

Installing Xilinx ISE (VirtualBox)

Starting Notes

- These slides were made in January 2018 for installing
- “ISE Design Suite for Windows 10 - 14.7”
- The download runs using VirtualBox, which runs on a variety of operating systems including Windows 10 and Mac
- There are also a few usage notes at the end

Notes

- This is a set of Xilinx tools on a Linux virtual machine (from Virtualbox)
 - In other words, clicking on the shortcuts from the install launch Virtualbox and that virtual machine has the Xilinx tools installed on it
- This should work for Linux too, but this guide doesn't cover that
- For Windows 7, you can instead use the webpack:
 - Link: <https://www.xilinx.com/products/design-tools/ise-design-suite/ise-webpack.html> (this guide also doesn't cover it)
- Xilinx doesn't explicitly support mac, but, Xilinx provides a virtual machine, which can still be used as long as VirtualBox is installed on the Mac. If that doesn't work, you can instead dual boot with boot camp, or create a Windows 7 Virtual Machine and install it

Finding the Download

Download link:

https://www.xilinx.com/support/download/index.html/content/xilinx/en/downloadNav/design-tools/14_7-windows.html

Whether you are a Mac or Windows user, download the compressed file.
(Despite, if you on Mac, the fact that the download says “windows”)

You may need to create an account with Xilinx and provide a company,

I just used the campus address and contact info.

If that works, skip the next slides and proceed to either “Windows Install” or “Mac Install”

Finding the Download

- Navigate to Xilinx's Products listing, and look for the product page for the "Spartan 6"
- Look for the associated downloads tab
- Look for the Windows 10 Installer compressed download (tar or zip)
 - Note: even if you are installing for Mac, we will use the Windows 10 install files
- The next few slides are screenshots walking through the website to find the link at the time this guide was made

Finding the Download

The image shows a dark-themed navigation menu for the Xilinx website. At the top left is the Xilinx logo with the tagline 'ALL PROGRAMMABLE.'. To the right are icons for user profile, globe, and shopping cart (0 items), followed by a search bar with a dropdown menu set to 'All' and a search icon. Below this is a horizontal navigation bar with five tabs: 'Applications', 'Products' (which is highlighted), 'Developer Zone', 'Support', and 'About'. Under the 'Products' tab, there are three columns of links. The first column, 'All Programmable Devices', contains links for 'FPGAs & 3D ICs' (circled in blue), 'SoCs, MPSoCs & RFSocCs', 'Cost-Optimized Portfolio', 'Boards, Kits, and Modules', and 'Quality & Reliability'. The second column, 'Core Technologies', lists various technologies like Configuration Solutions, Connectivity, Design Security, DSP, Ethernet, Functional Safety, High Speed Serial, Memory Solutions, PCI Express, Power Efficiency, Processing Solutions, RF Sampling, and Signal Integrity. The third column, 'Developer Zone', lists Software Developer Zone, Hardware Developer Zone, System Developer Zone, Acceleration Zone, Accelerated Cloud Services, reVISION Zone, and Machine Learning. On the far right, there is a 'POWERED BY XILINX' logo and a link to a 'Showcase of Products Enabled by Xilinx Technology'.

XILINX
ALL PROGRAMMABLE.

Applications **Products** Developer Zone Support About

All Programmable Devices

- FPGAs & 3D ICs
- SoCs, MPSoCs & RFSocCs
- Cost-Optimized Portfolio
- Boards, Kits, and Modules
- Quality & Reliability

Core Technologies

- Configuration Solutions
- Connectivity
- Design Security
- DSP
- Ethernet
- Functional Safety
- High Speed Serial
- Memory Solutions
- PCI Express
- Power Efficiency
- Processing Solutions
- RF Sampling
- Signal Integrity

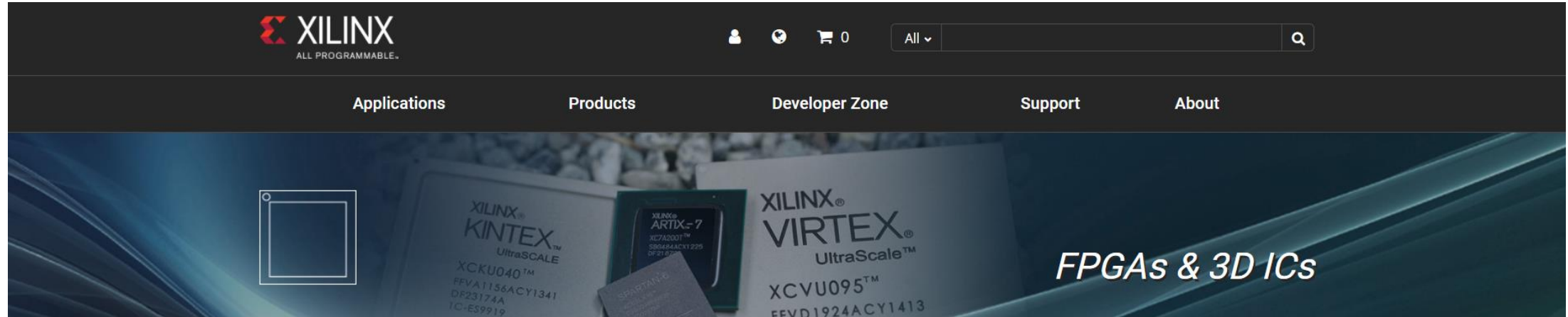
Developer Zone

- Software Developer Zone
- Hardware Developer Zone
- System Developer Zone
- Acceleration Zone
- Accelerated Cloud Services
- reVISION Zone
- Machine Learning

POWERED BY XILINX

Showcase of Products Enabled by Xilinx Technology

Finding the Download



[Xilinx - All Programmable](#) > [Programmable Devices](#) > [FPGA & 3D ICs](#)

FPGA Leadership across Multiple Process Nodes

Xilinx offers a comprehensive multi-node portfolio to address requirements across a wide set of applications. Whether you are designing a state-of-the-art, high-performance networking application requiring the highest capacity, bandwidth, and performance, or looking for a low-cost, small footprint FPGA to take your software-defined technology to the next level, Xilinx All Programmable FPGAs and 3D ICs provide you with system integration while optimizing for performance/watt.

Xilinx Multi-Node Product Portfolio Offering



Finding the Download

The screenshot shows the Xilinx website interface. At the top, the Xilinx logo is on the left, and navigation icons (user, clock, cart) and a search bar are on the right. Below the logo is the tagline "ALL PROGRAMMABLE.". A dark navigation bar contains the following menu items: Applications, Products, Developer Zone, Support, and About. The main banner features the "SPARTAN-6" logo on the left and a graphic of a warrior on the right with the text "OVER 850 MILLION DEVICES STRONG". Below the banner is a breadcrumb trail: "Xilinx - All Programmable > Programmable Devices > FPGA & 3D ICs > Spartan-6". A video player is on the left with the title "RGB Spectrum: Powered by Xilinx". To the right, the heading "Highest I/O per Logic Cell" is followed by three buttons: "Boards and Kits", "Featured Docs", and "Download ISE" with a dropdown arrow. Below this is a horizontal menu with items: "Product Advantages", "Product Table", "Documentation", "Downloads" (circled in blue), "Training & Support", and "Video". The "Downloads" item is highlighted with a red underline. The main content area is titled "Spartan-6 Product Advantage" and includes a list of bullet points: "Shipments to at least 2027", "6-week lead times", and "ISE tools on Windows 10". A "What's New" section below lists "ISE Now Supported on Windows 10". An "Applications" section is partially visible at the bottom. On the far right, there are icons for a bookmark and a share function.

