

# 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](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 the Xilinx website navigation menu. The Xilinx logo is at the top left, with the tagline 'ALL PROGRAMMABLE.' below it. To the right of the logo are icons for user profile, globe, and shopping cart (0). A search bar with a dropdown menu set to 'All' and a search icon is also present. The navigation menu has five main categories: Applications, Products, Developer Zone, Support, and About. The 'Products' category is highlighted. Under 'Products', there are three sub-sections: 'All Programmable Devices', 'Core Technologies', and 'Developer Zone'. The 'All Programmable Devices' section lists: FPGAs & 3D ICs (circled in blue), SoCs, MPSoCs & RFSocCs, Cost-Optimized Portfolio, Boards, Kits, and Modules, and Quality & Reliability. The 'Core Technologies' section lists: 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 'Developer Zone' section lists: Software Developer Zone, Hardware Developer Zone, System Developer Zone, Acceleration Zone, Accelerated Cloud Services, reVISION Zone, and Machine Learning. On the right side of the page, there is a banner for 'POWERED BY XILINX' with the text 'Showcase of Products Enabled by Xilinx Technology' below it.

**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

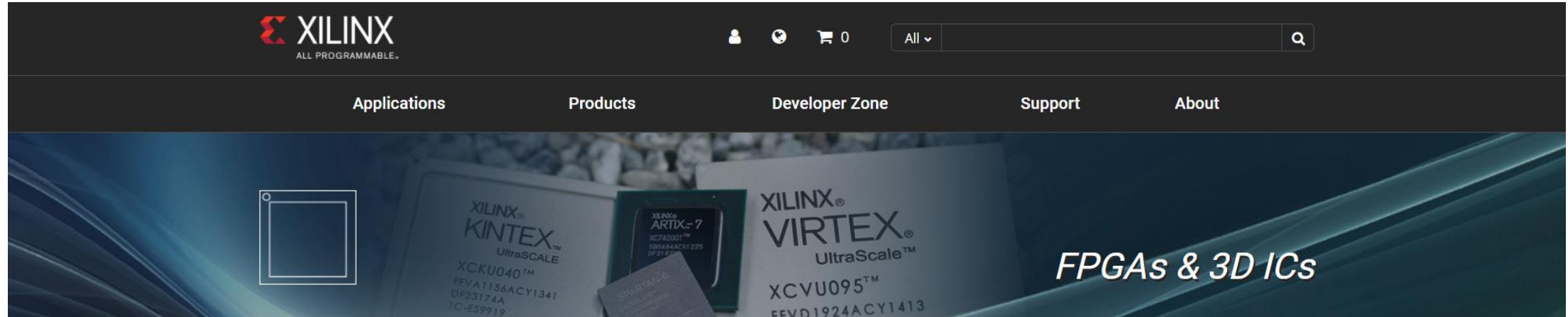
**Developer Zone**

- 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

45nm



The 45nm product offering is highlighted with a blue hand-drawn circle. It features the SPARTAN 6 logo, which consists of the word "SPARTAN" in a bold, sans-serif font, followed by a small blue icon of a chip and the number "6".

28nm



The 28nm product offering includes four logos stacked vertically: VIRTEX 7, KINTEX 7, ARTIX 7, and SPARTAN 7. Each logo features the product name in a bold, sans-serif font, followed by a small icon of a chip and the number "7".

20nm



The 20nm product offering includes two logos stacked vertically: VIRTEX UltraSCALE and KINTEX UltraSCALE. Each logo features the product name in a bold, sans-serif font, followed by the word "UltraSCALE" in a smaller font and a small icon of a chip.

16nm



The 16nm product offering includes two logos stacked vertically: VIRTEX UltraSCALE+ and KINTEX UltraSCALE+. Each logo features the product name in a bold, sans-serif font, followed by the word "UltraSCALE+" in a smaller font and a small icon of a chip.



# 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.". The main navigation bar includes "Applications", "Products", "Developer Zone", "Support", and "About". The hero section features the "SPARTAN-6" logo and a graphic of a warrior with the text "OVER 850 MILLION DEVICES STRONG".

Breadcrumbs: [Xilinx - All Programmable](#) > [Programmable Devices](#) > [FPGA & 3D ICs](#) > [Spartan-6](#)

Video thumbnail: **RGB Spectrum: Powered by Xilinx**

## Highest I/O per Logic Cell

[Boards and Kits](#) [Featured Docs](#) [Download ISE](#) ▾

Navigation tabs: [Product Advantages](#) [Product Table](#) [Documentation](#) [Downloads](#) [Training & Support](#) [Video](#)

### Spartan-6 Product Advantage

Built on a proven 45nm technology, Spartan-6 devices offer:

- Shipments to at least 2027
- 6-week lead times
- ISE tools on Windows 10

Spartan®-6 devices offer industry-leading connectivity features such as high logic-to-pin ratios, small form-factor packaging, MicroBlaze™ soft processor, and a diverse

#### What's New

ISE Now Supported on Windows 10

#### Applications



# Finding the Download

The screenshot shows the Xilinx Spartan-6 product page. The navigation bar includes 'Applications', 'Products', 'Developer Zone', 'Support', and 'About'. The main banner features the 'SPARTAN-6' logo and a graphic with the text 'OVER 850 MILLION DEVICES STRONG'. Below the banner, 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 three buttons: 'Boards and Kits', 'Featured Docs', and 'Download ISE'. Below this is a horizontal menu with 'Downloads' selected. The 'Software' section lists four items, with the first one, 'Request ISE 14.7 Full Installer for Windows 10', circled in blue. The 'Related Links' section includes 'Intellectual Property', 'Boards, Kits, and Modules', and 'Embedded Development'.

