Run a Virtual Machine (VM) with Oracle VirtualBox

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1 Summary

This guide was prepared for the Grain Days 2021 Doctoral School and will show you how to install and run a Linux VM on Windows. As part of my lecture, you will have three hands-on tutorials to (1) use Fiji to batch process CT images of Ottawa Sands and (2) use in-house codes that call Fiji in Python to calculate three-dimensional (3D) sphericity and roundness of individual particles in Ottawa Sands. In order to complete the tutorials, you will need to use the VM we provided. The document outlines how you can import an existing VM. I suggest everyone to try and set up the virtual machine before the lecture. Don't hesitate to contact me via email should you run have any issues.

2 Introduction

This document provides a basic guide on how to set up a Virtual Machine (VM) with Oracle VirtualBox 6.1.28. This guide was prepared based on Windows 10 being the host Operating System (OS) and Ubuntu 18.04.6 being the guest OS. You will also need at least 40 GB of free scape on your hard disk (HD). An SSD is recommended for best performance.

Note that your VM will have to share all components/hardware with your physical machine (host). This is like running two OS at the same time. Hence, things on the host machine might run a little slower and so does the VM.

3 Download and install Oracle Virtualbox (it's free)

Go to the following website: <u>https://www.virtualbox.org/</u>

Download and install:

- VirtualBox 6.1.28 platform packages
- VirtualBox 6.1.28 Oracle VM VirtualBox Extension Pack

After completed installation start the Oracle VM VirtualBox Manager. You can import the provided VM

appliance in which Fiji and our in-house codes are included.

4 Create a VM by importing a Virtual Appliance

3.1 Download provided virtual appliance

Download the virtual appliance from the link below. The password is **GrainDays_123456** https://cloudstor.aarnet.edu.au/plus/s/YRnAMis6vR2ZKmo

3.2 Import VM

Select File > Import Appliance...

😨 Oracle VM VirtualBox Manager		- 🗆 ×
File Machine Help		
Preferences Ctrl+G		
R Import Appliance Ctrl+I	Preferences Import Export New Add	
R Export Appliance Ctrl+E	Welcome to VirtualBox!	
A New Cloud VM	The left part of application window contains global tools and lists all virtual machines and virtual machine groups on	00
Virtual Media Manager Ctrl+D	your computer. You can import, add and create new VMs using corresponding toolbar buttons. You can popup a tools of currently selected element using corresponding element button.	
Host Network Manager Ctrl+H	You can press the F1 key to get instant help, or visit www.virtualbox.org for more information and latest news.	
Network Operations Manager		
Check for Updates		
Reset All Warnings		
Exit Ctrl+Q		
Select the file provided:		
Select the me provided.		
		? ×
 Import Virtual Appliance 		
Appliance to import		
Please choose the source to import appliance from. This can b VM from.	e a local file system to import OVF archive or one of known cloud service providers to	import cloud
Source: Local File System		•
Please choose a file to import the virtual appliance from. Virtu continue, select the file to import below.	alBox currently supports importing appliances saved in the Open Virtualization Format	(OVF). To

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Eile: D:\Z-5_Software\ubuntu\ubuntu18046-export\ubuntu18046.ova

If required you can adjust the settings (e.g. CPU, RAM etc.) before starting the import:

Import Virtual Appliance

Appliance settings

These are the virtual machines contained in the appliance and the suggested settings of the imported VirtualBox machines. You can change many of the properties shown by double-clicking on the items and disable others using the check boxes below. Virtual System 1 쓿 Name ubuntu18046 1 旹 Guest OS Type 🌠 Ubuntu (64-bit) 2 🔵 CPU RAM 8192 MB 💿 DVD \checkmark USB Controller \checkmark խ Sound Card CH AC97 Network Adapter Intel PRO/1000 MT Desktop (82540EM) 🔷 Storage Controller (IDE) 🛛 PIIX4 Storage Controller (IDE) PIIX4 🔶 Storage Controller (SATA) 🛛 AHCI Virtual Disk Image ubuntu18046-disk001.vmdk Base Folder C:\Users\wenbinf1\VirtualBox VMs 🔞 Primary Group 1 Machine Base Folder: C:\Users\wenbinf1\VirtualBox VMs \sim Ŧ MAC Address Policy: Include only NAT network adapter MAC addresses Additional Options: 🗹 Import hard drives as VDI Appliance is not signed Restore Defaults Import Cancel

After the import is completed you will see the new VM listed in Oracle VM VirtualBox Manager. Before starting the VM, it is suggested to check the settings as outlined in the next section.

