveX to the client's Windows device from Edimax AC-M3000, no extra client software to be installed except ActiveX, in which a so-called "clientless" IPSec VPN setting is configured automatically. At the end of this setup, a build-in IPSec VPN feature was enabled to be ready to serve once it is called to be setup.

The design goal is to eliminate the configuration difficulty from IPSec VPN users. At the client side, the IPSec VPN implementation of Edimax AC-M3000 is based on ActiveX and the built-in IPSec VPN client of Windows OS.

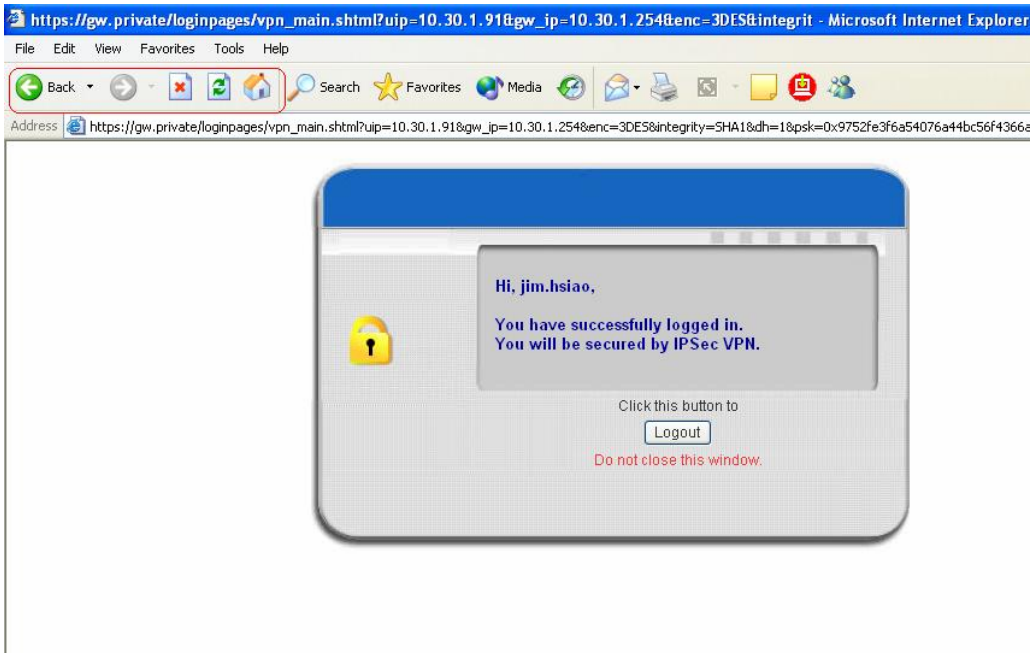
1. ActiveX component

The ActiveX is a software component running inside Internet Explorer. The ActiveX component can be checked by the following windows.



From Windows Internet Explorer, click "Manage add-ons" button inside "Programs" page under "Tools" to show the add-ons programs list. You can see VPNClient.ipsec was enabled.

During the first-time login to Edimax AC-M3000, Internet Explorer will ask user to download the ActiveX component of IPSec VPN. This ActiveX component once downloaded will be running paralleled with the "Login Success Page" after the page being brought up successfully. The ActiveX component helps to setup the IPSec VPN tunnel between client's device and the NAC Edimax AC-M3000 controller, and to check the validity of the IPSec VPN tunnel between them. If the connection is down, the ActiveX component will detect the broken link and decompose the IPSec tunnel. Once the IPSec VPN tunnel was built, any packet sent will be encrypted. Without connecting to the original IPSec VPN tunnel, user or client device has no alternative to gain network connection beyond this. The design of Edimax AC-M3000's IPSec VPN feature directly solves possible data security leak problem between client and the controller via either wireless or wired connection without extra hardware or client software installed.



2. Limitations

The limitation of the client side due to ActiveX and Windows OS includes:

a. Internet Connection Firewall of Windows XP or Windows XP SP1 is not compatible with IPSec protocol. It shall be turned off to allow IPSec packets to pass through.

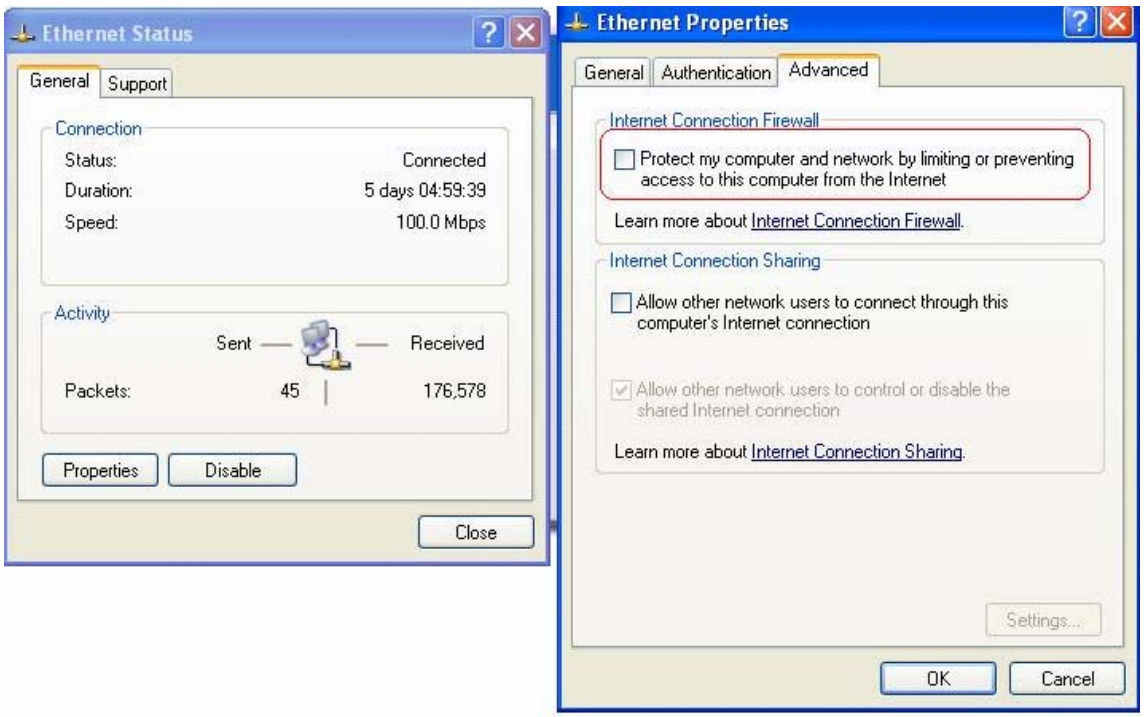
b. Without patch, ICMP (Ping) and PORT command of FTP can not work in Windows XP SP2.

c. The Forced termination (through CTRL+ALT+DEL, Task Manager) of the Internet Explorer will stop the running of ActiveX. It causes IPSec tunnel can't be cleared properly at client's device. A reboot of client's device is needed to clear the IPSec tunnel.

d. The crash of Windows Internet Explorer may cause the same result.

3. Internet Connection Firewall

In Windows XP and Windows XP SP1, the Internet Connection Firewall is not compatible with IPSec. Internet Connection Firewall will drop packets from tunneling of IPSec VPN.



