

Installing Oracle VM VirtualBox on Windows 10

This document shows how to install VirtualBox and the Extension Pack to enable the use of a Linux virtual machine for the cross build platform.

General Instruction:

Install Oracle VM VirtualBox using the official VirtualBox installer. For legal distribution reasons, the VirtualBox installation executable cannot be included with any public Avnet materials. To obtain a free legal copy of the Oracle VM VirtualBox and the Extension Pack, please download from the VirtualBox website:

<https://www.virtualbox.org/wiki/Downloads>

The version downloaded may differ from the version shown in this documentation (6.0.12). Be sure to read the VirtualBox EULA to ensure you do not violate the *Personal Use and Evaluation License* (PUEL). You may also wish to consult the *VirtualBox Licensing Frequently Asked Questions* for a quick overview of the intent of the license agreements:

https://www.virtualbox.org/wiki/Licensing_FAQ

Step-by-Step Instructions:

1. To obtain a free legal copy of Oracle VM VirtualBox, download the installer from this website:

<https://www.virtualbox.org/wiki/Downloads>

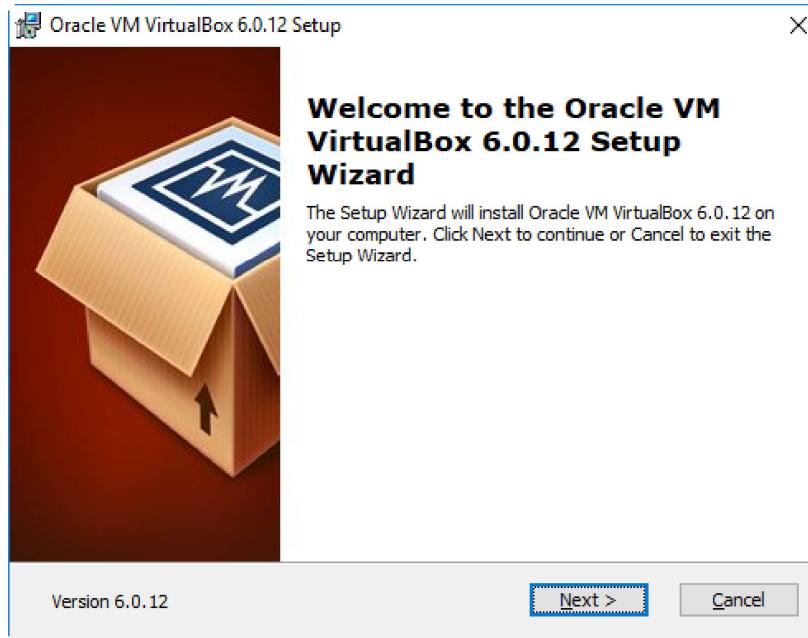
The version downloaded may differ from the version shown in this documentation (6.0.12). You also need to download the Extension Pack which is a separate download. Make sure the Extension Pack you download is the same version as your VirtualBox installer.

2. Launch the VirtualBox installer from Windows Explorer by double-clicking the self-extracting executable. Allow the installer to make changes to your computer, if so prompted.

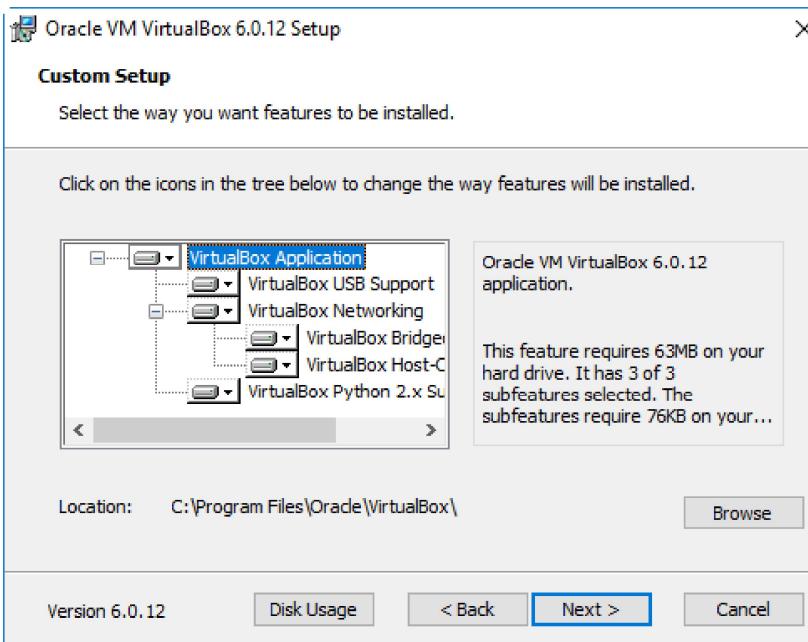
Name	Date modified	Type	Size
VirtualBox-6.0.12-133076-Win.exe	10/14/2019 2:38 PM	Application	166,464 KB

VirtualBox Installer for Windows

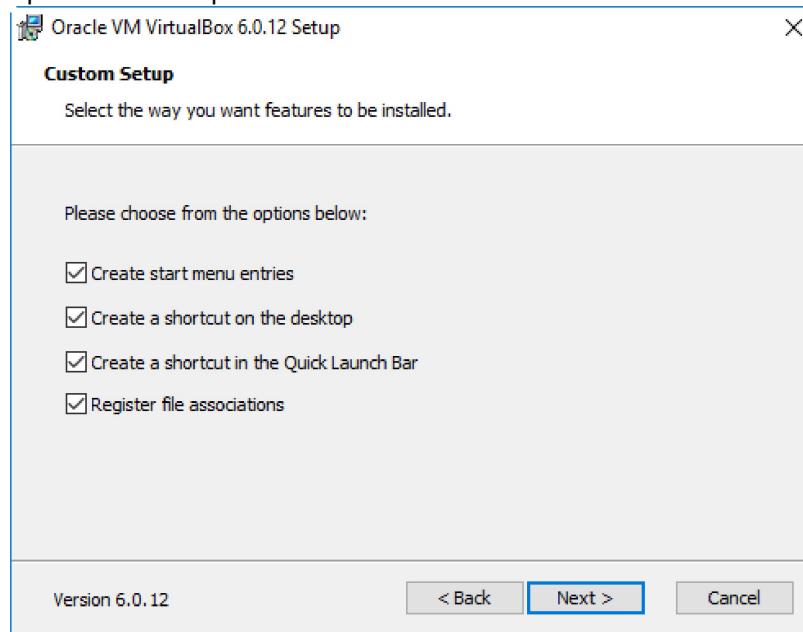
- Once the VirtualBox installation wizard appears, click the **Next** button.



