# Web Services and Applications Deployment Guide

## Initialize Microsoft SQL Server

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This article describes the initialization steps for Microsoft SQL Server (MS SQL) and the hardware requirements for different deployment setups.

> **Important**
>
> Microsoft SQL Server is only required if Web Services and Applications stores persistent data such as:
>
> - Custom Contacts
> - Custom Settings

The initialization step for MS SQL Server involves creating a database name. Use the following script to create the database name:

```
CREATE DATABASE [gws_gws]
```

This script creates database name for any deployment environment such as development setup, single-node or two-node data centers.

> **Important**
>
> For MS SQL Server, database schema creation is not a mandatory step.

Review the following tables to understand the hardware requirements of MS SQL server for different environments.

## Development environment

| Requirements | Description |
|---|---|
| MS SQL version | 2019 Developer edition |
| AOAG Required | Optional |
| Nodes | Minimum 1 Nodes |
| Memory | At least 4 GB per Node and should be increased as database size increases to ensure optimal performance. |
| Processor | 2 cores |

| Requirements | Description |
| --- | --- |
| Hard Disk / Storage Disk | 10 GB |
| Networking | Localhost or internal network access. |
| Persistence | Database backup mechanism for data persistence. |

## Single data center

| Requirements | Description |
| --- | --- |
| MS SQL version | 2019 Enterprise edition (with latest CU / Service Pack) |
| FailOver Cluster | Windows Server Failover Clustering (WSFC) |
| AOAG Required | Enabled |
| Nodes | Minimum 2 Nodes |
| Memory | At least 8 GB per Node and should be increased as database size increases to ensure optimal performance. |
| Processor | minimum 2 cores per node |
| Hard Disk / Storage Disk | 4 drives (Data, Log, Backup, TempDB), 100GB per drive |
| Networking | Optimized network configuration for intra-data center communication. |
| Persistence | Always On Availability Groups or similar technology for synchronous or asynchronous replication between data centers. |

## Two data centers

| Requirements | Description |
| --- | --- |
| MS SQL version | 2019 Enterprise edition (with latest CU / Service Pack) |
| FailOver Cluster | Windows Server Failover Clustering (WSFC) |
| AOAG Required | Enabled |
| Nodes | Minimum 4 Nodes |
| Memory | At least 16 GB per Node and should be increased as database size increases to ensure optimal performance. |
| Processor | Minimum 2 cores per node |
| Hard Disk / Storage Disk | 4 drives(Data, Log, Backup, TempDB), 150 GB per drive |
| Networking | High-speed, low-latency connections between data |

| Requirements | Description |
| --- | --- |
| | centers |
| Persistence | Always On Availability Groups or similar technology for synchronous or asynchronous replication between data centers. |