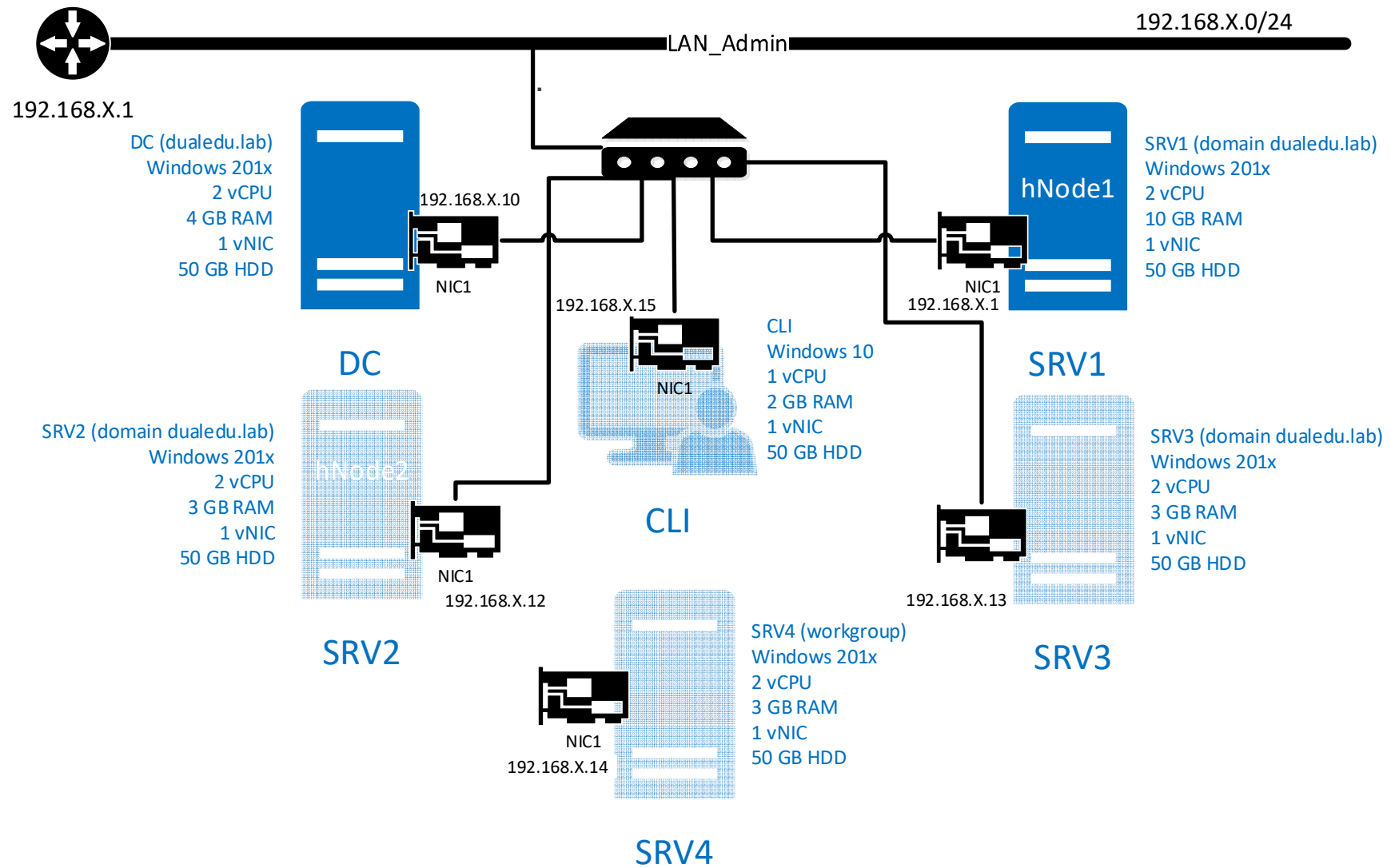


Hyper-V

Špecializované IKT systémy Windows

Ing. Stanislav Lukac, PhD.

LAB setup



Inštaláčn é kroky

- A. Inštalácia Hyper-V role na SRV1
- B. Konfigurácia hyper-v storage and network
- C. Vytvorenie VM
- D. VM1 manažment a konfigurácia

KrokA:: Inštalácia vHOST (srv1)

Inštalácia vHost

Úloha: Nainštaluje Hyper-V rolu na VM SRV1.

1. Povolit' inštaláciu hypervisora do VM.

Edit Settings | srv1 >

Virtual Hardware VM Options

ADD NEW DEVICE

▼ CPU	2 ▼	ⓘ
Cores per Socket	1 ▼ Sockets: 2	
CPU Hot Plug	<input type="checkbox"/> Enable CPU Hot Add	
Reservation	0 ▼ MHz ▼	
Limit	Unlimited ▼ MHz ▼	
Shares	Normal ▼ 2000	
CPUID Mask	Expose the NX/XD flag to guest ▼ Advanced...	
Hardware virtualization	<input checked="" type="checkbox"/> Expose hardware assisted virtualization to the guest OS	
Performance Counters	<input type="checkbox"/> Enable virtualized CPU performance counters	
I/O MMU	<input type="checkbox"/> Enabled	
> Memory	3 ▼ GB ▼	
> Hard disk 1	50 ▼ GB ▼	

Inštalácia vHost

Úloha: Nainštaluje Hyper-V rolu na VM SRV1.

2. Inštalácia role na SRV1 cez Add roles and features

Administrator: Windows PowerShell

Windows PowerShell

Copyright (C) Microsoft Corporation. All rights reserved.

PS C:\Users\Administrator> **Get-WindowsFeature** -Name Hyper*

Display Name	Name	Install State
-----	----	-----
[] Hyper-V	Hyper-V	Available
[] Hyper-V GUI Management Tools	Hyper-V-Tools	Available
[] Hyper-V Module for Windows PowerShell	Hyper-V-PowerShell	Available

Administrator: Windows PowerShell

Windows PowerShell

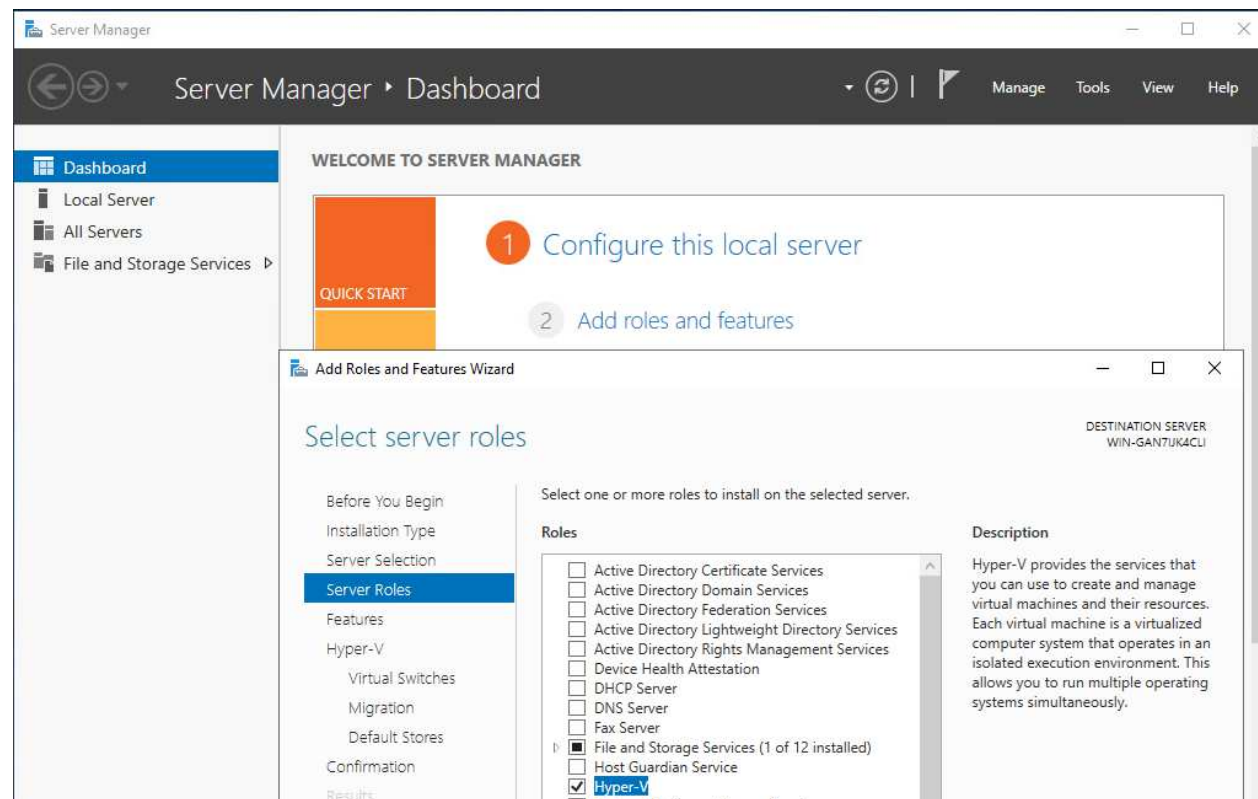
Copyright (C) Microsoft Corporation. All rights reserved.

PS C:\Users\Administrator> **Install-WindowsFeature** -Name Hyper-V -IncludeAllSubFeature -IncludeManagementTools -Restart

Inštalácia vHost

Úloha: Nainštaluje Hyper-V rolu na VM SRV1.

2. Inštalácia role na SRV1 cez Add roles and features

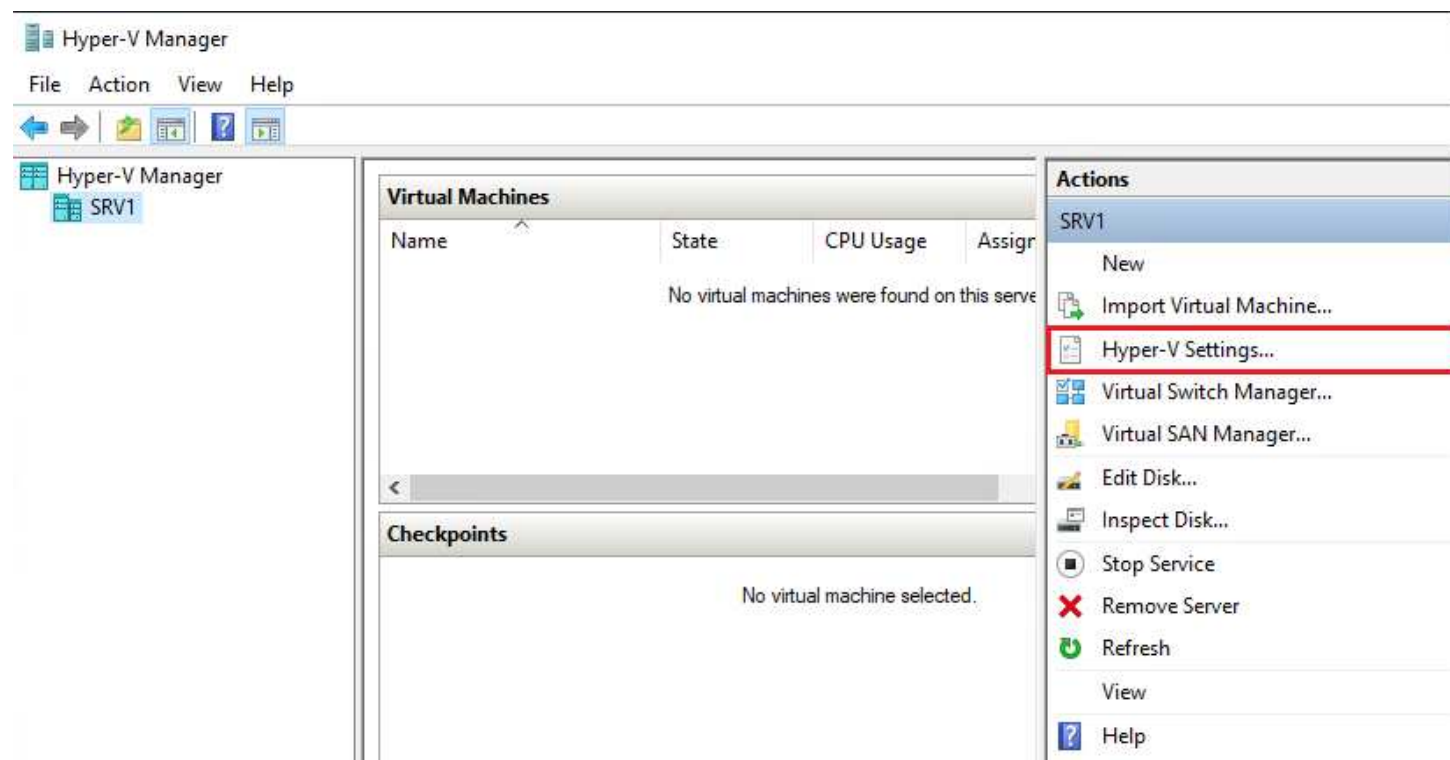


Krok2:: Konfigurácia vHOST (srv1)

Konfigurácia Hyper-V

Úloha: Konfigurujte Hyper-V rolu na VM SRV1.

