Manuals+ — User Manuals Simplified.

Lenovo Microsoft Software Solution User Guide

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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 Think System infrastructure and Think Agile solutions to provide the most reliable, secure, and high-performing datacenters for our customers. Built with proven Lenovo innovation, Lenovo Think System servers and Think Agile 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 Think System 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 subscriptions offerings, giving customers a single point of support for their entire datacenter. For OEM licenses support, please ask for support plans to your Lenovo sales representative. 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 Server. Refer to https://lenovopress.com/lp0720-sr950-tpch-benchmark-result-2017-07-11. When you purchase Microsoft SQL Server 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.

Microsoft Subscription Licenses

Microsoft subscription licenses are available via select countries enrolled in the Microsoft CSP program. Check the habilitation of your country with your Lenovo sales representative. Microsoft offers a variety of Windows Server and SQL server subscription licenses in in both 1-year and 3-years terms. Microsoft subscription licenses provide customers with latest software versions, complete mobility, and continuous support among other benefits. Below

is a comparison between perpetual and subscription licenses from Microsoft:
Microsoft Subscription Licenses

	Perpetual Licenses	Subscription Licenses
Mobility	No	Yes
Version	Specific	Latest (always)
Updates	Needed	Not applicable
Upgrades	Available	Not applicable
Support	Until EOL	Continuous
Renewal	Not applicable	Required (end-of-Term)

Windows Server Subscriptions

Microsoft offers the following Windows Server subscriptions, both in 1-year and 3-year terms:

- Windows Server CAL (Device)
- Windows Server CAL (User)
- Windows Server RMS CAL (Device)
- Windows Server RMS CAL (User)
- Windows Server Standard (8 Cores)
- Windows Server Remote Desktop (User)

For more information regarding features and applications for WS version, please visit the Microsoft Windows Server page at
https://docs.microsoft.com/en-us/windows-server/administration/server-core/server-core-roles-and-services. To order Windows Server subscriptions, please refer to the Microsoft Subscription Licenses section.
SQL Server Subscriptions
Microsoft offers the following SQL Server subscriptions, both in 1-year and 3-year terms:

- Microsoft SQL Server Standard (2 Cores)
- Microsoft SQL Server Enterprise (2 Cores)

For more information regarding SQL Server 2019, please visit the Microsoft SQL Server page at
https:**//www.microsoft.com/en-us/Licensing/product-licensing/sql-server?activetab=sql-server-pivot:primaryr2&rtc=1**. To order SQL Server subscriptions, please refer to table "Microsoft Subscription Licenses – Part Numbers" below.
Microsoft Subscription Licenses – Part Numbers

Description	Part number
Windows Server	
Windows Server CAL – 1 Device CAL – 1 year Subscription	7S0T0005WW
Windows Server CAL – 1 Device CAL – 3 years Subscription	7S0T0006WW
Windows Server CAL – 1 User CAL – 1 year Subscription	7S0T0007WW
Windows Server CAL – 1 User CAL – 3 years Subscription	7S0T0008WW
Windows Server RMS CAL – 1 Device CAL – 1 year Subscription	7S0T0009WW
Windows Server RMS CAL – 1 Device CAL – 3 years Subscription	7S0T000AWW
Windows Server RMS CAL – 1 User CAL – 1 year Subscription	7S0T000BWW
Windows Server RMS CAL – 1 User CAL – 3 years Subscription	7S0T000CWW
Windows Server Remote Desktop Services CAL-1 User CAL -1 Year Subscription	7S0T000FWW
Windows Server Remote Desktop Services CAL-1 User CAL -3 Year Subscription	7S0T000GWW
Windows Server Standard – 8 Core License Pack – 1 year Subscription	7S0T000DWW
Windows Server Standard – 8 Core License Pack – 3 years Subscription	7S0T000EWW
Microsoft SQL Server	
Microsoft SQL Server Enterprise – 2 Core License Pack – 1 year Subscription	7S0T0001WW
Microsoft SQL Server Enterprise – 2 Core License Pack – 3 year Subscription	7S0T0002WW
Microsoft SQL Server Standard – 2 Core License Pack – 1 year Subscription	7S0T0003WW
Microsoft SQL Server Standard – 2 Core License Pack – 3 year Subscription	7S0T0004WW

Microsoft Azure Plans

The Microsoft Azure cloud platform is more than 200 products and cloud services designed to help you bring new solutions to life—to solve today's challenges and create the future. Build, run, and manage applications across multiple clouds, on-premises, and at the edge, with the tools and frameworks of your choice. Only a single Azure Plan is required in order to order unlimited number of Azure Cloud Services. Amongst popular and high demand Azure Services are:

- Azure Stack HCI
- Azure Stack HUB
- Azure Backup
- Azure Storage
- Azure File Sync
- Azure Site Recovery
- Azure Monitor
- Azure Update Management
- Azure Virtual Machines
- Azure SQL Server

Please visit the following Azure page for a complete list of available Azure Cloud Services:
https://azure.microsoft.com/en-us/services/
All Azure Cloud Services are available by Lenovo through a single part number (PN). This PN registers customers to a Lenovo Azure Tenant portal. Through this portal, customers can activate and manage all Azure Cloud Services for their accounts. The following customer information is required at PoS (point of sale) for Lenovo to provide end-user access to Lenovo Azure Tenant portal:

