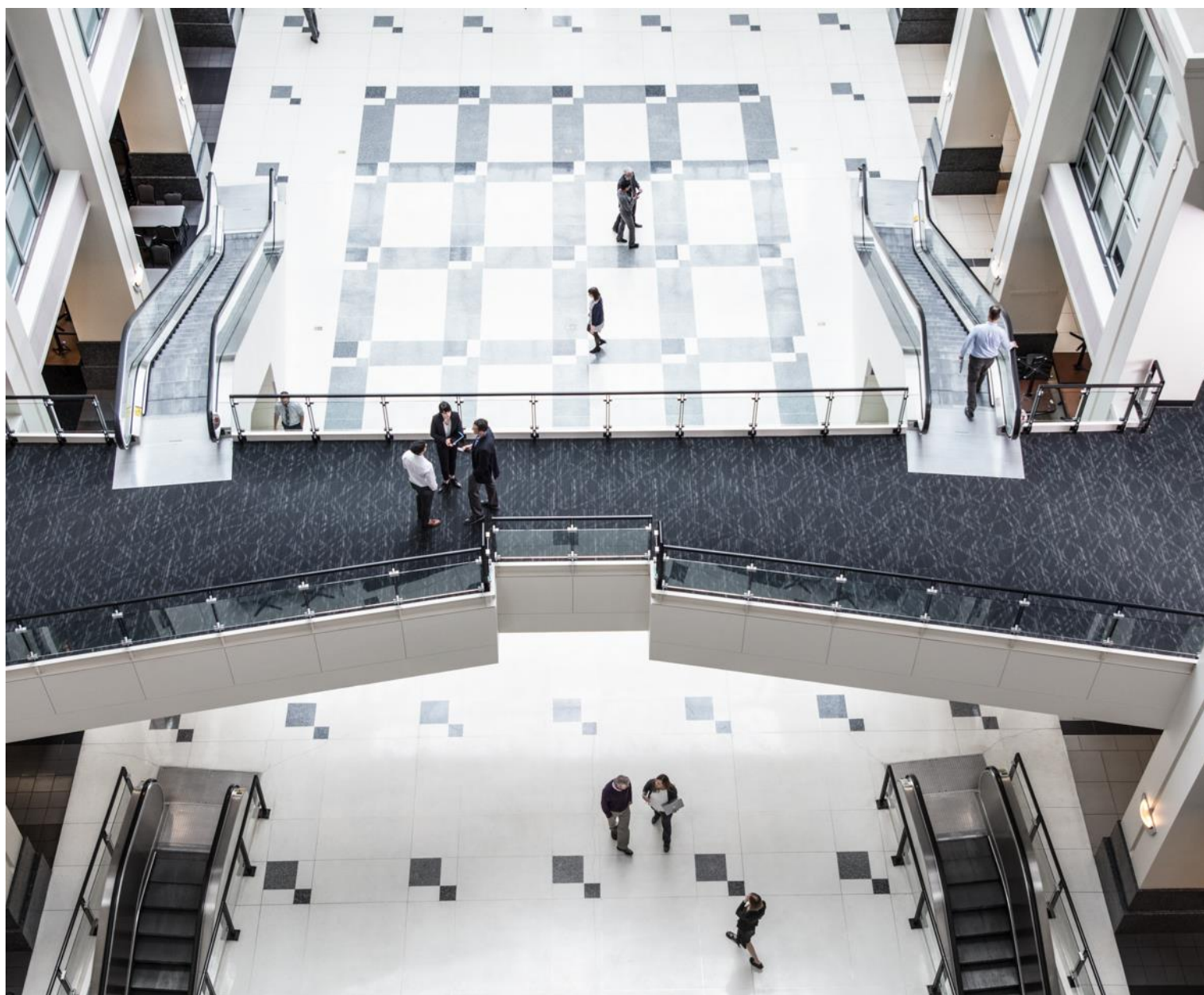# Microsoft SQL Server IoT 2019 FAQ

November 2019

Contents

General questions

What is Microsoft SQL Server IoT 2019 and how does it compare to SQL Server 2019?

Microsoft SQL Server has been available for embedded usage for many years and we are excited to bring the latest Microsoft SQL Server 2019 capabilities to embedded device builders. Microsoft SQL Server IoT 2019 is the binary equivalent to SQL Server 2019, licensed through the OEM channel specifically for dedicated-use, server class edge devices running application software. Coupled with Windows Server IoT 2019 and purpose-built applications, Microsoft SQL Server IoT 2019 provides a comprehensive database platform for mission-critical data analytics and offers industry-leading performance, availability, and security. New functionality includes intelligent query processing, accelerated database recovery, and In-Memory Database optimization, all of which substantially improve performance and scale over prior versions.

