



802.11g Universal Wireless Repeater

Model # AP311W

User's Manual

Ver. 1C

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1. Introduction

Congratulations on your purchase of this 802.11g Universal Wireless Repeater. The Wireless Repeater extends the range of your access point/wireless router by repeating the signal to wireless clients that are beyond the broadcasting range of the access point/wireless router. This provides the wireless clients with greater flexibility and mobility. Best of all the Wireless Repeater is compatible with existing 802.11b and 802.11g network devices so it will work with most existing wireless devices.

This product is specifically designed for Small Office and Home Office needs. It provides a complete SOHO solution for Internet surfing and is easy to configure and operate even for non-technical users. Instructions for installing and configuring this product can be found in this manual. Before you install and use this product, please read this manual carefully for proper operation of this product.

Package Contents

Before you begin the installation, please check the items of your package:

- 802.11g Universal Wireless Repeater
- Power Adapter
- Quick Installation Guide
- Manual CD

If any item contained is damaged or missing, please contact your local dealer immediately. Also, keep the box and packaging materials in case you need to ship the unit in the future.

2. Using the Setup Wizard

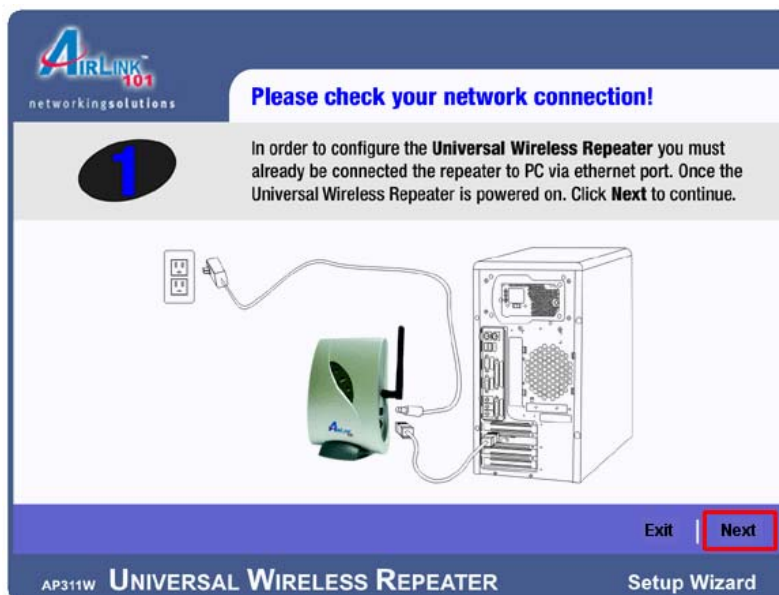
Step 1 Verify the Repeater is powered on, insert the provided CD, and wait for the autorun screen to appear.

Step 2 Click on **Setup**.



Note: If the autorun screen does not appear automatically, go to **Start, Run,** type **D:\setup.exe** (where **D** is the letter of your CD drive) and click **OK**.

Step 3 Click **Next** and wait for the wizard to detect your access point / wireless router (this may take up to a minute).



Step 4 Select the **SSID (Network Name)** of your access point / wireless router from the **Selection** list.

Click **Yes** if you see your SSID in the list and you don't have encryption enabled for your wireless network. Skip to **Step 8**.

Click **Yes** if you see your SSID and you have encryption enabled. Skip to **Step 6**.

Click **Manual** if you don't see your SSID in the list. Continue to **Step 5**.

Search Wireless Access Point or Router!

Please select the Wireless Access Point or Router you want to connect to. Once you have connected to an Access Point or Router the Setup Wizard will search the Universal Wireless Repeater on your network.

| Selection | Status |
|-----------|---|
| default | MAC Address: 00-C0-49-54-11-E4 SSID: default Channel: 6 Security: Disabled |

Click **Yes** if you want to connect to the Access Point you have selected. If you do not want to connect to this Access Point click **No**.

Manual | **No** | **Yes**

AP311W **UNIVERSAL WIRELESS REPEATER** Setup Wizard

Step 5 Enter the **SSID (Network Name)** of your access point / wireless router in the **SSID** field and select the appropriate **Channel** and **Encryption** settings and click **Next**.