- Valid contact name
- Valid contact email address
- Valid domain

To order an Azure Plan from Lenovo (support plan available), please refer to table "Azure Plan – Part Numbers" below:
Azure Plan – Part Numbers

Description	Part number
Azure Cloud Services	
Azure Plan	7S0T000HWW
Lenovo Support for Azure Cloud – 1 year subscription**	7S0T000LWW

Microsoft is solely responsible for measuring and providing accurate Azure Cloud Services consumed by a customer's Azure Plan. Lenovo will provide a monthly bill to customers or reseller partners based upon Microsoft's Azure Plan consumption reports. For more information regarding Azure, please visit:

- Microsoft Azure
- Azure Documentation
- Azure Pricing Estimator

Microsoft Azure Reserved Instances

Microsoft Azure platform also provides a pre-paid discounted variation of a selected number of Azure Cloud Services. These services can be pre-paid for both 1-year and 3-years terms. End-users have the entire term to consume reserved instances of Azure Cloud Services. Information regarding available Azure Cloud Service Reserved Instances and discounts can be found at Microsoft's Azure Pricing Estimator page . All Azure Cloud Services are available by Lenovo through a single part number (PN). This PN registers customers to a Lenovo Azure Tenant portal. Through this portal, customers can activate and manage all Azure Cloud Services for their accounts. The following customer information is required at PoS (point of sale) for Lenovo to provide end-user access to Lenovo Azure Tenant portal:

- Valid contact name
- Valid contact email address
- Valid domain

To order an Azure Reserved Instances from Lenovo (support plan available), please refer to table "Azure Reserved Instances – Part Numbers" below:
Azure Reserved Instances – Part Numbers

Description	Part number
Azure Cloud Services	
Azure Reserved Instance – 1 year Term	7S0T000JWW
Azure Reserved Instance – 3 year Term	7S0T000KWW
Lenovo Support for Azure Cloud – 1 year subscription**	7S0T000LWW

Microsoft is solely responsible for measuring and providing accurate Azure Cloud Services consumed by a customer's Azure Plan. Lenovo will provide a monthly bill to customers or reseller partners based upon Microsoft's Azure Plan consumption reports. For more information regarding Azure, please visit:

- Microsoft Azure
- Azure Documentation

Lenovo Support for Azure Plan & Reserved Instances

Lenovo offers support for all Azure Pans and Azure Reserved Instances customers. Basic account support if offer free of charge. Account support includes:

- Billing questions
- Login issues
- Agreements
- Profile updates

For Azure Plans and Azure Reserved Instances technical support, Lenovo offers a 1-year subscription support plan. Technical support includes:

- **Support Levels:** Lenovo to provide L1/L2 support; Microsoft to provide L3 support
- Dedicated Support Team
- **Availability:** 24×7
- **Geo Support:** Support for each participating Geo/Country
- **Languages:** English Language Only
- **Access:** Single number to reach Cloud Services software support and ThinkAgile hardware support

To order an Azure Reserved Instances from Lenovo (support plan available), please refer to table "Azure Reserved Instances – Part Numbers" below:
Lenovo Support for Azure Plan and Reserved Instances – Part Numbers

Description	Part number
Azure Cloud Services	
Lenovo Support for Azure Cloud – 1 year subscription**	7S0T000LWW

Microsoft OEM Licenses

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 2022 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. Noted that there is a 10 core max for only one CPU.
- **Standard Edition:** Ideal for customers with low density or minimally virtualized environments.
- **Datacenter Edition:** Ideal for highly virtualized and software defined datacenter environments.

Note:
Windows Server 2022 is not available in Storage Edition. Customers using Windows Server 2016 Storage Edition should consider the Windows Server 2022 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 (represented by a Microsoft OS-COA label) that is added to the Lenovo server shipment at manufacturing and requires a Windows Server OS to be selected at the same time.
    - **Pre-Install –** The OS is pre-installed onto the Lenovo server at manufacturing and the OS install media is included with the server from manufacturing for possible subsequent customer self-install.
    - **DIB (Drop-in-Box) only –** The OS install media is shipped includedin the box with the server at from manufacturing.
- R**OK –** this is the OEM license (represented by a Microsoft OS-COA label) that is sold by Lenovo's authorized resellers and distributors.
    - **ROK kit –** The OS install media is included with the server from Lenovo's Partner.

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 2022 Standard and Datacenter editions based on a per physical processor basis. A minimum of 8 cores per processor and 16 cores total must be licensed. All cores must be licensed, even if user-disabled. The Base License for the Lenovo OEM Microsoft Windows Server Standard and Datacenter editions 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 and 16 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.
- Standard Edition provides rights for up to two Operating System Environments (OSE) or Hyper-V containers when all physical cores in the server are licensed. For every two additional OSEs, all the cores in the server have to be licensed again.
- For more information, please refer to the Lenovo Windows Server Core Licensing Calculator: https:**//www.lenovosalesportal.com/windows-server-2022-core-licensing-calculator.aspx**

Client Access License (CAL) & Remote Desktop Session (RDS) CAL
The Windows Server 2022 licensing model for Standard and Datacenter requires 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 RDS CALs. Also refer to the Windows Server Licensing FAQ section below.
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).

