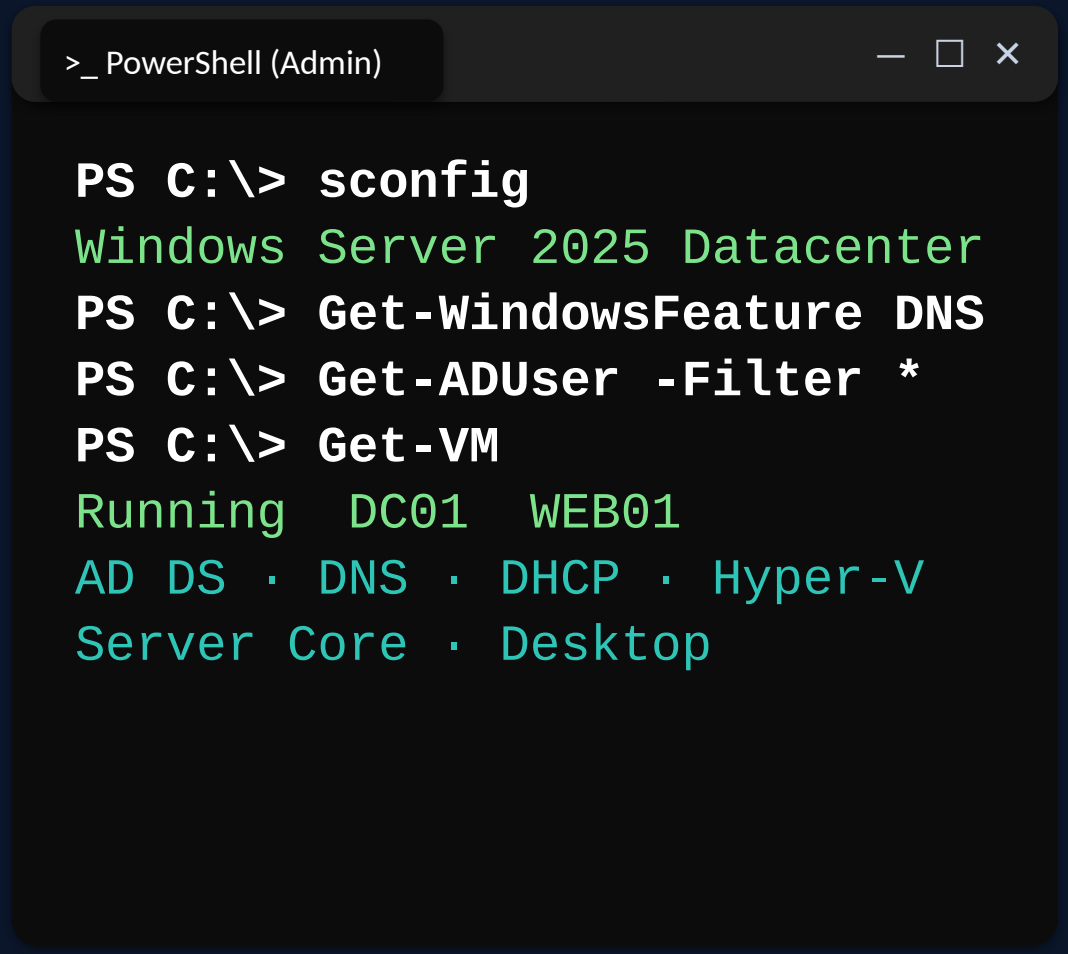


LESSON 12 OF 12

Windows Server 2025

Install · AD · Hyper-V · Admin

Monitoring, Troubleshooting, Azure Arc & Migration

Full Course · Windows Server 2025 (build 26100)

What You Will Learn in Lesson 12

- Monitoring tools and the performance counters that matter
- Baselines with Performance Monitor and logman
- Central event collection and a daily health check
- A troubleshooting method — and the toolkit for each layer
- Azure Arc: managing on-premises servers from Azure
- Migrating from older Windows Server versions
- Course summary, final project and next steps

