

## Cookbook to transform a Teradata VMware Virtual Machine into a Hyper-V one

### 1. Introduction

Many vendors offer their products for demo purposes as VMware virtual machines. However, we may need to use Hyper-V hypervisor instead.

This post is a cookbook to transform a VMware virtual machine to a Hyper-V one. We are going to use a [Teradata on VMware virtual machine](#) as an example.

The detailed documentation about Teradata is [here](#), and about the Teradata on VMware and its clients can be found [here](#).

To illustrate this quick guide, we are going to use one of the virtual machines Teradata offers for free trials. These virtual machines can be found in [Teradata Downloads](#). At the time of writing this document (October 2019), there are two Teradata Database flavours for trial. We are going to use the [Teradata on VMware Developer Tier Preconfigured](#), released in May 2018.

### 2. Getting the Teradata VMware virtual machine

Before downloading the Teradata virtual machine, you'll have to log in [Teradata Downloads](#). If you don't have a user for [Teradata Community](#) yet, register in it. In your laptop, open a browser and navigate to the [Teradata Community](#).

The screenshot shows the Teradata Community website. The header includes the Teradata logo, navigation links for Community, Teradata.com, and Teradata Support, and user options for Register, Sign In, and Help. A left sidebar contains links for Home, Discussions, Blogs, Data Science, Developer Zone, Downloads, Community Events, and Community Support. The main content area features a banner with the text 'Support. Education. Insight. Teradata Access - your journey begins here'. Below the banner are three sections: 'Introducing our Data Science Community', 'Get Answers', and 'Get Inspired'. A table titled 'Active Discussions' lists recent topics, authors, and engagement metrics. A right sidebar shows statistics for members, online users, and posts, along with a list of popular forums.

Latest Solutions		Active Discussions		
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<a href="#">Feedback on RDM Server Tool</a>	<a href="#">malehr</a>	Dec 17, 2018	0	1
<a href="#">Tools &amp; Utilities</a>				
<a href="#">Json Creation Database</a>	<a href="#">anujh</a>	Dec 17, 2018	0	4
<a href="#">Sql Assistant 15.10.17 "insert spaces</a>				

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# Cookbook to transform a Teradata VMWare Virtual Machine into a Hyper-V one

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Teradata on VMware Developer Tier	Teradata Express (VMware)	Teradata on VMware Developer Tier Preconfigured (Quick-start SMP only version)
TTU Windows Install	TTU Linux Install	CLIV2 ( Windows   Linux   Solaris   AIX   HP-UX )
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DBQL Scripts	Teradata XML Services	Teradata 14.10 XML Data Type
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Teradata on VMware Developer Tier Preconfigured

Release 16.20 - 23 May 2018

Tags: vmware express

Teradata Database on VMware - Developer Tier Preconfigured

Teradata Database on VMware Developer Tier Preconfigured - Getting Started Guide

Version: 16.20  
Released: 23 May 2018  
TTU: 16.20  
OS: Linux VMware x86 64-bit  
Teradata: 16.20

Teradata Database on VMware Developer Tier Preconfigured - Database Template for 16.20

ABOUT THIS DOWNLOAD

Developer Tier is a SUSE Linux Enterprise Server (SLES) operating system and Teradata Database packaged into a virtual container that runs in a VMware vSphere ESXI virtualized environment on third-party hardware. Developer Edition software consists of a template and associated property files and scripts.

Teradata Developer Tier (Preconfigured) is a simplified version of Teradata Database Developer tier that allows you to deploy Teradata Database on VMware quickly and easily using the OVA template. Networking is already configured to use DHCP, and you can add storage to the system.

To enable additional Teradata Database features or use additional Teradata applications, see Teradata Database on VMware Developer Tier Getting Started Guide or Teradata Database on VMware Base, Advanced, Enterprise Tiers Getting Started Guide.

Note: You must have administrative privileges on the destination VMware environment to install and configure Developer Tier virtual machines.

Getting Started

Please see the Teradata Database on VMware Developer Tier Preconfigured Getting Started Guide

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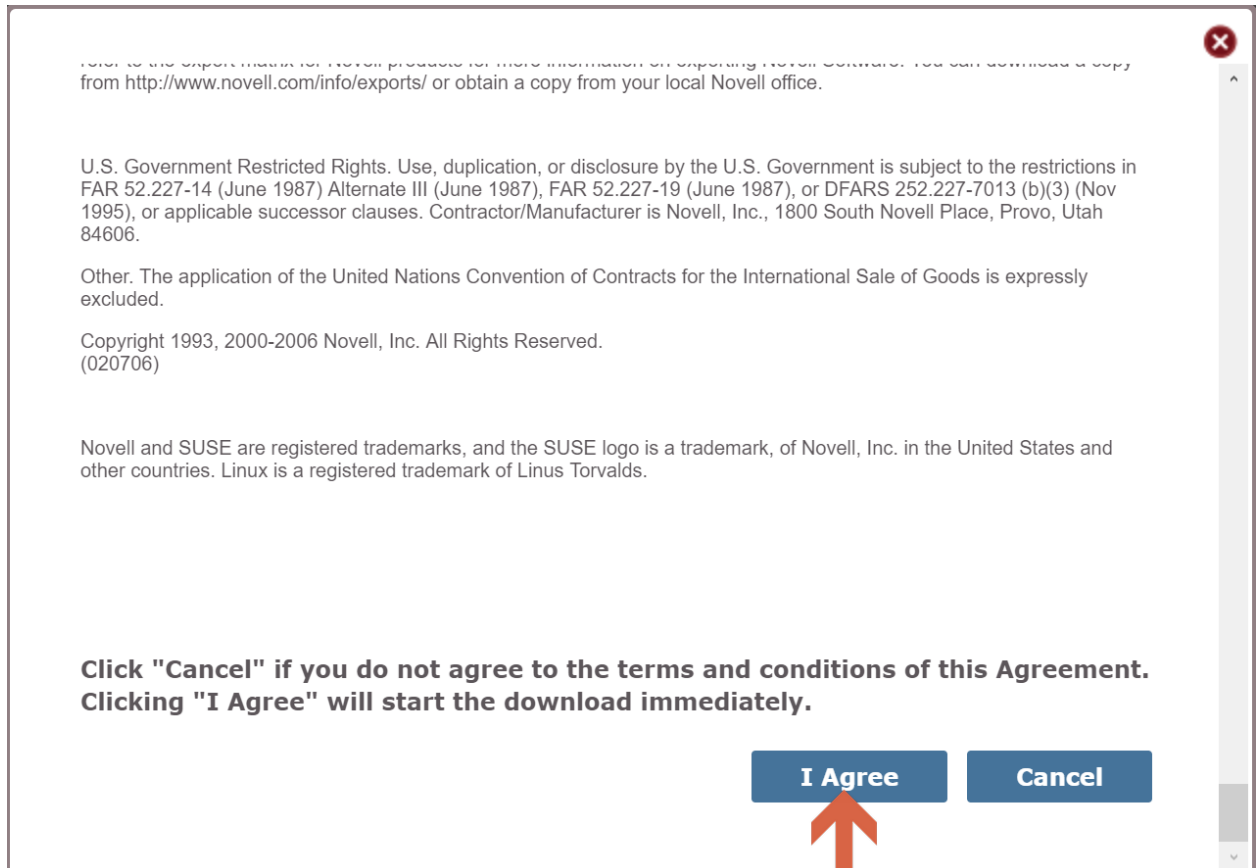
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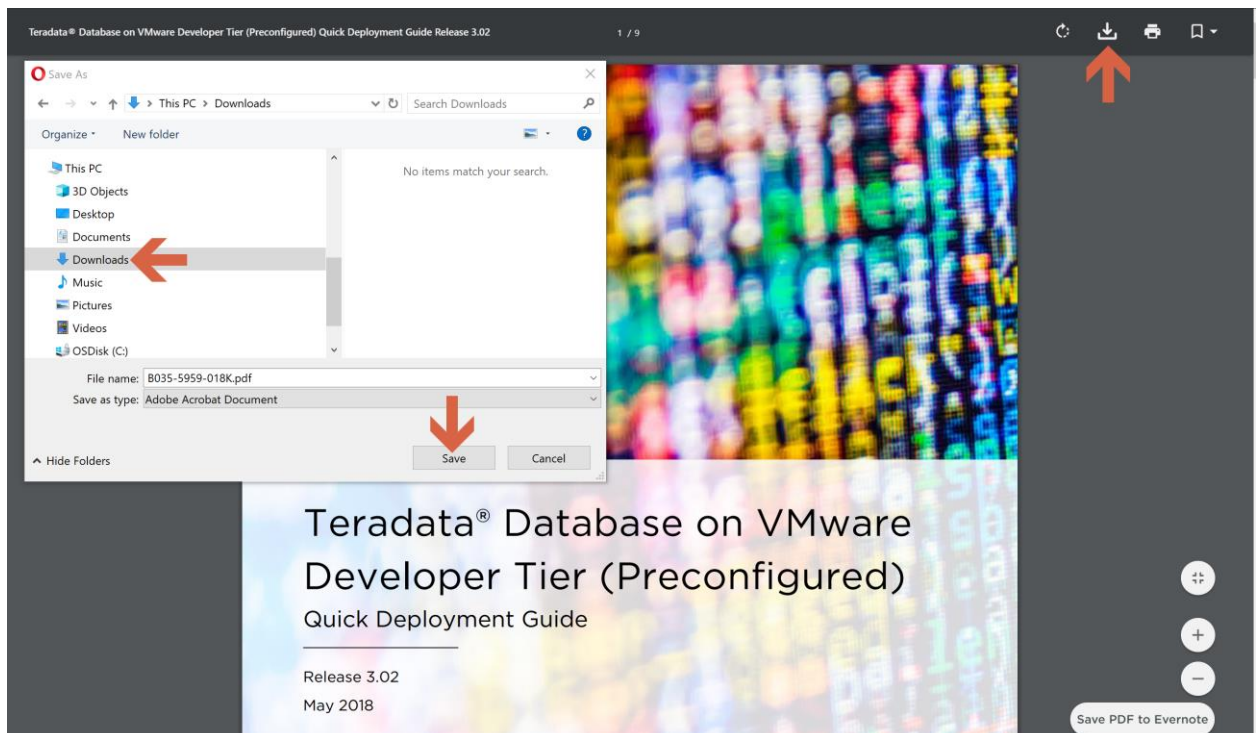
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Back on the [Teradata on VMware Developer Tier Preconfigured](#) page, click on the Database Template.



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Release 16.20 - 23 May 2018

Tags: vmware express

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### Teradata Database on VMware - Developer Tier Preconfigured