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

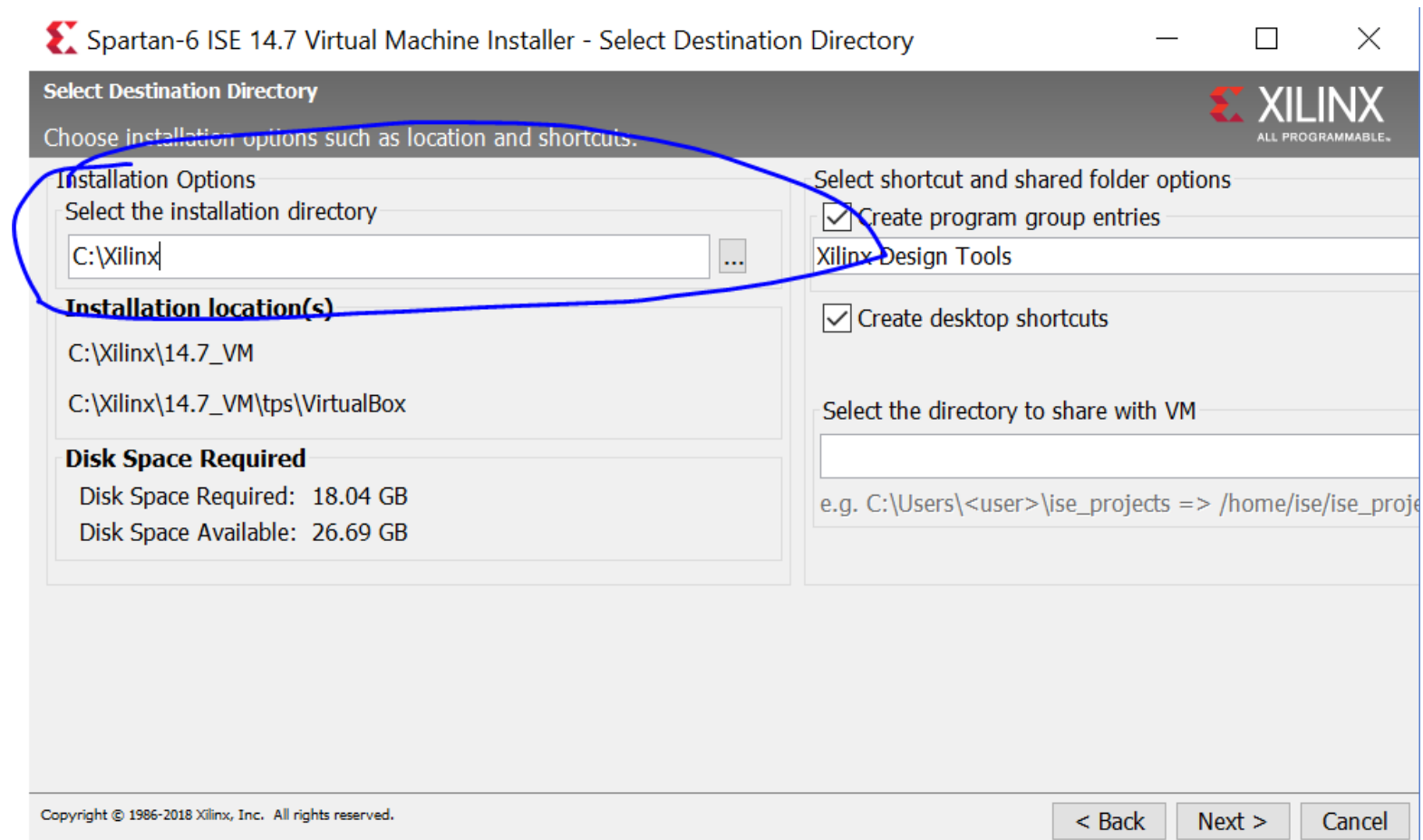
- Just unzip the installer and click “xsetup”
- It’s pretty straightforward, but there’s a couple options that you might want to pay attention to (see next two slides before install)

