



Department of Information Technology

Lesson 1: Introduction to Server

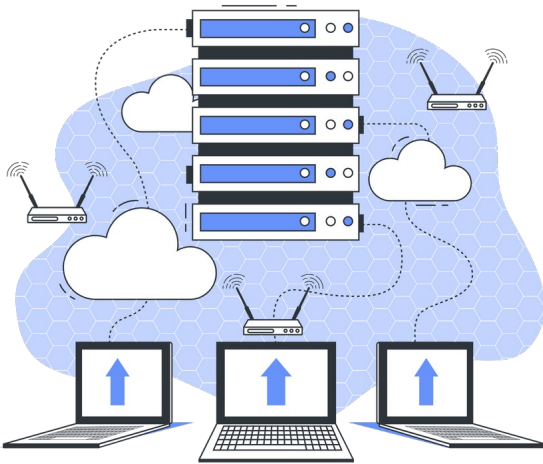
Server Management

Zina Yaaqub

Overview

- Introduction to servers
- Install Servers
- Selecting a Windows Server Edition
- Installing Windows Server
- Choosing Installation Options

CONTENTS



- 1 What is a server?
- 2 Typical types of server
- 3 Advantages of server
- 4 Main components of a server

WHAT IS A SERVER?

A specialized computer or software that manages network resources and provides services to other computers (clients) in the network



TYPICAL TYPES OF SERVER

Web Servers

File Servers

Database Servers

Application Servers

Mail Servers



TYPICAL TYPES OF SERVER

Web Servers

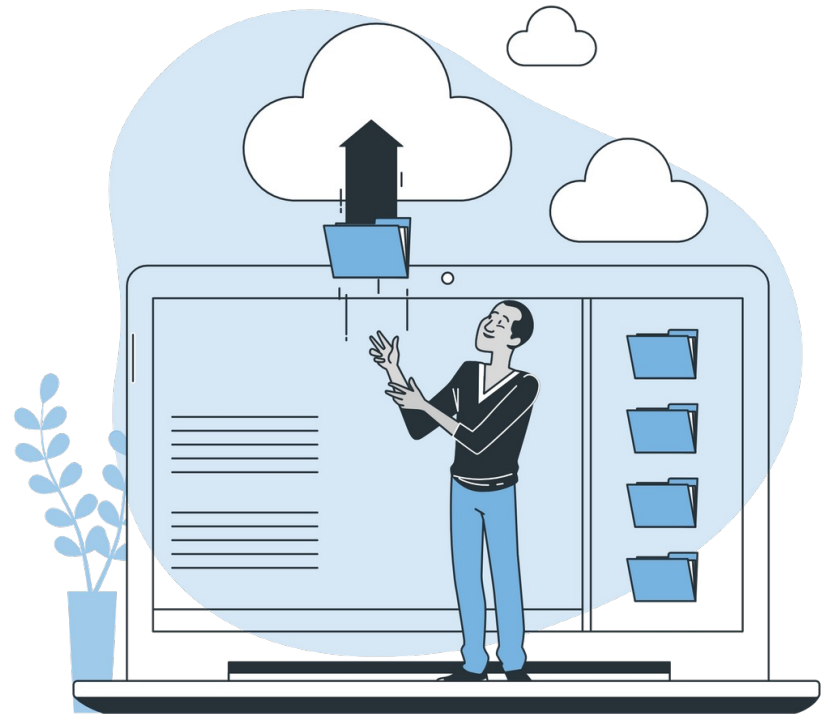
A type of server that is used to host a website available through the internet is called a web server. The web server runs specialized software that enables them to host websites.



TYPICAL TYPES OF SERVER

File Servers

File servers store and manage files for network users. On a corporate network, employees are provided with space on a file server to store files.



TYPICAL TYPES OF SERVER

Database Servers

A type of server that manage the database of an organization is called database server.

It is dedicated to database storage, queries and retrieval etc.



TYPICAL TYPES OF SERVER

Mail Server

A type of server that handles a large volume of incoming, outgoing and internal e-mails is called E-mail server. It remains connected to the internet. It may be located at any place in the world.



ADVANTAGES OF SERVER

- Efficient resource management and network management
- Improve security
- Web and application hosting
- Support automated backup processes
- Provide email and communication services
- Provide centralized storage and file sharing
- Cost efficiency



Processor (CPU)

Memory (RAM)

Operating System

Storage Devices



KEY COMPONENTS OF SERVER

Network Interface
Card (NIC)

Power Supply Unit
(PSU)

Cooling System

Server Management
Software

Processor (CPU)



KEY

- Brain of the server
- Characteristics of server CPU
 - Multiple cores
 - Larger cache
 - Error-correction
 - Security features
 - Higher clock speed
- When choosing CPU need to consider about
 - Workload
 - Number of users
 - Budget

Interface
Unit
em
ement

Processor (CPU)

Memory (RAM)

Operating System

Storage Devices

- Determine overall performance and efficiency
- Key consideration
 - Capacity (16GB - 64GB)
 - Speed (2666MHz - 3200MHz)
 - Error Correction

Network Interface

Power Unit

Virtualization System

Server Management Software



KEY

Processor (CPU)

Memory (RAM)

Operating System

Storage Devices

- Consider your server's purpose
- Ease of use
- Cost
- Security and stability
- Scalability
- Compatibility