Finding the Download

The image shows a screenshot of the Xilinx Spartan-6 product page. The top navigation bar includes links for Applications, Products, Developer Zone, Support, and About. The main header features the Spartan-6 logo and a graphic with the text "OVER 850 MILLION DEVICES STRONG". Below the header, a breadcrumb trail reads "Xilinx - All Programmable > Programmable Devices > FPGA & 3D ICs > Spartan-6". A video player is visible on the left with the title "RGB Spectrum: Powered by Xilinx". To the right, a section titled "Highest I/O per Logic Cell" contains buttons for "Boards and Kits", "Featured Docs", and "Download ISE". A horizontal menu below this section includes "Product Advantages", "Product Table", "Documentation", "Downloads" (which is highlighted with a red underline), "Training & Support", and "Video". Under the "Downloads" section, there is a "Software" list where the first item, "Request ISE 14.7 Full Installer for Windows 10", is circled in blue. Other items in the list include "Download ISE 14.7 Full Installer for Windows 7", "Download ISE 14.7 Full Installer for Linux", and "Release Notes". To the right of the software list is a "Related Links" section with items like "Intellectual Property", "Boards, Kits, and Modules", and "Embedded Development".

Applications Products Developer Zone Support About

SPARTAN-6

OVER 850 MILLION DEVICES STRONG

Xilinx - All Programmable > Programmable Devices > FPGA & 3D ICs > Spartan-6

RGB Spectrum: Powered by Xilinx

Highest I/O per Logic Cell

Boards and Kits Featured Docs Download ISE

Product Advantages Product Table Documentation Downloads Training & Support Video

Software

- Request ISE 14.7 Full Installer for Windows 10
- Download ISE 14.7 Full Installer for Windows 7
- Download ISE 14.7 Full Installer for Linux
- Release Notes

Related Links

- Intellectual Property
- Boards, Kits, and Modules
- Embedded Development

Windows Install

Installer

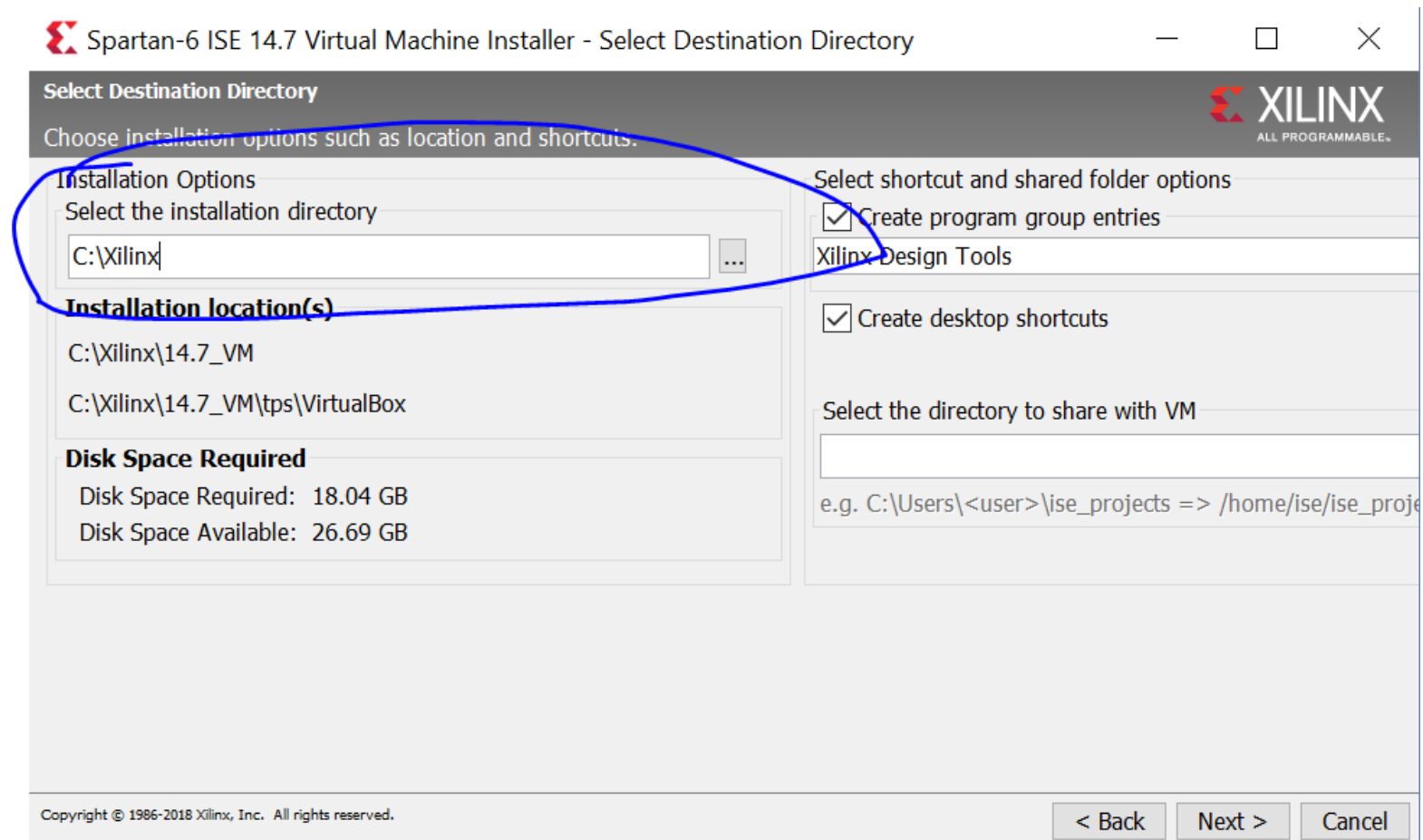
- Just unzip the installer and click “xsetup”
- It’s pretty straightforward, but there’s a couple options that you might want to pay attention to (see next two slides before install)

This PC > Downloads > Xilinx_ISE_S6_Win10_14.7_ISE_VMs_1211_1

Name	Date modified	Type	Size
bin	8/01/2018 7:49 AM	File folder	
data	8/01/2018 7:49 AM	File folder	
lib	8/01/2018 7:47 AM	File folder	
ova	8/01/2018 7:47 AM	File folder	
payload	8/01/2018 7:49 AM	File folder	
tps	8/01/2018 7:49 AM	File folder	
msvcp110.dll	8/12/2017 4:55 PM	Application extension	523 KB
msvcr110.dll	8/12/2017 4:55 PM	Application extension	855 KB
vccorlib110.dll	8/12/2017 4:55 PM	Application extension	247 KB
xsetup	8/12/2017 4:56 PM	Application	433 KB

