

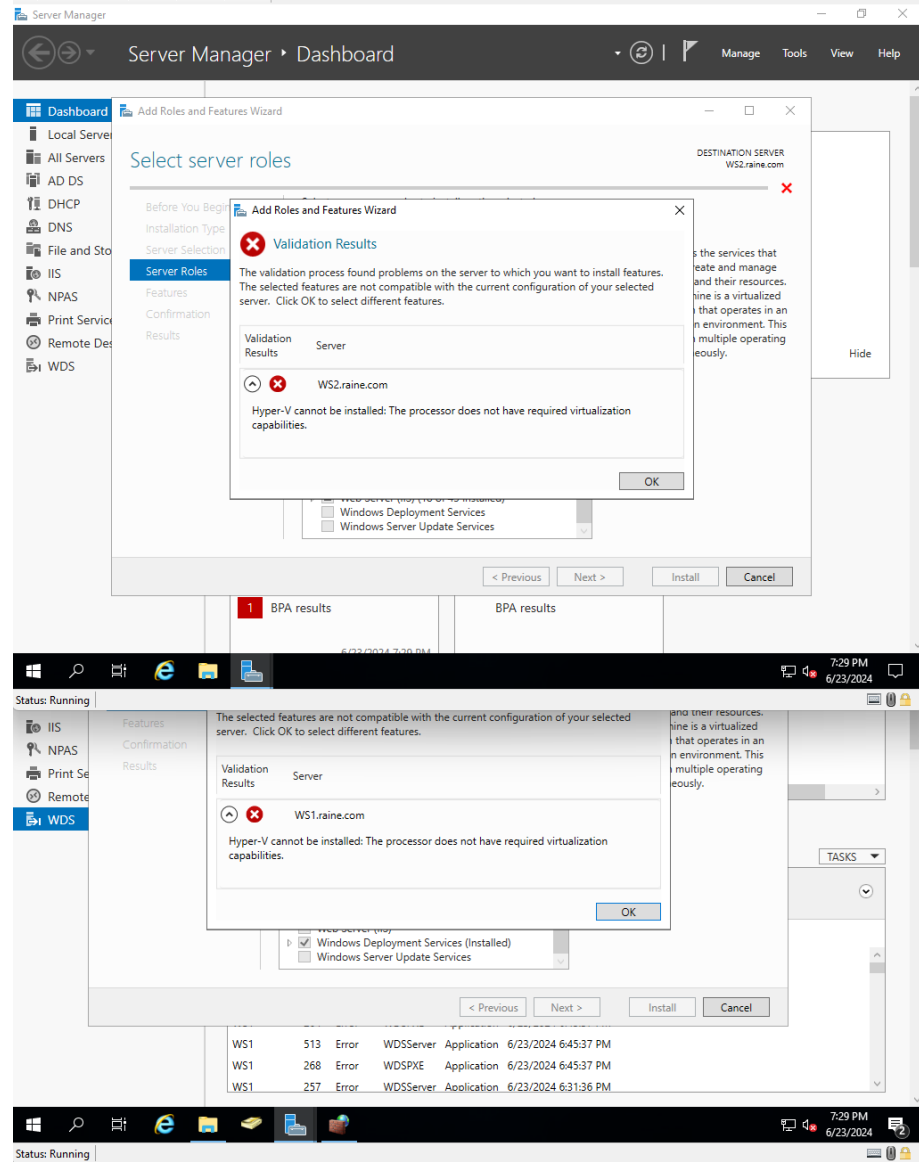
Lab Number: 9 Hyper-V VM's

Student name: Raine

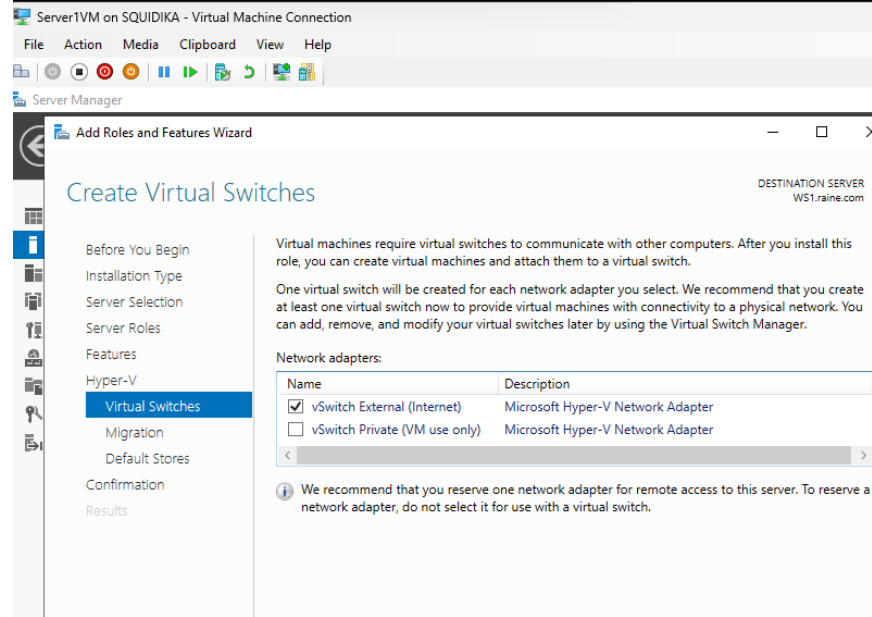
Section Summary	<p data-bbox="394 384 747 415">Section 9: Managing VMs</p> <p data-bbox="394 432 467 464">Goals</p> <ul data-bbox="443 474 1201 663" style="list-style-type: none">• Create a Linux virtual machine (VM) using Hyper-V manager• Create a VM Checkpoint• Replicate the VM• Configure and perform a Live Migration of a VM• Create a VM template using Sys prep utility <p data-bbox="394 711 675 743">Implementation steps</p> <ol data-bbox="443 789 1398 1850" style="list-style-type: none">1. Ensure your Virtual machine settings have Intel-VT or AMD-V Virtualisation extensions enabled2. Use Server Manager to install the Hyper-V server role on both servers<ul data-bbox="537 905 974 936" style="list-style-type: none">• Link to physical network adapter3. May need to reset manual IP addresses of servers after Hpyer-V manager installation4. Create an external virtual switch that is bridged to the physical network card using Hyper-v manager if not done by default5. Create a Generation 2 virtual machine (VM) using Hyper-v manager<ul data-bbox="537 1136 1300 1209" style="list-style-type: none">• Connect to your external virtual switch• Use a Linux ISO file (free download) e.g. Tiny core or Ubuntu6. Change some settings on the Linux VM and create a VM Checkpoint using Hyper-v manager7. Replicate the VM on to the other server WS1 using Hyper-v manager<ul data-bbox="537 1325 1357 