

PEER-TO-PEER WI-FI NETWORKING IN "WINDOWS.."

by Francis Chao
fchao2@yahoo.com

TuCS COMPUTER
Son
SOCIETY

#1
WINNERS
WINdows usERS



Web location for this
presentation:

<http://aztcs.org>

Click on

“Meeting Notes”

SUMMARY

If you add an additional WiFi adapter to your "Windows.." computer, you can use it to perform four functions:

- Attaching a wireless printer
- Sharing an Internet connection
- Sharing files between computers
- Creating a "Wireless Access Point" to extend the range of your existing WiFi network

TOPICS

- Four Uses For An Additional WiFi Adapter
- WiFi Standards
- "Ad Hoc Mode" Versus "Infrastructure Mode" Versus "wireless Hosted Network" Configuration For A WiFi Adapter
- Differences Between Windows XP, ..Vista, ..7, ..8, and 8.1

TOPICS (continued)

- "wireless Hosted Network"
Feature of "Windows 7",
"Windows 8", and "Windows 8.1"

TOPICS (continued)

- Configuring "Ad Hoc Mode" For A WiFi Adapter
In "Windows XP"
- Configuring "Ad Hoc Mode" For A WiFi Adapter"
In "Windows Vista"
- Configuring "Ad Hoc Mode" For A WiFi Adapter"
In "Windows 7"

TOPICS (continued)

- Third-party Software For Creating a Virtual "Wireless Access Point"
In "Windows 7", "Windows 8" and "Windows 8.1"

FOUR USES FOR AN ADDITIONAL WiFi ADAPTER

FOUR USES FOR AN ADDITIONAL WiFi ADAPTER

- Attaching a WiFi printer
- Sharing An Internet Connection
- Sharing Files Between Computers
- Creating a "Wireless Access Point" To Extend The Range Of An Existing WiFi Network

WiFi Standards:

WiFi Standards

- 802.11a
- 802.11b
- 802.11g
- 802.11n
- 802.11ac
- future 802.11ad

WiFi Standards (continued)

- See

http://en.wikipedia.org/wiki/IEEE_802.11

**"AD HOC MODE"
VERSUS
"INFRASTRUCTURE MODE"
VERSUS
"WIRELESS HOSTED
NETWORK"
CONFIGURATION
FOR A WiFi ADAPTER:**

AD HOC VS. INFRASTRUCTURE VS. HOSTED NETWORK..

- **"Infrastructure mode"** means that a wireless adapter is a client of a wireless router or a Wireless Access Point
- **"Ad hoc mode"** only requires wireless adapters
- "Infrastructure mode" and "ad hoc mode" are part of the 802.11 standard.

AD HOC VS. INFRASTRUCTURE VS. HOSTED NETWORK..

- **"Infrastructure mode"** is universally available for WiFi adapter in all computers, cell phones, tablets, and printers.

AD HOC VS. INFRASTRUCTURE VS. HOSTED NETWORK..

- **"Ad hoc mode"** is available in "Windows XP", "Windows Vista".
- **"Ad hoc mode"** is only available in Android cell phones and tablets when a special third-party app is installed.

AD HOC VS. INFRASTRUCTURE VS. HOSTED NETWORK.. (continued)

- **"wireless Hosted Network"** requires "Windows.." operating system support
- **"wireless Hosted Network"** is only available in "Windows 7", "Windows 8", and "Windows 8.1".

"WIRELESS HOSTED NETWORK" FEATURE OF "WINDOWS 7_8_8.1_10"

- In "Windows 7", "Windows 8", "Windows 8.1", and "Windows 10", there is a feature called "wireless Hosted Network":

"WIRELESS HOSTED NETWORK" FEATURE OF "WINDOWS 7_8_8.1_10"

- If your computer already has a physical WiFi adapter in it, the "wireless Hosted Network" feature lets you create a virtual WiFi adapter with a virtual "Wireless Access Point"

"WIRELESS HOSTED NETWORK" FEATURE..(continued)

- In "Windows 7", the virtual WiFi adapter shows up in "Network Connections" as a "Microsoft Virtual WiFi Miniport Adapter":

Network Connections



Netw...

Networ...



Organize



Local Area Connection

Network 13, Shared

Intel(R) PRO/1000 MT Network Conn...



