SMART/RG SR400ac

802.11ac Gigabit Router User Manual

V1.0

Contents

About User Manual

This user manual mainly describes how to install and configure the wireless router.

Organization

This user manual is organized as follows:

Chapter	Description
Chapter 2 Safety Precautions	Provides safety precaution information.
Chapter 3 : Overview	Provides a general overview of the wireless router, and the packing list.
Chapter 4 : Hardware Description and Hardware Installation	Mainly describes the front and rear panels of the wireless router and the

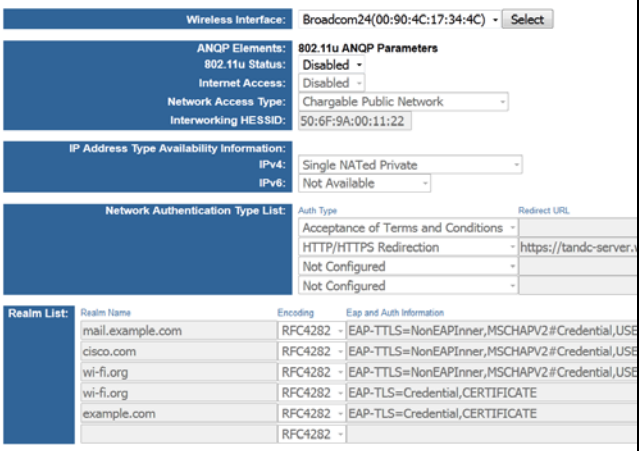
	procedure for hardware installation .
Chapter 5 : TCP/IP Settings and Wireless Connection Introduction	Describes how to set the TCP/IP and how to connect the wireless router wirelessly.
Chapter 6 : Logging In to the Web Page	Describes how to log in to the wireless router.
Chapter 7 : Web Configuration	Mainly describes how to navigate through the Web pages and how to configure the parameters.
Chapter 0: Wireless Interface — Select which wireless interface to configure.	Provides the troublesho

	BSS-MAC (SSID)	Select desired BSS to configure	oting information .
	Mode	Show whether the BSSID is AP, WirelessBridge, WET or STA.	
	BSS Enabled	Enable or disable this SSID.	
	Network Name (SSID)	Set the Network Name (also known as SSID) of this network.	
	Network Type	Select Closed hides the network from active areas. Select Open reveals the network to active scans.	
	AP Isolation	Select On enables AP isolation mode. When enables, STAs associated to AP will not be able to communicate with each other.	
	Network Bridge	Select desired bridge br0 or br1.	
	BSS Max Associations Limit	Set the maximum associations for this BSS.	
	WMM Advertise	When WMM is enabled for the radio, selecting On allows WMM to be advertised in beacons and probes for this BSS. Off disables advertisement of WMM in beacons and probes.	
	WMF	Choose On to enable Wireless Multicast Forwarding on this BSS. Off disables the feature.	
	DWDS	Enable of disable Dynamic Wireless Bridge mode.	
	MCAST_REGEN	Choose On to enable Multicast Reverse Translation on this sta. Off disables the feature.	
	Operational	Set Operational capabilities mode	

capabilities mode required	required for stations to associate to the BSS supported by the interface: none – no requirements on joining devices. erp – devices must advertise ERP (11g) capabilities to be allowed on a 2G band BSS. ht – devices must advertise HT (11n) capabilities to be allowed on the BSS. vht – devices must advertise VHT (11ac) capabilities to be allowed on the BSS.

1.1 Passpoint

Click **SSID** in the navigation bar on the top pane of the page, the **SSID** page appears. This page allows you to configure the Passpoint parameters for each Virtual/Physical interface.



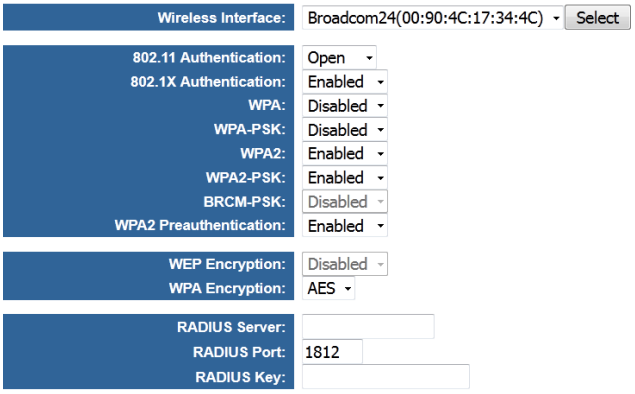
The following table describes parameters in this page:

Field	Description

Wireless Interface	Select which wireless interface to configure.
ANQP Elements: 802.11u ANQP Parameters	
802.11status	Enable or disable 802.11u Interworking Capability for this SSID.
Internet Access	Enable or disable Internet Access capability for this SSID.
Network Access Type	Network Access Type.
Interworking HESSID	Set Interworking HESSID of this network.
IP Address Type Availability Information	Set IP Address Type Availability Information to this BSS supported by this interface.
IPv4	Set IPv4 Address Type Avaliability to this BSS supported by this interface.
IPv6	Set IPv6 Address Type Avaliability to this BSS supported by this interface.
Network Authentication Type List	Set Network Authentication Type List to the BSS supported by the interface.
Realm List	Set NAI Realm List to the BSS supported by the interface.

1.2 SECURITY

Click **SECURITY** in the navigation bar on the top pane of the page, the **SECURITY** page appears. This page allows you to configure security for the wireless LAN interfaces.



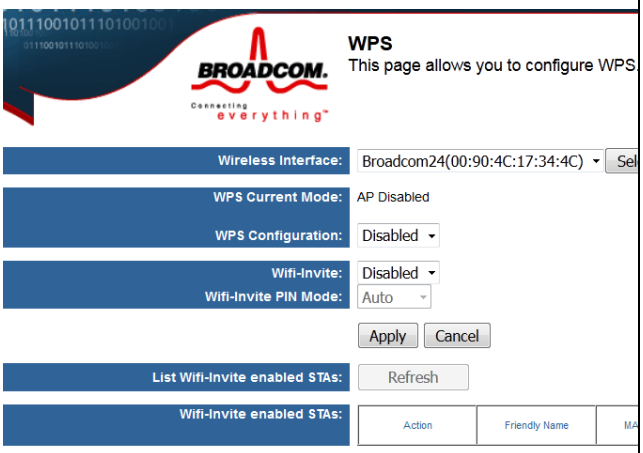
The following table describes parameters in this page:

Field	Description
Wireless Interface	Select which wireless interface to configure.
802.11 Authentication	Select 802.11 authentication method. Open or shared.
802.11X Authentication	Select Network anthentication type.
WPA	Enable/Disable WPA Authenticated Key Management suite.
WPA-PSK	Enable/Disable WPA-PSK Authenticated Key Management suite.
WPA2	Enable/Disable WPA2 Authenticated Key Management suite.
WPA2-PSK	Enable/Disable WPA2-PSK Authenticated Key Management suite.
BRCM-PSK	Enable/Disable BRCM-PSK Authenticated Key Management suite.
WPA2 Preauthentication	Enable/Disable WPA2 Preauthentication.

WEP Encryption	Enable/Disable WEP data encryption.
WPA Encryption	Select the WPA data encryption algorithm.
RADIUS Server	Set the IP address of the RADIUS server to use for authentication and dynamic key derivation.
RADIUS Port	Set the UDP port number of the RADIUS server. The port number is usually 1812 or 1645 and depends upon the server.
RADIUS Key	Set the shared secret for the RADIUS connection.

1.3 WPS

Click **WPS** in the navigation bar on the top pane of the page, the **WPS** page appears. This page allows you to configure **WPS**.



The following table describes parameters in this page:

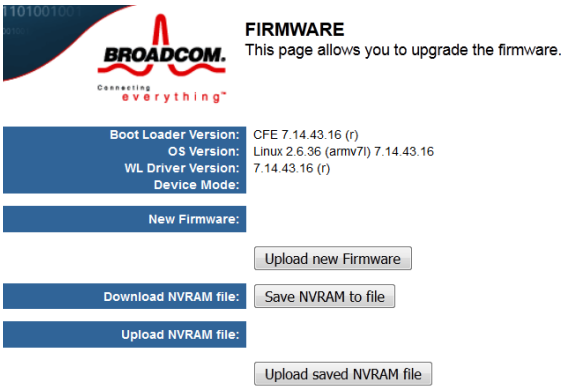
Field	Description

Wireless Interface	Select which wireless interface to configure.
WPS Current Mode	WPS Current Mode
WPS Configuration	Select WiFi Simple Config mode.
Wifi-Invite	Enable or disable Wifi-Invite feature.
Wifi-Invite PIN Mode	Set the Wifi-Invite PIN Mode to auto or manual.
List Wifi-Invite enabled STAs	Scan to find Wifi-Invite enabled STAs.
Wifi-Invite enabled STAs	The list of Wifi-Invite enabled STAs

After setting, click Apply to save the settings, click Cancle to abort the settings.

