Cloud and Virtualization Concepts

Lab 3: Virtual Machine Cloning and Exporting

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Contents

Introduction

In this lab, *Cloud and Virtualization Concepts Lab 3: Virtual Machine Cloning and Exporting*, we will create both linked and full type clones of a virtual machine and examine the differences between the two clone types. Next, we will show two methods for exporting a virtual machine to a format that makes it easy to transport to another VMware application like *VMware Workstation* or *VMware vSphere*.

Objectives

- Create a linked VM clone
- Create a full VM clone
- Export a virtual machine using OVA
- Export a virtual machine using OVF

Lab Topology

Lab Settings

The information in the table below will be needed in order to complete the lab. The task sections below provide details on the use of this information.

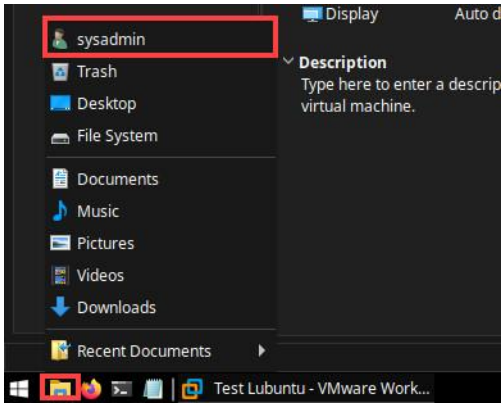
Virtual Machine	**IP Address**	**Account** (if needed)	**Password** (if needed)
Workstation	192.168.14.1	sysadmin	Train1ng$

1 Create a Linked Virtual Clone

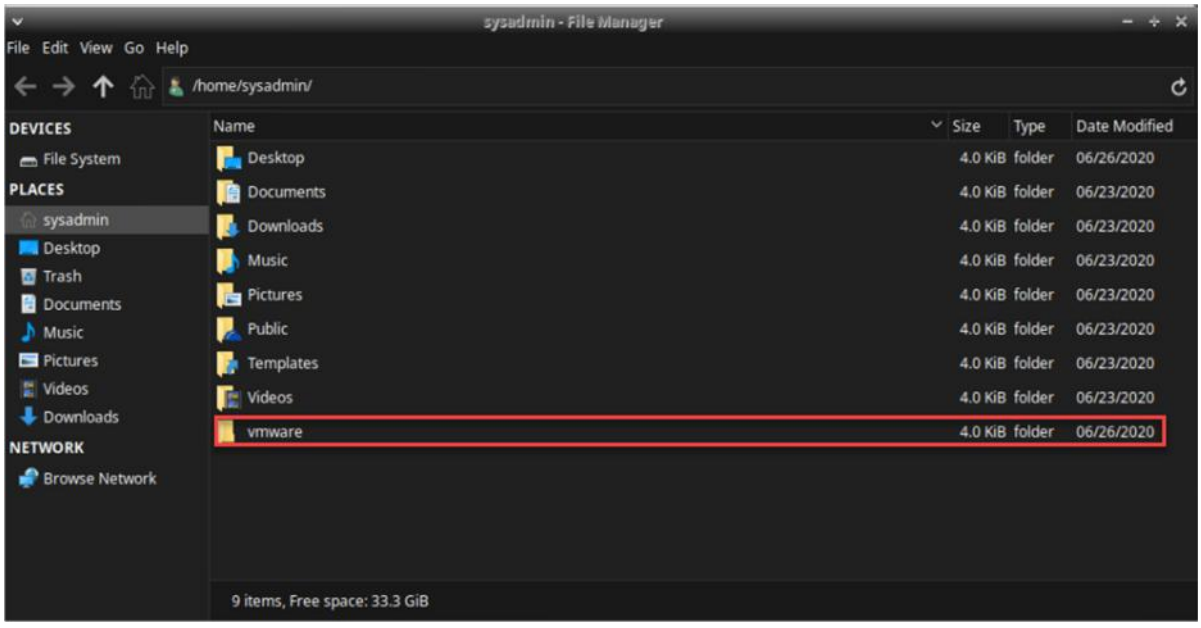
Create a linked clone of the *Test Lubuntu* virtual machine. A linked clone is a copy of a virtual machine that shares virtual disks with the original virtual machine. This helps conserve disk space while at the same time, allows ongoing changes to the original virtual machine to not change the linked clone and not allow ongoing changes to the linked clone affect the original virtual machine.

1. Open the *VMware Workstation* application. On the desktop, double-click the **VMware Workstation** icon.

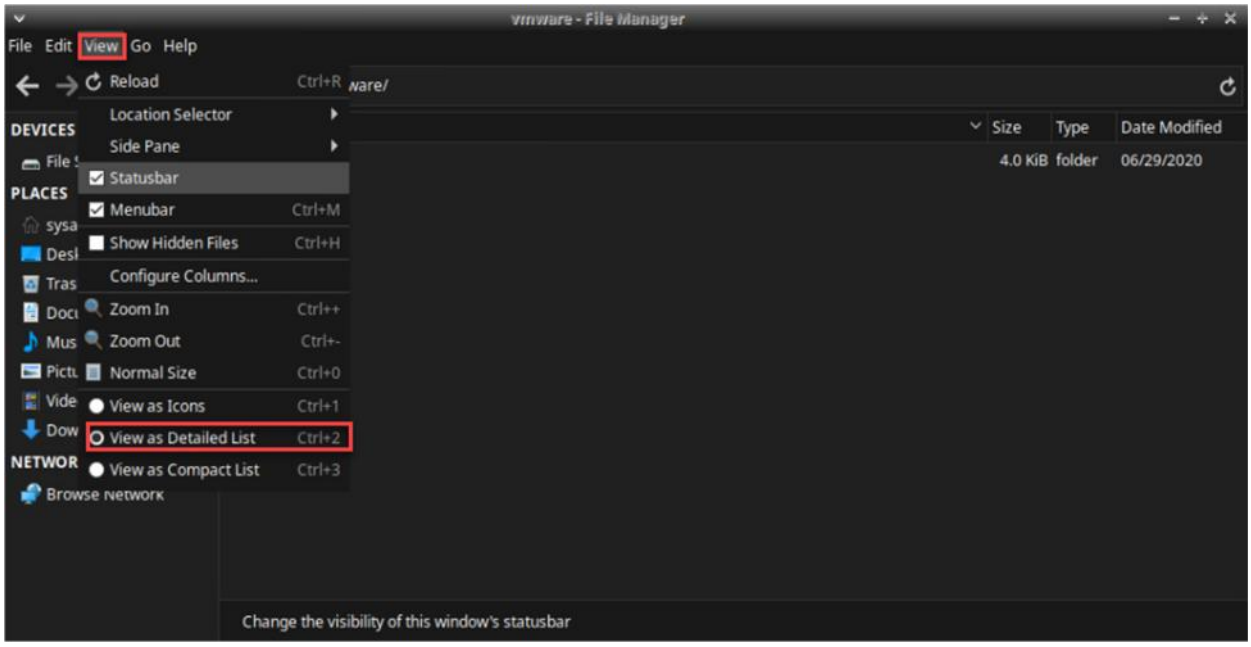
2. On the bottom toolbar, click the **File Manager** icon and select **sysadmin**.



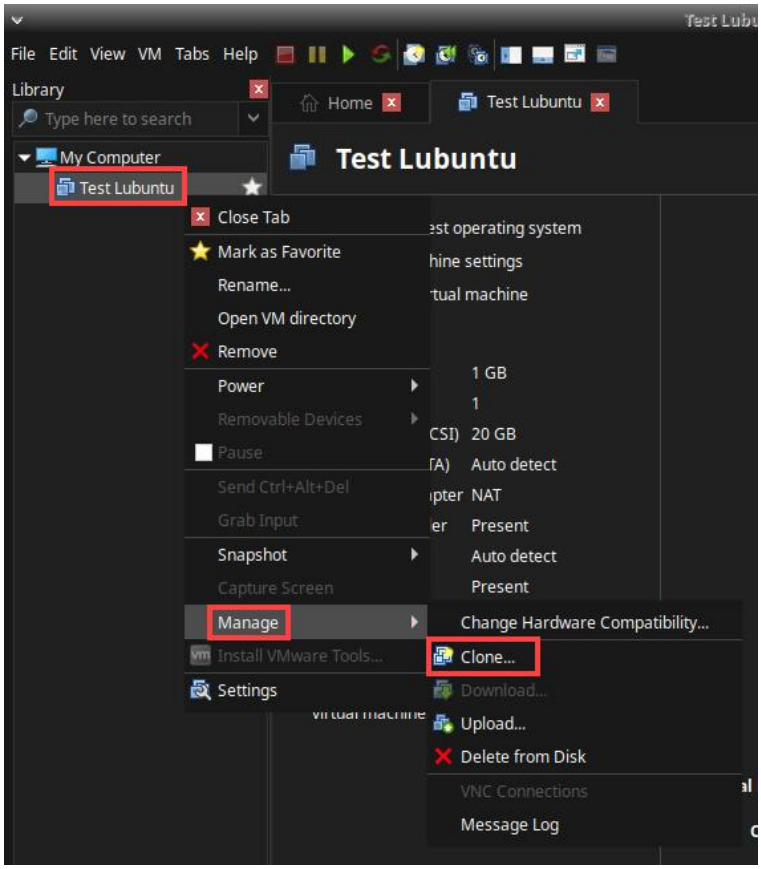
3. In the *File Manager* window, double-click the **vmware** folder.



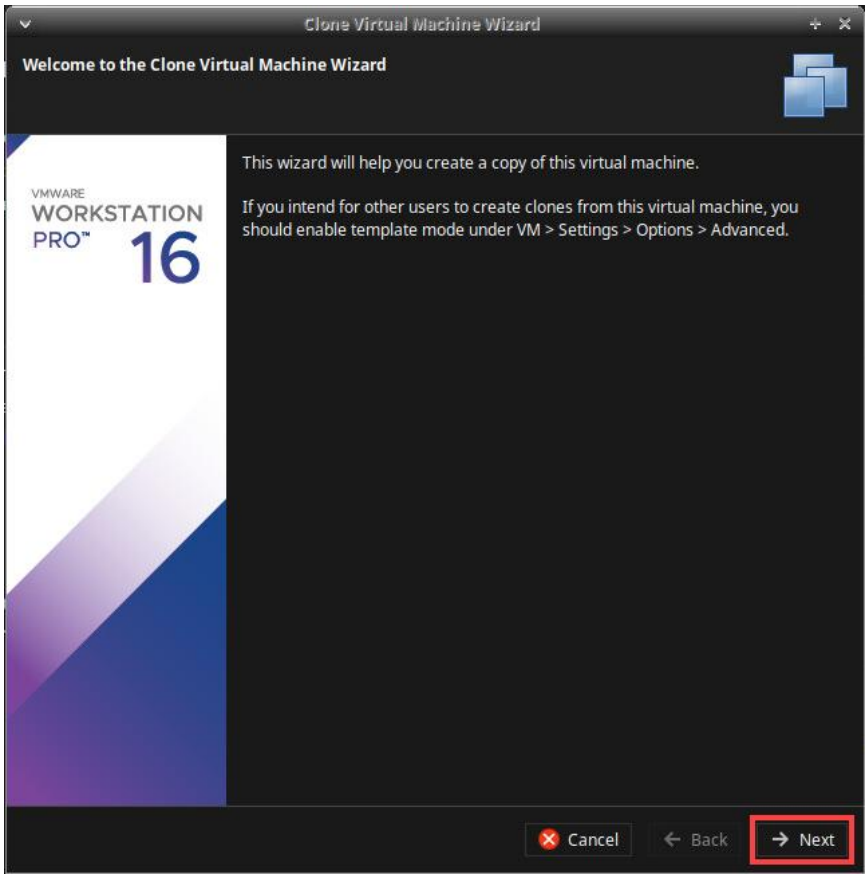
4. Once in the *vmware* folder, verify that the folder's view configurations are correct by navigating to **View > View as Detailed List**.



