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\*Version numbers are located at the top right of this page

### **Setting up a Wireless Router (basic) :**

I hope you will find this how-to helpful. I will try my best to respond via email at [kevinthecomputerguy@gmail.com](mailto:kevinthecomputerguy@gmail.com) if you have questions, I will try my best to respond to all of them, but please try my Blog first (There is a link to it on my webpage) With any luck that will turn into a knowledge base. My stuff will always be free for personal use, but if you would still like to contribute, you can donate money towards this, or one of my other how-to's, at my homepage <http://woodel.com>

The following print screens will look different than your screens at home, depending on what router and what firmware you have loaded.

Open Internet Explorer, from a wired computer, and type the default IP of the router, usually <http://192.168.1.1>.

\* Your computer will need to be on that same subnet, 192.168.1.xxx.

Let's give the router a unique name, this name isn't very important, and is not the wireless SSID.

Let's change the default IP of the router... anyone who knows anything about wireless routers will drive up and down your street trying to access (192.168.1.1) (192.168.1.2) (192.168.0.1) (192.0.0.192) and (192.168.2.1) as these are the default IP's for all the major brands of wireless routers.

(remember) if you change the subnet to .2.200... you need to change your computers IP address to a .2.xxx to be able to get back in. you will have to do this manually, as we haven't got to the DHCP server configuration yet.

The screenshot shows a router configuration interface with the following sections and fields:

- Setup** (selected) | Wireless | Security | Access Restrictions | Applications & Gaming | Administration
- Basic Setup | DDNS | MAC Address Clone | Advanced Routing | VLANs
- Internet Setup**
- Internet Connection Type**
  - Connection Type: Automatic Configuration - DHCP
  - STP:  Enable  Disable (disable for COMCAST ISP)
- Optional Settings (required by some ISPs)**
  - Router Name: wrt54qs-c (circled in red with arrow pointing to "Not important")
  - Host Name: [ ]
  - Domain Name: [ ]
  - MTU: Auto [ 1500 ]
- Network Setup**
- Router IP**
  - Local IP Address: 192 . 168 . 2 . 200 (circled in red with arrow pointing to "Change this to something outside the popular defaults")
  - Subnet Mask: 255 . 255 . 255 . 0
  - Gateway: 0 . 0 . 0 . 0
  - Local DNS: 0 . 0 . 0 . 0

Let's configure the DHCP server... make sure to leave some room for static IP's just incase you want to use some.

If you give this lots of thought... you can tell by a computers IP address, how it's connected to your network.

Network Setup				
<b>Router IP</b>				
Local IP Address	192	168	2	200
Subnet Mask	255	255	255	0
Gateway	0	0	0	0
Local DNS	0	0	0	0
<b>Network Address Server Settings (DHCP)</b>				
DHCP Type	DHCP Server			
DHCP Server	<input checked="" type="radio"/> Enable <input type="radio"/> Disable			
Start IP Address	192.168.2.	210		
Maximum DHCP Users	20			
Client Lease Time	1440 minutes			
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

Very important, give these settings some thought.

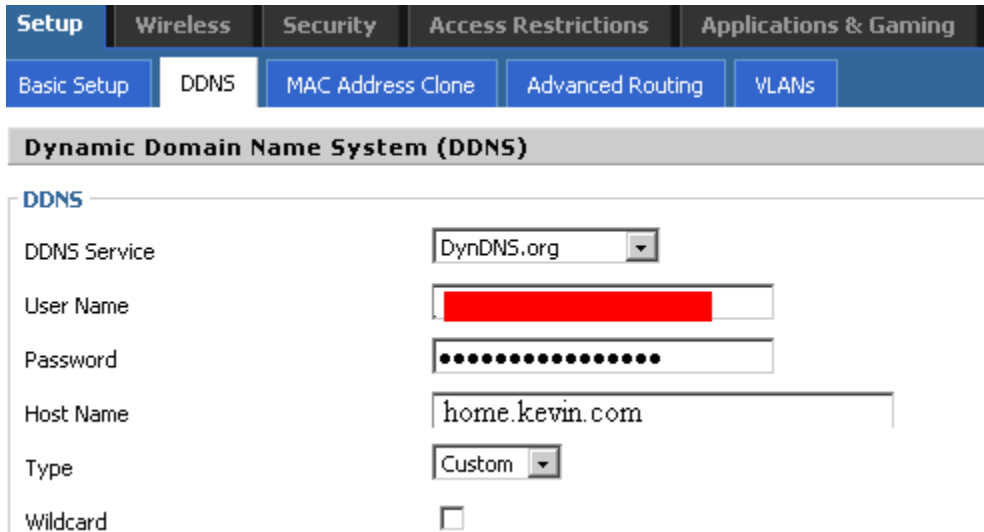
With this config, it safe for me to have static IP address's 2.201 - 2.209 and anything above 2.230.