Configure Wireless Settings Manually

Connect Manually To connect to your Wireless network manually please enter your network settings below.

Please enter the connect wireless network settings.

| | |
|------------|---------------|
| SSID | |
| Channel | 41 - 2.462GHz |
| Encryption | Disabled |

You can manually connect to your Access Point, or Wireless Router by specifying the correct settings on this screen. Enter your **SSID**, **Channel**, and **Encryption** in these fields. To continue click **Next**. If you do not know your current wireless settings please click **Back**.

Back | **Next**

AP311W **UNIVERSAL WIRELESS REPEATER** Setup Wizard

Note: You may gather these information from the web configuration utility of your wireless router.

WEP

Step 6a Select the same level of WEP encryption (**64-Bits / 128-Bits**) of your wireless network from the drop-down menu.

The screenshot shows the 'WEP Security Settings' page. At the top left is the 'AIRLINK 101 networkingsolutions' logo. The title is 'WEP Security Settings'. Below the title is a 'Security' section with an orange oval icon. The text reads: 'If you would like to use Wired Equivalent Privacy (WEP), enter the required information below. Please refer to the User Guide on how to setup WEP from the WEB browser interface.' There are three main input areas: 1. A 'Security' dropdown menu currently set to 'WEP (64-Bits)'. A red box highlights the dropdown menu, which is open to show three options: 'WEP (64-Bits)', 'WEP (128-Bits)', and 'WPA-PSK'. The 'WEP (64-Bits)' option is highlighted in blue. To the right of the dropdown is the text: 'Please choose WEP (64 bits) or WEP (128 bits)'. 2. A 'Passphrase' text input field. To its right is the text: 'If you choose the Passphrase option for WEP, a WEP key will generate automatically.' 3. A 'Key 1' text input field. To its right is the text: 'To manually enter a WEP key, select a WEP algorithm and leave the Passphrase option blank.' At the bottom right of the main content area are 'Back' and 'Next' buttons. At the very bottom of the page, it says 'AP311W UNIVERSAL WIRELESS REPEATER Setup Wizard'.

Step 6b Enter the same **WEP key (password)** of your wireless network in the **Key 1** field and click **Next**. Skip to **Step 8**.

This screenshot is similar to the previous one, showing the 'WEP Security Settings' page. The 'Security' dropdown menu is now closed and set to 'WEP (64-Bits)'. The 'Passphrase' field is empty. The 'Key 1' field is highlighted with a red box. The 'Next' button at the bottom right is also highlighted with a red box. All other text and layout elements are identical to the previous screenshot.

WPA-PSK

Step 7a Enter the same **Pre-Shared Key (passphrase)** of your wireless network in the **Pre-Shared Key** field and click **Next**.

WPA Security Settings

If you would like to use Wi-Fi Protected Access (WPA), enter the required information below. Please refer to the User Guide on how to setup WPA from the WEB browser interface.

Security **WPA-PSK** Please choose WEP (64-Bit) or WEP (128-Bit) or WPA-Pre Shared Key.

Pre-Shared Key The Pre-Shared Key is case sensitive and should be between 8 and 63 characters in length.

Back | **Next**

AP311W **UNIVERSAL WIRELESS REPEATER** Setup Wizard

Step 8 Select the Repeater from the list, verify the **Repeater Name** is **AP311W**, and click **Yes**.

3

Please select the Universal Wireless Repeater you wish to configure. Click **Yes** to configure the Network Address Settings of Universal Wireless Repeater. If you do not want to continue please click **No**.

| Selection | |
|-----------|--|
| default | |

| Status | |
|---------------|-------------------|
| MAC Address | 00-90-4B-3C-00-2B |
| SSID | default |
| Channel | 6 |
| Security | Disabled |
| Repeater Name | AP311W |

No | **Yes**

AP311W **UNIVERSAL WIRELESS REPEATER** Setup Wizard

Step 9 The default password for entering the Repeater’s Web Configuration Utility is **admin**. To change the password, enter the new password in the **Password** field and click **Enter**.