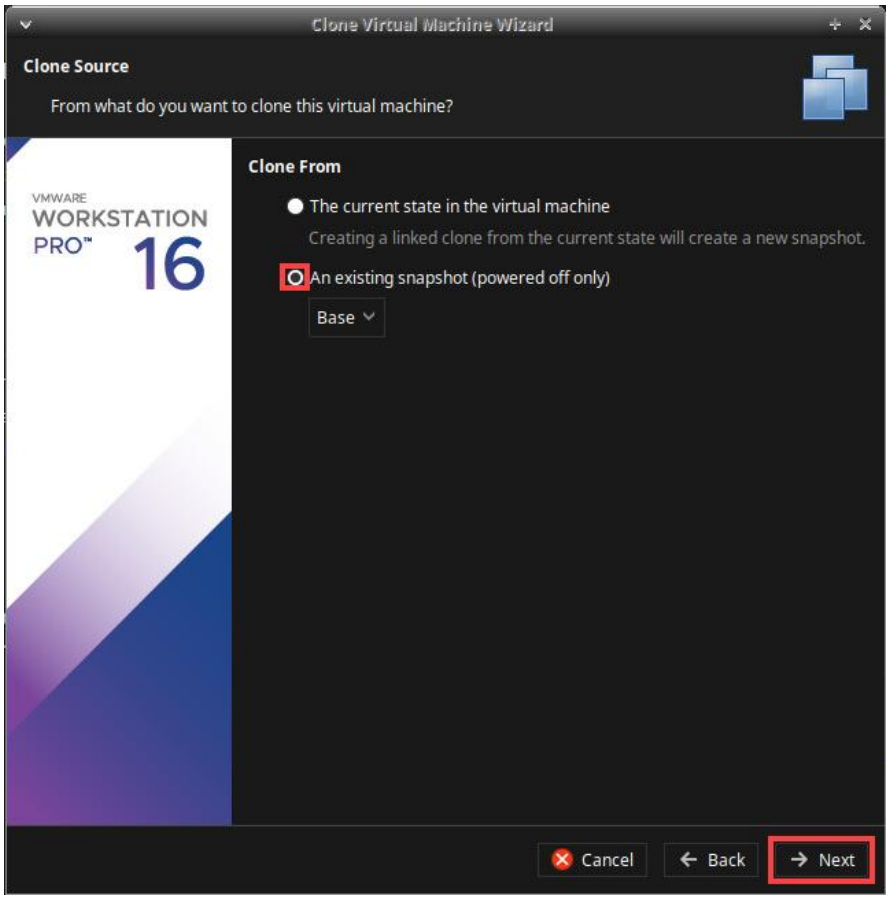
5. Change focus to the **VMware Workstation** window, right-click **Test Lubuntu** from the virtual machine inventory pane located to the left and select **Manage > Clone** to open *the Clone Virtual Machine Wizard*.



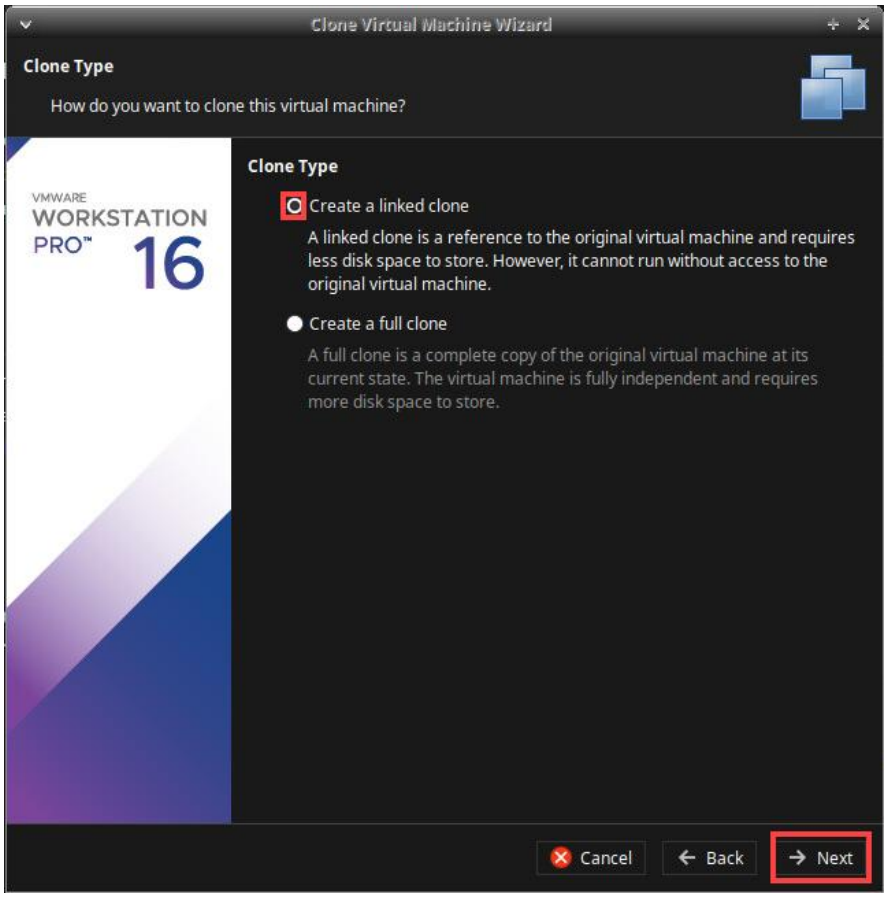
6. In the *Clone Virtual Machine Wizard*, click **Next** to continue.



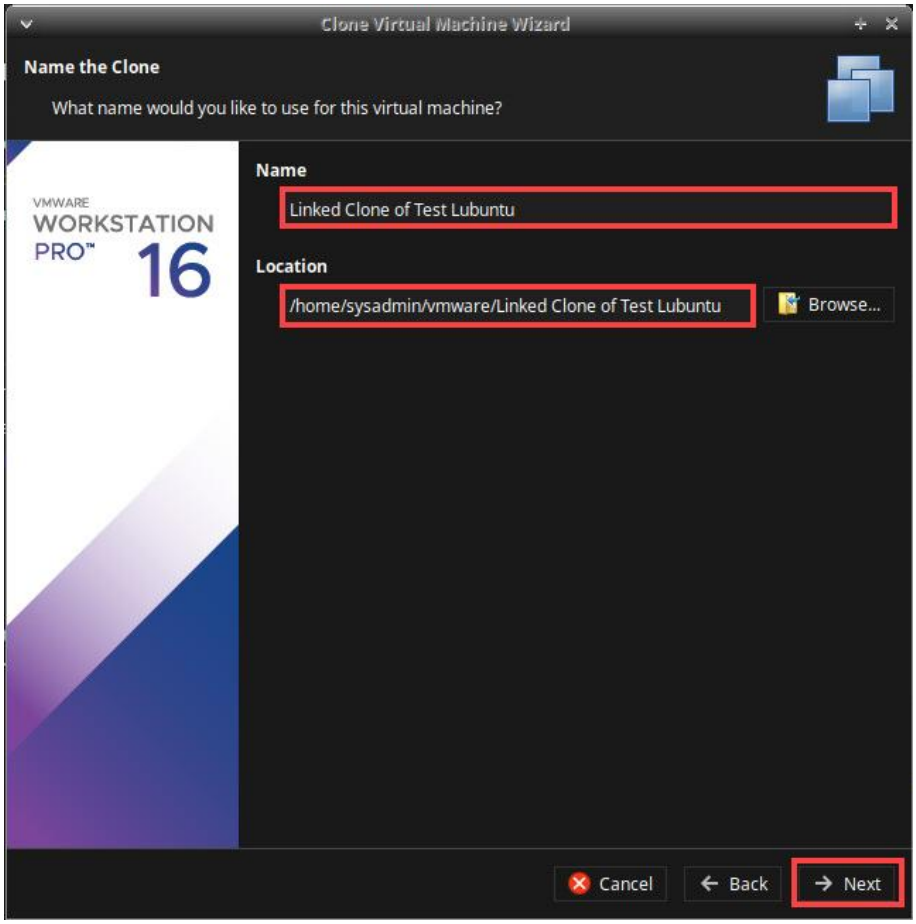
7. Select the radio button to clone from the existing *Base* snapshot. Click **Next**.



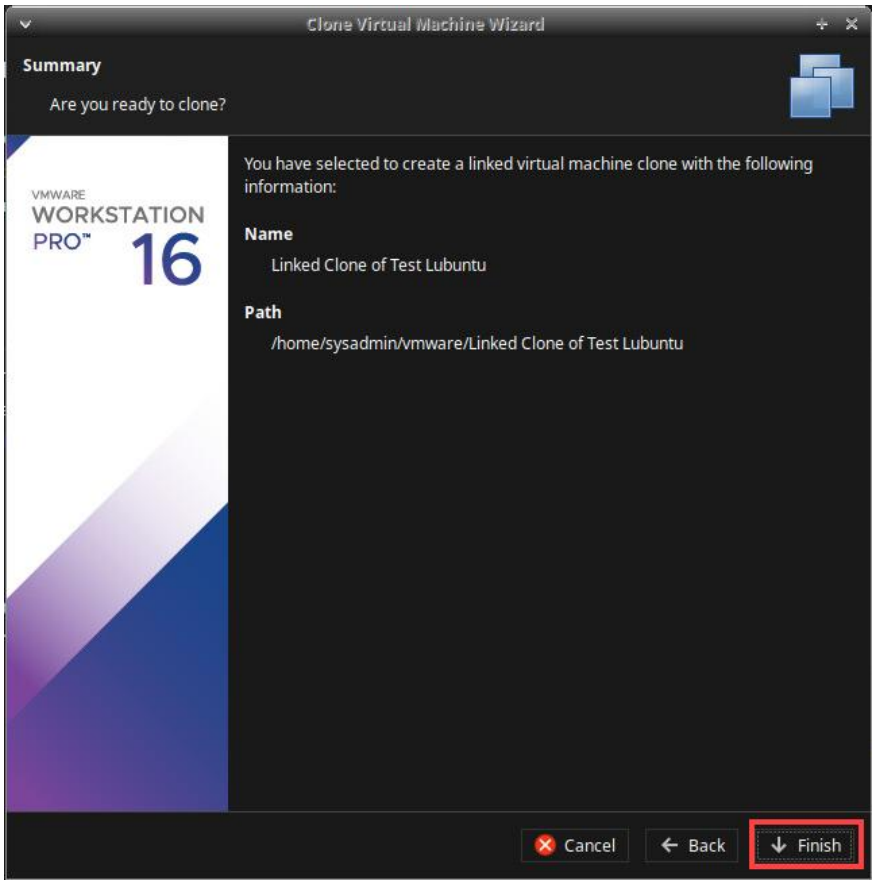
8. On the *Clone Type* step, select **Create a linked clone**. Click **Next**.



