

Creating and using a
WiFi

Mac network

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RandomMaccess

News. Opinion. Whatever.



patpending
creative



Why WiFi?

- **Pros**
 - Mobility
 - No wire runs
 - Easy to let visitors share your connection
 - Easy to add devices
 - and...

Why WiFi?



Why WiFi?

■ Cons

- Not as stable as wired connection
- Susceptible to interference/loss of signal over distance
- Usually not as fast as a wired connection
- Easier access to your network for uninvited guests
- Shared users can slow down your network

Mixed Network

- **Wired/Wireless can provide “Best of Both Worlds”**
 - Wired for reliability and speed
 - Wireless for flexibility and convenience
 - Redundancy if wireless goes down

Equipment

- You have a Mac!
 - Already comes with everything you need to connect wirelessly (except MacPro)



Simple WiFi Network



**Broadband
Internet
Connection**



**Wireless Router or
Apple AirPort**

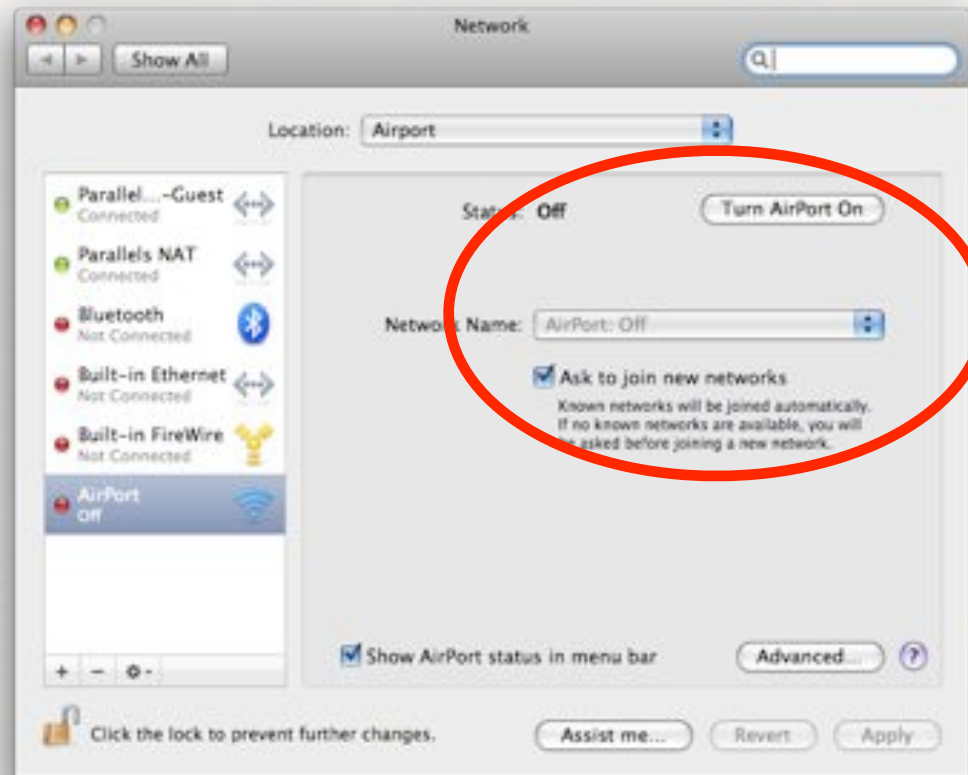


**Wireless-Capable
Device**

Set-Up: Simple Network

- Connect Ethernet cable from port on broadband source (e.g., cable modem) to WAN or Internet port on router
- Power on the router
- Make sure Airport is turned on on your Mac and choose your wireless network. (Your Mac may even see it and ask if you want to join before you do anything!)

