

Microsoft Software Solution Product Guide Product Guide

Microsoft and Lenovo have been partners for over 25 years. Together we ensure that the latest Microsoft technologies work perfectly with Lenovo ThinkSystem infrastructure and ThinkAgile solutions to provide the most reliable, secure and high-performing datacenters for our customers. Built with proven Lenovo innovation, Lenovo ThinkSystem servers and ThinkAgile solutions extend Microsoft's operating systems, virtualization technologies, and infrastructure platforms so you can build a highly productive IT environment that can help your business achieve true innovation.

Lenovo has proven experience in developing and delivering Microsoft-based solutions that help customers modernize and simplify their IT infrastructure to dramatically drive down operating costs and open the door to cutting-edge innovations. Built around the latest Lenovo ThinkSystem servers and networking hardware, the Lenovo solution with Microsoft provides businesses with an affordable, interoperable, and reliable industry-leading solution to manage their virtualized workloads.



Did you know?

Lenovo XClarity Integrator integrates Lenovo XClarity Administrator into Microsoft software, providing the functionality you need to manage Lenovo infrastructure right in the console of Microsoft software. Lenovo XClarity Administrator is a centralized resource management solution that reduces complexity, speeds up response, and enhances the availability of Lenovo ThinkSystem infrastructure and ThinkAgile solutions.

Lenovo offers XClarity Integrator for Windows Admin Center, Microsoft Azure Log Analytics and Microsoft System Center. For more information, refer to the Lenovo XClarity Administrator Product Guide, <https://lenovopress.com/tips1200-lenovo-xclarity-administrator>.

Why buy Microsoft licenses from Lenovo?

Lenovo offers various types and forms of Microsoft licensing so organizations and partners can leverage best in class Lenovo servers to build agile IT infrastructure that is reliable, secure, and high performing. Choosing a Microsoft OEM license from Lenovo for most customers is the simplest and most cost effective license. Microsoft licenses from Lenovo are specifically pre-tested and optimized to install on Lenovo servers. Lenovo offers support for all of its Microsoft offerings, giving customers a single point of support for their entire datacenter.

Lenovo holds more world record benchmarks than anyone with SQL Server from Microsoft. Lenovo is the first company to publish a non-clustered TPC-H@10,000GB benchmark performance result running Microsoft SQL 2017. Refer to <https://lenovopress.com/lp0720-sr950-tpch-benchmark-result-2017-07-11>. When you purchase Microsoft SQL Server 2017 from Lenovo, you have support and access to the industry-leading Lenovo Engineering team that made this benchmark performance possible.

With co-located engineering organizations and a history of technical collaboration, Microsoft and Lenovo consistently deliver innovative joint solutions for the data center. Lenovo's leadership in reliability, customer satisfaction, and performance, combined with Microsoft's reputation in software and cloud services, continues to deliver innovative data-center solutions and lower total cost of ownership for our joint customers.

With Lenovo, customers have access to decades of datacenter expertise, industry leading support services and the option to leverage Lenovo consultative, professional, and managed service offerings. Lenovo provides customers with the best solution to generate the business results they are looking to achieve, while leveraging a single partner for all aspects of support and services.

Windows Server editions and licensing

This section describes the editions and licensing for Windows Server:

- [Windows Server Licensing](#)
- [Core based licensing: Windows Server Standard and Datacenter](#)
- [Client Access License \(CAL\) & Remote Desktop Session \(RDS\) CAL](#)
- [Downgrade rights](#)

Windows Server 2019 and 2016 are available in the following editions:

- **Essentials Edition:** ideal for small businesses with up to 25 users and 50 Small companies with basic IT needs purchasing a first server; likely a small or no dedicated IT department. CAL (Client Access Licensing) is not required with this edition
- **Standard Edition:** Ideal for customers with low density or minimally virtualized
- **Datacenter Edition:** Ideal for highly virtualized and software defined datacenter environments.
- **Storage Edition (2016 only)*:** For dedicated OEM storage Available in Standard and Workgroup editions through the OEM channel.

* **Note:** Windows Server 2019 is not available in Storage Edition. Customers using Windows Server 2016 Storage Edition should purchase the Windows Server 2019 Standard Edition.

Windows Server Licensing

Customers can purchase Windows Server licenses from Lenovo through the following ways:

- **CTO (Configure to Order)** – this is the OEM license that is added to the Lenovo server shipment at manufacturing and requires a Windows Server OS to be selected at the same time.
 - Core based or Server + CAL based
 - **Pre-Install** – The OEM license can be pre-installed onto the Lenovo server at manufacturing.
 - **DIB (Drop-in-Box)** – The media is shipped in the box with the server at manufacturing with or without Pre-Install.
- **ROK** – the Reseller Option Kit is sold by Lenovo’s authorized resellers and distributors
 - Core based only

Note: Only the pre-install license includes additional drivers or other installation enhancements that streamline the installation of the OS onto the server.

Client Access Licenses (CALs) can be per-user or per-device. Each user CAL permits one user, using any device, to access instances of the server software on their licensed servers. Each device CAL permits one device, used by any user, to access instances of the server software on their licensed servers.

Table 1. Windows Server Licensing

Editions	Licensing model	CAL requirements*
Windows Server Datacenter	Core-based	Windows Server CAL
Windows Server Standard	Core-based	Windows Server CAL
Windows Server Essentials	Processor- based	No CAL required
Windows Storage Server (2016 Only)	Processor- based	No CAL required

* Some additional or advanced functionality such as Remote Desktop Services or Active Directory Rights Management Services will continue to require the purchase of an additive CAL.

Core based licensing: Windows Server Standard and Datacenter

The licensing of Windows Server 2019 and 2016 Standard and Datacenter editions are licensed per-core instead of per-processor. A minimum of 8 cores per processor and 16 cores total must be licensed. All cores must be licensed, even if disabled.

The Base License for the Lenovo OEM Microsoft Windows Server Standard and Datacenter editions (Reseller Option Kit/ROK and Factory Preinstalled) will cover up to 16 cores per system. Customers who need to license more than 16 cores can easily do so with Additional Licenses. Additional Licenses are available in 2 core packs.

- Servers are licensed based on the number of processor cores in the physical server. All physical cores in the server must be licensed.
- A minimum of 16 core licenses is required for each server.
- A minimum of 8 core licenses is required for each physical processor. Additional core licenses will be sold in packs of two.
- Eight 2-core packs will be the minimum required to license each physical server. The 2-core pack for each edition is one-eighth the price of a 2-processor license for corresponding Windows Server 2012 R2 editions.
- Standard Edition provides rights for up to two OSEs or Hyper-V containers when all physical cores in the server are licensed. For every two additional VMs, all the cores in the server have to be licensed again.
- Existing customers’ servers under Software Assurance will receive core grants as required, with documentation.

- For more information, please refer to the [Lenovo Windows Server Core Licensing Calculator](https://www.lenovosalesportal.com/windows-server-2019-core-licensing-calculator.aspx): <https://www.lenovosalesportal.com/windows-server-2019-core-licensing-calculator.aspx>

Client Access License (CAL) & Remote Desktop Session (RDS) CAL

Windows Server 2019 and 2016 have the same licensing model. The Windows Server 2019 and 2016 licensing model includes both Core + Client Access Licenses (CALs). Each user and/or device accessing a licensed Windows Server Standard or Datacenter edition requires a Windows Server CAL or a Windows Server and a Remote Desktop Services (RDS) CAL.

A Windows Server CAL is required when a user or device is directly or indirectly accessing Windows Server. A Remote Desktop Service (RDS) CAL is also required for users that need to access programs or the full desktop remotely using Remote Desktop Services (RDSs). Both Windows Server CAL (user or device) and RDS CAL (user or device) are required for remote desktop access. RDS CALs contain a product key for activation. As an exception to these rules, up to two users or devices may access the server software, only for server administration purposes, without requiring either a RDS CAL or a Windows Server CAL.

Each user and device that connects to a Remote Desktop Session host needs a client access license (CAL). There are two types of RDS CALs: Device CALs and User CALs.

Each user CAL permits one user, using any device, to access instances of the server software on their licensed servers. Each device CAL permits one device, used by any user, to access instances of the server software on their licensed servers.

The following table outlines the differences between the two types of CALs.

Table 2. Comparison of per-device and per-user RDS CALs

Per Device RDS CALs	Per User RDS CALs
CALs are physically assigned to each device.	CALs are assigned to a user in Active Directory.
CALs are tracked and enforced by the license server.	CALs are tracked but not enforced by the license server.
CALs can be tracked regardless of Active Directory membership.	CALs cannot be tracked within a workgroup.
You can revoke up to 20% of CALs.	You cannot revoke any CALs.
Temporary CALs are valid for 52-89 days.	Temporary CALs are not available.
CALs cannot be overallocated.	CALs can be overallocated (in breach of the Remote Desktop licensing agreement).

Also refer to the [Windows Server Licensing FAQ](#) section below.

Downgrade rights

Microsoft Windows Server 2019 and 2016 include the right to use an earlier version of the software in place of the version you have licensed (e.g., downgrade from Windows Server 2019 to Windows Server 2016).

Customers that have Datacenter edition will be able to downgrade to any previous version or edition. Customers with Windows Server 2016, Standard edition customers will be able to downgrade to the previous version of Standard or new with this release, Enterprise edition.

Downgrade rights allows you to downgrade the bits only. The license rules of the purchased version still apply. For example, if a customer wants to downgrade from Windows Server 2016 Standard edition to Windows Server 2008 R2 Enterprise edition, they can run the Enterprise bits, however the license will still cover two processors and allow for 2 virtual instances.

A downgrade kit includes the DVD media of the earlier version of Windows Server and product key for activation.

Windows Server 2019

This section provides information on Windows Server 2019 from Lenovo:

- [Features](#)
- [Feature codes for configure-to-order](#)
- [Part numbers for Reseller Option Kits](#)

Windows Server 2019 is the latest operating system from Microsoft and improves datacenter security, offers unprecedented hyperconverged infrastructure, allows for faster application innovation—all on a unique hybrid datacenter platform. Windows Server 2019 is designed and engineered to help modernize customers' datacenter.