For additional details please see: https:**// www.microsoft.com/en-us/licensing/product-licensing/client-**

[**access-license**](#).

Downgrade rights

Microsoft Windows Server 2022 includes the optional right to use an earlier version of the software in place of the version you have licensed (e.g., downgrade from Windows Server 2022 to Windows Server 2019) by purchasing a applicable Downgrade Kit for the Server 2019 or Server 2016 version that Lenovo makes available. Downgrade rights allows you to install an older image version of the OS. The license rules of the purchased version still apply (i.e. Server 2022). A Lenovo downgrade kit includes the OS installation media of the earlier version of Windows Server and an OS specific product key for activation.

Windows Server 2022

This section provides information on Windows Server 2022 from Lenovo:

- Features

- Feature codes for configure-to-order

- Part numbers for Reseller Option Kits

Windows Server 2022 is built on the strong foundation of Windows Server 2019 and brings many innovations on three key themes: security, Azure hybrid integration and management, and application platform.

Features

Enhanced security capabilities

For IT professionals, security and compliance are primary concerns. The new security capabilities in Windows Server 2022 combine other security capabilities in Windows Server across multiple areas to provide defense-in-depth protection against advanced threats. Advanced multi-layer security in Windows Server 2022 provides the comprehensive protection that servers need today.

- **Secure-core server –** A Secured-core server uses hardware, firmware, and driver capabilities to enable advanced Windows Server security features. Many of these features are available in Windows Secured-core PCs and are now also available with Secured-core server hardware and Windows Server 2022.

- **Hardware root-of-trust –** Trusted Platform Module 2.0 (TPM 2.0) secure crypto-processor chips provide a secure, hardware-based store for sensitive cryptographic keys and data, including systems integrity measurements. TPM 2.0 can verify that the server has been started with legitimate code and can be trusted by subsequent code execution.

- **Firmware protection –** Firmware executes with high privileges and is often invisible to traditional anti-virus solutions, which has led to a rise in the number of firmware-based attacks. Secured-core server processors support measurement and verification of boot processes with Dynamic Root of Trust for Measurement (DRTM) technology and isolation of driver access to memory with Direct Memory Access (DMA) protection.

Azure Hybrid Capabilities

You can increase your efficiency and agility with built-in hybrid capabilities in Windows Server 2022 that allow you to extend your data centers to Azure more easily than ever before.

- **Azure Arc enabled Windows Servers—** Azure Arc enabled servers with Windows Server 2022 brings on-premises and multi-cloud Windows Servers to Azure with Azure Arc. This management experience is designed to be consistent with how you manage native Azure virtual machines. When a hybrid machine is connected to Azure, it becomes a connected machine and is treated as a resource in Azure. More information can be found at the Azure Arc enables servers documentation.

- **Windows Admin Center –** Improvements to Windows Admin Center to manage Windows Server 2022 include capabilities to report on the current state of the Secured-core features, and where applicable, allow customers to enable the features. More information on these and many more improvements to Windows Admin Center can be found at the Windows Admin Center documentation.

Application platform

There are several platform improvements for Windows Containers, including application compatibility and the Windows Container experience with Kubernetes. A major improvement includes reducing the Windows Container image size by up to 40%, which leads to a 30% faster startup time and better performance. With support for Intel Ice Lake processors, Windows Server 2022 supports business-critical and large-scale applications, such as SQL Server, that require up to 48 TB of memory and 2,048 logical cores running on 64 physical sockets. Confidential computing with Intel Secured Guard Extension (SGX) on Intel Ice Lake improves application security by isolating applications from each other with protected memory. To see more detail about new features on Windows Server 2022, please visit:

https://docs.microsoft.com/en-us/windows-server/get-started/whats-new-in-windows-server-2022

Between other new features you can see:

- Storage Migration Service
- Adjustable storage repair speed
- Faster repair and resynchronization
- SMB compression

Windows Server 2022 CTO Feature Codes and Part Numbers

The following tables list the Windows Server 2022 configure-to-order (CTO) Feature Codes and part numbers:
Windows Server 2022 configure-to-order (CTO) Feature Codes and part numbers

Region Availability	Description	Feature Code	Lenovo part number
Windows Server 2022 Essentials ordering information (part number / feature code)			
WW	Windows Server 2022 Essentials (10 core) – English (factory installed)	S62N	CTO only
WW	Windows Server 2022 Essentials (10 core) – Multi Lang (not preinstalled)	S62U	CTO only
LA, EMEA, NA	Windows Server 2022 Essentials (10 core) – Spanish (factory installed)	S62Q	CTO only
China only	Windows Server 2022 Essentials (10 core) – Chinese Simplified (factory installed)	S62M	CTO only
China only	Windows Server 2022 Essentials (10 core) – Chinese Simplified (not preinstalled)	S62R	CTO only
AP	Windows Server 2022 Essentials -(10 core) Chinese Traditional (not preinstalled)	S62S	CTO only
AP	Windows Server 2022 Essentials (10 core) – Japanese (factory installed)	S62P	CTO only
AP	Windows Server 2022 Essentials (10 core) – Japanese (not preinstalled)	S62T	CTO only
Windows Server 2022 Standard ordering information (part number / feature code)			
WW	Windows Server 2022 Standard (16 core) – English (factory installed)	S627	CTO only
WW	Windows Server 2022 Standard (16 core) – Multi Lang (not preinstalled)	S62D	CTO only
LA, EMEA, NA	Windows Server 2022 Standard (16 core) – Spanish (factory installed)	S629	CTO only
China only	Windows Server 2022 Standard (16 core) – Chinese Simplified (factory installed)	S626	CTO only
China only	Windows Server 2022 Standard (16 core) – Chinese Simplified (not preinstalled)	S62A	CTO only
AP	Windows Server 2022 Standard (16 core) – Chinese Traditional (not preinstalled)	S62B	CTO only
AP	Windows Server 2022 Standard (16 core) – Japanese (factory installed)	S628	CTO only
AP	Windows Server 2022 Standard (16 core) – Japanese (not preinstalled)	S62C	CTO only
Windows Server 2022 Standard Additional License ordering information (part number / feature code)			