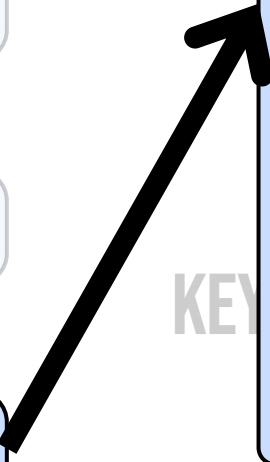
Interface

Unit

System

Server Management Software

KEY



Processor (CPU)

Memory (RAM)

Operating System

Storage Devices



KEY COMPONENTS OF SERVER

Network Interface
Card (NIC)

Power Supply Unit
(PSU)

Cooling System

Server Management
Software



COMPONENTS OF

Operating System

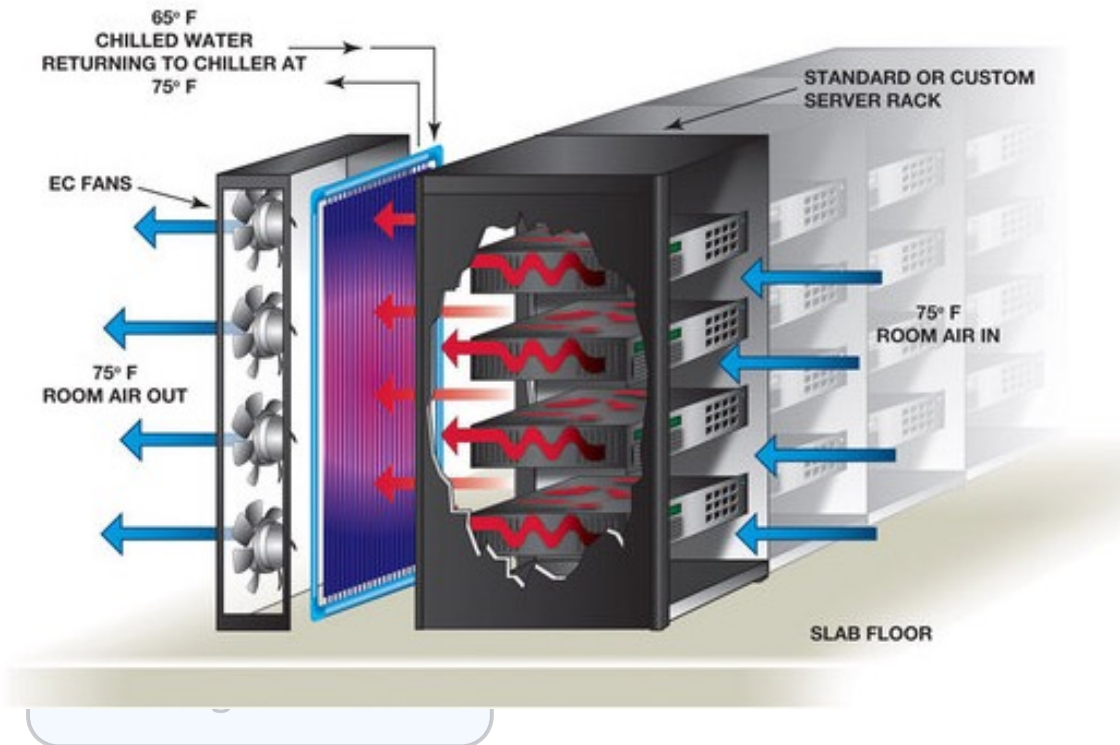
Storage Devices

Network Interface Card (NIC)

Power Supply Unit (PSU)

Cooling System

Server Management Software



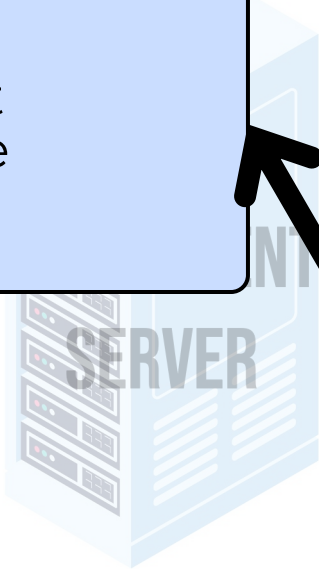
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Network Interface Card (NIC)

Power Supply Unit (PSU)

Cooling System

Server Management Software



- Performance Monitoring
- Provisioning and configuration
- Patch Management
- Backup and Restore
- Manage Security

Network Interface Card (NIC)

Power Supply Unit (PSU)

Cooling System

Server Management Software

Pro

Me

Operating System

Storage Devices

NTS OF

SERVER

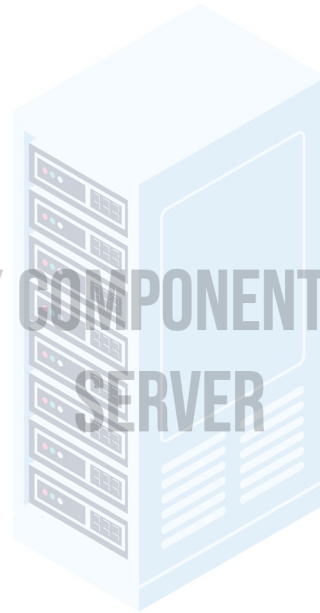


Processor (CPU)