Features

Enhanced security capabilities

For IT professionals, security and compliance are primary concerns. Windows Server 2019 provides capabilities to build high security datacenter environments.

- **Manage privileged identities.** Many breaches can be prevented by protecting administrator credentials. Windows Server 2019 ensure that all apps and system components have just enough access privilege.
- **Secure the operating system.** Discover and address security breaches with integrated Windows Defender Advanced Threat Detection. Help prevent host intrusion with Windows Defender Exploit Guard, which locks down devices against a wide variety of attack vectors and blocks behaviors commonly used in malware attacks.
- **Secure virtualization fabric.** Protect VM workloads from unauthorized access, with Shielded Virtual Machines for Windows Server or Linux workloads. Add another layer of protection for network traffic to and from a VM with Encrypted Subnets.

Hyper-converged Infrastructure

This new deployment model allows you to consolidate compute, storage, and networking into the same nodes allowing you to reduce the infrastructure cost while still getting better performance, scalability, and reliability. HCI gives you the flexibility to easily scale such deployments.

- **Enhanced storage spaces direct**—build software-defined storage using industry standard servers with local storage that can scale up to 1PB per storage pool in Windows Server 2016 and 4PB per storage pool and 64TB per volume in Windows Server 2019.
- **Mirror-accelerated parity**—lets you create volumes that are part mirror and part parity for 2x better performance on storage spaces direct deployments. Writes land first in the mirrored portion and are gradually moved into the parity portion.
- **Data deduplication**—provides volume savings of up to 90% by storing duplicate files on a volume once using logical pointers.
- **Virtual machine storage resiliency**—provides intelligent means to retain virtual-machine session states to minimize the impact of minor storage disruptions.
- **Deduplication for ReFS**—data deduplication is now supported on ReFS to optimize free space on a volume by examining the data for duplicated portions.

Windows Server 2019 CTO Feature Codes

The following tables list the configure-to-order (CTO) feature codes to order Windows Server 2019.

Table 3. Windows Server 2019 CTO Feature Codes

Description	Feature code
WINDOWS SERVER 2019 ESSENTIALS CTO (Processor Based)	
Windows Server 2019 Essentials - Chinese Simplified (factory installed)	S09R
Windows Server 2019 Essentials - English (factory installed)	S09S
Windows Server 2019 Essentials - Japanese (factory installed)	S09T
Windows Server 2019 Essentials - Spanish (factory installed)	S09U
Windows Server 2019 Essentials - Chinese Simplified (not preinstalled)	S09V
Windows Server 2019 Essentials - Chinese Traditional (not preinstalled)	S09W
Windows Server 2019 Essentials - Japanese (not preinstalled)	S09X
Windows Server 2019 Essentials - MultiLang (not preinstalled)	S09Y
WINDOWS SERVER 2019 STANDARD CTO (16 CORE)	
Windows Server 2019 Standard (16 core) - Chinese Simplified (factory installed)	S095
Windows Server 2019 Standard (16 core) - English (factory installed)	S096
Windows Server 2019 Standard (16 core) - Japanese (factory installed)	S097
Windows Server 2019 Standard (16 core) - Spanish (factory installed)	S098
Windows Server 2019 Standard (16 core) - Chinese Simplified (not preinstalled)	S099
Windows Server 2019 Standard (16 core) - Chinese Traditional (not preinstalled)	S09A
Windows Server 2019 Standard (16 core) - Japanese (not preinstalled)	S09B
Windows Server 2019 Standard (16 core) - MultiLang (not preinstalled)	S09C
WINDOWS SERVER 2019 DATACENTER CTO (16 CORE)	
Windows Server 2019 Datacenter (16 core) - Chinese Simplified (factory installed)	S09D
Windows Server 2019 Datacenter (16 core) - English (factory installed)	S09E
Windows Server 2019 Datacenter (16 core) - Japanese (factory installed)	S09F
Windows Server 2019 Datacenter (16 core) - Chinese Simplified (not preinstalled)	S09G
Windows Server 2019 Datacenter (16 core) - Chinese Traditional (not preinstalled)	S09H
Windows Server 2019 Datacenter (16 core) - Japanese (not preinstalled)	S09J
Windows Server 2019 Datacenter (16 core) - MultiLang (not preinstalled)	S09K
2019 TO 2016 ROK DOWNGRADE KIT CTO	
Win Svr Essentials 2019 to 2016 Downgrade Kit-Chin Simp	S0A0
Win Svr Essentials 2019 to 2016 Downgrade Kit-Chin Trad	S0A1
Win Svr Essentials 2019 to 2016 Downgrade Kit-Japanese	S0A2
Win Svr Essentials 2019 to 2016 Downgrade Kit-Multilanguage	S0A3
Win Svr Standard 2019 to 2016 Downgrade Kit-Chin Simp	S0A5
Win Svr Standard 2019 to 2016 Downgrade Kit-Chin Trad	S0A6
Win Svr Standard 2019 to 2016 Downgrade Kit-Japanese	S0A7
Win Svr Standard 2019 to 2016 Downgrade Kit-Multilanguage	S0A8
Win Svr Datacenter 2019 to 2016 Downgrade Kit-Chin Simp	S0AA
Win Svr Datacenter 2019 to 2016 Downgrade Kit-Chin Trad	S0AB
Win Svr Datacenter 2019 to 2016 Downgrade Kit-Japanese	S0AC
Win Svr Datacenter 2019 to 2016 Downgrade Kit-Multilanguage	S0AD
WINDOWS SERVER 2019 CLIENT ACCESS LICENSES CTO (CALs)	

Description	Feature code
Microsoft Windows Server 2019 Client Access License (1 User)	S081
Microsoft Windows Server 2019 Client Access License (5 User)	S083
Microsoft Windows Server 2019 Client Access License (10 User)	S085
Microsoft Windows Server 2019 Client Access License (50 User)	S087
Microsoft Windows Server 2019 Client Access License (1 Device)	S080
Microsoft Windows Server 2019 Client Access License (5 Device)	S082
Microsoft Windows Server 2019 Client Access License (10 Device)	S084
Microsoft Windows Server 2019 Client Access License (50 Device)	S086
WINDOWS SERVER 2019 REMOTE DESKTOP SERVICES ACCESS LICENSES CTO	
Windows Server 2019 Remote Desktop Services Client Access License (1 User)	S089
Windows Server 2019 Remote Desktop Services Client Access License (5 User)	S08B
Windows Server 2019 Remote Desktop Services Client Access License (10 User)	S08D
Windows Server 2019 Remote Desktop Services Client Access License (50 User)	S08F
Windows Server 2019 Remote Desktop Services Client Access License (1 Device)	S088
Windows Server 2019 Remote Desktop Services Client Access License (5 Device)	S08A
Windows Server 2019 Remote Desktop Services Client Access License (10 Device)	S08C
Windows Server 2019 Remote Desktop Services Client Access License (50 Device)	S08E
ADDITIONAL LICENSE CTO	
Windows Server 2019 Standard Additional License (2 core) (No Media/Key) (POS Only*)	S08Z
Windows Server 2019 Datacenter Additional License (2 core) (No Media/Key) (POS Only*)	S090

* POS (point of sale) refers to licenses sold at point of original purchase. These are stacked on base licenses when the number of cores or processors exceeds those covered by the base OS license.

Windows Server 2019 ROK Part Numbers

The following table lists the Reseller Option Kit (ROK) part numbers.

Table 4. Windows Server 2019 ROK Part Numbers

Description	Part number
WINDOWS SERVER 2019 ESSENTIALS ROK (Processor Based)	
Windows Server 2019 Essentials ROK - Chinese Simplified	7S05001NWW
Windows Server 2019 Essentials ROK - Chinese Traditional	7S05001PWW
Windows Server 2019 Essentials ROK - Japanese	7S05001QWW
Windows Server 2019 Essentials ROK - MultiLang	7S05001RWW
WINDOWS SERVER 2019 STANDARD ROK (16 CORE)	
Windows Server 2019 Standard ROK (16 core) - Chinese Simplified	7S050012WW
Windows Server 2019 Standard ROK (16 core) - Chinese Traditional	7S050013WW
Windows Server 2019 Standard ROK (16 core) - Japanese	7S050014WW
Windows Server 2019 Standard ROK (16 core) - MultiLang	7S050015WW
WINDOWS SERVER 2019 DATACENTER ROK (16 CORE)	
Windows Server 2019 Datacenter ROK (16 core) - Chinese Simplified	7S050017WW
Windows Server 2019 Datacenter ROK (16 core) - Chinese Traditional	7S050018WW
Windows Server 2019 Datacenter ROK (16 core) - Japanese	7S050019WW