1.4 FIRMWARE

Click **FIRMWARE** in the navigation bar on the top pane of the page, the **FIRMWARE** page appears. This page allows you to upgrade the firmware.



The following table describes parameters in this page:

Field	Description
Boot Loader Version	Display the current version of Boot Loader.
OS Vertion	Display the current version of OS.
WL Driver Version	Display the current version of Wireless Driver.
Device Mode	Display the current devicemode.
New Fireware	Select the new firmware to upload to the router.
Download NVRAM file	Push button to save NVRAM variables to file.
Upload NVRAM file	Enter filename of saved NVRAM file here.

Troubleshooting

Features

- Support IEEE802.11b, IEEE802.11g, IEEE802.11n, IEEE802.11a, IEEE802.11ac.
- Transmission data rate is up to 1900 Mbps
- Support WEP and WPA for secure data transmission
- Support DHCP server
- Support manually configuration of static routing
- Support version upgrade through Web page
- Support restoring factory default settings
- Support demilitarized zone (DMZ)
- Support DNS proxy and forwarding
- Support QoS
- Support UPnP
- Support WPS
- Support port mapping
- Support port triggering
- Support access point
- Support guest network
- Support restricting IP bandwidth
- Support filtering by LAN IP Address and Destination Port
- Support 3 types of WAN connection modes, including static IP, dynamic IP, and PPPoE
- Support remote access control
- Support firewall
- Support system status display
- Support backup and restoration of configuration file

2 Safety Precautions

Before operating the wireless router, read the following precaution information carefully:

- Use the type of power that user manual marks.
- Use the power adapter that is packed within the device package.
- Pay attention to the power load of the outlet or the prolonged lines. An overburden power outlet or damaged lines and plugs may cause electric shock or fire accident. Check the power cords regularly. If you find any damage, replace it at once.
- Proper space left for heat dissipation is necessary to avoid any damage caused by overheating to the device.
- Do not put this device close to a place where a heat source exits or high temperature occurs. Avoid the device from direct sunshine.
- Do not put this device close to a place where is over damp or watery. Do not spill any liquid on this device.
- Do not connect this device to any PC or electronic product, unless our customer engineer or your broadband provider instructs you to do this, because any wrong connection may cause any power or fire risk.
- Do not place this device on an unstable surface or support.

3 Overview

3.1 Product Introduction

The wireless router is a high-performance network access device. It is fully compatible with IEEE802.11b, IEEE802.11g, IEEE802.11n and IEEE802.11ac standards. It can provide reliable and convenient access service for individual users and SOHO (Small Office, Home Office).

3.2 Packing list

Please check whether your packing list includes the following items:

- Wireless router x 1
- Power adapter (12V DC,3A) x 1

4 Hardware Description and Hardware Installation

4.1 Front Panel and LED Status

There are 12 LED indicators on the front panel of the wireless router. By observing their status, you can check whether the device runs normally.

The following table describes the status of LED indicators on the front panel.

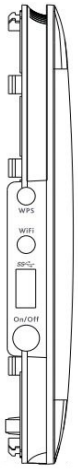
Indicator	Color	Status	Description
 power	White	On	The device is powered on and the device is operating normally.
		Blink	The device is initializing.
		Off	The device is powered off.
	Amber	On	The device is in CFE recovery mode.
		Blink	The software is upgrading or the RESET button was pressed.
WAN	White	On	Ethernet WAN interface is connected at 1000 BASE-T.
		Blink	Data is being transmitted through the Ethernet WAN interface.
		Off	The Ethernet WAN interface is disconnected.
	Green	On	Ethernet WAN interface is connected at 10/100 BASE-T.
		Blink	Data is being transmitted through the Ethernet WAN interface.
		Off	The Ethernet WAN interface is disconnected.

Internet	White	On	Internet is synchronized successfully in routed mode.
		Blink	Internet data is being transmitted.
		Off	Ethernet WAN interface is disconnected.
	Red	On	Internet Authentication/Connection has failed.
		Off	Normally off.
	Green	On	The Ethernet interface is connected at 10/100 BASE-T.
		Blink	Data is being transmitted through the Ethernet interface.
		Off	The Ethernet interface is disconnected.
 USB 1	White	On	The connection of 3G/4G dongle or USB flash disk is established @ USB 2.0 Low-Speed (480Mbps)
		Blink	Data is being transmitted.

		Off	No USB device is connected or someone clicked the Safely Remove Hardware button, and it is now safe to remove the attached USB device.
 USB2	White	On	The connection of 3G/4G dongle or USB flash disk is established @ USB 3 High-Speed (5Gbps).
		Blink	Data is being transmitted @ USB 3.0 High-Speed (5Gbps).
		Off	No USB device is connected or someone clicked the Safely Remove Hardware button, and it is now safe to remove the attached USB device.
	Green	On	The connection of 3G/4G dongle or USB flash disk is established @ USB 2.0 Low-Speed (480Mbps).
		Blink	Data is being transmitted @ USB 2.0 Low-Speed (480Mbps).
		Off	No USB device is connected or someone clicked the Safely Remove Hardware button, and it is now safe to remove the attached USB device.
 2.4GHz	White	On	The 2.4GHz WiFi radio is operating.
		Blink	The router is sending/receiving WiFi traffic on 2.4GHz band.

		Off	The 2.4GHz WiFi radio is off/disabled.
 5GHz	White	On	The 5GHz WiFi radio is operating.
		Blink	The router is sending/receiving WiFi traffic on 5GHz band.
		Off	The 5GHz WiFi radio is off/disabled.
 WPS	White	On	WPS pairing process was successful.
		Blink	WPS pairing process is active.
		Off	WPS pairing process is inactive.
LAN 1/2/3/4	White	On	The Ethernet interface is connected at 1000 BASE-T.
		Blink	Data is being transmitted through the Ethernet interface.
		Off	The Ethernet interface is disconnected.

4.2 Side Panel and Interface Description



The following table describes interfaces and buttons on the side panel.

Interface/Button	Description
WPS	This button is used for enabling WPS PBC mode. When WPS is enabled, press this button, and the AP starts to accept negotiation of PBC mode.
Wifi	Turn on/off Wifi.
USB3.0	USB 3.0 interface.
On/Off	Turn/off the router.

4.3 Rear Panel and Interface Description

The following table describes interfaces and buttons on the side panel.

Interface/Button	Description
LAN1/LAN2/ LAN3/LAN4	RJ45 LAN interfaces, for connecting hub, switch, or computer in a LAN.
WAN	RJ45 WAN interface, for connecting WAN or the uplink network devices.
Reset	Use a fine needle to press **Reset** gently for 3-6 seconds and then release the button. The system reboots and restores to the factory defaults.
USB 2.0	USB 2.0 interface.
Power	Power socket, for connecting the power adapter.

⚠ **Caution:**

Do not press Reset unless you want to clear the current settings. The Reset button is in a small circular hole on the rear panel. If you want to restore the default settings, please press Reset gently for 3-6 seconds with a fine needle inserted into the hole and then release the button. The system reboots and restores to the factory default settings.

The power specification is 12V, 3A. If the power adapter does not match the specification, the device may be damaged.

4.4 Hardware Installation

4.4.1 System Requirements

Before installing the device, please ensure that the following items are ready:

- At least one Ethernet RJ45 cable (10/100/1000Base-T)
- One wireless router
- A PC is already installed with the TCP/IP protocol and the PC can access the Internet.

4.4.2 Before You Begin

Before you install the device, please pay attention to the following items:

- When the device is connected to a computer, hub, router or switch, the Ethernet cable should be less than 100 meters.
- Do not place this device on an unstable surface or support. Do not put this device on the ground.
- Keep the device clean. Avoid the device from direct sunshine. Avoid any metal in the device.
- Place the device in the center of the area, and try to optimize the wireless coverage.

4.4.3 Connecting the Device

To connect the device, do as follows:

Step 1 Connect one end of the RJ45 cable to the LAN interface of the wireless router.

Step 2 Connect the other end of the RJ45 cable to your PC.

Step 3 Connect the power adapter to the power socket of the wireless router.

