

# LevelOne

# AMG-2000 AP Management Gateway

**User Manual** 

v2.0-0705

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# Chapter 1. Before You Start

### 1.1 Preface

Apply

Clear

This manual is intended for the system or network administrators with the networking knowledge to complete the step by step instructions of this manual in order to use the AMG-2000 for a better management of network system and user data.

### **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.

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

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

JINDICATES THAT CLICKING THIS DUTTON WILL CLEAR WHAT YOU SET DEFORE THESE SETTINGS ARE APPLIED.

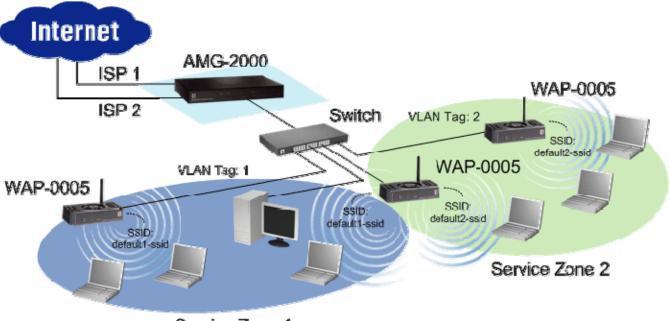
# Chapter 2. System Overview

### 2.1 Introduction of AMG-2000

AMG-2000 is an AP Management Gateway dedicatedly designed for small to medium-sized network deployment and management, making it an ideal solution for easily creating and extending WLANs in SMB offices. With its user management features, administrators will be able to manage the whole process of wireless network access. In addition, Access Point (AP) management functions allow administrators to discover, configure, update, and monitor all managed APs from a single secured interface, and from there, gain full control of entire wireless network.

### 2.2 System Concept

When deployed by small businesses or service providers, AMG-2000's "Service Zone" based architecture allows administrators to logically separate wired and wireless networks by VLAN tags as well as SSIDs. Basically, a Service Zone can cover certain areas of wired and wireless networks, where users attempting to access the resources within the service zone will be controlled based on the access control profile of the service zone, such as authentication, security feature, wireless encryption method, traffic control, etc. As shown below is a typical network architecture to show how network users are separated and controlled by the two Service Zones, each of which is associated with its unique VLAN tag and SSID.



Service Zone 1

### 2.3 Specification

### 2.3.1 Hardware Specification

#### General

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Form Factor: Mini-desktop Dimensions (W x D x H): 235 mm x 161.9 mm x 37.6 mm Weight: 1Kg Operating Temperature: 0 ~ 40°C Storage Temperature: 20 ~ 70°C Power: 100~240 VAC, 50/60 Hz Ethernet Interfaces: 7 x Fast Ethernet (10/100 Mbps) **Connectors & Display** WAN Ports: 2 x 10BASE-T/100BASE-TX RJ-45 Private Port: 1 x 10BASE-T/100BASE-TX RJ-45 LAN Ports: 4 x 10BASE-T/100BASE-TX RJ-45 Console Port: 1 x RJ-11 LED Indicators: 1 x Power, 1 x Status, 2 x WAN, 1 x Private, 4 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:

IP/Port Destination Redirection
DMZ Server Mapping
Virtual Server Mapping
Supports static route
Supports SMTP redirection
Supports Walled Garden (free surfing zone)
Supports MAC Address Pass-Through

#### 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

Provides 500 local accounts

Provides 2000 on-demand accounts

Provides guest 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 manageable IEEE 802.11 compliant APs 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 device 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

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Multi-lingual, web-based management UI

SSH remote management

Remote firmware upgrade

NTP time synchronization

Backup and restore of system configuration

# Chapter 3 Base Installation

### 3.1 Hardware Installation

### 3.1.1 System Requirements

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

### 3.1.2 Package Contents

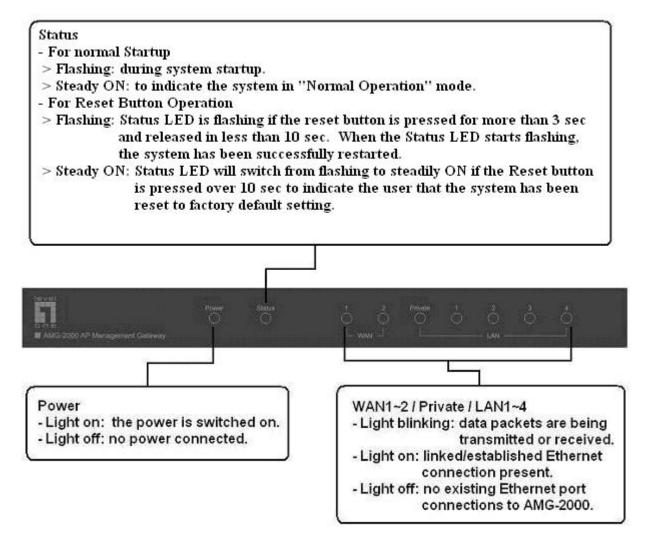
The standard package of AMG-2000 includes:

- AMG-2000 x 1
- CD-ROM x 1
- Quick Installation Guide x 1
- Power Adaptor x 1
- Straight-through Ethernet Cable x 1
- Console Cable x 1

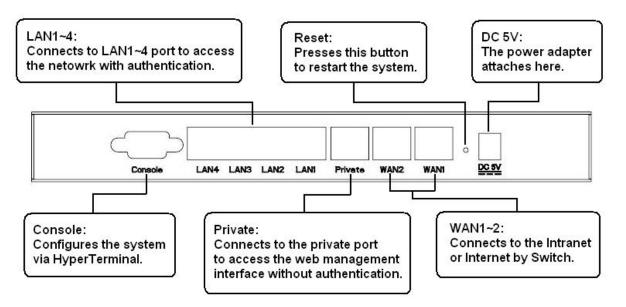
Warning: Using a power supply with different voltage rating will damage this product.

### 3.1.3 Panel Function Descriptions

#### Front Panel

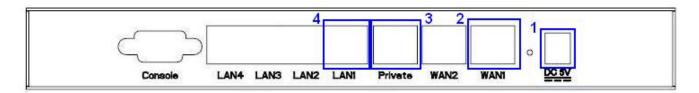


#### Rear Panel



### 3.1.4 Installation Steps

Please follow the following steps to install AMG-2000:



- 1. Connect the 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 rear panel. Connect the other end of the Ethernet cable to an ADSL modem, a cable modem or a switch/hub of the network. The LED of the WAN1 port should be on to indicate a proper connection.
- 3. Connect an Ethernet cable to Private Port on the rear panel. Connect the other end of the Ethernet cable to the user's PC. The LED of Private Port should be on to indicate a proper connection. (**Note:** No authentication is required for the users to access the network via Private Port and the administrator can enter the administrative user interface to perform configurations via Private Port.)
- 4. Connect an Ethernet cable to one of the LAN1~LAN4 Port on the rear panel. Connect the other end of the Ethernet cable to an AP or a switch. The LED of the LAN should be on to indicate a proper connection. (Note: Authentication is required for the clients to access the network via these LAN Ports.)

Attention: Usually a straight-through cable could be applied when the AMG-2000 connects to an Access Point which supports automatic crossover. If after the AP hardware resets, the AMG-2000 could not be able to connect to the AP while connecting with a straight-through cable, the user have to pull out and plug-in the straight-through cable again. This scenario does NOT occur while using a crossover cable.

After the hardware of AMG-2000 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 change the setting by demands manually. The Configuration Wizard provides a simple and easy way to guide you through the setup of AMG-2000 (for the AP configuration, you have to set it up in administrator interface). Follow the procedures and instructions given by the Wizard to enter the required information step by step. After saving and restarting AMG-2000, 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. Add Local User Account (Optional)
- 6. Save and Restart AMG-2000

Please follow the following steps to complete the quick configuration.

 Use the network cable of the 10/100BaseT to connect a PC to the LAN1~LAN4 port, and then start a browser (such as Microsoft IE or Firefox). Next, enter the gateway IP address as the web management interface's URL, the default is <u>https://192.168.100.254</u>. In the opened webpage, you will see the login screen. Enter "admin", the default username and password, in the User Name and Password column. Click *Enter* to log in.



*Caution:* If you can't get the login screen, the reasons may be: 1. The PC was 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 **Appendix B. Network Configuration on PC**.

AMG-2000 supports three accounts with different access privileges. You can log in as **admin**, **manager** or **operator**. The default password and access privilege for each account are as follows.

Admin: The administrator can access all area of the AMG-2000.

User Name: admin

Password: admin

**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

 After successfully logging into AMG-2000, you can enter the web management interface and see the welcome screen.
 There is a *Logout* button on the upper right corner to log out the system when finished.

System User AP Network Util Configuration Authentication Management Configuration Util	
	ities Status
Welcome to System Administration	
This Administrative Web Interface allows you to set various networking para network services, to manage user accounts and to monitor user status.	meters, to customize
Functions are separated into 6 main categories: <u>System Configuration</u> , <u>User Authentication</u> , <u>AP Management</u> , <u>Network Co</u> and <u>Status</u> .	nfiguration , <u>Utilities</u>

 Then, run the configuration wizard to help you complete the configuration. Click System Configuration to the System Configuration homepage.

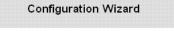
System Use Configuration Authenti		nt Configuration Utilities Status
	🏨 System Config	guration
Configuration Wizard		System Configuration
System Information	Configuration Wizard	This wizard will guide you through basic system setup.
WAII1 Configuration WAII2 Configuration		Configure system and network related parameters: system name, administrator information, SNMP, and time zone. Clients will be redirected to URL entered in the 'Home Page' field after successful login.
WAII Traffic Settings Private LAN Configuration Service Zones	System Information	Administrator may limit remote administration access to a specific IP address or network segments. When enabled, only devices with such IP address or from this network segment may enter system's administration web interface remotely. Network Time Protocol (NTP) Server setting allows the system to synchronize its time/date with external time server.
	WAN1 Configuration	Set up WAN1 interface using the connection types: Static, Dynamic, PPTP, or PPPoE.
	WAN2 Configuration	Set up WAN2 interface using the connection types: None, Static, Dynamic, or PPPoE.
	WAN Traffic Settings	Overall traffic control of WAN interface, such as available bandwidth, auto fail-over, and fall-back, etc.
	Private LAN Configuration	Set up Private LAN interface.
	Service Zones	A table to display the Service Zones and related settings.

Click the System Configuration from the top menu and the homepage of System Configuration will appear. Then, click on Configuration Wizard and click the Run Wizard button to start the wizard.

System Us Configuration Authent		Network Configuration	Utilities	Status
	B Configuration Wiza	ard		
Configuration Wizard		Configuration Wi	zard	
System Information	AMG-2000 is a Network Acces and medium business netwo			
WAII1 Configuration	baseline strategy. Please follo			-
WAN2 Configuration		Run Wizard		
WAII Traffic Settings			-	
Private LAN Configuration		<b>A</b>		
Service Zones		we		

#### 5. Configuration Wizard

First of all, you will see a welcome screen to briefly introduce the 6 steps. After a brief overview of the whole process, click *Next* to begin.



Welcome to the Setup Wizard. The wizard will guide you through these 6 quick steps. Begin by clicking on Next.

Step 1. Change Admin's Password

Step 2. Choose System's Time Zone

Step 3. Set System Information

Back

Step 4. Select the Connection Type for WAN Port

Step 5. Add Local User Account (Optional)

Step 6. Save and Restart AMG-2000



Step 1. Change Admin's Password
 Enter a new password for the admin account and
 retype it in the verify password field
 (twenty-character maximum and no spaces). The
 field with red asterisks is necessary to fill in.
 Click Next to continue.

new

Next

Exit

### Step 2. Choose System's Time Zone Select a proper time zone via the pull-down menu. Click *Next* to continue.

Step 3. Set System Information

the default.

Home Page: Enter the URL that users should be

NTP Server: Enter the IP address or domain name

DNS Server: Enter an IP address of DNS Server. Contact your network administrator if you are not

of external time server for AMG-2000 time

synchronization or use the default.

sure of the DNS IP Address.

Click Next to continue.

# Select the appropriate time zone for the system. Click Next to continue. (GMT+08:00)Taipei ~ Back Next Exit Step 3. Set System Information directed to when successfully authenticated or use

Step 2. Choose System's Time Zone

Enter System Information. Click Next to continue.

Home Page:	http://www.level1.com/ *
	(e.g. http://www.level1.com/)
NTP Server:	tock.usno.navy.mil ×
	(e.g. took.usno.navy.mil)
DNS Server:	208.67.222.222 *
Back	Next Exit

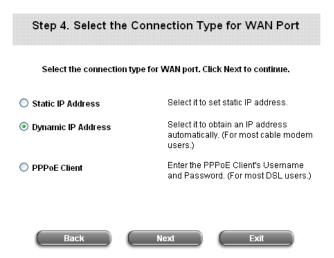
#### Step 4. Select the Connection Type for WAN Port

There are three types of WAN1 port to select in wizard: Static IP Address, Dynamic IP Address and **PPPoE Client**.

Select a proper Internet connection type and click *Next* to continue.

#### > Dynamic IP Address

If this option is selected, AMG-2000 will obtain IP settings from an external DHCP server on network connected by WAN1 automatically. Click Next to continue.



≻ Static IP Address: Set WAN Port's Static IP Step 4. Select the Connection Type for WAN Port Address Select the connection type for WAN port. Click Next to continue. Enter the IP Address, Subnet Mask and Default Gateway provided by your ISP or the Select it to set static IP address. Static IP Address network administrator. Select it to obtain an IP address O Dynamic IP Address automatically. (For most cable modem Click Next to continue. users.) Enter the PPPoE Client's Username O PPPoE Client and Password. (For most DSL users.) Back Next Exit Step 4 (Cont). Set WAN Port's Static IP Address Click Next to continue. IP Address: Subnet Mask: Default Gateway: Back Next Exit Step 4. Select the Connection Type for WAN Port PPPoE Client: Set PPPoE Client's Select the connection type for WAN port. Click Next to continue. Information Select it to set static IP address. Static IP Address Enter the **Username** and **Password** provided Select it to obtain an IP address O Dynamic IP Address by your ISP. automatically. (For most cable modem users.) Click Next to continue. Enter the PPPoE Client's Username PPPoE Client and Password. (For most DSL users.) Back Next Exit Step 4 (Cont). Set PPPoE Client's Information Enter the PPPoE Client's Username and Password. (For most DSL users.) Username: Password:

Step 5. Add Local User Account (Optional)
 New user accounts can be added to the local user database. To add a user here, enter the Username (e.g. test), Password (e.g. test), MAC Address (optional) and assign a Policy to this account (or None), and press the Add Now button. More users can be added into the local user account database by clicking the Add Now button. Click Next to continue.

#### Step 5 Add Local User Account (Optional)

Administrator can choose to add local user accounts for a quick trial.

Username:	test	
Password:	test	
MAC Address:		000000000000000000000000000000000000000
Applied Policy	None 💌	
	Add Now	
Back	Next	Exit

• Step 6. Save and Restart AMG-2000 Click *Restart* to save the current settings and restart AMG-2000. The Setup Wizard is now completed.

#### Step 6. Save and Restart AMG-2000

The Setup Wizard has completed. Click on Back to review or modify settings. Click Restart to save the settings and restart the system to have the current settings take effect.

Setup Wizard.

During AMG-2000 restarting, a "**Restarting now. Please wait for a moment...**" message will appear on the screen. Please do not interrupt AMG-2000 until the message has disappeared. This indicates that a complete and successful restart process has finished.

**Note:** During every step of the wizard, if you wish to go back to modify the settings, please click the **Back** button to go back to the previous step.

Back Restart Exit

Restarting now. Please wait for a moment...

### 3.2.2 User Login Portal Page

To login from the login portal page via the LAN1~LAN4 port, the user have to be identified the user name and password. The administrator also can verify the correctness of the configuration steps of AMG-2000.

- First, connect a user-end device (for example, a PC) to the LAN1~LAN4 port of the AMG-2000, and set the device to obtain IP address automatically. After the user end obtains the network address, please open an Internet browser and the default login webpage will appear on the Internet browser.
   Typing in user information of a valid user account.
   Assumes local user database is chosen in the configuration wizard, key in the username and password created and then click *Submit* button (e.g. *test@local* for the username and *test* for the password).
- Login success page appearing means AMG-2000 has been installed and configured successfully. Now, you can browse the network or surf the Internet!

	User Login Page
Welco	ome To User Login Page!
Please Enter Your	User Name and Password To Sign In .
🕹 User Name:	test@local
a Password:	***

	Hello, test@local
Please clos	e this window or click this button to
	Thank you.
Logi	in time: 2000-1-2 0:58:32

3. But if you see the following screen with a sentence, "Sorry, this feature is available for on-demand user only", it means you click the "Remaining" button by mistake. This button is only for on-demand users and if you are not an on-demand user, please just click the Submit button.



4. If you are an on-demand user, you can enter the username and password in the "User Login Page" and then click the *Remaining* button to know the remaining time or data quota of the account.

Welco	me To User Login Pa	ge.
Please Enter Your U	ser Name and Passw	ord To Sign In
👌 User Name:	test@NTDomain	
Password:		

5. When an on-demand user logs in successfully, the following Login Successfully screen will appear and it is a little different from the normal user's login successfully screen. There is an extra line showing "Remaining usage" and a "Redeem" button.

0	Hello,	, 9AC7@Or	ndemand
00			
Please close t	his wind	ow or click th	his button to
	(JLo	gout	
	Than	c you!!	
1	Remainin	ig Usage:	
3 H	our 36	Min 29	Sec
Login	time: 20	005-8-24 14	:18:7
	JR	deem	
	Corner of the second		

- Remaining usage: Show the remaining time or data volume that the on-demand user can used to surf Internet.
- Redeem: When the remaining time or data size is insufficient, the user can buy additional account from the counter and add the quota to the current account. After clicking the *Redeem* button, you will see the following screen. Please enter the new username and password you got and click *Enter* button. Then you

	Redeem Page
Welcome	To Redeem Page!
Please Enter Your User N	Name and Password To Sign In
🔏 User Name:	
oser name.	
2 Password:	

will see the total available use time and data size after adding credit.

# Chapter 4 Web Interface Configuration

This chapter will guide you through further detailed settings. The following table is the UI and functions of the AMG-2000.

OPTION	System	User	AP	Network		Ctatura
OPTION	Configuration	Authentication	Management	Configuration	Utilities	Status
	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
FUNCTION	WAN2 Configuration	Additional Configuration	Template Settings	Walled Garden List	Restart	Traffic History
	WAN Traffic Settings		Firmware Management	Proxy Server Properties	Wake On Lan	Notification Configuration
	Private LAN Configuration		AP Upgrade	Dynamic DNS		
	Service Zones			IP Mobility		
				VPN Configuration		

*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 Configuration, WAN Traffic Settings, Private LAN Configuration and Service Zones.

System Configuration Authenti		nt Retwork Utilities Status
	Bystem Config	guration
Configuration Wizard		System Configuration
System Information	Configuration Wizard	This wizard will guide you through basic system setup.
WAIH Configuration WAII2 Configuration WAII Traffic Settings Private LAII Configuration Service Zones	System Information	Configure system and network related parameters: system name, administrator information, SNMP, and time zone. Clients will be redirected to URL entered in the 'Home Page' field after successful login. Administrator may limit remote administration access to a specific IP address or network segments. When enabled, only devices with such IP address or from this network segment may enter system's administration web interface remotely. Network Time Protocol (NTP) Server setting allows the system to synchronize its time/date with external time server.
	WAN1 Configuration	Set up WAN1 interface using the connection types: Static, Dynamic, PPTP, or PPPoE.
	WAN2 Configuration	Set up WAN2 interface using the connection types: None, Static, Dynamic, or PPPoE.
	WAN Traffic Settings	Overall traffic control of WAN interface, such as available bandwidth, auto fail-over, and fail-back, etc.
	Private LAN Configuration	Set up Private LAN interface,
	Service Zones	A table to display the Service Zones and related settings.

### 4.1.1 Configuration Wizard

Please refer to 3.2.1 Quick Configuration for the detail description of Configuration Wizard.

#### Configuration Wizard

AMG-2000 is a Network Access Controller with access control features ideal for hotspot, small and medium business networking. The wizard will guide you through the process of creating a baseline strategy. Please follow the wizard step by step to configure AMG-2000.