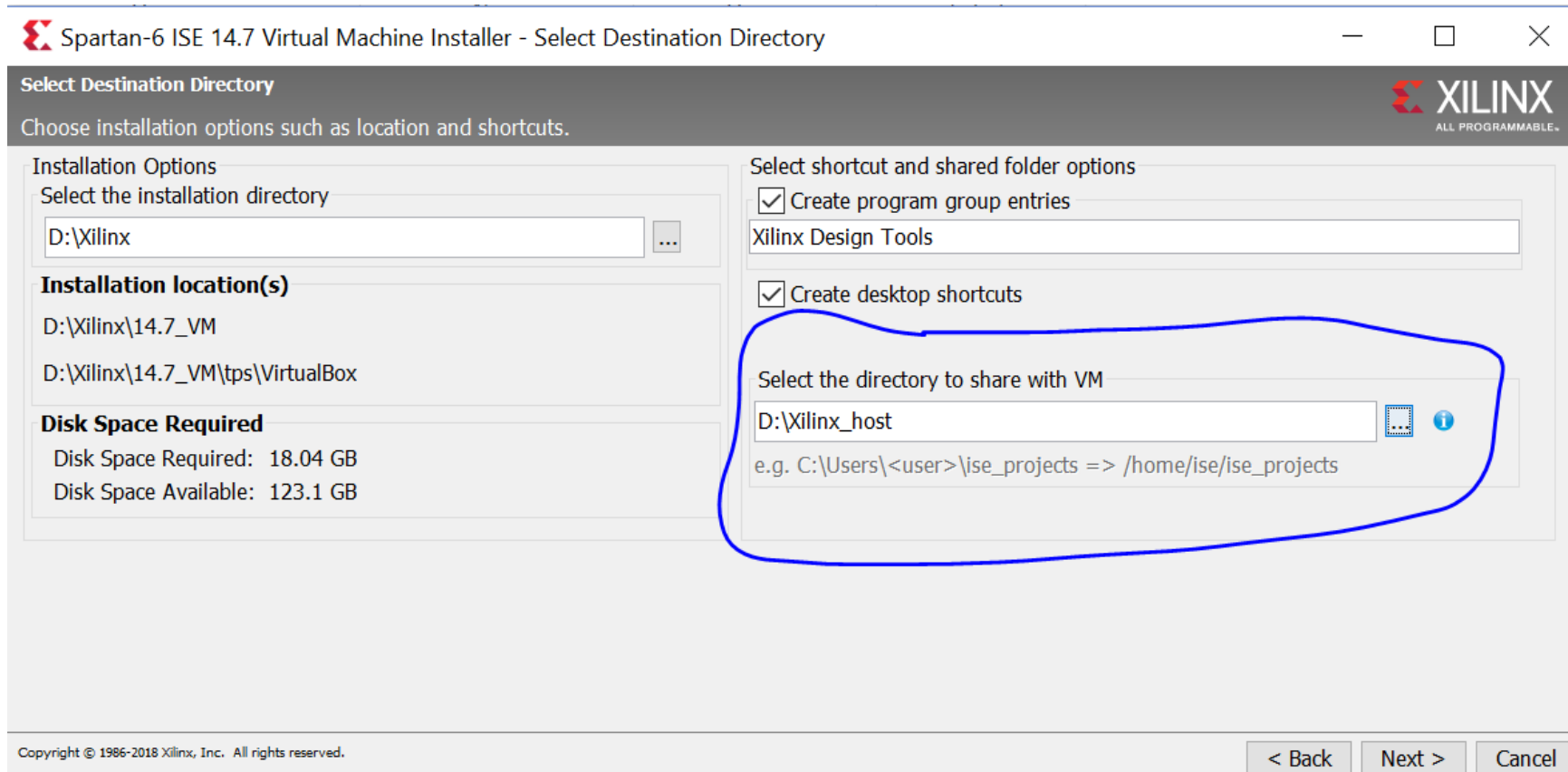
Installer – File Location

- At this stage, you can select the install directory. Xilinx takes up a large swath of memory so it's a good idea to set this to a bigger hard drive



Installer – Shared Folder

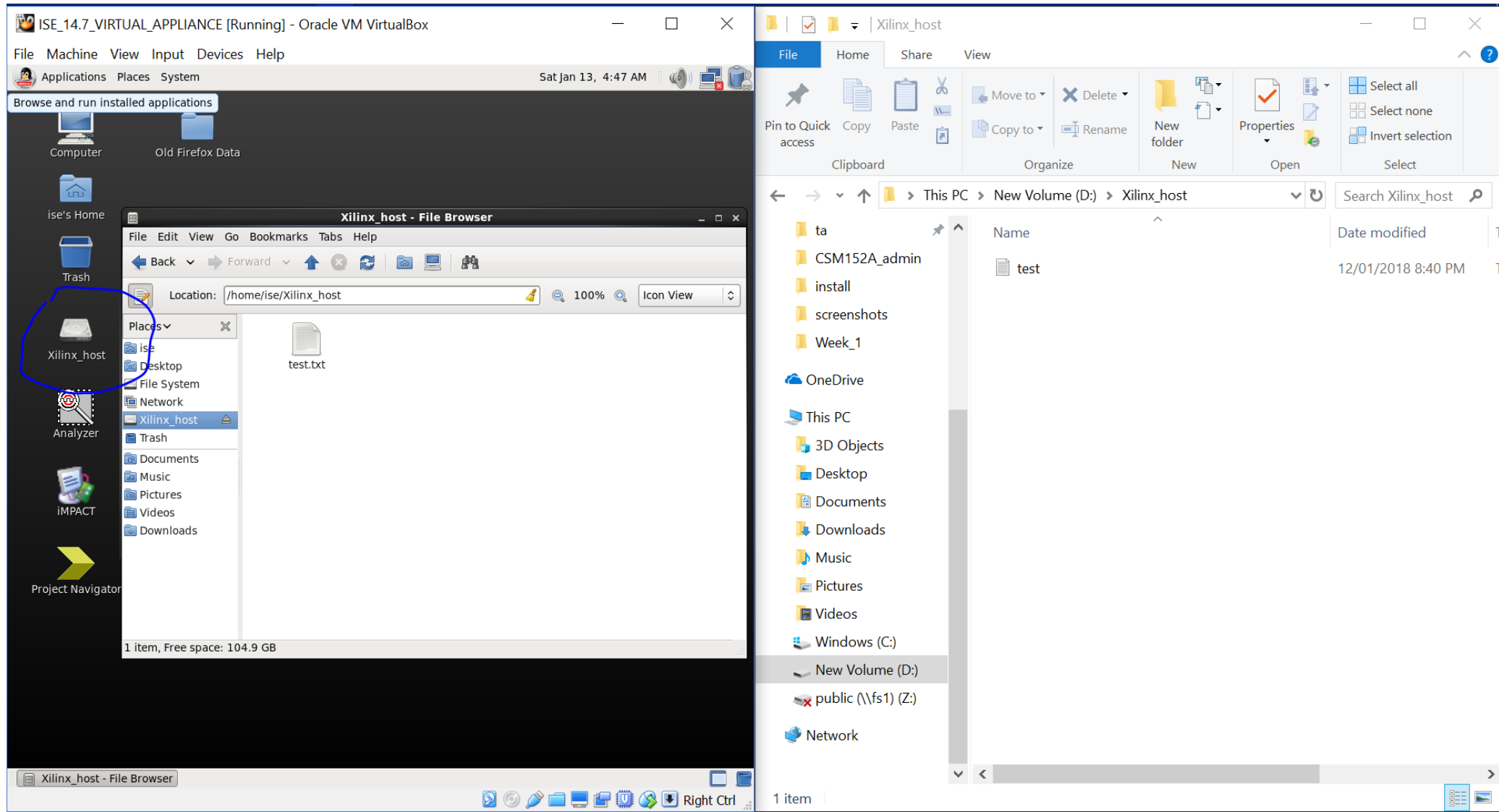
- You can set up a folder to be visible from both your (host) operating system and the virtual machine's (guest) operating system. This is good for quickly moving files around. (See Usage Notes)



