

# LevelOne User Manual

WBR-6013

Version : v1.0\_20161221

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# 1 Introduction

Congratulations on becoming the owner of the WBR-6013. You will now be able to access the Internet using your high-speed xDSL/Cable modem connection.

This User Guide will show you how to connect your WBR-6013, and how to customize its configuration to get the most out of your new product.

## Features

The list below contains the main features of the device and may be useful to users with knowledge of networking protocols. If you are not an experienced user, the chapters throughout this guide will provide you with enough information to get the most out of your device.

Features include:

- 10/100Base-T Ethernet router to provide Internet connectivity to all computers on your LAN
- Network address translation (NAT) functions to provide security for your LAN
- Network configuration through DHCP Server and DHCP
   Client
- Services including IP route and DNS configuration, RIP, and IP
- Supports remote software upgrades
- User-friendly configuration program accessed via a web
   browser
- User-friendly configuration program accessed via EasySetup program

The WBR-6013 has the internal Ethernet switch allows for a direct connection to a 10/100Base-T Ethernet network via an RJ-45 interface, with LAN connectivity for both the WBR-6013 and a co-located PC or other Ethernet-based device.

## **Device Requirements**

In order to use the WBR-6013, you must have the following:

- One RJ-45 Broadband Internet connection via cable modem or xDSL modem
- Instructions from your ISP on what type of Internet access you will be using, and the addresses needed to set up access
- One or more computers each containing an Ethernet card (10/100Base-T network interface card (NIC))
- TCP/IP protocol for each PC
- For system configuration using the supplied a. web-based program: a web browser such as Internet

Explorer v4 or later, or Netscape v4 or later. Note that version 4 of each browser is the minimum version requirement – for optimum display quality, use Internet Explorer v5, or Netscape v6.1 b.EasySetup program: Graphical User Interface



You do not need to use a hub or switch in order to connect more than one Ethernet PC to your device. Instead, you can connect up to four Ethernet PCs directly to your device using the ports labeled Ethernet on the rear panel.

# Using this Document

#### Notational conventions

- Acronyms are defined the first time they appear in the text and also in the glossary.
- For brevity, the WBR-6013 is referred to as "the device".
- The term *LAN* refers to a group of Ethernet-connected computers at one site.

#### **Typographical conventions**

- *Italic* text is used for items you select from menus and dropdown lists and the names of displayed web pages.
- **Bold** text is used for text strings that you type when prompted by the program, and to emphasize important points.

#### **Special messages**

This document uses the following icons to draw your attention to specific instructions or explanations.



Provides clarifying or non-essential information on the current topic.



Explains terms or acronyms that may be unfamiliar to many readers. These terms are also included in the Glossary.



Provides messages of high importance, including messages relating to personal safety or system integrity.

## **Getting Support**

Supplied by: Helpdesk Number: Website:

# **2** Getting to know the device

# Computer / System requirements

 Windows 98SE, Windows Me, Windows 2000, Windows XP, Windows Vista, Windows 7, Windows 8, Windows 8.1 and Windows 10

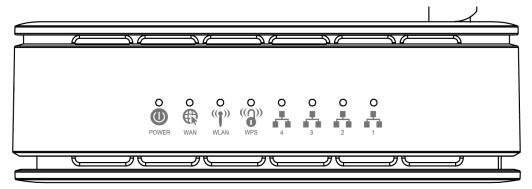
# Package Contents

- 1. WBR-6013
- 2. Quick Installation Guide
- 3. Ethernet Cable (RJ-45)
- 4. Power Adapter

## LED meanings & activations

#### Front Panel

The front panel contains lights called Light Emitting Diodes (LEDs) that indicate the status of the unit.

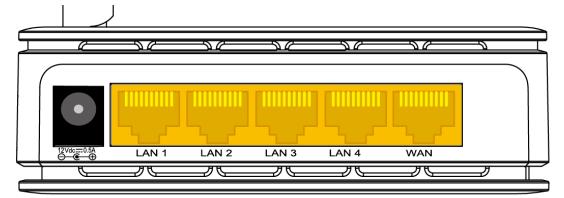


\* Actual Front Panel and ANTENNA may vary depending on model. Figure 1: Front Panel and LEDs

Label	Color	Function
POWER	green	On: device is powered on Off: device is powered off
WAN	green	On: WAN link established and active Off: No LAN link Blink: Valid Ethernet packet being transferred
WLAN	green	On: WLAN link established and active Blink: Valid Wireless packet being transferred
WPS	green	Off: WPS link isn't established and active Blink: Valid WPS packet being transferred
LAN 1/2/3/4	green	On: LAN link established and active Off: No LAN link Blink: Valid Ethernet packet being transferred

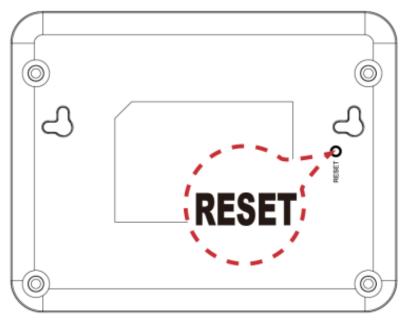
#### **Rear and Right Panel and bottom Side**

The rear and right panel and bottom side contains a *Restore Defaults* button, the ports for the unit's data and power connections.



\* Actual Rear Panel and ANTENNA may vary depending on model.

Figure 2: Rear Panel Connections



\* Actual button may vary depending on model.

Figure 3: RESET button

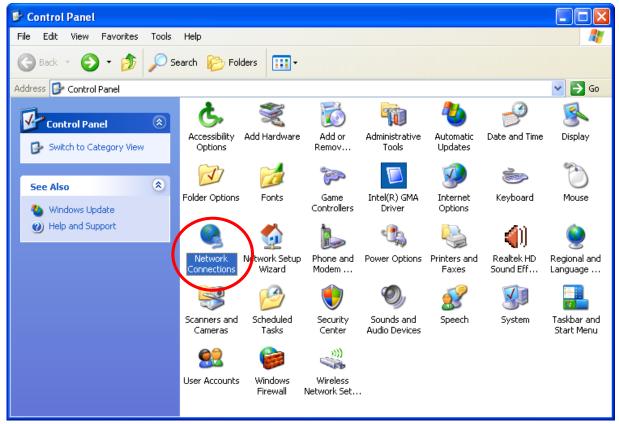
Label	Function
ANTENNA	2 fixed ANTENNA
POWER	Connects to the supplied power adaptor
ON/OFF SWITCH	Power on / off the device
LAN 4/3/2/1	Connects the device via LAN Ethernet to up to 4 PCs
WAN	Connects the device via WAN Ethernet to xDSL / Cable Modem
WPS	Press this button for at least 3 full seconds and the WPS LED will flash to start WPS.
	Now go to the wireless adapter or device and press its WPS button. Make sure to press the button within 120 seconds (2 minutes) after pressing the router's WPS button.
WLAN	Press this button for at least 3 full second to turn off/on wireless signals
RESET	Reset button. <b>RESET</b> the WBR-6013 to its default settings. Press this button for at least 6 full seconds to <b>RESET</b> device to its default settings.

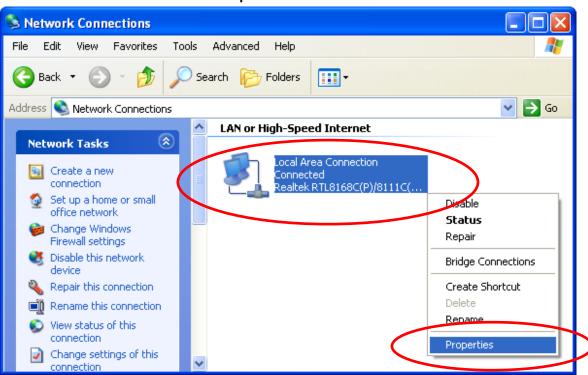
# **3** Computer configurations under different OS, to obtain IP address automatically

Before starting the WBR-6013 configuration, please kindly configure the PC computer as below, to have automatic IP address / DNS Server.

#### For Windows 98SE / ME / 2000 / XP

 Click on "Start" -> "Control Panel" (in Classic View). In the Control Panel, double click on "Network Connections" to continue.





# 2. Single RIGHT click on "Local Area connection", then click "Properties".

3.	Double click on	"Internet	Protocol	(TCP/IP)".
----	-----------------	-----------	----------	------------

🕹 Local Area Connection Properties 🛛 🔹 💽
General Advanced
Connect using:
Bealtek RTL8168C(P)/8111C(P) PCI-
This connection uses the following items:
Client for Microsoft Networks
E File and Printer Sharing for Microsoft Networks
✓ UoS Packet Scheduler     ✓ Thternet Protocol (TCP/IP)
Install Uninstall Properties
Description
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.
Show icon in notification area when connected
Notify me when this connection has limited or no connectivity
OK Cancel

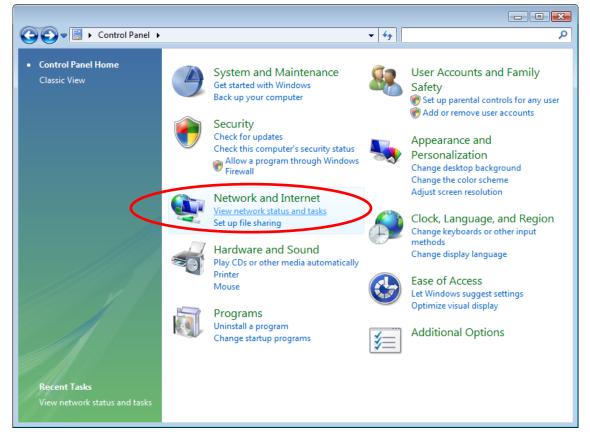
4. Check "Obtain an IP address automatically" and "Obtain DNS server address automatically" then click on "OK" to continue.

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

5. Click "Show icon in notification area when connected" (see screen image in 3. above) then Click on "OK" to complete the setup procedures.

## For Windows Vista-32/64

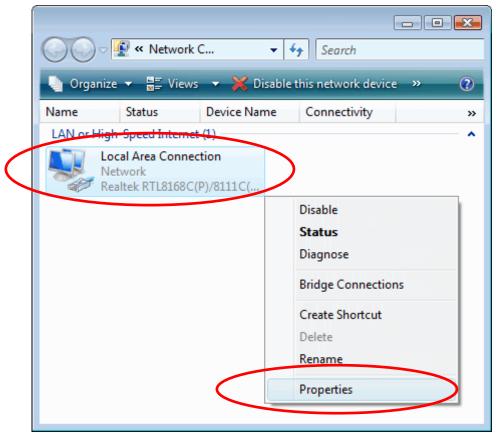
1. Click on "Start" -> "Control Panel" -> "View network status and tasks".



Tasks	Network and Sharing C	enter	
View computers and device Connect to a network Set up a connection or netw Manage network connection Diagnose and repair	work	- <b>*</b>	v full m
	Network (Public network	-	ustom
		Local only	
	Access Connection	Local only Local Area Connection	200 80
			200 80
	Connection		Viev stat
	Connection Sharing and Discovery	Local Area Connection	stat
	Connection           Sharing and Discovery           Network discovery	Local Area Connection	stat (
	Connection Sharing and Discovery Network discovery File sharing	Local Area Connection     Off     Off	stat (( (
	Connection Sharing and Discovery Network discovery File sharing Public folder sharing	Local Area Connection     Off     Off     Off     Off	stat (( (

# 2. In the Manage network connections, click on "Manage network connections" to continue.

3. Single RIGHT click on "Local Area connection", then click "Properties".



- 4. The screen will display the information "User Account Control" and click "Continue" to continue.
- 5. Double click on "Internet Protocol Version 4 (TCP/IPv4)".

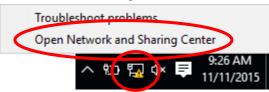
🕌 Local Area Connection Properties
Networking
Connect using:
Realtek RTL8168C(P)/8111C(P) Family PCI-E Gigabit Ethe
Configure
This connection uses the following items:
<ul> <li>Client for Microsoft Networks</li> <li>Qo S Packet Scheduler</li> <li>File and Printer Sharing for Microsoft Networks</li> <li>Internet Protocol Version 6 (TCP/IPv6)</li> <li>Internet Protocol Version 4 (TCP/IPv4)</li> <li>Link-Layer Topology Discovery Mapper FO Driver</li> <li>Link-Layer Topology Discovery Responder</li> </ul>
Install Uninstall Properties
Description Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.
OK Cancel

6. Check "Obtain an IP address automatically" and "Obtain DNS server address automatically" then click on "OK" to continue.

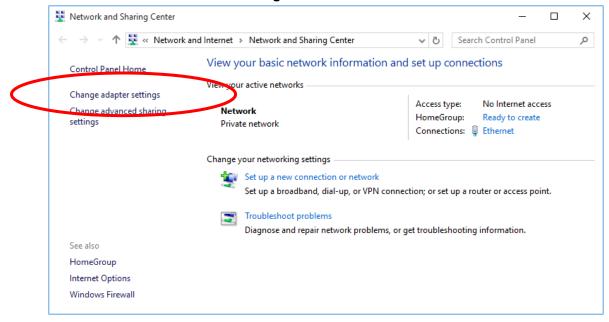
Internet Protocol Version 4 (TCP/IPv4)	Properties 🔹 😨 💌						
General Alternate Configuration							
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.							
<ul> <li>Obtain an IP address automatically</li> </ul>	y						
Use the following IP address:							
IP address:							
Subnet mask:							
Default gateway:							
Obtain DNS server address autom	natically						
O Use the following DNS server addr							
Preferred DNS server:							
Alternate DNS server:							
	Advanced						
(	OK Cancel						

#### For Windows 7/8/8.1/10-32/64

1. Right click on *Network* icon , then click "*Open Network* and Sharing Center".



# 1. In the Control Panel Home, click on "Change adapter settings" to continue.



	6					•	
	Network Connections				_		×
	$\leftarrow \rightarrow$ $\checkmark$ $\bigstar$ [1] « Net > Network		~ Ō	Searc	h Netwo	ork Conn	<u>م</u>
	Organize 🝷 Disable this network device	»			- -	-	?
$\langle$	Ethernet Network Realtek PCIe GBE Family Controller		>				
		•	Disable				1
			Status				
			Diagnose	2			
		•	Bridge Co	onnectio	ons		
			Create Sł	nortcut			
		•	Delete				
		V	Rename				
		•	Propertie	<u>is</u>	>		
	2 items 1 item selected						

#### 2. Single RIGHT click on "Ethernet", then click "Properties".

Ethernet Properties	$\times$					
Networking Sharing						
Connect using:						
Realtek PCIe GBE Family Controller						
Configure						
This connection uses the following items:						
Client for Microsoft Networks	1					
File and Brinter Sharing fer Microsoft Networks						
🖸 😓 Qo S Packet Scheduler						
Internet Protocol Version 4 (TCP/IPv4)						
Link-Layer Topology Discovery Mapper 1/O Driver						
Microsoft Network Adapter Multiplexor Protocol						
Microsoft LLDP Protocol Driver						
< >>						
Install Uninstall Properties						
Description						
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.						
OK Cancel						

3. Double click on "Internet Protocol Version 4 (TCP/IPv4)".

4. Check "Obtain an IP address automatically" and "Obtain DNS server address automatically" then click on "OK" to continue.

Internet Protocol Version 4 (TCP/IPv4) Properties						
General Alternate Configuration						
You can get IP settings assigned autom this capability. Otherwise, you need to for the appropriate IP settings.						
Obtain an IP address automatically						
Use the following IP address						
IP address:						
Subnet mask:						
Default gateway:						
Obtain DNS server address autom	atically					
Ouse the following DNS server addr						
Preferred DNS server:						
Alternate DNS server:						
Validate settings upon exit	Advanced	]				
	OK Cancel					

# 4 Connecting your device

This chapter provides basic instructions for connecting the WBR-6013 to a computer or LAN and to the Internet.

In addition to configuring the device, you need to configure the Internet properties of your computer(s). For more details, see the following sections:

• Configuring Ethernet PCs

This chapter assumes that you have already established a DSL/Cable service with your Internet service provider (ISP). These instructions provide a basic configuration that should be compatible with your home or small office network setup. Refer to the subsequent chapters for additional configuration instructions.

## **Connecting the Hardware**

This section describes how to connect the device to the wall phone port, the power outlet and your computer(s) or network.



**Before you begin, turn the power off for all devices.** These include your computer(s), your LAN hub/switch (if applicable), and the WBR-6013.

The diagram below illustrates the hardware connections. The layout of the ports on your device may vary from the layout shown. Refer to the steps that follow for specific instructions.

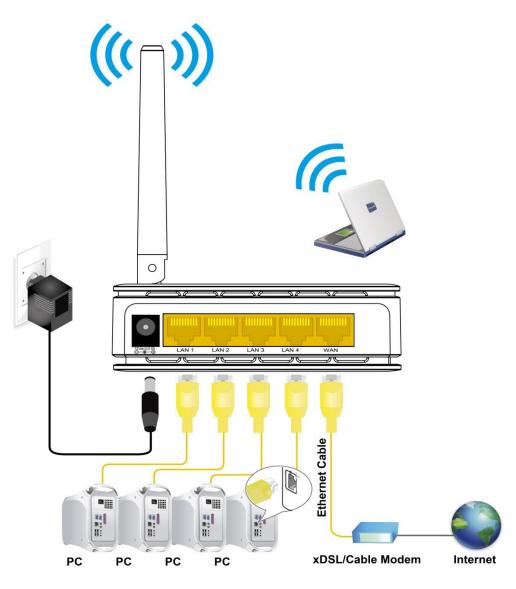


Figure 4: Overview of Hardware Connections

Step 1. Connect the Ethernet cable to WAN Port

Connect the RJ45 Ethernet cable from your xDSL/Cable Modem's Ethernet port to WBR-6013 WAN Port.

Step 2. Connect the Ethernet cable to LANPort

Connect the supplied RJ45 Ethernet cable from your PC's Ethernet port to any of the 4 WBR-6013 LAN Ports.

Step 3. Attach the power connector

Connect the power adapter to the power inlet "POWER" of the 802.11n WLAN Router and turn the power switch "ON/OFF SWITCH" of your WBR-6013 on.

\* Actual ANTENNA may vary depending on model

# **5** Advanced Configuration

# **Advanced Configuration**

1. From any of the LAN computers, launch your web browser, type the following URL in the web address (or location) box, and press [Enter] on your keyboard:

http://192.168.1.1

2. Please enter the User Name: **admin** and Password: **admin** and then click on **OK** button.

Microsoft Edge
Microsoft Edge
The server 192.168.1.1 is asking for your user name and password. The server reports that it is from .
Warning: Your user name and password will be sent using basic authentication on a connection that isn't secure.
8
admin X
····· ~
OK Cancel



4. Check on Gateway ratio and then click on Next.

	erent modes to LAN and WLAN interface for NAT and bridging
<ul> <li>Gateway:</li> </ul>	In this mode, the device is supposed to connect to internet via ADSL/Cable Modem. The NAT is enabled and PCs in four LAN ports share the same IP to ISP through WAN port. The connection type can be setup in WAN page by using PPPOE, DHCP client, PPTP client, L2TP client or static IP.
O Bridge:	In this mode, all ethernet ports and wireless interface are bridged together and NAT function is disabled. All the WAN related function and firewall are not supported.
○ Wireless ISP:	In this mode, all ethernet ports are bridged together and the wireless client will connect to ISP access point. The NAT is enabled and PCs in ethernet ports share the same IP to ISP through wireless LAN. You must set the wireless to client mode first and connect to the ISP AP in Site-Survey page. The connection type can be setup in WAN page by using PPPOE, DHCP client, PPTP client, L2TP client or static IP.
	Next>

# WAN Interface Setup

Examples

8-1. DHCP client

From the *WAN Access Type* drop-down list, select *DHCP Client* If you are happy with your settings, click on*Next* 

# WAN Interface Setup This page is used to configure the parameters for Internet network which connects to the WAN port of your Access Point. Here you may change the access method to static IP, DHCP, PPPOE, PPTP or L2TP by click the item value of WAN Access type. WAN Access Type: DHCP Client Cancel <Rack</td>

From the WAN Access Type drop-down list, select Static IPsetting.

Enter IP Address, Subnet Mask, Default Gatewayand DNS which was given by Telecom or by your Internet Service Provider (ISP).

If you are happy with your settings, click on Next

# **WAN Interface Setup**

This page is used to configure the parameters for Internet network which connects to the WAN port of your Access Point. Here you may change the access method to static IP, DHCP, PPPOE, PPTP or L2TP by click the item value of WAN Access type.

/	WAN Access Type:	Static IP 🔍		
	IP Address:			
	Subnet Mask:			
	Default Gateway:			
	DNS:			
			Cancel < <rack next="">&gt;</rack>	

#### 8-3. PPPoE

From the WAN Access Type drop-down list, select PPPoEsetting.

Enter User Name/Password provided by your ISP. Type them in the relevant boxes.

If you are happy with your settings, click Next

# WAN Interface Setup

This page is used to configure the parameters for Internet network which connects to the WAN port of your Access Point. Here you may change the access method to static IP, DHCP, PPPoE, <u>PPTP or L2TP</u> by click the item value of WAN Access type.

WAN Access Type:	PPPoE 🗸	
User Name:		
Password:		
	Cancel < <rack next="">&gt;</rack>	/

From the WAN Access Type drop-down list, select PPTP setting provided by your Network Administrator or ISP.

Click on the ratio of Dynamic IP (DHCP) or Static IP.

Enter IP Address for example 172.1.1.1 provided by your Network Administrator or ISP. (for Static IP only)

Enter Subnet Mask for example 255.255.0.0 provided by your Network Administrator or ISP. (for Static IP only)

Enter Default Gateway for example 172.1.1.254 provided by your Network Administrator or ISP. (for Static IP only)

Enter Server Domain Address for example 222.222.222 or www.example.com provided by your Network Administrator or ISP.

Enter User Name for example 1234 provided by your Network Administrator or ISP.

Enter Password for example 1234 provided by your Network Administrator or ISP.

If you are happy with your settings, click Next

# WAN Interface Setup

This page is used to configure the parameters for Internet network which connects to the WAN port of your Access Point. Here you may change the access method to static IP, DHCP\_PPPOE, PPTP or L2TP by click the item value of WAN Access type.

WAN Access Type:	РРТР
PPTP Mode:	🔿 Dynamic IP (DHCP) 💿 Static IP
IP Address:	172.1.1.2
Subnet Mask:	255.255.255.0
Default Gateway:	172.1.1.254
PPTP Server Mode:	O Attain Server By Domain Name
	Attain Server By Ip Address
Domain Name:	
Server IP Address:	172.1.1.1
User Name:	
Password:	
	Cancel < <back next="">&gt;</back>

From the WAN Access Type drop-down list, select L2TP setting provided by your Network Administrator or ISP.

Click on the ratio of Dynamic IP (DHCP) or Static IP.

Enter IP Address for example 172.1.1.1 provided by your Network Administrator or ISP. (for Static IP only)

Enter Subnet Mask for example 255.255.0.0 provided by your Network Administrator or ISP. (for Static IP only)

Enter Default Gateway for example 172.1.1.254 provided by your Network Administrator or ISP. (for Static IP only)

Enter Server Domain Address for example 222.222.222 or www.example.com provided by your Network Administrator or ISP.

Enter User Name for example 1234 provided by your Network Administrator or ISP.

Enter Password for example 1234 provided by your Network Administrator or ISP.

If you are happy with your settings, click Next

# WAN Interface Setup

This page is used to configure the parameters for Internet network which connects to the WAN port of your Access Point. Here you may change the access method to static IP, DHCP, PPPoE, PPTP or L2TP by click the item value of WAN Access type.

WAN Access Type:	L2TP V
L2TP Mode:	O Dynamic IP (DHCP)
IP Address:	172.1.1.2
Subnet Mask:	255.255.255.0
Default Gateway:	172.1.1.254
L2TP Server Mode:	○ Attain Server By Domain Name
	Attain Server By Ip Address
Domain Name:	
Server IP Address:	172.1.1.1
User Name:	
Password:	
	Cancel < <back next="">&gt;</back>

## WirelessConfiguration

- 5. Enter SSID.
- 6. Click on Next.

# Wireless Basic Settings

This page is used to configure the parameters for wireless LAN clients which may connect to your Access Point.

Band:	2.4 GHz (B+G+N) ▼
Mode:	AP 🔻
Netwo <del>rk Typ</del> e:	Infrastructure 💌
SSID:	LevelOne 2.4G
Channel Width:	HUMIH2 T
ControlSideband:	Upper <b>T</b>
Channel Number:	11 🔻
Enable Mac Clo	ne (Single Ethernet Client)
Add to Wireles	s Profile
	Cancel < <back next="">&gt;</back>

- 7. From the *Encryption* list, choose the Encryption type and enter related parameters if necessary, as None / WEP / WPA2(AES) and WPA Mixed Mode (the default settings Security Mode = None). For example, the Encryption you choose is None.
- 8. Click on Finished.

# Wireless Security Setup

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

 Encryption:	None	T	>		
			Cancel	< <back< th=""><th>Finished</th></back<>	Finished

9. Change setting successfully! Do not turn off or reboot the Device during this time. Please wait 20 seconds ...

Change setting successfully!

Do not turn off or reboot the Device during this time.

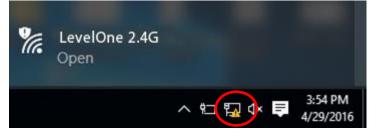
Please wait 19 seconds ...

10. Now, the WBR-6013 has been configured completely, and suitable for Wireless and Internet Connections.

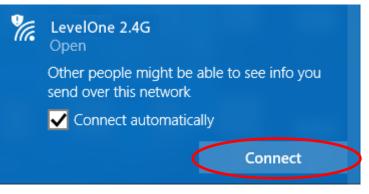
#### Wireless Connection

For easy installation it is saved to keep the settings. You can later change the wireless settings via the wireless configuration menu.

- 11. Double click on the wireless icon on your computer and search for the wireless network that you enter SSID name.
- Click on the wireless network that you enter SSID name (the default settings, Wireless Network = Enable, Default Channel = Auto, SSID = LevelOne 2.4G which could be found on the bottom side of the device) to connect.



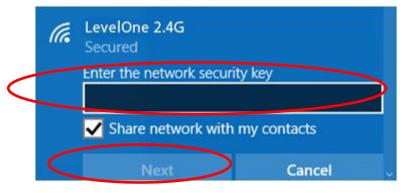
13. If the wireless network isn't encrypted, click on "Connect " to connect.



14. If the wireless network is encrypted, enter the network key that belongs to your authentication type and key.(the default settings Security Mode = WPA Mixed mode

which could be found on the bottom side of the device). You can later change this network key via the wireless configuration menu.

15. Click on "Next".



16. Now you are ready to use the Wireless Network to Internet or intranet.



# 6 What the Internet/WAN access of your own Network now is

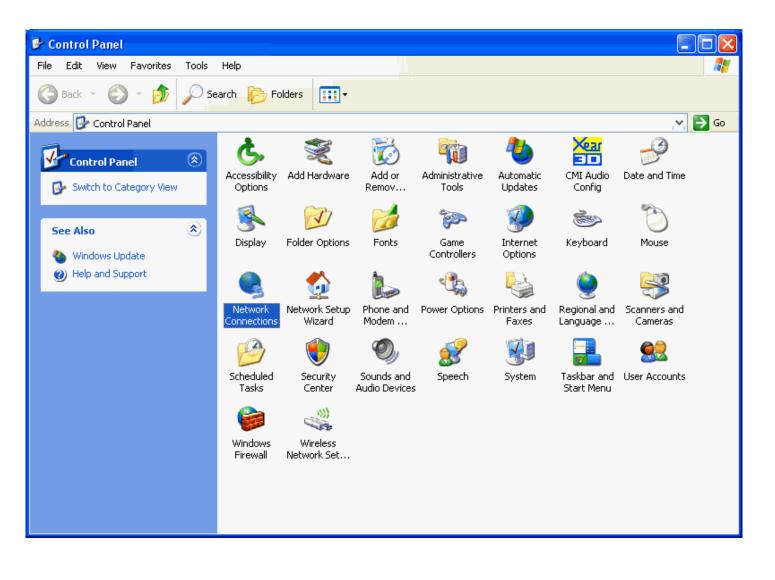
Now you could check what the Internet/WAN access of your network is to know how to configure the WAN port of WBR-6013.

Please follow steps below to check what the Internet/WAN access if your own Network is DHCP Client, Static IP or PPPoE Client.

1. Click Start -> Control Panel

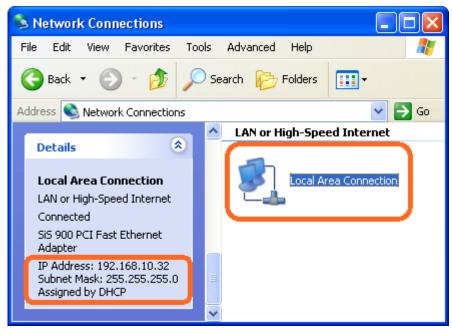


2. Double click Network Connections



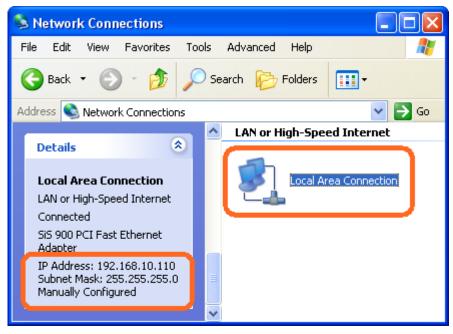
#### Internet/WAN access is the DHCP client

If you cannot see any **Broadband Adapter** in the **Network Connections**, your Internet/WAN access is **DHCP Client** or **Static IP**. 3. Click Local Area Connection in LAN or High-Speed Internet and you could see string Assigned by DHCP in Details.