1734" style="list-style-type: none">• Enable WS2 as a Replica server in the Hyper-V settings of the VM (Replication configuration)<ol data-bbox="643 1398 1247 1472" style="list-style-type: none">i. User Kerberos (HTTP) authentication on port 80ii. Use default path to specify a location to store replica files• On WS1:<ol data-bbox="643 1556 1349 1734" style="list-style-type: none">i. Select enable replication on the VM in Hyper-V managerii. Choose the WS2 replica serveriii. Specify the replication frequency to be 15 minutesiv. Maintain only the latest recovery point (24 hours)v. Send initial copy over the network8. Configure and perform a Live Migration of a VM from WS2 to WS1<ul data-bbox="537 1818 837 1850" style="list-style-type: none">• Start the VM on WS2
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	<ul style="list-style-type: none">• Add the Microsoft Virtual System Migration Service to the AD computer properties of WS2• Enable incoming and outgoing live migrations in the Hyper-V settings of the VM• Add IP address of both servers• Ensure the firewall allows this service• Create folder on WS1 where the VM will be transferred to• Restart WS1• On WS1 choose the Move option and choose the option to move to a single location <p>9. Create a VM template</p> <ul style="list-style-type: none">• Install Sys prep utility (out of box experience, reboot)• Export the VM in Hyper-V manager and save template to specific location• Create a VM based on that template
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1

