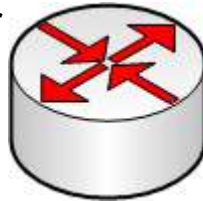


VIRTUAL NETWORKING WITH "Oracle VM VirtualBox" FROM A "WINDOWS" PERSPECTIVE

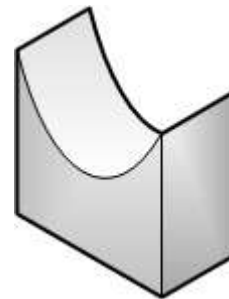
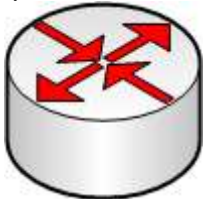
Summary:

"VMware Player" provides five virtual networking configurations for the virtual machines of a Windows host computer:

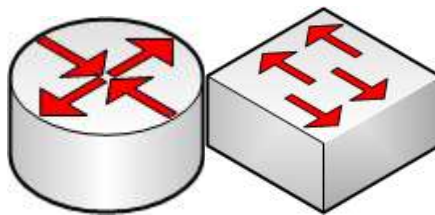
a "[Shared Folders](#)" gateway/router



a "[Network Address Translation](#)" ("NAT") router
(with no internal LAN switching)

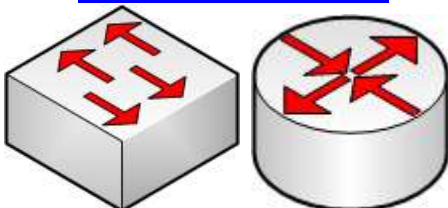


a "[Bridged](#)" bridge (with no internal LAN switching)



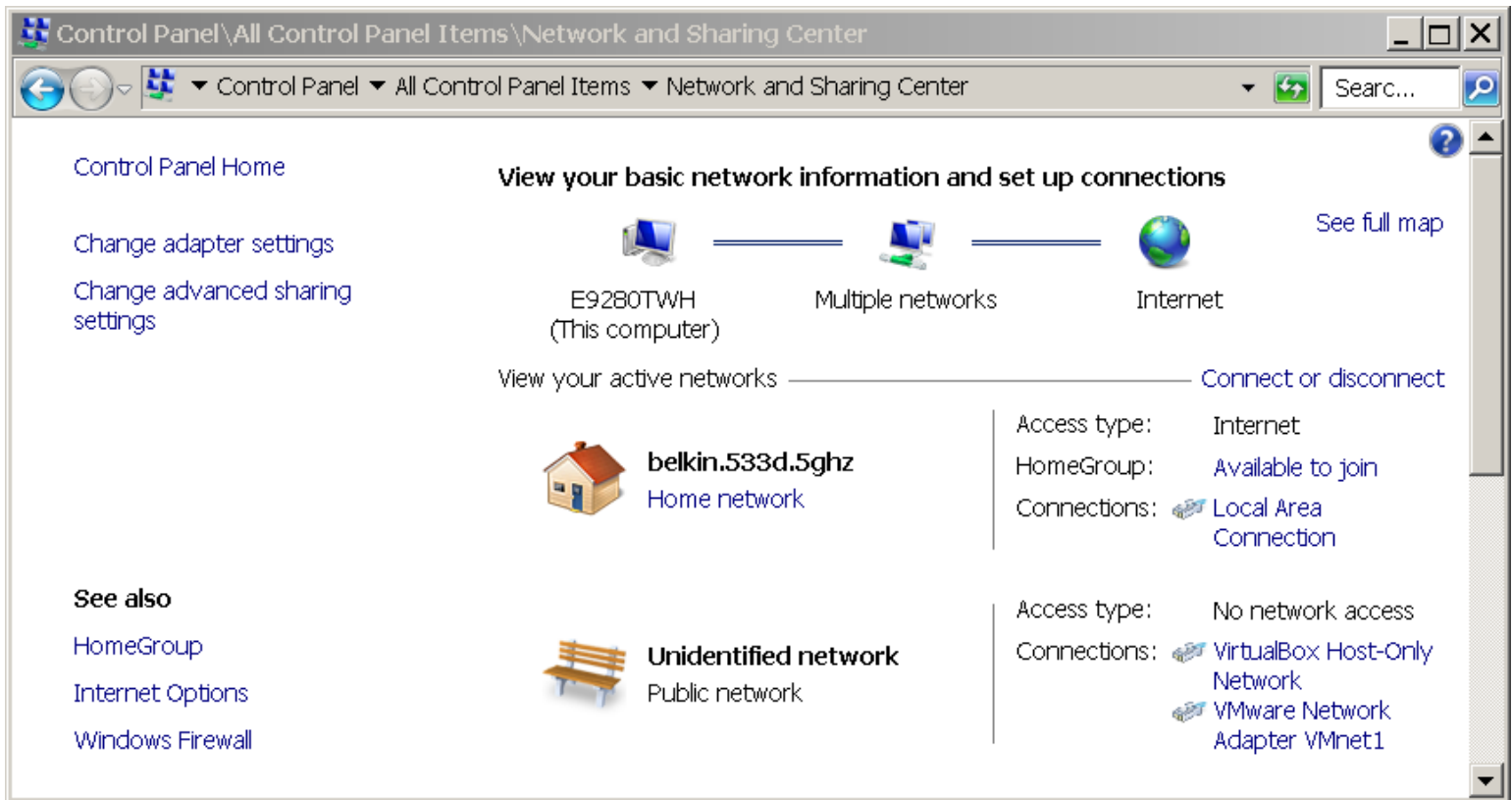
a "[Host-Only](#)" router
with internal LAN switching