Wireless Network Connection 3

DG860A62

Belkin USB Wireless Adaptor #2



Wireless Network Connection 4

virtualrouterplus.com

Microsoft Virtual WiFi Miniport Adapter



Wireless Network Connection 4

virtualrouterplus.com

Microsoft Virtual WiFi Miniport Adapter

"WIRELESS HOSTED NETWORK" FEATURE..(continued)

- In "Windows 8", "Windows 8.1", and "Windows 10", the virtual WiFi adapter shows up in "Network Connections" as a **"Microsoft Hosted Network Virtual Adapter"**:



Local Area Connection* 13

natty

Microsoft Hosted Network Virtual ...

"WIRELESS HOSTED NETWORK" FEATURE..(continued)

- Unlike in "Windows 7", in Windows 8 or 8.1 or 10, the word "wireless" does not appear in the description of the virtual WiFi adapter that is created by the "wireless Hosted Network" feature:



Local Area Connection* 13 Properties



Networking **Sharing**

Connect using:



Microsoft Hosted Network Virtual Adapter

Configure...

This connection uses the following items:

- Client for Microsoft Networks
- Hotspot Shield Routing Driver 6
- QoS Packet Scheduler
- File and Printer Sharing for Microsoft Networks
- Microsoft Network Adapter Multiplexor Protocol
- Microsoft LLDP Protocol Driver
- Link-Layer Topology Discovery Mapper I/O Driver

Install...

Uninstall

Properties

Description

Allows your computer to access resources on a Microsoft network.

OK

Cancel



Local Area Connection* 13 Pr

Networking

Sharing

Connect using:



Microsoft Hosted Network Virtual Adapter

"WIRELESS HOSTED NETWORK" FEATURE OF "WINDOWS 7_8_8.1_10"

- In Windows 7 or 8 or 8.1 or 10, the WiFi adapter that you use for attaching other WiFi-capable devices including printers and other computers might be a virtual one that is generated by the "Windows.." operating system.

"WIRELESS HOSTED NETWORK" FEATURE OF "WINDOWS 7_8_8.1_10" (continued)

- The net result is that your computer's software "sees" both the original real WiFi adapter AND the virtual WiFi adapter that is created by the "wireless Hosted Network" feature of "Windows.."

"WIRELESS HOSTED NETWORK" FEATURE OF "WINDOWS 7_8_8.1_10"

(continued)

- Since Windows 8 or 8.1 or 10, and "Windows 10" do not have "ad hoc mode" for a WiFi adapter, the use of "wireless Hosted Network" configuration for WiFi adapters is the only way for you to connect a WiFi-capable printer directly to a "Windows 8" or "Windows 8.1" computer.

"WIRELESS HOSTED NETWORK"
FEATURE OF "WINDOWS 7_8_8.1_10"
(continued)

- This also means that you can connect a wireless printer by means of "WiFi" two ways to your home network:

"WIRELESS HOSTED NETWORK" FEATURE OF "WINDOWS 7_8_8.1_10"

- Method 1: (continued)
Connect the WiFi printer directly to a Windows 7_8_8.1 computer with "Wireless Hosted Network"
OR
Method 2
Connect the WiFi printer to a wireless router or access point device

COMPUTER WITH A REAL
WIRED "ETHERNET"
ADAPTER THAT IS
CONNECTED TO AN
ETHERNET JACK OF A
ROUTER:

Network Connection

← → ▾ ↑  « Network and I... ▶ Network Conn

Organize ▾



Ethernet0

Network 3

Intel(R) 82574L Gigabit Network C...

COMPUTER WITH A REAL
WiFi ADAPTER THAT IS
CONNECTED TO A
WIRELESS ACCESS
POINT OF A REAL
WIRELESS ROUTER:

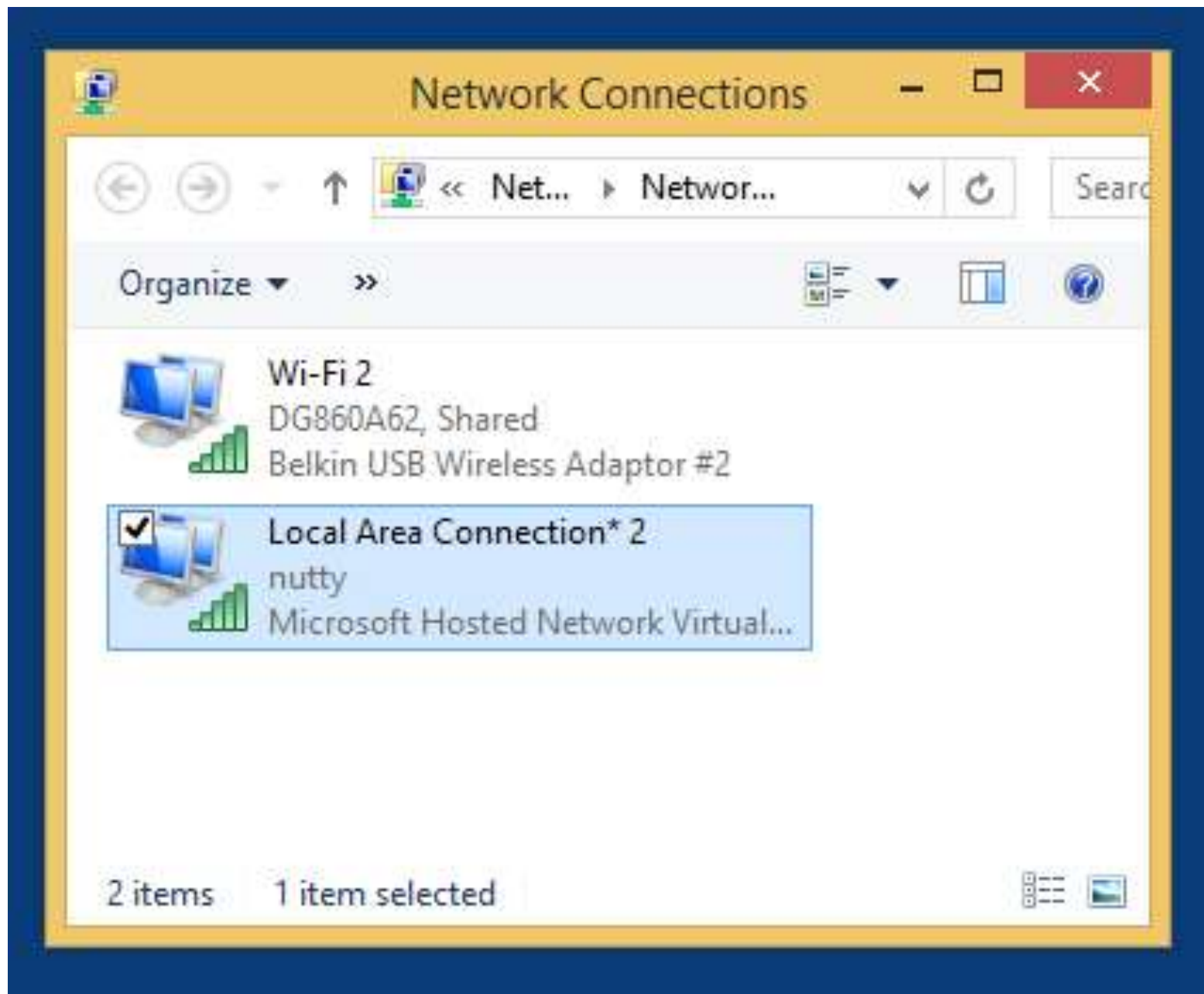


Wi-Fi 2

DG860A62

Belkin USB Wireless Adaptor #2

COMPUTER WITH A REAL WiFi
ADAPTER THAT IS CONNECTED TO
A WIRELESS ACCESS POINT OF A
REAL WIRELESS ROUTER
AND
A VIRTUAL "wireless HOSTED
NETWORK" THAT IS
BROADCASTING A SEPARATE
VIRTUAL "WIRELESS ACCESS
POINT"





Wi-Fi 2

DG860A62, Shared

Belkin USB Wireless Adaptor #2



Local Area Connection* 2

natty

Microsoft Hosted Network Virtual...




Wi-Fi 2 Status



General



Connection


IPv4 Connectivity:	Internet
IPv6 Connectivity:	No Internet access
Media State:	Enabled
SSID:	DG860A62
Duration:	00:05:16
Speed:	144.5 Mbps
Signal Quality:	

Details...

Wireless Properties

Activity

	Sent		Received
Bytes:	368,555		437,459

 Properties

 Disable

Diagnose

Close



Wi-Fi 2 Status



General

Connection

IPv4 Connectivity: Internet

IPv6 Connectivity: No Internet access

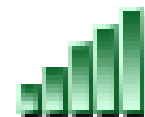
Media State: Enabled

SSID: DG860A62

Duration: 00:05:16

Speed: 144.5 Mbps

Signal Quality:



Details...

Wireless Properties



Local Area Connection* 2 Properties



Networking








Connect using:



Microsoft Hosted Network Virtual Adapter

Configure...

This connection uses the following items:

-  Client for Microsoft Networks
-  File and Printer Sharing for Microsoft Networks
-  QoS Packet Scheduler
-  Microsoft Network Adapter Multiplexor Protocol
-  Microsoft LLDP Protocol Driver
-  Link-Layer Topology Discovery Mapper I/O Driver
-  Link-Layer Topology Discovery Responder

Install...