Shared Folder

- The shared folder in the VM should have a desktop shortcut
- If you forgot to do this in the installer, you can create a new shared folder following the Mac instructions for a shared folder later in these slides.
- (See next slide for screenshot)

Shared Folder



Additional Setup

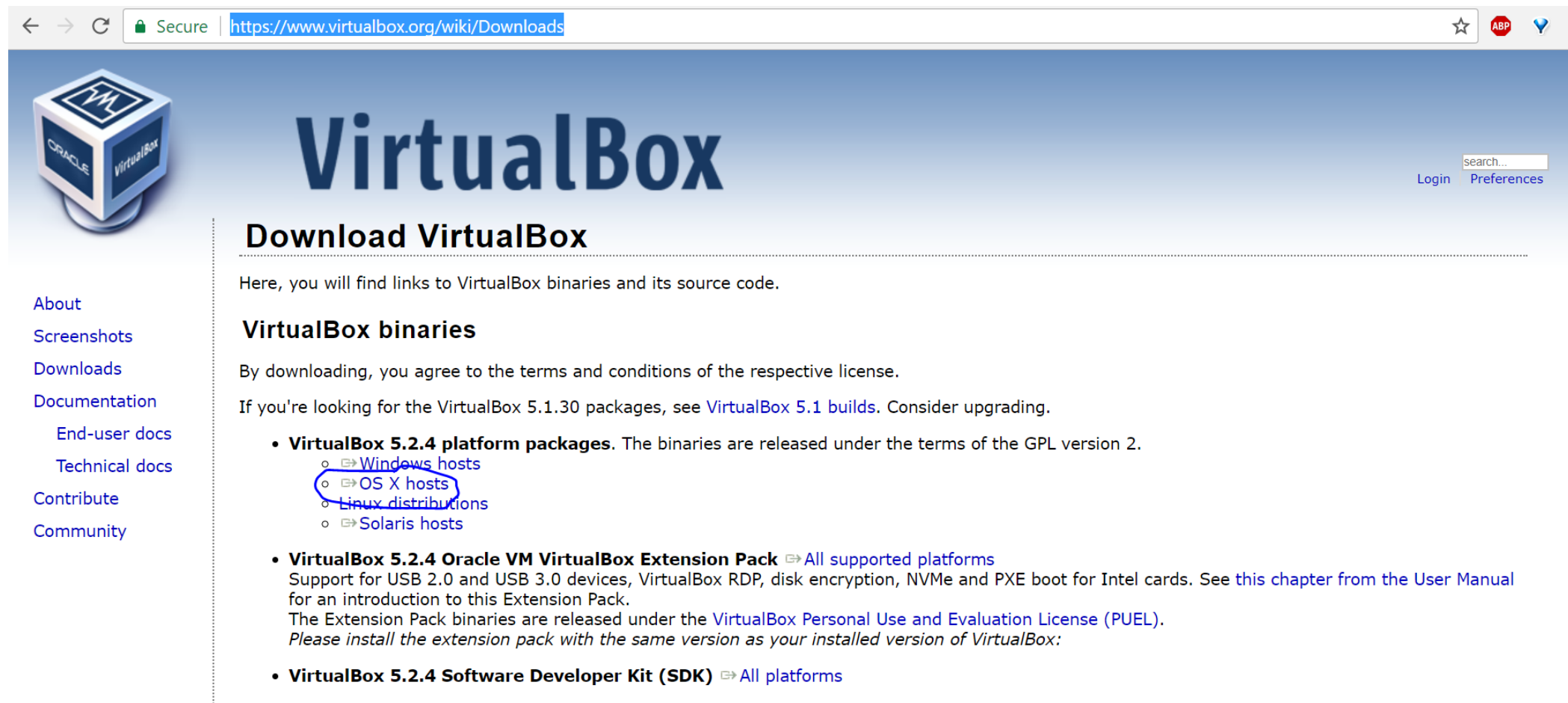
- You may need to enable hardware virtualization on your computer
- For that, you will need to restart and enter the BIOS and find the setting “virtualization” and enable it



Mac Install


Download VirtualBox

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



The screenshot shows a web browser window with the address bar displaying <https://www.virtualbox.org/wiki/Downloads>. The page features the VirtualBox logo on the left and a search bar with "Login" and "Preferences" links on the right. The main heading is "Download VirtualBox". Below this, there is a paragraph explaining that the page contains links to binaries and source code. A section titled "VirtualBox binaries" follows, with a note about agreeing to terms and conditions. It then lists three main categories: "VirtualBox 5.2.4 platform packages" (with sub-links for Windows, OS X, Linux, and Solaris hosts), "VirtualBox 5.2.4 Oracle VM VirtualBox Extension Pack" (with a link to "All supported platforms" and a note about USB support and license), and "VirtualBox 5.2.4 Software Developer Kit (SDK)" (with a link to "All platforms").

Secure | <https://www.virtualbox.org/wiki/Downloads> ☆ ABP



VirtualBox

search...
Login Preferences

Download VirtualBox

Here, you will find links to VirtualBox binaries and its source code.

VirtualBox binaries

By downloading, you agree to the terms and conditions of the respective license.

If you're looking for the VirtualBox 5.1.30 packages, see [VirtualBox 5.1 builds](#). Consider upgrading.