### 4.1.2 System Information

Most of the major system information about AMG-2000 can be set here. Please refer to the following description for each field:

	System Information					
System Name	AMG-2000					
Device Name	amg2000.ddcasia.com.tw (FQDN for this device)					
Home Page	Enabled Disabled     http://www.level1.com/ (e.g. http://www.level1.com/)					
Access History IP	(e.g. 192.168.2.1)					
Management IP Address List	Setup Management IP Address List					
SNMP	○ Enabled ⊙ Disabled					
User Logon SSL	● Enabled ○ Disabled					
Time	Device Time : 2007/04/13 15:17:04 Time Zone : (GMT+08:00)Taipei NTP Enable NTP Server 1: tock.usno.navy.mil *(e.g. tock.usno.navy.mil) NTP Server 2: ntp1.fau.de NTP Server 3: clock.cuhk.edu.hk NTP Server 4: ntps1.pads.ufrj.br NTP Server 5: ntp1.cs.mu.OZ.AU Set Device Date and Time					

- System Name: Set the system's name or use the default.
- Device Name: FQDN (Fully-Qualified Domain Name). This is the domain name of the AMG-2000 as seen on client machines connected on LAN ports. A user on client machine can use this name to access AMG-2000 instead of its IP address.
- 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 set to the company's website, such as
  <a href="http://www.leve1.com">http://www.leve1.com</a>. If the home page function is disabled, the user will be directed to the URL she/he tries to
  connect originally.</a>
- Access History IP: Specify an IP address of the administrator's computer or a billing system to get billing history information of AMG-2000 with the predefined URLs as the following: Traffic History : <u>https://10.2.3.213/status/history/2005-02-17</u>

AMG-2000 User's Manual

	View Fav			2-17 - Microsof									- 8 >
Teles (* 1740)	1177/0012 10770		10 CT	Favorites 😽	Media 🕠	0 0.							
	https://10.2			1								💌 🔁 Go	Links
#Date 2005-02-	TYPE 17 18:09:	Name 03 +0800	IP LOGIN	MAC Paaa@w1300.				Packets Out 00:0C:F1:28:F		0	0		

On-demand History : https://10.2.3.213/status/ondemand\_history/2005-02-17

jie Edit View Favorites Ioo	ls <u>H</u> elp					
)Back 🔹 🕤 🖌 💽 😰 🐔 🔎	🔍 Search 👷 Favorites 😽 Media	😔 🍛 🌭 🖂				
dress 🙋 https://10.2.3.213/statu:	s/ondemand_history/2005-02-17				💌 🛃 Go	Links
#Date System Name	Type Name IP	MAC Packets In	Bytes In Packets	Out Bytes Out	Expiretime	Valid
2005-02-17 16:44:19 +0800	QA-W1300-Casper-213	Create_OD_User N	7E9 0.0.0.0 00:00:0	0:00:00:00 0	0 0	0 0
2005-02-17 16:44:57 +0800	QA-W1300-Casper-213	OD_User_Login N	T7E9 192.168.30.189	00:0C:F1:28:BF:D8	0 0	0
2005-02-17 16:45:22 +0800	QA-W1300-Casper-213	OD_User_Logout N	17E9 192.168.30.189	00:0C:F1:28:BF:D8	32 14499	30

- Management IP Address List: Set the IP range which is able to connect to the web management interface via WAN and/or LAN1~LAN4 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 AMG-2000. If the IP range bit number is omitted, 32 is used which specify a single IP address.
- **SNMP:** AMG-2000 supports SNMPv2. If the function is enabled, you can assign the Manager IP address and the SNMP community name used to access the management information base (MIB) of the system. However, for the external system, SNMP is a read-only function.
- User Logon SSL: Enable to activate https (encryption) or disable to activate http (non encryption) login page.
- Time: AMG-2000 supports NTP communication protocol to synchronize the system time with remote time server. Please specify the local time zone and IP address of at least one server in the system configuration interface for adjusting the time automatically. (Universal Time is Greenwich Mean Time, GMT). You can also set the time manually when you select "Set Device Date and Time (GMT)". Please enter the date and time for the corresponding fields.

	Device Time : 2007/04/13 15:17:04
	Time Zone :
	(GMT+08:00)Taipei
Time	○ NTP Enable
	Set Device Date and Time
	🗸 Year 🗸 Month 🗸 Day
	🗸 Hour 🗸 Minute 🗸 Second

### 4.1.3 WAN1 Configuration

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

	WAN1 Configura	tion	
	Static IP Address		
	IP Address:		
	Subnet Mask:		<b>,</b>
	Default Gateway:		<b>*</b>
WAN1 Port	Preferred DNS Server:	208.67.222.222	•
	Alternate DNS Server:	208.67.222.220	]
	<ul> <li>Dynamic IP Address</li> <li>PPPoE Client</li> <li>PPTP Client</li> </ul>		

• Static IP Address: Manually specifying the IP address of the WAN port. The red asterisk marks indicate required fields and have to be filled.

IP address: the IP address of the WAN1 port.

Subnet mask: the subnet mask of the network WAN1 port connects to.

Default gateway: a gateway of the network WAN1 port connects to.

Preferred DNS Server: The primary DNS server is used by the system.

Alternate DNS Server: The substitute DNS server is used by the system. This is an optional field.

• **Dynamic IP address:** It is only applicable for the network environment where a DHCP server is available. Click the *Renew* button to get an IP address.

	WAN1 Configuration
WAN1 Port	<ul> <li>Static IP Address</li> <li>Dynamic IP Address Renew</li> <li>PPPoE Client</li> <li>PPTP Client</li> </ul>

• **PPPoE Client:** When selecting PPPoE to connect to the network, please set the "**User Name**", "**Password**", "**MTU**" and "**CLAMPMSS**". There is a **Dial on demand** function under PPPoE. If this function is enabled, you can set a **Maximum Idle Time**. When the idle time is reached, the system will automatically disconnect itself.

	WAN1 Configura	tion
	<ul> <li>Static IP Address</li> <li>Dynamic IP Address</li> <li>PPPoE Client</li> </ul>	
	Usemame:	×
WAN1 Port	Password:	×
	MTU:	1492 bytes (Range:1000~1492)*
	CLAMPMSS:	1400 bytes (Range:980~1400)*
	Dial on Demand:	🔿 Enabled 💿 Disabled
	O PPTP Client	

PPTP Client: Set WAN1 port to connect to external PPTP server to establish PPTP VPN tunnel. You can 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 mark are required. Please fill in these fields. There is a Dial on demand function under PPTP. If this function is enabled, you can set a Maximum Idle Time. When the idle time is reached, the system will automatically disconnect itself.

<ul> <li>Static IP Address</li> <li>Dynamic IP Address</li> <li>PPPoE Client</li> </ul>		WAN1 Configurati	on
PPTP Client Type     Static      DHCP  PPTP Server IP: Username: Password: PASSWORD: PPTP Connection ID/Name: Dial on Demand:     Diabled      Disabled	WAN1 Port	<ul> <li>Dynamic IP Address</li> <li>PPPoE Client</li> <li>PPTP Client</li> <li>Type</li> <li>PPTP Server IP:</li> <li>Username:</li> <li>Password:</li> <li>PPTP Connection ID/Name:</li> </ul>	

### 4.1.4 WAN2 Configuration

Except select None to disable this function, there are 3 connection types for the WAN2 port: Static IP Address,

Dynamic IP Address and PPPoE Client.

• None: The WAN2 Port is disabled.

	WAN2 Configuration
WAN2 Port	<ul> <li>None</li> <li>Static IP Address</li> <li>Dynamic IP Address</li> <li>PPPoE Client</li> </ul>

• Static IP Address: Specify the IP Address, Subnet Mask, Preferred DNS Server, and Default Gateway of WAN2 Port, which should be applicable for the network environment.

WAN2 Configuration					
WAN2 Port	<ul> <li>None</li> <li>Static IP Address</li> <li>IP Address:</li> <li>Subnet Mask:</li> <li>Default Gateway:</li> <li>Preferred DNS Server:</li> <li>Alternate DNS Server:</li> <li>Dynamic IP Address</li> <li>PPPoE Client</li> </ul>				

• **Dynamic IP Address:** Select this when WAN2 Port can obtain IP address automatically, such as a DHCP Server available from WAN2 Port.

WAN2 Configuration		
WAN2 Port	<ul> <li>None</li> <li>Static IP Address</li> <li>Dynamic IP Address Renew</li> <li>PPPoE Client</li> </ul>	

• **PPPoE Client:** When selecting PPPoE to connect to the network, please set the "User Name", "**Password**", "**MTU**" and "**CLAMPMSS**". There is a **Dial on demand** function under PPPoE. If this function is enabled, you can set a **Maximum Idle Time**. When the idle time is reached, the system will automatically disconnect itself.

	WAN2 Configuration				
WAN2 Port	<ul> <li>None</li> <li>Static IP Address</li> <li>Dynamic IP Address</li> <li>PPPoE Client Username:</li> <li>Password:</li> <li>MTU:</li> <li>Clamp MSS:</li> <li>Dial on Demand</li> </ul>	1492 bytes (range:1000~1492) 1400 bytes (range:980~1400)* C Enabled O Disabled			

### 4.1.5 WAN Traffic Settings

The section is for administrator to configure the control over the entire system's traffic though the WAN interface (WAN1 and WAN2 ports).

WAN Traffic Settings				
Available Bandwidth on WAN Interface	Uplink:         100000         Kbps *(Range: 10-100000)           Downlink:         100000         Kbps *(Range: 10-100000)			
Connection Detection & WAN Failover	Target URLs for detecting Internet connection:         URL1: http://         URL2: http://         URL3: http://         Image: the transformation of			

#### Available Bandwidth on WAN Interface:

- Uplink: It specifies the maximum uplink bandwidth that can be shared by clients of the system.
- **Downlink:** It specifies the maximum downlink bandwidth that can be shared by clients of the system.

#### **Connection Detection & WAN Failover:**

- Target URLs for detecting Internet connection: These URLs are used by the system as the targets to detect Internet connection, for the purpose of alert of Internet disconnection and WAN Failover. At least one URL is required to enable WAN Failover.
- Enable WAN Failover: Normally a Service Zone uses WAN1 as it primary WAN interface. When enabled and WAN2 is available, WAN1's traffic will be routed to WAN2 when WAN1 connection is down. On the other hand, a Service Zone's policy could also use WAN2 as its interface; in that case, if WAN2 is down, the WAN2's traffic under its policy will also be routed to WAN1.
- Fall back to WAN1 when WAN1 is available again: If WAN Failover is enabled, the traffic will be routed to WAN2 automatically when WAN1 connection fails. When enabled, the routed traffic will be back to WAN1 when WAN1 connection is recovered.
- Warning of Internet Disconnection: When enabled, the text box is for the administrator to enter an alert message in order to notify users that the Internet connection is down. The alert message will show up in the users' browser when they try to access any website on Internet.

### 4.1.6 Private LAN Configuration

When accessing the network through the Private LAN port, users are not required to be authenticated. In this section, you can set the related configuration for the private LAN port and DHCP server.

	Private LA	N Configuration	
	Operation Mode	💿 NAT 🔘 Router	
Private LAN	IP Address:	192.168.100.254	
	Subnet Mask:	255.255.255.0	
DUOD O	O Disable DHCF	P Server	
DHCP Server Configuration	Enable DHCP Server		
	Enable DHCP Relay		

• Private LAN Configuration

Private LAN Configuration				
	Operation Mode	⊙ NAT ○ Router		
Private LAN	IP Address:	192.168.100.254		
	Subnet Mask:	255.255.255.0		

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

IP Address: Enter the desired IP address for the private port.

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

#### • DHCP Server Configuration

There are three methods to set the DHCP server: **Disable DHCP Server**, **Enable DHCP Server** and **Enable DHCP Relay**.

1. **Disable DHCP Server:** Disable DHCP Server function.

DHCP Server Configuration	<ul> <li>Disable DHCP Server</li> <li>Enable DHCP Server</li> <li>Enable DHCP Relay</li> </ul>
------------------------------	--

2. Enable DHCP Server: Choose "Enable DHCP Sever" function and set the appropriate configuration for the DHCP server. The fields with red mark are required. Please fill in these fields.

	<ul> <li>Disable DHCP Server</li> <li>Enable DHCP Server</li> </ul>	
	Start IP Address:	192.168.100.1
	End IP Address:	192.168.100.100 .
	Preferred DNS Server:	168.95.1.1 *
DHCP Server Configuration	Alternate DNS Server:	
configuration	Domain Name:	Level1.com
	WINS Server IP:	
	Lease Time	1 Day 🔽
	Reserved IP Address List	
	Enable DHCP Relay	

**Enable DHCP Server—Start/End IP Address:** Enter the "**Start IP Address**" and the "**End IP Address**" of this DHCP block. These fields define the IP address range that will be assigned to the Private LAN clients.

Preferred DNS Server: The primary DNS server for the DHCP.

Alternate DNS Server: The substitute DNS server for the DHCP.

Domain Name: Enter the domain name.

WINS IP Address: Enter the IP address of WINS.

Lease Time: Choose the time to change the DHCP.

**Reserved IP Address List:** For reserved IP address settings in detail, please click the hyperlink of *Reserved IP Address*. If you want to use the **Reserved IP Address List** function, click on the **Reserved IP Address List** on the management interface. Then, the setup of the Reserved IP Address List as shown in the following figure will appear. Enter the related Reserved IP Address, MAC, and some description (not compulsory). When finished, click *Apply* to complete the setup.

	Reserved IP Address List - Private LAN			
ltem	Reserved IP Address	MAC	Description	
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
	(Total:40) <u>First Prev Next Last</u>			

3. **Enable DHCP Relay:** If you want to enable this function, you must specify other DHCP Server IP address. See the following figure. For more information about DHCP relay, please see *Appendix H. DHCP Relay*.

DHCP Server Configuration	<ul> <li>Disable DHCP Server</li> <li>Enable DHCP Server</li> <li>Enable DHCP Relay</li> <li>DHCP Server IP:</li> </ul>	
------------------------------	---	--

### 4.1.7 Service Zones

A Service Zone is a logical network area to cover certain wired and wireless networks in an organization such as SMB or branch offices. By associating a unique VLAN Tag and SSID with a Service Zone, administrators can separate wired network and wireless network into different logical zones. Users attempting to access the resources within the Service Zone will be controlled based on the access control profile of the Service Zone, such as authentication, security feature, wireless encryption method, traffic control, etc. *For more information about Service Zone, please refer to* **Appendix F**.

There are up to five Service Zones to be utilized; by default, they are named as: **Default, SZ1, SZ2, SZ3 and SZ4**, as shown in the table below.

	Service Zone Settings						
Service Zone Name	VLAN Tag	VLAN Tag SSID Encryption Applied Policy Authentication Status Details					
Default		default- ssid	Open System	Policy 1	Server 1	Enable	Configure
SZ1	1	default1- ssid	Open System	Policy 1	Server 1	Disable	Configure
SZ2	2	default2- ssid	Open System	Policy 1	Server 1	Disable	Configure
SZ3	3	default3- ssid	Open System	Policy 1	Server 1	Disable	Configure
SZ4	4	default4- ssid	Open System	Policy 1	Server 1	Disable	Configure

#### Bervice Zone Settings

- Service Zone Name: Mnemonic name of the Service Zone.
- > VLAN Tag: The VLAN tag number that is mapped to the Service Zone.
- SSID: The SSID that is associated with the Service Zone.
- Encryption: Data encryption method for wireless networks within the Service Zone.
- > Applied Policy: The policy that is applied to the Service Zone.
- > Authentication: Default authentication method/server that is used within the Service Zone.
- Status: Each Service Zone can be enabled or disabled.
- > Details: Configurable, detailed settings for each Service Zone.

Click *Configure* button to configure each Service Zone: **Basic Settings**, **Authentication Settings** and **Wireless Settings**.

#### 1) Service Zone Settings — Basic Settings

The system supports three types of DHCP modes, **Disable DHCP Server**, **Enable DHCP server**, and **Enable DHCP relay**. Each service zone can have its own DHCP setting. Select the radio button of Disable DHCP Server to disable the built-in DHCP server when clients are assigned static IP addresses. Select the radio button of Enable DHCP Server to enable the built-in DHCP server. When the Enable DHCP server is chosen, the system will act as a DHCP server and assign IP addresses to its clients. Select the radio button of Enable DHCP Relay is chosen, the IP addresses of clients will be assigned by an external DHCP server. The system will only relay DHCP information from the external DHCP server to downstream clients of this service zone.

Basic Settings			
Service Zone Status	Enable		
Service Zone Name	Default		
Network Settings	Operation Mode <ul> <li>NAT</li> <li>Router</li> </ul> IP Address : 192.168.1.254		
	Subnet Mask : 255.255.255.0		
DHCP Server Settings	<ul> <li>Disable DHCP Server</li> <li>Enable DHCP Server</li> <li>Start IP Address : 192.168.1.1</li> <li>End IP Address : 192.168.1.100</li> <li>Preferred DNS Server : 168.95.1.1</li> <li>Alternate DNS Server : </li> <li>Domain Name : Level1.com</li> <li>WINS Server IP : </li> <li>Lease Time : 1 Day </li> <li>Reserved IP Address List</li> </ul>		
	Enable DHCP Relay		

- Service Zone Status: Each service zone can be enabled or disabled except for the default service zone.
- Service Zone Name: The name of service zone could be input here.
- Operation Mode: Contains NAT mode and Router mode. When NAT mode is chosen, the service zone runs in NAT mode. When Router mode is chosen this service zone runs in Router mode.
- > **IP address:** The IP Address of this service zone.
- Subnet Mask: The subnet Mask of this service zone.
- DHCP Server: Related information needed on setting up the DHCP Server is described as follows: DHCP pool Start IP Address, DHCP pool End IP Address, Preferred DNS Server, Alternate DNS Server, Domain Name, WINS Server, Lease Time, and Reserved IP Address List.
- WINS Server IP: The IP address of the WINS (Windows Internet Naming Service) server that if WINS server is applicable to this service zone.
- Lease Time: This is the time period that the IP addresses issued from the DHCP server are valid and available.
- Reserved IP Address List: Each service zone can reserve up to 40 IP addresses from predefined DHCP

range to prevent the system from issuing these IP addresses to downstream clients. The administrator can reserve a specific IP address for a special device with certain MAC address.

- > Domain Name: Enter the Windows domain name for this service zone.
- Enable DHCP server: This allows the enabling/disabling the built-in DHCP server.
- Start IP Address / End IP Address: A range of IP addresses that built-in DHCP server will assign to clients. Please change it accordingly at System—General—Management IP Address List to permit the administrator to login to the AMG-2000 admin page after the default IP address of Network Interface is changed.

#### 2) Service Zone Settings — Authentication Settings

The system supports five types of authentication database that are Local, POP3, RADIUS, LDAP, and NT Domain and provides up to four authentication options and one Guest Users authentication option. The administrator needs to activate and configure at least one of these authentication databases for an enabled service zone. Postfix is used to inform the system which type of authentication database to be used for authentication when multiple databases are concurrently in use. Each authentication option is distinguished by the postfix in clients' username such as "user1@postfix1". One of authentication database can be assigned as default for a service zone. Thus, for the authentication option being assigned as default, the postfix can be omitted while entering username.

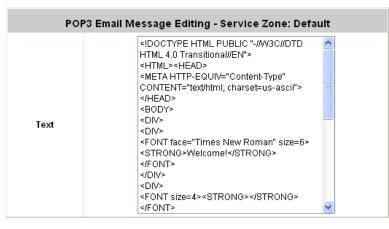
	Authentication Settings						
Authentication Status	⊙Enable ○Disable						
Authentication Options	Auth Option	Auth Database	Postfix	Default	Enabled		
	Server 1	LOCAL	local	۲			
	Server 2	POP3	рор3	0			
	Server 3	RADIUS	radius	0			
	Server 4	LDAP	Idap	0	<b>v</b>		
	<u>Ondemand</u> <u>User</u>	ONDEMAND	ondemand	0			
		Configure					
Custom Pages		Configure					
	Login Success Page				Configure		
	Login S	Configure					
		Configure					
Default Policy in this Service Zone Policy 1 🗸 Edit System Policies							
Email Message for Login Reminding Edit Mail Message							

- Custom Pages: There are five users' login and logout pages that can be customized by administrators for each service zone.
- Default Policy in this Service Zone: There are one Global and eight sets of policy profiles in the system. Each policy consists of Firewall, Specific Route, Schedule, and QoS. Global policy only has Firewall and Specific Route profile. Policies can be defined in the policy tab. The administrator can select one of the defined policies to apply it to the specific service zone. Please refer to 4.2.3 Policy Configuration for

complete description.

Policy Configuration					
Select Policy:	Policy 1 💌				
Firewall Profile	Setting				
Specific Route Profile	Setting				
Schedule Profile	Setting				
QoS Profile	Setting				

Email Message for Login Reminding: Click Edit Mail Message to change the content for Login reminding words. Clients will receive an email with this reminding content when they access their mail servers before logging in the system.



#### 2.1) Authentication Options

Click the hyperlink of Auth Option, the Authentication option page will appear, from Server1~4 and Guest Users.

Click the button of *Configure* to have further configuration.

Authentication Options	Auth Option	Auth Database	Postfix	Default	Enabled
	Server 1	LOCAL	local	۲	
	Server 2	POP3	рор3	0	
	Server 3	RADIUS	radius	0	
	Server 4	LDAP	Idap	0	
	<u>Ondemand</u> <u>User</u>	ONDEMAND	ondemand	0	

#### 2.2) Custom Pages

There are five users' login and logout pages for each service zone that can be customized by administrators.

Click the button of *Configure*, the Login (Logout) page will appear, including Login page, Logout Page,

### Login Success Page, Login Success Page for Instant Account and Logout Success Page.

Click the radio button of page selections to have further configuration.