Set-Up: Simple Network



Set-Up: Simple Network



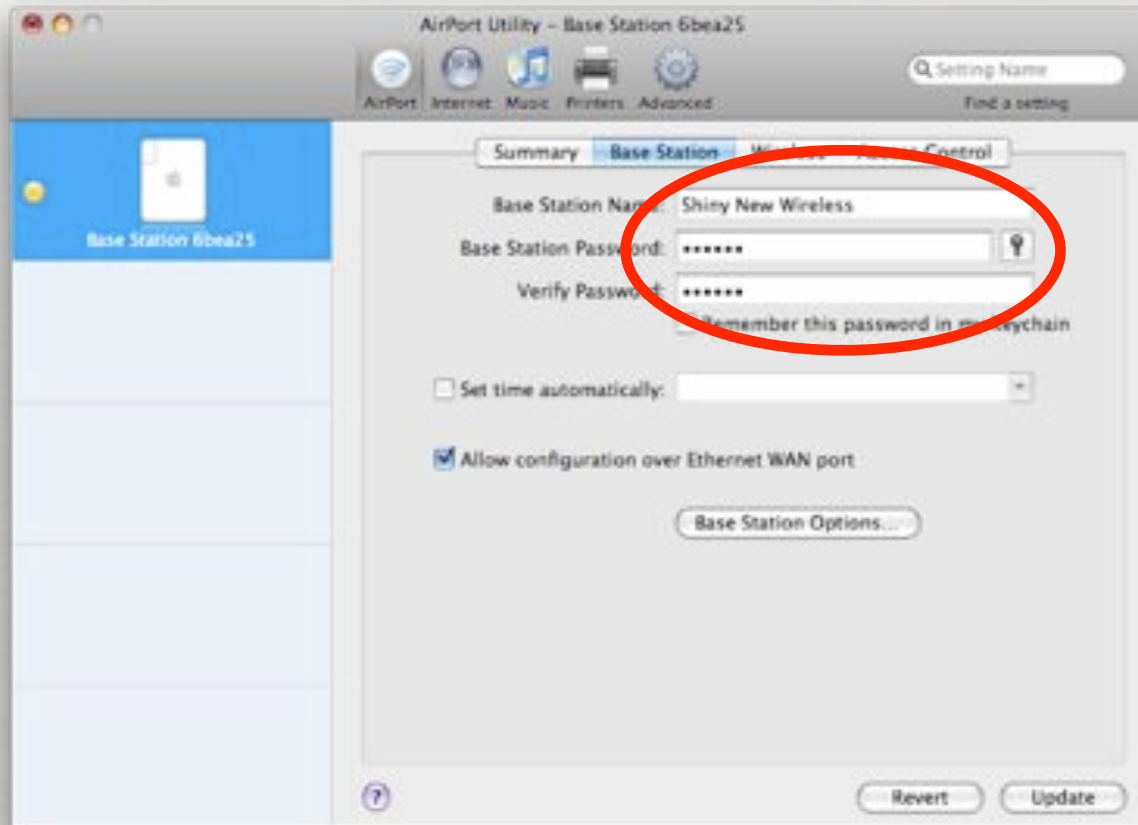
Set-Up: Simple Network

- Minimum changes to make to your router:
 - Change router name
 - Change default password
 - Change network (SSID) name
- Use Apple AirPort Utility for Apple routers (AirPort, Airport Extreme, AirPort Express)
- Use web configuration page for third-party routers

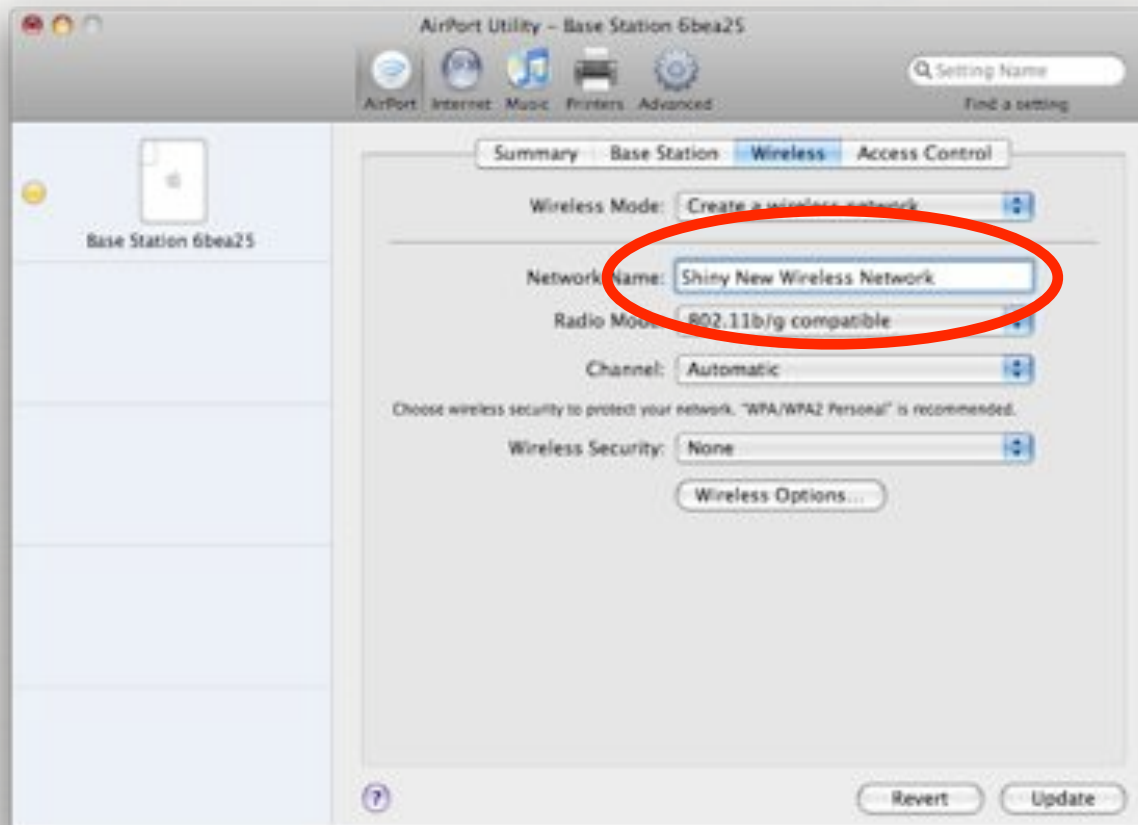
Set-Up: Simple Network

- **Common Default Router Addresses**
 - 10.0.1.x for Apple
 - 192.168.15.1 for Linksys
 - 192.168.0.1 for NetGear and D-Link
 - 192.168.2.1 for Belkin