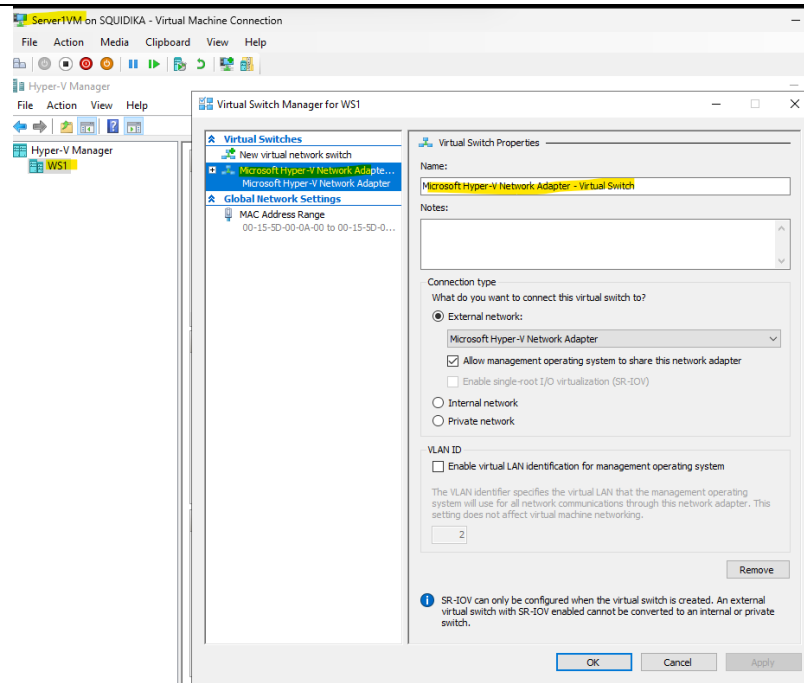


Cannot configure nested Virtualization for the VM. We must make sure nested virtualization is enabled before configuration.



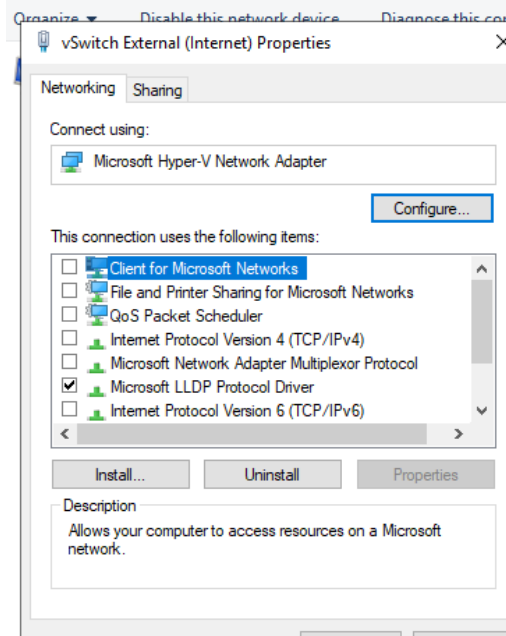
Now that nested virtualization is enabled using the powershell command in the problems section, we can continue to install Hyper-V feature on the server.

2



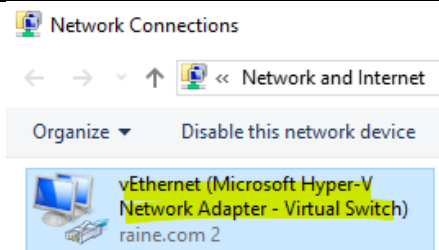
Make sure the server is connected to the physical network adaptor for the network to communicate between the windows server and the VM. This the virtual switch vSwitch (VM use Only) we configured at the start of LAB 1.