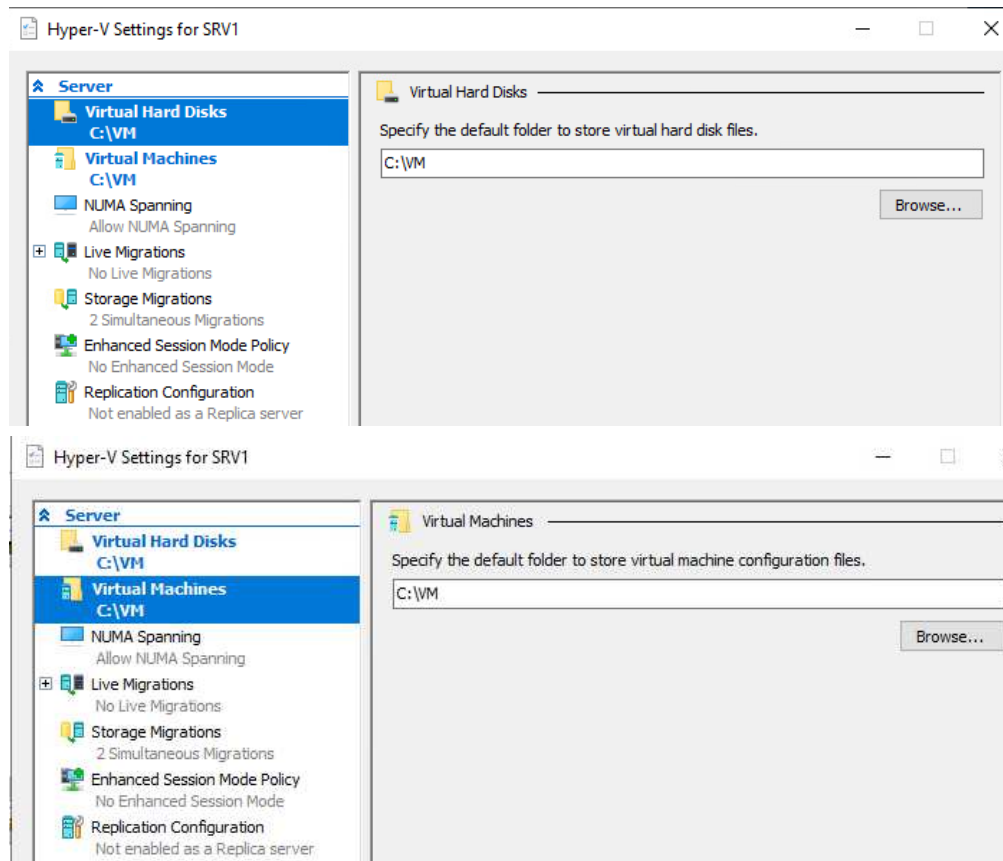
3. Konfigurácia hyperV – Umiestnenie VM súborov do C:\VM



Konfigurácia Hyper-V

Úloha: Konfigurujte Hyper-V rolu na VM SRV1.

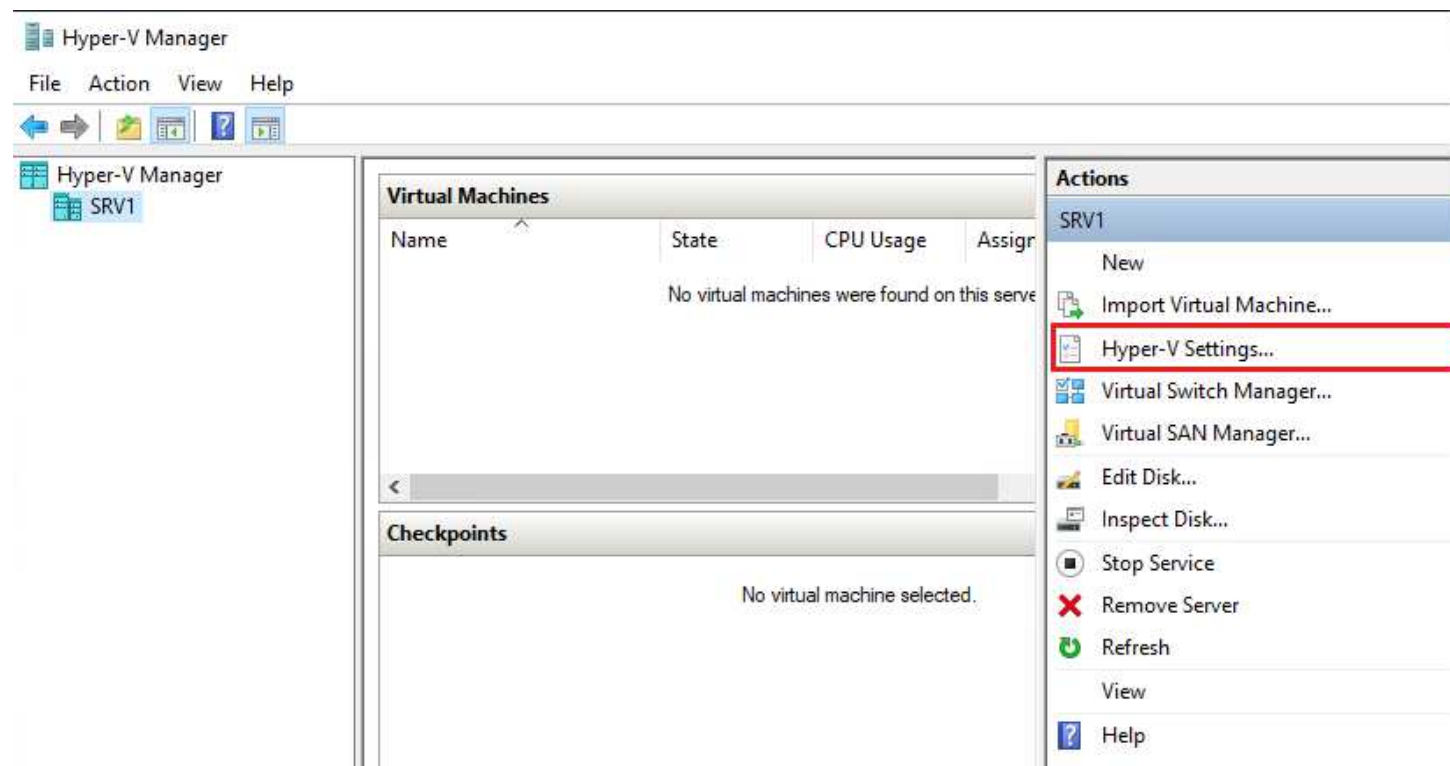
3. Konfigurácia hyperV – Umiestnenie VM súborov do C:\VM



Konfigurácia Hyper-V

Úloha: Konfigurujte Hyper-V rolu na VM SRV1.

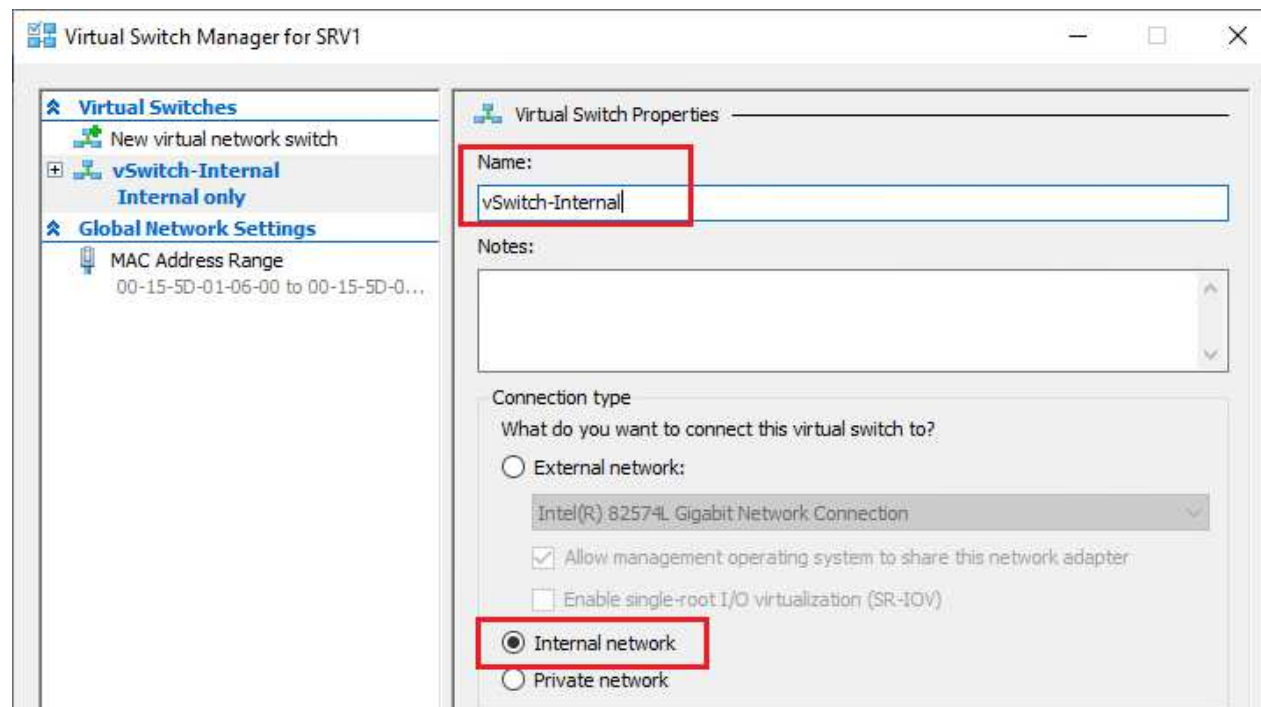
4. Konfigurácia siete – Vytvorenie virtual switch-Internal



Konfigurácia Hyper-V

Úloha: Konfigurujte Hyper-V rolu na VM SRV1.

4. Konfigurácia siete – Vytvorenie virtual switch-Internal

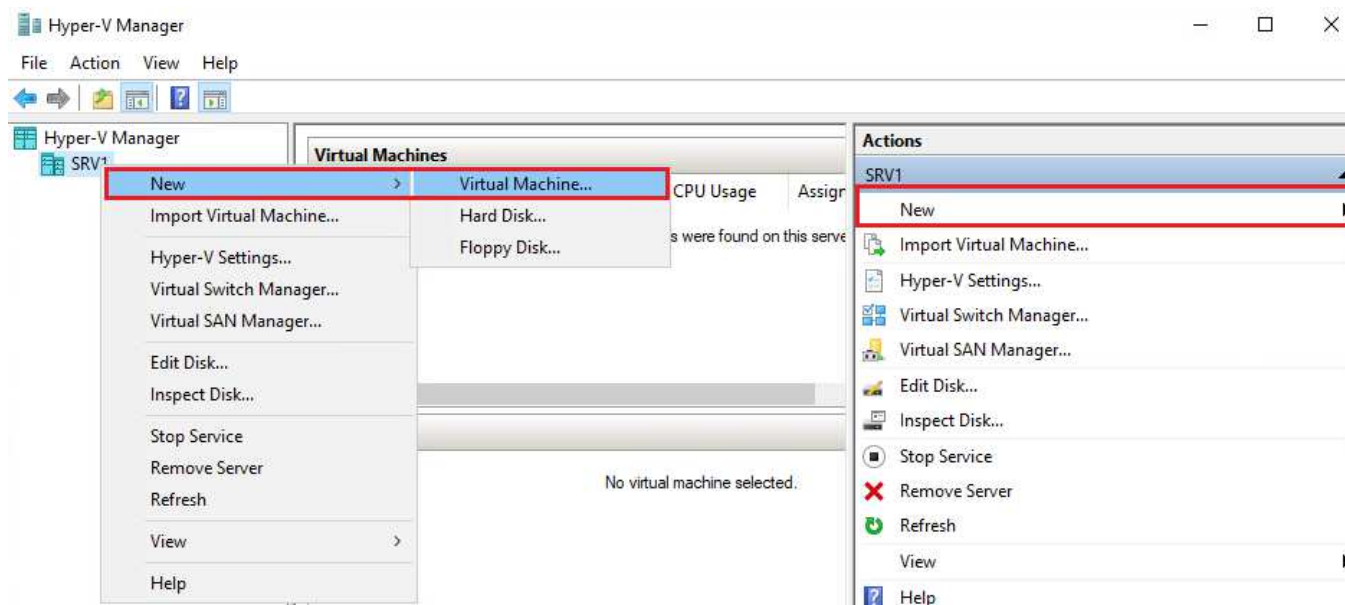


Krok3: Inštalácia VM

Inštalácia VM

Úloha: Nainštaluje na Hyper-V.

