

AI-03310 Dual Boot Windows Server Native Boot

Owner	© Rigel Arcayan
Tags	Project
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Dual boot Windows Server 2025 with native boot VHDX on Windows 11 (Dell Latitude)

Native boot lets you run Windows directly from a VHDX without a hypervisor. It requires the VHDX format (not VHD) and works with standard Windows tooling like DiskPart, DISM, and BCDBoot [Microsoft Learn](#) [Windows 11 Forum](#).

Prerequisites and planning

- **Admin rights:** Use an elevated PowerShell or Command Prompt.
- **Free space:** At least 60–100 GB free on an internal SSD/NVMe for the VHDX.
- **Image source:** Windows Server 2025 ISO or WIM extracted to a local path.
- **UEFI/Secure Boot:** Keep UEFI enabled; native boot VHDX supports modern firmware flows. If Secure Boot blocks booting, revisit drivers or signatures after setup.
- **BitLocker considerations:** If your Windows 11 OS disk is BitLocker-encrypted, store the VHDX on a partition that remains unlocked at boot or suspend BitLocker during setup to avoid bootloader update prompts.
- **VHDX format:** Use .vhdx only; native boot does not support .vhd [Microsoft Learn](#) [Windows 11 Forum](#).

Native boot VHDX is supported by Microsoft and documented as a way to apply a Windows image to a virtual disk and boot it natively without a parent OS or

Step-by-step instructions

Prepare the environment

- **Create a working folder:**
 - C:\VHDX\WS2025\
- **Mount the ISO:**
 - Right-click the Windows Server 2025 ISO and mount it (e.g., drive D:).
- **Identify the WIM/ESD:**
 - Path typically: D:\sources\install.wim (or install.esd).

Native boot VHDX can be created and managed with DiskPart, DISM, and Disk Management; the OS image is applied from a WIM to the VHDX before creating a boot entry [Microsoft Learn](#).

Create the VHDX and partition layout

- **Create a fixed-size VHDX (e.g., 80 GB):**
 - Use DiskPart to create a virtual disk file: C:\VHDX\WS2025\WS2025.vhdx.
- **Attach the VHDX in DiskPart:**
 - Initialize it as GPT.
- **Create partitions:**
 - EFI System Partition (ESP) – 100 MB, FAT32 (label: SYSTEM).
 - Microsoft Reserved (MSR) – 16 MB.
 - Primary OS – remaining space, NTFS (label: WS2025).
- **Assign drive letters:**
 - ESP: S:
 - OS: X:
- **Quick format:**

- Format S: FAT32; format X: NTFS.

Microsoft documents native boot flows using VHDX plus standard partitioning (EFI/MSR/Primary) to enable a fully bootable, UEFI-compliant Windows instance directly from the VHDX [Microsoft Learn](#).

Apply the Windows Server image to the VHDX

- **List editions to pick the correct Index:**
 - `dism /Get-WimInfo /WimFile:D:\sources\install.wim`
- **Apply the image to X::**
 - `dism /Apply-Image /ImageFile:D:\sources\install.wim /Index:<your_index> /ApplyDir:X:\`

Applying a supported Windows image (.wim) to the VHDX is the standard native boot method before adding boot entries [Microsoft Learn](#).

Create the UEFI boot entry

- **Run BCDBoot:**
 - `bcdboot X:\Windows /s S: /f UEFI`
- **Verify entry:**
 - Optional: `bcdedit /enum firmware` to confirm an entry for the VHDX instance.

BCDBoot initializes a bootable UEFI entry for Windows installed on the VHDX, enabling native dual boot alongside an existing Windows install [Microsoft Learn Windows 11 Forum](#).

First boot and setup

- **Reboot and choose the new entry:**
 - Your firmware boot menu or Windows Boot Manager will show the new OS option.
- **Complete OOBE:**
 - Configure Server roles post-install as needed.

Native boot VHDX provides OS isolation and multi-boot flexibility, similar to side-by-side Windows installations but without a hypervisor [Windows 11 Forum NinjaOne](#).

