

## Lab - Creating a Virtual Install of Server 2016 Using VirtualBox

### Overview

In this lab, students will create a virtual install of Server 2016 with GUI using VirtualBox. This lab is designed to run on a MAC, Windows 7 64 bit, Windows 8/8.1 64 bit or Windows 10. The latest version of VirtualBox Player was used in confirming this lab as working.

The student should read the lab in its entirety before beginning the install.

### System requirements for creating a virtual install of Server 2016 using VirtualBox.

Windows Server 2016 as a 64-bit operating system. This lab is built using a 64-bit hardware system.

You can get a free copy of VirtualBox by using this link <u>Download VirtualBox</u>.

### Begin the Lab!

Once you've downloaded VirtualBox, you can browse to the saved download location and run the installer. In this lab, I demonstrate installing VirtualBox, Version 5.2.8 but regardless of the version, the installation wizard remains intuitive.

On the opening screen, click next.

🖟 Oracle VM VirtualBox 5.2.8 S	Setup Setup
<b>A</b>	Welcome to the Oracle VM VirtualBox 5.2.8 Setup Wizard
	The Setup Wizard will allow you to repair your current installation or remove Oracle VM VirtualBox 5.2.8 from your computer. Click Next to continue or Cancel to exit the Setup Wizard.
Version 5.2.8	< Back Next > Cancel



On the next screen, accept the defaults and click next.

Oracle VM Virtual	ox 5.2.6 Setup			_ 13
Custom Setup				
Select the way yo	want features to be	installed.		
Click on the icons i	n the tree below to ch	ange the w	vay features will be installed.	
	tualBox Application	upport	Oracle VM VirtualBox 5.2.6 application.	
	<ul> <li>VirtualBox Netwo</li> </ul>		application	
	VirtualBox	-	This feature requires 173MB on	
	VirtualBox Pythor		your hard drive. It has 3 of 3 subfeatures selected. The	
•		•	subfeatures require 804KB on ye	0
Location: C:\P	rogram Files\Oracle\Vi	rtualRov\		
Location. C. y	logiant lies (orace (vi		Bro	owse
Version 5.2.6	Disk Usage	< B	ack Next > Ca	ncel

On the next screen, accept the defaults and click next.

😸 Oracle VM Virt	ualBox 5.2.6 Setup			×
Custom Setup				
Select the wa	y you want features to	be installed.		
Please choose	from the options belov	<i>N</i> :		
🔽 Create sta	rt menu entries			
🔽 Create a s	hortcut on the desktop			
🔽 Create a s	hortcut in the Quick Lau	unch Bar		
🔽 Register fi	e associations			
Version 5.2.6		< Back	Next >	Cancel

On the next screen, accept the warning and click Yes.





On the Ready to Install screen, click the install button.

B Oracle VM VirtualBox 5.2.6 Setup	X
Ready to Install	
The Setup Wizard is ready to begin the Custom installation.	
Click Install to begin the installation. If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.	
Version 5.2.6	ncel

The installation begins.



🔡 Oracle VM VirtualBox 5.2.6 Set	up		x
Oracle VM VirtualBox 5.2.6			
Please wait while the Setup V take several minutes. Status:	Wizard installs Oracle VM VirtualBox 5.2.6	. This may	
Version 5.2.6	< Back Next >	Cance	el 📃

On the finish screen, click the finish button and if prompted, restart you host machine.



### Installing Server 2016 with Desktop Experience (GUI)

In this next part of the lab, we begin the process of creating a virtual machine of Server 2016.

We will first need to download an ISO image of Server 2016 Standard Edition and save it to a location on our machine.

### Download direct from Microsoft: Server 2016 ISO image



### Windows Server Evaluations

÷	Windows Server 2016 Evaluations   180 days	
<b>(+)</b>	Project Honolulu <sup>Evaluations</sup>	
Θ	Microsoft Hyper-V Server 2016 Evaluations   Unlimited	
	Start your evaluation	
	Please complete the form to continue:	
	* First name	
	* Last name	
	* Company name	
	* Work email address	
	* Work phone number	
	* Country	Select one
	* Indicates a required field	
	Continue	

Next page.... select your language.