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

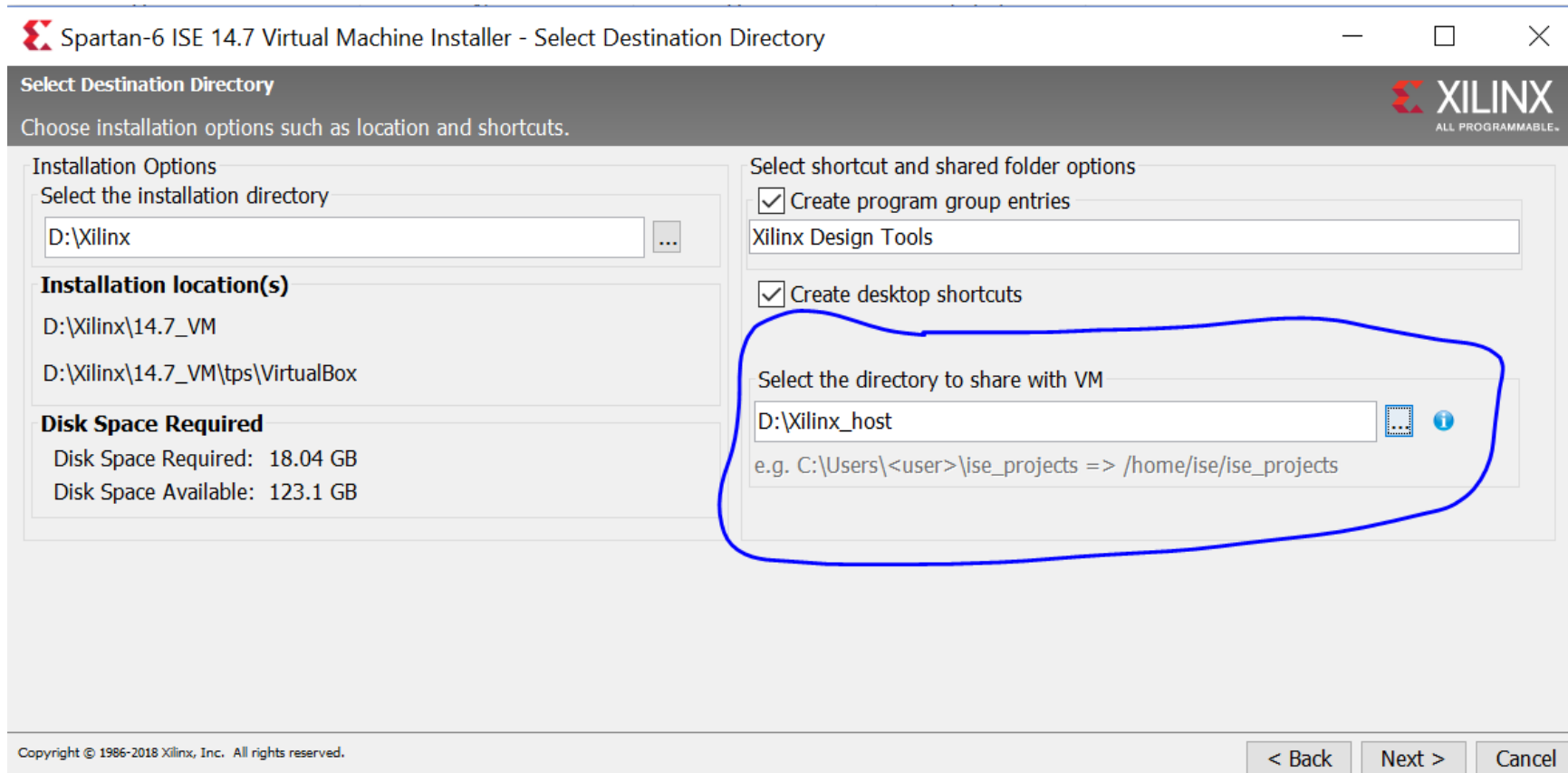
# Installer – File Location

- 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

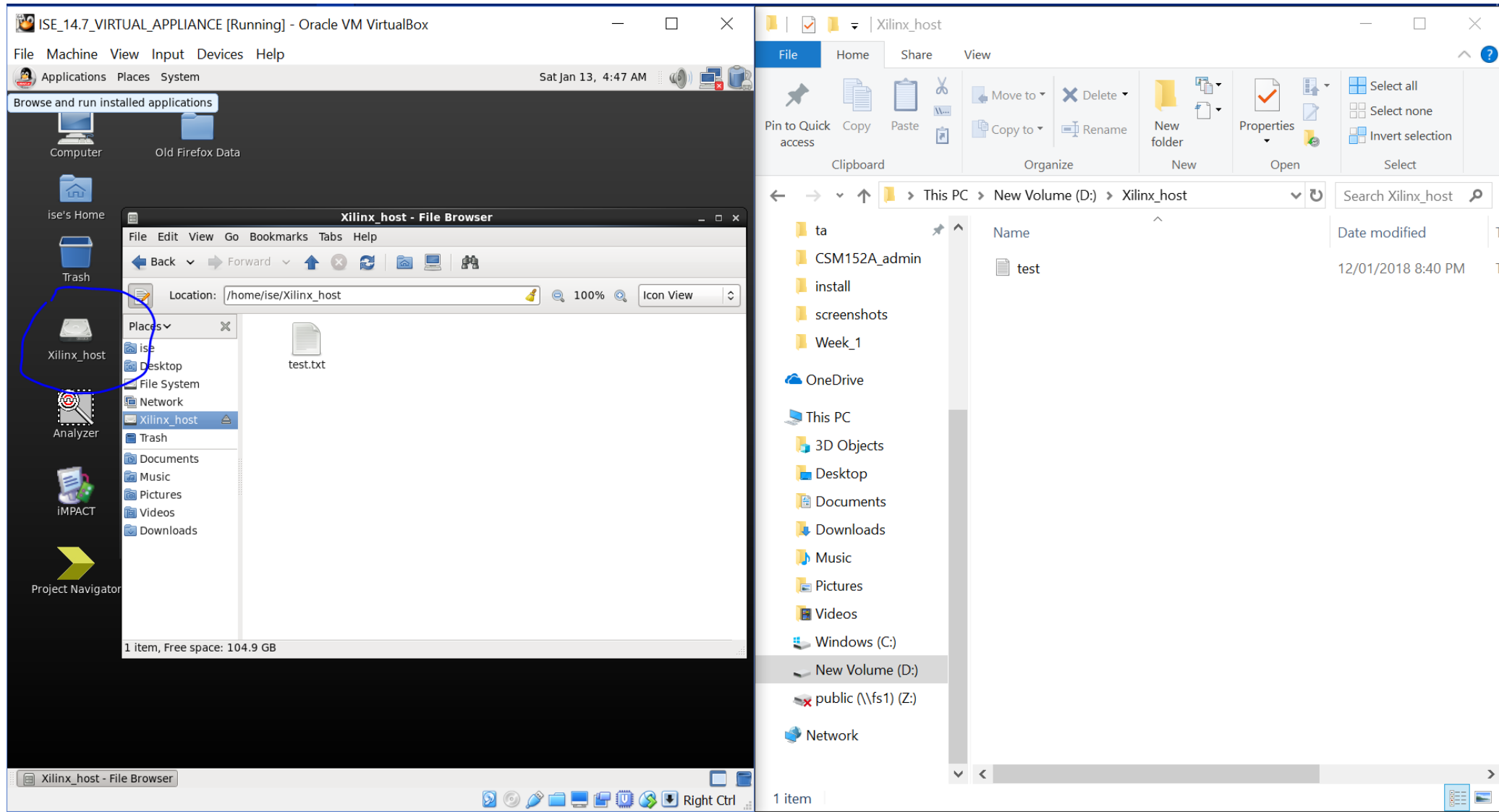
- You can set up a folder to be visible from both your (host) operating system and the virtual machine's (guest) operating system. This is good for quickly moving files around. (See Usage Notes)



# Shared Folder

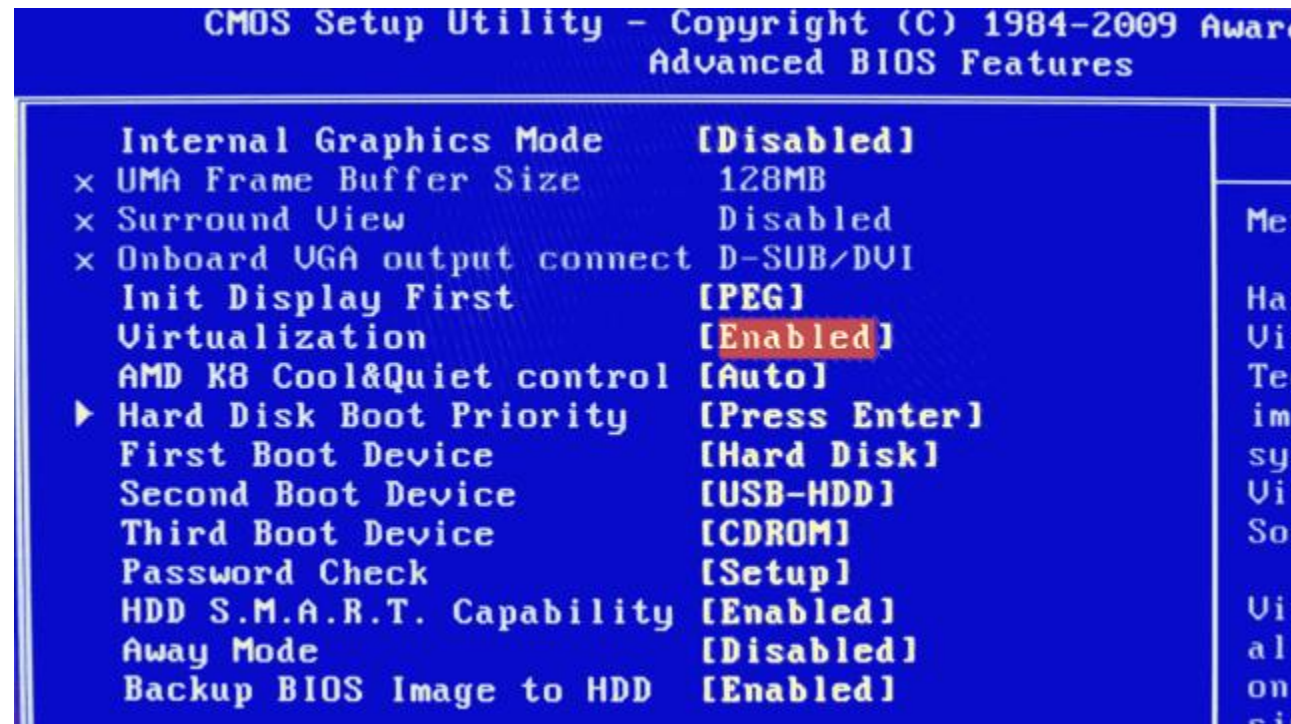
- The shared folder in the VM should have a desktop shortcut
- If you forgot to do this in the installer, you can create a new shared folder following the Mac instructions for a shared folder later in these slides.
- (See next slide for screenshot)