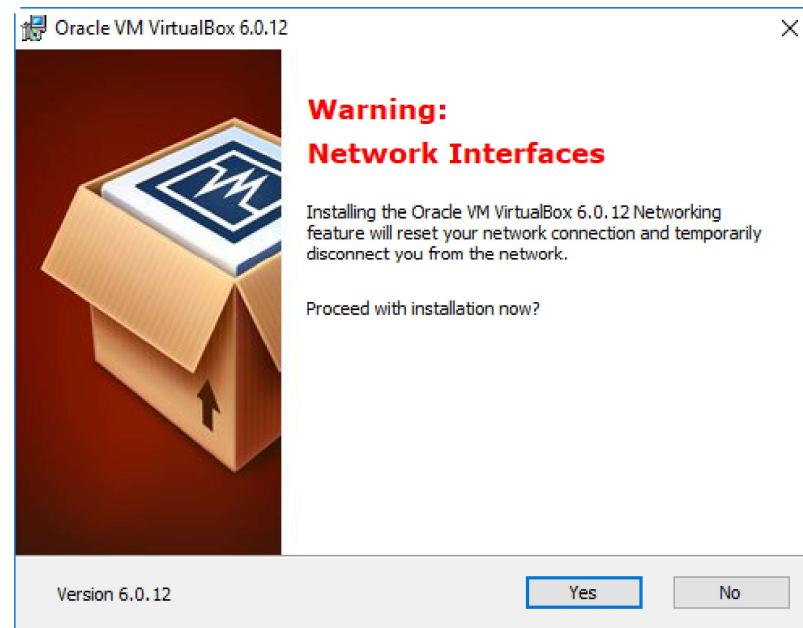
- You may accept all the installation defaults, although you may wish to change the installation location on your development platform using the **Browse** button. If the options are acceptable, click the **Next** button.



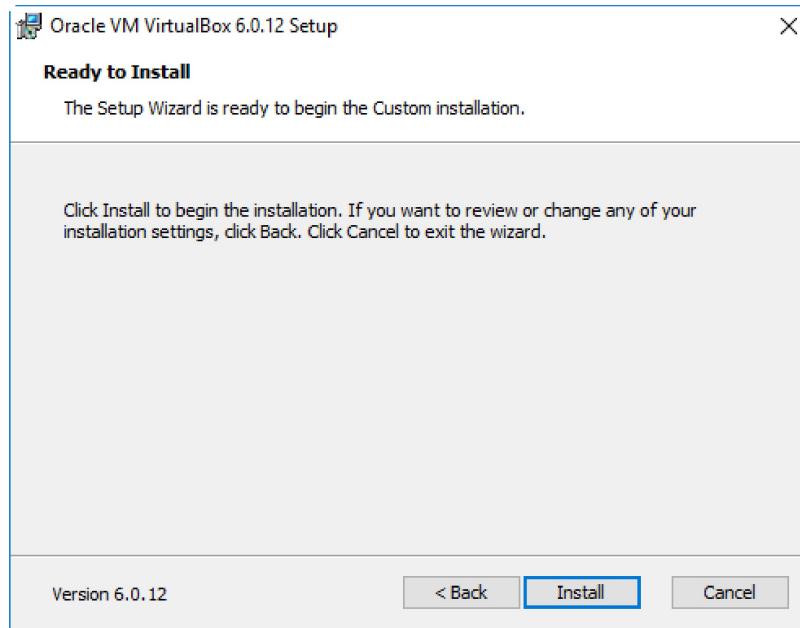
You may again accept the default options and click the **Next** button.



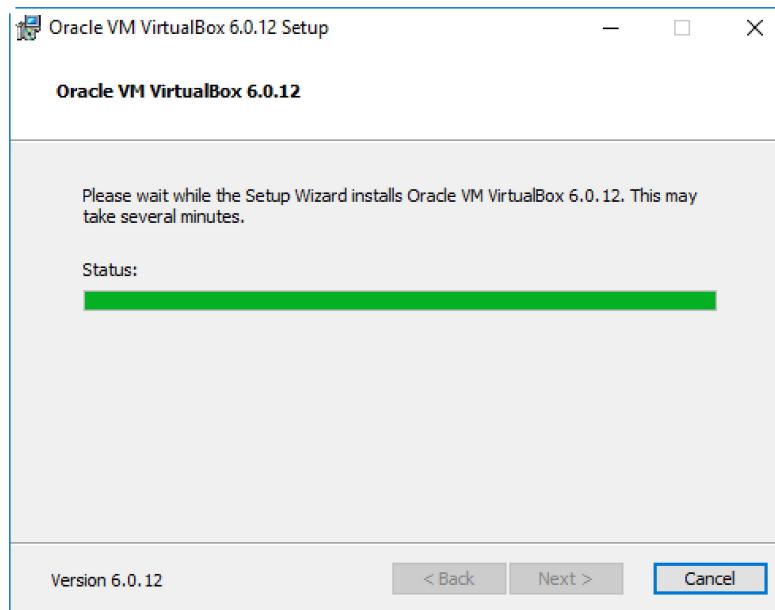
5. Click the **Yes** button to continue with the installation wizard.