3



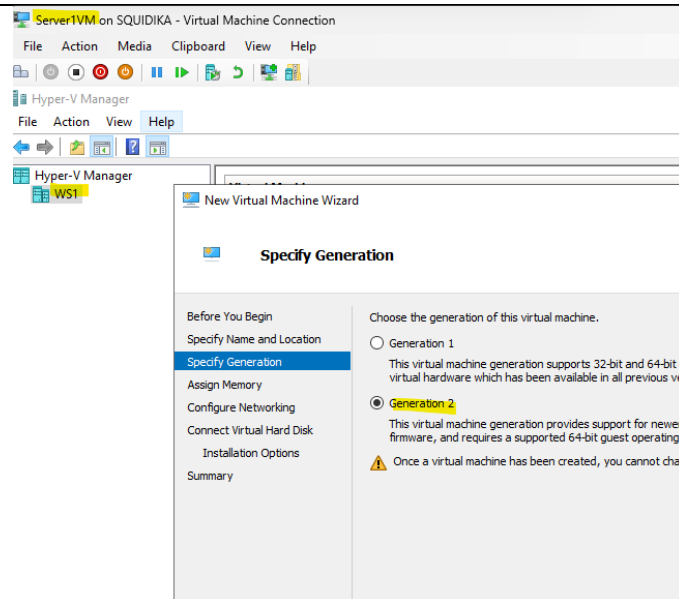
Some NIC's may be affected by the installation of Hyper-V and must be reconfigured.

4

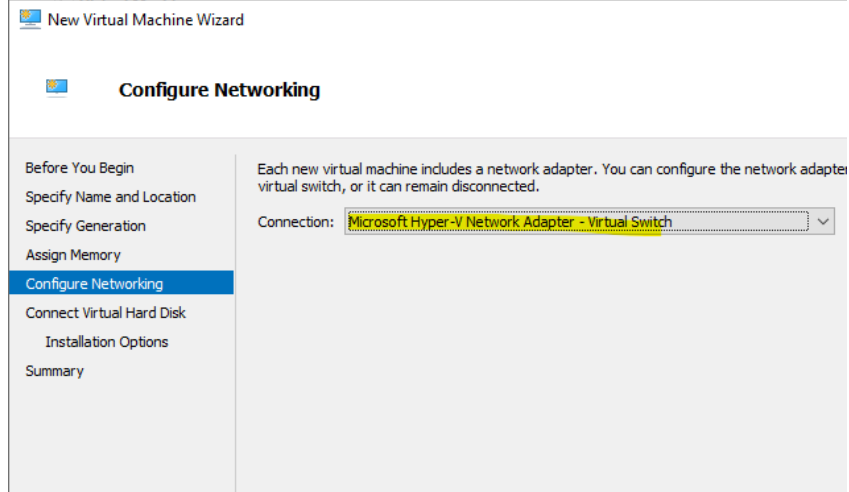


Bridged switch created automatically by Hyper-V on installation.