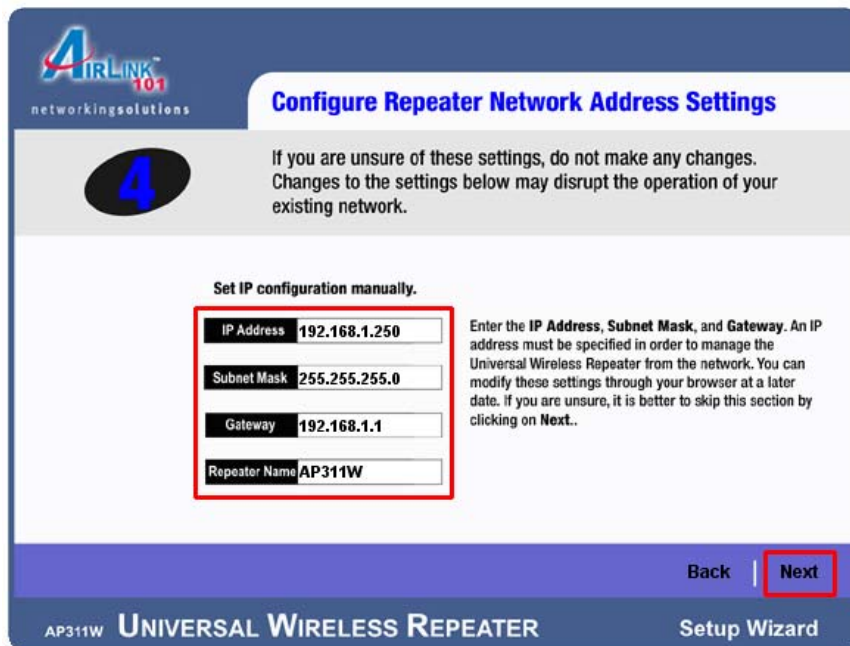
PASSWORD

Password

Please enter your password to continue. The default password is **admin**.

Exit Enter

Step 10 If you know your Network IP Address settings, enter them in the applicable fields. If you are not sure, just click **Next**.



4

Configure Repeater Network Address Settings

If you are unsure of these settings, do not make any changes. Changes to the settings below may disrupt the operation of your existing network.

Set IP configuration manually.