	Login Page	Configure
	Logout Page	Configure
Custom Pages	Login Success Page	Configure
	Login Success Page for Ondemand User	Configure
	Logout Success Page	Configure

#### 2.2.1) Custom Pages — 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, click *Preview* to see the login page.

• Custom Pages — Login Page — Default Page

Choose Default Page to use the default login page.

Login Page Selection for Users - Service Zone: Default	
Oefault Page	◯ Template Page
O Uploaded Page	O External Page

Default Page Setting - Service Zone: Default	
This is default login page for users. You could click preview link to preview the default login page. Thanks.	
Preview_	

Custom Pages — Login Page — Template Page
 Choose Template Page to make a customized login page. Click Select to pick up a color and then fill in all of the blanks. Click Preview to see the result first.

Login Page Selection for Users - Service Zone: Default		
O Default Page	<ul> <li>Template Page</li> </ul>	
O Uploaded Page	O External Page	

Template Page Setting		
Color for Title Background	Select (RGB values in hex mode)	
Color for Title Text	Select (RGB values in hex mode)	
Color for Page Background	Select (RGB values in hex mode)	
Color for Page Text	Select (RGB values in hex mode)	
Title	User Login Page	
Welcome	Welcome To User Login Page	
Information	Please Enter Your Name and Password to Sign In	
Username	Username	
Password	Password	
Submit	Submit	
Clear	Clear	
Remaining	Remaining	
Copyright	Copyright (c)	
Preview		

 Custom Pages — Login Page — Uploaded Page Choose Uploaded Page and upload a login page.

Login Page Selection for Users - Service Zone: Default	
🔘 Default Page	◯ Template Page
Oploaded Page	◯ External Page

Uploaded Page Setting	
File Name	Browse
Submit	

Existing Image Files:		
Total Capacity: 512 K Now Used:0 K		
Upload Image Files		
Upload Images	Browse	
Submit		
Preview		

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

```
<form action="us erlogin.shtml" method="post" name="Enter">
<input type="text" name="myus ername">
<input type="pass word" name="mypass word">
<input type="pass word" name="mypass word">
<input type="submit" name="submit" value="Enter">
<input type="reset" name="clear" value="Clear">
</form>
```

And if the user-defined login page includes an image file, the image file path in the HTML code must be the image file to be uploaded.

Remote VPN	: <img src="images/xx.jpg''"/>
Default Service Z	<pre>Lone: <img src='images0/xx.jpg"'/></pre>
Service Zone 1	: <img src='images1/xx.jpg"'/>
Service Zone 2	: <img src="images2/xx.jpg''"/>
Service Zone 3	: <img src='images3/xx.jpg"'/>
Service Zone 4	: <img src="images4/xx.jpg''"/>

Click the **Browse** button to select the file to upload. Then click **Submit** to complete the upload process.

Next, 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.

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

Custom Pages — Login Pages — External Page

Login Page Selection for Users - Service Zone: Default		
◯ Default Page	◯ Template Page	
O Uploaded Page	€ External Page	

External Page Setting	
External URL	http://
Preview	

Choose the *External Page* selection and get the login page from the specific website. In the External Page Setting, enter the URL of the external login page 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.

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

```
<form action="us erlogin.shtml" method="post" name="Enter">
<input type="text" name="myus ername">
<input type="pass word" name="mypass word">
<input type="submit" name="submit" value="Enter">
<input type="reset" name="clear" value="Clear">
</form>
```

#### 2.2.2)Custom Pages — Logout Page

The administrator can apply their own logout page in the menu. As the process is similar to that of the Login Page, please refer to the "Login Page—Uploaded Page" instructions for more details.

Upload Logout Page - Service Zone: Default	
File Name	Browse
S	ubmit Use Default Page
Existing Image Files:	
Total Capacity: 512 K	
Now Used: 0 K	
Upload in	nage Files - Service Zone: Default
Upload Images	Browse
Submit	

#### Preview

**Note**: 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 customized logout page can be previewed by clicking *Preview* at the bottom of this page. If restore to factory default setting is needed for the logout interface, click the "**Use Default Page**" button.

```
<form action="userlogout.shtml" method="post" name="Enter">
<input type="text" name="myusemame">
<input type="pa ssword" name="mypas sword">
<input type="submit" name="submit" value="Logout">
<input type="reset" name="clear" value="Clear">
</form>
```

#### 2.2.3)Custom Pages — Login Success Page

The users can apply their own Login Success page in the menu. As the process is similar to that of the Login Page, please refer to the "Login Page" instructions for more details.

• Custom Pages — Login Success Page — Default Page

Choose Default Page to use the default login success page.

Login Success Page Selection for Users - Service Zone: Default	
Oefault Page	🔿 Template Page
O Uploaded Page	🔘 External Page

Default Page Setting - Service Zone: Default	
This is default login success page for users. You could click preview link to preview the default login success page. Thanks.	
Preview	

#### • Custom Pages — Login Success Page — Template Page

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

Login Success Page Selection for Users - Service Zone: Default	
🔿 Default Page	<ul> <li>Template Page</li> </ul>
O Uploaded Page	◯ External Page

Template Page Setting		
Color for Title Background	Select (RGB values in hex mode)	
Color for Title Text	Select (RGB values in hex mode)	
Color for Page Background	Select (RGB values in hex mode)	
Color for Page Text	Select (RGB values in hex mode)	
Title	Login Success Page	
Welcome	Hello	
Information	Please click this button to	
Logout	Logout	
Information2	Thank you	
Login Time Login Time		
Preview		

Custom Pages — Login Success Page— Uploaded Page

Choose Uploaded Page and get the login success page to upload. 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 and applied, the new login success page can be previewed by clicking Preview button at the bottom.

Login Success Page Selection for Users - Service Zone: Default		
🔿 Default Page	🔿 Template Page	
Oploaded Page	◯ External Page	

Uploaded Page Setting		
File Name Browse		
Submit		
Existing Image Files:		
Total Capacity: 512 K Now Used: 0 K		
Upload Image Files		
Upload Images Browse		
Submit		
Preview		

Custom Pages — Login Success Page — External Page

Choose the External Page selection and get the login success page from the specific website. In the External Page Setting, enter URL of the external login page 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

Login Success Page Selection for Users - Service Zone: Default		
🔿 Default Page	🔿 Template Page	
O Uploaded Page	💿 External Page	

External Page Setting	
External URL	http://
Preview	

2.2.4) Custom Pages — Login Success Page for Instant Account

The users can apply their own Login Success page for Instant Users in the menu. As the process is similar to that of the Login Page, please refer to the "Login Page" instructions for more details.

Custom Pages — Login Success Page for Instant Account — Default Page

Choose Default Page to use the default login success page for Instant account

Login Success Page Selection for on-demand Users - Service Zone: Default	
💿 Default Page	🔘 Template Page
O Uploaded Page	🔘 External Page



Custom Pages — Login Success Page for Instant Account — Template Page
 Choose Template to make a customized login success for Instant account. Click Select to pick up a color and then fill in all of the blanks. Click Preview to see the result.

Login Success Page Selection for on-demand Users - Service Zone: Default	
🔿 Default Page	<ul> <li>Template Page</li> </ul>
O Uploaded Page	◯ External Page

Template Page Setting		
Color for Title Background	Select (RGB values in hex mode)	
Color for Title Text	Select (RGB values in hex mode)	
Color for Page Background	Select (RGB values in hex mode)	
Color for Page Text	Select (RGB values in hex mode)	
Title	Login Success Page for Guest Users	
Welcome	Welcome	
Information	Please click this button to	
Logout	Logout	
Information2	Thank you	
Remaining Usage	Remaining Usage	
Day	Day	
Hour	Hour	
Min	Min	
Sec	Sec	
Login Time	Login Time	
Redeem	Redeem	
Preview		

Custom Pages — Login Success Pages for Instant Account — Uploaded Page
 Choose Uploaded Page and get the login success page for Instant by uploading. Click the Browse button to select the file for the login success page for Instant upload. Then click Submit to complete the upload process.

Login Success Page Selection for Users - Service Zone: Default		
🔿 Default Page	🔿 Template Page	
Oploaded Page	◯ External Page	

Uploaded Page Setting		
File Name	Browse	
	Submit	
Existing Image Files:		
Total Capacity: 512 K Now Used: 0 K		
	Upload Image Files	
Upload Images	Browse	
	Submit	
	Preview_	

Custom Pages — Login Success Pages for Instant Account — External Page
 Choose the External Page selection and get the login success page from the specific website. In the External Page Setting, enter URL of the external login page 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.

Login Success Page Selection for on-demand Users - Service Zone: Default		
🔿 Default Page	◯ Template Page	
○ Uploaded Page	<ul> <li>External Page</li> </ul>	

External Page Setting	
External URL	http://
Preview	

#### 2.2.5) Custom Pages — Logout Success Page

The administrator can apply their own Logout Success page for Users in the menu. As the process is similar to that of the Login Page, please refer to the "Login Page" instructions for more details.

Custom Pages — Logout Success Page — Default Page

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

Logout Success Page Selection for Users - Service Zone: Default	
💿 Default Page	🔘 Template Page
OUploaded Page	🔘 External Page

Default Page Setting - Service Zone: Default
This is default logout success page for users. You could click preview link to preview the default logout success page. Thanks.
Preview

• Custom Pages — Logout Success Page — Template Page

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

Logout Success Page Selection for Users - Service Zone: Default	
🔘 Default Page	💿 Template Page
O Uploaded Page	◯ External Page

Template Page Setting		
Color for Title Background	Select (RGB values in hex mode)	
Color for Title Text	Select (RGB values in hex mode)	
Color for Page Background	Select (RGB values in hex mode)	
Color for Page Text	Select (RGB values in hex mode)	
Title	Title Logout Success Page	
Information Logout successfully		
Preview		

Custom Pages — Logout Success Page — Uploaded Page
 Choose Uploaded Page and get the logout success page to upload. 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 and applied, the new logout success page can be previewed by clicking Preview button at the bottom.

Logout Success Page Selection for Users - Service Zone: Default	
🔿 Default Page	🔿 Template Page
<ul> <li>Uploaded Page</li> </ul>	◯ External Page

Upload Logout Success Page		
File Name	Browse	
	Submit	
Existing Image Files:		
Total Capacity: 512 K Now Used: 0 K		
	Upload Image Files	
Upload Images	Browse	
	Submit	
	Preview	

• Custom Pages — Logout Success Page — External Page

Choose the *External Page* selection and 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.

Logout Success Page Selection f	or Users - Service Zone: Default
🔿 Default Page	◯ Template Page
🔿 Uploaded Page	€xternal Page

External Page Setting		
External URL	http://	
Preview		
Default Policy in this Service Zone Policy 1 💌 Edit System Policies		
Email Message for Login Reminding		Edit Mail Message

### <u>3)</u> <u>Service Zone Settings — Wireless Settings</u>

Wireless Settings		
Set SSID	default-ssid	x
Access Point Security	Authentication	Open System
Encryption	none 💌	

- Set SSID: Each service zone must setup its own SSID.
- Access Point Security: Each service zone can setup its own Authentication and Encryption support. Authentication support: WPA-PSK, IEEE 802.1X (EAP-MD5, EAP-TLS, CHAP, PEAP); and encryption support: WEP (64/128bit), WPA and WPA2.

#### 4) Service Zone Settings — Managed AP in the service Zone

> Managed AP in this Service Zone: List all APs belonging to this service zone.

	Managed AP	in this Service Zone	
AD Tumo	AP Name	IP Address	Status
АР Туре	AP Name	MAC Address	Status

### Note: Limitation on WAP-0005 AP (AP Type: LevelOne\_Adv-AP) deployment

Because Default Service Zone (system default name: Default) does not support VLAN Tag, network administrators must pay attention to the limitation when deploying WAP-0005 AP. WAP-0005 supports two modes: (1) **Non-VLAN** mode – in this mode, WAP-0005 can only be associated with the Default Service Zone (system default name: Default) or (2) **VLAN** mode – in this mode, WAP-0005 can only be associated with the sociated with other Service Zones (system default name: SZ1, SZ2, SZ3, or SZ4).

# 4.2 User Authentication

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

System Use Configuration Authentic		nt Configuration	Utilities	Status
	🏥 User Authent	ication		
Authentication Configuration		User Authenticatio	on	
Black List Configuration Policy Configuration Additional Configuration	Authentication Configuration	System provides 3 authentication one type of authentication met authentication policy may be ass the following external authent LDAP and NT Domain.	thod and one Bla signed to any policy	ck List Profile. An y. System supports
	Black List Configuration	System supports 5 Black L authentication server. On-dema Black List.		
	Policy Configuration	System provides 8 policies, e firewall profile, specific route bandwidth policy.		
	Additional Configuration	Users will be logged out automs period of time. Multiple login of enabled or disabled (not avails provides Logout upon closing the Login Page and Logout Page email to client. When MAC Access Control is en page to those devices listed.	of the same user able to On-demar he "Login Succes: customization, an	account could be nd users). System s" window options, d login notification

## 4.2.1 Authentication Configuration

This section is for administrator to pre-configure authentication servers for the entire system's Service Zones. For a particular Service Zone, administrator should enable all the authentication servers which will be used and also specify a default authentication server in the page of Service Zones Settings. Up to four servers which can be selected and pre-configured here from the authentication databases (Local database, POP3, RADIUS, LDAP, and NT Domain Server) and one default server for on-demand users can also be pre-configured here for setting up Service Zones later. (for the Service Zone Authentication Settings, please see **4.1.7 Service Zones**)

Authentication Server Configuration		
Server Name	Auth Method	Postfix
Server 1	LOCAL	local
Server 2	POP3	рор3
Server 3	RADIUS	radius
Server 4	LDAP	Idap
On-demand User	ONDEMAND	ondemand

 Server 1~4: There are 5 kinds of authentication methods/databases (Local, POP3, RADIUS, LDAP and NT Domain) to choose from.

Authe	entication Server -	Server 1
Server Name	Server 1	*(Its server name)
Postfix	local	*(Its postfix name)
Black List	None 🗸	
Authentication Method	Local 🗸	Local User Setting
	POP3	Clear

**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.

**Postfix:** Set a postfix that is easy to distinguish (e.g. Local) 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.

Black List: There are 5 sets of black lists. You can 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, Local, POP3, RADIUS, LDAP and NT Domain to configure from. Select the desired method and then click the link besides the pull-down menu for more advanced configuration. For more details, please refer to 4.2.1.1~5 Authentication Methods.

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

**On-demand User:** This is the default authentication server for on-demand or guest users.

On-den	On-demand User Server Configuration				
Postfix	ondemand *(e.g. ondemand. Max: 40 char)				
Receipt Header 1	Welcome! (e.g. Welcome!)				
Receipt Header 2					
Receipt Footer	Thank You! (e.g. Thank You!)				
Monetary Unit	<ul> <li>none ○ \$ USD ○ £ GBP ○ € EUR</li> <li>(Input other desired monetary unit, e.g. AU)</li> </ul>				
WLAN ESSID	default-ssid (e.g. ondemand)				
Wireless Key					
Remark	(for oustomer)				
Billing Notice Interval	● 10mins ○ 15mins ○ 20mins				
Users List Billing Cor	nfiguration Create On-demand User Billing Report				

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

**Postfix:** Set a postfix that is easy to distinguish (e.g. Local) 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.

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

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

Monetary Unit: Select or enter the desired monetary unit for your region.

WLAN ESSID: Enter the ESSID of the AP.

•

Wireless Key: Enter the WEP key of the AP.

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

**Billing Notice Interval:** While a volume type 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.

#### User List: Click to enter the On-demand User List screen. In the On-demand User List, detailed information

will be documented here. By default, the On-demand user database is empty.

					Search
	On-demand Users List				
Username	Password	Remain Time/Volume	Status	Expire Time	Delete All
<u>F383</u>	KZZG63SE	2 hour	Normal	2007/04/15- 17:19:54	<u>Delete</u>
<u>KKWE</u>	X4ZG458K	2 hour	Normal	2007/04/15- 17:21:43	<u>Delete</u>
		(Total:2) <u>First</u> <u>Previo</u>	us <u>Next Last</u>		
			F3S	3	Search
		On-demand Us	ers List		
Username	Password	Remain Time/Volume	Status	Expire Time	Delete All
<u>F3S3</u>	KZZG63SE	2 hour	Normal	2007/04/15- 17:19:54	<u>Delete</u>
		(Total:1) First Previo	<u>us Next Last</u>		

- Search: Enter a keyword of a username that you wish to search in the text filed 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 can use currently.
- Status: The status of the 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 the users at once.
- > **Delete:** This will delete the users individually.

Billing Configuration: Click the hyperlink of Billing Configuration to enter the Billing Configuration page.

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

		Billing Configu	iration		
Plan	Status	Туре	Expired info	Valid Duration	Price
1	<ul> <li>Enabled</li> <li>Disabled</li> </ul>	<ul> <li>○ Volume</li> <li>○ Mbyte</li> <li>2 hours</li> <li>0 mins</li> </ul>	3 days 0 hours	5 days	20
2	<ul> <li>Enabled</li> <li>Disabled</li> </ul>	Volume Mbyte Mbyte Nours mins	days	days	

- > **Status:** Select to enable or disable this billing plan.
- Type: Set the billing plan by "Volume" (the maximum volume allowed is 9999999 Mbyte) 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	Туре	Price	Status	Function
1	2 hrs 0 mins	20	Enabled	Create
2	N/A	N/A	Disabled	Create

Pressing the *Create* button for the desired rule, 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 500 On-demand user accounts available.

Username	F3S3@ondemand
Password	KZZG63SE
Price	20
Usage	2 hrs 0 mins
ESSID : default-ssid	
Valid to use until: 2007/04/15 17:19:54	

Thank You!

Printout	Close
----------	-------

Billing Report: Click this to enter the On-demand users Summary report page. In On-demand users Summary report page, Administrator can get a complete report or a report of 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.
- Search: Select a time period to get a period report. The report tells the total expenses and individual accounting of each plan for all plans available for that period of time.

#### • Authentication Method – Local User Setting

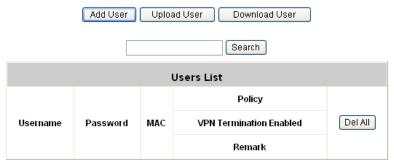
Choose "Local User" in the Authentication Method field, the hyperlink besides the pull-down menu will become "Local User Setting".

Authe	ntication Serv	ver - Server 1
Server Name	Server 1	*(Its server name)
Postfix	local	"(Its postfix name)
Black List	None	<ul> <li>Image: A set of the set of the</li></ul>
Authentication Method	Local 🗸	Local User Setting
(J A	POP3	Clear

Click the hyperlink to get in for further configuration.

	Local User Setting
	Edit Local User List
Radius Roaming Out	Enabled O Disabled (Local user database will be used as authentication database for roaming out users.)
802.1x Authentication	● Enabled ● Disabled (Local user database will be used as internal RADIUS database for 802.1X-enabled LAN devices, such as AP and switch.)

Edit Local User List: Click this to enter the "Local User List" screen.



(Total:0) First Previous Next Last

Add User: Click Add User to enter the Add User interface. Fill in the necessary information such as

"Username", "Password", "MAC" (optional) and "Remark" (optional). Notice that username cannot start with "guest" if guest user is enabled. Then, select a desired **Policy** and click *Apply* to complete adding the user or users.

	Add User						
ltem	Username	Password	MAC (XX:XX:XX:XX:XX:XX)	Policy	Remark	VPN Termination	
1				None 💌			
2				None 💌			
3				None 💌			

Add some users:

	Add User					
ltem	Username	Password	MAC (XX:XX:XX:XX:XX)	Policy	Remark	
1	Alice	••••		Policy 2 🔽		
2	Bob	•••••		Policy 1 💌		
3	Cathy	••••	00:90:08:06:40:21	Policy 4 💌	long time	
4				None 💌		
-				NI		

Click "Apply" to save the settings.

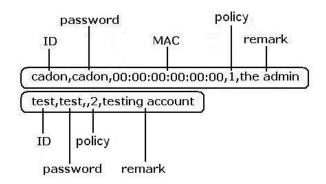
User 'B	ice' has been ac ob' has been ado athy' has been a	ded!			
			Add User		
ltem	Username	Password	MAC (XX:XX:XX:XX:XX)	Policy	Remark
1				None 🔽	
2				None 🔽	
3				None 🔽	
А				None 🗸	

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

here must be no space between the fi out the trailing comma must be retained	sword, MAC, Policy, Remark" without the quotes, elds and commas. The MAC field could be omitted d. When adding user accounts by uploading a file, abase that are also defined in the data file will not be
Uplo	oad User Account
File Name	Browse

The uploading file should be a text file and the format of each line is "*ID*, *Password*, *MAC*, *Policy*, *Remark*" 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.