#### Internet/WAN access is the Static IP

If you cannot see any **Broadband Adapter** in the **Network Connections**, your Internet/WAN access is **DHCP Client** or **Static IP**.  Click Local Area Connection in LAN or High-Speed Internet and you could see string Manually Configured in Details.



5. Right click **Local Area Connection** and click **Properties** and then you could get the IP settings in detail and write down the IP settings as follow: IP Address: 192.168.10.110

Subnet mask: 255.255.255.0

Default gateway: 192.168.10.100

Preferred DNS server: 192.168.10.100

Alternate DNS Server: If you have it, please also write it down.

Internet Protocol (TCP/IP) Proper	rties 🛛 🛛 🔀
General	
You can get IP settings assigned autom this capability. Otherwise, you need to a the appropriate IP settings.	
Obtain an IP address automatically	,
Our of the following IP address: ──	
IP address:	192.168.10.110
Subnet mask:	255.255.255.0
Default gateway:	192.168.10.100
Obtain DNS server address autom	atically
• Use the following DNS server add	resses:
Preferred DNS server:	192.168.10.100
Alternate DNS server:	· · ·
	Advanced
	OK Cancel

#### Internet/WAN access is the PPPoE client

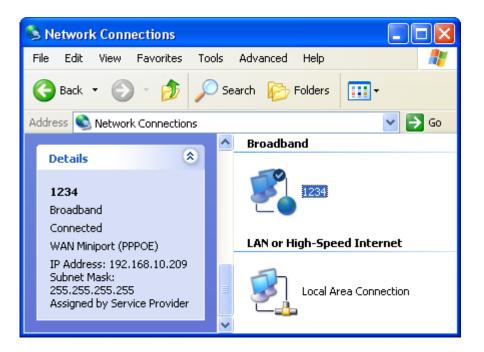
If you can see any **Broadband Adapter** in the **Network Connections**, your Internet/WAN access is **PPPoE Client**.

6. Click **Broadband Adapter** in **Broadband** and you could see string **Assigned by Service Provider** in Details.

For PPPoE configuration on Wireless Gateway, you'll need following information that you could get from your Telecom, or by your Internet Service Provider.

#### Username of PPPoE: 1234 for example

#### Password of PPPoE: 1234 for example



## **7** Getting Started with the Web pages

The WBR-6013 includes a series of Web pages that provide an interface to the software installed on the device. It enables you to configure the device settings to meet the needs of your

network. You can access it through your web browser from any PC connected to the device viathe LAN ports.

#### Accessing the Web pages

To access the Web pages, you need the following:

- A PC or laptop connected to the LAN port on the device.
- A web browser installed on the PC. The minimum browser version requirement is Internet Explorer v4 or Netscape v4. For the best display quality, use latest version of Internet Explorer, Netscape or Mozilla Firefox.From any of the LAN computers, launch your web browser, type the following URL in the web address (or location) box, and press [Enter] on your keyboard:

#### http://192.168.1.1

The homepage for the web pages is displayed:

WLAN Access Point	SETUP	WLAN1	тср/ір	IPV6	FIREWALL	MANAGEMENT
WIZARD	Operatio	on Mode				
OPERATION MODE						
	You can setup dif function.	ferent modes to LAN ar	nd WLAN interface for N	AT and bridging		
	Gateway:	ADSL/Cable Modem ports share the san connection type car	evice is supposed to con . The NAT is enabled ar ne IP to ISP through WA 1 be setup in WAN page .2TP client or static IP.	d PCs in four LAN N port. The		
	O Bridge:	together and NAT f	nernet ports and wireles unction is disabled. All th I are not supported.			
	O Wireless ISP:	wireless client will o enabled and PCs in through wireless LA first and connect to connection type car	ernet ports are bridged connect to ISP access po ethernet ports share the N. You must set the wir the ISP AP in Site-Surve be setup in WAN page .2TP client or static IP.	int. The NAT is same IP to ISP eless to client mode y page. The		
				Next>>		

Figure 5: Homepage

The first time that you click on an entry from the lefthand menu, a login box is displayed. You mustenter your username and password to access the pages.

A login screen is displayed:

Microsoft Edge
Microsoft Edge
The server 192.168.1.1 is asking for your user name and password. The server reports that it is from .
Warning: Your user name and password will be sent using basic authentication on a connection that isn't secure.
8
admin X
•••••
OK Cancel

Figure 6: Login screen

1. Enter your user name and password. The first time you log into the program, use these defaults:

User Name:	admin
Password:	admin



You can change the password at any time or you can configure your device so that you do not need to enter a password. See Password.

2. Click on OK. You are now ready to configure your device.

This is the first page displayed each time you log in to the Web pages.



If you receive an error message or the Welcome page is not displayed, see Troubleshooting Suggestions.

#### **Testing your Setup**

Once you have connected your hardware and configured your PCs, any computer on your LAN should be able to use the DSL /Cable connection to access the Internet.

To test the cor	nection, turn on the device, wait for 30 second	s
and then verify	that the LEDs are illuminated as follows:	

Table 1. LED Indicators		
Label	Color	Function
POWER	green	On: device is powered on Off: device is powered off
WLAN	green (2.4G)	On: WLAN link established and active Blink: Valid Wireless packet being transferred
WPS	green	Off: WPS link isn't established and active Blink: Valid WPS packet being transferred
WAN	green	On: WAN link established and active Off: No LAN link
		Blink: Valid Ethernet packet being transferred
LAN 1/2/3/4	green	On: LAN link established and active Off: No LAN link
		Blink: Valid Ethernet packet being transferred

If the LEDs illuminate as expected, test your Internet connection from a LAN computer. To do this, open your web browser, and type the URL of any external website (such as <u>http://www.yahoo.com</u>). The LED labeled *WAN* should blink rapidly and then appear solid as the device connects to the site.

If the LEDs do not illuminate as expected, you may need to configure your Internet access settings using the information provided by your ISP. For details, see *Internet Access*. If the LEDs still do not illuminate as expected or the web page is not displayed, see *Troubleshooting Suggestions* or contact your ISP for assistance.

#### **Default device settings**

In addition to handling the xDSL / Cable modem connection to your ISP, the WBR-6013 can provide a variety of services to your network. The device is preconfigured with default settings for use with a typical home or small office network.

The table below lists some of the most important default settings; these and other features are described fully in the subsequent chapters. If you are familiar with network configuration, review these settings to verify that they meet the needs of your network. Follow the instructions to change them if necessary. If you are unfamiliar with these settings, try using the device without modification, or contact your ISP for assistance.



We strongly recommend that you contact your ISP prior to changing the default configuration.

Option	Default Setting	Explanation/Instructions
WAN Port IP Address	DHCP Client	This is the temporary public IP address of the WAN port on the device. It is an unnumbered interface that is replaced as soon as your ISP assigns a 'real' IP address. See <i>Network Settings -&gt; WAN Interface</i> .

Option	Default Setting	Explanation/Instructions
LANPort IP Address	Assigned static IP address: 192.168.1.1 Subnet mask: 255.255.255.0	This is the IP address of the LAN port on the device. The LAN port connects the device to your Ethernet network. Typically, you will not need to change this address. See <i>Network Settings -&gt; LAN Interface</i> .
DHCP (Dynamic Host Configuration Protocol)	DHCP server enabled with the following pool of addresses: 192.168.1.100 through 192.168.1.200	The WBR-6013 maintains a pool of private IP addresses for dynamic assignment to your LAN computers. To use this service, you must have set up your computers to accept IP information dynamically, as described in <i>Configuring Ethernet PCs</i> .

# 8 Quick Setup

The *Quick Setup* page displays useful information about the setup of your device, including:

- details of the device's Internet access settings
- details of the device's Wireless settings

To display this page:

1. From the head menu, click on SETUP.

SETUP	WLAN1	ТСР/ІР	IPV6	FIREWALL	MANAGEN

Figure 7: Quick Setup page

#### **Operation Mode Setup**

You can setup different modes to LAN and WLAN interface for NAT function.

#### Gateway

In this mode, the device is supposed to connect to internet via ADSL/Cable Modem. The NAT is enabled and PCs in four LAN ports share the same IP to ISP through WAN port. The connection type can be setup in WAN page by using PPPoE, DHCP client, PPTP client, L2TP client or static IP.

To change the Operation Mode:

- 1. From the left-hand menu, click on *Wizard*. The following page is displayed:
- 2. Click on the ratio of Gateway and then click on Next>>.

### **Operation Mode**

You can setup different modes to LAN and WLAN interface for NAT and bridging function.

Gateway:	In this mode, the device is supposed to connect to internet via ADSL/Cable Modem. The NAT is enabled and PCs in four LAN ports share the same IP to ISP through WAN port. The connection type can be setup in WAN page by using PPPOE, DHCP client, PPTP client, L2TP client or static IP.
O Bridge:	In this mode, all ethernet ports and wireless interface are bridged together and NAT function is disabled. All the WAN related function and firewall are not supported.
○ Wireless ISP:	In this mode, all ethernet ports are bridged together and the wireless client will connect to ISP access point. The NAT is enabled and PCs in ethernet ports share the same IP to ISP through wireless LAN. You must set the wireless to client mode first and connect to the ISP AP in Site-Survey page. The connection type can be setup in WAN page by using PPPOE, DHCP client, PPTP client, L2TP client or static IP.
	Next>>

#### Bridge

In this mode, all ethernet ports and wireless interface are bridged together and NAT function is disabled. All the WAN related function and firewall are not supported.

To change the Operation Mode:

- 1. From the left-hand menu, click on *Wizard*. The following page is displayed:
- 2. Click on the ratio of *Bridge* and then click on *Next>>*.

### **Operation Mode**

You can setup different modes to LAN and WLAN interface for NAT and bridging function.

Gateway:	In this mode, the device is supposed to connect to internet via ADSL/Cable Modem. The NAT is enabled and PCs in four LAN ports share the same IP to ISP through WAN port. The connection type can be setup in WAN page by using PPPOE, DHCP client, PPTP client, L2TP client or static IP.
🖲 Bridge:	In this mode, all ethernet ports and wireless interface are bridged together and NAT function is disabled. All the WAN related function and firewall are not supported.
○ Wireless ISP:	In this mode, all ethernet ports are bridged together and the wireless client will connect to ISP access point. The NAT is enabled and PCs in ethernet ports share the same IP to ISP through wireless LAN. You must set the wireless to client mode first and connect to the ISP AP in Site-Survey page. The connection type can be setup in WAN page by using PPPOE, DHCP client, PPTP client, L2TP client or static IP.
	Next>>

#### Wireless ISP

In this mode, all ethernet ports are bridged together and the wireless client will connect to ISP access point. The NAT is enabled and PCs in ethernet ports share the same IP to ISP through wireless LAN. You must set the wireless to client mode first and connect to the ISP AP in Site-Survey page. The connection type can be setup in WAN page by using PPPOE, DHCP client or static IP.

To change the Operation Mode:

- 3. From the left-hand menu, click on *Wizard*. The following page is displayed:
- 4. Click on the ratio of Wireless ISP.
- 5. Select WLAN1 for 5GHz or wlan2 for 2.4GHz from the WAN Interface drop-down list.
- 6. Click on Next>>.

### **Operation Mode**

You can setup different modes to LAN and WLAN interface for NAT and bridging function.

Gateway:	In this mode, the device is supposed to connect to internet via ADSL/Cable Modem. The NAT is enabled and PCs in four LAN ports share the same IP to ISP through WAN port. The connection type can be setup in WAN page by using PPPOE, DHCP client, PPTP client, L2TP client or static IP.
O Bridge:	In this mode, all ethernet ports and wireless interface are bridged together and NAT function is disabled. All the WAN related function and firewall are not supported.
Wireless ISP:	In this mode, all ethernet ports are bridged together and the wireless client will connect to ISP access point. The NAT is enabled and PCs in ethernet ports share the same IP to ISP through wireless LAN. You must set the wireless to client mode first and connect to the ISP AP in Site-Survey page. The connection type can be setup in WAN page by using PPPOE, DHCP client, PPTP client, L2TP client or static IP.
	Next>>

#### WAN Interface Setup

This page is used to configure the parameters for Internet network which connects to the WAN port of your Access Point. Here you may change the access method to static IP, DHCP, PPPoE, *PPTP*or *L2TP* by click the item value of WAN Access type.

To change the WAN Access Type:

- 7. From the WAN Access Type drop-down list, select Static IP, DHCP Client, PPPoE, PPTP, or L2TPsetting determined by your Network Administrator or ISP.
- 8. Click Next>>.

### WAN Interface Setup

This page is used to configure the parameters for Internet network which connects to the WAN port of your Access Point. Here you may change the access method to static IP, DHCP, PPPOE, PPTP or L2TP by click the item value of WAN Access type.

WAN Access Type:	Static IP DHCP Client PPPoE			
	PPTP L2TP	Cancel	< <back< th=""><th>Next&gt;</th></back<>	Next>

#### Static IP

In this mode, the device is supposed to connect to internet via ADSL/Cable Modem. The NAT is enabled and PCs in four LAN ports share the same IP to ISP through WAN port. The connection type can be setup in WAN page by using static IP.

- 1. From the WAN Access Type drop-down list, select Static IP setting determined by your Network Administrator or ISP.
- 2. Enter *IP Address* for example 172.1.1.1.
- 3. Enter Subnet Mask for example 255.255.255.0.
- 4. Enter Default Gateway for example 172.1.1.254.
- 5. Enter DNS for example 172.1.1.254.
- 6. Click Next>>.

### WAN Interface Setup

This page is used to configure the parameters for Internet network which connects to the WAN port of your Access Point. Here you may change the access method to static IP, DHCP, PPPoE, PPTP or L2TP by click the item value of WAN Access type.

WAN Access Type:	Static IP $\sim$			
IP Address:				
Subnet Mask:				
Default Gateway:				
DNS :				
		Cancel	< <back< th=""><th>Next&gt;&gt;</th></back<>	Next>>

#### **DHCP** Client

In this mode, the device is supposed to connect to internet via ADSL/Cable Modem. The NAT is enabled and PCs in four LAN ports share the same IP to ISP through WAN port. The connection type can be setup in WAN page by using DHCP Client.

- 1. From the *WAN Access Type* drop-down list, select *DHCP Client* setting determined by your Network Administrator or ISP.
- 2. Click Next>>.

### **WAN Interface Setup**

This page is used to configure the parameters for Internet network which connects to the WAN port of your Access Point. Here you may change the access method to static IP, DHCP, PPPOE, PPTP or L2TP by click the item value of WAN Access type.

WAN Access Type:	DHCP Client 🗸			
		Cancel	< <back< th=""><th>Next&gt;&gt;</th></back<>	Next>>

#### **PPPoE**

In this mode, the device is supposed to connect to internet via ADSL/Cable Modem. The NAT is enabled and PCs in four LAN ports share the same IP to ISP through WAN port. The connection type can be setup in WAN page by using PPPoE.

- From the WAN Access Type drop-down list, select *PPPoE*setting determined by your Network Administrator or ISP.
- 2. Enter User Name for example 1234.
- 3. Enter *Password* for example 1234.
- 4. Click Next>>.

### WAN Interface Setup

This page is used to configure the parameters for Internet network which connects to the WAN port of your Access Point. Here you may change the access method to static IP, DHCP, PPPOE, PPTP or L2TP by click the item value of WAN Access type.

WAN Access Type:	PPPoE 🗸			
User Name:				
Password:				
		Cancel	< <back< th=""><th>Next&gt;&gt;</th></back<>	Next>>

#### PPTP

In this mode, the device is supposed to connect to internet via ADSL/Cable Modem. The NAT is enabled and PCs in four LAN ports share the same IP to ISP through WAN port. The connection type can be setup in WAN page by using PPTP.

- 1. From the *WAN Access Type* drop-down list, select *PPTP* setting provided by your Network Administrator or ISP.
- 2. Click on the ratio of Dynamic IP (DHCP) or Static IP.
- 3. Enter *IP Address* for example 172.1.1.1 provided by your Network Administrator or ISP. (for Static IP only)
- 4. Enter *Subnet Mask* for example 255.255.0.0 provided by your Network Administrator or ISP. (for Static IP only)
- 5. Enter *Default Gateway* for example 172.1.1.254 provided by your Network Administrator or ISP. (for Static IP only)
- 6. Select PPTP Server Mode by Attain Server By Domain Name or Attain Server By Ip Address
- 7. Enter Server Domain Address for example 222.222.222 or www.example.com provided by your Network Administrator or ISP.
- 8. Enter *User Name* for example 1234 provided by your Network Administrator or ISP.
- 9. Enter *Password* for example 1234 provided by your Network Administrator or ISP.
- 10. Click Next>>.

### WAN Interface Setup

This page is used to configure the parameters for Internet network which connects to the WAN port of your Access Point. Here you may change the access method to static IP, DHCP, PPPoE, PPTP or L2TP by click the item value of WAN Access type.

WAN Access Type:	PPTP V
PPTP Mode:	O Dynamic IP (DHCP)
IP Address:	172.1.1.2
Subnet Mask:	255.255.255.0
Default Gateway:	172.1.1.254
PPTP Server Mode:	O Attain Server By Domain Name
	Attain Server By Ip Address
Domain Name:	
Server IP Address:	172.1.1.1
User Name:	
Password:	
	Cancel < <back next="">&gt;</back>

#### L2TP

In this mode, the device is supposed to connect to internet via ADSL/Cable Modem. The NAT is enabled and PCs in four LAN ports share the same IP to ISP through WAN port. The connection type can be setup in WAN page by using L2TP.

- 1. From the *WAN Access Type* drop-down list, select *L2TP* setting provided by your Network Administrator or ISP.
- 2. Click on the ratio of Dynamic IP (DHCP) or Static IP.
- 3. Enter *IP Address* for example 172.1.1.1 provided by your Network Administrator or ISP. (for Static IP only)
- 4. Enter *Subnet Mask* for example 255.255.0.0 provided by your Network Administrator or ISP. (for Static IP only)
- 5. Enter *Default Gateway* for example 172.1.1.254 provided by your Network Administrator or ISP. (for Static IP only)
- 6. Select L2TP Server Mode by Attain Server By Domain Name or Attain Server By Ip Address
- Enter Server Domain Address for example 222.222.222 or www.example.com provided by your Network Administrator or ISP.
- 8. Enter *User Name* for example 1234 provided by your Network Administrator or ISP.
- 9. Enter *Password* for example 1234 provided by your Network Administrator or ISP.
- 10. Click Next>>.

### WAN Interface Setup

This page is used to configure the parameters for Internet network which connects to the WAN port of your Access Point. Here you may change the access method to static IP, DHCP, PPPoE, PPTP or L2TP by click the item value of WAN Access type.

WAN Access Type:	L2TP	~
L2TP Mode:	(	O Dynamic IP (DHCP) 💿 Static IP
IP Address:	1	172.1.1.2
Subnet Mask:	2	255.255.255.0
Default Gateway:	1	172.1.1.254
L2TP Server Mode:	(	🔿 Attain Server By Domain Name
	(	Attain Server By Ip Address
Domain Name:	Γ	
Server IP Address:	1	172.1.1.1
User Name:	Γ	
Password:	Γ	
		Cancel < <back next="">&gt;</back>

#### Wireless Basic Settings

This page is used to configure the parameters for wireless LAN clients which may connect to your Access Point.

### Wireless Basic Settings

Band:	2.4 GHz (B+G+N) 🔻
Mode:	AP V
Network Type:	Infrastructure 🔻
SSID:	AP_1195A7
Channel Width:	40MHz ▼
ControlSideband:	Upper 🔻
Channel Number:	11 🔻
Enable Mac Clo	one (Single Ethernet Client)
Add to Wireles	s Profile
	Cancel < <back next="">&gt;</back>

#### **AP (Access Point)**

Access Point is used to configure the parameters for wireless LAN clients who may connect to your Access Point.

- 1. From the Band drop-down list, select a Band.
- 2. From the *Mode* drop-down list, select *AP* setting.
- 3. Enter SSID for example AP\_1195A7.
- 4. From the *Channel Width* drop-down list, select a Channel Width.
- 5. From the *ControlSideband* drop-down list, select a ControlSideband.
- 6. From the *Channel Number* drop-down list, select a Channel Number.
- 7. Click Next>>.

### Wireless Basic Settings

Band:	2.4 GHz (B+G+N) 🔻
Mode:	AP V
Network Type:	Infrastructure 🔻
SSID:	AP_1195A7
Channel Width:	40MHz ▼
ControlSideband:	Upper 🔻
Channel Number:	11 🔻
Enable Mac Clo	one (Single Ethernet Client)
Add to Wireles	s Profile
	Cancel < <back next="">&gt;</back>

#### Client

This page is used to configure the parameters for wireless LAN clients which may connect to your Access Point.

- 1. From the *Band* drop-down list, select a Band.
- 2. From the *Mode* drop-down list, select *Client* setting.
- 3. From the *Network Type* drop-down list, select a Type.
- 4. Enter SSID for example AP\_1195A7.
- 5. Click Next>>.

### Wireless Basic Settings

Band:	2.4 GHz (B+G+N) ▼
Mode:	Client T
Network Type:	Infrastructure 🔻
SSID:	AP_1195A7
Channel Width:	40MHz V
ControlSideband:	Upper <b>T</b>
Channel Number:	11 🔻
Enable Mac Clo	one (Single Ethernet Client)
Add to Wireless	s Profile
	Cancel < <back next="">&gt;</back>

#### WDS (Wireless Distribution System)

WDS stands for Wireless Distribution System. It enables the access points (APs) to be connected wirelessly. 802.11n WLAN AP Router can also provide you services of WDS.



802.11n WLAN AP Router that supports WDS does not support security systems like WEP, WPA or WPA-Enterprise on a WDS network.

Sometimes you want to establish a multi-access point wireless network in your home or office, but you don't have Ethernet cabling running to the locations where you want to add the extra AP. After all, you may be using wireless because you don't have wires in place already.

One way to overcome this problem is to use a system built into Wireless Gateway that is known as Wireless Distribution System (WDS).

WDS basically creates a mesh network by providing a mechanism for access points to "talk" to each other as well as sending data to devices associated with them.



WDS is based on some standardized 802.11 protocols, but there is no standardized way of implementing it that works across different AP and router vendors. So if you have a Wireless Gateway in one location and you want to create a WDS link to a other brand of router in another location (just to pick two brands at random), you probably won't be able to get it to work. You have your best luck when you use equipment from the same manufacturer.



When you use WDS as a repeater system, as described below, it effectively halves the data rate for clients connected to Integrated Wireless Gateway. That's because every bit of data needs to be sent twice (data is received by the AP and then retransmitted).

To configure WDS, you need to modify some settings on each AP within thenetwork. Your exact steps (and the verbiage used) will vary from vendor tovendor. Generally, you'll see some settings like the following:

#### Main WDS station:

One of your WDS stations is the main base station for the WDS network. This AP is connected directly to your Internet connection, or connected to your router via a wired connection. The main stationis the bridge to your Internet connection that all wireless trafficeventually flows through.

#### **Repeater WDS stations:**

In a simple, two-AP WDS network, the other"unwired" AP is a repeater. The repeater receives data from the mainbase station and relays the data to the wireless clients associated to therepeater station (and vice versa for data coming from the clients). If youhave more than two APs, remote APs may be repeaters, or they may berelays that provide an intermediate stopping point for data if therepeater is too far away from the main station to communicate.

When you configure your main or base WDS station, take note of the channelyou're set to and the SSID or network name of your network. If your AP hasany kind of channel auto configuration function that changes channels basedon network conditions, be sure to disable this feature. If your main WDS stationis also your network's router, make sure it's set up to distribute IPaddresses in the network.



Write down or otherwise take note of the MAC addresses of all of your WDS stations — many configuration software systems require you to know these addresses to make the configuration settings work. Write down the wireless MAC address (it's often on a sticker) and not the Ethernet MAC address.

Turn on the WDS functionality in your main station (it's often labeled WDS,or may say something like Enable This Base Station As a WDS Main BaseStation — that's the wording Apple uses for their AirPort Extreme products).When you turn on this functionality, the configuration software may ask youto identify the remote repeater(s). Have the MAC addresses of thoserepeaters handy in case you need them.

Depending upon how your software works, you may have to separatelyaccess the configuration software on the remote repeater APs to turn onWDS. Here are a few things to remember:

• You need to assign any other WDS stations to the same channel that yourmain base station is using. This is counterintuitive to many folks who havehad the 802.11b/g "use channels 1, 6, and 11 and keep your APs on differentchannels" mantra driven into their heads for a long time!

- You set the SSID of the remote location(s) using either a unique nameor by using the same SSID as you use for your main base station.(Whoa, our heads just exploded!) Using the same SSID (a "roaming" network)is pretty cool. You associate with one AP one time and then yourPC or Mac can associate with any AP on your WDS network without youhaving to do anything it's more seamless this way. But remember, youdon't have to do this you can give each AP a unique SSID and justconfigure your computer to associate with them according to yourpreference.
- Make sure you turn off any routing or DHCP functionality in the remoterepeater stations. All of this functionality should be performed in themain base station or the network's main router.

#### WDS (Wireless Distribution System) only

- 1. From the Band drop-down list, select a Band.
- 2. From the *Mode* drop-down list, select *WDS* setting.
- 3. From the *Channel Width* drop-down list, select a Channel Width.
- 4. From the *ControlSideband* drop-down list, select a ControlSideband.
- 5. From the *Channel Number* drop-down list, select a Channel Number.
- 6. Click Next>>.

### Wireless Basic Settings

Band:	2.4 GHz (B+G+N) ▼
Mode:	WDS V
Network Type:	Infrastructure <b>T</b>
SSID:	AP_1195A7
Channel Width:	40MHz ▼
ControlSideband:	Upper 🔻
Channel Number:	11 •
Enable Mac Clo	one (Single Ethernet Client)
Add to Wireles	s Profile
	Cancel < <back next="">&gt;</back>

#### AP (Access Point) + WDS (Wireless Distribution System)

Access Point is used to configure the parameters for wireless LAN clients which may connect to your Access Point.

- 1. From the *Band* drop-down list, select a Band.
- 2. From the *Mode* drop-down list, select *AP+WDS* setting.
- 3. Enter SSID for example AP\_5G.
- 4. From the *Channel Width* drop-down list, select a Channel Width.
- 5. From the *ControlSideband* drop-down list, select a ControlSideband.
- 6. From the *Channel Number* drop-down list, select a Channel Number.
- 7. Click Next>>.

### Wireless Basic Settings

Band:	2.4 GHz (B+G+N) 🔻
Mode:	AP+WDS ▼
Network Type:	Infrastructure <b>T</b>
SSID:	AP_1195A7
Channel Width:	40MHz ▼
ControlSideband:	Upper 🔻
Channel Number:	11 .
📃 Enable Mac Clo	one (Single Ethernet Client)
Add to Wireles	s Profile
	Cancel < <back next="">&gt;</back>

#### Wireless Security Setup

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

### Wireless Security Setup

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

You can protect your wireless data from potential *eavesdroppers* by encrypting wireless data transmissions. An eavesdropper might set up a compatible wireless adapter within range of your device and attempt to access your network. Data encryption is the translation of data into a form that cannot be easily understood by unauthorized users.

There are two methods of wireless security to choose from:

- Wired Equivalent Privacy (WEP); data is encrypted into blocks of either 64 bits length or 128 bits length. The encrypted data can only be sent and received by users with access to a private network key. Each PC on your wireless network must be manually configured with the same key as your device in order to allow wireless encrypted data transmissions. Eavesdroppers cannot access your network if they do not know your private key. WEP is considered to be a low security option.
- Wi-Fi Protected Access (WPA); provides a stronger data encryption method (called Temporal Key Integrity Protocol (TKIP)). It runs in a special, easy-to-set-up home mode called Pre-Shared Key (PSK) that allows you to manually enter a pass phrase on all the devices in your wireless network. WPA data encryption is based on a WPA master key. The master key is derived from the pass phrase and the network name (SSID) of the device.

To configure security, choose one of the following options:

- If you do not want to use Wireless Network security, From the *Encryption* drop-down list, select *None* setting and then click *Finished.None* is the default setting, but you are **strongly recommended** to use wireless network security on your device.
- If you want to use WEP 64bit ASCII (5 characters) data encryption, follow the instructions in *Configuring 64bit ASCII (5 characters) encryption*.
- If you want to use WEP 64bit Hex (10 characters) data encryption, follow the instructions in *Configuring WEP64bit Hex (10 characters)security*.
- If you want to use WEP 128bit ASCII (5 characters) data encryption, follow the instructions in *Configuring WEP* 128bit ASCII (5 characters)security.
- If you want to use WEP 128bit Hex (10 characters) data encryption, follow the instructions in *Configuring WEP* 128bit Hex (10 characters)security.
- If you want to use WPA2(AES) *Wi-Fi Protected Access* 2(AES) Passphrase encryption, follow the instructions in Configuring WPA2 (AES) Passphrase security.
- If you want to use WPA2 (AES) *Wi-Fi Protected Access* 2(AES) HEX (64 characters) encryption, follow the instructions in *Configuring WPA2 (AES) HEX (64 characters) security.*
- If you want to use WPA Mixed- *Wi-Fi Protected Access* 2(*Mixed*) Passphrase encryption, follow the instructions in Configuring WPA2 (*Mixed*) Passphrase security.
- If you want to use WPA Mixed- *Wi-Fi Protected Access* 2(*Mixed*) *HEX* (64 characters) encryption, follow the instructions in Configuring WPA2 (Mixed) HEX (64 characters) security.

#### Configuring WEP64bit ASCII (5 characters) security

The example set in this section is for 64bit encryption.

- 1. From the *Encryption* drop-down list, select *WEP* setting.
- 2. From the Key Length drop-down list, select 64-bit setting.
- 3. From the *Key Format* drop-down list, select *ASCII (5 characters)* setting.
- 4. Type the Key Setting.
- 5. Click Next>>.