6. Click the **Install** button to load VirtualBox to your development system.



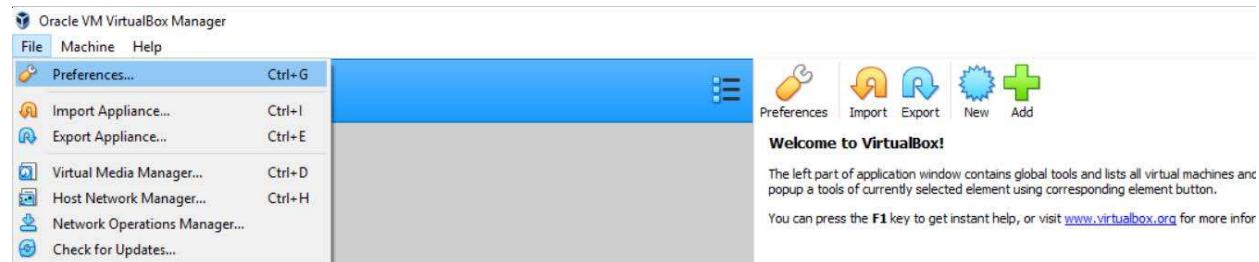
7. During the installation you may receive prompts to authorize installation of various components. If prompted, allow the installer to make changes to your system, including installation of the USB interface and Network adapters.



9. Click the **Finish** button to complete the installation. Leave the checkbox enabled so VirtualBox will start after the installer finishes.



10. Once VirtualBox starts (you can also start it from the Desktop shortcut, or the Windows Start button), the Extension Pack must be added. From the main menu, select **File > Preferences**.



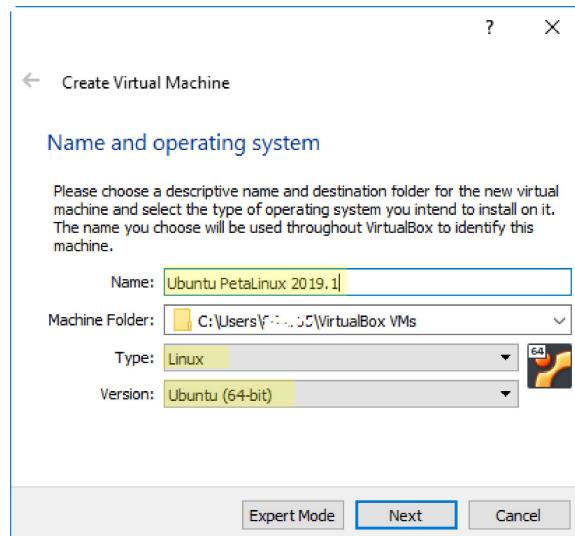
Create a New Virtual Machine

1. Launch Oracle VM VirtualBox Manager and click **Machine → New** icon at the upper left.

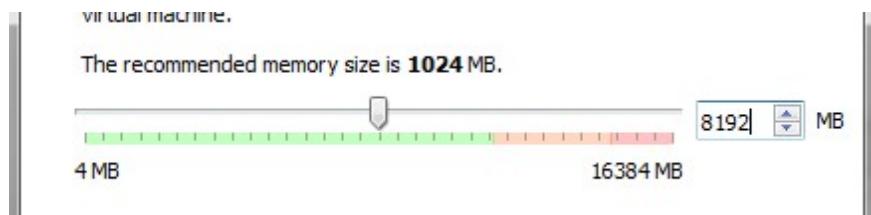


2. Select a descriptive name for the VM. Set the **Type** to **Linux** and the **Version** to one that corresponds to the OS you wish to install.

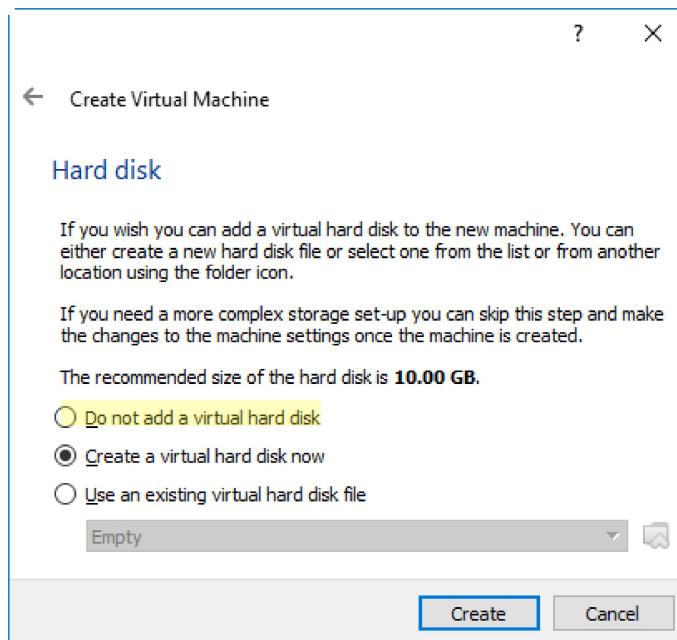
- a. For Ubuntu, choose **Ubuntu (64-bit)**.



3. Select the amount of memory to be allocated to the Virtual Machine. Allocating more memory² will improve the VM performance, but you must leave sufficient memory available for your host system for all other concurrent processes. For a host system with 16 GB of RAM, a value of **8192 MB** is recommended for the Virtual Machine, especially if you intend on using Xilinx SDSoC. You may wish to experiment with this value to optimize your performance as larger density target devices have **higher²** memory requirements. The memory can also be changed at any time even after installing the VM hosted OS. You will need to locate a balance of host and guest performance through properly balancing this. Of course the MORE memory you can provide the guest, WITHOUT causing issues for the host, the better your guest OS will run!



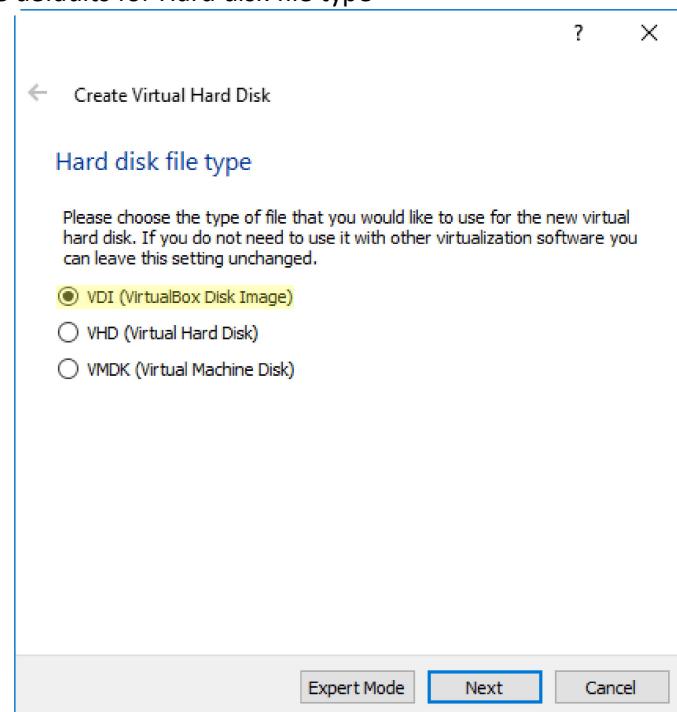
4. Click the **Create³** button to accept the default file type for a VirtualBox Disk Image and allocate a virtual hard drive now.



