

The latest SQL Server comes packed with support for Linux, automatic tuning and other enhancements.
New Additions since: [2017](#) [2016](#) [2014](#) [2012](#) and [2008 R2](#)

OLTP Performance

- Numerous performance and scalability enhancements, including relating to PMEM devices and columnstore indices
- Closer parity between SQL Server features on Linux vs Windows – including transactional replication and distributed transactions
 - [Linux and Docker support](#)
 - [New dynamic management views](#)
 - [New Availability Groups functionality](#)
 - [Cross database transactions support for DBs in the same availability group.](#)
 - [JSON commands fully supported in both check constraints and natively compiled modules](#)
 - [Enhancements for SSIS, SSAS and MDS.](#)
 - [Identity cache to avoid discrepancy in values of identity columns](#)
 - [Graph DB](#)
 - [New string functions](#)
 - [New bulk access options for CSV and Azure Blob files.](#)
 - [Real-time operational analytics with in-memory OLTP or on disk](#)
 - [In-memory for more applications](#)
 - [Unparalleled scalability with Windows Server 2016, with 12TB memory and Windows Server 2016 max cores](#)
 - [Multiple node failover clustering \(3 synchronous, up to 8 replicas\)](#)
 - [SQL Server Development Tools in Visual Studio](#)
 - [Query Store](#)
 - [Temporal support](#)
 - [Enhanced AlwaysOn, with 8 secondaries and Replica Wizard](#)
 - [Buffer Pool Extension to SSDs](#)
- Enhanced query processing and optimization
- IO governance
- SysPrep as cluster level
- Predictable performance with tiering of compute, network and story
- Delayed Durability
- Clustered Shared Volume support, VHDX support
- Manage on-premises and cloud apps
- SQL Server Data Tools
- Local DB runtime (Express)
- Data-tier application component project template
- Data-Tier Application Framework (DAC Fx)
- Interoperability support (ADO.NET, ODBC, JDBC, PDO, ADO APIs and .NET C/C++, Java, Linux and PHP platforms)
- Enhanced support for ANSI SQL standards
- Transact-SQL Static Code Analysis tools and snippets
- Intellisense
- FileTable build on FILESTREAM
- Remote Blob Storage with SharePoint 2010
- Statistical Semantic Search
- Spatial features, include Full Globe and arcs
- Large user-defined data types
- Distributed Replay
- Contained Database Authentication
- System Center Management Pack for SQL Server 2012
- Windows PowerShell 2.0 support
- Multi-server Management with SQL Server Utility Control Point
- Data Tier Application Component

Security

- [New features to support GDPR compliance](#)
- [Database Scoped Credentials introduced](#)
- [CLR whitelist](#)
- [Enhanced CLR security](#)
- [Transparent Data Encryption](#)
- [Always Encrypted](#)
- [Row Level Security](#)
- [Data Masking](#)
- Enhanced separation of duties
- CC certification at High Assurance Level for 2014
- Backup encryption support
- Enhanced separation of duties
- Default schema for groups
- SQL Server Audit
- SQL Server fine-grained auditing

Platform

- [New PolyBase connectors including SQ Server, Oracle, MongoDB, Teradata and any ODBC source](#)
- [HDFS files can be read natively by Big Data Clusters](#)
- [SQL Server instances on HDFS data nodes can filter and aggregate data locally](#)
- [PolyBase can scale-out using SQL instances](#)
- [Adaptive query processing](#)
- [Automatic database tuning](#)
- [Performance improvement for DTA with additional options](#)
- [Computed columns with support for memory-optimized tables.](#)
- [Resumable online index rebuild](#)
- [Removed 8 index limitation on memory-optimized tables](#)
- [Tempdb file size increased to up to 256 GB](#)
- [Full support for JSON and CROSS APPLY operator in natively compiled modules.](#)

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Data Warehousing

- Operational analytics
- In-memory ColumnStore
- Deployment rights for APS
- Enhanced In-memory ColumnStore for DW
- PolyBase for simple T-SQL
- Enhanced database caching
- Up to 15,000 partitions

Business Intelligence

- Python support for SQL Server machine Learning Services
- PREDICT function improvement
- Performance improvement to machine learning
- Mobile BI
- Enterprise-grade Analysis Services
- Advanced tabular models
- JSON support
- Enhanced SSIS, DQS, MDS, and Reporting Services
- Temporal tables
- In-memory analytics
- Advanced data mining
- Access to reports online or offline
- Create mobile reports using the SQL Server Mobile Report Publisher
- Consume with Power BI mobile apps
- Enhanced multidimensional models
- Azure HDInsight Service
- Pin report items to Power BI
- Power Map for Excel
- Pipeline improvements
- Mash up data from different sources, such as Oracle & Hadoop
- HA for StreamInsight, complex event processing
- SQL Server Data Tools support for BI
- Change Data Capture for Oracle
- Import PowerPivot models into Analysis Services
- Enhanced productivity and performance
- Power View
- Configurable reporting alerts
- Reporting as SharePoint Shared Service
- Build organization knowledge base
- Connect to 3rd party data cleansing providers
- Master Data Hub
- Master Data Services Add-in for Excel
- Graphical tools in SSIS
- Extensible object model
- SSIS as a Server
- Broader data integration with more sources: DB vendors, cloud, Hadoop

Advanced Analytics

- Enhancements to Big Data Clusters expand options for data virtualization, integration and built-in AI
- Machine learning on Linux, failover cluster support and Java language extension
- Tabular model enhancements
- R built-in to your T-SQL
- RRE APIs with full parallelism and no memory limits for scale/performance
- Built-in In-memory Advanced Analytics
- Advanced tabular model
- Direct query
- Advanced data mining

Hybrid Cloud

- Stretch database
- Partitioning for efficient data loading
- Hybrid scenarios with SSIS
- Enhanced backup to Azure
- Easy migration to the cloud
- Simplified cloud DR with AlwaysOn replicas
- Simplified backup to Azure
- Support for backup of previous versions of SQL Server to Azure
- Cloud back-up encryption support
- Simplified cloud Disaster Recovery with AlwaysOn replicas in Azure VMs
- New Azure Deployment UI for SQL Server
- Larger SQL Server VMs and memory sizes available in Azure
- DAC enhancements: Import/export with Azure SQL Database
- SQL Server Data Tools
- License Monthly (with SA)
- Resource Governor enhancements
- Snapshot backups to Azure via SQL Server Management Studio