

Enterprise PDM: SQL Server Configuration Guide

TITLE:	Guide to Configuring SQL server for reliability and performance
DATE:	6/2015
SUBJECT:	SQL Server software and Hardware configuration
ABSTRACT:	Overview of SQL components and best practices for their setup

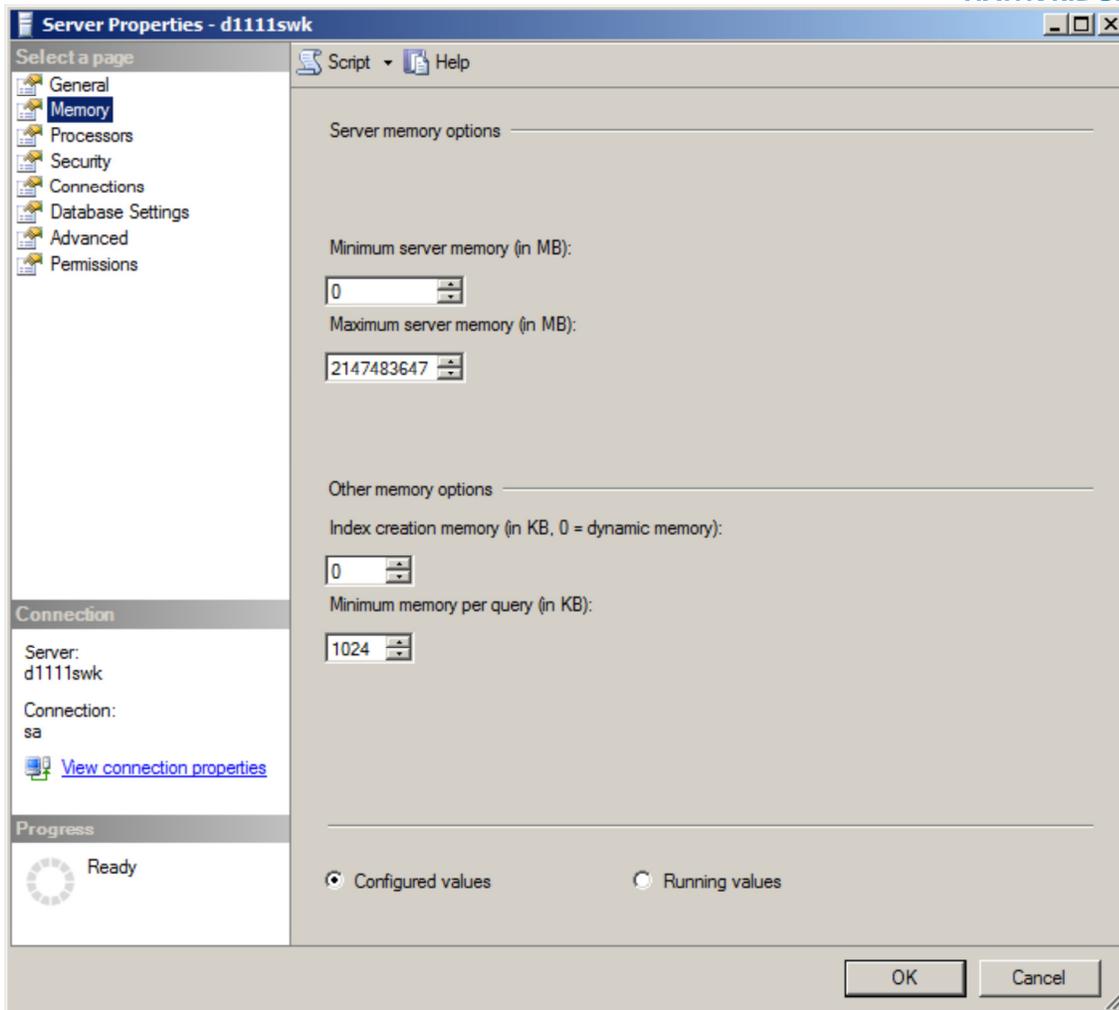
The proper configuration of a SQL server is central to obtaining the best performance of EPDM. This guide is meant to give a general overview of SQL components and how best to setup a SQL server's hardware and software. For the general configuration of SQL server for compatibility with SolidWorks Enterprise PDM please see the Enterprise PDM installation guide – link at the end of this document.

This guide will focus on RAM and disk configuration to optimize SQL server. The recommendations contained here are based on information provided by SolidWorks and customer experience.

Memory Configuration

Having a dedicated SQL Server for EPDM is the first step to optimizing vault performance. This allows the system to focus only on this task and simplifies any troubleshooting of the vault.

Memory configuration is set per server in the SQL Server management Studio (SSMS). Open the management studio and right click the server and select 'Properties' then select 'Memory' on the right hand pane:



For optimal performance set the SQL server minimum to 50% of your total installed memory. Setting the minimum as high as possible is recommended as SQL server can always use more RAM and will optimize performance right at launch. The maximum memory setting should be all available memory minus 2-4GB for OS and any other applications running on the system.

While these general guidelines should be followed in most cases, these settings are assuming that the SQL server is dedicated to running SQL and no other applications are hosted on this system. Before making any changes please make sure that these settings make sense in the environment where SQL is operating – ie. Don't dedicate all the memory to SQL if this server is also hosting Exchange or another application.