IP Address

Subnet Mask

Gateway

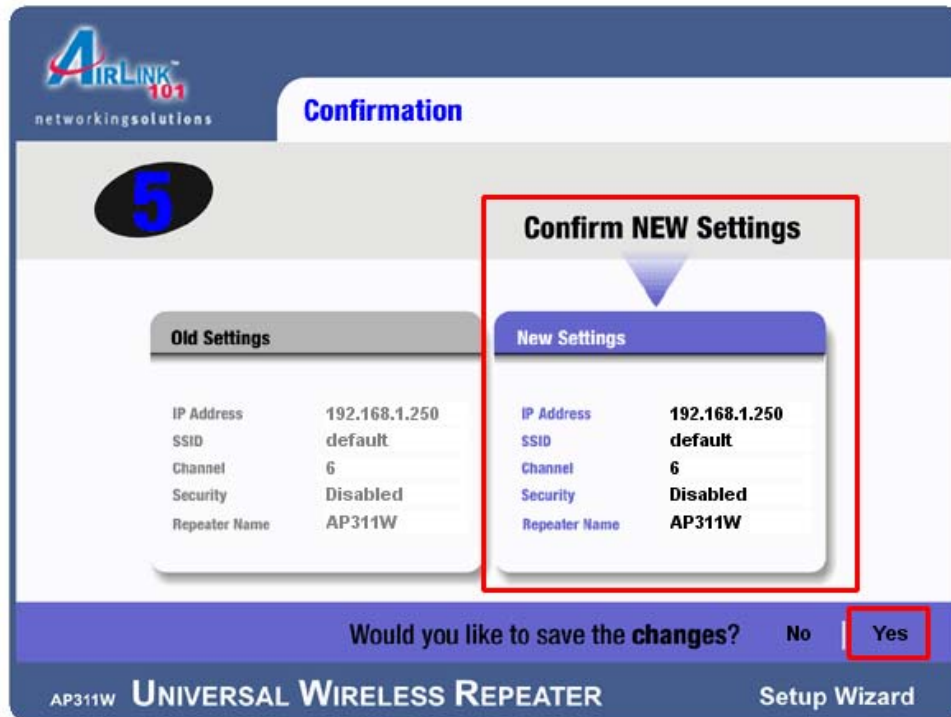
Repeater Name

Enter the **IP Address**, **Subnet Mask**, and **Gateway**. An IP address must be specified in order to manage the Universal Wireless Repeater from the network. You can modify these settings through your browser at a later date. If you are unsure, it is better to skip this section by clicking on **Next**.

Back Next

AP311W UNIVERSAL WIRELESS REPEATER Setup Wizard

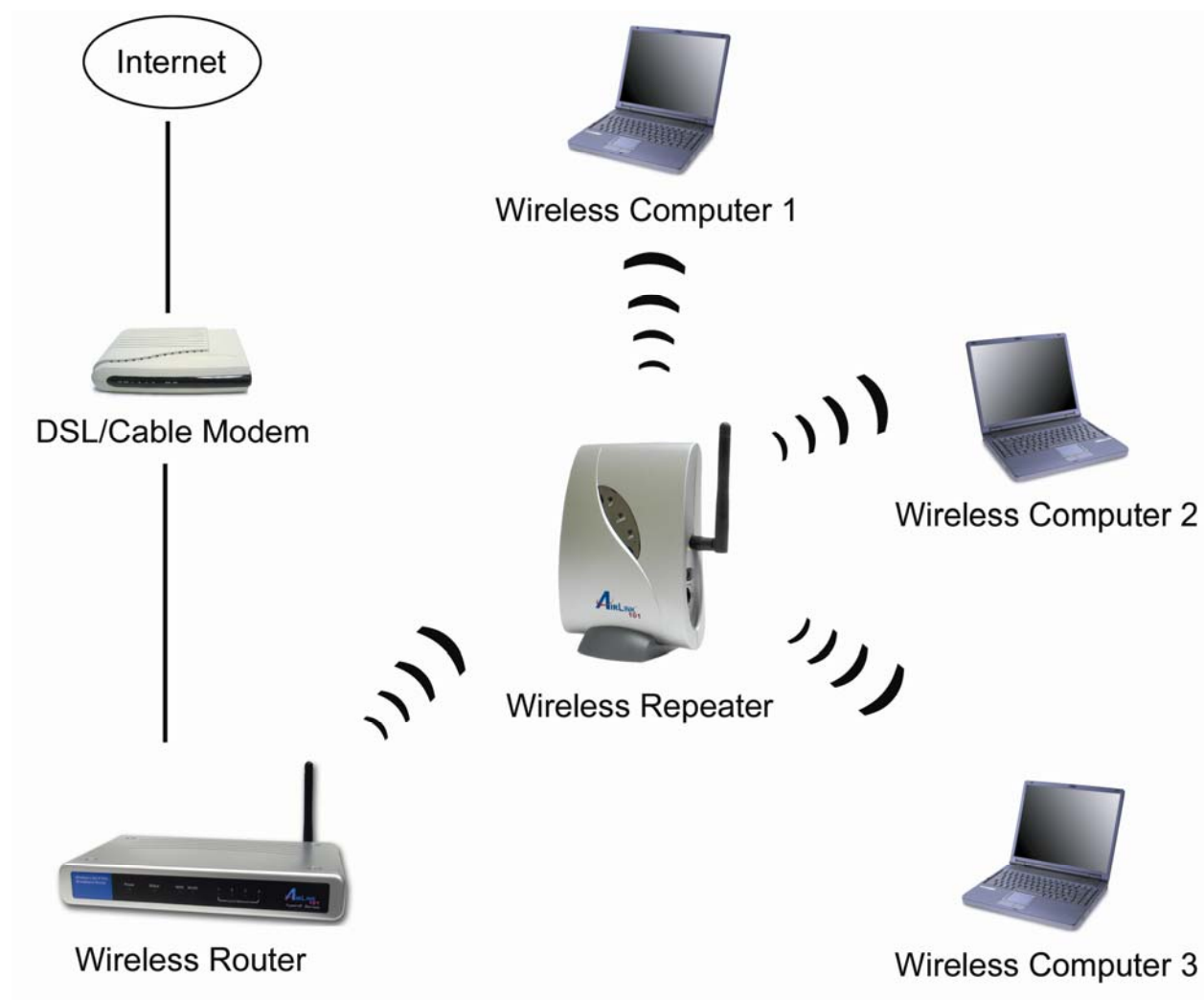
Step 11 Review your new settings and click **Yes** continue.