4.5 Operation Range

The operation range of the wireless router depends on the actual environment. The path and effect of signal transmission vary according to the deployment in a house or an office. We suggest indoor use.

4.6 Roaming

Suppose that several wireless routers run in the same network. Each wireless router serves as a BSS that has its coverage range. One wireless client (for example, a notebook PC or PDA) can realize roaming from one AP to another AP accurately. In that case, the wireless client can communicate with the other devices within the coverage range of the wireless router.

To realize roaming in the coverage range of the wireless router by a wireless client, you need to set the APs properly as follows:

- Set the same SSID for different APs.
- The SSIDs of all the computers and PDAs should be consistent with that of APs.
- All the BSSs must use the same wireless channel.
- If the encryption function is enabled, all wireless routers must be configured with the same encryption mode and encryption key for establishing connection.
- Wireless routers must keep coverage of uninterrupted wireless signals in the whole operation environment. Hence, please put wireless routers to the appropriate places.

5 TCP/IP Settings and Wireless Connection Introduction

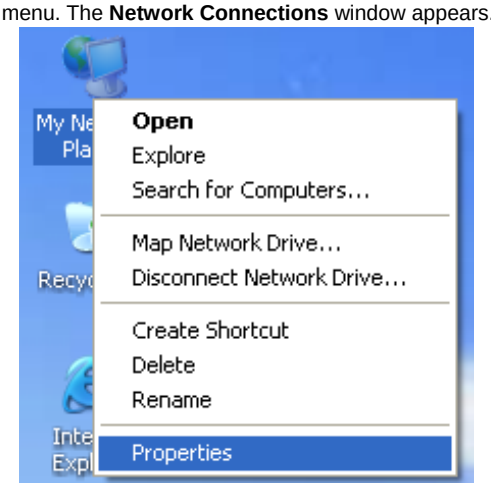
5.1 TCP/IP Settings

By default, the LAN IP address of the wireless router is 192.168.1.1, the subnet mask is 255.255.255.0, and the DHCP server is enabled.

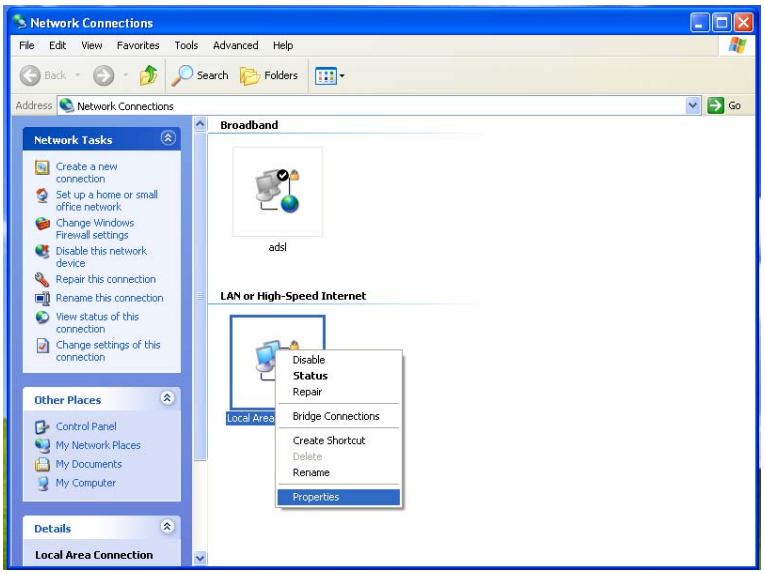
It is recommended to set the network adapter to **Obtain an IP address automatically**. Then, your PC obtains the TCP/IP settings, including the IP address, subnet mask, gateway, and DNS address automatically through the wireless router. If you know the settings of the current LAN interface, you can manually set the TCP/IP properties of the network adapter, so that your PC can communicate with the wireless router.

To manually set the network adapter, do as follows:

Step 1 Right-click the icon of **My Network Places** and choose **Properties** from the menu. The **Network Connections** window appears.



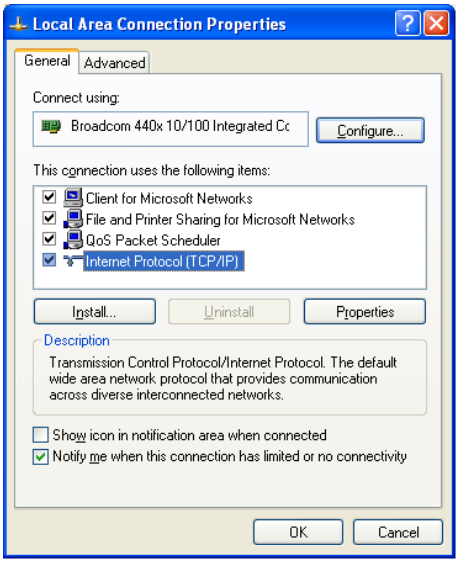
Step 2 Right-click the network adapter icon and choose **Properties** from the menu. The **Local Area Connections Properties** window appears.



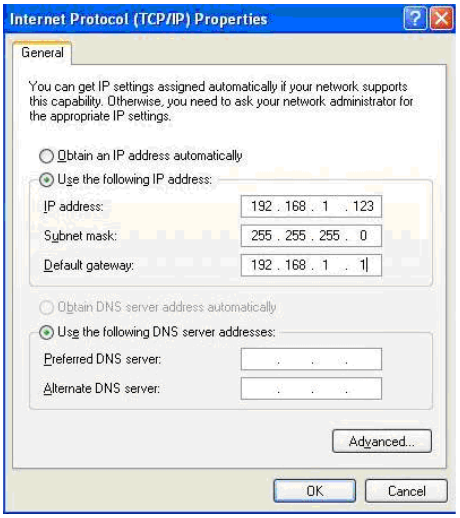
Note:

If multiple network cards are installed on your PC, a window other than the **Local Area Connections Properties** window may appears.

Step 3 Double-click **Internet Protocol (TCP/IP)** and the **Internet Protocol (TCP/IP) Properties** window appears.

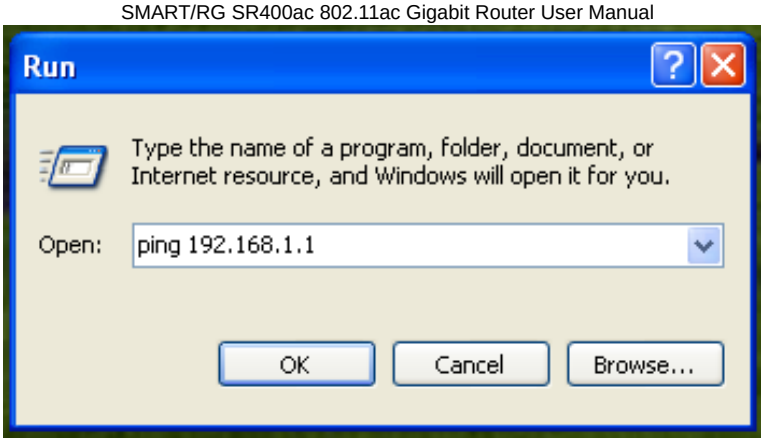


Step 4 Select **Use the following IP address** and enter the IP address of the network adapter. The IP address must be 192.168. 1.X (X is a number in the range of 2 to 254). If you want to access the Internet through a wireless router, you need to enter the default gateway and IP address of the DNS server correctly.



Step 5 Set the subnet mask and click **OK**.

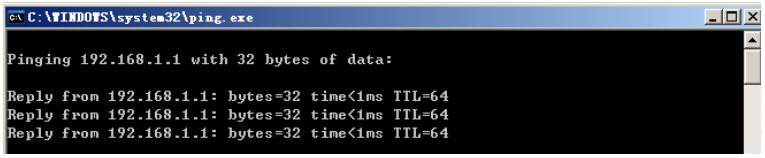
Step 6 After setting, you can ping the default IP address of the wireless router, to check whether the current connection between the PC and the wireless router is normal. Choose **Start** > **Run** from the desktop and enter **ping 192.168.1.1**. See the following figure:



Note:

192.168.1.1 in the **ping** command is the default IP address of the LAN interface. If the IP address changes, enter the current IP address instead.