 **Teradata Database on VMware Developer Tier Preconfigured - Getting Started Guide**

 **Teradata Database on VMware Developer Tier Preconfigured - Database Template for 16.20**

**Version:** 16.20  
**Released:** 23 May 2018  
**TTU:** 16.20  
**OS:** Linux VMware x86 64-bit  
**Teradata:** 16.20

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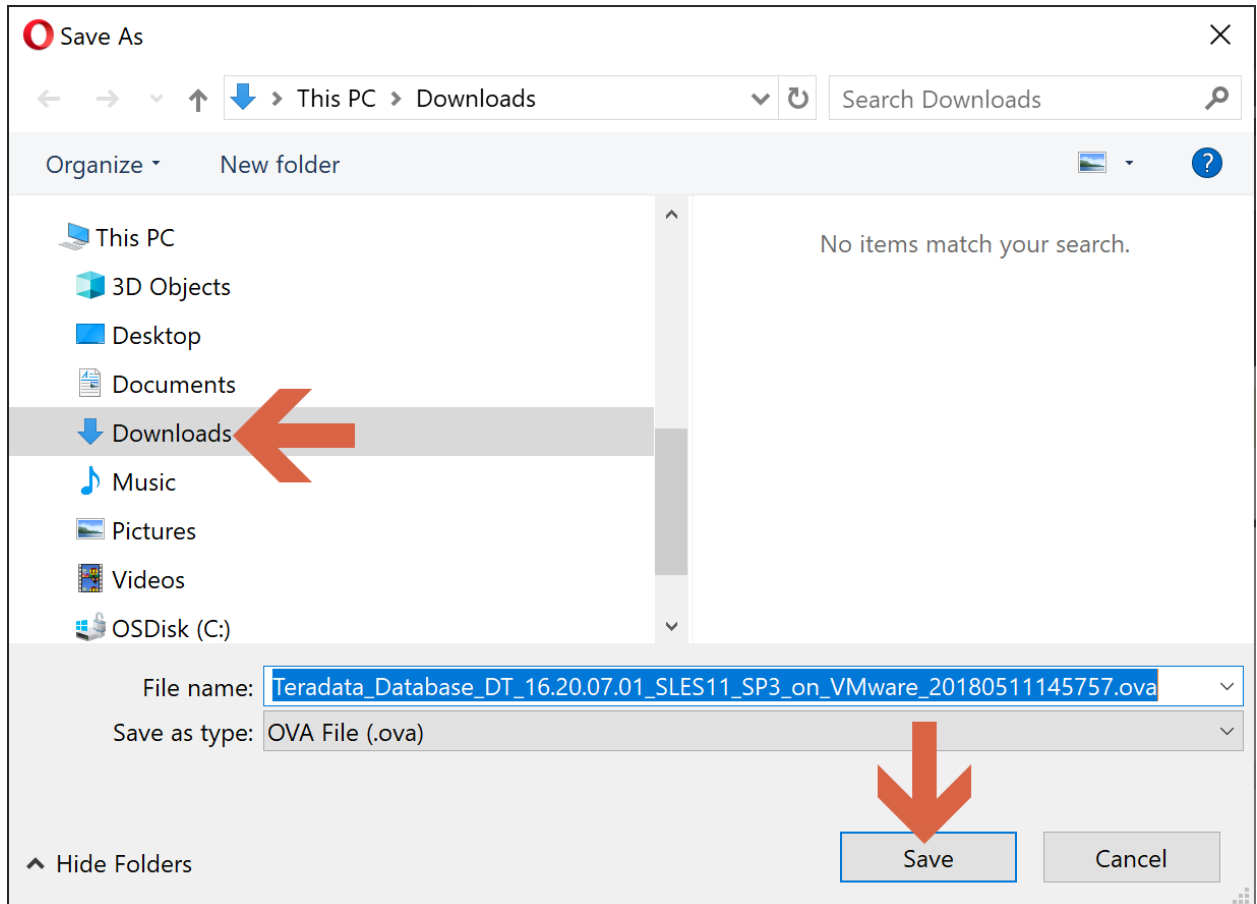
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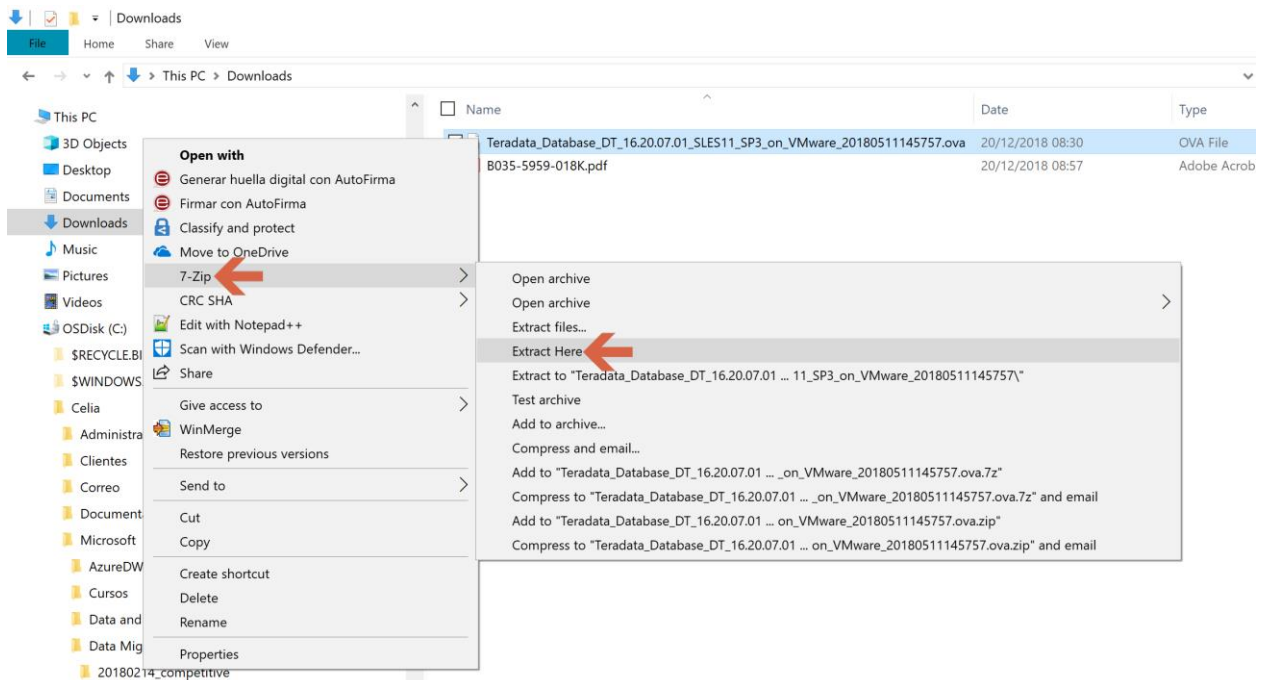
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Save the file to a directory on your computer.





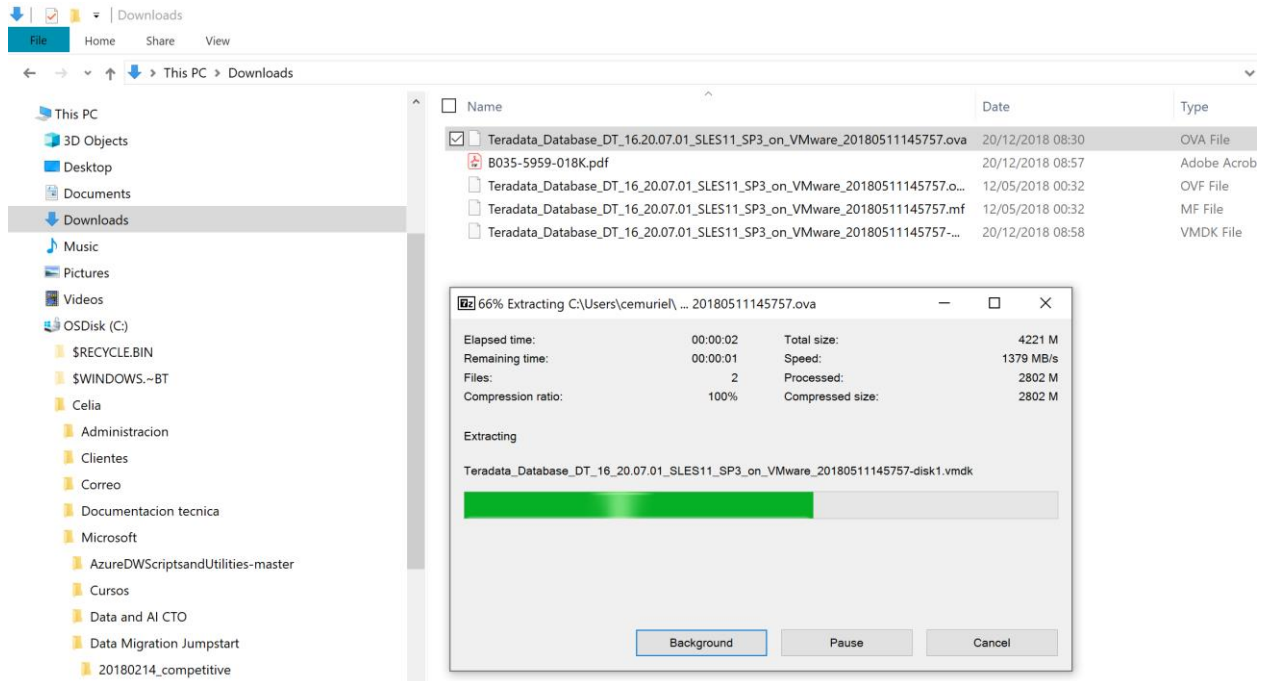
In our laptop, we go to the directory where we downloaded the OVA file, and we extract it. We use 7z to unzip.



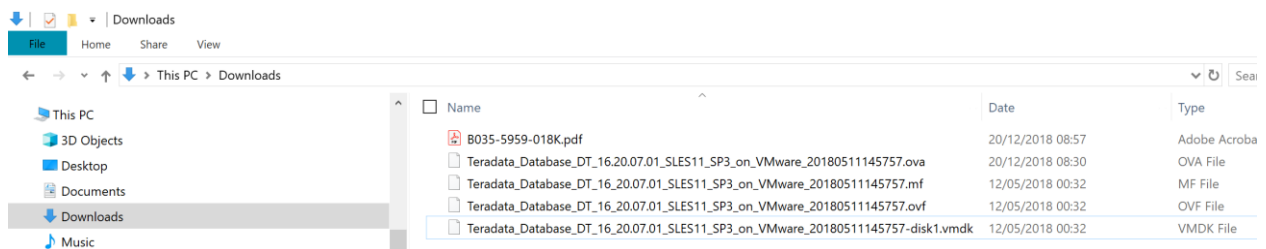


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After uncompressing the OVA file, your directory should look like this.

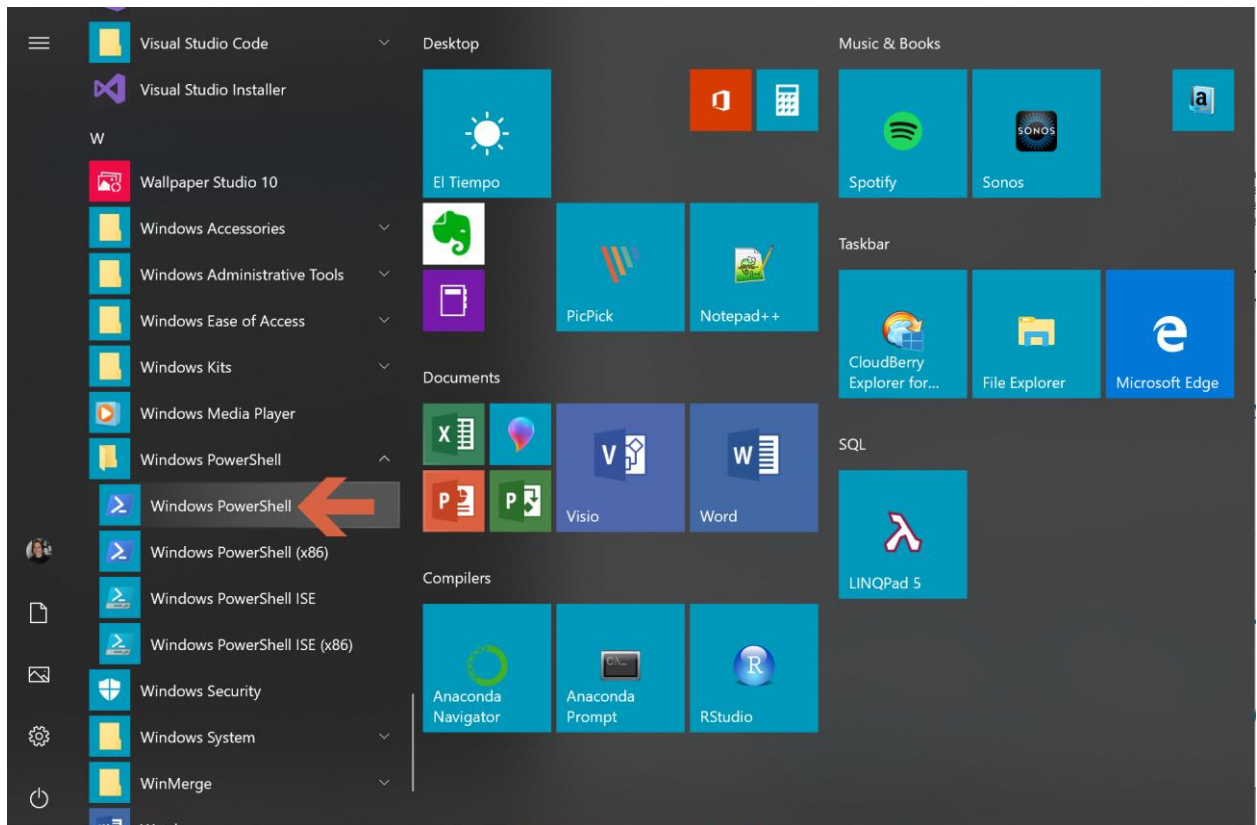


## 3. Converting the Teradata virtual machine to Hyper-V

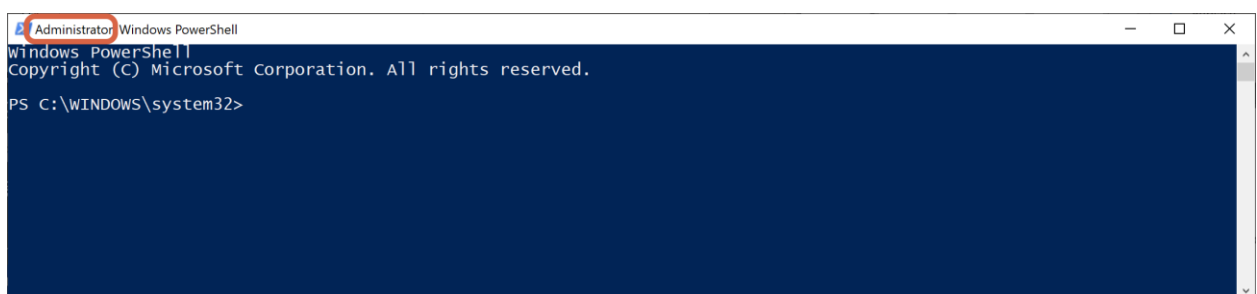
To turn the image to Hyper-V format, we are going to use [Microsoft Virtual Machine Converter](#). If you don't have it yet, [download it and install it](#).

Once [Microsoft Virtual Machine Converter](#) is installed, we open PowerShell.





We are going to need Administrator privileges to convert the VMDK image, so we should open PowerShell as an administrator, or we run next command: *start-process powershell -verb runAs*



Now we import [Microsoft Virtual Machine Converter](#) into PowerShell: *Import-Module "C:\Program Files\Microsoft Virtual Machine Converter\MvmCmdlet.psd1"*



```
Administrator: Windows PowerShell
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

PS C:\WINDOWS\system32> Import-Module "C:\Program Files\Microsoft Virtual Machine Converter\MvmcCmdlet.ps1"
PS C:\WINDOWS\system32>
```

We can finally convert the VMDK image into the VHDX one. We are going to execute the command from the directory where the image is.