and
an "[Internal Network](#)" LAN switch with optional DHCP services

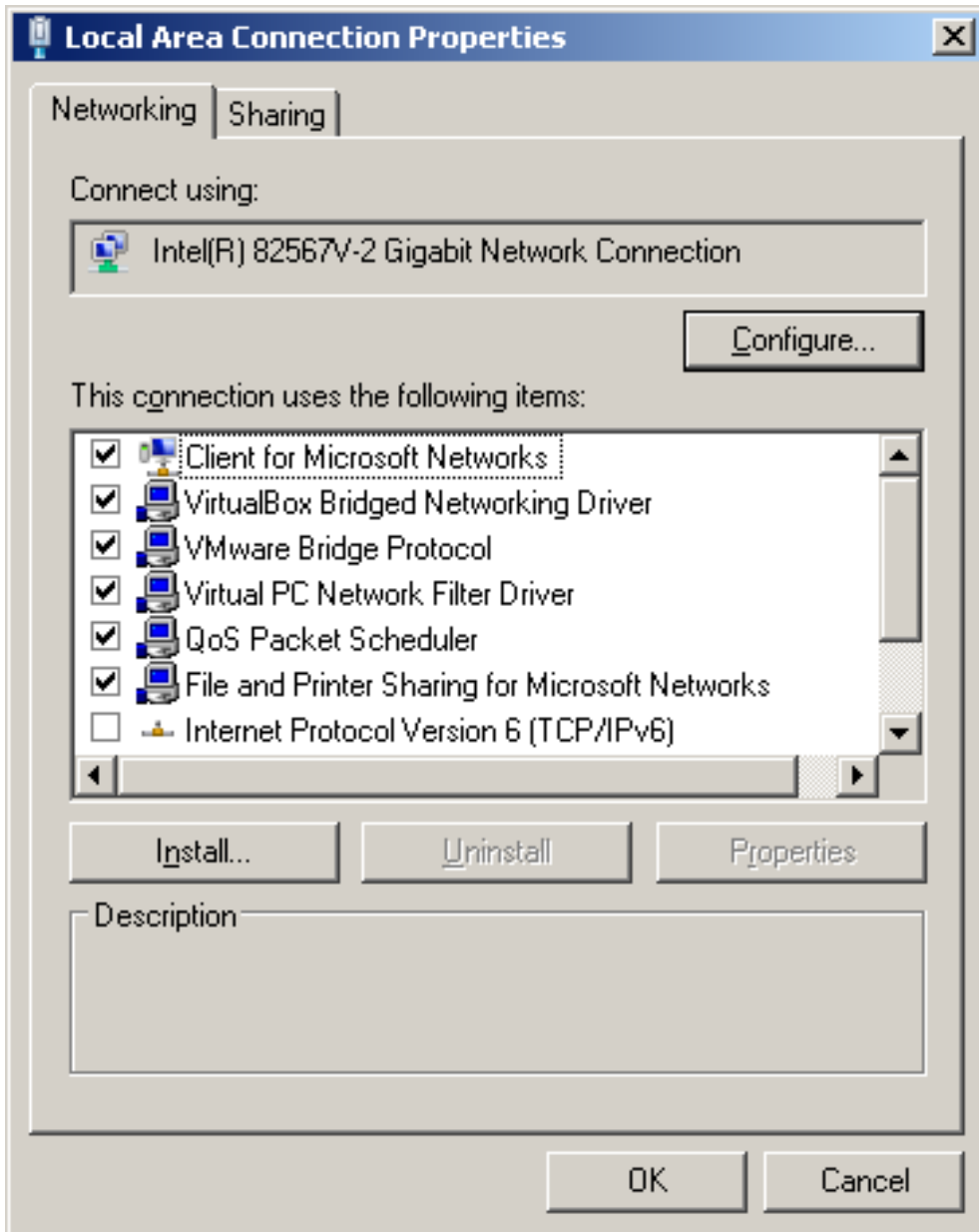


VIEW OF THE VIRTUAL NETWORK FROM THE "WINDOWS" HOST COMPUTER

From a "Windows Vista", "Windows 7", or "Windows 8" host, the virtual network is shown as an "Unidentified network" of type ="Public network":

