



**The United States Internet Crime Task Force, Inc.**  
A Non-Profit / Government-Assist / Victim Advocate Agency

**A Guide For  
Netgear Wireless  
Routers**

# **Securing Your Wireless Network Using WEP**

## **Secure Your Network In Six Easy Steps**

- 1.) Attach the router to your computer
- 2.) Connect to your router
- 3.) Login to the router
- 4.) Change your SSID
- 5.) Change your wireless security settings
- 6.) Change the router password

# Securing Your Wireless Network

## Introduction

Welcome to the wireless age. Gone are the days of dial-up Internet and home networks that require many cables to be run throughout your home. A wireless network provides an unparalleled freedom to connect many of your own computers to the Internet, while also allowing for a convenient method of sharing files and printers among wirelessly connected devices. Although this type of networking is becoming a popular means by which many users are connecting technologies and transmitting data, the wireless network you depend on everyday may also become a hindrance if it is not properly secured.

Imagine an entire neighborhood of homes, many with wireless networks. Consider that each wireless network is probably sharing a connection to some sort of high bandwidth Internet access. Assuming that 90% of all of these homes have unsecured wireless networks, anyone with a wireless connection card can connect to a multitude of devices in different homes with access to each Internet connection and possibly to all of information stored within each computer. In the wrong hands your wireless network can be a staging point for an infinite amount of potentially destructive activities.

Since each user's network is inherently different, wireless routers often come packaged with all of the embedded security features turned off. Even more, most routers come with default passwords that can easily be found in the Internet manuals published by each router's manufacturer. In knowing that these specific conditions exist, someone can gain access to your network and in most instances you may never notice.

However, viruses (especially worm viruses) travel through networks and infect unsecured devices without malice. The effects of one devastating virus on only one of your computers can cost you all of the information you once had stored on the infected device. Predators also lurk on the Internet and thrive on performing various criminal acts on unsuspecting users, and sometimes even preying on children. Crimes committed via the Internet are often traced back to the originating Internet connection, sometimes leading the authorities back to an innocent household with an unsecured wireless network that has been misused by someone else in the area.

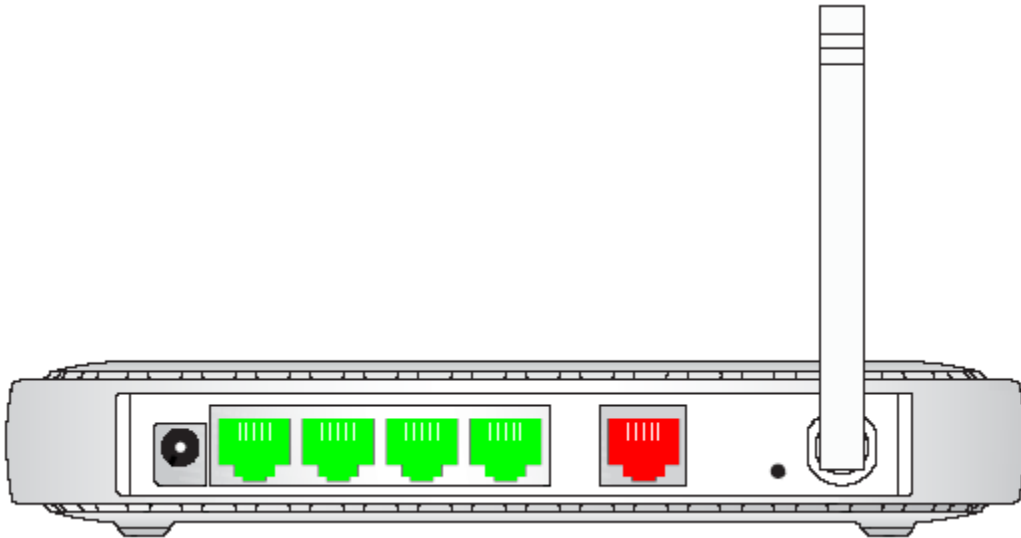
Many reasons exist for simply taking a few moments to secure your wireless network. In the following segments you will be guided, step-by-step, through the process of implementing the necessary restrictions on your router. For more information on this and other technology concerns, keep checking in with the United States Internet Crime Task Force, Inc. at [www.usict.org](http://www.usict.org).