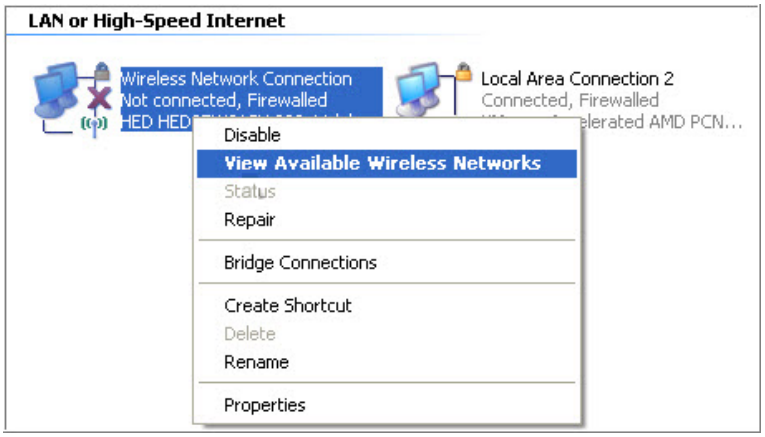
Step 7 If the PC can ping through the default IP address of the wireless router, the following page appears, indicating that the connection between your PC and the wireless router is normal.



5.2 Wireless Connection Introduction

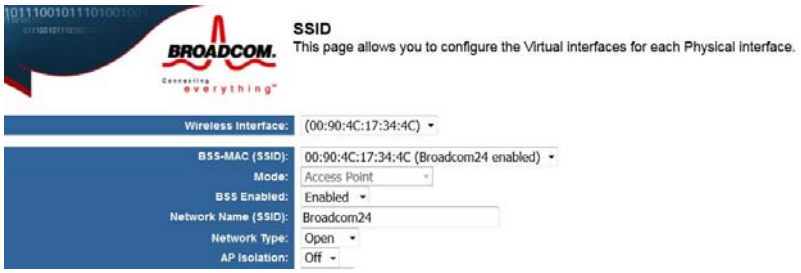
By default, the AP function of the wireless router is enabled. If you use a wireless network adapter, do as follows to establish the connection:

Step 1 Enable the wireless network adapter on your PC and ensure that the **Wireless Zero Configuration** tool is available. Right-click the **Wireless Network Connection** icon and choose **View Available Wireless Networks** from the menu.



Step 2 In the **Wireless Network Connection** page, click **Refresh network list** and the network list is refreshed. The default SSID of the wireless router is **Broadcom24 (2.4G) or Broadcom58 (5.8G)**. Select the wireless router that you want to connect and click **Connect**. The default wireless security mode is **None**, and you can connect the wireless router directly without the encryption key in this mode. If the wireless router is encrypted, you need to enter the correct key to connect to the wireless router.

Step 3 If you are not sure of the available SSID, please log in to the Web page of the wireless router, and view the SSID in the **SSID** page of the wireless settings.

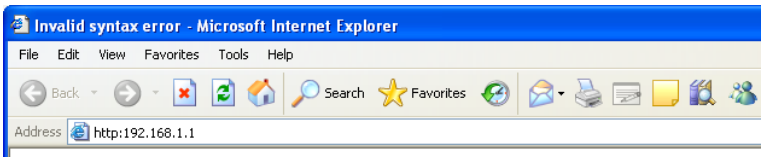


🕮 **Note:**

After your wireless network card connects to the wireless router successfully, usually, you should set the network adapter to **Obtain an IP address automatically**. The configuration of wireless connection is now complete.

6 Logging In to the Web Page

Run the Internet Explorer (IE), enter ***http://192.168.1.1/*** (the default IP address of the wireless router) in the address bar, and press **Enter**.



In the pop-up window, enter the user name and password, and click **Login**.

Note:

The default user name is void and the default password is **admin**.

After logging in to the Web page, you can view, configure and modify the router settings. To make the settings and changes take effect, you need to reboot the wireless router sometimes.

Caution:

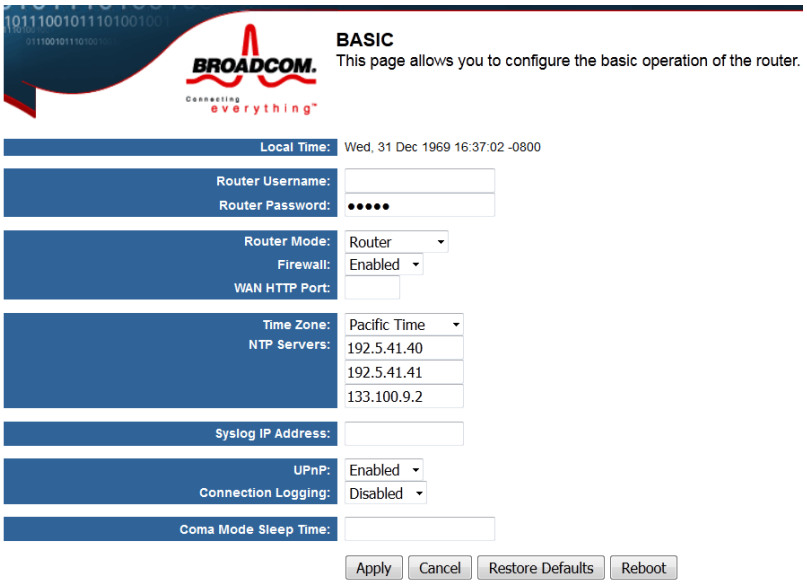
If you are managing the wireless router through the Web page, do not cut off the power supply. Otherwise, the device may be damaged.

7 Web Configuration

7.1 Basic

You can set the basic operation of the router by following this wizard. To configure the basic operation, do as follows:

Step 1 After login, click **Basic** in the navigation bar on the top pane of the page. The **Basic** page appears.



The following table describes parameters in this page:

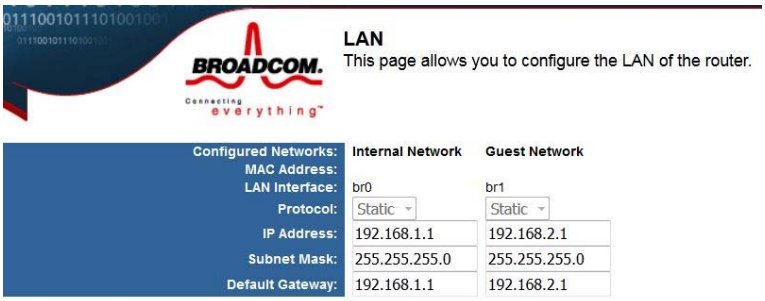
Field	Description
Local Time	Show the local time as kept in the router.

Field	Description
Router Username	Set the username for access to these configuration pages.
Router Password	Set the password for access to these configuration pages, Leave this filed and Router Username blank to disable access control.
Router Mode	Choose Router or Access Point here.
Firewall	Sets whether the firewall shoule be disabled, Connetctions from the WAN are allowed if the firewall is disabled.
WAN HTTP Port	Sets the HTTP prot to use for remote access to these configuration pages. Leave this field blank to disable remote access.
Time Zone	Set the tme zone of this locale. You may choose Pacific Time, Mountain Time, Central Time, Eastern Time here.
NTP Server	Set the IP address of the NTP servers to use for time synchronization.
Syslog IP Address	System log messages will be sent to this IP address.
UPnP	Set whether Universal Plug and Play (UPnP) is enabled.
Connection Logging	Sets which connections through the router shoule be logged. Seletcing Denied enables logging of denied connections. Select Accepted enables logging of accepted connections. Select Both enables logging of both denied and accepted connections.
Coma Mode Sleep Time	Set the coma mode interval in seconds before reset.

7.2 LAN

Click **LAN** to switch to LAN configuration page. In this page, you can configure the parameters of the LAN port. You can modify the IP address of the LAN port according to the actual network environment. This router supports Guest Network, so you can set LAN configuration on both Internel Network and Guest Network.

