Sun City Summerlin Computer Club
Seminar

Virtual Machine Primer
VMWare Player

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<u>Agenda</u>

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Virtual Machines - What Are They?

- **Software Program That *Emulates* a x86 or x64 Hardware PC**
  - The virtual machine "hardware" is described in a configuration file.
  - The virtual machine's hard drive(s) are just files on the host PC.
  - Very easy to make copies of a VM for backup, cloning.
- **Once a virtual machine has been created …**
  - You can install an operating system onto its virtual hard drive (e.g. Windows, LINUX, DOS or even Mac OS)
  - You can also install applications, drivers and data.
- **A virtual machine can be started like any other program**
- **You can move between the virtual machine's Guest OS and the Host PC OS.**
  - Copy & Paste via the clipboard
  - Create drive maps between virtual machine OS and Host OS
  - Access the local area network and the Internet.

Virtual Machines – How Used?

- **Backward Compatibility**
  - Old software can be run in a VM on an older Guest OS.
  - Running an older OS can ease learning curve for new OS.
- **Test Bed**
  - Keep a VM version of your Host OS (plus a backup).
  - Install new software, hot fixes, etc. in the VM and test.
  - If VM gets corrupted, just replace it with the backup.
- **Easy Backup**
  - A VM is just a set of files in a folder.
  - Very easy to copy them to / from a backup drive.
- **Hardware Consolidation**
  - Instead of two or three separate physical PCs, can recreate them as separate VMs on a single large PC.
  - Saves power, desk space, clutter.

Popular Virtual Machine Choices

- **Microsoft Client Hyper-V (Windows 10 / 11 Pro only)**

  - **Built in – just turn it on**

- **Oracle Virtual Box - Windows (10 / 11), Mac, Linux**

  - *FREE* download from: **http://www.virtualbox.org/**

- **VMWare Workstation Player for Windows**

  - **Free download for personal use: https://www.vmware.com/products/workstation-player.html**

- **Parallels Desktop (Mac)**

  - **$80 from parallels.com, may be cheaper elsewhere**

- **VMWare Fusion Player (Mac)**

  - **Free download for personal use.**
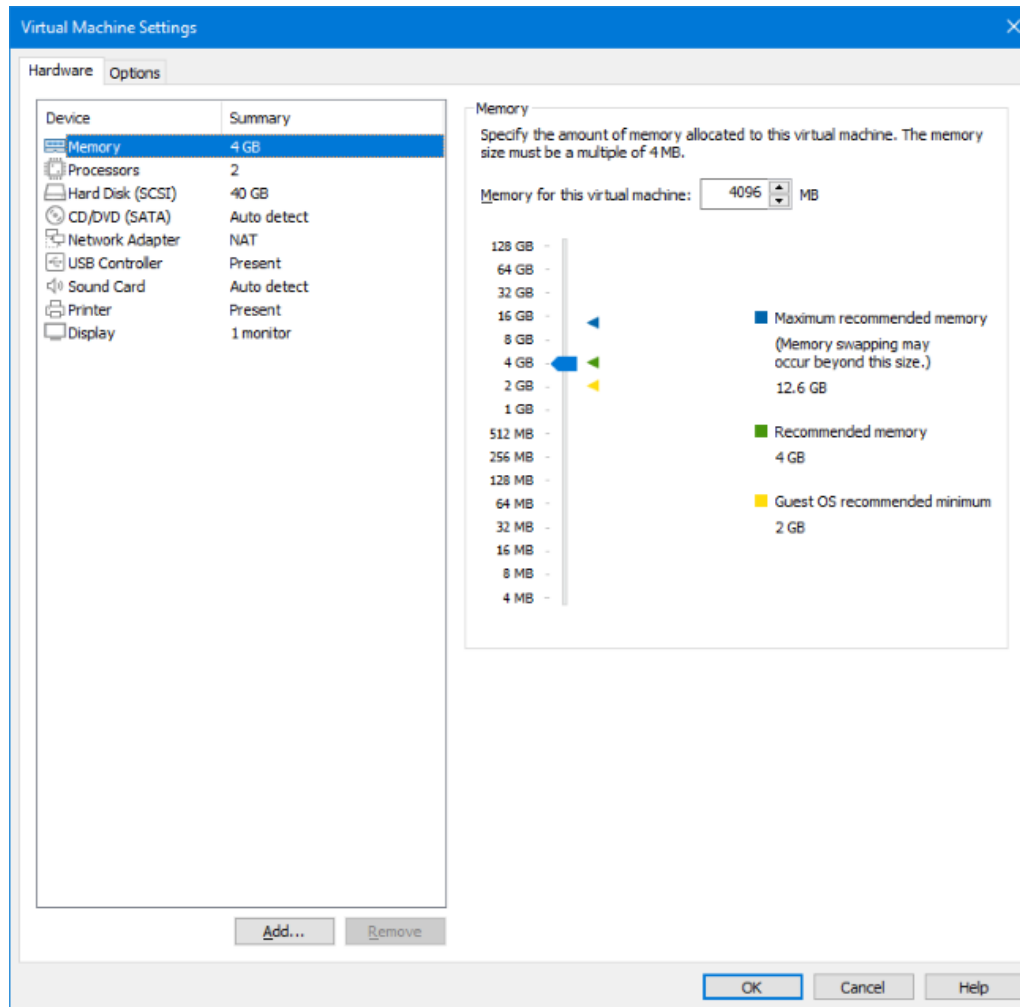
  - **Pro version: $199 Download from VMWare.com**