Monitoring Tools

Tool	Use it for
Server Manager / Windows Admin Center	Quick health of roles, events, services
Performance Monitor (perfmon)	Live counters and long-term data collector sets
Resource Monitor (resmon)	Which process uses CPU, disk, network right now
Event Viewer + subscriptions	Errors and warnings, collected from many servers
PowerShell (Get-Counter, Get-WinEvent)	Scripts, reports, alerts
Azure Monitor via Azure Arc	Dashboards and alerts for hybrid servers

Performance Counters That Matter

Counter	Watch for
Processor(_Total)\% Processor Time	Sustained above 80%
Memory\Available MBytes	Below about 10% of RAM
Memory\Pages/sec	Sustained high values together with low memory
LogicalDisk\Avg. Disk sec/Transfer	Above 0.020 (20 ms) means slow storage
LogicalDisk\% Free Space	Below 15%
Network Interface\Bytes Total/sec	Near the link speed

Live Counters and a Baseline

```
PS C:\> $c = '\Processor(_Total)\% Processor Time', '\Memory\Available MBytes',
            '\LogicalDisk(_Total)\Avg. Disk sec/Transfer'
PS C:\> Get-Counter -Counter $c -ComputerName DC01, SRV01 -SampleInterval 5 -MaxSamples 3

# Record a 7-day baseline, one sample per minute:
C:\> logman create counter ServerBaseline -c "\Processor(_Total)\% Processor Time" ^
      "\Memory\Available MBytes" "\LogicalDisk(*)\Avg. Disk sec/Transfer" ^
      -si 00:01:00 -rf 168:00:00 -o C:\PerfLogs\ServerBaseline
C:\> logman start ServerBaseline
C:\> logman query ServerBaseline
# Open the .blg file in Performance Monitor to see the graphs
```

Central Events and a Daily Health Check

```
C:\> wecutil qc                                          # on the collector (SRV01)
# Event Viewer > Subscriptions > Create: source DC01, Errors+Warnings, System+Application

PS C:\> $servers = 'DC01', 'SRV01'
PS C:\> Invoke-Command -ComputerName $servers -ScriptBlock {
    [pscustomobject]@{
      Server   = $env:COMPUTERNAME
      Uptime   = (Get-Date) - (Get-CimInstance Win32_OperatingSystem).LastBootUpTime
      FreeC_GB = [int]((Get-Volume C).SizeRemaining / 1GB)
      Errors24h = (Get-WinEvent -FilterHashtable @{LogName='System'; Level=2;
                   StartTime=(Get-Date).AddDays(-1)} -ErrorAction SilentlyContinue).Count
      StoppedAuto = (Get-Service | Where-Object {$_.StartType -eq 'Automatic' -and $_.Status -ne
'Running'}).Count
    } } | Format-Table Server, Uptime, FreeC_GB, Errors24h, StoppedAuto
```

A Calm Troubleshooting Method

Step	What you do
1. Define	What exactly fails? For whom? Since when? Error messages?
2. Scope	One user, one PC, one site, or everyone?
3. Changes	What changed recently? Updates, GPOs, certificates, passwords
4. Layers	Network → DNS → authentication → service → application
5. Test one idea at a time	Change one thing, test, write down the result
6. Fix and verify	Confirm with the user; watch the logs
7. Document	Cause, fix, prevention — for next time

The Toolkit, Layer by Layer

Layer	Tools
Network	Test-NetConnection -Port, Get-NetIPConfiguration, Get-NetTCPConnection
DNS	Resolve-DnsName -Server, dcdiag /test:dns, ipconfig /flushdns
Active Directory	dcdiag, repadmin /replsummary, nltest /dsgetdc, Test-ComputerSecureChannel
Group Policy	gpresult /r, /h, Get-GPResultantSetOfPolicy
Services and apps	Get-Service, Get-WinEvent, IIS logs, Restart-Service
System	Get-Counter, Get-HotFix, Reliability Monitor, sfc /scannow, DISM

