

# Advanced analytics: Where the data is

Building intelligent applications with Microsoft SQL Server 2016 R Services

## How

Bridge the gap between advanced analytics with enterprise-grade R, wherever your data is—on-premises, cloud, or hybrid

## Why?

With the combined power of SQL Server 2016 and R, you can build intelligent applications and discover new insights and value in your business

*Learn more about  
Microsoft SQL Server  
2016 R Services at*

<http://microsoft.com/sql2016>

*Accelerate your data to the speed of business by building intelligent applications with R and SQL Server 2016—the best of both worlds*

## Advanced analytics with R

Data is the currency of modern business. From the cloud to on-premises and everything in between, access to data anytime, anywhere from varied sources has become a requirement to be able to successfully plan and operate. Pairing a highly popular analytics platform with the stability and security of Microsoft SQL Server opens new resources and opportunities to application developers, database administrators, and data scientists.

With SQL Server 2016 R Services, you can now go beyond reacting to data after the fact and instead begin predicting results and gathering proactive insights to help plan ahead.

## What is R?

**A language:** R is the lingua franca of analytics and platform, designed to build statistical computing and graphical data models.

**A community:** R is a community of millions of users developing statistical and machine learning models and applications.

**An ecosystem:** R is an ecosystem with more than 7,000 algorithm packages, test data, and model evaluations applicable to modern big data needs.

## SQL Server 2016 R Services

SQL Server 2016 R Services offers an ideal way to uncover business insights through data science. It delivers industry-leading technology and built-in fast, predictive in-database analytics in a scalable and cost-effective solution.

Microsoft offers two deployment options to bring next-generation advanced analytics to your business.

The in-database option allows your applications to call R scripts and models through a standard T-SQL interface. This lets you operationalize advanced analytics without needing to move data. You can also leverage the RevoScaleR package to analyze, model, and score massive data sets.

The standalone option makes it possible to deploy Microsoft R Server to create models and algorithms without the need of a data base engine, leveraging all of the benefits of Microsoft R Server for analysis, modeling, and scoring at scale.

## Benefits of SQL Server 2016 R Services

**Flexibility and agility.** With true ease of operationalization, SQL Server 2016 R Services lets you work with your data on-premises or in a hybrid environment. You can write code once and deploy it anywhere. In short, you can work the way you want.

**Performance and scale.** You can keep up with the explosion of modern data with unparalleled performance and scalability. Shrink time-to-insights and enable agile business planning and implementation at the same time.

**Cost effectiveness.** As a native part of SQL and with no proprietary hardware requirements, SQL Server 2016 R Services is an economical enterprise solution to advanced analytics, saving you time and money with faster time-to-value from business insights.

## Microsoft and open source

R is a programming language and analytics platform available through open source. It's a great stepping stone for building intelligent applications and seeing real value in predictive analytics. Discovering insight is only the first step in using data science for the benefit of your business.

Microsoft takes your R deployment to the next level with SQL Server 2016 R Services and R Server. With streamlined development, ease of integration, freedom to scale, and speeds up to 100 times faster than open source R, SQL Server 2016 R Services and R Server are the enterprise solutions for advanced analytics.

## R users in SQL Server 2016

R has a thriving community around the world and is popular among new and recent graduates (the next wave of data scientists and statisticians). Plus, since R is a widely used programming language, little training is necessary for R professionals who use SQL Server 2016 R Services.

SQL Server 2016 R Services	
<b>R programming</b>	
T-SQL and U-SQL	✓
On-premises	✓
Hybrid	✓
Parallel algorithm	✓
R scripts	✓
<b>Structure</b>	Based on SQL relational structure
<b>Mission-critical deployment</b>	✓
<b>Reporting</b>	Integrates with SSRS, Power BI, Excel, and other Microsoft tools

## Scale R

ScaleR enables R developers to easily maximize compute capability without writing any distributed applications themselves. This has two advantages over other solutions:

1. No Java, Python or other programming skills are needed to harness the power of massively parallel systems including Hadoop and Teradata EDWs.
2. No Parallel Programming. R developers are provided with transparent parallelism, so that they aren't slowed by the complexity of parallel program design. Parallelism is provided transparently within the Scale Algorithm set.