Uninstall

Properties

Description

Allows your computer to access resources on a Microsoft network.

OK

Cancel



Currently connected to:



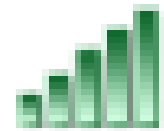
nutty
Internet access

Wireless Network Connection 3

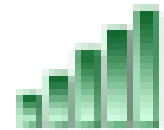


nutty

Connected



DG860A62



DIFFERENCES BETWEEN "WINDOWS XP", ..VISTA, ..7, ..8, AND ..8.1

DIFFERENCES BETWEEN WINDOWS VERSIONS

- **"Windows XP"** and **"Windows Vista"** allows you to configure WiFi adapters in "infrastructure mode" or "ad hoc mode". However, only "ad hoc mode" lets you connect the WiFi adapter to a WiFi-capable printer or another WiFi-capable client computer.

DIFFERENCES BETWEEN WINDOWS VERSIONS (continued)

- **"Windows XP" and "Windows Vista" are cannot place a WiFi adapter into a "wireless Hosted Network" configuration.**

DIFFERENCES BETWEEN WINDOWS VERSIONS (continued)

- **"Windows 7"** allows you to configure WiFi adapters in **"infrastructure mode"**, **"ad hoc mode"** or **"wireless Hosted Network"** configuration.

DIFFERENCES BETWEEN WINDOWS VERSIONS (continued)

- **"Windows 8, and "Windows 8.1 allow you to configure WiFi adapters in "infrastructure mode" as a WiFi client or in "wireless Hosted Network" configuration.**

DIFFERENCES BETWEEN WINDOWS VERSIONS (continued)

- **"Windows 8", and "Windows 8.1" do not permit you to configure a WiFi adapter in "ad hoc" mode.**

CONFIGURING "AD HOC MODE" FOR A WIFI ADAPTER IN "WINDOWS XP"

CONFIGURING "AD HOC MODE" FOR A WIFI ADAPTER IN "WINDOWS XP"

- See <http://windows.microsoft.com/en-us/windows-xp/help/networking/wireless-network-no-router>

CONFIGURING "AD HOC MODE" FOR A WIFI ADAPTER IN "WINDOWS VISTA"

CONFIGURING "AD HOC MODE" FOR A WIFI ADAPTER IN "WINDOWS VISTA"

- See <http://technet.microsoft.com/en-us/magazine/dd296746.aspx>

CONFIGURING "AD HOC MODE" FOR A WIFI ADAPTER IN "WINDOWS VISTA" (continued)

- See <http://www.iphone-to-ipad.com/blog/create-wireless-ad-hoc-network-windows-7-vista.html>

CONFIGURING "AD HOC MODE" FOR A WIFI ADAPTER IN "WINDOWS VISTA" (continued)

- See <https://answers.yahoo.com/question/index?qid=20080625200850AAXuNag>

CONFIGURING "AD HOC MODE" FOR A WIFI ADAPTER IN "WINDOWS VISTA" (continued)

- See <http://www.watchingthenet.com/windows-vista-tip-how-to-setup-and-connect-to-a-wireless-network.html>

CONFIGURING "AD HOC MODE" FOR A WIFI ADAPTER IN "WINDOWS VISTA" (continued)

- See http://www.tech-recipes.com/rx/2061/vista_set_up_a_n_ad_hoc_network/

CONFIGURING "AD HOC MODE" FOR A WIFI ADAPTER IN "WINDOWS VISTA" (continued)

- See <http://www.guidingtech.com/427/how-to-setup-a-home-wireless-network-without-router-in-vista/>

CONFIGURING "AD HOC MODE" FOR A WIFI ADAPTER IN "WINDOWS 7"

CONFIGURING "AD HOC MODE" FOR A WIFI ADAPTER IN "WINDOWS 7"

- See <http://windows.microsoft.com/en-us/windows/set-computer-to-computer-adhoc-network#1TC=windows-7>

CONFIGURING "AD HOC MODE" FOR A WIFI ADAPTER IN "WINDOWS 7" (continued)

- See <http://www.howtogeek.com/howto/21943/share-an-internet-connection-between-wireless-machines-with-an-ad-hoc-network-in-windows-7/>

CONFIGURING "AD HOC MODE" FOR A WIFI ADAPTER IN "WINDOWS 7" (continued)

- See <http://www.addictivetips.com/windows-tips/create-a-quick-ad-hoc-wireless-network-connection-between-two-computers-in-windows-vista/>