### Wireless Security Setup

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

Encryption:	VEP VEP	
Key Length:	64-bit 🔻	
Key Format:	ASCII (5 characters) 🔻	
Key Setting:	****	
		Cancel < <back finished<="" th=""></back>

#### Configuring WEP64bit Hex (10 characters)security

The example set in this section is for 64bit encryption.

- 6. From the *Encryption* drop-down list, select *WEP* setting.
- 7. From the Key Length drop-down list, select 64-bit setting.
- 8. From the *Key Format* drop-down list, select *Hex (10 characters)*setting.
- 9. Type the Key Setting.
- 10. Click Next>>.

### Wireless Security Setup

Encryption:	WEP 🔻		
Key Length:	64-bit 🔻		
Key Format:	Hex (10 characters) 🔻		
Key Setting:	*******		
		Cancel	< <back finished<="" th=""></back>

#### Configuring WEP 128bit ASCII (13 characters) security

The example set in this section is for 128bit encryption.

- 1. From the *Encryption* drop-down list, select *WEP* setting.
- 2. From the Key Length drop-down list, select 128-bit setting.
- 3. From the *Key Format* drop-down list, select *ASCII (13 characters)* setting.
- 4. Type the Key Setting.
- 5. Click Next>>.

### Wireless Security Setup

This page allows you setup the wireless security. Turn on WEP or WPA by using	
Encryption Keys could prevent any unauthorized access to your wireless network.	

Encryption:	WEP V	
Key Length:	128-bit 🔻	
Key Format:	ASCII (13 characters) 🔻	
Key Setting:	*******	
		Cancel < <back finished<="" th=""></back>

#### Configuring WEP 128bit Hex (26 characters)security

The example set in this section is for 128bit encryption.

- 6. From the *Encryption* drop-down list, select *WEP* setting.
- 7. From the Key Length drop-down list, select 128-bit setting.
- 8. From the *Key Format* drop-down list, select *Hex* (26 *characters*)setting.
- 9. Type the Key Setting.
- 10. Click Next>>.

### Wireless Security Setup

Encryption:	WEP V	
Key Length:	128-bit 🔻	
Key Format:	Hex (26 characters)	
Key Setting:	*******************	
		Cancel < <back finished<="" th=""></back>

#### Configuring WPA2 (AES) Passphrase security

The example set in this section is for WPA2 (AES) Passphrase encryption.

- 1. From the *Encryption* drop-down list, select *WPA2 (AES)* setting.
- 2. From the *Pre-Shared Key Format* drop-down list, select *Passphrase* setting.
- 3. Type the *Pre-Shared Key*.
- 4. Click Next>>.

### Wireless Security Setup

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

Encryption: WPA2(AES) V			
Pre-Shared Key Format:	Passphrase 🔻		
Pre-Shared Key:			
			1
		Cancel	<back finished<="" th=""></back>

#### Configuring WPA2 (AES) HEX (64 characters)security

The example set in this section is for WPA2 (AES) HEX (64 characters) encryption.

- 5. From the *Encryption* drop-down list, select *WPA2 (AES)* setting.
- 6. From the *Pre-Shared Key Format* drop-down list, select *HEX (64 characters)*setting.
- 7. Type the Pre-Shared Key.
- 8. Click Finished.

### Wireless Security Setup

Encryption: WPA2(AES) V			
Pre-Shared Key Format:	Hex (64 characters) 🔻		
Pre-Shared Key:		]	
	Cancel	< <back< th=""><th>Finished</th></back<>	Finished

9. Change setting successfully! Do not turn off or reboot the Device during this time. Please wait 20 seconds ...

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 19 seconds ...

9

### **Operation Mode**

This chapter describes how to configure the way that your device connects to the Internet. There are Three options of Operation Mode: Gateway, Bridgeand Wireless ISP.

#### **Setting Operation Mode**

To change the Operation Mode:

		1. From the he	ad menu, click on SET	UP.	
SETUP	WLAN1	ТСР/ІР	IPV6	FIREWALL	MANAGEMENT
		page is displ 3. Click on the	t-hand <i>Operation Mode</i> layed: ratio of <i>Gateway, Bridg</i> a <i>Save &amp; Apply</i> to active	eor Wireless ISP and	
Op	peration Mo	ode			
You	can setup different mod	es to LAN and WLAN in	terface for NAT and br	idging function.	
۲	ADSL/C share ti can be	mode, the device is sup Cable Modem. The NAT he same IP to ISP throu setup in WAN page by L2TP client or static IP.	is enabled and PCs in l ugh WAN port. The con using PPPOE, DHCP clie	LAN ports nection type	
0	togethe	mode, all ethernet ports er and NAT function is d n and firewall are not su	lisabled. All the WAN re		
O ISP:	wireles enabled through Survey	mode, all ethernet ports s client will connect to J d and PCs in ethernet po n wireless LAN. You can page. The connection t PPOE, DHCP client, PPT	ISP access point. The N orts share the same IP n connect to the ISP AP ype can be setup in WA	IAT is to ISP in Site- AN page by	
Save	e Save & Apply F	Reset			

# **10** Wireless Network - WLAN1

This chapter assumes that you have already set up your Wireless PCs and installed a compatible Wireless card on your device. See *Configuring Wireless PCs*.

#### **Basic Settings**

The *Wireless Network* page allows you to configure the Wireless features of your device. To access the *Wireless NetworkBasic Settings* page:

1. From the head menu, click on *WLAN1*.

SETUP WLAN1 TCP/IP IPV6 FIREWALL MANAGE
---

2. From the left-hand *Wirelessmenu*, click on *Basic Settings*. The following page is displayed:

### Wireless Basic Settings

This page is used to configure the parameters for wireless LAN clients which may connect to your Access Point. Here you may change wireless encryption settings as well as wireless network parameters.

📃 Disable Wir	eless LAN Interface
Band:	2.4 GHz (B+G+N) 🔻
Mode:	AP  MultipleAP
Network Type:	Infrastructure T
SSID:	AP_1195A7 Add to Profile
Channel Width:	40MHz ▼
Control Sideband:	Upper <b>T</b>
Channel Number:	11 🔻
Broadcast SSID:	Enabled <b>T</b>
WMM:	Enabled <b>T</b>
Data Rate:	Auto 🔻
TX restrict:	0 Mbps (0:no restrict)
RX restrict:	0 Mbps (0:no restrict)
Associated Clients:	Show Active Clients
Enable Mac	: Clone (Single Ethernet Client)
Enable Univ client simultane	versal Repeater Mode (Acting as AP and ouly)
SSID of Extende	d Interface: RTK 11n AP RPT0 Add to Profile
Save Save & Ap	ply Reset

Figure 8: Wireless Network page

Field	Description
Disable Wireless LAN Interface	Enable/Disable the Wireless LAN Interface. Default: Disable
Band	Specify the WLAN Mode
Mode	Configure the Wireless LAN Interface to AP, Client, WDS or AP + WDS mode
Network Type	Configure the Network Type to Infrastructure or Ad hoc.
SSID	Specify the network name.
	Each Wireless LAN network uses a unique Network Name to identify the network. This name is called the Service Set Identifier (SSID). When you set up your wireless adapter, you specify the SSID. If you want to connect to an existing network, you must use the name for that network. If you are setting up your own network you can make up your own name and use it on each computer. The name can be up to 20 characters long and contain letters and numbers.
Channel Width	Choose a Channel Width from the pull-down menu.
Control Sideband	Choose a Control Sideband from the pull-down menu.
Channel Number	Choose a Channel Number from the pull-down menu.
Broadcast SSID	Broadcast or Hide SSID to your Network. Default: Enabled
WMM	Enable/disable the Wi-Fi Multimedia (WMM) support.
Data Rate	Select the Data Rate from the drop-down list
Associated	Show Active Wireless Client Table
Clients	This table shows the MAC address, transmission, receiption packet counters and encrypted status for each associated wireless client.
Enable Mac Clone (Single Ethernet Client)	Enable Mac Clone (Single Ethernet Client)
Enable Universal Repeater Mode	Acting as AP and client simultaneously
SSID of Extended Interface	When mode is set to "AP" and URM (Universal Repeater Mode ) is enabled, user should input SSID of another AP in the field of "SSID of Extended Interface". Please note, the channel number should be set to the one, used by another AP because 8186 will share the same channel between AP and URM interface (called as extended interface hereafter).

#### **Advanced Settings**

These settings are only for more technically advanced users who have a sufficient knowledge about wireless LAN. These settings should not be changed unless you know what effect the changes will have on your Access Point. To access the *Wireless NetworkAdvanced Settings* page:

1. From the head menu, click on WLAN1.

SETUP WLAN1 TCP/IP IPV6 FIREWALL MANA
---------------------------------------

2. From the left-hand menu, click on *Advanced Settings*. The following page is displayed:

### Wireless Advanced Settings

These settings are only for more technically advanced users who have a sufficient knowledge about wireless LAN. These settings should not be changed unless you know what effect the changes will have on your Access Point.

Fragment Threshold:	2346	(256-2346)
RTS Threshold:	2347	(0-2347)
Beacon Interval:	100	(20-1024 ms)
Preamble Type:	Long Pres	amble 🔍 Short Preamble
IAPP:	Enabled	Disabled
Protection:	Enabled	Disabled
Aggregation:	Enabled	Disabled
Short GI:	Enabled	Disabled
WLAN Partition:	Enabled	• Disabled
STBC:	Enabled	Oisabled
LDPC:	Enabled	Disabled
20/40MHz Coexist:	Enabled	Disabled
TX Beamforming:	Enabled	Disabled
Mutilcast to Unicast:	Enabled	Oisabled
TDLS Prohibited:	Enabled	• Disabled
TDLS Channel Switch Prohibited:	Enabled	Disabled
RF Output Power:	100%	○ 70% ○ 50% ○ 35% ○ 15%
Save Save & Apply	Reset	

Field	Description
Fragment Threshold	When transmitting a packet over a network medium, sometimes the packet is broken into several segments, if the size of packet exceeds that allowed by the network medium.
	The Fragmentation Threshold defines the number of bytes used for the fragmentation boundary for directed messages.
RTS Threshold	RTS stands for "Request to Send". This parameter controls what size data packet the low level RF protocol issues to an RTS packet. The default is 2347.
Beacon Interval	Choosing beacon period for improved response time for wireless http clients.

IAPP	Disable or Enable IAPP
Protection	A protection mechanism prevents collisions among 802.11g nodes.
Aggregation	Disable or Enable Aggregation
Short GI	Disable or Enable Short GI
WLAN Partition	Disable or Enable WLAN Partition
STBC	Disable or Enable STBC
LDPC	Disable or Enable LDPC
TX Beamforming	Disable or Enable TX Beamforming
RF Output Power	TX Power measurement.

#### Security

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network. To access the *Wireless NetworkSecurity*page:

1. From the head menu, click on *WLAN1*.

SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEI

2. From the left-hand menu, click on *Security*. The following page is displayed:

### **Wireless Security Setup**

elect SSID: Root AP - AP_1195A7 V Save Save & Apply Reset		
Encryption:	WPA-Mixed <b>•</b>	
Authentication Mode:	<ul> <li>Enterprise (RADIUS)          <ul> <li>Personal (Pre-Shared</li> <li>Key)</li> </ul> </li> </ul>	
WPA Cipher Suite:	TKIP AES	
WPA2 Cipher Suite:	TKIP AES	
Pre- Shared Key Format:	Passphrase	
Pre-Shared Key:		

Field	Description
Select SSID	Select the SSID
Encryption	Configure the Encryption to Disable, WEP, WPA , WPA2 or WPA-Mixed
Use 802.1x Authentication	Use 802.1x Authentication by WEP 64bits or WEP 128bits
Authentication	Configure the Authentication Mode to Open System, Shared Key or Auto
Key Length	Select the Key Length 64-bit or 128-bit
Key Format	Select the Key Format ASCII (5 characters), Hex (10 characters), ASCII (13 characters) or Hex (26 characters)
Encryption Key	Enter the Encryption Key
WPA Authentication Mode	Configure the WPA Authentication Mode to Enterprise (RADIUS) or Personal (Pre-Shared Key)
WPA Cipher Suite	Configure the WPA Cipher Suite to AES

Field	Description
WPA2 Cipher Suite	Configure the WPA2 Cipher Suite to AES
Pre-Shared Key Format	Configure the Pre-Shared Key Format to Passphrase or HEX (64 characters)
Pre-Shared Key	Type the Pre-Shared Key
Enable Pre- Authentication	According to some of the preferred embodiments, a method for proactively establishing a security association between a mobile node in a visiting network and an authentication agent in another network to which the mobile node can move includes: negotiating pre- authentication using a flag in a message header that indicates whether the communication is for establishing a pre-authentication security association; and one of the mobile node and the authentication agent initiating pre-authentication by transmitting a message with the flag set in its message header, and the other of the mobile node and the authentication agent responding with the flag set in its message header only if it supports the pre-authentication. Enable/disable pre- authentication support. Default: disable.
Authentication RADIUS Server	Port: Type the port number of RADIUS Server
	IP address: Type the IP address of RADIUS Server
	Password: Type the Password of RADIUS Server

### WEP + Encryption Key

WEP aims to provide security by encrypting data over radio waves so that it is protected as it is transmitted from one end point to another. However, it has been found that WEP is not as secure as once believed.

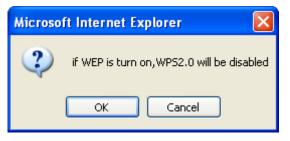
- 3. From the Encryption drop-down list, select WEP setting.
- 4. From the *Key Length*drop-down list, select *64-bit* or *128-bit* setting.
- 5. From the Key Format drop-down list, select ASCII (5 characters), Hex (10 characters), ASCII (13 characters) or Hex (26 characters)setting.
- 6. Enter the *Encryption Key* value depending on selected ASCII or Hexadecimal.
- 7. Click Save & Apply button.

### **Wireless Security Setup**

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

Select SSID: Root AP - AP_1	195A7 ▼ Save & Apply Reset
Encryption:	WEP
802.1x Authentication:	
Authentication:	◯ Open System ◯ Shared Key ◉ Auto
Key Length:	64-bit ▼
Key Format:	Hex (10 characters) 🔻
Encryption Key:	*****

8. Click OK button.



9. Change setting successfully! Do not turn off or reboot the Device during this time. Please wait 20 seconds ...

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 17 seconds ...

#### WEP + Use 802.1x Authentication

WEP aims to provide security by encrypting data over radio waves so that it is protected as it is transmitted from one end point to another. However, it has been found that WEP is not as secure as once believed.

- 1. From the *Encryption* drop-down list, select *WEP* setting.
- 2. Check the option of Use 802.1x Authentication.
- 3. Click on the ratio of WEP 64bits or WEP 128bits.
- 4. Enter the Port, IP Address and Password of RADIUS Server:
- 5. Click Save & Apply button.

## Wireless Security Setup

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

Select SSID: Root AP - AP_1	195A7 ▼ Save & Apply Reset
Encryption:	WEP V
802.1x Authentication:	
Authentication:	🔍 Open System 🔍 Shared Key 💿 Auto
Key Length:	● 64 Bits ○ 128 Bits
RADIUS Server IP	Address:
RADIUS Server Po	rt: 1812
RADIUS Server Pa	ssword:



7. Change setting successfully! Do not turn off or reboot the Device during this time. Please wait 20 seconds ...

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 17 seconds ...

#### WPA2/WPA Mixed + Personal (Pre-Shared Key)

Wi-Fi Protected Access (WPA and WPA2) is a class of systems to secure wireless (Wi-Fi)

computer networks. WPA is designed to work with all wireless network interface cards, but not necessarily with first generation wireless access points. WPA2 implements the full standard, but will not work with some older network cards. Both provide good security, with two significant issues:

- Either WPA or WPA2 must be enabled and chosen in preference to WEP. WEP is usually presented as the first security choice in most installation instructions.
- In the "Personal" mode, the most likely choice for homes and small offices, a pass phrase is required that, for full security, must be longer than the typical 6 to 8 character passwords users are taught to employ.
- 1. From the *Encryption* drop-down list, select *WPA2* or *WPA Mixed*setting.

Encryption:	WPA2	¥
Encryption:	WPA-Mixed	*

2. Click on the ratio of Personal (Pre-Shared Key).

WPA Authentication Mode: OEnterprise (RADIUS) OPersonal (Pre-Shared Key)

3. Check the option of *TKIP* and/or *AES* in *WPA2 Cipher Suite* if your Encryption is *WPA2*:

WPA2 Cipher Suite:

🗌 TKIP 🗹 AES

4. Check the option of *TKIP* and/or *AES* in *WPA2 Cipher Suite* if your Encryption is *WPA Mixed*:

WPA Cipner Suite:	⊻ AES
WPA2 Cipher Suite:	AES

5. From the *Pre-Shared Key Format* drop-down list, select *Passphrase* or *Hex (64 characters)* setting.

Pre-Shared Key Format:

Passphrase	*
Hex (64 characters)	4

Pre-Shared K	ey Format:
--------------	------------

6. Enter the *Pre-Shared Key* depending on selected *Passphrase* or *Hex* (64 characters).

Pre-Shared Key:

0123456789

- 7. Click on Save & Apply button to confirm and return.
  Save & Apply
- 8. Change setting successfully! Do not turn off or reboot the Device during this time. Please wait 20 seconds ...

#### Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 17 seconds ...

### WPA2/WPA Mixed + Enterprise (RADIUS)

Wi-Fi Protected Access (WPA and WPA2) is a class of systems to secure wireless (Wi-Fi) computer networks. WPA is designed to work with all wireless network interface cards, but not necessarily with first generation wireless access points. WPA2 implements the full standard, but will not work with some older network cards. Both provide good security, with two significant issues:

- Either WPA or WPA2 must be enabled and chosen in preference to WEP. WEP is usually presented as the first security choice in most installation instructions.
- In the "Personal" mode, the most likely choice for homes and small offices, a pass phrase is required that, for full security, must be longer than the typical 6 to 8 character passwords users are taught to employ.
- 1. From the *Encryption* drop-down list, select *WPA2* or *WPA Mixed* setting.

Encryption:	WPA2	*
Encryption:	WPA-Mixed	~

2. Click on the ratio of Enterprise (RADIUS).

3. Check the option of *TKIP* and/or *AES* in *WPA2 Cipher Suite* if your Encryption is *WPA2*:

🗌 TKIP 🛛 AES

WPA2 Cipher Suite:	
--------------------	--

4. Check the option of *TKIP* and/or *AES* in *WPA/WPA2 Cipher Suite* if your Encryption is *WPA Mixed*:

WPA Cipher Suite:	🗹 AES
WPA2 Cipher Suite:	AES

	5. Enter the Port, IP Address and Password of RADIUS Server:
802.1x Authentication:	
RADIUS Server IP Address:	
RADIUS Server Port:	1812
RADIUS Server Password:	

6. Change setting successfully! Do not turn off or reboot the Device during this time. Please wait 20 seconds ...

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 17 seconds ...

### **Access Control**

For security reason, using MAC ACL's (MAC Address Access List) creates another level of difficulty to hacking a network. A MAC ACL is created and distributed to AP so that only authorized NIC's can connect to the network. While MAC address spoofing is a proven means to hacking a network this can be used in conjunction with additional security measures to increase the level of complexity of the network security decreasing the chance of a breach.

MAC addresses can be add/delete/edit from the ACL list depending on the MAC Access Policy.

If you choose 'Allowed Listed', only those clients whose wireless MAC addresses are in the access control list will be able to connect to your Access Point. When 'Deny Listed' is selected, these wireless clients on the list will not be able to connect the Access Point. To access the *Wireless NetworkAccess Control*page:

1. From the head menu, click on WLAN1.

SETUP WLAN1 TCP/IP IPV6 FIREWALL MANAGEN
--

2. From the left-hand menu, click on *Access Control*. The following page is displayed:

### Wireless Access Control

If you choose 'Allowed Listed', only those clients whose wireless MAC addresses are in the access control list will be able to connect to your Access Point. When 'Deny Listed' is selected, these wireless clients on the list will not be able to connect the Access Point.

Wireless Access Control Mode:	Disable <b>v</b>	
MAC Address:	Comment:	
Save Save & Apply Reset		
Current Access Control List:		
MAC Address	Comment	Select
Delete Selected Delete All R	eset	

### Allow Listed

If you choose 'Allowed Listed', only those clients whose wireless MAC addresses are in the access control list will be able to connect to your Access Point.

- 1. From the Wireless Access Control Mode drop-down list, select Allowed Listedsetting.
- 2. Enter the MAC Address.
- 3. Enter the Comment.
- 4. Click Save & Apply button.

Wireless Access Control Mode:	Allow Listed 🔻
MAC Address: 001122334455	Comment: Test1
Save Save & Apply Reset	

#### 5. Click OK button.

Microso	ft Internet Explorer 🛛 🛛 🔀
?	if ACL allow list turn on ; WPS2.0 will be disabled
	OK Cancel

6. Change setting successfully! Do not turn off or reboot the Device during this time. Please wait 20 seconds ...

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 17 seconds ...

7. The MAC Address that you created has been added in the *Current Access Control List.* 

### Current Access Control List:

MAC Address		Comment	Select
00:11:22:33	:44:55	Test1	
Delete Selected	Delete All	Reset	

### **Deny Listed**

When 'Deny Listed' is selected, these wireless clients on the list will not be able to connect the Access Point.

- 1. From the Wireless Access Control Mode drop-down list, select *Deny Listed*setting.
- 2. Enter the MAC Address.
- 3. Enter the Comment.
- 4. Click Save & Apply button.

Wireless Acces	s Control Mode:	Deny Liste	d 🔻
MAC Address:	001122334455	Comment:	Test1
Save Save &	Apply Reset		

5. Change setting successfully! Do not turn off or reboot the Device during this time. Please wait 20 seconds ...

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 17 seconds ...

6. The MAC Address that you created has been added in the *Current Access Control List.* 

### Current Access Control List:

MAC Add	lress	Comment	Select
00:11:22:33	3:44:55	Test1	
Delete Selected	Delete All	Reset	

### WDS settings

Wireless Distribution System uses wireless media to communicate with other APs, like the Ethernet does. To do this, you must set these APs in the same channel and set MAC address of other APs which you want to communicate with in the table and then enable the WDS. To access the *Wireless NetworkWDS* settingspage:

1. From the head menu, click on WLAN1.

|--|

2. From the left-hand menu, click on *WDS settings*. The following page is displayed:

## WDS Settings -wlan1

Wireless Distribution System uses wireless media to communicate with other APs, like the Ethernet does. To do this, you must set these APs in the same channel and set MAC address of other APs which you want to communicate with in the table and then enable the WDS.

Enable WDS			
MAC Address:	_		
Data Auto V			
Comment:	_		
Save Save & Apply Show Statistics	Reset Se	t Security	
Current WDS AP List:			
MAC Address	Tx Rate (Mbps)	Comment	Select
Delete Selected Delete	e All Reset		

### ConfigureWDS (Wireless Distribution System) only

1. From the head menu, click on WLAN1.

SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEM
		3. From the Mode	and menu, click on <i>Basic</i> drop-down list, select <i>W</i> <i>nel Number</i> drop-down I <i>oply</i> button.	/DS.	

### Wireless Basic Settings

This page is used to configure the parameters for wireless LAN clients which may connect to your Access Point. Here you may change wireless encryption settings as well as wireless network parameters.

Disable Wir	eless LAN Interface	
Band:	2.4 GHz (B+G+N) V	
Mode:	WDS  MultipleAP	
Network Type:	Infrastructure 🔻	
SSID:	AP_1195A7 Add to Profile	
Channel Width:	40MHz ▼	
Control Sideband:	Upper 🔻	
Channel Number:	11 🔻	
Broadcast SSID:	Enabled <b>T</b>	
WMM:	Enabled T	
Data Rate:	Auto 🔻	
TX restrict:	0 Mbps (0:no restrict)	
RX restrict:	0 Mbps (0:no restrict)	
Associated Clients:	Show Active Clients	
Enable Mac	Clone (Single Ethernet Client)	
Enable Universal Repeater Mode (Acting as AP and client simultaneouly)		
SSID of Extende	d Interface: RTK 11n AP RPT0 Add to Profile	
Save Save & App	Reset	

6. Change setting successfully! Do not turn off or reboot the Device during this time. Please wait 20 seconds ...

#### Change setting successfully!

#### Do not turn off or reboot the Device during this time.

Please wait 17 seconds ...

7. From the head menu, click on WLAN1.

SETUP WLAN1 TCP/IP IPV6 FIREWALL MAI
--------------------------------------

- 8. From the left-hand menu, click on WDS settings.
- 9. Check on the option Enable WDS.
- 10. Click the Set Security.

### WDS Settings -wlan1

Wireless Distribution System uses wireless media to communicate with other APs, like the Ethernet does. To do this, you must set these APs in the same channel and set MAC address of other APs which you want to communicate with in the table and then enable the WDS.

🗹 Enable	WDS			
MAC Address:	001122334455	_		
Data Rate:	Auto 🗸			
	001122334455	_		
Show Statis	Save & Apply	ResetSe	et Security	
MAC	Address	Tx Rate (Mbps)	Comment	Select
Delete Selec	ted Delete	All Reset		

- 11. This page allows you setup the wireless security for WDS. When enabled, you must make sure each WDS device has adopted the same encryption algorithm and Key.
- 12. Configure each field with the *Encryption* that you selected.
- 13. Click Save & Apply button.

## WDS Security Setup -wlan1

This page allows you setup the wireless security for WDS. When enabled, you must make sure each WDS device has adopted the same encryption algorithm and Key.

Encryption:	None
WEP Key Format:	None WPA2 (AES)
WEP Key:	
Pre-Shared Key Format:	Passphrase 🗸
Pre-Shared Key:	
Save Save & Apply	Reset

14. Change setting successfully! Do not turn off or reboot the Device during this time. Please wait 20 seconds ...

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 17 seconds ...

15.	From	the	head	menu,	click	on	WL	A٨	11
-----	------	-----	------	-------	-------	----	----	----	----

	101 11	ent ale fiedda filefia		
WLAN1	тс	P/IP	IPV6	FIRE
		om the left-hand m		settings.
		neck on the option <i>E</i> Inter the MAC Addre		
	-	nter the <i>Comment</i> .	-00.	
		ick the Save & App	ly.	
WDS S		s -wlan1	-	
other APs, like the same cha	e the Ethernet Innel and set N	n uses wireless me does. To do this, y 1AC address of oth ble and then enable	ou must set these er APs which you v	APs in
🗹 Enable V	WDS			
MAC	01122334455	-		
Address: /				
Rate:	uto 🗸			
Comment: 00	01122334455	_		
SaveS	ave & Apply	Reset Se	et Security	
Current WD				
MAC A	ddress	Tx Rate (Mbps)	Comment	Select
Delete Selecte	ed Delete A	All Reset		

21. Change setting successfully! Do not turn off or reboot the Device during this time. Please wait 20 seconds ...

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 17 seconds ...

22. From the head menu, click on WLAN1.

	SETUP	WLAN1	WLAN2	TCP/IP	IPV6	FIREWALL	MANAGEMENT
--	-------	-------	-------	--------	------	----------	------------

- 23. From the left-hand menu, click on WDS settings.
- 24. The MAC Address that you created has been added in the *Current Access Control List.*

Current WDS AP List:			
MAC Address	Tx Rate (Mbps)	Comment	Select
00:11:22:33:44:55	Auto	001122334455	
Delete Selected Dele	ete All Reset		

# ConfigureAP (Access Point) + WDS (Wireless Distribution System)

1. From the head menu, click on WLAN1.

SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEM
		2. From the left-ha	and menu, click on <i>Basi</i> d	s Settings.	
		3. From the Mode	drop-down list, select A	P+WDS.	
		4. Enter SSID for	example AP_5G_A8126	51.	
		5. From the Chan	<i>nel Number</i> drop-down l	ist, select a Channel.	
		6. Click Save & A	<i>oply</i> button.		

### Wireless Basic Settings

This page is used to configure the parameters for wireless LAN clients which may connect to your Access Point. Here you may change wireless encryption settings as well as wireless network parameters.

Disable Wir	eless LAN Interface	
Band:	2.4 GHz (B+G+N) ▼	
Mode:	AP+WDS ▼ MultipleAP	
Network Type:	Infrastructure <b>T</b>	
SSID:	AP_1195A7	Add to Profile
Channel Width:	40MHz ▼	
Control Sideband:	Upper <b>T</b>	
Channel Number:	11 •	
Broadcast SSID:	Enabled <b>T</b>	
WMM:	Enabled 🔻	
Data Rate:	Auto 🔻	
TX restrict:	0 Mbps (0:no restrict)	
RX restrict:	0 Mbps (0:no restrict)	
Associated Clients:	Show Active Clients	
Enable Mac	c Clone (Single Ethernet Client)	
Enable Univ client simultane	versal Repeater Mode (Acting as AP and ouly)	
SSID of Extende	ed Interface: RTK 11n AP RPT0	Add to Profile
Save Save & Ap	ply Reset	

7. Change setting successfully! Click on *Reboot Now* button to confirm.

#### Change setting successfully!

Your changes have been saved. The router must be rebooted for the changes to take effect. You can reboot now, or you can continue to make other changes and reboot later.

Reboot Now Reboot Later

8. From the head menu, click on WLAN1.

SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEM

- 9. From the left-hand menu, click on WDS settings.
- 10. Check on the option Enable WDS.
- 11. Click the Set Security.

# WDS Settings -wlan1

Wireless Distribution System uses wireless media to communicate with other APs, like the Ethernet does. To do this, you must set these APs in the same channel and set MAC address of other APs which you want to communicate with in the table and then enable the WDS.