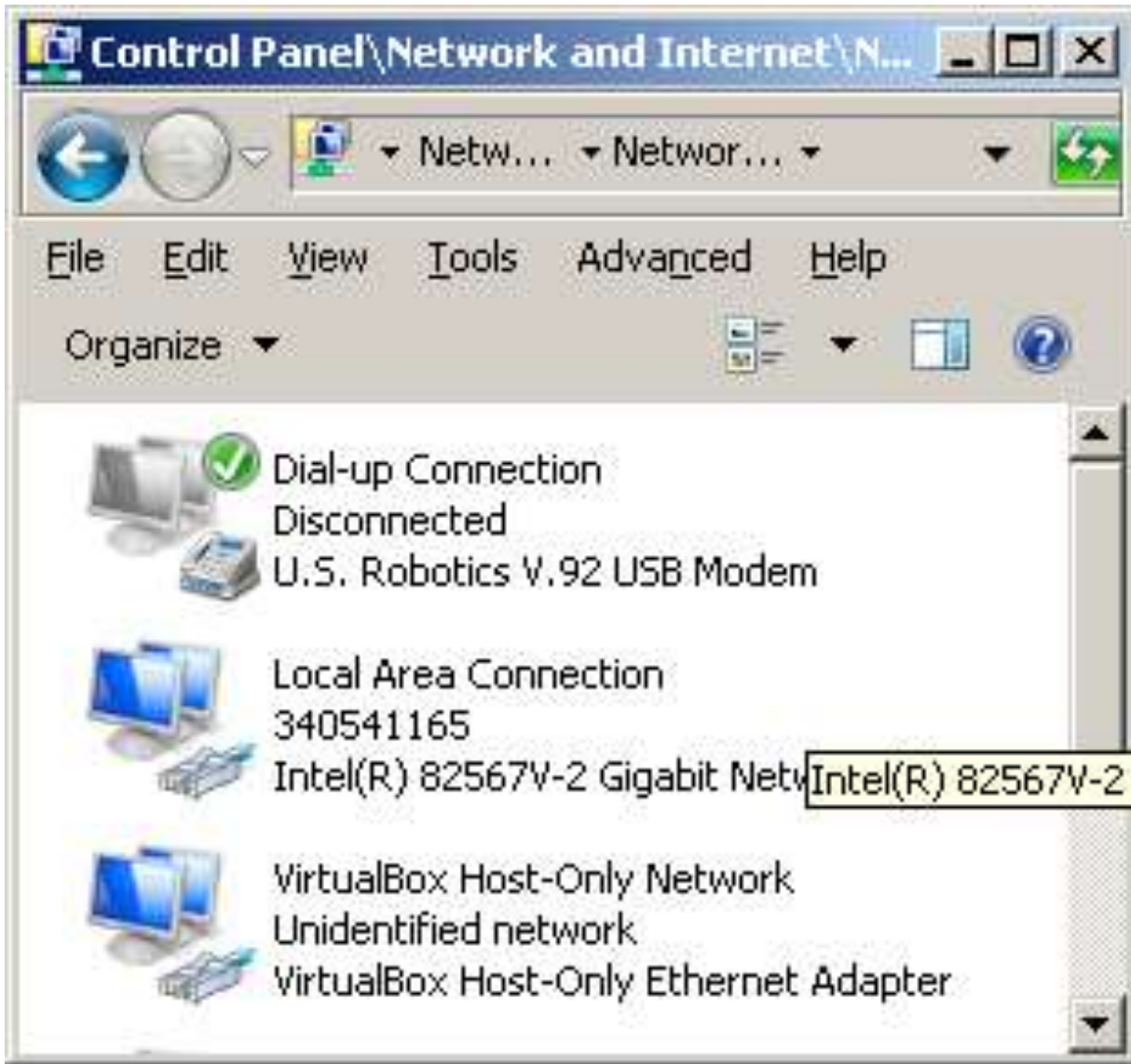


"Oracle VM VirtualBox" "binds" a "VirtualBox Bridged Networking Driver" to the existing upstream ("toward the Internet") network adapter of the host computer. This is part of the "Bridged" bridge "virtual network" of "Oracle VM VirtualBox".



When you install "VMware Player" into a host computer, "VMware Player" provides one virtual network adapter for the host computer:

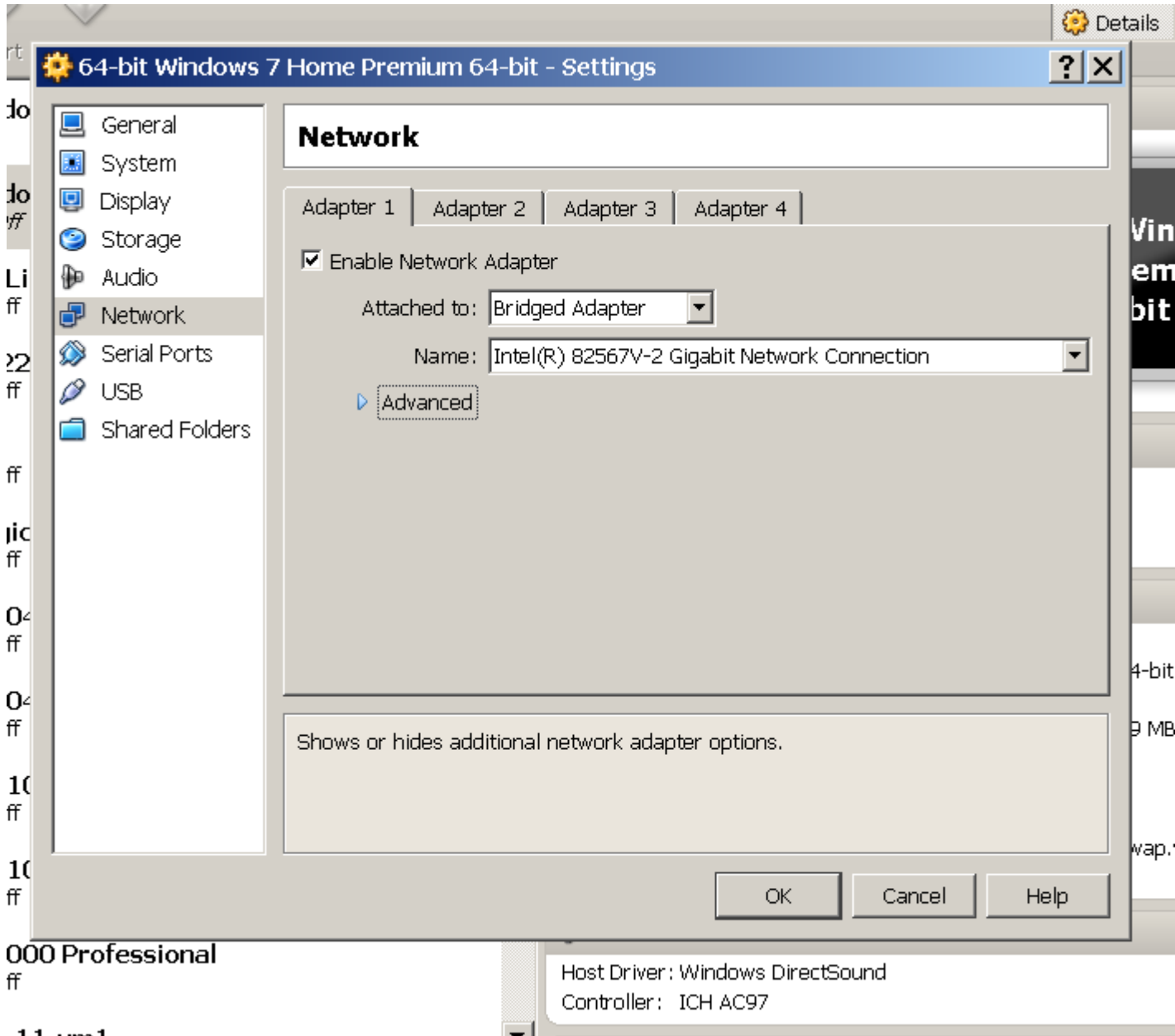
It is called the "VirtualBox Host-Only Ethernet Adapter":