Step 12 Click **Exit** to exit the Setup Wizard.



Step 13 For best result, place the Repeater at a central location between the wireless router and your wireless computers.



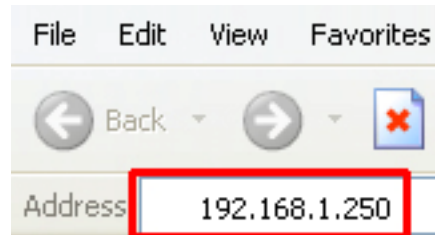
3. Connecting to the Wireless Repeater

Once you have properly configured the Repeater, your wireless computers should be able to detect its signal.

Use your wireless network adapter's utility to detect and connect to the Repeater. You can identify the Repeater by its **MAC Address**, which is displayed in the **BSSID** field of your wireless network adapter's utility.

You can check the Repeater's **MAC Address** on its Web Configuration screen.

Step 1 Open your Web Browser (Internet Explorer or Netscape), enter the default IP Address of the Repeater **192.168.1.250** in the Address Bar and press **Enter**.



Note: If you have changed the IP Address of the Repeater, enter the Repeater's new IP Address instead of the default.

Step 2 Enter **admin** for both the User name and Password fields and click **OK**.



Step 3 The Repeater's MAC Address is displayed on the **Basic Setup** page.

The screenshot shows the web interface for the AIRLINK 101 Wireless Repeater. The page is titled "Basic Setup" and is part of the "Setup" menu. The interface includes a navigation bar with "Basic Setup", "Password", and "Firmware" options. The "Basic Setup" section displays the following information:

- Firmware Version:** v1.01, Jul 20, 2005
- Name:** AP311W
- Wireless Section:**
 - MAC Address:** 00:90:4B:3C:00:2B (highlighted in red)
 - IP Address:** 192 . 168 . 1 . 250
 - Subnet Mask:** 255 . 255 . 255 . 0
 - Gateway:** 0 . 0 . 0 . 0
 - Mode:** Mixed
 - SSID:** default
 - SSID Broadcast:** Enable
 - Channel:** 6 (Regulatory Domain: USA)
 - Wireless Security:** Enable Disable

At the bottom of the page, there are two buttons: "Save Settings" and "Cancel Changes".

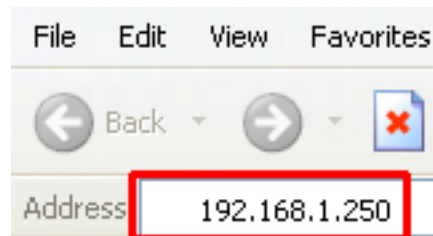
If the signal is weak, try reorienting the Repeater's antenna or relocate the Repeater to a different place.

4. Web Configuration Utility

The Wireless Repeater comes with a built-in Web Configuration Utility that allows you to easily setup the Repeater with your web browser. This section describes how to use the Web Configuration Utility.

4.1 Basic Setup

Step 1 Open your Web Browser (Internet Explorer or Netscape), enter the default IP Address of the Repeater **192.168.1.250** in the Address Bar and press **Enter**.



Note: If you have changed the IP Address of the Repeater, enter the Repeater's new IP Address instead of the default.

Step 2 Enter **admin** for both the User name and Password fields and click **OK**.