Suggestion: *Please* ***TURN OFF*** *Internet Connection Firewall feature or upgrade the Windows OS into Windows XP SP2.*

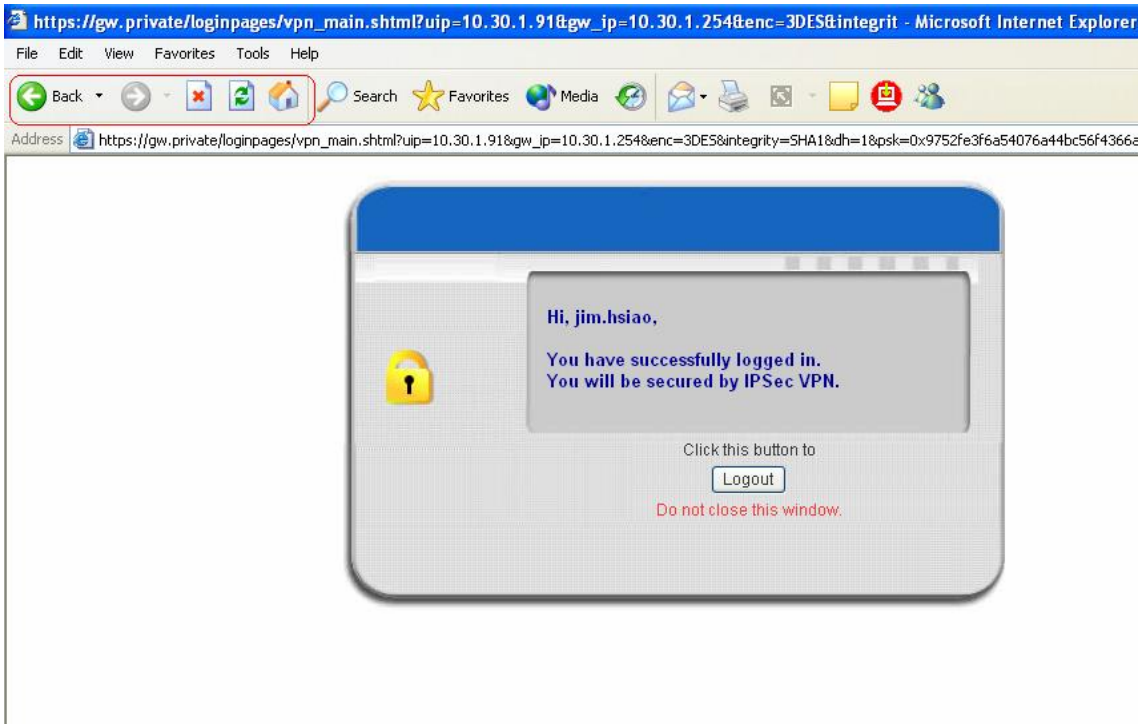
4. ICMP and Active Mode FTP

On Windows XP SP2 without patching by KB889527, it will drop ICMP packets from IPSec tunnel. This problem can be fixed by upgrading patch KB889527. Before enabling IPSec VPN function on client device, please access the patch from Microsoft's web at http://support.microsoft.com/default.aspx?scid=kb;en-us;889527. This patch also fixes the problem of supporting active mode FTP inside IPSec VPN tunnel of Windows XP SP2.

Suggestion: *Please UPDATE client's Windows XP SP2 with this patch.*

5. The Termination of ActiveX

The ActiveX component for IPSec VPN is running paralleled with the web page of "Login Success". Unless user decides to close the session and to disconnect with NAC Edimax AC-M3000, the following conditions or behaviors of using browser shall be avoided in order to maintain the built IPSec VPN tunnel always alive.



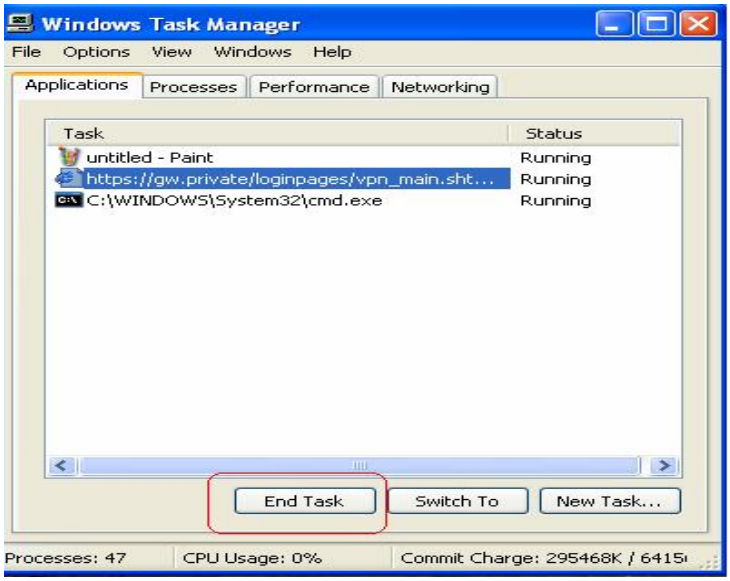
Reasons may cause the Internet Explorer to stop the ActiveX unexpectedly as followings:

a. The crash of Internet Explorer on running ActiveX

Suggestion: *Please reboot client's computer, once Windows service is resumed, go through the login process again.*

b. Terminate the Internet Explorer Task from Windows Task Manager

Suggestion: *Don't terminate this VPN task of Internet Explorer.*



c. There are some cases of Windows messages by which Edimax AC-M3000 will hint current user to:

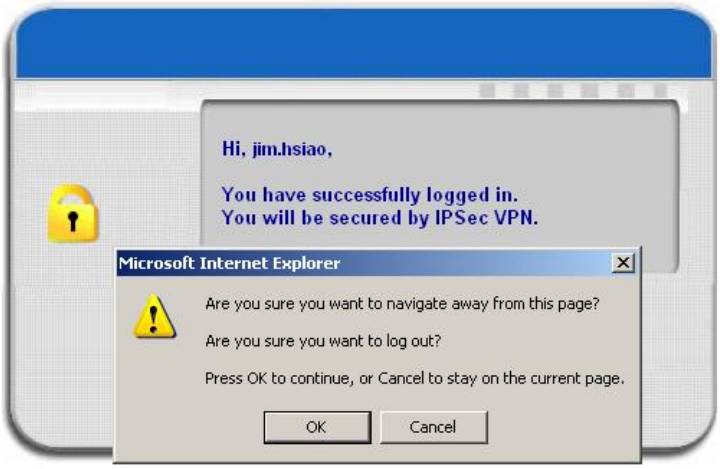
(1) Close the Windows Internet Explorer,

(2) Click "logout" button on "login success" page,

(3) Click "back" or "refresh" of the same Internet Explorer,

(4) Enter new URL in the same Internet Explorer,

(5) Open a URL from the other application (e.g. email of Outlook) that occupies this existing Internet Explorer.



That shall all cause the termination of IPSec VPN tunneling if user chooses to click "Yes". The user has to log in again to regain the network access.

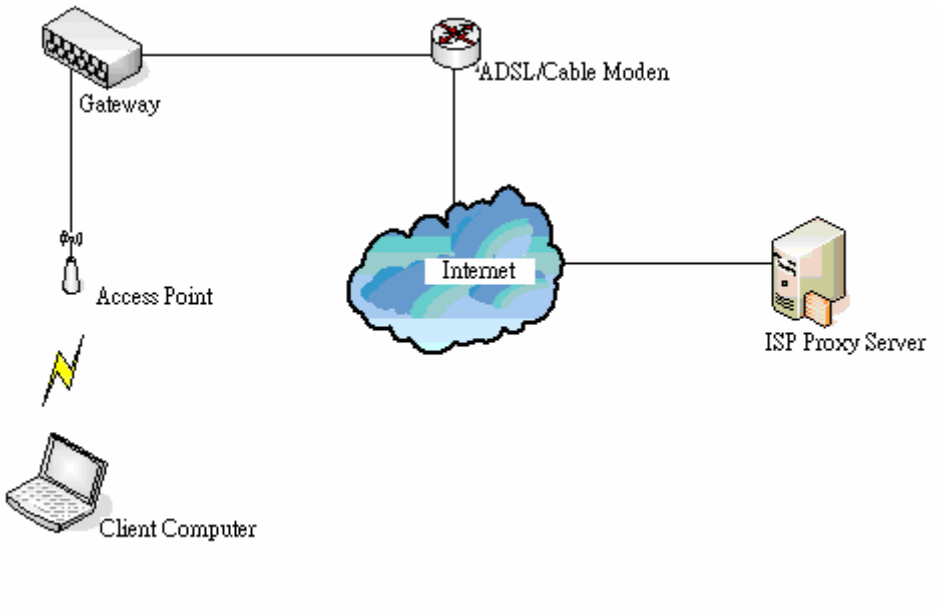
Suggestion: *Click "Cancel" if you do not intend to stop the IPSec VPN connection yet.*

6. Non-supported OS and Browser

In current version, Windows Internet Explorer is the only browser supported by Edimax AC-M3000.Windows XP and Windows 2000 are the only two supported OS along with this release.

