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

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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.
• "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": 
Wireless Network Connection 4
virtualrouterplus.com
Microsoft Virtual WiFi Miniport Adapter
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
nutty
Microsoft Hosted Network Virtual ...
• 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

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.
Local Area Connection* 13 Pro

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

Activity
- Sent: 368,555
- Received: 437,459

Buttons:
- Details...
- Wireless Properties
- Properties
- Disable
- Diagnose
- Close
Local Area Connection 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.
Currently connected to:

- nutty
  Internet access

Wireless Network Connection 3

- nutty Connected
- DG860A62
- OJL22
- pebble
- Pierview
- ORGV5
- KPFDL
- Other Network

Open Network and Sharing Center

4:09 PM
4/18/2014
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
CONFIGURING "AD HOC MODE" FOR A WIFI ADAPTER IN "WINDOWS VISTA"
CONFIGURING "AD HOC MODE" FOR A WIFI ADAPTER IN "WINDOWS VISTA"

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)

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

• See
  http://www.tech-recipes.com/rx/2061/vista_set_up_an_ad_hoc_network/
CONFIGURING "AD HOC MODE" FOR A WIFI ADAPTER IN "WINDOWS VISTA" (continued)

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