USER GUIDE

SMCWBR14-3GN

802.11b/g/n Wireless AP/Router

802.11b/g/n wireless AP/Router User Guide

SMC®
Networks

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Compliances

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IMPORTANT NOTE:
FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body. End users must follow the specific operating instructions for satisfying RF exposure compliance.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

IEEE 802.11b, 802.11g or 802.11n operation of this product in the U.S.A. is firmware-limited to channels 1 through 11.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

Following three 3G cards have passed co-located EMC / RF exposure test with this device and could be used with this device. Other 3G card may or may not comply with the FCC rule, please consult manufacture before purchase.

Modulation Technology	Interface	Brand Name	Model Name	FCC ID
GSM	HSDPA USB Modem (3G Card)	HUAWEI	E220	QISE220
GSM/UMTS	3G Card	Sony Ericsson	MD300	PY7F3232021
GSM	3G Card	Band Luxe	C100S	UZI-C100

EC Conformance Declaration

Marking by the above symbol indicates compliance with the Essential Requirements of the R&TTE Directive of the European Union (1999/5/EC). This equipment meets the following conformance standards:

- EN 60950-1: 2001
  Safety of Information Technology Equipment
- EN 50392: 2004
  Generic standard to demonstrate the compliance of electronic and electrical apparatus with the basic restrictions related to human exposure to electromagnetic fields (0 Hz - 300 GHz)
- EN 300 328 V1.6.1 (2004-11)
  Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive
- EN 301 489-17 V1.2.1 (2002-08) and EN 301 489-1 V1.5.1 (2004-11)
  Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for 2,4 GHz wideband transmission systems and 5 GHz high performance RLAN equipment

This device is a 2.4 GHz wideband transmission system (transceiver), intended for use in all EU member states and EFTA countries, except in France and Italy where restrictive use applies.

In Italy the end-user should apply for a license at the national spectrum authorities in order to obtain authorization to use the device for setting up outdoor radio links and/or for supplying public access to telecommunications and/or network services.

This device may not be used for setting up outdoor radio links in France and in some areas the RF output power may be limited to 10 mW EIRP in the frequency range of 2454 - 2483.5 MHz. For detailed information the end-user should contact the national spectrum authority in France.

This device is intended for use in the following European Community and EFTA countries:

Czech Česky	SMC tímto prohlašuje, že tento *Radio LAN device* je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
Estonian *Eesti*	Käesolevaga kinnitab SMC seadme Radio LAN device vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
English	Hereby, SMC, declares that this Radio LAN device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Finnish *Suomi*	SMC vakuuttaa täten että Radio LAN device tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Dutch Nederlands	Hierbij verklaart SMC dat het toestel Radio LAN device in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG
French Français	Par la présente SMC déclare que l'appareil Radio LAN device est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE
Swedish Svenska	Härmed intygar SMC att denna Radio LAN device står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.
Danish Dansk	Undertegnede SMC erklærer herved, at følgende udstyr Radio LAN device overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF
German *Deutsch*	Hiermit erklärt SMC, dass sich dieser/diese/dieses Radio LAN device in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet". (BMWi)
Greek ελληνικά	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ smc ΔΗΛΩΝΕΙ ΟΤΙ radio LAN device ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ
Hungarian *Magyar*	Alulírott, SMC nyilatkozom, hogy a Radio LAN device megfelel a vonatkozó alapvetõ követelményeknek és az 1999/5/EC irányelv egyéb elõírásainak.
Italian *Italiano*	Con la presente SMC dichiara che questo Radio LAN device è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Latvian *Latviski*	Ar šo SMC deklarē, ka *Radio LAN device* atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.

Lithuanian Lietuvių	Šiuo SMC deklaruoja, kad šis Radio LAN device atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
Maltese *Malti*	Hawnhekk, SMC, jiddikjara li dan *Radio LAN devvice* jikkonforma mal-ħtiġijiet essenzjali u ma prowedimenti ohrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.
Spanish *Español*	Por medio de la presente SMC declara que el Radio LAN device cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE
Polish *Polski*	Niniejszym SMC oświadcza, że *Radio LAN device* jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
Portuguese *Português*	SMC declara que este Radio LAN device está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
Slovak Slovensky	SMC týmto vyhlasuje, že *Radio LAN device* splňa základné požiadavky a všetky prislusné ustanovenia Smernice 1999/5/ES.
Slovenian *Slovensko*	SMC izjavlja, da je ta *Radio LAN device* v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.

About This Guide

Purpose

This guide details the hardware features of the wireless AP/Router, including its physical and performance-related characteristics, and how to install the device and use its configuration software.

Audience

This guide is for PC users with a working knowledge of computers. You should be familiar with Windows operating system concepts.

Conventions

The following conventions are used throughout this guide to show information:

Note: Emphasizes important information or calls your attention to related features or instructions.

Caution: Alerts you to a potential hazard that could cause loss of data, or damage the system or equipment.

Warning: Alerts you to a potential hazard that could cause personal injury.

Related Publications

The following publication gives basic information on how to install and use the wireless AP/Router.

Quick Installation Guide

Also, as part of the wireless AP/Router's software, there is online help that describes all configuration related features.

Revision History

This section summarizes the changes in each revision of this guide.

January 2009 Revision

This is the first revision of this guide. This guide is valid for software release v1.0.0.6.

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Glossary

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Chapter 1: Introduction

The SMCWBR14-3GN wireless AP/Router is an IEEE 802.11n wireless gateway router that connects your Internet access device (cable or ADSL modem) to your PC or local area network, or to its own secure wireless network.

The wireless AP/Router can be automatically configured with other Wi-Fi Protected Setup (WPS) devices by simply pressing its WPS button. For more detailed configuration, the unit can also be set up through its easy-to-use web interface.

The wireless AP/Router supports a wireless 3G Modem for primary and secondary (backup) WAN connectivity via its 3G Modem USB Port.

Package Checklist

The wireless AP/Router package includes:

- 802.11b/g/n wireless AP/Router (SMCWBR14-3GN)
- RJ-45 Category 5 network cable
- AC power adapter
- Quick Installation Guide
- User Guide CD

Inform your dealer if there are any incorrect, missing or damaged parts. If possible, retain the carton, including the original packing materials. Use them again to repack the product in case there is a need to return it.

Hardware Description

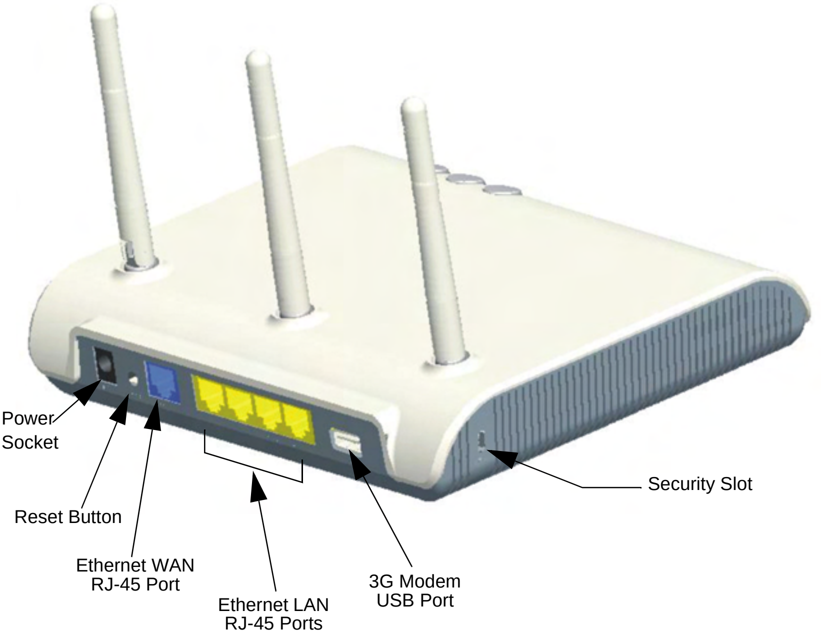

Power
Socket
Reset Button
Ethernet WAN
RJ-45 Port
Ethernet LAN
RJ-45 Ports
3G Modem
USB Port
Security Slot