🗹 Enabl	e WDS			
MAC Address:	001122334455	_		
Data Rate:	Auto 🗸			
Comment	001122334455			
Save Show Stati		Reset	Set Security	
	/DS AP List: Address	Ty Pata (Mbps)	Comment	Select
MAC	Address	Tx Rate (Mbps)	comment	Select
Delete Sele	cted Delete	All Reset		

- 12. This page allows you setup the wireless security for WDS. When enabled, you must make sure each WDS device has adopted the same encryption algorithm and Key.
- 13. Configure each field with the *Encryption* that you selected.
- 14. Click Save & Apply button.

### WDS Security Setup -wlan1

This page allows you setup the wireless security for WDS. When enabled, you must make sure each WDS device has adopted the same encryption algorithm and Key.

Encryption:	None
WEP Key Format:	None WPA2 (AES) ers) 🗸
WEP Key:	
Pre-Shared Key Format:	Passphrase
Pre-Shared Key:	
Save Save & Apply	Reset

15. Change setting successfully! Do not turn off or reboot the Device during this time. Please wait 20 seconds ...

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 17 seconds ...

16.	From the	head menu,	click on	WLAN1
-----	----------	------------	----------	-------

	10.110	in the neural menu		
WLAN1	тср	/IP	IPV6	FIRE
		m the left-hand m eck on the option <i>E</i>	enu, click on WDS Enable WDS.	S settings.
	20. Ent	er the <i>MAC Addre</i> er the <i>Comment.</i> ck the <i>Save</i> & App		
WDS S	Settings	s -wlan1		
other APs, like the same cha	e the Ethernet o nnel and set MA	loes. To do this, y	edia to communica you must set these er APs which you e the WDS.	APs in
Enable V	WDS			
Address: '	1122334455	Ī		
Data Rate: Comment:00	uto 🗸	-		
Save Sa Show Statistic		Reset S	et Security	
Current WD	S AP List:			
MAC A	ddress T	x Rate (Mbps)	Comment	Select
Delete Selecte	d Delete All	Reset		

22. Change setting successfully! Do not turn off or reboot the Device during this time. Please wait 20 seconds ...

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 17 seconds ...

		23. From the head	menu, c	lick on WLAN1.			
SETUP	WLAN1	TCP/IP		IPV6	FIREWALL	MAN	AGEM
		<ul><li>24. From the left-ha</li><li>25. The MAC Address</li><li><i>Current Access</i></li><li>Current WDS AP</li></ul>	ess that <i>Control</i>	you created has be	•		
		MAC Addre	ss	Tx Rate (Mbps)	Comment	Select	
		00:11:22:33:44	4:55	Auto	001122334455		
		Delete Selected	Dele	ete All Reset			

### Site Survey

This page provides tool to scan the wireless network. If any Access Point or IBSS is found, you could choose to connect it manually when client mode is enabled. To access the *Wireless NetworkWDS settings*page:

1. From the head menu, click on WLAN1.

SETUP WLA	AN1 TCP/IP	IPV6	FIREWALL	MANAGEM
-----------	------------	------	----------	---------

From the left-hand menu, click on *Site Survey*. The following page is displayed:

# Wireless Site Survey -wlan1

This page provides tool to scan the wireless network. If any Access Point or IBSS is found, you could choose to connect it manually when client mode is enabled.

Site Survey				
SSID	BSSID	Channel	Туре	Encrypt Signal
None				

2. From the head menu, click on SETUP.

		2.	From the head	menu, click on SETUP.		
SETUP	WLA	N1	TCP/IP	IPV6	FIREWALL	MANAGEM
		4. 5.	ISP Settings. Config WAN Int		nu, click on <i>Wirele</i> s	s
	Operatio	n Mode				
١	You can setup diffe	rent modes to LAN	and WLAN interf	ace for NAT and bridg	ing function.	
	Gateway:	ADSL/Cable Mod share the same I	em. The NAT is e IP to ISP through VAN page by usin	ed to connect to intern nabled and PCs in LAN WAN port. The connec g PPPOE, DHCP client,	l ports ttion type	
	O Bridge:	together and NA		nd wireless interface ar bled. All the WAN relat prted.		
	○ Wireless ISP:	wireless client w enabled and PCs through wireless Survey page. The	ill connect to ISP in ethernet ports LAN. You can con e connection type	e bridged together and access point. The NAT share the same IP to 5 nnect to the ISP AP in 9 can be setup in WAN lient , L2TP client or sta	is ISP Site- page by	
	Save Save & Ap	ply Reset				
		6.		successfully! Do not tu nis time. Please wait 20		
		Change setting	successfully!			
		Do not turn off	or reboot the D	evice during this time	e.	
		Please wait 17 s	seconds			
		7.	From the head	menu, click on WAN1.		

SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEM
-------	-------	--------	------	----------	---------

- 8. From the left-hand menu, click on Basic Settings.
- 9. From the Mode drop-down list, select Client.
- 10. Enter SSID of the AP that you want to connect to for example AP\_5G\_A81261. If you don't know what the SSID of the AP that you want to connect to, please skip this step.
- 11. Click Save & Apply button.

### Wireless Basic Settings

This page is used to configure the parameters for wireless LAN clients which may connect to your Access Point. Here you may change wireless encryption settings as well as wireless network parameters.

Disable Windowski Disable	reless LAN Int	erface		
Band:	2.4 GHz (B+G+N	) ▼		
Mode:	Client •	MultipleAP		
Network Type:	Infrastructure	·		
SSID:	AP_1195A7		Ad	ld to Profile
Channel Width:	40MHz 🔻			
Control Sideband:	Upper <b>T</b>			
Channel Number:	11 🔻			
Broadcast SSID:	Enabled <b>T</b>			
WMM:	Enabled V			
Data Rate:	Auto 🔻			
TX restrict:	0 Mbps	(0:no restrict)		
RX restrict:	0 Mbps	(0:no restrict)		
Associated Clients:	Show Active Cli	ents		
Enable Ma	c Clone (Singl	e Ethernet Client)		
		er Mode (Acting as AP	and	
client simultane	eouly)			
SSID of Extende	ed Interface:	RTK 11n AP RPT0	Ad	ld to Profile
Enable Wire Wire Wireless Profile				
SSID				
		Encrypt	Select	
Delete Selected	DeleteAll	Encrypt	Select	
Delete Selected				
				it 20 seconds
			. Please wa	
		12. Change setting si	. Please wa uccessfully!	
		12. Change setting si	. Please wa uccessfully or reboot tl	1

13. From the head menu, click on WAN1.

SETUP WLAN1 TCP/IP IPV6 FIREWALL	MANAGEM
----------------------------------	---------

- 14. From the left-hand menu, click on *Site Survey*.
- 15. Click Site Survey button.

# Wireless Site Survey -wlan1

This page provides tool to scan the wireless network. If any Access Point or IBSS is found, you could choose to connect it manually when client mode is enabled.

SSID	BSSID	Channel	Туре	En	ncrypt s	Signal	Select						
None													
													Ne
												_	
					could se were liste			scanr	ed by	the V	/ireless		
			-		ne ratio c the Wire						ect that		
			10 CIL	al Mart									
			10. Cili	CK IVEXT	t button.								
/ireless S	ite Su	rvey	10. Cili	CK IVEXI	button.								
s page provides too	ol to scan the	wireless ne				nt or IE	ISS is f	ound,	you co	uld cl	ioose t	o connec	t it:
<b>/ireless S</b> s page provides too nually when client r te Survey	ol to scan the	wireless ne				nt or IE	ISS is f	ound,	you co	uld cl	ioose t	o connec	t it:
s page provides too nually when client r	ol to scan the	wireless ne		any Acc			ISS is final	1	you co	uld cl	ioose t	o connec	t it

19. Click Connect button.

# Wireless Site Survey -wlan1

This page provides tool to scan the wireless network. If any Access Point or IBSS is found, you could choose to connect it manually when client mode is enabled.

Encryption:	None	¥
< <back connect<="" td=""><td></td><td></td></back>		

20. Please wait ...

### **Wireless Site Survey**

This page provides tool to scan the wireless network. If any Access Point or IBSS is found, you could choose to connect it manually when client mode is enabled.

Please wait...

21. Check on Add to Wireless Profile.

22. Click Reboot Now button.

Connect successfully!



Reboot Now Reboot Later

23. Change setting successfully! Please wait 20 seconds....

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 19 seconds ...

### WPS

This page allows you to change the setting for WPS (Wi-Fi Protected Setup). Using this feature could let your wireless client automatically synchronize its setting and connect to the Access Point in a minute without any hassle. To access the *Wireless NetworkWPS*page:

1. From the head menu, click on WAN1.

SETUP WLAN1 TCP/IP IPV6 FIREWALL MANAG
--

2. From the left-hand menu, click on *WPS*. The following page is displayed:

### **Wi-Fi Protected Setup**

This page allows you to change the setting for WPS (Wi-Fi Protected Setup). Using this feature could let your wireless client automically syncronize its setting and connect to the Access Point in a minute without any hassle.

Disable WPS	
Apply Changes Reset	
WPS Status:	O Configured O UnConfigured
Auto-lock-down state: unlocked	Unlock
Self-PIN Number:	63538205
Push Button Configuration:	Start PBC
STOP WSC	Stop WSC
Client PIN Number:	Start PIN

Field	Description
Disable WPS	Checking this box and clicking "Save & Apply" will disable Wi-Fi Protected Setup. WPS is turned on by default.
WPS Status	When AP's settings are factory default (out of box), it is set to open security and un-configured state. It will be displayed by "WPS Status". If it already shows "Configured", some registrars such as Vista WCN will not configure AP. Users will need to go to the "Save/Reload Settings" page and click "Reset" to reload factory default settings.
Self-PIN Number	"Self-PIN Number" is AP's PIN. Whenever users want to change AP's PIN, they could click "Regenerate PIN" and then click " Save & Apply". Moreover, if users want to make their own PIN, they could enter four digit PIN without checksum and then click " Save & Apply". However, this would not be recommended since the registrar side needs to be supported with four digit PIN.

Field	Description
Push Button Configuration	Clicking this button will invoke the PBC method of WPS. It is only used when AP acts as a registrar.
Save & Apply	Whenever users want to enable/disable WPS or change AP's PIN, they need to apply this button to commit changes.
Reset	It restores the original values of "Self-PIN Number" and "Client PIN Number".
Client PIN Number	It is only used when users want their station to join AP's network. The length of PIN is limited to four or eight numeric digits. If users enter eight digit PIN with checksum error, there will be a warning message popping up.
	If users insist on this PIN, AP will take it.

#### Introduction of WPS

Although home Wi-Fi networks have become more and more popular, users still have trouble with the initial set up of network. This obstacle forces users to use the open security and increases the risk of eavesdropping. Therefore, WPS is designed to ease set up of security-enabled Wi-Fi networks and subsequently network management (Wi-Fi Protected Setup Specification 1.0h.pdf, p. 8).

The largest difference between WPS-enabled devices and legacy devices is that users do not need the knowledge about SSID, channel and security settings, but they could still surf in a security-enabled Wi-Fi network. For examples, in the initial network set up, if users want to use the PIN configuration, the only thing they need to do is entering the device PIN into registrar, starting the PIN method on that device and simply wait until the device joins the network. After the PIN method is started on both sides, a registration protocol will be initiated between the registrar and the enrollee. Typically, a registrar could be an access point or other device that is capable of managing the network. An enrollee could be an access point or a station that will join the network. After the registration protocol has been done, the enrollee will receive SSID and security settings from the registrar and then join the network. In other words; if a station attempts to join a network managed by an access point with built-in internal registrar, users will need to enter station's PIN into the web page of that access point. If the device PIN is correct and valid and users start PIN on station, the access point and the station will automatically exchange the encrypted information of the network settings under the management of AP's internal registrar. The station then uses this information to perform authentication algorithm, join the secure network, and transmit data with the encryption algorithm. More details will be demonstrated in the following sections.

### **Supported WPS features**

Currently, Wireless Gateway supports WPS features for *AP* mode, *AP+WDS mode*, *Infrastructure-Client mode*, and the wireless root interface of Universal Repeater mode.

Other modes such as *WDS mode*, *Infrastructure-Adhoc mode*, and the *wireless virtual interface of Universal Repeater mode* are not implemented with WPS features.

If those unsupported modes are enforced by users, WPS will be disabled. Under the configuration of every WPSsupported mode, Wireless Gateway has *Push Button method* and *PIN method*. For each method, Wireless Gateway offers different security levels included in network credential, such as open security, WEP 64 bits, WEP 128 bits, WPA-Personal TKIP, WPA-Personal AES, WPA2-Personal TKIP, and WPA2-Personal AES. Users could choose either one of the methods at their convenience.

### AP mode

For AP mode, Wireless Gateway supports three roles, registrar, proxy, and enrollee in registration protocol. At different scenarios, Wireless Gateway will automatically switch to an appropriate role depending on the other device's role or a specific configuration.

#### AP as Enrollee

If users know AP's PIN and enter it into external registrar, the external registrar will configure AP with a new wireless profile such as new SSID and new security settings. The external registrar does this job either utilizing the in-band EAP (wireless) or out-of-band UPnP (Ethernet). During the WPS handshake, a wireless profile is encrypted and transmitted to AP. If the handshake is successfully done, AP will be re-initialized with the new wireless profile and wait for legacy stations or WPS stations to join its network.

### AP as Registrar

Wireless Gateway also has a built-in internal registrar. Whenever users enter station's PIN into AP's webpage, click "Start PBC", or push the physical button, AP will switch to registrar automatically. If users apply the same method on station side and the WPS handshake is successfully done, SSID and security settings will be transmitted to that station without the risk of eavesdropping. And then the station will associate with AP in a security-enabled network.

### **AP as Proxy**

At this state, AP is transparent to users. If users want to configure a station or any device that is capable of being an enrollee, they have to enter device's PIN into an external registrar and choose an appropriate wireless profile. After the PIN is entered, the external registrar will inform AP this event. AP then conveys the encrypted wireless profile between the device and the external registrar. Finally, the device will use the wireless profile and associate with AP. However, the device may connect to other APs if the wireless profile does not belong to the proxy AP. Users must carefully choose the wireless profile or create a wireless profile on an external registrar.

#### Infrastructure-Client mode

In Infrastructure-Client mode, Wireless Gateway only supports enrollee's role. If users click "Start PIN", click "Start PBC", or press the physical button on Wireless Gateway, it will start to seek WPS AP. Once users apply the same method on registrar side, Wireless Gateway will receive the wireless profile upon successfully doing the registration protocol. Then Wireless Gateway will associate with an AP.

### Instructions of AP's and Client's operations

At this state, AP is transparent to users. If users want to configure a station or any device that is capable of being an enrollee, they have to enter device's PIN into an external registrar and choose an appropriate wireless profile. After the PIN is entered, the external registrar will inform AP this event. AP then conveys the encrypted wireless profile between the device and the external registrar. Finally, the device will use the wireless profile and associate with AP. However, the device may connect to other APs if the wireless profile does not belong to the proxy AP. Users must carefully choose the wireless profile or create a wireless profile on an external registrar.

### Wireless Basic Settings - WLAN1page

Users need to make sure the "Broadcast SSID" file is set to "Enabled". Otherwise, it might prevent WPS from working properly.

## Wireless Basic Settings

This page is used to configure the parameters for wireless LAN clients which may connect to your Access Point. Here you may change wireless encryption settings as well as wireless network parameters.

Disable Wire	Disable Wireless LAN Interface				
Band:	2.4 GHz (B+G+N) ▼				
Mode:	AP  MultipleAP				
Network Type:	Infrastructure 🔻				
SSID:	11n Add to Profile				
Channel Width:	40MHz 🔻				
Control Sideband:	Upper <b>V</b>				
Channel Number:	11 •				
Broadcast SSID:	Enabled <b>V</b>				
WMM:	Enabled <b>T</b>				
Data Rate:	Auto 🔻				
TX restrict:	0 Mbps (0:no restrict)				
RX restrict:	0 Mbps (0:no restrict)				
Associated Clients:	Show Active Clients				
Enable Mac	Clone (Single Ethernet Client)				
Enable Univ client simultane	versal Repeater Mode (Acting as AP and ouly)				
SSID of Extende	d Interface: RTK 11n AP RPT0 Add to Profile				
Enable Wirele Wireless Profile	List:				
SSID	Encrypt Select				
Delete Selected Save Save & App	DeleteAll Reset				

### Operations of AP - AP being an enrollee

In this case, AP will be configured by any registrar either through in-band EAP or UPnP. Here, users do not need to do any action on AP side. They just need AP's device PIN and enter it into registrar. An example from Vista WCN will be given.

1. From the head menu, click on WAN1.

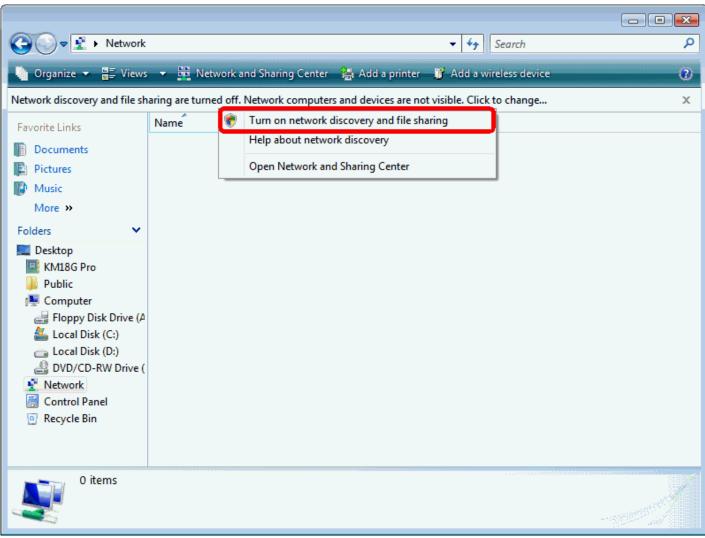
P WLAN1	TCP/IP	IPV6	FIREWALL	MANAGE
Wi-Fi Protecto This page allows you to change feature could let your wireless Access Point in a minute witho Disable WPS Apply Changes Reset	is displayed: 3. Make sure AP is ed Setup ge the setting for WPS (Wi- s client automically syncroni		ing this	
hppiy enanges				
WPS Status:	-	InConfigured		
	Configured U Reset to UnConfigured			
WPS Status: Auto-lock-down state:	Reset to UnConfigured			
WPS Status: Auto-lock-down state: unlocked	Reset to UnConfigured Unlock 63538205			
WPS Status: Auto-lock-down state: unlocked Self-PIN Number:	Reset to UnConfigured Unlock 63538205			

- 4. Plug the Ethernet cable into AP's LAN port and make sure the IP connection is valid with Vista.
- 5. Make sure WCN is enabled. Users may need to enable it at the first time. They could open the "Control Panel", click "Classic View", open "Administrative Tools", double click "Services", ", a User Account Control pop up and click "Continue", edit properties of "Windows Connect Now", choose the "Startup type" with "Automatic" and click "Start".

Windows Connect	Now - Config Registrar Properties (Local Compu 💌
General Log On	Recovery Dependencies
Service name:	wenesve
Display name:	Windows Connect Now - Config Registrar
Description:	Act as a Registrar, issues network credential to Enrollee. If this service is disabled, the Windows
Path to executab C:\Windows\Sys	le: tem32\svchost.exe -k LocalService
Startup type:	Automatic
Help me configure	e service startup options.
Service status:	Started
Start	Stop Pause Resume
You can specify t from here.	he start parameters that apply when you start the service
Start parameters:	
	OK Cancel Apply

- 6. If the previous steps are done, open Windows Explorer. Go to the Network section.
- Click on "Network discovery and file sharing are turned off. Network computers and devices are not visible. Click to Change..."

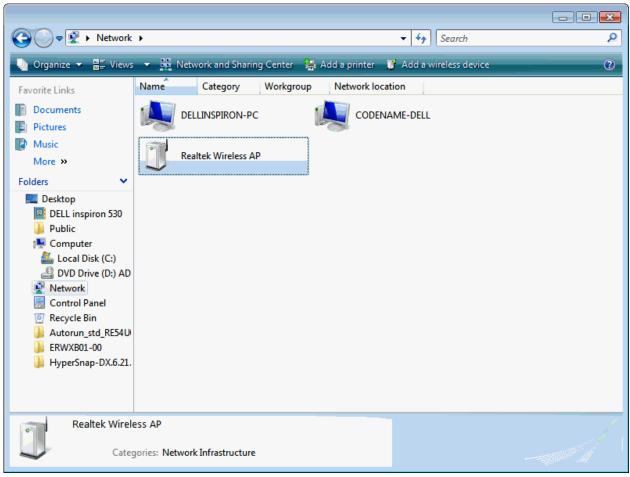
						×
Solver Network	¢			<b>▼</b> <sup>4</sup> 7	Search	Q
🥼 Organize 👻 📲 View	s 👻 📴 Network and Sh	iaring Center 🛛 😫	Add a printer 🏾 🚺	Add a w	ireless device	0
Network discovery and file s	haring are turned off. Netw	ork computers and	devices are not vi	sible. Click	to change	×
Favorite Links	Name Category	Vorkgroup	Network locati	on		
Documents		/				
Pictures						
Music						
More »						
Folders 🗸						
<ul> <li>Desktop</li> <li>KM18G Pro</li> <li>Public</li> <li>Computer</li> <li>Floppy Disk Drive</li> <li>Local Disk (C:)</li> <li>Local Disk (D)</li> <li>DVD/CD-W Drive</li> <li>Network</li> <li>Control Panel</li> <li>Recycle Bin</li> </ul>						
0 items						 and the second



### 8. Click on "Turn on network discovery and file sharing"

# 9. Click on "No, make the network that I am connected to a private network"

🥂 Netv	ork discovery and file sharing	x		
33	Do you want to turn on network discovery and file sharing for all public networks?			
	What is network discovery?			
	No, make the network that I am connected to a private network Network discovery and file sharing will be turned on for private networks, such as those in homes and workplaces.	¢		
	Yes, turn on network discovery and file sharing for all public networks			
	Cancel			



10. AP's icon will show up. Double click on it.

- 🔾 🗢 🗣 🕨 Network 🕨 ▼ <sup>4</sup>→ Search Q 🇊 Add a wireless devic 🚆 Views 📼 🚟 Network and Sharing Center 🛚 😫 Add a printer Organize 🔻 ? Favorite Links - - -Documents Add a wireless device to the network Pictures Music Choose the device you want to add More » This list contains devices that were detected on your network but are not configured. Folders v 🧱 Desktop DELL inspiron 530 Public 👰 Computer ڏ Local Disk (C:) 🔮 DVD Drive (D:) AD Network 👸 Control Panel Recycle Bin 🎍 Autorun\_std\_RE54U ERWXB01-00 I want to add a wireless device or computer that is not on the list, using a HyperSnap-DX.6.21 and the second USB flash drive Next Cancel Realtek Wire Categories: Network Infrastructure
- 11. Users could also Click "Add a wireless device" if the icon is not there. Click "next".

12. Enter AP's Self-PIN Numberand click "next".

Configure a WCN device	
Type the PIN for the selected de To configure this device for use on you information that came with the device of	r network, type the PIN. You can find the PIN in the
PIN: 12345670	
Display characters	
	Next Cancel

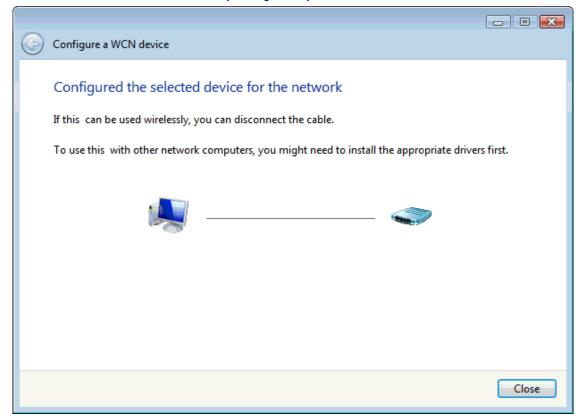
# 13. Choose a name that people who connect to your network will recognize.

0	Configure a WCN device	
	Give your network a name	
	Choose a name that people who connect to your network will recognize	
	Network name (SSID):	
	KM18GPRO-PC_Network	
	You can type up to 32 letters or numbers.	
		Next Cancel

0	Configure a WCN device
	Help make your network more secure with a passphrase Windows will use the passphrase provided below to generate a <u>WPA</u> security key for you. The first
	time that people connect to this network, they will need the passphrase.
	Passphrase:
	01234567
	The passphrase must be at least 8 characters and cannot begin or end with a space.
	✓ Display characters
	Create a different passphrase for me
	Show advanced network security options
	Rext Cancel

### 14. Enter the Passphrase and then click Next.

- 15. A User Account Control screen pops up, click Continue.
- 16. AP is successfully configured by WCN.



17. Finally, AP will become configured (see WPS Status). The authentication algorithm, encryption algorithm, and key assigned by WCN will be displayed below "Current Key Info".

### Wi-Fi Protected Setup

This page allows you to change the setting for WPS (Wi-Fi Protected Setup). Using this feature could let your wireless client automically syncronize its setting and connect to the Access Point in a minute without any hassle.

Disable WPS		
Apply Changes Reset		
WPS Status:	Conf Reset t	igured OunConfigured
Auto-lock-down state: unlocked	Unlock	1
Self-PIN Number:	6353820	5
Push Button Configurat	tion:Start PE	
STOP WSC	Stop W	SC
Client PIN Number:		Start PIN
Current Key Info:		
Authentication	Encryption	Кеу
WPA2-Mixed PSK	TKIP+AES	01234567

# 18. The SSID field of Wireless Basic Settings page will also be modified with the value assigned by WCN.

# Wireless Basic Settings

This page is used to configure the parameters for wireless LAN clients which may connect to your Access Point. Here you may change wireless encryption settings as well as wireless network parameters.

Disable Wire	eless LAN Interface							
Band:	2.4 GHz (B+G+N) ▼							
Mode:	AP   MultipleAP							
Network Type:	Infrastructure T							
SSID:	KM18GPRO-PC_Network Add to Profile							
Channel Width:	40MHz ▼							
Control Sideband:	Upper 🔻							
Channel Number:	11 🔻							
Broadcast SSID:	Enabled <b>T</b>							
WMM:	Enabled <b>T</b>							
Data Rate:	Auto 🔻							
TX restrict:	0 Mbps (0:no restrict)							
RX restrict:	0 Mbps (0:no restrict)							
Associated Clients:	Show Active Clients							
Enable Mac	Clone (Single Ethernet Client)							
Enable Univ client simultane	versal Repeater Mode (Acting as AP and ouly)							
SSID of Extende	d Interface: RTK 11n AP RPT0 Add to Profile							
Enable Wirel Wireless Profile	List:							
SSID	Encrypt Select							
Delete Selected	DeleteAll							
Save Save & App	oly Reset							

19. The security settings on the Wireless Security Page will be modified by WCN, too. The warning message will show up if users try to modify the security settings. The reason is the same as we explained in the previous section.

### **Wireless Security Setup**

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

Select SSID: Root AP - 11n	▼ Save Save & Apply Reset
Encryption:	WPA-Mixed <b>T</b>
Authentication Mode:	Enterprise (RADIUS)      Personal (Pre-Shared Key)
WPA Cipher Suite:	TKIP AES
WPA2 Cipher Suite:	TKIP AES
Pre- Shared Key Format:	Passphrase
Pre-Shared Key:	•••••

#### Operations of AP - AP being a registrar

#### AP mode

Whenever users enter station's PIN into AP's Wi-Fi Protected Setup page and click "Start PIN", AP will become a registrar. Users must start the PIN method on the station side within two minutes.

1. From the head menu, click on WAN1.

SETUP WLAN1 TCP/IP IPV6 FIREWALL MAN
--------------------------------------

- 2. From the left-hand menu, click on *WPS*. The following page is displayed:
- 3. Make sure AP is in un-configured state.
- 4. Enter the Client PIN Number.
- 5. Click Start PIN.

### **Wi-Fi Protected Setup**

This page allows you to change the setting for WPS (Wi-Fi Protected Setup). Using this feature could let your wireless client automically syncronize its setting and connect to the Access Point in a minute without any hassle.

### Disable WPS

Apply Changes Reset	
WPS Status:	O Configured UnConfigured
Auto-lock-down state: unlocked	Unlock
Self-PIN Number:	63538205
Push Button Configuration:	Start PBC
STOP WSC	Stop WSC
Client PIN Number:	Start PIN

6. Users must start the PIN method on the station side within two minutes.

#### Applied WPS PIN successfully!

### You have to run Wi-Fi Protected Setup within 2 minutes.



7. Users must start the PIN method on the station side within two minutes.

Planex wireless Utili	ty						
Profile	Network	ر Advanced	Statistics	Gos WWM	<b>Ø</b> WPS	Radio On/Of	f About
ID :	VoIP_W	ireless WPS	PS AP List	00-E0-4C-81-86			Rescan Information Pin Code 19953533 Renew Config Mode Enrollee Detail Connect Rotate Disconnect Export Profile
	Automatically se		tatus is disconne	ected			Export Profile Delete
Status >> Extra Info >> Channel >>	Disconnected			Link Quality >> 0% Signal Strength 1 >> 0% Noise Strength >> 0%			
Authentication >> Encryption >> Network Type >> IP Address >> Sub Mask >> Default Gateway >>			Transmit Link Speed >> Throughput >>	Max 0.000			
Default Gateway >>			Receive Link Speed >> Throughput >>	Kbps Max 0.000 Kbps			

8. If the device PIN is correct and the WPS handshake is successfully doneon the station side, User's Wi-Fi Protected status will be shown as below.