Description	Part number
Windows Server 2019 Datacenter ROK (16 core) - MultiLang	7S05001AWW
2019 TO 2016 ROK DOWNGRADE KIT ROK	
Win Svr Essentials 2019 to 2016 Downgrade Kit - Chin Simp ROK	7S05001SWW
Win Svr Essentials 2019 to 2016 Downgrade Kit - Chin Trad ROK	7S05001TWW
Win Svr Essentials 2019 to 2016 Downgrade Kit - Japanese ROK	7S05001UWW
Win Svr Essentials 2019 to 2016 Downgrade Kit - Multilanguage ROK	7S05001VWW
Win Svr Standard 2019 to 2016 Downgrade Kit - Chin Simp ROK	7S05001WWW
Win Svr Standard 2019 to 2016 Downgrade Kit - Chin Trad ROK	7S05001XWW
Win Svr Standard 2019 to 2016 Downgrade Kit - Japanese ROK	7S05001YWW
Win Svr Standard 2019 to 2016 Downgrade Kit - Multilanguage ROK	7S05001ZWW
Win Svr Datacenter 2019 to 2016 Downgrade Kit - Chin Simp ROK	7S050020WW
Win Svr Datacenter 2019 to 2016 Downgrade Kit - Chin Trad ROK	7S050021WW
Win Svr Datacenter 2019 to 2016 Downgrade Kit - Japanese ROK	7S050022WW
Win Svr Datacenter 2019 to 2016 Downgrade Kit - Multilanguage ROK	7S050023WW
WINDOWS SERVER 2019 CLIENT ACCESS LICENSES ROK (CALs)	
Microsoft Windows Server 2019 Client Access License (1 Device)	7S050024WW
Microsoft Windows Server 2019 Client Access License (1 User)	7S050025WW
Microsoft Windows Server 2019 Client Access License (5 Device)	7S050026WW
Microsoft Windows Server 2019 Client Access License (5 User)	7S050027WW
Microsoft Windows Server 2019 Client Access License (10 Device)	7S050028WW
Microsoft Windows Server 2019 Client Access License (10 User)	7S050029WW
Microsoft Windows Server 2019 Client Access License (50 Device)	7S05002AWW
Microsoft Windows Server 2019 Client Access License (50 User)	7S05002BWW
WINDOWS SERVER 2019 REMOTE DESKTOP SERVICES ACCESS LICENSES ROK	
Windows Server 2019 Remote Desktop Services Client Access License (1 Device)	7S05002CWW
Windows Server 2019 Remote Desktop Services Client Access License (1 User)	7S05002DWW
Windows Server 2019 Remote Desktop Services Client Access License (5 Device)	7S05002EWW
Windows Server 2019 Remote Desktop Services Client Access License (5 User)	7S05002FWW
Windows Server 2019 Remote Desktop Services Client Access License (10 Device)	7S05002GWW
Windows Server 2019 Remote Desktop Services Client Access License (10 User)	7S05002HWW
Windows Server 2019 Remote Desktop Services Client Access License (50 Device)	7S05002JWW
Windows Server 2019 Remote Desktop Services Client Access License (50 User)	7S05002KWW
ADDITIONAL LICENSE ROK	
Windows Server 2019 Standard Additional License (2 core) (No Media/Key) (APOS)*	7S05002LWW
Windows Server 2019 Standard Additional License (2 core) (No Media/Key) (Reseller POS Only) **	7S05002MWW
Windows Server 2019 Datacenter Additional License (2 core) (No Media/Key) (Reseller POS Only) **	7S05002NWW

* APOS licenses are used if the customer needs to add processors or VM rights to server after original purchase.

** POS (point of sale) refers to licenses sold at point of original purchase. These are stacked on base licenses when the number of cores or processors exceeds those covered by the base OS license.

Windows Server 2016

This section provides information on Windows Server 2016 from Lenovo:

- [Features](#)
- [Feature codes for configure-to-order](#)
- [Part numbers for Reseller Option Kits](#)

Windows Server 2016 is the cloud-ready operating system that supports your current workloads while introducing new technologies that make it easy to transition to cloud computing when you are ready. It delivers powerful new layers of security along with Azure-inspired innovation for the applications and infrastructure that power your business.

Features

Learn more about Windows Server 2016 features at this web page:

<https://docs.microsoft.com/en-us/windows-server/get-started/whats-new-in-windows-server-2016>

Windows Server 2016 CTO Feature Codes

The following table lists the Windows Server 2016 configure-to-order (CTO) feature codes.

Table 5. Windows Server 2016 CTO Feature Codes

Description	Feature code
WINDOWS SERVER 2016 ESSENTIALS CTO (Processor Based)	
Windows Svr 2016 Essentials-English (factory installed)	V2M4BG
Windows Svr 2016 Essentials-Spanish (factory installed)	B1YT
Windows Svr 2016 Essentials-MultiLang (not preinstalled)	V2M6BG
Windows Svr 2016 Essentials-Japanese (not preinstalled)	V2M5BG
Windows Svr 2016 Essentials-ChinSimp (not preinstalled)	V2M2BG
Windows Svr 2016 Essentials-ChinTrad (not preinstalled)	V2M3BG
WINDOWS STORAGE SERVER 2016 STANDARD CTO (Processor Based)	
Windows Storage Svr 2016 Standard-English (factory installed)	V2NZBG
Windows Storage Svr 2016 Standard-Japanese (factory installed)	V2N0BG
Windows Storage Svr 2016 Standard-ChinSimp (factory installed)	V2NWBG
Windows Storage Svr 2016 Standard-MultiLang (not preinstalled)	V2N2BG
Windows Storage Svr 2016 Standard-Japanese (not preinstalled)	V2N1BG
Windows Storage Svr 2016 Standard-ChinSimp (not preinstalled)	V2NXBG
Windows Storage Svr 2016 Standard-ChinTrad (not preinstalled)	V2NYBG
WINDOWS SERVER 2016 STANDARD CTO (16 CORE)	
Windows Svr 2016 Standard (16 core)-English (factory installed)	V2NEBG
Windows Svr 2016 Standard (16 core)-Japanese (factory installed)	V2NFBG
Windows Svr 2016 Standard (16 core)-ChinSimp (factory installed)	V2M7BG
Windows Svr 2016 Standard (16 core)-Spanish (factory installed)	B1YS
Windows Svr 2016 Standard (16 core)-MultiLang (not preinstalled)	V2NMBG
Windows Svr 2016 Standard (16 core)-Japanese (not preinstalled)	V2NJBG
Windows Svr 2016 Standard (16 core)-ChinSimp (not preinstalled)	V2NABG

Description	Feature code
Windows Svr 2016 Standard (16 core)-ChinTrad (not preinstalled)	V2NDBG
WINDOWS SERVER 2016 DATACENTER CTO (16 CORE)	
Windows Svr 2016 Datacenter (16 core)-English (factory installed)	V2MLBG
Windows Svr 2016 Datacenter (16 core)-Japanese (factory installed)	V2MMBG
Windows Svr 2016 Datacenter (16 core)-ChinSimp (factory installed)	V2MDBG
Windows Svr 2016 Datacenter (16 core)-MultiLang (not preinstalled)	B1YS
Windows Svr 2016 Datacenter (16 core)-Japanese (not preinstalled)	V2MUBG
Windows Svr 2016 Datacenter (16 core)-ChinSimp (not preinstalled)	V2MRBG
Windows Svr 2016 Datacenter (16 core)-ChinTrad (not preinstalled)	V2MGBG
Windows Svr 2016 Standard (16 core)-ChinTrad (not preinstalled)	V2MKBG
2016 TO 2012 DOWNGRADE KIT CTO	
Win Svr Standard 2016 to 2012 R2 Downgrade Kit-Multilanguage	Z2NL40
Win Svr Standard 2016 to 2012 R2 Downgrade Kit-Japanese	Z2NH40
Win Svr Standard 2016 to 2012 R2 Downgrade Kit-Chin Simp	Z2M940
Win Svr Standard 2016 to 2012 R2 Downgrade Kit-Chin Trad	Z2NC40
Win Svr Datacenter 2016 to 2012 R2 Downgrade Kit-Multilanguage	Z2MT40
Win Svr Datacenter 2016 to 2012 R2 Downgrade Kit-Japanese	Z2MP40
Win Svr Datacenter 2016 to 2012 R2 Downgrade Kit-Chin Simp	Z2MF40
Win Svr Datacenter 2016 to 2012 R2 Downgrade Kit-Chin Trad	Z2MJ40
WINDOWS SERVER 2016 CLIENT ACCESS LICENSES CTO (CALs)	
Microsoft Windows Svr 2016 CAL (1 User)	V2PLBG
Microsoft Windows Svr 2016 CAL (5 User)	V2PRBG
Microsoft Windows Svr 2016 CAL (10 User)	V2PNBG
Microsoft Windows Svr 2016 CAL (50 User)	V2PTBG
Microsoft Windows Svr 2016 CAL (1 Device)	V2PKBG
Microsoft Windows Svr 2016 CAL (5 Device)	V2PPBG
Microsoft Windows Svr 2016 CAL (10 Device)	V2PMBG
Microsoft Windows Svr 2016 CAL (50 Device)	V2PSBG
WINDOWS SERVER 2016 REMOTE DESKTOP SERVICES CTO (CALs)	
Windows Svr 2016 Remote Desktop Services CAL (1 User)	V2PXBG
Windows Svr 2016 Remote Desktop Services CAL (5 User)	V2P1BG
Windows Svr 2016 Remote Desktop Services CAL (10 User)	V2PWBG
Windows Svr 2016 Remote Desktop Services CAL (50 User)	V2P0BG
Windows Svr 2016 Remote Desktop Services CAL (1 Device)	V2PUBG
Windows Svr 2016 Remote Desktop Services CAL (5 Device)	V2PYBG
Windows Svr 2016 Remote Desktop Services CAL (10 Device)	V2PVBG
Windows Svr 2016 Remote Desktop Services CAL (50 Device)	V2PZBG
ADDITIONAL LICENSE CTO	
Windows Svr 2016 Standard Addl Lic (2 core) (POS Only)*	V2N9BG
Windows Svr 2016 Standard Addl Lic (4 core) (POS Only)*	V2PBBG
Windows Svr 2016 Standard Addl Lic (16 core) (POS Only)*	V2N7BG

Description	Feature code
Windows Svr 2016 Datacenter Addl Lic (2 core) (POS Only)*	V2N5BG
Windows Svr 2016 Datacenter Addl Lic (4 core) (POS Only)*	V2N6BG
Windows Svr 2016 Datacenter Addl Lic (16 core) (POS Only)*	V2N4BG

* POS (point of sale) refers to licenses sold at point of original purchase. These are stacked on base licenses when the number of cores or processors exceeds those covered by the base OS license.

Windows Server 2016 ROK Part Numbers

The following table lists the Reseller Option Kit (ROK) part numbers.

POS (point of sale) refers to licenses sold at point of original purchase. These are stacked on base licenses when the number of cores or processors exceeds those covered by the base OS license.