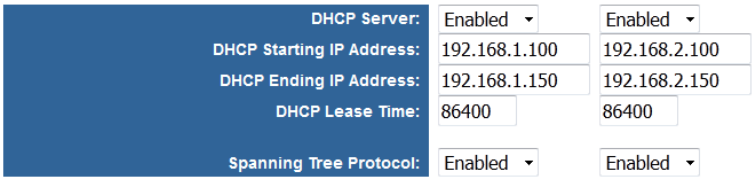
7.2.1 Basic LAN configuration



The following table describes parameters in this picture:

Field	Description
MAC Address	Show the MAC address of LAN interface
LAN Interface	Selects interfaces for LAN
Protocol	Set the method to use to obtain an IP address of the LAN interface
IP Address	Set the IP address of the LAN interface
Subnet Mask	Set the IP netmask of the LAN interface
Default Gateway	Set the default gateway of the LAN interface

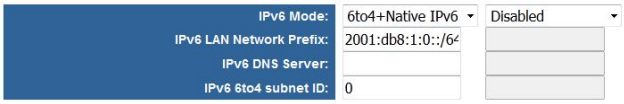
7.2.2 DHCP configuration



The following table describes parameters in this picture:

Field	Description
DHCP Server	If it is set Enabled, the router serves as the DHCP server and automatically assigns IP addresses for all connected computers.
DHPC Starting IP Address	The first address in a consecutive IP address pool.
DHCP Ending IP Address	The last address in a consecutive IP address pool.
DHCP Lease Time	After the DHCP lease time elapsed, the router automatically assigns new IP addresses for all connected computers.
Spanning Tree Protocol	Enable/Disable Spanning Tree Protocol

7.2.3 IPv6 configuration



This router support IPv6, you can set IPv6 configuration in this page. The following table describes these parameters:

Field	Description
IPv6 Mode	If it is set Disabled, IPv6 function is denied. To use IPv6, choose 6to4 only, native IPv6 Only or 6to4+Native IPv6.

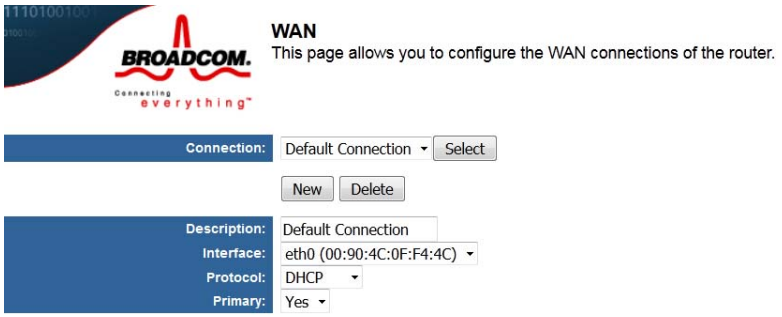
Field	Description
	6to4 is an Internet transition mechanism for migrating from IPv4 to IPv6, a system that allows IPv6 packets to be transmitted over an IPv4 network (generally the IPv4 Internet) without the need to configure explicittunnels.
IPv6 LAN Network Prefix	Set IPv6 LAN Network Prefix here.
IPv6 DNS Server	If you want to surf the Internet through IPv6, IPv6 DNS Server must be set.
IPv6 6to4 subnet ID	Set the 6to4 subnet ID(0-65535).

7.2.4 Static Routes

Static routes is a form of routing that occurs when a router uses a manually-configured routing entry, rather than information from a dynamic routing traffic.You can set the Static Routes for Internal Network and Guest Network in this page.

7.3 WAN

Click **WAN** in the navigation bar on the top pane of the page, the **WAN** page appears. The router supports 3 modes of WAN connection, including **DHCP**, **Static**, or **PPPoE**. In this page, you can select the appropriate WAN connection and configure the relevant parameters according to the actual requirements.

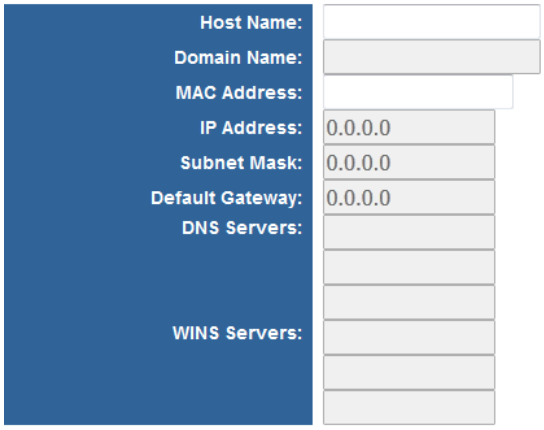


- DHCP

If you select DHCP, the router automatically obtains IP address, subnet mask, and IP address of the gateway from the ISP. Select this connection mode if the ISP does not provide any IP network parameters.

- Static IP (Fixed)

If the ISP provides the information of the IP address, subnet mask, gateway, and DNS server, select **Static**. For detailed settings, refer to your ISP.



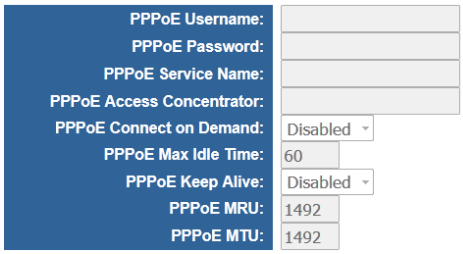
The following table describes parameters in the above picture:

Field	Description
Host Name	Some ISPs require that a host name be provided when requesting an IP address through DHCP.
Domain Name	Set the domain name to be provided to LAN clients who request an IP address through DHCP
MAC Address	Some ISPs require that a specific MAC address be used. Also known as MAC address cloning, this feature allows you to set the MAC address of the WAN interface.
IP Address	Enter the WAN IP address provided by the ISP. It cannot be null.
Subnet Mask	Enter the WAN subnet mask provided by the ISP. It varies depending on the network type. It is usually 255.255.255.0 (Class C).
Default Gateway	Enter the IP address of the gateway provided by the ISP. It is the IP address used for connecting to the ISP.
DNS Servers	Set the IP address of the DNS servers to use for resolving host names.
WINS Servers	Set the IP address of the WINS servers to use for resolving NetBIOs names.

After setting, click **Apply** to save the settings.

- PPPoE

If the ISP provides the user name and password for PPPoE dialup, select **PPPoE**.



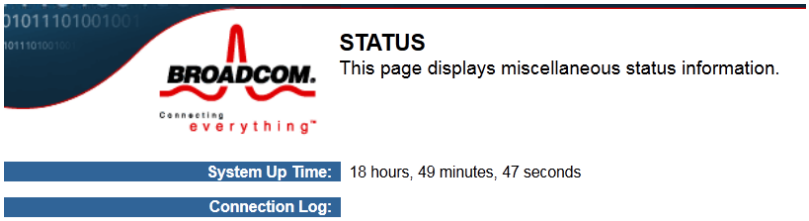
The following table describes parameters in this page:

Field	Description
PPPoE Username	Set the username to use when authenricating with a PPPoE server.
PPPoE Password	Set the password to use when authenticating with a PPPoE server
PPPoE Server Name	Set the PPPoE server name.
PPPoE Access Concentrator	Set the name of the PPPoE access concentrator.
PPPoE Connect on Demand	Set whether the PPPoE link should be automatically disconnected if no traffic has been observed for the period specified by PPPoE Max Idle Time.
PPPoE Max Idle Time	Set the number of seconds to wait before disconnecting the PPPoE link if PPPoE Connect On is Enabled.
PPPoE Keep Alive	Set whether PPPoE link should be automatically restored if it is lost. This setting has no effect if PPPoE Connect On Demand is Enabled.
PPPoE MRU	Set the maximum number of bytes that the PPPoE interface will receive in a single Ethernet frame.
PPPoE MTU	Set the maximum number of bytes that the PPPoE interface will transmit in a single Ethernet frame.

After setting, click **Apply** to save the settings.

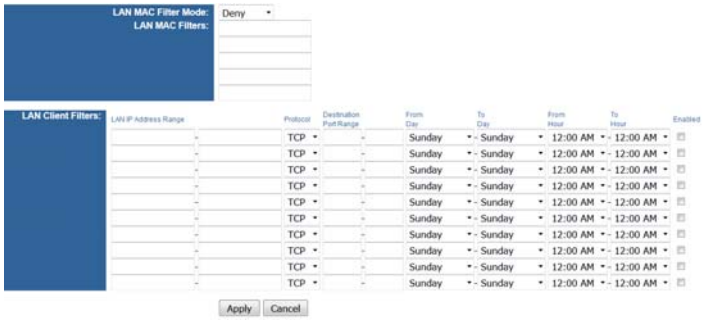
7.4 STATUS

Click **STATUS** in the navigation bar on the top pane of the page, the **STATUS** page appears. You can check the system up time since the router was booted and the log of recent connection attempts.



7.5 FILTERS

Click **FILTERS** in the navigation bar on the top pane of the page, the **FILTERS** page appears. This page allows you to configure LAN filters for the router. The LAN machines affected by the filters will not be able to communicate through the WAN but will be able to communicate with each other and with the router itself.