PowerShell script to automate native boot VHDX setup

Tip: Run in an elevated PowerShell. Adjust paths, sizes, and the WIM Index to match your ISO/edition.

```
# Variables — edit to fit your environment
$VhdxPath = "C:\VHDX\WS2025\WS2025.vhdx"
$VhdxFolder = [System.IO.Path]::GetDirectoryName($VhdxPath)
$VhdxSizeGB = 80
$IsoDrive = "D:" # Mounted ISO drive letter
$WimPath = "$IsoDrive\sources\install.wim"
$WimIndex = 1 # Use DISM /Get-WimInfo to validate the correct index
$EfiLetter = "S"
$OsLetter = "X"

# Ensure target folder exists
if (-not (Test-Path $VhdxFolder)) {
    New-Item -ItemType Directory -Path $VhdxFolder | Out-Null
}

# Build a DiskPart script to create and prepare the VHDX
$dp = @"
create vdisk file="$VhdxPath" maximum=$(([int]($VhdxSizeGB*1024)) type=fixed
attach vdisk
convert gpt
create partition efi size=100
format quick fs=fat32 label=SYSTEM
assign letter=$EfiLetter
create partition msr size=16
```

```

create partition primary
format quick fs=ntfs label=WS2025
assign letter=$OsLetter
list volume
exit
"@

# Run DiskPart
$dpfFile = [System.IO.Path]::Combine($env:TEMP, "vhdx_setup_diskpart.txt")
Set-Content -Path $dpfFile -Value $dp -Encoding ASCII
Start-Process -FilePath "diskpart.exe" -ArgumentList "/s",$dpfFile -Wait -NoNewWindow

# Validate WIM exists
if (-not (Test-Path $WimPath)) {
    Write-Error "WIM not found at $WimPath. Mount the ISO and set \ $WimPath correctly."
    exit 1
}

# Optional: Show WIM info to help confirm Index
Write-Host "Listing editions in WIM..."
Start-Process -FilePath "dism.exe" -ArgumentList "/Get-WimInfo","/WimFile:$WimPath" -Wait -NoNewWindow

# Apply the Windows Server image
Write-Host "Applying image. This can take several minutes..."
$applyArgs = "/Apply-Image","/ImageFile:$WimPath","/Index:$WimIndex","/ApplyDir:$OsLetter`:\"
Start-Process -FilePath "dism.exe" -ArgumentList $applyArgs -Wait -NoNewWindow

# Create UEFI boot files and entry on the EFI partition
Write-Host "Creating UEFI boot entry..."
$bcdArgs = "$OsLetter`\Windows","/s","$EfiLetter`:","/f","UEFI"
Start-Process -FilePath "bcdboot.exe" -ArgumentList $bcdArgs -Wait -NoNewWindow

```

wWindow

```
# Detach VHDX (optional — not required for native boot, but keeps it clean pre
-reboot)
$dpDetach = @"
select vdisk file="$VhdxPath"
detach vdisk
exit
"@
$dpDetachFile = [System.IO.Path]::Combine($env:TEMP, "vhdx_detach_diskp
art.txt")
Set-Content -Path $dpDetachFile -Value $dpDetach -Encoding ASCII
Start-Process -FilePath "diskpart.exe" -ArgumentList "/s",$dpDetachFile -Wait
-NoNewWindow

Write-Host "Native boot VHDX prepared. Reboot and select the new entry in B
oot Manager."
```

Notes and troubleshooting

- **Edition index selection:** Use DISM /Get-WimInfo to choose the exact Windows Server edition to apply before running the main apply step [Microsoft Learn](#).
- **Secure Boot conflicts:** If drivers or signatures cause issues, boot once with Secure Boot off to verify, then remediate and re-enable.
- **BitLocker prompts:** BCDBoot updates boot files; on BitLocker systems, ensure the OS partition is unlocked or suspend protection during the operation.
- **Storage location:** Keep the VHDX on an internal SSD/NVMe for reliability and speed; avoid removable media for production dual boot.
- **Remove entry:** Use bcdedit to delete the firmware or Boot Manager entry if you want to revert.

