# Lab - Create a Virtual Install of Server 2019 Core Using VirtualBox

Unlike some previous releases of Windows Server, you cannot convert between Server 2019 Core and Server 2019 with Desktop Experience after installation. If you install Server Core and later decide to use Server 2019 with Desktop Experience, you should do a fresh installation (and vice versa).

## Overview

In this lab, students will create an installation of Server 2019 Core using VirtualBox.

The Server Core installation installs the operating system in non-GUI with minimal footprint and helps to secure the server. The benefits of using core server are:

- Reduced attack surface
- Reduced maintenance
- Consume fewer hardware resources
- Increased stability due to fewer running applications

System requirements for creating a virtual install of Server 2019 using VirtualBox.

Windows Server 2019 is a 64-bit operating system. This lab will only work on 64-bit hardware.

You can get a free copy of VirtualBox by using this link Download VirtualBox.

After downloading VirtualBox, browse to where you saved it, and double-click to start the installation. You can just accept the defaults by clicking Next through each screen.

If you already have VirtualBox downloaded and installed, you do not need to download and install it a second time.

This lab is very basic and has just two requirements:

- Installation of VirtualBox onto your local system.
- An ISO image of Server 2019 is readily accessible on your local network.

Download direct from Microsoft: https://www.microsoft.com/en-us/evalcenter/evaluatewindows-server-2019

If you have a previous download of Server 2019, you do not need to download it again. You can use the same 2019 ISO image for Server 2019 time again.

# ⊖ Windows Server 2019

Evaluations | 180 days

In addition to your trial experience of Windows Server 20 additional features from the Desktop Experience to impro features on demand can be added to images prior to dep Compatibility FOD. Download this FOD. To learn more ab

Start your evaluation
Please select your evaluation file type:
O Azure
ISO ISO
O VHD
Continue

#### Fill in your information.

Θ	Start your evaluation	
	Please complete the form to continue:	
	* First name	
	* Last name	
	* Company name	
	* Company size	Select one
	* Job title	Select one
	* Work email address	
	* Work phone number	
	* Country	Select one
	* Indicates a required field	

Next page.... select your language.

Continue

Back

Θ	Start your evaluation		
	Please se	lect your language:	
	English	~	
	Back	Download	

Click the download button. Save the file locally on you machine or network and then clock, OK.

Opening 17763.253.190108-0006.rs5_release_svc_refresh_SERVER_EVAL_x6	×
You have chosen to open:	
0006.rs5_release_svc_refresh_SERVER_EVAL_x64FRE_en-us.iso	
which is: iso File (4.6 GB) from: https://software-download.microsoft.com	d a new feature on demand fo of Server Core for apps and to
What should Firefox do with this file?         O Open with       Browse         3	ly running computers, using th , and the DISM command, plea
2      Save File	
Do this <u>a</u> utomatically for files-like this from now on. 4 OK Cancel	
17763.253.190108-0006.rs5_release_svc_refresh_SERVER_EVAL_>	x64FRE_en-us.iso Download

Check yourself....

Server 2019 ISO ready for installation.

**Download VirtualBox** for Windows. The version may be updated, but it is still the same software. Act accordingly.

Install VirtualBox and follow the simple instructions given below to install Windows Server 2012 on VirtualBox. Install the virtual adapters if prompted.

Begin the lab!

To begin creating a 2019 Core installation, open VirtualBox and from the upper left corner, click on Machine and from the context menu. Select new.

?

×

🗿 Oracle VM VirtualBox Manager	
<u>F</u> ile <u>Machine</u> <u>H</u> elp	
O New Ctrl+N	e= ^
ÜÜ 🕂 <u>A</u> dd Ctrl+А	8=
$\bigvee$ Server 2016	
Windows 10	
2016 DC1 2016 Off	

This starts the Create Virtual Machine Wizard.

Create Virtual Machine

### Name and operating system

Please choose a descriptive name and destination folder 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 2019 Core					
Machine Folder:	C:\Users\Expat\VirtualBox VMs	$\sim$				
<u>T</u> ype:	Microsoft Windows 👻	2016				
Version:	Windows 2016 (64-bit)					
Until VB adds in a	Server 2019 option, use the Server 2016 (64-bit) o	option				
	Expert Mode Next Cance	el				

On the next window, accept the default of 2048 MB of RAM. Click next.