🅕 Planex wireless Utili	ty							
Profile	Lee Network	Advanced	Statistics	wawa	<b>Ø</b> WPS	Radio On/Of	f Abou	
		w	/PS AP List					
ID : 0×0000	VoIP_Wir	eless	ť	00-E0-4C-81-8(	6-D1 11		1	tion de Renew
		WP:	S Profile List		-		Config Mode	
WPS693e0786	11				7		Enrollee	-
PIN PBC	<ul> <li>WPS Associate</li> <li>WPS Probe IE</li> <li>Automatically sele</li> </ul>		status is connected s	Progress >> 100 uccessfully - Wi			Deta Conne Rotat Discon Export P Delet	ect re nect rofile
				ink Quality >> 100%				
	WPS693e0786d1 <> 00-E0-4C-8	11-86-D1		hal Strength 1 >> 100%	74			
	Link is Up [TxPower:100%] 11 <> 2462 MHz			oise Strength >> 70%				
Authentication >>								
Encryption >>								
Network Type >>			Transmit					
IP Address >>	10.0.0.102		Link Speed >> 54.0 Mbp	s Max				
Sub Mask >>	255.0.0.0		Throughput >> 3.456 Kb	<sup>DS</sup> 51.584				
Default Gateway >>	10.0.0.2			Kbps				
			Receive	Max				
			Link Speed >> 54.0 Mbp	s				
			Throughput >>21.960 K	ops 1.464 Mbps				

9. If the device PIN is correct and the WPS handshake is successfully done, AP's Wi-Fi Protected Setup page will be shown as below.

### Wi-Fi Protected Setup

This page allows you to change the setting for WPS (Wi-Fi Protected Setup). Using this feature could let your wireless client automically syncronize its setting and connect to the Access Point in a minute without any hassle.

Disable WPS					
Apply Changes Reset					
WPS Status:		Conf	igured		
		Reset to	o UnConfig	gured	
Auto-lock-down state: Unlock					
Self-PIN Number:		6353820	5		
Push Button Configurat	tion:	Start PB	c		
STOP WSC		Stop WS	sc		
Client PIN Number:				Start PIN	
Current Key Info:					
Authentication	Encrypt	tion	Key		
WPA2-Mixed PSK	TKIP+AE	S	0123456	67	

Other pages such as *Wireless Basic Settings page* and *Wireless Security Setup page* will also be updated appropriately as described in previous sections. In this case, AP is in unconfigured state before the station initiates the WPS handshake. According to the WPS spec, AP will create a wireless profile with WPA2-mixed mode and a random-generated key upon successfully doing the WPS handshake. However, AP will use the original wireless profile and give it to the station if AP is already in configured state. That means all settings of AP will not change. Hence, all WPS related pages keep the same.

#### **Push Button method**

Wireless Gateway supports a virtual button "Start PBC" on the *Wi-Fi Protected Setup page* for Push Button method. If userspush a virtual button "Start PBC", AP will initiate a WPS session and wait for any station to join. At this moment, AP will detect whether there is more than one station that starts the PBC method. When multiple PBC sessions occur, users should try PIN method.

After users push AP's virtual button "Start PBC", they must go to station side to push its button within two minutes. If the WPS is successfully done, AP will give its wireless profile to that station. The station could use this profile to associate with AP.

1. From the head menu, click on WAN1.

SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEM

- 2. From the left-hand menu, click on *WPS*. The following page is displayed:
- 3. Make sure AP is in un-configured state.
- 4. Click Start PBC.

### Wi-Fi Protected Setup

This page allows you to change the setting for WPS (Wi-Fi Protected Setup). Using this feature could let your wireless client automically syncronize its setting and connect to the Access Point in a minute without any hassle.

Disable WPS	
Apply Changes Reset	
WPS Status:	O Configured O UnConfigured Reset to UnConfigured
Auto-lock-down state: unlocked	Unlock
Self-PIN Number:	63538205
Push Button Configuration:	Start PBC
STOP WSC	Stop WSC
Client PIN Number:	Start PIN

5. Users must start the PBC method on the station side within two minutes.

#### Start PBC successfully!

### You have to run Wi-Fi Protected Setup in client within 2 minutes.



6. Users must start the PBC method on the station side within two minutes.

anex wireless Utili	~ <b>y</b>							
Profile	لمبل Network	Advanced	Statistics	WMM	<b>Ø</b> WPS		Radio On/O	Dff About
			PS AP List					
ID :	VoIP_W	/ireless		00-E0-4C-81-8E	i-D1	11		Rescan Information Pin Code
								19953533 Ren
		WPS	Profile List					Config Mode
			TTOIL LIST					Enrollee
								Detail
								Connect
							<u>&gt;</u>	Rotate
PIN	WPS Associate			Progress >> 0%				Disconnect
PIN P <u>B</u> C	WPS Probe IE		tatus is disconn	-				Disconnect Export Profile
			tatus is disconn	-				Disconnect Export Profile Delete
	WPS Probe IE		tatus is disconn	-				Disconnect Export Profile Delete
P <u>B</u> C	WPS Probe IE		tatus is disconn	-				Disconnect Export Profile Delete
P <u>B</u> C	WPS Probe IE		tatus is disconn	ected				Disconnect Export Profile Delete
P <u>B</u> C Status >>	WPS Probe IE		tatus is disconn	Ected				Disconnect Export Profile Delete
P <u>B</u> C Status >> Extra Info >>	WPS Probe IE		tatus is disconn	Link Quality >> 0%				Disconnect Export Profile Delete
PBC Status >> Extra Info >> Channel >>	WPS Probe IE		tatus is disconn	Link Quality >> 0%				Disconnect Export Profile Delete
PBC Status >> Extra Info >> Channel >> Authentication >>	WPS Probe IE		tatus is disconni	Link Quality >> 0% Signal Strength 1 >> 0% Noise Strength >> 0%				Disconnect Export Profile Delete
PBC Status >> Extra Info >> Channel >> Authentication >> Encryption >>	WPS Probe IE			Link Quality >> 0%				Disconnect Export Profile
PBC Status >> Extra Info >> Channel >> Authentication >> Encryption >> Network Type >>	WPS Probe IE		Transmit	Link Quality >> 0% Signal Strength 1 >> 0% Noise Strength >> 0%				Disconnect Export Profile Delete
PBC Status >> Extra Info >> Channel >> Authentication >> Encryption >> Network Type >> IP Address >>	WPS Probe IE		Transmit ——— Link Speed >>	ected Link Quality >> 0% Signal Strength 1 >> 0% Noise Strength >> 0% Max 0.000				Disconnect Export Profile Delete
PBC Status >> Extra Info >> Channel >> Authentication >> Encryption >> IP Address >> Sub Mask >>	WPS Probe IE		Transmit ——— Link Speed >>	ected Link Quality >> 0% Signal Strength 1 >> 0% Noise Strength >> 0% Max 0,000 Nbps				Disconnect Export Profile Delete
PBC Status >> Extra Info >> Channel >> Authentication >> Encryption >> IP Address >> Sub Mask >>	WPS Probe IE		Transmit Link Speed >> Throughput >>	ected Link Quality >> 0% Signal Strength 1 >> 0% Noise Strength >> 0% Max 0.000				Disconnect Export Profile Delete
PBC Status >> Extra Info >> Channel >> Authentication >> Encryption >> IP Address >> Sub Mask >>	WPS Probe IE		Transmit	ected Link Quality >> 0% Signal Strength 1 >> 0% Noise Strength >> 0% Max 0,000 Nbps				Disconnect Export Profile Delete

7. If the device PCB and the WPS handshake is successfully doneon the station side, User's Wi-Fi Protected status will be shown as below.

ᆋ Planex wireless Utili	ity						
Profile	لطے Network	Advanced	Statistics	<b>Gos</b> WAMA	<b>Ø</b> WPS	Radio On/Of	F About
			PS AP List				
ID : 0x0000		/ireless WPS		-EO-4C-81-86 Progress >> 100	<b>Q</b> U	) )	Rescan Information Pin Code 19953533 Renew Config Mode Enrollee Detail Connect Rotate Disconnect Export Profile
	Automatically se			costany m	0055000001		Delete
Extra Info >>	AES Infrastructure 10.0.0.102 255.0.0.0	C-81-86-D1	Signal	Quality >> 100% Strength 1 >> 100% • Strength >> 70% • Strength >> 70% • Max • 51.584 • Kbps • Max • 1.464 • Mbps			

8. If the device PIN is correct and the WPS handshake is successfully done, AP's Wi-Fi Protected Setup page will be shown as below.

### Wi-Fi Protected Setup

This page allows you to change the setting for WPS (Wi-Fi Protected Setup). Using this feature could let your wireless client automically syncronize its setting and connect to the Access Point in a minute without any hassle.

Disable WPS	
Apply Changes Reset	
WPS Status:	O Configured  UnConfigured Reset to UnConfigured
Auto-lock-down state: unlocked	Unlock
Self-PIN Number:	63538205
Push Button Configuration:	Start PBC
STOP WSC	Stop WSC
Client PIN Number:	Start PIN

Other pages such as *Wireless Basic Settings page* and *Wireless Security Setup page* will also be updated appropriately as described in previous sections. In this case, AP is in unconfigured state before the station initiates the WPS handshake. According to the WPS spec, AP will create a wireless profile with WPA2-mixed mode and a random-generated key upon successfully doing the WPS handshake. However, AP will use the original wireless profile and give it to the station if AP is already in configured state. That means all settings of AP will not change. Hence, all WPS related pages keep the same.

#### **Wireless Schedule**

This page allows you setup the wireless schedule rule. Please do not forget to configure system time before enable this feature. To access the *Wireless Schedule*page:

1. From the head menu, click on WAN1.

SETUP	WLAN1	ТСР/ІР	IPV6	FIREWALL	MANAGEM
-------	-------	--------	------	----------	---------

2. From the left-hand menu, click on *Wireless Schedule*. The following page is displayed:

### **Wireless Schedule**

This page allows you setup the wireless schedule rule. Please do not forget to configure system time before enable this feature.

Enable Wireless Schedule			
Enable	Day	From	То
	Sun 🗸	00 🗸 (hour) 00 🗸 (min)	00 🗸 (hour) 00 🗸 (min)
	Sun 🗸	00 🔽 (hour) 00 🔽 (min)	00 🔽 (hour) 00 🔽 (min)
	Sun 🗸	00 🗸 (hour) 00 🗸 (min)	00 🔽 (hour) 00 🔽 (min)
	Sun 🗸	00 🗸 (hour) 00 🗸 (min)	00 🗸 (hour) 00 🗸 (min)
	Sun 🗸	00 🔽 (hour) 00 🔽 (min)	00 🗸 (hour) 00 🗸 (min)
	Sun 🗸	00 🔽 (hour) 00 🔽 (min)	00 🗸 (hour) 00 🗸 (min)
	Sun 🗸	00 🔽 (hour) 00 🔽 (min)	00 🔽 (hour) 00 🔽 (min)
	Sun 🗸	00 🔽 (hour) 00 🔽 (min)	00 🔽 (hour) 00 🔽 (min)
	Sun 🗸	00 🗸 (hour) 00 🗸 (min)	00 🔽 (hour) 00 🔽 (min)
	Sun 🗸	00 🗸 (hour) 00 🗸 (min)	00 🗸 (hour) 00 🗸 (min)
Save	Save & Apply R	eset	

# **11** LAN Interface

This chapter is to configure the parameters for local area network which connects to the LAN port of your Access Point. Here you may change the setting for IP address, subnet mask, DHCP, etc...



You should only change the addressing details if your ISP asks you to, or if you are familiar with network configuration. In most cases, you will not need to make any changes to this configuration.

### LAN Interface Setup

To check the configuration of LAN Interface:

1. From the head menu, click on TCP/IP.

SETUP WLAN1 TCP/IP IPV6 FIREWALL MANAGEI
--

2. From the left-hand menu, click on *LAN Setting*. The following page is displayed:

### LAN Interface Setup

This page is used to configure the parameters for local area network which connects to the LAN port of your Access Point. Here you may change the setting for IP addresss, subnet mask, DHCP, etc..

IP Address:	10.0.0.2
Subnet Mask:	255.255.255.0
Default Gateway:	0.0.0.0
DHCP:	Server V
DHCP Client Range:	10.0.0.100 - 10.0.0.200 Show Client
DHCP Lease Time:	480 (1 ~ 10080 minutes)
Static DHCP:	Set Static DHCP
Domain Name:	WLAN_AP
802.1d Spanning Tree:	Disabled 🔻
Clone MAC Address:	0000000000
Save Save & Apply F	Reset

Field	Description
IP Address	The LAN IP address
	Default: 10.0.0.2
Subnet Mask	The LAN netmask
	Default: 255.255.255.0
Default Gateway	The LAN Gateway
	Default: 0.0.0.0
DHCP	DHCP Type: Disable, DHCP Client or Server
	Default: DHCP Server
DHCPClientRange	Specify the starting/ending IP address of the IP address pool.
	Default Start IP: 10.0.0.100
	Default Ending IP: 10.0.0.200
DHCP Lease Time	Configure DHCP Lease Time
Static DHCP	Set Static DHCP
Show Client	DHCP client computers/devices connected to the device will have their information displayed in the DHCP Client List table. The table will show the IP Address, MAC Address, and Expired Time of the DHCP lease for each client computer/device.
Domain Name	A domain name is a user-friendly name used in place of its associated IP address. Domain names must be unique; their assignment is controlled by the Internet Corporation for Assigned Names and Numbers (ICANN). Domain names are a key element of URLs, which identify a specific file at a web site.
802.1d Spanning Tree	Enable or Disable Spanning Tree
Clone MAC Address	MAC Spoofing on LAN
	Default: 00000000000

### Changing the LAN IP address and subnet mask

To check the configuration of LAN Interface:

1. From the head menu, click on <i>TCP/IP</i> .	
---	--

SETUP WLAN1 TCP/IP IPV6 FIREWALL MANAGEMENT
---

2. From the left-hand menu, click on *LAN Setting*. The following page is displayed:

# LAN Interface Setup

This page is used to configure the parameters for local area network which connects to the LAN port of your Access Point. Here you may change the setting for IP addresss, subnet mask, DHCP, etc..

IP Address:	10.0.0.2
Subnet Mask:	255.255.255.0
Default Gateway:	0.0.0.0
DHCP:	Server 🔻
DHCP Client Range:	10.0.0.100 - 10.0.0.200 Show Client
DHCP Lease Time:	480 (1 ~ 10080 minutes)
Static DHCP:	Set Static DHCP
Domain Name:	WLAN_AP
802.1d Spanning Tree:	Disabled 🔻
Clone MAC Address:	0000000000
Save Save & Apply	Reset

- 3. Type IP Address and Change default LAN port IP address.
- 4. Click in the *IP Address and Subnet Mask* box and type a new IP Address and Subnet Mask.
- 5. Change the *default DHCPClientRange*.
- 6. Click Save & Apply.

# LAN Interface Setup

This page is used to configure the parameters for local area network which connects to the LAN port of your Access Point. Here you may change the setting for IP addresss, subnet mask, DHCP, etc..

IP Address:	192.168.2.1
Subnet Mask:	255.255.255.0
Default Gateway:	0.0.0.0
DHCP:	Server 🔻
DHCP Client Range:	192.168.2.100 - 192.168.2.200 Show Client
DHCP Lease Time:	480 (1 ~ 10080 minutes)
Static DHCP:	Set Static DHCP
Domain Name:	WLAN_AP
802.1d Spanning Tree:	Disabled 🔻
Clone MAC Address:	0000000000
Save Save & Apply F	Reset

7. Change setting successfully! Please wait 20 seconds....

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 19 seconds ...

You may also need to renew your DHCP lease:

#### Windows 95/98

- a. Select Run... from the Start menu.
- b. Enter winipcfg and click OK.
- c. Select your ethernet adaptor from the pull-down menu
- d. Click Release All and then Renew All.
- e. Exit the winipcfg dialog.

#### Windows NT/Windows 2000/Windows XP

- a. Bring up a command window.
- b. Type **ipconfig /release** in the command window.
- c. Type ipconfig /renew.
- d. Type exit to close the command window.

#### Linux

- a. Bring up a shell.
- b. Type **pump -r** to release the lease.
- c. Type **pump** to renew the lease.



If you change the LAN IP address of the device while connected through your Web browser, you will be disconnected. You must open a new connection by entering your new LAN IP address as the URL.

#### **Show Client**

To the IP Address, MAC Address, and Expired Time of the DHCP lease for each client computer/device:

1. From the head menu, click on *TCP/IP*.

SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEMENT
-------	-------	--------	------	----------	------------

2. From the left-hand menu, click on *LAN Setting*. The following page is displayed:

### LAN Interface Setup

This page is used to configure the parameters for local area network which connects to the LAN port of your Access Point. Here you may change the setting for IP addresss, subnet mask, DHCP, etc..

IP Address:	10.0.0.2
Subnet Mask:	255.255.255.0
Default Gateway:	0.0.0.0
DHCP:	Server 🔻
DHCP Client Range:	10.0.0.100 - 10.0.200 Show Client
DHCP Lease Time:	480 (1 ~ 10080 minutes)
Static DHCP:	Set Static DHCP
Domain Name:	WLAN_AP
802.1d Spanning Tree:	Disabled 🔻
Clone MAC Address:	0000000000
Save Save & Apply	Reset

3. Click on *Show Client* button. The following page is displayed:

### **Active DHCP Client Table**

This table shows the assigned IP address, MAC address and time expired for each DHCP leased client.

IP Address	MAC Address	Time Expired(s)	
10.0.0.100	00:13:33:01:23:45	28216	
Refresh   Close			

# **12** WAN Interface

This chapter describes how to configure the way that your device connects to the Internet. Your ISP determines what type of Internet access you should use and provides you with any information that you need in order to configure the Internet access to your device.

Wireless Gateway supports four methods of obtaining the WAN IP address:

Option	Description
Static IP	Choose this option if you are a leased line user with a fixed IP address.
DHCP Client	Choose this option if you are connected to the Internet through a Cable modem line.
PPPoE	Choose this option if you are connected to the Internet through a DSL line
PPTP	Choose this option if you are connected to the PPTP Server
L2TP	Choose this option if you are connected to the L2TP Server

1. F	-rom th	e head	menu,	click on	TCP/IP.
------	---------	--------	-------	----------	---------

SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEMENT

2. From the left-hand menu, click on *WAN Setting*. The following page is displayed:

### WAN Interface Setup

WAN Access Type: DHCP Client V	
Host Name:	
MTU Size: 1500 (1280-15	500 bytes)
Attain DNS Automatically	
Set DNS Manually	
DNS 1:	
DNS 2:	
DNS 3:	
Clone MAC Address:	Clone MAC Restore Default MAC
Enable uPNP	
Enable IGMP Proxy	
Enable Ping Access on WAN	
Enable Web Server Access on WAN	
Web Accessed port: 8080	
IP Address 1:	Subnet Mask 1:
IP Address 2:	Subnet Mask 2:
IP Address 3:	Subnet Mask 3:
IP Address 4:	Subnet Mask 4:
IP Address 5:	Subnet Mask 5:
Enable IPsec pass through on VPN connection	
Enable PPTP pass through on VPN connection	
Enable L2TP pass through on VPN connection	
Save Save & Apply Reset	

	Option	Description	
Static IP WAN		Choose this option if you are a leased line user with a fixed IP address.	
Access Type	DHCP Client	Choose this option if you are connected to the Internet through a Cable modem line.	
PPPoE PPTP		Choose this option if you are connected to the Internet through a DSL line	
		Choose this option if you are connected to the PPTP Server	
	L2TP	Choose this option if you are connected to the L2TP Server	
Но	ost Name	The name of the DHCP host	
IP	Address	Check with your ISP provider	
Subnet Mask		Check with your ISP provider	
Default Gateway		Check with your ISP provider	
User Name		User name for PPPoE registration recognized by the Internet service provider	
P	assword	Password for PPPoE registration recognized by the Internet service provider	
Service Name		Service Name for PPPoE registration recognized by the Internet service provider	
	Continuous	The connection is always on	
Connection Type	Connect on Demand	Enter the minutes after which the session must be disconnected, if no activity takes place	
Manual		Manually connect	
Idle Time		Enter the minutes after which the session must be disconnected	
WAN Physical		Dynamic IP or Static IP for PPP Connection	
MTU Size		Specify the network MTU rate	
Attain DNS Automatically		Obtain DNS server address automatically	
DNS 1 (Pri	mary DNS Server)	Check with your ISP provider	
DNS 2 (Seco	ondary DNS Server)	Check with your ISP provider	
DNS 3 (TI	hird DNS Server)	Check with your ISP provider	

Option	Description
Clone MAC Address	Clone MAC lets the device identify itself as another computer or device
Enable uPNP	Enable or Disable uPNP
Enable IGMP Proxy	Enable or Disable IGMP Proxy
Enable Ping Access on WAN	Enable or Disable Ping Access on WAN
Enable Web Server Access on WAN	Enable or Disable Web Server Access on WAN
Enable IPsec pass through on VPN connection	Enable or Disable IPsec pass through on VPN connection
Enable PPTP pass through on VPN connection	Enable or Disable PPTP pass through on VPN connection
Enable L2TP pass through on VPN connection	Enable or Disable L2TP pass through on VPN connection

#### **Configuring Static IP connection**

If you are a leased line user with a fixed IP address, enter in the IP address, subnet mask, gateway address, and DNS (domain name server) address(es) provided to you by your ISP.

If your ISP wants you to connect to the Internet using Static IP, follow the instructions below.

#### 1. From the head menu, click on TCP/IP.

	SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEMENT
--	-------	-------	--------	------	----------	------------

2. From the left-hand menu, click on *WAN Setting*. The following page is displayed:

### WAN Interface Setup

WAN Access	Туре:	DHCP Client	•		
Host Name:					
MTU Size:		1500	(1280-150	0 bytes)	
Attain DN:	S Automa	atically			
🔍 Set DNS M	tanually				
DNS 1:					
DNS 2:					
DNS 3:					
Clone MAC Address:	000000	000000	]	Clone MAC	Restore Default MAC
🔍 Enable u	PNP				
🖉 Enable I	GMP Pro	xy			
📃 Enable P	ing Acce	ss on WAN			
📃 Enable W	/eb Serv	er Access on	n WAN		
Web Acc	essed po	rt: 8080			
IP Address	1:		-	Subnet Mask 1:	
			-	Mask 1: Subnet	
IP Address	2:			Mask 2:	
IP Address	3:		-	Subnet	
			-	Mask 3: Subnet	
IP Address	4:			Mask 4:	
IP Address	5:		Ī	Subnet Mask 5:	
Enable If connection	Psec pas	s through or	N VPN		
<ul> <li>Enable P connection</li> </ul>	PTP pase	s through on	VPN		
Enable L <sup>2</sup> connection	2TP pass	through on	VPN		
Save Save 8	& Apply	Reset			

- 3. From the WAN Access Typedrop-down list, select Static IPsetting.
- 4. Enter WAN IP Address, WAN Subnet Mask, Default Gateway and DNS which was given by Telecom or by your Internet Service Provider (ISP).
- 5. Click Save & Apply.

### WAN Interface Setup

WAN Access Typ	De: Static IP	•		
IP Address:				
Subnet Mask:				
Default Gateway	y:			
MTU Size:	1500	(1400-1500	bytes)	
DNS 1:				
DNS 2:				
DNS 3:				
Clone MAC Address:	0000000000	C	Clone MAC	Restore Default MAC
Enable uPNI	Р			
Enable IGM	P Proxy			
Enable Ping	Access on WAN			
Enable Web	Server Access or	N WAN		
Web Access	ed port: 8080			
IP Address 1:	, ,		Subnet ask 1:	
IP Address 2:			Subnet ask 2:	
IP Address 3:			Subnet ask 3:	
IP Address 4:			Subnet ask 4:	
IP Address 5:			Subnet ask 5:	
Enable IPse connection	ec pass through or	N VPN		
Enable PPTI connection	P pass through on	VPN		
Enable L2TP connection	P pass through on	VPN		
Save Save & Ap	ply Reset			

6. Change setting successfully! Please wait 20 seconds....

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 19 seconds ...

### **Configuring DHCP Client connection**

Dynamic Host Configuration Protocol (DHCP), Dynamic IP (Get WAN IP Address automatically). If you are connected to the Internet through a Cable modem line, then a dynamic IP will be assigned.

If your ISP wants you to connect to the Internet using DHCP Client, follow the instructions below.

1. From the head menu, click on *TCP/IP*.

SETUP WLAN1 TCP/IP IPV6 FIREWALL MANAGEM
--

2. From the left-hand menu, click on *WAN Setting*. The following page is displayed:

# WAN Interface Setup

WAN Access Ty	pe: DHCP Client ▼	]			
Host Name:					
MTU Size:	1500	(1280-1500 bytes)			
Attain DNS A	Automatically				
🔍 Set DNS Mai	nually				
DNS 1:					
DNS 2:					
DNS 3:					
Clone MAC Address:	0000000000	Clone MAC	Restore Default MAC		
📃 Enable uPN	IP				
Enable IGM	IP Proxy				
Enable Ping	J Access on WAN				
	Server Access on	MAN			
Web Access	sed port: 8080				
IP Address 1:		Subnet Mask 1:			
IP Address 2:		Subnet			
IP Address 2.	1	Mask 2:	1		
IP Address 3:		Subnet Mask 3:			
IP Address 4:		Subnet Mask 4:			
IP Address 5:		Subnet Mask 5:			
Enable IPsec pass through on VPN connection					
<ul> <li>Enable PPT connection</li> </ul>	P pass through on	VPN			
Enable L2TP pass through on VPN connection					
Save Save & Ap	pply Reset				

- 3. From the *WAN Access Type*drop-down list, select *DHCP Client*setting.
- 4. Click Save & Apply.

# WAN Interface Setup

WAN Access Ty	DHCP Client ▼
Host Name:	
MTU Size:	1500 (1280-1500 bytes)
Attain DNS A	utomatically
🔍 Set DNS Man	ually
DNS 1:	
DNS 2:	
DNS 3:	
Clone MAC Address:	00000000000 Clone MAC Restore Default MAC
📃 Enable uPN	P
🖉 Enable IGM	P Proxy
Enable Ping	Access on WAN
Enable Web	Server Access on WAN
Web Access	ed port: 8080
IP Address 1:	Subnet Mask 1:
IP Address 2:	Subpot
IP Address 3:	Subnet Mask 3:
IP Address 4:	Subnet Mask 4:
IP Address 5:	Subnet Mask 5:
<ul> <li>Enable IPse connection</li> </ul>	ec pass through on VPN
Enable PPT connection	P pass through on VPN
Enable L2TF connection	P pass through on VPN
Save Save & Ap	ply Reset

5. Change setting successfully! Please wait 20 seconds....

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 19 seconds ...

#### **Configuring PPPoE connection**

If your ISP's Internet service uses PPPoE you need to set up a PPP login account. The first time that you login to the Internet, your ISP will ask you to enter a username and password so they can check that you are a legitimate, registered Internet service user. Your device stores these authentication details, so you will not have to enter this username and password every time you login.

If your ISP wants you to connect to the Internet using PPP, follow the instructions below.

1. From the head menu, click on TCP/IP.

SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEMENT

2. From the left-hand menu, click on *WAN Setting*. The following page is displayed:

# WAN Interface Setup

WAN	Access Typ	DHCP Client	·		
Host	Name:				
мти	Size:	1500	(1280-	1500 bytes)	
• A	ttain DNS A	utomatically			
O S	et DNS Man	ually			
DN	S 1:				
DN	S 2:				
DN	S 3:				
Clon Addr	e MAC ess:	00000000000	]	Clone MAC	Restore Default MAC
	Enable uPN	Р			
<b></b>	Enable IGM	P Proxy			
	Enable Ping	Access on WAN			
	Enable Web	Server Access on	WAN		
'	Web Access	ed port: 8080			
IP	Address 1:		r	Subnet Mask 1:	
то	Address 2:		,	Subnet	
IP	Address z.	1		Mask 2:	1
IP	Address 3:			Subnet Mask 3:	
IP	Address 4:		,	Subnet Mask 4:	
IP	Address 5:			Subnet Mask 5:	
Enable IPsec pass through on VPN connection					
	Enable PPTI ection	P pass through on	VPN		
	Enable L2TF ection	P pass through on	VPN		
Save	Save & Ap	ply Reset			

- 3. From the *WAN Access Type*drop-down list, select *PPPoE*setting.
- 4. Enter*User Name/Password* provided by your ISP. Type them in the relevant boxes.
- 5. Click Save & Apply.

### WAN Interface Setup

WAN Access Type:	PPPoE	•		
User Name:				
Password:				
Service Name(AC):				
Connection Type:	Continuous	•	Connect	Disconnect
Idle Time:	5	(1-1000 m	inutes)	
MTU Size:	1452	(1360-149	2 bytes)	
O Attain DNS Automa	tically			
Set DNS Manually				
DNS 1:				
DNS 2:				
DNS 3:				
Clone MAC Address:	000000		Clone MAC	Restore Default MAC
Enable uPNP				
Enable IGMP Prop	ĸy			
Enable Ping Acces	ss on WAN			
Enable Web Serve	er Access o	on WAN		
Web Accessed po	rt: 8080			
IP Address 1:		_	Subnet Mask 1:	
TD Address Dr		_	Subnet	
IP Address 2:			Mask 2:	
IP Address 3:		_	Subnet Mask 3:	
IP Address 4:		_	Subnet	
IP Address 4:			Mask 4:	
IP Address 5:			Subnet Mask 5:	
Enable IPsec pass connection	s through o	on VPN		
Enable PPTP pass connection	through o	on VPN		
Enable L2TP pass connection	through o	n VPN		
Save Save & Apply	Reset			

6. Change setting successfully! Please wait 20 seconds....

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 19 seconds ...

### **Configuring PPTP connection**

If your ISP/Network Administrator wants you to connect to the Internet using PPTP, follow the instructions below.

