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
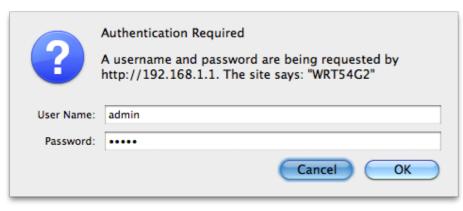
- Anything Special?
   - Cameras
   - Xboxen
   - Servers

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
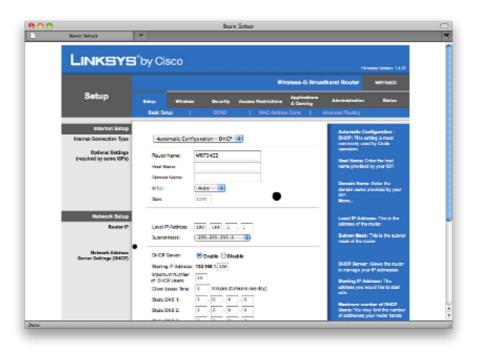
Lets Connect up and Log In!

- 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
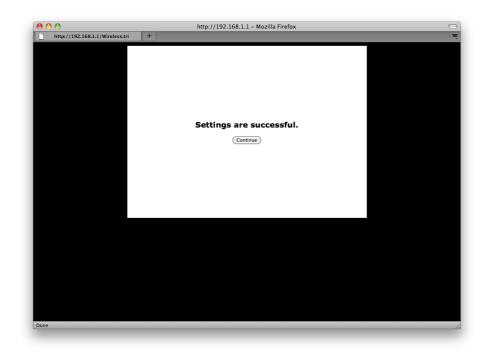
Initial Router Setup - Network

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
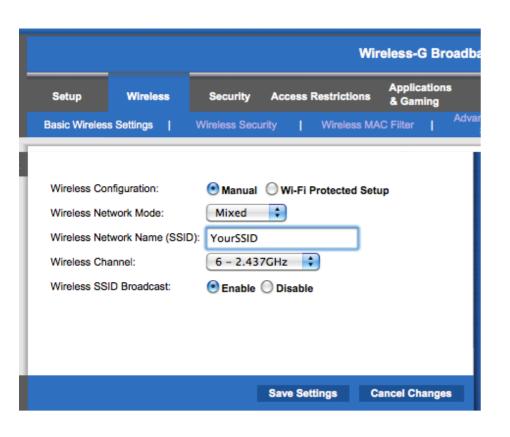   addresses

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
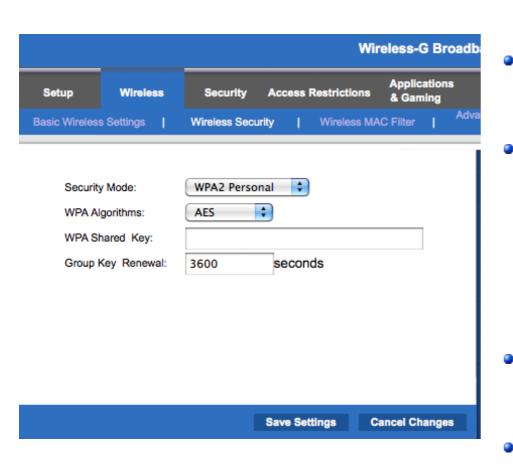 Settings

- 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

- Manual Setup

- SSID

- Get Off Channel 6

- B, G or N?

Securing the Wireless

- Try to use WPA2

- Pick a simple key

- LOG and RECORD
  - Security Type
  - Algorithm
  - KEY

- SAVE and RESTART

- Unplug and TEST

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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

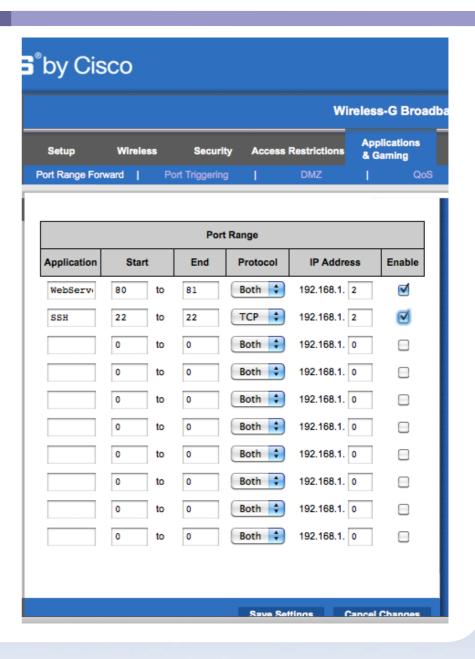- Port Forwarding is mapping

- 1 to 1 Link Out/In

Port Forward Tasks

INVENTORY

    Cameras
    Xboxen
    Media Streamers
    Computers

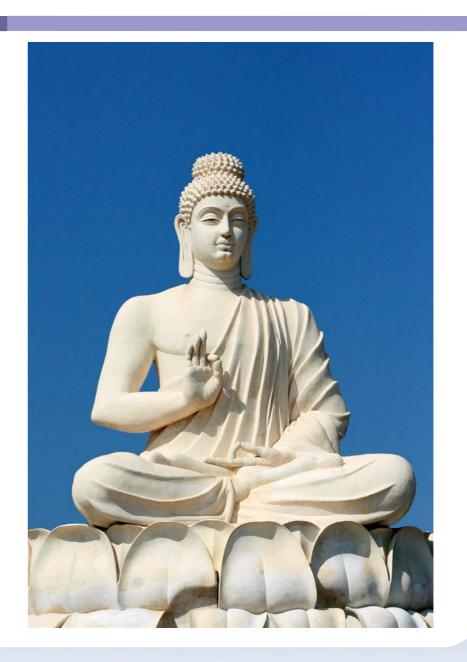Assign Static IPs

LOG and RECORD

WRITE Statements

CONFIG ROUTER

PORT Forward TIPS

- Test Device Connectivity

- Check ONLINE for walkthru

- 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