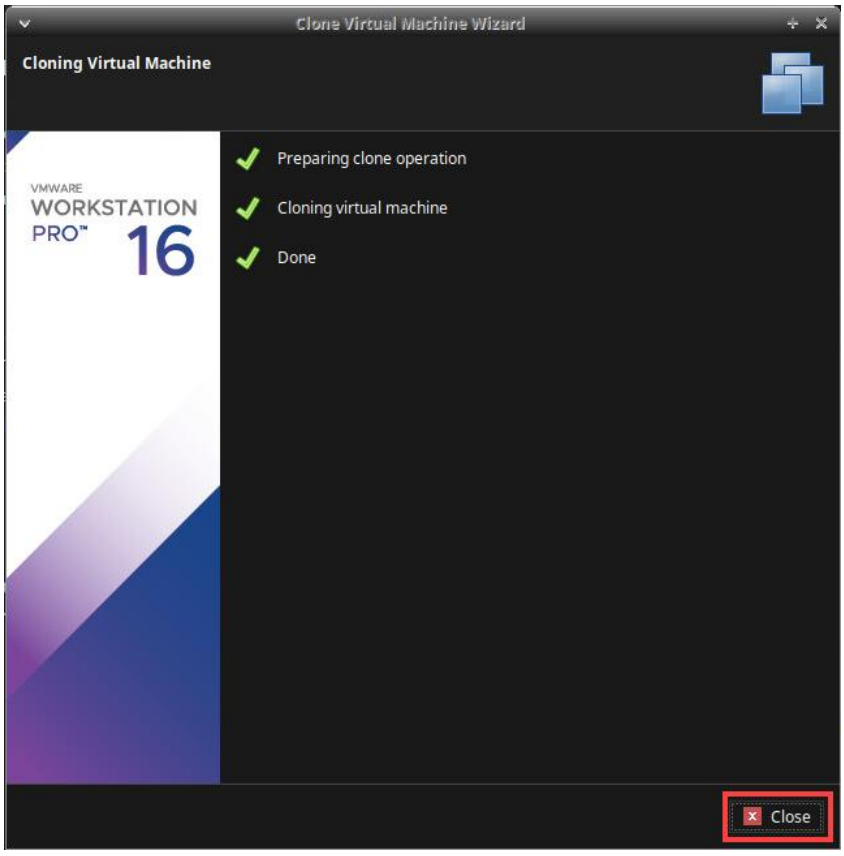
9. Name the clone **`Linked Clone of Test Lubuntu`** and make sure the location is configured to */home/sysadmin/vmware/Linked Clone of Test Lubuntu*. Click **Next**.



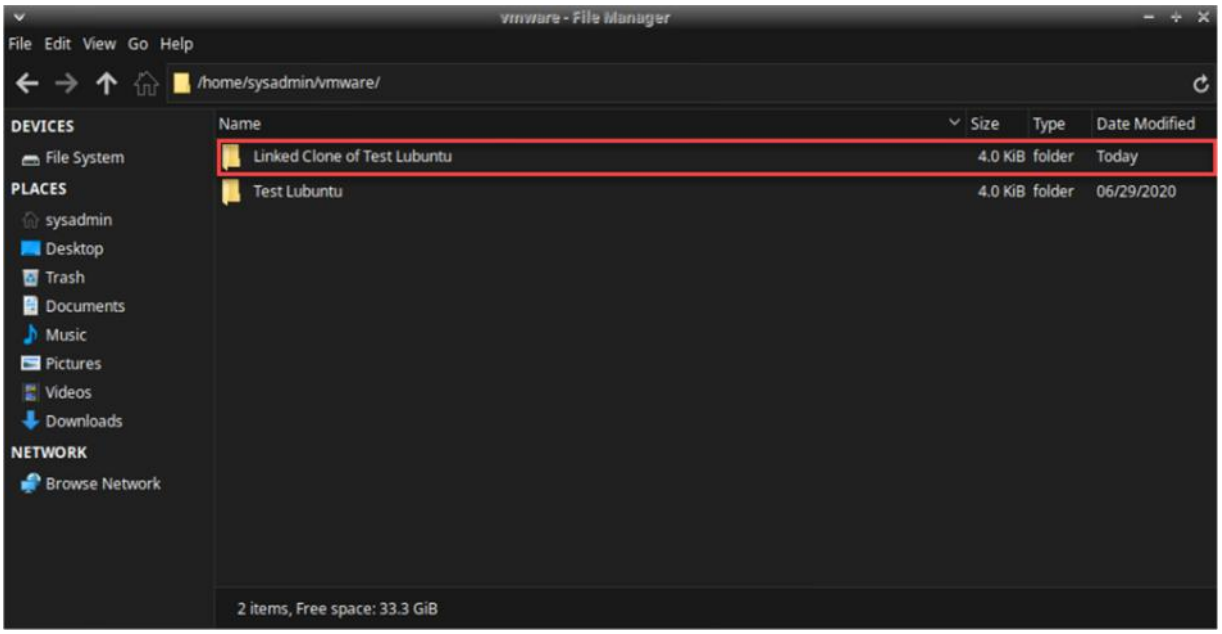
10. On the *Summary* step, review the information and click **Finish**.



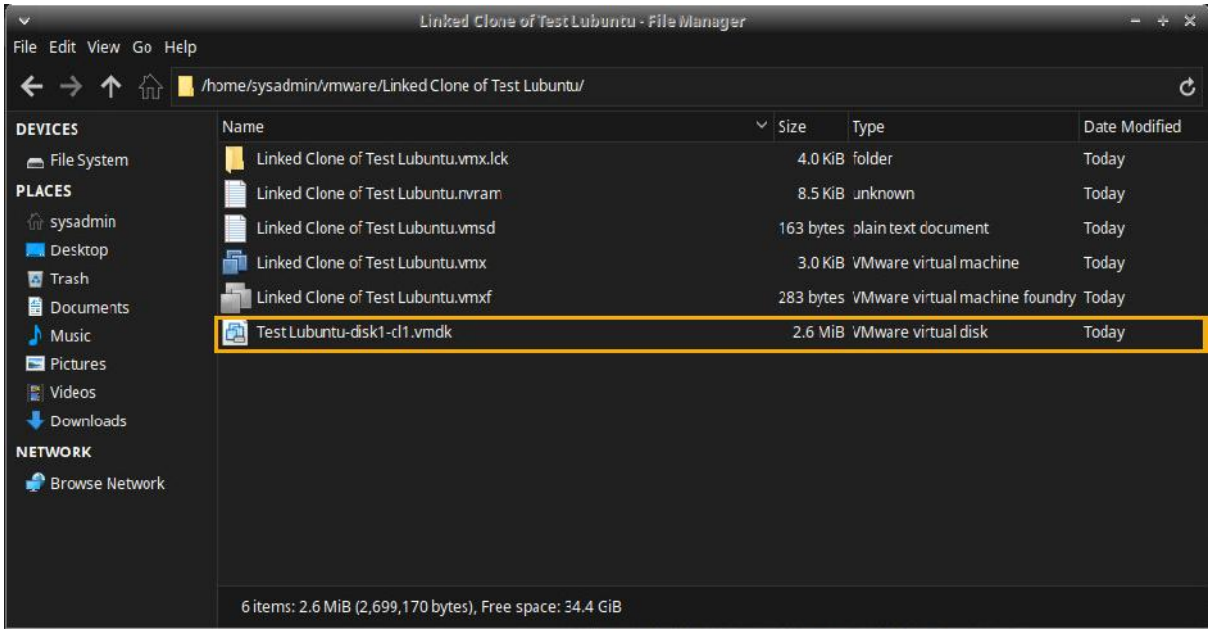
11. Once the cloning process is finished, click the **Close** button.



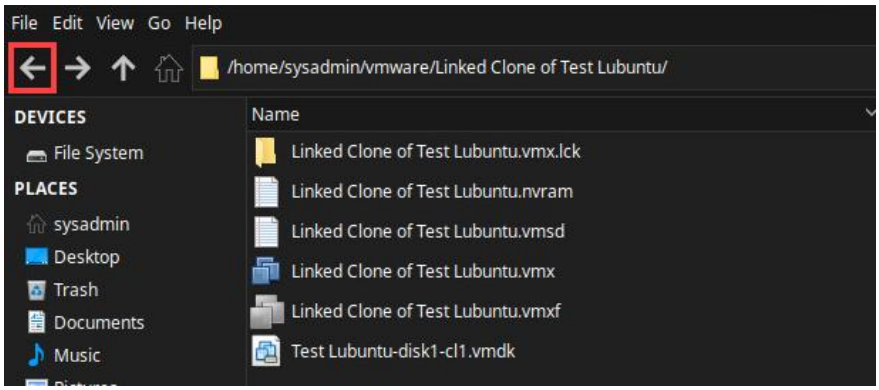
12. Change focus to the **File Manager**. There should now be a new VM folder called *Linked Clone of Test Lubuntu*. Double-click the **Linked Clone of Test Lubuntu** folder.



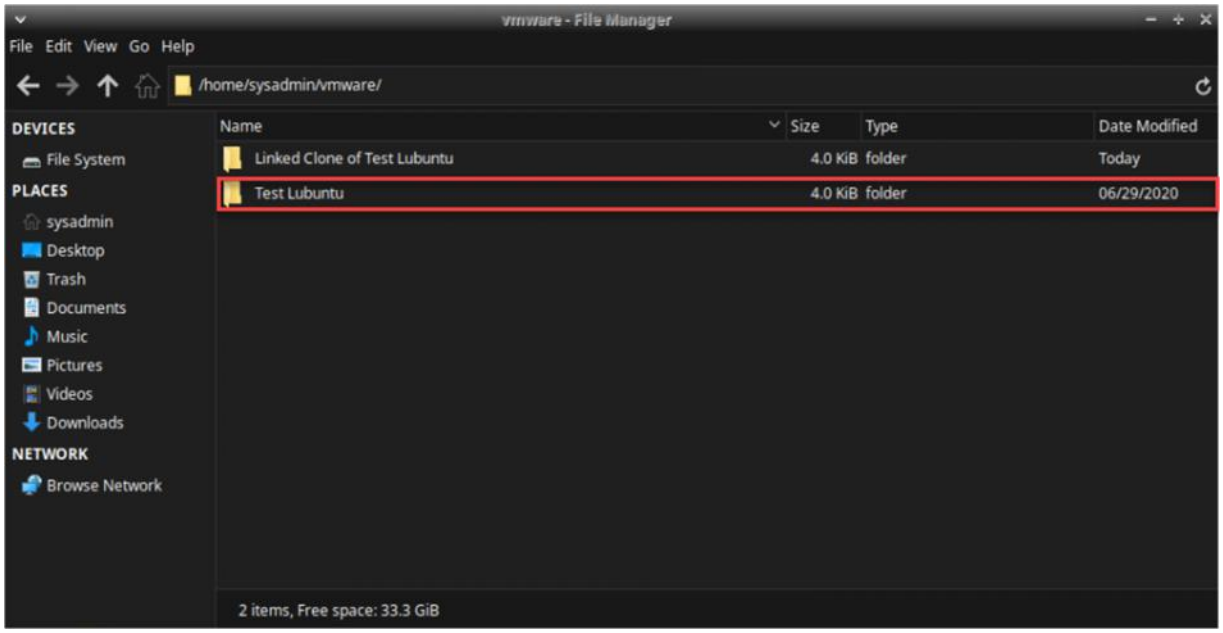
13. In the folder, notice the cloned VM configuration is held in the *Linked Clone of Test Lubuntu.vmx* file. Also, notice the size of the cloned virtual disk files of the original *Test Lubuntu* machine.



