



# Owning your WiFi Router

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# InterNetwork CV

- 14 years experience configuring routers
- 8-10 a week, generally over the phone
- Routers known and loved; Ascend, Cisco, Farrallon, Redback Networks, Linksys, Netgear, D-Link
- New Favorite – Mikrotik Router OS
- We Do Routers, WiFi, Repairs&Support, Networking, Hosting, to name some

# Discussion Overview



- What is this routing?
- Set, setting, and prep
- Best Practices
- Router Login- Initial config
- Wireless
- Ports! And Forwards!
- Troubleshooting

# Why do I need routing?

- Routing protocols direct Internet Traffic
  - A Router can be any computer that runs software
    - X86 PC
    - Small board PC like Zworld/Rabbit Semiconductor
    - Cellphone HotSpots
  - Established and cheaply mass produced
- Routers are Gatekeepers between Networks
  - Front Door to the Internet
    - Move traffic from inside to the outside
    - Check traffic from outside and let the good in
  - Help HOSTS (computers etc) reach the Internet
  - Inspect and perform actions on packets
- They are here to stay

## *Take a DEEP Breath*

- Calm test environment
- Have Internet Access
- Bring Spare equipment
- Plenty of TIME
- READ the documentation
- Research on-line
- HOLD off if not ready



# Preparation

## KIT

- Laptop (Web Browser)
- 2 Tested Network Cables
- Working Internet!
- Notebook & Pencil

● NO

- Insert this CD First!
- Network Diagnostics

## INFORMATION

- EXACT Network settings for your ISP
- Desired Home WiFi network name and password
- Anything Special?
  - Cameras
  - Xboxen
  - Servers

# Best Practices

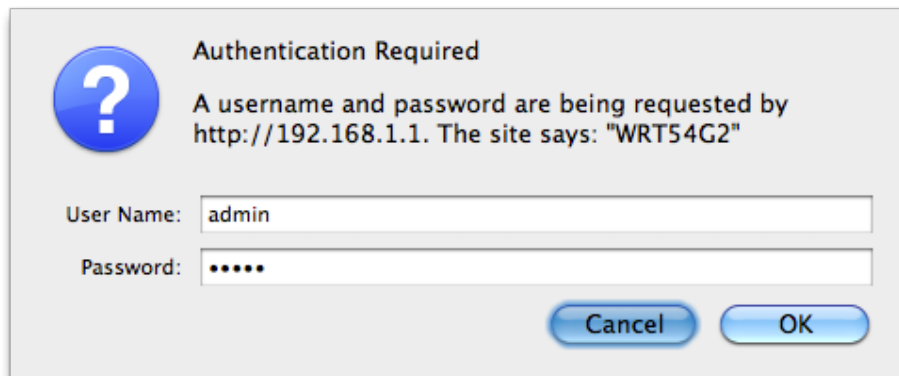


- Start basic, one computer directly on Internet
- Change one thing at a time and test after each change. Be **CORRECT**
- Try not to be in desperate straits, do it on the down low
- Write down any changes you make so you can go back to working

# Lets Connect up and Log In!



- Plug your Network Cable into 1 of the 4 grouped ports and into your PC
- Make sure your Network Interface obtains an IP Address automatically (Default)
- Use ipconfig, network status, or ifconfig, OSX Network control Panel to find Router IP Address
- Launch Web browser and go to `http://x.x.x.x`





# Login Passwords

- Check Quick Guide or Manual for default username and password.