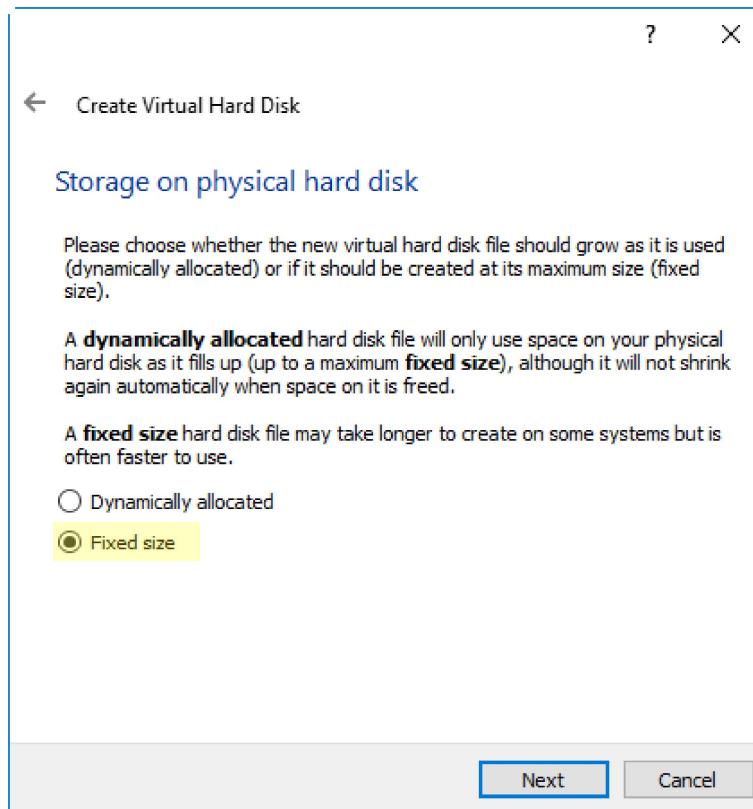
² You may need more memory if you intend to run Vivado with large Xilinx devices. Refer to <https://www.xilinx.com/products/design-tools/vivado/memory.html> for details selecting RAM for your application

³ If you are importing an existing Virtual Machine, click the "Use an existing..." button.

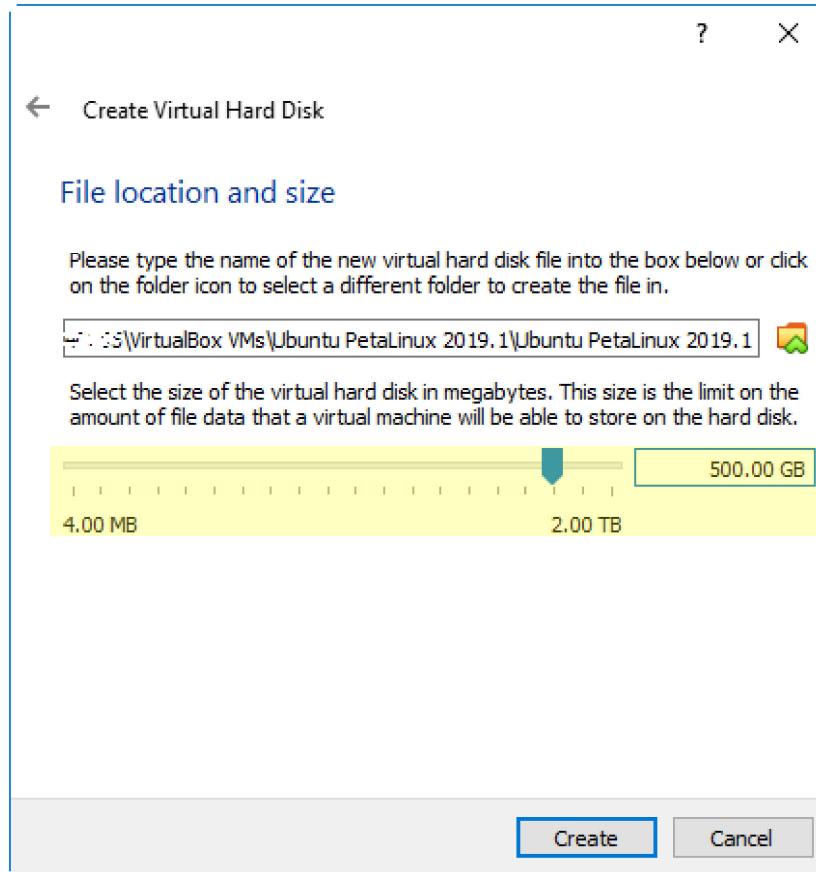
Select Next, leaving the defaults for Hard disk file type



5. Select **Fixed Size** for the physical storage on your host hard drive. This will improve overall performance of the Virtual Machine.