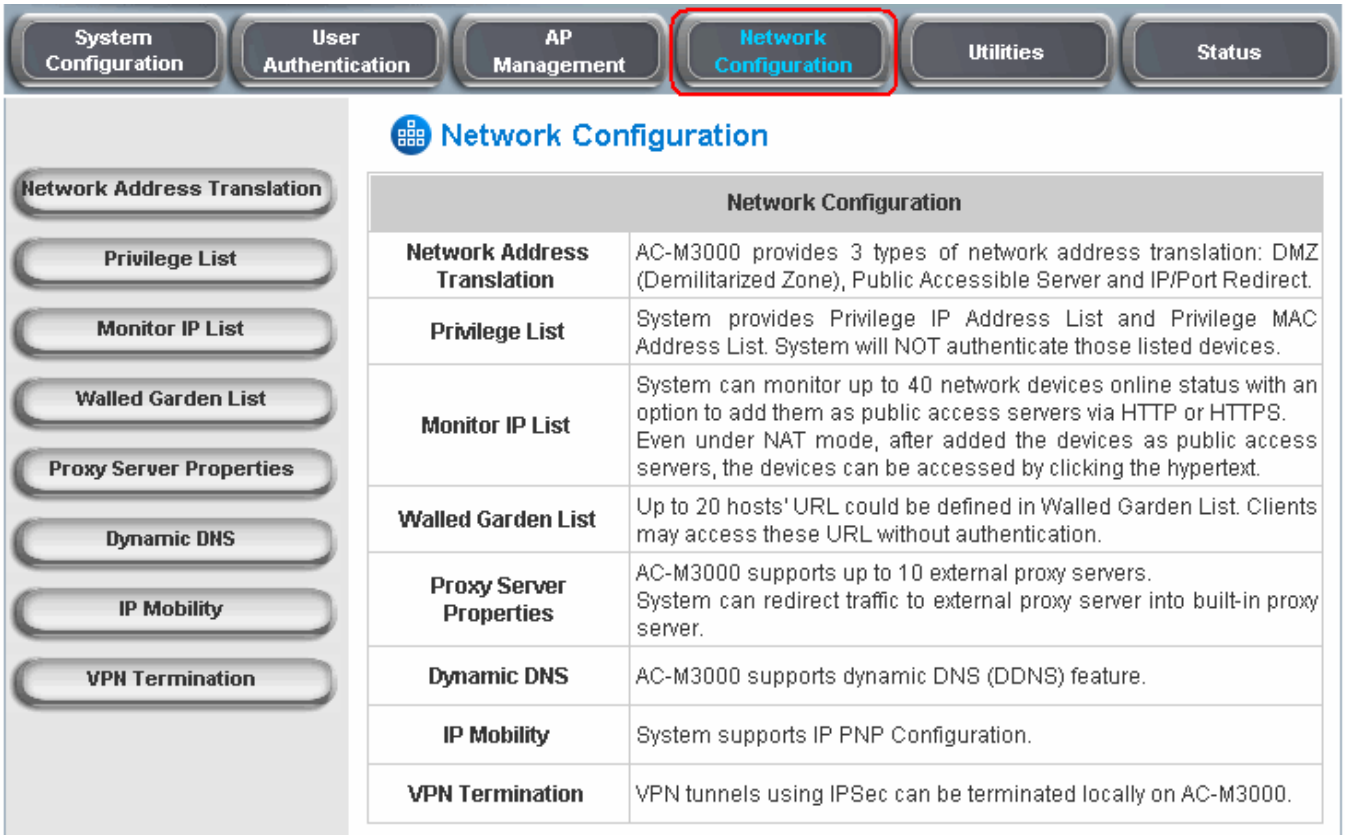
8. Appendix D –Proxy Setting for Hotspot

HotSpot is a place such as a coffee shop, hotel, or a public area where provides Wi-Fi service for mobile and temporary users. HotSpot is usually implemented without complicated network architecture and using some proxy servers provided by Internet Service Providers.



In Hotspots, users usually enable their proxy setting of the browsers such as IE and Firefox. Therefore, so we need to set some proxy configuration in the Gateway need to be set. Please follow the steps to complete the proxy configuration：

1. Login Gateway by using "***admin***".
2. Click the ***Network Configuration from top menu*** and the homepage of the ***Network Configuration*** will appear.



3. Click the ***Proxy Server Properties*** from left menu and the homepage of the **Proxy Server Properties** will appear.

External Proxy Server		
Item	Server IP	Port
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

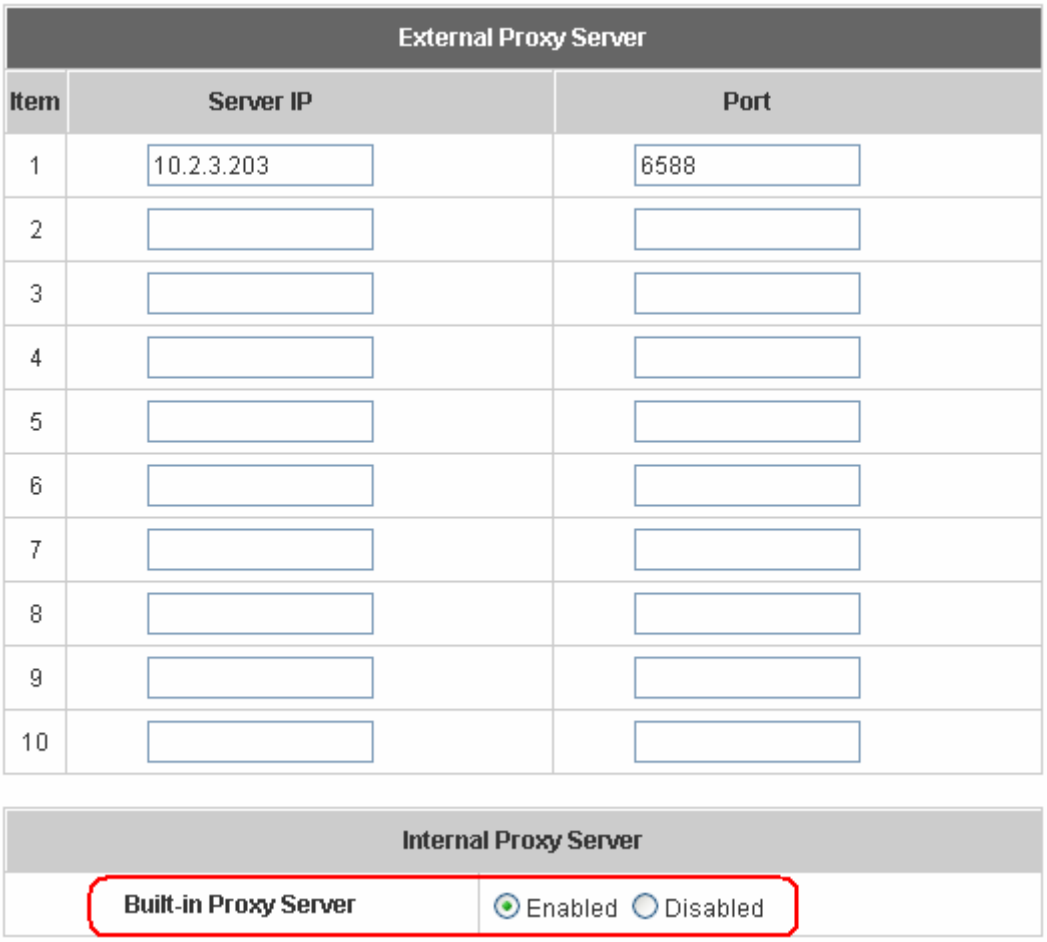
Internal Proxy Server	
Built-in Proxy Server	○ Enabled ◉ Disabled

4. Add the ISP's proxy Server IP and Port into ***External Proxy Server*** Setting.

External Proxy Server		
Item	Server IP	Port
1	10.2.3.203	6588
2		
3		
4		
5		
6		
7		
8		
9		
10		

