



AVL LOOMS

AVL Looms, Incorporated

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Configuring Your Router for the Little Weaver

In order for your Little Weaver to communicate wirelessly, you will need to make sure that your router is configured correctly. The default settings on many routers will not work with your loom and will need to be changed. In this document, we use two very different routers to show how those changes are made. Even though the routers are quite different in approach, you will see that what needs to be done is very similar. If you have a router from a different manufacturer, you should be able to make these changes because the options are very similar. While the order of the fields on the screen may differ, the names will probably be fairly close.

The first thing that we need to change is usually called something like “Wireless Security” or “Security Mode”. This needs to be “WPA2 Personal” or “WPA Personal”. We recommend “WPA2” unless you have something on your net that needs “WPA”, as it is a stronger form of security. Note that some routers drop the word “Personal” because they don’t support the “Enterprise” modes. Those settings with “Enterprise” should probably be avoided unless you have a network that needs them – and if you do, you will already know what you need.

In some routers there is a second setting that you will need to verify. Our second router (Linksys), has this setting. The Linksys calls this “WPA Algorithms”, but other routers may have a name that refers to encryption. It is easy to spot because the choices aren’t found in any other field. If you are using “WPA2”, this field needs to be set to “AES”, while if you are using “WPA”, it should be set to “TKIP”.



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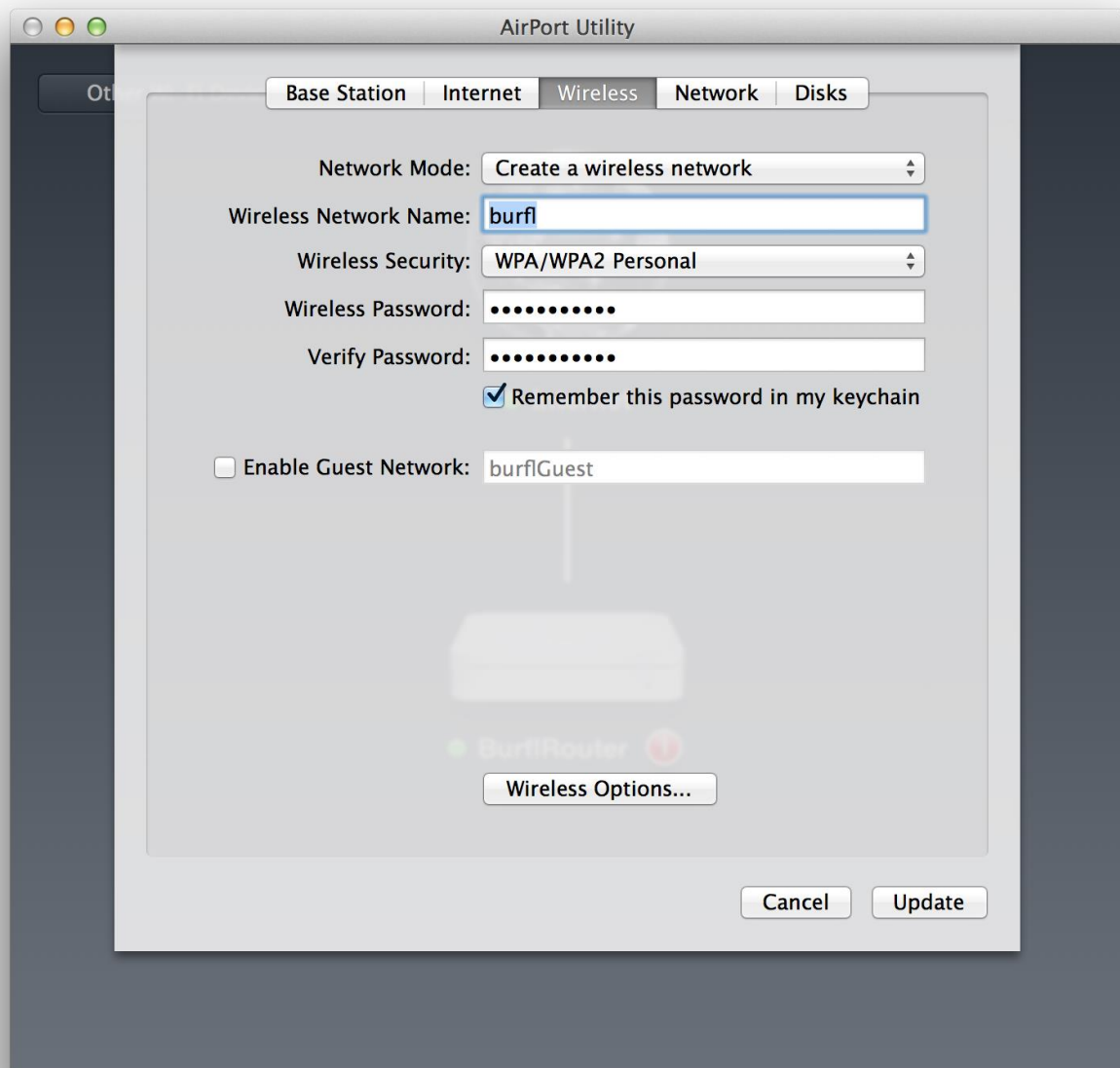
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The first router that we are going to look at is made by Apple and their approach is to try to simplify everything as much as possible. The user interface is a program called “AirPort Utility”.