1. From the head menu, click on TCP/IP.

SETUP WLAN1 WLAN2 TCP/IP IPV6 FIREWALL MANAGEMENT
---

2. From the left-hand menu, click on *WAN Setting*. The following page is displayed:

### WAN Interface Setup

to the WAN port of your A	igure the parameters for Internet network which connects Access Point. Here you may change the access method to PTP or L2TP by click the item value of WAN Access type.
WAN Access Type:	DHCP Client V
Host Name:	
MTU Size:	1500 (1280-1500 bytes)
Attain DNS Automa	atically
○ Set DNS Manually	
DNS 1:	
DNS 2:	
DNS 3:	
Clone MAC Address:	Clone MAC Restore Default MAC
Enable uPNP	
Enable IGMP Prop	ху
Enable Ping Acces	ss on WAN
Enable Web Serve	er Access on WAN
Web Accessed po	rt: 8080
IP Address 1:	Subnet Mask 1:
IP Address 2:	Subnet Mask 2:
IP Address 3:	Subnet Mask 3:
IP Address 4:	Subnet Mask 4:
IP Address 5:	Subnet Mask 5:
Enable IPsec pass connection	s through on VPN
Enable PPTP pass connection	s through on VPN
Enable L2TP pass connection	through on VPN
Save & Apply	Reset

- 3. From the *WAN Access Type* drop-down list, select *PPTP* setting.
- Enter IP Address/Subnet Mask/Default Gateway provided by your ISP. Type them in the relevant boxes. (for Static IP only)
- 5. Select PPTP Server Mode.
- 6. Enter *Server Domain Address/User Name/Password* provided by your ISP. Type them in the relevant boxes.
- 7. Click Save & Apply.

### **WAN Interface Setup**

This page is used to configure the parameters for Internet network which connects to the WAN port of your Access Point. Here you may change the access method to static IP, DHCP, PPPOE, PPTP or L2TP by click the item value of WAN Access type.

WAN Access Type:	РРТР 🔻	
O Dynamic IP (DHCP	2)	
Static IP	7	
IP Address:	172.1.1.2	
Subnet Mask:	255.255.255.0	
Default Gateway:	172.1.1.254	
Attain Server By D		
Attain Server By D		
Domain Name:		
Server IP Address:	172.1.1.1	
User Name:		
Password:		
Connection Type:	Continuous Connect Disconnect	
Idle Time:	5 (1-1000 minutes)	
MTU Size:	1460 (1400-1460 bytes)	
Request MPPE En		
-		
Attain DNS Automa	•	
Set DNS Manually		
DNS 1:		
DNS 2:		
DNS 3:		
Clone MAC Address:	0000000 Clone MAC Restore Default I	MAC
Enable uPNP		
Enable IGMP Prop	xv	
Enable Ping Access		
_	er Access on WAN	
Web Accessed po	ort: 8080	
IP Address 1:	Subnet	_
	Mask 1: / Subnet	
IP Address 2:	Mask 2:	
IP Address 3:	Subnet	_
·	Mask 3: Subnet	
IP Address 4:	Mask 4:	
IP Address 5:	Subnet Mask 5:	_
Enable IPsec past connection		
Enable PPTP pass connection	s through on VPN	
Enable L2TP pass connection	through on VPN	

Save & Apply Reset

Save

8. Change setting successfully! Please wait 20 seconds....

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 19 seconds ...

### Configuring L2TP connection

If your ISP/Network Administrator wants you to connect to the Internet using L2TP, follow the instructions below.

1. From the head menu, click on *TCP/IP*.

SETUP	WLAN1	WLAN2	TCP/IP	IPV6	FIREWALL	MANAGEMENT
			om the left-hand men owing page is displa		<i>tting</i> . The	
	WAN In	terface Set	up			
	to the WAN port (	of your Access Point. He	eters for Internet netwo ere you may change the click the item value of V	access method to		
	WAN Access Ty	ype: DHCP Client ▼				
	Host Name:		1200 1500 h too)			
	MTU Size: Attain DNS		1280-1500 bytes)			
	○ Set DNS Ma	nually				
	DNS 1: DNS 2:		_			
	DNS 3:					
	Clone MAC Address:	0000000000	Clone MAC	Restore Default MAC		
	🗌 Enable uPI	NP				
	Enable IG	-				
	_	g Access on WAN				
		b Server Access on V sed port: 8080	WAN			
	IP Address 1		Subnet Mask 1:			
	IP Address 2	:	Subnet Mask 2:			
	IP Address 3	:	Subnet Mask 3:			
	IP Address 4	:	Subnet Mask 4:			
	IP Address 5	,	Subnet Mask 5:			
	connection	ec pass through on \				
	connection	TP pass through on V				
	<ul> <li>Enable L21 connection</li> </ul>	P pass through on V	PN			
	Save Save & A	Apply Reset				

- 3. From the *WAN Access Type* drop-down list, select *L2TP* setting.
- Enter IP Address/Subnet Mask/Default Gateway provided by your ISP. Type them in the relevant boxes. (for Static IP only)
- 5. Select L2TP Server Mode.
- 6. Enter *Server Domain Address/User Name/Password* provided by your ISP. Type them in the relevant boxes.
- 7. Click Save & Apply.

### **WAN Interface Setup**

This page is used to configure the parameters for Internet network which connects to the WAN port of your Access Point. Here you may change the access method to static IP, DHCP, PPPOE, PPTP or L2TP by click the item value of WAN Access type.

WAN Access Tumor	L2TP	T
WAN Access Type:	LZIP	
Oynamic IP (DHCP)	)	
Static IP		
IP Address:	172.1.1.2	
Subnet Mask:	255.255.255.0	
Default Gateway:	172.1.1.254	
O Attain Server By D	omain Nam	e
Attain Server By Ip	Address	
Domain Name:		
Server IP Address:	172.1.1.1	
User Name:		
Password:		
Connection Type:	Continuous	Connect Disconnect
Idle Time:	5	(1-1000 minutes)
MTU Size:	1460	(1400-1460 bytes)
O Attain DNS Automa	tically	
Set DNS Manually	lucally	
DNS 1:		
DNS 2:		
DNS 3:		
Address:	000000	Clone MAC Restore Default MAC
Enable uPNP		
Enable IGMP Prox	cy	
Enable Ping Access	s on WAN	
Enable Web Serve	er Access of	n WAN
Web Accessed por	rt: 8080	
IP Address 1:		Subnet Mask 1:
		Subnet
IP Address 2:		Mask 2:
IP Address 3:		Subnet
		Mask 3: Subnet
IP Address 4:		Mask 4:
IP Address 5:		Subnet
		Mask 5:
Enable IPsec pass connection	s through o	n VPN
<ul> <li>Enable PPTP pass</li> </ul>	through or	VPN
connection	anougnoi	
Enable L2TP pass	through on	VPN
connection		

Save

Save & Apply Reset

8. Change setting successfully! Please wait 20 seconds....

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 19 seconds ...

### **Configuring L2TP connection**

If your ISP/Network Administrator wants you to connect to the Internet using L2TP, follow the instructions below.

9. From the head menu, click on TCP/IP.

SETUP	WLAN1	WLAN2	TCP/IP	IPV6	FIREWALL	MANAGEMENT

## 10. From the left-hand menu, click on *WAN Setting*. The following page is displayed:

### WAN Interface Setup This page is used to configure the parameters for Internet network which connects to the WAN port of your Access Point. Here you may change the access method to static IP, DHCP, PPPOE, PPTP or L2TP by click the item value of WAN Access type.

WAN Access Type:	DHCP Client 🔻
Host Name:	
MTU Size:	1500 (1280-1500 bytes)
Attain DNS Automa	tically
Set DNS Manually	
DNS 1:	
DNS 2:	
DNS 3:	
Clone MAC Address:	000000 Clone MAC Restore Default MAC
Enable uPNP	
Enable IGMP Prox	¢γ
Enable Ping Access	
Enable Web Serve	
Web Accessed por	
IP Address 1:	Subnet Mask 1:
IP Address 2:	Subnet Mask 2:
IP Address 3:	Subnet Mask 3:
IP Address 4:	Subnet Mask 4:
IP Address 5:	Subnet Mask 5:
Enable IPsec pass connection	; through on VPN
Enable PPTP pass connection	through on VPN
<ul> <li>Enable L2TP pass connection</li> </ul>	through on VPN
Save Save & Apply	Reset

- 11. From the WAN Access Type drop-down list, select DS-Lite setting.
- 12. Configure related settings provided by your ISP. Type them in the relevant boxes.
- 13. Click Save & Apply.

### WAN Interface Setup

This page is used to configure the parameters for Internet network which connects to the WAN port of your Access Point. Here you may change the access method to static IP, DHCP, PPPoE, PPTP or L2TP by click the item value of WAN Access type.

WAN Access Type:	DS-Lite <b>T</b>
Attain AFTR Auton	natically
Set AFTR Manually	/
AFTR IPv6 Address:	0000:0000:0000:0000:0000:0000:0000
WAN IPv6 Address:	0000:0000:0000:0000:0000:0000:0000
Default Gateway:	0000:0000:0000:0000:0000:0000:0000
Save Save & Apply	Reset

14. Change setting successfully! Please wait 20 seconds....

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 19 seconds ...

#### **Clone MAC Address**

Some particularly ISPs do not want you to have a home network and have a DSL/Cable modem that allows only 1 MAC to talk on the internet. If you change network cards, you have to call them up to change the MAC. The Wireless Gateway can it's MAC to computer's one that was originally set up for such an ISP.

This page allows you to enable or disable *Clone MAC Address* option.

1. From the head menu, click on TCP/IP.

SETUP WLAN1 TCP/IP	IPV6 FIREWALL MANAGEM
--------------------	-----------------------

2. From the left-hand menu, click on *WAN Setting*. The following page is displayed:

## WAN Interface Setup

This page is used to configure the parameters for Internet network which connects to the WAN port of your Access Point. Here you may change the access method to static IP, DHCP, PPPOE, PPTP or L2TP by click the item value of WAN Access type.

WAN Access Ty	DHCP Client V
Host Name:	
MTU Size:	1500 (1280-1500 bytes)
Attain DNS A	utomatically
🔍 Set DNS Man	ually
DNS 1:	
DNS 2:	
DNS 3:	
Clone MAC Address:	00000000000 Clone MAC Restore Default MAC
📃 Enable uPN	P
🖉 Enable IGM	P Proxy
Enable Ping	Access on WAN
Enable Web	Server Access on WAN
Web Access	sed port: 8080
IP Address 1:	Subnet Mask 1:
	Subnot
IP Address 2:	Mask 2:
IP Address 3:	Subnet Mask 2:
	Mask 3: Subnet
IP Address 4:	Mask 4:
IP Address 5:	Subnet Mask 5:
<ul> <li>Enable IPse connection</li> </ul>	ec pass through on VPN
Enable PPT connection	P pass through on VPN
<ul> <li>Enable L2TF connection</li> </ul>	P pass through on VPN
Save Save & Ap	pply Reset

- 3. Enterthe MAC for example 0123456789ab that you want to be instead of in the *Clone MAC Address*field.
- 4. If you enter 12 digits of 0in the *Clone MAC Address*field, it'll disable *Clone MAC Address* function.
- 5. Click Save & Apply.

### WAN Interface Setup

This page is used to configure the parameters for Internet network which connects to the WAN port of your Access Point. Here you may change the access method to static IP, DHCP, PPPOE, PPTP or L2TP by click the item value of WAN Access type.

WAN Access Type:	DHCP Client V
Host Name:	
MTU Size:	1500 (1280-1500 bytes)
Attain DNS Auton	atically
Set DNS Manually	
DNS 1:	
DNS 2:	
DNS 3:	
Clone MAC Address:	56789ab Clone MAC Restore Default MAC
Enable uPNP	
Enable IGMP Press	ху
Enable Ping Acc	ess on WAN
	er Access on WAN
Web Accessed p	
IP Address 1:	Subnet Mask 1:
IP Address 2:	Subnet Mask 2:
IP Address 3:	Subnet Mask 3:
IP Address 4:	Subnet Mask 4:
IP Address 5:	Subnet Mask 5:
Enable IPsec pa connection	is through on VPN
Enable PPTP pase connection	s through on VPN
Enable L2TP pase connection	s through on VPN
Save Save & Apply	Reset

6. Change setting successfully! Please wait 20 seconds....

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 19 seconds ...

# **13** IPV6

#### **IPV6 WAN SETTING**

This page is used to configure the parameters for Internet network which connects to the WAN port of your Access Point. Here you may change the access method to static IP, DHCP, PPPoE, Bridge by click the item value of WAN Access type.

1. From the head menu, click on IPV6.

	SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEM
--	-------	-------	--------	------	----------	---------

2. From the left-hand menu, click on *IPV6 WAN SETTING*. The following page is displayed:

# **WAN Interface Setup**

This page is used to configure the parameters for Internet network which connects to the WAN port of your Access Point. Here you may change the access method to static IP, AUTO, PPPOE, Bridge by click the item value of WAN Access type.
□Enable IPv6
WAN
Origin Type : AUTO
WAN Link Type: Ethernet 🤍
Save Save & Apply Reset

### **IPV6 LAN SETTING**

1. From the head menu, click on IPV6.

SETUP WLAN1 TCP/IP IPV6 FIREWALL MAN
--------------------------------------

2. From the left-hand menu, click on *IPV6 LAN SETTING*. The following page is displayed:

### Configuring LAN setting

IP Address:						
0000 : 0000 : 0000 : 0000 : 0000 : 0000 : 0000 : 0000	0					

#### Configuring DHCPv6 Server

Enable	
DNS Addr:	
Interface Name:	
Addrs Pool:	
From:	
To:	
Save Save 8	& Apply

### RADVD

1. From the head menu, click on <i>IPV6</i> .								
SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEM			

2. From the left-hand menu, click on *RADVD*. The following page is displayed:

### **Configuring Router Advertisement**

Save & Apply

Save

default

reset

Enable 🗌		
radvdinterfacename		
MaxRtrAdvInterval	0	
MinRtrAdvInterval	0	
MinDelayBetweenRAs	0	
AdvManagedFlag		
AdvOtherConfigFlag		
AdvLinkMTU	0	
AdvReachableTime	0	
AdvRetransTimer	0	
AdvCurHopLimit	0	
AdvDefaultLifetime	0	
AdvDefaultPreference	high $\checkmark$	
AdvSourceLLAddress		
UnicastOnly		
prefixl		
Enabled		

Liaoled								
prefix	· ·	0000	0000	: 0000	: 0000	: 0000	: 0000	:
AdvOnLinkFlag								
AdvAutonomousFlag								
AdvValidLifetime	0							
AdvPreferredLifetime	0							
AdvRouterAddr								
if6to4								
prefix2								
Enabled								
prefix		0000 0	0000	: 0000	: 0000	: 0000	: 0000	:
AdvOnLinkFlag								
AdvAutonomousFlag								
AdvValidLifetime	0							
AdvPreferredLifetime	0							
AdvRouterAddr								
if6to4								

### TUNNEL (6 OVER 4)

 1. From the head menu, click on IPV6.

 SETUP
 WLAN1
 TCP/IP
 IPV6
 FIREWALL
 MANAGEM

 2. From the left-hand menu, click on TUNNEL (6 OVER 4). The following page is displayed:
 Configuring Tunnel(6to4)
 Configuring Tunnel(6to4)

Enable 🗌 🛛 Save

# **14** Port Filtering

Entries in Current Filter Table are used to restrict certain ports and types of data packets from your local network to Internet through the Gateway. Use of such filters can be helpful in securing or restricting your local network.

			1.	From the head	menu, click on <i>Fi</i>	irewall.			
SETUP	WL	AN1	Т	CP/IP	IPV6		FIREWA	LL	MANAGEM
				From the left-hand following page	and menu, click o is displayed:	n <i>Port I</i>	Filtering. The		
		Port F	Filte	ring					
		network to securing or	Internet	through the Ga ng your local ne	strict certain type: iteway. Use of su etwork.				-
			e IPv4	Enable IP	v6				
		Port Rang		-					
		Protocol:							
		Save	Save & A	pply Reset	1				
					_				
		Current Fil Port F		le: Protoc	u IP	C	comment	Select	
			_		Version		oninene	UCICCU	
Г		Delete Selec			Reset				
-	Option				Description				
	EnablePort     Enable/Disable the WAN packet filter.       Filtering     Default setting is Disable.								
-	PortRange       Enter the port range to be filtered for both Outbound and Inbound packet         Protocol       Select the Protocol to be filtered for both Outbound and Inbound packet         Both: To filter both TCP and UDP protocol								
			-	TCP protocol					
-			-	OP protocol					
	Comment	Fill in the I	note for	manager what	the purpose of o	certain	port filtering r	ule	
	Current Filter Table	The Port F	ilters that	at was created	is listed here				



You must ensure that the single port or range specified does not overlap with a port or range for an existing common or custom application. Check the common port ranges listed in.

#### Port filtering for TCP port 80

Please follow example below to deny the TCP port 80 for both Outbound and Inbound packet.

1. From the head menu, click on Firewall.

	SETUP	WLAN1	ТСР/ІР	IPV6	FIREWALL	MANAGEM
--	-------	-------	--------	------	----------	---------

2. From the left-hand menu, click on *Port Filtering*. The following page is displayed:

### Port Filtering

Entries in this table are used to restrict certain types of data packets from your local network to Internet through the Gateway. Use of such filters can be helpful in securing or restricting your local network.

Enable Port Filt	ering			
Enable IPv4	Enable IPv6			
Port Range:	-			
Protocol: Both 🗸				
Comment:				
Save Save & Appl	y Reset			
Current Filter Table:				
Port Range	Protocol	IP Version	Comment	Select
Delete Selected De	ete All Reset	1		

- 3. Check the option *Enable Port Filtering* to enable the port filtering.
- 4. Enter80 and 80 in PortRange field.
- 5. From the *Protocol* drop-down list, select *TCP*setting.
- 6. EnterHTTP in Comment field.
- 7. Click Save & Apply.

$\sim$	Ena	ble	Port	Filte	ring

🗹 Enab	le IPv4 🗌 Ena	ble IPv6
Port Ran	<b>ge:</b> 80 - 80	
Protocol:	TCP 🗸	
Comment	: HTTP	_
Save	Save & Apply	Reset

- 8. Now the port filter that you created has been added and listed in the *Current Filter Table*.
- 9. Now the TCP port for both Outbound and Inbound packet has been denied.

#### **Current Filter Table:**

Port Range	Protocol	IP Version	Comment	Select			
80	TCP	IPv4	HTTP				
Delete Selected Delete All Reset							

Now you cannot visit any web site due to the TCP port 80 has been blocked by the Port Filtering rule that created.

### Port filtering for UDP port 53

Please follow example below to deny the UDP port 53 for both Outbound and Inbound packet.

1. From the head menu, click on Firewall.

SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEM

2. From the left-hand menu, click on *Port Filtering*. The following page is displayed:

## **Port Filtering**

Entries in this table are used to restrict certain types of data packets from your local network to Internet through the Gateway. Use of such filters can be helpful in securing or restricting your local network.

<ul> <li>Enable Port Filte</li> <li>Enable IPv4</li> </ul>	ering Enable IPv6				
Port Range:	-				
Protocol: Both 🧹					
Comment:					
Save Save & Appl	y Reset				
Current Filter Table:					
Port Range	Protocol	IP Version	Comment	Select	
Delete Selected De	elete All Reset				

- 3. Check the option *Enable Port Filtering* to enable the port filtering.
- 4. Enter53 and 53 in PortRange field.
- 5. From the *Protocol* drop-down list, select *UDP*setting.
- 6. EnterDNS Resolve in *Comment* field.
- 7. Click Save & Apply.

Enable IPv4 Enable IPv6
Port Range: 53 - 53
Protocol: UDP 🗸
Comment: DNS
Save Save & Apply Reset

- 8. Now the port filter that you created has been added and listed in the *Current Filter Table*.
- 9. Now the UDP port 80 for both Outbound and Inbound packet has been denied.

#### **Current Filter Table:**

Port Range	Protocol	IP Version	Comment	Select		
53	UDP	IPv4	DNS			
Delete Selected Delete All Reset						

Now you cannot visit any web site by domain due to the UDP port 53 has been blocked by the Port Filtering rule that created.

You can enter the IP Address of that web site to visit.

# 15 IP Filtering

Entries in this table are used to restrict certain types of data packets from your local network to Internet through the Gateway. Use of such filters can be helpful in securing or restricting your local network.

The IP filter feature enables you to create rules that control the forwarding of incoming and outgoing data between the LAN and WAN side.

You can create IP filter rules to block attempts by certain computers on your LAN to access certain types of data or Internet locations. You can also block accesses to your LAN computers from the WAN side.

When you define an IP filter rule and enable the feature, you instruct the ADSL/Ethernet router to examine data packets to determine whether they meet criteria set forth in the rule. The criteria can include the network or internet protocol, the packet carries, the direction in which it is traveling (for example, from the LAN to the WAN and vice versa).

If the packet matches the criteria established in a rule, the packet can either be accepted (forwarded towards its destination), or denied (discarded), depending on the action specified in the rule.

The IP Filter Configuration page provides the capability to enable/disable the IP filter feature and the IP Filter rule entries for all currently established rules.

#### 1. From the head menu, click on Firewall.

		1. Tront the neud		r nowan.		
SETUP	WLAN1	TCP/IP	IPV6		FIREWALL	
		2. From the left-happing page is display		on IP Filtering	The following	
	IP Fil	ltering				
	network to	this table are used to re o Internet through the Ga or restricting your local n	ateway. Use of			ıl
	<ul> <li>Enable IP Filtering</li> <li>Enable IPv4 Enable IPv6</li> </ul>					
		4 Address: 6 Address:				
	Protocol: Save	Both Comment: Save & Apply Reset				
		ilter Table:				
	Local I	IP Address Pr	otocol	Comment	Select	
	Delete Sele	ected Delete All	Reset			
		IP filtering for T	CP with spee	cified IP		

Please follow example below to deny the TCP protocol for specified IP.

1. From the head menu, click on *Firewall*.

SETUP WLAN1 TCP/IP IPV6 FIREWALL MANA
---------------------------------------

2. From the left-hand menu, click on *IP Filtering*. The following page is displayed:

## **IP Filtering**

Save

Save & Apply

Reset

Entries in this table are used to restrict certain types of data packets from your local network to Internet through the Gateway. Use of such filters can be helpful in securing or restricting your local network.

<ul> <li>Enable IP Filtering</li> <li>Enable IPv4</li> <li>Er</li> </ul>	nable IPv6		
Local IPv4 Address:			
Local IPv6 Address:			
Protocol: Both Cor	nment:	-	
Save Save & Apply	Reset		
Current Filter Table:			
Local IP Address	Protocol	Comment	Select
Delete Selected Delete			
3. Check Filterir	the option <i>Enable IP F</i> ng.	<i>-iltering</i> to enable the	IP
	he IP Address that you ss field.	want to be deniedin	Loal IP
5. From t	the <i>Protocol</i> drop-dowr	n list, select <i>TCP</i> settin	ıg.
	any comment in <i>Comm</i>	<i>ent</i> field.	
7. Click S	Save & Apply.		
Enable IPv4 En	able IPv6		
Local IPv4 Address: 10			
Local IPv6 Address:			
Protocol: TCP 🗸 Con	ment: Deny UDP	-	

- 8. Now the IP Filter that you created has been added and listed in the *Current Filter Table*.
- 9. Now the TCP protocol for both Outbound and Inbound packet has been denied.

#### **Current Filter Table:**

Local IP Address	Protocol	Comment	Select
10.0.0.102	ТСР	Deny UDP	

Now The Local IP Address for example 10.0.0.102 that listed in the *Current Filter Table* cannot visit any application that use TCP protocol for example web site due to the Protocol TCP has been blocked by the IP Filtering rule that created.

#### IP filtering for UDP with specified IP

Please follow example below to deny the UDP protocol for specified IP.

1. From the head menu, click on Firewall.

SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEM

2. From the left-hand menu, click on *IP Filtering*. The following page is displayed:

### **IP Filtering**

Entries in this table are used to restrict certain types of data packets from your local network to Internet through the Gateway. Use of such filters can be helpful in securing or restricting your local network.

<ul> <li>Enable IP Filtering</li> <li>Enable IPv4</li> <li>Enable IPv6</li> </ul>					
Local IPv4 Address:					
Local IPv6 Address:					
Protocol:     Both     Comment:       Save     Save & Apply     Reset					
Current Filter Table:					
Local IP Address	Protocol	Comment	Select		
Delete Selected Delete	All Reset				

3.	Check the option <i>Enable IP Filtering</i> to enable the IP Filtering.
4.	Enterthe IP Address that you want to be deniedin <i>Local IP</i> Address field.
5.	From the Protocol drop-down list, select UDPsetting.
6.	Enterany comment in Comment field.
7.	Click Save & Apply.
Enable IP Filt	5
Enable IPv4	Enable IPv6
Local IPv4 Addre	<b>ss:</b> 10.0.0.102
Local IPv6 Addre	ss:
Protocol: UDP 🗸	Comment: Deny UDP

Reset

- Now the IP Filter that you created has been added and 8. listed in the Current Filter Table.
- Now the UDP protocol for both Outbound and Inbound 9. packet has been denied.

#### Current Filter Table:

Save & Apply

Save

Local IP Address	Protocol	Comment	Select
10.0.0.102	UDP	Deny UDP	
Delete Selected De	lete All Reset		

Now The Local IP Address for example 10.0.0.102 that listed in the Current Filter Table cannot visit any application that use UDP protocol for example TFTP Service due to the Protocol UDP has been blocked by the IP Filtering rule that created.

#### IP filtering for both TCP and UDP with specified IP

Please follow example below to deny the both TCP and UDP protocol for specified IP.

1. From the head menu, click on Firewall.

SETUP WLAN1 TCP/IP IPV6 FIREWALL MANAGE	SETUP W	/LAN1 TCP/I	P IPV6	FIREWALL	MANAGEM
---	---------	-------------	--------	----------	---------

2. From the left-hand menu, click on *IP Filtering*. The following page is displayed:

## **IP Filtering**

Entries in this table are used to restrict certain types of data packets from your local network to Internet through the Gateway. Use of such filters can be helpful in securing or restricting your local network.

Enable IP Filtering						
Enable IPv6						
Local IPv4 Address:						
Local IPv6 Address:						
Protocol: Both 🗸 Com	iment:					
Save Save & Apply	Reset					
Current Filter Table:						
Local IP Address	Protocol	Comment	Select			
Delete Selected Delete	All Reset					

3.	Check the option <i>Enable IP Filtering</i> to enable the IP Filtering.				
4.	Enterthe IP Address that you want to be deniedin <i>Local IP</i> Address field.				
5.	From the Protocol drop-down list, select Bothsetting.				
6.	Enterany comment in Comment field.				
7.	Click Save & Apply.				
🗹 Enable IP Filt	ering				
Enable IPv4	Enable IPv6				
ocal IPv4 Address: 10.0.0.102					
ocal IPv6 Address:					
Protocol: Both 🗸	Comment: Deny TCP + UDP				
Save Save & A	Apply Reset				

- 8. Now the IP Filter that you created has been added and listed in the *Current Filter Table*.
- 9. Now the TCP and UDP protocol for both Outbound and Inbound packet has been denied.

#### Current Filter Table:

Local IP Address	Protocol	Comment	Select
10.0.102	TCP+UDP	Deny TCP+UDP	

# **16** MAC Filtering

Entries in this table are used to restrict certain types of data packets from your local network to Internet through the Wireless Gateway. Use of such filters can be helpful in securing or restricting your local network.

1. From the head menu, click on Firewall.

SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEM

2. From the left-hand menu, click on *MAC Filtering*. The following page is displayed:

# **MAC Filtering**

Delete Selected

Delete All

Entries in this table are used to restrict certain types of data packets from your local network to Internet through the Gateway. Use of such filters can be helpful in securing or restricting your local network.

Enable MAC Filtering MAC Address: Comm	ment:				
Save Save & Apply Reset					
Current Filter Table:					
MAC Address	Comment	Select			

Reset

#### MAC filtering for specified MAC Address

Please follow example below to deny the specified MAC Address has the Internet Access.

1. From the head menu, click on Firewall.

SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEM
-------	-------	--------	------	----------	---------

2. From the left-hand menu, click on *MAC Filtering*. The following page is displayed:

# **MAC Filtering**

Entries in this table are used to restrict certain types of data packets from your local network to Internet through the Gateway. Use of such filters can be helpful in securing or restricting your local network.

- 3. Check the option *Enable MAC Filtering* to enable the MAC Filtering.
- 4. Enterthe MAC Address that you want to be deniedin *MAC Address*field.
- 5. Enterany comment in *Comment* field.
- 6. Click Save & Apply.

🗹 Enabl	e MAC Fil	tering			
MAC Addr	ess: 0011	22334455		Comment:	001122334455
Save	Save & App	ly Re	set		

- 7. Now the MAC Filter that you created has been added and listed in the *Current Filter Table*.
- 8. Now the MAC Address in the *Current Filter Table* cannot have the Internet Access.

#### Current Filter Table:

MAC Address	Comment	Select
00:11:22:33:44:55	001122334455	
Delete Selected Delete All Reset		

# **17** Port Forwarding

Entries in this table allow you to automatically redirect common network services to a specific machine behind the NAT firewall. These settings are only necessary if you wish to host some sort of server like a web server or mail server on the private local network behind your Gateway's NAT firewall.

Your device has built in advanced Security features that protect your network by blocking unwanted traffic from the Internet.

If you simply want to connect from your local network to the Internet, you do not need to make any changes to the default Security configuration. You only need to edit the configuration if you wish to do one or both of the following:

- allow Internet users to browse the user pages on your local network (for example, by providing an FTP or HTTP server)
- play certain games which require accessibility from the Internet

This chapter describes how to configure Security to suit the needs of your network.

By default, the IP addresses of your LAN PCs are hidden from the Internet. All data sent from your LAN PCs to a PC on the Internet appears to come from the IP address of your device.