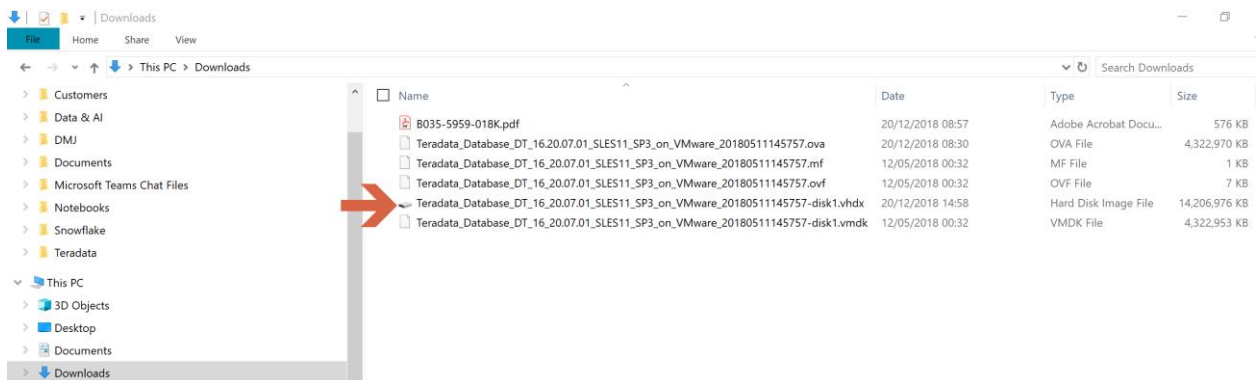
*ConvertTo-MVMCVirtualHardDisk -SourceLiteralPath*

*.\Teradata\_Database\_DT\_16\_20.07.01\_SLES11\_SP3\_on\_VMware\_20180511145757-disk1.vmdk -DestinationLiteralPath . -VHDFormat Vhdx -VHDType DynamicHardDisk*

```
Administrator: Windows PowerShell
PS C:\WINDOWS\system32> cd C:\Users\cemuriel\Downloads
PS C:\Users\cemuriel\Downloads> ConvertTo-MVMCVirtualHardDisk -SourceLiteralPath .\Teradata_Database_DT_16_20.07.01_SLES11_SP3_on_VMware_20180511145757-disk1.vmdk -DestinationLiteralPath . -VHDFormat Vhdx -VHDType DynamicHardDisk
Destination                                     Source
-----
C:\Users\cemuriel\Downloads\Teradata_Database_DT_16_20.07.01_SLES11_SP3_on_VMware_20180511145757-disk1.vhdx .\Terada...

PS C:\Users\cemuriel\Downloads>
```

After the conversion, we have the VHDX image in the same directory with the VMDK image.

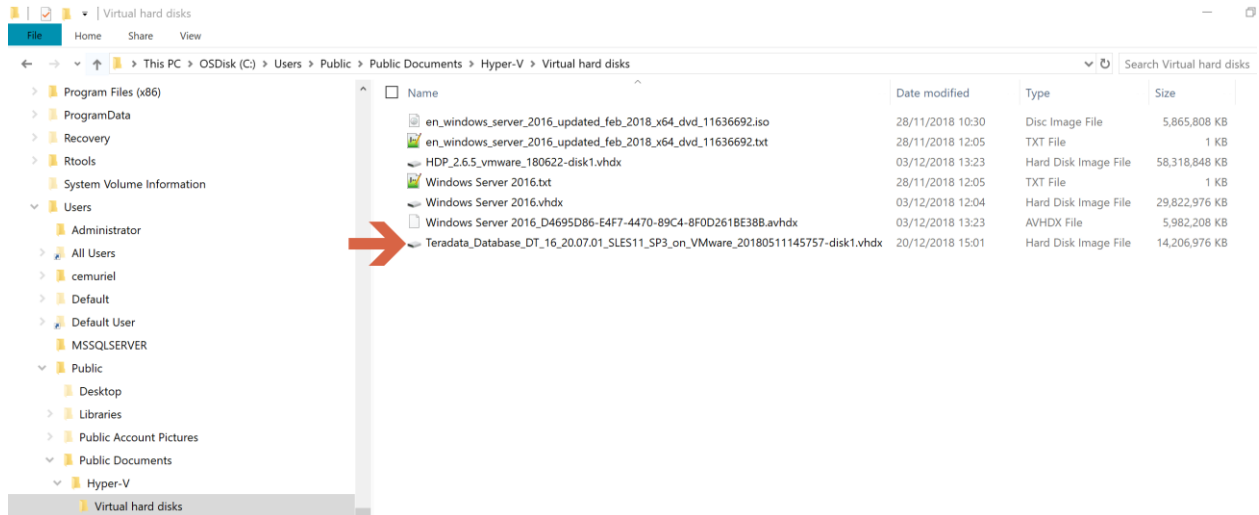


We are going to use the VHDX image to create a Hyper-V virtual machine. Hyper-V's default directory is C:\Users\Public\Documents\Hyper-V\Virtual hard disks. We are going to place our VHDX image in this directory.

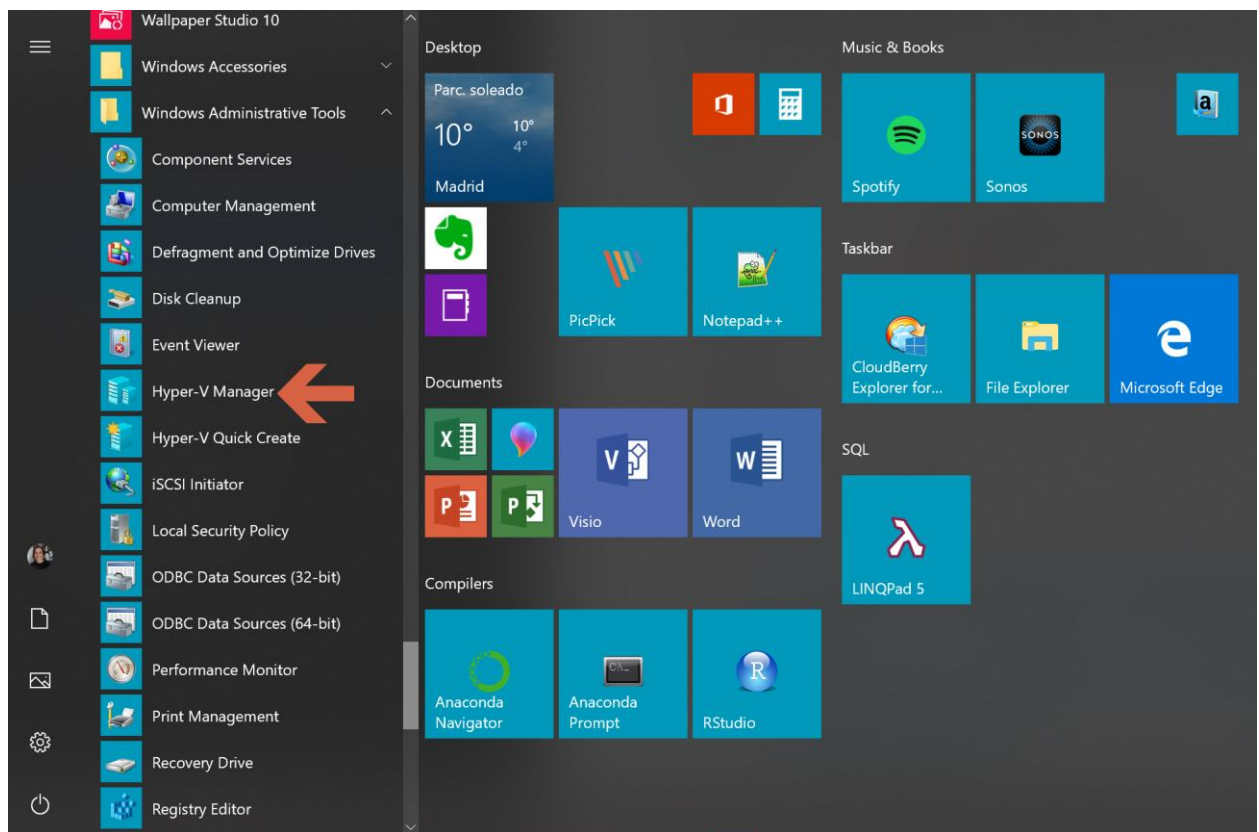


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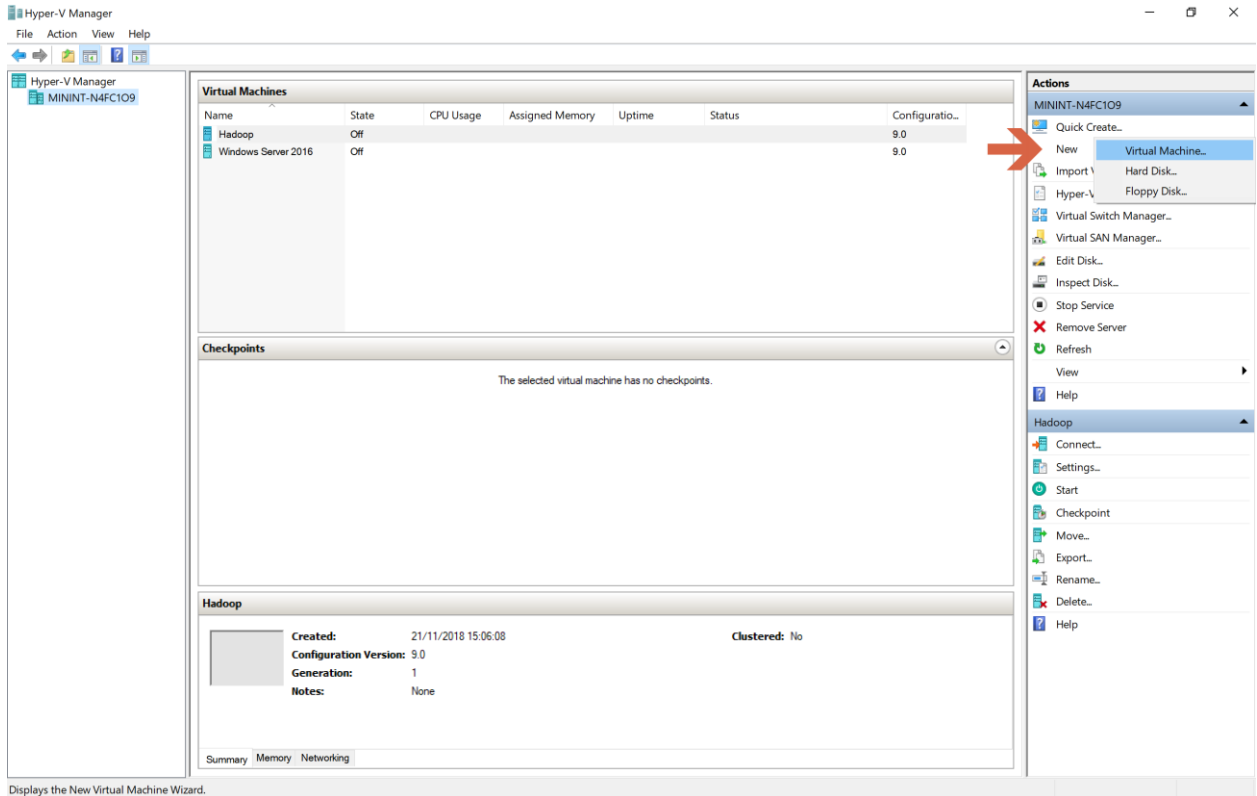


We open the [Hyper-V Manager](#).