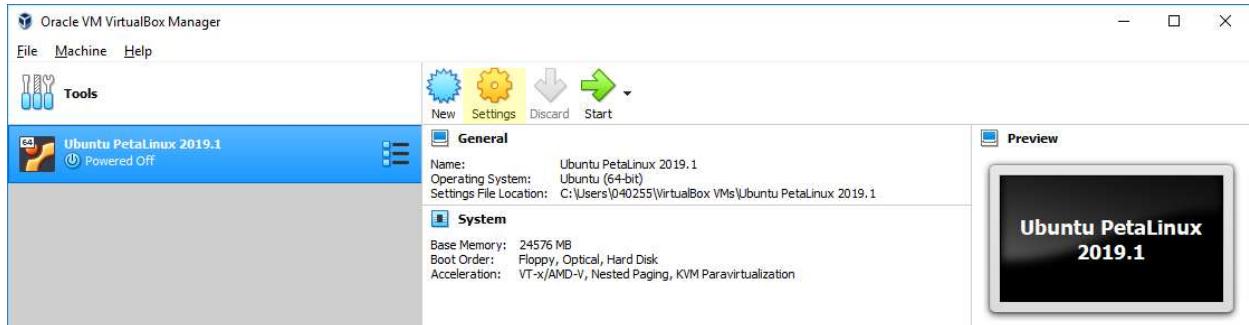


6. Select the name and location for the Virtual Machine within your host file system. The recommended size is **500.00** GB to accommodate the Xilinx tools. If this space is unavailable, 150.0 GB is sufficient if you plan to install the SDK (but and only a few of the Vivado tools). 375.0GB is sufficient for creating a PetaLinux based SDRAM platform. Note that it has been seen, if your host PC has a SSD, a dynamically allocated VDI does not appear to affect performance significantly. Click the **Create** button.

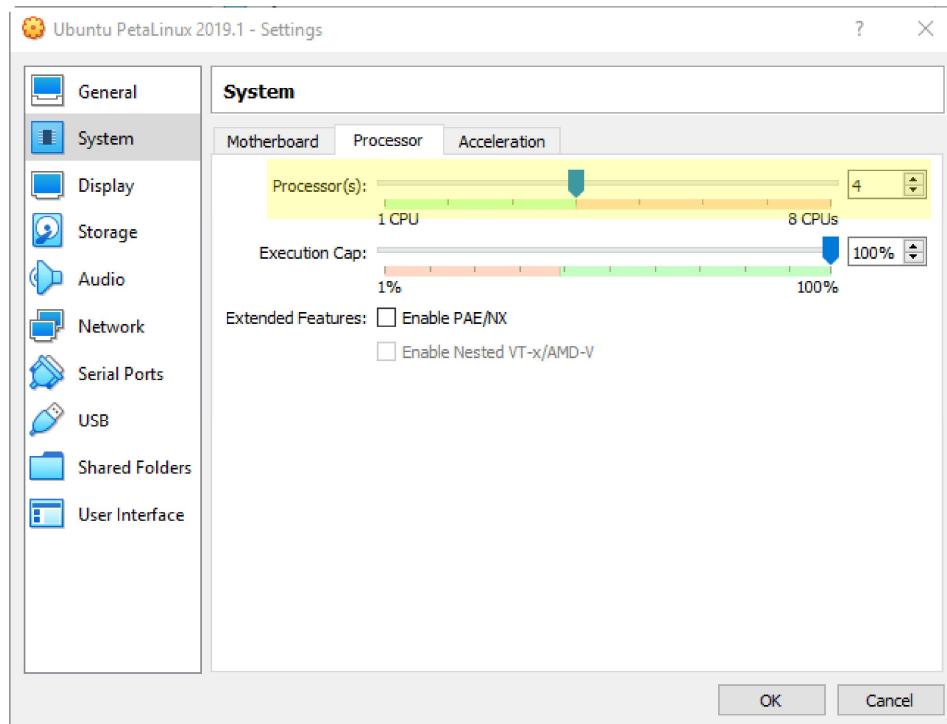


The Virtual Hard Disk may take a few minutes to create and initialize on your host file system.

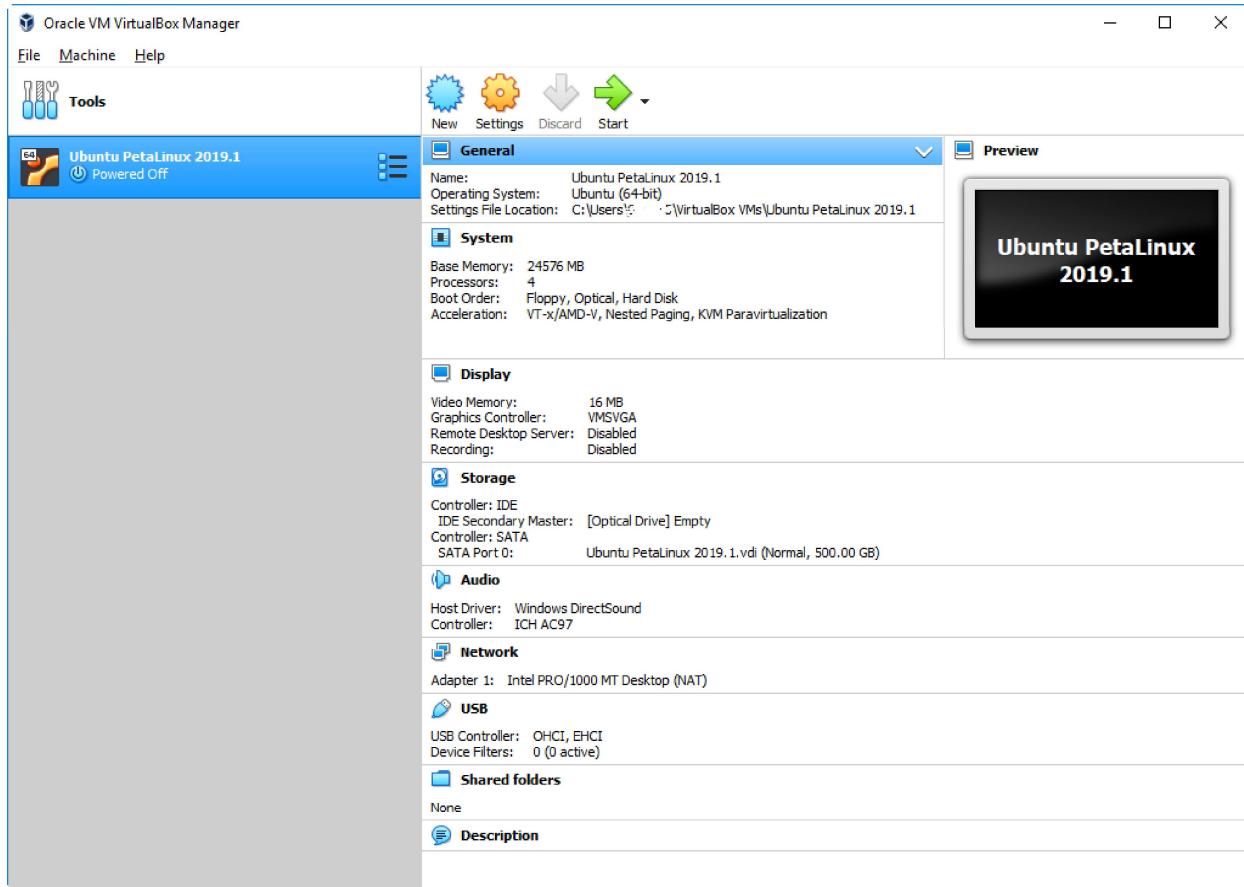
7. Once the Virtual Disk completes, select the newly created VM and click on the **Settings** button to open the Settings dialog specific to the VM instance.