Native boot VHDX is a documented, flexible way to maintain OS isolation and multi-boot setups while using standard Windows servicing tools [Microsoft Learn](#) [Windows 11 Forum](#) [NinjaOne](#).

ChatGPT

How to dual boot windows server 2025 (native boot vhdx) in my windows 11 bare metal Dell Latitude. Provide a step by step instructions and then create a powershell script to execute.

Below is a **clean, deterministic, bare-metal-safe method** to dual-boot **Windows Server 2025** on your **Dell Latitude (Windows 11 host)** using **Native Boot VHDX**.

This is **the same mechanism Microsoft uses internally for lab and deployment testing**—no hypervisor, full hardware access, reversible.

PART 1 — STEP-BY-STEP (Concept → Action)

What you will end up with

- Windows 11 remains untouched on physical disk
 - Windows Server 2025 lives in a **.vhdx file**
 - Boot menu at startup:
 - Windows 11
 - Windows Server 2025 (Native VHDX)
-

Prerequisites

- Windows 11 Pro / Enterprise
 - Secure Boot **enabled is OK**
 - BitLocker **temporarily suspended**
 - Windows Server 2025 ISO
 - At least **60–80 GB free disk space**
 - UEFI system (Dell Latitude ✓)
-

STEP 0 — Suspend BitLocker (IMPORTANT)

```
Suspend-BitLocker -MountPoint "C:" -RebootCount 2
```

STEP 1 — Create the VHDX File

Choose location (example: `C:\VHD\Server2025.vhdx`)

```
New-Item -ItemType Directory -Path C:\VHD  
New-VHD -Path C:\VHD\Server2025.vhdx -SizeBytes 80GB -Dynamic
```

STEP 2 — Mount & Initialize the VHDX

```
Mount-VHD C:\VHD\Server2025.vhdx  
$disk = Get-Disk | Where-Object PartitionStyle -Eq 'RAW'
```

```
Initialize-Disk $disk.Number -PartitionStyle GPT  
$partition = New-Partition -DiskNumber $disk.Number -UseMaximumSize -As  
signDriveLetter  
Format-Volume -Partition $partition -FileSystem NTFS -NewFileSystemLabel  
"WS2025"
```

Assume it mounted as **D:** (verify with `Get-Volume`)

STEP 3 — Mount the Windows Server 2025 ISO

```
Mount-DiskImage C:\ISO\Windows_Server_2025.iso
```

Find ISO drive letter:

```
(Get-DiskImage C:\ISO\Windows_Server_2025.iso | Get-Volume).DriveLetter
```

Assume ISO = **E:**

STEP 4 — Apply Windows Server Image into the VHDX

List editions:

```
dism /Get-WimInfo /WimFile:E:\sources\install.wim
```

Apply (example: **Datacenter, index 2**):

```
dism /Apply-Image /ImageFile:E:\sources\install.wim /Index:2 /ApplyDir:D:\
```

STEP 5 — Add Boot Entry (Native Boot)

```
bcdboot D:\Windows /d /addlast
```

Rename entry:

```
bcdedit /set {default} description "Windows Server 2025 (VHDX)"
```

STEP 6 — Detach VHD & ISO

```
Dismount-VHD C:\VHD\Server2025.vhdx  
Dismount-DiskImage C:\ISO\Windows_Server_2025.iso
```

STEP 7 — Resume BitLocker

```
Resume-BitLocker -MountPoint "C:"
```

STEP 8 — Reboot

You now have **true dual boot**, not virtualization.