**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 disk.

Users List					
Username	Password	MAC	Policy		
Username	Fassword	MAC	Remark		
Alice	Alice alice		2		
Ante	ance				
Doh	100666		1		
ana	Bob 123bbb				
Cothu	41380		4		
Cathy	41380	00:90:0B:06:40:21	long time		

Download

**Refresh:** Click this to renew the user list.

Add User Upload User Download User Refresh						
Search						
		Users List				
Username	Password	мас	Policy			
Username	Password	MAC	Remark	Del All		
Alice	alice		Policy 2	<u>Delete</u>		
Allee	ance			Delete		
Bob	123bbb		Policy 1	<u>Delete</u>		
000	123000			Delete		
Cathy	41380	00:90:0B:06:40:21	Policy 4	<u>Delete</u>		
<u></u>	41000	00.000.00.40.21	long time			
Allen	applo		Policy 1	<u>Delete</u>		
Allell	apple		night shif t	Delete		

(Total:4) First Previous Next Last

**Search:** Enter a keyword of a username that you wish to search in the text filed and click this button to perform the search. All usernames matching the keyword will be listed.

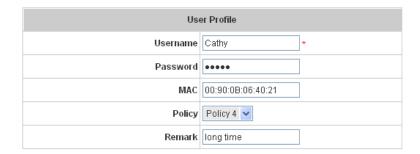
Add User Upload User Download User Refresh						
cathy						
	Users List					
Username	Password	МАС	Policy	Del All		
Username	Password	MAC	Remark	DerAir		
Cathy	41380	00:90:08:06:40:21	Policy 4	Delete		
Catny	41360	00.90.08.06.40.21	long time	Delete		

(Total:1) First Previous Next Last

Del All: This will delete all the users at once.

Delete: This will delete the users individually.

Edit User: If you want to edit the content of individual user account, click the username of the desired user account to enter the Edit User Interface for that particular user, and then modify or add any desired information such as "Username", "Password", "MAC" and "Remark" (optional). Then, click *Apply* to complete the modification.



Radius Roaming Out / 802.1x Authentication: Enable the two function separately and the hyperlink of *Radius Client List*.

Local User Setting				
Edit Local User List				
Radius Roaming Out Scale Content Conte				
802.1x Authentication Second S				
Radius Client List				

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 settings.

	Radius Client Configuration						
No.	Туре	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) 💌				

Roaming Out: This is the Radius Roaming Out function that our company cooperates with III (Institute for Information Industry). When you select "Roaming Out", the local user can login from other site.
802.1x: This system support PEAP (Protracted Extensible Authentication Protocol) function. When selecting 802.1x, the system is provided with this function. 802.1x function must be used in LAN.

#### • Authentication Method – POP3

Choose **"POP3"** in the **Authentication Method** field, the hyperlink beside the pull-down menu will become **"POP3 Setting"**.

Authentication Server - Server 2					
Server Name	Server 2	"(Its server name)			
Postfix	рор3	*(Its postfix name)			
Black List	None 💌				
Authentication Method	POP3 💌	POP3 Setting			
Enable VPN Termination					

Click the hyperlink for further configuration. Enter the related information for the primary server and/or the secondary server (the secondary server is not required). The blanks with red star are necessary information. These settings will become effective immediately after clicking the *Apply* button.

	Primary POP3 Server						
Server IP (Domain Name/IP)							
Port	(Default: 110)						
SSL Setting	SL Setting Enable SSL Connection						
Secondary POP3 Server							
	Secondary POP3 Server						
Server IP	Secondary POP3 Server						
Server IP Port	Secondary POP3 Server						

Server IP: Enter the IP address/domain name given by your ISP.

**Port:** Enter the Port given by your ISP. The default value is 110.

**SSL Connection:** If this option is enabled, the POP3s protocol will be used to encrypt the authentication.

#### Authentication Method – RADIUS

Choose "RADIUS" in the Authentication Method field, the hyperlink beside the pull-down menu will become "Radius Setting" and there is a hyperlink of "Edit Policy Mapping" shows beside Policy.

Authentication Server - Server 3						
Server Name	Server 3	*(Its server name)				
Postfix	radius	*(Its postfix name)				
Black List	None 🖌					
Authentication Method	RADIUS 💌	Radius Setting				
Enable VPN Termination						

Click the hyperlink for further configuration. The Radius server sets the external authentication for user accounts. Enter the related information for the primary server and/or the secondary server (the secondary server is not required). The blanks with red star are necessary information. These settings will become effective immediately after clicking the *Apply* button.

Radius Setting			
802.1x Authentication	○ Enabled ③ Disabled		
Trans Full Name	Ocomplete (e.g. user1@company.com)  Only ID (e.g. user1)		
NASID			
Class-Policy Mapping	Edit Class-Policy Mapping		
	Primary RADIUS Server		
Server IP	*(Domain Name/IP Address)		
Authentication Port	*(Default: 1812)		
Accounting Port	"(Default: 1813)		
Secret Key	×		
Accounting Service	● Enabled ○ Disabled		
Authentication Protocol	PAP 💌		
5	Secondary RADIUS Server		
Server IP	(Domain Name/IP Address)		
Authentication Port			
Accounting Port			
Secret Key			
Accounting Service	€ Enabled ○ Disabled		
Authentication Protocol	CHAP 💌		

**802.1X Authentication:** Enable this function and the hyperlink of *Radius Client List* will appear. Click the hyperlink to get into the Radius Client Configuration list for further configuration. In the **Radius Client Configuration** table, the clients, which are using 802.1X as the authentication method, shall be put into this table. AMG-2000 will forward the authentication request from these clients to the configured Radius Servers.

	Radius Setting					
	802.1x Authentic	ation		ed 🔘 Disabled lius Client List		
Trans Full Name O Complete (e.g. user1@company.com) ③ Only ID (e.g. use						💿 Only ID (e.g. user1)
	NASID					
Class-Policy Mapping Edit Class-Policy Mapping						
		Ra	dius Clie	nt Configuration	n	
No.	Туре	IP Add	ress	Segment		Secret
1	Disable 💌			255.255.255.255 (/3	32) 🔽	
2	Disable 💌			255.255.255.255 (/3	32) 🔽	
3	Disable 💌			255.255.255.255 (/3	32) 🔽	

**Trans Full Name:** When enabled, the ID and postfix will be sent to the RADIUS server for authentication. When disabled, only the ID will be sent to RADIUS server for authentication.

**NASID:** Enter a line of characters, for example "meeting-room", for identifying AMG-2000 itself to the RADIUS server. Please use numbers (0 to 9), alphabets (a to z or A to Z), dash (-), underline (\_) and dot (.), and all other letters are not allowed.

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: Select this to enable or disable the "Accounting Service" for accounting capabilities. Authentication Protocol: There are two methods, CHAP and PAP for selection.

Click the hyperlink of **Edit Policy Mapping** for further configuration. In Class Attribute filed, enter the class attribute according to the setting of Radius server and assign a policy. The class attribute could be a character string using numbers (0 to 9), alphabets (a to z or A to Z), dash (-), underline (\_) and dot (.), all other letters are not allowed. These settings will become effective immediately after clicking the *Apply* button.

	Radius Policy Mapping - Server 3						
	🔿 Enable 💿 Disable						
No.	Class Attribute	Policy	Remark				
1		Policy 1 💌					
2		Policy 1 💌					
3		Policy 1 💌					
4		Policy 1 💌					
5		Policy 1 💌					
6		Policy 1 💌					
7		Policy 1 💌					
8		Policy 1 💌					

#### Authentication Method – LDAP

Choose "LDAP" in the Authentication Method field, the hyperlink beside the pull-down menu will become "LDAP Setting".

Authentication Server - Server 4				
Server Name	Server 4	*(Its server name)		
Postfix	Idap	*(Its postfix name)		
Black List	None 💌			
Authentication Method	LDAP 🔽	LDAP Setting		
Enable VPN Termination				

Click the hyperlink for further configuration. Enter the related information for the primary server and/or the secondary server (the secondary server is not required). The blanks with red star are necessary information. These settings will become effective immediately after clicking the *Apply* button.

Primary LDAP Server					
Server IP (Domain Name/IP)					
Port	*(Ex: 389)				
Base DN	*(CN=,do=,do=)				
Account Attribute	*(Ex: uid)				
Secondary LDAP Server					
Server IP					
Port					
Base DN					
Account Attribute					
Policy Mapping					
LDAP Policy Mapping	Map LDAP Attributes to Policy				

Server IP: Enter the IP address or domain name of the LDAP server.

**Port:** Enter the Port of the LDAP server, and the default value is 389.

**Base DN:** Enter the distinguished name of the LDAP server.

Account Attribute: Enter the account attribute of the LDAP server.

#### • Authentication Method – NT Domain

Choose "NTDomain" in the Authentication Method field, the hyperlink beside the pull-down menu will become "NT Domain Setting".

Authentication Server - Server 1			
Server Name	Server 1	"(Its server name)	
Postfix	local	"(Its postfix name)	
Black List	None 🔽		
Authentication Method	NT Domain 🐱	NT Domain Setting	
Enable VPN Termination			

Click the hyperlink for further configuration. Enter the server IP address and enable/disable the transparent login function. These settings will become effective immediately after clicking the *Apply* button.

Domain Controller				
Server IP (IP Address)				
Transparent Login	C Enabled ③ Disabled (Windows 2000, 2003 or above)			

Server IP address: Enter the server IP address of the domain controller.

**Transparent Login:** If the function is enabled, when users log into the Windows domain, they will log into AMG-2000 automatically.

# 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.

Black List Configuration						
Select Black List:	1:Blacklist1 💌					
Name	1:Blacklist1 2:Blacklist2 3:Blacklist3					
User	4:Blacklist4 ark Delete 5:Blacklist5					
	(Total:0) <u>First Prev Next Last</u> Add User(s)					

- Select Black List: There are 5 lists to select from for the desired black list.
- Name: Set the black list name and it will show on the pull-down menu above.
- Add Users: Click the hyperlink to add users to the selected black list.

Add Users to Blacklist Blacklist1					
ltem	Username	Remark			
1	James	restricted			
2					
3					

After entering the usernames in the "**Username**" blanks and the related information in the "**Remark**" blank (not required), click *Apply* to add the users.

	-	-	-					
			liser	'lames'	has	heen	added!	
			0.001	D Danio D	11000	00011	the on the other of the other	

Add Users to Blacklist				
	Add Users to Blacklist Blac	klist1		
ltem	Username	Remark		
1				
2				

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.

Black List Configuration					
Select Black List:	1:Blacklist1 💌				
Name	Blacklist1				
User	Remark	Delete			
James	restricted				

# 4.2.3 Policy Configuration

There are 8 policies and one Global Policy in Policy Configuration. Except Global Policy, every Policy has three profiles, **Firewall Profile**, **Specific Route Profile**, and **Schedule Profile** as well as **Total Bandwidth**, **Individual Maximum Bandwidth** and **Individual Request Bandwidth** setting for that policy.

• Policy 1~8

Policy Configuration			
Select Policy:	Policy 1 💌		
Firewall Profile	Setting		
Specific Route Profile	Setting		
Schedule Profile	Setting		
QoS Profile	Setting		

Select Policy: Select Policy 1 ~ Policy 8.

Policy Configuration			
Select Policy:	Policy 1 💌		
Firewall Profile	Global Policy 1		
Specific Route Profile	Policy 2 Policy 3 Policy 4		
Schedule Profile	Policy 5 Policy 5 Policy 6		
QoS Profile	Policy 7 Policy 8		

Policy Configuration				
Select Policy:	Policy 1 💌			
Firewall Profile	Setting			
Specific Route Profile	Setting			
Schedule Profile	Setting			
QoS Profile	Setting			

#### > Firewall Profile

Click the hyperlink of *Setting* for Firewall Profile, the Firewall Profiles list 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.

Policy 1 - Firewall Configuration
Predefined and Custom Service Protocols
Firewall Rules

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

	Policy 1 - Firewall Rules						
н.	Active	Action	Name	Source	IPSec Encrypted	Contro	Schedule
No.	ACTIVE	ACUON	Name	Destination	IPSec Encrypted	Service	
	_	Block		ANY		ALL	Always
1		DIUCK		ANY		ALL	Anways
	_	Dissis		ANY			0.0
2		Block		ANY		ALL	Always

Policy 1 - Edit Filter Rule							
Rule Item: 1		Rule Name:					
	Source	D	estination				
Interface	ALL 🔽	Interface	ALL 🔽				
IP Address		IP Address					
Subnet Mask	255.255.255.255 (/32) 🐱	Subnet Mask	255.255.255.255 (/32) 🐱				
MACAddress							
IPSec Traffic		IPSec Traffic					
Service	ALL 🔽						
Schedule	Always ○ Recurring ○ One Time						
Action	💿 Block 🔘 Pass						

Rule Item: This is the rule that you have 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.

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

**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, WAN1, WAN2, LAN1~LAN4 Port and Private Port.

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

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

> Specific Route Profile

Click the hyperlink of *Setting* for *Specific Route Profile*, the Specific Route Profile list will appear.

	Policy 1 - Specific Default Route						
Enable 🗌	Enable 🗌 Default Gateway: IP Address 💌						
	Policy 1	- Specific Route Profile					
Route Ite	m	Destination					
Noute iter	IP Address	Subnet Netmask	IP Address				
1		255.255.255.255 (/32) 💌					
2		255.255.255.255 (/32) 💌					

Profile Name: The profile name can be changed here.

**Default Gateway:** Choose an appropriate default gateway from the drop-down menu, or enter IP address manually into the blank. Check the "Enable" box to enable this function.

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

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

**IP Address:** The IP address of the next 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 the users can 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.

#### 🏥 Login Schedule Profile

🔘 Enabled 💿 Disabled

💿 Enabled 🔘 Disabled

Policy 1 - Login Schedule Profile								
HOUR	HOUR SUN MON TUE WED THU FRI SAT							
00:00~00:59	✓		<b>&gt;</b>	✓		<b>~</b>		
01:00~01:59	✓	<b>~</b>	<b>~</b>	<b>~</b>	✓	<b>~</b>	<b>~</b>	
02:00~02:59	~	<b>V</b>	<b>~</b>	<b>~</b>	<b>~</b>	~	~	
03:00~03:59	~	<b>V</b>	<b>~</b>	<b>~</b>	<b>~</b>	~	~	
04:00~04:59	~		<b>~</b>	<b>~</b>	✓	~		

#### QoS Profile

Click the button of *Setting* for QoS Profile to enter the Traffic Configuration. Choose one Traffic Class for that particular policy.

Policy 1 - Traffic Configuration			
Traffic Class	Best Effort		
Total Downlink	Unlimited 💌		
Individual Maximum Downlink	Unlimited 💌		
Individual Request Downlink	None		
Total Uplink	Unlimited 💌		
Individual Maximum Uplink	Unlimited 💌		
Individual Request Uplink	None		

Traffic Class: Define allowed class and choose among Voice, Video, Best Effort and Background.

**Total Downlink/Uplink:** Define maximum downlink and uplink allowed of the total bandwidth shared by users within the same policy.

**Individual Maximum Downlink/Uplink:** Define maximum downlink and uplink allowed for individual user; the individual maximum bandwidth can not exceed the value of total downlink / uplink.

Individual Request Downlink/Uplink: Define the guaranteed minimum downlink and uplink for individual user; the minimum bandwidth can not exceed the setting value of total downlink and uplink and

individual maximum downlink/uplink.

- Global Policy
  - > Select Policy: Select Global to set the Firewall Profile and Specific Route Profile.

Policy Configuration			
Select Policy:	Global 💌		
Firewall Profile	Setting		
Specific Route Profile	Setting		

Firewall Profile: Click the hyperlink of Setting for Firewall Profile, the Firewall Profiles list 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.

Global Policy - Firewall Configuration
Predefined and Custom Service Protocols
Firewall Rules

No.	Name	Global Policy - Service Protocols List Description	Select All			
1	ALL	ALL				
2	ALL TCP	TCP; Source Port: 0~65535, Destination Port: 0~65535				
3	ALL UDP	UDP; Source Port: 0~65535, Destination Port: 0~65535				
4	ALL ICMP	ICMP; Type: Any, Code: Any				
5	FTP	TCP/UDP; Destination Port: 20;21				
6	HTTP	TCP/UDP; Destination Port: 80				
7	HTTPS	TCP/UDP; Destination Port: 443				
8	POP3	TCP; Destination Port: 110				
9	SMTP	TCP; Destination Port: 25				
10	DHCP	UDP; Destination Port: 67;68				
	Add Delete					
		(Total: 27) First Prev Next Last				

			Globa	Policy - Fire	wall Rules		
No	A other	Action	Nama	Source	IPSec Encrypted	Conico	Cabadula
No.	Active	ACUON	Name	Destination	IPSec Encrypted	Service	Schedule
1	_	Block		ANY		ALL	Always
1		DIUCK		ANY		ALL	Always
	_	Disala		ANY			0.0
2		Block		ANY		ALL	Always

	Global I	Policy - I	Edit Filter Rule	
Rule Item: 1			Rule Name:	
	Source		D	estination
Interface	ALL 🔽		Interface	ALL 🔽
IP Address		]	IP Address	
Subnet Mask	255.255.255.255	i (/32) 🔽	Subnet Mask	255.255.255.255 (/32) 🔽
MACAddress				
IPSec Traffic			IPSec Traffic	
Service	ALL 🔽			
Schedule	💿 Always 🔘 Re	curring 🤇	) One Time	
Action	📀 Block 🔘 Pas	s		

Rule Item: This is the rule that you have selected.

Rule Name: The rule name can be changed here.

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

**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, WAN1, WAN2, LAN1 and LAN2. Source/Destination —IP Address: Enter the source and destination IP addresses.

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

Specific Route Profile: Click the hyperlink of Setting for Specific Route Profile, the Specific Route Profile list will appear.

	Global Policy -	Specific Route Profile	
Route Item	ſ	Destination	Gateway
Route Rem	IP Address	Subnet Netmask	IP Address
1		255.255.255.255 (/32) 💌	
2		255.255.255.255 (/32) 💌	
3		255.255.255.255 (/32) 💌	

IP Address (Destination): The destination IP address of the host or the network.Subnet Netmask: Select a destination subnet netmask of the host or the network.IP Address (Gateway): The IP address of the next router to the destination.

## 4.2.4 Additional Configuration

	Additional Configuration
User Control	Idle Timer: 10 *(Range: 1-1440) Multiple Login (On-demand and RADIUS authentication do NOT support multiple login.) Logout upon closing the "Login Success" window 🕑
Roaming Out Timer	Session Timeout:         120         *(Range: 5-1440)           Idle Timeout:         10         *(Range: 1-120)           Interim Update:         5         *(Range: 1-120)
Upload File	Certificate
Credit Reminder	Volume 🔘 Enable 💿 Disable Time 🔘 Enable 💿 Disable
Enhance User Authentication	Permit MAC Address List (Control list to manage which client devices are allowed to access the login page)

 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, a user can log in from different computers with the same account. (This function doesn't support On-demand users and RADIUS accounting.)

Logout upon closing the login Success window: 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 periodically.

### • Upload File

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

	Upload Private Key
File Name	Browse
U	Ipload Customer Certificate
File Name	Browse
	Use Default Certificate

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

BUSE Default Certification	
You just overwrote the setting with default KEY & default CA file You should restart the system to activate this. Click to <u>restart.</u>	

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.

Volume 💿 Enable 🔘 Disable
1 Mbyte *(Range: 1-10; Default: 1)
Time 💿 Enable 🔘 Disable
5 minutes "(Range: 1-30; Default: 6)

 MAC Address Control: With this function, only the users with their MAC addresses in this list can log into AMG-2000. There will only be 40 users allowed in this MAC address list. User authentication is still required for these users. Please enter the MAC Address List to fill in these MAC addresses, select Enable, and then click Apply.

	MAC Addre	ss Control	
	🔘 Enabled	💿 Disabled	
ltem	MAC Address	ltem	MAC Address
1		2	
3		4	

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

# 4.3 AP Management

AMG-2000 supports to manage up to 12 access points (AP), and they can be configured in this section. This section includes the following functions: **AP List**, **AP Discovery**, **Manual Configuration**, **Template Settings**, **Firmware Management** and **AP Upgrade**.

	ser AP ntication Manageme	nt Network Utilities Status
	🟥 AP Manageme	ent
AP List		AP Management
AP Discovery Manual Configuration	AP List	The list shows the current AP summary including type, name, IP, MAC and online status. It also provides the operations for each AP on reboot, enable, disable, delete, apply a new template, and to do further examination or detailed configuration.
Template Settings	AP Discovery	This discovery function is to detect the unmanaged APs within LANs and assign the desired IPs for the future management. With the AP access information, administrator is able to manually or automatically discover AP on the selected LAN(s).
AP Upgrade	Manual Configuration	Administrators who are familiar with the new AP can set it up manually by filling in the necessary information. There are three templates from the drop-down box that can be chosen.
	Template Settings	Administrators can edit template settings here. These templates are saved and can be used in "Manual Configuration" and "AP Discovery' sections.
	Firmware Management	This page lets administrators manage firmwares and shows each firmware's information with operations of download and delete.
	AP Upgrade	This page shows each AP on name, firmware version and the time previously being upgraded. Administrators can choose a firmware version from the drop-down box to upgrade APs. Several AP upgrades can be processed simultaneously by checking the upgrade boxes.
		<b>@</b> 0

### 4.3.1 AP List

All of the AP under the management of AMG-2000 will be shown in the list. The AP can be edited by clicking the hyperlink of *AP Name* and the AP status can be got by clicking the hyperlink of *Status*.

