

Sun City Summerlin Computer Club **Seminar**

Introduction to Virtual Machines

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Agenda

- **Virtual Machines – What Are They?**
- **Virtual Machines – How Used?**
- **Popular Virtual Machine Choices**
- **Host System Hardware Requirements**
- **Demo 1 - Creating An Empty Virtual Machine**
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- **Demo 4 – Windows 10, 7, XP on a Virtual Machine**
- **Web Links**

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 virtual machine 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, 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 the learning curve for a 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's virtual drive 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, you can recreate them as separate VMs on a single larger 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 in Settings > Apps
- 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)
 - \$65 / year from parallels.com
- VMWare Fusion Player (Mac)
 - Free download for personal use.
 - Pro version: \$199 Download from [VMWare.com](https://www.vmware.com)

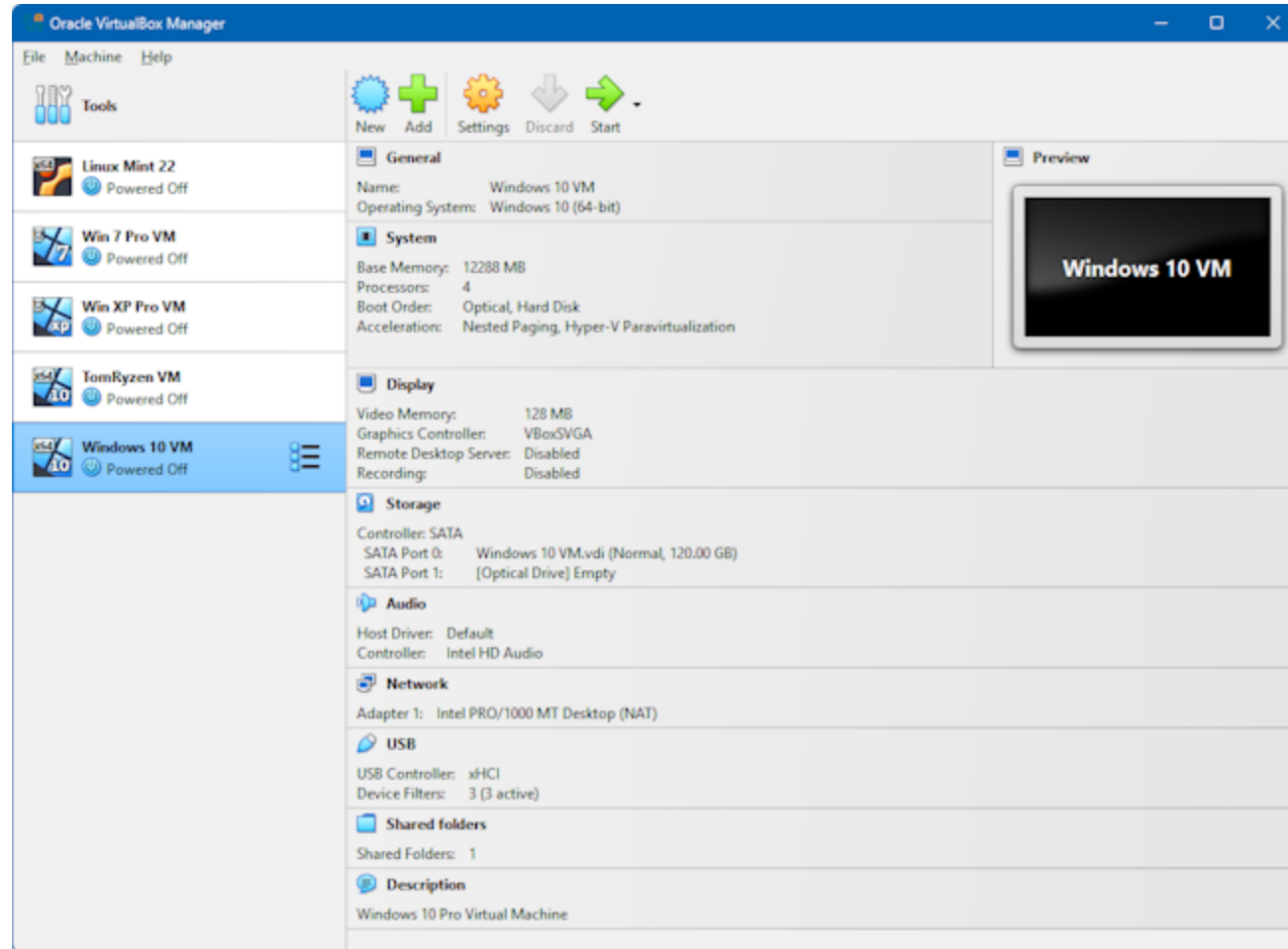
Host PC System Requirements

- **Recommend 8 GB *or more* of physical RAM**
- **Reasonably high-end CPU**
 - 1.8 GHz+ Intel Core I5 or equivalent AMD
 - 2.4 GHz+ 4 or 8 Cores better, especially for virtualizing Win 10 or 11
- **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

Demo 1 - Create an Empty VM

- **Start the Virtual Machine program (we'll use VirtualBox).**
- **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, Win 11, Linux).
 - Configure VM memory size (2 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 virtual machine settings *after* installing an OS.