Memory (RAM)

Operating System

Storage Devices



KEY COMPONENTS OF SERVER

Network Interface
Card (NIC)

Power Supply Unit
(PSU)

Cooling System

Server Management
Software

Planning

- The Windows Server Edition you choose should be based on multiple factors, including:
 - The roles you intend the servers to perform
 - The virtualization strategy you intend to implement
 - The licensing strategy you plan to use

Windows Server Core Editions

- Windows Server Datacenter
- Windows Server Standard
- Windows Server Essentials
- Windows Server Foundation

Datacenter

- Designed for large and powerful servers
- Supports up to 64 processors
- Fault tolerance—hot-add processors
- Only available to purchase through:
 - Microsoft volume-licensing program
 - Original equipment manufacturers (OEMs), bundled with a server

Standard

- Includes the full set of Windows Server features
- Only differs from Datacenter by the number of virtual machine instances permitted by the license

Essentials

- Includes nearly all features from Datacenter and Standard editions, except:
 - Server Core
 - Hyper-V
 - Active Directory Federation Services
- Limited to one physical or virtual server instance
- Maximum of 25 users

Foundation

- Reduced version of the operating system designed for small businesses
- Supports only basic server features:
 - File and print services
 - Application support
- No virtualization rights
- Limited to 15 users

Supporting Server Roles

Three basic categories of server roles are:

- **Directory services**
 - Store, organize, and supply information about a network and its resources
- **Infrastructure services**
 - Provide support services for network clients
- **Application services**
 - Provide communication services, operating environments, or programming interfaces for specific applications

Directory Services Roles

- Active Directory Certificate Services
- Active Directory Domain Services (AD DS)
- Active Directory Federation Services
- Active Directory Lightweight Directory Services (AD LDS)
- Active Directory Rights Management Services (AD RMS)

Infrastructure Services

- DHCP (Dynamic Host Configuration Protocol)
- DNS Server
- Hyper-V
- Network Policy and Access Services (NPAS)
- Health Registration Authority (HRA)
- Remote Access
- Volume Activation Services
- Windows Deployment Services (WDS)
- Windows Server Update Services (WSUS)

Application Services

- Application Server
- Fax Server
- File and Storage Services
- Print and Document Services
- Remote Desktop Services
- Web Server (IIS)

Supporting Server Virtualization

POSE: Physical operating system environment

VOSE: Virtual operating system environment

<i>Edition</i>	<i>POSE Instances</i>	<i>VOSE Instances</i>
Datacenter	1	Unlimited
Standard	1	2
Foundation	1	0
Essentials	1 POSE or VOSE	1 POSE or VOSE



Department of Information Technology

Lesson 2: Installing Windows Server

Server Management

Zina Yaaqub

System Requirements

Minimum system requirements for all editions of Windows Server :

- **Processor:** 1.4 GHz 64-bit
- **RAM:** 512 MB
- **Disk space:** 32 GB
- DVD or USB flash drive
- Super VGA (800 x600) or higher resolution monitor

Clean Installation

- Necessary when you have a bare metal computer.
- Use if you are willing to reformat an existing disk.
- Creates the most stable environment.

Performing a Clean Installation

- Connect and power on all devices.
- Boot from the Windows Server installation DVD.
- Select Language, Time and Currency format, and Keyboard layout.
- Click *Install Now*.
- Select your edition of Windows Server.
- Select *Custom: Install Windows only (advanced)*.
- Select the partition on which to install.
- When the installation is complete, set your password.