Figure 1-1. Rear Panel

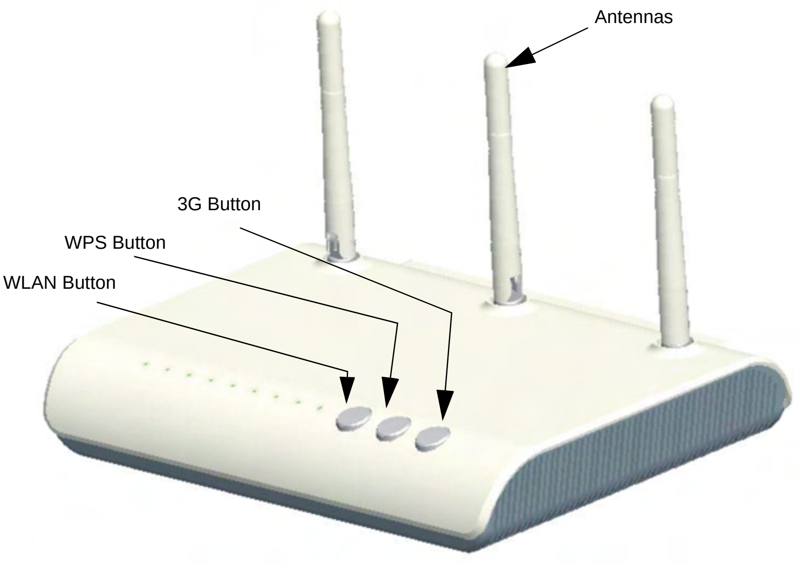

Antennas
3G Button
WPS Button
WLAN Button

Figure 1-2. Front Panel

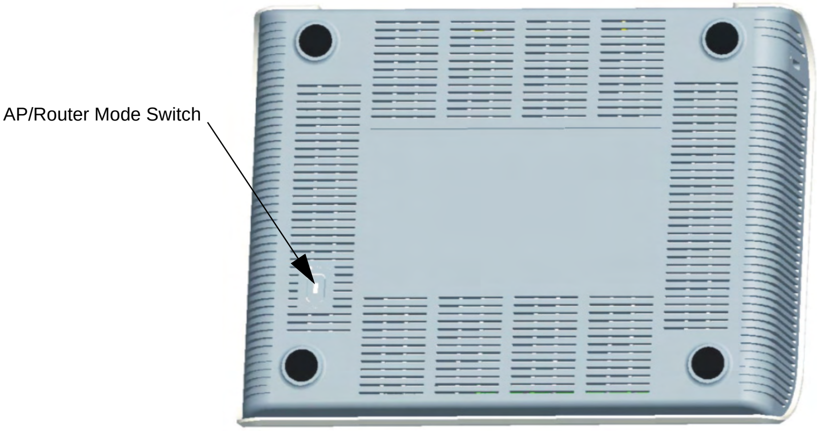

AP/Router Mode Switch

Figure 1-3. Bottom Panel

LED Indicators

The wireless AP/Router includes nine status LED indicators, as described in the following figure and table.

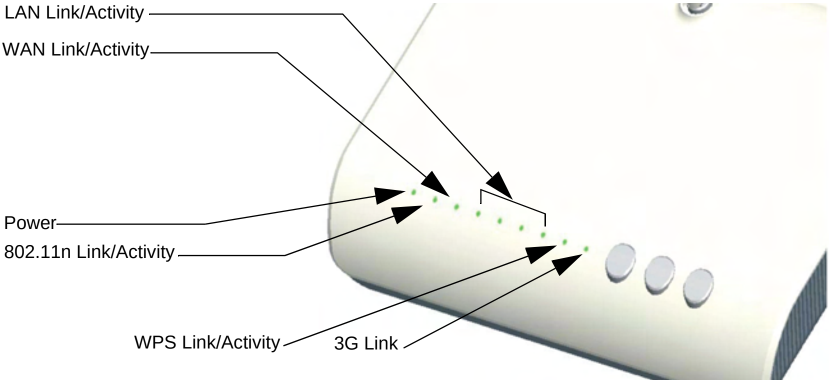


Figure 1-4. LED Indicators

LED	Status	Description
POWER	On Green	Indicates that the system is working normally.
WAN	On/Flashing Green	Indicates a valid link on the WAN Ethernet port. Flashing indicates network activity.
	Off	The Ethernet port has no valid link.
LAN (4 LEDs)	On/Flashing Green	Indicates a valid link on the LAN Ethernet port. Flashing indicates network activity.
	Off	The Ethernet port has no valid link.
WLAN	On/Flashing Green	Indicates the 802.11n radio is enabled. Flashing indicates wireless network activity.
	Off	Indicates the 802.11n radio is disabled.
WPS	On (for 10 seconds)	Indicates the WPS authentication of a device has been successfully completed.
	Fast Flashing Green	Indicates the WPS authentication of a client device is in progress.
	Slow Flashing Green (for 10 seconds)*	Indicates the WPS authentication of a device did not complete after 120 seconds.
	Off	Indicates that WPS is not in progress.
3G Link	On	Indicates a connection through the attached 3G/3.5G USB modem.
	Fast Flashing Green	Indicates that the PIN code has failed.
	Slow Flashing Green	Indicates that the 3G/3.5G USB modem is in the process of connecting.
	Off	Indicates that there is no connection or no attached 3G/3.5G device.

*Slow flashing is an on-off cycle of once every 2 seconds. The flashing lasts for 10 seconds then stops.

Ethernet RJ-45 Ports

The wireless AP/Router has the following RJ-45 ports:

- The four RJ-45 LAN ports are for connections to PCs or to a 10/100 Mbps.
- The RJ-45 WAN port is for connection to a DSL or cable modem, or to a LAN or other device that provides your Internet access.

All RJ-45 ports auto-negotiate the operating speed to 10/100 Mbps, the mode to half/full duplex, and the pin signals to MDI/MDI-X. Automatic MDI/MDI-X support enables you to use straight-through cables for all network connections to PCs, switches, or hubs.

3G Modem USB Port

The 3G Modem USB Port supports connection to a wireless cellular 3G or 3.5G modem for broadband internet access. A PIN code is required for connection to the internet.

Power Socket

The wireless AP/Router does not have a power switch. It is powered on when connected to the AC power adapter, and the power adapter is connected to a power source. The power adapter automatically adjusts to any voltage between 100-240 volts at 50 or 60 Hz. No voltage range settings are required.

Reset Button

The Reset button can be used to restart the wireless AP/Router or restore the factory default configuration. If you press the button for less than 5 seconds, the wireless AP/Router will restart. If you press and hold down the button for 5 seconds or more, any configuration changes you may have made are removed and the wireless AP/Router is restored to its factory default configuration.

WPS Button

Use the WPS button on the wireless AP/Router to automatically connect devices to the network. Within two minutes, press the physical or virtual button on a single wireless client device to enable it to join the WLAN.

The WPS configuration process may be initiated on any device. Only one client device can connect with the wireless AP/Router after the WPS button is pressed. There is no restriction to the order in which buttons are pressed.

Note: Any WPS-compatible devices could unintentionally join the WLAN if they are within range during the two-minute set up period after the WPS button is pressed. Note that only one device at a time can join the network when using the WPS button.

Chapter 2: Installation

The wireless AP/Router has two basic operating modes that can be set through the switch on the bottom panel of the device:

- **Router Mode** — Normal gateway mode that connects a wired LAN and wireless clients to an Internet access device, such as a cable or DSL modem. This is the factory set default mode.
- **AP Mode** — An access point mode that extends a wired LAN to wireless clients.

In addition to these basic operating modes, each wireless interface supports a Wireless Distribution System (WDS) link to another wireless AP/Router. These advanced configurations are not described in this section. See “Network Planning” on page 3-1 for more information.

