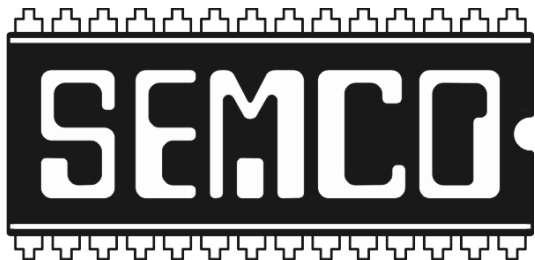


1-A COMPARISON OF FREE "VIRTUAL MACHINE PROGRAMS" FOR YOUR REAL "WINDOWS.." COMPUTER

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Web location for this
presentation:

<http://aztcs.apcug.org>

Click on

“Meeting Notes”

SUMMARY

At the present time, you have a choice between running three free programs for creating and running virtual machines in a real "Windows.." computer: **"VMware Workstation Pro"**, **"VirtualBox"**, and **"Hyper-V"**. There are differences in host operating system requirements and virtual graphics adapters.

TOPICS

- INTRODUCTION TO THE THREE FREE PROGRAMS FOR CREATING "VIRTUAL MACHINES"
- DIFFERENCES IN HOST OPERATING SYSTEM REQUIREMENTS

TOPICS (continued)

- DIFFERENCES IN VIRTUAL GRAPHICS ADAPTERS

"INTRODUCTION TO THE THREE FREE PROGRAMS FOR CREATING "VIRTUAL MACHINES"

INTRODUCTION TO THE THREE FREE PROGRAMS FOR CREATING "VIRTUAL MACHINES"

- Three free "virtual machine programs" are available for a real "Windows.." computer:
VMware Workstation Pro,
VirtualBox,
and
Hyper-V (also known as "Desktop Hyper-V")

INTRODUCTION TO THE THREE FREE PROGRAMS FOR CREATING "VIRTUAL MACHINES" (continued)

- All of these three programs are now free for use by homes, organizations or businesses

INTRODUCTION TO THE THREE FREE PROGRAMS FOR CREATING "VIRTUAL MACHINES" (continued)

- However, the "Extension Pack" for "VirtualBox" is not free for businesses and organization !
- <https://community.broadcom.com/vmware-cloud-foundation/discussion/how-i-can-purchase-a-vmware-workstation-pro-license-after-the-closer-of-cloudvista>

INTRODUCTION TO THE THREE FREE PROGRAMS FOR CREATING "VIRTUAL MACHINES" (continued)

- <https://www.tacticallawgroup.com/oracle-software-audit-blog/how-oracle-uses-online-agreements-for-free-software-to-trap-companies-into-paying-large-licensing-penalties-the-hidden-costs-of-oracle-java-se-and-virtualbox-software>

INTRODUCTION TO THE THREE FREE PROGRAMS FOR CREATING "VIRTUAL MACHINES" (continued)

- <https://computingforgeeks.com/install-virtualbox-extension-pack-using-vboxmanage/>
- <https://redresscompliance.com/oracle-virtualbox-licensing-article>

INTRODUCTION TO THE THREE FREE PROGRAMS FOR CREATING "VIRTUAL MACHINES" (continued)

- <https://www.tacticallawgroup.com/oracle-software-audit-blog/how-oracle-uses-online-agreements-for-free-software-to-trap-companies-into-paying-large-licensing-penalties-the-hidden-costs-of-oracle-java-se-and-virtualbox-software>

INTRODUCTION TO THE THREE FREE PROGRAMS FOR CREATING "VIRTUAL MACHINES" (continued)

- https://www.reddit.com/r/virtualbox/comments/fvt7a5/virtualbox_extension_pack/

INTRODUCTION TO THE THREE FREE PROGRAMS FOR CREATING "VIRTUAL MACHINES" (continued)

- **"VMware Workstation Pro"** is a free, closed-source program. When its capabilities and features are compared to **"VirtualBox"** and **"Hyper-V"**, **"VMware Workstation Pro"** usually is the superior "virtual machine program".