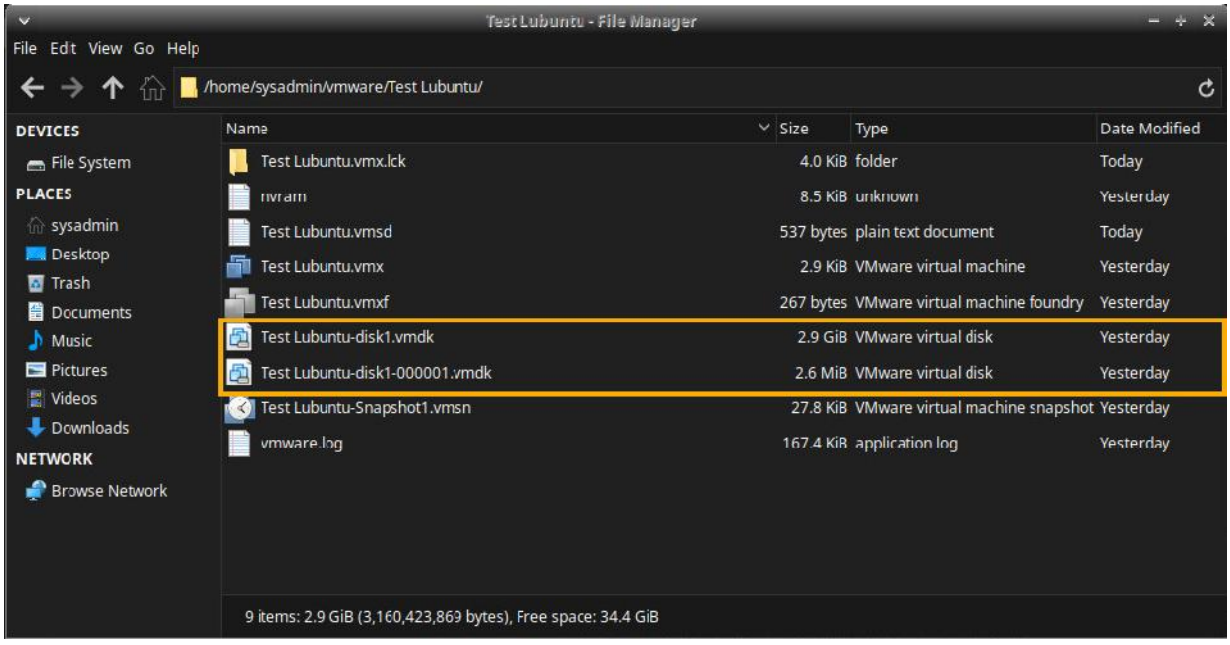
14. Go back to the **/home/sysadmin/vmware** directory by clicking the back arrow.



15. Double-click the **Test Lubuntu** folder.



16. Observe the contents of the *Test Lubuntu* folder. Notice the sizes of the virtual disk files of the original VM are larger than those of the linked clone shown previously in *Step 13*.

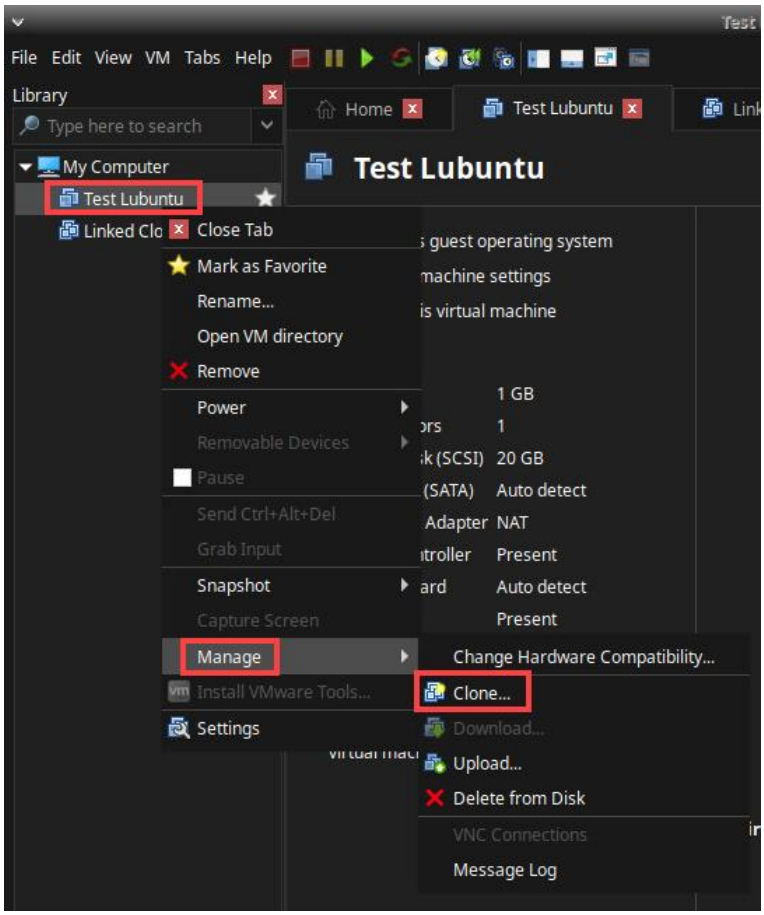


On a linked clone, the virtual disk file size is smaller than the original VM disk file. The original VM disk files contain the data and all the changes to the data are contained in the linked clone disk files.

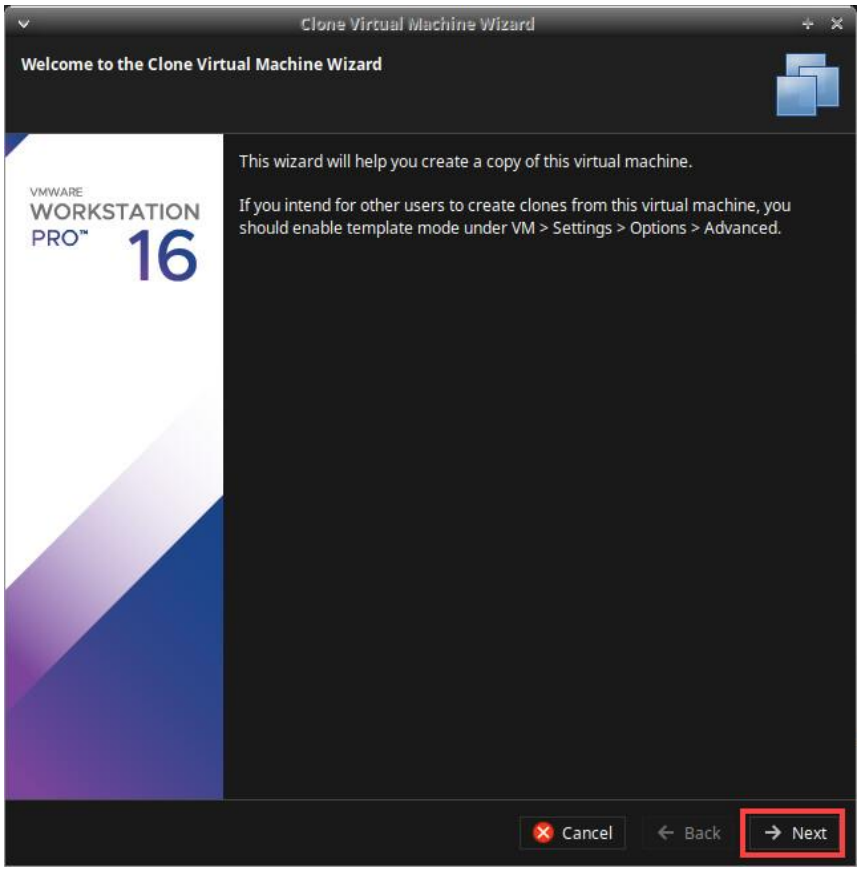
2 Create a Full Virtual Machine Clone

Create a full clone of the *Test Lubuntu* virtual machine. A full clone is an independent copy of a virtual machine that shares nothing with the original virtual machine after the cloning operation. This means that the full clone virtual machine does not need access to the original virtual machine.

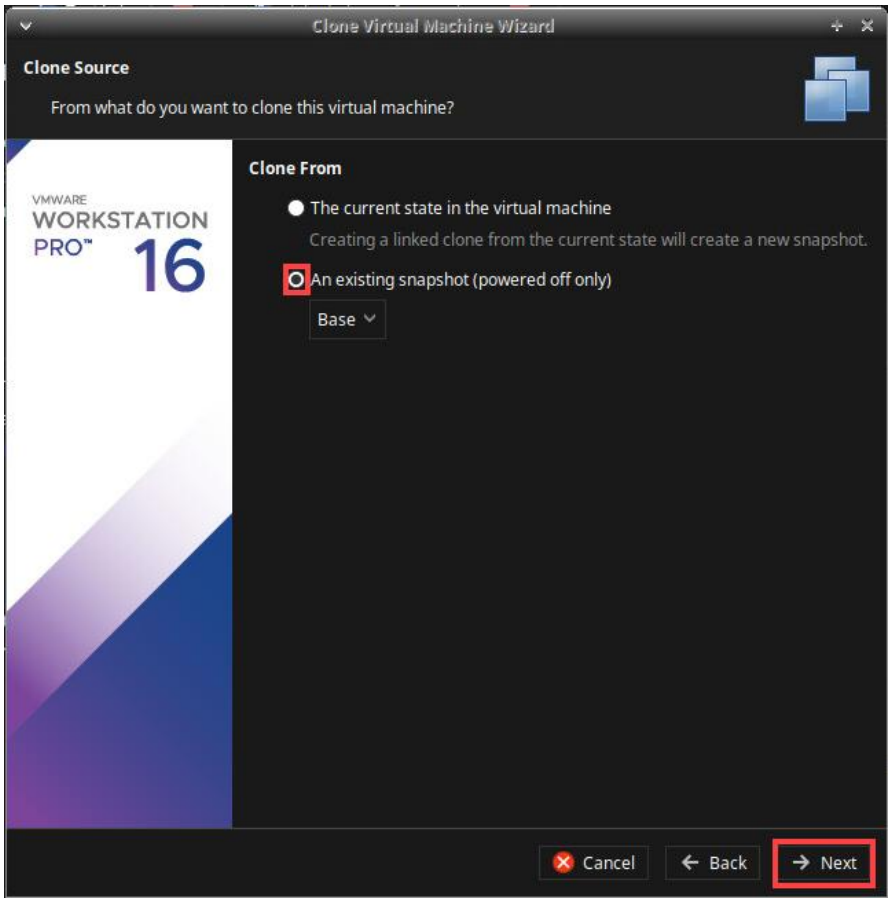
1. In the *VMware Workstation* window, right-click **Test Lubuntu** from the inventory and select **Manage > Clone**.