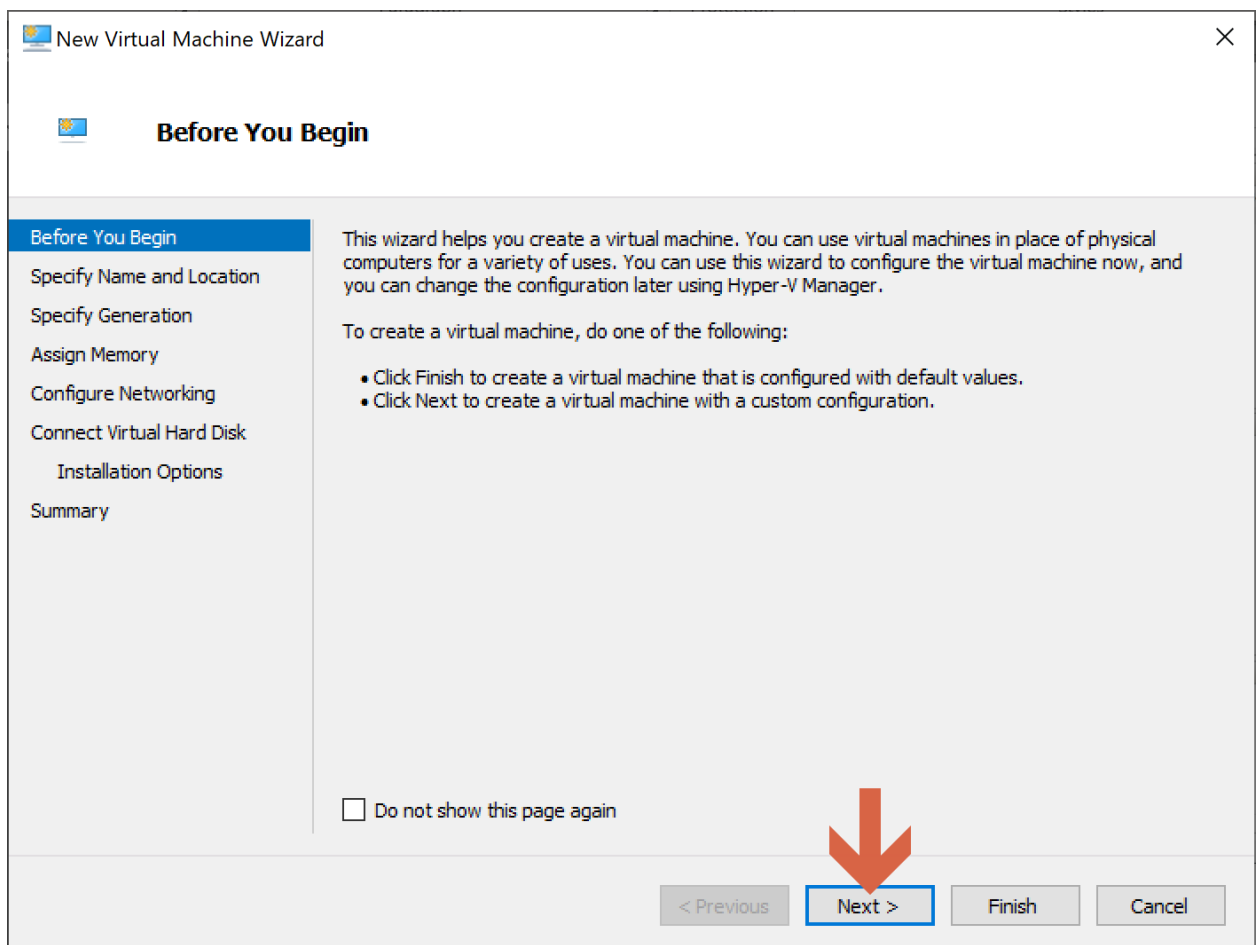


We create a new virtual machine.



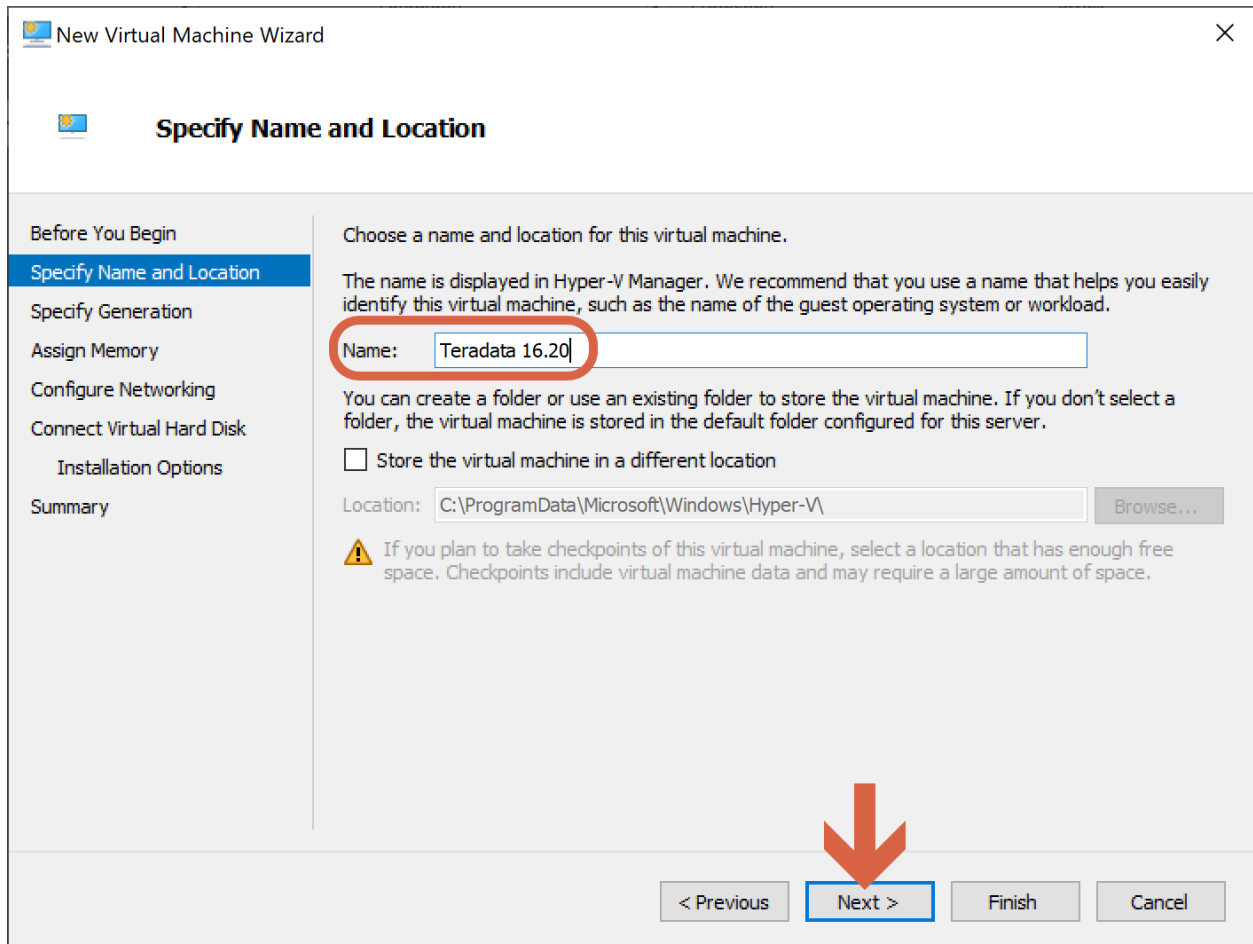


Click “Next” on the “Before you Begin” window.





Name the new Hyper-V virtual machine.



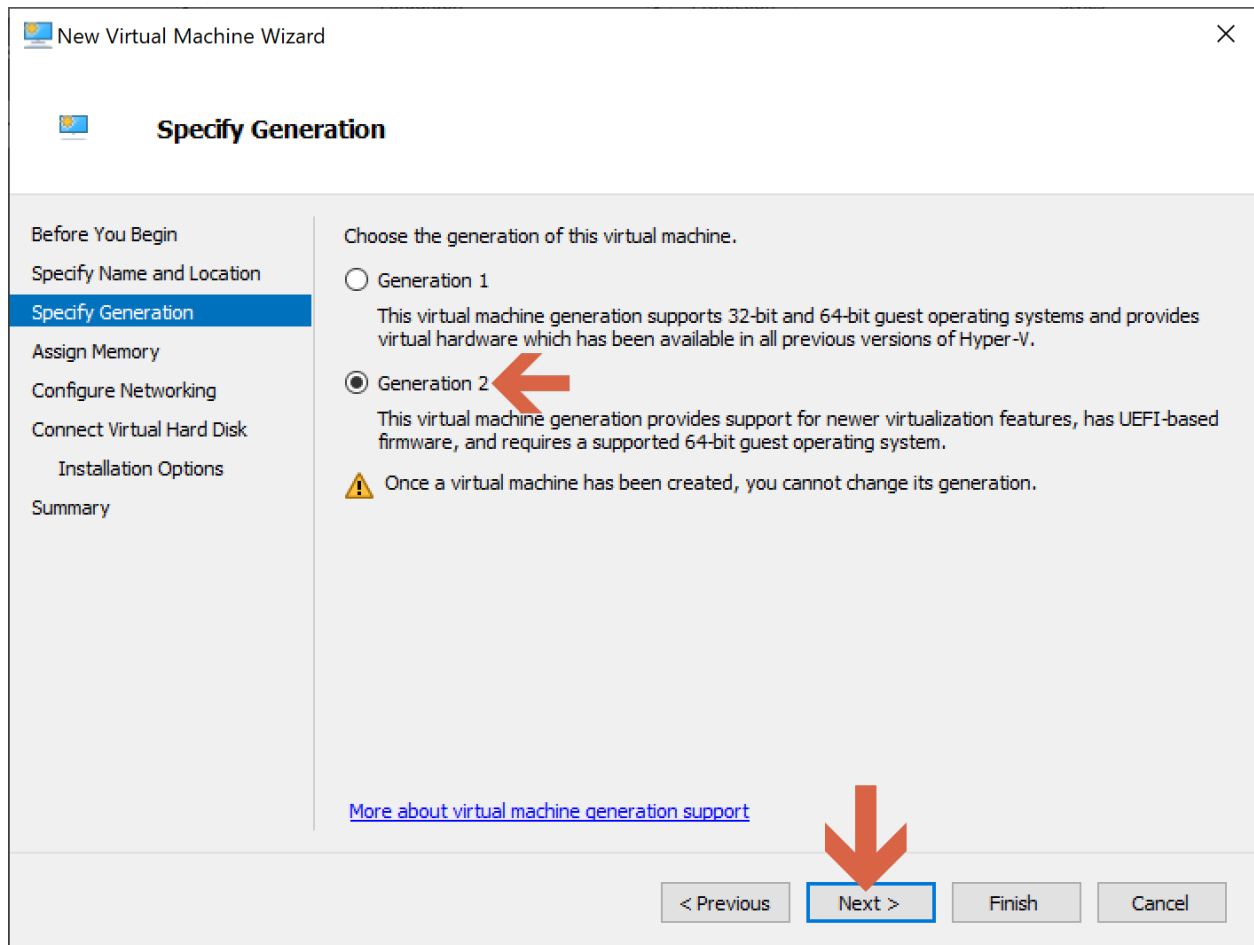
The screenshot shows the 'New Virtual Machine Wizard' window, specifically the 'Specify Name and Location' step. The window has a title bar with a close button. On the left is a sidebar with a list of steps: 'Before You Begin', 'Specify Name and Location' (which is highlighted in blue), 'Specify Generation', 'Assign Memory', 'Configure Networking', 'Connect Virtual Hard Disk', 'Installation Options', and 'Summary'. The main area of the wizard contains the following text and controls:

- Section header: **Specify Name and Location**
- Instruction: 'Choose a name and location for this virtual machine.'
- Text: 'The name is displayed in Hyper-V Manager. We recommend that you use a name that helps you easily identify this virtual machine, such as the name of the guest operating system or workload.'
- Form: 'Name: Teradata 16.20' (The text 'Teradata 16.20' is circled in red).
- Text: 'You can create a folder or use an existing folder to store the virtual machine. If you don't select a folder, the virtual machine is stored in the default folder configured for this server.'
- Checkbox: 'Store the virtual machine in a different location' (unchecked).
- Form: 'Location: C:\ProgramData\Microsoft\Windows\Hyper-V\' (The text 'C:\ProgramData\Microsoft\Windows\Hyper-V\' is highlighted in blue). A 'Browse...' button is to the right of the location field.
- Warning icon and text: 'If you plan to take checkpoints of this virtual machine, select a location that has enough free space. Checkpoints include virtual machine data and may require a large amount of space.'

At the bottom of the wizard are four buttons: '< Previous', 'Next >' (which is highlighted in blue), 'Finish', and 'Cancel'. A large red arrow points down to the 'Next >' button.

We choose the virtual machine generation.





We choose the memory for the virtual machine according to our PC's capabilities.



New Virtual Machine Wizard

**Assign Memory**

Before You Begin  
Specify Name and Location  
Specify Generation  
**Assign Memory**  
Configure Networking  
Connect Virtual Hard Disk  
Installation Options  
Summary

Specify the amount of memory to allocate to this virtual machine. You can specify an amount from 32 MB through 12582912 MB. To improve performance, specify more than the minimum amount recommended for the operating system.