Table 6. Windows Server 2016 ROK Part Numbers

Description	Part number
WINDOWS SERVER 2016 ESSENTIALS ROK (Processor Based)	
Windows Svr 2016 Essentials ROK - MultiLang	01GU595
Windows Svr 2016 Essentials ROK - Japanese	01GU594
Windows Svr 2016 Essentials ROK - Chinese Simplified	01GU592
Windows Svr 2016 Essentials ROK - Chinese Traditional	01GU593
WINDOWS SERVER 2016 STORAGE ROK (16 CORE)	
Windows Storage Svr 2016 Standard ROK - MultiLang	01GU599
Windows Storage Svr 2016 Standard ROK - Japanese	01GU598
Windows Storage Svr 2016 Standard ROK - Chinese Simplified	01GU596
Windows Storage Svr 2016 Standard ROK - Chinese Traditional	01GU597
WINDOWS SERVER 2016 STANDARD ROK (16 CORE)	
Windows Svr 2016 Standard ROK (16 core) - MultiLang	01GU569
Windows Svr 2016 Standard ROK (16 core) - Japanese	01GU568
Windows Svr 2016 Standard ROK (16 core) - Chinese Simplified	01GU566
Windows Svr 2016 Standard ROK (16 core) - Chinese Traditional	01GU567
Windows Svr 2016 Standard ROK (24 core) - MultiLang	01GU573
Windows Svr 2016 Standard ROK (24 core) - Japanese	01GU572
Windows Svr 2016 Standard ROK (24 core) - Chinese Simplified	01GU569
Windows Svr 2016 Standard ROK (24 core) - Chinese Traditional	01GU568
WINDOWS SERVER 2016 DATACENTER ROK (16 CORE)	
Windows Svr 2016 Datacenter ROK (16 core) - MultiLang	01GU577
Windows Svr 2016 Datacenter ROK (16 core) - Japanese	01GU576
Windows Svr 2016 Datacenter ROK (16 core) - Chinese Simplified	01GU574
Windows Svr 2016 Datacenter ROK (16 core) - Chinese Traditional	01GU575
Windows Svr 2016 Datacenter ROK (24 core) - MultiLang	01GU581
Windows Svr 2016 Datacenter ROK (24 core) - Japanese	01GU580
Windows Svr 2016 Datacenter ROK (24 core) - Chinese Simplified	01GU578
Windows Svr 2016 Datacenter ROK (24 core) - Chinese Traditional	01GU579
2016 TO 2012 DOWNGRADE KIT ROK	

Description	Part number
Win Svr Standard 2016 to 2012 R2 Downgrade Kit-Multilanguage ROK	01GU603
Win Svr Standard 2016 to 2012 R2 Downgrade Kit-Japanese ROK	01GU602
Win Svr Standard 2016 to 2012 R2 Downgrade Kit-Chin Simp ROK	01GU600
Win Svr Standard 2016 to 2012 R2 Downgrade Kit-Chin Trad ROK	01GU601
Win Svr Datacenter 2016 to 2012 R2 Downgrade Kit-Multilanguage ROK	01GU607
Win Svr Datacenter 2016 to 2012 R2 Downgrade Kit-Japanese ROK	01GU606
Win Svr Datacenter 2016 to 2012 R2 Downgrade Kit-Chin Simp ROK	01GU604
Win Svr Datacenter 2016 to 2012 R2 Downgrade Kit-Chin Trad ROK	01GU605
WINDOWS SERVER 2016 DATACENTER ROK w/REASSIGNMENT(16 core)	
Windows Svr 2016 Datacenter ROK w/Reassignment (16 core)-Brazilian	01GU590
Windows Svr 2016 Datacenter ROK w/Reassignment (16 core)-ChinSimp	01GU582
Windows Svr 2016 Datacenter ROK w/Reassignment (16 core)-ChinTrad	01GU583
Windows Svr 2016 Datacenter ROK w/Reassignment (16 core)-English	01GU584
Windows Svr 2016 Datacenter ROK w/Reassignment (16 core)-French	01GU585
Windows Svr 2016 Datacenter ROK w/Reassignment (16 core)-German	01GU586
Windows Svr 2016 Datacenter ROK w/Reassignment (16 core)-Italian	01GU587
Windows Svr 2016 Datacenter ROK w/Reassignment (16 core)-Japanese	01GU588
Windows Svr 2016 Datacenter ROK w/Reassignment (16 core)-Korean	01GU589
Windows Svr 2016 Datacenter ROK w/Reassignment (16 core)-Spanish	01GU591
WINDOWS SERVER 2016 CLIENT ACCESS LICENSES ROK (CALs)	
Microsoft Windows Svr 2016 CAL (1 User)	01GU638
Microsoft Windows Svr 2016 CAL (5 User)	01GU640
Microsoft Windows Svr 2016 CAL (10 User)	01GU642
Microsoft Windows Svr 2016 CAL (50 User)	01GU644
Microsoft Windows Svr 2016 CAL (1 Device)	01GU637
Microsoft Windows Svr 2016 CAL (5 Device)	01GU639
Microsoft Windows Svr 2016 CAL (10 Device)	01GU641
Microsoft Windows Svr 2016 CAL (50 Device)	01GU643
WINDOWS SERVER 2016 REMOTE DESKTOP SERVICES ACCESS LICENSES ROK	
Windows Svr 2016 Remote Desktop Services CAL (1 User)	01GU646
Windows Svr 2016 Remote Desktop Services CAL (5 User)	01GU648
Windows Svr 2016 Remote Desktop Services CAL (10 User)	01GU650
Windows Svr 2016 Remote Desktop Services CAL (50 User)	01GU652
Windows Svr 2016 Remote Desktop Services CAL (1 Device)	01GU645
Windows Svr 2016 Remote Desktop Services CAL (5 Device)	01GU647
Windows Svr 2016 Remote Desktop Services CAL (10 Device)	01GU649
Windows Svr 2016 Remote Desktop Services CAL (50 Device)	01GU651
WINDOWS SERVER 2012 REMOTE DESKTOP SERVICES ACCESS LICENSES ROK	
Windows Remote Desktop Services CAL 2012 (1 User) - Multilanguage	00Y6341
Windows Remote Desktop Services CAL 2012 (1 User) - Multilanguage	00Y6353
Windows Remote Desktop Services CAL 2012 (5 User) - Multilanguage	00Y6342

Description	Part number
Windows Remote Desktop Services CAL 2012 (5 User) - Multilanguage	00Y6354
Windows Remote Desktop Services CAL 2012 (1 Device) - Multilanguage	00Y6343
Windows Remote Desktop Services CAL 2012 (1 Device) - Multilanguage	00Y6355
Windows Remote Desktop Services CAL 2012 (5 Device) - Multilanguage	00Y6344
Windows Remote Desktop Services CAL 2012 (5 Device) - Multilanguage	00Y6356
ADDITIONAL LICENSE ROK	
Windows Svr 2016 Standard Addl Lic (2 core) (Reseller POS Only)	01GU632
Windows Svr 2016 Standard Addl Lic (4 core) (Reseller POS Only)	01GU631
Windows Svr 2016 Standard Addl Lic (16 core) (Reseller POS Only)	01GU630
Windows Svr 2016 Datacenter Addl Lic (2 core) (Reseller POS Only)	01GU635
Windows Svr 2016 Datacenter Addl Lic (4 core) (Reseller POS Only)	01GU634
Windows Svr 2016 Datacenter Addl Lic (16 core) (Reseller POS Only)	01GU633

Windows Server Licensing FAQ

Additional information about licensing.

1. Q: What types of Windows licenses does Lenovo offer?

A: Lenovo offers OEM licenses for Windows Server 2016 and 2019, SQL Server as well as the associated CAL products. Please refer to the product list found at:
<https://dcsc.lenovo.com/#/software>.

2. Q: What is the difference between ROK and DIB and Pre-installed offerings?

A: ROK – the Reseller Option Kit is sold by Lenovo’s authorized resellers and distributors. It is comprised of OS installation media and a MS COA label affixed to the server chassis. Resellers may provide additional OS installation services to the customer.

DIB (Drop-In-Box) – Lenovo factory direct offering that ships OS installation media and a MS COA label affixed to the server chassis (for customers choosing do-it-yourself installations).

Pre-installed – Lenovo factory direct offering that ships OS installation media and MS COA label affixed to the server chassis and the OS factory installed in generic fashion onto the server’s mass storage using recent device drivers.

3. Q: How is Windows Server 2016/2019 licensed?

A: Microsoft has moved licensing for Datacenter and Standard editions from processors to physical cores.

Datacenter Edition provides rights to run unlimited OSEs and unlimited Windows Server containers when all physical cores on the server are licensed.

Standard Edition provides rights to run up to two OSEs or two Hyper-V containers and unlimited Windows Server containers when all physical cores on the server are licensed.

With Windows Server 2016/2019 Datacenter/Standard:

- o Each physical server is required to be licensed for all physical cores
- o Each physical processor is required to be licensed with a minimum of 8 physical cores
- o Each physical server is required to be licensed with a minimum of two processors, totaling a minimum of 16 physical cores
- o Core licenses are sold in packs of two (that is, a 2-pack Core License)

Essentials Edition remains on the processor-based licensing and covers servers with 2 CPUs.

To calculate the appropriate core licenses needed for your server, please visit:

<https://www.lenovosalesportal.com/windows-licensing-calculator.aspx>

4. **Q: What are CALs and do I need them?**

A: CALs (Client Access Licenses) are separately purchased licenses that allow Users or Devices to access resources on a licensed Windows Server OS environment.

Essentials Edition provides support for up to 25 Users; no additional CALs are needed.

Datacenter and Standard Edition include no CALs as part of the Base license. Customers must purchase User or Device CALs appropriate for their needs.