I use static 2.201 - 2.209 for Servers. and 2.231 and above for PC's

And DHCP clients can grab anything between 2.210 and 2.230

If you have a DDNS service account, this tab enables your router to update its DHCP address to a desired hostname on the internet.

If you own a domain like kevin.com, you can do anything \*.kevin.com. In this example my routers name is always going to respond to home.kevin.com no matter what my ISP changes my IP address too.



**Setup** | Wireless | Security | Access Restrictions | Applications & Gaming

Basic Setup | **DDNS** | MAC Address Clone | Advanced Routing | VLANs

### Dynamic Domain Name System (DDNS)

**DDNS**

DDNS Service: DynDNS.org

User Name: [REDACTED]

Password: [REDACTED]

Host Name: home.kevin.com

Type: Custom

Wildcard:

Mac address cloning... this is almost always the problem when someone needs help getting their router working. Using MAC address clone, you clone your PC's MAC address, and your modem cannot tell there is a router in place.

Almost all ISP's only allow one MAC address to connect to your cable \ DSL modem. If it see's a new MAC address, it will usually stop working.

**If this happens**, unplug everything from the cable \ DSL **modem** for 5 minutes. Then plug in the power... wait two minutes, plug in the COAX... wait two minutes... plug in the Ethernet... wait two minutes. That should clear the MAC address the modem learned.

**Make sure your router is set to clone the MAC address before plugging it back in.**

Basic Setup DDNS **MAC Address Clone** Advanced Routing VLANs

**MAC Address Clone**

**MAC Clone**

Enable  Disable

Clone WAN MAC [REDACTED]

Get Current PC MAC Address ← This button will do it all for you

Clone Wireless MAC [REDACTED]

Save Settings Cancel Changes

Let's open it up... then lock it down.

The screenshot shows the 'Administration' tab of a router's web interface. The 'Router Management' section includes 'Router Password' fields (Router Username, Router Password, Re-enter to confirm) and 'Remote Access' settings (Web GUI Management, Web GUI Port). The 'Web Access' section includes 'Protocol' (HTTP checked), 'Auto-Refresh (in seconds)' (3), 'Enable Info Site' (Disable selected), and 'Info Site MAC Masquerading' (Enable selected). Red arrows and text provide instructions: 'Most routers do not use a username, only a password is required' points to the Router Username field; 'Make this a really really strong password, with this password, someone can access your entire network if remote management is enabled' points to the Router Password field; 'This exposes your router to the outside world, setting a strong password and changing the default port will help keep people out. in this example, you would access your router from outside your network using ( :25000 ) http://xxx.xxx.xxx.xxx:25000' points to the Web GUI Port field; and 'Some routers have an https option. After your done with the basic settings you should enabled that if possible' points to the HTTP checkbox.