## Securing Your Netgear Wireless Router

**Note:** This document is based on the Netgear WGR614 wireless router owner's manual, which can be found at [www.netgear.com](http://www.netgear.com). Since many of Netgear's wireless routers have the same (or similar) user-interface, this series of instructions can be used as a guide for most of the Hawking routers on sale at the time of this publication. If your specific router cannot be configured using this set of instructions, please go to your manufacturer's web site for model specific instructions, or browse the United States Internet Task Force, Inc. website at [www.usict.org](http://www.usict.org) and follow the instructions for your corresponding device manufacturer.

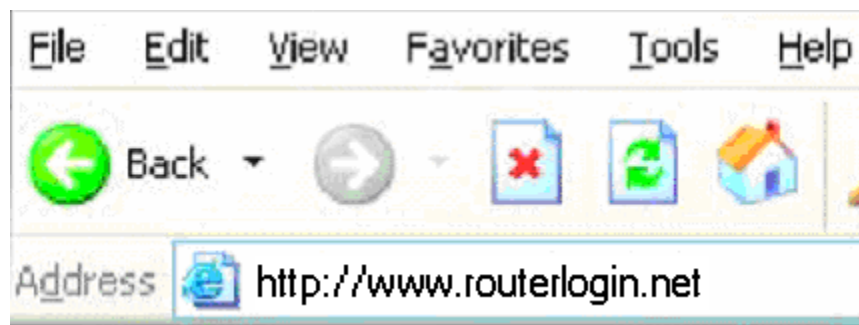
**Step One:** Attach your wireless router to your personal computer.

Simply take an Ethernet (network) cable and plug it into any one of the open ports on your router, except for the one marked "Internet". Attach the other end of the cable to the back of your computer in the network card (or NIC, which stands for Network Interface Card).



**Step Two:** Connect to your router.

Open your Internet browser and type the following in the address bar: [www.routerlogin.net](http://www.routerlogin.net)



### Step Three: Login to your Netgear router.

Once the connection is completed a login screen will appear. By default the router has a very basic password. We will go into more detail on changing the password later in this document. Leave the "User Name" as "admin" and type "password" in the "Password" blank.



Enter Network Password

Please type your user name and password.

Site:

Realm WGR614v6

User Name admin

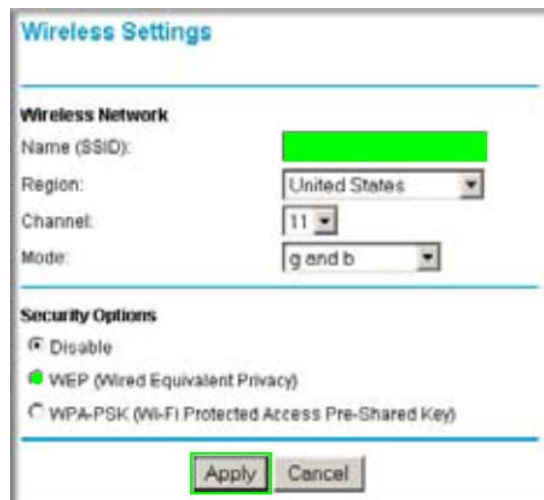
Password

Save this password in your password list

OK Cancel

### Step Four: Change your SSID.

Your SSID (which stands for Service Set Identifier) is a code that gets attached to each piece of data (or "packet") that will identify the information your send or receive as part of the network. When your computer displays wireless networks that are available for connection, the name of each network shown is the SSID. If you leave the SSID at the default setting then other users may know which type of router you are using, which may leave your security at a disadvantage. From the column on the left side of the screen, click "Wireless Settings". Type a name for your SSID in the blank (highlighted green in the example). Click "Apply" when you are done.



Wireless Settings

**Wireless Network**

Name (SSID):

Region: United States

Channel: 11

Mode: g and b

**Security Options**

Disable

WEP (Wired Equivalent Privacy)

WPA-PSK (Wi-Fi Protected Access Pre-Shared Key)

Apply Cancel

**Note:** Another very basic method of security includes turning off the router's broadcasting of your SSID. This can be done by removing the check next to "Broadcast SSID" in the previous screen. Doing this will make your wireless network "invisible" to other wireless users, but it does not mean that your wireless network will be impossible to find. If you wish to stop your SSID from being broadcast then you will have to manually specify which SSID each of your computers will connect to, as your network will not appear in the standard wireless network discovery wizards that come with Microsoft Windows or Apple Macintosh computers. For the purposes of this document, the steps that follow will go in accordance with the SSID broadcasting active (enabled).

