

Hyper-V VM Settings

CPU, Dynamic Memory, checkpoints, automatic actions and integration services explained.

01 What it is

After a VM exists you tune its settings: processor count, memory, checkpoints, automatic start and stop actions, and integration services. Good settings keep the VM fast, safe and predictable after host restarts.

02 Why it matters in a UAE IT job

Real servers need to come back on their own after a power cut or patch restart. The right automatic actions and memory settings prevent late-night calls.

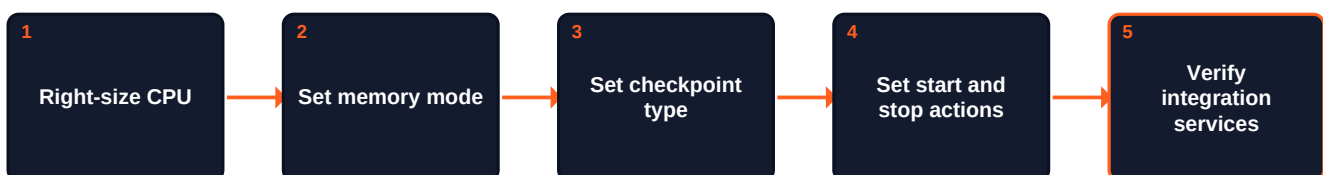
Admins are often asked why a VM is slow or why a checkpoint ate the disk. These settings are where you look.

03 Key terms

Term	Meaning
Dynamic Memory	Lets Hyper-V adjust RAM between a minimum and maximum based on demand.
Production checkpoint	Uses backup technology (VSS) for an application-consistent point. It is the default.
Standard checkpoint	Captures memory state as well. Not recommended for production servers.
Automatic start action	What the VM does when the host boots, such as Start.
Automatic stop action	What the VM does when the host shuts down, such as ShutDown.
Integration Services	Time sync, heartbeat, shutdown, VSS and guest services.
AVHDX	The differencing disk file created by a checkpoint.

04 How it works

Memory and CPU decide performance. Dynamic Memory is useful for lab and many general servers, but some workloads such as SQL Server or Exchange need fixed memory. Checkpoints are convenient before a change, but a long-lived chain of AVHDX files hurts performance and uses space, so delete them once the change is confirmed. Automatic actions let VMs start after the host boots and shut down cleanly when the host does.



Settings to review on every new VM.

05 Hands-on lab

Goal: configure LAB-SRV01 for safe, predictable behaviour using PowerShell. All names are fictional.

Step 1. Stop the VM first, because Dynamic Memory cannot be changed while the VM is running.

```
Stop-VM LAB-SRV01
```

```
Administrator: Windows PowerShell - [ ] x
PS C:\Users\LabAdmin> Stop-VM LAB-SRV01
PS C:\Users\LabAdmin> _
```

Example output from the fictional lab (names and IPs are made up). Yours should look similar.

Step 2. Enable Dynamic Memory with minimum 2 GB, startup 4 GB and maximum 8 GB.

```
Set-VMemory LAB-SRV01 -DynamicMemoryEnabled $true -MinimumBytes 2GB
-StartupBytes 4GB -MaximumBytes 8GB
```

```
Administrator: Windows PowerShell - [ ] x
PS C:\Users\LabAdmin> Set-VMemory LAB-SRV01 -DynamicMemoryEnabled $true -MinimumBytes 2GB -StartupBytes 4GB
-MaximumBytes 8GB
PS C:\Users\LabAdmin> _
```

Example output from the fictional lab (names and IPs are made up). Yours should look similar.

Step 3. Switch to production checkpoints and set automatic actions.

```
Set-VM LAB-SRV01 -CheckpointType Production -AutomaticStartAction Start
-AutomaticStopAction ShutDown
```

```
Administrator: Windows PowerShell - [ ] x
PS C:\Users\LabAdmin> Set-VM LAB-SRV01 -CheckpointType Production -AutomaticStartAction Start -AutomaticStopAction
ShutDown
PS C:\Users\LabAdmin> _
```

Example output from the fictional lab (names and IPs are made up). Yours should look similar.