Internal Proxy Server	
Built-in Proxy Server	Enabled Disabled

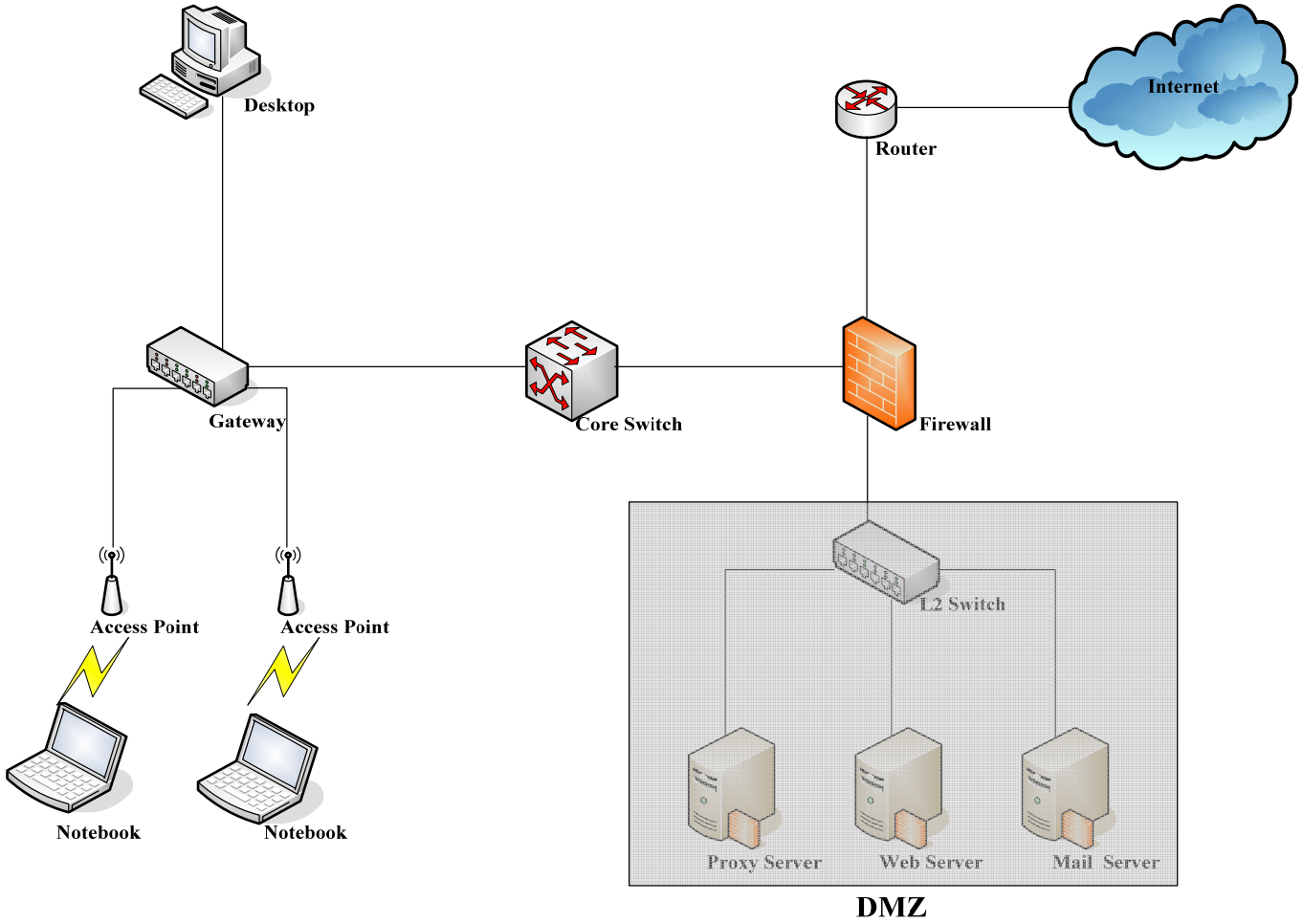
5. ***Enable Built-in Proxy Server*** in ***Internal Proxy Server*** Setting.



6. Click ***Apply*** to save the settings***.***

9. Appendix E –Proxy Setting for Enterprise

Enterprises usually isolate their intranet and internet by using more elaborated network architecture. Many enterprises have their own proxy server which is usually at intranet or DMZ under the firewall protection.



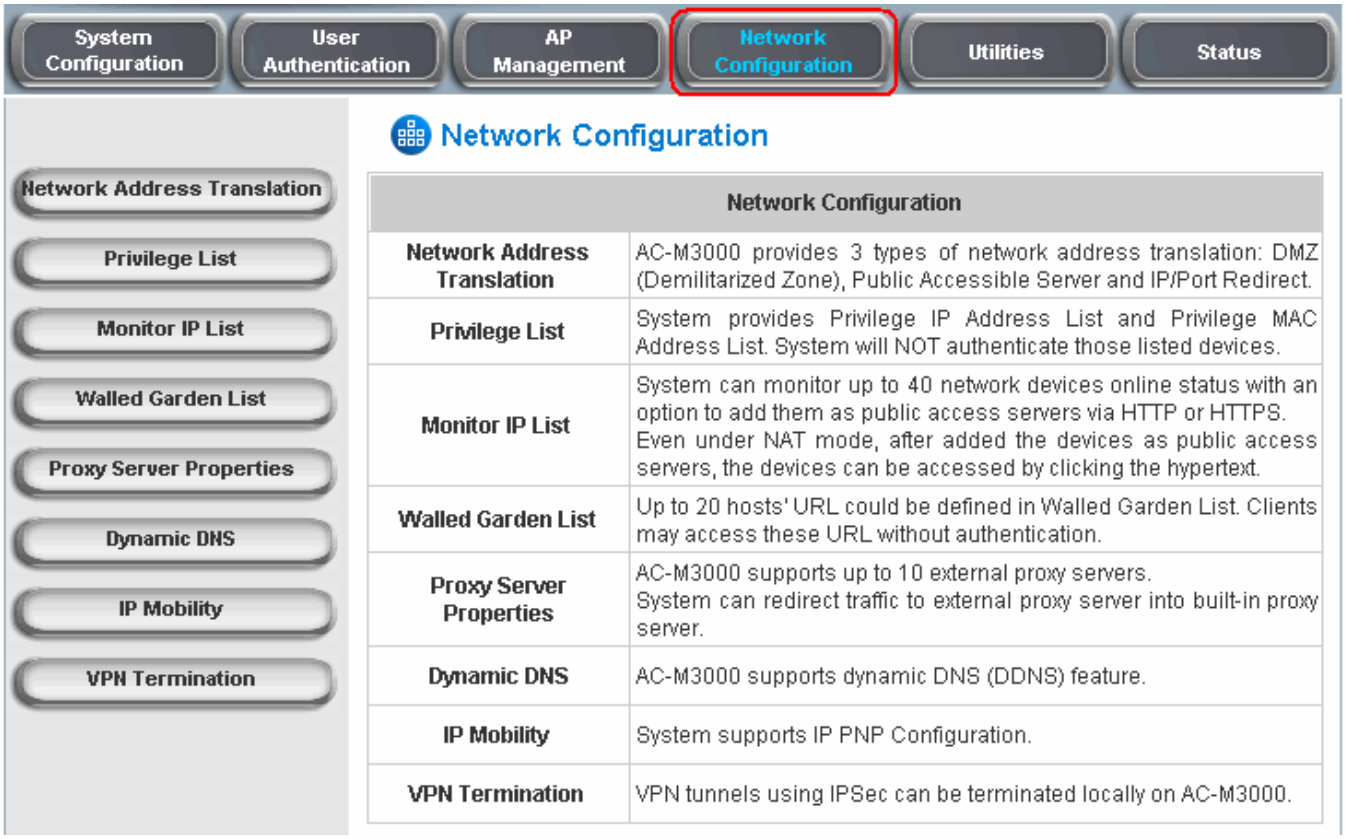
In enterprises, network managers or MIS staff may often ask their users to enable their proxy setting of the browsers such as IE and Firefox to reduce the internet access loading. Therefore some proxy configurations in the Gateway need to be set.

Caution：Some enterprises will automatically redirect packets to proxy server by using core switch or Layer 7 devices. By the way, the clients don't need to enable their browsers' proxy settings, and administrators don't need to set any proxy configuration in the Gateway.