Performing a Clean Installation



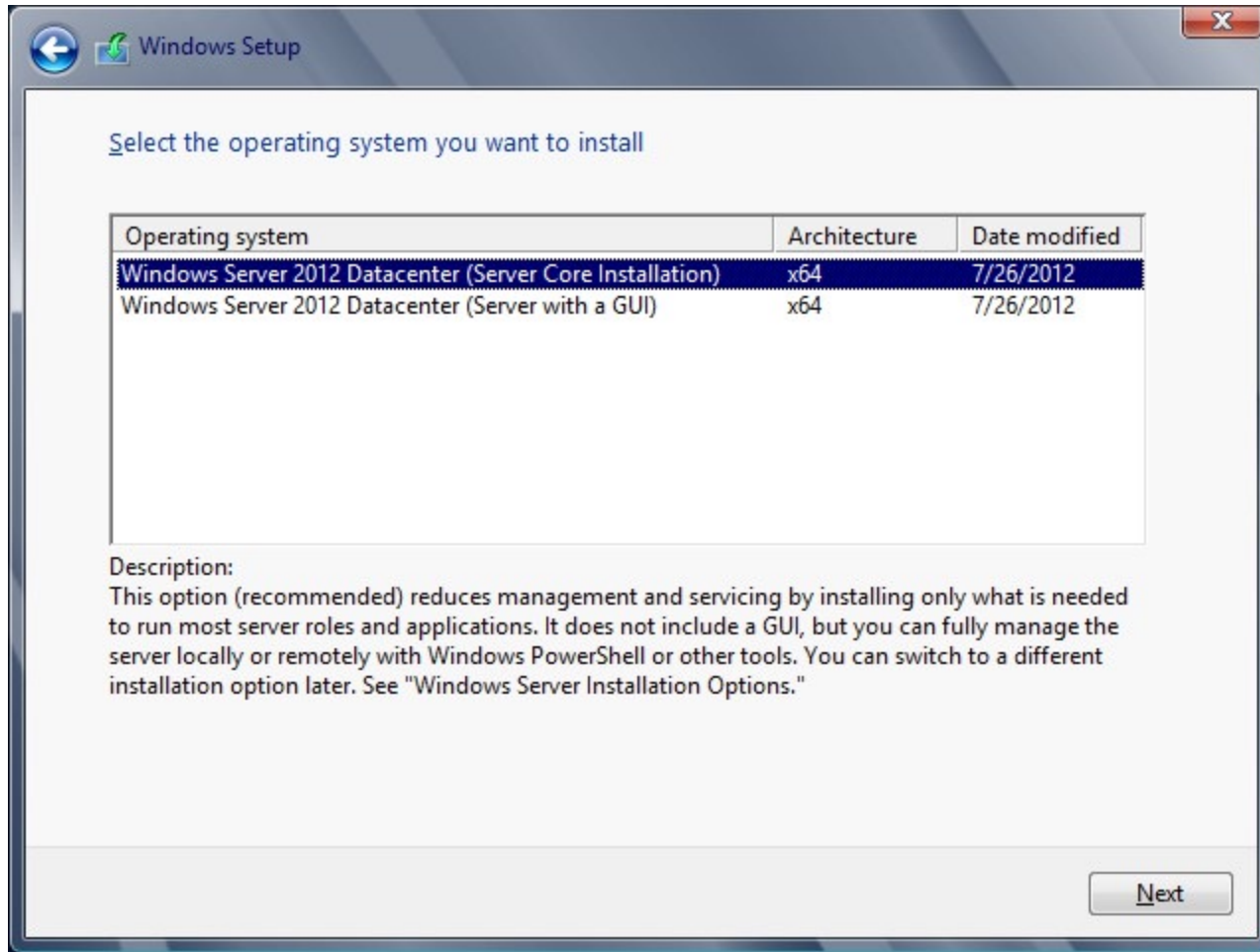
Select Your Preferences

Performing a Clean Installation



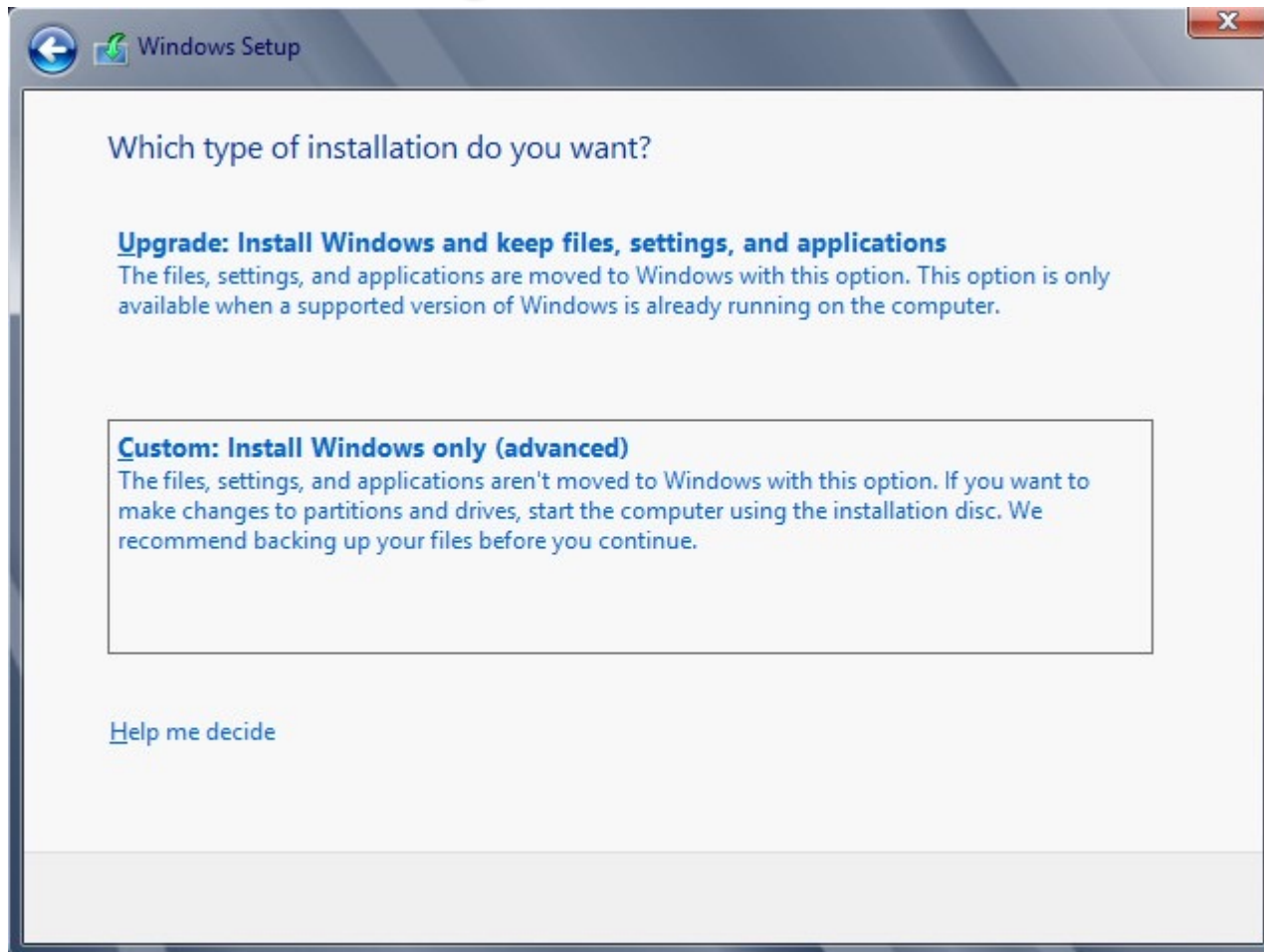
Click Install Now

Performing a Clean Installation



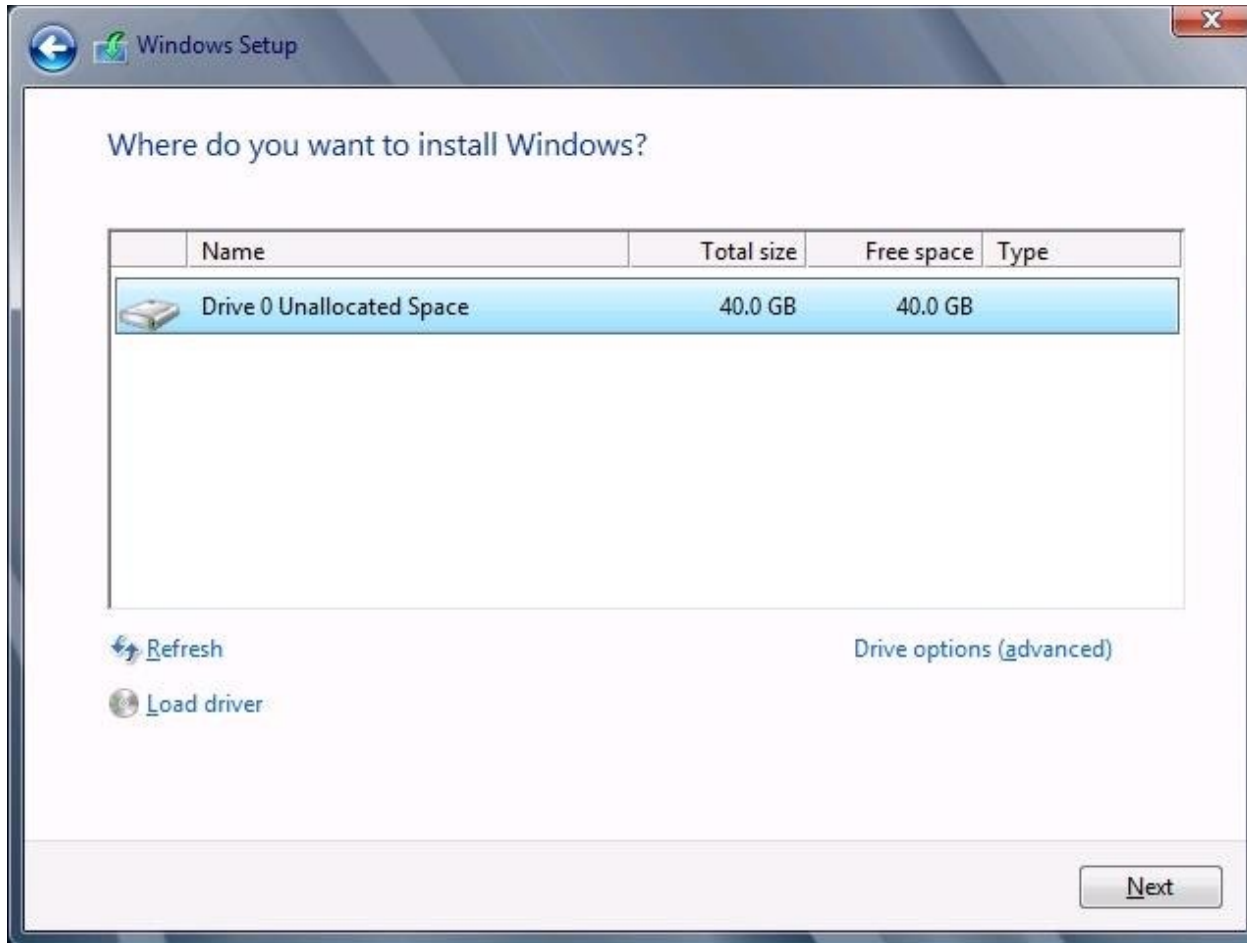
Select Server Edition

