




WINDOWS SERVER 2016 EDITIONS

There are 3 editions of Windows Server 2016:

Licensing Model	Windows Server 2016 Datacenter	Windows Server 2016 Standard	Windows Server 2016 Essentials
	Core-based and CAL 	Core-based and CAL 	Per Server 
	options for medium and large organizations		options for small organizations



Windows Server 2016

WINDOWS SERVER 2016 ESSENTIALS

- ▶ Licensed with a single Server license
- ▶ Host virtualization rights and rights to run in a single physical or virtual OSE
- ▶ Restricted to 25 user accounts and 50 devices
- ▶ Note that the Foundation edition of Windows Server is no longer available, and Windows Server 2016 Essentials is the recommended edition for Windows Server 2012 R2 Foundation customers wishing to move to Windows Server 2016

CORE-BASED AND CAL LICENSING

A Core license must be assigned to each physical core in the server, with a minimum of 8 Core licenses per processor, and a minimum of 16 Core licenses per server. For example, a single processor server with 4 cores requires 16 Core licenses, and a 4-processor server with 8 cores on each processor requires 32 Core licenses. Core licenses are purchased in 2-packs or 16-packs from resellers.



Windows Server 2016 Client Access Licenses are required for either users or devices.

A Device CAL is assigned to the device and allows multiple users to use that device



A User CAL is assigned to the user and allows that user to use multiple devices



WINDOWS SERVER SERVICES

Remote Desktop Services

- ▶ Remote Desktop Services (RDS) makes it possible to run an application or an entire desktop in one location, but controlled in another. In addition to the traditional session virtualization scenario (formerly known as "Terminal Services"), RDS provides an extensible platform for a Virtual Desktop Infrastructure (VDI)
- ▶ RDS must be activated on the Windows Server, and users need licenses for all software they are using, plus an RDS CAL as well as a Windows Server CAL
- ▶ An RDS External Connector is available as an option for external users

Active Directory Rights Management Services

- ▶ Windows Rights Management Services is a security technology that works with RMS-enlightened applications (such as Microsoft® Office 2016 and Microsoft® Office 2013) to help safeguard digital information from unauthorized use
- ▶ Within the organization, users must have ADRMS CALs, and an ADRMS External Connector is available as an option for external users

LICENSING EXTERNAL USERS

External users can be licensed with either individual User or Device CALs or with a Windows Server 2016 External Connector license:

- ▶ A physical server must be licensed appropriately with Windows Server 2016 Standard or Datacenter licenses and then a single External Connector license is assigned to the server. There is just one edition of the External Connector license used regardless of whether the underlying server is licensed with Standard or Datacenter edition
- ▶ The External Connector license allows unlimited external users to connect to and use the services of the physical server and any virtual machines running on the server
- ▶ If an organization has more than approximately 70 external users it is likely to be most cost effective to use an External Connector license to license those users

LICENSING VIRTUAL MACHINES/CONTAINERS

Windows Server 2016 Datacenter

- ▶ The server must be fully licensed with Core licenses (as described in the Core-based Licensing section)
- ▶ An unlimited number of virtual machines may be run on the server

Windows Server 2016 Standard

- ▶ The server must be fully licensed with Core licenses (as described in the Core-based Licensing section)
- ▶ 2 virtual machines may be run on the server
- ▶ The server must be licensed again to run a further 2 virtual machines. For example, a single processor server with 8 cores requires 16 Core licenses to run 2 VMs. A further 16 Core licenses must be assigned to the server to run another 2 VMs

Windows Server Containers

- ▶ Any number of Windows Server Containers without Hyper-V isolation may be run on licensed servers
- ▶ The rules for licensing Windows Server Containers with Hyper-V isolation are exactly the same as for virtual machines detailed above

DOWNGRADING VERSIONS AND EDITIONS

- ▶ Windows Server 2016 **Datacenter** may be downgraded to any version of Windows Server Datacenter, Enterprise or Standard
- ▶ Windows Server 2016 **Standard** may be downgraded to any version of Windows Server Enterprise, Standard or Essentials
- ▶ Windows Server 2016 **Essentials** may be downgraded to any previous version of Windows Server Essentials

LICENSE MOBILITY

License Mobility is not available for Windows Server 2016. Licenses can be reassigned to servers no more frequently than once every 90 days.