In a basic configuration, how the wireless AP/Router is connected depends on the operating mode. The following sections describe connections for basic Router Mode and AP Mode operation.

Router Mode

In its default Router Mode, the wireless AP/Router forwards traffic between an Internet connected cable or ADSL modem, and wired or wireless PCs or notebooks. The basic connections are illustrated in the figure below.

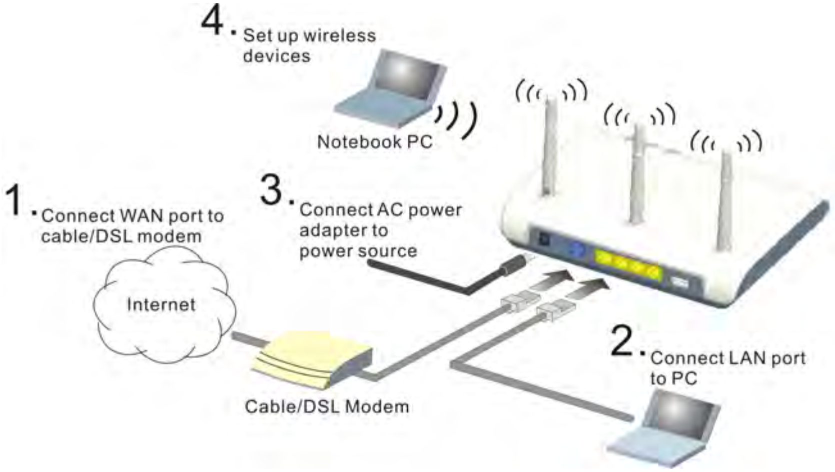

4. Set up wireless devices
Notebook PC
1. Connect WAN port to cable/DSL modem
3. Connect AC power adapter to power source
Internet
2. Connect LAN port to PC
Cable/DSL Modem

Figure 2-1.   Router Mode Connection

To connect the wireless AP/Router in Router Mode for use as an Internet gateway, follow these steps:

1. Connect an Ethernet cable from the wireless AP/Router’s WAN port to your Internet connected cable or ADSL modem.
2. Connect an Ethernet cable from the wireless AP/Router’s LAN port to your PC. Alternatively, you can connect to a workgroup switch to support multiple users. The wireless AP/Router can support up to 253 wired and wireless users.
3. Power on the wireless AP/Router by connecting the AC power adapter and plugging it into a power source.

Caution: Use ONLY the power adapter supplied with the wireless AP/Router. Otherwise, the product may be damaged.

When you power on the wireless AP/Router, verify that the Power LED turns on and that the other LED indicators start functioning as described under “LED Indicators” on page 1-4.

4. Set up wireless devices by pressing the WPS button on the wireless AP/Router or by using the web interface. See “Initial Configuration” on page 4-1 for more information on accessing the web interface.

AP Mode

In AP Mode, the wireless AP/Router operates as a wireless access point, extending a local wired network to associated wireless clients (PCs or notebooks with wireless capability). From any nearby location, you can then make a wireless connection to the wireless AP/Router and access the wired network resources, including local servers and the Internet.

In AP Mode, the wireless AP/Router does not support gateway functions on its WAN port. Both the LAN port and the WAN ports can be connected to a local Ethernet LAN.

Note: AP Mode is not the factory default mode and must be manually set using the router/AP mode switch in the bottom of the unit. If the unit is already powered on, switching the mode causes it to reboot.

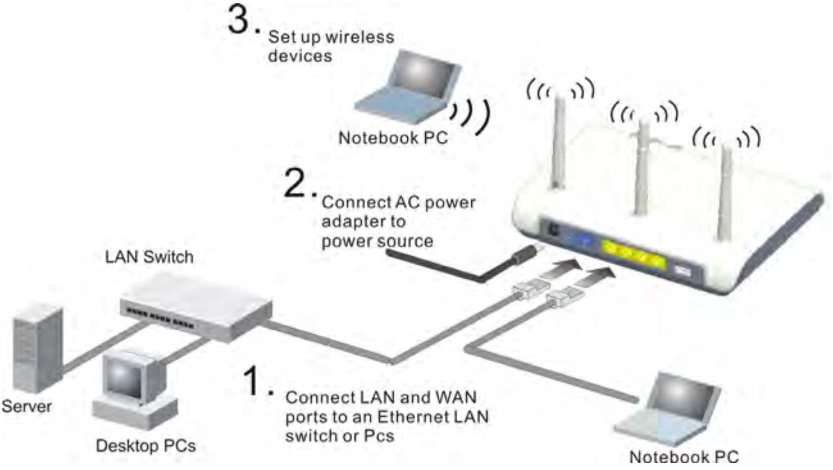

3. Set up wireless devices
Notebook PC
2. Connect AC power adapter to power source
LAN Switch
Server
Desktop PCs
1. Connect LAN and WAN ports to an Ethernet LAN switch or Pcs
Notebook PC

Figure 2-2. AP Mode Connection

To connect the wireless AP/Router for use as an access point, follow these steps:

1. Using Ethernet cables, connect the wireless AP/Router’s LAN and WAN ports to PCs or a LAN switch.
2. Power on the wireless AP/Router by connecting the AC power adapter and plugging it into a power source.

Caution: Use ONLY the power adapter supplied with the wireless AP/Router. Otherwise, the product may be damaged.

When you power on the wireless AP/Router, verify that the Power LED turns on and that the other LED indicators start functioning as described under “LED Indicators” on page 1-4.

3. Set up wireless devices by pressing the WPS button on the wireless AP/Router or by using the web interface. See “Initial Configuration” on page 4-1 for more information on accessing the web interface.

Chapter 3: Network Planning

The wireless AP/Router is designed to be very flexible in its deployment options. It can be used as an Internet gateway for a small network, or as an access point to extend an existing wired network to support wireless users. It also supports use as a wireless bridge to connect two wired LANs.

This chapter explains some of the basic features of the wireless AP/Router and shows some network topology examples in which the device is implemented.

Internet Gateway Router

The wireless AP/Router can connect directly to a cable or DSL modem to provide an Internet connection for multiple users through a single service provider account. Users connect to the wireless AP/Router either through a wired connection to a LAN port, or though the device's own wireless network. The wireless AP/Router functions as an Internet gateway when set to Router Mode.

An Internet gateway employs several functions that essentially create two separate Internet Protocol (IP) subnetworks; a private internal network with wired and wireless users, and a public external network that connects to the Internet. Network traffic is forwarded, or routed, between the two subnetworks.

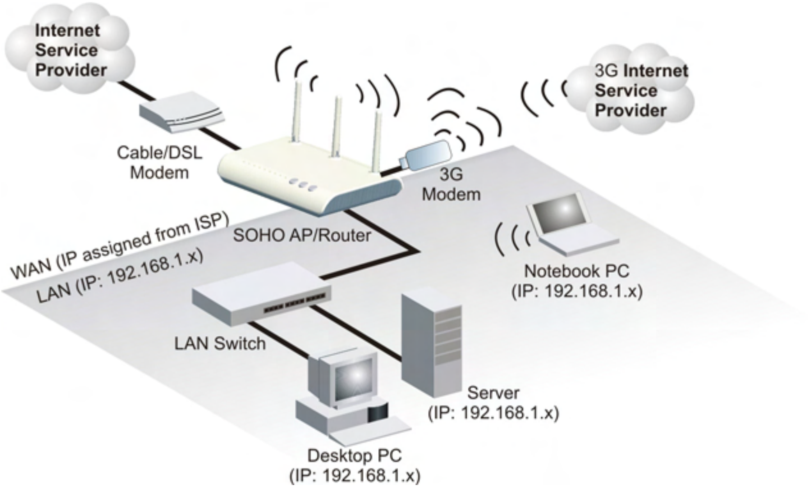

Internet Service Provider
3G Internet Service Provider
Cable/DSL Modem
3G Modem
WAN (IP assigned from ISP)
LAN (IP: 192.168.1.x)
SOHO AP/Router
Notebook PC (IP: 192.168.1.x)
LAN Switch
Server (IP: 192.168.1.x)
Desktop PC (IP: 192.168.1.x)

Figure 3-1.   Operating as an Internet Getway Router

The private local network, connected to the LAN port or wireless interface, provides a Dynamic Host Configuration Protocol (DHCP) server for allocating IP addresses to local PCs and wireless clients, and Network Address Translation (NAT) for mapping the multiple "internal" IP addresses to one "external" IP address.