For more detailed information, please reference:

<https://www.microsoft.com/en-us/licensing/product-licensing/client-access-license>

5. **Q: What is a “Base license” versus an “Additional license”?**

A: The 16 core Datacenter and Standard edition Base licenses provide the minimum OS licensing basis for a physical server. Each server requires at least one Base license.

Additional core licenses must be purchased depending on the server’s processor configuration.

To calculate the appropriate core licenses needed for your server, please visit:

<https://www.lenovosalesportal.com/windows-licensing-calculator.aspx>

6. **Q: How are the MS OEM OS licenses delivered?**

A: Base licenses for Datacenter, Standard and Essentials include a Certificate of Authenticity (COA), product key (PK), product software (OS installation DVD), and the Microsoft Software License (formerly known as EULA). Lenovo or Lenovo Resellers will affix the base license COA label to the server chassis (exception being offerings for Windows Server Datacenter w/ Reassignment where the COA remains with the SW Shipgroup that contains the OS installation media).

Additional licenses for Datacenter and Standard include a Certificate of Authenticity (COA), and the Microsoft Software License (formerly known as EULA). The Additional license-COA label is contained affixed to a card in the shrinkwrapped SW Shipgroup (there is no product key included).

OS-CALs for Datacenter and Standard include a Certificate of Authenticity (COA), and the Microsoft Software License (formerly known as EULA). The CAL-COA label is contained affixed to a card in the shrinkwrapped SW Shipgroup (there is no product key included).

RDS-CALs for Datacenter and Standard include a Certificate of Authenticity (COA), product key (PK), and the Microsoft Software License (formerly known as EULA). The RDS-COA label is affixed to a card contained in the shrinkwrapped SW Shipgroup (there is a unique 5x5 product key printed on the RDS CAL label).

Extreme care must be taken to safekeep the provided COA labels (whether they are affixed to the server chassis or contained on the provided SW shipgroup) since there is no way to “reissue” or “replace” these COA labels.

7. **Q: Which licenses are available for purchase after point of sale (APOS)?**

A: Currently Microsoft limits the sale of OEM Base OS license offerings for Essentials, Standard and Datacenter editions to “at Point of Sale” (of the server hardware). However, additional licenses for Standard Edition are also available as “APOS” versions to facilitate customer’s changing need for HW upgrades or adding additional VMs.

Please refer to the product list found at the following page:

<http://dcsc.lenovo.com/#/software>

OS CALs and **RDS CALs** are available for purchase after point of sale.

8. **Q: What are my downgrade rights?**

A: Lenovo offers various “Downgrade” offerings at point of sale. Please refer to the product list found at <http://dcsc.lenovo.com/#/software>. If you are considering making use of your Downgrade rights, it is recommended to purchase these Downgrade kits at the same time as the server purchase.

For After Point of Sale Downgrade options, please reference this support page:
<https://support.lenovo.com/us/en/solutions/ht101582>

9. **Q: Are RDS CALs version specific?**

A: Yes, RDS CALs version must match that of the RDS Host Server’s OS.

For further information please see:
<https://docs.microsoft.com/en-us/windows-server/remote/remote-desktop-services/rds-client-access-license>

10. **Q: Are OS CALs version specific?**

A: CALs are only backwards version compatible, e.g. Windows Server 2019 CAL can be used to access Windows Server 2019 and previous versions.

For further information please see:
<https://www.microsoft.com/en-us/licensing/product-licensing/client-access-license>

11. **Q: Lenovo provided OS media will not install under VMware ESXi.**

A: When attempting to install Microsoft Windows Server using Lenovo-provided installation media into a virtualized computing environment created by VMware ESXi, the install may fail and an error message similar to this is shown:

"Please check with your computer manufacturer to resolve any issues you are having with this computer. These tools are built to only run on Lenovo computers. Since this system is not recognized as a valid system, the installation cannot continue."

Please reference the following solution:
<https://support.lenovo.com/us/en/solutions/HT506366>

12. **Q: Where is my Activation code?**

A: If your SW offering requires an activation code (see #6), then it is printed on a COA label similar to the one pictured here:



Most OEM **Base OS COAs** must be adhered to the server chassis, Depending on the server chassis, the COA label can be found on the top, or the side chassis (typically adjacent to agency labels):



However, due to space constraints, the COA may also be found on the bottom chassis:



Base OS license products “with reassignment” rights are an exception: its COA is attached to a card that is delivered alongside the server shipment.

Note that OEM COAs are “tied” to the hardware with which they were originally purchased with and cannot be transferred to another system unless Microsoft Software Assurance is added within 90 days of buying the server or when reassignment rights are specified within the product terms (e.g. included in “Windows Server 2019 and 2016 Datacenter w/Reassignment Rights” SKU).

CAL offerings do not include an activation code, their CAL-COA labels are proof of purchase only.

RDS CAL offerings do include an activation code on their RDS-COA label which is affixed to a card contained in the shrinkwrapped SW Shipgroup.

13. Q: Can I use my OEM activation code on an image installed with Evaluation or Retail OS images?

A: By Microsoft design, the 25-character activation code (a.k.a. “5x5”) that is printed on the Lenovo OS COA label is designed to only work with OS installations that were performed using the provided Lenovo installation media.

However, Microsoft has published an unsupported method for license conversion which is provided here for additional reference:

<https://docs.microsoft.com/en-us/windows-server/get-started/supported-upgrade-paths#converting-a-current-evaluation-version-to-a-current-retail-version>

Please note that Lenovo is not able to assist with such license conversion workarounds.

14. Q: The activation code on my COA label is damaged.

A: Should the 25-character activation code on the COA label become illegible please contact Lenovo Data Center support at <https://datacentersupport.lenovo.com/us/en/supportphonenumber> and reference the “Damaged COA Replacement Process”.

Note: This process requires a digital picture of the damaged COA to start the replacement process that Lenovo will engage in with Microsoft. Lenovo cannot “replace” or “reissue” COA labels that have been lost.

15. Q: I lost my OS installation media or my media is defective.

A: Lenovo offers replacement of the Lenovo branded OS installation media should it be lost or becomes defective. Please contact Lenovo Data Center Support at: <https://datacentersupport.lenovo.com/us/en/supportphonenumber>

16. Q: Can I reassign a Lenovo OEM Licenses in the case of new hardware or a disaster recovery scenario?

A: Lenovo does offer a Datacenter license that includes reassignment rights, which can be reassigned to a new server every 90 days; in the same manner as volume licensing. Lenovo also offers Datacenter and Standard OEM licenses which are more cost effective, and do not have reassignment rights. Should the customer purchase one of these licenses and require reassignment rights they would need to purchase Software Assurance from a Microsoft volume license reseller.

Note: Software Assurance must be purchased within 90 days of the OEM product and can only be applied to the most recent form of the OS.

SQL Server licensing

Lenovo offers SQL Server 2017 and 2016 Standard Edition.

Lenovo offers the following types of licenses for SQL Server 2017 & 2016:

- CTO (Configure To Order): OEM license that is added to the Lenovo server shipment at manufacturing and requires a Windows Server OS to be selected at the same time.
 - “Core based” (No SQL CALs required)
 - “Server + CAL based” (SQL CALs required)
- ROK (Reseller Option Kit): Sold by Lenovo’s authorized resellers and distributors. SQL Server 2017 & 2016 are offered as a bundled offering with a Windows Server OS such as Windows Server 2019 or Windows Server 2016.
 - Server Based (SQL CALs required)

Note: Both Windows CALs and SQL Server CALs need to be considered. Client Access Licenses (CALs) can be per-user or per-device.

Each user CAL permits one user, using any device, to access instances of the server software on their licensed servers. Each device CAL permits one device, used by any user, to access instances of the server software on their licensed servers.

The maximum compute capacity for SQL standard is 4 sockets / 24 physical or virtual cores and 128GB Memory for DB engines. As there is no restriction in DCSC or a warning given, people should be aware that more than 4 sockets or 24 cores may be unnecessary overkill and they may be overpriced.

For customers if the users / devices connecting to the database are large and unknown, Core base licenses should be suggested. For customers who with a known number of user/ devices Server + CAL is required. The CALs should be chosen based on the users/ devices connecting to database.

SQL Server 2017

This section provides information on SQL Server 2017 from Lenovo:

- [Features](#)
- [Feature codes for configure-to-order](#)
- [Part numbers for Reseller Option Kits](#)

SQL Server 2017 has everything built-in—industry-leading in-memory performance, trusted security, game-changing in-database Advanced Analytics, and the flexibility to run your complete data estate on any environment with any data. All of this comes for less, thanks to unmatched total cost of ownership (TCO).

Features

Learn more about SQL Server 2017 features on this page:

<https://docs.microsoft.com/en-us/sql/sql-server/what-s-new-in-sql-server-2017>

SQL Server 2017 CTO Feature Codes

The following tables list the configure-to-order (CTO) feature codes to order SQL Server 2017.