The default configuration has Wireless Security set to “WPA/WPA2 Personal” as shown below – this is incorrect and must be changed.



Here you can see that Wireless Security has been changed to “WPA2 Personal”.



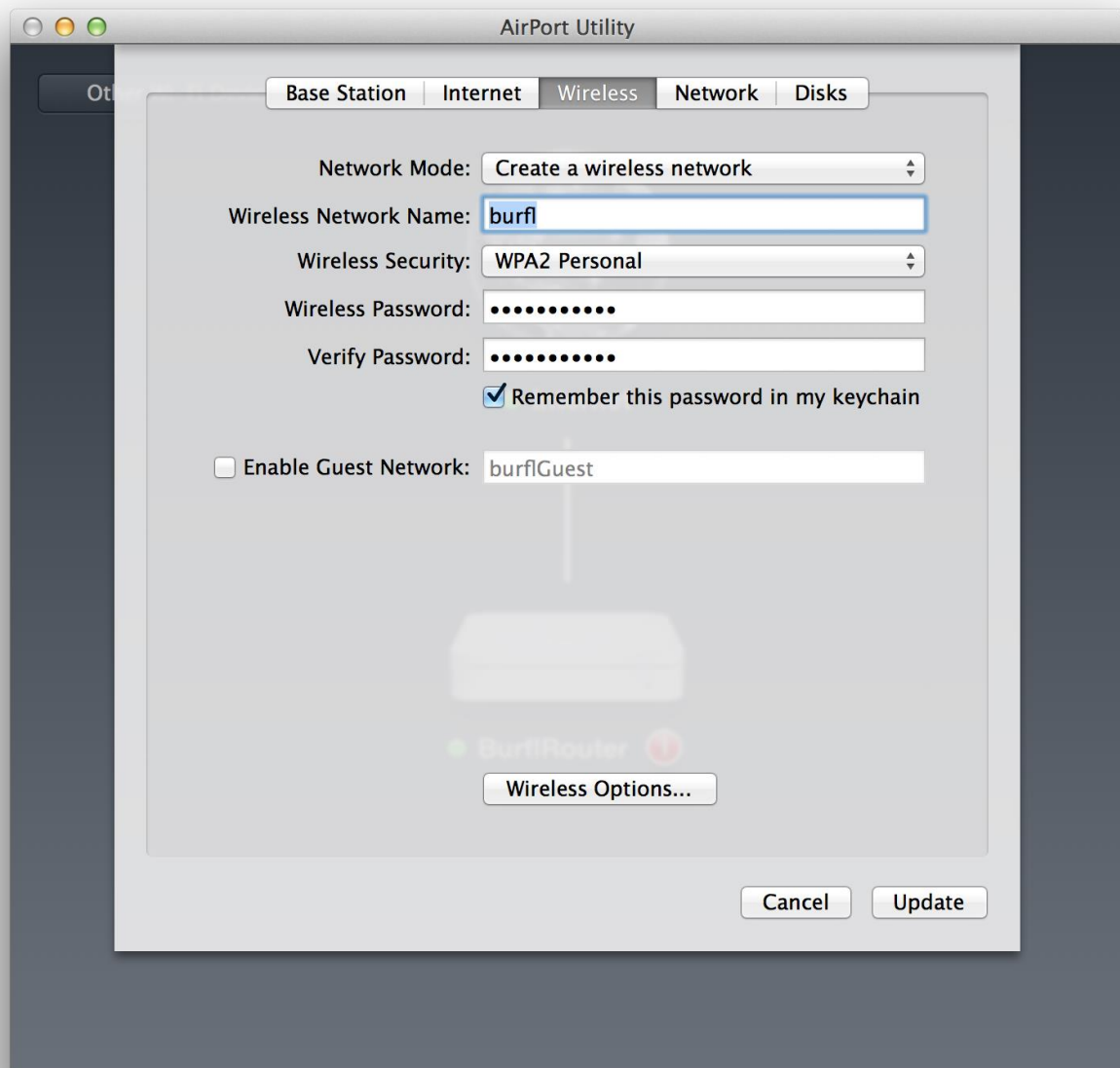
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This is the correct setting.