			AP List		
		AP Name	IP Address	Service Zone	Status
	АР Туре	AP Name	MAC Address	Service Zone	Status
Re	boot Enable	Disable Del	ete Apply Templ	ate Apply Serv	ice Zone
		(Total: 0)	) <u>First Prev Next La</u>	<u>st</u>	

After adding 1 AP:

	AP Type	AP Name	IP	Status
-	ne type	pr name	MAC	Status
	LevelOne_Std-AP	NEW/DEV-00001	192.168.1.1	Online
	revelotie_out-M	THEY TELL Y SUCCESS	00:0E:2E:7C:B4:CF	(Enabled

You can check any AP and then click the button below to Reboot, Enable, Disable and Delete the checked AP.

-	AD Tumo	AP Name	IP	Status
	AP Type	AP Name	MAC	Status
	LevelOne_Std-AP	NEWDEV-00001	192.168.1.1	Online
	Levelone_att-AP	NEWIDEY-00001	00:0E:2E:7C:B4:CF	(Enabled)

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

	nplate: TEMPLATE3
SSID	apmgt
Channel	11
Transmisstion Rate	Auto
Security	Disabled

#### 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 to go on the configuration.

		Genera	al Settings	
	Name	NEV/DEV-00001		
Setting	Remark	None		
	Firmware	1.20		
		LAN Inter	face Setting	
	IP	192.168.2.2		
LAN	Mode	Static IP		
- 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4		Wireless In	terface Setting	
	SSID		apmgt	
Wireless LAN	Channel		î)	
	Security Type		Disabled	
		Access C	ontrol Setting	
	Status		Disabled	
Access Control		Mode	Allowed	
	Nun	Number of MAC Addresses	0	

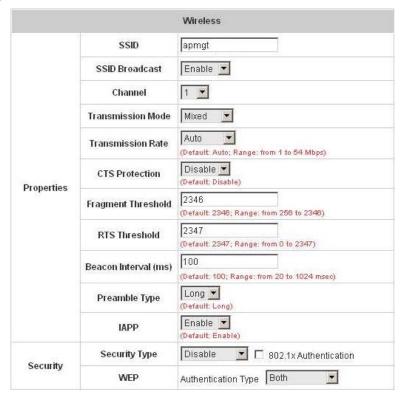
General Setting: Click Setting to enter the General Setting interface. You can revise the AP Name, Admin Password and Remark. Besides, you can see the firmware information here.

G	eneral Settings
Name	NEWDEV-00001
Admin Password	1234
Remark	
Firmware	1.23

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.

	LAN Settings		
IP Address	192.168.2.2	*	
Subnet Mask	255.255.255.0	*	
Default Gateway	0.0.0.0	*	

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 APs in a wireless network. The SSID must be the same for all APs 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, you may want to enable this function, but make sure to disable it when you finished. With this enabled, someone could easily obtain the SSID information with the site survey software and get unauthorized access to your network. With this disabled to increase network security and prevent the SSID from being seen on networked.
- **Channel:** Select the appropriate channel from the list to correspond with your 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 your wireless network. You can select from a range of transmission speed or you can 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 APs exist simultaneously. However, performance of your 802.11g APs 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.
- 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. You can 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.

Security: There are four kinds of security type, WEP, WPA, WPA2 and WPA2 Mixed for selection.

 Disable: Choose this type, there is no any encryption used but 802.1x Authentication and Authentication Type. For Authentication Type, you can choose Open System, Shared Key or Both according to the settings of the AP and Client. Check 802.1x Authentication to enable this function and enter the related data, if necessary.

Socurity	Security Type	Disable 🗾 🗖	802.1x Authentication
Security	WEP	Authentication Type	Both 🗾
			Open System Shared Key
	J Apply	X Clear	Both

Security	Security Type	Disable 🗾 🗹 802.1x Authentication
	WEP	Authentication Type Both
	802.1x	Radius Server IP Port 1812 Secret

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.

	Security Type	WEP 🔄 🗹 802.1x Authentication
Security	WEP	Authentication Type Both  Key Length 64 bits  Key Format ASCII Key Index Key1 Key1 key01 Key2 key02 Key3 key03 Key4 key04
	802.1x	Radius Server IP Port I812 Secret

• 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.

Security	Security Type	WPA 💌 WP/	A-PSK
	WPA-PSK TKIP	Passphrase/PSK	Passphrase 💌
Security	Security Type	WPA 💌 802	1x 💌
	802.1x	Radius Server IP Port	1812
		Secret	

• 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.

Security	Security Type	WPA2 💌 W	PA-PSK
	WPA-PSK AES	Passphrase/PSK	Passphrase 💌
	Security Type	WPA2 💌 80	J2.1x 💌
Security	802.1x	Radius Server IP	
	002.17	Port Secret	1812

• WPA Mixed: If you want to use TKIP and AES encryption type at the same time, you can choose this security type. Select 802.1x or WPA-PSK security type and enter the related information below.

Security	Security Type	VVPA2 Mixed 💌 VVF	PA-PSK
	WPA-PSK	Passphrase/PSK	Passphrase 💌
Security	Security Type	WPA2 Mixed 💌 80	2.1x 💌
	802.1x	Radius Server IP Port	1812
		Secret	[1812 [

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 AMG-2000. When "Disabled" is selected, all clients can connect AMG-2000. The default is Disabled.

		Acces	s Control	
	Status	Enabled V Disabled Enabled		
			dress List	
1	00:00:00:00:00	0:00	2	00:00:00:00:00
3	00:00:00:00:0	0:00	4	00:00:00:00:00:00
5	0:00:00:00:00	0:00	6	00:00:00:00:00:00
7	00.00:00:00:00		8	00:00:00:00:00:00
9	0:00:00:00:00	0:00	10	00:00:00:00:00:00
11	00:00:00:00:0	0:00	12	00:00:00:00:00:00
13	00:00:00:00:0	0:00	14	00:00:00:00:00:00
15	00:00:00:00:0	0:00	16	00:00:00:00:00:00
17	00:00:00:00:0	0:00	18	00:00:00:00:00
19	00:00:00:00:00	0:00	20	00:00:00:00:00

#### Status

After clicking the hyperlink of Status, you can see 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. 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	NEW/DEV-00001
АР Туре	LevelOneAP
LAN MAC	
Wireless LAN MAC	
Up Time	N/A
Report Time	N/A
SSID	NIA
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	NEV/DEV-00001	
AP Status	Online	
Last Reporting Time	2006-06-28 10:27:37	

> LAN Interface: 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 Interface: The table shows all of the related wireless information.

.....

Wireless Interface		
Up Time	0day:0h:4m:32s	
SSID	apmgt	
Beacon Interval (ms)	100	
RTS Threshold	2347	
Channel	11	
Transmission Rate	Auto	
Preamble Type	Long Preamble	
IAPP	Enabled	
Security	WEP	

> Access Control: 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	00:00:00:00:02	
00:00:00:00:00:03	00:00:00:00:00	
00:00:00:00:00:05	00:00:00:00:00	
00:00:00:00:00:07	00:00:00:00:08	
00:00:00:00:00	00:00:00:00:00:10	
00:00:00:00:00:11	00:00:00:00:12	
00:00:00:00:00:13	00:00:00:00:14	
00:00:00:00:00:15	00:00:00:00:16	
00:00:00:00:00:17	00:00:00:00:18	
00:00:00:00:00:19	00:40:96:A1:AF:dd	

> Client List: The table shows the clients connecting to the AP and the related information of the client.

				Client List			
No	МАС	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

When manageable APs are to be deployed in the wireless network, it is convenient to discover all the APs from a single interface.

AP Discovery						
АР Тур	e	LevelOn	e_Std-AP 🔽			
Interfac	e	Default	*			
	Admin Settings Used to Discover Password: 1234 Manual					
IP Addresses after Disco		Start IP Address: 192.168.1.1				
Scan Now						
	Background AP Discovery					
Status		Disabled		(	Configure	
	Discovered AP List					
AP Type	IP A	ddress	AP Name	Template	Service Zone	Add
ан туре	МАС	Address	Password	Channel	Service 20ffe	Auu
	(Total: 0) First Prev Next Last					

### AP Discovery Settings

By pre-defining the settings of those APs in this AP Discovery interface, administrator will be able to discover (by clicking on the *Scan Now* button) all manageable APs under AMG-2000 at once. After these APs are discovered, administrator can apply the template of AP setting and add to the AP List for later maintenance.

- > **AP Type**: The type of manageable APs to be discovered: **LevelOne\_Std-AP and LevelOne\_Adv-AP**.
- > Interface: The default Service Zone to which the APs are connected.
- Admin Settings Used to Discover: This is the setting of web-based Administration UI of the specific AP. If the APs are not reset to "Factory Default" values, administrator can select *Manual* to manually enter the current IP address range, Login ID and Password of the APs.

### Note: Limitation on WAP-0005 AP (AP Type: LevelOne\_Adv-AP) Discovery

Under default mode (DHCP Client) of WAP-0005 AP, the AP will be assigned an IP address automatically when the AP can reach a DHCP server on the network, such as the built-in DHCP server of AMG-2000. As a result, the system will NOT be able to discover WAP-0005 using the **Factory Default** setting. The workaround is to connect the AP to the network only after the timeout of its DHCP request.

IP Addresses of APs after Discovery: The start IP address of IP address range to be assigned to the discovered APs.

Scan Now: Click this button to start the discovery. All discovered APs will be shown in the Discovered AP List. If any IP address to be assigned to a specific AP is used, there will be a warning message showing up. If so, please change the IP Addresses of APs after Discovery and then click Scan Now again.

#### Background AP Discovery:

The system can be set up to discover APs periodically in background

Background AP Discovery				
АР Туре	LevelOne_Std-AP			
Interface	Default			
Admin Settings Used to Discover	<ul> <li>Factory Default         IP Address: 192.168.2.1         Login ID: admin         Password: 1234         Manual     </li> </ul>			
IP Addresses of APs after Discovery	Start IP Address: 192.168.1.1			
Status	<ul> <li>Enable O Disable</li> <li>Interval: 10 minutes </li> <li>Auto-Add AP: O Enable O Disable</li> <li>Service Zone: O Default</li> <li>Template: TEMPLATE1 </li> <li>Channel: 6 </li> </ul>			

Settings of *Background AP Discovery* are the same as the in the *AP Discovery* settings mentioned above. For the *Status*, when enabled, the system will discover APs in background at the time interval (Default: 10 minutes). If any AP is discovered and "Auto-Add AP" enabled, the system will add the discovered APs into the *AP List* table automatically, apply the selected *Template* of AP setting to the APs, and assign available IP addresses to the APs.

**Discovered AP List**: Administrator can click *Add* button to register the APs to the *AP List* for management. The Service Zone to which the APs will belong is specified here. By clicking **Add** button, the current management page is directed to *AP List*, where the newly added APs will show up with a status of "configuring". It may take a couple of minutes to see the status of the newly added AP to change from "configuring" to "online" or "offline".

🗌 АР Туре	AP Name	IP Address	Service Zone	Status
		MAC Address	Service Zone	
LevelOne_Std-AP	NEWDEV-C0001	192.158.1.1	Online (Enabled)	Online (Enabled)
		00:0E:2E:7C:E4:CF		

# 4.3.3 Manual Configuration

Manageable APs can also be added to *AP List* manually. Input the related data of the AP and select a Template. Then click *Add*, the AP will be added to the *AP List*.

Manual Configuration			
АР Туре	LevelOne_Std-AP 🗸		
AP Name			
Admin Password	password		
AP IP			
АР МАС			
Remark			
Service Zone	✓ Default		
Template	TEMPLATE1 💌		
Channel	Auto 💌		

### 4.3.4 Template Settings

Template is a completed configuration of AP that you can copy it to an AP, thus not necessary to configure the AP individually. There are three templates provided by AMG-2000 and click *Edit* to go on configuration.

	Template Settings	
АР Туре	LevelOne_Std-	Edit
Template Name	TEMPLATE1 🐱	Eur
	TEMPLATE1	
	TEMPLATE2 TEMPLATE3	

Before configuring the template, you can copy the configuration of an AP to the template by selecting a **Template AP**, and you don't have to configure the template from the beginning and can just revise some settings for demand. If you don't want to copy, please select **NONE**. Input the **Template Name** and **Template Remark** and click the hyperlink of **Configure** to go on configuration.

Template Edit				
Template Name	TEMPLATE1 Configure			
Template Source	None 🗸			
Template Remark	Template 1			

After entering the interface, you can revise the configuration for demand and change administrator's password. About other function settings, please refer to **4.3.1 AP List**.

Reset

General			
Subnet Mask	255.255.255.0 *		
Default Gateway	192.168.1.254 *		

Nirel	ess
-------	-----

	١	Nireless
-	SSID Broadcast	Enable 💌
	Transmission Mode	Mixed 🖌
	Transmission Rate	Auto (Default: Auto; Range: from 1 to 54 Mbps)
	CTS Protection	Disable <b>v</b> (Default: Disable)
Properties	Fragment Threshold	2346 (Default: 2346; Range: from 256 to 2346)
	RTS Threshold	2347 (Default: 2347; Range: from 0 to 2347)
	Beacon Interval (ms)	100 (Default: 100; Range: from 20 to 1024 msec)
	Preamble Type	Long V (Default: Long)
-	IAPP	Enable V (Default: Enable)

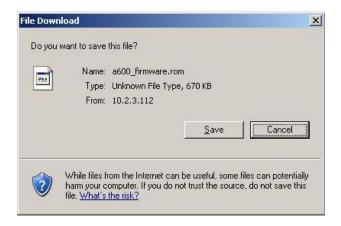
Stat	us Disabled 💌						
	MAC Address List						
1	00:00:00:00:00:00	2	00:00:00:00:00:00				
3	00:00:00:00:00:00	4	00:00:00:00:00:00				
5	00:00:00:00:00	6	00:00:00:00:00:00				
7	00:00:00:00:00:00	8	00:00:00:00:00:00				
9	00:00:00:00:00	10	00:00:00:00:00:00				
11	00:00:00:00:00:00	12	00:00:00:00:00:00				
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				

Access Control

# 4.3.5 Firmware Management

In this function, you can upload the AP's firmware to AMG-2000 and also can download the present firmware to the local or delete it.

		Preloa	ided Firmwar	e	
	AP 1	Гуре			Version
	LevelOr	ne_Std-AP			1.22
	LevelOr	ne_Std-AP			1.23
File Name	[	1114	ware Uploa	d	Upload
		Fin	nware List		
File	Name	AP Type	Version	Size	Actions
Checksum		AP. Type	VCI 54011	3426	ACTIVITS



# 4.3.6 AP Upgrade

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

		AP L	ist		
Name	Туре	Version	Upgraded Time	New Version	Upgrade
NEWDEV-00001	LevelOne_Std	1.23	N/A	1.22 (Preload) 👻	

# 4.4 Network Configuration

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

System User Configuration Authentin		ent Network Configuration Utilities Status						
Network Configuration								
Retwork Address Translation	Network Configuration							
Privilege List	Network Address Translation	AMG-2000 provides 3 types of network address translation: DMZ (Demilitarized Zone), Public Accessible Server and IP/Port Redirect.						
Monitor IP List	Privilege List	System provides Privilege IP Address List and Privilege MAC Address List. System will NOT authenticate those listed devices.						
Walled Garden List Proxy Server Properties Decemic DBC	Monitor IP List	System can monitor up to 40 network devices online status with an option to add them as public access servers via HTTP or HTTPS. Even under NAT mode, after added the devices as public access servers, the devices can be accessed by clicking the hypertext.						
Dynamic DHS IP Mobility	Walled Garden List	Up to 20 hosts' URL could be defined in Walled Garden List. Client may access these URL without authentication.						
VPII Configuration	Proxy Server Properties	AMG-2000 supports up to 10 external proxy servers. System can redirect traffic to external proxy server into built-in proxy server.						
	Dynamic DNS	AMG-2000 supports dynamic DNS (DDNS) feature.						
	IP Mobility	System supports IP PNP Configuration.						
	VPN Configuration	VPN Termination: an IPSec tunnel can be established between the system and the client located at the LAN side. Site-to-Site VPN: an IPSec tunnel can be constructed to be used to connect to other IPSec capable device over the Internet.						
		<b>@0</b>						

### 4.4.1 Network Address Translation

There are three parts, Static Assignment, Public Accessible Server and Port and Redirect, need to be set.

Network Address Translation
DMZ (Demilitarized Zone)
Public Accessible Server
Port and IP Redirect

#### • DMZ (Demilitarized Zone)

DMZ allows administrators to define mandatory external to internal IP mapping, hence a user on WAN side network can access the private machine via the external IP (similar to DMZ usage in firewall product). There are 40 sets of static **Internal IP Address** and **External IP Address** available. If a host needs a static IP address to access the network through WAN port, set a static IP for the host. First choose whether to enable Internal IP Address by checking the box and inputting an Internal IP Address under Automatic WAN IP Assignment. Then input Internal IP Address and corresponding External IP Address under Static Assignments, and choose an External Interface from the drop-down menu. These settings will become effective immediately after clicking the **Apply** button.

	Automatic WAN IP Assignment						
Enable	External IP Address	External Interface	Internal IP Address				
	10.29.2.147	WAN1					

	Static Assignments						
ltem	External IP Address	External Interface	Internal IP Address				
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

This function allows the administrator to 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 WAN port IP of AMG-2000. 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							
ltem	External Service Port	Local Server IP Address	Local Server Port	Туре	Enable			
1				O TCP O UDP				
2				O TCP				
3				O TCP				
4				O TCP				
5				O TCP O UDP				
6				O TCP				
7				O TCP O UDP				
8				O TCP				
9				O TCP				
10				O TCP				

(Total:40) First Prev Next Last

#### • Port and IP Redirect

This function allows the administrator to set 40 sets of the IP addresses at most for redirection purpose. When the user attempts to connect to a destination IP address listed here, the connection packet will be converted and redirected to the corresponding destination. 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 the "TCP" protocol or the "UDP" protocol. These settings will become effective immediately after clicking *Apply*.

	Port and IP Redirect					
ltem	Destination	Translated to Destination				
nem	IP Address	Port	IP Address	Port	Туре	
1					O TCP	
2					O TCP	
3					O TCP	
4					O TCP	
5					O TCP	
6					O TCP	
7					O TCP	
8					O TCP	
9					O TCP	
10					O TCP	

(Total:40) First Prev Next Last

# 4.4.2 Privilege List

There are two parts, Privilege IP Address List and Privilege MAC Address List, need to be set.

Privilege List
Privilege IP Address List
Privilege MAC Address List

#### • Privilege IP Address List

If there are some workstations belonging to the managed server that need to access the network without authentication, enter the IP addresses of these workstations in this list. The "**Remark**" blank is not necessary but is useful to keep track. AMG-2000 allows 100 privilege IP addresses at most. These settings will become effective immediately after clicking *Apply*.

	Privilege IP Address I	Privilege IP Address List				
ltem	Privilege IP Address	Remark				
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

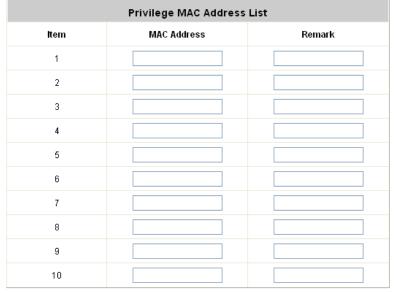
(Total: 100) First Prev Next Last

*Warning:* Permitting specific IP addresses to have network access rights without going through standard authentication process at the LAN1~LAN4 port may cause security problems.

#### • Privilege MAC Address List

In addition to the IP address, you can also set the MAC address of the workstations that need to access the network without authentication in this list. AMG-2000 allows 100 privilege MAC addresses at most.

List can be created manually-- 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*.



(Total: 100) First Prev Next Last

*Warning:* Permitting specific MAC addresses to have network access rights without going through standard authentication process at the LAN1~LAN4 port may cause security problems.

### 4.4.3 Monitor IP List

AMG-2000 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.

Enter an **IP Address**, then click *Apply* and these settings will become effective immediately. Click *Monitor* to check the current status of all the monitored IP. The system provides 40 IP addresses at most on the "Monitor IP List".

	Monitor IP List							
ltem	Protocol	IP Address	Link	ltem	Protocol	IP Address	Link	
1	http 💌	10.171.1.129	Add	2	http 💌	10.171.1.130	Add	
3	http https	1.2.3.4	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	

(Total: 40) First Prev Next Last

Monitor	
 MONILOI	

Monitor IP result				
No	IP Address	Result		
1	10.171.1.129	۲		
2	10.171.1.130	۲		
3	1.2.3.4	۲		

On each monitored device with a WEB server running, you may add a link for the easy access by selecting a protocol, http or https, and click the **Add** button. After clicking Add button, the IP address will become a hyperlink, and then you can easily access the host by clicking the hyperlink. Click the **Del** button to remove the setting.