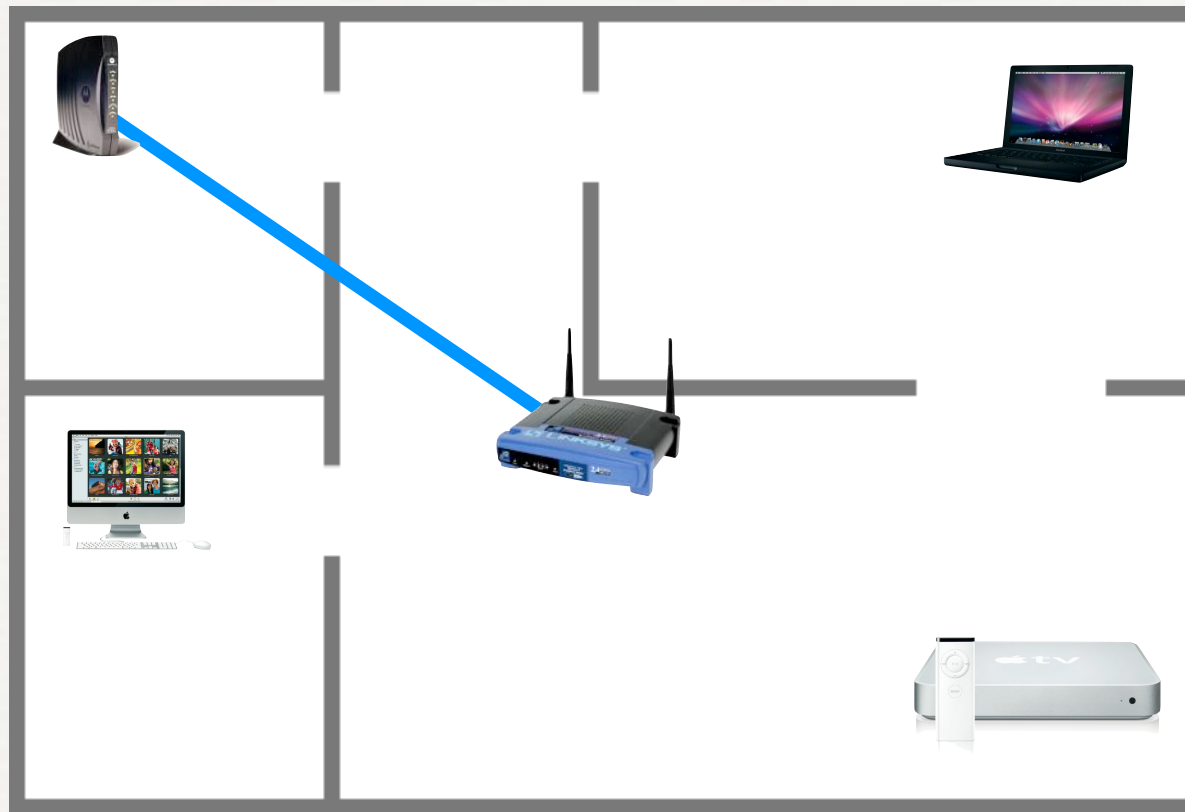
Set-Up: Simple Network



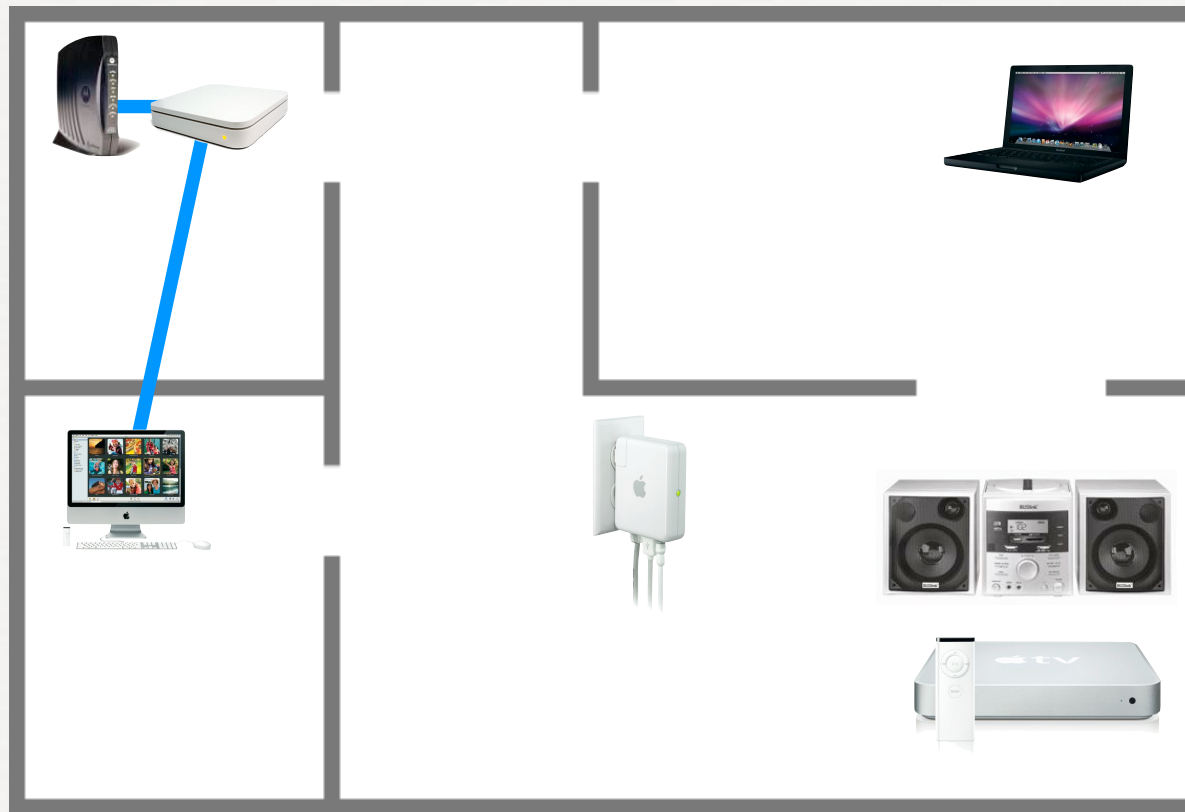
Set-Up: Simple Network



Choosing Locations



Choosing Locations



Adding Other Devices

- VoIP Router
 - Vonage
 - CallVantage
 - It's really just a router with phone ports
- Wired Router, additional wireless routers or access points
- Turn off DHCP on all but the first routing device

To 'N' or not to 'N?'

- You don't *need* 802.11n if...
 - You only have "G" devices and don't plan on upgrading hardware soon
 - You have a Mac Mini (it only supports G without third-party help)
 - You are only interested in connecting to the Internet
- If this is your first wireless router and you are planning to get a new Mac soon, by all means consider an N router like an AirPort Extreme or Time Capsule

Airport Extreme or Third Party Router?