	?	×
← Create Virtual Machine		
Memory size		
Select the amount of memory (RAM) in megabytes to be allo virtual machine.	ocated to t	he
The recommended memory size is 2048 MB.		
	2048	➡ MB
4 MB 16384 ME	3	
Next	Can	cel

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

	?	$\times$		
← Create Virtual Machine				
Hard disk				
If you wish you can add a virtual hard disk to the new ma either create a new hard disk file or select one from the li location using the folder icon.	chine. You c ist or from ar	an nother		
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.				
O Do not add a virtual hard disk				
Oreate a virtual hard disk now				
$\bigcirc$ Use an existing virtual hard disk file				
Server 2012 ADDS.vdi (Normal, 50.00 GB)				
Create	Can	cel		

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

	?	$\times$
← Create Virtual Hard Disk		
Hard disk file type		
Please choose the type of file that you would like to use for the hard disk. If you do not need to use it with other virtualization can leave this setting unchanged.	the new virtu on software y	al /ou
<ul> <li>VDI (VirtualBox Disk Image)</li> </ul>		
🔿 VHD (Virtual Hard Disk)		
VMDK (Virtual Machine Disk)		
Expert Mode Next	Can	cel

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

	?	×
← Create Virtual Hard Disk		
Storage on physical hard disk		
Please choose whether the new virtual hard disk file should grov (dynamically allocated) or if it should be created at its maximum size).	v as it is u size (fixe	ised d
A <b>dynamically allocated</b> hard disk file will only use space on hard disk as it fills up (up to a maximum <b>fixed size</b> ), although it again automatically when space on it is freed.	your phys will not sl	sical hrink
A <b>fixed size</b> hard disk file may take longer to create on some so often faster to use.	ystems bu	ıt is
Opnamically allocated		
○ Fixed size		
Next	Can	cel

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

	?	×
← Create Virtual Hard Disk		
File location and size		
Please type the name of the new virtual hard disk file into the on the folder icon to select a different folder to create the file	box below in.	or click
Server 2019 Core		
Select the size of the virtual hard disk in megabytes. This size i amount of file data that a virtual machine will be able to store of	s the limit on the har	on the d disk.
	50	.00 GB
4.00 MB 2.00 TB		
Create	Car	ncel

From the left window pane, ensure your disk for Server 2019 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 2019. Double-click the ISO image and click the Start button.



Begin the lab!

To begin the 2019 creation process, open VirtualBox and from the upper left corner, click on Machine and from the context menu, select New.

🕥 Ora	icle \	<u>VM Virt</u> ualBox Manager			
File	Mad	thine Help			
784	$\langle \rangle$	New	Ctrl+N	<u>^</u>	📇 🖧 📥 📥
ÖÖ	÷	Add	Ctrl+A		New Settings Discard Start
64	$\odot$	Settings	Ctrl+S		📃 General
((	Ģ	Clone	Ctrl+O Name: Server 20		Name: Server 2019 Core
	r	Move			Operating System: Other Windows (64-bit) Settings File Location: C:\Users\Expat\VirtualBox VMs\Server 2019 Core
2	×	Remove			System
	ð	Group			Base Memory: 2048 MB
64 201	¢	Start	•		Boot Order: Floppy, Optical, Hard Disk Acceleration: VT-x/AMD-V, Nested Paging, PAE/NX
		Pause			

This launches the Create Virtual Machine Wizard.

		?	$\times$
<ul> <li>Create Virtual</li> </ul>	Machine		
Name and c	perating system		
Please choose a machine and sel The name you c machine.	descriptive name and destination folder for th ect the type of operating system you intend to hoose will be used throughout VirtualBox to ide	e new v o install entify th	virtual on it. iis
Name:	Server 2019 Full Install		
Machine Folder:	C:\Users\Expat\VirtualBox VMs		~
Type:	Microsoft Windows	•	64
Version:	Other Windows (64-bit)	•	
	Expert Mode Next	Can	cel

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

The set of the Time is provided bid, or set one studies	2	X
Create Virtual Machine		
Memory size		
Select the amount of memory (RAM) in megabytes to be allocate virtual machine.	ed to the	•
The recommended memory size is 2048 MB.		
Q	2048	🖨 MB
4 MB 16384 MB		
Next	Car	ncel

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



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



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



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



From the left window pane, ensure your disk for Server 2019 Full Install is highlighted and from the grey taskbar, click on the green 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 2019. Double-click the ISO image and click the Start button.

		?	×
~	Select start-up disk		
	Please select a virtual optical disk file or a phy	sical op	tical
	drive containing a disk to start your new virtu	al machi	ine
	from.		
	The disk should be suitable for starting a com	outer fro	om and
	should contain the operating system you wish	to insta	all on
	the virtual machine if you want to do that nov	v. The d	isk will
	switch the virtual machine off, but you can all	/ next ti so do th	me you is
	yourself if needed using the Devices menu.	30 00 01	
	-		
	17763.1.180914-1434.rs5_release_SERVER_	EVAL_	- 🔜
	Chart	C-	acal
	Start	Ca	ncer

VirtualBox begins the install.