Table 7. SQL Server 2017 CTO Feature Codes

Description	Feature code
MICROSOFT SQL SERVER 2017 STANDARD CTO (Core Licensing)	
Microsoft SQL Server 2017 Standard 4 core - Brazilian	B1Q8
Microsoft SQL Server 2017 Standard 4 core - ChnSimp	B1Q9

Description	Feature code
Microsoft SQL Server 2017 Standard 4 core - ChnTrad	B1QA
Microsoft SQL Server 2017 Standard 4 core - English	B1QB
Microsoft SQL Server 2017 Standard 4 core - French	B1QC
Microsoft SQL Server 2017 Standard 4 core - German	B1QD
Microsoft SQL Server 2017 Standard 4 core - Italian	B1QE
Microsoft SQL Server 2017 Standard 4 core - Japanese	B1QF
Microsoft SQL Server 2017 Standard 4 core - Korean	B1QG
Microsoft SQL Server 2017 Standard 4 core - Russian	B1QH
Microsoft SQL Server 2017 Standard 4 core - Spanish	B1QJ
MICROSOFT SQL SERVER 2017 STANDARD CTO (Per Server Licensing)	
Microsoft SQL Server 2017 Standard - Brazilian	B1QK
Microsoft SQL Server 2017 Standard - ChnSimp	B1QL
Microsoft SQL Server 2017 Standard - ChnTrad	B1QM
Microsoft SQL Server 2017 Standard - English	B1QN
Microsoft SQL Server 2017 Standard - French	B1QP
Microsoft SQL Server 2017 Standard - German	B1QQ
Microsoft SQL Server 2017 Standard - Italian	B1QR
Microsoft SQL Server 2017 Standard - Japanese	B1QS
Microsoft SQL Server 2017 Standard - Korean	B1QT
Microsoft SQL Server 2017 Standard - Russian	B1QU
Microsoft SQL Server 2017 Standard - Spanish	B1QV
MICROSOFT SQL 2017 STANDARD DOWNGRADE KIT CTO (RESELLER POS ONLY)	
SQL Server Standard Edition 2017 Downgrade Kit - Brazilian	B1QY
SQL Server Standard Edition 2017 Downgrade Kit - ChnSimp	B1QZ
SQL Server Standard Edition 2017 Downgrade Kit - ChnTrad	B1R0
SQL Server Standard Edition 2017 Downgrade Kit - English	B1R1
SQL Server Standard Edition 2017 Downgrade Kit - French	B1R2
SQL Server Standard Edition 2017 Downgrade Kit - German	B1R3
SQL Server Standard Edition 2017 Downgrade Kit - Italian	B1R4
SQL Server Standard Edition 2017 Downgrade Kit - Japanese	B1R5
SQL Server Standard Edition 2017 Downgrade Kit - Korean	B1R6
SQL Server Standard Edition 2017 Downgrade Kit - Russian	B1R7
SQL Server Standard Edition 2017 Downgrade Kit - Spanish	B1R8
MICROSOFT SQL 2017 CLIENT ACCESS LICENSES CTO (CALs)	
Microsoft SQL Server 2017 CAL (1 User)	B1RA
Microsoft SQL Server 2017 CAL (5 User)	B1RC
Microsoft SQL Server 2017 CAL (10 User)	B1RE
Microsoft SQL Server 2017 CAL (1 Device)	B1R9
Microsoft SQL Server 2017 CAL (5 Device)	B1RB
Microsoft SQL Server 2017 CAL (10 Device)	B1RD
ADDITIONAL LICENSE CTO	

Description	Feature code
Microsoft SQL Server 2017 Standard Additional Server License	B1QW
Microsoft SQL Server 2017 Standard 2 Core Additional License	B1QX

SQL Server 2017 ROK Part Numbers

The following tables list the Reseller Option Kit (ROK) part numbers to order SQL Server 2017.

POS (point of sale) refers to licenses sold at point of original purchase. These are stacked on base licenses when the number of cores or processors exceeds those covered by the base OS license.

Table 8. SQL Server 2017 ROK Part Numbers

Description	Part number
MICROSOFT SQL SERVER 2017 STANDARD WITH WINDOWS SERVER 2019 STANDARD ROK (16 core)	
Microsoft SQL Server 2017 Std with Windows Server 2019 Std ROK (16 core) - Brazilian	7S05002PWW
Microsoft SQL Server 2017 Std with Windows Server 2019 Std ROK (16 core) - ChnSimp	7S05002QWW
Microsoft SQL Server 2017 Std with Windows Server 2019 Std ROK (16 core) - ChnTrad	7S05002RWW
Microsoft SQL Server 2017 Std with Windows Server 2019 Std ROK (16 core) - English	7S05002SWW
Microsoft SQL Server 2017 Std with Windows Server 2019 Std ROK (16 core) - French	7S05002TWW
Microsoft SQL Server 2017 Std with Windows Server 2019 Std ROK (16 core) - German	7S05002UWW
Microsoft SQL Server 2017 Std with Windows Server 2019 Std ROK (16 core) - Italian	7S05002VWW
Microsoft SQL Server 2017 Std with Windows Server 2019 Std ROK (16 core) - Japanese	7S05002WVWW
Microsoft SQL Server 2017 Std with Windows Server 2019 Std ROK (16 core)- Korean	7S05002XWW
Microsoft SQL Server 2017 Std with Windows Server 2019 Std ROK (16 core) - Russian	7S05002YWW
Microsoft SQL Server 2017 Std with Windows Server 2019 Std ROK (16 core) - Spanish	7S05002ZWW
MICROSOFT SQL SERVER 2017 Std WITH WINDOWS SERVER 2019 DATACENTER ROK (16 core)	
Microsoft SQL Server 2017 Std with Windows Server 2019 Datacenter ROK (16 core) - Brazilian	7S050030WW
Microsoft SQL Server 2017 Std with Windows Server 2019 Datacenter ROK (16 core) - ChnSimp	7S050031WW
Microsoft SQL Server 2017 Std with Windows Server 2019 Datacenter ROK (16 core) - ChnTrad	7S050032WW
Microsoft SQL Server 2017 Std with Windows Server 2019 Datacenter ROK (16 core) - English	7S050033WW
Microsoft SQL Server 2017 Std with Windows Server 2019 Datacenter ROK (16 core) - French	7S050034WW
Microsoft SQL Server 2017 Std with Windows Server 2019 Datacenter ROK (16 core) - German	7S050035WW
Microsoft SQL Server 2017 Std with Windows Server 2019 Datacenter ROK (16 core) - Italian	7S050036WW
Microsoft SQL Server 2017 Std with Windows Server 2019 Datacenter ROK (16 core) - Japan	7S050037WW
Microsoft SQL Server 2017 Std with Windows Server 2019 Datacenter ROK (16 core)- Korean	7S050038WW
Microsoft SQL Server 2017 Std with Windows Server 2019 Datacenter ROK (16 core) - Russian	7S050039WW
Microsoft SQL Server 2017 Std with Windows Server 2019 Datacenter ROK (16 core) - Spanish	7S05003AWW
MICROSOFT SQL SERVER 2017 STANDARD WITH WINDOWS SERVER 2016 STANDARD ROK (16 core)	
MS SQL Server 2017 Std w/Win Server 2016 Std ROK (16 core)-Brazilian	7S050001WW
MS SQL Server 2017 Std w/Win Server 2016 Std ROK (16 core)-ChnSimp	7S050002WW
MS SQL Server 2017 Std w/Win Server 2016 Std ROK (16 core)-ChnTrad	7S050003WW
MS SQL Server 2017 Std w/Win Server 2016 Std ROK (16 core)-English	7S050004WW
MS SQL Server 2017 Std w/Win Server 2016 Std ROK (16 core)-French	7S050005WW
MS SQL Server 2017 Std w/Win Server 2016 Std ROK (16 core)-German	7S050006WW

Description	Part number
MS SQL Server 2017 Std w/Win Server 2016 Std ROK (16 core)-Italian	7S050007WW
MS SQL Server 2017 Std w/Win Server 2016 Std ROK (16 core)-Japanese	7S050008WW
MS SQL Server 2017 Std w/Win Server 2016 Std ROK (16 core)-Korean	7S050009WW
MS SQL Server 2017 Std w/Win Server 2016 Std ROK (16 core)-Russian	7S05000AWW
MS SQL Server 2017 Std w/Win Server 2016 Std ROK (16 core)-Spanish	7S05000BWW
MICROSOFT SQL SERVER 2017 STANDARD WITH WINDOWS SERVER 2016 DATACENTER ROK (16 core)	
MS SQL Server 2017 Std w/Win Server 2016 Dtc ROK (16 core)-Brazilian	7S05000CWW
MS SQL Server 2017 Std w/Win Server 2016 Dtc ROK (16 core)-ChnSimp	7S05000DWW
MS SQL Server 2017 Std w/Win Server 2016 Dtc ROK (16 core)-ChnTrad	7S05000EWW
MS SQL Server 2017 Std w/Win Server 2016 Dtc ROK (16 core)-English	7S05000FWW
MS SQL Server 2017 Std w/Win Server 2016 Dtc ROK (16 core)-French	7S05000GWW
MS SQL Server 2017 Std w/Win Server 2016 Dtc ROK (16 core)-German	7S05000HWW
MS SQL Server 2017 Std w/Win Server 2016 Dtc ROK (16 core)-Italian	7S05000JWW
MS SQL Server 2017 Std w/Win Server 2016 Dtc ROK (16 core)-Japanese	7S05000KWW
MS SQL Server 2017 Std w/Win Server 2016 Dtc ROK (16 core)-Korean	7S05000LWW
MS SQL Server 2017 Std w/Win Server 2016 Dtc ROK (16 core)-Russian	7S05000MWW
MS SQL Server 2017 Std w/Win Server 2016 Dtc ROK (16 core)-Spanish	7S05000NWW
MICROSOFT SQL 2017 CLIENT ACCESS LICENSES ROK (CALs)	
Microsoft SQL Server 2017 CAL (1 User)	01DC305
Microsoft SQL Server 2017 CAL (5 User)	01DC307
Microsoft SQL Server 2017 CAL (10 User)	01DC309
Microsoft SQL Server 2017 CAL (1 Device)	01DC304
Microsoft SQL Server 2017 CAL (5 Device)	01DC306
Microsoft SQL Server 2017 CAL (10 Device)	01DC308
MICROSOFT SQL 2017 STANDARD DOWNGRADE KIT ROK (RESELLER POS ONLY)	
SQL Server Std Edition 2017 Downgrade Kit - Brazilian (Reseller POS Only)	7S05000PWW
SQL Server Std Edition 2017 Downgrade Kit - ChnSimp (Reseller POS Only)	7S05000QWW
SQL Server Std Edition 2017 Downgrade Kit - ChnTrad (Reseller POS Only)	7S05000RWW
SQL Server Std Edition 2017 Downgrade Kit - English (Reseller POS Only)	7S05000SWW
SQL Server Std Edition 2017 Downgrade Kit - French (Reseller POS Only)	7S05000TWW
SQL Server Std Edition 2017 Downgrade Kit - German (Reseller POS Only)	7S05000UWW
SQL Server Std Edition 2017 Downgrade Kit - Italian (Reseller POS Only)	7S05000VWW
SQL Server Std Edition 2017 Downgrade Kit - Japanese (Reseller POS Only)	7S05000WWW
SQL Server Std Edition 2017 Downgrade Kit - Korean (Reseller POS Only)	7S05000XWW
SQL Server Std Edition 2017 Downgrade Kit - Russian (Reseller POS Only)	7S05000YWW
SQL Server Std Edition 2017 Downgrade Kit - Spanish (Reseller POS Only)	7S05000ZWW
ADDITIONAL LICENSE ROK	
MS SQL Server 2017 Standard Addl Server Lic (Reseller POS Only)	7S050010WW

SQL Server 2016

This section provides information on SQL Server 2016 from Lenovo:

- [Features](#)
- [Feature codes for configure-to-order](#)
- [Part numbers for Reseller Option Kits](#)

Features

Learn more about SQL Server 2016 features at this page:

<https://docs.microsoft.com/en-us/sql/sql-server/what-s-new-in-sql-server-2016>

SQL Server 2016 CTO Feature Codes

The following tables list the configure-to-order (CTO) feature codes to order SQL Server 2016.