**Router Management** Help [more...](#)

**Router Password**

Router Username

Router Password

Re-enter to confirm

**Remote Access**

Web GUI Management  Enable  Disable

Web GUI Port

**Web Access**

Protocol  HTTP

Auto-Refresh (in seconds)

Enable Info Site  Enable  Disable

Info Site MAC Masquerading  Enable  Disable

Most routers do not use a username, only a password is required

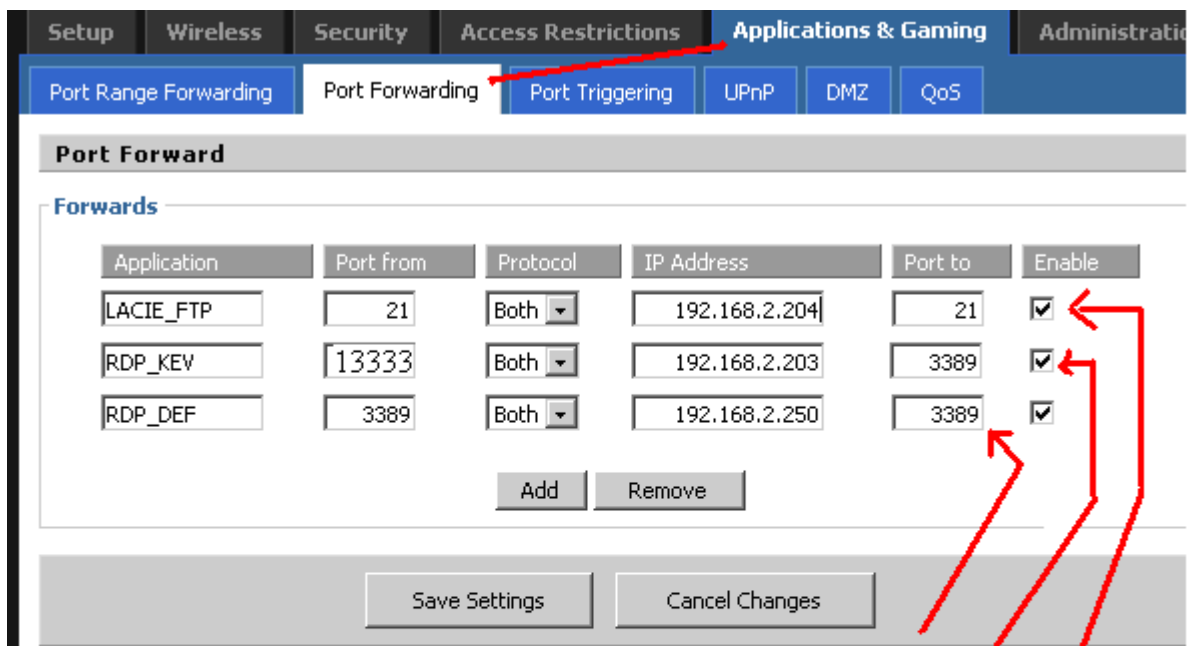
Make this a really really strong password, with this password, someone can access your entire network if remote management is enabled

This exposes your router to the outside world, setting a strong password and changing the default port will help keep people out. in this example, you would access your router from outside your network using ( :25000 ) http://xxx.xxx.xxx.xxx:25000

Some routers have an https option. After your done with the basic settings you should enabled that if possible

This next step is an advanced step, and not needed as part of your basic setup, you can skip this page and come back to it later.

- Using Port Forwarding, you can access your computers from outside your network, even though they are behind your firewall, and have private non-routable IP address
- This is where static IP address comes in handy.
- For remote desktop to work on different ports, you have to change a registry setting on the individual PC you want to remote desktop.



- In the first example, when you type your real ip address into a ftp client. the router knows to send that information to 192.168.2.204.
- In the second and third examples, if i enter my real ip address into a remote desktop session, if i dont specify a port, it sends it to 192.168.2.250... remote desktop uses port 3389 by default but if i specify : 13333 then it goes to 192.168.2.203
- So if i were to open an Internet Explorer window, and type ftp://home.kevin.com the router would see that as FTP traffic communicating on port 21. And above we told it to send port 21 traffic to my FTP server at 192.168.2.204

Let's setup your wireless

The screenshot shows a web-based configuration interface for wireless settings. The top navigation bar includes 'Setup', 'Wireless', 'Security', 'Access Restrictions', 'Applications & Gaming', and 'Administration'. Below this, a sub-menu contains 'Basic Settings', 'Radius', 'Wireless Security', 'MAC Filter', 'Advanced Settings', and 'WDS'. The 'Wireless' section is active, showing 'Basic Settings' for a wireless network. The settings are as follows:

- Wireless Mode: AP
- Wireless Network Mode: G-Only
- Wireless Network Name (SSID): [Redacted]
- Wireless Channel: 10 - 2.457 GHz
- Wireless SSID Broadcast:  Enable  Disable
- Sensitivity Range (ACK Timing): 2000

Red annotations with arrows point to specific settings:

- An arrow points to 'G-Only' with the text: "If you dont have 'B' devices, then choose 'G' only".
- An arrow points to the redacted SSID field with the text: "Choose a SSID name here, this will be the name you point your wireless clients to.".
- An arrow points to the 'Disable' radio button for 'Wireless SSID Broadcast' with the text: "Its very important to disable broadcasting your SSID. This will prevent it from showing up as a connection choice for your neighbors.".

Buttons for 'Save Settings' and 'OK' are visible at the bottom of the configuration panel.

Let's setup your Wireless security (encryption)

It's very important to encrypt your data, as these packets can be seen by anyone, so make sure you encrypt them.

Some clients don't do WPA2 \ AES yet, so use WPA Pre-Shared Key \ TKIP for now. But remember to upgrade to WPA2 \ AES as soon as all your wireless clients can support it.

The screenshot shows a web-based configuration interface for wireless security. At the top, there are tabs for 'Setup', 'Wireless', 'Security', 'Access Restrictions', 'Applications & Gaming', and 'Admin'. Below these are sub-tabs for 'Basic Settings', 'Radius', 'Wireless Security', 'MAC Filter', 'Advanced Settings', and 'WDS'. The 'Wireless Security' sub-tab is selected, and the page title is 'Wireless Security'. Under the 'Wireless Encryption' section, the following settings are visible:

- Security Mode: WPA Pre-Shared Key (dropdown menu)
- WPA Algorithms: TKIP (dropdown menu)
- WPA Shared Key: A text input field containing 16 black dots, with an 'Unmask' checkbox to its right. A red arrow points to the input field with the text 'Choose a strong unique password'.
- Key Renewal Interval (in seconds): 3600 (input field), with '(Default: 3600, Range: 1 - 9)' in smaller text to the right.

At the bottom of the configuration area, there are two buttons: 'Save Settings' and 'Cancel Changes'.

Let's setup MAC address restrictions. Choose to "Permit Only" MAC address you have specified. This is for wireless only.

The screenshot shows the 'Wireless MAC Filter' configuration page. The 'Use Filter' section has 'Enable' selected. The 'Filter Mode' section has 'Permit only PCs listed to access the wireless network' selected. The 'MAC Address Filter List' table has two rows with redacted MAC addresses. Red arrows point to the 'Enable' radio button, the 'Permit only...' radio button, and the 'Edit MAC Filter List' button.

**Wireless MAC Filter**

**MAC Filter**

Use Filter  Enable  Disable

Filter Mode

Prevent PCs listed from accessing the wireless network

Permit only PCs listed to access the wireless network

Edit MAC Filter List

Save Settings Cancel Changes

**MAC Address Filter List**

Enter MAC Address in this fo

**Table 1**

MAC 001 :	[REDACTED]
MAC 002 :	[REDACTED]
MAC 003 :	
MAC 004 :	
MAC 005 :	
MAC 006 :	

Want to keep your kids off the internet while you're at work?  
Use the Access Restriction tab.

Setup Wireless Security **Access Restrictions** Applications & Gaming Administration

Internet Access

### Internet Access

#### Access Policy

Policy 1 ( )

Status  Enable  Disable

Policy Name

PCs

Deny  Allow

Internet access during selected days and hours.

#### Days

Everyday	Sun	Mon	Tue	Wed	Thu	Fri	Sat
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### Times

24 Hours

From  0 :00 To 0 :00

That's it... your all set up, enjoy.

\*Don't forget to enable https when you're done