In this way, details about your LAN PCs remain private. This security feature is called *Port Forwarding*.

#### 1. From the head menu, click on Firewall.

SETUP WLAN1 TCP/IP IPV6 FIREWALL MANA
---------------------------------------

2. From the left-hand menu, click on *Port Forwarding*. The following page is displayed:

### **Port Forwarding**

Entries in this table allow you to automatically redirect common network services to a specific machine behind the NAT firewall. These settings are only necessary if you wish to host some sort of server like a web server or mail server on the private local network behind your Gateway's NAT firewall.

Enable Port Forwarding						
IP Address:	Pr	otocol: Both 🗸	Internal Port:	External Port:		
Remo	te IP Address: 🛛	Co	mment:			
Save Sa	ve & Apply Res	et				

#### **Current Port Forwarding Table:**

Local IP Address	Protocol	Internal Port	External Port	Remote IP Address	Comment	Status	Select
Delete Sele	cted D	elete All	Reset				

### Port Forwarding for TCP with specified IP

Please follow example below to configure the Port Forwarding to Specified IP with TCP.

1. From the head menu, click on <i>Firewall</i> .								
SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEM			

2. From the left-hand menu, click on Port Forwarding. The following page is displayed:

### **Port Forwarding**

Entries in this table allow you to automatically redirect common network services to a specific machine behind the NAT firewall. These settings are only necessary if you wish to host some sort of server like a web server or mail server on the private local network behind your Gateway's NAT firewall.

Enable Port Forwarding									
IP Addres	s:	Pr	otocol: 🖪	Both 🗸 Int	ernal Port: 🗌	Ex	ternal P	ort:	
Rer	Remote IP Address: Comment:								
Save Save	Save & App	<u> </u>	set						
Local IP Address	Protocol	Internal Port	External Port	Remote IP Address	Comment	Status	Select		
Delete Selec	ted De	elete All	Reset						

- 3. Check the option *Enable Port Forwarding* to enable the Enable Port Forwarding.
- 4. Enterthe IP Address that the port you want to be forwarded in *IP Address* field.
- 5. From the *Protocol* drop-down list, select *TCP*setting.
- 6. Enterany comment in *Comment* field.
- 7. Click Save & Apply.

#### Enable Port Forwarding

IP Address: 10.0.0.102 Protocol: TCP 🗸 Internal Port: 80 External Port:
80 Remote IP Address: Comment: test
Save Save & Apply Reset
<ol> <li>Now the IP Address and port range that you created has been added and listed in the <i>Current Filter Table</i>.</li> </ol>

9. Now the port range of the IP Address in the *Current Filter Table* can be access from Internet by TCP protocol.

#### **Current Port Forwarding Table:**

Local IP Address	Protocol	Internal Port	External Port	Remote IP Address	Comment	Status	Select	
10.0.0.102	TCP	80	80	ANY	test	Enabled		
Delete Selected Delete All Reset								

#### Port Forwarding for UDP with specified IP

Please follow example below to configure the Port Forwarding to Specified IP with UDP.

1. From the head menu, click on Firewall.

SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEM
-------	-------	--------	------	----------	---------

2. From the left-hand menu, click on *Port Forwarding*. The following page is displayed:

# **Port Forwarding**

Entries in this table allow you to automatically redirect common network services to a specific machine behind the NAT firewall. These settings are only necessary if you wish to host some sort of server like a web server or mail server on the private local network behind your Gateway's NAT firewall.

Enable P	ort Forwardi	ng			
IP Address:		Protocol: Both	<ul> <li>Interna</li> </ul>	al Port:	External Port:
Remo	te IP Addres	s:	Comment:		
Save Sa	ve & Apply	Reset			

#### Current Port Forwarding Table:

1

Local IP Address	Protocol	Internal Port	External Port	Remote IP Address	Comment	Status	Select
Delete Selec	ted D	elete All	Reset				
			ption <i>Enat</i> Forwardin		arding to enable	e the	
		nterthe IP / IP Addres		at the port yo	ou want to be fo	rwarded	
	5. Fr	om the Pr	otocol drop	o-down list, s	elect <i>UDP</i> settin	g.	
	6. Er	nterany co	mment in (	Comment fie	ld.		
	7. Cl	ick Save &	Apply.				
IP Address	• Port For • 10.0.0.10	)2 Pro	otocol: U	DP V Inte	ernal Port: 69	Ext	ernal Por
	Save & Appl		et		,		
<ol> <li>Now the IP Address and port range that you created has been added and listed in the <i>Current Filter Table</i>.</li> </ol>							
<ol> <li>Now the port range of the IP Address in the Current Filter Table can be access from Internet by UDP protocol.</li> </ol>							
Current Po	ort Forwa	rding Tab	le:				
Local IP		Internal	External	Remote	o	<b>CL</b> - <b>L</b> -	

Local IP Address	Protocol	Internal Port	External Port	Remote IP Address	Comment	Status	Select
10.0.0.102	UDP	69	69	ANY	test	Enabled	

# **18** URL Filtering

URL filter is used to deny LAN users from accessing the internet. Block those URLs which contain keywords listed below.

1. From the head menu, click on Firewall.

SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEM

2. From the left-hand menu, click on *URL Forwarding*. The following page is displayed:

## **URL Filtering**

URL filter is used to deny LAN users from accessing the internet. Block those URLs which contain keywords listed below.

Enable URL Filtering	
env url address(black list)	
○ allow url address(white list)	
URL Address:	
Save Save & Apply Reset	
URL Address	Select
Delete Selected Delete All Reset	

#### URL filtering for specified URL Address

Please follow example below to deny LAN users from accessing the Internet.

1. From the head menu, click on Firewall.

SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEM

2. From the left-hand menu, click on *URL Forwarding*. The following page is displayed:

## **URL Filtering**

 $\mathsf{URL}$  filter is used to deny LAN users from accessing the internet. Block those  $\mathsf{URLs}$  which contain keywords listed below.

Enable URL	-	
<ul> <li>allow url addre</li> </ul>	ess(white list)	
URL Address:		
Save Save &	Apply Reset	
Current Filter Tal	ble:	
	URL Address	Select
Delete Selected	Delete All Reset	
3. 4. 5. 6.	Check the option <i>Enable URL Filtering</i> to Filtering. Check the option <i>deny url address(black</i> address(black list) Enterthe URL Address that you want to b user. Click <i>Save &amp; Apply</i> .	<i>list)</i> to deny url
🗹 Enable URL F	iltering	
I deny url address	ss(black list)	
O allow url addre	ss(white list)	
URL Address:	/w.google.com	
Save Save &	Apply Reset	

- 7. Now the URL Filter that you created has been added and listed in the *Current Filter Table*.
- 8. Now the URL Address in the *Current Filter Table* cannot be visited.

### Current Filter Table:

	Select		
	www.googl	e.com	
Delete Selected	Delete All	Reset	



A Demilitarized Zone is used to provide Internet services without sacrificing unauthorized access to its local private network. Typically, the DMZ host contains devices accessible to Internet traffic, such as Web (HTTP) servers, FTP servers, SMTP (e-mail) servers and DNS servers.

1. From the head menu, click on Firewall.

SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEM
		2. From the left-h is displayed:	and menu, click on <i>DM</i> 2	. The following page	
		rized Zone is used to pro ed access to its local pr			
	SMTP (e-n	cessible to Internet traff nail) servers and DNS se <b>le DMZ</b>		) servers, FTP servers,	
		IP Address:			
	Save	Save & Apply Reset			
		DMZ Host IP Ad	dress		
		Please follow exam Address.	nple below to configure t	he DMZ to Host IP	
		1. From the head	menu, click on Firewall.		

SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEM
-------	-------	--------	------	----------	---------

2. From the left-hand menu, click on *DMZ*. The following page is displayed:

## DMZ

A Demilitarized Zone is used to provide Internet services without sacrificing unauthorized access to its local private network. Typically, the DMZ host contains devices accessible to Internet traffic, such as Web (HTTP) servers, FTP servers, SMTP (e-mail) servers and DNS servers.

🗌 Enab	le DMZ					
DMZ Host	DMZ Host IP Address:					
Save	Save & Apply	Reset				

- 3. Check the option *Enable DMZ* to enable the Enable DMZ.
- 4. Enterthe IP Address that to be the DMZ Host in *DMZ* Host *IP* Addressfield.
- 5. Click Save & Apply.

ole DMZ					
DMZ Host IP Address: 10.0.0.102					
Save & Apply	Reset				
	t IP Address:	t IP Address: 10.0.0.102			

# 20 802.1Q VLAN

Entries in below table are used to configvlan settings. VLANs are created to provide the segmentation services traditionally provided by routers. VLANs address issues such as scalability, security, and network management.

#### 1. From the head menu, click on Firewall.

SETUP	WLAN1	ТСР/ІР	IPV6	FIREWALL	MANAGEM

2. From the left-hand menu, click on *802.1Q VLAN*. The following page is displayed:

### 802.1Q VLAN

Entries in below table are used to config vlan settings. VLANs are created to provide the segmentation services traditionally provided by routers. VLANs address issues such as scalability, security, and network management.

Enable 802.1Q VL VLAN ID(1-4095): 0	AN				
Forwarding Rule: NA	T T				
Port	Member	Tagged			
port1					
port2					
port3					
port4					
port5 (WAN)					
wlan1					
wlan1-va1					
wlan1-va2					
wlan1-va3					
wlan1-va4					
wlan1-vxd					
Save Save & Apply	Reset				
VLAN ID Forwardin	ng Rule	Tagged	Ports	U	ntagged Por
Delete Selected Delete	All Reset				
Change PVID Sett	ing				

# 21 ROUTE SETUP

This page is used to setup dynamic routing protocol or edit static route entry.

1. From the head menu, click on Firewall.

SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEM

2. From the left-hand menu, click on *ROUTE SETUP*. The following page is displayed:

## **Routing Setup**

This page is used to setup static route protocol.

Enable Sta	tic Route					
IP Address:						
Subnet Mask:						
Gateway:						
Metric:		_				
Interface:	LAN	$\sim$				
Save Save	& Apply Res	et Show Route	Table			
Static Route Ta	ble:					
Destination IP Address	Netmask	Gateway	Metric	Interface	Status	Select
Delete Selected	Delete All	Reset				

Entries in this table improve your online gaming experience by ensuring that your game traffic is prioritized over other network traffic, such as FTP or Web.

#### 1. From the head menu, click on Firewall.

БЕТИР	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEN
		<ol> <li>From the left-has is displayed:</li> </ol>	and menu, click on QOS	S. The following page	
QoS					
is prioritized over o Enable QoS Automatic Up Manual Uplink Spe Automatic Do	blink Speed Seed (Kbps): 512 Speed (Kbps): 512 Speed (Kbps): 512	ence by ensuring that your game tra r Web. 	ffic		
Name:					
QoS Type: protocol:	IPv4     Both		ODSCP		
Local IP Address:		-			
Local Port:		-			
Remot IP Addres	s:	-			
Remote Port:		-			
IPv6 Address:					
MAC Address:					
phyport:		(0-4)			
dscp:		(0-63)			
Layer 7:	Disable	~			
Mode:					
Mode:		teed minimum bandwidth 🗸			
Uplink Bandwidth		_			
Downlink Bandwid remark	itii (kups):				
remark dscp:		(0-63)			
Comment:					
Save Save & A	pply Reset				
Current QoS Rules	s Table:				
Name Ipversion P	rotocol Local IP Local IP Address Port Address	Remote Local MAC IPv6 Address Phyport	dscp Mode Uplink Downlin Bandwidth Bandwidt	k remark Select th dscp	
Delete Selected	Delete All Reset				



This page displays the current information for the device. It will display the LAN, WAN, and system firmware information. This page will display different information, according to WAN setting (Static IP, DHCP, or PPPoE).

1. From the head menu, click on Management.

SETUP WLAN1 TCP/IP IPV6 FIREWALL MANAGEMENT
---

2. From the left-hand menu, click on *Status*. The following page is displayed:

## **Access Point Status**

This page shows the current status and some basic settings of the device.

Sustam	
System Uptime	0 days 2 bs 22 ms 49 c
Firmware Version	0day:2h:32m:48s
Build Time	RER4_A_v3411_2T2R_STD_01_160824
Wireless Configuration	Wed Aug 24 17:22:55 CST 2016
Mode	AP
Band	2.4 GHz (B+G+N)
SSID	11n
Channel Number	11 Disabled
Encryption	Disabled
BSSID	94:46:96:11:95:a9
Associated Clients	0
Wireless Repeater Interf	
Mode	Infrastructure Client
SSID	RTK 11n AP RPT0
Encryption	Disabled
BSSID	00:00:00:00:00:00
State	Scanning
TCP/IP Configuration	51 J 10
Attain IP Protocol	Fixed IP
IP Address	10.0.0.2
Subnet Mask	255.255.255.0
Default Gateway	10.0.02
DHCP Server	Enabled
MAC Address	94:46:96:11:95:a7
WAN Configuration	
Attain IP Protocol	DHCP
IP Address	192.168.88.204
Subnet Mask	255.255.255.0
Default Gateway	192.168.88.1
MAC Address	94:46:96:11:95:a8
DNS Address	192.168.88.1
LAN IPv6 Configuration	
Global Address	
LL Address	fe8000000000000964696fffe1195a7/64
Default Gateway	fe8000000000000964696fffe1195a7/64
MAC Address	94:46:96:11:95:a7
WAN IPv6 Configuration	
Link Type	IP link
Connection Type	DHCPv6
Global Address	
LL Address	fe8000000000000964696fffe1195a8/64
Default Gateway	
DNS server	000000000000000000000000000000000000000
MAC Address	94:46:96:11:95:a8

## 24 Statistics

This page shows the packet counters for transmission and reception regarding to wireless and Ethernet networks.

1. From the head menu, click on *Management*.

	SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEMENT
--	-------	-------	--------	------	----------	------------

2. From the left-hand menu, click on *Statistics*. The following page is displayed:

## Statistics

This page shows the packet counters for transmission and reception regarding to wireless and Ethernet networks.

Wireless LAN	Sent Packets	2442
WITEIESS LAN	Received Packets	140647
Wireless Repeater LAN	Sent Packets	3302
	Received Packets	0
Ethernet LAN	Sent Packets	18700
Ethernet LAN	Received Packets	16969
Ethernet WAN	Sent Packets	7930
	Received Packets	33780

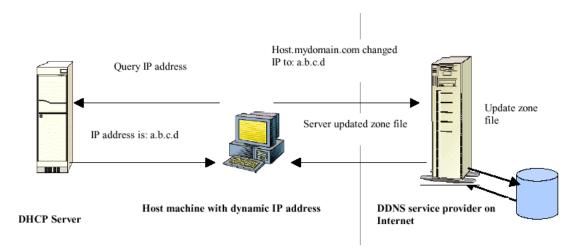
Refresh

When you want your internal server to be accessed by using DNS name rather than using the dynamic IP address, you can use the DDNS service. The DDNS server allows to alias a dynamic IP address to a static hostname.

This chapter provides you an overview of the Dynamic DNS feature of the modem and configuration details related to it.

#### Overview

If some host has a dynamic IP address that keeps changing frequently, it is difficult to keep updatingthe IP record that is associated with the domain name of this host in the zone files. This will resultin non-accessibility of this host on the Internet. Dynamic DNS service allows to keep mapping of adynamic IP address of such host to a static hostname. Dynamic DNS services are provided bymany websites. The host needs to register with some website and get a domain name. When theIP address of the host changes, it just needs to send a message to the website that's providingdynamic DNS service to this host. For this to work, an automated update client needs to beimplemented. These update clients send update messages to the servers whenever there is somechange in the IP address of that host. Then, the server updates the entries for that host and repliesback with some return code.



Above Figure explains one such scenario in which a host gets a dynamic IP address for itself from aDHCP server. As the host has registered with one of the dynamic DNS service providers on theInternet, it sends an update message to the service provider with host name and changed IPaddress. The service provider updates the new IP address of the host in the zone files that haveentry for that host name and replies back with some return code. The return code communicatesthe success or failure of the update message. This process is repeated every time the host's IPaddress changes.

If the dynamic DNS service provider is notified of the same IP address again and again, then itconsiders it an abuse and might block the host name. To avoid this scenario, the IP address thatwas successfully updated to the ISP is stored on the unit. Whenever we receive an IP addresschange notification, the new IP address is compared with the IP address that was stored on the lastupdate. If they differ, then only an update request is sent. However, when the system comes upthere is no way of knowing what was the IP address on last successful update before the systemwent down. You need to give the command "system config save" periodically to save this IP addresson Flash.

#### Registering With Dynamic DNS Service Provider

Currently, Wireless Gateway supports two Dynamic DNS service providers, www.tzo.com andwww.dyndns.com. To use their Dynamic DNS service, you first need to visit the Web site of a serviceprovider and register. While registering, you need to provide your username, password, andhostname as mandatory parameters. A service provider may also prompt you to fill some optionalparameters.

#### **Configuring IP Interfaces**

You need to create a Dynamic DNS interface per IP interface and can only create one DynamicDNS interface service on one IP interface. For more information on creating IP interfaces, refer tosection Creating IP interfaces.



www.dyndns.org provides three kinds of services - Dynamic DNS, Custom DNS and Static DNS. You can create different domains in these systems. Custom DNS service is a full DNS solution for newly purchased domains or domains you already own. A webbased interface provides complete control over resource records and your entire domain, including support for dynamic IPs and automated updates. Static DNS service points a DNS hostname in some domain owned by dyndns.org to the user's ISP-assigned static or pseudo-static IP address.

DynDNS service points a fixed hostname in some domain owned by dyndns.org to the user's ISP-assigned dynamic IP address. This allows more frequent update of IP addresses, than allowed by Static DNS.

		1. From th	he head menu, click o	n Management.	
SETUP	WLAN1	тср/ір	IPV6	FIREWALL	MANAGEMENT
			ne left-hand menu, clic s displayed:	k on <i>DDNS</i> . The follo	wing
	<mark>)ynamic</mark> D	NS Settir	ng		
			with a valid, unchang rchanging) IP-address		
[	Enable DDNS				
s	ervice Provider :	DynDNS 🧹			
D	omain Name : 🛛 🖡	iost.dyndns.org			
U	ser Name/Email:				
P	assword/Key:				
F	lote: For TZO, you can have For DynDNS, you can (	-	<u>here or manage your</u> account <u>here</u>	TZO account in <u>contro</u>	ol panel
_	Save Save & Appl	y Reset			
		Configure	e DynDNS		
		1. From th	ne head menu, click o	n <i>Management</i> .	
SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEMENT

2. From the left-hand menu, click on *DDNS*. The following page is displayed:

## Dynamic DNS Setting

Dynamic DNS is a service, that provides you with a valid, unchanging, internet domain name (an URL) to go with that (possibly everchanging) IP-address.

Enable DDNS	
Service Provider : [	DynDNS 🔍
Domain Name : 🛛 🖡	nost.dyndns.org
User Name/Email: 🗍	
Password/Key:	
	e a 30 days free trial <u>here o</u> r manage your TZO account in <u>control panel</u> create your DynDNS account <u>here</u>
Save Save & App	y Reset
	<ol> <li>Click on <i>Enable DDNS</i></li> <li>Select the DynDNS from the <i>Service Provider</i> drop-down list.</li> <li>Type your own unique <i>User Name</i>, <i>Password</i>and <i>Domain Name</i> which you applied from <u>www.dyndns.com</u>in the relevant boxes. They can be any combination of letters or</li> </ol>
	numbers with a maximum of 20 characters. 6. Click Save & Apply.
	Enable DDNS
Serv Dom: User Pass Note: For T For D	ice Provider : DynDNS ain Name : host.dyndns.org Name/Email: word/Key: ZO, you can have a 30 days free trial <u>here</u> or manage your TZO account in <u>control panel</u> ynDNS, you can create your DynDNS account <u>here</u>
Save	Save & Apply Reset
	7. Change setting successfully! Please wait 20 seconds

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 19 seconds ...

### Configure TZO

1.	From	the	head	menu.	click	on	Management.	
----	------	-----	------	-------	-------	----	-------------	--

SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEMENT
-------	-------	--------	------	----------	------------

2. From the left-hand menu, click on *DDNS*. The following page is displayed:

Enable DDNS			
Service Provider	DynDNS 🗸		
Domain Name :	host.dyndns.org	_	
User Name/Email:		_	
Password/Key:		_	

- 3. Click on Enable DDNS
- 4. Select the TZO from the Service Provider drop-down list.
- 5. Type your own unique Email, Keyand Domain Name which you applied from http://www.tzo.com/MainPageWebClient/clientsignup.htmlin the relevant boxes. They can be any combination of letters or numbers with a maximum of 20 characters.
- 6. Click Save & Apply.

## Dynamic DNS Setting

Dynamic DNS is a service, that provides you with a valid, unchanging, internet domain name (an URL) to go with that (possibly everchanging) IP-address.

Enable DDNS	
Service Provider :	TZO 🗸
Domain Name :	
User Name/Email: 🛛	
Password/Key:	
	e a 30 days free trial <u>here or manage your TZO account in control panel</u> create your DynDNS account <u>here</u>

Save	& Apply	Reset	

7. Change setting successfully! Please wait 20 seconds....

Change setting successfully!

Save & Apply

Save

Do not turn off or reboot the Device during this time.

Please wait 19 seconds ...

# 26 Time Zone Setting

Certain systems may not have a date or time mechanism or may be using inaccurate time/day information. the Simple Network Time Protocol feature provides a way to synchronize the device's own time of day setting with a remote time server as described in RFC 2030 (SNTP) and RFC 1305 (NTP).

## SNTP Server and SNTP Client Configuration settings

1. From the head menu, click on Management.

SETUP WLAN1 TCP/IP IPV6 FIREWALL MANAGEMENT	
---	--

2. From the left-hand menu, click on *Time Zone Setting*. The following page is displayed:

		fc	ollowing page	e is displaye	ed:	
Time Zone Setting						
You can maintain the s Internet.	system time	by synchroni	izing with a p	oublic time	server over t	the
Current Time :	Yr 2016	Mon 6	<b>Day</b> 24	<b>Hr</b> 18	Mn 25	Sec
	Copy Com	puter Time				
Time Zone Select :	(GMT+08:0	0)Taipei			$\sim$	
Automatically	Adjust Day	light Saving	3			
Enable NTP clie	nt update					
NTP server :	131.1	88.3.220 - Euro	pe 🗸			
	0		(Manual IP S	Setting)		
Save Save & App	ly Res	et Refre	sh			

- 3. From the *Time Zone Select*drop-down list, select *Your Own Time Zone*.
- 4. Check the option *Enable NTP client update*.
- 5. From the *NTP server*drop-down list, select a*NTP Server*. Or you can add server to the SNTP association list using IP address. Adding a server to the association list automatically starts the synchronization process.
- 6. Click Save & Apply.

## **Time Zone Setting**

You can maintain the system time by synchronizing with a public time server over the Internet.

Current Time :	Yr         2016         Mon         6         Day         24         Hr         18         Mn         25         Sec           29         29         24         24         25         25         25         25         25         26         27         27         27         24         24         25
	Copy Computer Time
Time Zone Select :	(GMT+08:00)Taipei
Automatically A	Adjust Daylight Saving
🗹 Enable NTP clier	it update
NTP server :	I31.188.3.220 - Europe
	O (Manual IP Setting)
Save Save & App	ly Reset Refresh

7. Change setting successfully! Please wait 20 seconds....

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 19 seconds ...

# 27 Denial-of-Service

A "denial-of-service" (DoS) attack is characterized by an explicit attempt by hackers to prevent legitimate users of a service from using that service.

#### **Denial-of-Service**

1. From the head menu, click on *Management*.

SETUP	WLAN1	ТСР/ІР	IPV6	FIREWALL	MANAGEMENT

2. From the left-hand menu, click on *Deny Of Service*. The following page is displayed:

## **Denial of Service**

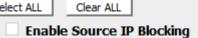
A "denial-of-service" (DoS) attack is characterized by an explicit attempt by hackers to prevent legitimate users of a service from using that service.

#### Enable DoS Prevention

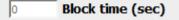
- Whole System Flood: SYN
- Whole System Flood: FIN
- Whole System Flood: UDP
- Whole System Flood: ICMP
- Per-Source IP Flood: SYN
- Per-Source IP Flood: FIN
- Per-Source IP Flood: UDP
- Per-Source IP Flood: ICMP
- TCP/UDP PortScan
- ICMP Smurf
- IP Land
- IP Spoof
- IP TearDrop
- PingOfDeath
- TCP Scan
- TCP SynWithData
- UDP Bomb
- UDP EchoChargen

Select	ALL.	

Apply Changes



#### 0 Packets/Second Low Sensitivity



- 3. Check the option *Enable DoS Prevention*.
- 4. Check the option of each Service.
- 5. Check the option Enable Source IP Blocking.
- 6. Click Save & Apply.

## **Denial of Service**

A "denial-of-service" (DoS) attack is characterized by an explicit attempt by hackers to prevent legitimate users of a service from using that service.

Enable DoS Prevention	
🗹 Whole System Flood: SYN	0 Packets/Second
☑ Whole System Flood: FIN	0 Packets/Second
☑ Whole System Flood: UDP	0 Packets/Second
☑ Whole System Flood: ICMP	0 Packets/Second
Per-Source IP Flood: SYN	0 Packets/Second
Per-Source IP Flood: FIN	0 Packets/Second
Per-Source IP Flood: UDP	0 Packets/Second
Per-Source IP Flood: ICMP	0 Packets/Second
TCP/UDP PortScan	Low 🗸 Sensitivity
✓ ICMP Smurf	
🗹 IP Land	
✓ IP Spoof	
IP TearDrop	
PingOfDeath	
🗹 TCP Scan	
🗹 TCP SynWithData	
UDP Bomb	
UDP EchoChargen	
Select ALL Clear ALL	
Enable Source IP Blocking	0 Block time (sec)
Apply Changes	

7. Change setting successfully! Please wait 20 seconds....

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 19 seconds ...

# **28** Log

This page can be used to set remote log server and show the system log.

### System Log

1. From the head menu, click on *Management*.

SETUP	WLAN1	TCP/IP	IPV6	FIREWALL	MANAGEMENT
		2. From th is displ	ne left-hand menu, clic ayed:	k on <i>Log</i> . The followir	ıg page
S	<b>System</b> Log	J			
T	his page can be used t	to set remote log sen	ver and show the syst	em log.	
C	Enable Log				
	system all	e Log Log	ess og Server IP Addres	DoS	
	Apply Changes	,	-	,	
Γ					
_	Refresh Clear				

Option	Description
Enable Log	Enable/Disable the feature. Default: Disable
system all	All system logs will be recorded in the system log
wireless	The wireless logs will be recorded in the system log
DoS	The DoS logs will be recorded in the system log
Enable Remote Log	Enable: Send the system log to remote log server. To do this, make sure a secure syslog server is available. Default: Disable
Log Server IP Address	Enter the IP Address of remote log server.

- 3. Check the option *Enable Log*.
- 4. Check the option system all, wireless or DoS.
- 5. Check the option *Enable Remote Log* if you
- 6. Enter the IP Address in the Log Server IP Address field.
- 7. Click Save & Apply.

## System Log

This page can be used to set remote log server and show the system log.

<ul> <li>Enable Log</li> <li>system all</li> <li>Enable Remote Log</li> </ul>	wireless Log Server IP Address:	<b>DoS</b>
Apply Changes		
Refresh Clear		.::

8. Change setting successfully! Please wait 20 seconds....

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 19 seconds ...



#### About firmware versions

Firmware is a software program. It is stored as read-only memory on your device.

Your device can check whether there are later firmware versions available. If there is a later version, you can download it via the Internet and install it on your device.



If there is a firmware update available you are strongly advised to install it on your device to ensure that you take full advantage of any new feature developments.

#### Manually updating firmware

You can manually download the latest firmware version from provider's website to your PC's file directory.

1. Once you have downloaded the latest firmware version to your From the head menu, click on *Management*.

SETUP	WLAN1	тср/ір	IPV6	FIREWALL	MANAGEMENT

- 2. From the left-hand menu, click on *Upgrade Firmware*. The following page is displayed:
- 3. Click on the *Browse…* button.

## Upgrade Firmware

This page allows you upgrade the Access Point firmware to new version. Please note, do not power off the device during the upload because it may crash the system.

Firmware Version: Select File:	RER4_A_v3411_2T2R_STD_01_160824 Choose File No file chosen
Upload Reset	
	Figure 9: Manual Update Installation section
	(Note that if you are using certain browsers (such as <i>Opera</i> 7) the <i>Browse</i> button is labeled <i>Choose</i> .)
	Use the <i>Choose file</i> box to navigate to the relevant directory

Use the *Choose file* box to navigate to the relevant directory where the firmware version is saved.

- 4. Once you have selected the file to be installed, click *Open*. The file's directory path is displayed in the *New Firmware Image:* text box.
- 5. Click *Upload*. The device checks that the selected file contains an updated version of firmware. A status screen pops up, please wait for a while......



6. Firmware update has been update complete. The following page is displayed:

Change setting successfully!

Do not turn off or reboot the Device during this time.

Please wait 146 seconds ...

# **30** Save/Reload Settings

This page allows you save current settings to a file or reload the settings from the file which was saved previously.

Besides, you could reset the current configuration to factory default.

If you do make changes to the default configuration but then wish to revert back to the original factory configuration, you can do so by resetting the device to factory defaults.

#### Save Settings to File

It allows you save current settings to a file.

1. From the left-hand *Management* menu, click on *Reset* factory default. The following page is displayed:

## Save/Reload Settings

This page allows you save current settings to a file or reload the settings from the file which was saved previously. Besides, you could reset the current configuration to factory default.