## Windows Server Evaluations

Ð	Windows Server 2016 Evaluations   <b>180 days</b>		
Ð	Project Honolulu Evaluations		
Θ	) Microsoft Hyper-V Server 2016 Evaluations   Unlimited		
	Start your evaluation		
	Please select your language: English  Back Download		

Select Windows Server 2016 180-day evaluation and that your download type is ISO.



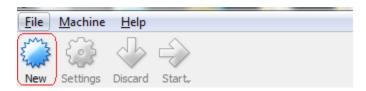
# Windows Server Evaluations

Θ		dows Server 2016 htions   <b>180 days</b>
	Θ	Start your evaluation
	(	Please select your evaluation file type: <ul> <li>Azure</li> <li>ISO</li> <li>Virtual Lab</li> </ul> Continue

Once you have completed the download of the ISO image\_for Server 2016 standard, open VirtualBox and begin creating a virtual install of Server 2016.

### Begin the lab!

To begin the 2016 creation process, open VirtualBox and from the upper left corner, click on the New button.



This launched the Create Virtual Machine Wizard.



ି <mark>ଅ</mark>
G Create Virtual Machine
Name and operating system
Please choose a descriptive name for the new virtual machine and select the type of operating system you intend to install on it. The name you choose will be used throughout VirtualBox to identify this machine.
Name: Server 2016
Iype: Microsoft Windows
Version: Windows 2016 (64-bit)
Expert Mode Next Cancel

On the next window, accept the default of 2014 MB of RAM. Click next.

The car want for filling its percent of a strain and an an and an	?	×
G Create Virtual Machine		
Memory size		
Select the amount of memory (RAM) in megabytes to be allocated virtual machine.	to the	
The recommended memory size is 2048 MB.		
2	048	÷ MB
4 MB 16384 MB		
Next	Can	icel

On the next screen, accept the default to **create a virtual hard disk now**. Click create.



8 🔀
Create Virtual Machine
Hard disk
If you wish you can add a virtual hard disk to the new machine. You can either create a new hard disk file or select one from the list or from another location using the folder icon.
If you need a more complex storage set-up you can skip this step and make the changes to the machine settings once the machine is created.
The recommended size of the hard disk is 50.00 GB.
Do not add a virtual hard disk
Oreate a virtual hard disk now
Use an existing virtual hard disk file
Empty 🔹
Create Cancel

Accept the default for the hard disk type as VDI. Click next.

	ବୃ	23
Create Virtual Hard Disk		
Hard disk file type		
Please choose the type of file that you would like to use for the new virtual do not need to use it with other virtualization software you can leave this s unchanged.		If you
VDI (VirtualBox Disk Image)		
VHD (Virtual Hard Disk)		
VMDK (Virtual Machine Disk)		
Expert Mode Next	Car	ncel

On the next screen, accept the default for the storage on the physical hard disk to be dynamically allocated.



		ନ	23
Create Virtual Hard Disk			
Storage on physical hard disk			
Please choose whether the new virtual hard disk file should grow as i allocated) or if it should be created at its maximum size (fixed size).	t is used	(dynam	ically
A <b>dynamically allocated</b> hard disk file will only use space on your fills up (up to a maximum <b>fixed size</b> ), although it will not shrink agair space on it is freed.			
A <b>fixed size</b> hard disk file may take longer to create on some system use.	ns but is d	often fa	aster to
Oynamically allocated			
Fixed size			
Ne	xt	Ca	ncel

On the next screen, accept the default for the file location and size of 50 GB. Click create.