# 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

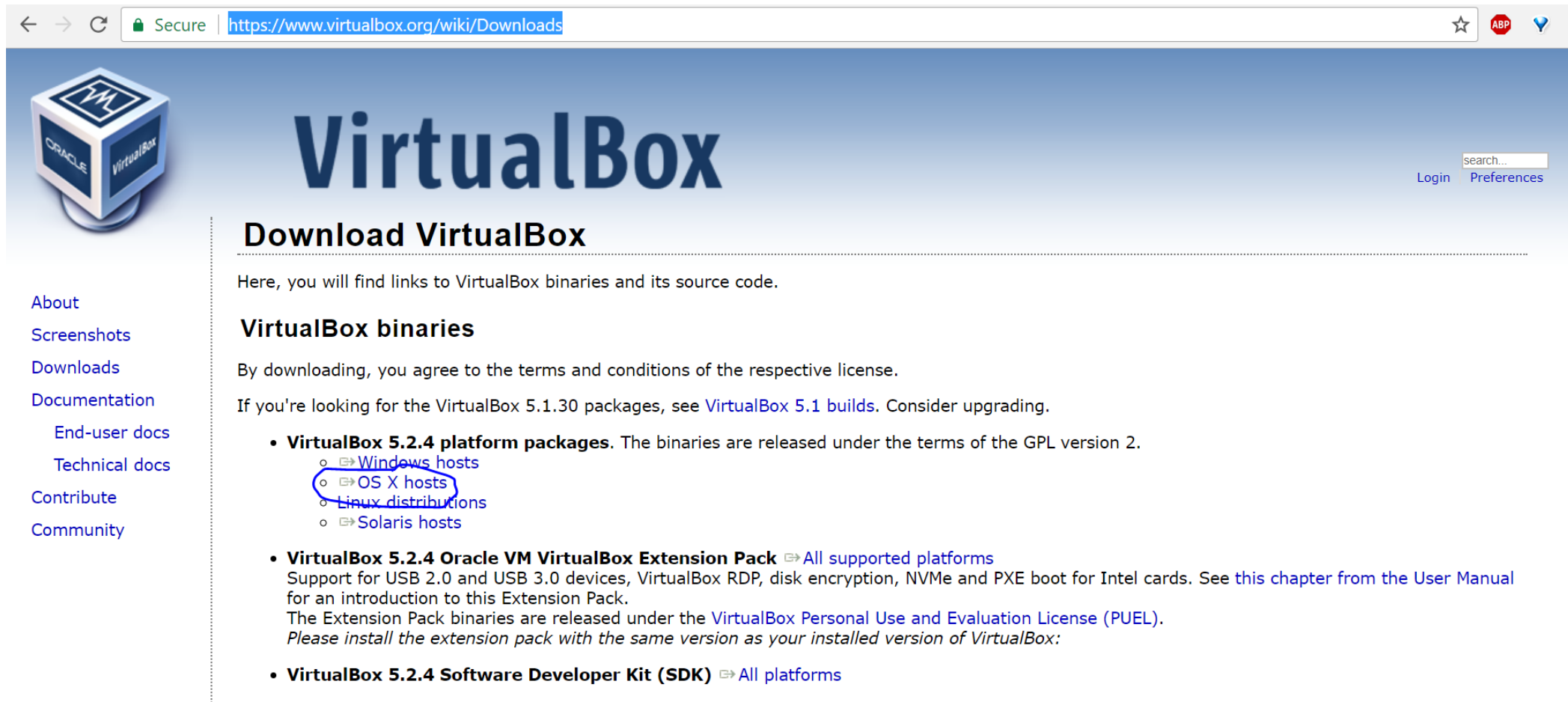




Mac Install

# 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 content area is titled "Download VirtualBox" and contains the following text and links:

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.