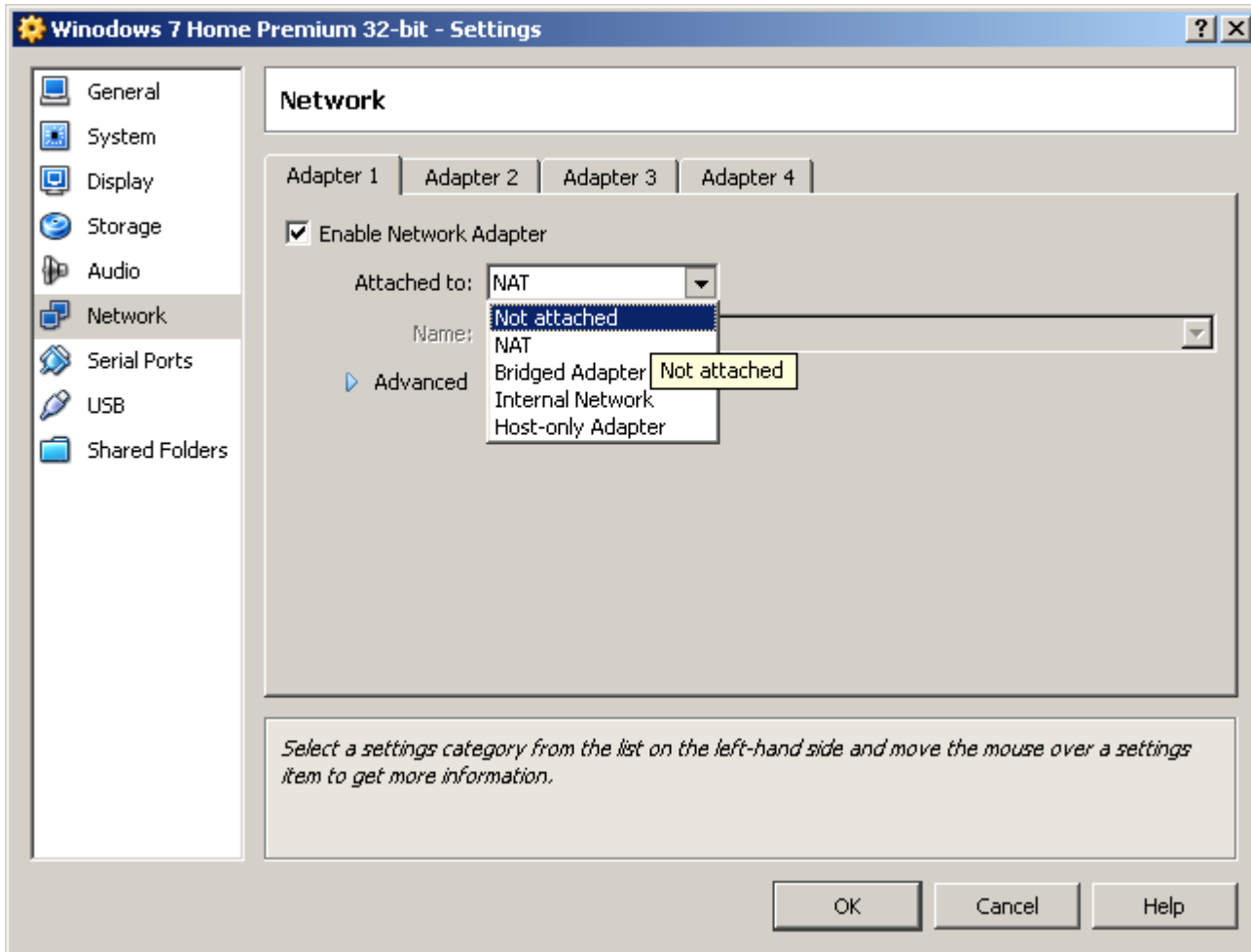
The "VirtualBox Host-Only Ethernet Adapter" connects the host computer to the virtual "Host-Only" router.

VIEW OF THE VIRTUAL NETWORK FROM A INSIDE A VIRTUAL MACHINE

From the "Settings" screens in the "Oracle VM VirtualBox" software program, you can provide up to 4 network adapters for each virtual machine:



If you click on the drop-down list button to the right of the "Attached to:" field, you will see a list of the virtual networks that "Oracle VM VirtualBox" provides to a virtual machine:



Please note that

"NAT" is the virtual "[Network Address Translation](#)" ("NAT") router,

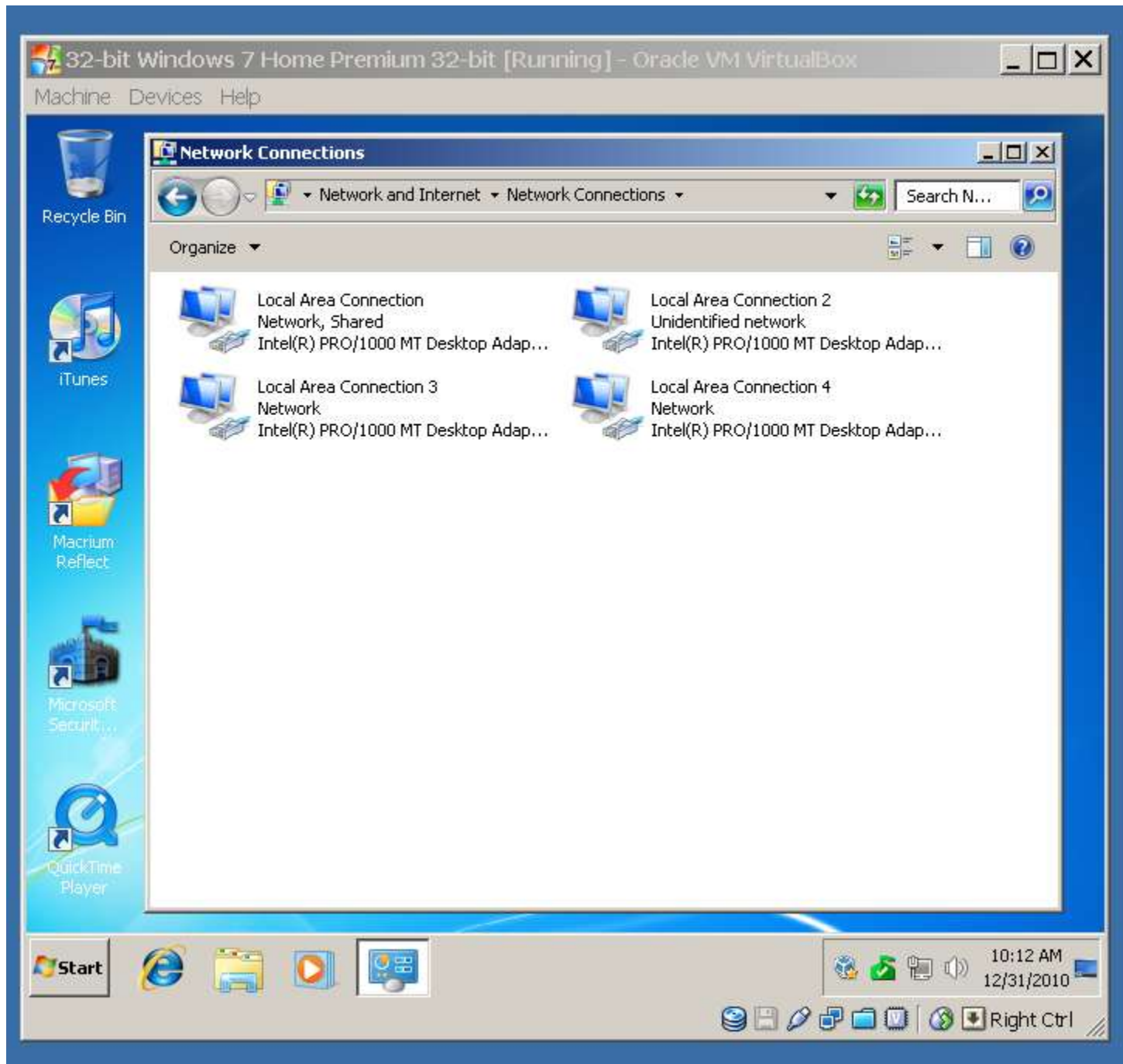
"Bridged Adapter" is the virtual "[Bridged](#)" bridge,