The public external network, connected to the WAN port, supports DHCP client, Point-to-Point Protocol over Ethernet (PPPoE) and static IP for connection to an Internet service provider (ISP) through a cable or DSL modem.

The 3G Modem link can provide a backup Internet connection with automatic failover and fallback to the primary WAN connection.

LAN Access Point

The wireless AP/Router can provide an access point service for an existing wired LAN, creating a wireless extension to the local network. The wireless AP/Router functions as purely an access point when set to AP Mode. When used in this mode, there are no gateway functions between the WAN port and the LAN and wireless interface.

A Wi-Fi wireless network is defined by its Service Set Identifier (SSID) or network name. Wireless clients that want to connect to a network must set their SSID to the same SSID of the network service. The wireless AP/Router supports two separate wireless interfaces, that is two SSIDs or Virtual Access Points (VAPs). The two VAP interfaces can be configured separately to support different security settings or other wireless functions.

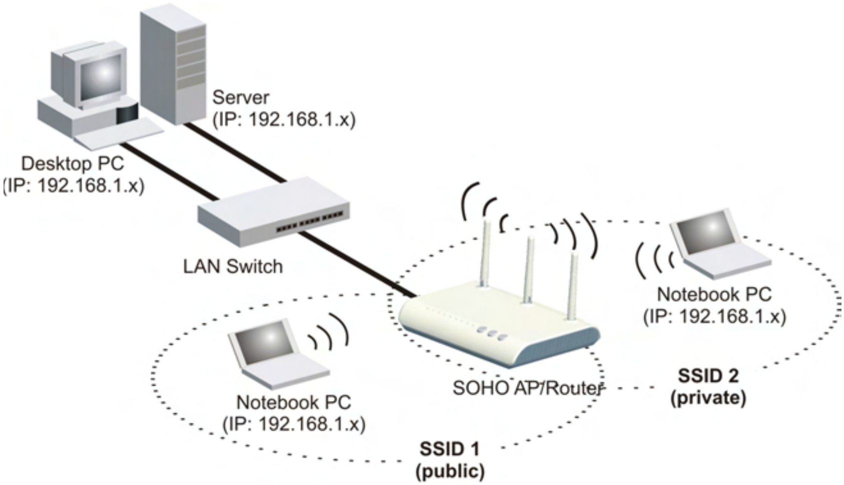


Figure 3-2. Operating as an Access Point

Wireless Bridge

The IEEE 802.11 standard defines a Wireless Distribution System (WDS) for bridge connections between access points. The wireless AP/Router can use WDS to forward traffic on links between units.

A single WDS bridge link can be specified for the WLAN1 interface. One end of a link must be configured as the “WDS Parent” and the other as the “WDS Child.”

Note: The network domain of WDS child has to be the same as WDS parent.

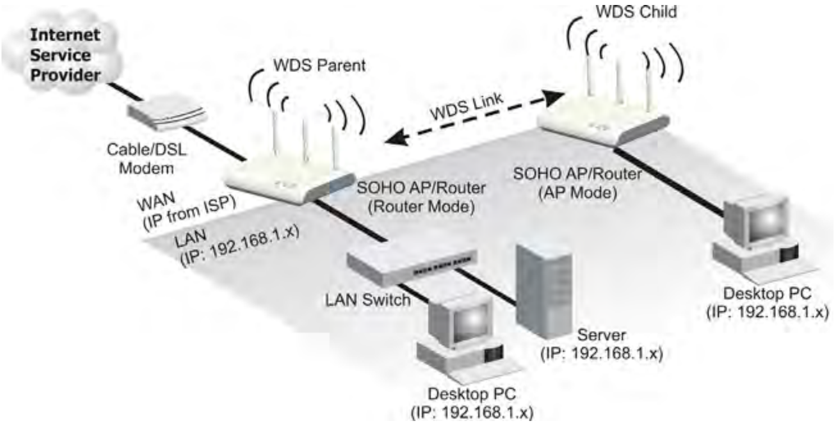

Internet Service Provider
WDS Parent
WDS Child
WDS Link
Cable/DSL Modem
WAN (IP from ISP)
LAN (IP: 192.168.1.x)
SOHO AP/Router (Router Mode)
SOHO AP/Router (AP Mode)
LAN Switch
Server (IP: 192.168.1.x)
Desktop PC (IP: 192.168.1.x)
Desktop PC (IP: 192.168.1.x)

Figure 3-3. Operating as a Wireless Bridge

Chapter 4: Initial Configuration

The wireless AP/Router offers a user-friendly web-based management interface for the configuration of all the unit’s features. Any PC directly attached to the unit can access the management interface using a web browser, such as Internet Explorer (version 6.0 or above).

This chapter describes the wireless AP/Router’s configurable features, all of which may be accessed through the web interface.

Note: Before accessing the web interface, first set the device to Router or AP Mode using the switch on the bottom panel. Note that the unit reboots when the operating mode is changed.

It is recommended to make initial configuration changes by connecting a PC directly to one of the wireless AP/Router's LAN ports. The wireless AP/Router has a default IP address of 192.168.2.1 and a subnet mask of 255.255.255.0. If your PC is set to "Obtain an IP address automatically" (that is, set as a DHCP client), you can connect immediately to the web interface. Otherwise, you must set your PC IP address to be on the same subnet as the wireless AP/Router (that is, the PC and wireless AP/Router addresses must both start 192.168.2.x).

To access the configuration menu, follow these steps:

1. Use your web browser to connect to the management interface using the default IP address of 192.168.2.1.
2. Log into the wireless AP/Router management interface by entering the default username “admin” and password also “smcadmin,” then click Login.

Note: It is strongly recommended to change the default user name and password the first time you access the web interface. For information on changing user names and passwords, See “Admin Accounts and Remote Administration” on page 5-59.

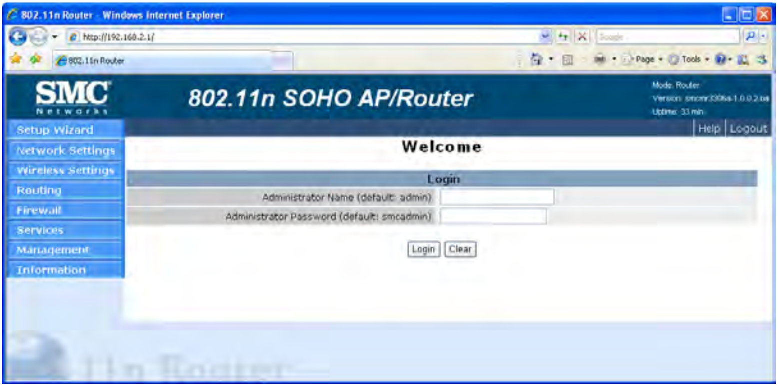

802.11n Router - Windows Internet Explorer
http://192.168.2.1/
802.11n Router
Page
Tools
SMC Networks
802.11n SOHO AP/Router
Mode: Router
Uptime: 33 min
Help
Logout
Setup Wizard
Network Settings
Wireless Settings
Routing
Firewall
Services
Management
Information
Welcome
Login
Administrator Name (default: admin)
Administrator Password (default: smcadmin)
Login
Clear
11n Router

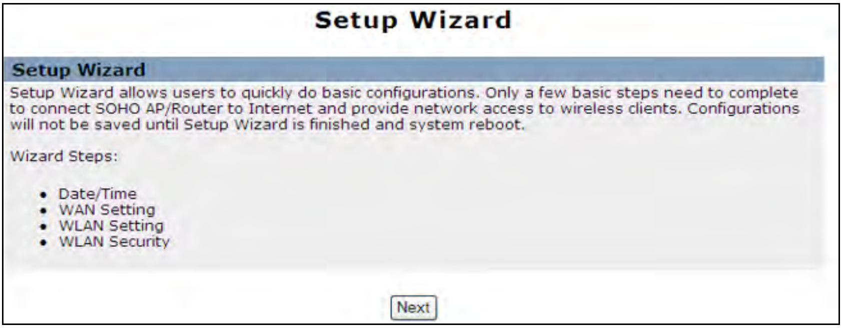
Figure 4-1. Login Page

Using the Setup Wizard

There are only a few basic steps you need to set up the wireless AP/Router and provide a connection for network access for other wireless stations.

