**How to Turn a Laptop into a Wireless Hot Spot**  
**(Microsoft Windows XP)**

This tutorial will explain how to convert a laptop's wireless network adapter into a wireless hot spot.

The first time the hot spot is configured and used, all five steps will need to be completed.

Subsequent uses of the hot spot will only require the last two steps (4 and 5).

1) Display both the wired and wireless network adapter icons in the Windows tool tray.
2) Ensure Microsoft Windows, and not some third party software, has control of the laptop's wireless connection (optional).
3) Create an ad hoc network through which the iPad and laptop can communicate with each other.
4) Share the laptop's wired Internet connection via the laptop's wireless network adapter.
5) Simultaneously connect the laptop's wireless network adapter and the iPad to the ad hoc network.

This tutorial will also explain how to:

Disabling the hot spot and reconnecting the laptop's wireless network adapter to a wireless access point.

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This tutorial is written for Windows XP. While the general principle is the same, the exact steps which need to be followed will be different on a Windows 7 machine. A future version of this tutorial will include specific instructions for Windows 7.
Display the network adapter icons in the Windows tool tray

To facilitate the process of configuring and monitoring the status of both the wired and wireless network adapters on the laptop, it is helpful to have icons for both adapters displayed in the tool tray in the lower right hand corner of XP.

Start…Settings…Right-click Network Connections…Open

(Don’t worry if your list of Network Connections doesn’t exactly match the screenshot. You probably don’t have connections for the VMware network adapters.)

Right-click "Wireless Network Connection" and select Properties…General Tab…
Display the Network Adapter Icons

Ensure "Show icon in notification area when connected" is checked.

Ensure "Notify me when this connection has limited or no connectivity" is checked.

Click OK.

Repeat for the Local Area Connection.

Locate the icons for both the wireless and wired network connections in the tool tray:
Give Windows Control of the Wireless Network Adapter (optional)

Ensure Microsoft Windows, and not some third party software, has control of the laptop's wireless connection (optional)

In most cases, this step is unnecessary, but if you are unable to configure the wireless network adapter you may have to return to this section and grant control of the wireless connection to the Windows operating system. If you have to do one or both parts of this step, you will probably only have to do them once. In the future, when switching the wireless network connection from a wireless access point to the ad hoc network you are about to create, the steps on this and the following page will no longer be necessary.

(An example of a situation in which Windows may have lost control of the laptop's wireless network adapter is if the laptop manufacturer installed additional software to "help" the user manage the wireless adapter's connection to a wireless network.)

Part A)

Start…Settings…Control Panel…Administrative Tools…Services…

OR

Start…Run…services.msc…OK…

Ensure that the Status of the Wireless Zero Configuration service is "Started".

If the Wireless Zero Configuration service has not been started, then right-click the service and click "Start".

Start…

Close the Services dialog box.
Part B)

Start...Settings...Right-click Network Connections...Open...

Right-click "Wireless Network Connection" and select Properties...Wireless Networks Tab...

Ensure "Use Windows to configure my wireless network settings" is checked.

OK...
Create an ad hoc network to allow the iPad to communicate with the laptop’s wireless connection

Start...Settings...Right-click Network Connections...Open...

Right-click "Wireless Network Connection" and select Properties...Wireless Networks Tab...
Create an Ad Hoc Network

Enter whatever you like for the Network name (SSID). I chose "HotSpot".

Do NOT check "Connect even if this network is not broadcasting".

Select "Shared" for the Network Authentication and "WEP" for the Data encryption. (Note: XP only supports WEP for ad hoc networks, while Windows 7 supports the much more secure WPA2/AES security protocols. Use WEP at your own risk - it can be hacked.)

Uncheck "The key is provided for me automatically".

Enter a Network key. This key (password) will have to be entered on the iPad when it connects to the laptop.

Check "This is a computer-to-computer (ad hoc) network; wireless access points are not used".
Share the laptop’s wired network adapter (connection to the Internet) with the laptop’s wireless network adapter.

Start...Settings...Right-click Network Connections...Open...

Right-click "Local Area Connection"...Properties...Advanced Tab...

Check "Allow other network users to connect through this computer's Internet connection."