INTRODUCTION TO THE THREE FREE PROGRAMS FOR CREATING "VIRTUAL MACHINES" (continued)

- **"VirtualBox"** is a free, open-source program. It's weak point is low-end virtual graphics adapters which severely limit it's multimedia playing, and video, editing capabilities.

INTRODUCTION TO THE THREE FREE PROGRAMS FOR CREATING "VIRTUAL MACHINES" (continued)

- **VirtualBox's** strong point is it's flexibility in dealing with virtual hard drive files: "**VirtualBox**" can create or utilize hard drive files that have been or can be recognized by other virtual machine programs.

INTRODUCTION TO THE THREE FREE PROGRAMS FOR CREATING "VIRTUAL MACHINES" (continued)

- **"Hyper-V"** is bundled with "Windows 11 Pro", "Windows 10 Pro", "Windows 11 Enterprise", "Windows 10 Enterprise", "Windows 11 Education", and "Windows 10 Education". It uses Microsoft's "VMBus" which makes it faster than any other virtual machine program.

DIFFERENCES IN HOST OPERATING SYSTEM REQUIREMENTS

VMWARE WORKSTATION PLAYER 17	"WINDOWS 11" HOME OR PRO "WINDOWS 10" HOME OR PRO (64-BIT) ..LINUX..
ORACLE VIRTUALBOX 7	"WINDOWS 11" HOME OR PRO "WINDOWS 10" HOME OR PRO (64-BIT) macOS 10.13 and higher ..LINUX..

DIFFERENCES IN HOST OPERATING SYSTEM REQUIREMENTS (continued)

HYPER-V
("Hyper-V
role" is
bundled
with **some**
versions of
Windows)

"WINDOWS 11 **PRO**"
"WINDOWS 10 **PRO**" 64-BIT
("HYPER-V" CANNOT BE
INSTALLED INSIDE ..LINUX..)

DIFFERENCES IN HOST OPERATING SYSTEM REQUIREMENTS (continued)

- Since 95+ percent of the "Windows 11.." and "Windows 10.." computers that are sold in stores have the low-end "Home" edition of "Windows 10.." and "Windows 8.1", you will probably have to buy the "Windows 11 Pro Upgrade" or the "Windows 10 Pro Upgrade" before you can run "Hyper-V".

DIFFERENCES IN VIRTUAL GRAPHICS ADAPTERS FOR THE THREE VIRTUAL MACHINE PROGRAMS:

DIFFERENCES IN VIRTUAL GRAPHICS ADAPTERS

VMWARE
WORKSTATION
PLAYER 17

MAXIMUM OF 8 GIGABYTES OF
GRAPHICS MEMORY

Maximum resolution of any one monitor:

3840 x 2160

640 x 480

800 x 600

1024 x 768

1280 x 1024

1600 x 1200

1920 x 1080

2560 x 1600

3840 x 2160

DIFFERENCES IN VIRTUAL GRAPHICS ADAPTERS (continued)