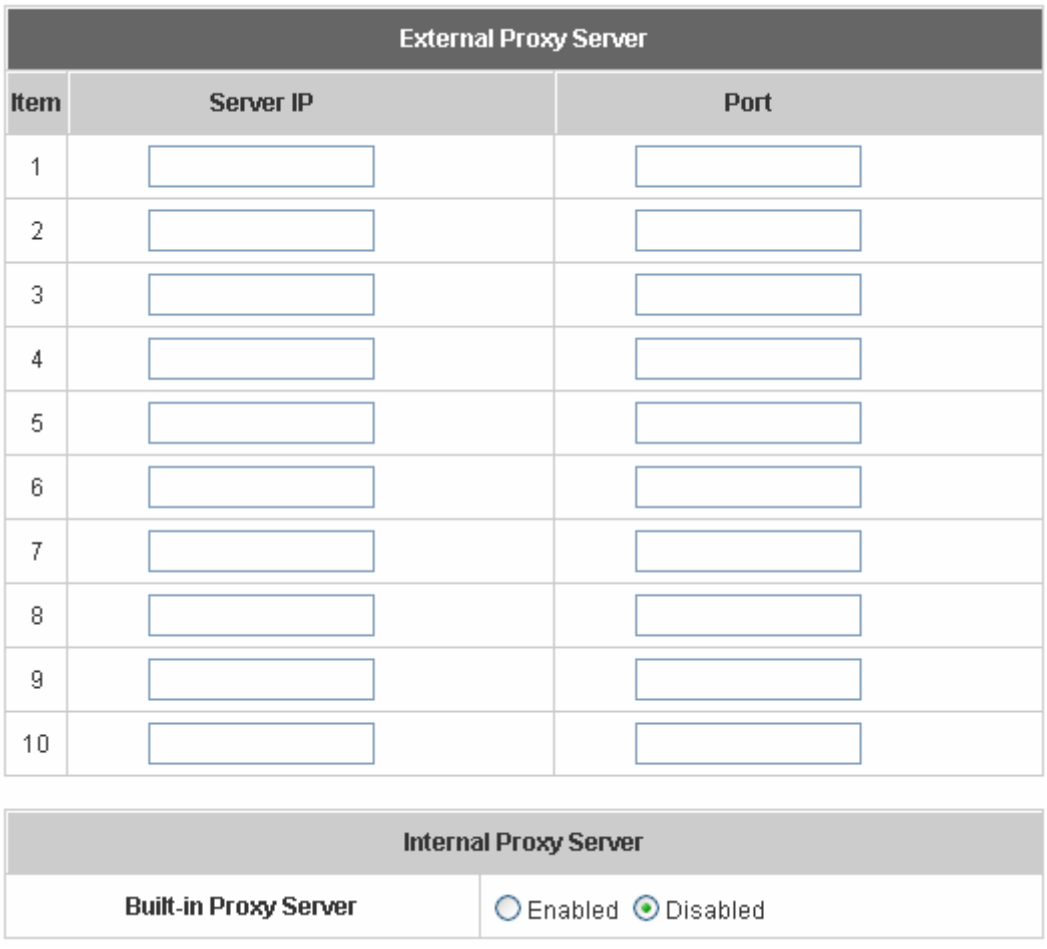
Please follow the steps to complete the proxy configuration：

■ Gateway setting

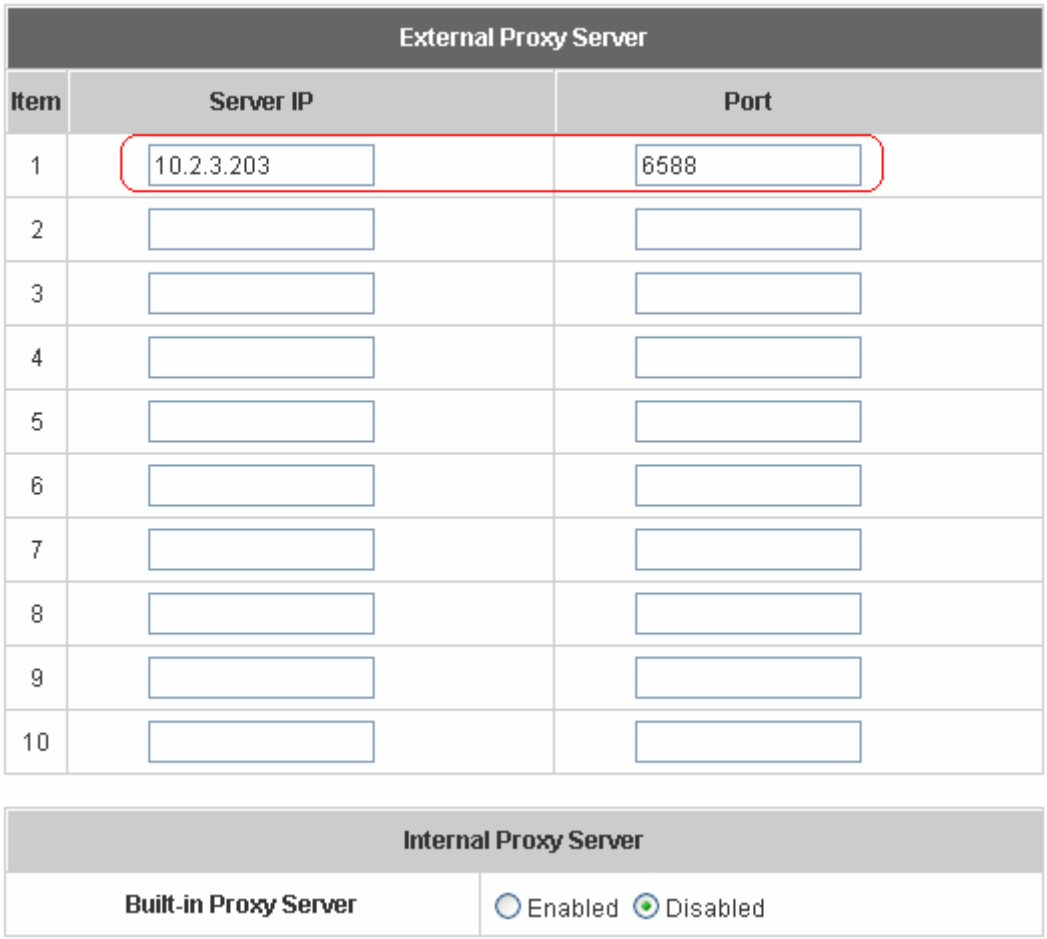
1. Login Gateway by using "***admin***".
2. Click the ***Network Configuration from top menu*** and the homepage of the ***Network Configuration*** will appear.



3. Click the ***Proxy Server Properties*** from left menu and the homepage of the ***Proxy Server Properties*** will appear.



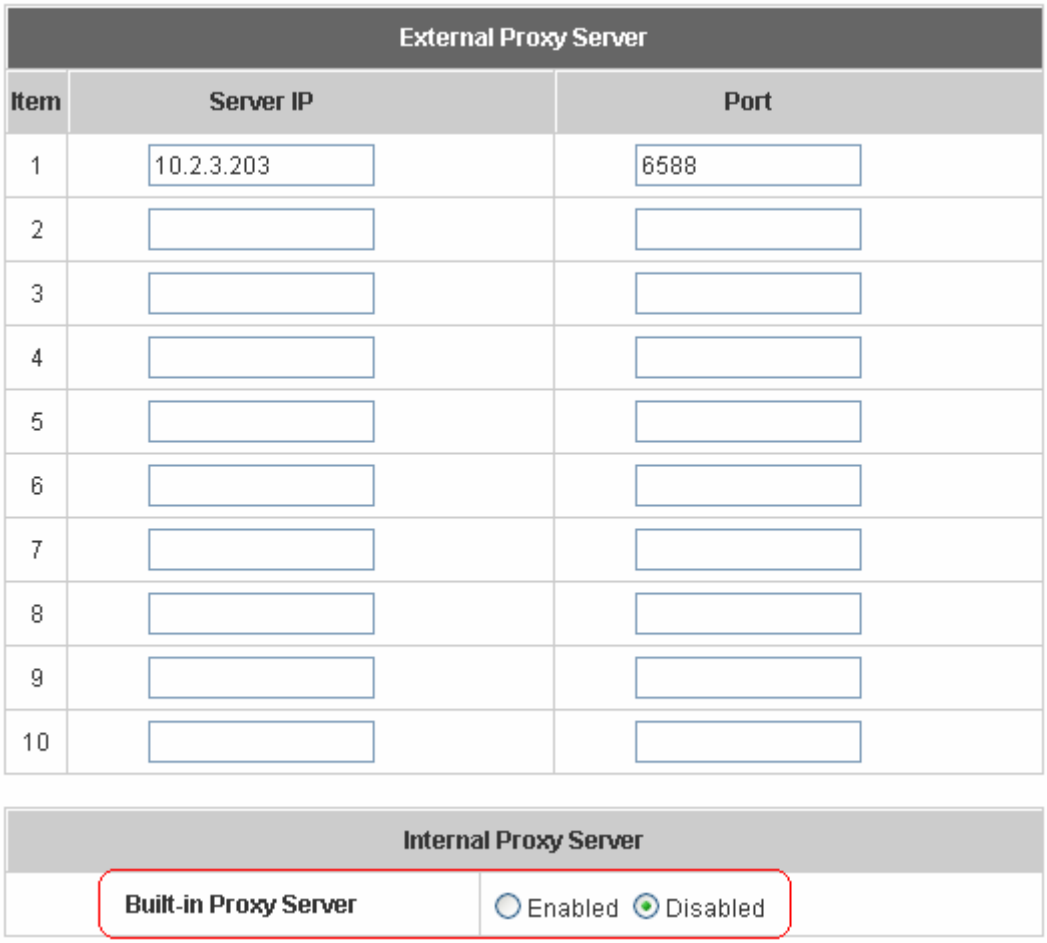
4. Add your proxy Server IP and Port into ***External Proxy Server*** Setting.