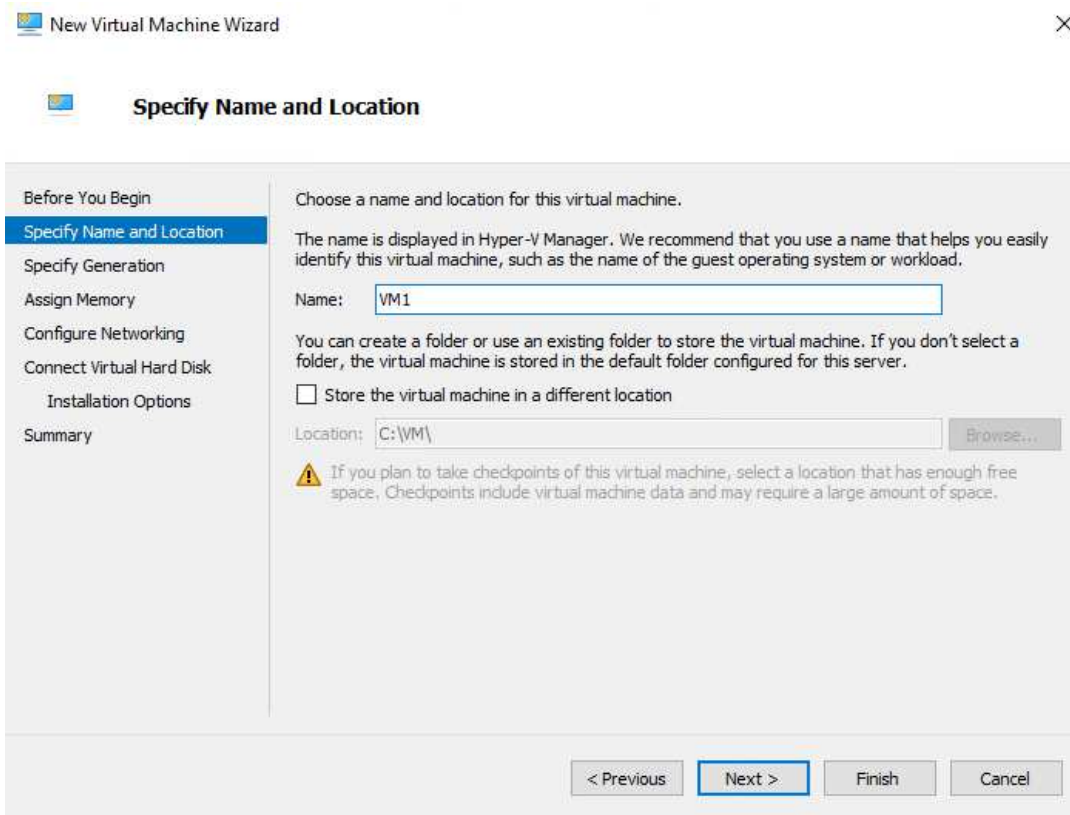
5. Vytvorenie novej VM na SRV₄₁ (Hyper-V host)



Inštalácia VM

Úloha: Nainštaluje na Hyper-V VM.

6. Vytvorenie novej VM: Zadanie mena VM1



The screenshot shows the 'New Virtual Machine Wizard' window, specifically the 'Specify Name and Location' step. The window has a title bar 'New Virtual Machine Wizard' and a close button. The main area is divided into a left sidebar with navigation links and a main content area. The sidebar links are: 'Before You Begin', 'Specify Name and Location' (highlighted), 'Specify Generation', 'Assign Memory', 'Configure Networking', 'Connect Virtual Hard Disk', 'Installation Options', and 'Summary'. The main content area has the title 'Specify Name and Location' and instructions: 'Choose a name and location for this virtual machine. 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.' There is a 'Name:' text box containing 'VM1'. Below this, it says '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.' There is a checkbox 'Store the virtual machine in a different location' which is unchecked. Below this is a 'Location:' text box containing 'C:\VM\' and a 'Browse...' button. A warning icon and text are present: '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, there are four buttons: '< Previous', 'Next >' (highlighted), 'Finish', and 'Cancel'.

New Virtual Machine Wizard

Specify Name and Location

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

Choose a name and location for this virtual machine.

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.

Name: VM1

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.

☐ Store the virtual machine in a different location

Location: C:\VM\ Browse...

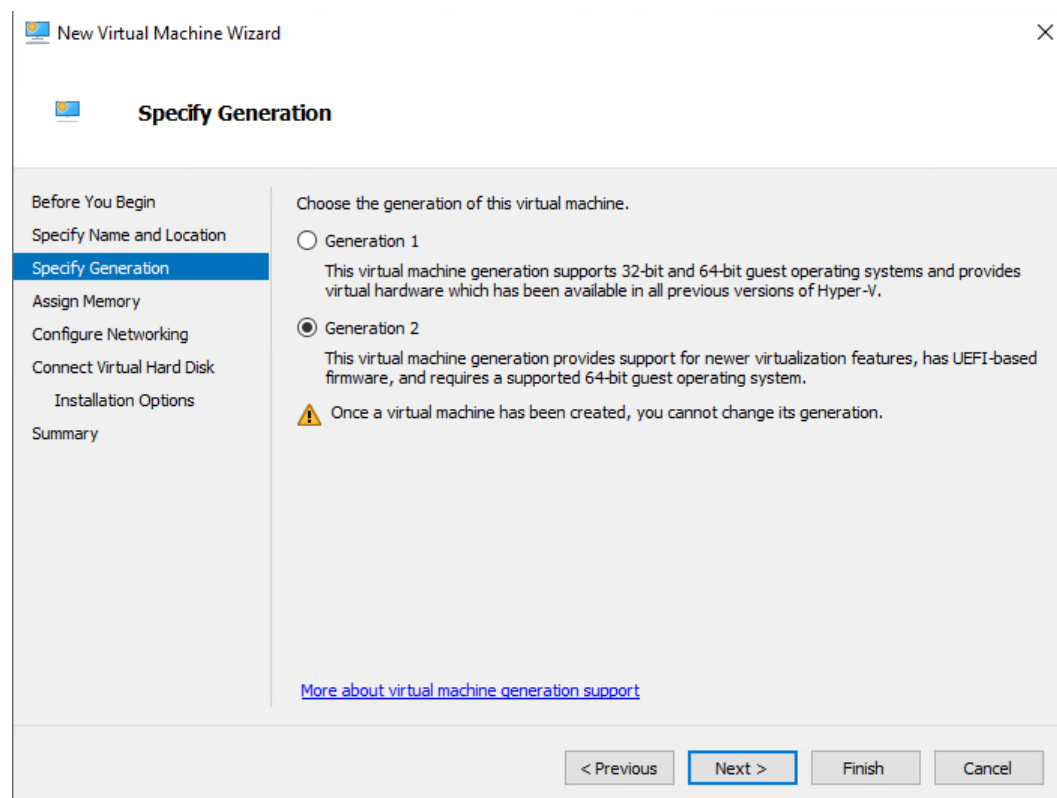
⚠ If you plan to take checkpoints of this virtual machine, select a location that has enough free space. Checkpoints include virtual machine data and may require a large amount of space.

< Previous Next > Finish Cancel

Inštalácia VM

Úloha: Nainštaluje na Hyper-V VM.

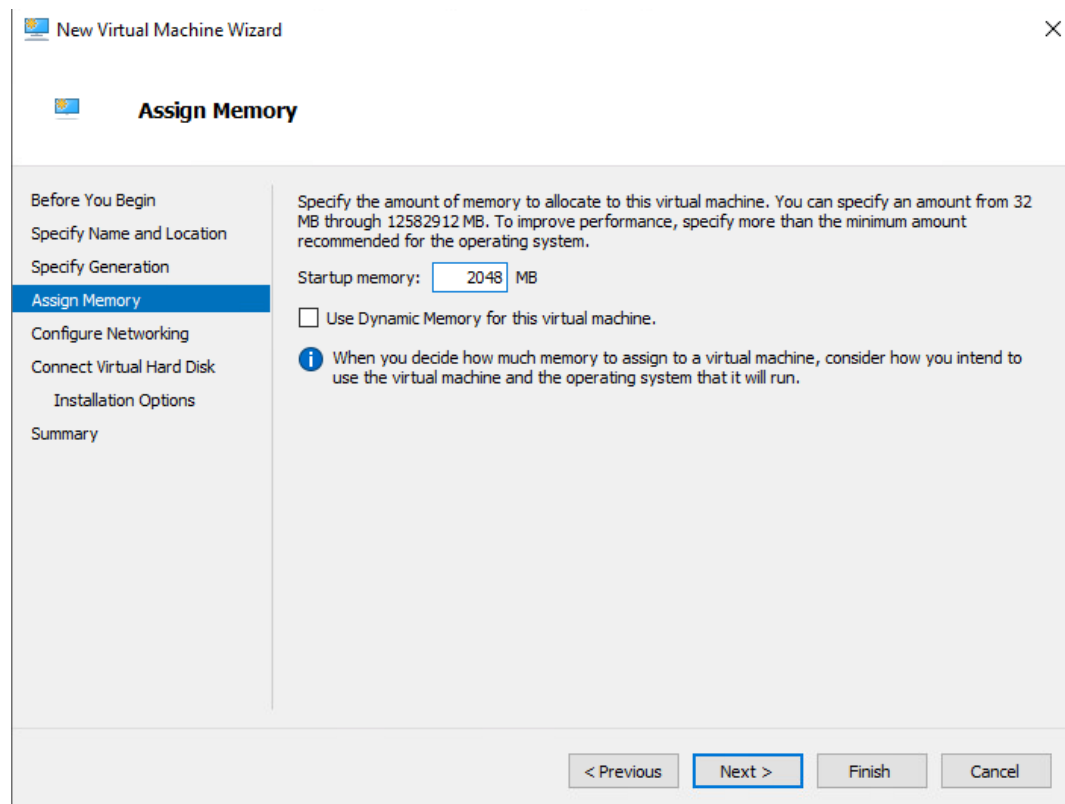
7. Vytvorenie novej VM: Voľba generácia VM – Generácia 2



Inštalácia VM

Úloha: Nainštaluje na Hyper-V VM.

8. Vytvorenie novej VM: Nastavenie vRAM na 2048 MB



The screenshot shows the 'New Virtual Machine Wizard' window, specifically the 'Assign Memory' step. The window has a title bar with the text 'New Virtual Machine Wizard' and a close button. The main content area is divided into two panes. The left pane contains a list of steps: 'Before You Begin', 'Specify Name and Location', 'Specify Generation', 'Assign Memory' (which is highlighted with a blue bar), 'Configure Networking', 'Connect Virtual Hard Disk', 'Installation Options', and 'Summary'. The right pane contains instructions for assigning memory, a text input field for 'Startup memory' with the value '2048' and the unit 'MB', a checkbox for 'Use Dynamic Memory for this virtual machine.', and an information icon with a note: '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.' At the bottom of the window, there are four buttons: '< Previous', 'Next >' (which is highlighted with a blue border), 'Finish', and 'Cancel'.

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.