Performing a Clean Installation



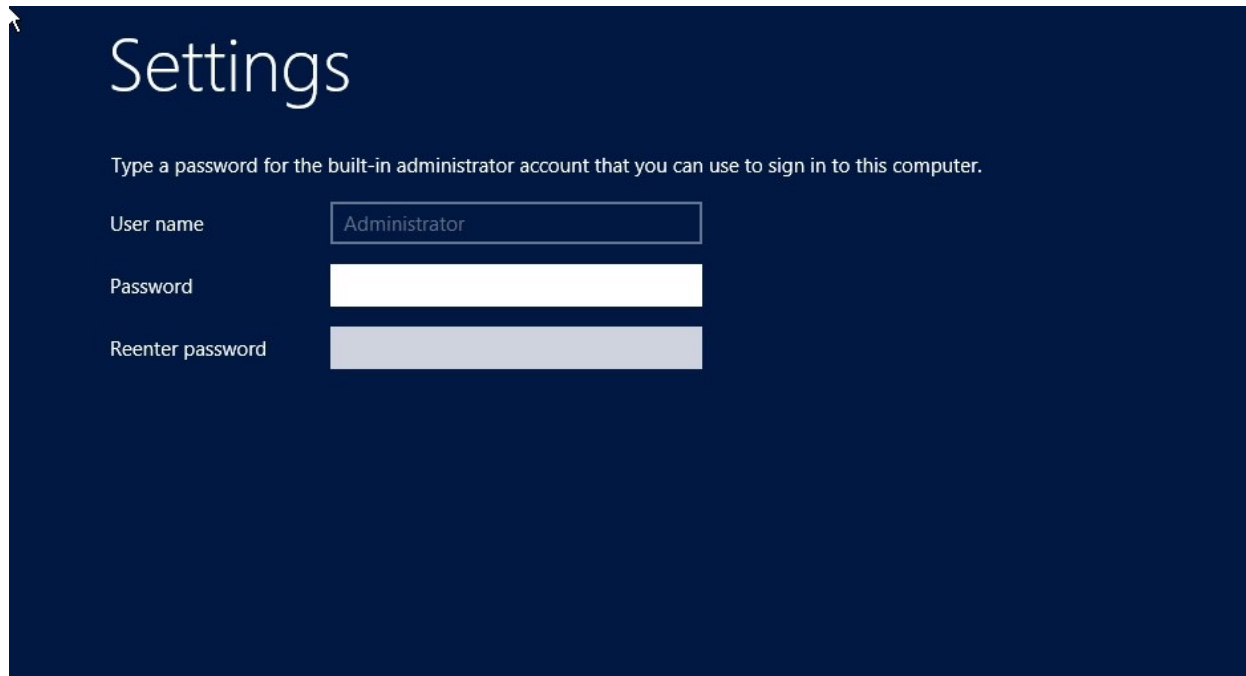
Select Custom: Install Windows only (advanced)

Performing a Clean Installation



Select the Partition/Drive on which to Install
Windows Server

Performing a Clean Installation



The screenshot shows a dark blue window titled "Settings". Below the title, there is a white instruction: "Type a password for the built-in administrator account that you can use to sign in to this computer." There are three input fields: "User name" with the text "Administrator", "Password" (a white box), and "Reenter password" (a grey box).