The Setup Wizard takes you through configuration procedures for the general network settings. Follow these steps:

1. **Launch the Setup Wizard** – Click "Setup Wizard" on the left side of the screen to enter the setup wizard page. Click Next to begin the setup.



Setup Wizard

Setup Wizard

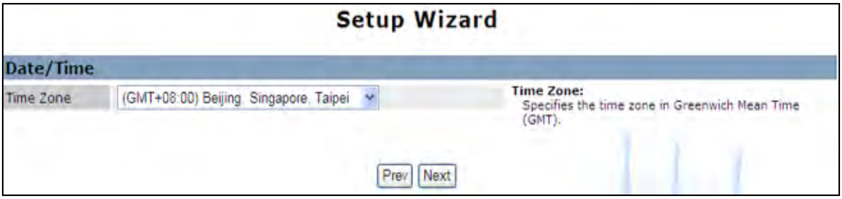
Setup Wizard allows users to quickly do basic configurations. Only a few basic steps need to complete to connect SOHO AP/Router to Internet and provide network access to wireless clients. Configurations will not be saved until Setup Wizard is finished and system reboot.

Wizard Steps:

- Date/Time
- WAN Setting
- WLAN Setting
- WLAN Security

Figure 4-2. Setup Wizard

2. **Date/Time Configuration** – Select a time zone according to where the device is operated. Click Next after completing the setup.



Setup Wizard

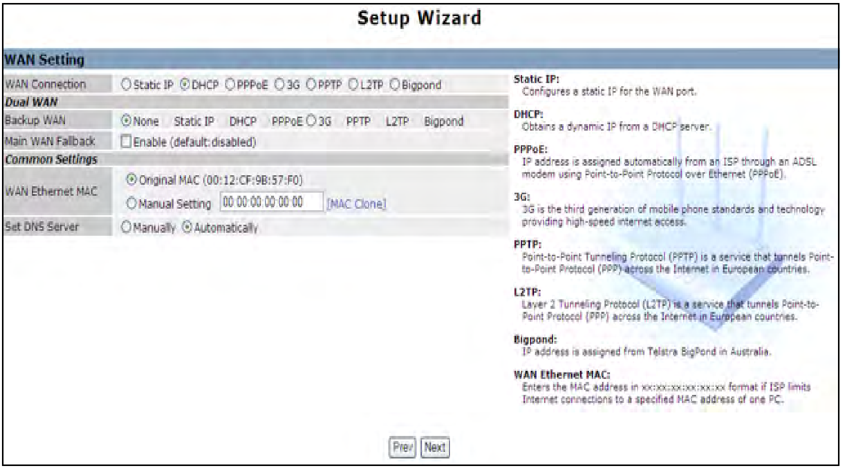
Date/Time

Time Zone: (GMT+08:00) Beijing, Singapore, Taipei

Time Zone:
Specifies the time zone in Greenwich Mean Time (GMT).

Figure 4-3. Setup Wizard - Date/Time

3. **WAN Configuration** – Specifies the Internet connection parameters for the wireless AP/Router’s WAN port. Click Next after completing the setup. The interface provides the facility for Dual WAN connections for purposes of backing up the main internet connection.



WAN Setting

WAN Connection	○ Static IP ● DHCP ○ PPPoE ○ 3G ○ PPTP ○ L2TP ○ Bigpond
Dual WAN	
Backup WAN	● None Static IP DHCP PPPoE ○ 3G PPTP L2TP Bigpond
Main WAN Fallback	☐ Enable (default: disabled)
Common Settings	
WAN Ethernet MAC	● Original MAC (00:12:CF:9B:57:F0) ○ Manual Setting 00:00:00:00:00:00 [MAC Clone]
Set DNS Server	○ Manually ● Automatically

Static IP:
Configures a static IP for the WAN port.

DHCP:
Obtains a dynamic IP from a DHCP server.

PPPoE:
IP address is assigned automatically from an ISP through an ADSL modem using Point-to-Point Protocol over Ethernet (PPPoE).

3G:
3G is the third generation of mobile phone standards and technology providing high-speed internet access.

PPTP:
Point-to-Point Tunneling Protocol (PPTP) is a service that tunnels Point-to-Point Protocol (PPP) across the Internet in European countries.

L2TP:
Layer 2 Tunneling Protocol (L2TP) is a service that tunnels Point-to-Point Protocol (PPP) across the Internet in European countries.

Bigpond:
IP address is assigned from Telstra BigPond in Australia.

WAN Ethernet MAC:
Enters the MAC address in xx:xx:xx:xx:xx:xx format if ISP limits Internet connections to a specified MAC address of one PC.

Figure 4-4. Setup Wizard - WAN Configuration

The displayed items on this page are described in the sections that follow:

WAN Connection — By default, the access point WAN port is configured with DHCP enabled. After you have network access to the access point, you can use the web browser interface to modify the initial IP configuration, if needed. The options are Static IP, DHCP, PPPoE, 3G, PPTP, L2TP and Bigpond. Each option changes the parameters displayed below it. (Default: DHCP)

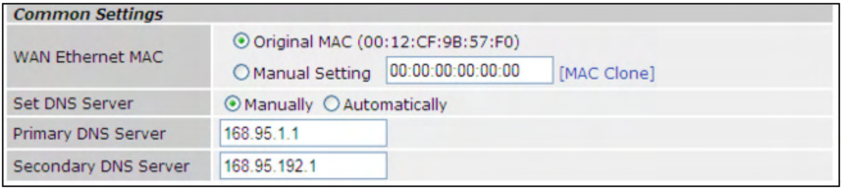
Backup WAN — A backup failsafe connection for the WAN port (Dual WAN.) Options are determined by the WAN Connection selected. Backup WAN and WAN Connection parameters are identical for each of their seven equivilent modes: Static IP, DHCP, PPPoE, 3G, PPTP, L2TP and Bigpond. (Default: None)

- **Main WAN Fallback**: When the Backup WAN is enabled, Main WAN Fallback can be enabled to periodically search the primary WAN port for recovery of the lost connection. If connection is re-established the connection switches back to the primary WAN connection. (Default: Disabled)

Note: When 3G is selected as the primary WAN Connection the Backup WAN must be a DSL/Cable connection.

Common Settings

The common settings for each WAN Connection mode are identical and are described in the section below.



