

# Infrastructure and Architecture

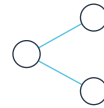
## Server Environment



### Microsoft Windows Server

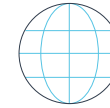
TrakSYS components can be installed on the following Windows Server Operating Systems...

Server 2016 - Server 2019



### .NET Framework

The TrakSYS services and web require the full .NET Framework 4.8.



### Internet Information Services

The TrakSYS Web sits atop the Internet Information Services (IIS) component of Windows Server. The version of IIS is tied to the hosting Windows Server OS.



### Microsoft SQL Server

All TrakSYS configuration, business rules and collected data are stored in a standard SQL Server Database. Supported versions include...

SQL Server 2014 – 2019  
Azure SQL | Amazon RDS for SQL

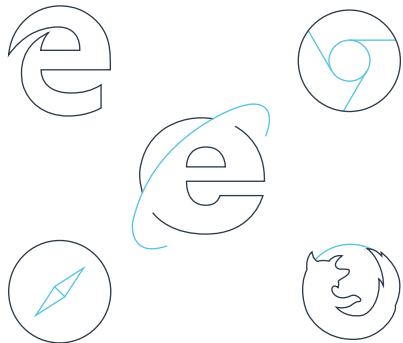


### Standard vs. Enterprise

The TrakSYS database can run on either **Standard** or **Enterprise** version of SQL Server. Some optional features of the TrakSYS Tag Historian require the Enterprise version.

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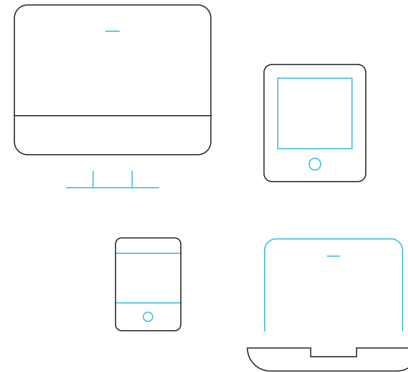
## Client Environment



### Browser Support

The TrakSYS Web user interface is compatible with [nearly all modern browsers...](#)

- Internet Explorer
- Edge
- Chrome / Android
- Safari / IOS
- Firefox
- More...



### Mobile and Responsive Design

Both standard and solution-specific content can be [deployed once](#) and consumed across a variety of device and screen footprints...

- Touch Friendly
- No App Required
- Information Anywhere
- Screen-Site Sensitive

# Infrastructure and Architecture

## Server Processors and Cores



### Recommendations

Physical Cores or Virtual Processors should be proportional to the expected application size.

- Small Applications • 4 Cores
- Medium Applications • ~8 Cores
- Large Applications • 16+ Cores



### Licensing Considerations

The use of additional Cores may affect the required TrakSYS license.



### Multi-Threading

The following platform elements and components take specific advantage of multi-threading...

- SQL Server / Data Access
- IIS (Web Server) / TrakSYS Web
- TrakSYS Logic Service
- TrakSYS Historian Service
- TrakSYS Data Management Service

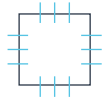


### Virtualization Considerations

Virtual Machines typically share Processors and Cores with other (non-TrakSYS) servers.

# Infrastructure and Architecture

# Server Memory



## Recommendations

Memory is important to nearly every platform layer and TrakSYS component and should be proportional to the expected application size.

- Small Applications • 32 GB
- Medium Applications • 64 GB
- Large Applications should consider a Distributed (multi-server) Architecture

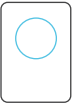


## Virtualization Considerations

Memory is typically allocated and dedicated to each Virtual Machine. Sharing with other VMs on the same Host is not a concern.