ORACLE VM
VIRTUAL-
BOX 7.X

MAXIMUM OF 256 MEGABYTES OF
GRAPHICS MEMORY

DIFFERENCES IN VIRTUAL GRAPHICS ADAPTERS

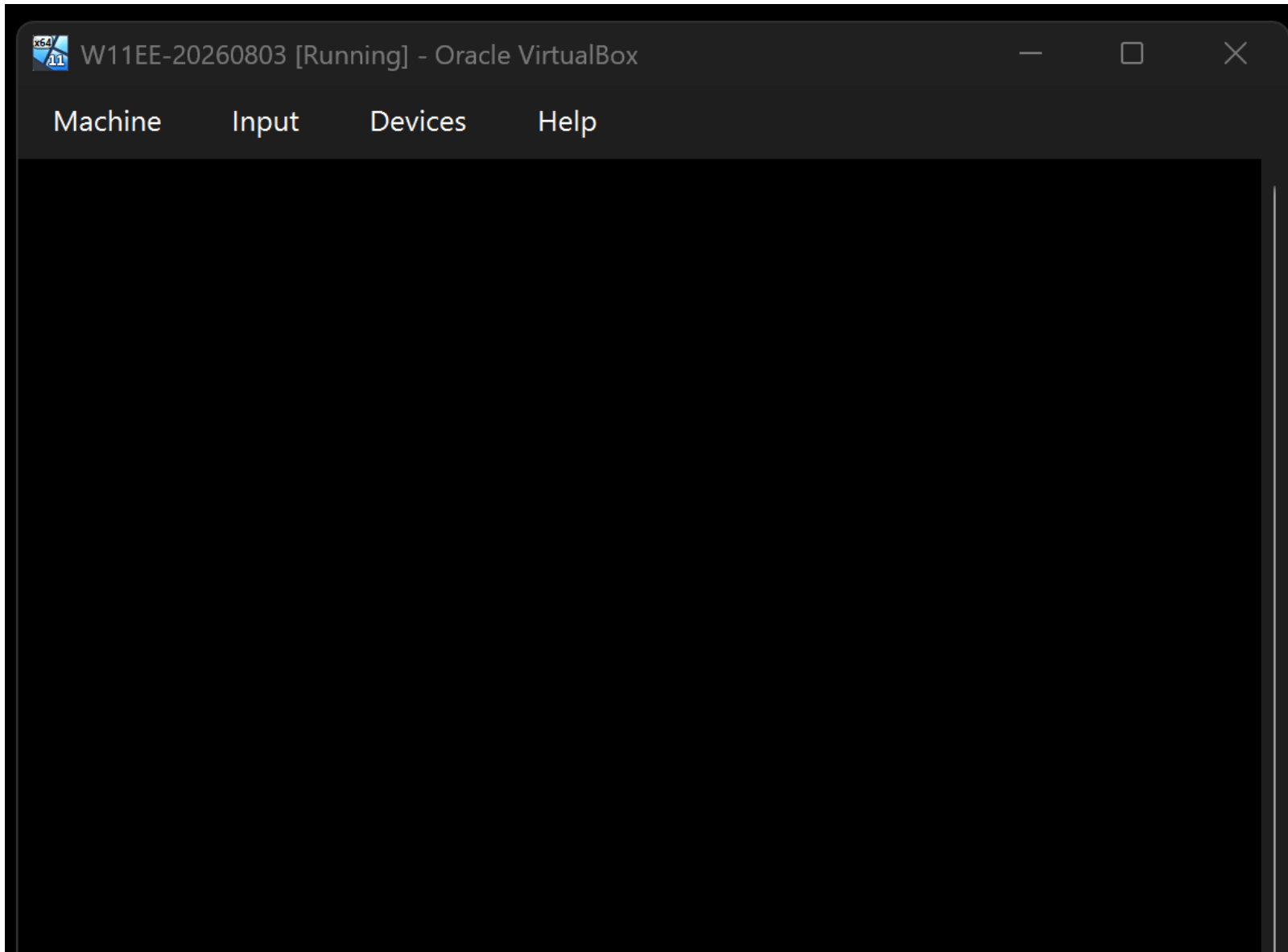
(continued)