Startup memory:  MB

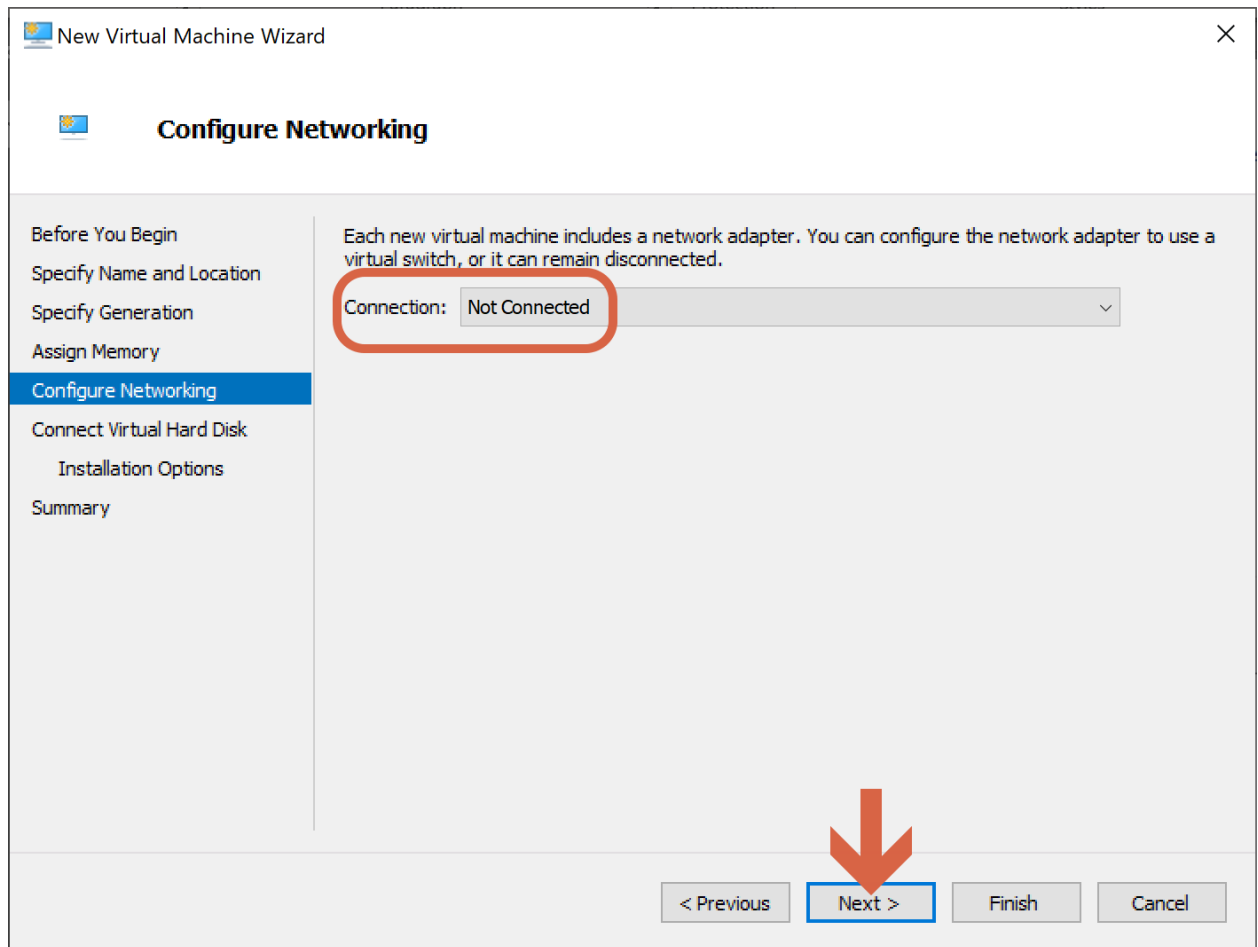
☒ Use Dynamic Memory for this virtual machine.

**i** When you decide how much memory to assign to a virtual machine, consider how you intend to use the virtual machine and the operating system that it will run.

< Previous **Next >** Finish Cancel

We will set up the network connection after the virtual machine has been created.





We connect this new virtual machine with the VHDX image we have just created and copied in the default Hyper-V directory.

```
C:\Users\Public\Documents\Hyper-V\Virtual hard  
disks\Teradata_Database_DT_16_20.07.01_SLES11_SP3_on_VMware_20180511  
145757-disk1.vhdx
```



New Virtual Machine Wizard

**Connect Virtual Hard Disk**

Before You Begin  
Specify Name and Location  
Specify Generation  
Assign Memory  
Configure Networking  
**Connect Virtual Hard Disk**  
Summary

A virtual machine requires storage so that you can install an operating system. You can specify the storage now or configure it later by modifying the virtual machine's properties.

☐ Create a virtual hard disk  
Use this option to create a VHDX dynamically expanding virtual hard disk.

Name: Teradata 16.20.vhdx  
Location: C:\Users\Public\Documents\Hyper-V\Virtual Hard Disks\ Browse...  
Size: 127 GB (Maximum: 64 TB)

☒ Use an existing virtual hard disk  
Use this option to attach an existing VHDX virtual hard disk.

Location: 20.07.01\_SLES11\_SP3\_on\_VMware\_20180511145757-disk1.vhdx Browse...

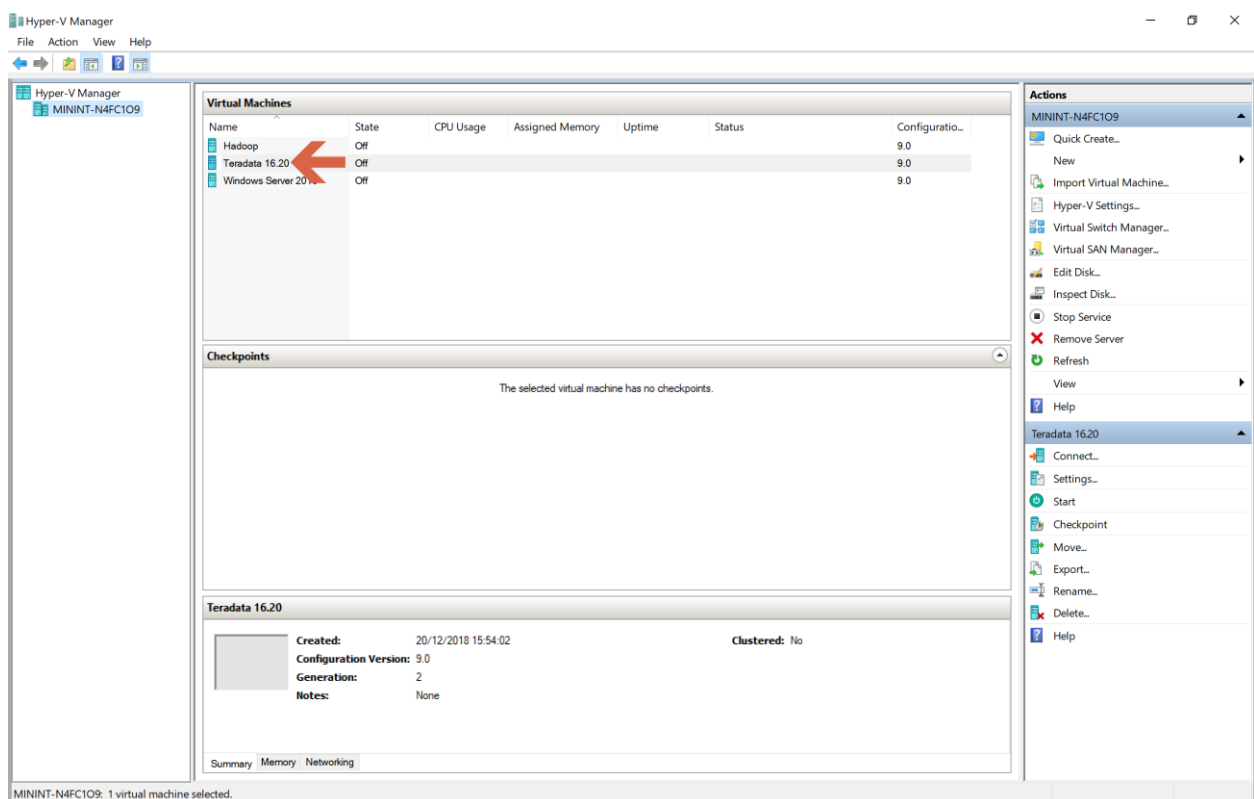
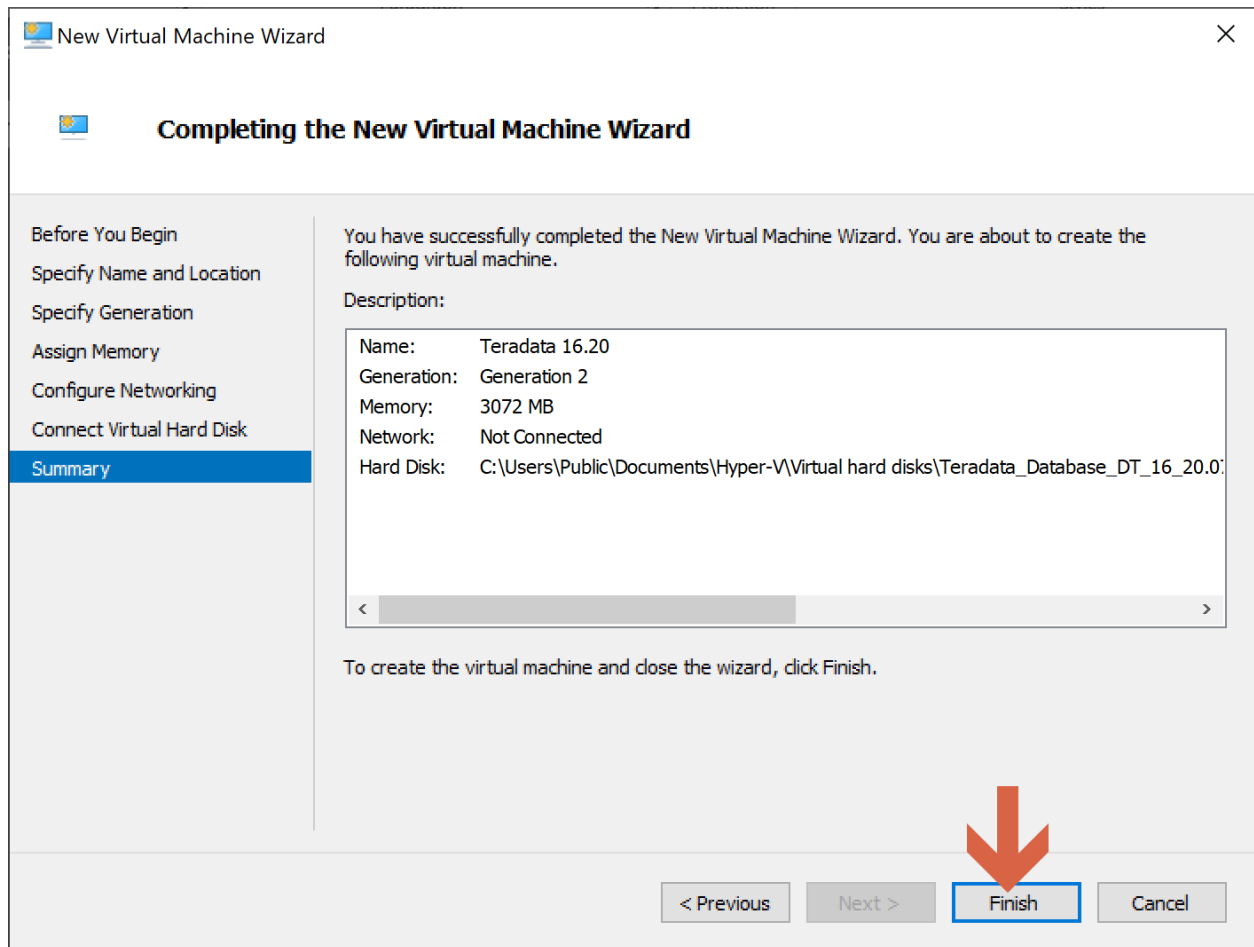
☐ Attach a virtual hard disk later  
Use this option to skip this step now and attach an existing virtual hard disk later.

< Previous Next > Finish Cancel

We click on "Finish" and wait to have our new Teradata 16.20 virtual machine ready.





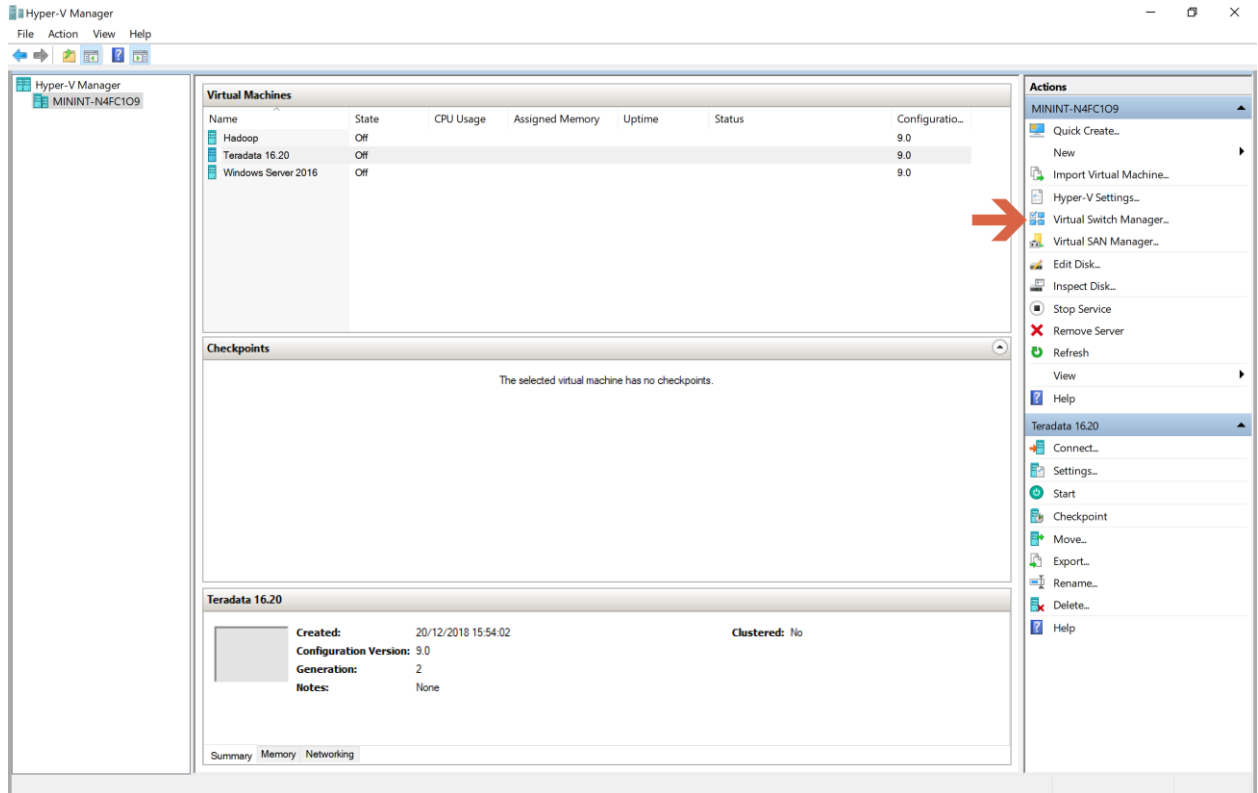


We open the Virtual Switch Manager.