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The Linksys router comes with a different philosophy. They appear to make all of the parameters settable so that users can make the router fit into most any environment.

For this router, configuration is done from your browser. The default address that you will need to enter into the location bar is "192.168.1.1". It will ask you for a password and you can find it in your documentation. However, it is usually "admin".

The default configuration is shown below – it is incorrect for our use:

A screenshot of a web browser window displaying the Linksys Wireless Security configuration page. The browser's address bar shows '192.168.1.1/apply.cgi'. The page has a blue header with the Linksys logo and 'A Division of Cisco Systems, Inc.' The main navigation bar includes 'Wireless', 'Setup', 'Wireless', 'Security', 'Access Restrictions', 'Applications & Gaming', 'Administration', and 'Status'. The 'Wireless Security' sub-menu is active, showing options like 'Basic Wireless Settings', 'Wireless Security', 'Wireless MAC Filter', and 'Advanced Wireless Settings'. The 'Wireless Security' section is expanded, showing settings for 'Security Mode' (WPA2 Personal), 'WPA Algorithms' (TKIP+AES), 'WPA Shared Key' (testing123), and 'Group Key Renewal' (3600 seconds). A 'Save Settings' button and a 'Cancel Changes' button are at the bottom. A 'Security Mode' warning box on the right states that all devices must use the same security mode. The Cisco logo is in the bottom right corner.

Wireless Security

192.168.1.1/apply.cgi

Wikipedia Development Trike Weaving

LINKSYS
A Division of Cisco Systems, Inc. Firmware Version: v4.30.13

Wireless Wireless-G Broadband Router WRT54GL

Setup Wireless Security Access Restrictions Applications & Gaming Administration Status

Basic Wireless Settings Wireless Security Wireless MAC Filter Advanced Wireless Settings

Wireless Security

Security Mode: WPA2 Personal

WPA Algorithms: TKIP+AES

WPA Shared Key: testing123

Group Key Renewal: 3600 seconds

Security Mode : You may choose from Disable, WEP, WPA Pre-Shared Key, WPA RADIUS, or RADIUS. All devices on your network must use the same security mode in order to communicate. More...

Save Settings Cancel Changes

CISCO

Display a menu



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We need to change it to:

The screenshot shows a web browser window titled "Wireless Security" with the address bar displaying "192.168.1.1/WL_WPA_Table.asp". The page is the Linksys configuration interface for a Wireless-G Broadband Router (WRT54GL). The "Wireless" tab is selected, and the "Security" sub-tab is active. The "Security Mode" is set to "WPA2 Personal", "WPA Algorithms" is "AES", "WPA Shared Key" is "testing123", and "Group Key Renewal" is "3600 seconds". A "Save Settings" button is visible at the bottom right. A sidebar on the right contains a "Security Mode" explanation.

Or, to:

The screenshot shows the same Linksys configuration page, but the "Security Mode" is now set to "WPA Personal". The "WPA Algorithms" dropdown is now set to "TKIP". All other settings, including the "WPA Shared Key" of "testing123" and the "Group Key Renewal" of "3600 seconds", remain the same. The "Save Settings" button is still present at the bottom right.



