USING WINDOWS' "INTERNET CONNECTION SHARING"

by Francis Chao
fchao2@yahoo.com
(520)331-5465
SUMMARY

Windows' "Internet Connectin Sharing" (ICS) is a virtual network router that is located inside any computer that is running "Windows XP" and higher. It allows you to attach a new/additional computer to your local area network by attaching it to an existing Internet-connected computer.
Windows' ICS Router
• Steps for installing and using a virtual ICS Router in "Windows XP" and higher
• Step 1: Open the "Control Panel":
Windows' ICS Router

• Steps for installing and using a virtual ICS Router in "Windows XP" and higher (continued)

• Step 2: Open the "Network Connections" window/applet:
Local Area Connection
Network
Intel(R) PRO/1000 MT Network Conn...

Local Area Connection 2
Identifying...
Intel(R) PRO/1000 MT Network Conn...
Windows' ICS Router

• Steps for installing and using a virtual ICS Router in "Windows XP" and higher (continued)

• Step 3: Use the RIGHT mouse button to click on the network adapter that connects "upstream" to the Internet.

• Step 4: A pop-up, context menu will be displayed:
Windows' ICS Router

• Steps for installing and using a virtual ICS Router in "Windows XP" and higher (continued)

• Step 5: Click on "Properties".

• Step 6: A "Properties" window will be displayed:
Local Area Connection Properties

Connect using:
- Intel(R) PRO/1000 MT Network Connection

This connection uses the following items:
- Client for Microsoft Networks
- QoS Packet Scheduler
- File and Printer Sharing for Microsoft Networks
- Internet Protocol Version 6 (TCP/IPv6)
- Internet Protocol Version 4 (TCP/IPv4)
- Link-Layer Topology Discovery Mapper I/O Driver
- Link-Layer Topology Discovery Responder

Description
Allows your computer to access resources on a Microsoft network.
Windows' ICS Router

• Steps for installing and using a virtual ICS Router in "Windows XP" and higher (continued)

• Step 7: Click on the "Sharing" tab in order to display it:
Windows' ICS Router

• Steps for installing and using a virtual ICS Router in "Windows XP" and higher (continued)

• Step 8: Put a checkmark next to "Allow other network users to connect to this computer's Internet connection":

Local Area Connection Properties

Networking

Internet Connection Sharing

- Allow other network users to connect through this computer’s Internet connection

- Allow other network users to control or disable the shared Internet connection

Using ICS (Internet Connection Sharing)

Settings...

OK  Cancel
Windows' ICS Router

• Steps for installing and using a virtual ICS Router in "Windows XP" and higher (continued)

• Step 9: Remove the checkmark from "Allow other Internet users to control or disable this computer's Internet connection:"
Internet Connection Sharing

- Allow other network users to connect through this computer's Internet connection
- Allow other network users to control or disable the shared Internet connection

Using ICS (Internet Connection Sharing) [Settings...]
Windows' ICS Router

• Steps for installing and using a virtual ICS Router in "Windows XP" and higher (continued)
  • Step 10: Click on the "OK" button.
  • Step 11: The "Properties" box will disappear.
Internet Connection Sharing

- Allow other network users to connect through this computer's Internet connection

- Allow other network users to control or disable the shared Internet connection

[Using ICS (Internet Connection Sharing)]

Settings...
Windows' ICS Router

• Steps for installing and using a virtual ICS Router in "Windows XP" and higher (continued)

• Windows' virtual "Internet Connection Sharing" router does not show up as a separate device in the "Network Connections" window:
Windows' ICS Router

• Steps for installing and using a virtual ICS Router in "Windows XP" and higher (continued)

• The only evidence that you have for the existence of an active, virtual ICS router is in the "Sharing" tab of the "Properties" windows of the upstream network adapter:
Internet Connection Sharing

- Allow other network users to connect through this computer's Internet connection

- Allow other network users to control or disable the shared Internet connection

Using ICS [Internet Connection Sharing]  Settings...
Hardware View of a single, Internet-connected "Windows XP", "Windows Vista", or "Windows 7" computer

Upstream to the real Internet
A new "Windows" computer shows up.
You wish to connect the new computer to the original computer in order to give the new computer access to the Internet.
Hardware View:
This is what your hardware looks like:

Upstream to the real Internet

wired or ad hoc wireless connection between the computers

"Windows 7" Computer
"Windows XP" Computer
Physical View of the (virtual) Windows' "Internet Connection Sharing" Router

Real "Local Area Network" (LAN)

Upstream to the real Internet

Two real network adapters in the "Windows 7" real computer but three virtual network adapters inside the virtual Windows "ICS Router" (Virtual network devices can have more virtual network adapters than in your physical network.)

"Windows 7" Computer

Virtual Windows "ICS" Router

"Windows XP" Computer
Logical View of the "virtual" Windows "Internet Connection Sharing" -- it acts like it exists independently of either computer.

Real "Local Area Network" ("LAN")

Virtual Windows "Internet Connection Sharing" router

"Windows 7" Computer accesses the Internet and the other computer through the virtual "ICS router"

"Windows XP" Computer accesses the Internet but it cannot access files and printers in the other computer.
For "Windows XP", see


and

WINDOWS' ICS ROUTER

• Microsoft's official documentation for using "Internet Connection Sharing" in "Windows XP" is located at http://support.microsoft.com/kb/306126
• Difference between virtual virtual "Internet Connection Sharing" (ICS) and Windows' "Network Bridge": two-way file sharing in "Network Bridge" versus one-way file sharing in "ICS"
Logical View of the "virtual" Windows "Internet Connection Sharing"-- it acts like it exists independently of either computer

Real "Local Area Network" ("LAN")

Virtual Windows "Internet Connection Sharing" router

"Windows 7" Computer accesses the Internet and the other computer through the virtual "Network Bridge"

"Windows XP" Computer accesses the Internet and the other computer through the virtual "Network Bridge"
Logical View of the "virtual" Windows "Network Bridge"-- it acts like it exists independently of either computer.