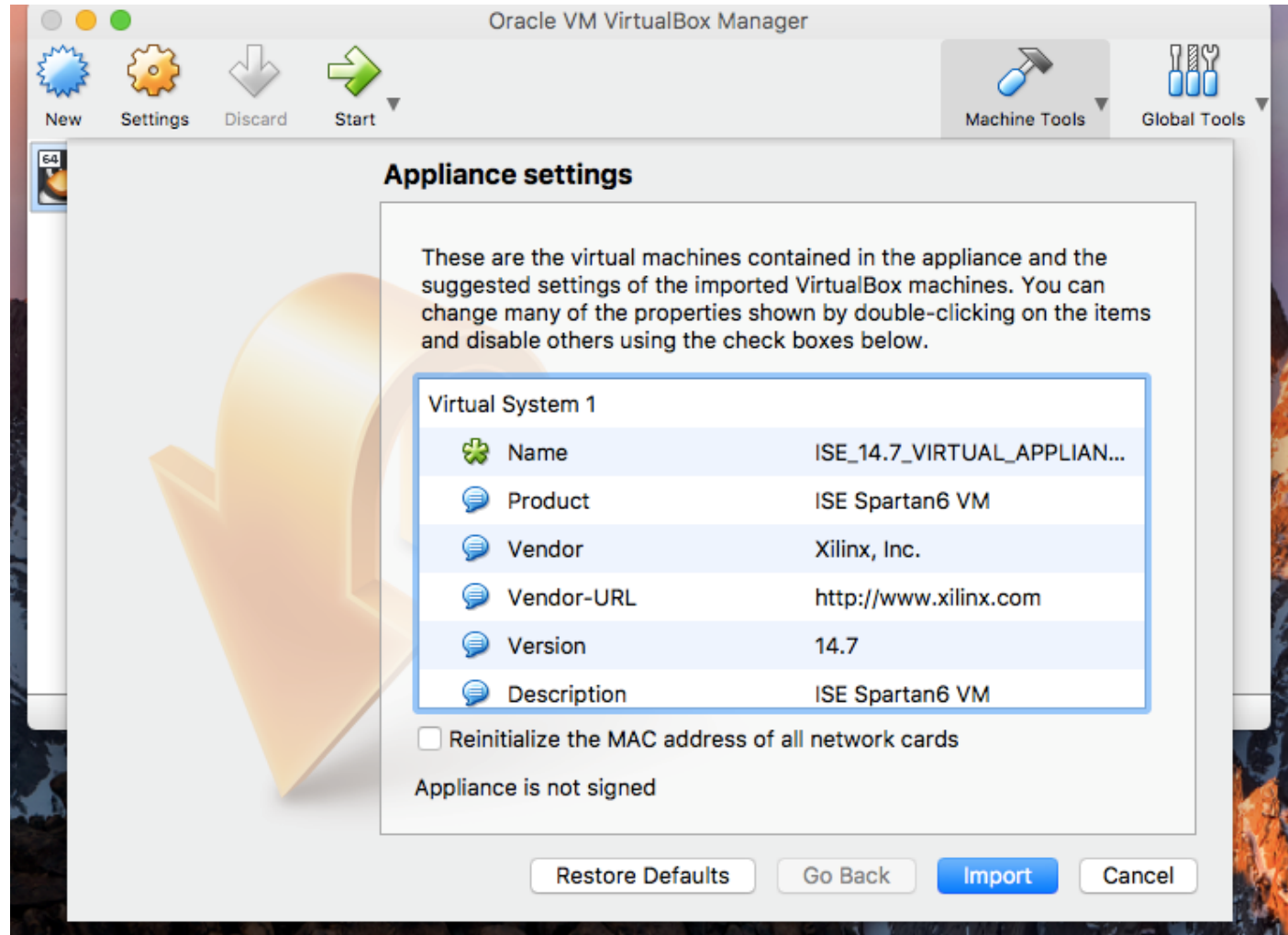
- **VirtualBox 5.2.4 platform packages.** The binaries are released under the terms of the GPL version 2.
 - [Windows hosts](#)
 - [OS X hosts](#)
 - [Linux distributions](#)
 - [Solaris hosts](#)
- **VirtualBox 5.2.4 Oracle VM VirtualBox Extension Pack** [All supported platforms](#)
Support for USB 2.0 and USB 3.0 devices, VirtualBox RDP, disk encryption, NVMe and PXE boot for Intel cards. See [this chapter from the User Manual](#) for an introduction to this Extension Pack.
The Extension Pack binaries are released under the [VirtualBox Personal Use and Evaluation License \(PUEL\)](#).
Please install the extension pack with the same version as your installed version of VirtualBox:
- **VirtualBox 5.2.4 Software Developer Kit (SDK)** [All platforms](#)

Importing the Virtual Machine

- Unzip the “Xilinx_ISE_S6_Win10_14.7_ISE_VMs...” folder
- Navigate to the .ova file, and double click it, and click “import”
- There might be a file compression or corruption issue, if that happens, redo the unzip or download step

▼	Folder	Xilinx_ISE_S6_W..._ISE_VMs_1211_1	Today, 10:40 PM	--	Folder
▼	Folder	ova	Dec 11, 2017, 2:35 PM	--	Folder
	File	ISE_S6_VM.ova	Dec 11, 2017, 2:35 PM	7.25 GB	Open...Archive
▶	Folder	data	Dec 11, 2017, 2:34 PM	--	Folder
▶	Folder	payload	Dec 11, 2017, 2:34 PM	--	Folder
▶	Folder	bin	Dec 11, 2017, 2:33 PM	--	Folder
▶	Folder	lib	Dec 11, 2017, 2:33 PM	--	Folder
▶	Folder	tps	Dec 11, 2017, 2:33 PM	--	Folder
	File	xsetup.exe	Dec 8, 2017, 4:56 PM	443 KB	Micros...lication
	File	msvcp110.dll	Dec 8, 2017, 4:55 PM	535 KB	Micros...library
	File	msvcr110.dll	Dec 8, 2017, 4:55 PM	875 KB	Micros...library
	File	vccorlib110.dll	Dec 8, 2017, 4:55 PM	252 KB	Micros...library
	File	DisplayLink US...d macOS 4.1.zip	Jan 4, 2018, 11:52 AM	4.6 MB	ZIP archive

Importing the Virtual Machine



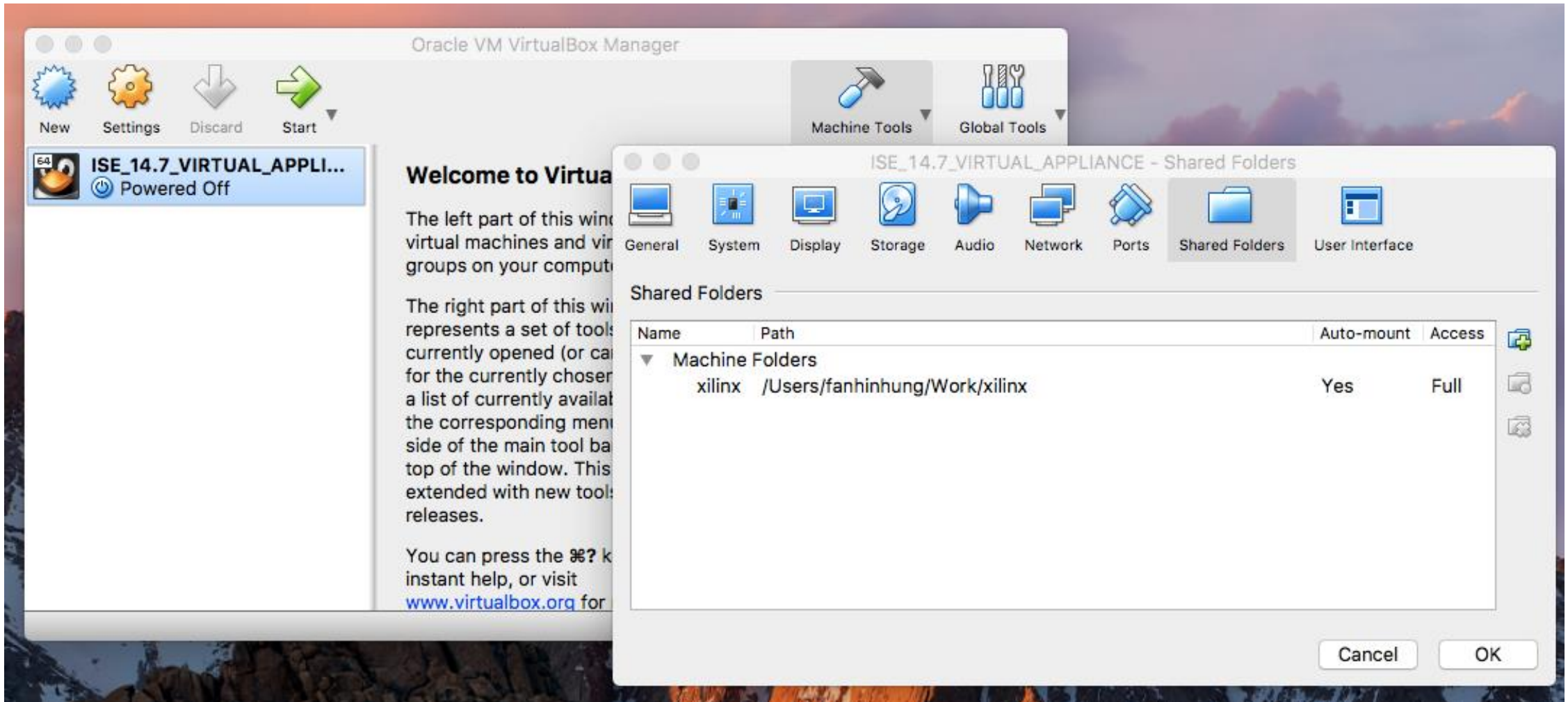
Shared Folder

- You probably want to set up a shared folder on Mac as well, so that both the (guest) virtual and (host) native operating systems can access the same files.
- These are steps to add a new shared folder, so if you did not set up a shared folder with the windows installer, you can follow these steps too.

