

Core/CAL License Model Flowchart

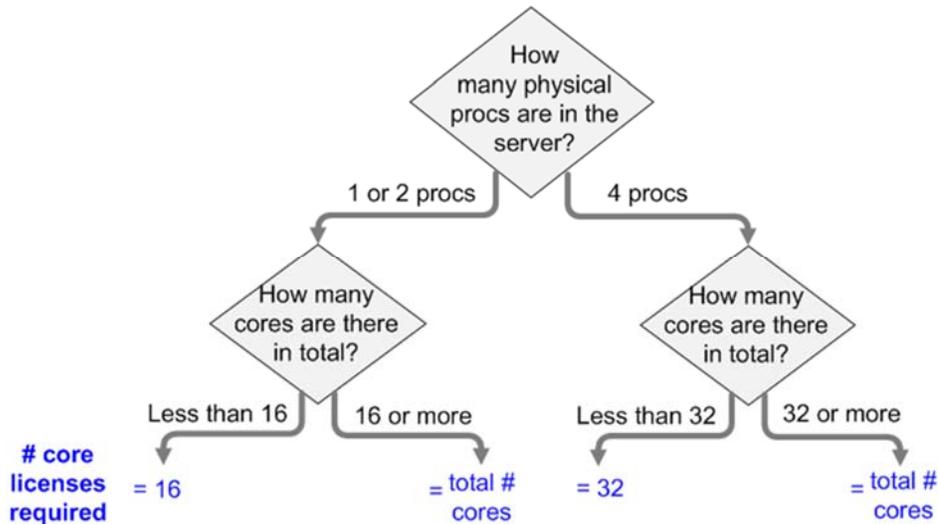
Reviewed: January 18, 2017

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The **Licensing Reference Set** is an up-to-date encyclopedia of Microsoft licensing rules and terms that lets you quickly navigate the Microsoft licensing maze. This sample shows one illustration from the Reference Set. Directions on Microsoft members have access to all entries, including those linked from the sample. For more information, please complete our [new member form](#) or email info@DirectionsOnMicrosoft.com

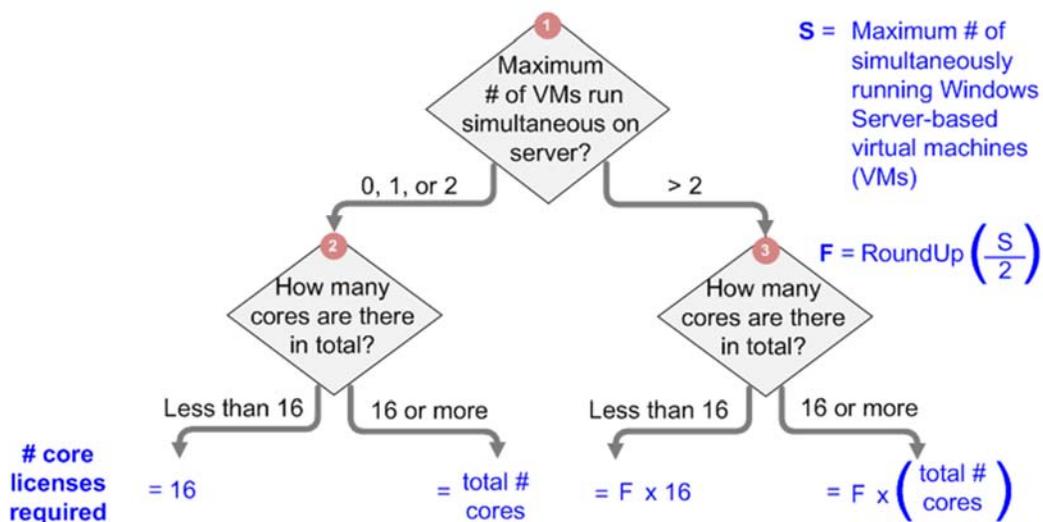
Datacenter edition: Calculating # core licenses required

(Assumes server has four or fewer processors)



Standard edition: Calculating # core licenses required

(Assumes server has one or two processors)



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This flowchart explains how to calculate the number of [core](#) licenses required for [Windows Server](#) 2016 Datacenter and Standard editions under the [Core/CAL License Model](#). The total number of core licenses required is listed in blue at the bottom of each flowchart.

Datacenter edition (top). The number of core licenses required for a [server](#) is determined by (a) the number of physical [processors](#) in the server, and (b) the combined number of cores within those processors. How many Windows Server-based [VMs](#) (virtual machines) the customer runs simultaneously on the server is immaterial to the calculation.

The flow chart assumes the server has 4 or fewer processors. If a server has a greater number of processors, the minimum number of core licenses is eight times the number of processors and thus a six processor system would require at least 48 core licenses.

Standard edition (bottom). The number of core licenses required for a server is determined by (a) the number of physical processors in the server, (b) the combined number of cores within those processors, and (c) the maximum number of Windows Server-based VMs a customer runs simultaneously on the server. To simplify the flowchart, the assumption is made that the server in question contains one or two processors, which would be the most common scenario for a Standard edition server.

If the server is not used to host virtualized workloads, or never runs more than two VMs simultaneously, the number of core licenses required is determined by the total number of cores in the system (see diamond labeled "2"), with a 16-core-licenses-per-server minimum.

If the server is used to host more than two simultaneously running Windows Server-based VMs (see diamond labeled "3"), all the cores in the server have to be licensed again for every two additional VMs (beyond the initial two), as expressed in the variable "F" listed on the right.

Caution required when licensing virtualized workloads with Standard edition. Even though Standard edition is less expensive than Datacenter for licensing servers used to host small numbers of VMs, this may not be a wise option. Personnel performing a license compliance check often assume that any server used to host Windows Server-based VMs must be licensed for Datacenter, especially if the [hypervisor](#) is configured in a way that does not preclude the server from ever running more than a set number of VMs simultaneously.

See also: [Licensing Reference Set Illustrations](#) (for diagrams on other topics)