Region Availability	Description	Feature Code	Lenovo part number

WW	Windows Server 2022 Standard Additional License (16 core) (No Media/Key) (APOS)	S60S	7S05007LWW
WW	Windows Server 2022 Standard Additional License (16 core) (No Media/Key) (POS Only)*	S60U	CTO only
WW	Windows Server 2022 Standard Additional License (16 core) (No Media/Key) (Reseller POS Only)	S60Z	7S05007PWW
WW	Windows Server 2022 Standard Additional License (2 core) (No Media/Key) (POS Only)*	S60T	CTO only
WW except Brazil	Windows Server 2022 Standard Additional License (2 core) (No Media/Key) (APOS)	S60Q	7S05007JWW
WW except Brazil	Windows Server 2022 Standard Additional License (2 core) (No Media/Key) (Reseller POS Only)	S60X	7S05007MWW
Windows Server 2022 Datacenter ordering information (part number / feature code)			
WW	Windows Server 2022 Datacenter (16 core) – English (factory installed) drop in the box	S62F	CTO only
WW	Windows Server 2022 Datacenter (16 core) – Multi Lang (not preinstalled)	S62L	CTO only
China only	Windows Server 2022 Datacenter (16 core) – Chinese Simplified (factory installed)	S62E	CTO only
China only	Windows Server 2022 Datacenter (16 core) – Chinese Simplified (not preinstalled)	S62H	CTO only
AP	Windows Server 2022 Datacenter (16 core) – Chinese Traditional (not preinstalled)	S62J	CTO only
AP	Windows Server 2022 Datacenter (16 core) – Japanese (factory installed)	S62G	CTO only
AP	Windows Server 2022 Datacenter (16 core) – Japanese (not preinstalled)	S62K	CTO only
Windows Server 2022 Datacenter Additional License ordering information (part number / feature code)			
WW	Windows Server 2022 Datacenter Additional License (16 core) (No Media/Key) (POS Only)*	S60W	CTO only
WW	Windows Server 2022 Datacenter Additional License (16 core) (No Media/Key) (Reseller POS Only)	S612	7S05007SWW
WW	Windows Server 2022 Datacenter Additional License (2 core) (No Media/Key) (POS Only)*	S60V	CTO only
WW except Brazil	Windows Server 2022 Datacenter Additional License (2 core) (No Media/Key) (Reseller POS Only)	S610	7S05007QWW
Windows Server 2022 CAL ordering information (part number / feature code)			
WW	Windows Server 2022 CAL (1 Device)	S5ZG	7S05007TWW
WW	Windows Server 2022 CAL (1 User)	S5ZH	7S05007UWW
WW	Windows Server 2022 CAL (10 Device)	S5ZN	7S05007ZWW

Region Avai lability	Description	Feature Code	Lenovo part number
WW	Windows Server 2022 CAL (10 User)	S5ZP	7S050080WW
WW except Brazil	Windows Server 2022 CAL (5 User)	S5ZL	7S05007XWW
WW	Windows Server 2022 CAL (50 Device)	S5ZQ	7S050081WW
WW	Windows Server 2022 CAL (50 User)	S5ZR	7S050082WW

Region Avai lability	Description	Feature Code	Lenovo part number
Windows Server 2022 Remote Desktop Services CAL ordering information (part number / feature code)			
WW	Windows Server 2022 Remote Desktop Services CAL 2022 (10 Device)	S602	7S050087WW
WW	Windows Server 2022 Remote Desktop Services CAL (1 Device)	S5ZS	7S050083WW
WW	Windows Server 2022 Remote Desktop Services CAL 2022 (1 User)	S5ZT	7S050084WW
WW	Windows Server 2022 Remote Desktop Services CAL 2022 (10 User)	S603	7S050088WW
WW	Windows Server 2022 Remote Desktop Services CAL 2022 (5 Device)	S5ZU	7S050085WW
WW	Windows Server 2022 Remote Desktop Services CAL 2022 (5 User)	S5ZV	7S050086WW
WW	Windows Server 2022 Remote Desktop Services CAL 2022 (50 Device)	S604	7S050089WW
WW	Windows Server 2022 Remote Desktop Services CAL 2022 (50 User)	S605	7S05008AWW

- 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 2022 ROK Part Numbers
The following table lists the Reseller Option Kit (ROK) part numbers.
Windows Server 2019 ROK Part Numbers