The screenshot shows the 'Basic Setup' tab of the AIRLINK 101 web interface. The 'Setup' menu is highlighted, and the 'Basic Setup' sub-tab is selected. The interface is divided into two main sections: 'Basic Setup' and 'Wireless'. The 'Basic Setup' section includes fields for 'Firmware Version' (v1.01, Jul 20, 2005) and 'Name' (AP311W). The 'Wireless' section includes fields for 'IP Address' (192.168.1.250), 'Subnet Mask' (255.255.255.0), 'Gateway' (0.0.0.0), 'Mode' (Mixed), 'SSID' (default), 'SSID Broadcast' (Enable), 'Channel' (6), and 'Wireless Security' (Disable). There are also 'Save Settings' and 'Cancel Changes' buttons at the bottom.

The **Basic Setup** tab is the main screen for configuring the Wireless Repeater.

Firmware Version: Displays the current firmware version number.

Name: Displays the name of the Wireless Repeater.

IP Address: Assign an appropriate IP Address for the Repeater.

Subnet Mask: Assign an appropriate Subnet Mask for the Repeater.

Gateway: Assign an appropriate Default Gateway for the Repeater.

Mode: Choose to have the Repeater broadcast in **B-Only**, **G-Only**, or **Mixed** mode.

SSID Broadcast: Choose to **Enable** or **Disable** the broadcast of SSID.

Channel: Select the desired channel number.

Wireless Security: Select to **Enable** or **Disable** wireless security encryption. To edit the encryption setting, click on the **Edit Security Settings** button.

After you have completed the changes, click on **Save Settings** to apply the changes.

4.1.2 Configuring Wireless Security

To enable Wireless Security, select **Enable** and click on **Edit Security Settings**. This Repeater supports both WEP and WPA Pre-shared Key encryption. It is recommended that use WPA Pre-shared Key encryption if your wireless network supports it.

The screenshot shows the configuration interface for an AIRLINK 101 wireless repeater. The interface is divided into sections: Basic Setup and Wireless. The Basic Setup section includes fields for Firmware Version (v1.01, Jul 20, 2005) and Name (AP311W). The Wireless section includes fields for IP Address (192.168.1.250), Subnet Mask (255.255.255.0), Gateway (0.0.0.0), Mode (Mixed), SSID (default), SSID Broadcast (Enable), and Channel (6). The Wireless Security section is highlighted with a red box, showing the 'Enable' radio button selected and the 'Edit Security Settings' button. The 'Save Settings' and 'Cancel Changes' buttons are located at the bottom of the page.

| Section | Field | Value |
|-------------|-------------------|----------------------------|
| Basic Setup | Firmware Version | v1.01, Jul 20, 2005 |
| | Name | AP311W |
| Wireless | MAC Address | 00:90:4B:3C:00:2B |
| | IP Address | 192 . 168 . 1 . 250 |
| | Subnet Mask | 255 . 255 . 255 . 0 |
| | Gateway | 0 . 0 . 0 . 0 |
| | Mode | Mixed |
| | SSID | default |
| | SSID Broadcast | Enable |
| | Channel | 6 (Regulatory Domain: USA) |
| | Wireless Security | Enable (selected) |
| | Wireless Security | Edit Security Settings |

WEP

The default security screen is the WEP screen. Here you can setup the WEP settings for your wireless network. Note that these settings must be exactly the same as your access point/wireless router.

The Repeater support WEP key and WPA-Preshared key of security setting.

Security Mode: WEP

Default Transmit Key: 1 2 3 4

WEP Encryption: 64 bits 10 hex digits

Passphrase:

Key 1:

Key 2:

Key 3:

Key 4:

Security Mode: Choose between **WEP** and **WPA Pre-shared Key**.

Default Transmit Key: Select a key to be the active key.

WEP Encryption: Choose between **64-bit** and **128-bit** encryption.

Passphrase: You can enter a passphrase and click on the **Generate** button and the Repeater will automatically generate four WEP keys for you.

Key 1 – 4: Manually assign a passphrase for each key. If you selected **64 bits** encryption, enter **10** HEX characters (0-F) for each key. If you selected **128 bits** encryption, enter **26** HEX characters (0-F) for each key. For each key select either Open System or Shared Key as your authentication.