External Proxy Server		
Item	Server IP	Port
1	10.2.3.203	6588
2		
3		
4		
5		
6		
7		
8		
9		
10		

Internal Proxy Server	
Built-in Proxy Server	○ Enabled ◉ Disabled

5. ***Disable Built-in Proxy Server*** in ***Internal Proxy Server*** Setting.



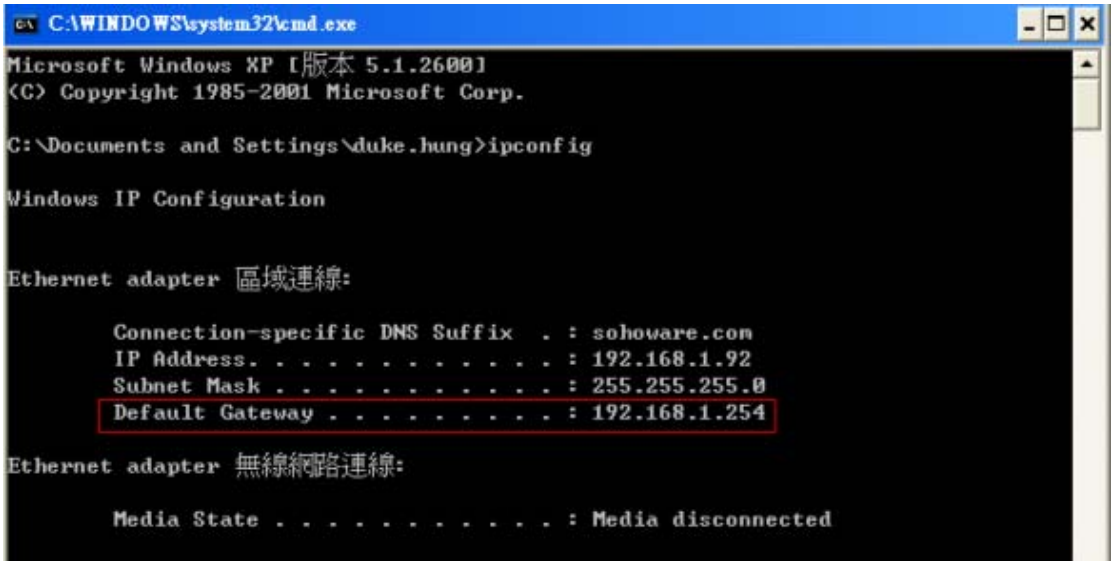
6. Click ***Apply*** to save the settings***.***

Warning : If your proxy server is disabled, it will make the user authentication operation abnormal. When users open the browser, the login page won't appear because the proxy server is down. Please make sure your proxy server is always available.

■ Client setting

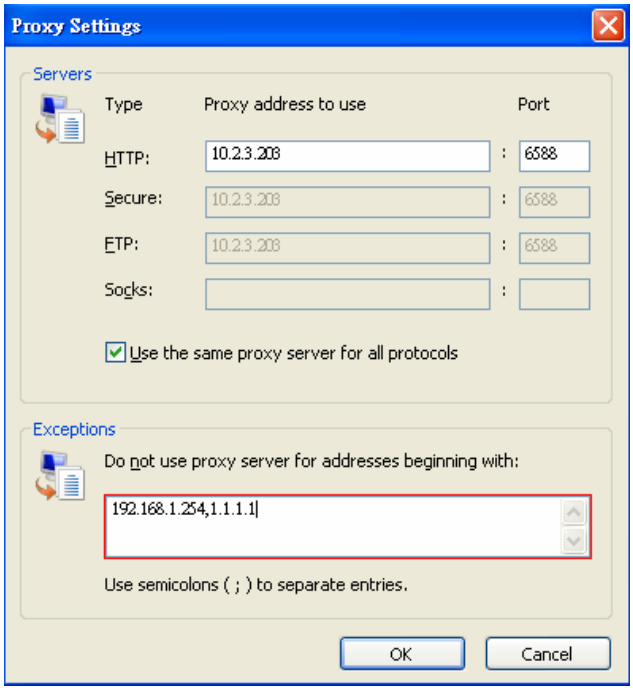
It is necessary for clients to add default gateway IP address into proxy exception information so the user login successful page can show up normally.

1. Use command "***ipconfig***" to get Default Gateway IP Address.

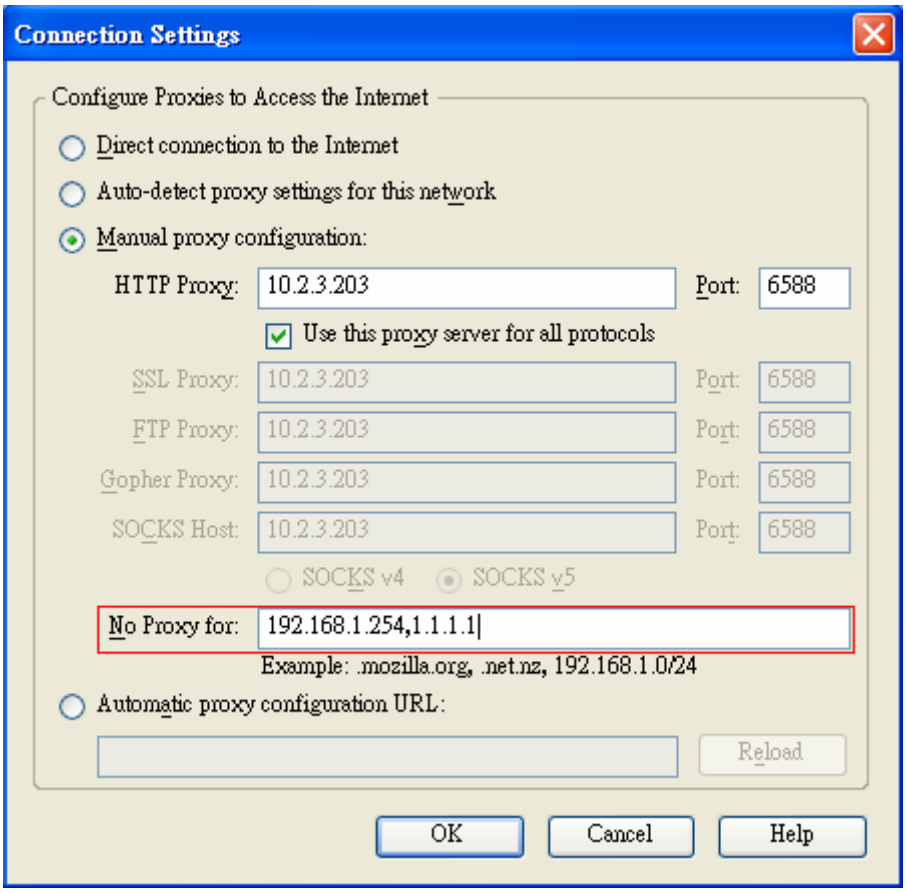


2. Open browser to add ***default gateway IP address (e.g. 192.168.1.254)*** and ***logout page IP address "1.1.1.1"*** into proxy exception information.

- For I.E



- For firefox


Connection Settings
Configure Proxies to Access the Internet
Direct connection to the Internet
Auto-detect proxy settings for this network
Manual proxy configuration:
HTTP Proxy: 10.2.3.203
Port: 6588
Use this proxy server for all protocols
SSL Proxy: 10.2.3.203
Port: 6588
FTP Proxy: 10.2.3.203
Port: 6588
Gopher Proxy: 10.2.3.203
Port: 6588
SOCKS Host: 10.2.3.203
Port: 6588
SOCKS v4
SOCKS v5
No Proxy for: 192.168.1.254,1.1.1.1
Example: .mozilla.org, .net.nz, 192.168.1.0/24
Automatic proxy configuration URL:
Reload
OK
Cancel
Help

10. Appendix F –Disclaimer for On-Demand Users

In Edimax AC-M3000, the end user first gets a login page when she/he opens its web browser right after associating with an access point. However, in some situations, the hotspot owners or MIS staff may want to display "terms of use" or announcement information before the login page. Hotspot owners or MIS staff can design a new disclaimer/announcement page and save the page in their local server. After the agreement shown on the page is read, users are asked whether they agree or disagree with the disclaimer. By clicking "I agree," users are able to log in. If users choose to decline, they will get a popup window saying they are unable to log in. The basic design is to have the disclaimer and login function in the same page but with the login function hidden until users agree with the disclaimer.