Azure Arc: Hybrid Management

Topic	What to know
What	Projects your on-premises servers into Azure as manageable resources
Connect	Azure Arc Setup wizard in Windows Server 2025, or azcmagent connect
Updates	Azure Update Manager and Hotpatch (Lesson 11)
Security	Microsoft Defender for Cloud, Azure Policy, guest configuration
Monitoring	Azure Monitor: metrics, logs, alerts
Licensing	Optional pay-as-you-go Windows Server licensing

Connect a Server to Azure Arc

```
# Option 1: Windows Server 2025 — Azure Arc Setup (system tray icon or Server Manager)

# Option 2: the Connected Machine agent (values come from your Azure subscription)
C:\> azcmagent connect --resource-group "rg-lab-servers" --location "westus2" ^
      --subscription-id "<subscription-id>" --tenant-id "<tenant-id>"
C:\> azcmagent show                    # status: Connected
C:\> azcmagent check                   # network connectivity to Azure

# Then in the Azure portal > Azure Arc > Machines > SRV01:
#   Updates (Azure Update Manager), Hotpatch, Insights, Defender for Cloud
```

Resource group and region are examples; use your own subscription values.

Migrating from Older Windows Server

Service	Recommended path
Active Directory	Add 2025 DCs → move FSMO roles → demote old DCs → raise levels
File servers	Storage Migration Service (in Windows Admin Center); DFS paths
DHCP	Export-DhcpServer on old → Import-DhcpServer on new → authorize
DNS (AD-integrated)	Replicates automatically to the new DCs
IIS sites	Web Deploy, or rebuild with scripts and copy content
Hyper-V VMs	Live migration or export/import to new hosts
Anything else	In-place upgrade from 2012 R2+ when supported — after a backup

Migration in Practice: AD and DHCP

```
# New DC02 (2025) is already a DC (Lesson 4). Move all five FSMO roles to it:
PS C:\> Move-ADDirectoryServerOperationMasterRole -Identity DC02 -OperationMasterRole 0,1,2,3,4
C:\> netdom query fsmo

# Demote the old DC (run on the old DC):
PS C:\> Uninstall-ADDSDomainController -LocalAdministratorPassword (Read-Host -AsSecureString)

# DHCP: old server -> new server
PS C:\> Export-DhcpServer -ComputerName OLDDC -File C:\Migrate\dhcp.xml -Leases
PS C:\> Import-DhcpServer -ComputerName DC02 -File C:\Migrate\dhcp.xml -BackupPath C:\Migrate\Bak -
Leases
PS C:\> Add-DhcpServerInDC -DnsName dc02.lab.mywebuniversity.local ; Remove-DhcpServerInDC -DnsName
olddc.lab.mywebuniversity.local

# When ALL DCs run 2025:  Set-ADDomainMode / Set-ADForestMode (one way — back up first)
```

Course Summary, Final Project & Next Steps

- Lessons 1-3: editions, installation, Server Core, remote management
- Lessons 4-7: Active Directory, Group Policy, DNS and DHCP
- Lessons 8-10: file services, storage, Hyper-V, IIS and RDS
- Lessons 11-12: security, updates, backup, monitoring, Azure Arc, migration
- Final project: rebuild the whole lab from your own scripts, then document it
- Next: exam AZ-802 (Windows Server Administrator Associate); our Linux courses

Thank You! 🙏

Free videos & PDFs: www.MyWebUniversity.com

Slides for this lesson: MyWebUniversity.com/presentations

YouTube: @MyWebUniversity · @MyWebUniversity-Dari

Wahidullah Lutfy — Founder and Director of IT of MyWebUniversity, and CS teacher

Book: The Direct Path to Linux Ubuntu (Amazon · Barnes & Noble)

Learn it, then pass it on.