Table 9. SQL Server 2016 CTO Feature Codes

Description	Feature code
MICROSOFT SQL SERVER 2016 STANDARD CTO (Core Licensing)	
Microsoft SQL Server 2016 Standard 8 core - Brazilian	AW8Q
Microsoft SQL Server 2016 Standard 8 core - ChnSimp	AW8R
Microsoft SQL Server 2016 Standard 8 core - ChnTrad	AW8S
Microsoft SQL Server 2016 Standard 8 core - English	AW8T
Microsoft SQL Server 2016 Standard 8 core - French	AW8U
Microsoft SQL Server 2016 Standard 8 core - German	AW8V
Microsoft SQL Server 2016 Standard 8 core - Italian	AW8W
Microsoft SQL Server 2016 Standard 8 core - Japanese	AW8X
Microsoft SQL Server 2016 Standard 8 core - Korean	AW8Y
Microsoft SQL Server 2016 Standard 8 core - Russian	AW8Z
Microsoft SQL Server 2016 Standard 8 core - Spanish	AW90
MICROSOFT SQL SERVER 2016 STANDARD CTO (Per Server Licensing)	
Microsoft SQL Server 2016 Standard 8 core - Brazilian	AW91
Microsoft SQL Server 2016 Standard 8 core - ChnSimp	AW92
Microsoft SQL Server 2016 Standard 8 core - ChnTrad	AW93
Microsoft SQL Server 2016 Standard 8 core - English	AW94
Microsoft SQL Server 2016 Standard 8 core - French	AW95
Microsoft SQL Server 2016 Standard 8 core - German	AW96
Microsoft SQL Server 2016 Standard 8 core - Italian	AW97
Microsoft SQL Server 2016 Standard 8 core - Japanese	AW98
Microsoft SQL Server 2016 Standard 8 core - Korean	AW99
Microsoft SQL Server 2016 Standard 8 core - Russian	AW9A
Microsoft SQL Server 2016 Standard 8 core - Spanish	AW9B
MICROSOFT SQL SERVER 2016 STANDARD CTO	
SQL Server Standard Edition 2016 Downgrade to 2014 - Brazilian	AW9E
SQL Server Standard Edition 2016 Downgrade to 2014 - ChnSimp	AW9F

Description	Feature code
SQL Server Standard Edition 2016 Downgrade to 2014 - ChnTrad	AW9G
SQL Server Standard Edition 2016 Downgrade to 2014 - English	AW9H
SQL Server Standard Edition 2016 Downgrade to 2014 - French	AW9J
SQL Server Standard Edition 2016 Downgrade to 2014 - German	AW9K
SQL Server Standard Edition 2016 Downgrade to 2014 - Italian	AW9L
SQL Server Standard Edition 2016 Downgrade to 2014 - Japanese	AW9M
SQL Server Standard Edition 2016 Downgrade to 2014 - Korean	AW9N
SQL Server Standard Edition 2016 Downgrade to 2014 - Russian	AW9P
SQL Server Standard Edition 2016 Downgrade to 2014 - Spanish	AW9Q
MICROSOFT SQL 2016 CLIENT ACCESS LICENSES CTO (CALs)	
Microsoft SQL Server 2016 CAL (1 User)	V2PEBG
Microsoft SQL Server 2016 CAL (5 User)	V2PJBG
Microsoft SQL Server 2016 CAL (10 User)	V2PGBG
Microsoft SQL Server 2016 CAL (1 Device)	V2PDBG
Microsoft SQL Server 2016 CAL (5 Device)	V2PHBG
Microsoft SQL Server 2016 CAL (10 Device)	V2PFBG
ADDITIONAL LICENSE CTO	
Microsoft SQL Server 2016 Standard Additional Server License	AW9C
Microsoft SQL Server 2016 Standard 2 Core Additional License	AW9D

SQL Server 2016 ROK Part Numbers

The following tables list the Resller Option Kit (ROK) part numbers to order SQL Server 2016.

POS (point of sale) refers to licenses sold at point of original purchase. These are stacked on base licenses when the number of cores or processors exceeds those covered by the base OS license.

Table 10. SQL Server 2016 ROK Part Numbers

Description	Part number
MICROSOFT SQL SERVER 2016 STANDARD WITH WINDOWS SERVER 2016 STANDARD ROK (16 core)	
MS SQL Svr 2016 Std w/Win Svr 2016 Std ROK (16 core)-English	01GU611
MS SQL Svr 2016 Std w/Win Svr 2016 Std ROK (16 core)-French	01GU612
MS SQL Svr 2016 Std w/Win Svr 2016 Std ROK (16 core)-German	01GU613
MS SQL Svr 2016 Std w/Win Svr 2016 Std ROK (16 core)-Italian	01GU614
MS SQL Svr 2016 Std w/Win Svr 2016 Std ROK (16 core)-Russian	01GU617
MS SQL Svr 2016 Std w/Win Svr 2016 Std ROK (16 core)-Spanish	01GU618
MS SQL Svr 2016 Std w/Win Svr 2016 Std ROK (16 core)-Brazilian	01GU608
MS SQL Svr 2016 Std w/Win Svr 2016 Std ROK (16 core)-Japanese	01GU615
MS SQL Svr 2016 Std w/Win Svr 2016 Std ROK (16 core)-ChnSimp	01GU609
MS SQL Svr 2016 Std w/Win Svr 2016 Std ROK (16 core)-ChnTrad	01GU610
MS SQL Svr 2016 Std w/Win Svr 2016 Std ROK (16 core)-Korean	01GU616
MICROSOFT SQL SERVER 2016 STANDARD WITH WINDOWS SERVER 2016 DATACENTER ROK (16 core)	
MS SQL Svr 2016 Std w/Win Svr 2016 Dtc ROK (16 core)-English	01GU622
MS SQL Svr 2016 Std w/Win Svr 2016 Dtc ROK (16 core)-French	01GU623
MS SQL Svr 2016 Std w/Win Svr 2016 Dtc ROK (16 core)-German	01GU624
MS SQL Svr 2016 Std w/Win Svr 2016 Dtc ROK (16 core)-Italian	01GU625
MS SQL Svr 2016 Std w/Win Svr 2016 Dtc ROK (16 core)-Russian	01GU628
MS SQL Svr 2016 Std w/Win Svr 2016 Dtc ROK (16 core)-Spanish	01GU629
MS SQL Svr 2016 Std w/Win Svr 2016 Dtc ROK (16 core)-Brazilian	01GU619
MS SQL Svr 2016 Std w/Win Svr 2016 Dtc ROK (16 core)-Japanese	01GU626
MS SQL Svr 2016 Std w/Win Svr 2016 Dtc ROK (16 core)-ChnSimp	01GU620
MS SQL Svr 2016 Std w/Win Svr 2016 Dtc ROK (16 core)-ChnTrad	01GU621
MS SQL Svr 2016 Std w/Win Svr 2016 Dtc ROK (16 core)-Korean	01GU627
WINDOWS SERVER 2016 CLIENT ACCESS LICENSES ROK (CALs)	
Microsoft Windows Svr 2016 CAL (1 User)	01GU638
Microsoft Windows Svr 2016 CAL (5 User)	01GU640
Microsoft Windows Svr 2016 CAL (10 User)	01GU642
Microsoft Windows Svr 2016 CAL (50 User)	01GU644
Microsoft Windows Svr 2016 CAL (1 Device)	01GU637
Microsoft Windows Svr 2016 CAL (5 Device)	01GU639
Microsoft Windows Svr 2016 CAL (10 Device)	01GU641
Microsoft Windows Svr 2016 CAL (50 Device)	01GU643
ADDITIONAL LICENSE ROK	
MS SQL Svr 2016 Standard Addl Svr Lic (Reseller POS Only)	01GU636

Lenovo Compatibility

The Lenovo Server Operating System Interoperability Guide (OSIG) is a comprehensive source of information about operating system compatibility with Lenovo servers. It includes servers in the ThinkSystem, ThinkAgile, System x, ThinkServer, NeXtScale, Flex System and BladeCenter product families and covers servers that are currently supported by Lenovo under warranty.

For more information, please visit the OSIG page: <http://lenovopress.com/osig>. **Use the dropdown menus to filter and finetune your search.** In each of the search results, the support statement column contains clickable links that opens a popup window with details about the support.

For Lenovo option compatibility, the Lenovo ServerProven® program validates selected products for compatibility with all Lenovo ThinkSystem servers. Through the ServerProven Program, Lenovo works with industry leaders to test their equipment with Lenovo products.

For compatibility information, please visit: <http://static.lenovo.com/us/en/serverproven/index.shtml>. For more details, please click on the Lenovo product. For compatibility with OS, please click on the green + button to expand the section.