Set the Administrator Password

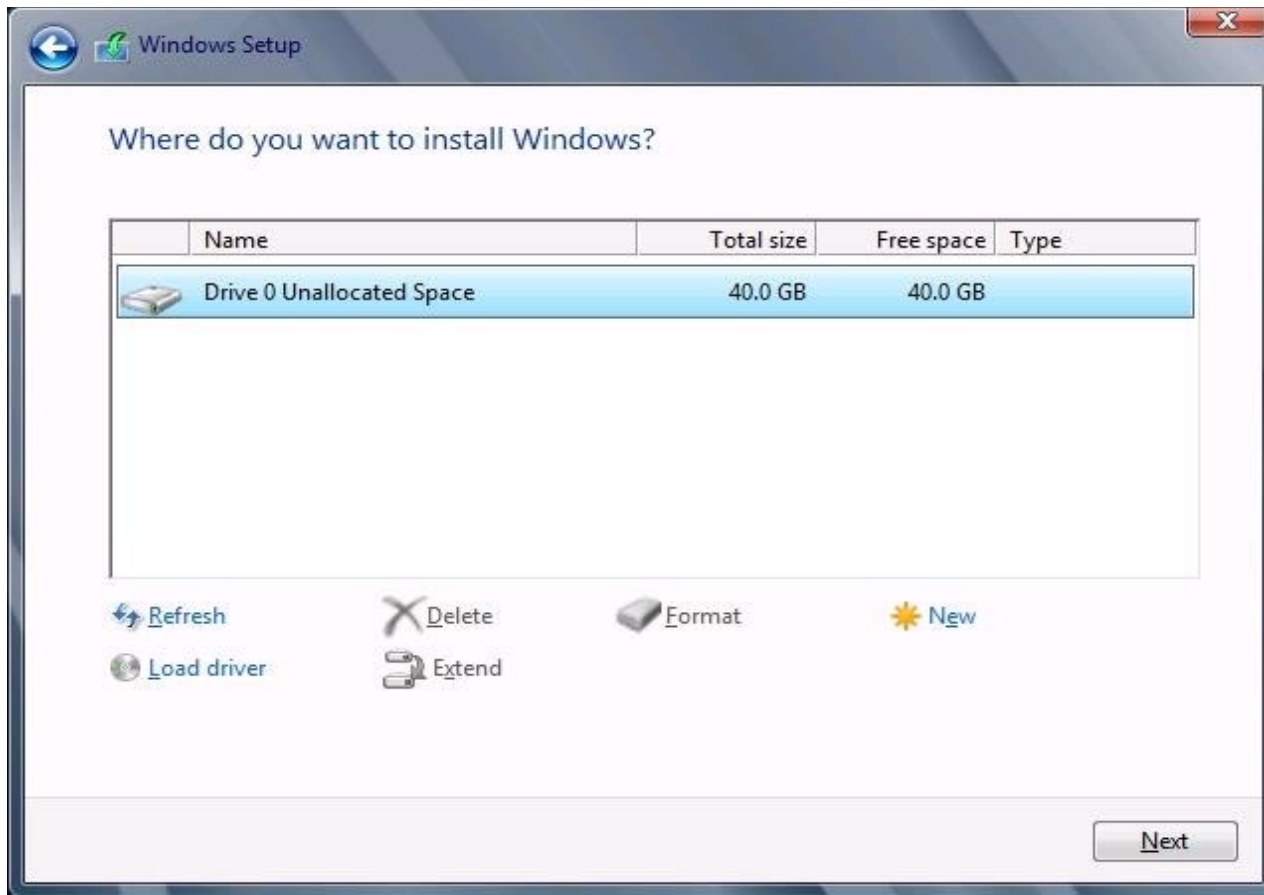
Installing Third-Party Drivers

- If hard drives are connected to a third-party controller, rather than the one integrated into the motherboard, the installation procedure may not detect your hard drive.
- The Where do you want to install Windows? page will not list hard drives.
- Install a third-party driver to allow the installation program access to your hard drive to continue the installation.

Working with Installation Partitions

- You can create, manage, and delete partitions on your hard drive.
- Click *Drive options (advanced)* and four buttons will appear:
 - Delete
 - Extend
 - Format
 - New

Working with Installation Partitions

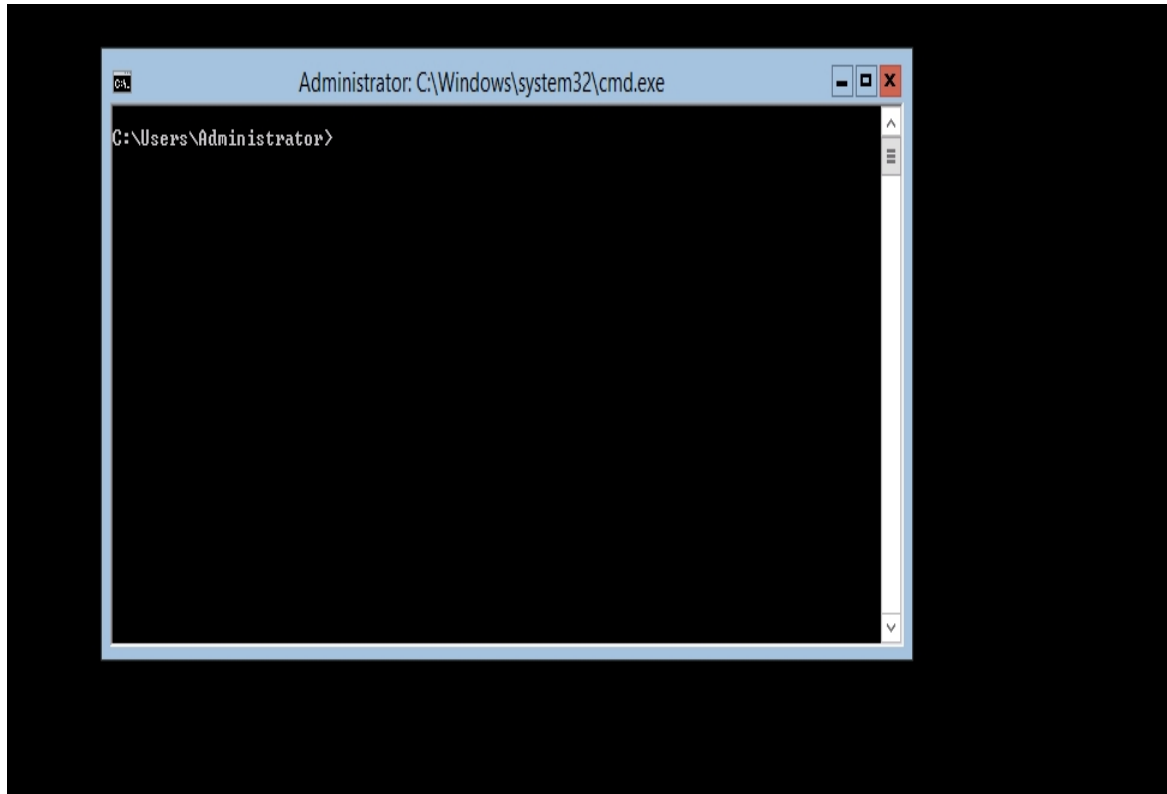


Advanced Drive Options Buttons

Using Server Core

- Stripped-down version of the operating system
- Takes you to a Graphical User Interface (GUI)
- Type commands at the command prompt

Server Core



Server Core's Command Line Interface

Advantages of Server Core

- Hardware resource conservation
- Reduced disk space
- Reduced patch frequency
- Reduced attack surface