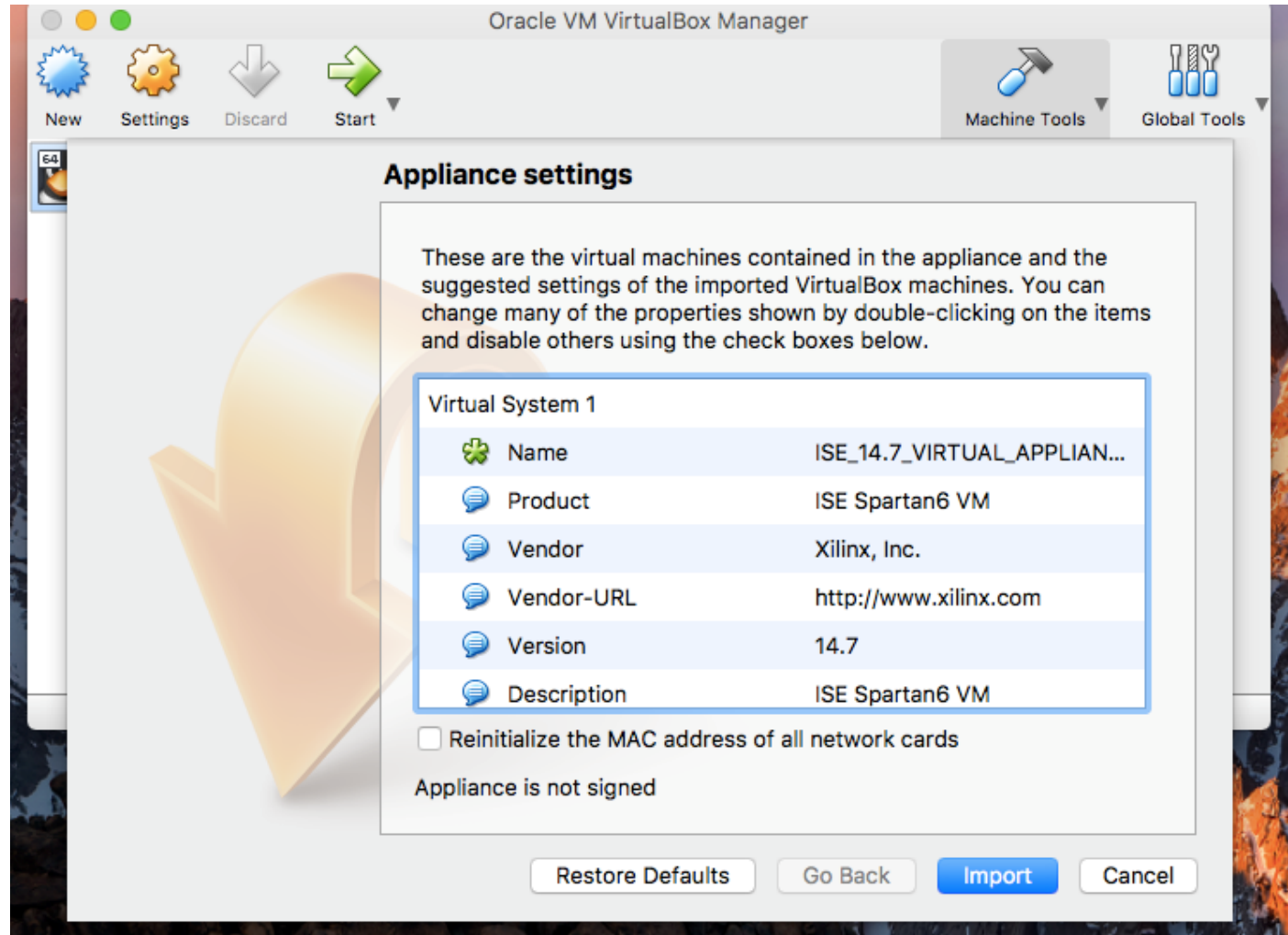
- **VirtualBox 5.2.4 platform packages.** The binaries are released under the terms of the GPL version 2.
  - [Windows hosts](#)
  - [OS X hosts](#)
  - [Linux distributions](#)
  - [Solaris hosts](#)
- **VirtualBox 5.2.4 Oracle VM VirtualBox Extension Pack** [⇨ All supported platforms](#)  
Support 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



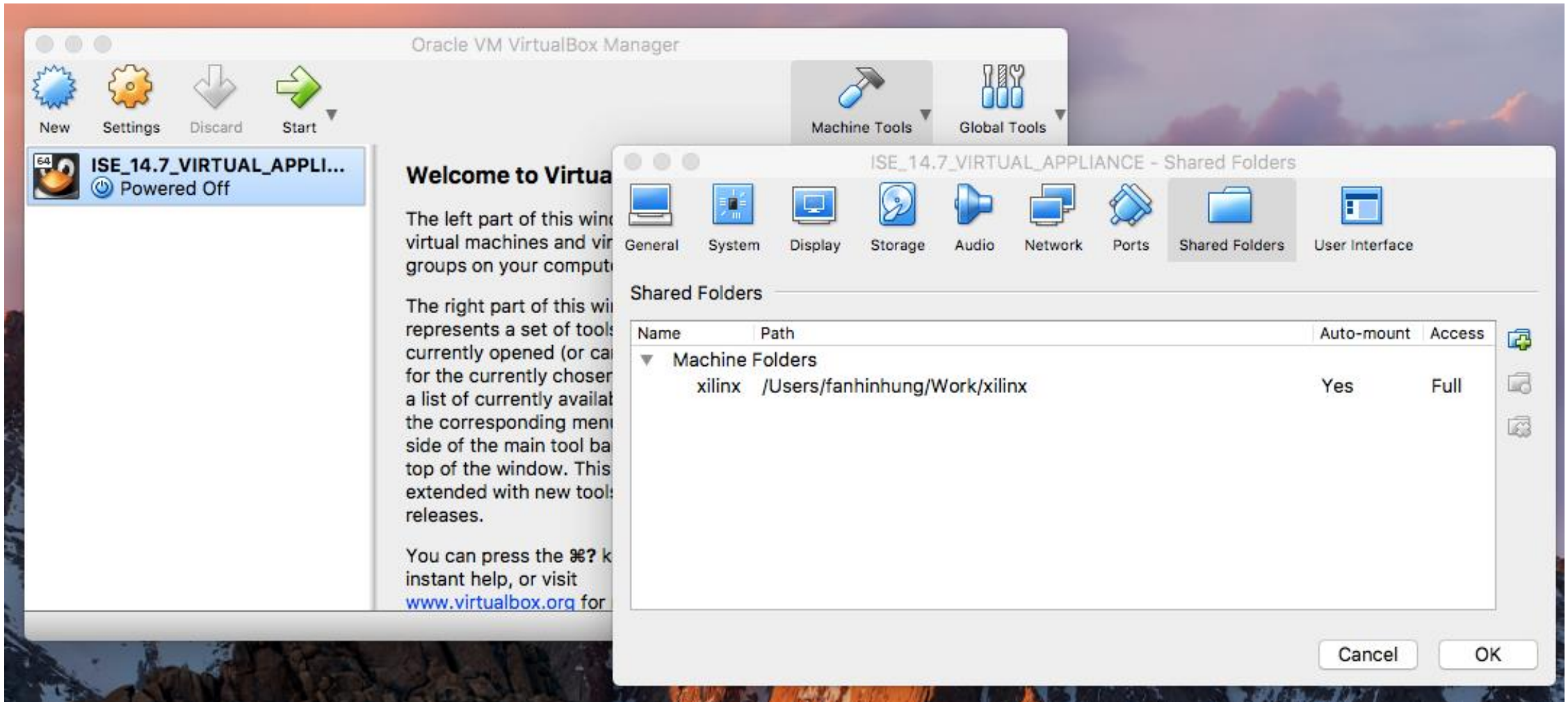
# Shared Folder

- 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.