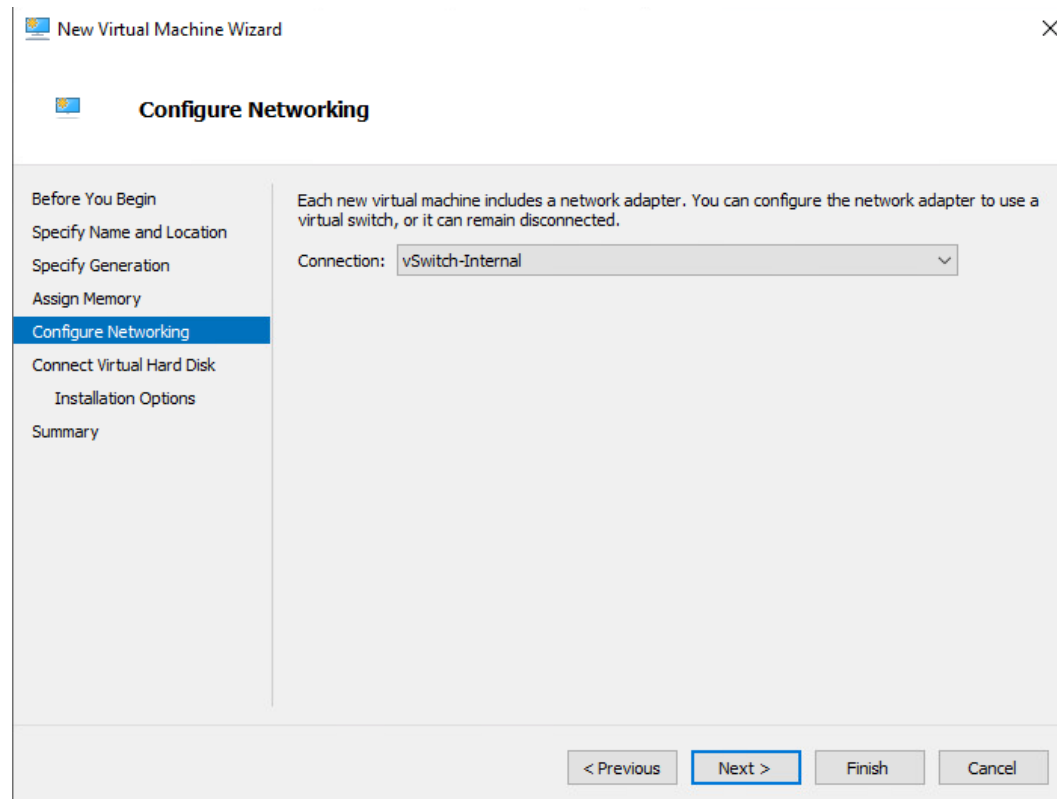
i When you decide how much memory to assign to a virtual machine, consider how you intend to use the virtual machine and the operating system that it will run.

< Previous **Next >** Finish Cancel

Inštalácia VM

Úloha: Nainštaluje na Hyper-V VM.

9. Vytvorenie novej VM: Pripojenie VM do siete – switch Internal



Inštalácia VM

Úloha: Nainštaluje na Hyper-V VM.

10. Vytvorenie novej VM: Vytvorenie disku 30 GB

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
Installation Options
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:

Location: [Browse...](#)

Size: GB (Maximum: 64 TB)

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

Location: [Browse...](#)

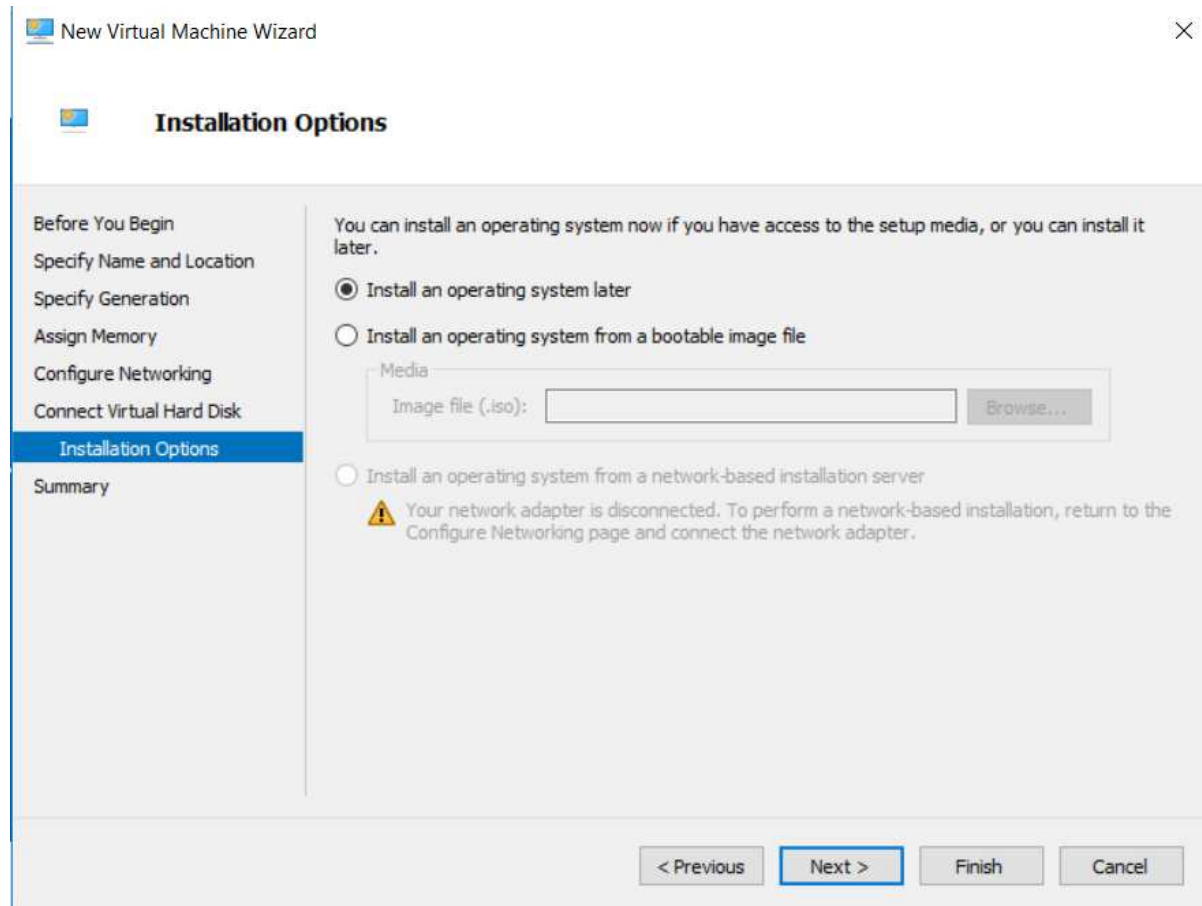
☐ Attach a virtual hard disk later
Use this option to skip this step now and attach an existing virtual hard disk later.

< Previous **Next >** Finish Cancel

Inštalácia VM

Úloha: Nainštaluje na Hyper-V VM.

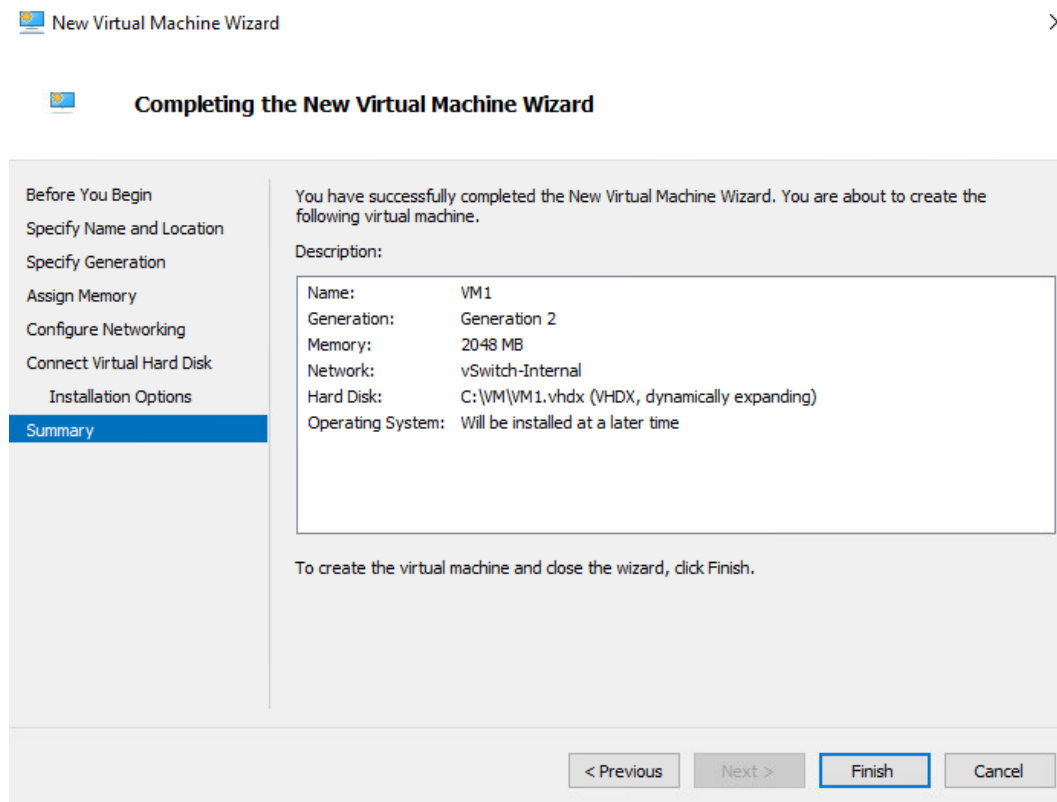
11. Vytvorenie novej VM: Voľba inštalácie OS a voľba inštalačného ISO image.



Inštalácia VM

Úloha: Nainštaluje na Hyper-V Windows VM.

12. Vytvorenie novej VM: Sumarizačné window



Inštalácia VM

Úloha: Nainštaluje na Hyper-V Windows VM.

13. Vytvorenie novej VM: Inštalácia Guest OS – Map inštalačného ISO na vHost.

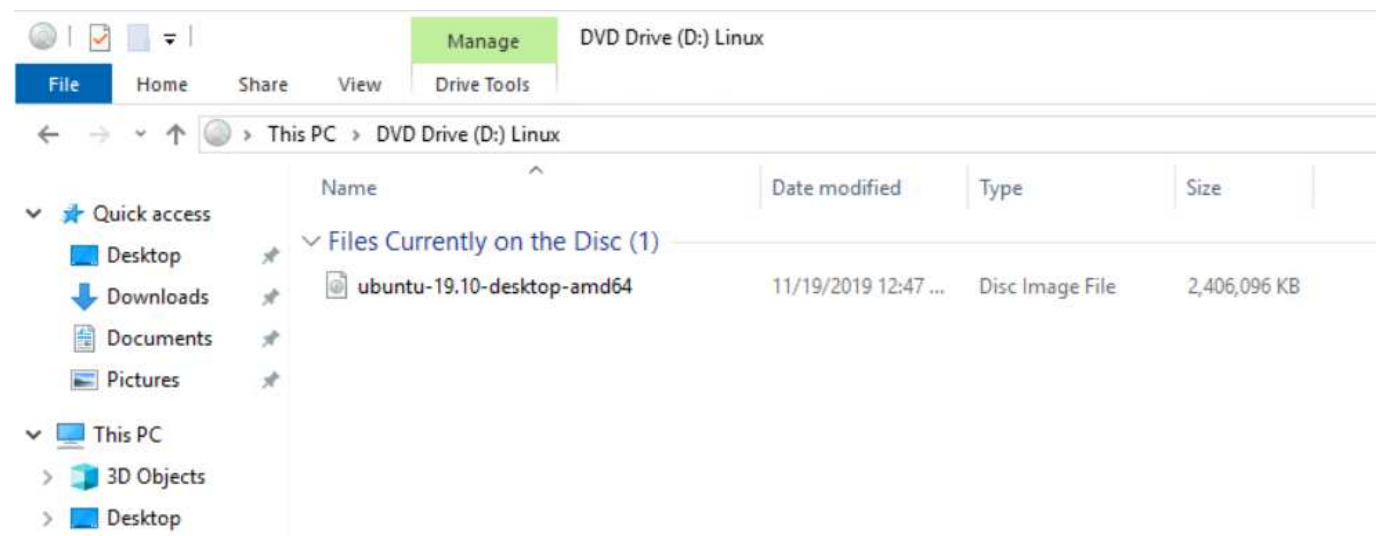
Select File

Datastores	Contents	Information
> DC_6	.vnfs-1c9e567-LinuxUbuntuISO.iso	Name: LinuxUbuntuISO.iso
> dc_7	.vnfs-1c9e568-LinuxUbuntuISO.iso	Size: 2.29 GB
> DC_7	Eval_Server16.ISO	Modified: 11/19/2019, 1:33:15 PM
> dc_8	Eval_Server19.ISO	Encrypted: No
> DC_8	EVAL_SERVER_2012R2.ISO	
> dc_9	Eval_Win10.iso	
> DC_9	LinuxUbuntuISO.iso	
> ESX		

Inštalácia VM

Úloha: Nainštaluje na Hyper-V Windows VM.