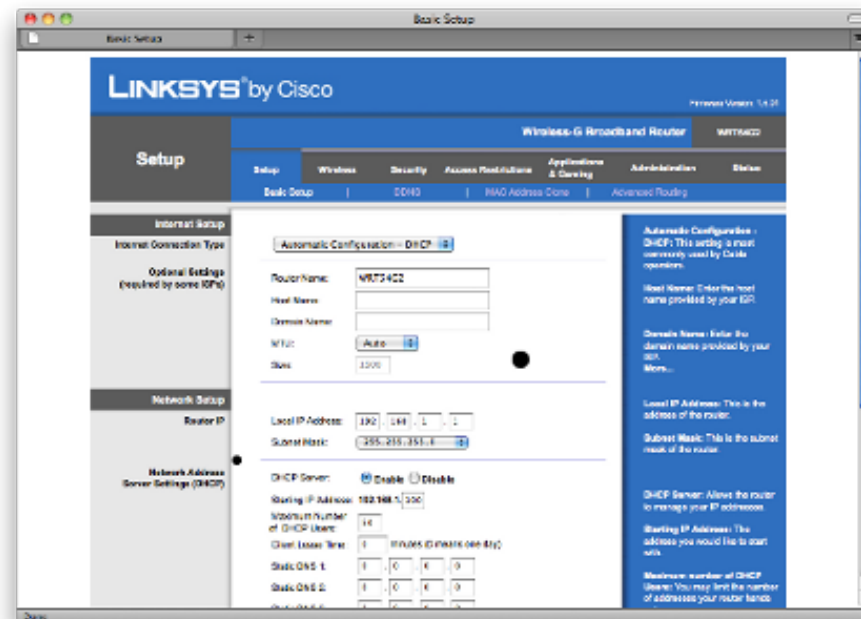
Netgear = admin/password

Cisco = admin/admin

Dlink = admin/<blank>

- If you change it write it down and tape it to underside of router or log it.

- This is the router password NOT the WiFi password



# Initial Router Setup - Network

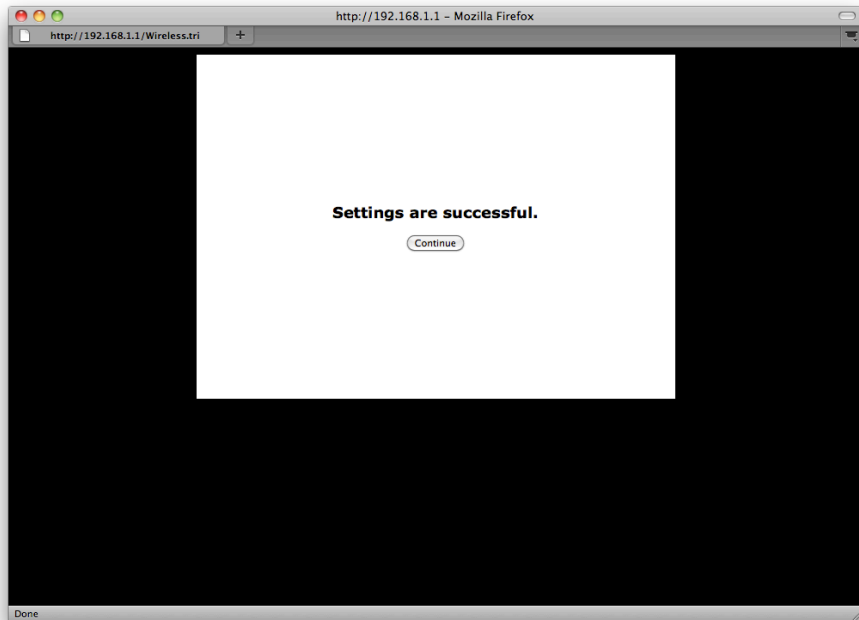
## OUTSIDE (WAN)

- EXACT Connection Info
- PPPoE, DHCP or Static IP
  - PPPoE has usr/pas
  - DHCP is easy
  - Static IP you need:  
IP, Subnet Mask,  
Gateway and DNS  
addresses

## INSIDE(LAN)

- Option 1 Do Nothing!
- Could Change local Private IP address, and client assignments.
  - 10.x.x.x, 172.16.x.x, or 192.168.x.x
- Adjust Inside DHCP Settings
- Change your HOST

# Network Setup TIPS



- Pull down selection and enter info exactly, then hit the save or Apply button
- Immediately Test after router restart
- Avoid Checking Extra Tools and Automatic Detector Wizards
- Restart Router, Modem and Computer, and Test

# Wireless Network Setup



The screenshot shows a web-based configuration page for a wireless network. The page title is "Wireless-G Broadba". The navigation menu includes "Setup", "Wireless", "Security", "Access Restrictions", and "Applications & Gaming". The "Wireless" section is active, and the sub-menu includes "Basic Wireless Settings", "Wireless Security", "Wireless MAC Filter", and "Advanced".