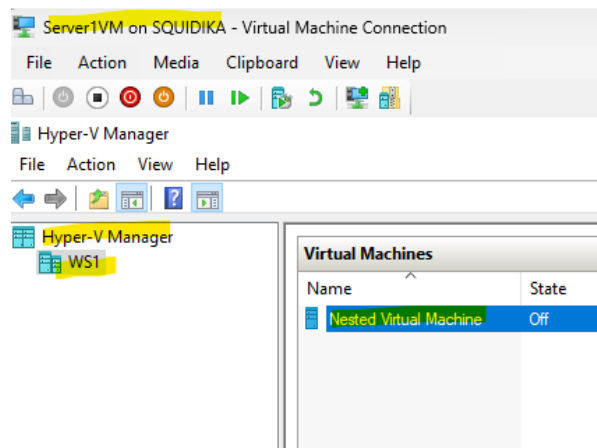
5



Create a new generation 5 virtual machine using hyper v

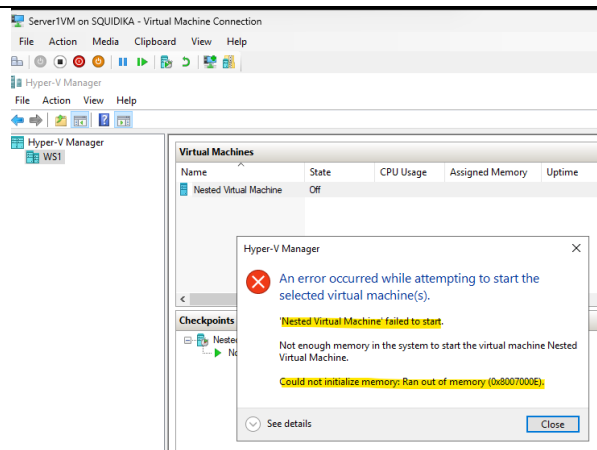


Connect the VM to the bridged switch

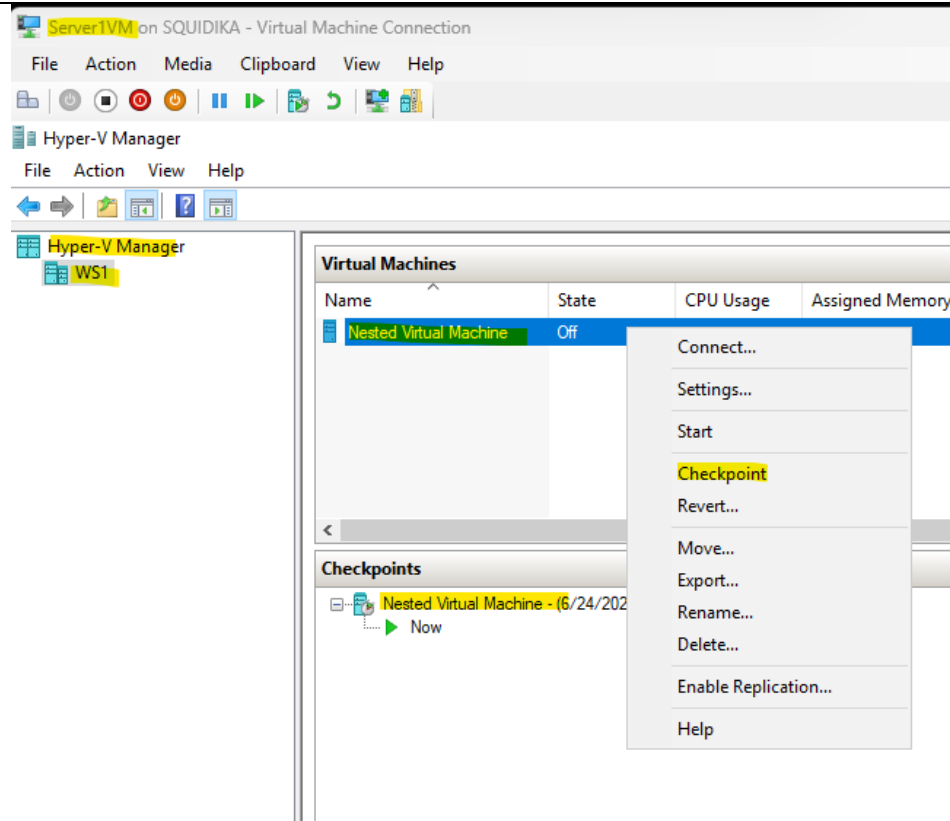


VM is created without OS, we will deploy it with a Linux OS.