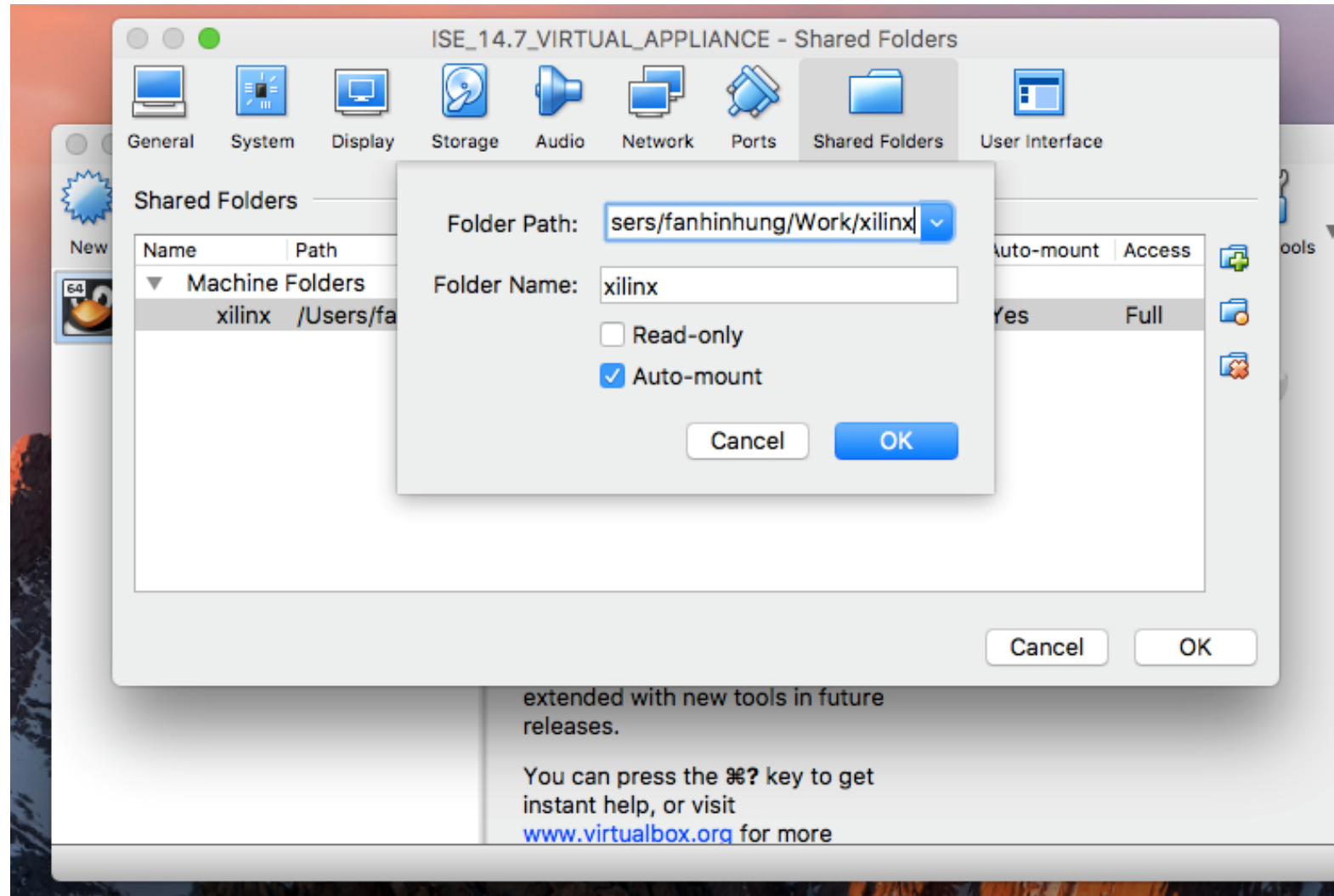
Shared Folder

- Shutdown the virtual machine
- In the VirtualBox manager, click to select the virtual machine
- Navigate to Settings > Shared Folders
- Using the button at the right, add a folder from your native operating system, which you want to be visible from the virtual machine.
- Make sure you select “Auto-mount” when you add this folder.