- Do you need Back to My Mac? (Works best with Apple routers)
- Do you need bridge an AirPort Express? (They will only extend the range of an AirPort network)
- Do you want to print wirelessly (and can you put your base station in a good location for that?)
- Do you want need a network attached storage device?

Old Mac as Airport Extreme Substitute

- You can connect a shared printer and hard drive for access by any Mac on the network
- You can add a Gigabit Ethernet switch to your network if speed is important to you

Adding More Devices

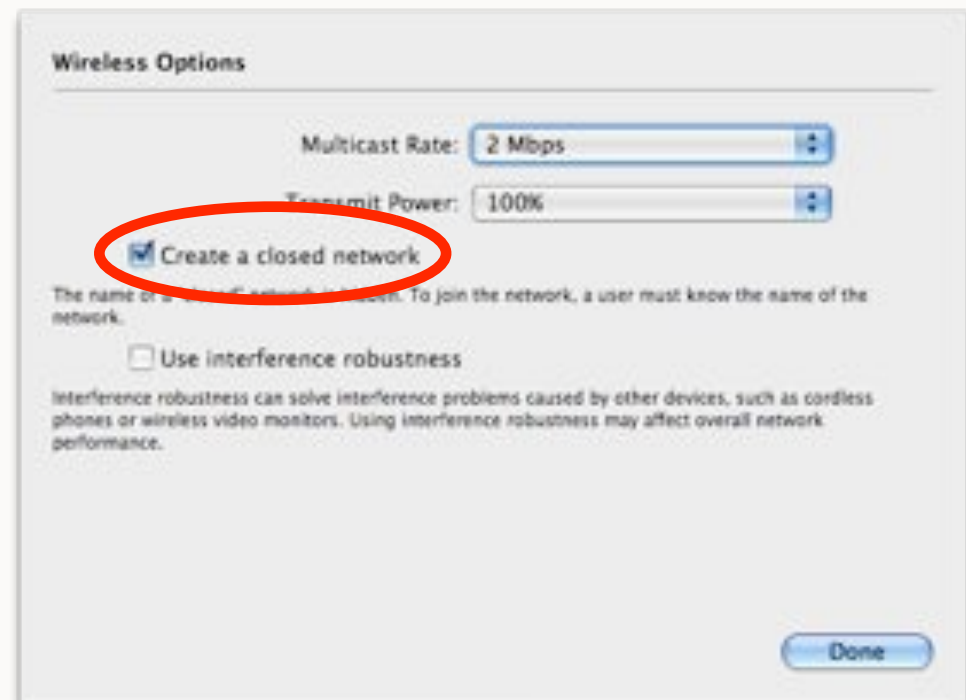
- **Adding wireless to an existing wired network**
 - Put wired device (either Telephone Adapter or Wired Router) closest to your broadband connection
 - Generally more stable; more “important”
 - Network will still be up in wireless router goes down