# Infrastructure and Architecture

## Server Disk Types

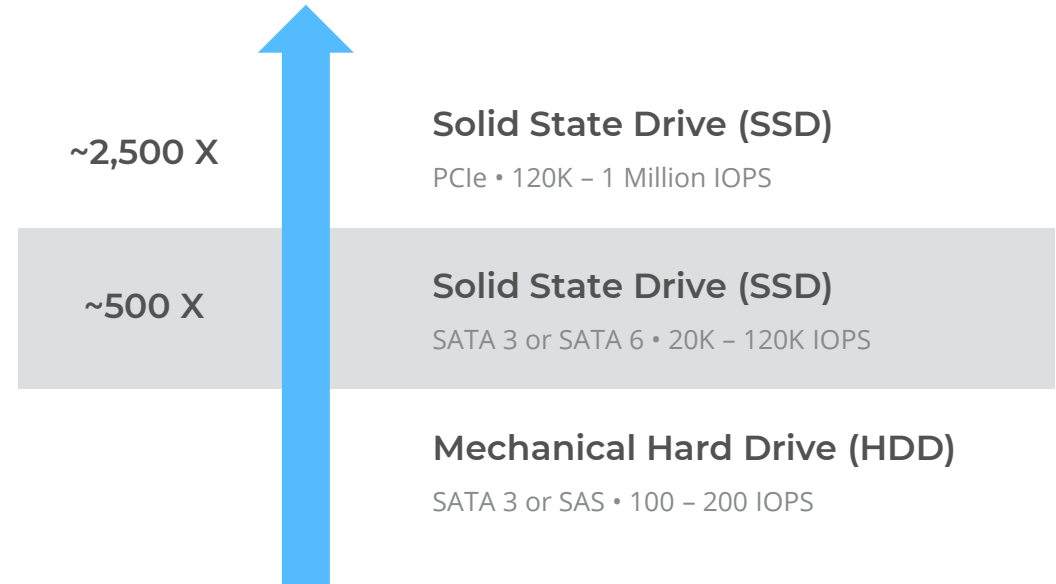


### Recommendations

TrakSYS solution performance is closely related to the database platform performance.

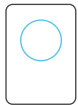
The bottleneck of the database platform is typically the disks...

- Disk Type / Speeds
- Database File Distribution
- RAID Performance
- Dedicated Disks



# Infrastructure and Architecture

## Server Disk RAID



### Recommendations

TrakSYS solution performance is closely related to the database platform performance.

The bottleneck of the database platform is typically the disks...

- Disk Type / Speeds
- Database File Distribution
- RAID Performance
- Dedicated Disks

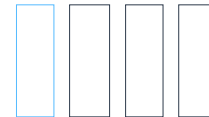


### RAID 5

Recommended for OS and Applications

Fewer Disks

Adequate Performance



### RAID 10

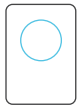
Recommended for SQL Data

Additional Disk(s)

4x Read • 2x Write

# Infrastructure and Architecture

## Database File Distribution



### Recommendations

TrakSYS solution performance is closely related to the database platform performance.

The bottleneck of the database platform is typically the disks...

- Disk Type / Speeds
- Database File Distribution
- RAID Performance
- Dedicated Disks

When placing files on separate disks, the separate disks should be different physical disk arrays, not different partitions.

**Drive E**  
SQL Logs



**Drive D**  
SQL Data Files



**Drive C**  
OS • TrakSYS™  
SQL TempDB



**Drive D**  
SQL Data Files



**Drive C**  
OS • TrakSYS™  
SQL Logs  
SQL TempDB



**Drive C**  
OS • TrakSYS™  
SQL Data, Logs and TempDB



# Infrastructure and Architecture

## Component Distribution

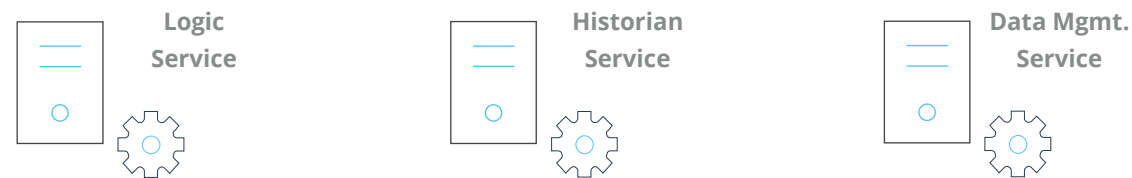
### Typical Implementations

While a typical small or medium sized implementation can be achieved by installing all the TrakSYS components on a [single server](#).



### Larger Implementations

For larger workloads, all the TrakSYS components can be distributed across [any number](#) of physical or virtual servers.





# Infrastructure and Architecture

## Non-Production Environments



### Database Transfer

Optional TrakSYS development licenses enable a configuration and user interface transfer tool allowing new changes to be pushed forward from [Development](#), to [Test](#) to [Production](#).