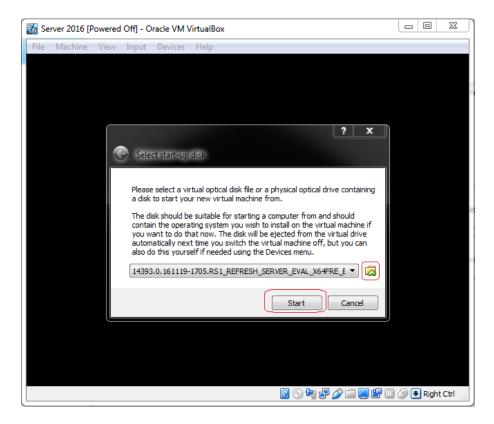
Create Virtual Hard Disk	8 ×
File location and size	
Please type the name of the new virtual hard disk file into the box below folder icon to select a different folder to create the file in.	N or click on the
Server 2016	
Select the size of the virtual hard disk in megabytes. This size is the limit file data that a virtual machine will be able to store on the hard disk.	50.00 GB
4.00 MB 2.00 T	В
Create	Cancel



From the left window pane, ensure your disk for Server 2012 Full Install is highlighted and from the grey taskbar, click on the start arrow.



From the select Start-up Disk screen, click on the folder browse button and browse to the download location for your ISO image of Server 2016. Double-click the ISO image and click the Start button.



Step 9: VirtualBox begins the install.



🖆 Windows Setup	- • ×
Windows Server <sup>®</sup> 2016	
Languag <u>e</u> to install: <mark>English (United States)</mark>	•
Time and currency format: English (United States)	-
Keyboard or input method: US	•
Enter your language and other preferences and click "Next" to continue.	
© 2016 Microsoft Corporation. All rights reserved.	<u>N</u> ext

15. Click on Next to start the Windows Server 2016 installation.

Click on Install now

🖆 Windows Setup
Windows Server* 2016
<u>I</u> nstall now
<u>R</u> epair your computer © 2016 Microsoft Corporation. All rights reserved.



On the next screen, click, 'I don't have a product key' to start your 180-day evaluation of Server 2016.

🕞 💰 Windows Setup	×
Activate Windows	
If this is the first time you're installing Windows on this PC (or you're installing a different edition), you need to enter a valid Windows product key. Your product key should be in the confirmation email you received after buying a digital copy of Windows or on a label inside the box that Windows came in.	
The product key looks like this: XXXXX-XXXXX-XXXXX-XXXXX-XXXXX If you're reinstalling Windows, select I don't have a product key. Your copy of Windows will be	
automatically activated later.	
Privacy statement	ext

16. Select the operating system that you wish to install. Regardless if you install the Server 2016 Datacenter or the 2012 R2 Standard version, you want the installing package that includes the Desktop Experience. Otherwise, you end up with just the Server 2012 Core and no GUI.

Datacenter can handle more RAM and CPU options, but they are identical operating systems. Students may use either for their labs.



Operating system	Architecture	Date modified
Windows Server 2016 Standard	х64	9/12/2016
Windows Server 2016 Standard (Desktop Experience)	хб4	9/12/2016
Windows Server 2016 Datacenter Windows Server 2016 Datacenter (Desktop Experience)	хб4 хб4	9/12/2016 9/12/2016
escription: his option is useful when a GUI is required—for example, t pplication that cannot be run on a Server Core installation		
		corones are
upported. For more details see "Windows Server Installation	on Options."	

### 17. Accept the license agreement.

Mindows Setup Applicable notices and license terms	
IMPORTANT NOTICE (followed by LICENSE TERMS)	^
<b>Diagnostic and Usage Information.</b> Microsoft automatically collects this information over the internet, and uses it to help improve your installation, upgrade, and user experience, and the quality and security of Microsoft products and services. Consistent with these purposes, the information may be associated with your organization. Windows Server 2016 has four (4) information collection settings (Security, Basic, Enhanced, and Full), and uses the "Enhanced" setting by default. This level includes information required to: (i) run our antimalware and diagnostic and usage information usage and compatibility; and (iii) identify quality issues in the use and performance of the operating system and applications.	~
✓ I accept the license terms	
	<u>N</u> ext

18. Select Custom Install Windows only (advanced).



The files, settings, a	Windows and keep files, settings, and applications and applications are moved to Windows with this option. This option is only apported version of Windows is already running on the computer.
The files, settings, a make changes to p	<b>Windows only (advanced)</b> and applications aren't moved to Windows with this option. If you want to artitions and drives, start the computer using the installation disc. We ig up your files before you continue.