Here the codes are supplied. Please note that the blue part is for the login feature, the red part is the disclaimer, and the green part can be modified freely by administrators to suit the situation better. Now the default is set to "I disagree" with the disclaimer. Administrators can change the purple part to set "agree" as the default or set no default. These codes should be saved in local storage with a name followed by .html, such as login_with_disclaimer.html.

```
<html>
<head>
<META HTTP-EQUIV="Pragma" CONTENT="no-cache">
<meta http-equiv="Content-Type" content="text/html; charset=utf-8">
<META HTTP-EQUIV="Cache-Control" CONTENT="no-cache">
<link href="../include/style.css" rel="stylesheet" type="text/css">
<title>Login</title>

    <script language="javascript1.2">
        var pham = document.cookie;
        var disableButton=false;

            function getCookie(name)
            {
                name += "="; // append '=' to name string
                var i = 0; // index of first name=value pair
                while (i < pham.length) {
                var offset = i + name.length; // end of section to compare name string
                if (pham.substring(i, offset) == name) { // if string matches
                var endstr = pham.indexOf(";", offset); //end of name=value pair
                if (endstr == -1) endstr = pham.length;
```

```
                return unescape(pham.substring(offset, endstr));
// return cookie value section
                        }
                        i = pham.indexOf(" ", i) + 1; // move i to next name=value pair
                        if (i == 0) break; // no more values in cookie string
                        }
                        return null; // cookie not found
                }

function CodeCookie(str)
{
var strRtn="";

for (var i=str.length-1;i>=0;i--)
{
        strRtn+=str.charCodeAt(i);
        if (i) strRtn+="a";
}
return strRtn;
}
function DecodeCookie(str)
{
var strArr;
var strRtn="";

strArr=str.split("a");

for(var i=strArr.length-1;i>=0;i--)
strRtn+=String.fromCharCode(eval(strArr[i]));

return strRtn;

}

        function MM_swapImgRestore() { //v3.0
        var i,x,a=document.MM_sr; for(i=0;a&&i<a.length&&(x=a[i])&&x.oSrc;i++) x.src=x.oSrc;
        }

        function MM_preloadImages() { //v3.0
        var d=document; if(d.images){ if(!d.MM_p) d.MM_p=new Array();
```

```
var i,j=d.MM_p.length,a=MM_preloadImages.arguments; for(i=0; i<a.length; i++)
if (a[i].indexOf("#")!=0){ d.MM_p[j]=new Image; d.MM_p[j++].src=a[i];}}
}

function MM_findObj(n, d) { //v4.01
var p,i,x;  if(!d) d=document; if((p=n.indexOf("?"))>0&&parent.frames.length) {
d=parent.frames[n.substring(p+1)].document; n=n.substring(0,p);}
if(!(x=d[n])&&d.all) x=d.all[n]; for (i=0;!x&&i<d.forms.length;i++) x=d.forms[i][n];
for(i=0;!x&&d.layers&&i<d.layers.length;i++) x=MM_findObj(n,d.layers[i].document);
if(!x && d.getElementById) x=d.getElementById(n); return x;
}

function MM_swapImage() { //v3.0
var i,j=0,x,a=MM_swapImage.arguments; document.MM_sr=new Array; for(i=0;i<(a.length-2);i+=3)
if ((x=MM_findObj(a[i]))!=null){document.MM_sr[j++]=x; if(!x.oSrc) x.oSrc=x.src; x.src=a[i+2];}
}

        function init(form)
        {
                id = getCookie("username");
                if(id!="" && id!=null)
                {
                        form.myusername.value = id;
                }

                disclaimer.style.display='';
                login.style.display='none';

        }
function Before_Submit(form)
{
      if(form.myusername.value == "")
      {
            alert("Please enter username.");
            form.myusername.focus();
            form.myusername.select();
            disableButton=false;

            return false;
      }
```

```
        if(form.mypassword.value == "")
        {
            alert("Please enter password.");
            form.mypassword.focus();
            form.mypassword.select();
            disableButton=false;

            return false;
        }

        if(disableButton==true)
        {
            alert("The system is now logging you in, please wait a moment.");
            return false;
        }
        else
        {
            disableButton=true;
            return true;
        }
        return true;
    }
    function reminder_onclick(form)
    {
        Reminder.myusername.value = form.myusername.value;
        Reminder.mypassword.value = form.mypassword.value;
        Reminder.submit();
    }
    function cancel_onclick(form)
    {
        form.reset();
    }

    function check_agree(form)
    {
if(form.selection[1].checked == true)
{
   alert("You disagree with the disclaimer, therefore you will NOT be able to log in.");
   return false;
}
```

```
        disclaimer.style.display='none';
        login.style.display='';

                return true;
            }

        </script>

</head>
<body style="font-family: Arial" bgcolor="#FFFFFF"
onload="init(Enter);MM_preloadImages('../images/submit0.gif','../images/clear0.gif','../images/remaining0.gif')">
            <ilayer width=&{marquee_width}; height=&{marquee_height}; name="cmarquee01">
            <layer name="cmarquee02" width=&{marquee_width}; height=&{marquee_height};></layer>
            </ilayer>

<form action="userlogin.shtml" method="post" name="Enter">

<table name="disclaimer" id="disclaimer" width="460" height="430" border="0" align="center"
background="../images/agreement.gif">
  <tr>
    <td height="50" align="center" valign="middle"><div align="center" class="style5">Service
Disclaimer</div></td>
  </tr>
  <tr>
    <td height="260" align="center" valign="middle"><table width="370" height="260" border="0" align="center">
      <tr>
        <td>
          <textarea name="textarea" cols="50" rows="15" align="center" readonly>
We may collect and store the following personal information:
e-mail address, physical contact information, credit card numbers and transactional information based on your
activities on the Internet service provided by us.

If the information you provide cannot be verified, we may ask you to send us additional information (such as your
driver license, credit card statement, and/or a recent utility bill or other information confirming your address), or to
answer additional questions to help verify your information.)

Our primary purpose in collecting personal information is to provide you with a safe, smooth, efficient, and
customized experience. You agree that we may use your personal information to: provide the services and customer
support you request; resolve disputes, collect fees, and troubleshoot problems; prevent potentially prohibited or
```

illegal activities; customize, measure, and improve our services and the site's content and layout; compare information for accuracy, and verify it with third parties.

We may disclose personal information to respond to legal requirements, enforce our policies, respond to claims that an activity violates the rights of others, or protect anyone's rights, property, or safety.

We may also share your personal information with:
members of our corporate family to help detect and prevent potentially illegal acts; service providers under contract who help with our business operations; (such as fraud investigations and bill collection) other third parties to whom you explicitly ask us to send your information; (or about whom you are otherwise explicitly notified and consent to when using a specific service) law enforcement or other governmental officials, in response to a verified request relating to a criminal investigation or alleged illegal activity; (In such events we will disclose name, city, state, telephone number, email address, User ID history, and fraud complaints)

xxxxx participants under confidentiality agreement, as we in our sole discretion believe necessary or appropriate in connection with an investigation of fraud, intellectual property infringement, piracy, or other unlawful activity; (In such events we will disclose name, street address, city, state, zip code, country, phone number, email, and company name.) and other business entities, should we plan to merge with, or be acquired by that business entity. (Should such a combination occur, we will require that the new combined entity follow this privacy policy with respect to your personal information. If your personal information will be used contrary to this policy, you will receive prior notice.)

Without limiting the above, in an effort to respect your privacy and our ability to keep the community free from bad actors, we will not otherwise disclose your personal information to law enforcement, other government officials, or other third parties without a subpoena, court order or substantially similar legal procedure, except when we believe in good faith that the disclosure of information is necessary to prevent imminent physical harm or financial loss or to report suspected illegal activity.

Your password is the key to your account. Do not disclose your password to anyone. Your information is stored on our servers. We treat data as an asset that must be protected and use lots of tools (encryption, passwords, physical security, etc.) to protect your personal information against unauthorized access and disclosure. However, as you probably know, third parties may unlawfully intercept or access transmissions or private communications, and other users may abuse or misuse your personal information that they collect from the site. Therefore, although we work very hard to protect your privacy, we do not promise, and you should not expect, that your personal information or private communications will always remain private.

