

Windows Server 2019 – Introduction and Installation

1. Introduction to Windows Server 2019

What is Windows Server 2019?

Windows Server 2019 is a server operating system developed by Microsoft, built on the Windows NT family. It is part of the Windows Server line of operating systems, designed specifically to manage enterprise-level workloads, provide services to users and applications, and support network management, virtualization, and cloud integration.

Release Overview

- **Release Date:** October 2, 2018
- **Build Number:** 17763
- **Kernel Version:** 10.0 (same as Windows 10 version 1809)
- **Editions Available:**
 - **Datacenter Edition** – For highly virtualized datacenter and cloud environments
 - **Standard Edition** – For physical or minimally virtualized environments
 - **Essentials Edition** – For small businesses with up to 25 users and 50 devices

2. Key Features of Windows Server 2019

Feature	Description
Hybrid Cloud Integration	Integrates with Microsoft Azure for backup, disaster recovery, file syncing, and more
Improved Security (Windows Defender ATP)	Advanced Threat Protection (ATP), Shielded VMs, and improved Windows Defender
Storage Migration Service	Simplifies the migration of servers and their data
System Insights	Predictive analytics based on machine learning for proactive performance monitoring
Support for Kubernetes	Native support for containers and Kubernetes (Docker and Kubernetes integration)
Hyper-Converged Infrastructure (HCI)	Improved performance and scalability for HCI scenarios

3. System Requirements for Installation

Component	Requirement
Processor	1.4 GHz 64-bit processor (compatible with x64 architecture)
RAM	Minimum: 512 MB; Recommended: 2 GB or more
Disk Space	Minimum: 32 GB
Display	Super VGA (1024 x 768) or higher-resolution monitor
Network	Gigabit (10/100/1000baseT) Ethernet adapter
Other	UEFI 2.3.1c-based system and firmware with Secure Boot enabled

4. Installation Types of Windows Server 2019

You can install Windows Server 2019 using one of the following types:

Type	Description
Server Core Installation	Minimal GUI, intended for advanced users and remote administration
Server with Desktop Experience	Full GUI version, ideal for new administrators and lab/testing environments
Nano Server (via containers)	Lightweight version used for specific cloud-native apps (available in containers only)

5. Preparing for Installation

Checklist Before Installation

- Ensure hardware compatibility
- Backup existing data (if upgrading)
- Have the Windows Server 2019 ISO or bootable media ready
- Have product key ready
- Choose between Server Core or Desktop Experience

- Decide on installation type: fresh installation or upgrade
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6. Installation Steps – With Desktop Experience (GUI)

Example Scenario: Installing Windows Server 2019 on a new machine

Step 1: Boot from Installation Media

- Insert the Windows Server 2019 DVD or USB drive.
- Boot the system from the media (ensure boot priority is set in BIOS).

Step 2: Language, Time, and Keyboard Settings

- Select your preferred language, time and currency format, and keyboard input method.
- Click **Next** and then **Install Now**.

Step 3: Enter Product Key

- Enter the product key if prompted.
- If you are evaluating, click on "I don't have a product key".

Step 4: Select Edition to Install

- Choose between **Windows Server 2019 Standard** or **Datacenter** and with **Desktop Experience** or **Server Core**.
- Click **Next**.

Step 5: Accept License Terms

- Read and accept the license agreement.
- Click **Next**.

Step 6: Choose Installation Type

- Choose **Custom: Install Windows only (advanced)** for fresh installation.
- If upgrading, choose **Upgrade: Install Windows and keep files, settings, and applications**.

Step 7: Partition the Hard Disk

- Select the disk where you want to install the OS.
- Create or delete partitions as required.
- Click **Next** to begin the installation.

Step 8: Installation Progress

- Windows will begin copying files, installing features and updates.
- This process may take 10–30 minutes.

Step 9: Set Administrator Password

- After reboot, the system will prompt you to set a strong password for the built-in Administrator account.

Step 10: First Login

- Press `Ctrl + Alt + Del` and log in with the Administrator credentials.

You now have a fresh installation of Windows Server 2019 ready for configuration.

7. Post-Installation Tasks

Task	Purpose
Install Updates	Run <code>sconfig</code> or go to Windows Update and install all security patches
Set Static IP Address	Configure IP for server role deployment
Rename Server	Set a meaningful hostname
Join Domain (if applicable)	Join to Active Directory
Install Roles/Features	Using Server Manager or PowerShell
Enable Remote Desktop	Allow remote management
Configure Firewall and Security Settings	As per organization policy

8. Installation Using PowerShell (Unattended/Scripting)

You can also automate installation using Windows Deployment Services (WDS) or through PowerShell. Here's a PowerShell command to install a Windows Server role post-installation:

```
Install-WindowsFeature -Name Web-Server -IncludeManagementTools
```

Conclusion

Windows Server 2019 is a powerful and versatile server OS designed for modern IT environments. With robust security, hybrid cloud capabilities, and improved performance, it is suitable for a wide range of

roles from file servers to virtualized data centers. Understanding the installation process helps administrators deploy servers efficiently and securely.