In the "Home networking connection:" drop down box, select the wireless network connection.

Ensure "Allow other network users to control or disable the shared Internet connection" is unchecked.
Observe that the Local Area Connection now has a "Shared" status.

Close the Network Connections dialog box open.

Your iPad should now be able to access the Internet via the laptop.
Simultaneously connect the laptop's wireless network adapter and the iPad to the newly created ad hoc network

Locate the icon for the wireless network connection in the tool tray: 📱

Right-click the icon and select "View Available Wireless Networks"...

![Image of Wireless Network Connection window]

Select the "HotSpot" network and click "Connect".

![Image of Wireless Network Connection window - HotSpot selected]

The network 'HotSpot' requires a network key (also called a WEP key or WPA key). A network key helps prevent unknown intruders from connecting to this network.

Type the key, and then click Connect.

Network key: ........................
Confirm network key: ........................

Enter the appropriate Network key (password) and click "Connect".
Simultaneously Connect the Laptop and the iPad to the Ad Hoc Network

While the laptop's wireless network adapter is attempting to connect to the "HotSpot" network, simultaneously open up the Settings configuration panel on the iPad and select Wi-Fi. Wait for "HotSpot" to show up in the list of available networks.

(If "HotSpot" does not appear in the list, tap "Other", type in the name of the network, select WEP, type in the password, and tap "Join".)

Tap "HotSpot" and enter the password in the pop-up dialog box and tap "Join".
Simultaneously Connect the Laptop and the iPad to the Ad Hoc Network

Windows should now indicate that it is connected to the "HotSpot" network and the iPad should be able to access the Internet and interact with the laptop's operating system.

Close the dialog box.
Although there is no need to at this point, if you were to check the Network Connections dialog box, it should look like:

![Network Connections Dialog Box]

**LAN or High-Speed Internet**

- 1394 Connection: LAN or High-Speed Internet, Connected, 1394 Net Adapter
- Local Area Connection: LAN or High-Speed Internet, Connected, Shared, Intel(R) 82566MM Gigabit Network Connection
- VMware Network Adapter VMnet1: LAN or High-Speed Internet, Connected, VMware Virtual Ethernet Adapter for VMnet1
- VMware Network Adapter VMnet8: LAN or High-Speed Internet, Connected, VMware Virtual Ethernet Adapter for VMnet8
- (60) Wireless Network Connection: LAN or High-Speed Internet, Connected, Intel(R) Wireless WIFI Link 4965AGN

**Wizard**

- New Connection Wizard: Wizard
- Network Setup Wizard: Wizard

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Technical Note: The IP address for the laptop's wireless network connection should be 192.168.0.1 /24 and the iPad should be on the same subnet. This is because Window's Internet Connection Service (ICS), which shares the wired connection with the wireless connection, assigns a static IP address to the wireless network adapter and provides a DHCP service which responds to DHCP requests from any device joining the wireless adapter’s network.
Disconnect the wireless network adapter from the iPad and reconnect it to a wireless access point

If you no longer need to share the laptop's wired Internet connection via the laptop's wireless connection and instead wish to access the Internet via the laptop's wireless connection, then:

- Open the Wireless Network Connection dialog box
  (right-click the wireless network connection icon in the tool tray and select "View Available Wireless Networks")
- Select the desired network
- Click "Connect"

Once the laptop is disconnected from the ad hoc network (HotSpot), the ad hoc network will no longer appear in the iPad's list of available networks.
You should also unshare the wired local area connection.

Start…Settings…Right-click Network Connections…Open…

Right-click "Local Area Connection"…Properties…Advanced Tab…

Uncheck "Allow other network users to connect through this computer’s Internet connection:"

OK…
Observe that “Local Area Connection” no longer has a “Shared” status.

You do not need to remove the ad hoc network you created. That can remain for future use.

**SUMMARY**

From this point forward, only two changes need to be made to the network connections in order to switch the laptop back and forth between directly accessing a wireless access point or acting as a hotspot to provide Internet service to other wireless devices:

- Toggle the Local Area Connection between sharing and not sharing it’s Internet connection with the laptop’s wireless network adapter.
- Connect the wireless network adapter to the “HotSpot” ad-hoc network.