Security Options

- **Go “Naked”**
 - In rural areas, distance may limit access anyway
 - Your Macs are still protected by your account passwords and sharing options
 - Other devices within range can access your network without your knowledge
 - May violate your ISP’s terms of service

Security Options

- Go Stealth
- Don't broadcast SSID (Network Name)
 - Users have to know the network name in order to join
 - Network can still be seen with a "sniffer"

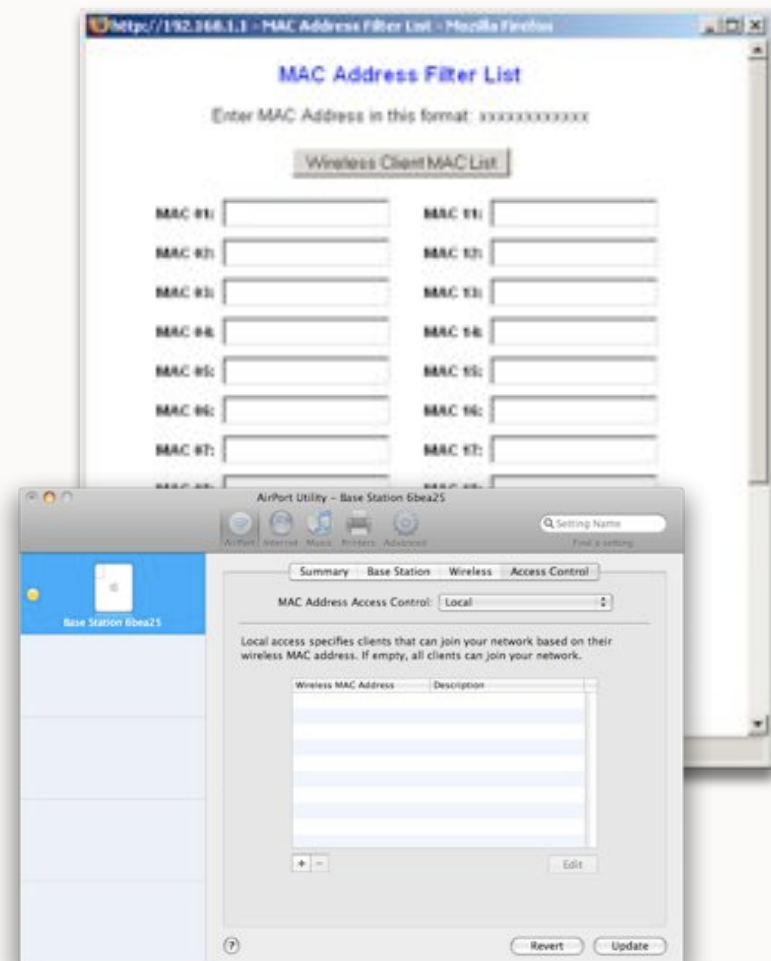


Security Options

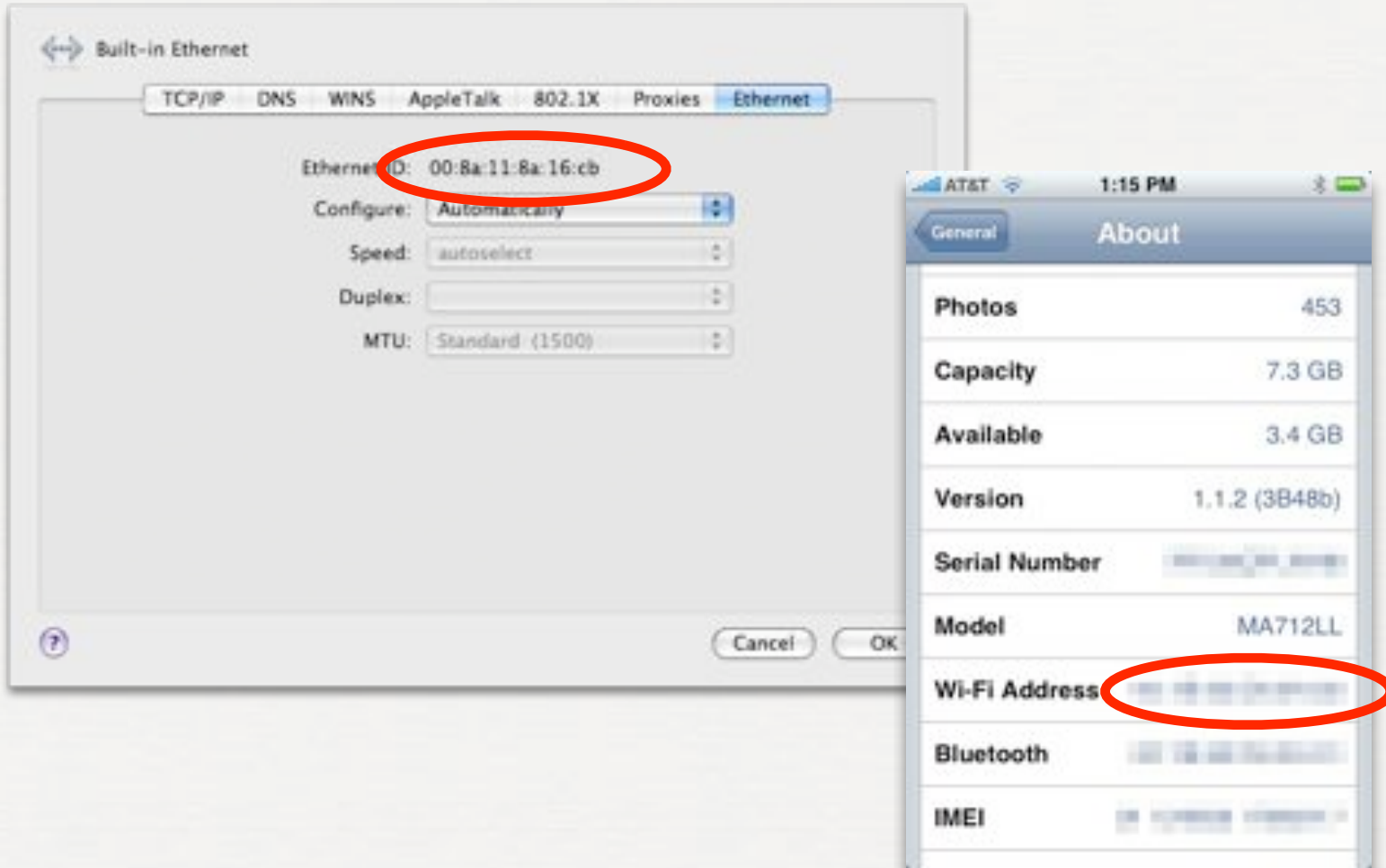
- **Password Protection**