VirtualBox Management Screen

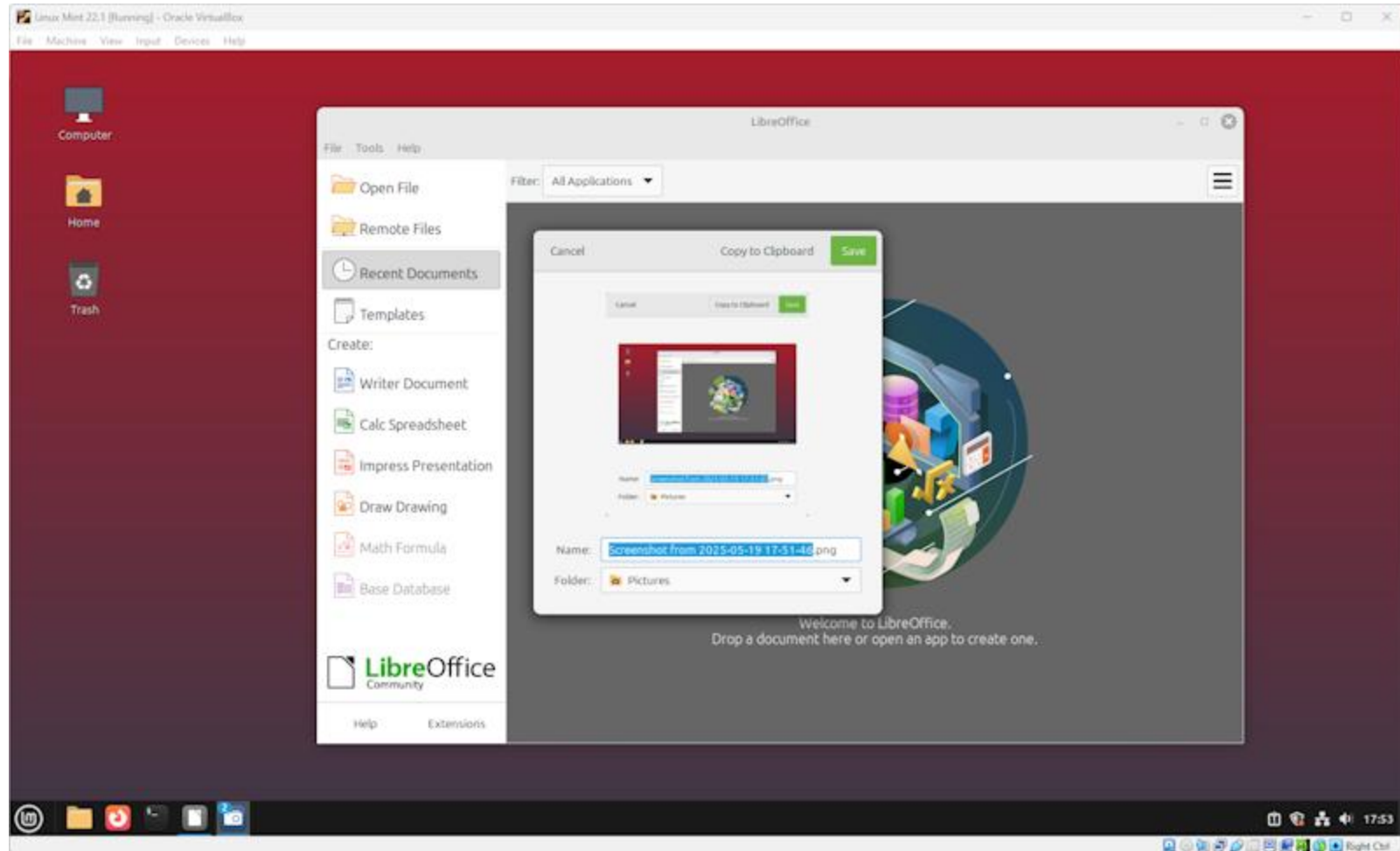


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Demo 2 – Installing Linux Mint

- Linux Mint is a “distro” that is a Windows 7 work-alike.
- Place the Linux Mint setup DVD in the host’s DVD drive or (better) 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 (Takes about 10 minutes – less if VHD is on a SSD).
- Finally reboot into Linux Mint in the VM.
- Insert the “Guest Editions” and run that setup (special drivers).
- Set your preferences – mainly wallpaper, screen resolution.
- Run the Update Manager to get latest security and feature updates.
- Use the Software Manager to install free apps.

Linux Mint in a Virtual Machine



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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.**

Windows 10 in a Virtual Machine

The screenshot shows a Windows 10 desktop environment. The taskbar at the bottom includes the Start button, a search bar, and icons for File Explorer, Microsoft Edge, Google Chrome, and the Task View button. The system tray on the right shows the date and time as 3:49 PM on 3/16/2023. The active window is a web browser displaying the Sun City Summerlin Computer Club website. The website has a header with the club's name and a navigation bar with links like 'Home', 'About SCSCC', 'Subscribe to SCSCCNews', 'Update Your Member Information', and 'Renew or Join for 2025'. The main content area features a calendar for the week of May 12-17, 2025, with activities listed for each day. The left sidebar contains links to a printable calendar, online calendar, gigabyte gazette, and various important links. The footer includes a copyright notice for 2025 and a disclaimer.

SUN CITY SUMMERLIN COMPUTER CLUB
Serving Sun City Residents for over 32 Years