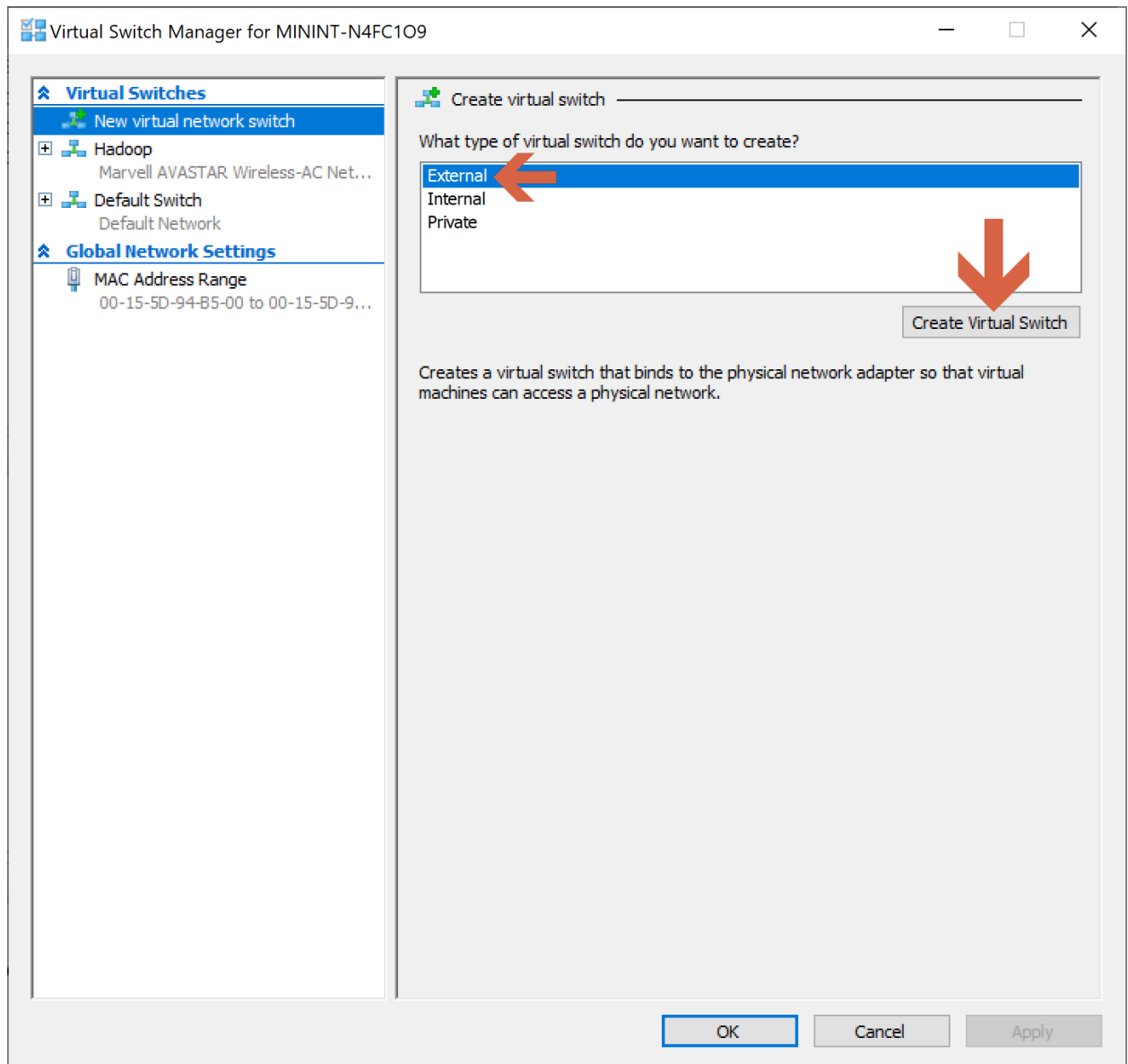
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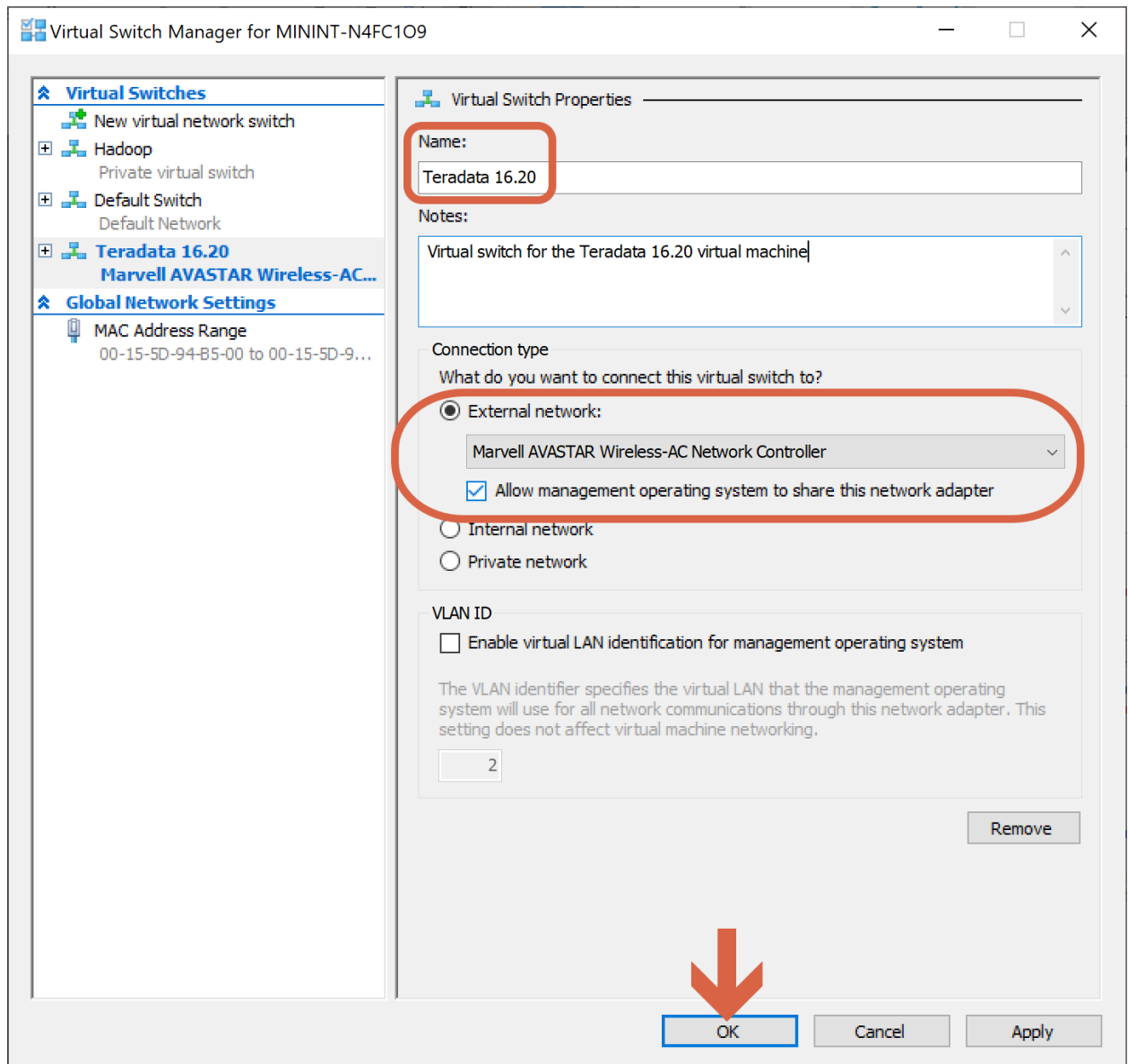
We choose “External” and click on “Create Virtual Switch”.





We name the virtual switch, confirm that it is an external network and click "OK".



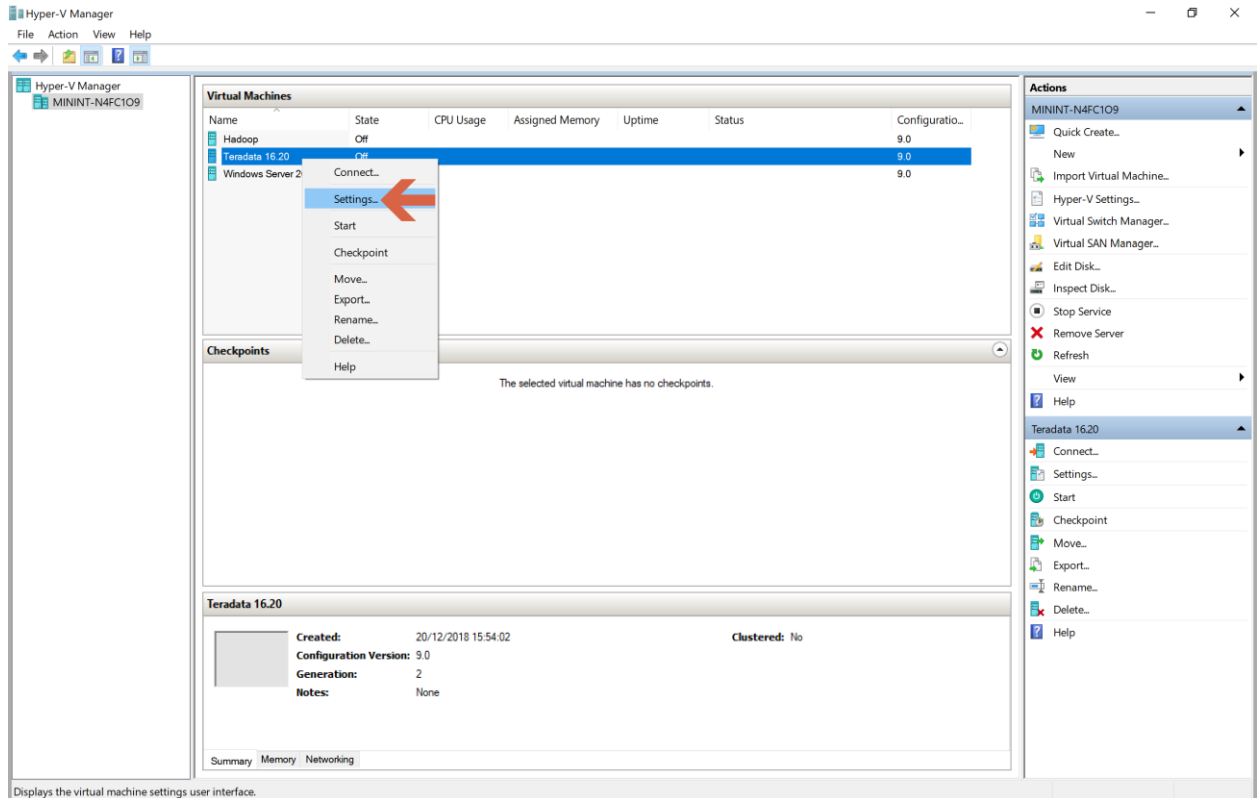


We right-click on the Teradata 16.20 virtual machine and select Settings.