By agreeing above, I hereby authorize xxxxx to process my service charge(s) by way of my credit card.

```
            </textarea>
          </td>
        </tr>
      </table></td>
```

```
  </tr>
  <tr>
    <td height="40"><table width="170" height="20" border="0" align="center" cellpadding="2">

      <tr>
        <td align="left"><input name="selection" value="1" type="radio"></td>
        <td><span class="style4">I agree.</span></td>
      </tr>
      <tr>
        <td align="left"><input name="selection" value="2" checked type="radio"></td>
        <td><span class="style4">I disagree.</span></td>
      </tr>
    </table></td>
  </tr>
  <tr>
    <td height="30"><table width="110" height="20" border="0" align="center" cellpadding="2">
      <tr>
        <td width="45" align="center" valign="middle"><input name="next_button" type="button" value="Next"
onclick="javascript:check_agree(Enter)"></td>
      </tr>
    </table></td>
  </tr>
  <tr>
    <td height="20"> </td>
  </tr>
</table>

<div align="center">
<table name="login" id="login" width="497" height="328" border="0" align="center" cellpadding="2" cellspacing="0"
background="../images/userlogin.gif">
        <tr>
          <td height="146" colspan="2"> </td>
        </tr>
        <tr>
          <td width="43%" height="53"> </td>
          <td><input type="text" name="myusername" size="20"></td>
        </tr>
        <tr>
          <td height="42"> </td>
          <td><input type="password" name="mypassword" size="20"></td>
```

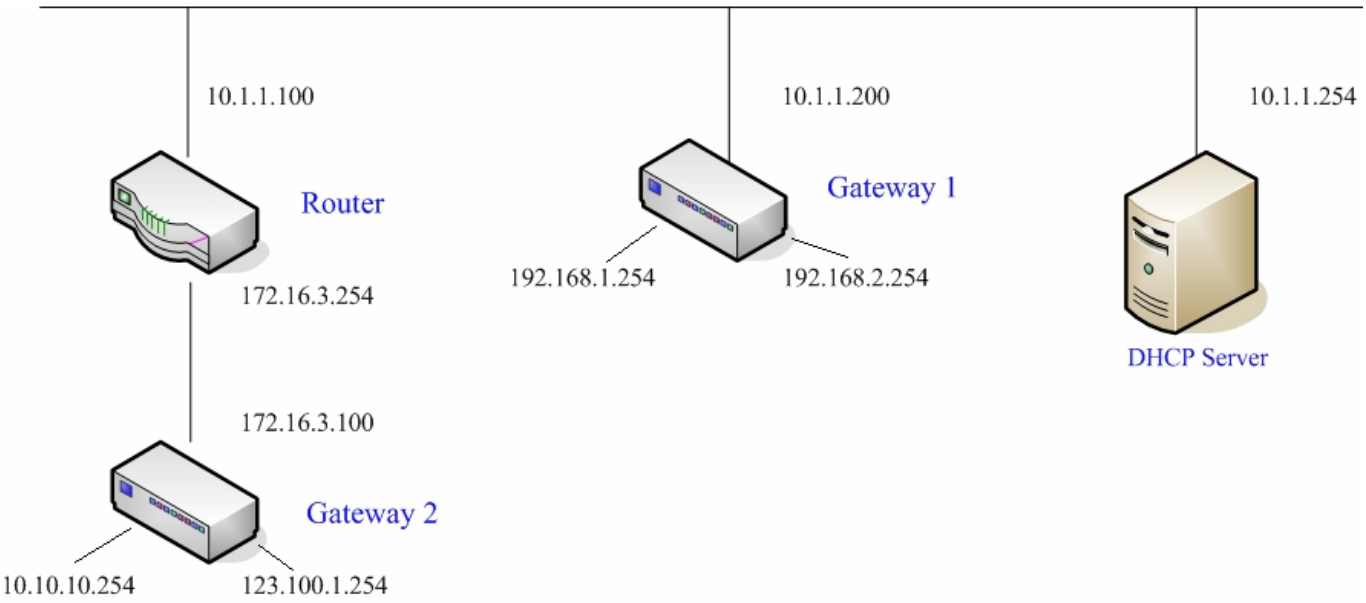
```
            </tr>
            <tr>
              <td colspan="2">
              <div align="center">
              <a onclick="javascript:if(Before_Submit(Enter)){Enter.submit();}" onMouseOut="MM_swapImgRestore()"
onMouseOver="MM_swapImage('Image3','','../images/submit0.gif',1)">
                    <img src="../images/submit.gif" name="Image3" width="124" height="38" border="0" >
              </a>
              <a onclick="cancel_onclick(Enter)" onMouseOut="MM_swapImgRestore()"
onMouseOver="MM_swapImage('Image5','','../images/clear0.gif',1)">
                    <img src="../images/clear1.gif" name="Image5" width="124" height="38" border="0">
              </a>
              <a onclick="javascript:if(Before_Submit(Enter)){reminder_onclick(Enter);}"
onMouseOut="MM_swapImgRestore()" onMouseOver="MM_swapImage('Image4','','../images/remaining0.gif',1)">
                    <img src="../images/remaining.gif" name="Image4" width="124" height="38" border="0">
              </a>
              </div>
              </td>
            </tr>
      </table>

      <table>
        <tr>
          <td width="100%">
           <font color="#808080" size="2"><script language="JavaScript">if( creditcardenable == "Enabled" )
document.write("<a href=\"../loginpages/credit_agree.shtml\">Click here to purchase by Credit Card
Online.<a>");</script></font>
          </td>
        </tr>
      </table>

</div>
</form>
<form action="reminder.shtml" method="post" name="Reminder">
<input type=hidden name=myusername value="">
<input type=hidden name=mypassword value="">
</form>
<br>
<div align="center">
<table>
```

```
<tr>
<td width="100%">
<font color="#808080" size="2"><script language="JavaScript">document.write(copyright);</script></font></td>
</tr>
</table>
</div>
</body>
                                                    </html>
```

11. Appendix G—DHCP Relay

AC-M3000 supports DHCP Relay defined according to RFC 3046 . For scaling reasons, it is advantageous to set up an external DHCP server other than having the internal DHCP server implemented in AC-M3000 to assign an IP. When forwarding client-originated DHCP packets to a DHCP server, a new option called the "Relay Agent Information option" is inserted by the DHCP relay agent. External DHCP servers that recognize the Relay Agent Information option may use the information to implement IP address or other parameter assignment policies. The external DHCP server then echoes the option back to the relay agent in server-to-client replies, and the relay agent strips the option before forwarding the reply to the client.

A graphic example of connecting 2 gateways with an external DHCP server:



Please note that the Router and Gateway 1 connected to the DHCP Server have to be under the same network segment as DHCP Server.

When a client requests IP address from Gateway 1 Public LAN through the build-in DHCP relay agent of AC-M3000, the DHCP server will receive a DHCP REQUEST packet with Option 82 (a code defined in RFC 3046). Also a Circuit ID will be sent by AC-M3000 when DHCP relay is enabled to define where the packet is sent from, and this Circuit ID should have a format of MAC_IP, such as 00:E0:22:DF:AC:DF_192.168.1.254. Therefore, when the external DHCP server gets the request packet, it knows where to reply to and which IP to assign.

Here is an example of configuration file of the DHCP server:

```
class "g1_public_lan" {
        match if option agent.circuit-id = "00:90:0B:07:60:91_192.168.1.254";
}

class "g1_private_lan" {
        match if option agent.circuit-id = "00:90:0B:07:60:92_192.168.2.254";
}

class "g2_public_lan" {
        match if option agent.circuit-id = "00:12:43:AD:32:F2_10.10.10.254";
}

class "g2_private_lan" {
        match if option agent.circuit-id = "00:12:43:AD:32:F2_123.100.1.254";
}

subnet 0.0.0.0 netmask 0.0.0.0 {

        option domain-name-servers      168.95.1.1;

        pool {
                allow members of "g1_public_lan";
                range 192.168.1.30 192.168.1.50;
                option routers 192.168.1.254;
                option subnet-mask 255.255.255.0;
        }

        pool {
                allow members of "g1_private_lan";
                range 192.168.2.30 192.168.2.50;
                option routers 192.168.2.254;
                option subnet-mask 255.255.255.0;
        }
```

From the file, client that connects to AC-M3000 sends out a DHCP request. DHCP relay function in AC-M3000 is enabled and sending a Circuit ID 00:90:0B:07:60:91_192.168.1.254 to the external DHCP server. When DHCP server gets the Circuit ID, it recognizes that the request is sent from g1_public_lan and thus assigns the client a DNS server of 169.95.1.1, an IP that can be in the range of 192.168.1.30 and 192.168.1.50, a default gateway of 192.168.1.254, and a subnet-mask of 255.255.255.0.