 - WEP (Wired Equivalent Privacy)
 - Weak, easily broken—don't use it
 - 'Nuff said

Security Options

- “MAC Address Filtering”
 - Only machines you approve in advance can connect to your network
 - Identified by “Media Access Control” or “MAC” address (AKA “Ethernet ID”)
 - Beware: MAC addresses can be spoofed



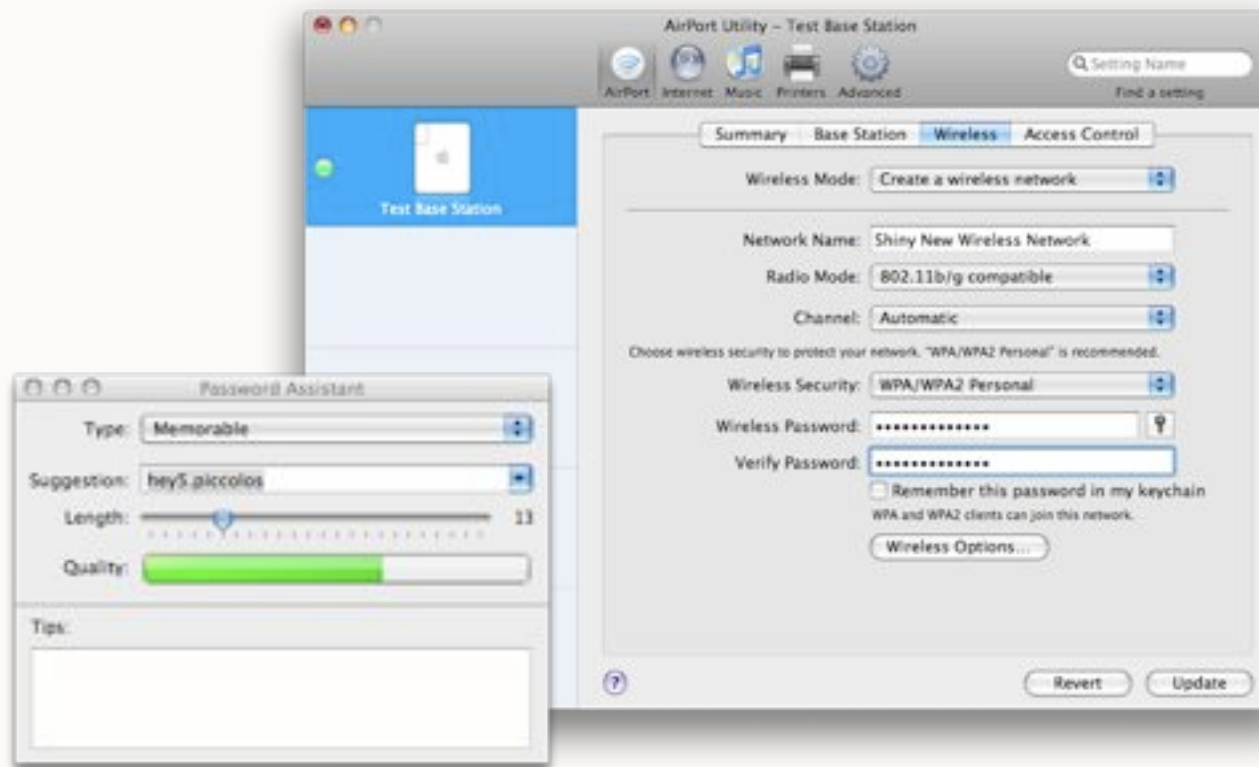
Security Options



Security Options

- **WPA (WiFi Protected Access)**
 - Stronger
 - Different Flavors: WPA2, Personal and Enterprise
 - Use a flavor your devices will be able to handle (iPhone/iPod Touch don't support Enterprise)