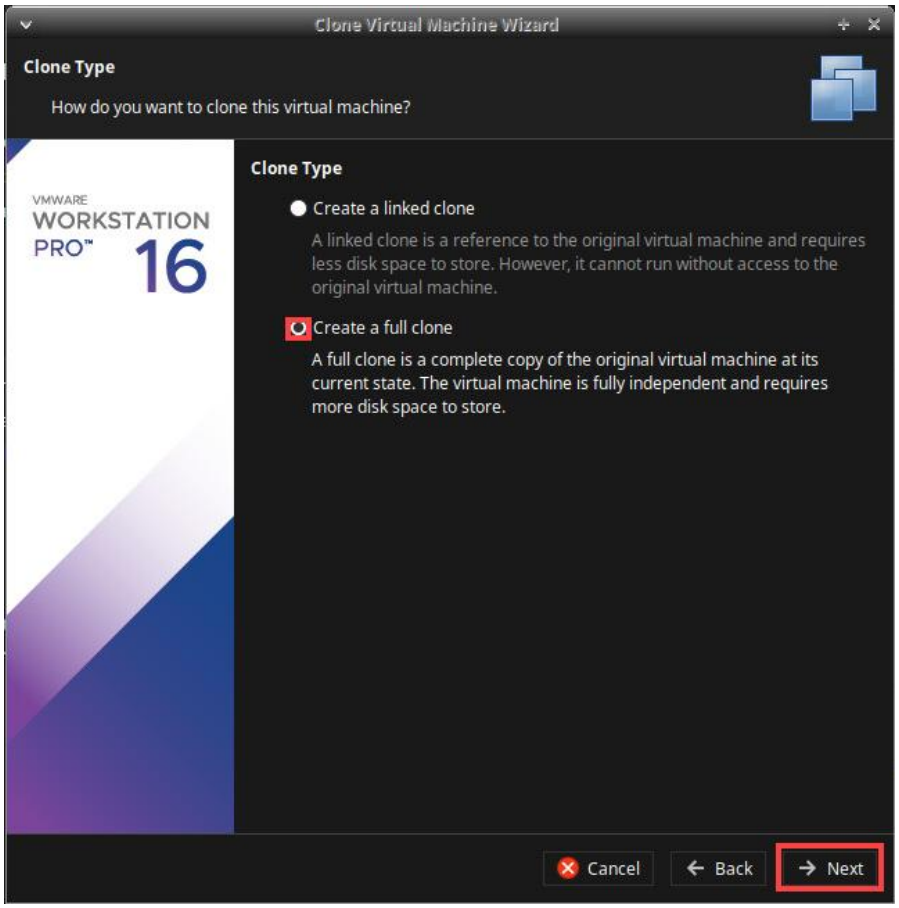
2. In the *Clone Virtual Machine Wizard*, click **Next** to continue.



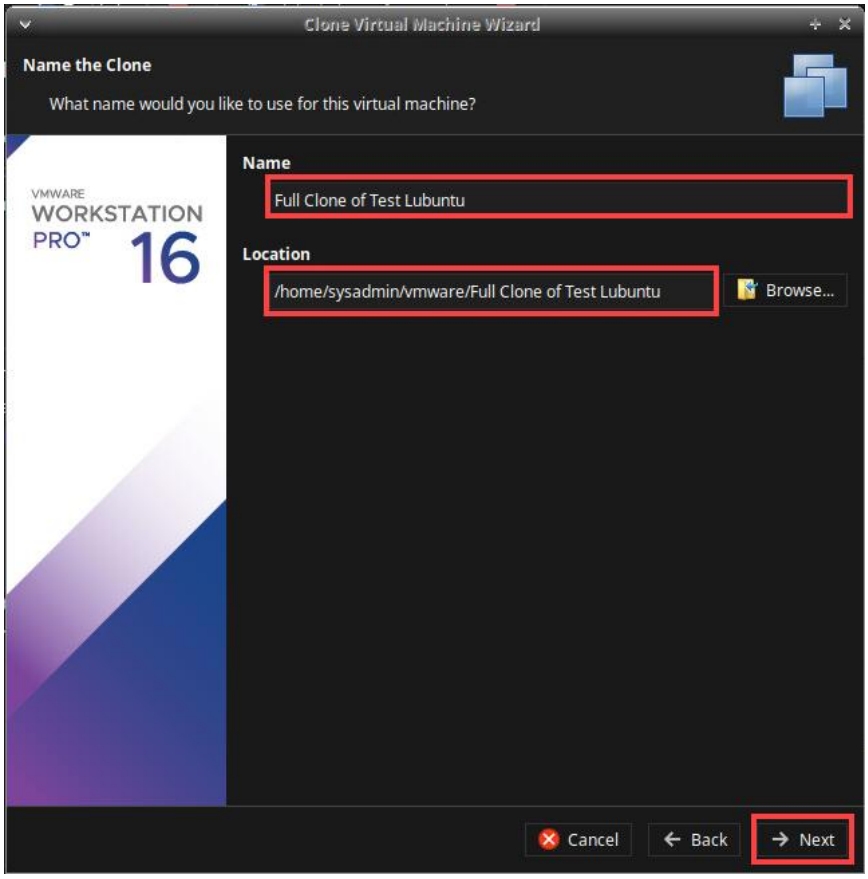
3. Select the radio button to clone from the existing *Base* snapshot. Click **Next**.



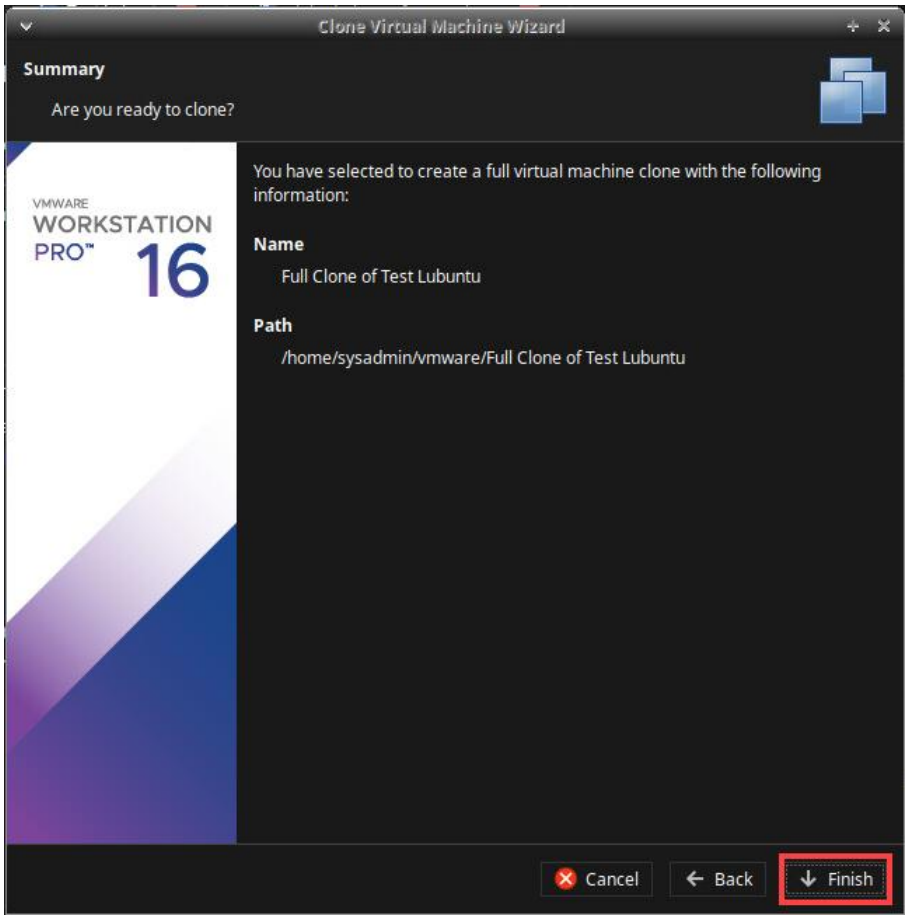
4. Select **Create a full clone**. Click **Next**.



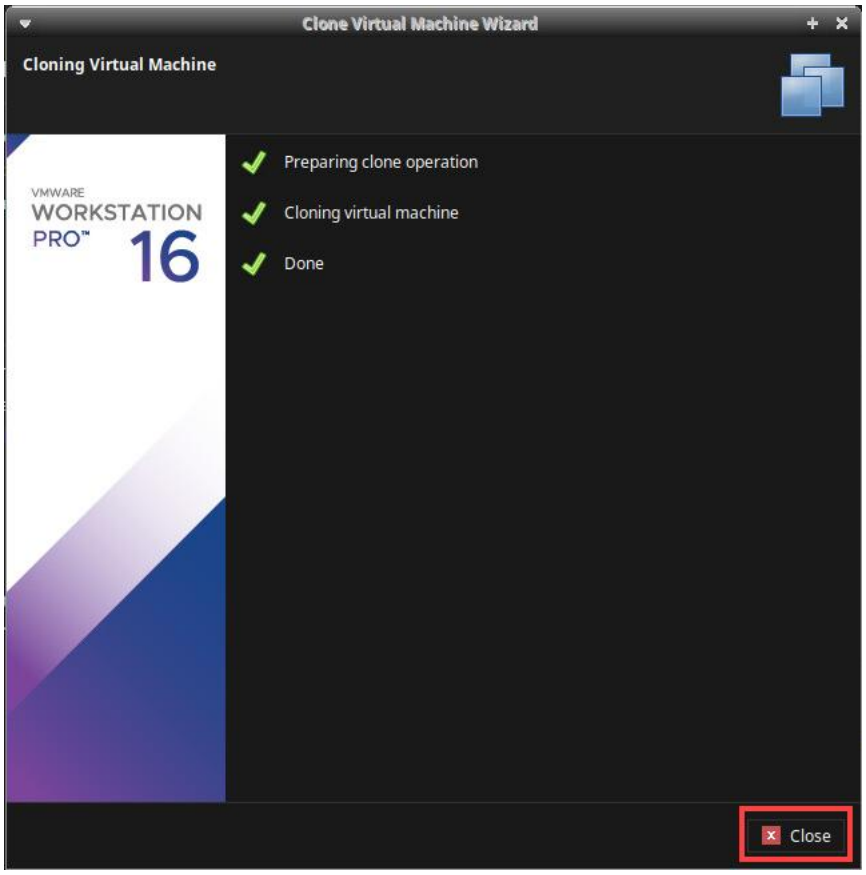
5. Name the full clone `Full Clone of Test Lubuntu`. and confirm the location is set to **/home/sysadmin/vmware/Full Clone of Test Lubuntu**. Click **Next**.