Click on **Save Settings** to apply the changes.

WPA Pre-shared Key

To use WPA Pre-shared key, choose **WPA Pre-shared key** from the **Security Mode** drop-down menu.

The Repeater support WEP key and WPA-Preshared key of security setting.

Security Mode: WEP

Default Transmit Key: WPA Pre-Shared Key

WEP Encryption: 64 bits 10 hex digits

Passphrase:

Key 1:

Key 2:

Key 3:

Key 4:

Repeater support WEP key and WPA-Preshared key of security setting.

Security Mode: WPA Pre-Shared Key

WPA Algorithm: TKIP

WPA Shared Key:

Group Key Renewal: 300 seconds

WPA Shared Key: Enter a passphrase for your wireless network.

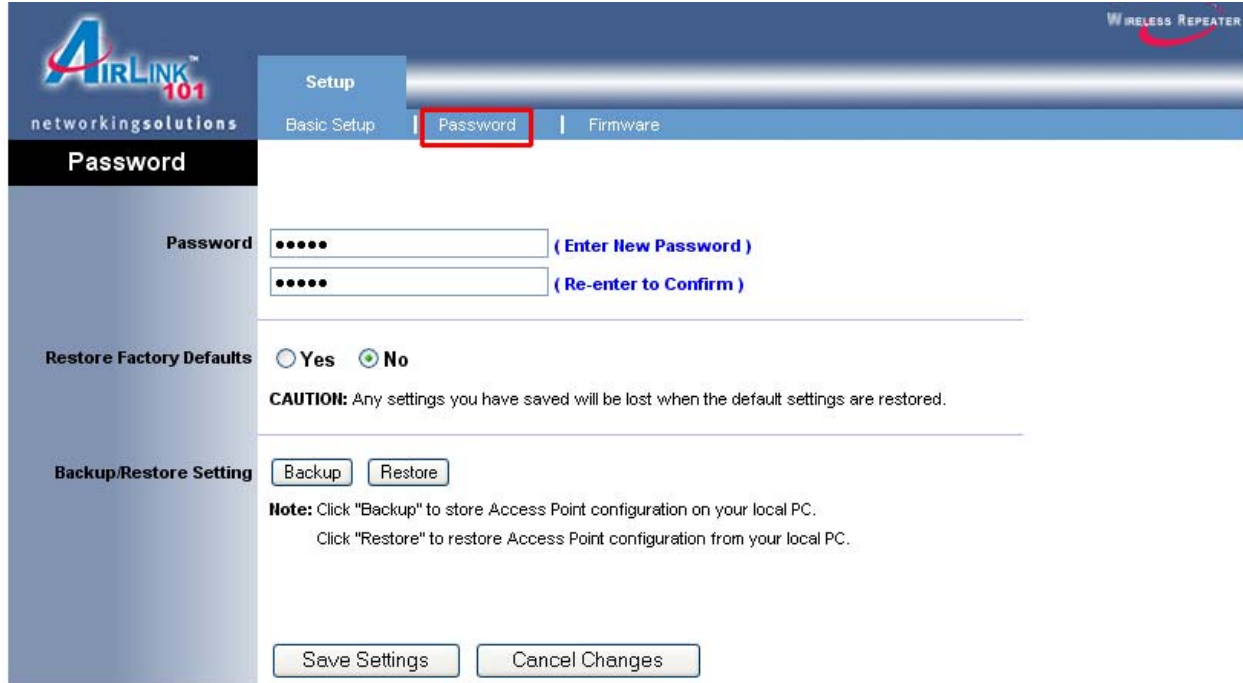
Group Key Renewal: Enter the desired key renewal time in seconds.

Note that these settings must be exactly the same as your access point/wireless router.

Click on **Save Settings** to apply the changes.

4.2 Password

The **Password** tab allows you to change the Repeater's login password as well as other administrative functions.