# Cookbook to transform a Teradata VMware Virtual Machine into a Hyper-V one

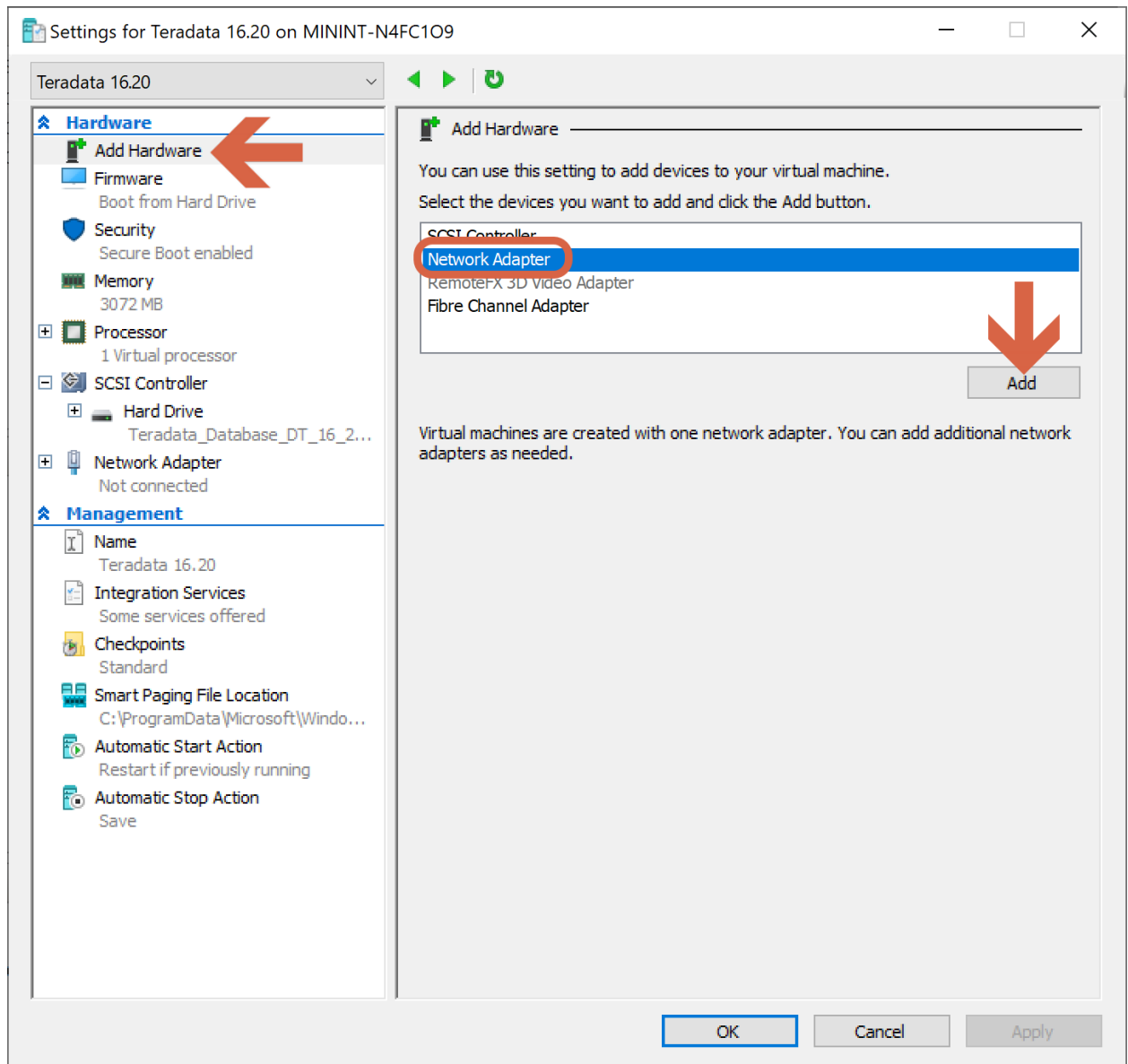
CELIA MURIEL



We select “Add Hardware”, “Network Adapter” and click on “Add”.

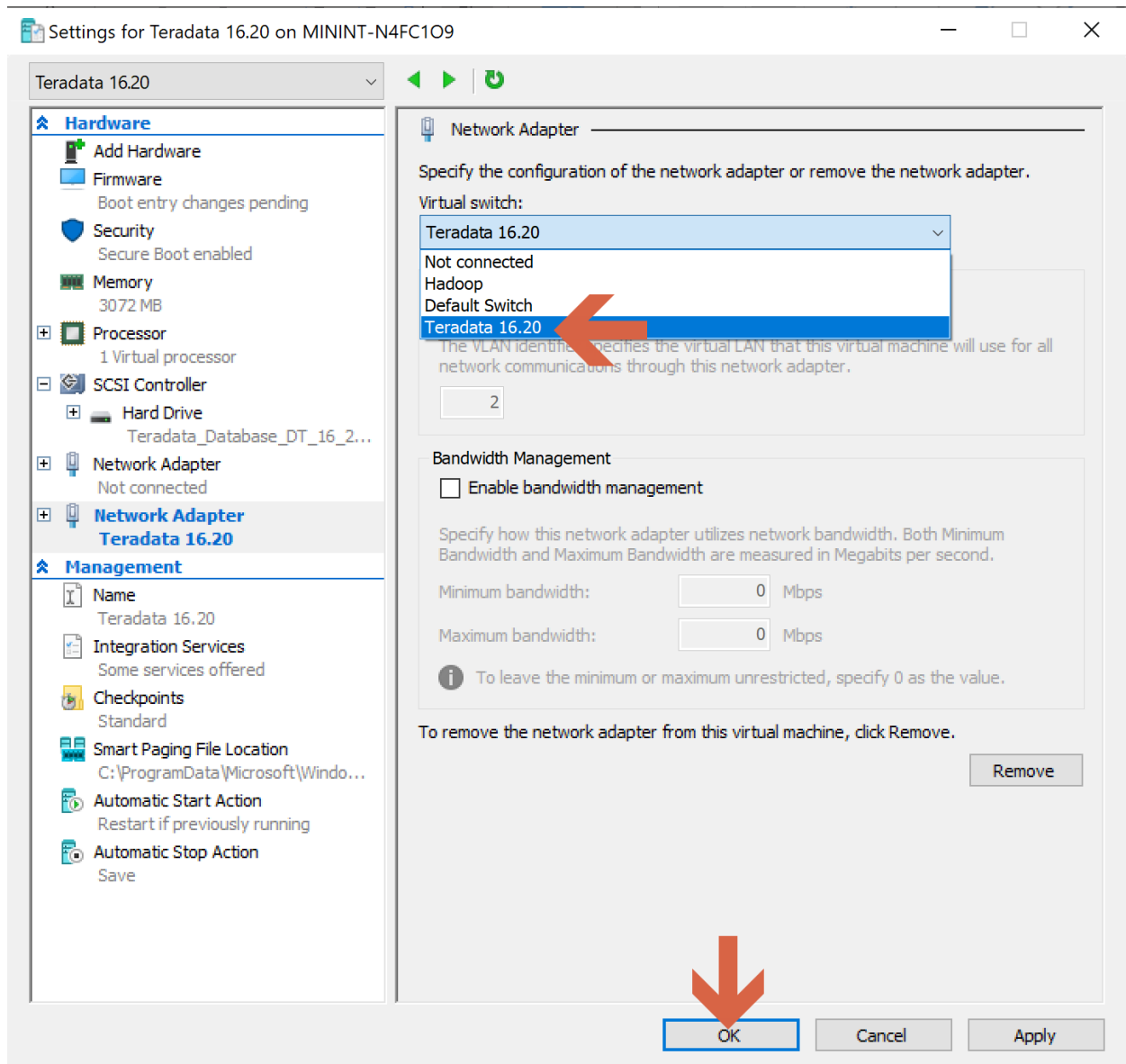






We select the virtual switch we have just created for the Teradata 16.20 virtual machine, and we click "OK".





Now our Teradata virtual machine is ready to work with Hyper-V.

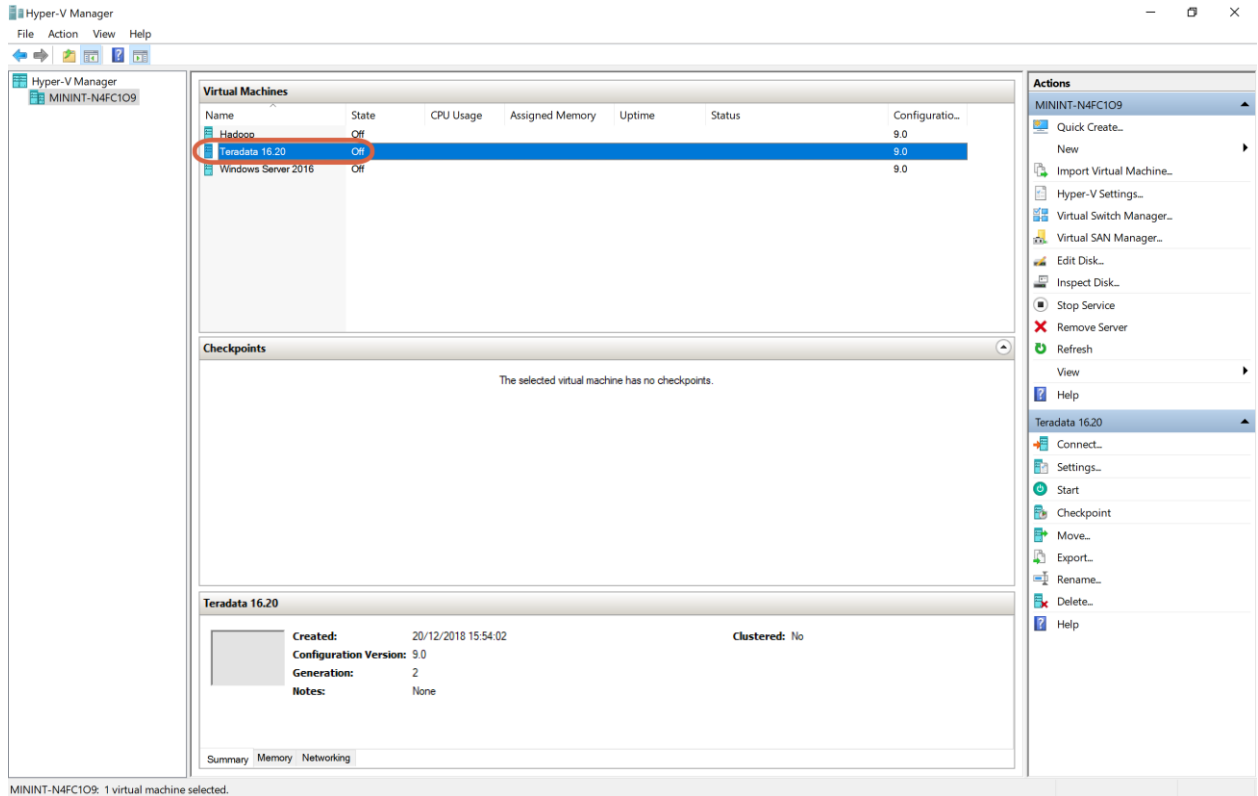
#### 4. Setup the Teradata on Hyper-V (+ Viewpoint)

In the [Hyper-V Manager](#), we double click on the Teradata 16.20 virtual machine.