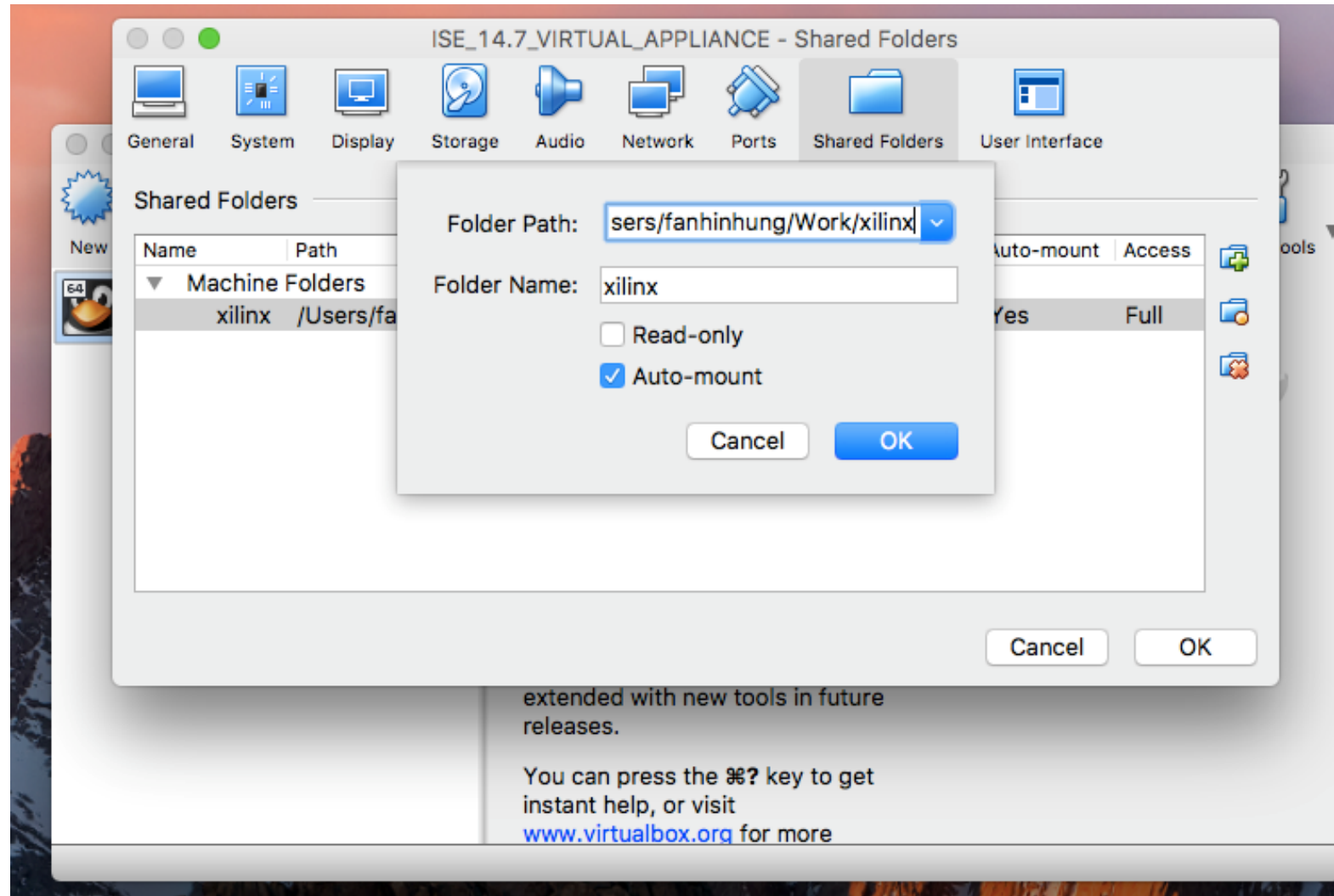
# Shared Folder

- 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

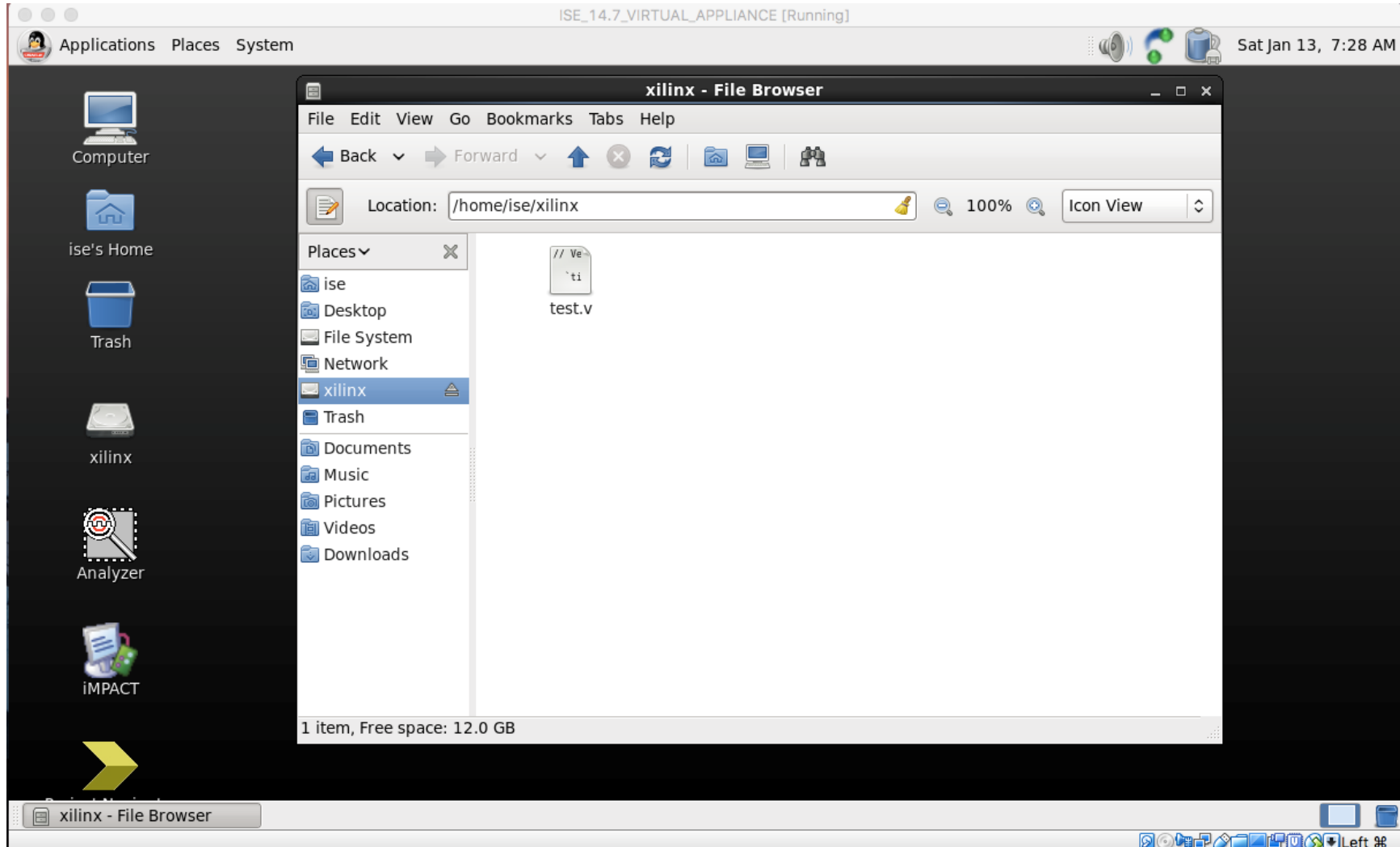


# Shared Folder





# Shared Folder

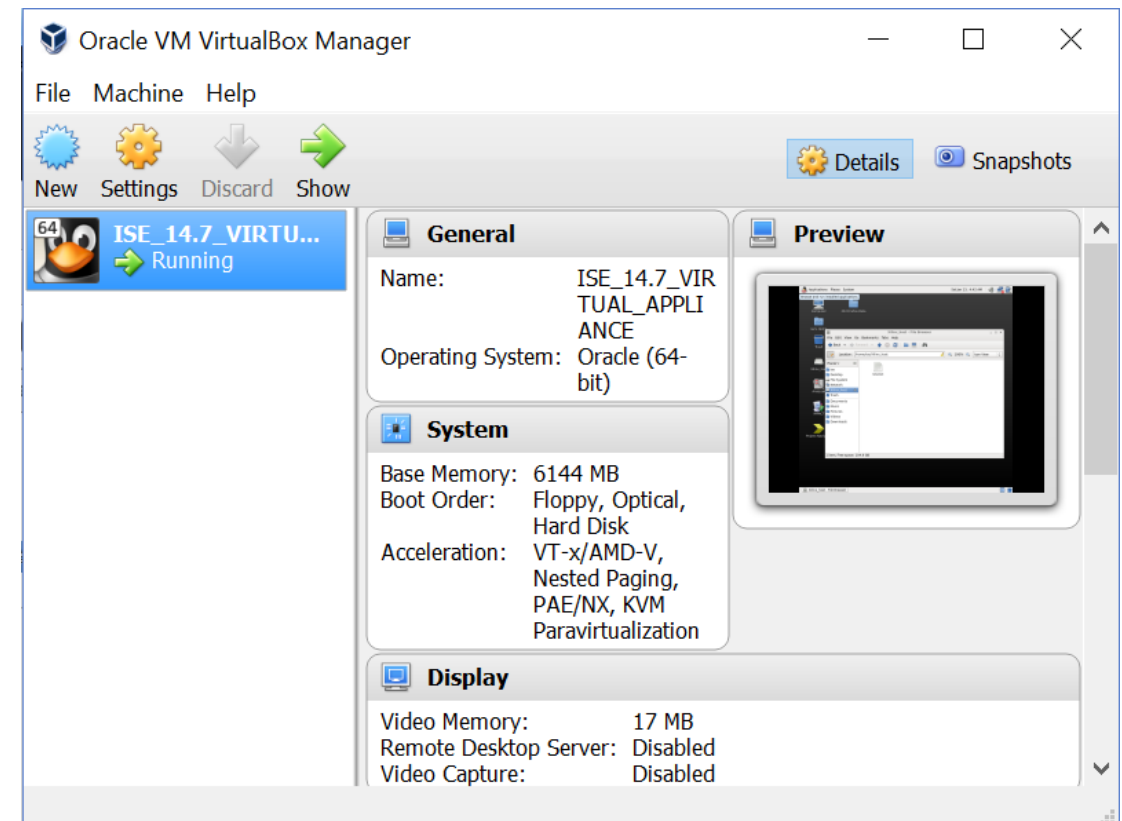
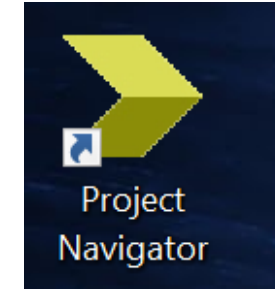


# Additional (Usage) Notes

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 pane, with the 'Network' tab selected. The 'Network' settings for 'Adapter 1' are visible, showing that the 'Enable Network Adapter' checkbox is unchecked. The adapter is currently set to 'Host-only Adapter' and the name is 'Not selected'. The 'Advanced' options are collapsed. The 'OK' and 'Cancel' buttons are at the bottom right of the settings window.

**Oracle VM VirtualBox Manager**

File Machine Help

New Settings Discard Show

64 ISE\_14.7\_VIRTUAL\_APPLIANCE Running

**General**

Name: ISE\_14.7\_VIRTUAL\_APPLIANCE  
Operating System: Oracle (64-bit)

**System**

Base Memory: 6144 MB  
Boot Order: Floppy, Optical, Hard Disk  
Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX, KVM Paravirtualization

