Licensing Guide –
Windows Server

General Windows Server Licensing

With a basic understanding of the licensing and implications of specific actions, organizations will be better equipped to manage Windows Server licensing compliance.

Windows Server has seen several fundamental changes since the 2008 version. Each version and edition is licensed slightly differently. Some universal basics of Windows Server are;

- A license is always applied to the physical server/host
- Every user or device who can access the server requires a Client Access License (CAL) up to the version of the operating system they are accessing
- A license cannot move within a 90-day period (The License Mobility across a server farm SA benefit does not apply to Windows Server)
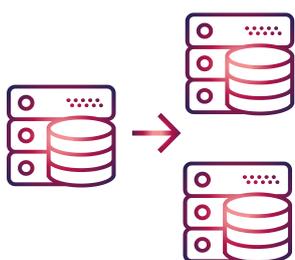
The below is a quick reference guide to help identify how the most common versions and edition are licensed.
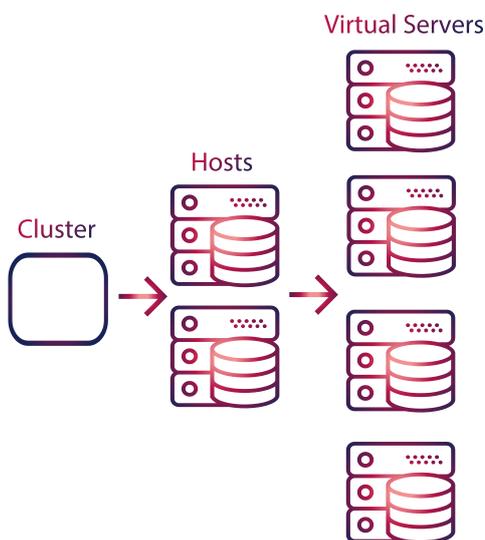
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Version	Edition	License Metric	License	Minimum Requirement	Virtualisation	CAL Requirement
			License Terms			
2019	Datacenter	Core	All Physical Cores	16 cores per server or 8 Per Processor	Unlimited	2019
	Standard	Core	All Physical Cores	16 cores per server and 8 Per Processor	2 VMs for each fully licensed server	2019
2016	Datacenter	Core	All Physical Cores	16 cores per server or 8 Per Processor	Unlimited	2016
	Standard	Core	All Physical Cores	16 cores per server and 8 Per Processor	2 VMs for each fully licensed server	2016
2012 R2	Datacenter	2 Processor	All Physical Processors	2 Processors	Unlimited	2012
	Standard	2 Processor	All Physical Processors	2 Processors	2 VMs for each fully licensed server	2012
2012	Datacenter	2 Processor	All Physical Processors	2 Processors	Unlimited	2012
	Standard	2 Processor	All Physical Processors	2 Processors	2 VMs for each fully licensed server	2012
2008 R2	Datacenter	1 Processor	All Physical Processors	1 Processor	Unlimited	2008
	Enterprise	Per Server	Per Physical Server	N/A	4 VMs per license	2008
	Standard	Per Server	Per Physical Server	N/A	1 VM per license	2008
2008	Datacenter	1 Processor	All Physical Processors	1 Processor	Unlimited	2008
	Enterprise	Per Server	Per Physical Server	N/A	4 VMs per license	2008
	Standard	Per Server	Per Physical Server	N/A	1 VM per license	2008

Windows Server Virtualisation

Windows Server licensing always requires the physical server to be licensed, however virtualising servers does not remove the need for licenses. A virtual instance of Windows Server needs to be covered by the host license.

Here a physical host is running two virtual Windows Standard Servers. The Physical host has 16 cores and is running Hyper-V. As per the above table, the physical host needs to be licensed with 16 Windows Server Standard 2019 Core licenses. If two more virtual Windows Standard Servers are added to the host, another 16 Windows Standard Core licenses will be required.

Virtual Servers

Hosts

Cluster

In this example two hosts are clustered together and virtual machines are free to move between hosts. Each host has 16 cores. A total of four virtual Windows Standard Servers can run across the two hosts. As four Windows Servers can potentially reside on each host, a total of 64 Windows Server Standard 2019 Core licenses are required for the cluster (32 per host).

If the hosts are licensed with Windows Server Datacenter edition, each host will only need to be covered with 16 core licenses; giving rights for unlimited virtualisation.

As long as the operating system on the host is only used as a hypervisor to run the virtual instances, the host operating system does not need to be counted. If Hyper-V 2019 is installed but only run Windows Server 2016 VMs, then only 2016 licenses are required. If, however, a full 2019 operating system is installed on the host, then the organization will be required to license using 2019. For this reason, it is recommended that only Hyper-V (or other non-Microsoft hypervisors) is installed on the host when running virtual instances.

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Stacking Licenses

Stacking licenses refers to the practice of using multiple Windows Server Standard or Enterprise licenses to cover multiple virtual machines on the hosts. For example, a 16-core host has six virtual Windows Standard Servers, the host would need to be licensed once with 16 cores to grant two virtual servers, then two more times each with 16 cores (48 cores in total) to allow a total of six virtual servers. This process is referred to as stacking licenses.

Once the correct number of licenses have been stacked to fully cover all virtual servers on the host, the host is described as being licensed for capacity. A host or cluster described as licensed for capacity has a finite number of virtual servers that can reside on it.

Client Access License (CAL)

Unlike SQL server access to a Windows server needs always requires a CAL. An organisation can choose to licence either the devices or the users for access to a server. The number of CALs required is dependent on the number of users who can access a server. Once a user or device is licensed they can access an unlimited number of servers up to the version which they are licenced for I.E. a device with a 2012 CAL cannot access Windows Server 2016.

The choice of device vs user CALs depends on the number of devices or users in the estate. An organisation needs to consider all devices including mobile phones or other non-windows devices which access a Windows server. An organisation should be able to demonstrate how many users or devices can access the estate depending on which CALs it has purchased. If using a split profile, then it should also be able to demonstrate how the access from each metric is controlled.

Additional Licensing Considerations

If you are interested in Windows Server or would like to know more about it licensing, you should also research the following topics;

- External Connector Licensing
- Processor to Core transition
- Azure Hybrid Use benefit
- Windows Server OEM
- Remote Desktop Services

About License Dashboard

Our mission is to enable SAM, IT, Finance and Procurement teams to make informed decisions and take proactive action. Along with our partners we offer the most valuable and powerful license management services on the market.

We use a blend of home grown Software Asset Management technologies and licensing expertise to take on the time-consuming and laborious license management tasks and produce the business critical license intelligence required to move forward. From point-in-time Effective Licensing Position (ELP) programs, through to on-going license compliance and Software Asset Management initiatives, License Dashboard and its partners will help you establish, understand, optimize and manage your software assets. All of which can lead to savings of up to 30% in your overall IT expenditure.

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