	Monitor IP List							
ltem	Protocol	IP Address	Link	ltem	Protocol	IP Address	Link	
1	http 💌	10.171.1.129	Add	2	http 💌	10.171.1.130	Add	
3	http 💌	1.2.3.4	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	

(Total: 40) First Prev Next Last

## 4.4.4 Walled Garden List

This function provides some free services to the users to access before login and authentication. 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 website **IP Address** or **Domain Name** in the list and these settings will become effective immediately after clicking *Apply*.

Walled Garden List					
ltem	Address	ltem	Address		
1		2			
3		4			
5		6			
7		8			
9		10			
11		12			
13		14			
15		16			
17		18			
19		20			
	J Apply	×	Clear		

Caution: To use the domain name, the AMG-2000 has to connect to DNS server first or this function will not work.

# 4.4.5 Proxy Server Properties

item	Server IP	Port	
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	internal F	roxy Server	
Built-in Proxy Server O Enabled O Disabled			

AMG-2000 supports Internal Proxy Server and External Proxy Server functions.

- External Proxy Server: Under the AMG-2000 security management, the system will match the External Proxy Server list to the end-users' proxy setting. If there isn't a matching, then the end-users will no be able to reach the login page and thus unable to access the network. If there is a matching, then the end-users will be directed to the system first for authentication. After a successful authentication, the end-users will be redirected back to the desired proxy servers depending on various situations.
- Internal Proxy Server: AMG-2000 has a built-in proxy server. If this function is enabled, the end users will be forced to treat AMG-2000 as the proxy server regardless of the end-users' original proxy settings.

Note: To see more details about setting up proxy servers, please read *Appendix D. Proxy Setting for Hotspot* and *Appendix E. Proxy Setting for Enterprise*.

### 4.4.6 Dynamic DNS

AMG-2000 provides a convenient DNS function to translate a domain name to the 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*.

Dynamic DNS				
DDNS	○ Enabled ④ Disabled			
Provider	DynDNS.org(Dynamic) 🔽			
Host name	<b></b>			
Username/E-mail	<b>"</b>			
Password/Key	p			
	🗸 Apply 🗙 Clear			

- DDNS: Enabling or disabling of 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.

### 4.4.7 IP Mobility

AMG-2000 supports IP PNP function.

IP Mobility					
IP PNP O Enable O Disable					
	🗸 Apply 🗙 Clear				

At the user end, you can use any IP address to connect to the system. Regardless of what the IP address at the user end is, you can still authenticate through AMG-2000 and access the network.

# 4.4.8 VPN Configuration

**VPN** (Virtual Private Network) 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. There are two types of VPN connection supported in the system, including **Local VPN**, and **Site-to-Site VPN**.

VPN Configuration			
Local VPN			
Site-to-Site VPN			

Local VPN: It allows to create the VPN tunnel between a user's device and AMG-2000, to encrypt the data transmission. Only when this function is enabled (*Active*) here do users of the entire system are able to use Local VPN. In addition, Local VPN users can be isolated from each other when VPN Client Isolation is enabled. For more information about Local VPN, please see *Appendix G. Local VPN User Configuration*.

Local VPN For The Entire System				
Active	Active <ul> <li>Enable</li> <li>Disable</li> </ul>			
VPN Client Isolation	VPN Client Isolation 🔿 Enable 💿 Disable			
	IPSec Parameters			
Encryption	O DES 💿 3-DES			
Integrity	MD5 ○ SHA-1			
Diffie-Hellman	⊙ Group 1 ○ Group 2			
🗸 Apply 🗙 Clear				

**Note:** When users are required to use Local VPN for data security, their user accounts have to be configured properly to do so. For example, when adding a user account (e.g. testuser) into the **Local User** Database, administrator should check the "**Local VPN**" box:

	# Add User					
	Add User					
Item	Username	Password	MAC (XX:XX:XX:XX:XX)	Policy	Remark	Local VPN
1	testuser	•••••		Policy 1 🔽		
2				None 🔽		

• Site-to-Site VPN: It allows the system to create the VPN tunnels from the system WAN ports to the remote sites, such as branch offices.

Click Add A Remote Site button to enter the Remote VPN Gateway page for further configuration.

Remote Site Configuration					
Name	IP Address	Pre-shared	Key	Edit	Delete
	(	Add A Remote Site			
	I	_ocal Site Configura	tion		
Local Subnet	Local Interface	Remote VPN Gateway	Remote Su	bnet Ec	lit Delete
		Add A Local Site			
			_		
		Remote VPN Gatew	ay		
Nai	Name				
IP Ade	IP Address				
Authentication Method Pre-shared Key 💌					
Pre-sha	red Key				
Phase 1 F	Proposal E	ncryption 🛛 AES256 🔽 A	Authentication	SHA-1	~
Diffie-Hellr	Group 1 🗌 Group 2	Group 5			
IKE Life	ernne	KE Life Time <sup>8h</sup> our, d: day)	(	s: second,	m: minute, h:
Dead Peer	Detection	PD Delay 10 PD Timeout 15		cond) (second)	

	Remote Subnet					
No.	Network	Mask				
1		255.255.255.255 (/32) 💌				
2		255.255.255.255 (/32) 💌				
3		255.255.255.255 (/32) 💌				
4		255.255.255.255 (/32) 💌				
5		255.255.255.255 (/32) 💌				

Click Add a Local Site button to enter the Local Site Information page for further configuration.

### Click Add a New Host button to enter the screen of Remote VPN Gateway.

Local Site Information		
Local Interface	WAN1 🗸	
Remote Gateway IP Address	Edit Host Add a New Host	
Local Subnet	(in prefix notation: x.x.x.x/yy)	
Remote Subnet	<b>~</b>	
Phase2 Proposal	Encryption AES256 V Authentication SHA-1 V	
Key Life Time	Key Life Time 24h (s:second, m:minute, h:hour, d:day)	
Rekey	Enable Rekey Rekey Margin 9m (second)	
Perfect Forward Secrecy	Enable PFS PFS GroupMODP1024 Group 2 🛩	

	Remote VPN Gateway
Name	
IP Address	
Authentication Method	Pre-shared Key 💌
Pre-shared Key	
Phase1 Proposal	Encryption AES256 V Authentication SHA-1 V
Diffie-Hellman Group	Group 1 Group 2 Group 5
IKE Life Time	IKE Life Time <sup>8h</sup> (s: second, m: minute, h: hour, d: day)
Dead Peer Detection	DPD Delay 10 (second) DPD Timeout 15 (second)

	Remote Subnet			
No.	Network	Mask		
1		255.255.255.255 (/32) 💌		
2		255.255.255.255 (/32) 💌		
3		255.255.255.255 (/32) 💌		
4		255.255.255.255 (/32) 💌		
5		255.255.255.255 (/32) 💌		

# 4.5 Utilities

This section provides four utilities to customize and maintain the system including Change Password,

Backup/Restore Setting, Firmware Upgrade, Restart and Wake On LAN.

System User AP Network Utilities Status				
	utilities 🖶			
Change Password	Utilities			
Backup/Restore Settings	Change Password Change the administration password.			
Firmware Upgrade	Backup/Restore Settings	Backup and restore system settings. Administrator may also reset system settings to factory default.		
Restart	Firmware Upgrade	Update AMG-2000 firmware.		
Wake On Lan	Restart Restart the system.			
	Wake On Lan	Wake a shut-down computer remotely.		
		<b>® O</b>		

### 4.5.1 Change Password

AMG-2000 supports three accounts with different access privileges. You can log in as **admin**, **manager** or **operator**. The default password and access privilege for each account are as follow:

Admin: The administrator can access all configuration pages of the AMG-2000.

User Name: admin

Password: admin



**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

Please	Welcome To Administrator Login Page Please Enter Your User Name and Password To Sign In				
<b>3</b> (	User Na	ame: operator			
	Passwo	ord:	•		
			AR I		
System Use Configuration Authent		AP Networ Management Configura		Status	
Authentication Configuration	e c	reate On-demand User	n-demand User		
Black List Configuration	Plan	Туре	Status	Function	
Policy Configuration	1	2 hrs 0 mins	Enabled	Create	
Additional Configuration	2	N/A	Disabled	Create	
	3	N/A	Disabled	Create	
	4	N/A	Disabled	Create	
	5	N/A	Disabled	Create	
	6	N/A	Disabled	Create	
	7	N/A	Disabled	Create	
	8	N/A	Disabled	Create	
	9	N/A	Disabled	Create	
	0	N/A	Disabled	Create	

The administrator can change the passwords here. Please enter the current password and then enter the new password twice to verify. Click *Apply* to activate this new password.

	Change Admin Password				
Old Password	x				
New Password	×				
Verify Password					
	Apply X Clear				
	Change Manager Password				
New Password	r				
Verify Password					
	Apply X Clear				
	Change Operator Password				
New Password	,				
Verify Password					
Verify Password	Apply X Clear				

*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 Setting

٠

This function is used to backup/restore the AMG-2000 settings. Also, AMG-2000 can be restored to the factory default settings here.



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

File Downlo	oad			×
Do you w	ant to open or :	save this file?		
3		0050303.db ata Base File ).2.3.70		
		Open	Save	Cancel
🔽 Alway	is ask before op	pening this type of	file	
?	harm your com	the Internet can puter. If you do no /hat's the risk?		iles can potentially e, do not open or

- **Restore system setting:** Click **Browse** to search for a .db database backup file created by AMG-2000 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 AMG-2000.

# 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 be a few minutes before the upgrade process completes and the system needs to be restarted afterwards to make the new firmware effective.

Browse	
rongly recommend you backup system settings before	

*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 AMG-2000 and the process should take about 100 seconds. Click **YES** to restart AMG-2000; click **NO** to go back to the previous screen. If you need to turn off the power, we recommend you to restart AMG-2000 first and then turn off the power after completing the restart process.



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

# 4.5.5 Wake On Lan

The **Wake On Lan** function supports to boot up a power-down computer (supporting Wake-on-LAN) connected on the LAN side remotely from the system. Enter the **MAC Address** of the desired device and click **Wake** to execute this function.

Wake On Lan		
MAC Address	(00000000000)	
	V Wake	

# 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.

System Use Configuration Authentia		Network Utilities Status
	🏥 Status	
System Status		Status
Interface Status	System Status	Display current system settings.
Current Users	Interface Status	Display the configurations and status of WAN1, WAN2, and Service Zones.
Traffic History	Current Users	Display online user information including: Username, IP, MAC, packet count, byte count and idle time. Administrator may also kick out any on-line user from here.
	Traffic History	Display detail usage information by day. A minimum of 3 days of history can be logged in the system volatile memory.
	Notification Configuration	There are three email accounts available to be set for receiving Monitor IP report, Traffic History, On-demand User Log, and AP status change. External SYSLOG server can be configured here.
		<b>@</b> 0

# 4.6.1 System Status

System Status			
Current Firmware Version		2.00.00	
Build		00100	
System Name		AMG-2000	
Home Page		http://www.level1.com/	
Sys	log server-Traffic History	N/A:N/A	
Syslog	server-On demand User log	N/A:N/A	
Proxy Server		Disabled	
Logout upon closing the "Login Success" window		Enabled	
Warning of Internet Disconnection		Disabled	
WAN Failover		Disabled	
SNMP		Disabled	
	Retained Days	3 days	
History		N/A	
	Email To	N/A	
		N/A	
Time	NTP Server	tock.usno.navy.mil	
rime	Date Time	2007/04/12 15:37:16 +0800	
llear	Idle Timer	10 Min(s)	
User	Multiple Login	Disabled	
DNC	Preferred DNS Server	208.67.222.222	
DNS	Alternate DNS Server	208.67.222.220	

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

The description of the table is as follows:

Item		<u>Description</u>
Current Firmware Version		The present firmware version of AMG-2000
S	ystem Name	The system name. The default is AMG-2000
H	Home Page	The page the users are directed to after initial login success.
Syslog server-Traffic History		The IP address and port number of the external Syslog Server. <b>N/A</b> means that it is not configured.
Syslog serve	er-On demand User log	The IP address and port number of the external Syslog Server. <b>N/A</b> means that it is not configured.
Р	roxy Server	Enabled/disabled stands for that the system is currently using the proxy server or not.
Logout upon closing the Login Success window		Enabled/disabled stands for the setting of hiding/displaying an extra confirmation window when users click the logout button.
Warning of Internet Disconnection		Enabled/Disabled stands for the connection at WAN is normal or abnormal ( <b>Warning of Internet</b> <b>Disconnection</b> ) and all online users are allowed/disallowed to log in the network.
	SNMP	Enabled/disabled stands for the current status of the SNMP management function.
	Retained Days	The maximum number of days for the system to retain the users' information.
History	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.
Time	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.
0561	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.
DNG	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, LAN1~LAN4 Port and Private Port.

Interface Status		
WAN1	MAC Address	00:06:78:AA:AA:AC
	IP Address	10.29.2.147
	Subnet Mask	255.255.0.0
WAN2	Disabled	
Service Zone - Default	Mode	NAT
	IP Address	192.168.1.254
	Subnet Mask	255.255.255.0
Service Zone - Default DHCP Server	Status	Enabled
	WINS IP Address	N/A
	Start IP Address	192.168.1.1
	End IP Address	192.168.1.100
	Lease Time	1440 Min(s)
Service Zone - SZ1	Disabled	
Service Zone - SZ2	Disabled	
Service Zone - SZ3	Disabled	
Service Zone - SZ4	Disabled	

The description of the table is as follows.

	<u>Item</u>	Description
	MAC Address	The MAC address of the WAN1 port.
WAN1	IP Address	The IP address of the WAN1 port.
	Subnet Mask	The Subnet Mask of the WAN1 port.
	Mode	The mode of the LAN1~4 port.
Service Zone	MAC Address	The MAC address of the LAN1~4 port.
Service Zone	IP Address	The IP address of the LAN1~4 port.
	Subnet Mask	The Subnet Mask of the LAN1~4 port.
	Status	Enable/disable stands for status of the DHCP server on
		the LAN1~4 port.
	WINS IP Address	The WINS server IP on DHCP server. <b>N/A</b> means that it is
Service Zone		not configured.
DHCP Server	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 will be shown. Administrator can force out a specific online user by clicking the hyperlink of *"Logout"*,, and check the user access AP status by click the hyperlink of the AP name for "Source AP". . Click *Refresh* is to update the current users list.

		Current U	sers List				
Item	Username		Pkts in	Bytes In	Idle	Location	
llem	IP	MAC	Pkts Out	Bytes Out	luie	Kick Out	
1	07@s1		787	339553	72	AAF6-129	
	10.171.1.249	00:40:96:A1:AF:DD	733	79373	12	Logout	

J	Refresh	
		_

Click the Source AP to get the information of all associated client of the source AP.

			C	Client List			
No	МАС	User ID	TX Packet (s)	RX Packet (s)	Rate	Power Saving	Expiration countdown
1	00:40:96:a1:af:dd	02@s1	138	422	54	Yes	266

## 4.6.4 Traffic History

This function is used to check the history of AMG-2000. The history of each day will be saved separately in the DRAM for at least3 days.

Traffic History							
Date	Size (Byte)						
2007-04-12	65						
On-demand User Log							
Date	Size (Byte)						
2007-04-12	105						
Roaming Out	Traffic History						
Date	Size (Byte)						
2007-04-12	106						
Roaming In T	Roaming In Traffic History						
Date	Size (Byte)						

*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 **Notification 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.

		Trafi	fic History 2005	-03-22				
Date	Туре	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**, **Validation** and **Remark**, of user activities.

				On-de	emand User Log 20	05-0	3-22					
Date	System Name	Туре	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	00:00:00:00:00:00:00	0	o	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	00:00:00:00:00:00:00	0	o	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	00:00:00:00:00:00:00	0	o	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 Notify Configuration

AMG-2000 can automatically send the notification of **Monitor IP Report**, **Traffic History**, **On-demand User Log** and **AP status** to up to 3 particular e-mail address. Enter the related information and select the desired items and then apply the settings.

E	E-mail Notification Configuration						
Send To		Monitor IP Report	Traffic History	On-demand User Log	AP Status		
interval	Interval		1 Hour 💌	1 Hour 🖌	N/A		
Send Test Ema	1	Send	Send	Send	Send		
Send From							
SMTP							
Auth Method	Auth Method						
Syslog Configuration							
System Log	IP:		Port:				
On-demand User Log	IP:		Port :				

- Send To: You can set up to 3 e-mail address to receive the notification. These are the receiver's e-mail addresses. There are four kinds of notification to selection -- Monitor IP Report, Traffic History, On-demand User Log and AP Status, check which notification you want to receive.
- Interval: The time interval to send the e-mail report.
- Send Test Email: To test the settings immediately.
- **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:** The IP address of the sender's 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 you are not able to configure which method to use.

	E-mail I	Notification Con	figuration		
Send To		Monitor IP Report	Traffic History	On-demand User Log	AP Status
casper.wu@yahoo.com.	tw				•
felix@gmail.com		N N N		N N	
Interval		1 Hour 💌	1 Hour 💌	1 Hour 💌	N/A
Send Test Email		Serd	Send	Send	Send
Send From		casper.wu@ya	ahoo.com.tw		
SMTP		smtp.mail.yah	oo.com.tw		
Auth Method		None None Plain V Login	• on		
Traffic History		CRAM-MD5 3. NTLMV		514	
On-demand User Log	IP 10.2.3	3.203	Port	514	

• **Syslog Configuration:** Enter the IPs and Ports of the Syslog server to receive system events including Traffic History and On-demand User Log.

	Syslog Configur	ation
Traffic History	IP 10.2.3.219	Port 514
On-demand User Log	IP 10.2.3.203	Port 514

# 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.



# Appendix A. Console Interface

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

- To connect the console port of AMG-2000, 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**.

<u>B</u> its per second:	9600	<b>_</b>
<u>D</u> ata bits:	8	
Parity:	None	<b>_</b>
<u>S</u> top bits:	1	
Elow control:	None	•
	-	<u>R</u> estore Defaults

*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 AMG-2000 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.

	e AMG-2000 Basic Configuration
Utility Password Reset Restart	Utilities for network debugging Change admin password Reload factory default Restart LevelOne AMG-2000
	< Cancel>

### 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	Ping host(IP)
race	Trace routing path
howIF	Display interface settings
howRT	Display routing table
ShowARP	Display ARP table
UpTime	Display system up time
Status	Check service status
Safe	Set device into 'safe mode'
NTP	Synchronize clock with NTP serve
DMESG	Print the kernel ring buffer
Main	Main menu

- 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 AMG-2000 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 AMG-2000 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 AMG-2000

Choosing this option will restart AMG-2000.

# Appendix B. Network Configuration on PC

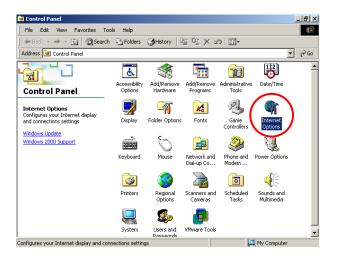
After AMG-2000 is installed, the following configurations must be set up on the PC: **Internet Connection Setup** and **TCP/IP Network Setup**.

### 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 9x/2000

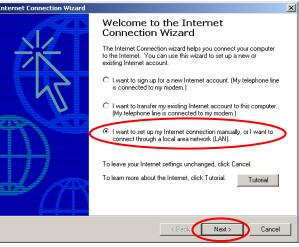
1. Choose Start > Control Panel > Internet Options.



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

Internet Properties		? ×
General Security Content Connections Programs	Advanced	
Use the Internet Connection Wizard to connect your computer to the Internet.	Setup	D
Dial-up settings		
	Add	
	Remove	
	Settings	
Never dial a connection     Dial whenever a network connection is not press     Always dial my default connection	ent	
Current None	Set Default	
Local Area Network (LAN) settings	LAN Settings	]
OK Can	cel App	ly

 Choose "I want to set up my Internet connection manually, or I want to connect through a local Area network (LAN)", and then click Next.



 Choose "I connect through a local area network (LAN)" and click *Next*.

Internet Connection Wizard	×
Setting up your Internet connection	×
If you have an Internet service provider account, you can use your phone line and a modem to connect to it. If your computer is connected to a local area network (LAN), you can gain access to the Internet over the LAN.	
How do you connect to the Internet? C I connect through a phone line and a modem C I connect through a local area network (LAN)	
< Back Next > Ca	ancel

5. **DO NOT** choose any option in the following LAN window for Internet configuration, and just click *Next*.

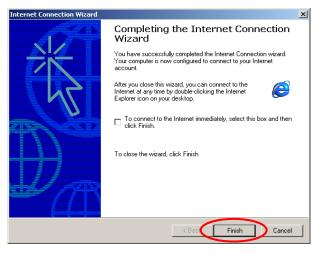
rnet Connection Wizard	
ocal area network Internet configuration	×
Select the method you would like to use to configure your proxy settings. If you are not sure which option to select, select automatic discovery or contact your network administrator. Automatic configuration may override manual settings. To ensure the use of manual settings, disable automatic configuration.	
Automatic Configuration	
Automatic discovery of proxy server [recommended]	
Use automatic configuration script	
Address	
Manual Proxy Server	
< Back Next > 0	Cancel

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6. Choose "No", and click Next.