🖆 Windows Setup
Windows Server* 2019
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.  © 2018 Microsoft Corporation. All rights reserved.  Next

Click on Next to start the Windows Server 2019 installation.

Click on Install now

🖆 Windows Setup	
Windows Server* 20	019
Install now	
Repair your computer © 2018 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 2019.

nindows Setup		<b>—</b> X
Activate Windows		
If this is the first time you're installi you need to enter a valid Windows email you received after buying a d Windows came in.	ing Windows on this PC (or you're installing a different edition), ; product key. Your product key should be in the confirmation digital copy of Windows or on a label inside the box that	
The product key looks like this: XX	XXX-XXXX-XXXX-XXXXX-XXXXX et I don't have a product key. Your copy of Windows will be	
automatically activated later.		
[Ι		

16. Select the operating system that you wish to install. Regardless if you install the Server 2019 Datacenter or the 2016 Standard version, you want the installing package that includes the Desktop Experience. Otherwise, you end up with just the Server 2019 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.

Windows Server 2019 Standard Evaluation         x64         9/15/2018           Windows Server 2019 Standard Evaluation (Desktop Experien x64         9/15/2018           Windows Server 2019 Datacenter Evaluation         x64         9/15/2018           Windows Server 2019 Datacenter Evaluation         x64         9/15/2018           Windows Server 2019 Datacenter Evaluation (Desktop Experi x64         9/15/2018           Windows Server 2019 Datacenter Evaluation (Desktop Experi x64         9/15/2018	Windows Server 2019 Standard Evaluation         x64         9/15/2018           Windows Server 2019 Standard Evaluation (Desktop Experin         x64         9/15/2018           Windows Server 2019 Datacenter Evaluation         x64         9/15/2018           Windows Server 2019 Datacenter Evaluation         x64         9/15/2018           Windows Server 2019 Datacenter Evaluation         (Desktop Experi         x64         9/15/2018           escription:         scription:         scription         scription         scription           ecommended) This option omits most of the Windows graphical environment. Manage with a mmand prompt and PowerShell, or remotely with Windows Admin Center or other tools.         scription:	Operating system	Architecture	Date modified
Windows Server 2019 Standard Evaluation (Desktop Experien x64 9/15/2018 Windows Server 2019 Datacenter Evaluation x64 9/15/2018 Windows Server 2019 Datacenter Evaluation (Desktop Experi x64 9/15/2018	Windows Server 2019 Standard Evaluation (Desktop Experien xb4       9/15/2018         Windows Server 2019 Datacenter Evaluation       x64       9/15/2018         Windows Server 2019 Datacenter Evaluation (Desktop Experi x64       9/15/2018         escription:       escription:         escommended) This option omits most of the Windows graphical environment. Manage with a mmand prompt and PowerShell, or remotely with Windows Admin Center or other tools.	Windows Server 2019 Standard Evaluation	x64	9/15/2018
Windows Server 2019 Datacenter Evaluation xo4 9/13/2018 Windows Server 2019 Datacenter Evaluation (Desktop Experi x64 9/15/2018 scription:	Windows Server 2019 Datacenter Evaluation xo4 9/13/2018 Windows Server 2019 Datacenter Evaluation (Desktop Experi x64 9/15/2018 escription: ecommended) This option omits most of the Windows graphical environment. Manage with a immand prompt and PowerShell, or remotely with Windows Admin Center or other tools.	Windows Server 2019 Standard Evaluation (Desktop Experien	x64	9/15/2018
escription:	escription: ecommended) This option omits most of the Windows graphical environment. Manage with a mmand prompt and PowerShell, or remotely with Windows Admin Center or other tools.	Windows Server 2019 Datacenter Evaluation	X04	9/15/2018
econnectary in and Device Chall, as an ataly with Windows Admin Contex or other tools	mmand prompt and Powersneil, or remotely with windows Admin Center or other tools.	escription: ecommended) This option omits most of the Windows graph	ical environmen	t. Manage with a

Accept the license agreement.



Select Custom Install Windows only (advanced).

Which type of installation do you want?           Upgrade: Install Windows and keep files, settings, and applications           The files, settings, and applications are moved to Windows with this option. This option is only available when a supported version of Windows is already running on the computer.           Custom: Install Windows only (advanced)           The files, settings, and applications aren't moved to Windows with this option. If you want to make charges the nattings, that the computer wins the installation dire. We	
Upgrade: Install Windows and keep files, settings, and applications         The files, settings, and applications are moved to Windows with this option. This option is only available when a supported version of Windows is already running on the computer.         Custom: Install Windows only (advanced)         The files, settings, and applications aren't moved to Windows with this option. If you want to make character than direct whether we draw that the computer wind the installation of the settings.	
<b>Custom: Install Windows only (advanced)</b> The files, settings, and applications aren't moved to Windows with this option. If you want to make charges to partitions and drives, start the computer using the installation dire. We	
recommend backing up your files before you continue.	
<u>H</u> elp me decide	

Nothing to do here but click Next.

