

MAC Address Locking for Wireless Security

Just like a wired NIC, a wireless NIC also has a MAC address, which is a unique identification for every single NIC manufactured, much like a Social Security Number or set of fingerprints. It is possible to use MAC addresses as a security measure for your wireless network.

Because you know the MAC address for each wireless NIC you have purchased and planned to use on your network, it is possible to “lock” those into your wireless router and instruct it to let *only* those wireless NICs access your network. Then if someone should try to access the wireless network using a laptop with a different NIC (i.e., different MAC address), the wireless router will deny access, even if the correct SSID and encryption key are provided.

Sounds great, right? Yes, but there is a trade-off. MAC address locking can be difficult to manage and even harder to troubleshoot. Every time you add a new wireless NIC or another wireless device to your network, it won't work until you add the MAC address for it to the network. You receive no warning or reminder that you need to do so; the new device just won't work.

Another disadvantage occurs when a visitor comes to your house, like a relative, and wants to join your wireless network during their stay. You have to find out the MAC address for their wireless NIC and add it to your wireless router's permission table. Again, if you forget to do this, you and your visitor could spend hours trying to figure out why the laptop simply can't see your wireless network.

Overall, we believe that the wireless security measures outlined in Chapter 11, “Securing Your Wireless Network,” will make your wireless network secure enough about 99.77 percent of the time. If you want to spend the time (and potential frustration) to nail down the other 0.23 percent with MAC address locking, this appendix is for you.

How Do I Enable MAC Address Locking?

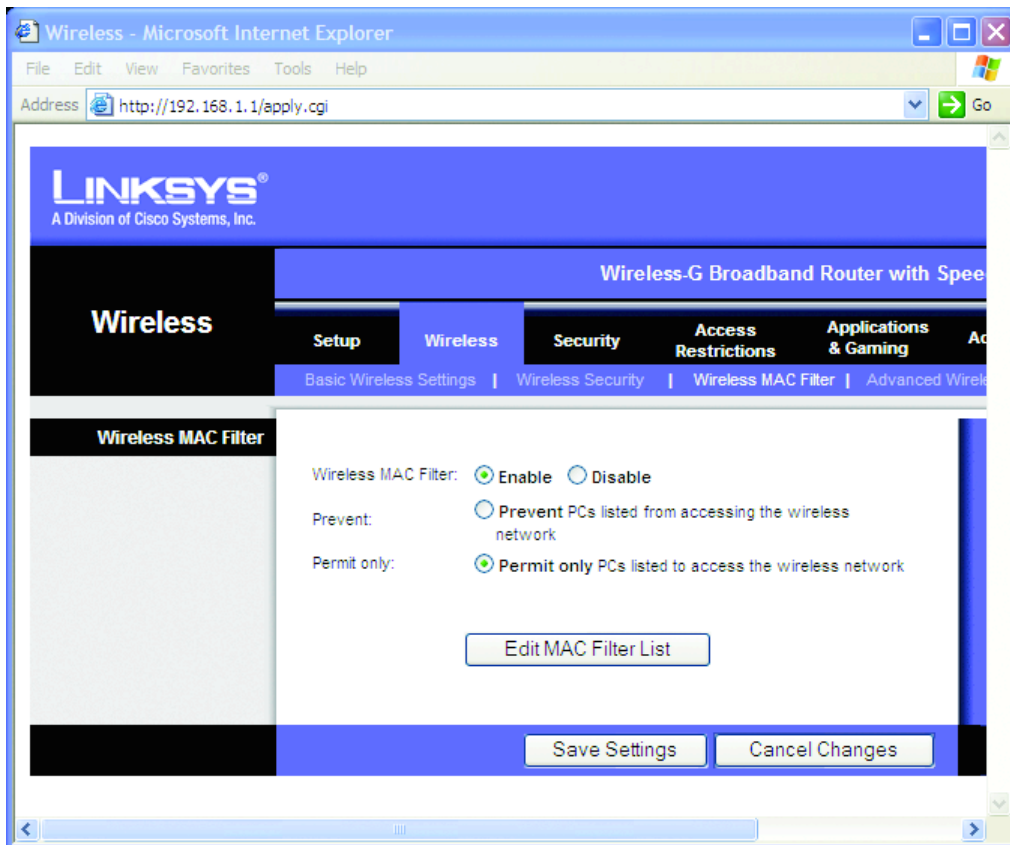
To enable MAC address locking, you do not need to do anything on the computers with wireless NICs (or wireless devices) on the network. For the wireless router, it takes a couple steps.

First, make sure all the computers with wireless NICs (and devices) are configured for the wireless network (see Chapter 10, “Going Wireless at Home”) and are up and running. Then access the router (the Linksys WRT54GS Wireless Router is used in this example) and perform the following steps.