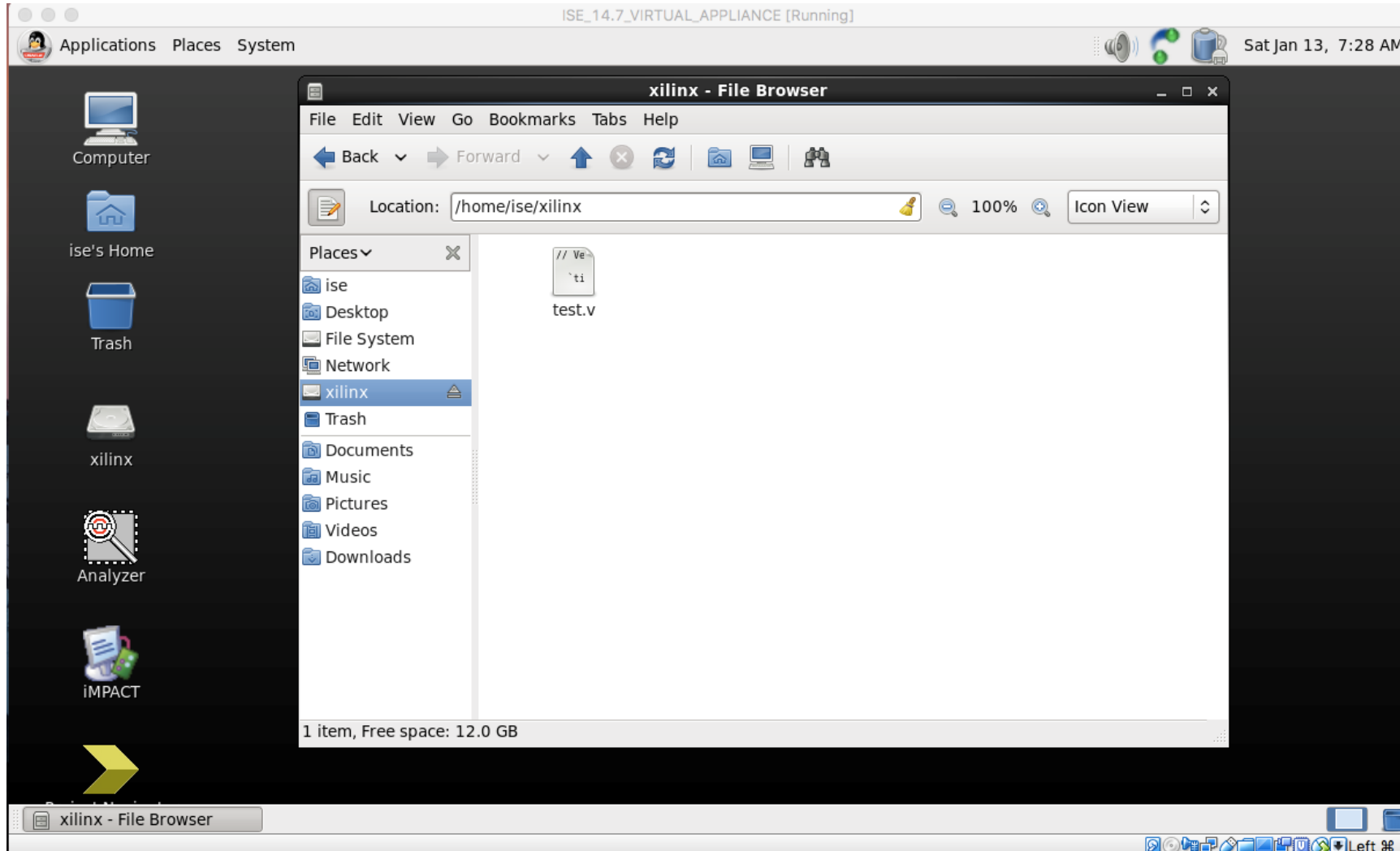
Shared Folder



Shared Folder



Shared Folder

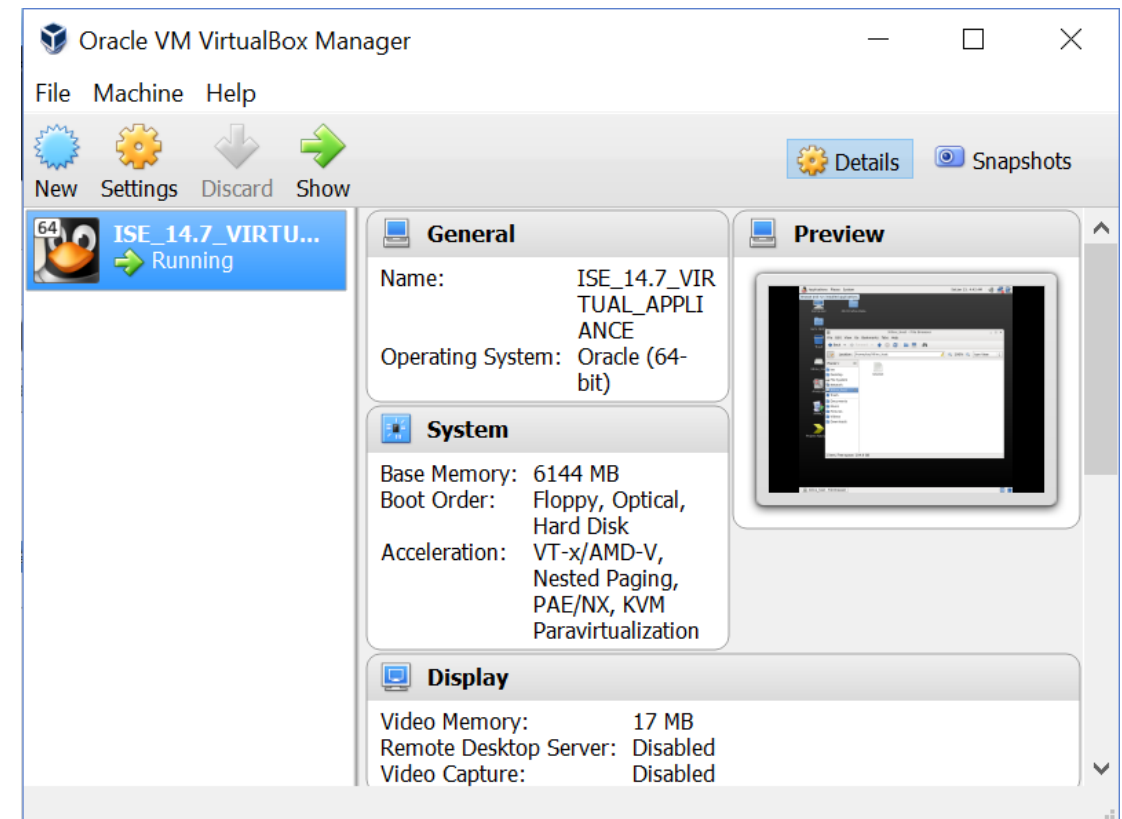
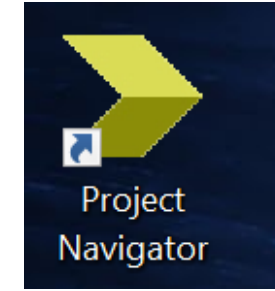


Additional (Usage) Notes

Also some error debugging for both Mac and Windows

Usage Notes – Starting Machine

- To use what you've installed, click on the “Project Navigator” shortcut: (On Windows)
- Alternatively, you can open the virtual machine through VirtualBox
 - From your start menu or launcher, open “Oracle VM VirtualBox”
 - “ISE_14.7_VIRTUAL_APPLIANCE” is the virtual machine
 - In the VM, the shortcut looks the same



Usage Notes – Network Connection Error

- If there's a problem with the host network connection, preventing you from starting the virtual machine, you can disable the connection by:
 - Opening the “Oracle VM VirtualBox” app
 - Selecting the machine “ISE_14.7_VIRTUAL_APPLIANCE”
 - Navigating to:
 - Settings > Network > Adapter 1
 - And disabling the network adapter
- (See screenshot on next page)

Usage Notes – Network Connection Settings

The image shows the Oracle VM VirtualBox Manager interface. On the left, the main window displays the VM 'ISE_14.7_VIRTUAL_APPLIANCE' in a 'Running' state. The settings for this VM are shown in the right-hand pane, with the 'Network' tab selected. The 'Network' settings for 'Adapter 1' are as follows:

- Enable Network Adapter
- Attached to: Host-only Adapter
- Name: Not selected

The 'Advanced' options are currently collapsed. The 'OK' and 'Cancel' buttons are visible at the bottom right of the settings window.

Usage Notes – Network Connection Alternative

- If the previous doesn't work, you can also set the machine to enable the connection, but not use it. (this might be needed if you see the error "Empty or null host only interface name is not valid")
- Select the machine "ISE_14.7_VIRT..."
- Go to Settings > Network > Adapter 1
- Enable the adapter
- Set "attached to" to "Not attached" and click ok
- (See next slide for screenshot)

Oracle VM VirtualBox Manager

New Settings Discard Start

Machine Tools Global Tools

ISE_14.7_VIRTUAL_APPLI...
Powered Off

Welcome to VirtualBox

The left part of this window displays a list of virtual machines and virtual machine groups on your computer.

The right part of this window represents a set of tools for the currently opened (or currently selected) virtual machine. The list of currently available tools is shown on the right side of the main tool bar at the top of the window. This window is extended with new tools in each new release.

You can press the **⌘?** key for instant help, or visit www.virtualbox.org for more information.