14. Vytvorenie novej VM: Inštalácia Guest OS – Copy ISO z namapovaného DVD-ROM do C:\ISO.



Administrator: Windows PowerShell

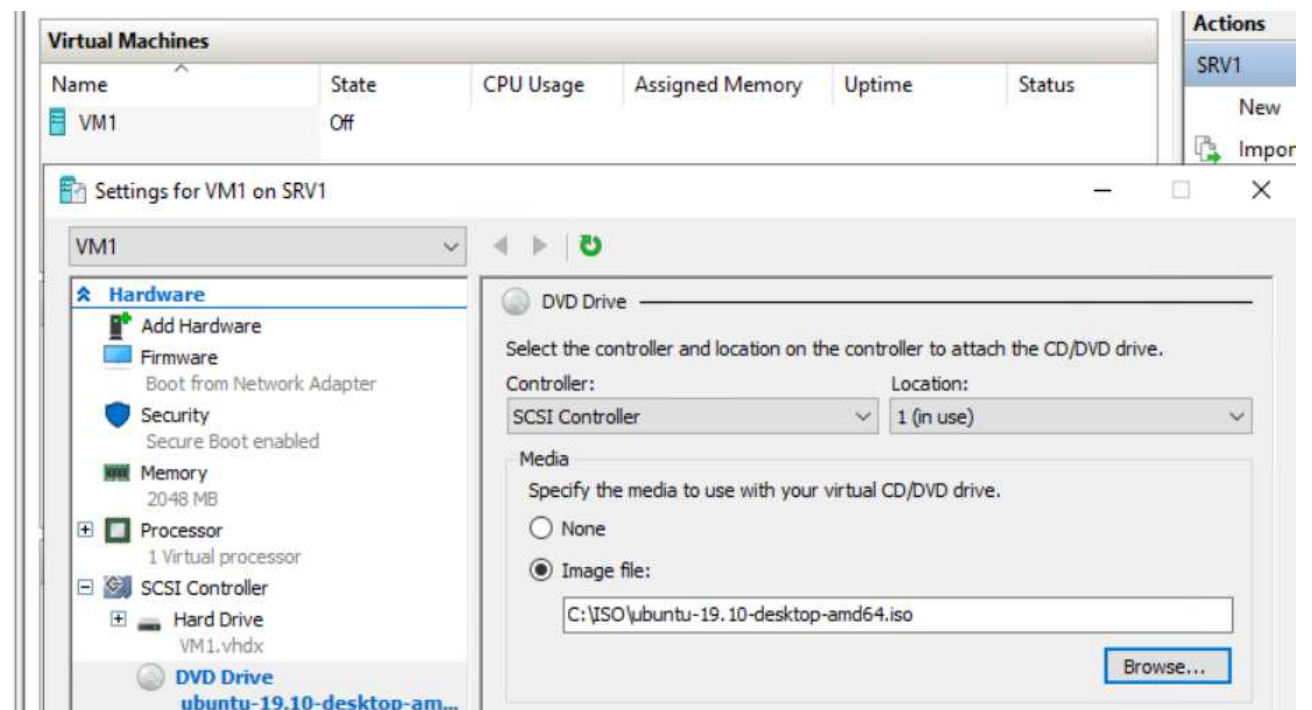
```
PS C:\>  
PS C:\> Copy-Item -Path D:\ubuntu-19.10-desktop-amd64.iso -Destination C:\ISO -Force
```

Inštalácia VM

Úloha: Nainštaluje na Hyper-V Windows VM.

15. Vytvorenie novej VM: Inštalácia Guest OS – map inštalačného média do VM1.

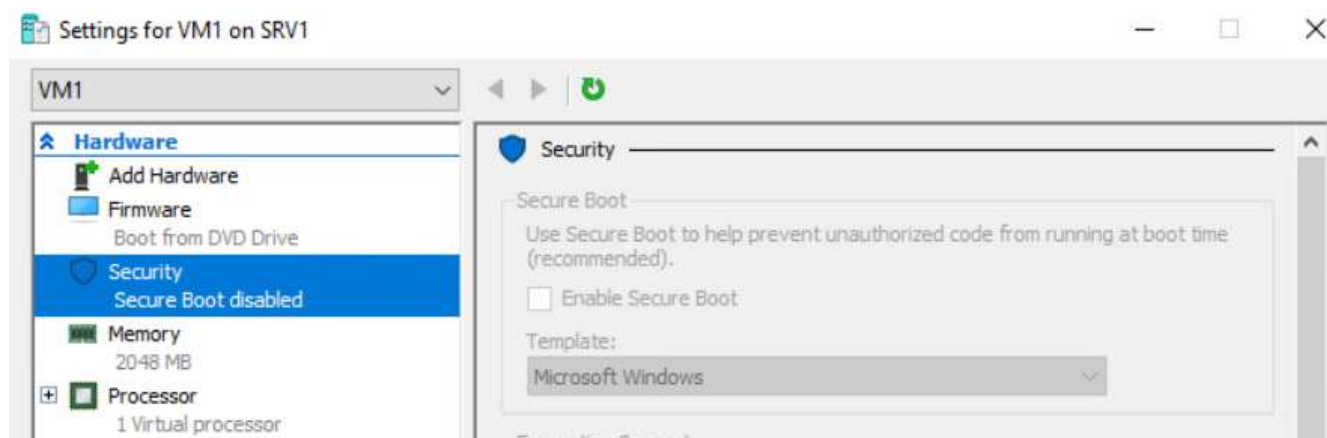
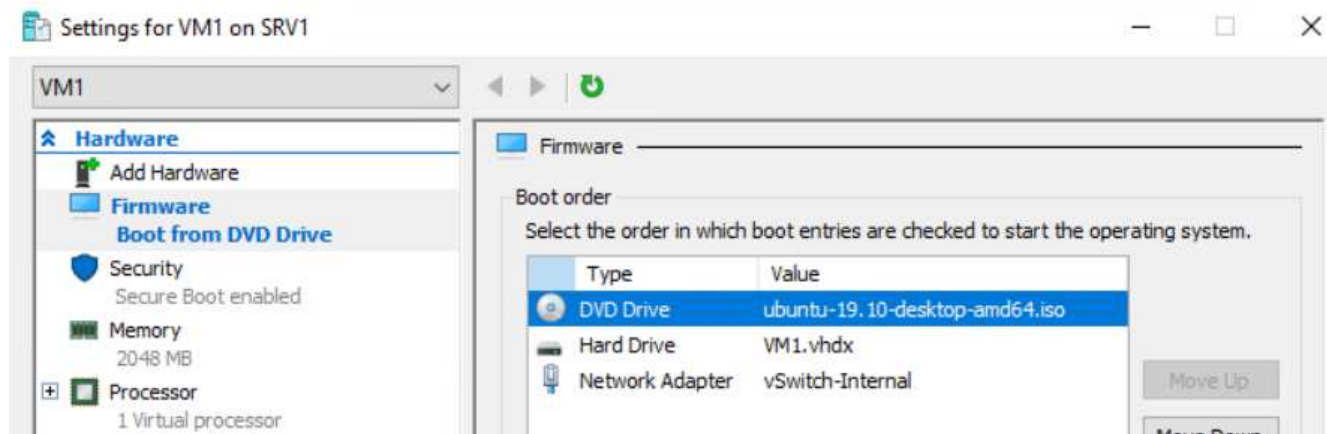
lanager



Inštalácia VM

Úloha: Nainštaluje na Hyper-V Windows VM.

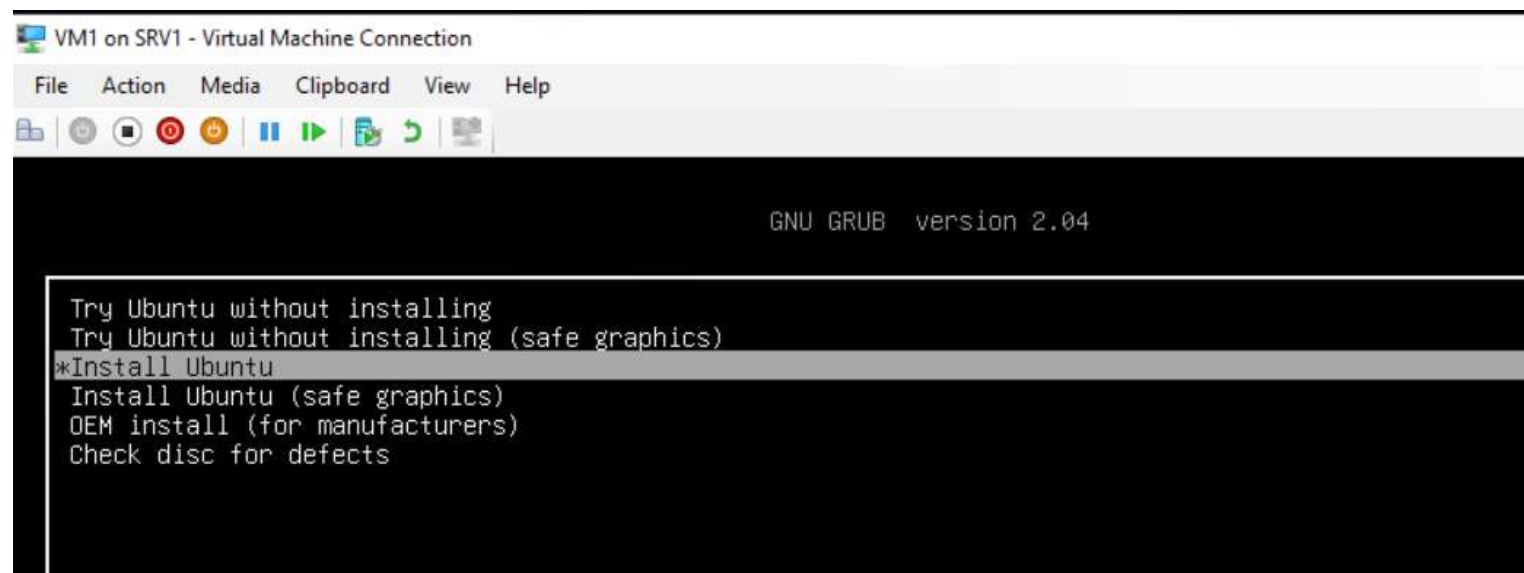
16. Vytvorenie novej VM: Inštalácia Guest OS – Nastavenie boot order na VM1 a DISABLE secure boot