"Host-only Adapter" is the virtual "[Host-Only](#)" router,

and

"Internal Network" is the virtual "[Internal Network](#)" LAN switch.

The operating system of the virtual machine treats all of the virtual network adapters as if they were a real items of hardware:



*

"SHARED FOLDERS" GATEWAY/ROUTER

with designated target folder located on the host

with no accessible or visible network interfaces in the host or the virtual machine
with no upstream routing to the Internet.

Oracle's "Guest Additions" software must be installed into each virtual machine.

"Guest Additions" software is provided to you as an *.iso CD image file called
VBoxGuestAdditions.iso

at

C:\Program Files\Oracle\VirtualBox\

of the host computer when you install "VMware Player" into the host computer.

Multiple virtual machines can access the same target folder on the host.

"Shared Folders" must be configured for each virtual machine.

"Windows" virtual machine sees a "Shared Folder" inside the "VBOXSVR" virtual server.

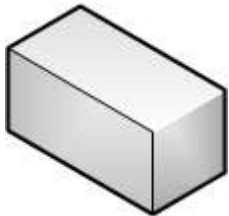
"Linux" virtual machine sees a folder mounted in /media but no access is permitted.

The "Shared Folders" gateway/router does not work for Macintosh virtual machines at the
present time.

(In "VMware Player", Linux virtual machine sees and accesses a folder in /mnt/hgfs.)

No indication in host file system that a folder is being shared.

Host computer

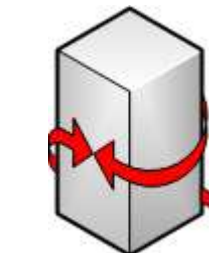
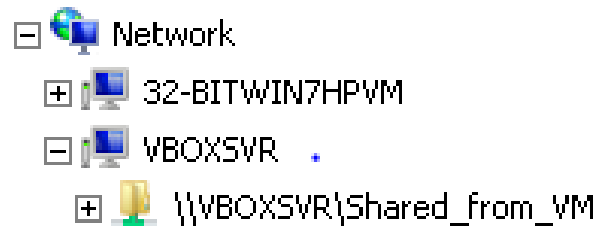
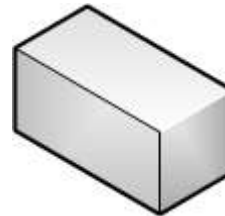


"Shared" Folder(s)
= host folder access
from virtual machine

File system of virtual machine
does not show indicate that the
folder is shared.

Host has no access to file system of virtual machine
This is not Windows "File Sharing" or "Homegrouping"

Virtual Machine



"Shared Folders"
Gateway/Router

Virtual machine sees a server
called "VBOXSVR"
Virtual network adapter is not used.

ADDITIONAL INFORMATION ABOUT THE VIRTUAL "SHARED FOLDERS" GATEWAY/ROUTER:

Oracle's instructions for setting up "Shared Folders" for a "Windows" or "Linux" virtual machine can be found at

<http://www.virtualbox.org/manual/ch04.html#sharedfolders>

For additional instructions for setting up "Shared Folders" for a "Ubuntu" virtual machine, see

<https://help.ubuntu.com/community/VirtualBox/SharedFolders>

and

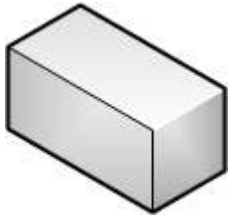
http://blogs.oracle.com/tao/entry/virtual_box_shared_folder_between

"Network Address Translation" ("NAT") router

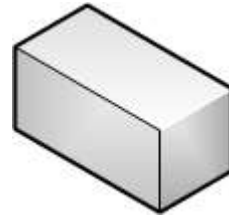
with NAT service, DHCP server, and upstream routing to the Internet,

This is the default virtual network that is set up by the "Oracle VM VirtualBox" virtual machine program when you use the "New Virtual Machine Wizard" to create a new virtual machine.