Common Settings

WAN Ethernet MAC	● Original MAC (00:12:CF:9B:57:F0) ○ Manual Setting 00:00:00:00:00:00 [MAC Clone]
Set DNS Server	● Manually ○ Automatically
Primary DNS Server	168.95.1.1
Secondary DNS Server	168.95.192.1

Figure 4-5. Common Settings

WAN Ethernet MAC — Some ISPs limit Internet connections to a specified MAC address of one PC. This setting allows you to manually change the MAC address of the wireless AP/Router's WAN interface to match the PC's MAC address provided to your ISP for registration. You can enter the registered MAC address manually by typing it in the boxes provided. Otherwise, connect only the PC with the registered MAC address to the wireless AP/Router, then click the “MAC Clone.” (Default: Original MAC)

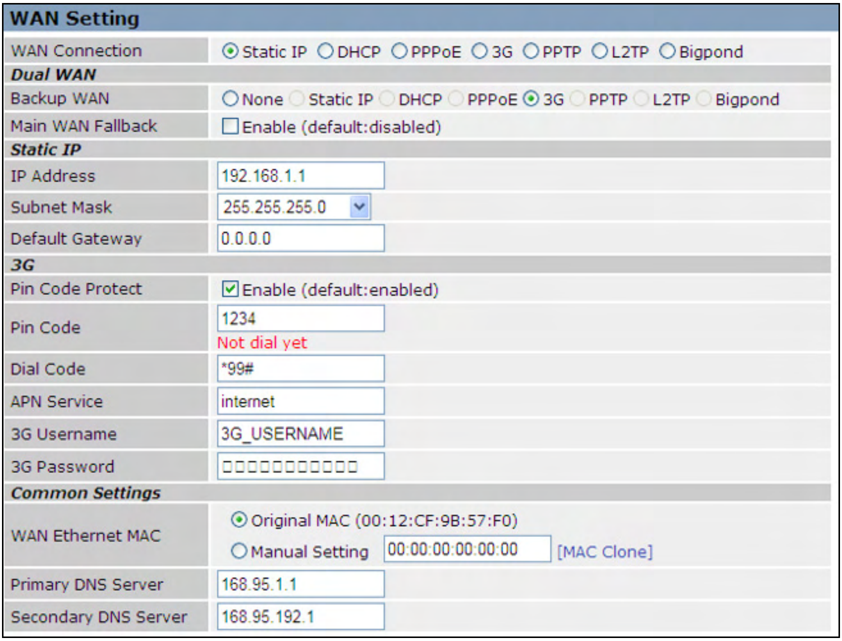
Note: If you are unsure of the PC MAC address originally registered by your ISP, call your ISP and request to register a new MAC address for your account. Register the default MAC address of the wireless AP/Router.

- **Original MAC** – Specifies a preset MAC address to uniquely identify the unit.
- **Manual Setting** – Configures a specific MAC address to use for the WAN connection.
- **Set DNS Server** – Allows manual or automatic selection of DNS severs.
- **Primary DNS Server**: The IP address of the Primary Domain Name Server on the network. A DNS maps numerical IP addresses to domain names and can be used to identify network hosts by familiar names instead of the IP addresses. If you have one or more DNS servers located on the local network, type the IP addresses in the text fields provided. Otherwise, leave the addresses as all zeros (0.0.0.0).
- **Secondary DNS Server**: The IP address of the Secondary Domain Name Server on the network.

Static IP

Configures a static IP for the WAN port.

The following example shows the dual WAN function enabled using 3G as a secondary WAN connection.



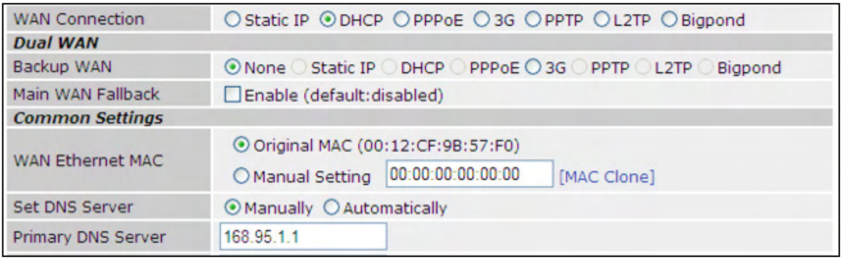
WAN Setting	
WAN Connection	● Static IP ○ DHCP ○ PPPoE ○ 3G ○ PPTP ○ L2TP ○ Bigpond
Dual WAN	
Backup WAN	○ None ○ Static IP ○ DHCP ○ PPPoE ● 3G ○ PPTP ○ L2TP ○ Bigpond
Main WAN Fallback	☐ Enable (default:disabled)
Static IP	
IP Address	192.168.1.1
Subnet Mask	255.255.255.0
Default Gateway	0.0.0.0
3G	
Pin Code Protect	☑ Enable (default:enabled)
Pin Code	1234 Not dial yet
Dial Code	*99#
APN Service	internet
3G Username	3G_USERNAME
3G Password	□□□□□□□□□□□
Common Settings	
WAN Ethernet MAC	● Original MAC (00:12:CF:9B:57:F0) ○ Manual Setting 00:00:00:00:00:00 [MAC Clone]
Primary DNS Server	168.95.1.1
Secondary DNS Server	168.95.192.1

Figure 4-6. Setup Wizard - WAN Static IP

- **IP Address**: The IP address of the wireless AP/Router. Valid IP addresses consist of four decimal numbers, 0 to 255, separated by periods.
- **Subnet Mask**: The mask that identifies the host address bits used for routing to specific subnets.
- **Default Gateway**: The IP address of the gateway router for the wireless AP/ Router, which is used if the requested destination address is not on the local subnet.

DHCP

Enables DHCP for the WAN port. The dual WAN option is disabled in the following example.

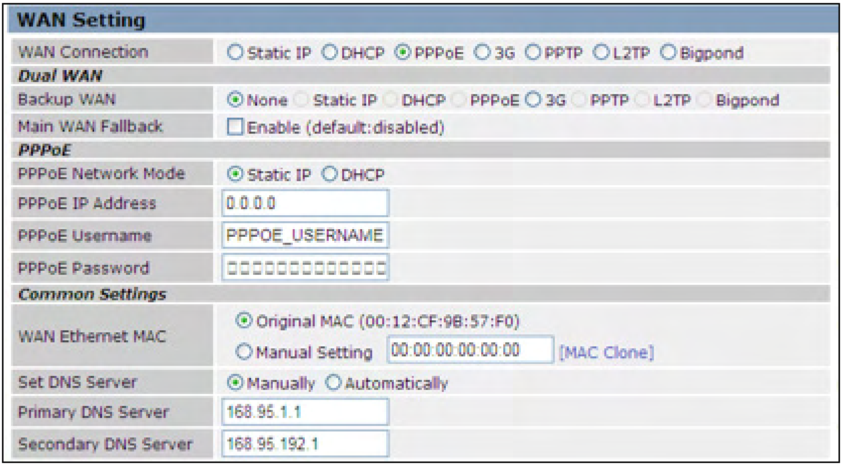


WAN Connection	○ Static IP ● DHCP ○ PPPoE ○ 3G ○ PPTP ○ L2TP ○ Bigpond
Dual WAN	
Backup WAN	● None ○ Static IP ○ DHCP ○ PPPoE ○ 3G ○ PPTP ○ L2TP ○ Bigpond
Main WAN Fallback	☐ Enable (default:disabled)
Common Settings	
WAN Ethernet MAC	● Original MAC (00:12:CF:9B:57:F0) ○ Manual Setting 00:00:00:00:00:00 [MAC Clone]
Set DNS Server	● Manually ○ Automatically
Primary DNS Server	168.95.1.1

Figure 4-7. Setup Wizard - WAN DHCP

PPPoE

Enable the wireless AP/Router IP address to be assigned automatically from an Internet service provider (ISP) through an ADSL modem using Point-to-Point Protocol over Ethernet (PPPoE). The dual WAN option is disabled in the following example.