Save Settings to File:	Save	
Load Settings from File:		Browse Upload
Reset Settings to Default:	Reset	

Figure 10: Reset to Defaults page

Option	Description
Save Settings to File	Save the Settings to a File
Load Settings from File	Load Settings from a File
Reset Settings to Default	Reset Settings to Factory Default

2. Click on Save ....

## Save/Reload Settings

This page allows you save current settings to a file or reload the settings from the file which was saved previously. Besides, you could reset the current configuration to factory default.

Save Settings to File:	Save		
Load Settings from File:		Browse	Upload
Reset Settings to Default:	Reset		

3. If you are happy with this, click *Save* and then browse to where the file to be saved. Or click *Cancel* to cancel it.

File Dov	/nload 🛛 🔀
Do you it?	a want to save this file, or find a program online to open
	Name: config.dat
	Type: Unknown File Type, 3.99KB
	From: 10.0.0.2
	Find Save Cancel
2	While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not find a program to open this file or save this file. <u>What's the risk?</u>

#### Load Settings from File

It allows you to reload the settings from the file which was saved previously.

1. From the left-hand *Management* menu, click on *Reset factory default*. The following page is displayed:

## Save/Reload Settings

This page allows you save current settings to a file or reload the settings from the file which was saved previously. Besides, you could reset the current configuration to factory default.

Save Settings to File:	Save				
Load Settings from File:			Browse	Upload	
Reset Settings to Default:	Reset				
		Figure 11:	Reset	t to Defaults	s page

2. Click on *Browse*....to browse to where the config.dat is.

## Save/Reload Settings

This page allows you save current settings to a file or reload the settings from the file which was saved previously. Besides, you could reset the current configuration to factory default.

Save Settings to File:	Save		
Load Settings from File:		Browse	Upload
Reset Settings to Default:	Reset		

3. If you are happy with this, click *Upload* to start to load settings from file.

## Save/Reload Settings

This page allows you save current settings to a file or reload the settings from the file which was saved previously. Besides, you could reset the current configuration to factory default.

Save Settings to File:	Save		
Load Settings from File:		Browse	Upload
Reset Settings to Default:	Reset		

4. Once it finished loading settings form file, it'll show the message below.

### Update successfully!

Update in progressing. Do not turn off or reboot the Device during this time.

Please wait 44 seconds ...

#### **Resetting to Defaults**

If you do make changes to the default configuration but then wish to revert back to the original factory configuration, you can do so by resetting the device to factory defaults.



If you reset your device to factory defaults, all previous configuration changes that you have made are overwritten by the factory default configuration.

Software Reset:

1. From the left-hand *Management* menu, click on *Reset factory default*. The following page is displayed:

## Save/Reload Settings

This page allows you save current settings to a file or reload the settings from the file which was saved previously. Besides, you could reset the current configuration to factory default.

Save Settings to File:	Save				
Load Settings from File:			Browse	Upload	
Reset Settings to Default:	Reset				
		Figure 12:	Rese	t to Default	s page

2. Click on Reset to Default.

## Save/Reload Settings

This page allows you save current settings to a file or reload the settings from the file which was saved previously. Besides, you could reset the current configuration to factory default.

Save Settings to File:	Save		
Load Settings from File:		Browse	Upload
Reset Settings to Default:	Reset		

3. This page reminds you that resetting to factory defaults cannot be undone – any changes that you have made to the basic settings will be replaced. If you are happy with this, click *OK*. Or click *Cancel* to cancel it.

Windows	s Internet Explorer 🛛 🔀
?	Do you really want to reset the current settings to default?
	OK Cancel

4. Reload setting successfully! Please wait for a moment while rebooting ...

Reload setting successfully!

The Router is booting. Do not turn off or reboot the Device during this time.

Please wait 59 seconds ...

# 31 Password

You can restrict access to your device's web pages using password protection. With password protection enabled, users must enter a username and password before gaining access to the web pages.

By default, password protection is enabled on your device, and the username and password set are as follows:

Username: admin

Password: administrator

Setting your username and password



Non-authorized users may try to access your system by guessing your username and password. We recommend that you change the default username and password to your own unique settings.

To change the default password:

1. From the left-hand *Management* menu, click on *Password*. The following page is displayed:



This page is used to set the account to access the web server of Access Point. Empty user name and password will disable the protection.

User Nam	e:		
New Pass	word:		
Confirme	d Password:		
Save	Save & Apply	Reset	
	Figure 13:	Currently Defined Adr Setup page	ministration Password:

- 2. This page displays the current username and password settings. Change your own unique password in the relevant boxes. They can be any combination of letters or numbers with a maximum of 30 characters. The default setting uses *admin* for the username and *administrator* for password.
- If you are happy with these settings, click Save & ApplyYou will see following page that the new user has been displayed on the Currently Defined Users. You need to login to the web pages using your new usernameand new password.

### Password Setup

This page is used to set the account to access the web server of Access Point. Empty user name and password will disable the protection.

User Name:		
New Password	:	
Confirmed Pas	sword:	
Save Save	& Apply Reset	
	Figure 14:	Administration Password

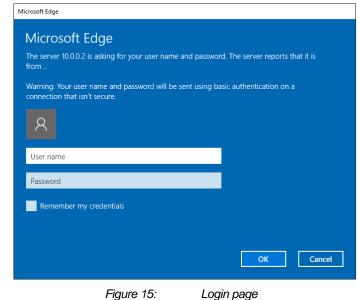
4. Change setting successfully.

### Change setting successfully!

### Do not turn off or reboot the Router during this time.

### Please wait 18 seconds ...

- 5. Enter new User name and Password.
- 6. Click Apply.



## A Configuring your Computers

This appendix provides instructions for configuring the Internet settings on your computers to work with the Wireless Gateway.

#### **Configuring Ethernet PCs**

#### Before you begin

By default, the Wireless Gateway automatically assigns the required Internet settings to your PCs. You need to configure the PCs to accept this information when it is assigned.



In some cases, you may want to assign Internet information manually to some or all of your computers rather than allow the Wireless Gateway to do so. See *Assigning static Internet information to your PCs* for instructions.

- If you have connected your LAN PCs via Ethernet to the Wireless Gateway, follow the instructions that correspond to the operating system installed on your PC:
  - Windows® XP PCs
  - Windows 2000 PCs
  - Windows Me PCs
  - Windows 95, 98 PCs
  - Windows NT 4.0 workstations

#### Windows® XP PCs

- 1. In the Windows task bar, click the *Start* button, and then click *Control Panel*.
- 2. Double-click the Network Connections icon.
- 3. In the *LAN or High-Speed Internet* window, right-click on the icon corresponding to your network interface card (NIC) and select *Properties*. (Often, this icon is labeled *Local Area Connection*).

The *Local Area Connection* dialog box is displayed with a list of currently installed network items.

- 4. Ensure that the check box to the left of the item labeled Internet Protocol TCP/IP is checked and click Properties.
- 5. In the Internet Protocol (TCP/IP) Properties dialog box, click the radio button labeled Obtain an IP address automatically. Also click the radio button labeled Obtain DNS server address automatically.
- 6. Click *OK* twice to confirm your changes, and then close the Control Panel.

#### Windows 2000 PCs

First, check for the IP protocol and, if necessary, install it:

- 1. In the Windows task bar, click the *Start* button, point to *Settings*, and then click *Control Panel*.
- 2. Double-click the Network and Dial-up Connections icon.

- In the Network and Dial-up Connections window, right-click the Local Area Connection icon, and then select Properties. The Local Area Connection Properties dialog box is displayed with a list of currently installed network components. If the list includes Internet Protocol (TCP/IP), then the protocol has already been enabled. Skip to step 10.
- 4. If Internet Protocol (TCP/IP) does not display as an installed component, click *Install...*
- 5. In the Select Network Component Type dialog box, select Protocol, and then click Add...
- 6. Select *Internet Protocol (TCP/IP)* in the Network Protocols list, and then click *OK*.

You may be prompted to install files from your Windows 2000 installation CD or other media. Follow the instructions to install the files.

7. If prompted, click *OK* to restart your computer with the new settings.

Next, configure the PCs to accept IP information assigned by the Wireless Gateway:

- 8. In the *Control Panel*, double-click the Network and Dial-up Connections icon.
- 9. In the *Network and Dial-up Connections* window, right-click the Local Area Connection icon, and then select *Properties*.
- 10. In the Local Area Connection Properties dialog box, select *Internet Protocol (TCP/IP),* and then click *Properties.*
- 11. In the Internet Protocol (TCP/IP) Properties dialog box, click the radio button labeled Obtain an IP address automatically. Also click the radio button labeled Obtain DNS server address automatically.
- 12. Click *OK* twice to confirm and save your changes, and then close the Control Panel.

#### Windows Me PCs

- 1. In the Windows task bar, click the *Start* button, point to *Settings*, and then click *Control Panel*.
- 2. Double-click the Network and Dial-up Connections icon.
- 3. In the *Network and Dial-up Connections* window, right-click the Network icon, and then select *Properties*.

The *Network Properties* dialog box displays with a list of currently installed network components. If the list includes Internet Protocol (TCP/IP), then the protocol has already been enabled. Skip to step 11.

- 4. If Internet Protocol (TCP/IP) does not display as an installed component, click *Add...*
- 5. In the Select Network Component Type dialog box, select Protocol, and then click Add...
- 6. Select *Microsoft* in the Manufacturers box.
- 7. Select *Internet Protocol (TCP/IP)* in the Network Protocols list, and then click *OK*.

You may be prompted to install files from your Windows Me installation CD or other media. Follow the instructions to install the files.

8. If prompted, click *OK* to restart your computer with the new settings.

Next, configure the PCs to accept IP information assigned by the Wireless Gateway:

- 9. In the *Control Panel*, double-click the Network and Dial-up Connections icon.
- 10. In *Network and Dial-up Connections window*, right-click the Network icon, and then select *Properties*.
- 11. In the *Network Properties* dialog box, select *TCP/IP*, and then click *Properties*.
- 12. In the TCP/IP Settings dialog box, click the radio button labeled **Server** assigned IP address. Also click the radio button labeled Server assigned name server address.
- 13. Click *OK*twice to confirm and save your changes, and then close the *Control Panel*.

#### Windows 95, 98 PCs

First, check for the IP protocol and, if necessary, install it:

- 1. In the Windows task bar, click the *Start* button, point to *Settings*, and then click *Control Panel*.
- 2. Double-click the Network icon.
  - The *Network* dialog box displays with a list of currently installed network components. If the list includes TCP/IP, and then the protocol has already been enabled. Skip to step 9.
- 3. If TCP/IP does not display as an installed component, click *Add*...

The Select Network Component Type dialog box displays.

Select *Protocol*, and then click *Add…* The Select Network Protocol dialog box displays.

- 5. Click on *Microsoft* in the Manufacturers list box, and then click *TCP/IP* in the Network Protocols list box.
- 6. Click *OK* to return to the Network dialog box, and then click *OK* again.

You may be prompted to install files from your Windows 95/98 installation CD. Follow the instructions to install the files.

Click OK to restart the PC and complete the TCP/IP installation.

Next, configure the PCs to accept IP information assigned by the Wireless Gateway:

- 8. Open the Control Panel window, and then click the Network icon.
- 9. Select the network component labeled TCP/IP, and then click *Properties*.

If you have multiple TCP/IP listings, select the listing associated with your network card or adapter.

- 10. In the TCP/IP Properties dialog box, click the IP Address tab.
- 11. Click the radio button labeled *Obtain an IP address automatically*.
- 12. Click the DNS Configuration tab, and then click the radio button labeled *Obtain an IP address automatically*.
- Click OK twice to confirm and save your changes. You will be prompted to restart Windows.
- 14. Click Yes.

#### Windows NT 4.0 workstations

First, check for the IP protocol and, if necessary, install it:

- 1. In the Windows NT task bar, click the *Start* button, point to *Settings*, and then click *Control Panel*.
- 2. In the Control Panel window, double click the Network icon.
- 3. In the Network dialog box, click the Protocols tab.

The *Protocols* tab displays a list of currently installed network protocols. If the list includes TCP/IP, then the protocol has already been enabled. Skip to step 9.

- 4. If TCP/IP does not display as an installed component, click *Add...*
- 5. In the *Select Network Protocol* dialog box, select *TCP/IP*, and then click *OK*.

You may be prompted to install files from your Windows NT installation CD or other media. Follow the instructions to install the files.

After all files are installed, a window displays to inform you that a TCP/IP service called DHCP can be set up to dynamically assign IP information.

6. Click Yes to continue, and then click *OK* if prompted to restart your computer.

Next, configure the PCs to accept IP information assigned by the Wireless Gateway:

- 7. Open the Control Panel window, and then double-click the Network icon.
- 8. In the Network dialog box, click the Protocols tab.
- 9. In the *Protocols* tab, select *TCP/IP*, and then click *Properties*.
- 10. In the *Microsoft TCP/IP Properties* dialog box, click the radio button labeled *Obtain an IP address from a DHCP server.*
- 11. Click *OK* twice to confirm and save your changes, and then close the Control Panel.

#### Assigning static Internet information to your PCs

If you are a typical user, you will not need to assign static Internet information to your LAN PCs because your ISP automatically assigns this information for you.

In some cases however, you may want to assign Internet information to some or all of your PCs directly (often called "statically"), rather than allowing the Wireless Gateway to assign it. This option may be desirable (but not required) if:

- You have obtained one or more public IP addresses that you want to always associate with specific computers (for example, if you are using a computer as a public web server).
- You maintain different subnets on your LAN (subnets are described in Appendix B).

Before you begin, you must have the following information available:

- The IP address and subnet mask of each PC
- The IP address of the default gateway for your LAN. In most cases, this is the address assigned to the LAN port on the Wireless Gateway. By default, the LAN port is assigned the IP address *10.0.0.2*. (You can change this number or another number can be assigned by your ISP. See *Addressing* for more information.)
- The IP address of your ISP's Domain Name System (DNS) server.

On each PC to which you want to assign static information, follow the instructions relating only to checking for and/or installing the IP protocol. Once it is installed, continue to follow the instructions for displaying each of the Internet Protocol (TCP/IP) properties. Instead of enabling dynamic assignment of the IP addresses for the computer, DNS server and default gateway, click the radio buttons that enable you to enter the information manually.



Your PCs must have IP addresses that place them in the same subnet as the Wireless Gateway's LAN port. If you manually assign IP information to all your LAN PCs, you can follow the instructions in Addressing to change the LAN port IP address accordingly.

# **B** IP Addresses, Network Masks, and Subnets

#### **IP Addresses**



This section refers only to IP addresses for IPv4 (version 4 of the Internet Protocol). IPv6 addresses are not covered.

This section assumes basic knowledge of binary numbers, bits, and bytes.

IP addresses, the Internet's version of telephone numbers, are used to identify individual nodes (computers or devices) on the Internet. Every IP address contains four numbers, each from 0 to 255 and separated by dots (periods), e.g. 20.56.0.211. These numbers are called, from left to right, field1, field2, field3, and field4.

This style of writing IP addresses as decimal numbers separated by dots is called *dotted decimal notation*. The IP address 20.56.0.211 is read "twenty dot fifty-six dot zero dot two-eleven."

#### Structure of an IP address

IP addresses have a hierarchical design similar to that of telephone numbers. For example, a 7-digit telephone number starts with a 3-digit prefix that identifies a group of thousands of telephone lines, and ends with four digits that identify one specific line in that group.

Similarly, IP addresses contain two kinds of information:

Network ID

Identifies a particular network within the Internet or intranet

 Host ID Identifies a particular computer or device on the network

The first part of every IP address contains the network ID, and the rest of the address contains the host ID. The length of the network ID depends on the network's *class* (see following section). The table below shows the structure of an IP address.

	Field1	Field2	Field3	Field4
Class A	Network ID		Host ID	
Class B	Network ID		Hos	it ID
Class C	Network ID			Host ID

Here are some examples of valid IP addresses:

Class A: 10.30.6.125 (network = 10, host = 30.6.125) Class B: 129.88.16.49 (network = 129.88, host = 16.49) Class C: 192.60.201.11 (network = 192.60.201, host = 11)

#### **Network classes**

The three commonly used network classes are A, B, and C. (There is also a class D but it has a special use beyond the

scope of this discussion.) These classes have different uses and characteristics.

Class A networks are the Internet's largest networks, each with room for over 16 million hosts. Up to 126 of these huge networks can exist, for a total of over 2 billion hosts. Because of their huge size, these networks are used for WANs and by organizations at the infrastructure level of the Internet, such as your ISP.

Class B networks are smaller but still quite large, each able to hold over 65,000 hosts. There can be up to 16,384 class B networks in existence. A class B network might be appropriate for a large organization such as a business or government agency.

Class C networks are the smallest, only able to hold 254 hosts at most, but the total possible number of class C networks exceeds 2 million (2,097,152 to be exact). LANs connected to the Internet are usually class C networks.

Some important notes regarding IP addresses:

٠	The class can be determined easily from field1:		
	field1 = 1-126:	Class A	
	field1 = 128-191:	Class B	
	field1 = 192-223:	Class C	
	(field1 values not shown a	are reserved for special uses)	

 A host ID can have any value except all fields set to 0 or all fields set to 255, as those values are reserved for special uses.

#### Subnet masks



A mask looks like a regular IP address, but contains a pattern of bits that tells what parts of an IP address are the network ID and what parts are the host ID: bits set to 1 mean "this bit is part of the network ID" and bits set to 0 mean "this bit is part of the host ID."

Subnet masks are used to define subnets (what you get after dividing a network into smaller pieces). A subnet's network ID is created by "borrowing" one or more bits from the host ID portion of the address. The subnet mask identifies these host ID bits.

For example, consider a class C network 192.168.1. To split this into two subnets, you would use the subnet mask:

255.255.255.128

It's easier to see what's happening if we write this in binary:

11111111. 1111111. 11111111.10000000

As with any class C address, all of the bits in field1 through field3 are part of the network ID, but note how the mask specifies that the first bit in field4 is also included. Since this extra bit has only two values (0 and 1), this means there are two subnets. Each subnet uses the remaining 7 bits in field4 for its host IDs, which range from 1 to 126 hosts (instead of the usual 0 to 255 for a class C address).

Similarly, to split a class C network into four subnets, the mask is:

#### 

The two extra bits in field4 can have four values (00, 01, 10, 11), so there are four subnets. Each subnet uses the remaining six bits in field4 for its host IDs, ranging from 1 to 62.

Sometimes a subnet mask does not specify any additional network ID bits, and thus no subnets. Such a mask is called a default subnet mask. These masks are:



Class A:	255.0.0.0
Class B:	255.255.0.0
Class C:	255.255.255.0

These are called default because they are used when a network is initially configured, at which time it has no subnets.

# C UPnP Control Point Software on Windows ME/XP

This appendix provides instructions for configuring the UPnP on your computers to work with the Wireless Gateway.

UPnP is an architecture for pervasive peer-to-peer network connectivity of intelligent appliances, Wireless devices, and PCs of all form factors. It is designed to bring easy-to-use, flexible, standards-based connectivity to ad-hoc or unmanaged networks whether in the home, in a small business, public spaces, or attached to the Internet. UPnP is a distributed, open networking architecture that leverages TCP/IP and the Web technologies to enable seamless proximity networking in addition to control and data transfer among networked devices in the home, office, and public spaces.

UPnP is more than just a simple extension of the plug and play peripheral model. It is designed to support zero-configuration, "invisible" networking, and automatic discovery for a breadth of device categories from a wide range of vendors. This means a device can dynamically join a network, obtain an IP address, convey its capabilities, and learn about the presence and capabilities of other devices. DHCP and DNS servers are optional and are used only if available on the network. Finally, a device can leave a network smoothly and automatically without leaving any unwanted state behind.

#### UPnP Control Point Software on Windows ME

To install the control point software on Windows ME:

1. In the Control Panel, select "Add/Remove Programs".

2. In the "Add/Remove Programs Properties" dialog box, select the "Windows Setup" tab. In the "Components" list, double click on the "Communications" entry.

3. In the "Communications" dialog box, scroll down the "Components" list to display the UPnP entry. Select the entry, click "OK".

- 4. Click "OK" to finish the "Add/Remove Programs" dialog.
- 5. Reboot your system.

Once you have installed the UPnP software and you have rebooted (and your network includes the IGD system), you should be able to see the IGD controlled device on your network.

#### UPnP Control Point Software on Windows XP with Firewall

On Windows XP versions earlier than SP2, Firewall support is provided by the Windows XP Internet Connection Firewall. You cannot use the Windows XP Internet Connection Firewall support on a system that you intend to use as a UPnP control point. If this feature is enabled, although the control point system may display controlled devices in the list of network devices, the control point system cannot participate in UPnP communication. (This restriction also applies to controlled devices running on Windows XP systems earlier than SP2.)

On Windows XP SP2 and later, Firewall support is provided by Windows Firewall. Unlike earlier versions, Windows XP SP2 can be used on a system that you intend to use as a UPnP control point.

To turn off the Firewall capability on any version of Windows XP, follow the steps below:

1. In the Control Panel, select "Network and Internet Connections".

2. In the "Network and Internet Connections" dialog box, select "Network Connections".

3. In the "Network Connections" dialog box, right-click on the local area connection entry for your network; this will display a menu. Select the "Properties" menu entry.

4. In the "Local Area Connection Properties" dialog box, select the "Advanced" tab. Disable the Internet Connection Firewall by de-selecting the entry with the following label:

"Protect my computer and network by limiting or preventing access to the computer from the Internet".

5. Click "OK".

#### **SSDP** requirements

You must have SSDP Discovery Service enabled on your Windows XP system to use the UPnP Control point software.

SSDP Discovery Service is enabled on a default installation of Windows XP. To check if it is enabled on your system, look in Control Panel > Administrative Tools > Services).

Installation procedure

To install the Control point software on Windows XP, follow the steps below:

1. In the Control Panel, select "Add/Remove Programs".

2. In the "Add or Remove Programs" dialog box, click the "Add / Remove Windows Components" button.

3. In the "Windows Component Wizard" dialog box, scroll down the list to display the "Networking Services" entry. Highlight (select) the entry, and click on the "Details" button. 4. The "Networking Services" window is displayed.

The subcomponents shown in the Networking Services window will be different depending on if you are using Windows XP, Windows XP (SP1), or Windows XP (SP2).

If you are using Windows XP SP2, the Networking Services window will display the following list of sub-components:

Networking Services				
To add or remove a component, click the check box. A shaded box means that only part of the component will be installed. To see what's included in a component, click Details. Subcomponents of Networking Services:				
🗹 畏 Internet Gateway Device Discovery and Control Client	0.0 MB 🔼			
Reer-to-Peer	0.0 MB			
RIP Listener	0.0 MB			
Element Simple TCP/IP Services	0.0 MB			
🗹 📇 UPnP User Interface	0.2 MB			
	~			
Description: Displays icons in My Network Places for UPnP devices det network. Also, opens the required Windows Firewall ports.	ected on the			
Total disk space required: 57.2 MB	Details			
Space available on disk: 418.4 MB	D'otans			
ОК	Cancel			

5. Select the following entries from the "Networking Services" window and then click "OK":

If you are using Windows XP, select:

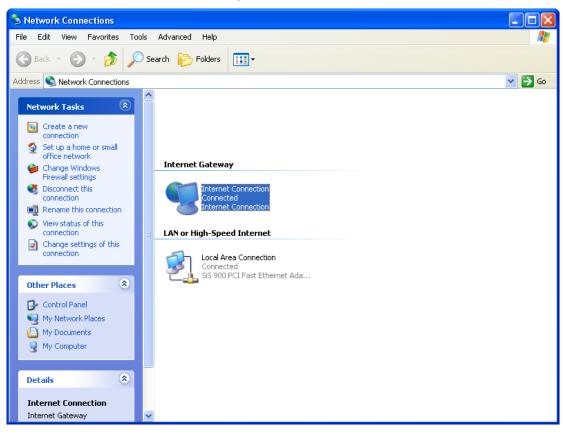
• "Universal Plug and Play".

If you are using Windows XP SP1, select:

- "Internet Gateway Device discovery and Control Client".
- "Universal Plug and Play".
- If you are using Windows XP SP2, select:
- "Internet Gateway Device discovery and Control Client".
- "UPnP User Interface".

6. Reboot your system.

Once you have installed the UPnP software and you have rebooted (and your network includes the IGD system), you should be able to see the IGD controlled device on your network.



For example, from the Network Connections window you should see the Internet Gateway Device:

## **D** Troubleshooting

This appendix suggests solutions for problems you may encounter in installing or using the Wireless Gateway, and provides instructions for using several IP utilities to diagnose problems.

Contact Customer Support if these suggestions do not resolve the problem.

#### **Troubleshooting Suggestions**

Problem	Troubleshooting Suggestion	
LEDs		
Power LED does not illuminate after product is turned on.	Verify that you are using the power cable provided with the device and that it is securely connected to the Wireless Gateway and a wall socket/power strip.	
LINK LAN LED does not illuminate after Ethernet cable is attached.	Verify that the Ethernet cable is securely connected to your LAN hub or PC and to the Wireless Gateway. Make sure the PC and/or hub is turned on. Verify that your cable is sufficient for your network requirements. A 100 Mbit/sec network (10BaseTx) should use cables labeled CAT 5. A 10Mbit/sec network may tolerate lower quality cables.	
Internet Access		
My PC cannot access the Internet	<ul> <li>Use the ping utility (discussed in the following section) to check whether your PC can communicate with the device's LAN IP address (by default 10.0.0.2). If it cannot, check the Ethernet cabling.</li> <li>If you statically assigned a private IP address to the computer, (not a registered public address), verify the following: <ul> <li>Check that the gateway IP address on the computer is your public IP address (see Current Status for instructions on viewing the IP information.) If it is not, correct the address or configure the PC to receive IP information automatically.</li> <li>Verify with your ISP that the DNS server specified for the PC is valid. Correct the address or configure the PC to receive this information automatically.</li> </ul> </li> </ul>	
My LAN PCs cannot display web pages on the Internet.	Verify that the DNS server IP address specified on the PCs is correct for your ISP, as discussed in the item above. If you specified that the DNS server be assigned dynamically from a server, then verify with your ISP that the address configured on the Wireless Gateway is correct, then You can use the ping utility, to test connectivity with your ISP's DNS server.	
Web pages		

Problem	Troubleshooting Suggestion
l forgot/lost my user ID or password.	If you have not changed the password from the default, try using "admin" the user ID and "administrator" as password. Otherwise, you can reset the device to the default configuration by pressing the Reset Default button on the Rare panel of the device (see <i>Rare Panel</i> ). Then, type the default User ID and password shown above. <b>WARNING:</b> Resetting the device removes any custom settings and returns all settings to their default values.
I cannot access the web pages from my browser.	Use the ping utility, discussed in the following section, to check whether your PC can communicate with the device's LAN IP address (by default 10.0.0.2). If it cannot, check the Ethernet cabling. Verify that you are using Internet Explorer or Netscape Navigator v4.0 or later. Verify that the PC's IP address is defined as being on the same subnet as the IP address assigned to the LAN port on the Wireless Gateway.
My changes to the web pages are not being retained.	Be sure to use the <i>Confirm</i> <i>Changes/Apply</i> function after any changes.

#### **Diagnosing Problem using IP Utilities**

#### ping

*Ping* is a command you can use to check whether your PC can recognize other computers on your network and the Internet. A ping command sends a message to the computer you specify. If the computer receives the message, it sends messages in reply. To use it, you must know the IP address of the computer with which you are trying to communicate.

On Windows-based computers, you can execute a ping command from the Start menu. Click the *Start* button, and then click *Run*. In the *Open* text box, type a statement such as the following:

#### ping 10.0.0.2

Click *OK*. You can substitute any private IP address on your LAN or a public IP address for an Internet site, if known.

If the target computer receives the message, a *Command Prompt* window is displayed:

🖾 Command Prompt – 🗆 🗙	
C:\Documents and Settings\Administrator>ping 10.0.0.2 🔒	
Pinging 10.0.0.2 with 32 bytes of data:	
Reply from 10.0.0.2: bytes=32 time=2ms TTL=255 Reply from 10.0.0.2: bytes=32 time<1ms TTL=255 Reply from 10.0.0.2: bytes=32 time<1ms TTL=255 Reply from 10.0.0.2: bytes=32 time<1ms TTL=255	
Ping statistics for 10.0.0.2: Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds: Minimum = Oms, Maximum = 2ms, Average = Oms	

Figure 16: Using the ping Utility

If the target computer cannot be located, you will receive the message *Request timed out*.

Using the ping command, you can test whether the path to the Wireless Gateway is working (using the preconfigured default LAN IP address 10.0.0.2) or another address you assigned.

You can also test whether access to the Internet is working by typing an external address, such as that for *www.yahoo.com* (216.115.108.243). If you do not know the IP address of a particular Internet location, you can use the *nslookup* command, as explained in the following section.

From most other IP-enabled operating systems, you can execute the same command at a command prompt or through a system administration utility.

#### nslookup

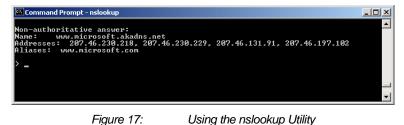
You can use the nslookup command to determine the IP address associated with an Internet site name. You specify the common name, and the nslookup command looks up the name in on your DNS server (usually located with your ISP). If that name is not an entry in your ISP's DNS table, the request is then referred to another higher-level server, and so on, until the entry is found. The server then returns the associated IP address.

On Windows-based computers, you can execute the nslookup command from the *Start* menu. Click the *Start* button, and then click *Run*. In the *Open* text box, type the following:

#### Nslookup

Click *OK*. A Command Prompt window displays with a bracket prompt (>). At the prompt, type the name of the Internet address that you are interested in, such as *www.microsoft.com*.

The window will display the associate IP address, if known, as shown below:



There may be several addresses associated with an Internet name. This is common for web sites that receive heavy traffic; they use multiple, redundant servers to carry the same information.

To exit from the nslookup utility, type **exit** and press **[Enter]** at the command prompt.

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