Wireless Configuration:  Manual  Wi-Fi Protected Setup

Wireless Network Mode:

Wireless Network Name (SSID):

Wireless Channel:

Wireless SSID Broadcast:  Enable  Disable

Buttons: Save Settings, Cancel Changes

- Manual Setup
- SSID
- Get Off Channel 6
- B, G or N?

# Securing the Wireless

The screenshot shows a web interface for configuring wireless security. The page title is "Wireless-G Broadband". The navigation menu includes "Setup", "Wireless", "Security", "Access Restrictions", and "Applications & Gaming". The "Wireless" menu is expanded, showing "Basic Wireless Settings", "Wireless Security", "Wireless MAC Filter", and "Advanced". The "Wireless Security" section is active, displaying the following settings:

- Security Mode: WPA2 Personal
- WPA Algorithms: AES
- WPA Shared Key: [Empty text box]
- Group Key Renewal: 3600 seconds

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

- Try to use WPA2
- Pick a simple key
- LOG and RECORD
  - Security Type
  - Algorithm
  - KEY
- SAVE and RESTART
- Unplug and TEST

# Wireless TIPS

- Test on all systems
- Test placement
- LOG and RECORD
- Restart power as needed
- Look for interference
- MAC filter & Hide SSID



# 65535 Ports, thats a lot!

- Each IP you get has them

- Ports Allow:

Diversity

Simultaneous Action

Exposure

QOS

- Port Forwarding is mapping

- 1 to 1 Link Out/In



# Port Forward Tasks

## INVENTORY

Cameras

Xboxen

Media Streamers

Computers

Assign Static IPs

LOG and RECORD

WRITE Statements

CONFIG ROUTER

by Cisco

Wireless-G Broadband

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

Port Range Forward | Port Triggering | DMZ | QoS

Port Range					
Application	Start	End	Protocol	IP Address	Enable
WebServ	80	to 81	Both	192.168.1.2	<input checked="" type="checkbox"/>
SSH	22	to 22	TCP	192.168.1.2	<input checked="" type="checkbox"/>
	0	to 0	Both	192.168.1.0	<input type="checkbox"/>
	0	to 0	Both	192.168.1.0	<input type="checkbox"/>
	0	to 0	Both	192.168.1.0	<input type="checkbox"/>
	0	to 0	Both	192.168.1.0	<input type="checkbox"/>
	0	to 0	Both	192.168.1.0	<input type="checkbox"/>
	0	to 0	Both	192.168.1.0	<input type="checkbox"/>
	0	to 0	Both	192.168.1.0	<input type="checkbox"/>
	0	to 0	Both	192.168.1.0	<input type="checkbox"/>

Save Settings | Cancel Changes



# PORT Forward TIPS



- Test Device Connectivity
- Check ONLINE for walkthrough
- FWD both TCP and UDP
- RESTART & TEST after EACH
- Have a BUDDY check

# Troubleshooting

- Restart POWER as needed
- Laptop WIFI Switch
- Blinken LIGHTEN?
- ISOLATE fault / Simplify
- Wire or Wired not both
- NO! RESET BUTTON



## NEXT Steps?



- CALL ISP HELP for SUPPORT
- POST to FORUMS and Listservs
- Find LOCAL support tech you trust
- Go BACK to 1 computer and modem

# What else could Routers DO?

- VPN
- Multihoming
- Redirect and CAPTURE
- QOS on traffic
- QUEUE per computer



THANK YOU