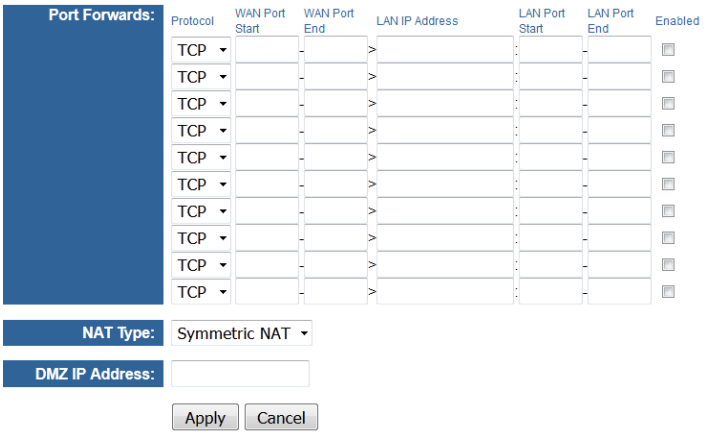
The following table describes parameters in this page:

Field	Description
LAN MAC Fiter Mode	Select whether clients with the specified MAC address are allowed of denied access to the router and the WAN
LAN MAC Fiters	Filter packets from LAN machines with the specified MAC address. The MAC address format is XX: XX: XX: XX: XX: XX: XX: XX
LAN Client Filters	Filter packets from IP addresses destinined to certain port ranges during the specified times.

After setting, click **Apply** to save the settings.

7.6 ROUTING

Click **ROUTING** in the navigation bar on the top pane of the page, the **ROUTING** page appears.This page allows you to configure port forwarding for the router. Requests to the specified WAN port range will be forwarded to the port range of the LAN machine. You may also configure static routes here.



The following table describes parameters in this page:

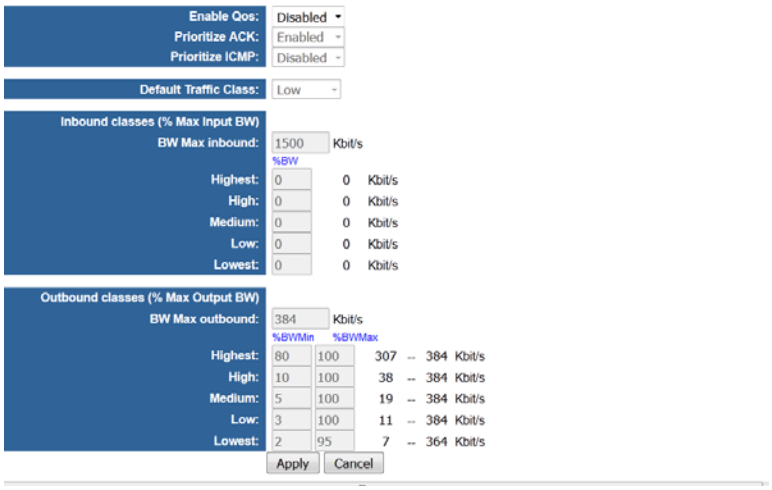
Field	Description
Port Forwards	Forward packets destined to ports in the first range to the LAN machine with the specified IP address. You may optionally specify a second range (the range may not overlap and must be the same size).
NAT Type	Symmetric NAT is more secured, Cone NAT traversal technology like Teredo.
DMZ IP Address	Forward all other incoming WAN packets to the LAN machine with the specified IP address.

After setting, click **Apply** to save the settings, click **Cancle** to abort the settings.

7.7 QOS

Click **QOS** in the navigation bar on the top pane of the page, the **QOS** page appears.

This page allows you to configure the new Broadcom IQos feature.



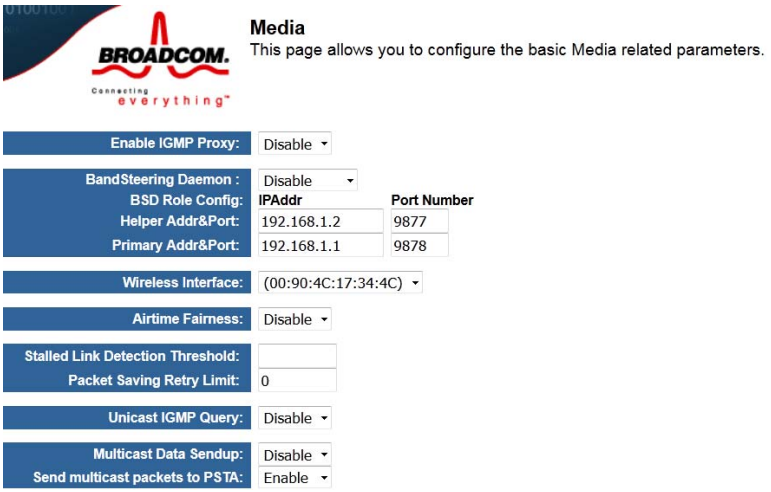
The following table describes parameters in this page:

Field	Description
Enable Qos	Enable the Qos feature.
Prioritizes ACK	Prioritize the transmit ACK packets.
Prioritize ICMP	Prioritize the ICMP packets (PING replies, etc).
Default Traffic Class	IQos default traffic class for unclassified traffic.
Inbound Classes (% Max Input BW)	
BW Max inbound	Set the maximum bw for inbound traffic.
Highest	Highest Priority settings in percent of max BW
High	High Priority settings in percent of max BW
Medium	Medium Priority settings in percent of max BW
Low	Low Priority settings in percent of max BW
lowest	Lowest Priority settings in percent of max BW
Outbound classes (% Max Output BW)	
BW Max outbound:	Set the maximum bw for outbound traffic.
Highest	Highest Priority settings in percent of max BW
High	High Priority settings in percent of max BW
Medium	Medium Priority settings in percent of max BW
Low	Low Priority settings in percent of max BW
lowest	Lowest Priority settings in percent of max BW

After setting, click **Apply** to save the settings, click **Cancle** to abort the settings.

7.8 Media

Click **Media** in the navigation bar on the top pane of the page, the **Media** page appears. This page allows you to configure the basic Media related parameters.



The following table describes parameters in this page:

Field	Description
Enable IGMP Proxy	Enable IGMP Proxy in AP mode: 0: disable; 1: enable.
BandSteering Daemon	Role of BandSteering Daemon: 0: disable; 1: primary; 2:helper; 3: standalone.
BSD Role Config	
Helper Addr&Port	BAD Helper Addr and Port.
Primary Addr&Port	BAD Primary Addr and Port.
Wireless Interface	Select which Interface to configure.
Airtime Fairness	Provide Airtime Fairness between multiple links.

Field	Description
Stalled Link Detection Threshold	Stalled Link Detection Threshold, 0 to disable.
Packet Saving Retry Limit	Set PsPretend retry limit, 0 to disable.
Unicast IGMP Query	Convert multicast IGMP mac packet to unicast mac packet.
Multicast Data Sendup	Send (sendup) multicast packets from EMF/WMF to host always.
Send multicast packets to PSTA	Send multicast packets to PSTA.

After setting, click **Apply** to save the settings, click **Cancle** to abort the settings.

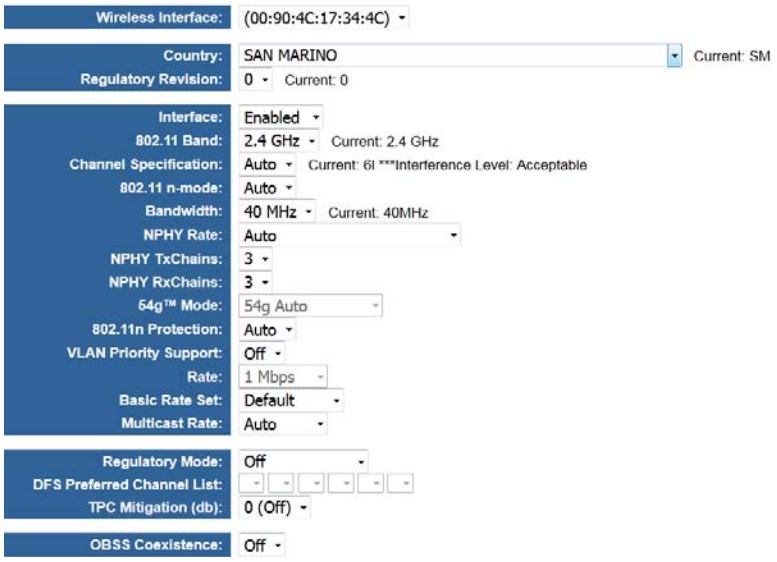
7.9 Storage

Click **Storage** in the navigation bar on the top pane of the page, the **Storage** page appears. This page displays Storage tools.