Oracle VM VirtualBox Manager File Machine Help	1	- 0 ×
Tools	New Settings Ducard Start	- rreview
wbuntu18046	Name: ubuntu 18046-imported Operating System: Ubuntu (64-bit)	
within tu 28046-imported Powered Off	System Bare Henry: 5192 MB Processor: 2 Boot Order: Percy, Catcal, Herd Dak Accelerator: VT-n(AMO-4, Nested Reging, KVM Paravirtualization	ubuntu18046- imported
	Display Wele Nemory: 64 HB Graphics Controller: WelViA Remote Desitop Server: Disabled Recording: Disabled	
	Storage Controller: DE DE Escondary Device 0: [Optical Drive] Empty Controller: SATA SATA Port 0: Usurus LIB/46-dislo01.vdl (Iormal, 40.00 (8)	
	Audio Not Driver: Windows DirectSound Controller: 10H AC97	
	Retwork Adapter 1: Intel PRO/1000 MT Desktop (NAT)	
	US8 US8 US8 Ontroller: OHC1 Device Filters: 0 (0 active)	
	Shared folders None	
	Description None	

3.3 Check Settings

3.3.1 System

Adjust Base Memory (min. 8 GB) and Processor (min. 1-2):



3.3.2 Display

Adjust Video Memory and Acceleration:



3.3.3 General

In order to be able to copy to and from the VM you need to set Shared Clipboard and Drag'n'Drog to Bidirectional.

🕑 ul	ountu18046-impo	rted - Settings	? ×
	General	General	
	System	Basic Advanced Description Disk Encryption	
	Display	Snapshot Folder: C:\Users\wenbinf1\VirtualBox VMs\ubuntu18046-imported\Snap	oshots 🗸
$\mathbf{\Sigma}$	Storage	Shared Clipboard: Bidirectional 🔻	
	Audio	D <u>r</u> ag'n'Drop: Bidirectional 🔻	
Ð	Network		
	Serial Ports		
Ø	USB		
	Shared Folders		
	User Interface		
		OK	Cancel

4 Run the VM

Now you are ready to launch the VM (click on Start or double-click on VM):

le Mechine Belp			
Tools		New Settings Docient Start	
wountui8046 Off		Concernal Varies: uburntu 18046-imported Operating System: Uburntu (64-6xt)	Preview
Powerd Of	:=	System Save Remore: 81921MB Honosterse: 2 Doot Orker: Propry, Optical, Herd Dak Acatheration: VT v, JACD -4, Nexted Paging, KMM Parevirtualization	ubuntu 18046- imported
		Display Woo Nemry: 64.98 Grantica Contain: 1460/04 Academizin: Academizing: Academizing: Display Reserving: Display	
		Storage Controler: IDE DE Scondary Device 0: [Dptial Drive] Emply Cartholer: SATA Part 0: burbl/964-dab01.vd (kornal, 40.00 G8)	
		Audio Host Driver: Windows DirectSound Controller: 101 4C97	
		🛃 Network	
		Adapter 1: Intel PRO/1000 MT Desktop (NAT)	
		🖉 USB	
		USB Controller: OHCI Device Piters: 0 (0 active)	
		Shared folders	
		None	
		(9) Description	

This will boot into Ubuntu:



Clink "Net listed?"



Type in "root" in Username, password is "graindays"

7	ubuntu18046	5-impor	ted [Run	ining] - Ora	acle VM VirtualBox					200		\times
File	Machine	View	Input	Devices	Help							
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						ubuntu	10					
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6 Set up Shared Folders

Add any folders you want to have access to in the VM to shared folders (tick Auto-mount)



Then, you should be able to access the shared folder on the desktop:



7 Frequently asked questions

Q: VirtualBox Error VT-x is not available in Windows 10

A: You might need to enable hardware virtualization in BIOS following the steps in the link below. <u>https://www.wintips.org/fix-virtualbox-error-vt-x-is-not-available-in-windows-10/</u>

If it still does not work,

- open a cmd with admin privilige
- bcdedit /set hypervisorlaunchtype off
- reboot

Q: How to fix the error "Call to NEMROInitVMPart2 failed VERR_NEM_INIT_FAILED (VERR_NEM_VM_CREATE_FAILED)" the first time starting VirtualBox in my computer?

A: Please refer to <u>https://ourcodeworld.com/articles/read/1616/how-to-fix-virtualbox-session-error-call-to-nemr0initvmpart2-failed-verr-nem-init-failed-verr-nem-vm-create-failed to fix this issue. Or you can launch a new command prompt with administrator rights and then type 'bcdedit /set hypervisorlaunchtype off' and restart your computer, if you run the VirtualBox Windows 10 Home.</u>