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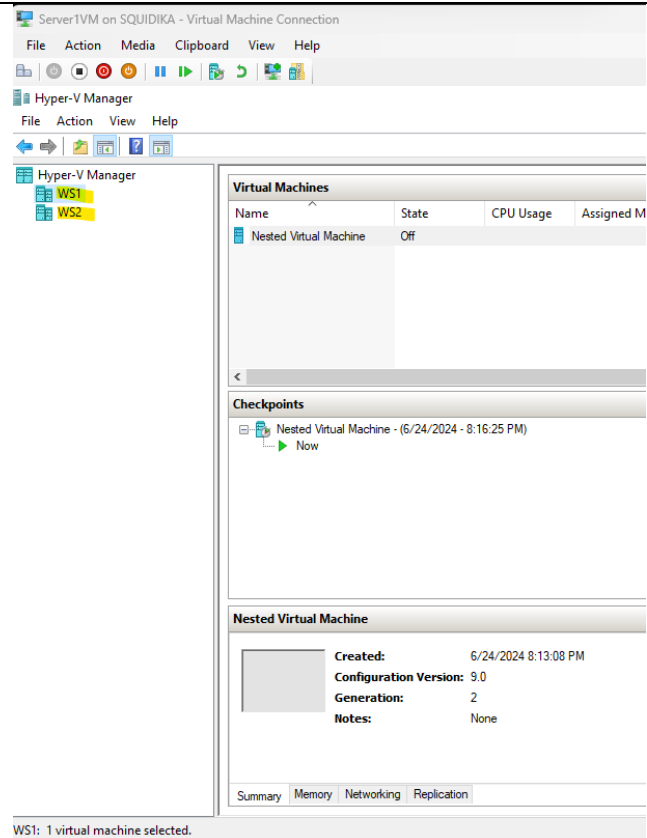


Unfortunately the laptop does not have enough memory to sustain WS1, WS2 and nested virtual machines. We will have to increase the memory on WS1 to allow the VM to start. We will skip the configuration of the image, but we can still continue to replicate the VM by creating a checkpoint and replicating it to WS2.

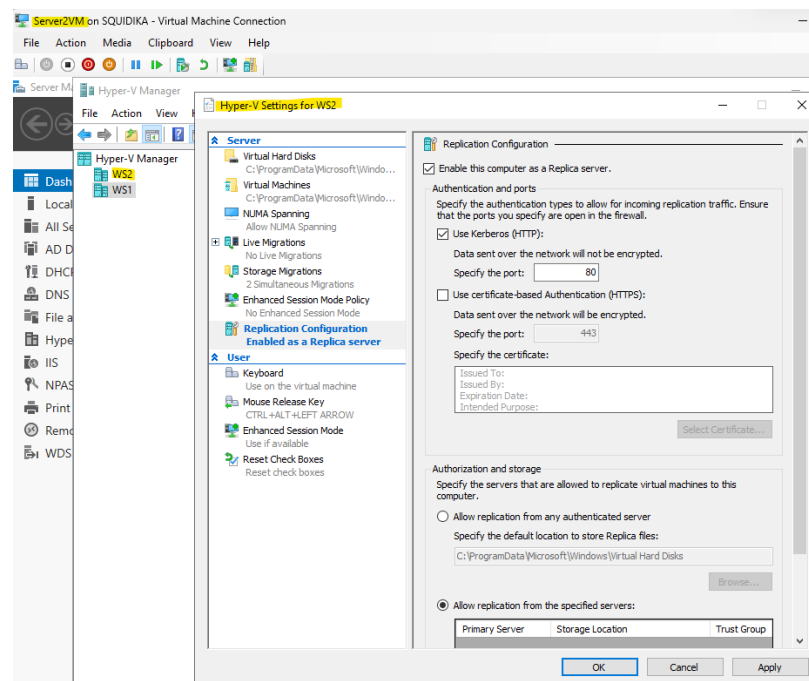


Lets create the checkpoint for the nested virtual machine on WS1, and then install Hyper-V on WS2.