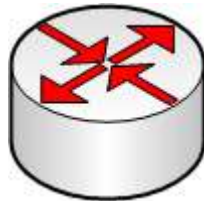
Host computer



Virtual Machine



Internet access
from virtual machine



"NAT" router
with NAT service
with DHCP server
with upstream routing
to the Internet
(with no LAN switching between
virtual machines)
(with no LAN switching between
the host and virtual machines)



Local Area Connection
Network, Shared
Intel(R) PRO/1000 MT Desktop Adap...

"Bridged" bridge

with mandatory "TEE" connection to either an upstream, real network adapter
(or to an operating system-provided virtual bridge on the host such as the "Windows Network
Bridge")

with no internal LAN switching

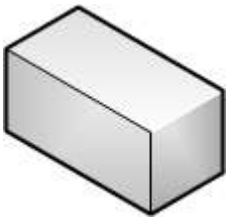
(with LAN switching between virtual machines performed by the real physical network)

(with LAN switching between the host and virtual machines performed by the real physical
network)

(with NAT server and DHCP server provided by the real physical network)

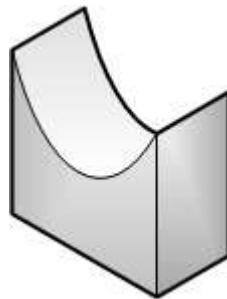
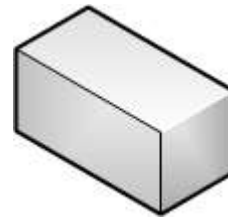
With this virtual network option, the virtual machine(s) participate on the real physical
network as "peers" with the host.

Host computer



Internet access
from virtual machine
Optional host folder access
from virtual machine
by means of
Windows "File Sharing"
or "Homegroups"