**Step Five:** Change your wireless security settings.

On the same screen, choose "WEP" under the section titled security options. Select the "Encryption Strength" by selecting "64-bits" or "128-bits". The key your wireless devices will use can be derived one of two ways. You can either type your own HEX keys in the blank next to "Key 1" (hexadecimal keys use only letters A – F and numbers 0 – 9). Another type of key is ASCII. With ASCII keys, you can type a word or series of numbers into "Key 1". The keys you create have to be manually input into each computer that connects to your network. Write down the keys you create for future reference. The keys you create have to be manually input into each computer that connects to your network. Write down the keys you create for future reference. Click "Apply" when you are done.

The screenshot shows the "Wireless Settings" configuration page. It is divided into several sections:

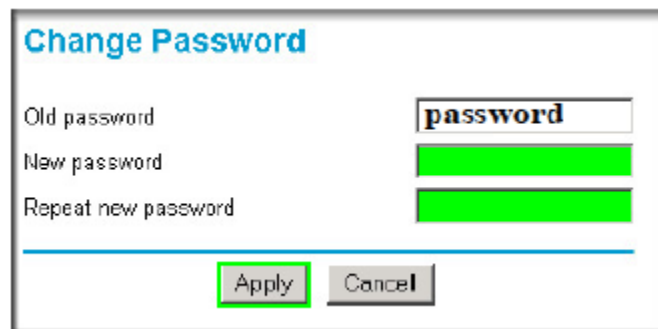
- Wireless Network:** Includes fields for Name (SSID), Region (United States), Channel (11), and Mode (g and b).
- Security Options:** Features three radio buttons: "Disable", "WEP (Wired Equivalent Privacy)" (which is selected), and "WPA-PSK (Wi-Fi Protected Access Pre-Shared Key)".
- Security Encryption (WEP):** Includes "Authentication Type" (Automatic) and "Encryption Strength" (64bit).
- Security Encryption (WEP) Key:** Includes a "Passphrase" field with a "Generate" button, and four "Key" fields (Key 1, Key 2, Key 3, Key 4). Key 1 is selected and contains a redacted value.

At the bottom of the page, there are "Apply" and "Cancel" buttons.

**Note:** While this manual calls for the use of WEP, there are other methods of wireless security. Specifically there are WPA (WiFi Protected Access) and WPA2 which are far better than using WEP. However, WPA and WPA2 are only supported on select devices, usually coupled with driver updates performed for each wireless connection card and operating system updates. Both types of WPA are only currently supported in Windows XP (and only with a patch).

## Step Six: Change your router's administrator password.

Having completed the necessary security changes on the router by implementing WEP, only one other task will be required for completion. From the column along the left side of the screen click on "Set Password". At this point in your configuration of the router it is vital to set an administrator password that is different from the password your router was packaged with. If you made the changes to WEP and did not change the password on the router, another user could very easily login to the router and get the keys required to access your network, in many ways defeating the purpose of the WEP configuration.



The image shows a "Change Password" dialog box. It has a title bar with the text "Change Password". Below the title bar, there are three input fields. The first field is labeled "Old password" and contains the text "password". The second field is labeled "New password" and is empty. The third field is labeled "Repeat new password" and is empty. Below the input fields, there are two buttons: "Apply" and "Cancel". The "Apply" button is highlighted with a red border.

In the first blank "Old Password", type "password". In the "New Password" blank type a new password and then retype it in the "Repeat New Password" blank. Be sure to write this password down, or simply use a password that you are sure to remember. You will need this password every time you need to login to change a setting on the router. Click on "Apply" when you are finished.

**Note:** Choosing a password with a higher degree of complexity will also help to strengthen your security. To make a password harder to break, use a combination of letters and numbers. For example, the password "1234" is very easy to break in comparison to the more complex password "Unbr3akABj3".

## References

**Editor's Note:** The basic instructions and images in this document came in part from the Netgear WGR614 manual which can be found on the manufacturer's website at [www.netgear.com](http://www.netgear.com).

**Netgear Technical Support:** (800) 211-2069 [www.netgear.com](http://www.netgear.com)

**Wireless Security Information:** United States Internet Crime Task Force, Inc.: [www.usict.org](http://www.usict.org).