Region Availability	Description	Feature Code	Lenovo part number
Windows Server 2022 Essentials ROK Part Numbers			
WW except Brazil	Windows Server 2022 Essentials ROK (10 core) – Multi Lang	S5YR	7S050063WW
China only	Windows Server 2022 Essentials ROK (10 core) – Chinese Simplified	S5YM	7S05005ZWW
AP	Windows Server 2022 Essentials ROK (10 core) – Chinese Traditional	S5YN	7S050060WW
AP	Windows Server 2022 Essentials ROK (10 core) – Japanese	S5YP	7S050061WW
Windows Server 2022 Standard ROK Part Numbers			
WW except Brazil	Windows Server 2022 Standard ROK (16 core) – Multi Lang	S5YB	7S05005PWW
China only	Windows Server 2022 Standard ROK (16 core) – Chinese Simplified	S5Y7	7S05005KWW
AP	Windows Server 2022 Standard ROK (16 core) – Chinese Traditional	S5Y8	7S05005LWW
AP	Windows Server 2022 Standard ROK (16 core) – Japanese	S5Y9	7S05005MWW
Windows Server 2022 Datacenter ROK Part Numbers			
WW except Brazil	Windows Server 2022 Datacenter ROK (16 core) – Multi Lang	S5YG	7S05005UWW
WW	Windows Server 2022 Datacenter ROK w/Reassignment (16 core) – Multi lang	S5YL	7S05005YWW
China only	Windows Server 2022 Datacenter ROK (16 core) – Chinese Simplified	S5YC	7S05005QWW

Region Availability	Description	Feature Code	Lenovo part number
China only	Windows Server 2022 Datacenter ROK w/Reassignment (16 core) – Chinese Simplified	S5YH	7S05005VWW
AP	Windows Server 2022 Datacenter ROK (16 core) – Chinese Traditional	S5YD	7S05005RWW
AP	Windows Server 2022 Datacenter ROK (16 core) – Japanese	S5YE	7S05005SWW
AP	Windows Server 2022 Datacenter ROK w/Reassignment (16 core) – Chinese Traditional	S5YJ	7S05005WWW
AP	Windows Server 2022 Datacenter ROK w/Reassignment (16 core) – Japanese	S5YK	7S05005XWW

Windows Server 2022 Downgrade KIT ROK Part Numbers			
WW	Windows Server Datacenter 2022 to 2016 Downgrade Kit- Multilanguage ROK	S5ZF	7S05006TWW
WW	Windows Server Datacenter 2022 to 2019 Downgrade Kit- Multilanguage ROK	S5Z3	7S05006FWW
WW	Windows Server Essentials 2022 to 2016 Downgrade Kit- Multilanguage ROK	S5Z7	7S05006KWW
WW	Windows Server Essentials 2022 to 2019 Downgrade Kit- Multilanguage ROK	S5YV	7S050067WW
WW	Windows Server Standard 2022 to 2016 Downgrade Kit- Multilanguage ROK	S5ZB	7S05006PWW
WW	Windows Server Standard 2022 to 2019 Downgrade Kit- Multilanguage ROK	S5YZ	7S05006BWW
China only	Windows Server Datacenter 2022 to 2016 Downgrade Kit-Chin Simp ROK	S5ZC	7S05006QWW
China only	Windows Server Datacenter 2022 to 2019 Downgrade Kit-Chin Simp ROK	S5Z0	7S05006CWW
China only	Windows Server Essentials 2022 to 2016 Downgrade Kit-Chin Simp ROK	S5Z4	7S05006GWW
China only	Windows Server Essentials 2022 to 2019 Downgrade Kit-Chin Simp ROK	S5YS	7S050064WW
China only	Windows Server Standard 2022 to 2016 Downgrade Kit-Chin Simp ROK	S5Z8	7S05006LWW
China only	Windows Server Standard 2022 to 2019 Downgrade Kit-Chin Simp ROK	S5YW	7S050068WW
AP	Windows Server Datacenter 2022 to 2016 Downgrade Kit-Chin Trad ROK	S5ZD	7S05006RWW
AP	Windows Server Datacenter 2022 to 2016 Downgrade Kit- Japanese ROK	S5ZE	7S05006SWW
AP	Windows Server Datacenter 2022 to 2019 Downgrade Kit-Chin Trad ROK	S5Z1	7S05006DWW
AP	Windows Server Datacenter 2022 to 2019 Downgrade Kit- Japanese ROK	S5Z2	7S05006EWW
AP	Windows Server Essentials 2022 to 2016 Downgrade Kit-Chin Trad ROK	S5Z5	7S05006HWW
AP	Windows Server Essentials 2022 to 2016 Downgrade Kit-Japanese ROK	S5Z6	7S05006JWW

Region Avail ability	Description	Feature Code	Lenovo part n umber
AP	Windows Server Essentials 2022 to 2019 Downgrade Kit-Chin Tr ad ROK	S5YT	7S050065WW
AP	Windows Server Essentials 2022 to 2019 Downgrade Kit-Japane se ROK	S5YU	7S050066WW
AP	Windows Server Standard 2022 to 2016 Downgrade Kit-Chin Tra d ROK	S5Z9	7S05006MWW
AP	Windows Server Standard 2022 to 2016 Downgrade Kit-Japanes e ROK	S5ZA	7S05006NWW
AP	Windows Server Standard 2022 to 2019 Downgrade Kit-Chin Tra d ROK	S5YX	7S050069WW
AP	Windows Server Standard 2022 to 2019 Downgrade Kit-Japanes e ROK	S5YY	7S05006AWW

Downgrade kits are available at Point of Sale from Lenovo Factory and Business Partners. The provided Lenovo Part Number is orderable by Business Partners / Distributors only.