AZURE HYBRID BENEFIT

- ▶ The Azure Hybrid Benefit allows organizations to purchase non-Windows virtual machines in Azure (Azure base VMs) and then to use their existing Windows Server with SA licenses to license them for Windows Server. Note that CALs are not required for Windows Server virtual machines running in Azure
- ▶ 8 Core licenses must be assigned to a virtual machine with 8 cores or less, and further sets of 8 Core licenses can be assigned to Azure base VMs with a higher number of cores
- ▶ For Windows Server Standard Core licenses with SA, organizations can use these licenses for on-premises workloads OR to license Azure base VMs
- ▶ For Windows Server Datacenter Core licenses with SA, organizations can use these licenses for on-premises workloads AND to license Azure base VMs



ADDITIONAL SOFTWARE ASSURANCE BENEFITS AVAILABLE

The following SA benefits are also available for Windows Server 2016 Core licenses:

- ▶ 24x7 Problem Resolution Support
- ▶ Disaster Recovery Rights (SA required for both Server licenses and CALs)
- ▶ E-Learning
- ▶ Planning Services
- ▶ Self-Hosting Use Rights

STEP-UP LICENSES

- ▶ Customers who have existing Windows Server 2016 Standard Core licenses with Software Assurance may purchase Step-Up licenses to move to Windows Server 2016 Datacenter Core licenses
- ▶ The Step-Up license is priced at the difference in price of the two licenses and SA

SERVICING CHANNELS

Two servicing channels are available for Windows Server 2016:

- ▶ Semi-Annual Channel release: for customers who choose the Nano Server installation option
- ▶ Long Term Servicing Channel: for customers who choose to install Windows Server 2016 with Desktop Experience or Server Core

Both servicing channels receive regular security updates, and the Semi-Annual Channel release receives periodic feature updates as well

UPGRADING TO WINDOWS SERVER 2016

- ▶ Customers who have Software Assurance on Windows Server 2012 R2 licenses may upgrade to and use the same edition of Windows Server 2016
- ▶ At renewal of SA, a standard grant of 16 Core licenses is made for each Windows Server 2012 R2 Processor-based license, upon which the customer may renew the Software Assurance
- ▶ Additional Core license grants are made for customers who are running Windows Server on servers with more than 8 cores per processor. At the time of renewal, the customer must create a report detailing the configuration of the physical hardware to which Windows Server licenses are assigned, using the Microsoft Software Inventory Logging tool or equivalent software. Software Assurance may then be renewed on the additional Core licenses granted

CORE INFRASTRUCTURE SERVER SUITES

These suites provide a cost-effective way for organizations to purchase licenses for Windows Server and System Center. There are two suites available:

▶ Core Infrastructure Server Suite Standard:

- System Center 2016 Standard
- Windows Server 2016 Standard

Licensing all the physical cores gives rights to and run/manage 2 VMs

▶ Core Infrastructure Server Suite Datacenter:

- System Center 2016 Datacenter
- Windows Server 2016 Datacenter

Licensing all the physical cores gives rights to run/manage unlimited VMs



VOLUME ACTIVATION

Product activation is the process of validating software with the manufacturer.



Activation confirms the genuine status of a product and that the product key has not been compromised. It establishes a relationship between the software's product key and a particular installation of that software on a device.

A **Multiple Activation Key (MAK)** is a volume license key that is used for one-time activation with activation services that are hosted by Microsoft. There are two ways to use MAK to activate computers:

- ▶ **MAK independent activation**
Each computer must independently connect and be activated by Microsoft over the Internet or by telephone.
- ▶ **MAK proxy activation**
A computer that is acting as a MAK proxy gathers activation information from multiple computers on the network, and then sends a centralized activation request to Microsoft on their behalf. MAK proxy activation is configured by using the Volume Activation Management Tool (VAMT).

MAK activation is useful when not all of an organization's computers are conveniently located on the organization's networks.

Key Management Service (KMS) activation is done against a service hosted within an organization, and not with Microsoft, thus enabling organizations to activate systems within their network, eliminating the need for individual computers to connect to Microsoft for product activation. KMS is the default key for volume activation clients.

Active Directory-based Activation is a role service that allows organizations to use Active Directory Domain Services (AD DS) to store activation objects, which can further simplify the task of maintaining volume activation services for a network. With Active Directory-based Activation, no additional host server is needed, and activation requests are processed during computer startup.

Further Microsoft Licensing handouts and exams:

GetLicensingReady.com