**Display**

Video Memory: 17 MB  
Remote Desktop Server: Disabled  
Video Capture: Disabled

**ISE\_14.7\_VIRTUAL\_APPLIANCE - Settings**

**Network**

Adapter 1 Adapter 2 Adapter 3 Adapter 4

Enable Network Adapter

Attached to: Host-only Adapter

Name: Not selected

▶ Advanced

OK Cancel

# 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](http://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

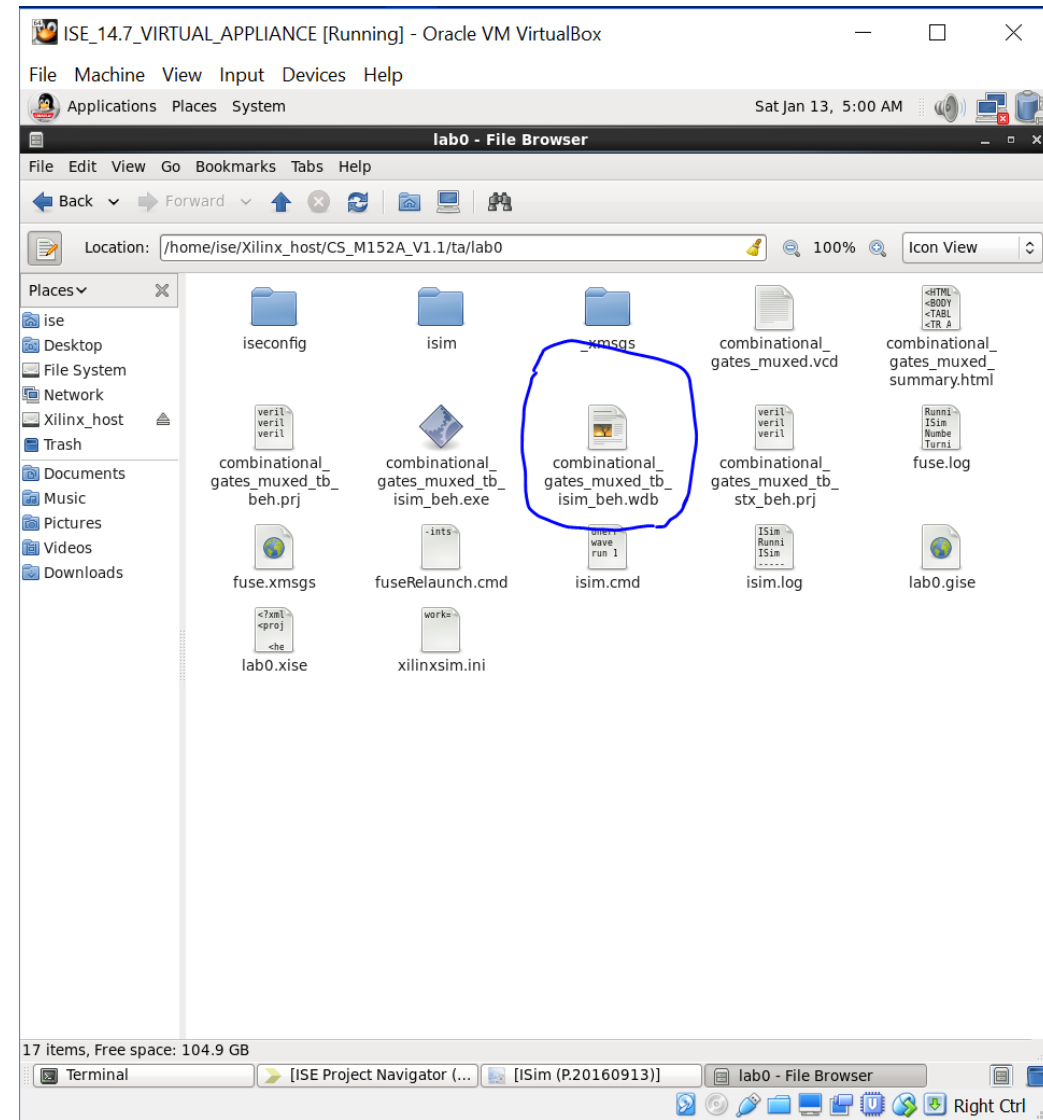
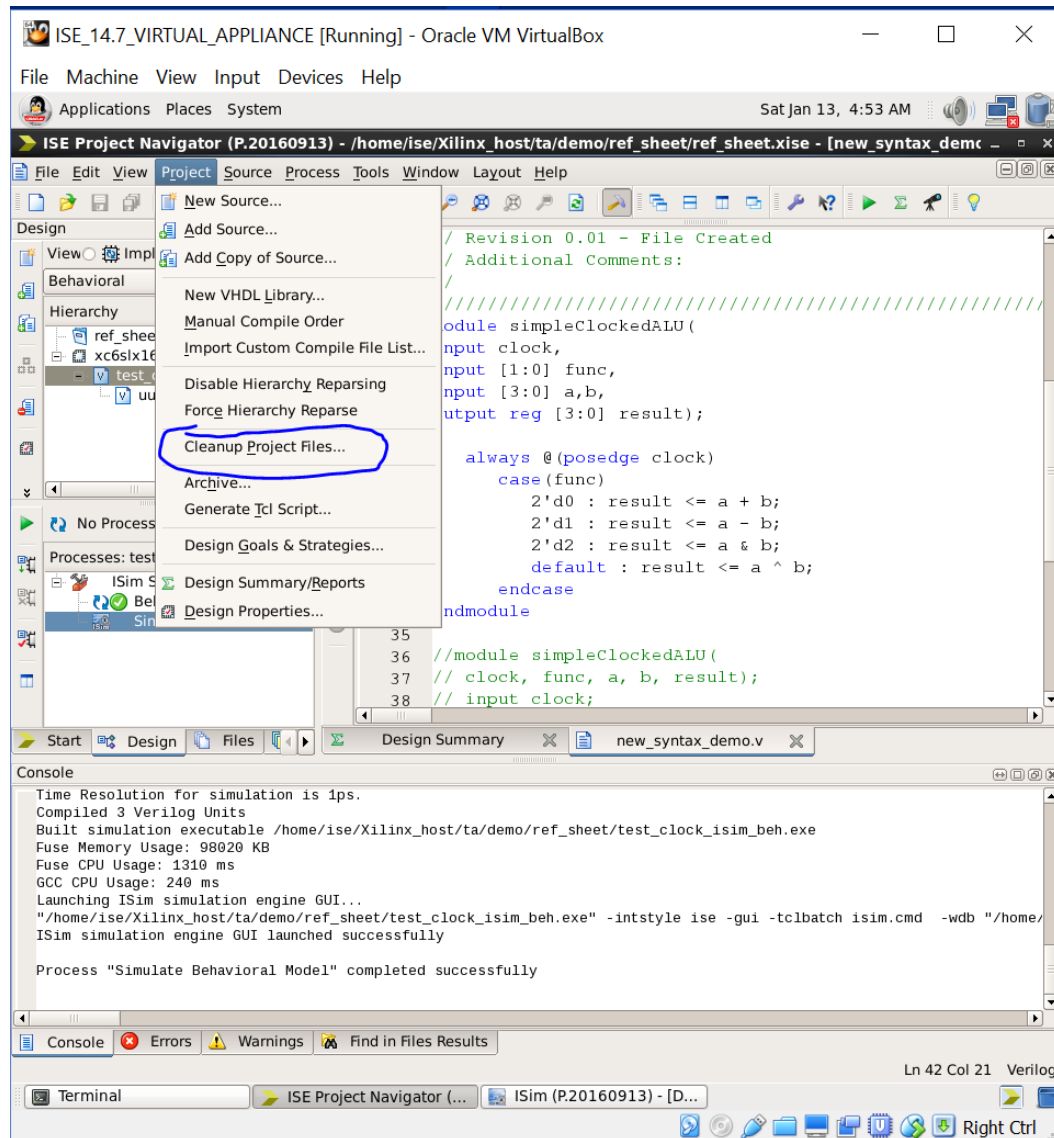
Cancel OK

# 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