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, 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 2022 licensed?**
   A: Microsoft is licensing Datacenter and Standard editions by physical processor 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 2019 Datacenter/Standard:

   - Each physical server is required to be licensed for all physical cores
   - Each physical processor is required to be licensed with a minimum of 8 physical cores

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

  Essentials Edition remains on the processor-based licensing starting with the 2022 version may only be used on servers with 1 CPU (the 2019 version of Essentials allowed 1-2CPU)

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

  https://www.lenovosalesportal.com/windows-server-2022-core-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 or 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-server-2022-core-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 shrink wrapped SW Ship group (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 shrink wrapped SW Ship group (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 shrink wrapped SW Ship group (there is a unique 5×5 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 ship group) 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 2022 CAL can be used to access Windows Server 2022 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 2022, 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 shrink-wrapped 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. "5×5") 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/supportphonelist** 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/supportphonelist

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.

17. **Q: Does Lenovo sell Microsoft Windows Storage Server 2016?**

    A: Yes, Lenovo still offers Windows Storage Server 2016 Standard (processor based licensing) that can be

added to a configuration trough DCSC, and through the channel via Lenovo part number.(e.g. ROK p/n 01GU599 – Windows Storage Server 2016 – Multilag). Please check with your Lenovo sales representative for other languages that are available.)

SQL Server licensing

Lenovo offers the following types of licenses for SQL Server 2019 Standard Edition:

- **CTO (Configure To Order):** OEM license that is added to the Lenovo server shipment at manufacturing.
  - "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 2019 is offered as a bundled offering with a Windows Server OS such as Windows Server 2022 Standard (16 Core) or Datacenter (16 Core)
  - "Server + CAL 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. Note that the maximum compute capacity for SQL standard is 4 sockets / 24 physical or virtual cores and 128 GB Memory for DB engines. As such, please take this into consideration during configuration of the server hardware. If the users / devices connecting to the database are large and unknown, Core based licenses should be considered. For Customer environments with a known number of user/ devices, Server + CAL licensing is recommended. The SQL CALs should be chosen based on the users/ devices connecting to database.
SQL Server 2019
This section provides information on SQL Server 2019 Standard Edition from Lenovo:

- Features
- Feature codes for configure-to-order
- Part numbers for Reseller Option Kits

Features

Learn more about SQL Server 2019 Standard Edition features on this page:
https://docs.microsoft.com/en-us/sql/sql-server/editions-and-components-of-sql-server-version-15?view=sql-server-ver15

SQL Server 2019 Standard Edition CTO Feature Codes

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

Description	Feature code
MICROSOFT SQL SERVER 2019 STANDARD CTO (Core Licensing)	
Microsoft SQL Server 2019 Standard 4 core – Brazilian	S24S

Microsoft SQL Server 2019 Standard 4 core – ChnSimp	S24T
Microsoft SQL Server 2019 Standard 4 core – ChnTrad	S24U
Microsoft SQL Server 2019 Standard 4 core – English	S24V
Microsoft SQL Server 2019 Standard 4 core – French	S24W
Microsoft SQL Server 2019 Standard 4 core – German	S24X
Microsoft SQL Server 2019 Standard 4 core – Italian	S24Y
Microsoft SQL Server 2019 Standard 4 core – Japanese	S24Z
Microsoft SQL Server 2019 Standard 4 core – Korean	S250
Microsoft SQL Server 2019 Standard 4 core – Russian	S251
Microsoft SQL Server 2019 Standard 4 core – Spanish	S252
MICROSOFT SQL SERVER 2019 STANDARD CTO (Per Server Licensing)	
Microsoft SQL Server 2019 Standard-Brazilian	S24F
Microsoft SQL Server 2019 Standard-Chinese Simplified	S24G
Microsoft SQL Server 2019 Standard-Chinese Traditional	S24H
Microsoft SQL Server 2019 Standard-English	S24J
Microsoft SQL Server 2019 Standard-French	S24K
Microsoft SQL Server 2019 Standard-German	S24L
Microsoft SQL Server 2019 Standard-Italian	S24M
Microsoft SQL Server 2019 Standard-Japanese	S24N
Microsoft SQL Server 2019 Standard-Korean	S24P
Microsoft SQL Server 2019 Standard-Russian	S24Q
Microsoft SQL Server 2019 Standard-Spanish	S24R
MICROSOFT SQL SERVER 2019 Downgrade	
SQL Server Standard Edition 2019 Downgrade Kit – Brazilian	S25T
SQL Server Standard Edition 2019 Downgrade Kit – ChnSimp	S25U
SQL Server Standard Edition 2019 Downgrade Kit – ChnTrad	S25V
SQL Server Standard Edition 2019 Downgrade Kit – English	S25W
SQL Server Standard Edition 2019 Downgrade Kit – French	S25X
SQL Server Standard Edition 2019 Downgrade Kit – German	S25Y
SQL Server Standard Edition 2019 Downgrade Kit – Italian	S25Z