PART 2 — FULL POWERSHELL AUTOMATION SCRIPT

Run PowerShell as Administrator

```
# =====  
# CONFIGURATION  
# =====  
$VhdPath = "C:\VHD\Server2025.vhdx"  
$VhdSize = 80GB  
$IsoPath = "C:\ISO\Windows_Server_2025.iso"  
$ImageIndex = 2 # Adjust if needed  
$Label = "WS2025"  
  
# =====  
# SAFETY  
# =====  
Suspend-BitLocker -MountPoint "C:" -RebootCount 2  
  
# =====  
# CREATE VHDX  
# =====  
New-Item -ItemType Directory -Path (Split-Path $VhdPath) -Force  
New-VHD -Path $VhdPath -SizeBytes $VhdSize -Dynamic  
Mount-VHD $VhdPath  
  
$disk = Get-Disk | Where-Object PartitionStyle -Eq 'RAW'  
Initialize-Disk $disk.Number -PartitionStyle GPT  
  
$partition = New-Partition -DiskNumber $disk.Number -UseMaximumSize -As  
signDriveLetter  
Format-Volume -Partition $partition -FileSystem NTFS -NewFileSystemLabel  
$Label -Confirm:$false  
  
$VhdDrive = ($partition | Get-Volume).DriveLetter + ":"
```

```

# =====
# MOUNT ISO
# =====
Mount-DiskImage $IsoPath
$IsoDrive = (Get-DiskImage $IsoPath | Get-Volume).DriveLetter + ":"

# =====
# APPLY IMAGE
# =====
dism /Apply-Image `
  /ImageFile:"$IsoDrive\sources\install.wim" `
  /Index:$ImageIndex `
  /ApplyDir:"$VhdDrive\"

# =====
# BOOT CONFIG
# =====
bcdboot "$VhdDrive\Windows" /d /addlast

# =====
# CLEANUP
# =====
Dismount-VHD $VhdPath
Dismount-DiskImage $IsoPath

Resume-BitLocker -MountPoint "C:"

Write-Host "Windows Server 2025 Native Boot setup COMPLETE. Reboot to u
se."

```

PART 3 — IMPORTANT NOTES (Read This)

Secure Boot

✓ Fully supported

✗ Do NOT use legacy BIOS

Drivers

- Server will reuse Windows 11 drivers
 - Intel Wi-Fi works
 - Dell utilities not required
-

Removal (Clean)

```
bcdedit /enum  
bcdedit /delete {GUID}  
Remove-Item C:\VHD\Server2025.vhdx
```

Why Native Boot?

Feature	Native VHD	VM
Full hardware	✓	✗
GPU	✓	✗
No hypervisor	✓	✗
Easy rollback	✓	✗

If you want next:

- **UEFI-safe rollback strategy**
- **Server Core vs Desktop Experience decision**
- **Driver injection for Dell firmware**
- **Convert this into Windows Deployment Toolkit flow**
- **Add Hyper-V *inside* Server 2025 (nested cleanly)**

Say the word.

How to dual boot windows server 2025 (native boot vhdx) in my windows 11 bare metal Dell Latitude. Provide a step by step instructions and use dism only

Below is a **pure DISM-based method** (plus mandatory Microsoft boot utilities) to **dual-boot Windows Server 2025 using Native VHDX** on your **Windows 11 bare-metal Dell Latitude**.

| Scope discipline

- **Image deployment: DISM only**
- **Boot registration: BCDBOOT / BCDEDIT** (DISM cannot write BCD; Microsoft requires these)
- **No Hyper-V, no Setup.exe, no WinPE**
- **UEFI + Secure Boot compatible**

ARCHITECTURE OVERVIEW (1 minute mental model)

Physical Disk

- ├ Windows 11 (unchanged)
- ├ EFI System Partition (shared)
- └ Server2025.vhdx ← contains full Windows Server OS
 - └ Native boot (no hypervisor)

PREREQUISITES (DO NOT SKIP)

1. **Windows 11 Pro / Enterprise**
2. **Free disk space:** $\geq 70\text{--}80$ GB
3. **Windows Server 2025 ISO**
4. **BitLocker suspended**

5. UEFI firmware (Dell Latitude ✓)

STEP 0 — Suspend BitLocker (required)

```
manage-bde -protectors -disable C:
```

STEP 1 — Create & Prepare the VHDX (DiskPart only)

| DISM cannot create disks; DiskPart is mandatory

Open **Command Prompt (Admin)**

```
diskpart
```

```
create vdisk file=C:\VHD\Server2025.vhdx maximum=81920 type=expandable
select vdisk file=C:\VHD\Server2025.vhdx
attach vdisk
convert gpt
create partition primary
format fs=ntfs quick label=WS2025
assign letter=V
exit
```

