Module 1

Installing, upgrading, and migrating servers and workloads

Module Overview

- Introducing Windows Server 2016
- Preparing and installing Server Core
- Preparing for upgrades and migrations
- Migrating server roles and workloads
- Windows Server activation models

Lesson 1: Introducing Windows Server 2016

- Selecting a suitable Windows Server 2016 edition
- Hardware requirements
- Overview of installation options
- Managing servers remotely
- Using Windows PowerShell 5.0 to manage servers
- What's new since Windows Server 2008 was released?
- Windows Server Servicing Channels

Selecting a suitable Windows Server 2016 edition

- Windows Server 2016 Essentials
- **Windows Server 2016 Standard**
- **Windows Server 2016 Datacenter**
- **Microsoft Hyper-V Server 2016**
- Windows Storage Server 2016 Workgroup
- Windows Storage Server 2016 Standard

Hardware requirements

Windows Server 2016 has the following minimum hardware requirements for Server Core installation:

Hardware	Requirement
Processor architecture	x64
Processor speed	1.4 GHz
RAM	512 MB
Hard drive space	32 GB

Overview of installation options

You can choose among the following installation options when deploying Windows Server 2016:

- Windows Server 2016 (Desktop Experience)—full server installation
- Windows Server 2016—Server Core installation
- Windows and Hyper-V containers can run on a Desktop Experience or Server Core of Windows Server 2016, and provide further application isolation

Managing servers remotely

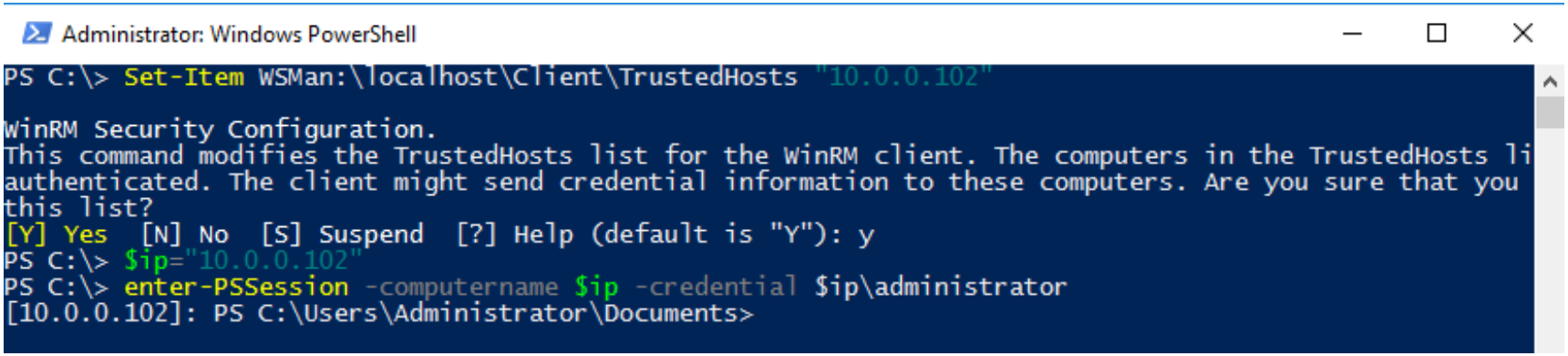
- Use the following options to remotely manage a computer that is running Windows Server 2016:
  - **Remote Server Administration Tools (RSAT)**
    - **Server Manager** (WinRM 기술 사용)
    - **Management consoles** for each role/feature (DCOM 기술 사용)
      - gcm -c application | ? name -like "*.msc"
  - **Windows PowerShell remoting(WinRM 사용) and PowerShell Direct**
    - Enter-PSSession -cn Server1
    - Enter-PSSession **-VMName** Server
      - Against Guest OS(VM) **without handling security policies, host network settings, or firewall settings** on Hyper-V host, regardless of remote management configuration.
      - **Get-WindowsFeature**
      - **Get-WindowsFeature | Where-Object {$_.Installed}**
      - **Install-WindowsFeature -Name Telnet-Client**