WAN Setting

WAN Connection	○ Static IP ○ DHCP ● PPPoE ○ 3G ○ PPTP ○ L2TP ○ Bigpond
Dual WAN	
Backup WAN	● None ○ Static IP ○ DHCP ○ PPPoE ○ 3G ○ PPTP ○ L2TP ○ Bigpond
Main WAN Fallback	☐ Enable (default:disabled)
PPPoE	
PPPoE Network Mode	● Static IP ○ DHCP
PPPoE IP Address	0.0.0.0
PPPoE Username	PPPOE_USERNAME
PPPoE Password	□□□□□□□□□□□□□
Common Settings	
WAN Ethernet MAC	● Original MAC (00:12:CF:9B:57:F0) ○ Manual Setting 00:00:00:00:00:00 [MAC Clone]
Set DNS Server	● Manually ○ Automatically
Primary DNS Server	168.95.1.1
Secondary DNS Server	168.95.192.1

Figure 4-8. Setup Wizard - WAN PPPoE

- **PPPoE Network Mode**: Sets a PPPoE network mode. (Default: DHCP)
- **PPPoE IP Address**: Sets the static IP address. (Default: 0.0.0.0, available when PPPoE Network Mode is set to static IP.)
- **PPPoE Username**: Sets the PPPoE user name for the WAN port. (Default: PPPOE_USERNAME; Range: 1~32 characters)

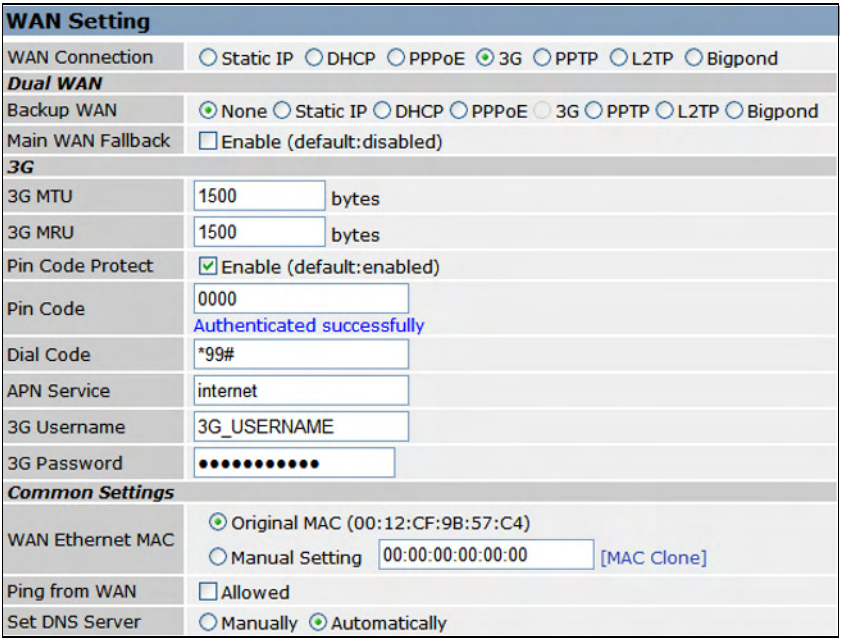
- **PPPoE Password**: Sets a PPPoE password for the WAN port. (Default: PPPOE_PASSWORD; Range: 1~32 characters)

3G

Enables a 3G/3.5G wide-area wireless cellular link on the WAN port using an optional USB modem.

Note: To use this option you need to first connect a 3G/3.5G USB modem to the USB port on the back of the unit and have registered an account with a cellular operator.

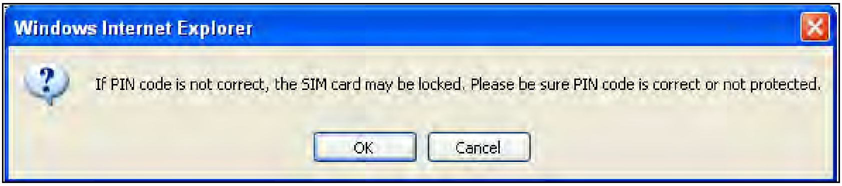
The following example shows the dual WAN function enabled using 3G as a primary connection and Static IP as a secondary WAN connection. An authenticated 3G connection displays the message ‘Authenticated successfully’ beneath the PIN code.



WAN Setting	
WAN Connection	○ Static IP ○ DHCP ○ PPPoE ● 3G ○ PPTP ○ L2TP ○ Bigpond
Dual WAN	
Backup WAN	● None ○ Static IP ○ DHCP ○ PPPoE ○ 3G ○ PPTP ○ L2TP ○ Bigpond
Main WAN Fallback	☐ Enable (default:disabled)
3G	
3G MTU	1500 bytes
3G MRU	1500 bytes
Pin Code Protect	☑ Enable (default:enabled)
Pin Code	0000 Authenticated successfully
Dial Code	*99#
APN Service	internet
3G Username	3G_USERNAME
3G Password	●●●●●●●●●●●
Common Settings	
WAN Ethernet MAC	● Original MAC (00:12:CF:9B:57:C4) ○ Manual Setting 00:00:00:00:00:00 [MAC Clone]
Ping from WAN	☐ Allowed
Set DNS Server	○ Manually ● Automatically

Figure 4-9.   Setup Wizard - WAN 3G Authenticated

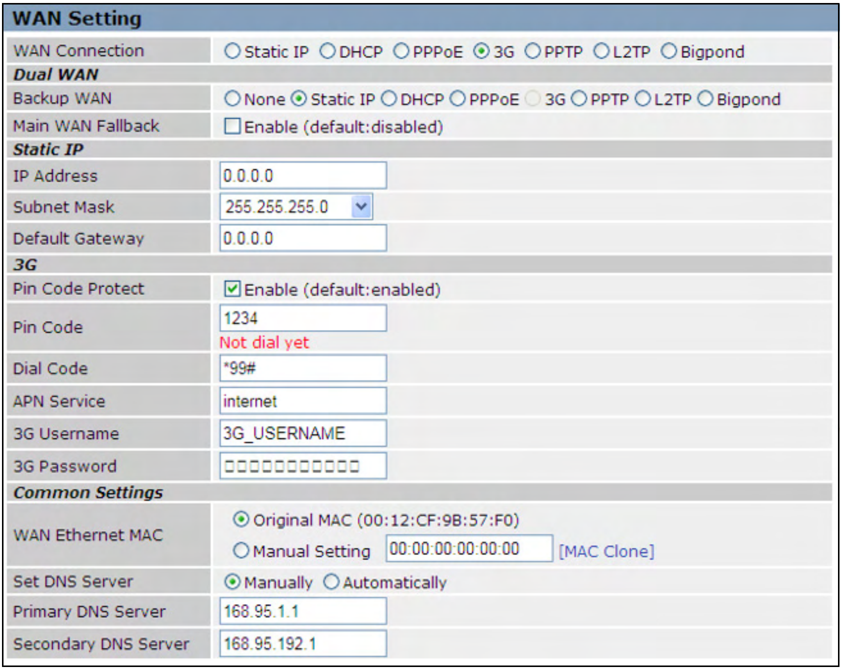
The following cautionary message will appear each time you save your settings.



If PIN code is not correct, the SIM card may be locked. Please be sure PIN code is correct or not protected.

Figure 4-10. Setup Wizard - WAN 3G PIN Code Warning

An unauthenticated connection will display the message ‘Not dial yet’ beneath the PIN code, as shown in the following illustration. However if you have previously entered the correct PIN code followed by an incorrect PIN code, your connection will wait ten seconds and automatically default to the correct PIN code for authentication.