8. Under the **System** blade and the **Processor** tab, select the number of logical CPU cores to be allocated to the Virtual Machine. Allocating more CPU cores will improve the VM performance, but you must leave sufficient CPU cores available for your host system for all other concurrent processes. For a host system with 8 CPU cores, a value of 4 CPU cores is recommended for the Virtual Machine, especially if you intend on using Xilinx SDSoc. You may wish to experiment with this value to optimize your performance as larger density target devices have **higher²** computation requirements for design placement. The memory can also be changed at any time even after installing the VM Guest OS as long as the Guest is shut down and the VM powered off. You will need to locate a balance of host and guest performance through properly balancing this.



9. Once the processor allocation has been modified in the above step, your VM is ready to accept an operating system.



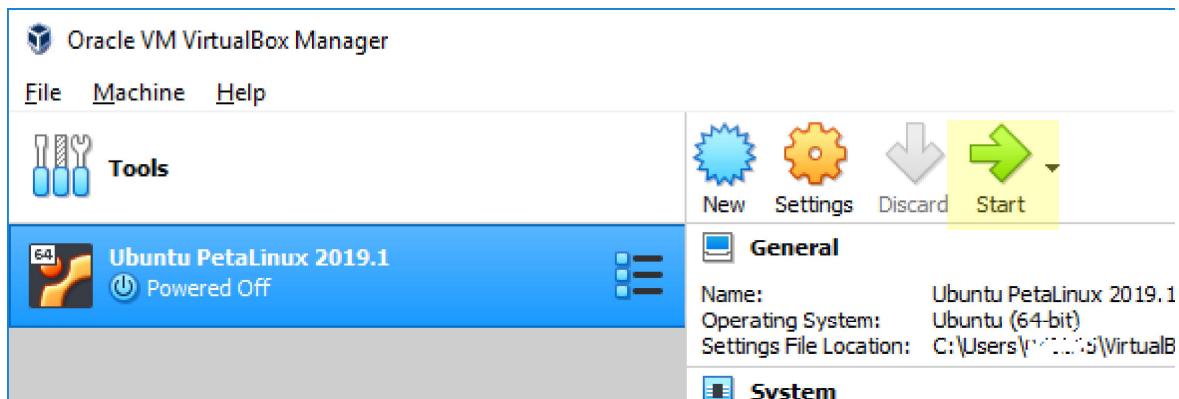
Install the Ubuntu 18.04 Operating System

To perform the steps in this section, you will need to download a bootable OS image in .iso format to your host system. While Ubuntu 19.04 is the latest, Ubuntu 18.04.1 is the recommended **version⁴** (ubuntu-18.04.1-desktop-amd64.iso). We have also seen other sub versions of Ubuntu 18.04 work with this. The Ubuntu images can be downloaded from:

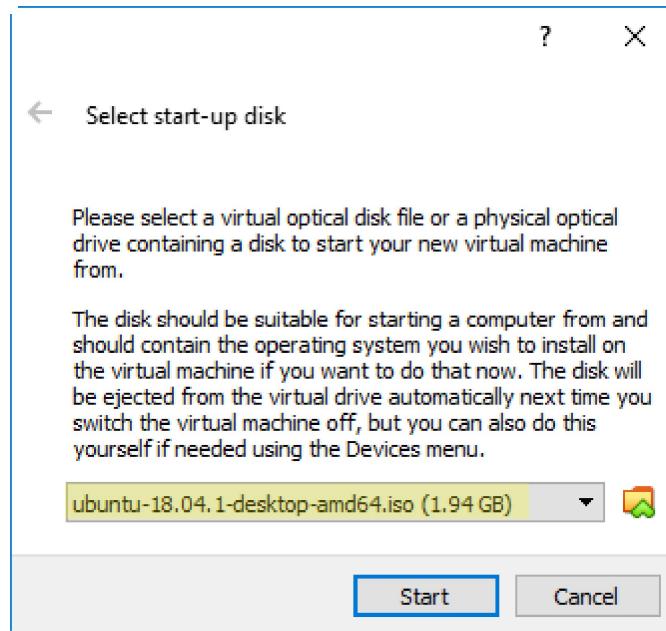
<http://www.ubuntu.com/download/desktop>

Repeat the steps outlined in **Create a New Virtual Machine**, entering Ubuntu as the **Name** of the VM. Once the Virtual Disk completes, your VM is ready to accept an operating system.