AutoGrow Settings

The Autogrow settings for a database determine how the database occupies space on storage. As with any disk operation it's important to assign sufficient space for your database to keep

the drive from locking as well as plan for future expansion so that the space the database is occupying does not become fragmented by sporadic growth.

Setting the initial growth settings varies widely per implementation. If you are creating a new vault we recommend 2GB as the initial setting. Autogrow should then be set to grow in increments of 512MB to keep the database organized on disk and avoid fragmentation.

When configuring AutoGrow it is also important to consider the recovery type of the database. If a database uses 'Full' recovery mode this means that its logs are constantly growing and theoretically the database can be restored to any point in its operation – provided a backup is available of its log files. In the 'simple' recovery model the database logs are more static and the database can only be restored to the point in time of the last full database backup.

Storage Configuration

Separating components of an application across storage devices allows the system to reduce the bottleneck of storage speed. To identify which components need their own storage device we must examine how SQL Server accesses data.

The components that SQL server uses when accessing any database are the logging data file and master data file for the target database and the TempDB which acts as a caching database for SQL access. The location of these files and performance of their storage devices is directly linked to the performance of SQL server. Furthermore to increase performance of each database it's recommended to separate the master data file (MDF) and the logging data file (Ldf) of each component accessed by EPDM.

To achieve optimal storage configuration it's best to split these components onto their own storage devices:

Windows OS

Production Database MDF

Production Database LDF

SQL Server Installation

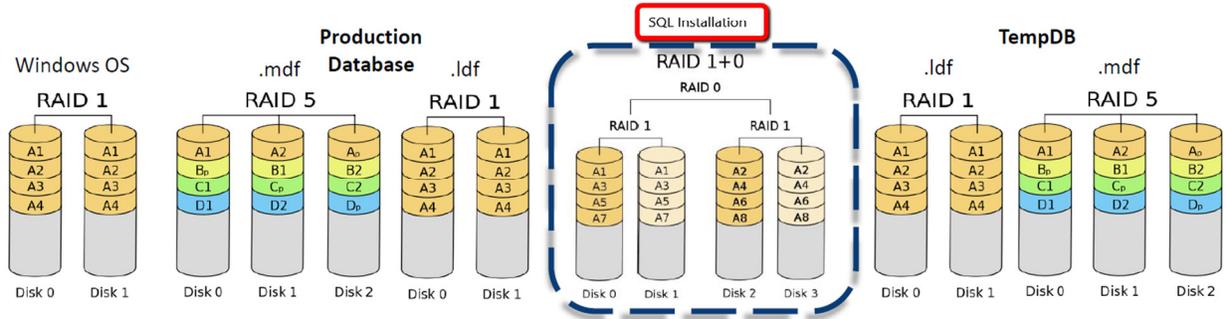
TempDB MDF

TempDB LDF



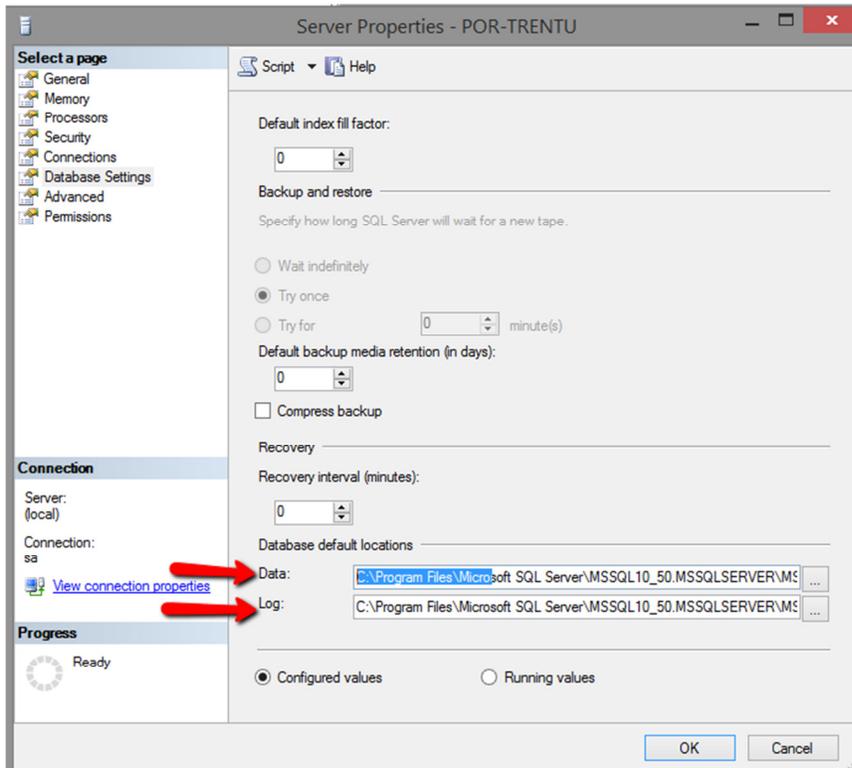
The follow RAID Configuration for these devices provides failover reliability for each of these components:

RAID



Courtesy SOLIDWORKS (Falconer)

The location of these components is set in SQL server under 'database settings' for each of these databases:





Links and Further Reading

[Technet: Storage Top 10 Best Practices](#)

[Brent Ozar: SAN Storage Best Practices for SQL Server](#)