For clarity, Microsoft SQL Server IoT 2019 has the same feature and functionality as Microsoft SQL Server 2019; however, the general-purpose version and IoT versions differ in licensing and distribution. ***Microsoft SQL Server IoT 2019 is only licensed through the OEM channel under special dedicated use rights. It must be installed on the device with an integrated (embedded) software application (or suite of applications) dedicated to a specific use. Licensing terms do not allow for use as a general-purpose enterprise database.***

Microsoft SQL Server IoT 2019 enables you to build fixed purpose, industry specific solutions for security, retail, manufacturing, healthcare, and more. In the following examples, the server applications have a dedicated purpose and are built to perform a pre-defined set of tasks.

Examples of specific-use solutions may include:

- Medical imaging server appliances for picture archiving and communication systems (PACS)
- Industrial automation server appliances which query data from sensors on assembly lines to calculate performance metrics, solve production problems, and predict required maintenance
- In-store server appliances to consolidate data from kiosks and digital signage devices and transmit the data to a datacenter for data visualization, customer loyalty applications, or customer buying habits research
- On military ships to maintain onboard network and communications networks
- Security and surveillance on public transportation including monitoring cameras and maintaining and analyzing video
- Running hospital operations—coordinating nurse call stations and nurse call buttons
- 911 call center databases

Did the name change from Microsoft SQL for Embedded Systems?

Yes. Prior versions of this database were referred to as Microsoft SQL Server for Embedded Systems. In fact, the name changed when we introduced Microsoft SQL Server 2017 IoT. Microsoft SQL Server now incorporates new "IoT" branding in lieu of the "for Embedded Systems" naming taxonomy.

Features & functionality

What is new in Microsoft SQL Server IoT 2019?

SQL Server IoT 2019 uses the same binaries as SQL Server 2019. SQL Server 2019 is built on the strong foundation of both SQL 2016 and SQL 2017 and offers numerous innovative security and compliance features, industry-leading performance and mission-critical availability for all your key data workloads. The chart below shows the evolution of features over the past few years and highlights some of the new feature innovations in SQL Server IoT 2019:

Feature	SQL Server 2016 for Embedded Sys	SQL Server 2017 IoT	SQL Server IoT 2019
Real time operational analytics	•	•	•
SQL Server Machine Learning Services	•	•	•
Row level security and Always encrypted	•	•	•
Support for Docker containers on Linux and Windows		•	•
Support for graph data		•	•
Automatic plan correction and adaptive query processing		•	•
Intelligent Query Processing			•
Accelerated database recovery			•
In-Memory Database: Persistent Memory support			•
Always Encrypted with secure enclaves			•
Free supported Java; Native UTF-8 support			•
Data classification & auditing			•
SQL Server Analysis Services Direct Query			•

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You can see more details on what is new in 2019 by visiting this site: What's new in SQL Server 2019 (http://aka.ms/ss19).

Which SKU should I use in my solution?

Microsoft offers two SQL Server IoT editions – Standard and Enterprise. The table below provides some general information regarding which edition (of SKU) may be right for the solution you are building.

What type of database solution does your application require?	Offer
Full featured database for mid-tiered applications on servers not exceeding 24 cores.	**SQL IoT 2019 Standard**
Intelligent applications requiring mission critical in-memory performance, security, and high availability.	**SQL IoT 2019 Enterprise**

For more advice on choosing the right SQL Server IoT offer for your solution, please reach out to our Regional Distribution Partners.

What are the system requirements?

The following memory and processor requirements apply:

Component	Requirement	
Memory	Minimum:	1GB minimum
	Recommended:	At least 4 GB (to be increased as database size increases to ensure optimal performance.)
Processor Speed	Minimum:	x64 Processor: 1.4 GHz
	Recommended:	2.0 GHz or faster
Processor Type	x64 Processor:	AMD Opteron, AMD Athlon 64, Intel Xeon with Intel EM64T support, Intel Pentium IV with EM64T support

Can I install SQL Server IoT on different operating systems?

Yes. Microsoft SQL Server IoT includes both Windows-based and Linux-based installation options. You may install the product in either a Windows or Linux operating system environment (OSE), but not both. For Windows-based installations, the product will be available for download in the Digital Operations Center (DOC). For Microsoft SQL Server IoT Linux-based installation, the product will be available as a download at: https://aka.ms/sqlserver2019installoem

What versions of Linux are supported?

Support for Linux included: Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and Ubuntu. See Technical support policy for Microsoft SQL Server for more details.

How does SQL Server IoT 2019 compare to Azure SQL Database Edge?

SQL Server is our server-class offering for mission-critical compute. It runs on x64 architecture, with In-Memory Database (features that leverage in-memory based technologies) and can run data engines like SQL Server Reporting Services (SSRS) which provides tools and services that create, deploy, and manage mobile and paginated reports, SQL Server Integration Services (SSIS) for moving and transforming data and SQL Server Analysis Services (SSAS), an OLAP and data mining tool. Compute and memory footprint requirements are high.

Azure SQL Database Edge is a small-footprint containerized database (< 500MB) running in ARM- and x64-based devices in a connected or disconnected environment, and offers the same compute engine without the SSRS/SSIS/SSAS engines. It has built-in data streaming and time series capabilities.