Managing servers remotely

- Use the following options to remotely manage a computer that is running Windows Server 2016:
  - **Remote shell**
    - **Enable-PSRemoting -Force**
  - **Remote Desktop**
    - **mstsc.exe**
    - On Server Core, you must enable Remote Desktop by using **Sconfig.cmd**
  - **Group Policy** (not supported on Nano Server)
- Firewall exceptions required for remote management

Using Windows PowerShell 5.0 to manage servers

Windows PowerShell is a scripting language and command-line interface that is designed to assist you in performing day-to-day administrative tasks



- 서버측
  - Enable-PSRemoting -Force
- 클라이언트측
  - Get-NetConnectionProfile | Set-NetConnectionProfile -NetworkCategory Private
  - Set-Item WSMan:\localhost\Client\TrustedHosts -Value *

What's new since Windows Server 2012 was released?

New features and improvements introduced in Windows Server 2016:

- **Containers**
- **Docker support**
- Rolling upgrades for Hyper-V and storage clusters
- Hot add/remove virtual memory & network adapters
- **Nested virtualization**
- **PowerShell Direct**
- **Shielded virtual machines**
- Windows Defender
- **Storage Spaces Direct**
- **Storage Replica**
- Remote Desktop Services
- Microsoft Passport
- **Azure AD Join support**
- Privileged Access Management

Lesson 2: Preparing and installing Server Core

- Planning for Server Core
- Installing Server Core and Server with Desktop Experience
- Post-installation configuration settings
- Discussion: selecting a suitable Windows Server edition and installation type
- Demonstration: Installing Server Core

Planning for Server Core

- Server Core is:
  - A more security-enhanced, less resource-intensive installation option than the Desktop Experience installation
  - An installation that **cannot be converted to** a full graphical shell version of Windows Server 2016
  - The default installation option for Windows Server 2016
  - Managed locally by using Windows PowerShell and other standard tools
    - **Cmd.exe, PowerShell.exe, Regedt32.exe, Msinfo32.exe, Sconfig.cmd, Taskmgr.exe**
- With remote management enabled, you rarely need to sign in locally