The following table describes parameters in this page:

Field	Description
DLNA Server	Set whether DLNA Server is enabled.
Content Directory	Tell DLNA Server which directory is going to scan.
DLNA Renderer	Set whether DLNA Renderer is enabled.
Samba Mode	Set Samba Mode.
User Name	Samba User Name.
Password	Set samba password for remote connection.

7.10 Radio



Click **Radio** in the navigation bar on the top pane of the page, the **Radio** page appears. This page allows you to configure the Physical Wireless interfaces.

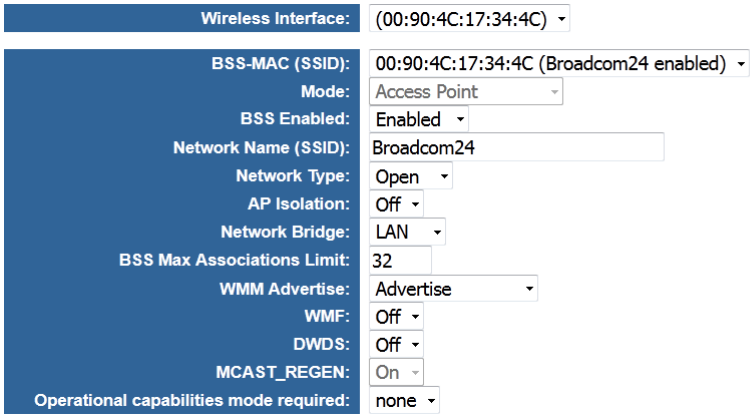
The following table describes parameters in this page:

Field	Description
Wireless Interface	Select which wireless interface to configure.
Country	Restrinct the channel set based on country requirements.
Interface	Enable or disable the wireless interface.
802.11 Band	Select a channel specification.
Channel Specification	Select a Channel Specification.
802.11 n-mode	Enale/disable 802.11 N supply.
Bandwidth	Select channel Bandwidth.
NPHY Rate	Select NPHY Rate (MCS Index).
NPHY TxChains	Select number of transmit chains to use.
NPHY RxChains	Select number of receive chains to support.
54g™ Mode	Set the mode to 54g Auto for the widest compatibility. Set the mode to 54g Performance for the fastest performance among 54g certified equipment. Set the mode to 54g LRS if you are experiencing difficulty with legacy 802.11b equipment.
802.11n Protection	In Automode the AP will use RTS/CTS to improve 802.11n performance in mixed 802.11n/a/b/g networks. Turn protection off to maximize 802.11n throughput under most conditions.
VLAN Priority Support	Advertise packet priority using VLAN tag.
Rate	Force the transmission rate for the AP to a particular speed.

Field	Description
Basic Rate Set	Select the basic rates that wireless clients must support.
Multicast Rate	Force the multicast/broadcast transmission rate for the AP to a particular speed.
Regulatory Mode	Select a regulatory mode to use.
TPC Mitigation (db)	Power Mitigation factor (in db).
OBSS Coexistence	Enable/disable Overlapping BSS Coexisistence aka 20/40 Coex.

7.11 SSID

Click **SSID** in the navigation bar on the top pane of the page, the **SSID** page appears. This page allows you to configure the Virtual interfaces for each Physical interface.



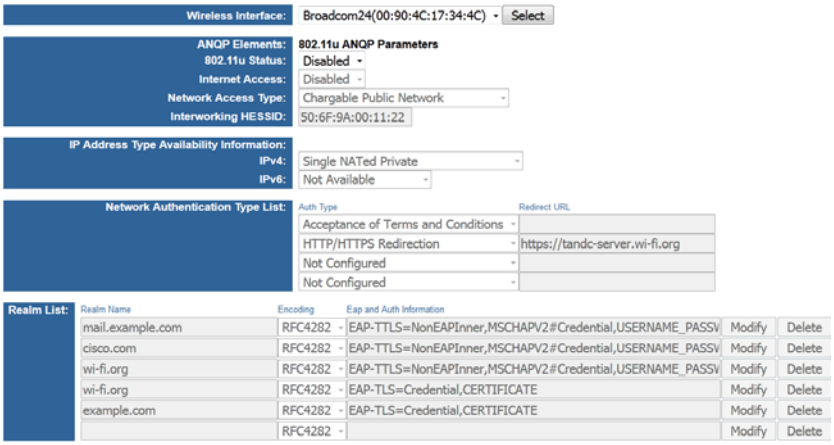
The following table describes parameters in this page:

Wireless Interface	Select which wireless interface to configure.
BSS-MAC (SSID)	Select desired BSS to configure
Mode	Show whether the BSSID is AP, WirelessBridge, WET or STA.
BSS Enabled	Enable or disable this SSID.
Network Name (SSID)	Set the Network Name (also known as SSID) of this network.
Network Type	Select Closed hides the network from active areas. Select Open reveals the network to active scans.
AP Isolation	Select On enables AP isolation mode. When enables, STAs associated to AP will not be able to communicate with each other.
Network Bridge	Select desired bridge br0 or br1.
BSS Max Associations Limit	Set the maximum associations for this BSS.
WMM Advertise	When WMM is enabled for the radio, selecting On allows WMM to be advertised in beacons and probes for this BSS. Off disables advertisement of WMM in beacons and probes.
WMF	Choose On to enable Wireless Multicast Forwarding on this BSS. Off disables the feature.
DWDS	Enable of disable Dynamic Wireless Bridge mode.
MCAST_REGEN	Choose On to enable Multicast Reverse Translation on this sta. Off disables the feature.
Operational capabilities mode required	Set Operational capabilities mode required for stations to associate to the BSS supported by the interface: none – no requirements on joining devices. erp – devices must advertise ERP (11g) capabilities to be allowed on a 2G band BSS. ht – devices must advertise HT (11n) capabilities to be allowed on the BSS. vht – devices must

	advertise VHT (11ac) capabilities to be allowed on the BSS.

7.12 Passpoint

Click **SSID** in the navigation bar on the top pane of the page, the **SSID** page appears. This page allows you to configure the Passpoint parameters for each Virtual/Physical interface.



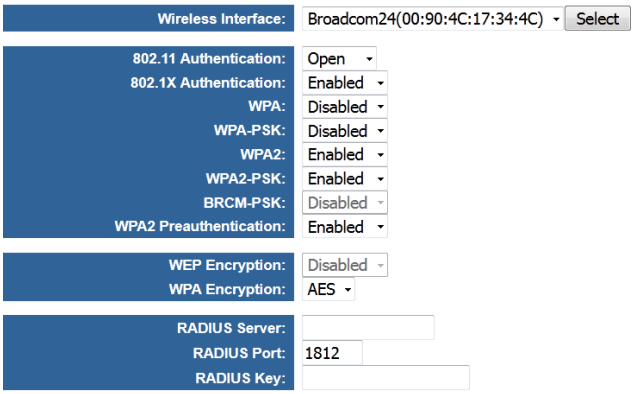
The following table describes parameters in this page:

Field	Description
Wireless Interface	Select which wireless interface to configure.
ANQP Elements: 802.11u ANQP Parameters	
802.11status	Enable or disable 802.11u Interworking Capability for this SSID.
Internet Access	Enable or disable Internet Access capability for this SSID.
Network Access Type	Network Access Type.

Field	Description
Interworking HESSID	Set Interworking HESSID of this network.
IP Address Type Availability Information	Set IP Address Type Availability Information to this BSS supported by this interface.
IPv4	Set IPv4 Address Type Avaliability to this BSS supported by this interface.
IPv6	Set IPv6 Address Type Avaliability to this BSS supported by this interface.
Network Authentication Type List	Set Network Authentication Type List to the BSS supported by the interface.
Realm List	Set NAI Realm List to the BSS supported by the interface.

7.13 SECURITY

Click **SECURITY** in the navigation bar on the top pane of the page, the **SECURITY** page appears. This page allows you to configure security for the wireless LAN interfaces.