Security Options



Security Options

- **WPS (WiFi Protected Setup)**
 - WPA “plus”
 - Strongest yet
 - A device is given permission to join the network, then a PIN is shared so the router remembers the device
 - Not widely supported yet

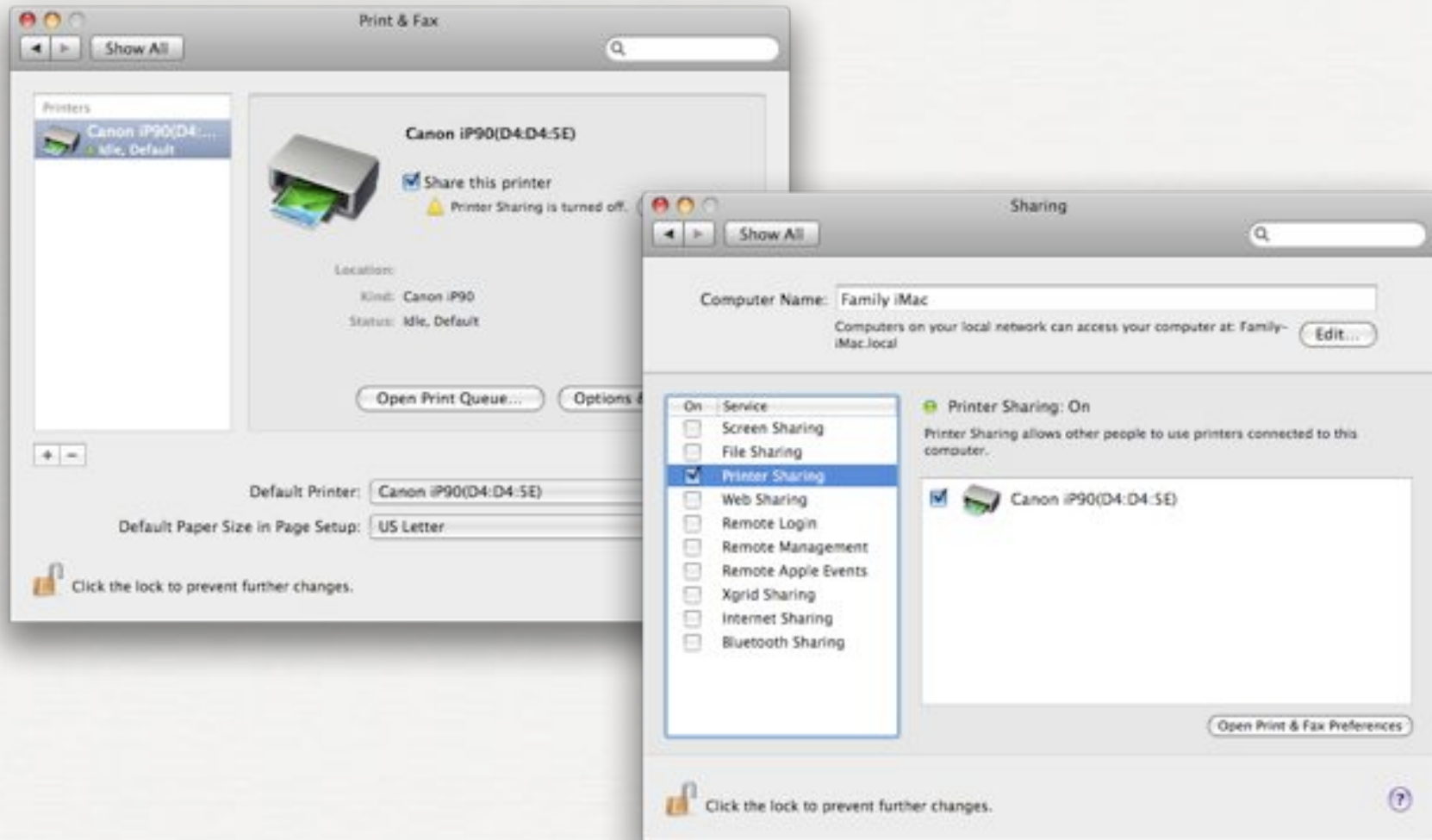
Security Options

- Different methods can be used in combination
 - Closed network, *plus*
 - MAC access control, *plus*
 - WPA/WPA2

Working With Other Devices

- **Printing across your network**
 - Networkable printer
 - Wireless Print Server
(built into AirPort Extreme and AirPort Express)
 - Shared Printing from other Macs
 - AirTunes via AirPort Express