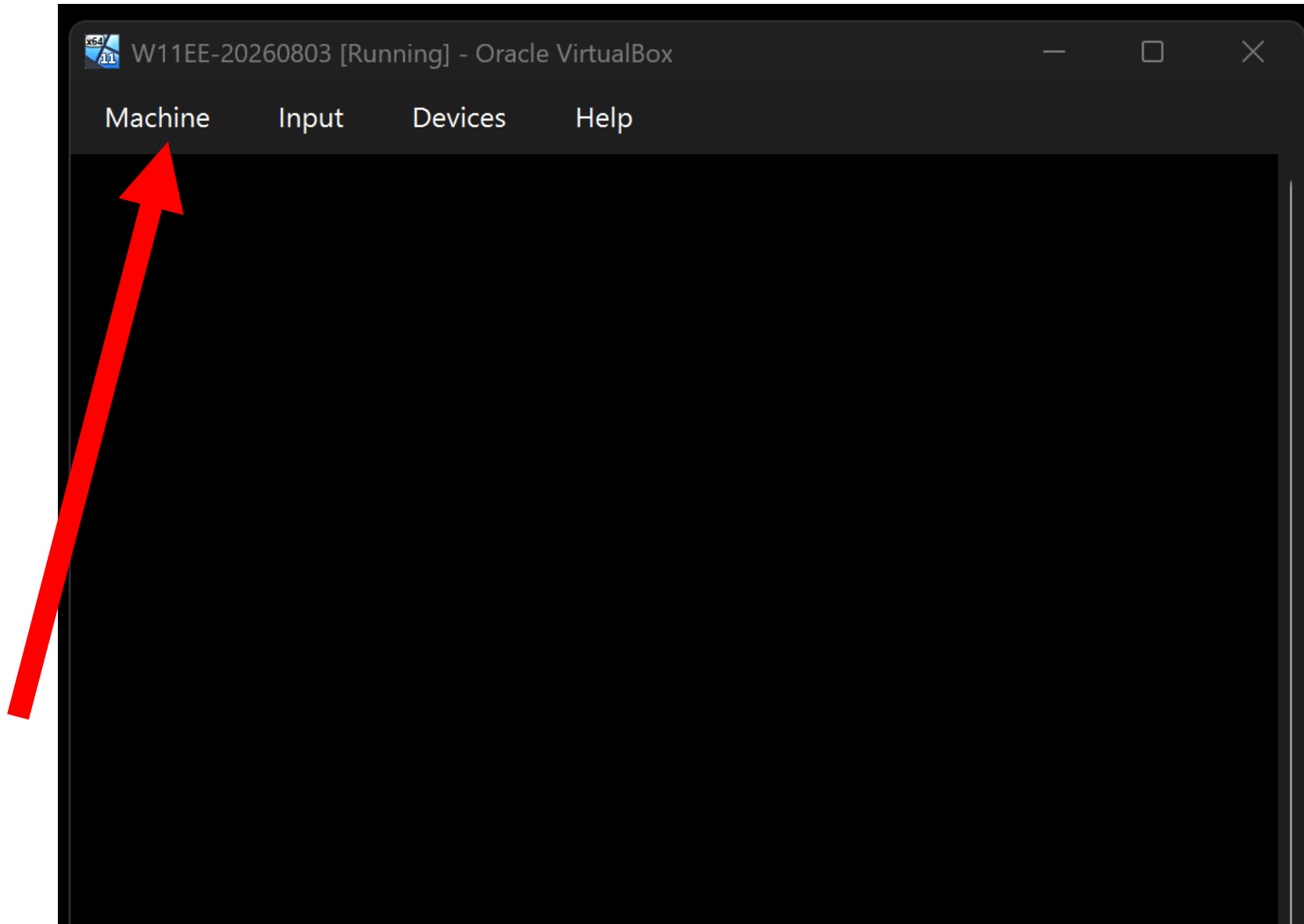
HYPER-V

MAXIMUM OF 1600 x 1200
RESOLUTION OF THE VIRTUAL
MONITOR FOR A VIRTUAL
MACHINE THAT IS RUNNING
WINDOWS 11, WINDOWS 10, OR
UBUNTU 18.04 OR HIGHER AS A
GUEST OPERATING SYSTEM IS
USUALLY SET FROM THE
"DISPLAY SETTINGS" OF THE
GUEST OPERATING SYSTEM

DIFFERENCES IN VIRTUAL GRAPHICS ADAPTERS (continued)

- The very low end graphics capability of "VirtualBox" will cause you to experience **recoverable** problems when you are installing or using various operating systems inside virtual machines:
If your guest operating system inside a virtual machines displays a black screen for more than 4 minutes, use te LEFT mouse button to click on "Reset" in the "Machine" pull-down menu:







W11EE-20260803 [Running] - Oracle VirtualBox

Machine

Input

Devices

Help



Settings...