SQL Server Standard Edition 2019 Downgrade Kit – Japanese	S260
SQL Server Standard Edition 2019 Downgrade Kit – Korean	S261
SQL Server Standard Edition 2019 Downgrade Kit – Russian	S263
SQL Server Standard Edition 2019 Downgrade Kit – Spanish	S264
MICROSOFT SQL 2019 CLIENT ACCESS LICENSES CTO (CALs)	

Description	Feature code
Microsoft SQL Server 2019 CAL (1 Device)	S26H
Microsoft SQL Server 2019 CAL (1 User)	S26J
Microsoft SQL Server 2019 CAL (5 Device)	S26K
Microsoft SQL Server 2019 CAL (5 Device) – BR	S26L
Microsoft SQL Server 2019 CAL (5 User)	S26M
Microsoft SQL Server 2019 CAL (5 User) – BR	S26N
ADDITIONAL LICENSE CTO	
Microsoft SQL Server 2019 Standard Additional Server License	S25R
Microsoft SQL Server 2019 Standard 2 Core Additional License	S262

SQL Server Standard Edition 2019 Downgrade Kit includes installation material for SQL 2017 as well as SQL 2016.

SQL Server 2019 Standar Edition ROK Part Numbers

The following tables list the Resller Option Kit (ROK) part numbers to order SQL Server 2019.
SQL Server 2019 ROK Part Numbers

Region Availability	Description	Feature Code	Lenovo part number
SQL Server 2019 Standard ROK Part Numbers			
WW	Microsoft SQL Server 2019 Standard with Windows Server 2022 Standard ROK (16 core) – English	S61K	7S05006XWW
WW	Microsoft SQL Server 2019 Standard with Windows Server 2022 Standard ROK (16 core) – Multi lang	S61T	7S050075WW
EMEA, NA	Microsoft SQL Server 2019 Standard with Windows Server 2022 Standard ROK (16 core) – French	S61L	7S05006YWW
EMEA, LA	Microsoft SQL Server 2019 Standard with Windows Server 2022 Standard ROK (16 core) – Spanish	S61S	7S050074WW
EMEA	Microsoft SQL Server 2019 Standard with Windows Server 2022 Standard ROK (16 core) – German	S61M	7S05006ZWW
EMEA	Microsoft SQL Server 2019 Standard with Windows Server 2022 Standard ROK (16 core) – Italian	S61N	7S050070WW
EMEA	Microsoft SQL Server 2019 Standard with Windows Server 2022 Standard ROK (16 core) – Russian	S61R	7S050073WW
China only	Microsoft SQL Server 2019 Standard with Windows Server 2022 Standard ROK (16 core) – ChnSim	S61H	7S05006VWW
AP	Microsoft SQL Server 2019 Standard with Windows Server 2022 Standard ROK (16 core) – ChnTrad	S61J	7S05006WWW
AP	Microsoft SQL Server 2019 Standard with Windows Server 2022 Standard ROK (16 core) – Japanese	S61P	7S050071WW
AP	Microsoft SQL Server 2019 Standard with Windows Server 2022 Standard ROK (16 core)- Korean	S61Q	7S050072WW
SQL Server 2019 Datacenter ROK Part Numbers			
WW	Microsoft SQL Server 2019 Standard with Windows Server 2022 Datacenter ROK (16 core) – English	S61X	7S050079WW

Region Availability	Description	Feature Code	Lenovo part number
WW	Microsoft SQL Server 2019 Standard with Windows Server 2022 Datacenter ROK (16 core) – Multi lang	S625	7S05007HWW
EMEA, NA	Microsoft SQL Server 2019 Standard with Windows Server 2022 Datacenter ROK (16 core) – French	S61Y	7S05007AWW
EMEA, LA	Microsoft SQL Server 2019 Standard with Windows Server 2022 Datacenter ROK (16 core) – Spanish	S624	7S05007GWW
EMEA	Microsoft SQL Server 2019 Standard with Windows Server 2022 Datacenter ROK (16 core) – German	S61Z	7S05007BWW
EMEA	Microsoft SQL Server 2019 Standard with Windows Server 2022 Datacenter ROK (16 core) – Italian	S620	7S05007CWW
EMEA	Microsoft SQL Server 2019 Standard with Windows Server 2022 Datacenter ROK (16 core) – Russian	S623	7S05007FWW
China only	Microsoft SQL Server 2019 Standard with Windows Server 2022 Datacenter ROK (16 core) – ChnSimp	S61V	7S050077WW
AP	Microsoft SQL Server 2019 Standard with Windows Server 2022 Datacenter ROK (16 core) – ChnTrad	S61W	7S050078WW
AP	Microsoft SQL Server 2019 Standard with Windows Server 2022 Datacenter ROK (16 core) – Japanese	S621	7S05007DWW
AP	Microsoft SQL Server 2019 Standard with Windows Server 2022 Datacenter ROK (16 core)- Korean	S622	7S05007EWW