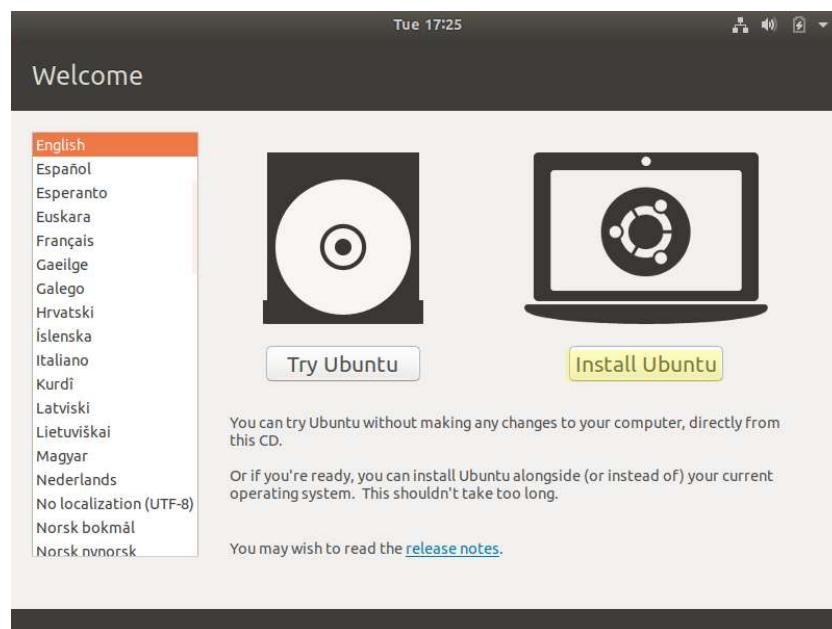
1. Launch VirtualBox (if necessary) and select the VM you wish to start in the left-hand panel. Click the **Start** button to execute the VM.



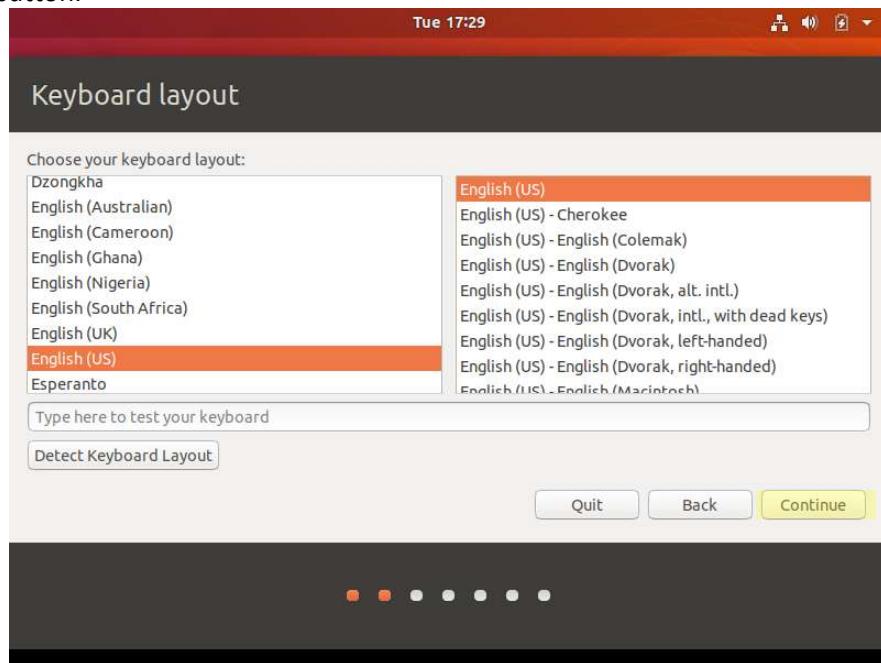
2. Select the **Browse**  icon to locate the .iso image for the OS you wish to install on your Virtual Machine. Click the **Start** button to begin.



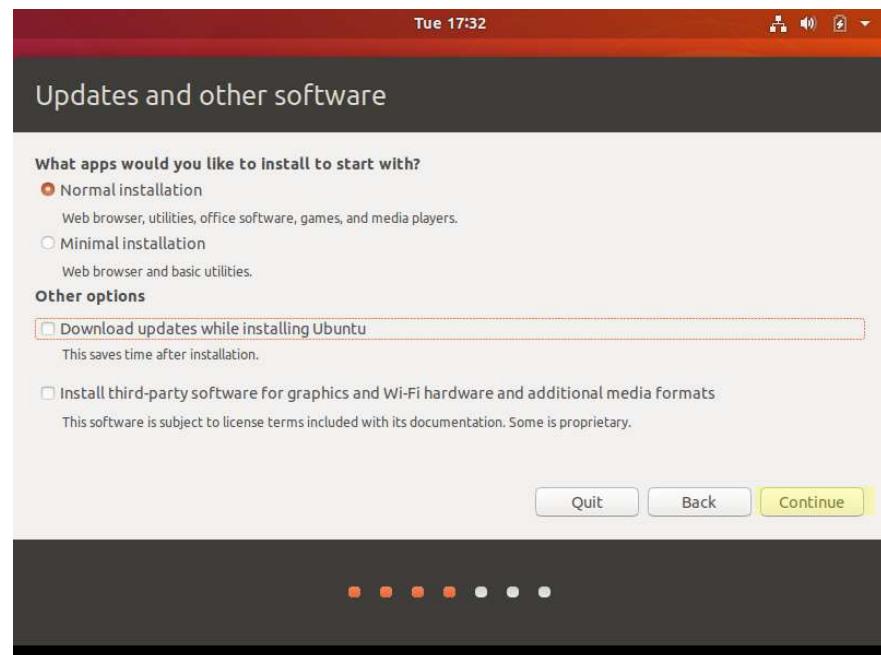
- When the Install Welcome screen appears, select English and click the **Install Ubuntu** button.



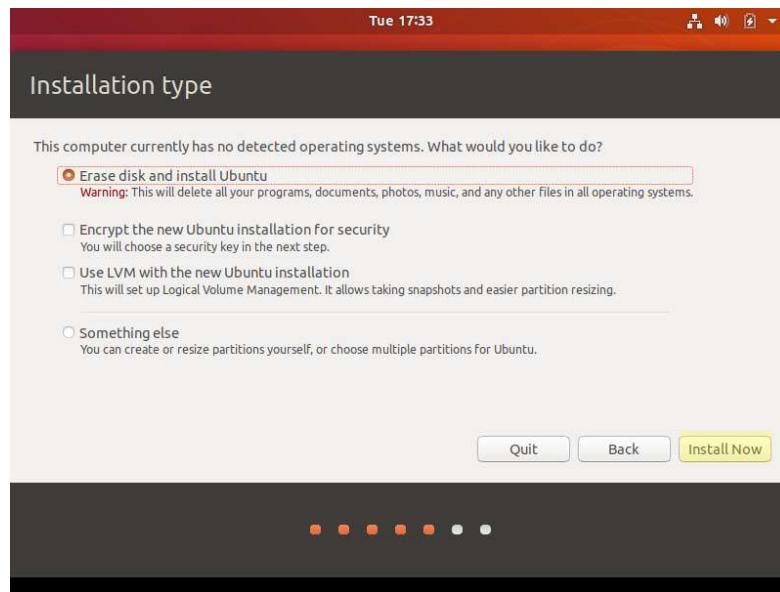
4. Select your preferred keyboard layout option. The default displays as English (US). Click the **Continue** button.