Host+S



Take Snapshot...

Host+T



Session Information...

Host+N



File Manager...



Show Log...



Pause

Host+P



Reset

Host+R



Shut Down

Host+H



W11EE-20260803 [Running] - Oracle VirtualBox

Machine

Input

Devices

Help



Settings...

Host+S



Take Snapshot...

Host+T



Session Information...

Host+N



File Manager...



Show Log...



Pause

Host+P



Reset

Host+R



Shut Down

Host+H



VirtualBox - Question



Do you really want to reset the following virtual machines?

W11EE-20260803

This will cause any unsaved data in applications running inside it to be lost.

☐

Do not show this message again

Reset

Cancel



VirtualBox - Question



Do you really want to reset the following virtual machines?

W11EE-20260803

This will cause any unsaved data in applications running inside it to be lost.

☐

Do not show this message again

Reset

Cancel



DIFFERENCES IN USB SUPPORT

VMWARE WORKSTATION PLAYER 17	Pass-through for USB 1, USB 2, and USB 3 devices. (Sound devices can pass-through via either USB passthrough or virtual motherboard pass-through.)
ORACLE VIRTUALBOX 7	Pass-through for USB 1, USB 2, and USB 3 devices. (Sound devices can pass-through via either USB passthrough or virtual motherboard pass-through.)

DIFFERENCES IN USB SUPPORT (continued)

HYPER-V
("role" is
bundled
with **some**
versions of
Windows)

No direct USB pass-through.
Some passthrough of USB devices
is allowed by means of Remote
Desktop Protocol requiring
configuration in both the host
computer and the virtual machine.

DIFFERENCES IN SOUND SUPPORT

VMWARE WORKSTATION PLAYER 17	Pass-through of sound cards and controllers through the virtual motherboard of the virtual machine
ORACLE VIRTUALBOX 7	Pass-through of sound cards and controllers through the virtual motherboard of the virtual machine

DIFFERENCES IN SOUND SUPPORT (continued)

HYPER-V
("role" is
bundled
with **some**
versions of
Windows)

No pass-through of sound cards and controllers through the virtual motherboard of the virtual machine. Some passthrough of USB devices is allowed by means of Enhanced Session Mode via Remote Desktop Protocol requiring configuration in both the host computer and the virtual machine.

SOME CHALLENGING BUT DOABLE SOLUTIONS FOR HYPER-V'S USB AND AUDIO LIMITATIONS

- <https://www.eltima.com/article/hyper-v-usb-passthrough/>
- <https://learn.microsoft.com/en-us/windows-server/virtualization/hyper-v/enhanced-session-mode>
- <https://woshub.com/how-to-connect-a-usb-drive-directly-to-a-hyper-v-vm/>

DIFFERENCES IN VIRTUAL NETWORKS

- "VMware Workstation Pro" provides you with 5 virtual routers so that you can connect to other computers and to the Internet in a variety of ways

DIFFERENCES IN VIRTUAL NETWORKS

(continued)

- "VirtualBox" provides you with a default virtual router that is directly connected to the your Internet provider's gateway device.

"VirtualBox" also provides you with a "VBOXSVR" virtual router that lets you connect a virtual machine to other computers in your local network.

DIFFERENCES IN VIRTUAL NETWORKS

(continued)

- Hyper-V provides you with a virtual network switch hub device that connects each virtual machine to the host computer which then allows a virtual machine to access the Internet through the host computer.