Internet Connection Wizard	×
Set Up Your Internet Mail Account	×
An Internet mail program is installed on your computer. Internet mail allows you to receive and send e-mail messages. To successfully set up your Internet mail account, you must have already signed up for an e-mail account with an Internet service provider and obtained inportant connection information. If you are missing any information the wizard asks you to provide, contact your Internet service provider. Do you want to set up an Internet mail account now?	
< Back Next >	Cancel

Finally, click *Finish* to exit the Internet Connection
 Wizard. Now, the set up has been completed.



### Windows XP

1. Choose Start > Control Panel > Internet Option.



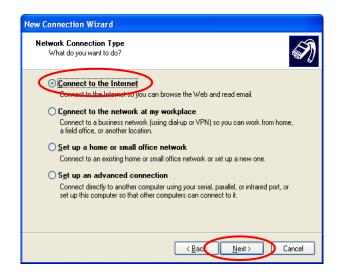
2. Choose the "Connections" label, and then click *Setup*.

neral Security Privacy Content Connections	Programs Advance
To set up an Internet connection, click	Setup
Dial-up and Virtual Private Network settings	
	Add
	Remove
Choose Settings if you need to configure a proxy server for a connection.	Settings
Never dial a connection     Dial whenever a network connection is not preser     Always dial my default connection	nt
Current None	Set Default
Current None Local Area Network (LAN) settings	Set Default
	LAN Settings
Local Area Network (LAN) settings LAN Settings do not apply to dial-up connections.	

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*.

New Connection Wizard	
Getting Ready The wizard is preparing to set up your Internet connection.	D
How do you want to connect to the Internet?  Choose from a list of Internet service providers (ISPs)  Set up my connection manually  For a diarup connection, you will need your account name, password, and a phone number for your ISP. For a broadband account, you won't need a phone number.  Use the <u>CD I got from an ISP</u>	

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

New Connection Wizard
Internet Connection How do you want to connect to the Internet?
<ul> <li>Connect using a dial-up modem</li> <li>This type of connection uses a modem and a regular or ISDN phone line.</li> <li>Connect using a broadband connection that requires a user name and password</li> </ul>
This is a high-speed connection using either a DSL or cable modem. Your ISP may refer to this type of connection as PPPoE. Connect using a broadband connection that is <u>always or</u> This is a high-speed connection using either a cable modem, DSL or LAN connection. It is always active, and doesn't require you to sign in.
< <u>B</u> ack Next > Cancel

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

New Connection Wizard	
	Completing the New Connection Wizard Your broadband connection should already be configured and ready to use. If your connection is not working property, click the following link. Learn more about broadband connections.
	To close this wizard, click Finish.
	< Back Finish Cancel

### TCP/IP Network Setup

In the default configuration, AMG-2000 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 AMG-2000 LAN port, please follow the following steps:

### • Check the TCP/IP Setup of Window 9x/ME

1. Choose Start > Control Panel > Network.



 Choose "Configuration" label and select "TCP/IP > AMD PCNET Family Ethernet Adapter (PCI-ISA)", and then click *Properties*. Now, you can choose to use DHCP or specific IP address.

Network ? 🗙
Configuration Identification Access Control
The following network components are installed:
Elient for Microsoft Networks
AMD PCNET Family Ethernet Adapter (PCI-ISA)
TCP/IP -> AMD PCNET Family Ethernet Adapter (PCI-ISA)
TCP/AP > Dial-Up Adapter
Primary Network Logon:
Client for Microsoft Networks
File and Print Sharing
Description
TCP/IP is the protocol you use to connect to the Internet and wide-area networks.
Wide died networks.
OK Cancel

3-1. Using DHCP: If you want to use DHCP, please choose "Obtain an IP address automatically" on the "IP Address" label and click *OK*. This is also the default setting of Windows. Then, reboot the PC to make sure an IP address is obtained from AMG-2000.

CP/IP Properties				? ×
Bindings DNS Configuration		anced		etBIOS   IP Address
An IP address car If your network do your network adm the space below.	) be automat es not autor inistrator for	ically assigned natically assign an address, ar	d to this c n IP addre	omputer. esses, ask
© Specify an If		ondrodit,		
[P Address:				
S <u>u</u> bnet Mas	sk:			
		ОК		Cancel

- 3-2. Using Specific IP Address: If you want to use specific IP address, you have to ask the network administrator for the information of AMG-2000: *IP address*, *Subnet Mask*, *New gateway* and *DNS server address*.
  - Please choose "Specify an IP address" and enter the information given by the network administrator in "IP Address" and "Subnet Mask" on the "IP Address" label and then click OK.

 Choose "Gateway" label and enter the gateway address of AMG-2000 in the "New gateway:" and then click Add and OK.

TCP/IP Properties				? ×
Bindings	vhA Í	anced	N	etBIOS
DNS Configuration		and the second		IP Address
An IP address can If your network doo your network admi the space below.	es not autor	natically assign	h IP addre	esses, ask
C <u>D</u> btain an IP C Specify an IF		omatically		
IP Address:				
S <u>u</u> bnet Mas	k:		•	
		ОК	$\supset$	Cancel
TCP/IP Properties				? ×
				<u> </u>
Bindings DNS Configuration		anced WINS Confi		etBIOS
	Gateway n the Install in the list w	WINS Confi ed Gateway lis	guration	etBIOS   IP Address   he default.
DNS Configuration The first gateway i The address order	Gateway n the Install in the list w	WINS Confi ed Gateway lis	guration	etBIOS   IP Address   he default.
DNS Configuration The first gateway i The address order machines are used <u>New gateway:</u>	Gateway n the Install in the list w I.	WINS Confi ed Gateway lis	guration	etBIOS   IP Address   he default.
DNS Configuration The first gateway i The address order machines are used	Gateway n the Install in the list w I.	WINS Confi ed Gateway lis Il be the order	guration	etBIOS   IP Address   he default.
DNS Configuration The first gateway i The address order machines are used <u>New gateway:</u>	Gateway n the Install in the list w I.	WINS Confi ed Gateway lis Il be the order	guration st will be t in which	etBIOS   IP Address   he default.
DNS Configuration The first gateway i The address order machines are used <u>New gateway:</u>	Gateway n the Install in the list w I.	WINS Confi ed Gateway lis il be the order <u>A</u> dd	guration st will be t in which	etBIOS   IP Address   he default.

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 Choose "DNS Configuration" label. If the DNS Server column is blank, please click *Enable DNS* and then enter the DNS address(es) provided by your network administrator. Then, click *Add* and click *OK*.

TCP/IP Properties				? )
Bindings		anced		etBIOS
DNS Configuration	Gateway	WINS Co	nfiguration	IP Address
C Disable DNS				
Enable DNS	>			
Host:		D <u>o</u> main:		_
DNS Server Sea	rch Order —			
·		$\supset \subset$	<u>A</u> dd	D
			<u>R</u> emove	]
Domain Suffix Se	earch Order			
			A <u>d</u> d	]
			Re <u>m</u> ove	
		-		
			эк	Cancel

- Check the TCP/IP Setup of Window 2000
- Select Start > Control Panel > Network and Dial-up Connections.

🐼 Control Panel					<u> </u>
<u>File E</u> dit <u>V</u> iew F <u>a</u> vorites	<u>T</u> ools <u>H</u> elp				
📙 🖨 Back 👻 🤿 👻 🗎 🧟 Sear	rch 🕒 Folders	History	e e x s	• = •	
Address 🐼 Control Panel				-	∂G0
	Date/Time	Display	Folder Options	Fonts	<b></b>
Control Panel	P.	<b>i</b>		Õ	
Network and Dial-up Connections	Game Controllers	Internet Options	Keyboard	Mouse	
Connects to other computers, networks, and the Internet		2	ų	3	
Windows Update Windows 2000 Support	Network and Dial-up Connections	Phone and Modem	Power Options	Printers	
		æ	<b></b>		
	Regional Options	Scanners and Cameras	Scheduled Tasks	Sounds and Multimedia	
		See	Þ		
Connects to other computers, networ	System ks, and the Interne	Users and	VMware Tools	Computer	-

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

🔁 Network and Dial-up Connection	ons		_ 8 ×
File Edit View Favorites T			
🖉 🕂 Back 🔹 🤿 👻 🔂 🎯 Searc	:h 强 Folders	ර්ෂ්History 📲 📽 🗙 හා 📰 ਦ	
Address 🔃 Network and Dial-up Co	nnections		
Local Area Connection Type: LAN Connection Status: Enabled AMD PCNET Family PCI Ethernet Adapter	Make New Connection	Connection Disable Status Create Shortcut Defete Renown Properties	
📮 Displays the properties of the selec	ted connection.		

2 X

 Select "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.

4-1. Using DHCP: If want to use DHCP, please choose

obtained from AMG-2000.

"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

_	
Connect using:	
AMD PCNET F	amily PCI Ethernet Adapter
	Configur
	are used by this connection:
Client for Micro	osoft Networks <del>r Sharing for M</del> icrosoft Networks
Internet Protoc	
<u>I</u> nstall	Uninstall Properties
 Description	
wide area network p	ol Protocol/Internet Protocol. The default protocol that provides communication connected networks.
Sho <u>w</u> icon in taskt	par when connected
	OK Can
ernet Protocol (TCP/II	P) Properties
ernet Protocol (TCP/II	P) Properties
eneral   You can get IP settings a:	ssigned automatically if your network supports you need to ask your network administrator fr
eneral You can get IP settings a: this capability. Otherwise,	ssigned automatically if your network supports you need to ask your network administrator fr s.
eneral You can get IP settings a: this capability. Otherwise, the appropriate IP settings	ssigned automatically if your network supports you need to ask your network administrator fr s. s: automatically
eneral   You can get IP settings a this capability. Otherwise, the appropriate IP setting: Dbtain an IP addres	ssigned automatically if your network supports you need to ask your network administrator fr s. s: automatically
eneral You can get IP settings at this capability. Otherwise, the appropriate IP settings (© [Obtain an IP addres (© Use the following IP	ssigned automatically if your network supports you need to ask your network administrator fr s. s: automatically
eneral You can get IP settings a this capability. Otherwise, the appropriate IP settings © Obtain an IP address © Use the following IP IP address:	ssigned automatically if your network supports you need to ask your network administrator fr s. s: automatically
eneral You can get IP settings a this capability. Otherwise, the appropriate IP settings O Datain an IP address O Use the following IP IP address: Subnet mask:	ssigned automatically if your network supports you need to ask your network administrator fo s. s automatically address:
eneral You can get IP settings at this capability. Otherwise, the appropriate IP settings © Dbtain an IP addres © Use the following IP IP address: Subnet mask: Default gateway:	ssigned automatically if your network supports you need to ask your network administrator fo s automatically 'address:
eneral You can get IP settings at this capability. Otherwise, the appropriate IP settings  Debtain an IP address Use the following IP IP address: Subnet mask: Default gateway:  Ogtain DNS server a	ssigned automatically if your network supports you need to ask your network administrator fo s automatically 'address:
eneral You can get IP settings a this capability. Otherwise, the appropriate IP settings	ssigned automatically if your network supports you need to ask your network administrator fo s automatically 'address:
eneral You can get IP settings at this capability. Otherwise, the appropriate IP setting: Dotain an IP address C Uge the following IP IP address: Subnet mask: Default gateway: Obtain DNS server C Uge the following DI Breferred DNS server:	ssigned automatically if your network supports you need to ask your network administrator fo s automatically 'address:

Local Area Conn

- 4-2. Using Specific IP Address: If you want to use specific IP address, you have to ask the network administrator for the information of the AMG-2000: 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 DNS address(es) and then click OK.

ou can get IP settings assigned a					
nis capability. Otherwise, you need ne appropriate IP settings.	d to ask y	Jour ne	twork -	administra	itor for
C Obtain an IP address automa	aticallu				
<ul> <li>Use the following IP address</li> </ul>					
IP address:					
S <u>u</u> bnet mask:		- 24	20	-	
Default gateway:		- 52	10	10	
C Obtain DNS	automatic				
Use the following DNS serve		-			
Preferred DNS server:				•	
Alternate DNS server:				-0	
	2.2				
				Aduat	head

-

- Check the TCP/IP Setup of Window XP
- 1. Select Start > Control Panel > Network Connection.



- Click the right button of the mouse on the "Local Area Connection" icon and select "Properties"
- ddress 🔇 Network Connections 💌 🔁 Go LAN or High-Speed Internet Network Tasks 🛞 Create a new connection Set up a home or small office network
   Disable this network device Disable Status Repair Repair this connection Bridge Connections Rename this connection Create Shortcut View status of this connection
   Change settings of this connection Other Places ۲ 🥵 Control Panel My Network Places My Documents

S Network Connections

File Edit View Favorites Tools Advanced Help

🚱 Back 🔹 🕥 🕤 🏂 🔎 Search 🎼 Folders 💷

 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.

Local Area Connection Properties	? 🗙
General Authentication Advanced	
Connect using:	
AMD PCNET Family PCI Ethernet Adapter	
Configure	
This connection uses the following items:	
Client for Microsoft Networks	
File and Printer Sharing for Microsoft Networks	
Cos Packet Scheduler	
✓ Internet Protocol (TCP/IP)	
Install Uninstall Properties	s
Description	
Transmission Control Protocol/Internet Protocol. The defau	
wide area network protocol that provides communication	n.
across diverse interconnected networks.	
Show icon in notification area when connected	
	ancel

3-1. 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 AMG-2000.

Internet Protocol (TCP/IP) Prope	rties 🛛 🕐 🔀
General Alternate Configuration	
You can get IP settings assigned autor this capability. Otherwise, you need to the appropriate IP settings.	
Obtain an IP address automatical	
Use the following IP address:	·
IP address:	
Subnet mask:	
Default gateway:	· · · ·
<ul> <li>Obtain DNS server address auton</li> </ul>	natically
-OUse the following DNS server add	dresses:
Preferred DNS server:	
Alternate DNS server:	· · ·
	Advanced
	OK Cancel

- 3-2. Using Specific IP Address: If want to use specific IP address, you have to ask the network administrator for the information of the AMG-2000: 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.

heral	
	utomatically if your network supports d to ask your network administrator for
Obtain an IP address automa	
Use the following IP address:	>
<u>I</u> P address:	
S <u>u</u> bnet mask:	A 41 41
<u>D</u> efault gateway:	12 12 12 12
) Obtain DNC	Homatically
Use the following DNS server	
Preferred DNS server:	
Alternate DNS server:	
	Ad <u>v</u> anced.

# Appendix C. Windows Server

AD environment mode can be supported by AMG-2000. For example, the domain, 2k3lab.idv.tw, is controlled by Window 2000/2003 sever and please make sure you have enabled the Active directory Service on the Windows Server.

active Directory Users and Compu	iters				
Gile Action View Window Hel	p				_ <del>8</del> ×
	2 10 10 10	746			
Active Directory Users and Computers	2k3lab.idv.tw 12 c	bjects			
E Saved Queries	Name	Туре	Description		
E 2k3lab.idv.tw	Builtin	builtinDomain			
	Computers	Container	Default container for upgr		
	Domain Contr		Default container for dom		
🗈 🥝 felixou	Gelixou	Organizational	12.12 122		
ForeignSecurityPrincipals	ForeignSecuri		Default container for secu		
E 🙆 OU	🙆 OU 🥘 OU root	Organizational Organizational			
		Organizational			
E ST	2 TW	Organizational			
	Juser11	Organizational			
🗄 🦳 Users	Users	Container	Default container for upgr		
⊡ 🙆 使用者	@ 使用者	Organizational			
4 F					

When the AMG-2000 is set up, Windows Server should be also ready by the MIS in your company. Then, you can add new user and group under the OU.

🐗 Active Directory Users and Compu	uters				_ 8 ×
🥪 Eile Action View Window He	lp .				_ 8 ×
⇔ ⇒ 🗈 💽 👗 💼 🗙 😭	1 🗟 😫	0 💯 눱 🗸 🍕	12		
Active Directory Users and Computers	OU 4 objects				
🗄 🧰 Saved Queries 🖃 🎲 2k3lab.idv.tw	Name	Туре	Description		
E-0 2k3lab.idv.tw	🔕 ou1	Organizational			
Builtin     Computers	🖸 aaa	User			
Computers     Domain Controllers	🖸 БББ	User			
	🖸 usertop	User			
ForeignSecurityPrincipals					
🖻 🙆 OU1					
⊡-@ test					
E 🙆 test1					
⊕ Ø OU root					
🗈 🧭 test					
🗄 🧭 TW					
🗉 🙆 user11					
Users     (#BB##					
由 ② 使用者					
۲ ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) (					
	1			-	

liters and	Computers				_ 8 ×
🌍 Eile Action View Window	v <u>H</u> elp				_8×
⇔ ⇒ 🗈 🖬 🐰 🛍 >	< 🗗 🗗 尾 😫	7 🖞 🕅 🕅	Q 12		
dctive Directory Users and Com					
E Saved Queries	Name	Туре	Description		
E-Builtin	@ OU1	Organizational			
庄 🦲 Computers	🖸 aaa 🕵 bbb	User User			
🗄 🧭 Domain Controllers	usertop	User User			
🗄 🙋 🖸 🛛 Delegate Control.					
Delegate Control.					
E Find					
New	Computer				
All Tas <u>k</u> s ⊕ ② OL	Contact     Group				
⊞ 🛃 te ⊻iew	InchOreDon	son			
B 20 te View B 20 te View B 20 Tv New Window from B 20 us Cut B 20 Us Delete B 20 使 Rename	IMISIMQ Quei				
⊞ 🛃 us Cut	Organizatio	nal Unit			
田 📴 Us Delete 田 🙆 使 Rename	Printer User				
Refresh	Shared Fold	ler			
Export List	1				
Properties					
Help					
	1 1 1 1 1 1				
a					
	<b>F</b>				

Right-click on the OU to add a new user.  $OU \rightarrow New \rightarrow User$ .

Enter the user name in the necessary fields, "First name" and "User logon name", and click Next.

Eirst name: ccc Init	tials:
Last name:	
A	
Full name:	
User logon name:	
ccd @2k3lab.idv.tw	-
User logon name (pre- <u>W</u> indows 2000):	
2K3LAB\ ccc	

Enter the Password and enter it again for confirmation. The password must be six characters or more. Depend on the request to check the four selections below. Then, click the *Next*.

New Object - User		×
Create in: 2k3	lab.idv.tw/OU	
Password:		
<u>C</u> onfirm password:		
User <u>m</u> ust change passe	word at next logon	
🔲 U <u>s</u> er cannot change pa		
Password never expires		
C Account is disabled		
	< <u>B</u> ack <u>N</u> ext>	Cancel

The new user, *ccc*, is created successfully under the OU.

Object - User		
Create in: 2k3lab.idv	.tw/OU	
When you click Finish, the followin	ig object will be created:	
Full name: ccc		<u>×</u>
User logon name: ccc@2k3lab.id	v.tw	
The password never expires.		
		Ŧ
	< Back Finish	Cancel

🐗 Active Directory Users and Com	puters		
G Eile Action View Window H	<u>t</u> elp		_ B ×
		10 10 to 7 4 10	
Active Directory Users and Computer			
E- 2k3lab.idv.tw	Name	Type Description	
E- Builtin	Ø 0U1	Organizational	
E Computers	🖸 aaa	User	
🕀 🧭 Domain Controllers	🖸 bbb	User	
🗊 🥝 felixou	g ccc g usertop	User Us <u>C</u> opy	
E ErreignSecurityPrincipals	🛃 usertop	Add to a group	
		Disable Account	
E @ OU1 ⊕ Ø OU root		Reset Password	
E Z test		Mo <u>v</u> e	
± @ TW		Open Home Page	
🗉 🧭 user11		Send Mail	
😟 🧰 Users		All Tasks	
□ 🙆 使用者			
		Cut	
		Delete	
		Rena <u>m</u> e	
		Properties	
		Help	
	1		
	1		
	1		
	11		
			J J

Right-click on ccc to view the properties.  $ccc \rightarrow Properties$ .

Click the *Account* label and you will see the account information about ccc.