ISE_14.7_VIRTUAL_APPLIANCE - Network

General System Display Storage Audio Network Ports Shared Folders User Interface

Adapter 1 Adapter 2 Network Adapter 3 Adapter 4

Enable Network Adapter

Attached to: Not attached

Name:

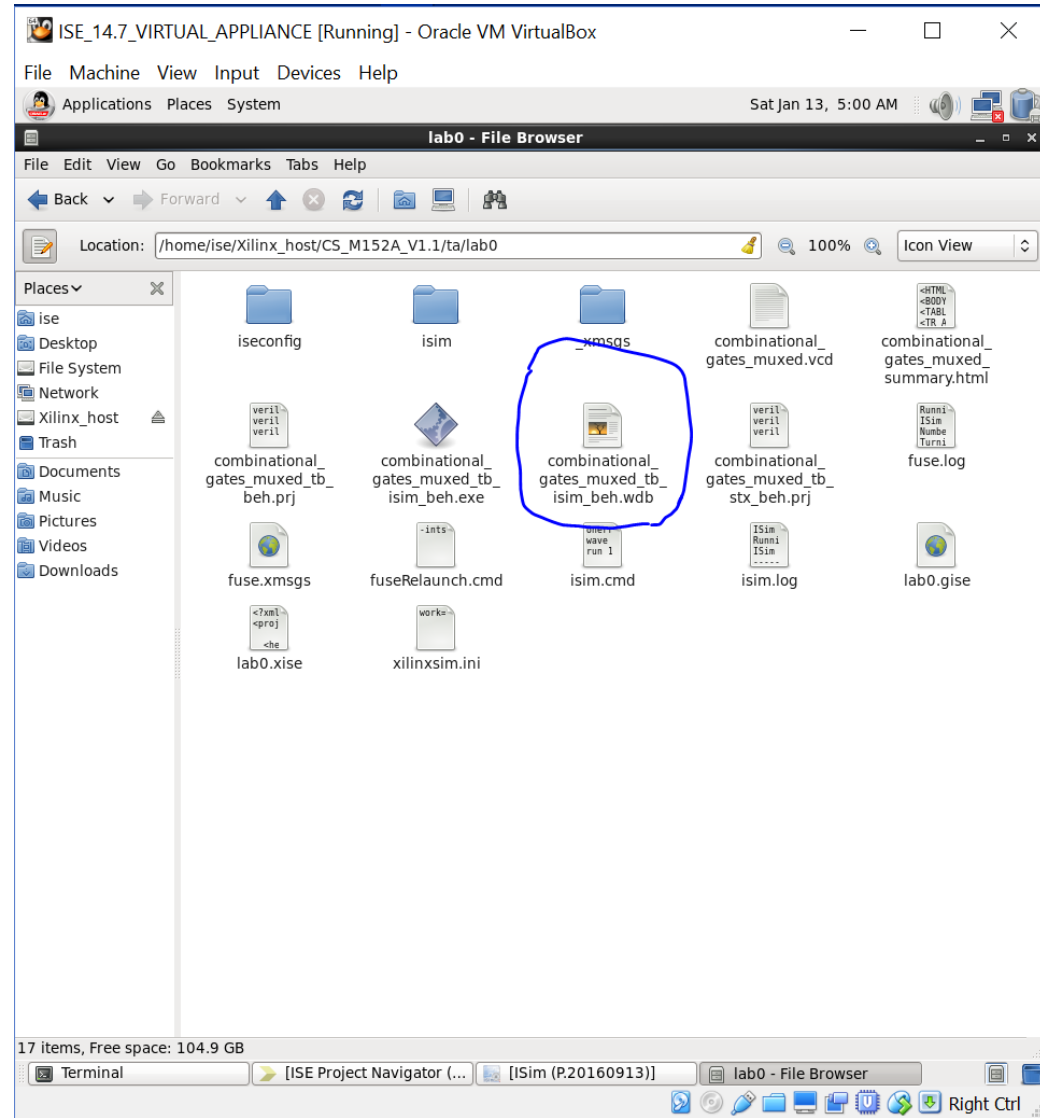
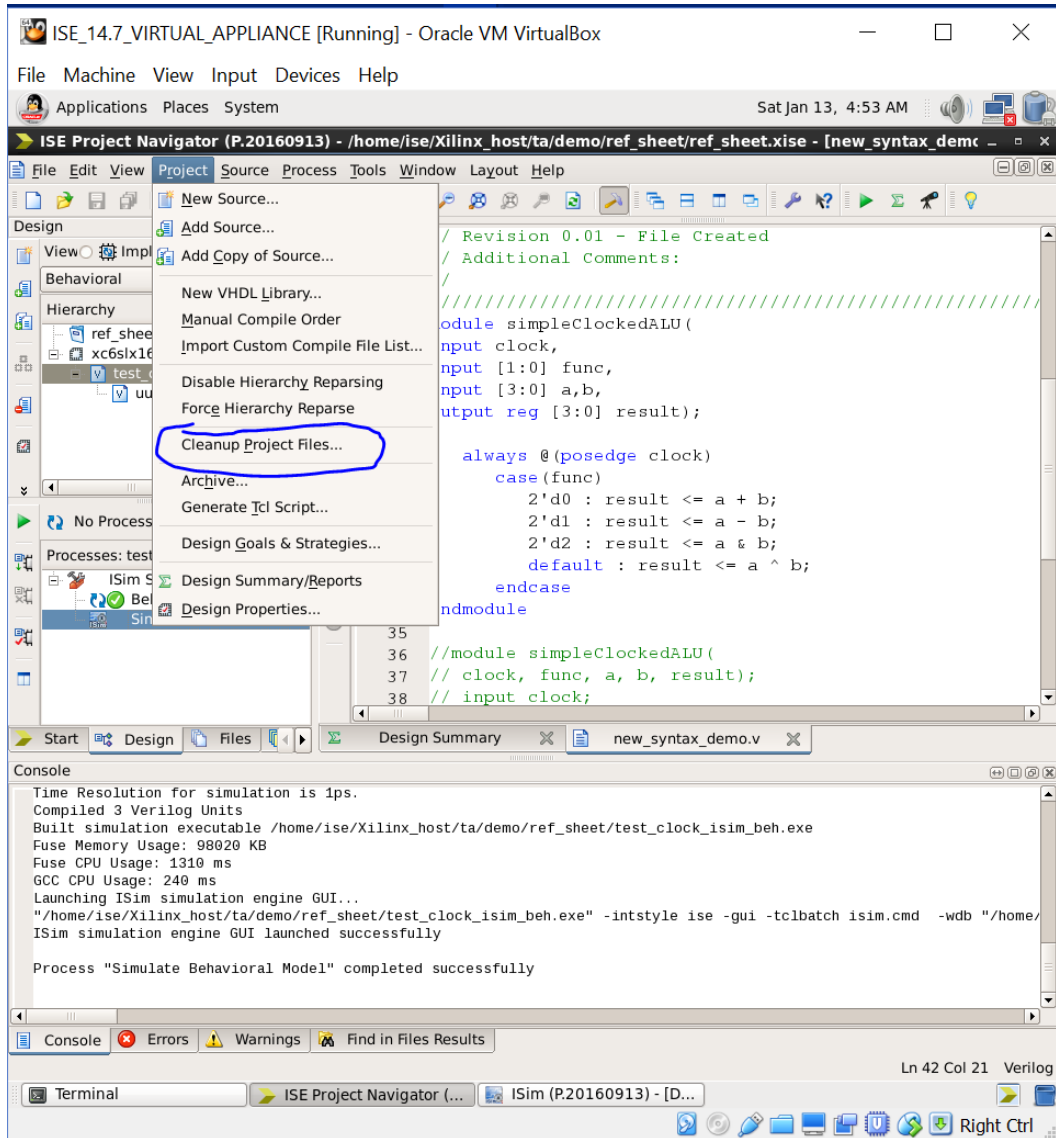
▶ Advanced

Cancel OK

Usage Notes – Cleanup

- The project files take up a large amount of memory. If you're done with a project, you can “clean up project files” to get rid of some temporary or recreate-able files.
- The simulations also create “.wdb” files which contain the wave form data. These can sometimes get long and are good to delete if you're not using them.
- (See next screenshots on slide)

Usage Notes – Cleanup



Usage Notes – Linux UI

- If you need to access the terminal, use the “Applications” button at the top left