The screenshot shows the configuration interface for the AIRLINK 101 wireless repeater. The top navigation bar includes 'Setup', 'Basic Setup', 'Password' (highlighted with a red box), and 'Firmware'. The left sidebar is labeled 'Password'. The main content area has three sections: 'Password' with two masked input fields and labels '(Enter New Password)' and '(Re-enter to Confirm)'; 'Restore Factory Defaults' with radio buttons for 'Yes' and 'No' (selected), and a 'CAUTION' note; and 'Backup/Restore Setting' with 'Backup' and 'Restore' buttons, and a 'Note' explaining their functions. At the bottom are 'Save Settings' and 'Cancel Changes' buttons.

Password: Enter the new login password and re-enter to confirm the new password. Click **Save Settings** to apply the changes.

Restore Factory Defaults: Select **Yes** and click on **Save Settings** to reset all of the Repeater's settings to factory default.

Backup/Restore Setting: You can backup the Repeater's settings as a file in your computer by clicking on the **Backup** button. Later, when you want to restore your saved settings, just click on the **Restore** button and browse to the location of the saved file.

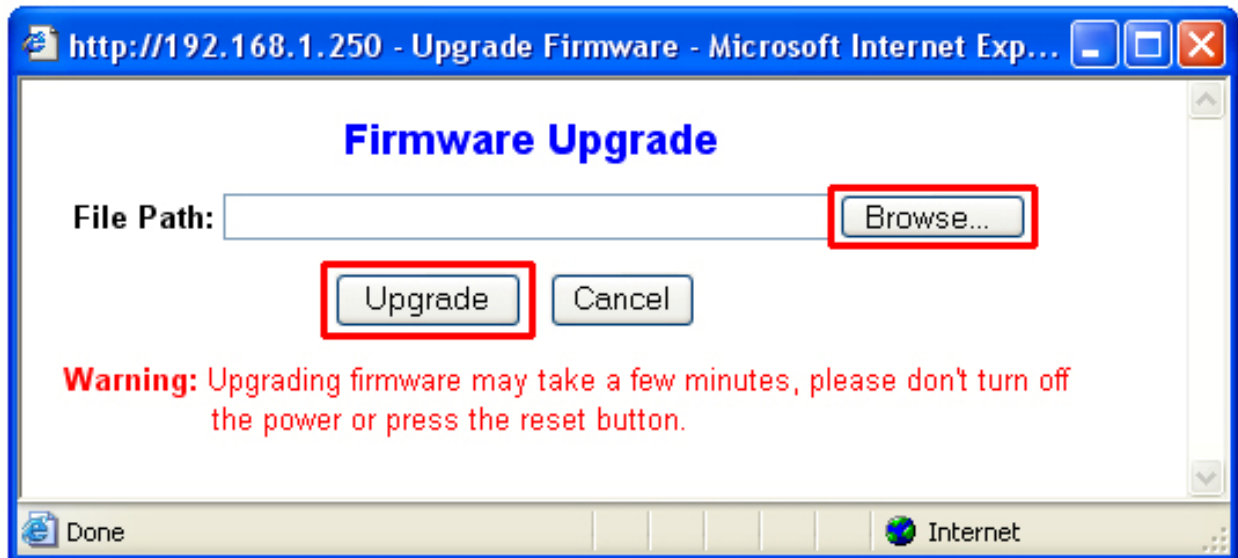
4.3 Firmware

The **Firmware** tab allows you to upgrade the Repeater's firmware. You can download the updated firmware from our web site at www.airlink101.com

Step 1 Unzip the new firmware and then click on the **Firmware Upgrade** button.



Step 2 Click on **Browse** to locate the new firmware and click on **Upgrade** to update the firmware.



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.

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

Gemtek declares that WACM-123G (FCC ID: MXF-A940727G) is limited in CH1~CH11 for 2.4GHz by specified firmware controlled in U.S.A.

Technical Support

E-mail: support@airlink101.com

Toll Free: 1-888-746-3238

Web Site: www.airlink101.com

*Theoretical maximum wireless signal rate based on IEEE standard 802.11g specifications. Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, mix of wireless products used, radio frequency interference (e.g., cordless telephones and microwaves) as well as network overhead lower actual data throughput rate.

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