XClarity Integrator

Lenovo XClarity Integrator enables XClarity Administrator to integrate into your existing IT applications, providing the functionality you need to manage Lenovo infrastructure right in the console of the software tools that you already use. XClarity Administrator is a centralized resource management solution that reduces complexity, speeds response, and enhances the availability of Lenovo ThinkSystem infrastructure and ThinkAgile solutions.

For more information on XClarity Administrator, visit:
<https://lenovopress.com/tips1200-lenovo-xclarity-administrator>

XClarity Integrator for Microsoft System Center

Lenovo XClarity Integrator for Microsoft System Center expands Microsoft System Center server management capabilities by integrating Lenovo hardware management functionality, providing affordable, basic management of physical and virtual environments to reduce the time and effort required for routine system administration.

Lenovo XClarity Integrator integrates with the following Microsoft System Center tools:

- Microsoft System Center Configuration Manager
- Microsoft System Center Operations Manager
- Microsoft System Center Virtual Machine Manager

Download XClarity Integrator for Microsoft System Center from:
<https://support.lenovo.com/us/en/solutions/Invo-msuim>

XClarity Integrator for Windows Admin Center

Lenovo XClarity Integrator for Windows Admin allows you to manage your Lenovo infrastructure from the console of Windows Admin Center. Windows Admin Center is a locally deployed, browser-based app for managing servers, clusters, hyper-converged infrastructure, and Windows 10 PCs.

The Windows Admin Center is a free download separate from Windows Server 2019, available from Microsoft:
<https://docs.microsoft.com/en-us/windows-server/manage/windows-admin-center/understand/windows-admin-center>

Download XClarity Integrator for Windows Admin Center from:
<https://support.lenovo.com/us/en/solutions/HT507549>

XClarity Integrator for Microsoft Azure Analytics

Lenovo XClarity Integrator for Microsoft Azure Log Analytics lets you analyze events from Lenovo XClarity Administrator and the devices that it manages. These insights can help systems administrators find potential problems in their environment.

Download XClarity Integrator for Microsoft Azure Analytics from:
<https://support.lenovo.com/us/en/solutions/ht506712>

Support from Lenovo

Lenovo's Enterprise Server Software Support service provides comprehensive, single-source support for a wide range of server operating systems and Microsoft server applications. Lenovo provides 24x7x365 service for critical problems, and support during business hours for noncritical problems. If live phone help is unavailable during those service windows, responses are provided within 2 hours.

For more information, see the following web page:

<https://support.lenovo.com/us/en/solutions/ht504357>

Microsoft Solutions from Lenovo

Lenovo offers a broad range of Microsoft based solutions in varying levels of integration to meet different customer requirements and business needs. Solutions range from the turnkey factory-integrated, pre-configured ready-to-go Lenovo ThinkAgile SX series of appliances to build-your-own Engineered Solutions based on Lenovo's proven reference architecture and everything in between.

ThinkAgile MX Certified Nodes

Storage Spaces Direct is a feature of Windows Server 2016 and 2019 Datacenter Editions, provided at no extra cost and can be used to build a Hyper-Converged Storage solution. It also supports "Disaggregated Mode", with no available VM's, to create a Software Defined Storage environment.

Storage Spaces Direct is software defined storage, using pre-validated Lenovo server configurations with local-attached drives to create software-defined storage at a fraction of the cost of traditional SAN or NAS arrays. Its converged or hyper-converged architecture radically simplifies procurement and deployment, while features such as caching, storage tiers, and erasure coding, together with the latest hardware innovations such as RDMA networking and NVMe drives, deliver unrivaled efficiency and performance.

Storage Spaces Direct is included in Windows Server 2016 and 2019 Datacenter Editions.

ThinkAgile MX Certified nodes combine the Microsoft Storage Spaces Direct technology included in Windows Server 2019 Datacenter and Windows Server 2016 Datacenter with industry leading Lenovo servers to give HCI building blocks to build your infrastructure solutions. ThinkAgile MX Certified Nodes are designed for deploying highly available, highly scalable hyper-converged infrastructure (HCI) and software-defined storage (SDS) from Microsoft on Lenovo enterprise platforms.

ThinkAgile MX Certified Nodes are built on industry-leading Lenovo ThinkSystem servers that feature enterprise-class reliability, management, and security. The ThinkAgile MX Certified Nodes offer ThinkAgile Advantage Single Point of Support for quick 24/7 problem reporting and resolution. The ThinkAgile MX Certified Nodes can be optimized for various types of workloads, including general purpose workloads for small and medium businesses, virtual desktop infrastructure (VDI), server virtualization, enterprise applications, databases, and data analytics.

Related links:

- [ThinkAgile MX Product page](#)
- [ThinkAgile MX Product Guide](#)
- [ThinkAgile MX Datasheet](#)
- [ThinkAgile MX 3D Tour](#)

ThinkAgile SX for Microsoft Azure Stack

Lenovo ThinkAgile SX for Microsoft Azure Stack is a turnkey, rack-scale solution optimized with a resilient, high-performing, and secure software-defined infrastructure. Lenovo and Microsoft worked together to engineer the solution components—the Azure Stack software and Lenovo software-defined infrastructure—to make sure they perform seamlessly. ThinkAgile SX for Microsoft Azure Stack is a preintegrated, engineered solution that comes direct from Lenovo—ready to go—with all features, support, and deployment services included.

With benefits like IT agility, lower TCO, and a transformative customer experience, ThinkAgile SX for Microsoft Azure Stack provides the ease and speed of a public cloud with the security and control of on-premises IT. There is no need to worry about configuring and tweaking settings for virtual or physical infrastructure. Your IT personnel can now focus more on building proficiencies in deploying and operating cloud services—such as IaaS, PaaS, and SaaS—and less on your infrastructure.

ThinkAgile SX for Microsoft Azure Stack is the perfect platform to:

- Deliver Azure cloud services from the security of your own data center
- Enable rapid development and iteration of applications with on-premises deployment tools to help transform your organization
- Unify application development across your entire hybrid cloud environment
- Easily move applications and data across private and public clouds

Related links:

- [ThinkAgile SX for Microsoft Azure Stack Product Page](#)
- [ThinkAgile SX for Microsoft Azure Stack \(SXM4200, SXM6200\) Product Guide](#) .
- [ThinkAgile SX for Microsoft Azure Stack Datasheet](#)
- [Introducing the Microsoft Azure Stack Development Kit on Lenovo Servers](#)
- [ThinkAgile SX for Microsoft Azure Stack 3D Tour](#)

Engineered Solutions

Lenovo Database Solutions for Microsoft SQL Server bring together the right mix of technology and software to align with a range of data warehouse and transactional database use cases. The configurations integrate a variety of Lenovo Systems and appliances, robust Lenovo Storage options and the capabilities of Microsoft SQL Server 2016 and SQL Server 2017 Enterprise and Standard Editions to provide the following benefits:

- Improved time to value with pretested hardware configurations
- Optimized SQL server deployment with a significant reduction in hardware testing and tuning
- Reduced total cost of ownership through better price and performance, rapid deployment, and advanced hardware
- Consolidated storage and matched IT investment-to-information-value with several high performance storage options

Lenovo ThinkSystem based Microsoft OLAP Database Solutions:

- [Lenovo Database Performance Benchmarks](#)
- [Lenovo Database Solution for Microsoft SQL Server](#)
- [Lenovo Database Solution for Microsoft SQL Server RA](#)
- [Lenovo Database Configuration for Microsoft SQL DWFT – 10 TB](#)
- [Lenovo Database Configuration for Microsoft SQL DWFT – 50 TB with Intel DCPMM](#)

- [Lenovo Database Configuration for Microsoft SQL DWFT – 50 TB](#)
- [Lenovo Database Configuration for Microsoft SQL DWFT – 50 TB HA](#)
- [Lenovo Database Configuration for Microsoft SQL DWFT – 65 TB HA](#)
- [Lenovo Database Configuration for Microsoft SQL DWFT – 200 TB](#)

Intel Select Solutions–Lenovo Database Configurations for Microsoft SQL Server OLTP:

Through the Intel Select Solution program, Lenovo offers a growing portfolio of high availability Microsoft SQL Server OLTP solutions featuring the robust ThinkSystem SR630 and SR650 servers. These transactional database offerings combine high-performance and cost effective server platforms with Microsoft SQL Server software.

- [Lenovo Database Configurations for Microsoft SQL Server 2016 OLTP](#)
- [Lenovo Database Configuration for Microsoft SQL Server 2017 OLTP](#)

Lenovo Database Configuration for Microsoft SQL Server OLTP on ThinkSystem Servers:

- [Lenovo Database Configuration for Microsoft SQL Server Enterprise OLTP on SR650](#)
- [Lenovo Database Configuration for Microsoft SQL Server Standard OLTP on SR650](#)
- [Lenovo Database Configuration for Microsoft SQL Server Standard OLTP on SR650 w RHEL](#)
- [Lenovo Database Configuration for Microsoft SQL Server OLTP on SR950](#)

Lenovo Database Validated Design for Microsoft SQL Server OLTP on VMware vSAN:

- [Lenovo Database Validated Design for Microsoft OLTP with VMware vSAN](#)
- [Lenovo Database Validated Design for Microsoft OLTP with VMware vSAN](#)

Lenovo Database Validated Design for Microsoft SQL Server OLTP on ThinkAgile

- [Workloads using Lenovo ThinkAgile HX Series](#)

Lenovo Database Validated Design for Microsoft SQL Server OLTP on ThinkAgile SXM:

- [Lenovo Database Reference Architecture for Microsoft SQL OLTP on ThinkAgile SXM](#)

Additional resources

These web pages provide additional information:

- [Microsoft OS Support Center](#)
- [Microsoft Windows Server Catalog](#)

Related product families

Product families related to this document are the following:

- [Microsoft Windows](#)
- [Microsoft Alliance](#)

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