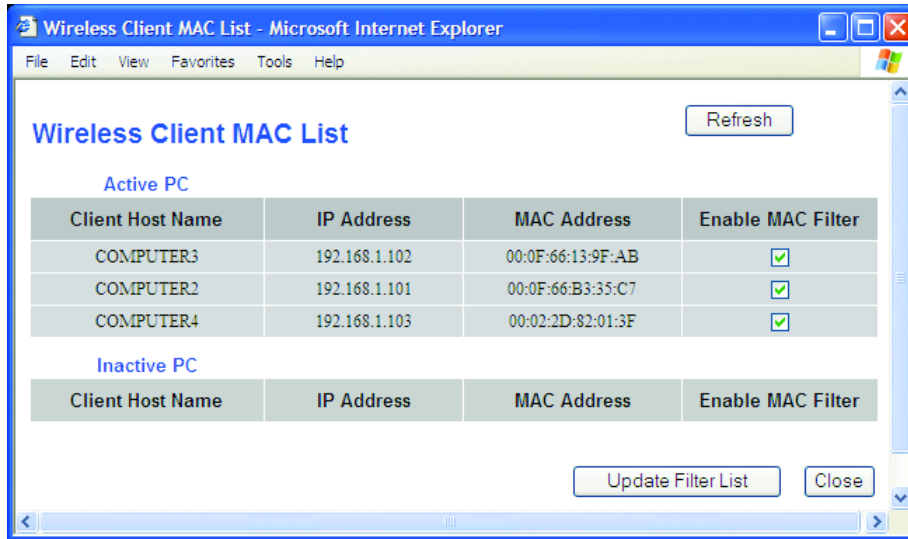
VERY IMPORTANT: You will want to do this from a computer that has a wired connection to the router, not wireless. As soon as you do Step 1, your wireless NICs will not be able to access the wireless network any longer, until you complete Steps 2 and 3. However, you won't be able to do those steps because you have "sawed off the branch you were standing on" in Step 1.

Step 1 Click the **Wireless** tab (see Figure B-1). Click the **Wireless MAC Filter** sub-tab. (On some Linksys products, this is labeled Wireless Network Access). Check mark **Enable** and check mark **Permit Only**. (On some Linksys products, this is labeled simply Restrict Access.) Click **Save Settings**.

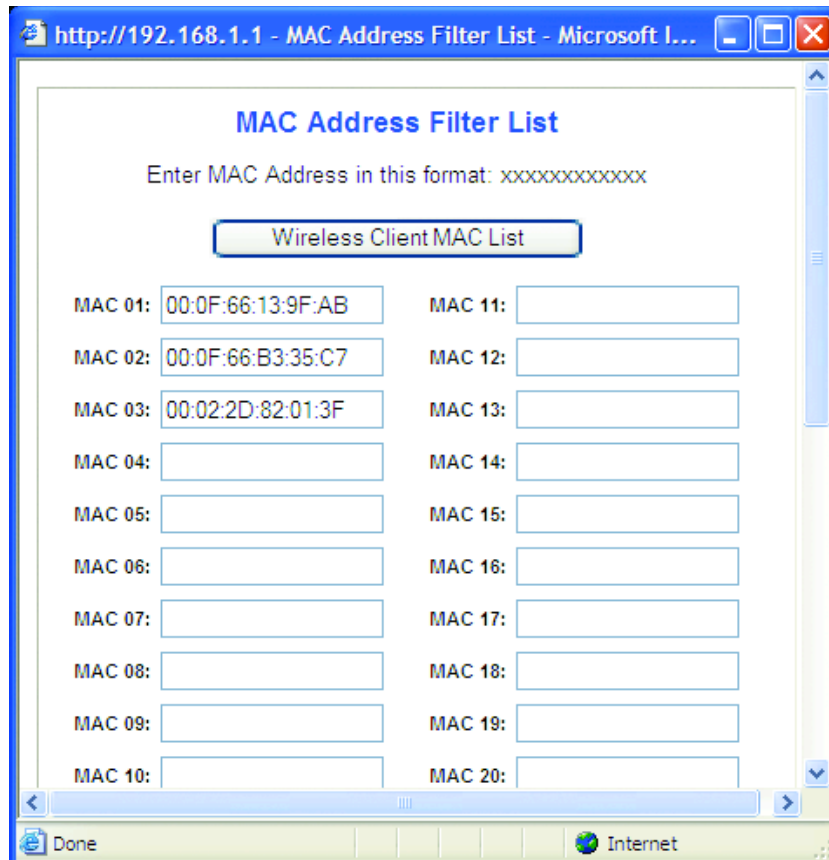
Figure B-1 Enabling MAC Address Locking



Step 2 Click **Edit MAC Filter List > Wireless Client MAC List**. A list displays all of the computers (by NIC) and the associated MAC addresses (see Figure B-2). Check mark each entry in the Enable MAC Filter column. Click **Update Filter List** and then click **Close**.

Figure B-2 Adding New MAC Addresses to the Lock List

Step 3 Back at the MAC List (see Figure B-3), click **Save Settings**.

Figure B-3 Save the New Settings

Now the wireless network is “locked” to permit only our NICs to gain access. Check each of the computers with a wireless NIC to make sure they still can connect to the wireless router (see the section in Chapter 10 titled “Check Wireless Network Operation”). If any of the computers can no longer connect, it is possible the MAC address for that computer did not make it into our “lock down” table.

Troubleshooting Tips: MAC Address Locking

If any of the computers do not re-establish communication, check these items:

- Check to make sure there is the same number of entries in the MAC address table on the wireless router as there are computers with wireless NICs.
 - Disable the MAC address restriction, reboot the computer that is not connecting properly, and see if it re-establishes a connection. If it does, repeat these instructions and add the “missing” MAC address from the computer.
 - If all else fails, manually enter the MAC address for the computer’s wireless NIC. You can find the MAC address usually on a sticker label attached to either the NIC itself or the package it came in.
 - Read the troubleshooting and wireless security chapters in the installation manuals that came with the Linksys wireless router and Linksys wireless NICs.
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