Inštalácia VM

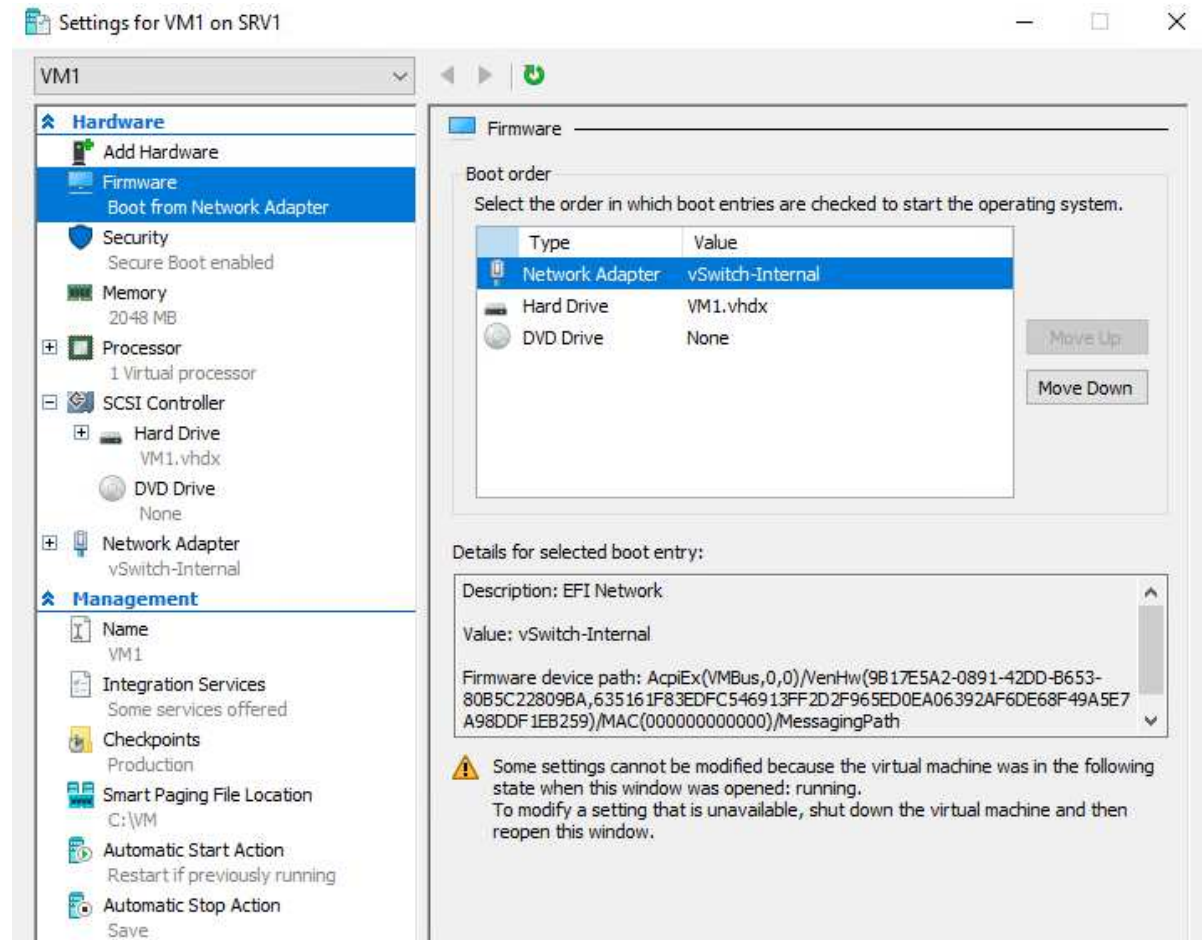
Úloha: Nainštaluje na Hyper-V Windows VM.