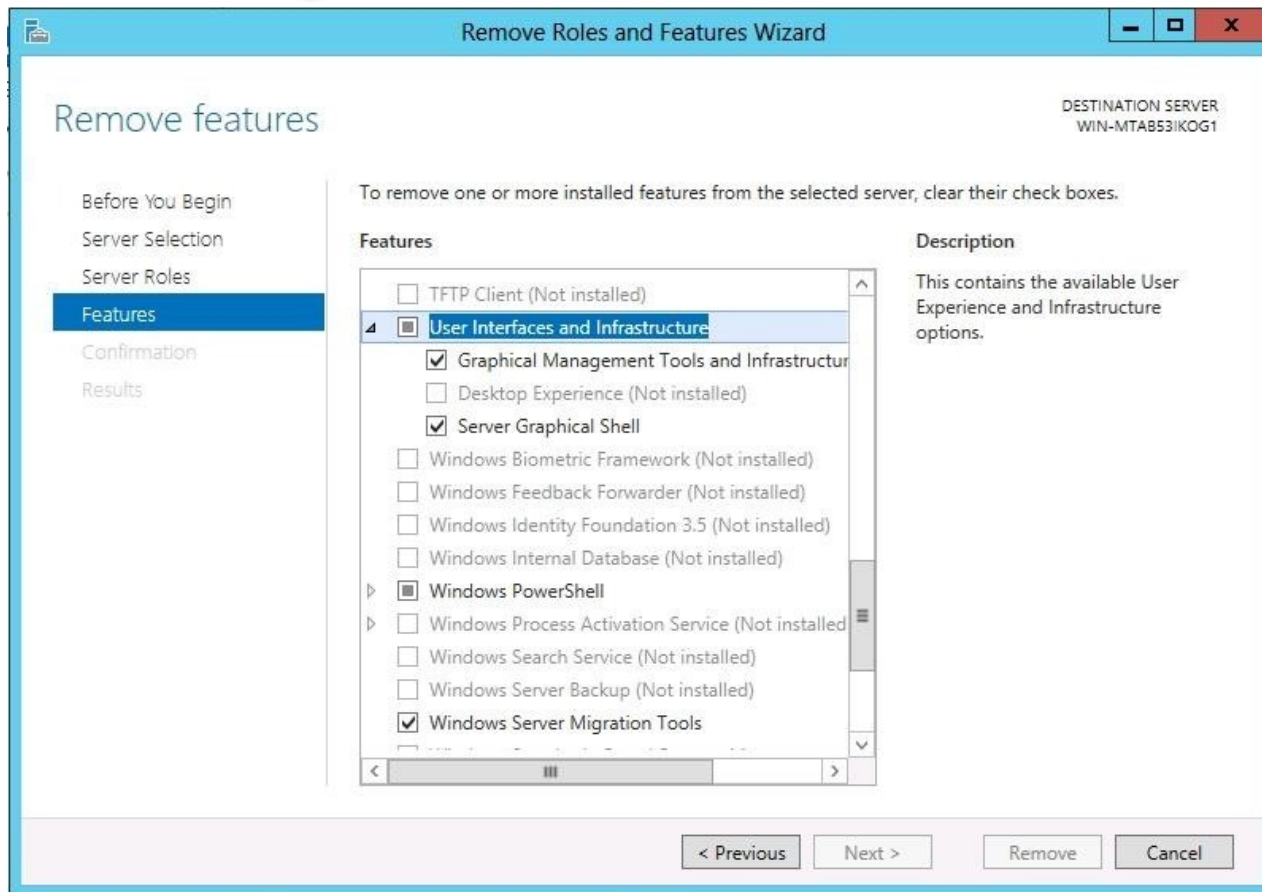
Server Core Defaults

- Server Core is now the default installation option.
- GUI tools can be added and removed using Windows PowerShell commands.
- New Server Manager includes comprehensive remote administration tools.

Using the Minimal Server Interface

- A setting that removes some of the most hardware-intensive elements from the GUI.
- Middle ground between Server Core and full GUI installation.
- Administrators are left with essential tools:
 - Server Manager
 - Device Manager
 - Windows PowerShell

Configure the Minimal Interface



User Interfaces and Infrastructure Feature in the Remove Roles and Features Wizard

Using Features on Demand

- Allows you to optimize resource utilization by removing files related to unused Windows features stored in WinSxS directory.
- Permanently remove files for unused features using Windows PowerShell commands.
- The following command will disable the Server Graphical Shell and remove its source files from WinSxS:

```
Uninstall-WindowsFeature Server-Gui-Shell -Remove
```

- If you attempt to enable the feature in the future, the system will download it from Windows Update or from an image file you specify.

Lesson Summary

- Microsoft releases all of its operating systems in multiple editions, which provides consumers with varying price points and feature sets.
- Windows Server 2012 includes predefined combinations of services called roles that implement common server functions.
- A clean installation is the simplest way to deploy Windows Server 2012 on a bare metal computer or a computer with a partition that you are willing to reformat (losing all of the data on the partition in the process).

Lesson Summary

- Many enterprise networks today use servers that are dedicated to a particular role. When a server is performing a single role, does it really make sense to have so many other processes running on the server that contribute little to that role?
- When you select the Windows Server Core installation option, you get a stripped-down version of the operating system.
- If the advantages of Server Core sound tempting, but there are traditional server administration tools you don't want to give up, Windows Server provides a compromise that it calls the Minimal Server Interface.
- The Minimal Server Interface is a setting that removes some of the most hardware-intensive elements from the GUI.

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