Virtual Machine

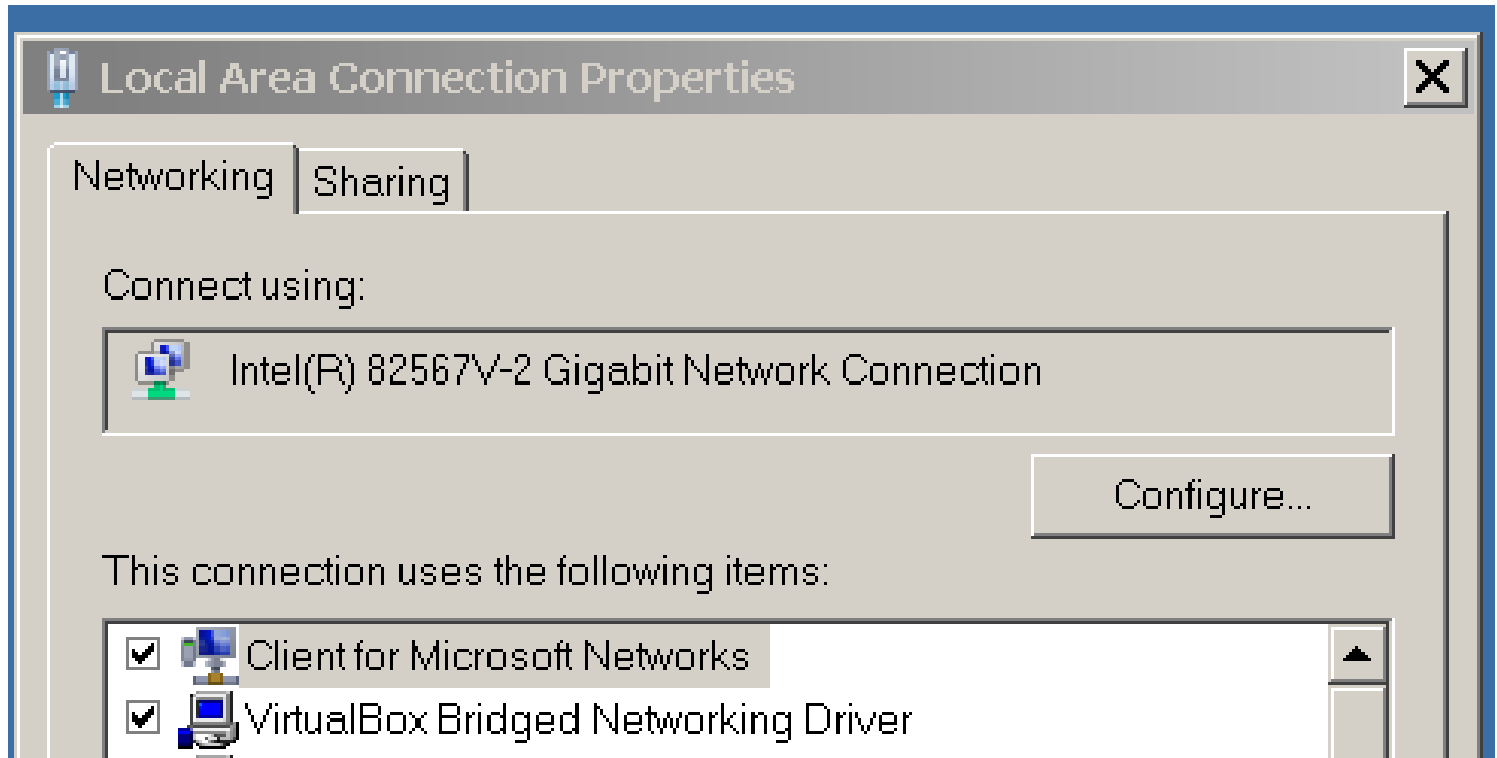


"Bridged" bridge
provides "TEE"
to a real physical
physical network
adapter but does not
switch between
virtual machines



Local Area Connection
Network, Shared
Intel(R) PRO/1000 MT Desktop Adap...

The "TEE" connection between the virtual "Bridged" bridge and the physical network adapter is performed by a "VirtualBox Bridged Networking Driver" in the real, upstream, physical network adapter in the host computer:

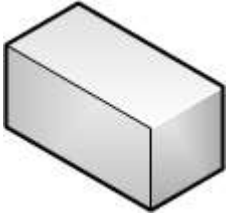


The real physical local area network (LAN) provides DHCP services, upstream routing to the Internet, NAT services, LAN switching between the host and virtual machines, and LAN switching between virtual machines.

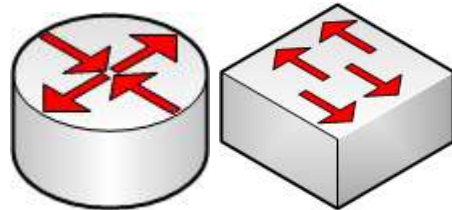
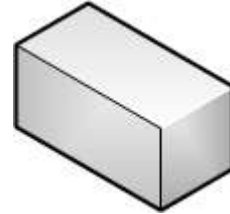
"Host-Only" router

with mandatory LAN switching between the host and the virtual machine,
with LAN switching or routing between virtual machines,
with an optional DHCP server, no NAT server, and no upstream routing to the Internet

Host computer



Virtual Machine



Local Area Connection
Network, Shared
Intel(R) PRO/1000 MT Desktop Adap...

No Internet Access
from virtual machine
Optional host folder access
from virtual machine
by means of
Windows "File Sharing"
or "Homegroups"

"Host-only" router
with mandatory LAN switching
between host and virtual machines
with LAN switching or routing between
virtual machines.



VirtualBox Host-Only Network
Unidentified network
VirtualBox Host-Only Ethernet Adapter

Host has a "Virtual Host-Only Ethernet Adapter"
which connects the file system of the host
to the "Host-only" router

The "Host-only" router acts as a firewall to prevent communications between the Internet
and all virtual machines.

This is the hardest configuration to set up:

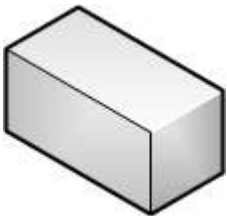
It often takes a multiple reboots and long waits before the host can see shared files on the
virtual machines and vice versa.

Sometimes it is necessary to attach more than one virtual machine to the "Host-only" router
before file sharing starts up between virtual machines and between virtual machines and the
host.

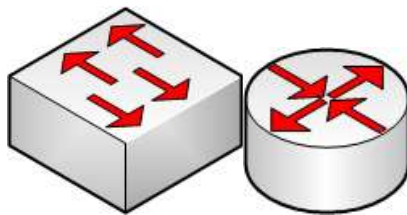
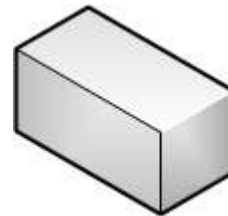
"Internal Network" switch ("intnet")

with LAN switching between virtual machines
with no LAN switching or routing between virtual machines and the host
with an optional DHCP server (a router function)
with no NAT server, and no upstream routing to the Internet

Host computer



Virtual Machine



Local Area Connection
Network, Shared
Intel(R) PRO/1000 MT Desktop Adap...

No host folder access
from virtual machine
No internet access
from virtual machine

"intnet"
switch
with
LAN switching
between
virtual
machines

Optional
DHCP
server

References:

<http://www.virtualbox.org/manual/ch06.html>

<http://www.dedoimedo.com/computers/virtualbox-network-sharing.html>

<http://www.virtualbox.org/manual/UserManual.html>

http://ninjazebra.com/virtualbox_network_scenarios