Activities for the Week of May 12 - 17, 2025
All club members are welcome at all sessions!

May 12 Monday	13 Tuesday	14 Wednesday	15 Thursday	16 Friday	17 Saturday
Classroom / Zoom					
	8:30 am Kaffee Klatch Zoom (Jeff Wilkinson) 12:30 PM Repair SIG Live (Chuck Hagen)	9 am Meeting Zoom (SCSCC Board)	10 am Investing SIG Zoom (Tom Burt) 2 pm Android Help Q&A Live (Gene Koch)	8 am - 11 am Closed for Maintenance 3 pm Friday Tech Chat Zoom (Tom Burt)	
Lab					
	12:30 PM Laptop Repair Live (Chuck Hagen)			8 am - 11 am Closed for Maintenance	9 am Weekly Open Lab

Cox.net to Yahoo.com Email Conversion Notes
Useful Links for Homebound Seniors - Click [HERE](#).
Bill Wilkinson Recognition Event Video - Click [HERE](#).
Quick Reference: [Attending Zoom Meetings](#) [Download Zoom Software](#)

Member of **apcug**

The Computer Club is for Sun City Summerlin residents who enjoy using and learning about computers. You can make friends, keep your mind

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Demo 4 – Windows 10 in a VM

- **A VirtualBox (or VMWare) virtual machine with Windows 10 installed can be created by doing a clean install.**
- **Once set up and configured and with the Extensions installed, the VM is ready to use.**
- **You can install Win 10/11 apps and drivers as needed.**
- **When finished, use the Win 10 Guest OS's Start menu to shut down the VM, just like a real PC.**
- **Possible to convert a physical instance of Windows 10 to a virtual machine running on Windows 11, MacOS or Linux.
(See the web links – can be rather tricky.)**

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/>
- <https://superuser.com/questions/468043/how-to-create-a-virtual-machine-from-a-img-disk-image>

Questions And Answers

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