WAN Setting

WAN Connection	○ Static IP ○ DHCP ○ PPPoE ● 3G ○ PPTP ○ L2TP ○ Bigpond
Dual WAN	
Backup WAN	○ None ● Static IP ○ DHCP ○ PPPoE ○ 3G ○ PPTP ○ L2TP ○ Bigpond
Main WAN Fallback	☐ Enable (default:disabled)
Static IP	
IP Address	0.0.0.0
Subnet Mask	255.255.255.0
Default Gateway	0.0.0.0
3G	
Pin Code Protect	☑ Enable (default:enabled)
Pin Code	1234 Not dial yet
Dial Code	*99#
APN Service	internet
3G Username	3G_USERNAME
3G Password	□□□□□□□□□□□□
Common Settings	
WAN Ethernet MAC	● Original MAC (00:12:CF:9B:57:F0) ○ Manual Setting 00:00:00:00:00:00 [MAC Clone]
Set DNS Server	● Manually ○ Automatically
Primary DNS Server	168.95.1.1
Secondary DNS Server	168.95.192.1

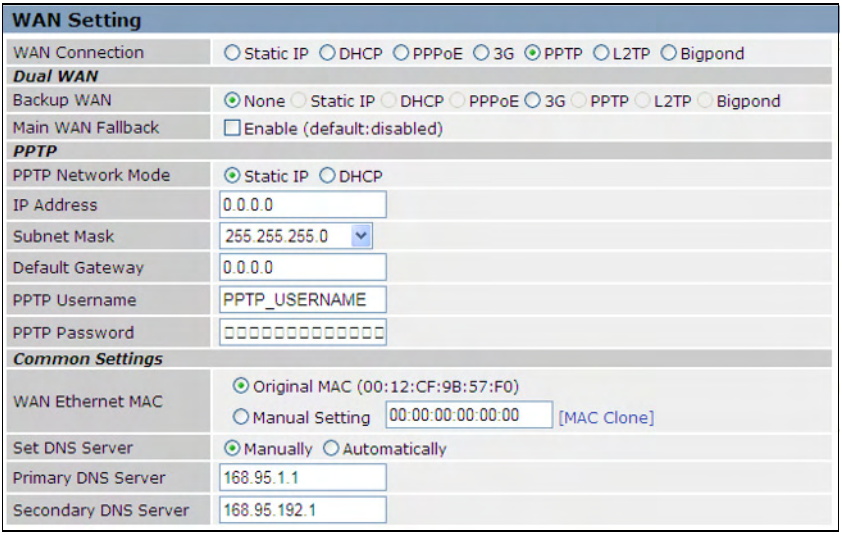
Figure 4-11. Setup Wizard - WAN 3G Unauthenticated

- **Pin Code Protect**: Enables the use of a PIN code (personal identification number) to encrypt access to the wireless 3G connection. Some service providers do not require PIN code authentication. If the PIN code for your 3G/3.5G modem is disabled disable this function. (Default: Enabled)

- **Pin Code**: Specifies a PIN code number that corresponds with that set on your 3G/3.5G USB modem and displays the status of the 3G connection.
  - **Not dial yet**: Indicates that the PIN code has not been entered or is incorrect.
  - **Authenticated successfully**: Indicates that the 3G connection has authenticated successfully.
- **Dial Code**: A dialled access code that connects the USB device to the service provider.
- **APN Service**: The name that uniquely identifies the cellular operator, access point name (APN).
- **3G Username**: The username of the account registered with the service provider.
- **3G Password**: The password of the account registered with the service provider.

PPTP

Enable the Point-to-Point Tunneling Protocol (PPTP) for implementing virtual private networks. The service is provided across the internet in the European countries. The dual WAN option is disabled in the following example.



WAN Setting

WAN Connection	○ Static IP ○ DHCP ○ PPPoE ○ 3G ● PPTP ○ L2TP ○ Bigpond
Dual WAN	
Backup WAN	● None ○ Static IP ○ DHCP ○ PPPoE ○ 3G ○ PPTP ○ L2TP ○ Bigpond
Main WAN Fallback	☐ Enable (default:disabled)
PPTP	
PPTP Network Mode	● Static IP ○ DHCP
IP Address	0.0.0.0
Subnet Mask	255.255.255.0
Default Gateway	0.0.0.0
PPTP Username	PPTP_USERNAME
PPTP Password	□□□□□□□□□□□□□
Common Settings	
WAN Ethernet MAC	● Original MAC (00:12:CF:9B:57:F0) ○ Manual Setting 00:00:00:00:00:00 [MAC Clone]
Set DNS Server	● Manually ○ Automatically
Primary DNS Server	168.95.1.1
Secondary DNS Server	168.95.192.1

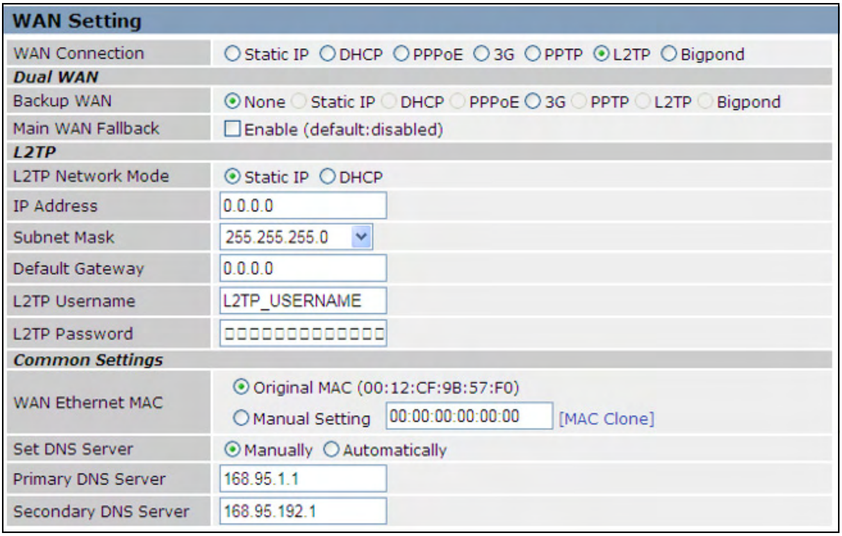
Figure 4-12. Setup Wizard - WAN PPTP

- **PPTP Network Mode**: Sets a PPTP network mode. (Default: DHCP)
- **IP Address**: Sets the static IP address. (Default: 0.0.0.0, available when PPTP Network Mode is set to static IP.)
- **Subnet Mask**: Sets the static IP subnet mask. (Default: 255.255.255.0, available when PPTP Network Mode is set to static IP.)

- **Default Gateway**: The IP address of the gateway router for the wireless AP/ Router, which is used if the requested destination address is not on the local subnet.
- **PPTP Username**: Sets the PPTP user name for the WAN port. (Default: PPTP_USERNAME; Range: 1~32 characters)
- **PPTP Password**: Sets a PPTP password for the WAN port. (Default: PPTP_PASSWORD; Range: 1~32 characters)

L2TP

Enable the Layer Two Tunneling Protocol (L2TP) for implementing virtual private networks. The service is provided across the internet in the European countries. The dual WAN option is disabled in the following example.



WAN Setting	
WAN Connection	○ Static IP ○ DHCP ○ PPPoE ○ 3G ○ PPTP ● L2TP ○ Bigpond
Dual WAN	
Backup WAN	● None ○ Static IP ○ DHCP ○ PPPoE ○ 3G ○ PPTP ○ L2TP ○ Bigpond
Main WAN Fallback	☐ Enable (default:disabled)
L2TP	
L2TP Network Mode	● Static IP ○ DHCP
IP Address	0.0.0.0
Subnet Mask	255.255.255.0
Default Gateway	0.0.0.0
L2TP Username	L2TP_USERNAME
L2TP Password	□□□□□□□□□□□□□□
Common Settings	
WAN Ethernet MAC	● Original MAC (00:12:CF:9B:57:F0) ○ Manual Setting 00:00:00:00:00:00 [MAC Clone]
Set DNS Server	● Manually ○ Automatically
Primary DNS Server	168.95.1.1
Secondary DNS Server	168.95.192.1

Figure 4-13. Setup Wizard - WAN L2TP

- **L2TP Network Mode**: Sets a L2TP network mode. (Default: DHCP)
- **IP Address**: Sets the static IP address. (Default: 0.0.0.0, available when L2TP Network Mode is set to static IP.)
- **Subnet Mask**: Sets the static IP subnet mask. (Default: 255.255.255.0, available when L2TP Network Mode is set to static IP.)
- **Default Gateway**: The IP address of the gateway router for the wireless AP/ Router, which is used if the requested destination address is not on the local subnet.
- **L2TP Username**: Sets the L2TP user name for the WAN port. (Default: L2TP_USERNAME; Range: 1~32 characters)