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, Think Server, NeXtScale, Flex System and Blade Center 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 open a popup window with details about the support. For Lenovo option compatibility, the Lenovo Server Proven® program validates selected products for compatibility with all Lenovo ThinkSystem servers. Through the Server Proven 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
- Microsoft Admin Center

Download XClarity Integrator for Microsoft System Center from: https://support.lenovo.com/us/en/solutions/lnvo-manage

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 2022, 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 (ESS) 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.
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, 2019 and 2022 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 2022 Datacenter Editions. ThinkAgile MX Certified nodes combine the Microsoft Storage Spaces Direct technology included in Windows Server 2022 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 MX3520 Appliances and MX 2U Certified Nodes (Intel Xeon SP Gen 2)
- ThinkAgile MX3530 and MX3531 2U Appliances and Certified Nodes (Intel Xeon SP Gen 3)
- ThinkAgile MX3330 and MX3331 1U Appliances and Certified Nodes (Intel Xeon SP Gen 3)
- ThinkAgile MX1020 appliances and MX1021 Certified Nodes for Microsoft Azure Stack HCI
- 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 pre-integrated, 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 Hub (SXM4400, SXM6400 – Xeon SP Gen2) 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 2019 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 – 65 TB HA
- Lenovo Database Configuration for Microsoft SQL DWFT – 200 TB

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

- Workloads using Lenovo ThinkAgile HX Series

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 Alliance
- Microsoft Windows

Notices
Lenovo may not offer the products, services, or features discussed in this document in all countries. Consult your local Lenovo representative for information on the products and services currently available in your area. Any reference to a Lenovo product, program, or service is not intended to state or imply that only that Lenovo product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any Lenovo intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any other product, program, or service. Lenovo may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:
Lenovo (United States), Inc.
8001 Development Drive

Morrisville, NC 27560
U.S.A.
Attention: Lenovo Director of Licensing

Send us your comments in one of the following ways:
Use the online Contact us review form found at: **https://lenovopress.lenovo.com/LP1079**
Send your comments in an e-mail to: comments@lenovopress.com
This document is available online at https://lenovopress.lenovo.com/LP1079.

Trademarks

Documents / Resources

References

- **L** **DCSC - Data Center Solution Configurator**
- **L** **OS Interoperability Guide > Lenovo Press**
- **L** **ServerProven**
- **L** **ThinkAgile SX Series**
- **Client Access Licenses (CAL) & Management Licenses | Microsoft Volume Licensing**
- **Microsoft SQL Server | Microsoft Licensing Resources**
- **Create Your Azure Free Account Today | Microsoft Azure**
- **Pricing Calculator | Microsoft Azure**
- **Directory of Azure Cloud Services | Microsoft Azure**
- **L** **OS Support Center - Windows - Lenovo Support US**
- **L** **SupportPhoneList - Lenovo Support US**
- **L** **DCSC - Data Center Solution Configurator**
- **Azure documentation | Microsoft Learn**
- **Azure Arc-enabled servers Overview - Azure Arc | Microsoft Learn**
- **Editions and supported features of SQL Server 2019 - SQL Server | Microsoft Learn**
- **Roles, Role Services, and Features included in Windows Server - Server Core | Microsoft Learn**
- **Upgrade and conversion options for Windows Server | Microsoft Learn**
- **Upgrade and conversion options for Windows Server | Microsoft Learn**
- **What's new in Windows Server 2022 | Microsoft Learn**
- **What is Windows Admin Center | Microsoft Learn**
- **Windows Admin Center Overview | Microsoft Learn**
- **License your RDS deployment with client access licenses (CALs) | Microsoft Learn**
- **L** **Lenovo Database Solution for Microsoft SQL Server**
- **L** **Lenovo HA DB Configuration for Microsoft SQL Server DWFT - 65TB**
- **L** **ThinkAgile SX for Microsoft Azure Stack Hub Datasheet > Lenovo Press**
- **L** **ThinkAgile MX Series Datasheet > Lenovo Press**
- **L** **Introducing the Microsoft Azure Stack Development Kit on Lenovo Servers > Lenovo Press**
- **L** **Reference Architecture for Workloads using Lenovo ThinkAgile HX Series > Lenovo Press**
- **L** **Lenovo ThinkSystem SR950 Achieves World Record Non-Clustered TPC-H@10,000GB Benchmark Result > Lenovo Press**
- **L** **Reference Architecture: Microsoft SQL Server > Lenovo Press**
- **L** **ThinkAgile MX3520 Appliances and MX 2U Certified Nodes (Intel Xeon SP Gen 2) Product Guide > Lenovo Press**
- **L** **Lenovo ThinkAgile SX for Microsoft Azure Stack Hub: SXM4400, SXM6400 Product Guide > Lenovo Press**

- **L** [**ThinkAgile MX1020 Appliance and MX1021 Certified Node for Microsoft Azure Stack HCI Product Guide > Lenovo Press**](#)
- **L** [**ThinkAgile MX3330 and MX3331 1U Appliances and Certified Nodes (Intel Xeon SP Gen 3) Product Guide > Lenovo Press**](#)
- **L** [**ThinkAgile MX3530 and MX3531 2U Appliances and Certified Nodes (Intel Xeon SP Gen 3) Product Guide > Lenovo Press**](#)

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