			-	-
Nam	e	Total size	Free space	Туре
Irive Drive	0 Partition 1: System Reserved	549.0 MB	532.0 MB	System
Jrive	0 Partition 2	31.5 GB	30.9 GB	Primary
€ <u>R</u> efresh	Delete	Eormat	<mark>∦</mark> N <u>e</u> w	

Server 2019 beings the file copy process. Take a break while the installation finishes.

🔏 Windows Setup	×
Installing Windows	
Status	
Copying Windows files	
Installing features	
Installing updates	
Finishing up	

Windows will reboot. Be patient!

The Installation restarts.

At the next screen, hit enter to accept the changing of the administrator's password.



Type in your new administrator password. Hit the tab key to move the confirm password line.



Your password change is confirmed. Hit enter.

C:\Windows\system32\LogonUl.exe	<b>– –</b> ×
Administrator Your password has been changed.	
0k	

You are now at the command prompt for Server 2019 Core.

Installing the VirtualBox Guest Additions

We next need to install the Guest additions using the command prompt.

From the VirtualBox tools menu, click on Devices and from the menu, click on. "Insert Guest Additions CD Image."

$\odot$	Optical Drives	•
	Audio	•
₽	Network	•
$\bigcirc$	USB	•
	Shared Folders	•
	Shared Clipboard	•
3	Drag and Drop	•
8	Insert Guest Additions CD image	

At the command prompt cursor, change drives from your C:\ to your D:\ by typing in, d: and hitting enter.

At the D:> prompt, type, dir, hit enter.

Follow along with the steps shown in the image.

Administrator: C:\Windows\system32\cmd.exe						
C:\Users\Administrator>d: Change to the D:\ drive						
D:∖>dir < Volume in Volume Ser	C Show drive D ial Numb	w directory con is VBox_GAs_ er is F1F3-C	<mark>tents</mark> 6.0.4 DD8			
Directory	of D:\					
01/21/2019	10:01 A	м	763	AUTORUN, TNF		
01/25/2019	11:43 A	M <dir></dir>	,	NT3x		
01/25/2019	11:43 A	M <dir></dir>		052		
01/25/2019	11:40 A	М З,	701,906	VBoxDarwinAdditions.pkg		
01/25/2019	11:40 A	М	3,949	VBoxDarwinAdditionsUninstall.tool		
01/25/2019	11:40 A	м 9,	522,634	VBoxLinuxAdditions.run		
01/25/2019	11:40 A	M 20,	574,720	VBoxSolarisAdditions.pkg		
01/25/2019	11:36 A	M	270,096	VBoxWindowsAdditions.exe		
01/25/2019	11:42 A	M 26,	099,616	VBoxWindowsAdditions-amd64.exe		
01/25/2019	11:38 A	M 12,	905,760	VBoxWindowsAdditions-x86.exe		
01/25/2019	11:40 A	М	6,384	autorun.sh		
01/25/2019	11:43 A	M <dir></dir>		cert		
01/25/2019	11:40 A	М	4,821	runasroot.sh		
	10 Fi	le(s) 73	,090,649	9 bytes		
	3 Di	r(s)	(	🛛 bytes free		
D:\>vboxwin	dowsaddi	tions.exe <	🖯 Тур	e in the name of the executable. Hit enter.		

Wait for the Guest Additions wizard to launch, step through the wizard accepting all the defaults. Install any additional drivers as prompted.

(PA)	Welcome to the Oracle VM VirtualBox Guest Additions 6.0.4 Setup Wizard
ORAQ E VINU	This wizard will guide you through the installation of Oracle VM VirtualBox Guest Additions 6.0.4. It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer. Click Next to continue.
	Next > Cancel

Reboot when prompted. Log back in.



Since we're doing the Core installation, all you get is a command line window which you use to configure the server via commands and/or scripts including PowerShell. To start your initial server configuration, type "Sconfig" command to start the server configuration.



You are greeted with the default parameters and options that you can change.



To change the Computer name, choose option 2. Once submitted, a restart will be required.



Use your VM to send a Ctrl+Alt+Delete message to the prompt.



Type in your administrator password.



You are now back at the command prompt.



Additional configuration of your Server to include configuring the network adapter and joining the domain will be completed in Section 3 of the course.

To gracefully power off your Server Core installation, at the prompt, type shutdown -s.





We will configure the network settings and join the Server 2019 Core to the domain in Section 3 of the course.

End of the lab!