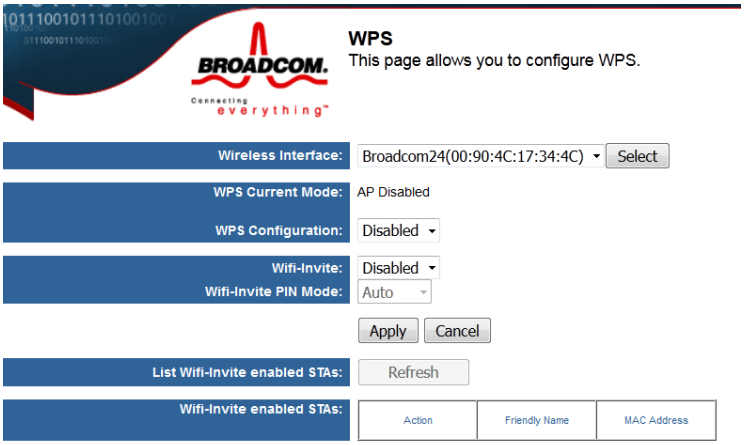
The following table describes parameters in this page:

Field	Description
Wireless Interface	Select which wireless interface to configure.
802.11 Authentication	Select 802.11 authentication method. Open or shared.
802.11X Authentication	Select Network anthentication type.
WPA	Enable/Disable WPA Authenticated Key Management suite.
WPA-PSK	Enable/Disable WPA-PSK Authenticated Key Management suite.
WPA2	Enable/Disable WPA2 Authenticated Key Management suite.
WPA2-PSK	Enable/Disable WPA2-PSK Authenticated Key Management suite.
BRCM-PSK	Enable/Disable BRCM-PSK Authenticated Key Management suite.
WPA2 Preauthentication	Enable/Disable WPA2 Preauthentication.
WEP Encryption	Enable/Disable WEP data encryption.
WPA Encryption	Select the WPA data encryption algorithm.
RADIUS Server	Set the IP address of the RADIUS server to use for authentication and dynamic key derivation.
RADIUS Port	Set the UDP port number of the RADIUS server. The port number is usually 1812 or 1645 and depends upon the server.
RADIUS Key	Set the shared secret for the RADIUS connection.

7.14 WPS

Click **WPS** in the navigation bar on the top pane of the page, the **WPS** page appears.

This page allows you to configure **WPS**.



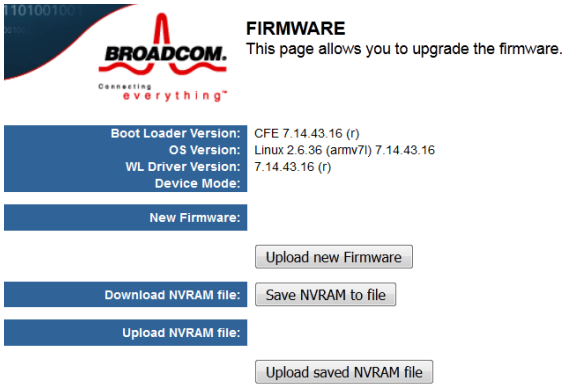
The following table describes parameters in this page:

Field	Description
Wireless Interface	Select which wireless interface to configure.
WPS Current Mode	WPS Current Mode
WPS Configuration	Select WiFi Simple Config mode.
Wifi-Invite	Enable or disable Wifi-Invite feature.
Wifi-Invite PIN Mode	Set the Wifi-Invite PIN Mode to auto or manual.
List Wifi-Invite enabled STAs	Scan to find Wifi-Invite enabled STAs.
Wifi-Invite enabled STAs	The list of Wifi-Invite enabled STAs

After setting, click Apply to save the settings, click Cancle to abort the settings.

7.15 FIRMWARE

Click **FIRMWARE** in the navigation bar on the top pane of the page, the **FIRMWARE** page appears. This page allows you to upgrade the firmware.



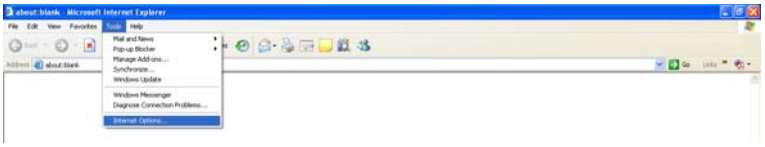
The following table describes parameters in this page:

Field	Description
Boot Loader Version	Display the current version of Boot Loader.
OS Vertion	Display the current version of OS.
WL Driver Version	Display the current version of Wireless Driver.
Device Mode	Display the current devicemode.
New Fireware	Select the new firmware to upload to the router.
Download NVRAM file	Push button to save NVRAM variables to file.
Upload NVRAM file	Enter filename of saved NVRAM file here.

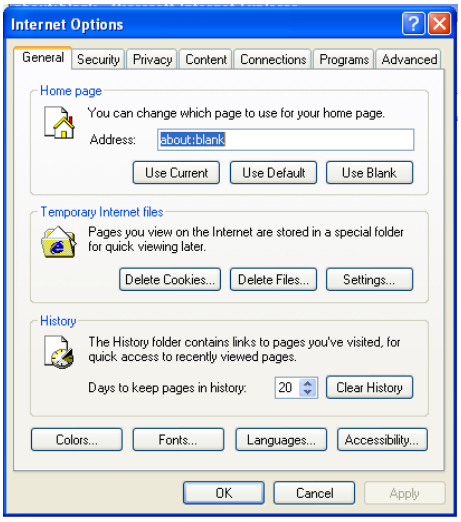
8 Troubleshooting

Failure to configure the router through a web browser

(1) Open the Web browser (for example, IE) and choose **Tools** > **Internet Options** from the main menu.



(2) Click **Delete Cookies** and **Delete Files**.



Failure to establish wireless network connection

- Because the router is beyond the wireless coverage.

(1) Place the router near the customer premises equipment (CPE).
(2) Try modifying the channel setting.

- Because of authentication problems.

(1) Use a computer of wired connection to connect the router.
(2) Check the network security settings.
(3) Try hard reset on the router.

- Because the router cannot be detected.

(1) Try hard reset on the router and test again.
(2) Check the settings of the wireless network.
(3) Check the settings of SSID and encryption.

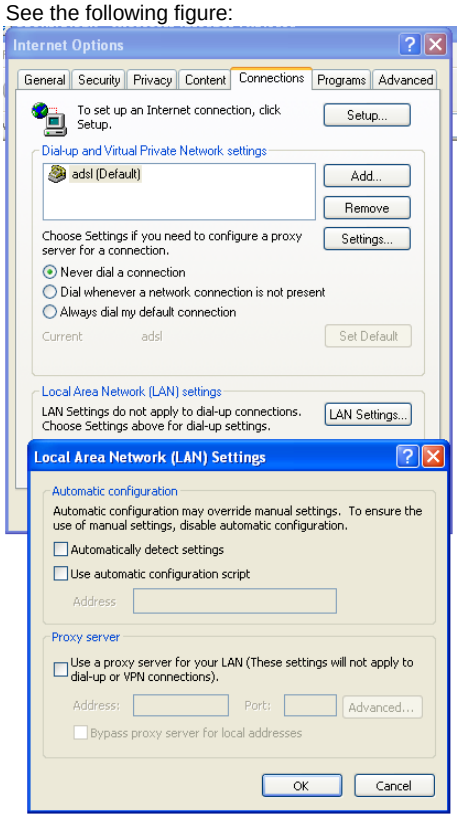
Failure to connect to the Internet through the wireless router

(1) Place the router to the wireless area where the CPE can connect.
(2) Check whether the wireless network card connects to the correct AP (base station).
(3) Check whether the wireless channel accords with the channel specified in your country or region.
(4) Check the encryption settings.
(5) Check whether your ADSL cable is connected to the correct network interfaces.
(6) Replace with a new network cable to connect to the router.

Failure to access the Internet

(1) Check whether the status of indicators on the ADSL modem and the wireless router is normal.
(2) Check whether the **WAN** indicator is on. If the WAN indicator is off, check whether the cable connected to the **WAN** interface is loose.
(3) When the **Link** indicator keeps on but does not blink, the router is connected to the Internet.
(4) Reboot your computer.
(5) Set the AP again.
(6) Check whether the WAN indicator is on.
(7) Check the encryption settings of the wireless network.
(8) Check whether the PC that connects to the router can obtain the IP address through either the wireless network or the cable network.

(9) Check the LAN settings of your Internet options, and do not use a proxy server for your LAN. See the following figure:



FCC Caution:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

Note: 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 or more 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.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits .This equipment should be installed and operated with minimum distance 20cm between the radiator& your body.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

IC warning

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

(1) This device may not cause interference, and

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.
L'exploitation est autorisée aux deux conditions suivantes :
(1) l'appareil nedoit pas produire de brouillage, et
(2) l'utilisateur de l'appareil doit accepter tout brouillage

radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

The device is compliance with RF exposure limits, users can obtain Canadian information on RF exposure and compliance.

Le présent appareil est conforme Après examen de ce matériel aux conformité ou aux limites d’intensité de champ RF, les utilisateurs peuvent sur l’exposition aux radiofréquences et la conformité and compliance d’acquérir les informations correspondantes.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.