Step 4. Take a checkpoint before a change.

```
Checkpoint-VM -Name LAB-SRV01 -SnapshotName before-change
```

```
Administrator: Windows PowerShell - [ ] x
PS C:\Users\LabAdmin> Checkpoint-VM -Name LAB-SRV01 -SnapshotName before-change
PS C:\Users\LabAdmin> _
```

Example output from the fictional lab (names and IPs are made up). Yours should look similar.

Step 5. Look in the VM folder for the AVHDX file.

```
Get-ChildItem D:\VMs -Filter *.avhdx
```

```
Administrator: Windows PowerShell - [ ] x
PS C:\Users\LabAdmin> Get-ChildItem D:\VMs -Filter *.avhdx
Directory: D:\VMs

Mode                LastWriteTime         Length Name
----                -
-a-----         16/10/2026    22:05      4194304 LAB-SRV01_6F2A91C0-3B7D-4E58-A1C4-0D9E5B7A12F3.avhdx
PS C:\Users\LabAdmin> _
```

Example output from the fictional lab (names and IPs are made up). Yours should look similar.

Step 6. Delete the checkpoint after confirming the change worked, and watch the files merge.

```
Remove-VMCheckpoint -VMName LAB-SRV01 -Name before-change
```

```
Administrator: Windows PowerShell - [ ] x
PS C:\Users\LabAdmin> Remove-VMCheckpoint -VMName LAB-SRV01 -Name before-change
PS C:\Users\LabAdmin> _
```

Example output from the fictional lab (names and IPs are made up). Yours should look similar.

Step 7. Start the VM again and wait for it to boot.

```
Start-VM LAB-SRV01
```

```
Administrator: Windows PowerShell - [ ] x
PS C:\Users\LabAdmin> Start-VM LAB-SRV01
PS C:\Users\LabAdmin> _
```

Example output from the fictional lab (names and IPs are made up). Yours should look similar.

Step 8. Check integration services.

```
Get-VMIntegrationService -VMName LAB-SRV01
```

```
Administrator: Windows PowerShell - [ ] x
PS C:\Users\LabAdmin> Get-VMIntegrationService -VMName LAB-SRV01
VMName      Name                Enabled PrimaryStatusDescription SecondaryStatusDescription
-----
LAB-SRV01   Guest Service Interface False    OK
LAB-SRV01   Heartbeat           True     OK
LAB-SRV01   Key-Value Pair Exchange True     OK
LAB-SRV01   Shutdown            True     OK
LAB-SRV01   Time Synchronization True     OK
LAB-SRV01   VSS                  True     OK
PS C:\Users\LabAdmin> _
```

Example output from the fictional lab (names and IPs are made up). Yours should look similar.

06 Common mistakes

- Using standard checkpoints on production database servers.
- Leaving checkpoints for weeks until the disk fills.
- Setting Dynamic Memory minimum too low for the workload.
- Forgetting automatic start, so VMs stay off after a host reboot.
- Restoring a checkpoint on a domain controller without understanding the consequences.

07 Five interview questions

1. What is Dynamic Memory?

A Hyper-V feature that adjusts memory assigned to a VM between a minimum and maximum depending on demand.

2. Production versus standard checkpoint?

Production uses VSS for an application-consistent point and is the default. Standard also saves memory state and can cause consistency problems.

3. Why not keep checkpoints for months?

They create AVHDX chains that slow performance, use disk space and complicate recovery.

4. What does the automatic start action do?

It decides whether a VM starts when the host boots, so services return after a restart.

5. What are Integration Services?

Guest services such as heartbeat, time sync, shutdown, VSS and guest file copy.

08 Check yourself

1. Which checkpoint type is default and safer?

- a) Standard
- b) Production
- c) Memory only

2. What file does a checkpoint create?

- a) XLSX
- b) ZIP
- c) AVHDX

3. Dynamic Memory adjusts?

- a) RAM
- b) Wallpaper
- c) Screen size

4. What does Automatic Start do?

- a) Opens Excel
- b) Deletes the VM
- c) Starts the VM after host boot

5. Should checkpoints be kept for months?

- a) Yes
- b) No
- c) Only on Fridays

Answer key: 1-b, 2-c, 3-a, 4-c, 5-b

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