19. Nothing to do here but click Next.

Name		Total size	Free space Type	
Drive 0 Una	allocated Space	60.0 GB	60.0 GB	
€9 <u>R</u> efresh	Delete	✓ Format	<mark>∦</mark> N <u>e</u> w	

Server 2016 beings the file copy process. Take a break while the installation finishes.



E	🖉 Windows Setup	x
	Installing Windows	
	Status	
	Copying Windows files Getting files ready for installation (2%) Installing features Installing updates Finishing up	

### Windows will reboot. Be patient!

Before Server 2016 will allow you to log in, you must configure the password for the administrator account. Do try and remember your password. If you forget it, you will need to remove the machine and files from the VMWare Player Management Console and begin anew.

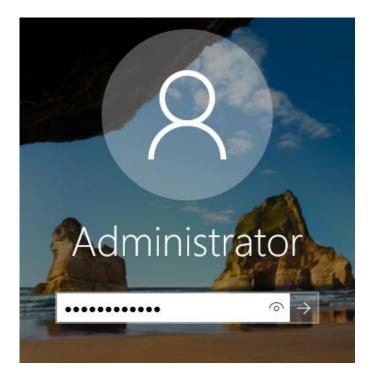
Customize	settings							
Type a password for th	Type a password for the built-in administrator account that you can use to sign in to this computer.							
User name	Administrator							
Password	•••••							
Reenter password	•••••	<b>~</b>						

From the VMWare task bar, click on VM> Send Ctrl+Alt+Delete.



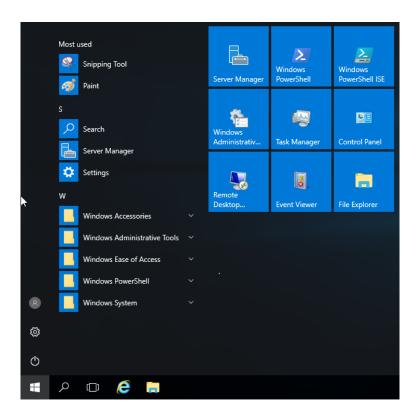


Logon with your administrator password.



21. Welcome to Windows Server 2016!





#### Caveats

Word of warning! Do not enable automatic updates for this server! Doing so will take days, use up plenty of bandwidth and will fill up your 50 GB partition in little to no time at all.

If the partition fills up, you will need to expand it or blow out the virtual machine and start over.

Make sure you provide enough RAM for Server 2016 to remain responsive. If your install pauses or hangs or boots to slow, this is a RAM issue. Right-click on the name of your virtual machine and go into system to increase the amount of RAM.

#### The Last Word

This is a virtual machine; this is not a simulator or an emulator. This is a real working install of Server 2016, and you could use this server as-is on any production network in any organization. No one would know the difference. With every Server 2016 Standard license we get two free virtual machine licenses. With Server 2016 Datacenter we unlimited virtual machines.



We could purchase a medium size server, install a commercial grade emulation package such as Citrix, VMWare or Hyper-V. We next create one physical install of Server 2016 Standard Edition and create two additional virtual servers of Server 2016 Standard edition. We've saved a bundle on hardware, licensing, recovered server space in our already crowded server room, reduced cooling cost and reduced the organization's carbon footprint. Win, win!

Virtualization can be a great benefit to even the smallest organization, and there is probably not an easier way to learn how to install, configure and manage a real install of any Windows or Linux operating system.

End of the lab!