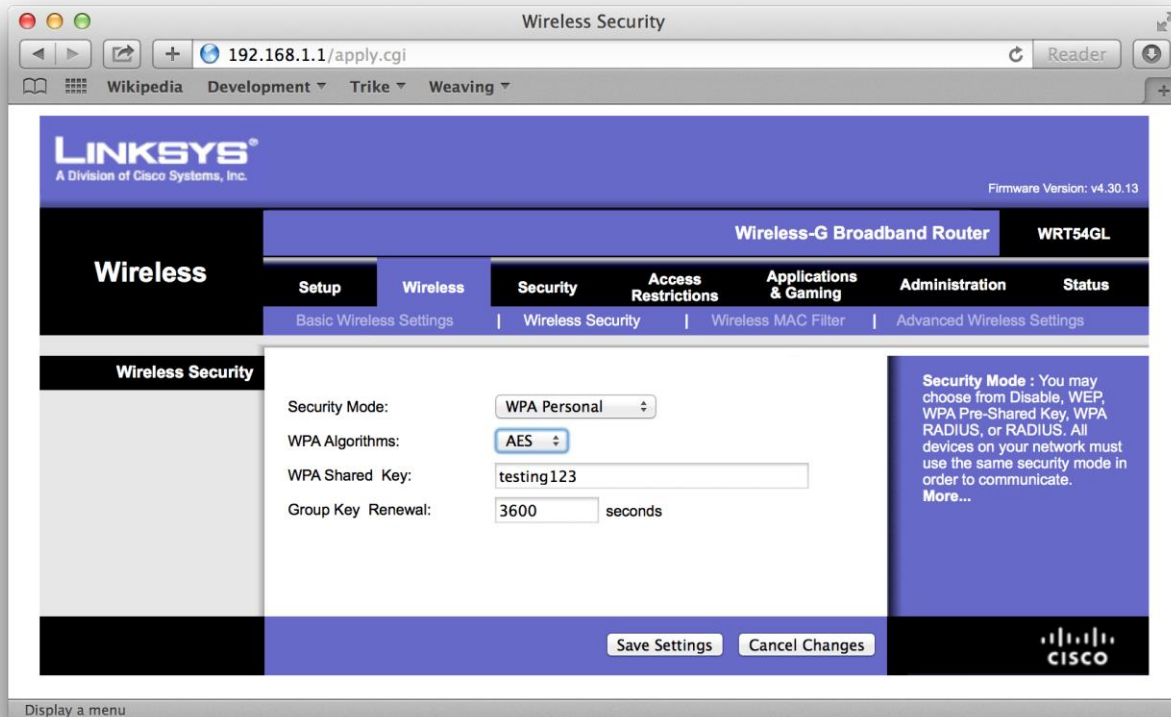
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However, do not mix “WPA” and “AES” – the following is incorrect.



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The following is optional for those who would like to know a little more about choosing a static address for their loom. The router includes an address server that dynamically assigns an address to a device if it requests one. This is sometimes referred to as "DHCP" (Dynamic Host Configuration Protocol) on the display. The router has a group of addresses that are reserved as a pool to be used by the router. Any address outside of that range is open for assignment as a static address. However, the address needs to stay within those addresses being served by the router. This is determined by the "Subnet mask" field. This frequently has the value "255.255.255.0" which means that the first three numbers of your address are fixed and shouldn't be changed. For more information on this topic see "<http://en.wikipedia.org/wiki/Subnetwork>".

In this picture you can see (under "Network Address Server Settings") that the Starting IP Address is 192.168.1.100 and that 50 addresses are reserved, giving a range of reserved addresses from 192.168.1.100 through 192.168.1.149.

The screenshot shows the "Basic Setup" page of a Linksys WRT54GL router. The page is divided into several sections: "Internet Setup", "Network Setup", and "Time Setting". The "Internet Setup" section is currently selected, and the "Automatic Configuration - DHCP" option is chosen. The "Network Setup" section is also visible, showing the "Router IP" and "Network Address Server Settings (DHCP)".

Internet Setup

Internet Connection Type: Automatic Configuration - DHCP

Optional Settings (required by some ISPs):

Router Name: burfl_router

Host Name: burfl

Domain Name:

MTU: Auto

Size: 1500

Network Setup

Router IP

Local IP Address: 192 . 168 . 1 . 1

Subnet Mask: 255.255.255.0

DHCP Server: ☒ Enable ☐ Disable

Starting IP Address: 192.168.1.100

Maximum Number of DHCP Users: 50

IP Address Range: 192.168.1.100 to 149

Client Lease Time: 0 minutes (0 means one day)

Static DNS 1: 0 . 0 . 0 . 0

Static DNS 2: 0 . 0 . 0 . 0

Static DNS 3: 0 . 0 . 0 . 0

WINS: 0 . 0 . 0 . 0

Time Setting

Time Zone: (GMT-08:00) Pacific Time (USA & Canada)

☒ Automatically adjust clock for daylight saving changes

Automatic Configuration - DHCP

Automatic Configuration - DHCP : This setting is most commonly used by Cable operators.

Host Name : Enter the host name provided by your ISP.

Domain Name : Enter the domain name provided by your ISP.

More...

Local IP Address : This is the address of the router.

Subnet Mask : This is the subnet mask of the router.

DHCP Server : Allows the router to manage your IP addresses.

Starting IP Address : The address you would like to start with.

Maximum number of DHCP Users : You may limit the number of addresses your router hands out.

More...

Time Setting : Choose the time zone you are in. The router can also adjust automatically for daylight savings time.



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In this Apple router, you can see that the addresses reserved for DHCP use start with 10.0.1.20 and extend through 10.0.1.70. These addresses can be changed by clicking on the “Network Options...” button.