Printer Sharing

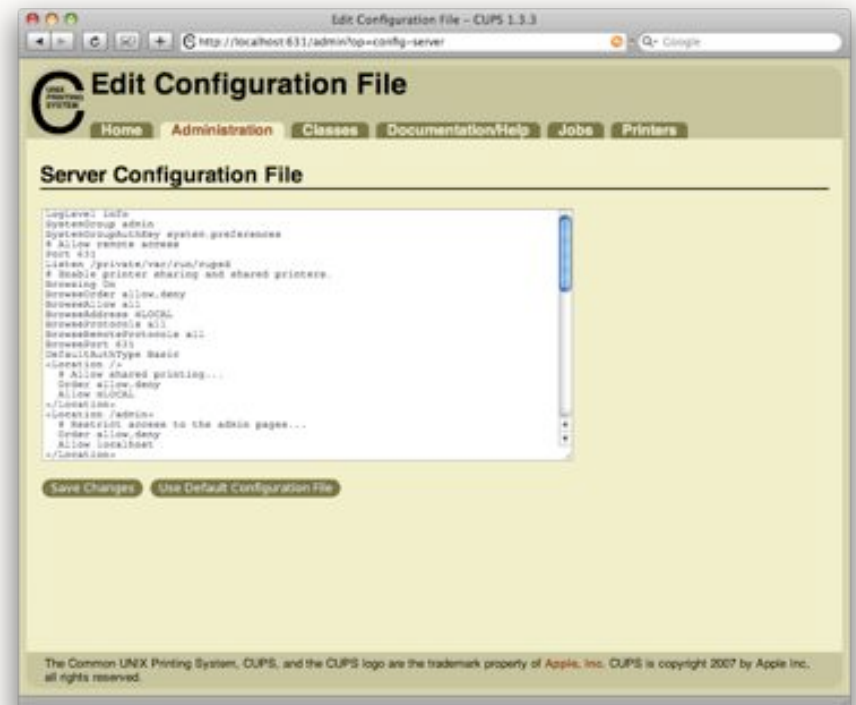


Printer Sharing

- **Printer sharing with Leopard and older Macs**
 - Leopard looks for printers via Bonjour only; it can't see printers shared using other protocols
 - Change this in the built-in CUPS server by editing the configuration file

Printer Sharing

- <http://localhost:631/admin?op=config-server>
- Change “BrowseProtocols Bonjour” to “BrowseProtocols all”
- 10.5.1 update may have fixed this, so update and try it first.



Troubleshooting

- **Save your router's configuration file when everything's working well**
 - "Save As..." in Airport Utility
 - Button in web interface for third-party routers

Troubleshooting

- **Standard troubleshooting techniques:**
 - Work backward from the problem
 - Do other wireless devices connect?
 - Do other wired devices connect?
 - If you have VoIP, do your phones work?
 - If you have a cable modem, are you getting TV?

Troubleshooting

- **Standard troubleshooting techniques:**
 - Check power cords and cables
 - Unplug problem devices for 10-15 seconds, then plug back in
 - Unplug all devices. Plug back in beginning with devices closest to your Internet connection
 - Perform a factory reset
 - You'll have to re-enter settings
 - You can load your saved configuration file, if you saved one

Time Machine on Network

- **Question of the Day:**

- Does Time Capsule mean remote drive support for Time Machine?
- Next Leopard update may tell, but not for now
- Unless...

Beyond WiFi

Time Machine on Network



- Make sure that Time Machine is set to Off
 1. Mount your network drive
 2. Change the preferences by running following command
defaults write com.apple.systempreferences TMShowUnsupportedNetworkVolumes 1
 3. Now activate the time machine
 4. You will now be able to select your network drive.
 5. In case you lose your network mount, you will need to reset the preference set in step-2, by running following command
defaults write com.apple.systempreferences TMShowUnsupportedNetworkVolumes 0

<http://smangal.wordpress.com/2007/12/10/time-machine-with-network-drive/>

Centralized Storage

- **Networked attached drive**
- **Dedicated File Server**
- **Shared iTunes or iPhoto Libraries**
 - Hold down Option key when launching iTunes or iPhoto
 - Create a new Library on your shared drive
 - Repeat for each user/computer

Centralized Storage



Centralized Storage

- **Automount network drive to avoid iTunes/iPhoto error messages**
 - Mount network drive
 - Go to Accounts Preference Pane and choose Login Items
 - Click the + and choose the network drive in the dialogue box

Resources

- Apple Support Pages (discussions.apple.com)
(Discussion Forums are great resources)
- Mac OS X Hints (macosxhints.com)
- Google
- Take Control or other books (takecontrolbooks.com)

Take Control Books



Take Control
*of Your 802.11n AirPort
Extreme Network*
by Glenn Fleishman

Take Control
of Your Wi-Fi Security
by Glenn Fleishman and Adam C. Engst

<http://www.takecontrolbooks.com/>

Thanks!

Questions?

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