7



We setup Hyper-V on WS2 and can now add now point both servers at each other in Hyper-V.



Configure WS2 as a replication server with Kerberos authentication over http port 80.

Browse...

☒ Allow replication from the specified servers:

Primary Server	Storage Location	Trust Group
ws1.raine.com	C:\ProgramData\Microsoft\Windo...	replica

Allow replica from ws1.raine.com

Hyper-V Manager

File Action View Help

Hyper-V Manager

- WS2
- WS1

Virtual Machines

Enable Replication for Nested Virtual Machine

Completing the Enable Replication wizard

Before You Begin

Specify Replica Server

Specify Connection Parameters

Choose Replication VHDs

Configure Replication Frequency

Configure Additional Recovery Points

Choose Initial Replication Method

Summary

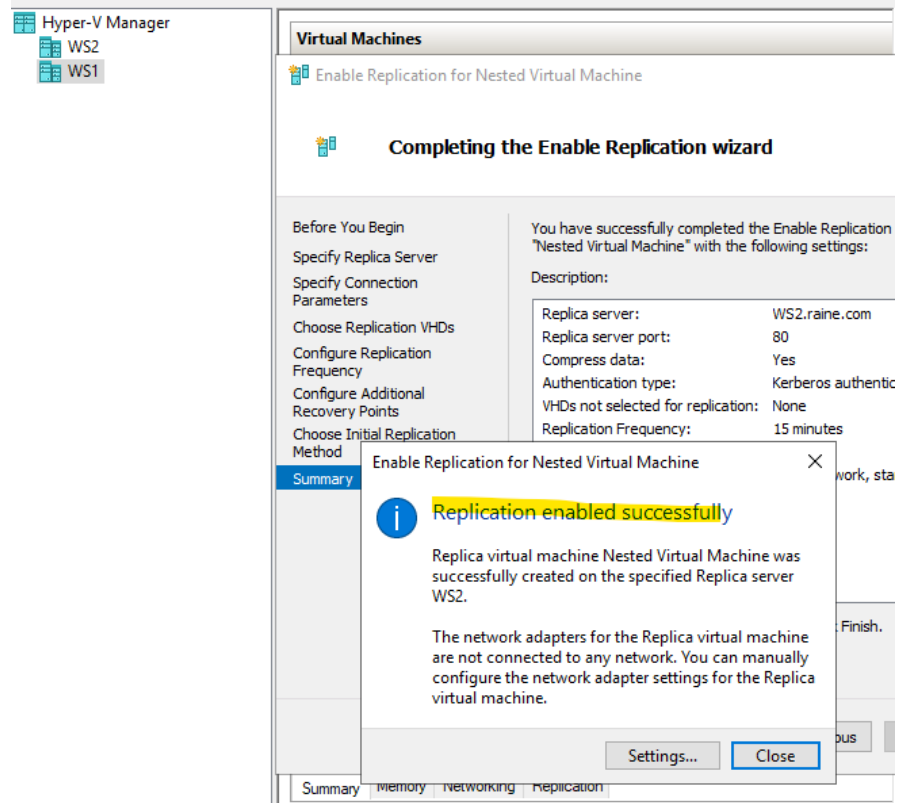
You have successfully completed the Enable Replication wizard. You are about to "Nested Virtual Machine" with the following settings:

Description:

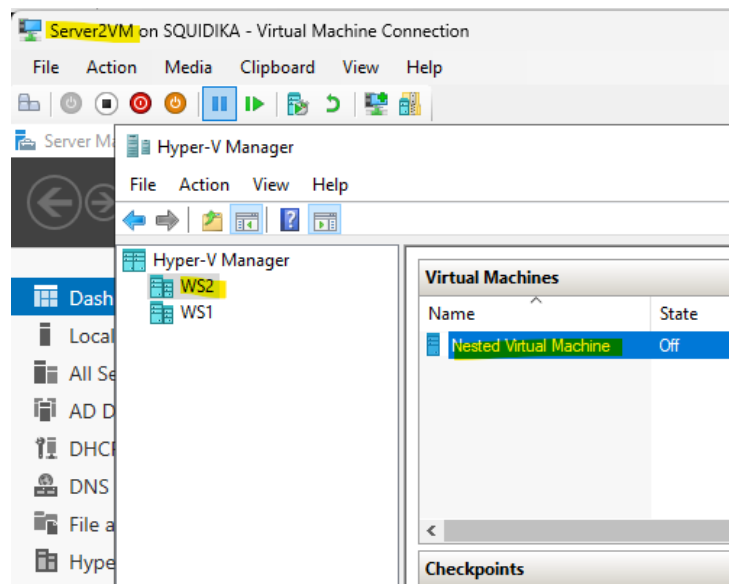
Replica server:	WS2.raine.com
Replica server port:	80
Compress data:	Yes
Authentication type:	Kerberos authentication
VHDs not selected for replication:	None
Replication Frequency:	15 minutes
Store additional recovery points:	No
Initial replication method:	Using network, start immediately

To enable replication and close the wizard, click Finish.

Enable replication for Nested Virtual Machine to the WS2 server.



Replication has been enabled successfully.



The VM is immediately replicated, this is a good way to provide High Availability and Risk Management.

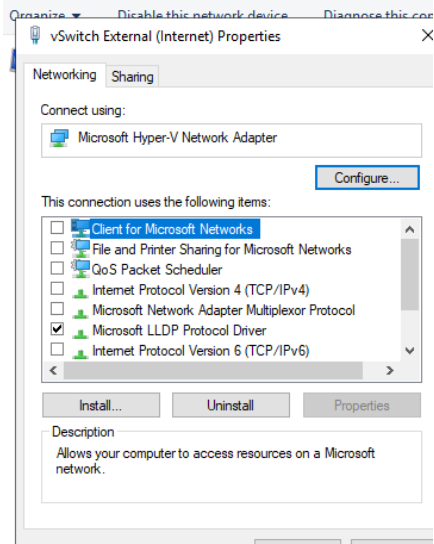
List At the three most useful Internet resources that you used (provided by the tutor)

<ul style="list-style-type: none">• Create virtual switch• https://www.youtube.com/watch?v=cGlrw4P-VUQ
<ul style="list-style-type: none">• Create VM in Hyper-V manager• https://www.youtube.com/watch?v= liDPu7zz3I
<ul style="list-style-type: none">• Create Checkpoint• https://www.youtube.com/watch?v=ZioPE02_j1w

List all (at least three) Internet resources that you found and used that were not provided by the tutor)

https://www.youtube.com/watch?v=HyAmfRXp6hc
https://www.youtube.com/watch?v=zD1ua3wQIRs
https://www.youtube.com/watch?v=mPQF2PhkA_0

Problem	Solution
Nested virtualization is not configured	<div><h2>Configure Nested Virtualization</h2><ol style="list-style-type: none">1. Create a virtual machine. See the prerequisites for the required OS and VM versions.2. While the virtual machine is in the OFF state, run the following command on the physical Hyper-V host to enable nested virtualization for the virtual machine.<div><div>PowerShell</div><div><div>Copy</div></div><pre>Set-VMProcessor -VMName <VMName> -ExposeVirtualizationExtensions \$true</pre></div>3. Start the virtual machine.4. Install Hyper-V within the virtual machine, just like you would for a physical server. For more information on installing Hyper-V, see, Install Hyper-V.<p>Running the command on the VM for Hyper-V to enable nested virtualization.</p></div>



Some virtual NIC's will be reset when Hyper-V is installed

Reconfigure the static IP addresses of each virtual switch / NIC to repair the network.