Currently in public preview, Azure SQL Database Edge runs on Linux. Today, SQL Server IoT 2019 is the correct solution for embedded use cases deployed on Windows Server embedded/IoT.

	SQL Server IoT 2019	Azure SQL Database Edge
Description	Full functionality of SQL Server for dedicated use scenarios requiring server-grade, mission-critical compute	The same compute engine as SQL Server optimized for edge devices but without analytical engines or in-memory capabilities.
Commercially available?	YES	Public Preview
Works on Windows OS?	YES	NO
Works on Linux?	YES	YES
Platform support	x64	ARM and X64
Support for offline scenarios?	YES	YES
In-Memory Database?	YES	NO
Analytical engines	YES - SSRS, SSAS, SSIS	NO
Licensing channel	OEM embedded (only)	Various
Built-In Time-Series Streaming and Analytics	NO	YES
Extensive history in embedded scenarios	YES	NO

Licensing & use rights

What is meant by "specific use" or "dedicated function"?

The SQL Server IoT can be used in conjunction with a dedicated application for specific use solutions per the allowances and restrictions in the license agreement.

Examples of dedicated solutions vary. Some examples were mentioned above in the first question. When the specific use solutions are built to perform a pre-defined set of tasks, you can license SQL IoT under the OEM Embedded/IoT Licensing program. When licensed this way, the SQL database must be used as a database for a specified application where clients do not need to interact directly with the SQL server database.

Ultimately, SQL Server should not be used as a general-purpose enterprise database platform and *the embedded software application must provide the primary function of the solution.*

The following table compares the licensing provisions for SQL Server vs SQL Server IoT 2019:

Licensing Provisions	SQL Server 2019	SQL Server IoT 2019
Use case	Any use as an enterprise database platform	Integrated with an industry or function specific application
Features and Functionality	See SQL Server 2019 edition details	Same as core General Purpose SQL Server
Software Assurance Benefits	Available	N/A
Embedded Application	Optional	Mandatory
Line of Business Applications	Optional	No
Client Access License (CAL) Required?	Yes - when licensing Standard edition under the Server + CAL licensing model	
Core based licensing available?	Yes	Yes
Licensing Channels	Multiple channels including volume licensing, retail, and OEM	OEM (only)

Where can I find licensing and pricing documents for SQL Server IoT 2019?

Microsoft has listened to OEMs' requests and continues to simplify licensing terms and make them more understandable. Distributors and OEM customers can also seek clarification from their Microsoft account managers. It is also important that OEMs and end customers engage their own legal support to help understand licensing rights and limitations. Please refer to the information on the Licensing and Programs Resource Center (https://devicepartner.microsoft.com/en-us/licensing-and-programs).

How much does SQL Server IoT 2019 cost?

SQL Server IoT is available in both Standard and Enterprise editions. Both can be licensed under a core-based model. Client Access Licenses (CALS) are required when licensing Standard edition under the Server + CAL licensing model which you may choose to do depending on your specific use case. Please ask your OEM or Microsoft approved Distributor for pricing.

Is there a Cal-Less offer for SQL Server IoT?

No. Microsoft is not currently offering a CAL-Less program for SQL Server IoT. CALs are required per Licensing Terms.

What is the support commitment for SQL Server IoT?

SQL Server IoT is an LTSC release and follows a is 5+ 5 support model meaning that years 0-5 (Mainstream Support) include security and functional issue resolution though cumulative updates (CUs). And security issues through General Distribution Releases (GDRs). Years 6-10 (Extended Support) include continued support for security or critical functional issues. Extended support will end on January 8, 2030.

Learn more about the Modern Servicing Model for SQL Server here.

Can I add Software Assurance to the OEM Embedded version of Server?

No. Software Assurance (SA) is not available for Server Embedded/IoT products licensed through OEMs.

Additional resources

Device Partner Center

https://devicepartner.microsoft.com/en-us

Note: if you do not have access, please contact your OEM or Distributor

What's new in SQL Server 2019

http://aka.ms/ss19

SQL Server technical documentation

https://aka.ms/SQL_Server_2019_Features

SQL Server Editions

https://aka.ms/SQL_Server_Editions

In-Memory OLTP and Memory-Optimization

https://docs.microsoft.com/en-us/sql/relational-databases/in-memory-oltp/in-memory-oltp-in-memory-optimization?view=sql-server-2017

SQL Server Machine Learning Services

https://docs.microsoft.com/en-us/sql/advanced-analytics/what-is-sql-server-machine-learning?view=sql-server-2017

Intelligent Query Processing

https://docs.microsoft.com/en-us/sql/sql-server/what-s-new-in-sql-server-ver15?view=sqlallproducts-allversions#intelligent-database

Technical support policy for Microsoft SQL Server

https://support.microsoft.com/en-us/help/4047326/support-policy-for-microsoft-sql-server

SQL Server workshops - free training

 https://aka.ms/sqlworkshops

Regional Distribution Partners

https://query.prod.cms.rt.microsoft.com/cms/api/am/binary/RE37tp1