Installing Server Core and Server with Desktop Experience

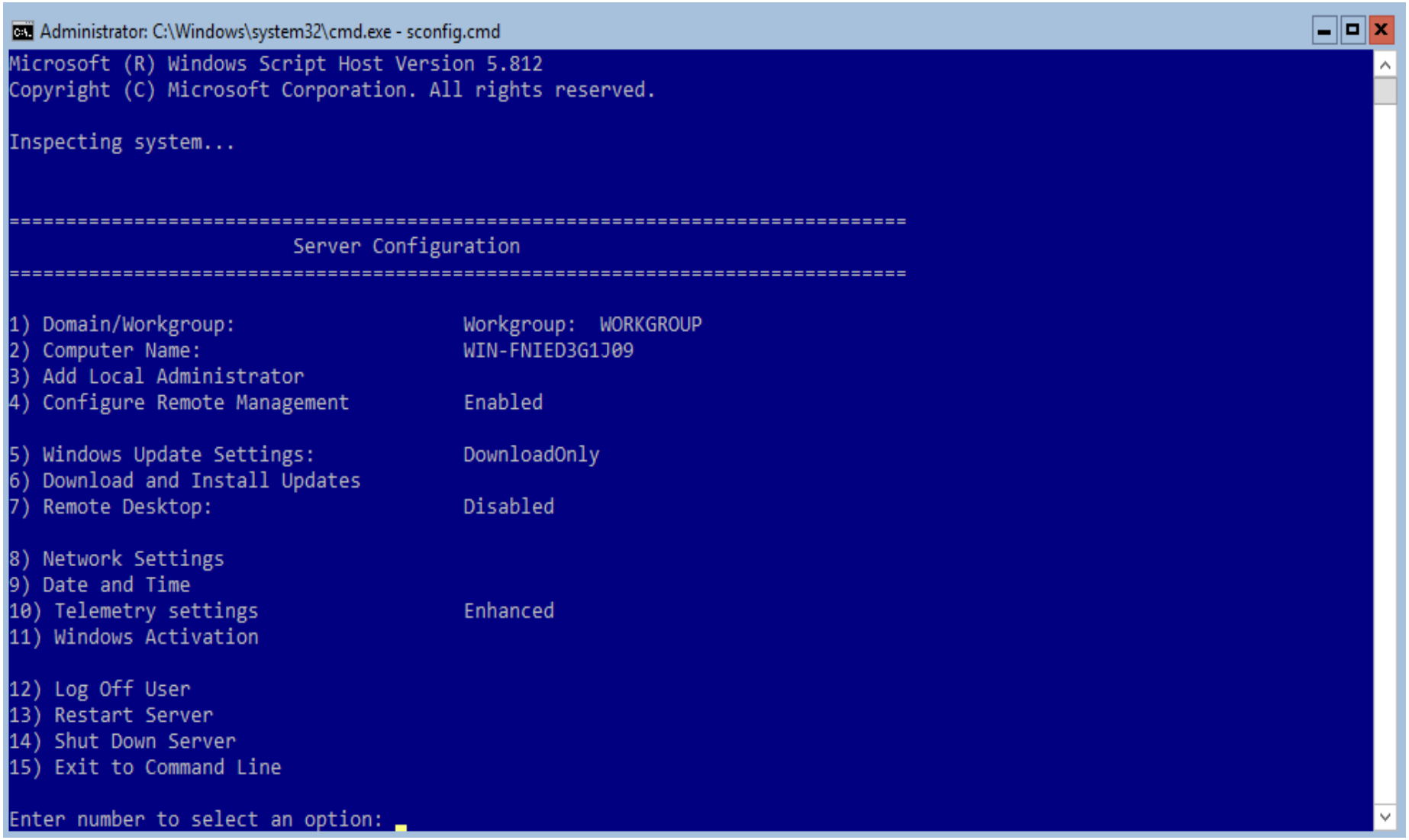
1. Perform preinstallation tasks:
   - Disconnect UPS
   - Back up server if applicable
   - Disable antivirus software
2. Run the **Windows Setup Wizard** from the installation media:
   1. Provide locale information (language, date, currency, keyboard)
   2. Select **Server Core Installation**
   3. Review and accept license
   4. Select installation location
   5. Provide administrator password

Post-installation configuration settings

After you install Windows Server 2016, **you must complete** the following:

- Configure the IP address
- Set the computer name
- Join an Active Directory domain
- Configure the time zone
- Enable automatic updates
- Add roles and features
- Enable the Remote Desktop feature
- Configure Windows Firewall settings

Sconfig.cmd interface screen



Demonstration: Installing Server Core

In this demonstration, you will see **how to install Server Core**

- right-click **20740C-LON-SVR6**, and then select **Connect**
- **D:\Program Files\Microsoft Learning\20740\Drives**, select **WinServer2016_1607.iso**
- **sconfig.cmd**
  - **Set Network Adapter Address**: Select **Static IP**, **Enter 172.16.0.26 static IP address Enter Subnet Mask**: **255.255.0.0**, **Enter Default Gateway**: **172.16.0.1**
  - **Set DNS Server**: **Enter new preferred DNS server: 172.16.0.1**, and then press Enter, click **OK** in the **Network Settings** pop-up window, and then in **Enter alternate DNS server**, press Enter.

Lab: Installing and configuring Server Core

- Exercise 1: Installing Server Core
- Exercise 2: Completing post-installation tasks on Windows Server 2016 Core
- Exercise 3: Performing remote management

Logon Information

Virtual machines: **20740C-LON-DC1**
20740C-LON-SVR6
User name: **Adatum\Administrator**
Password: **Pa55w.rd**

Estimated Time: 60 minutes

Lab Scenario

Your team in the IT department at Adatum Corporation just purchased a new server that has no operating system. The team decides to install Windows Server 2016 Datacenter Evaluation in Server Core mode to test Server Core functionality. Your task is to perform the installation and configuration of this server. You will name it **LON-SVR6**, give it a static IP address of 172.16.0.26, and join it to the Adatum.com domain with all other default settings.

Lab Review

- In the lab, you used the Install-WindowsFeature cmdlet in Windows PowerShell to install the DNS Server role on LON-SVR6. How could you do this remotely?