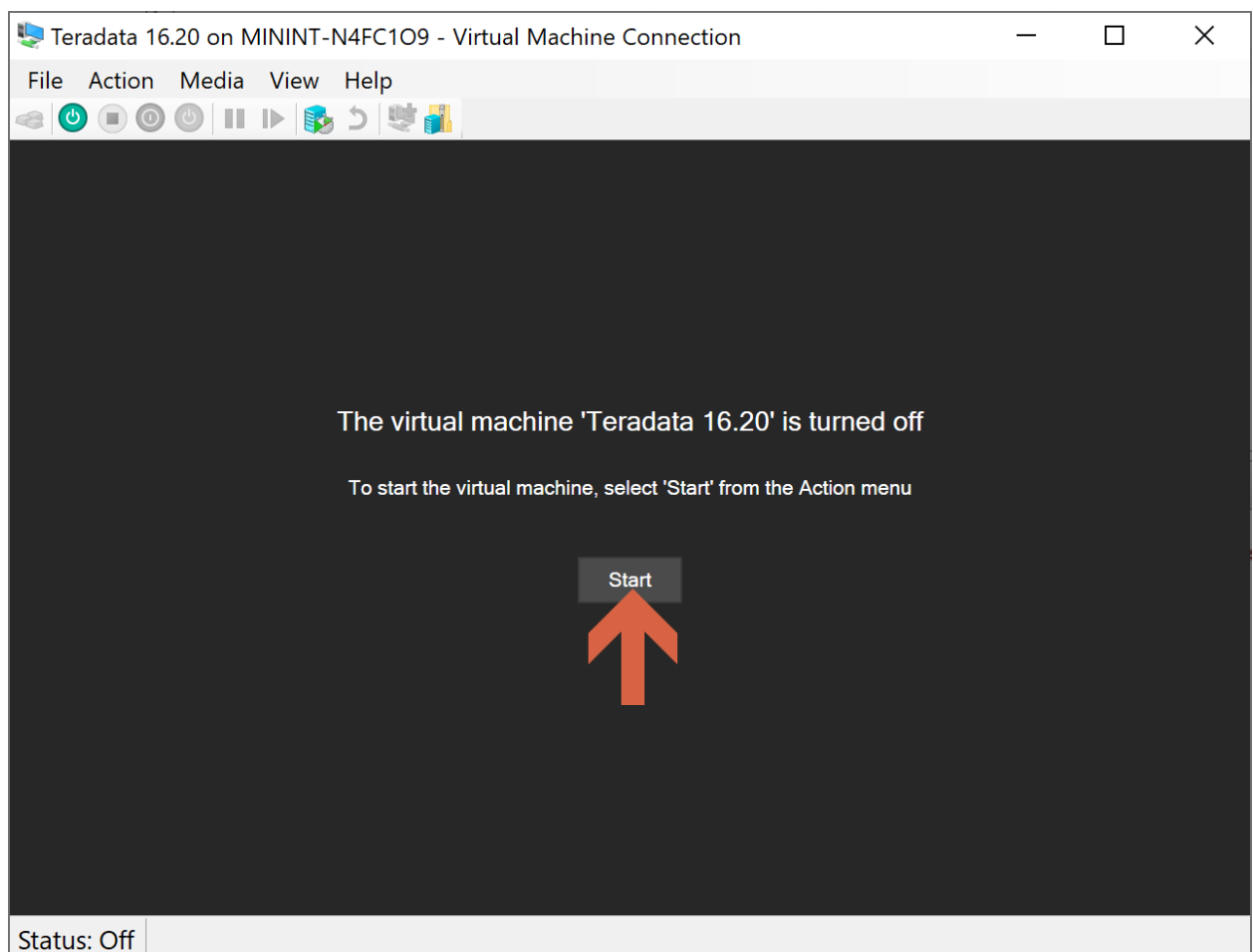


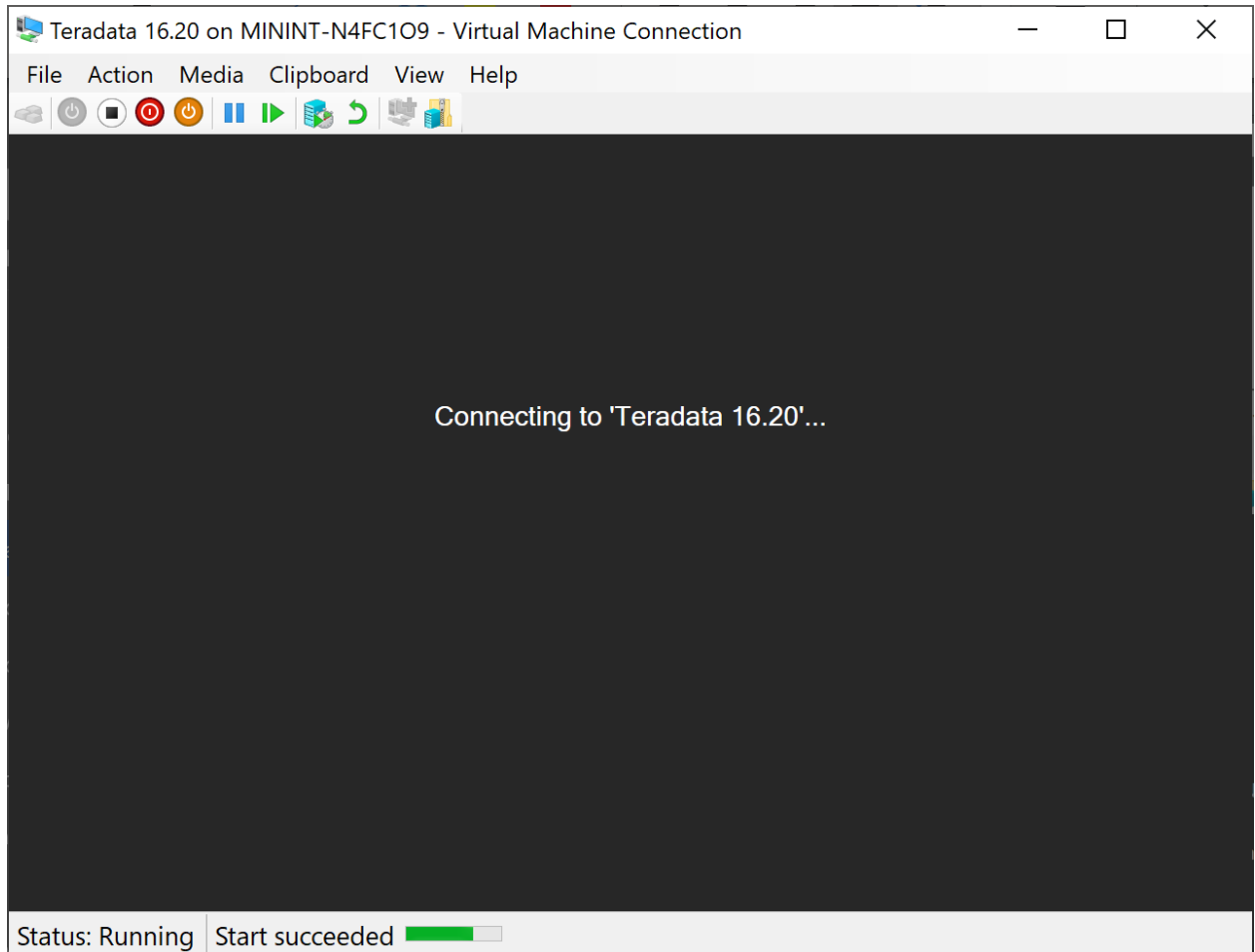
# Cookbook to transform a Teradata VMware Virtual Machine into a Hyper-V one

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We click on "Start".





## Network Configuration

When first installing Teradata on Hyper-V environment, there are some basic configuration steps that we need to make based on the IP addresses that are given to the instance when it is started. If at any point during your utilization, you have difficulty in communicating with the virtual machine, you need to check and validate that your network configuration is correct.

We typically use the NAT networking configuration. With this, the virtual machine manages the underlying virtual network for the instances and is the gateway for managing all inbound and outbound network traffic. This gateway provides the DHCP service to assign an IP address to the Teradata Express instance and will also provide the DNS services to resolve web domain names to their IP address. We'll need to first get the instance IP address as well as this gateway address. We'll do this using some basic Linux terminal command line utilities.

Double-click the "Gnome Terminal" icon to launch the terminal session.

The IP address assigned to your Teradata Express image is displayed with the `ifconfig` command:

```
# ifconfig eth0
```

This should result in output similar to this, in which I've bolded the IP address for this instance - **192.168.80.133**. Yours will likely be a different address.

```
eth0 Link encap:Ethernet HWaddr 00:0C:29:FD:D9:5B
inet addr:192.168.80.133 Bcast:192.168.80.255 Mask:255.255.255.0
```



```
inet6 addr: fe80::20c:29ff:fe8d:d95b/64 Scope:Link
UP BROADCAST NOTRAILERS RUNNING MULTICAST MTU:1500 Metric:1
RX packets:381 errors:0 dropped:0 overruns:0 frame:0
TX packets:657 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
RX bytes:47151 (46.0 Kb) TX bytes:73442 (71.7 Kb)
Base address:0x2000 Memory:e8920000-e8940000
```

Now let's find the IP address being used to connect to the VMware gateway using the netstat command. Again, I've bolded the IP address for the gateway - 192.168.80.2. Again, yours will likely be a different address.

```
route -n does the same as nstat -r
```

```
# netstat -r
Kernel IP routing table
Destination      Gateway          Genmask         Flags MSS Window irtt
Iface
192.168.80.0     *               255.255.255.0   U 0 0 0 eth0
link-local      *               255.255.0.0     U 0 0 0 eth0
loopback        *               255.0.0.0       U 0 0 0 lo
default         192.168.80.2    0.0.0.0         UG 0 0 0 eth0
```

Now that we have our 2 address, let's check out Linux networking configurations.

First, let's look at the `/etc/resolv.conf` file. This file contains the address of our domain name server (DNS), which is used to translate network aliases to their IP address. For example, you can't browse the web without translating web domain names to their IP address. Use your favourite editing tool (such as `vi`) to update this file as I've done here:

```
# cat /etc/resolv.conf
nameserver 192.168.80.2
```

Once this is updated and saved, we can test using the ping utility with a web domain name:

```
# ping yahoo.com
PING yahoo.com (209.191.122.70) 56(84) bytes of data.
64 bytes from irl.fp.vip.mud.yahoo.com (209.191.122.70): icmp_seq=1
ttl=128 time=106 ms
```

The second network configuration change we should make is to support Teradata connectivity. A common Teradata configuration used by client computers is to create what we call a 'cop' entry in the hosts file. This allows our connectivity tools to connect to Teradata using aliases instead of IP address. An example is the BTEQ query tool included in the Teradata Express image. I can create an alias name "localTD" in my `/etc/hosts` file with the pattern '{alias}cop1', or 'localTDcop1' as seen here mapped to my Teradata Express IP address:

```
# cat hosts
# hosts This file describes a number of hostname-to-address
# mappings for the TCP/IP subsystem. It is mostly
# used at boot time, when no name servers are running.
# On small systems, this file can be used instead of a
# "named" name server.
# Syntax:
```





```
#
# IP-Address Full-Qualified-Hostname Short-Hostname
#

127.0.0.1 localhost
192.168.80.133 localTDcop1
```

With this new 'cop' entry, my client tools can connect to Teradata using the alias instead of IP address. Here's an example using the BTEQ client on the Teradata Express instance. I've highlighted the alias entry. (Remember, though, if you want to use this alias from another client such as BTEQ from your Windows host environment, you'll need to create a similar 'cop' entry in its hosts file.)

```
# bteq
Teradata BTEQ 16.20.07.01 for LINUX.
Copyright 2018, Teradata Corporation. ALL RIGHTS RESERVED.
Enter your logon or BTEQ command:
.logon localTD/dbc
```

```
.logon localTD/dbc
Password:
```

```
*** Logon successfully completed.
*** Teradata Database Release is 13.00.00.19
*** Teradata Database Version is 13.00.00.19
*** Transaction Semantics are BTET.
*** Character Set Name is 'ASCII'.

*** Total elapsed time was 1 second.
```

```
BTEQ -- Enter your DBC/SQL request or BTEQ command:
select * from dbcinfo;
```

```
select * from dbcinfo;
```

```
*** Query completed. 3 rows found. 2 columns returned.
*** Total elapsed time was 1 second.
```

```
InfoKey InfoData
```

```
-----
-----
RELEASE 16.20.07.01
VERSION 16.20.07.01
LANGUAGE SUPPORT MODE Standard
```

```
BTEQ -- Enter your DBC/SQL request or BTEQ command:
.exit
```

```
.exit
*** You are now logged off from the DBC.
*** Exiting BTEQ...
*** RC (return code) = 0
```



With these simple configuration updates, your Teradata Express virtual instance should be ready to go.

### Checking Teradata Status

Let's start with the basic status tool, pdestate:

```
1      # pdestate -a
```

If all is well and Teradata is running, you will see this output:

```
1      PDE state is RUN/STARTED.
2      DBS state is 5: Logons are enabled - The system is quiescent
```

### Stopping the database

Should you need to stop the database in a controlled manner, the command is:

```
1      # tpareset -x bringing down the database
```

The syntax for this command is `tpareset -x {comment}`, where the comments can be used for logging/auditing purposes to capture the reason that the database was stopped.

Here is output from this command. Notice the prompt as a last check to make sure that this is what you really want to do.

```
1      You are about to shutdown the database
2      on the system
3      's10-1300'
4      Do you wish to continue (default: n) [y,n] y
```

Once the database has been stopped, you can check the status of the database like we did earlier:

```
1      # pdestate -a
2      PDE state is STOP/KILLTASKS.
```

But if there was a problem that halted Teradata instead of a controlled shutdown, you will see this message from pdestate:

```
1      #pdestate -a
2      "down/hardstop" is down
```



## Restarting Teradata

To restart Teradata after manually stopping the database or to restart after a 'hardstop' event, run this command:

```
1 # /etc/init.d/tpa start
```

Which should give this output:

```
1 Teradata Database Initiator service is starting...
```

```
2 Teradata Database Initiator service started successfully.
```

To restart Teradata if it is any state other than "down/hardstop" use the command:

```
1 # tpareset -f restarting
```

This asks for a confirmation before beginning the restart process:

```
1 You are about to restart the database
```

```
2 on the system
```

```
3 's10-1300'
```

```
4 Do you wish to continue (default: n) [y,n] y
```

You can then issue the watch the various start up levels by issuing the pdestate command every few seconds..

```
1 # pdestate -a
```

```
2 PDE state is START/RECONCILE.
```

```
1 # pdestate -a
```

```
2 PDE state is START/STARTTPA.
```

```
1 # pdestate -a
```

```
2 PDE state is RUN/STARTED.
```

```
3 DBS state is 1/5: DBS Startup - Voting for Transaction Recovery
```

```
1 # pdestate -a
```

```
2 PDE state is RUN/STARTED.
```

```
3 DBS state is 1/4: DBS Startup - Starting PE Partitions
```



- 1 # pdestate -a
- 2 PDE state is RUN/STARTED.
- 3 DBS state is 5: Logons are enabled - The system is quiescent

#### Starting Viewpoint Services

Once the RAM is allocated, we can start the Viewpoint services. Click the Computer (Start button) on the lower left corner and choose:

YAST->System->System Services (Runlevel)

To set Viewpoint to automatically start during boot up, Enable the following services:

- postgresql
- dcs
- viewpoint

To manually start the Viewpoint servers:

A. Open up a Linux command prompt and enter the following 3 commands, waiting 1 minute for each to complete.

B. `/etc/init.d/dcs start`

C. `/etc/init.d/postgresql start` can check the status with `/etc/init.d/postgresql status`

D. `/etc/init.d/viewpoint start` You can monitor progress in `/opt/teradata/viewpoint/logs/viewpoint.log`

E. When all is up, just put the ip address in the Firefox Browser window. You can use `ifconfig` in a Linux terminal to see the eth0 IP as (example): 192.168.203.131.

F. the Viewpoint user is admin, and the Viewpoint password is teradata.

You can refer to a previous post I wrote on [setting up Teradata in Azure](#), as these steps are the same

#### 5. Connect to Teradata Express with Teradata Studio Express

[Connect to Teradata Express with Teradata Studio Express](https://celiamuriel.blogspot.com/2019/10/cookbook-to-setup-TD-VM-in-Azure.html#TDStudio)



## 6. Connect to Teradata Express with other clients – Example BTEQ

[Connect to Teradata Express with other clients – Example BTEQ](https://celiamuriel.blogspot.com/2019/10/cookbook-to-setup-TD-VM-in-Azure.html#BTEQ)