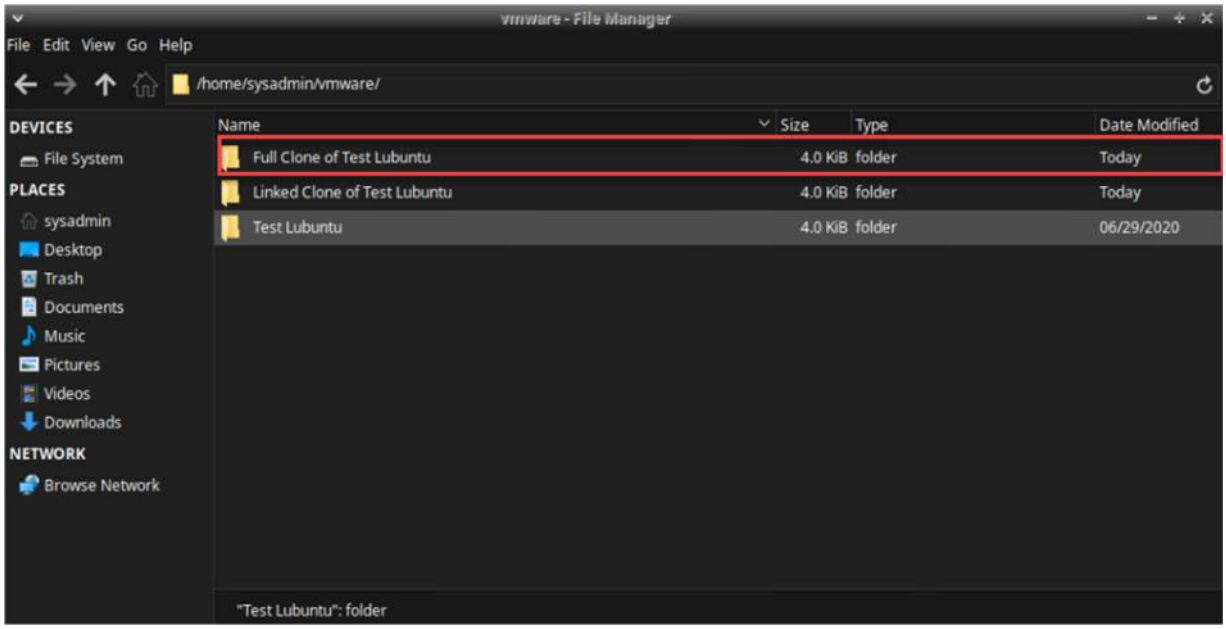
6. On the *Summary* step, review the information and click **Finish**.



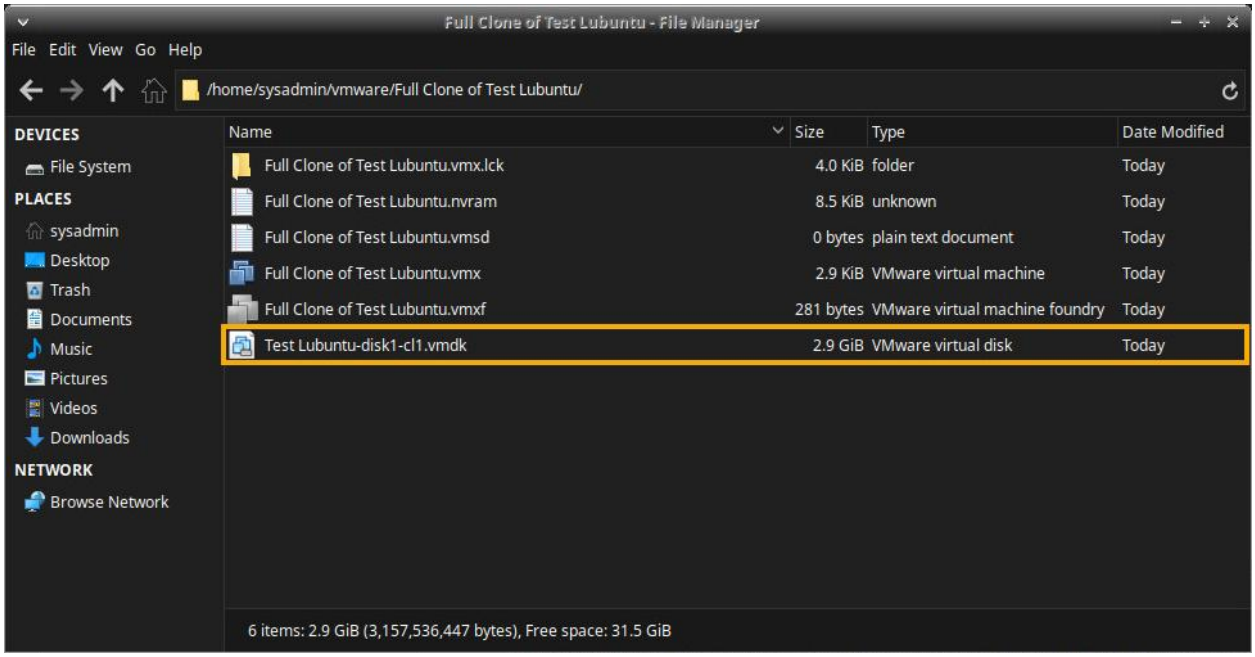
7. Once the cloning process has completed, click the **Close** button to exit the wizard.



8. Change focus to the **File Manager** window and go to the **/home/sysadmin/vmware** directory by clicking the back arrow. Double-click the **Full Clone of Test Lubuntu** folder.



9. In the directory, notice the cloned VM is held in the *Full Clone of Test Lubuntu.vmx* file. Also, notice that the sizes of the full clone virtual disk files are identical to the original *Test Lubuntu* VM disk files. For example, notice the *Test Lubuntu-disk1-cl1.vmdk* file below, its file size is identical to the original *VMDK* file called *Test Lubuntu-disk1.vmdk* shown in *Task 1*, *Step 16*.

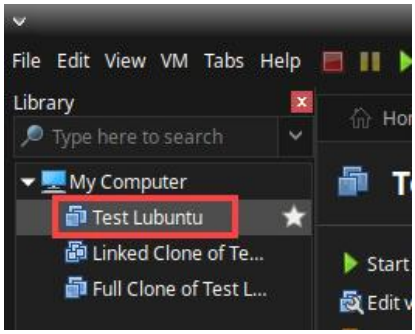


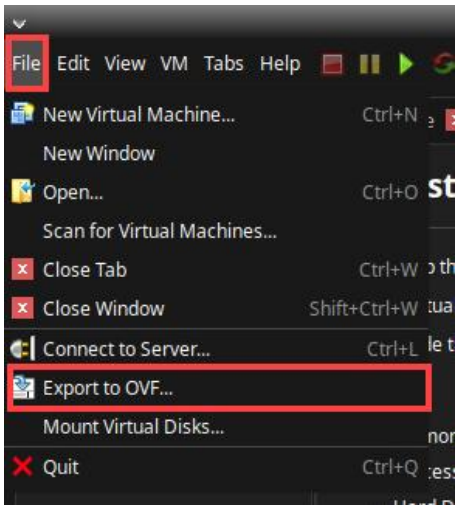
3 Exporting a Virtual Machine

Exporting *OVF* or *OVA* templates allows you to create virtual appliances that can be imported by other users. You can use the export function to distribute software as a virtual appliance, or for distributing template virtual machines to users.

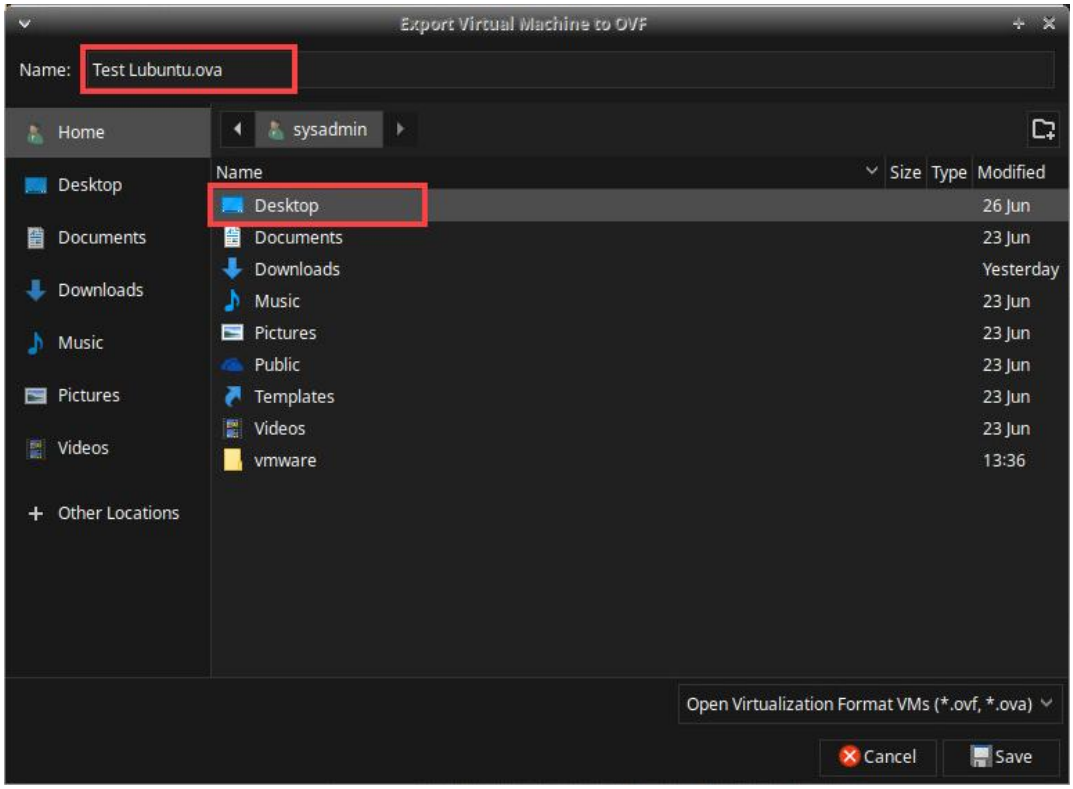
Export the *Test Lubuntu* virtual machine as an *OVF* (*Open Virtualization Format*). *OVF* format provides a complete specification of the virtual machine, including the full list of required virtual disks and the required virtual hardware configuration. You can specify whether to export the virtual machine as an *OVF*, a folder with separate files, or as an *OVA*, a single-file archive.

1. Change focus to the *VMware Workstation* application window, select **Test Lubuntu** from the left pane and select **File > Export to OVF**.