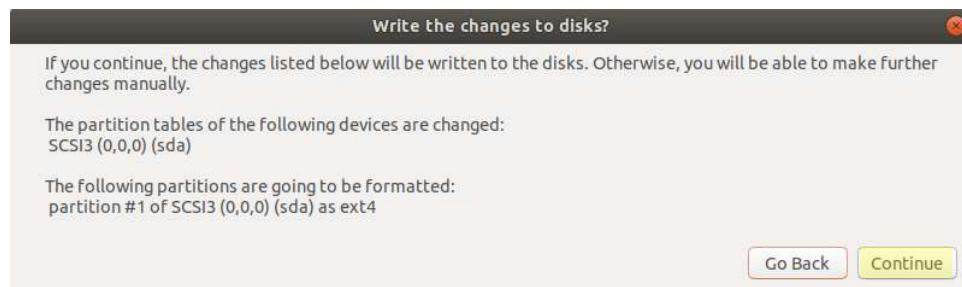
5. The installer shows requirements for installation. Uncheck Download updates while installing Ubuntu in order to speed the install. Click the **Continue** button.



6. The installer displays various installation types. The default displays as **Erase disk and install Ubuntu**. Click the **Install Now** button.



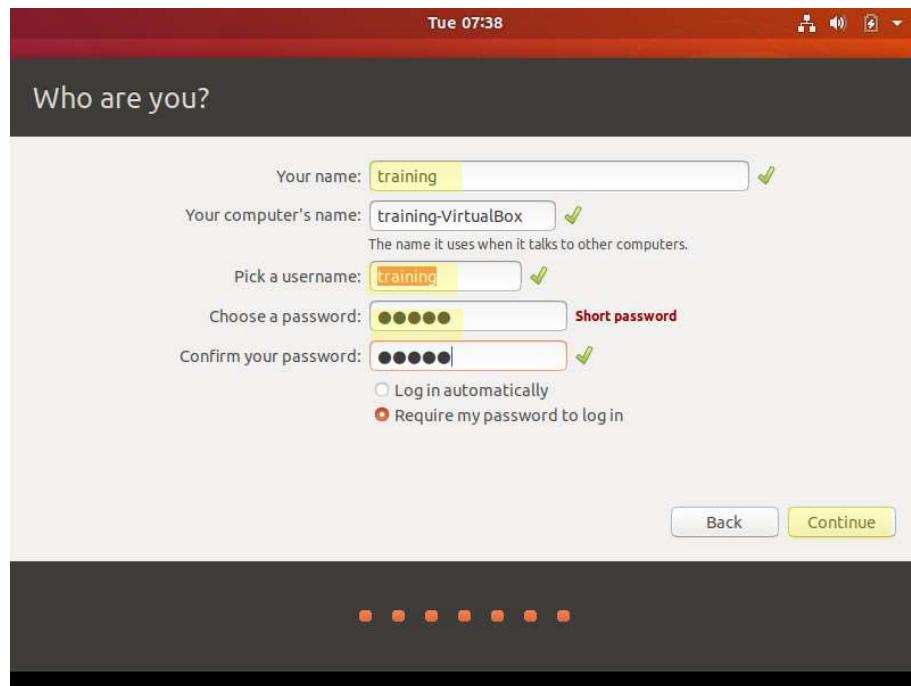
As this is a new installation, we want all changes written to the disks. Click the **Continue** button.



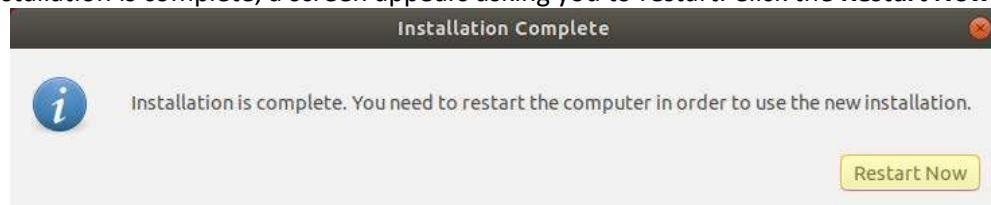
7. Select your time zone and click the **Continue** button.



8. Enter the primary user name for the Virtual Machine. In this case, create a default user name *training*. The system will auto-populate the computer name and username. Enter and confirm a password. Click the **Continue** button.



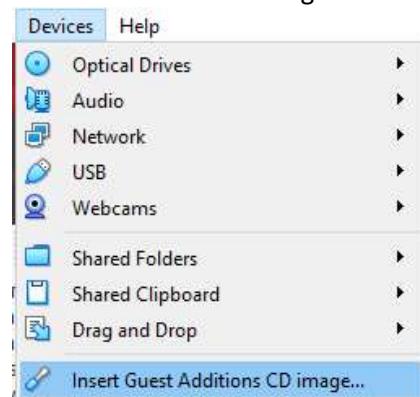
9. The installation displays a Welcome graphic and proceeds with installation. When the installation is complete, a screen appears asking you to restart. Click the **Restart Now** button.



If the Restart appears to “freeze”, you can force a reboot manually:

- a. From the main VirtualBox menu, select **File | Close**.
- b. In the *Close Virtual Machine* dialog, select **Power off the machine** and click the **OK** button.
- c. In the Oracle VM VirtualBox Manager, select your Virtual Machine and click the **Start** button.

If Ubuntu requests that you remove the installation media and press enter to continue, it is easiest to select Devices-> Insert Guest Editions CD image...



10. Click through the “What’s new in Ubuntu