17. Vytvorenie novej VM: Inštalácia Guest OS – PowerON a boot VM1 z DVD media a nainštalovanie GUEST OS.

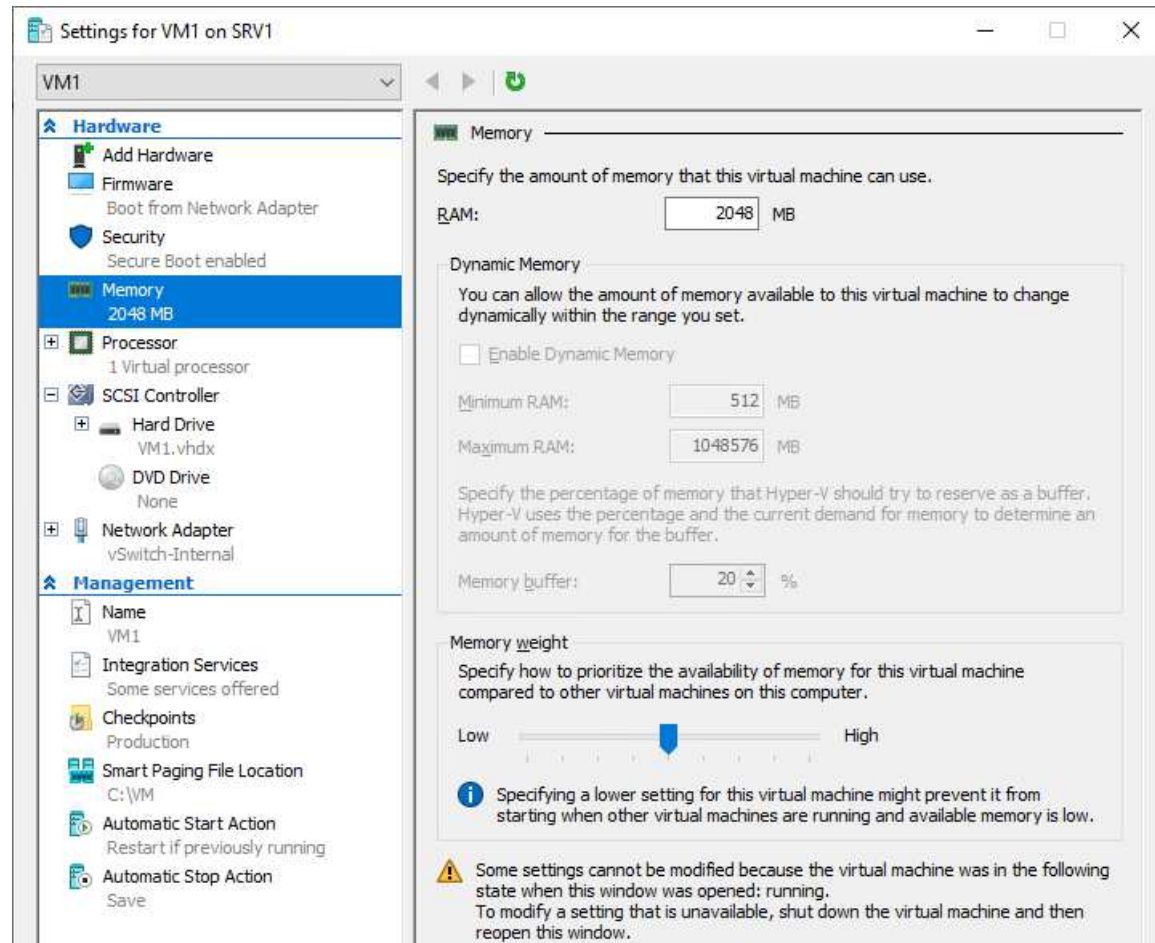


[optional]KrokD: EDIT VM settings

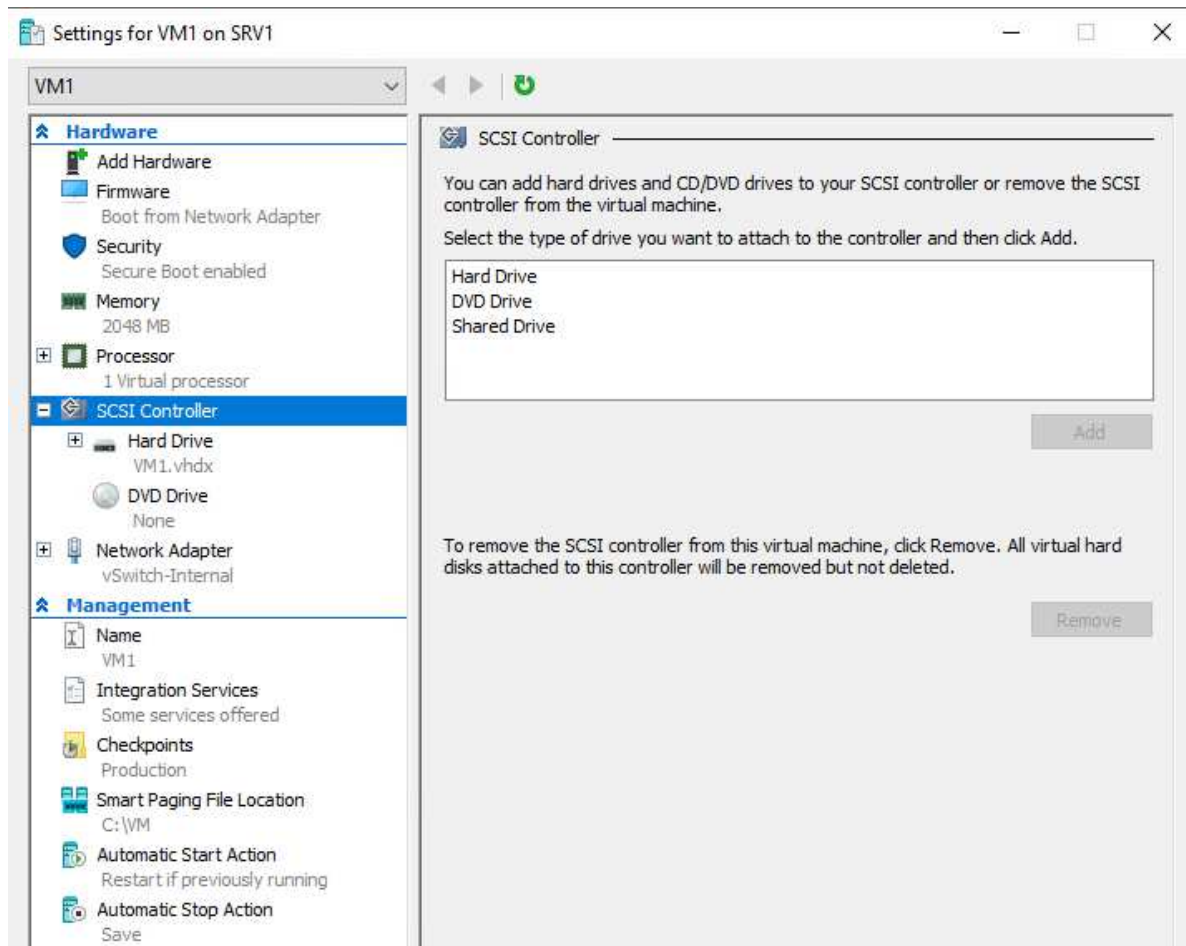
Changing boot order



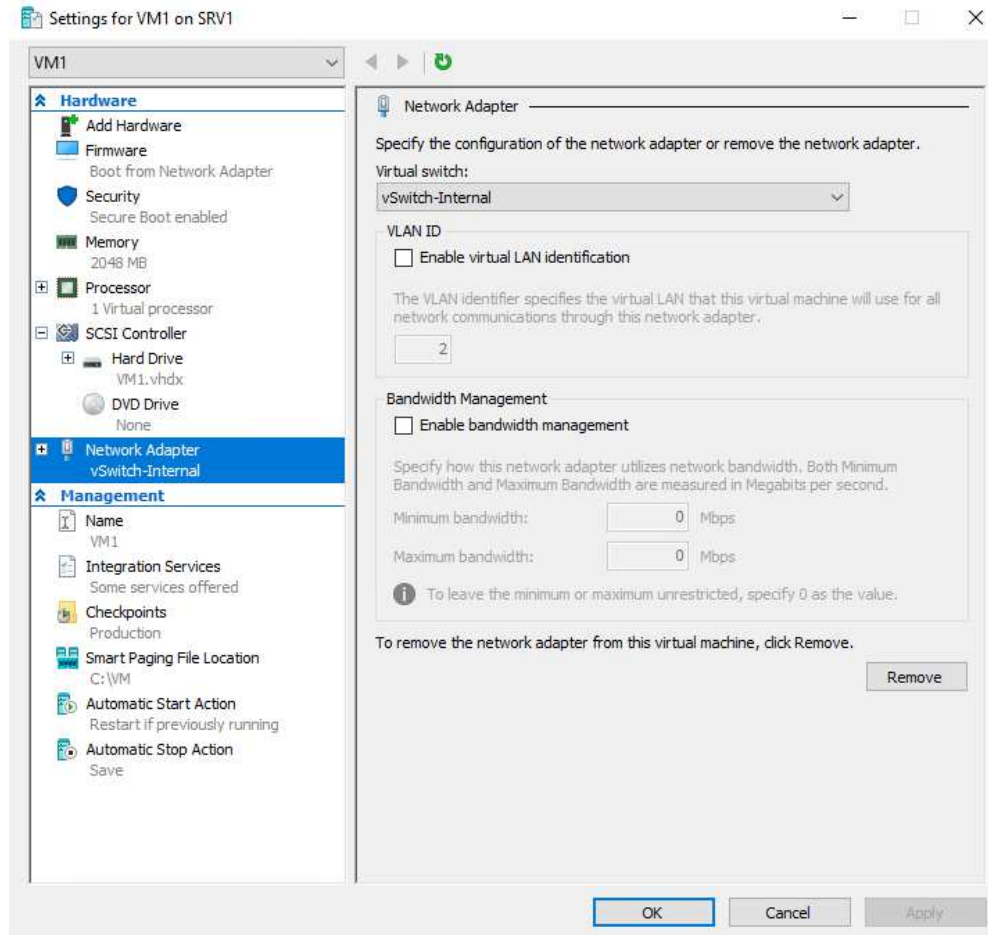
Add vCPU/vRAM



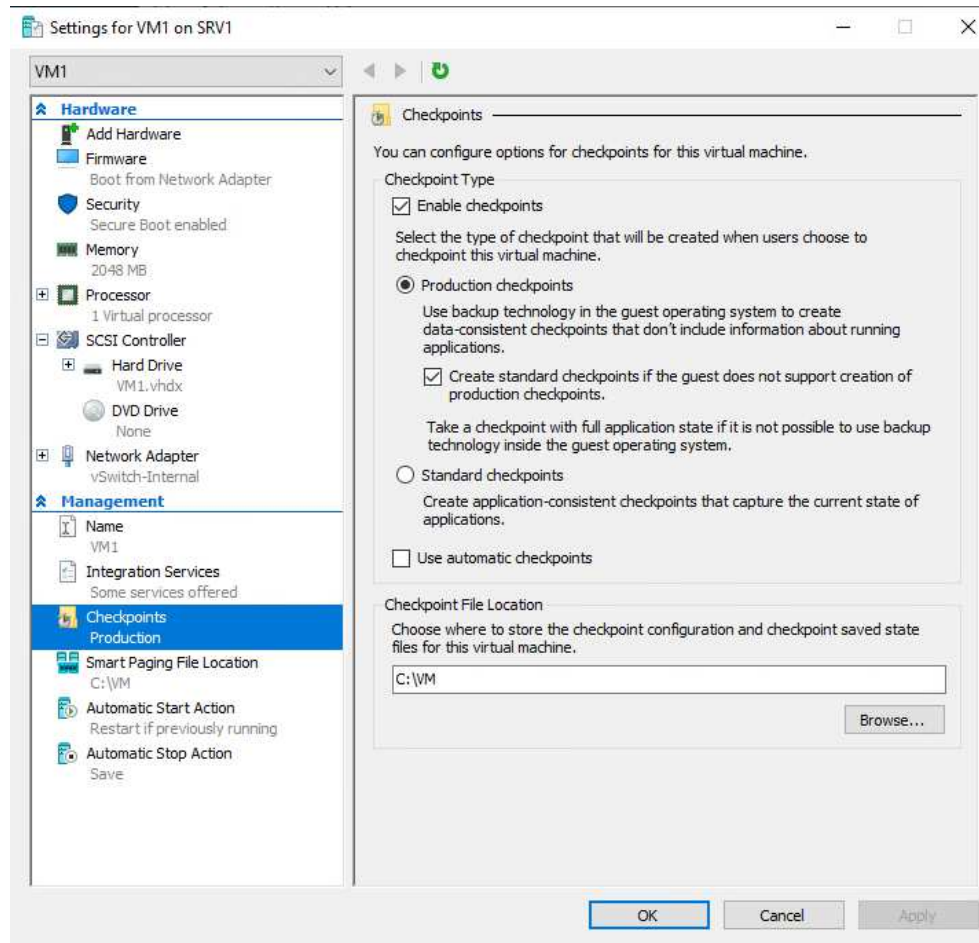
Add vHDD



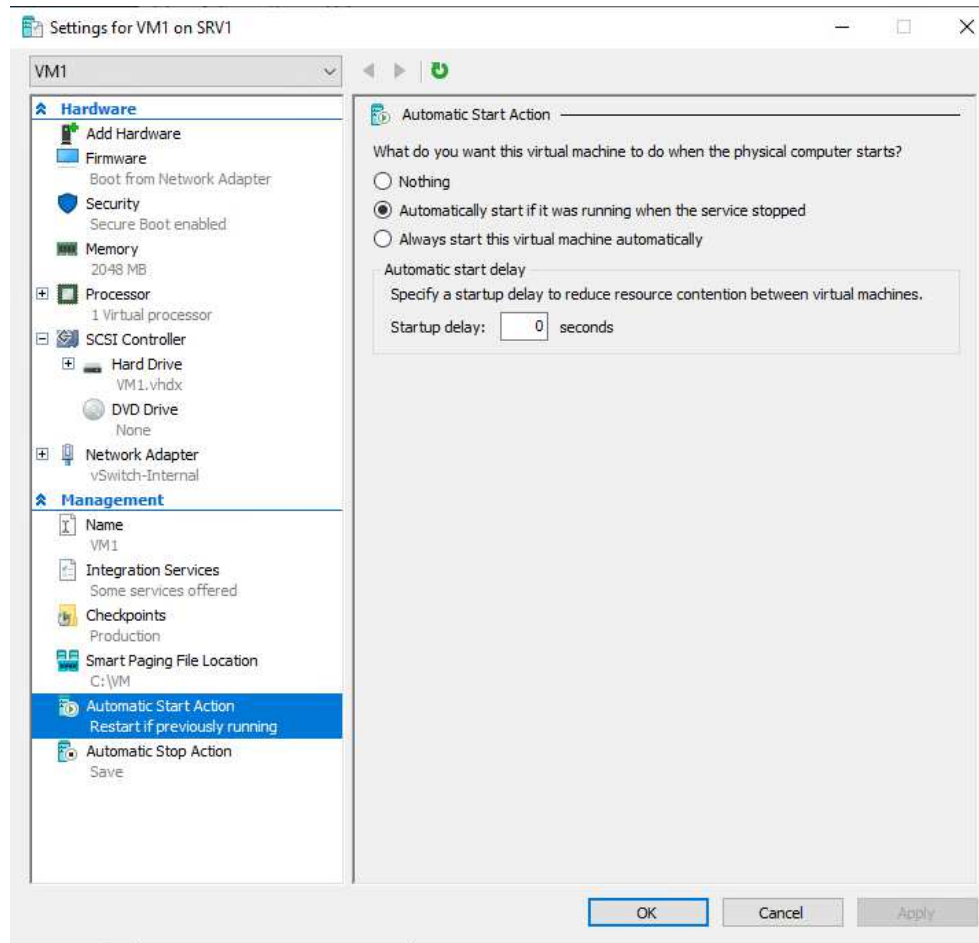
Assign vNIC to network



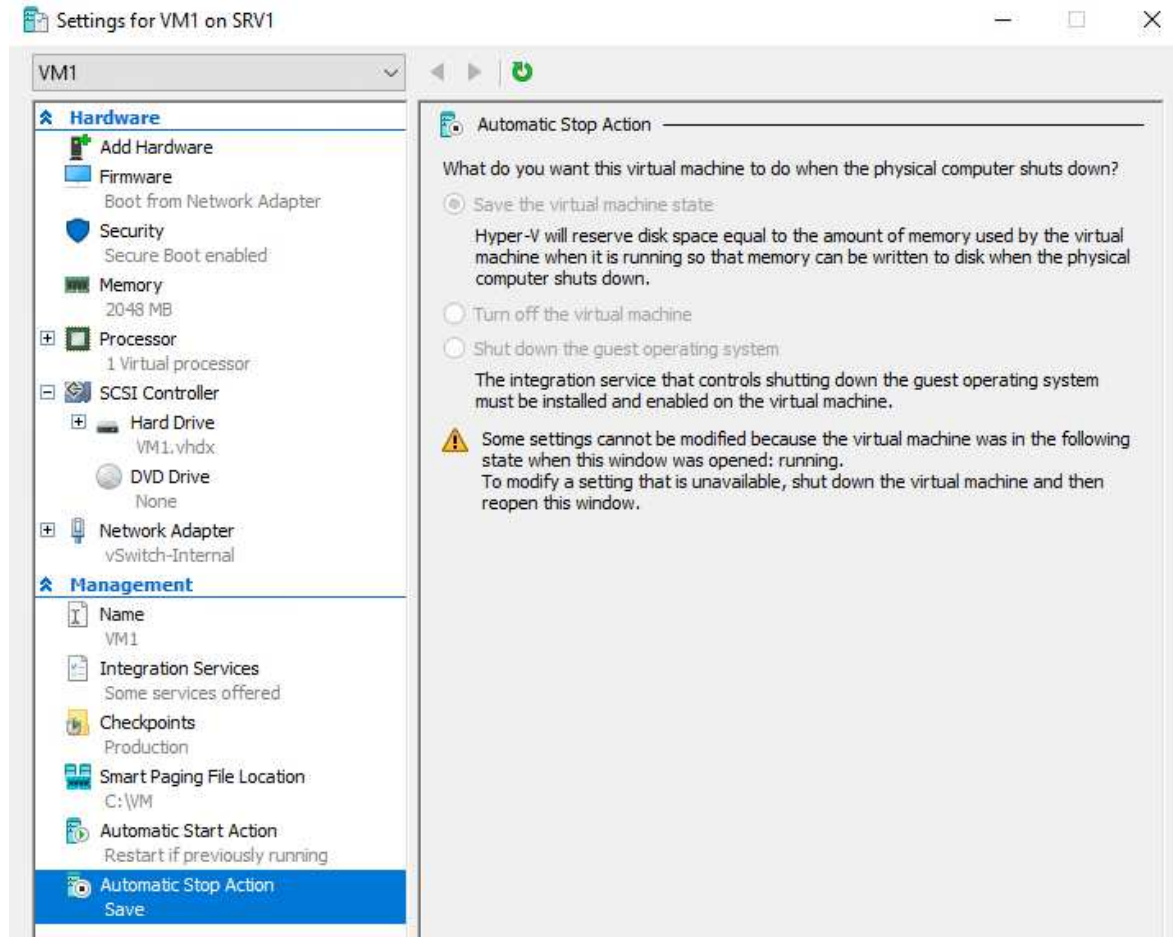
Checkpoint setup



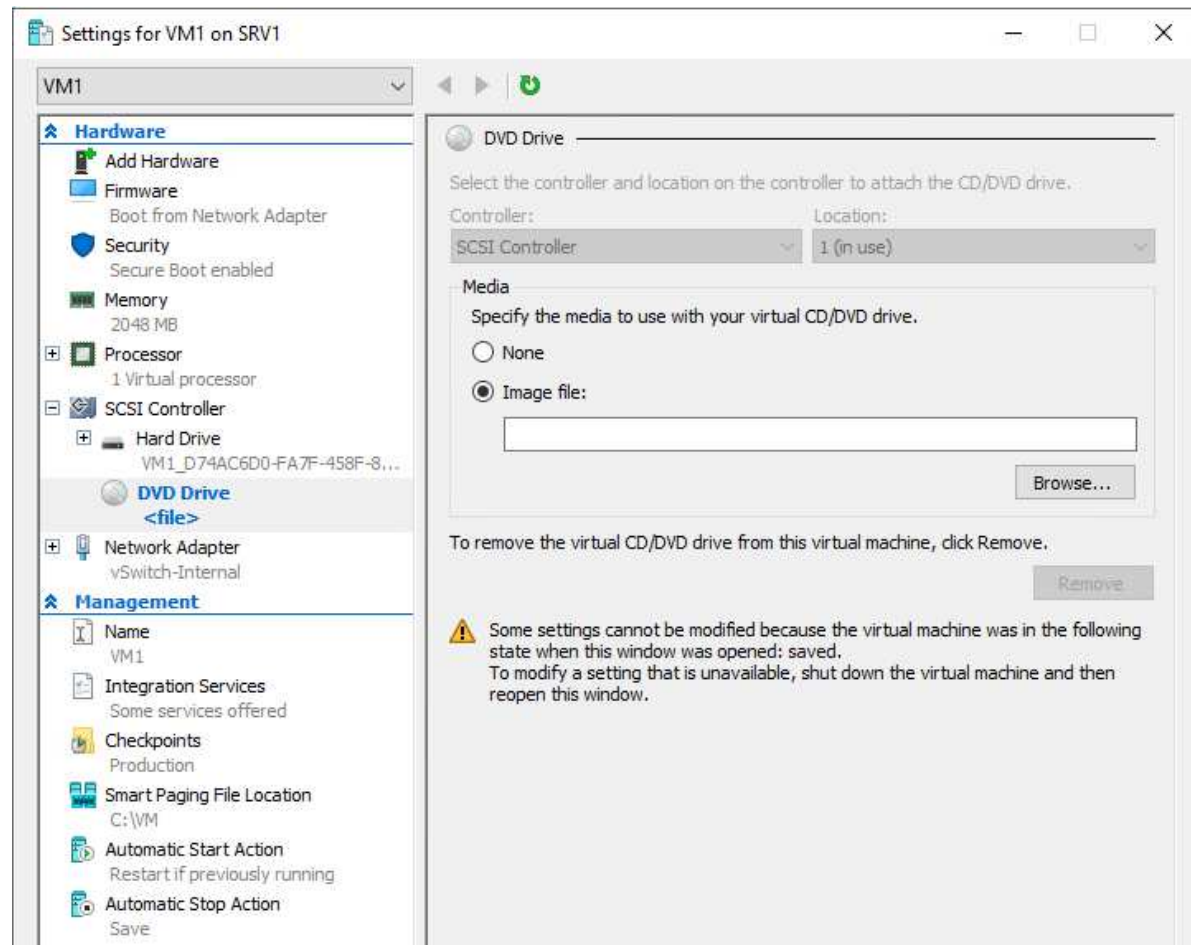
Automatic start action



Automatic stop action

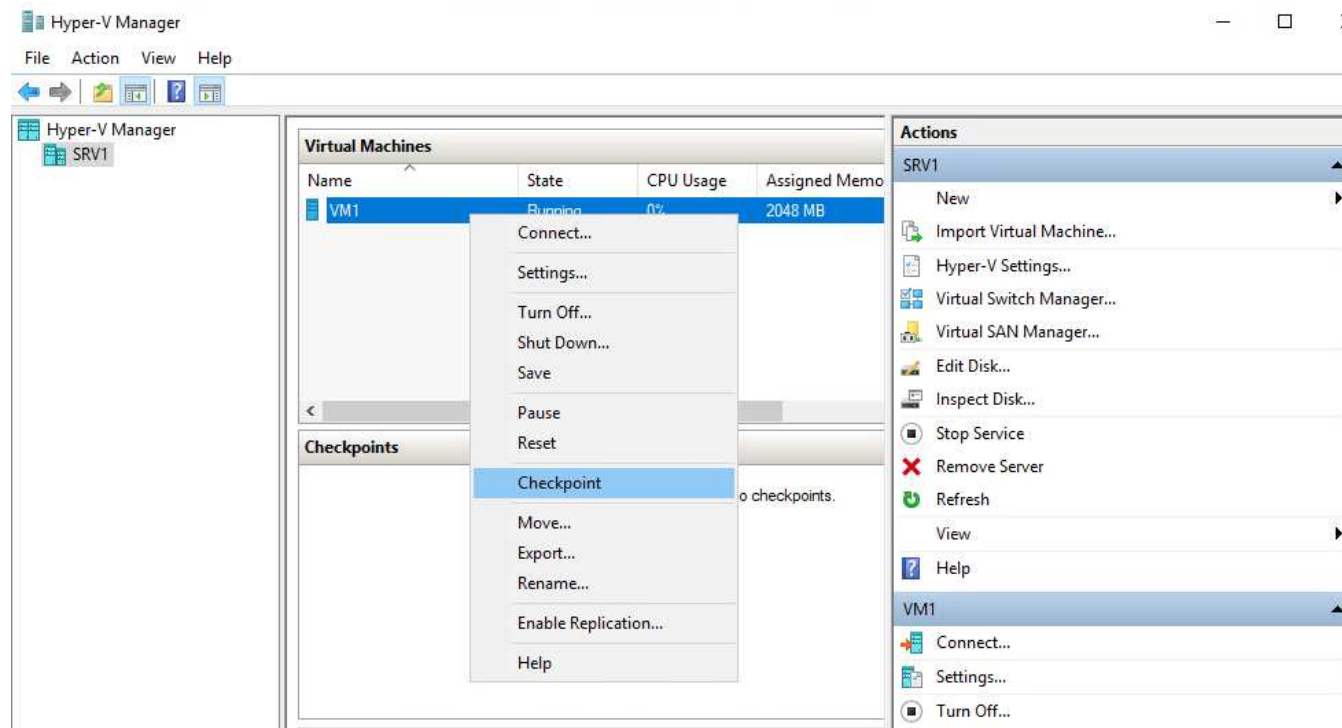


UnMount ISO

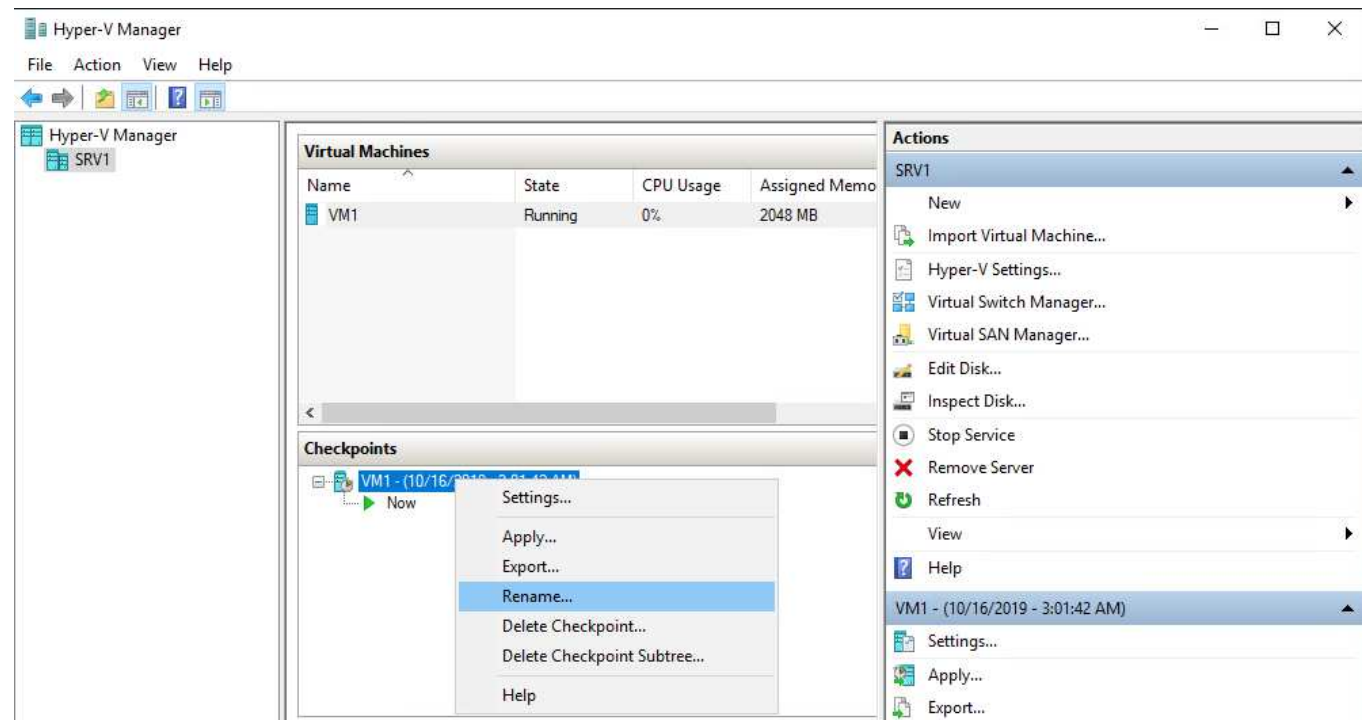


[optional]KrokD: VM Checkpoints

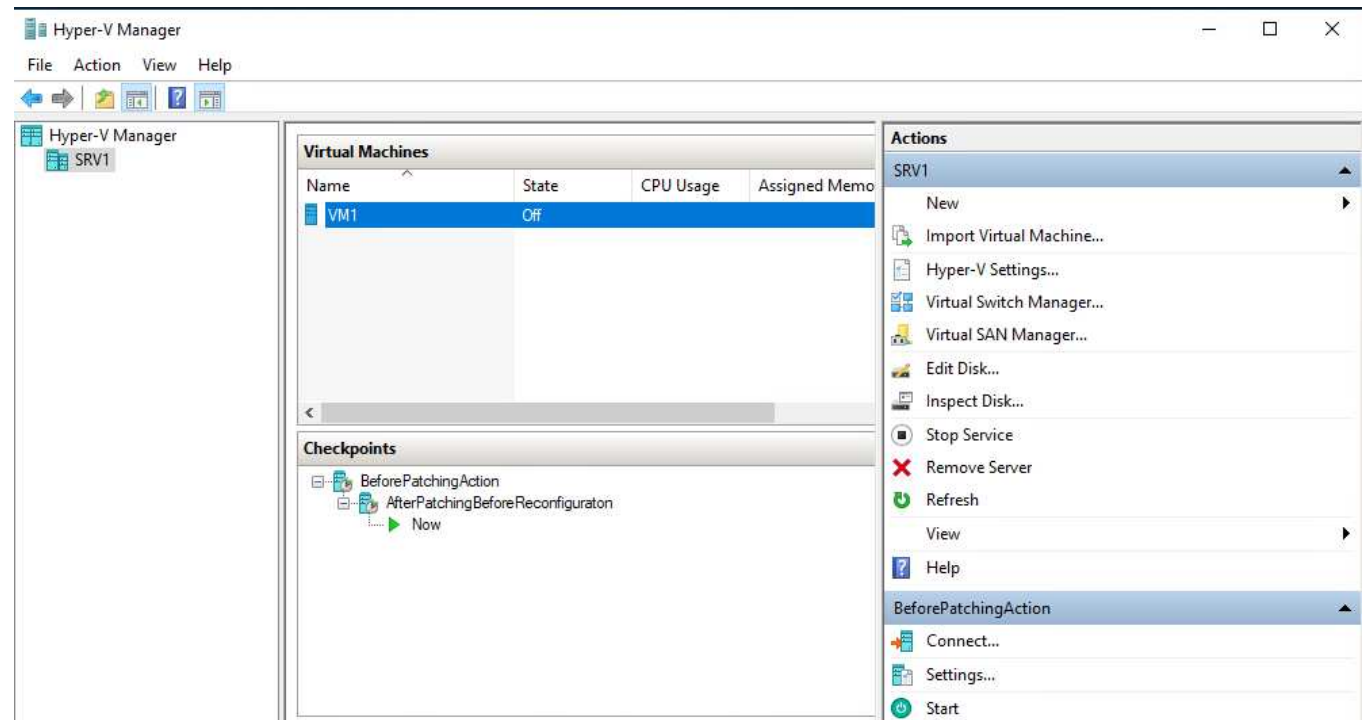
Vytvorenie checkpointu



Vytvorenie checkpointu



Vytvorenie checkpointu



Restore z checkpoint-u

::Pridanie vCPU a nasledny restore

Administrator: Windows PowerShell

```
PS C:\Users\Administrator> Get-VM | Select Name,State,Version,ProcessorCount
```

Name	State	Version	ProcessorCount
VM1	Off	9.0	2

Hyper-V Manager

File Action View Help

Hyper-V Manager

SRV1

Virtual Machines

Name	State	CPU Usage	Assigned Memo
VM1	Off		

Checkpoints

- BeforePatchingAction
 - AfterPatchingBeforeReconfiguraton
 - Now

Actions

SRV1

- New
- Import Virtual Machine...
- Hyper-V Settings...
- Virtual Switch Manager...
- Virtual SAN Manager...
- Edit Disk...
- Inspect Disk...
- Stop Service
- Remove Server
- Refresh
- View
- Help

AfterPatchingBeforeReconfiguraton

- Settings...
- Apply...
- Export...
- Rename...
- Delete Checkpoint...
- Delete Checkpoint Subtree...

NEXT

::What's new

<https://docs.microsoft.com/en-us/windows-server/virtualization/hyper-v/what-s-new-in-hyper-v-on-windows>

<https://docs.microsoft.com/en-us/windows-server/get-started-19/whats-new-19>

::Hyper-V on Win10

<https://docs.microsoft.com/en-us/virtualization/hyper-v-on-windows/about/>