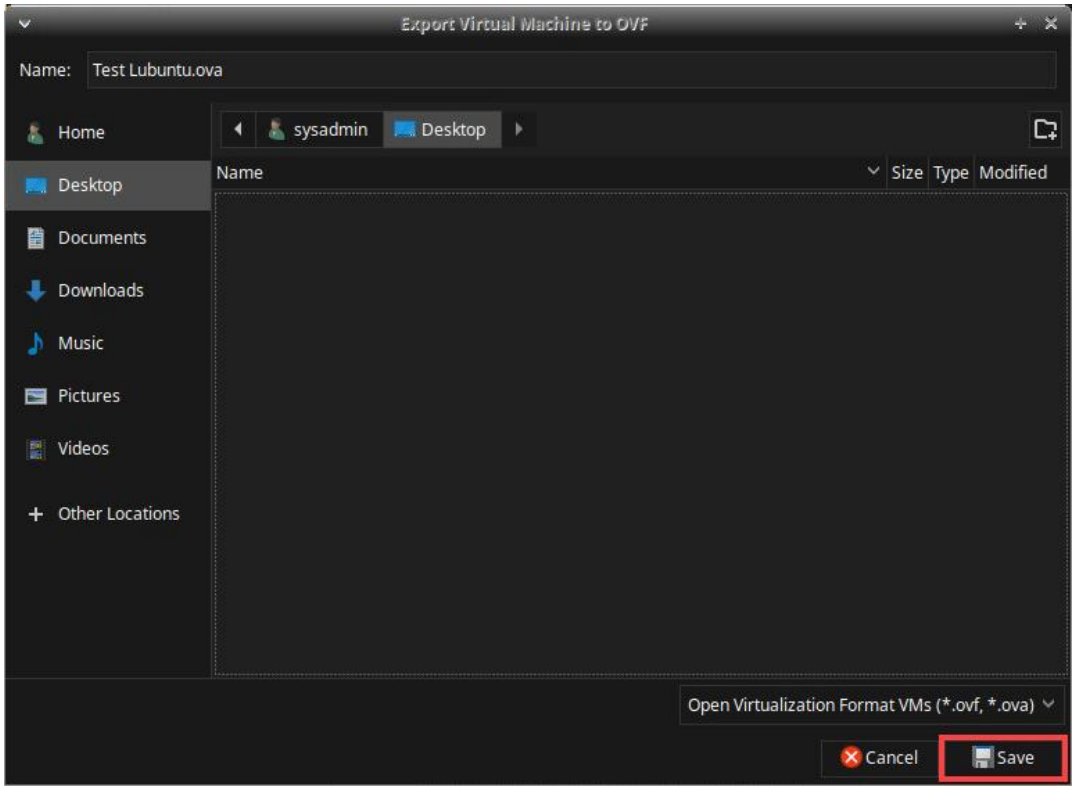




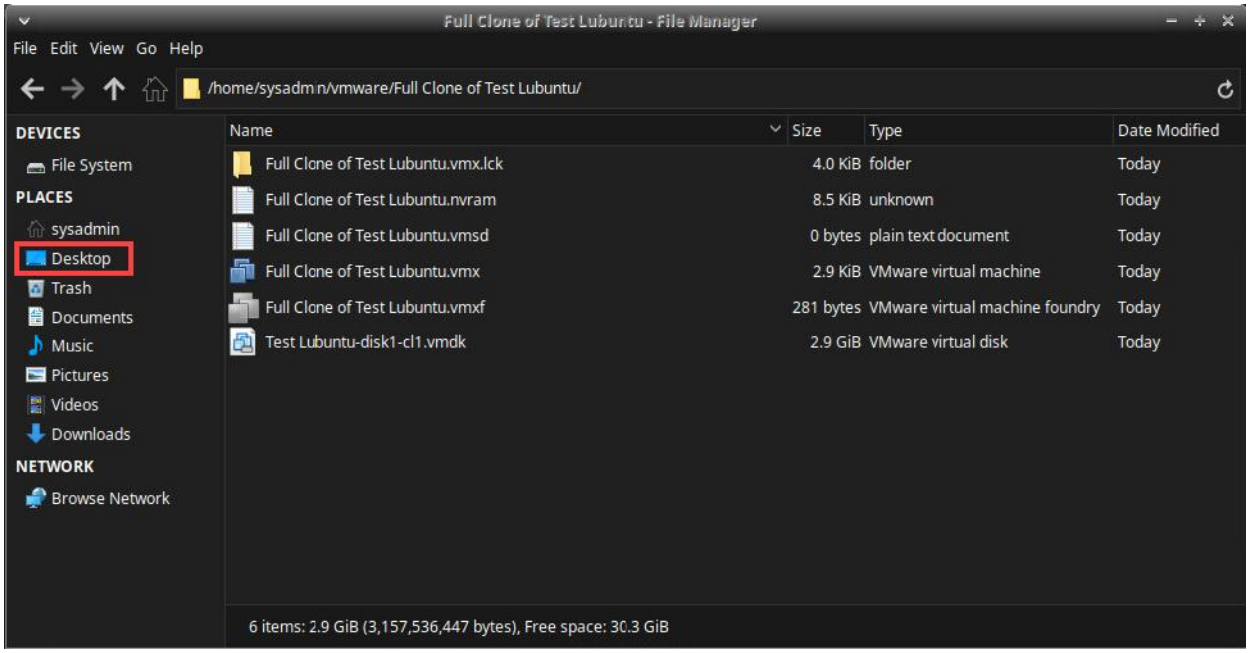
2. Export the *Test Lubuntu* VM as an *.ova* file format. Type **`Test Lubuntu.ova`** into the *Name* field and double-click the **Desktop** folder.



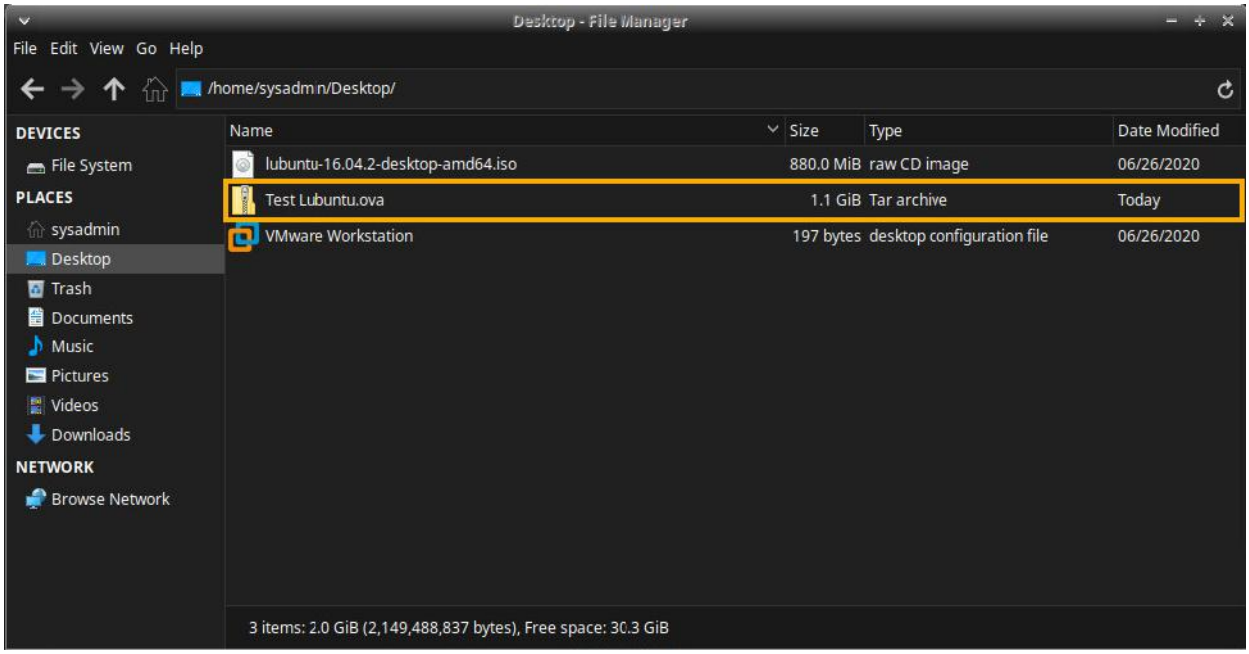
3. Click **Save**. Wait 2-3 minutes for the action to complete.



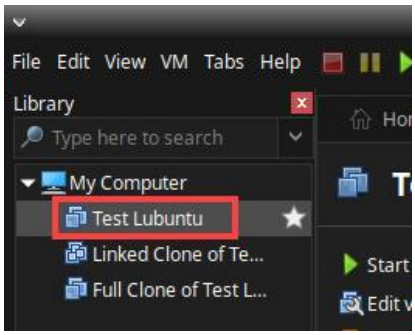
4. Using the **File Manager**, go to the **/home/sysadmin/Desktop/** directory by clicking **Desktop** underneath *Places* in the left column.

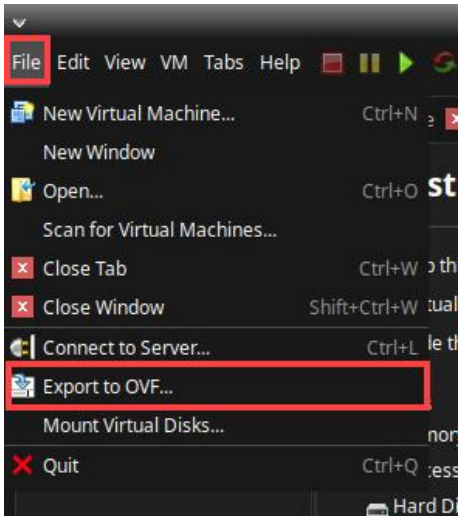


5. Once the exporting process is complete, verify that the *Test Lubuntu.ova* file is present in the *Desktop* directory. Notice the exported *Test Lubuntu* VM is packaged in a single *OVA* archive.

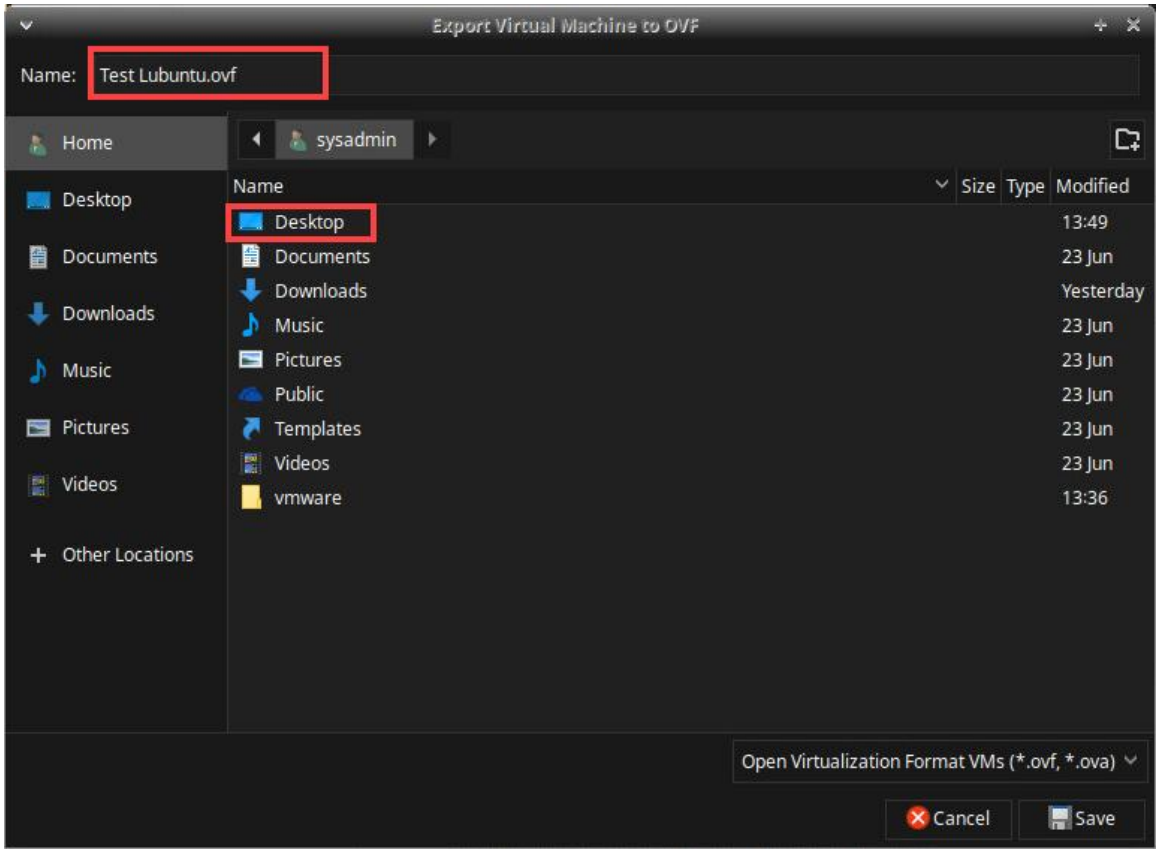


6. Export the *Test Lubuntu* VM to an *.ovf* file format. Change focus to the **VMware Workstation** window. While having **Test Lubuntu** selected, navigate to **File > Export to OVF**.