Virtual Machines Primer

Host PC System Requirements

- **Recommend 8 GB *or more* of physical RAM**

- **Reasonably high-end CPU**

  - **1.8 GHz+ Core I5 or equivalent AMD**

  - **2.4 GHz+ Quad Core better**

- **Adequate free hard drive space**
  - **Depends on the size of your virtual drive**

- **Host Operating System**
  - **Windows 10 / 11**
  - **Windows Server 2012, 2016 or higher**
  - **Linux Desktop or server (for Virtual Box or Xen)**
  - **Mac OS 11 or later**

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Demo 1 - Create an Empty VM

- **Start the Virtual Machine program (we'll use VMWare).**
- **Click "New Virtual Machine" (or similar).**
- **Follow the Step-by-step screens:**
  - **Choose a name to use in saving the virtual machine.**
  - **Specify the guest operating system (e.g. Win 10, Linux).**
  - **Configure VM memory size (1 GB or more)**
  - **Configure VM hard disk size and physical location.**
  - **Set up some virtual USB ports.**
  - **Configure the virtual video card (64 or 128 MB VRAM)**
  - **Set the boot order to DVD, then hard drive**
  - **Finish.**
  - **You can revise most VM settings *after* installing an OS.**

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VMWare Player Management Screen

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Demo 2 – Installing Linux Mint

- **Linux Mint is a "distro" that is a Windows 7 work-alike.**
- **Place the Linux Mint setup DVD in the drive or link the VM's virtual DVD to an image (.iso) of the setup DVD.**
- **"Start / boot / Play" the [empty] virtual machine just created.**
- **If the virtual BIOS doesn't detect the DVD, check the menus at the top. Enable the DVD. Make sure it's first in the boot order.**
- **Follow the step by step for the Linux Mint setup.**
  - **Let Linux Mint partition and format the entire virtual drive**
  - **Answer a few setup questions.**
  - **Finish the setup.**
- **Finally reboot into Linux Mint in the VM.**

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Demo 3 – Optimizing a VM

- **Some Virtual Machine managers have an option to install an "additions" package in the guest OS.**
  - Set of drivers that make the guest OS aware it's running in a virtual machine.
  - Speeds up the guest OS.
  - Allows the mouse to move transparently between host & guest.
  - Allows clipboard operations between host & guest.
  - Allows file copy operations between host & guest.
- **Run the setup for this from the Virtual Machine manager's menu.**
- **Other configuration options:**
  - Startup display (windowed, full screen), resolution.
  - VM's RAM and CPU configuration.
  - Network (native NIC or use VM's NAT mode).
  - Virtual CDs and Floppys (can point to an image file).
- **Create a desktop shortcut to boot your virtual machine.**

Demo 4 – Windows 11 in a VM

- **A VMWare virtual machine with Windows 11 installed can be created by doing a clean install.**

- **Once set up and configured and with the VMWare Tools extensions installed, the VM is ready to use.**

- **You can install Win 10/11 apps and drivers as needed.**

- **When finished, use the Win 11 Guest OS's Start menu to shut down the VM, just like a real PC.**

Virtual Machine – Web Links

- **https://docs.microsoft.com/en-us/virtualization/hyper-v-on-windows/about/**
- **http://www.parallels.com/**
- **http://www.virtualbox.org/**
- **http://www.vmware.com/**
- **http://www.cl.cam.ac.uk/research/srg/netos/xen/**
- **http://technet.microsoft.com/en-us/sysinternals/ee656415.aspx** (Disk2VHD)
- **https://www.linuxmint.com/**

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Questions
And
Answers

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