100			?
Remote contro Member Of General   Addre	Dial-in		COM+ Sessions )rganization
User logon name	:		
ccd		@2k3lab.idv.tw	•
User logon name	(pre- <u>W</u> indows 200	0):	
2K3LAB\		ccc	
	change password a ot change passwor	7.	<b>_</b>
Password r	never expires word using reversib	le encryption	
Password r	word using reversib	le encryption	_
Password r	word using reversib		

Then, you can get the information to fill in the fields of LDAP Server. For example, Server IP: www.2k3lab.idv.tw; Port: 389; Base DN: ou=OU,dc=2k3lab,dc=idv,dc=tw; Account Attribute: CN

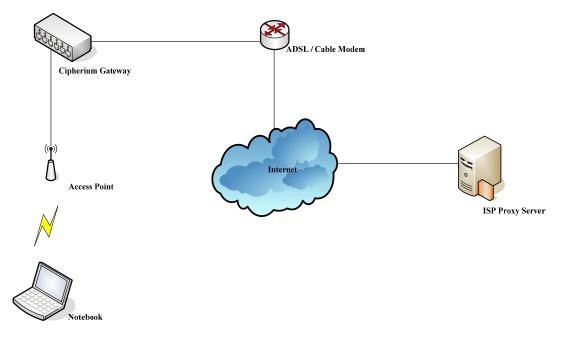
Primary LDAP Server		
Server IP	*(Domain Name/IP)	
Port	*(Ex: 389)	
Base DN	*(CN=,do=,do=)	
Account Attribute	"(Ex: uid)	
Secondary LDAP Server		
Server IP		
Port		
Base DN		
Account Attribute		
	Policy Mapping	
LDAP Policy Mapping	Map LDAP Attributes to Policy	

Note: Usually, the users are created under the CN=users, and the Base DN will be

"CN=users,dc=2k3lab,dc=idv,dc=tw". The Account Attribute of Windows Server will only be CN and that of Linux could be CN or uid.

# Appendix D. Proxy Setting for Hotspot

HotSpot is a place such as coffee shops, hotels, or other public areas where provide Wi-Fi service for mobility users. HotSpot is usually implemented without complex network architecture and using some proxy server which provide by Internet Service Providers.



In Hotspots, mobility users usually enable their proxy setting of the browsers such as IE, Firefox, or the others, so we need to set some proxy configuration in the Gateway. 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.

	💼 Network Con	figuration
lletwork Address Translation		Network Configuration
Privilege List	Network Address Translation	AMG-2000 provides 3 types of network address translation: DMZ (Demilitarized Zone), Public Accessible Server and IP/Port Redirect.
Monitor IP List	Privilege List	System provides Privilege IP Address List and Privilege MAC Address List. System will NOT authenticate those listed devices.
Walled Garden List Proxy Server Properties	Monitor IP List	System can monitor up to 40 network devices online status with an option to add them as public access servers via HTTP or HTTPS. Even under NAT mode, after added the devices as public access servers, the devices can be accessed by clicking the hypertext.
Dynamic DHS	Walled Garden List	Up to 20 hosts' URL could be defined in Walled Garden List. Clients may access these URL without authentication.
UP Mobility VPII Configuration	Proxy Server Properties	AMG-2000 supports up to 10 external proxy servers. System can redirect traffic to external proxy server into built-in proxy server.
	Dynamic DNS	AMG-2000 supports dynamic DNS (DDNS) feature.
	IP Mobility	System supports IP PNP Configuration.
	VPN Configuration	VPN Termination: an IPSec tunnel can be established between the system and the client located at the LAN side. Site-to-Site VPN: an IPSec tunnel can be constructed to be used to connect to other IPSec capable device over the Internet.

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

	External I	Proxy Server	
ltem	Server IP	Port	
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	Internal Proxy Server		
	Built-in Proxy Server	C Enabled 💿 Disabled	

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

tem	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	O Enabled 💿 Disabled	

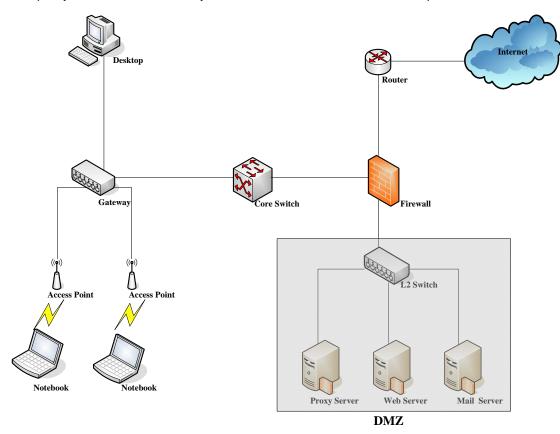
### 5) Enable Built-in Proxy Server in Internal Proxy Server Setting.

External Proxy Server				
ltem	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  Server			

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

# Appendix E. Proxy Setting for Enterprise

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



In enterprises, network manager or MIS maybe usually ask their users to enable their proxy setting of the browsers such as IE, Firefox, or others to reduce the internet access loading, so we need to set some proxy configuration in the Gateway.

*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 proxy setting of browsers, and you don't need to set any proxy configuration in the Gateway.

Please follow the steps to complete the proxy configuration :

## 1. 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.

	💼 Network Con	figuration
letwork Address Translation		Network Configuration
Privilege List	Network Address Translation	AMG-2000 provides 3 types of network address translation: DMZ (Demilitarized Zone), Public Accessible Server and IP/Port Redirect.
Monitor IP List	Privilege List	System provides Privilege IP Address List and Privilege MAC Address List. System will NOT authenticate those listed devices.
Walled Garden List Proxy Server Properties	Monitor IP List	System can monitor up to 40 network devices online status with an option to add them as public access servers via HTTP or HTTPS. Even under NAT mode, after added the devices as public access servers, the devices can be accessed by clicking the hypertext.
Dynamic DHS	Walled Garden List	Up to 20 hosts' URL could be defined in Walled Garden List. Clients may access these URL without authentication.
VPN Configuration	Proxy Server Properties	AMG-2000 supports up to 10 external proxy servers. System can redirect traffic to external proxy server into built-in proxy server.
	Dynamic DNS	AMG-2000 supports dynamic DNS (DDNS) feature.
	IP Mobility	System supports IP PNP Configuration.
	VPN Configuration	VPN Termination: an IPSec tunnel can be established between the system and the client located at the LAN side. Site-to-Site VPN: an IPSec tunnel can be constructed to be used to connect to other IPSec capable device over the Internet.

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

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

Interna	l Proxy Server
Built-in Proxy Server	O Enabled 💿 Disabled

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

	External Proxy Server							
ltem	Server IP	Port						
1	10.2.3.203	6588						
2								
3								
4								
5								
6								
7								
8								
9								
10								
	Internal Pi	roxy Server						
	Built-in Proxy Server	🔘 Enabled 💿 Disabled						

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

	External Proxy Server						
ltem	Server IP	Port					
1	10.2.3.203	6588					
2							
3							
4							
5							
6							
7							
8							
9							
10							
	internal Pro:	xy Server					
	Built-in Proxy Server	⊙ Enabled ○ Disabled					

### 6) Click Apply to save the settings.

*Warning*: If your proxy server is down, 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.

## 2. Client setting

It is necessary for clients to add default gateway IP address into proxy exception information. By the way, user login successful page will appear normally.

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

C: Documents	and Settings v	luke .	hung	>ip	con	fi	g	
Windows IP Co	onfiguration							
Ethernet ada	pter							
Conne	ection-specific	DNS	Suf	fix			sohoware.com	
IP A	Idress						192.168.1.92	
Subne	t Mask						255.255.255.0	
Defa	ilt Gateway					1	192.168.1.254	

- 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 IE

Ртоку Se	ttings		×					
Servers								
	Туре	Proxy address to use	Port					
	HTTP:	10.2.3.208	: 6588					
	Secure:	10.2.3.203	: 6588					
	ETP:	10.2.3.203	: 6588					
	So <u>c</u> ks:		:					
	<b>₩</b> <u>U</u> se the	same proxy server for all protocols						
Exception	ons							
5	Do <u>n</u> ot use j	proxy server for addresses beginning v	with:					
▶	192.168.1.254,1.1.1.1							
	Use semicol	ons ( ; ) to separate entries.						
		ОК	Cancel					

### For Firefox

Direct connection to the Internet     Auto-detect proxy settings for this network					
Manual proxy control Manual Proxy control Manual Proxy:	00000000000000000000000000000000000000	Port:	6588		
	Use this proxy server for all protocol	s			
SSL Proxy:	10.2.3.203	Port:	6588		
FTP Proxy:	10.2.3.203	Port:	6588		
<u>G</u> opher Proxy:	10.2.3.203	Port:	6588		
SO <u>C</u> KS Host:	10.2.3.203	Port:	6588		
	○ SOCKS v4				
No Proxy for:	192.168.1.254,1.1.1.1				
) Automatic proxy	Example: .mozilla.org, .net.nz, 192.168.1 y configuration URL:	.0/24			

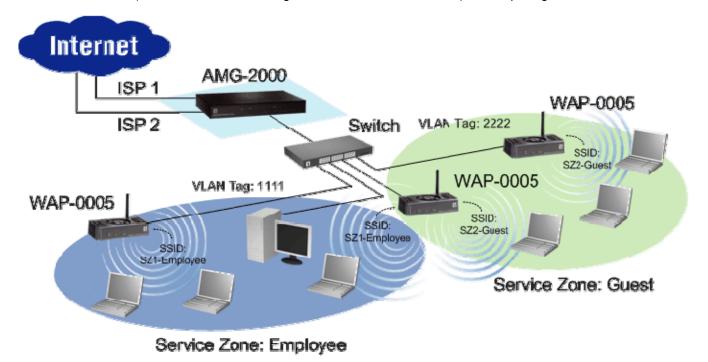
# Appendix F. Service Zones – A Deployment Example

## Typical Application Scenario: Employee vs. Guest

In this scenario, users are separated into **Employee** and **Guest** for the purpose of different levels of access control.

## Application Network Diagram

One Service Zone (associated with VLAN tag: 1111 and SSID: SZ1-Employee) is set up for employees while the other Service Zone (associated with VLAN tag: 2222 and SSID: SZ1-Guest) is set up for guests.



### Requirements for the Application Scenario

- 1. No matter where they stay in the office, all users should be divided into two groups (Employee and Guest).
- Each Service Zone must setup its own SSID to let users to access the wireless network using the specific SSID. The system will give a unique Session ID to authenticated users when they start new sessions.
- 3. Both groups of **Employee** and **Guest** will be redirected to different login portal pages and will be authenticated against different authentication database.
- 4. Apply different access control policies to seperated groups Employee and Guest.

## Solution and Configuration in AMG-2000

1) Choose the SZ1 for the Employee group (Take Employee for an example of Service Zone configuration)

	Service Zone Settings									
Service Zone Name	VLAN Tag	SSID	Encryption	Applied Policy	Authentication	Status	Details			
Default		default- ssid	Open System	Policy 1	Server 1	Enable	Configure			
SZ1	1	default1- ssid	Open System	Policy 1	Server 1	Disable	Configure			
SZ2	2	default2- ssid	Open System	Policy 1	Server 1	Disable	Configure			
SZ3	3	default3- ssid	Open System	Policy 1	Server 1	Disable	Configure			
SZ4	4	default4- ssid	Open System	Policy 1	Server 1	Disable	Configure			

2) Enable the Service Zone and set up other basic information

u Service Zone Settings					
	Basic Settings				
Service Zone Status	● Enable     ○ Disable				
Service Zone Name	Empolyee				
Network Settings	VLAN Tag 1111 (range : 1 ~ 4094) Operation Mode ③ NAT ③ Router IP Address : 192.168.2.254 * Subnet Mask : 255.255.255.0 *				

3) Configure the SSID and other settings which will be applied to the managed APs in this Service Zone

	Wireless Settings							
	Set SSID	SZ1-Employee	x					
		Authentication	WPA2					
		WPA-PSK						
Acce	Access Point Security	Encryption	AES					
			Passphrase/PSK					
		Hex V						

Authentication Settings							
Authentication Status	💿 Enable 🤇	Disable					
	Auth Option	Auth Database	Postfix	Default	Enabled		
	Server 1	LOCAL	local	۲			
Authentication Options	Server 2	POP3	рор3	0			
	Server 3	RADIUS	radius	0			
	Server 4	LDAP	Idap	0			
	<u>Ondemand</u> <u>User</u>	ONDEMAND	ondemand	0			
		L a site D			Configure		
		Login Page					
		Logout Page					
Custom Pages		Login Succe	ss Page		Configure		
	Login S	uccess Page f	or Ondernand (	Jser	Configure		
		Logout Succ	ess Page		Configure		

4) Enable the Authentication Status, select the Default Authentication Option and configure the login page

5) Choose the appropriate Policy which will be applied to this Service Zone

Default Policy in this Service Zone	Policy 1 💌 Edit System Poilcie:	s
Email Message for Login Reminding	Edit Mail Message	

## Finished Configuration – Service Zone Settings

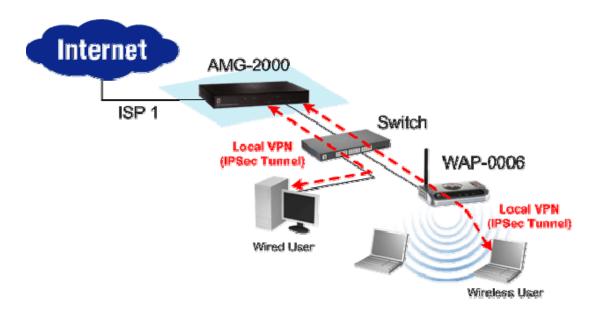
The table will summarize the current configuration and status for each Service Zone:

	Service Zone Settings									
Service Zone Name	VLAN Tag	SSID	Encryption	Applied Policy	Authentication	Status	Details			
Default	-	default- ssid	Open System	Policy 1	Local	Enable	Configure			
Employee	1111	SZ1- Employee	WPA2	Policy 1	Local	Enable	Configure			
Guest	2222	SZ2- Guest	Shared Key	Policy 2	On-demand User	Enable	Configure			
SZ3	3	default3- ssid	Open System	Policy 1	Local	Disable	Configure			
SZ4	4	default4- ssid	Open System	Policy 1	Local	Disable	Configure			

AMG-2000 User's Manual

# Appendix G. Local VPN User Configuration

AMG-2000 has the ability to establish IPSec VPN tunnels between local user's Windows devices (on local wired or wireless network) and AMG-2000 itself, for the purpose of traffic protection on local networks. By pushing down ActiveX Control to the user's browser from AMG-2000, the system will be able to install a so-called "clientless" IPSec VPN.



### 1. User Operation Flow

1) As usual, type in username and password in the User Login Page

	User Login Page
Welcon	ne To User Login Page!
Please Enter Your U	ser Name and Password To Sign
User Name:	testuser
Password:	

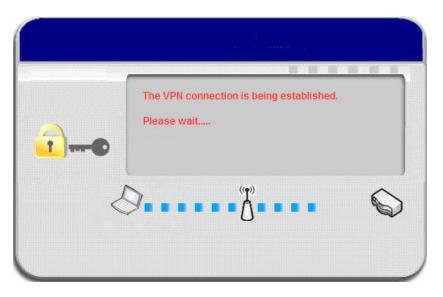
2) For the first time, if the user has never used Local VPN feature, Windows IE browser (6.0 or above) will display an alert message to ask the user whether she or he wants to install the "add-on" software.



3) Click on the alert message and then choose the "Install ActiveX Control" to install the software.

😋 💿 👻 🙋 https://amg2000.ddcasia.com.tw/loginpages/vpn_main.shtml?uip=192.168.1.64&gw_ip=192.168.1.254&enc=3DESⅈ 💌 🔒 🚱	X Live Search
🚖 🏟 🍘 https://amg2000.ddcasia.com.tw/loginpages/vpn_main.s	🟠 • 🔊 • 🖶 • 🔂 Page •
7) This website wants to install the following add-on: VPNClient CAB' from Digital Data Communications Asia Co., Ltd.! If you trust the website and the ad	d-on and want to install it, click here
	Install ActiveX Control What's the Risk?
	More information
	Mole Inclugaton
ActiveX component loading failed. To enable the VPN connection, please click the Windows alert on the browser to install the ActiveX component. Try again	
Internet Explorer - Security Warning	
Do you want to install this software?	
Name: VPNClient.CAB	
Publisher: Digital Data Communications Asia Co., Ltd.	
More options     Install     Don't Install	
While files from the Internet can be useful, this file type can potentially harm your computer. Only install software from publishers you trust. <u>What's the risk?</u>	

4) After the software is installed well, the system will try to establish the IPSec VPN tunnel for the user automatically.



5) Once the IPSec VPN tunnel is established, the user has successfully logged in and the connection is secured by IPSec VPN.



### 2. ActiveX Control component

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

Internet p	programs	2001 BLC 27 B B		Manage Add-ons				1
9×	You can specify each Internet se			View :	and manage add-ons that are installe	t on your compute	r Disabling or deleting add	t-ons might
	HTML editor:	Microsoft Word	~		nt some webpages from working corr		. Problem g of dolouing dat	ono mgra
	E-mail:	Microsoft Outlook	~					
	Newsgroups:	Microsoft Outlook	~	Show: Add	ons that have been used by Internet I	Explorer 🛛 💙		
	Internet Call:	NetWeeting	~	Name 🔺	Publisher	Status	Туре	File 🧭
	<u>⊂</u> alendar:	Microsoft Outlook	~	S IeCatch5 Class Java Plug-in 1.t	5.0_01 Sun Microsystems, Inc.	Enabled Enabled	Browser Helper Object ActiveX Control	jccatch ssv.dll
	Contact List:	Microsoft Outlook	~	SearchAssistant		Enabled Enabled	ActiveX Control ActiveX Control	rmoc32 shdocy
Default v	web browser			Shockwave Fla		Enabled	Browser Helper Object	apphel
6		r is the default web	ve default	Shockwave Fla	sh Object Adobe Systems Incorpo	rated Enabled	ActiveX Control	Flash91
G	browser.			SSVHelper Cla		Enabled	Browser Helper Object	
	🔽 Tell me if Inte	rnet Explorer is not the default w	eb browser.	VPNClient.ipse		ations Enabled Enabled	ActiveX Control	VPNC1 wmp.d.
	add ana			Windows Medi		Enabled	ActiveX Control	wmpd>
Manage				Windows Mess		Enabled	Browser Extension	" map on -
	installed in your	e browser add-ons Mana system.	age add-ons	🛐 XML DOM Do	cument Microsoft Corporation	Enabled	ActiveX Control	msoml
W2-				XML HTTP 3.0	) Microsoft Corporation	Enabled	ActiveX Control	msxml 🎽
				Settings		Delete Active	x	
		OK Cancel	Apply	Click an add-on na and then click End		Click the nar ActiveX con then click De	rol above and De	jete

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.

### 3. 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.
- Without Windows patch KB889527, ICMP (Ping) and PORT command of FTP cannot work in Windows XP SP2.
- c. The forced termination (through CTRL+ALT+DEL or 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. In this case, 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.
- e. There are some OS and browser which may not support Local VPN.

### a) 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.

Ethernet Status	? 🗙	Ethernet Properties
General Support		General Authentication Advanced
Connection Status: Duration: Speed:	Connected 5 days 04:59:39 100.0 Mbps	Internet Connection Firewall  Protect my computer and network by limiting or preventing access to this computer from the Internet Learn more about Internet Connection Firewall. Internet Connection Sharing
Activity Sent – Packets:	- 2 - Received 45   176,578	Allow other network users to connect through this computer's Internet connection     Allow other network users to control or disable the shared Internet connection
Properties Disable	Close	Learn more about Internet Connection Sharing.
		Settings OK Cancel

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

### b) 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 <u>http://support.microsoft.com/default.aspx?scid=kb;en-us;889527</u>. 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.

#### c) 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 AMG-2000, 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 follows:

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.

📕 Windows Task Manager	
File Options View Windows Help	
Applications Processes Performance Networking	
Task	Status
Intitled - Paint This https://gw.private/loginpages/vpn_main.sht C:\WINDOWS\System32\cmd.exe	Running Running Running
	-
(<)	
End Task Switch To	New Task

Terminate the Internet Explorer Task from Windows Task Manager

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

#### There are some cases of Windows messages by which AMG-2000 will warn 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.

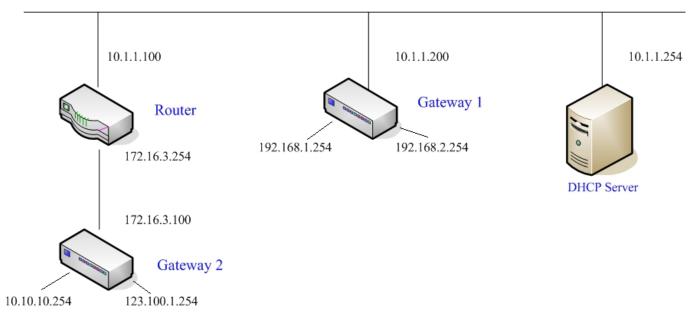
Suggestion: Click "Cancel" if you do not intend to stop the IPSec VPN connection yet.

### e) Non-supported OS and Browser

In current version, Windows Internet Explorer (6.0 or above) is the only browser supported by AMG-2000. Windows XP and Windows 2000 are the only two supported OS along with this release.

# Appendix H. DHCP Relay

AMG-2000 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 AMG-2000 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 AMG-2000, 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 AMG-2000 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 = ("00:90:08:07:60:91 192.168.1.254");
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 AMG-2000 sends out a DHCP request. DHCP relay function in AMG-2000 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.

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