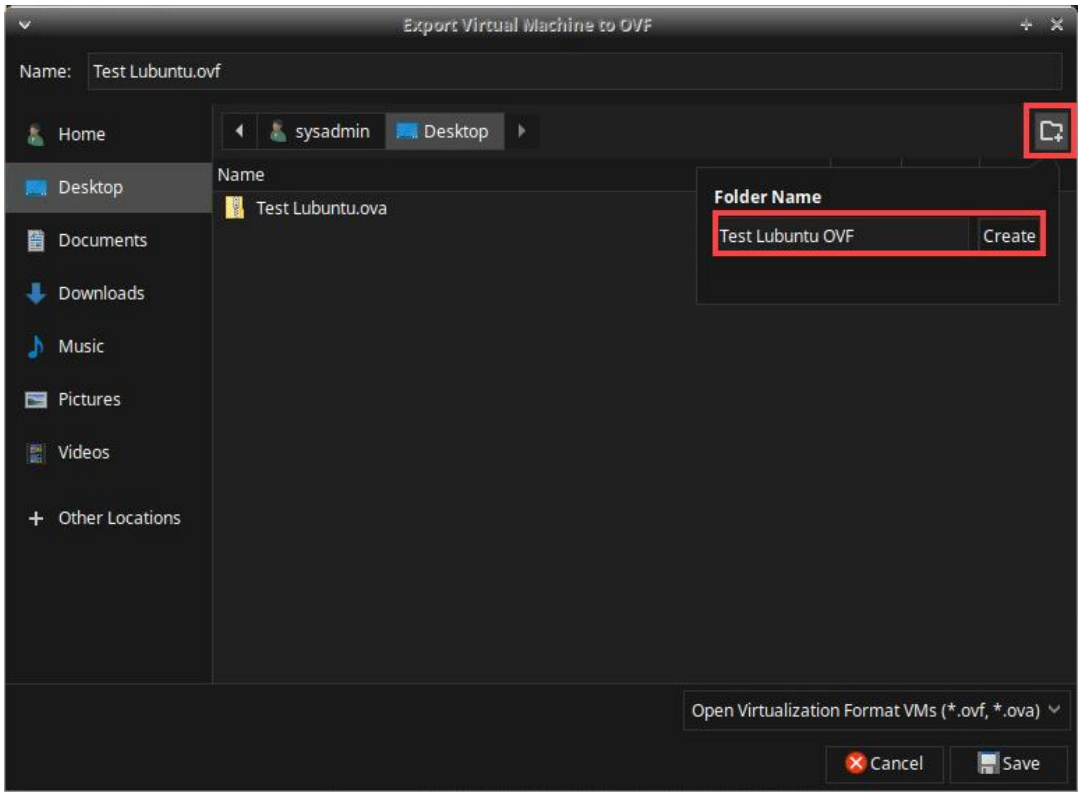




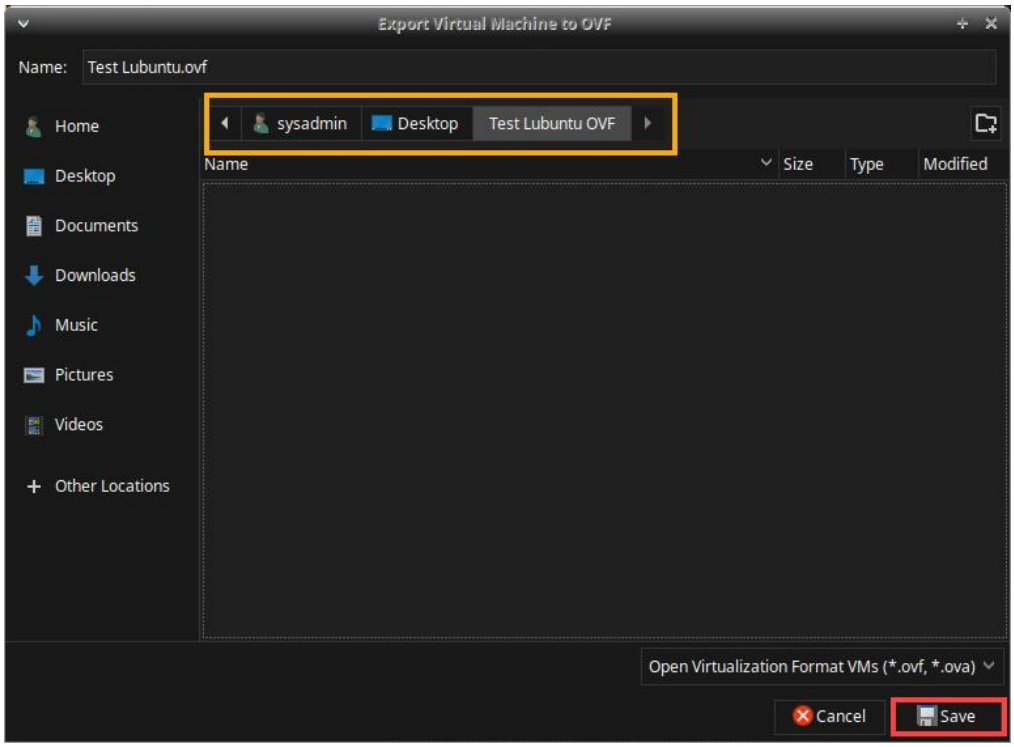
7. In the *Export Virtual Machine* window, verify that **`Test Lubuntu.ovf`** is already written as the name. Double-click **Desktop**.



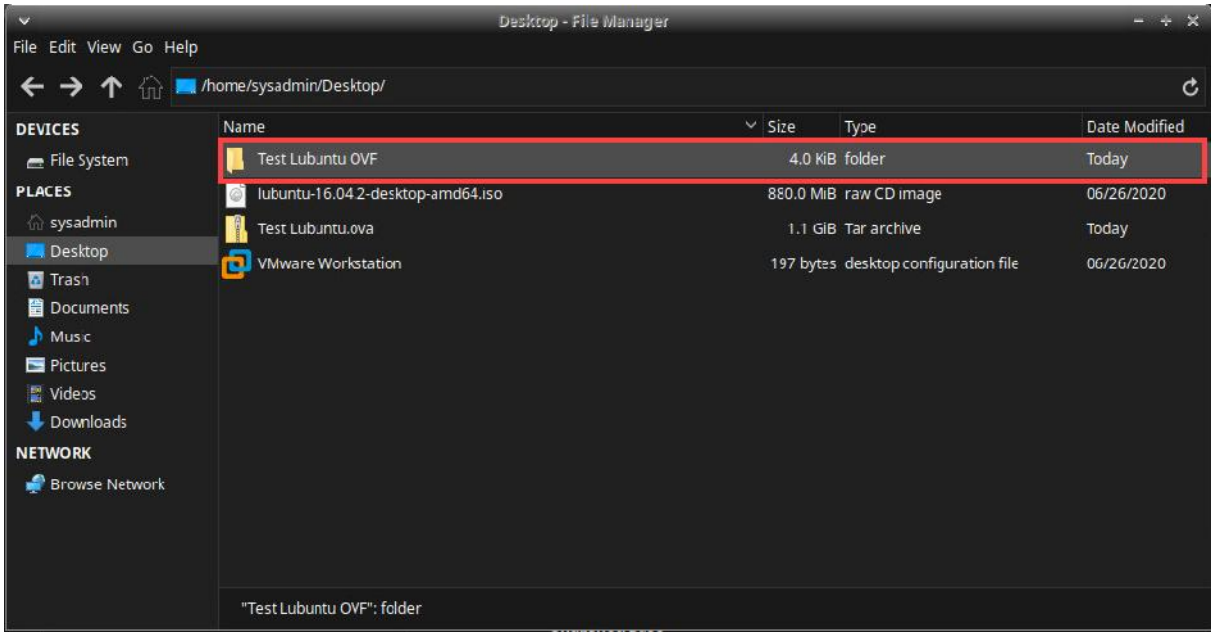
8. Create a new folder by first clicking the **Create Folder** button followed by naming it `Test Lubuntu OVF`. Click the **Create** button or press the **Enter** key to accept changes.



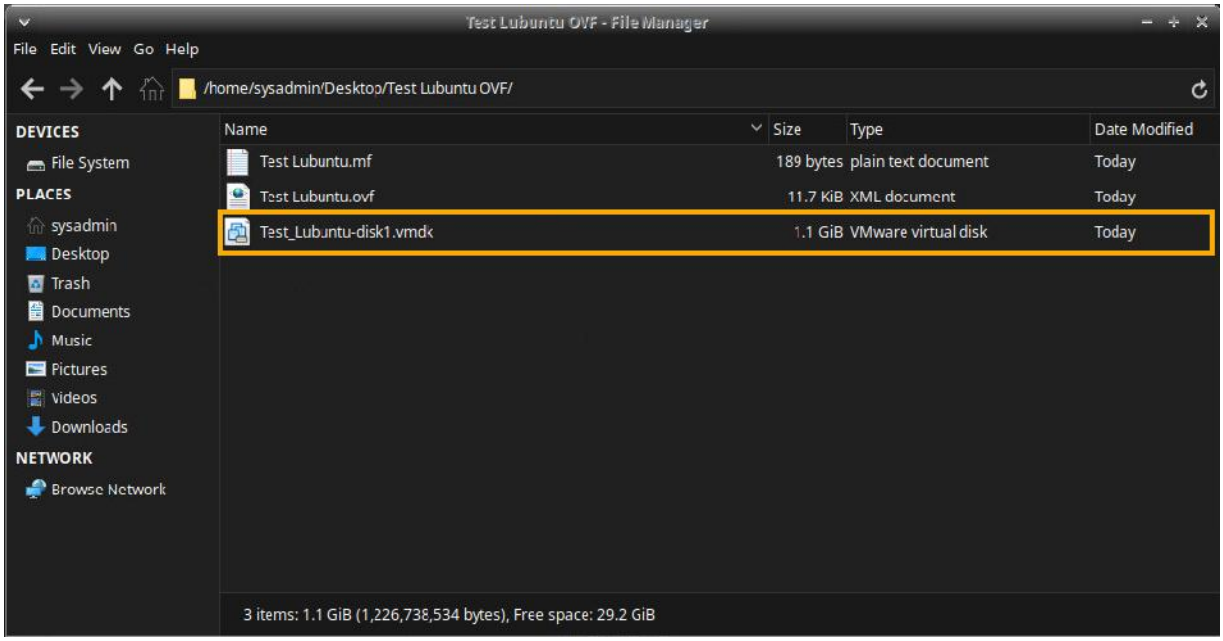
9. Notice that it automatically should change your current directory in the new *Test Lubuntu OVF* folder. Be sure to be in the *Test Lubuntu OVF* folder and click **Save**.



10. While the export is processing, change focus back to the **File Manager** and navigate to the **/home/sysadmin/Desktop/Test Lubuntu OVF** directory.



11. Once the *Test Lubuntu.ovf* VM has finished exporting, it should appear in the *Test Lubuntu OVF* folder. Notice the size of the disk.



Notice when exporting the *Test Lubuntu* VM in *OVF* format that there is a set of files as opposed to the single *OVA* file from the previous export process.

12. The lab is now complete; you may end the reservation.