You now have:

```
V:\ ← empty NTFS volume inside VHDX
```

STEP 2 — Mount Windows Server 2025 ISO

```
PowerShell Mount-DiskImage C:\ISO\Windows_Server_2025.iso
```

Determine ISO letter:

```
wmic logicaldisk get name
```

Assume ISO is **E:**

STEP 3 — Identify Windows Server Edition (DISM)

```
dism /Get-WimInfo /WimFile:E:\sources\install.wim
```

Typical indexes:

- **Server Core**
- **Server with Desktop Experience**
- **Datacenter / Standard**


Note the **Index number** you want

(example below uses **Index 2**)

STEP 4 — Apply Windows Server into VHDX (DISM ONLY)

```
dism /Apply-Image ^  
/ImageFile:E:\sources\install.wim ^  
/Index:2 ^  
/ApplyDir:V:\
```

This is the **core deployment step**.

 ~5–10 minutes

Result: `V:\Windows` is now a full Server OS

STEP 5 — Make VHDX Bootable (required)

DISM **cannot** write BCD entries.

Microsoft mandates **BCDBOOT**.

```
bcdboot V:\Windows /d /addlast
```

STEP 6 — Rename the Boot Entry (optional but recommended)

```
bcdedit /enum
```

Find the **last-added** entry (VHD boot), then:

```
bcdedit /set {identifier} description "Windows Server 2025 (Native VHDX)"
```

STEP 7 — Detach VHDX and ISO

```
diskpart
select vdisk file=C:\VHD\Server2025.vhdx
detach vdisk
exit
```

```
PowerShell Dismount-DiskImage C:\ISO\Windows_Server_2025.iso
```

STEP 8 — Resume BitLocker

```
manage-bde -protectors -enable C:
```

STEP 9 — Reboot

You will now see:

```
Windows 11  
Windows Server 2025 (Native VHDX)
```

VERIFICATION (Post-Boot)

Once booted into Server:

```
systeminfo | findstr /i "Boot"
```

You should see:

```
Boot Device: \Device\VhdHardDisk
```

IMPORTANT TECHNICAL NOTES (Read Once)

Secure Boot

✓ Fully supported

✗ No legacy BIOS

Performance

- Native speed (no VM overhead)

- Full GPU, NVMe, Wi-Fi access

Updates

- Windows Update works normally
- Feature upgrades supported

Snapshot / Rollback

Just copy:

```
C:\VHD\Server2025.vhdx
```

CLEAN REMOVAL (If Needed)

```
bcdedit /enum  
bcdedit /delete {identifier}  
del C:\VHD\Server2025.vhdx
```

WHY THIS METHOD IS "CORRECT"

Aspect	Reason
DISM	Microsoft-supported offline deployment
DiskPart	Only supported VHD creation tool
BCDBOOT	Required for UEFI boot
No Setup.exe	Deterministic, no installer logic
Native VHD	Official enterprise scenario

If you want next:

- **Server Core vs Desktop decision matrix**
- **Driver injection with DISM (/Add-Driver)**

- **Answer file automation**
- **Converting this to WinPE-only**
- **Nested Hyper-V inside native Server**

Just say which direction you want.

```

create vdisk file=C:\VHD\Server2025.vhdx maximum=81920 type=expandable
select vdisk file=C:\VHD\Server2025.vhdx
attach vdisk
convert gpt
create partition primary
format fs=ntfs quick label=WS2025
assign letter=V
exit

dism /Get-WimInfo /WimFile:c:\install.wim
dism /Apply-Image /ImageFile:c:\install.wim /Index:4 /ApplyDir:V:\

bcdboot V:\Windows /d /addlast

diskpart
select vdisk file=C:\VHD\Server2025.vhdx
detach vdisk
exit

systeminfo | findstr /i "Boot"
Boot Device: \Device\VhdHardDisk

bcdedit /enum
bcdedit /delete {identifier}
del C:\VHD\Server2025.vhdx

```