

# SOLIDWORKS Electrical Server Considerations

## Server components involved in a SOLIDWORKS Electrical installation:

1. **Microsoft SQL** – This is the Database backbone of SOLIDWORKS Electrical Schematic. Currently, SQL Express for Schematic is included in the download and on the DVD. It houses the databases, which store information about the projects and data files. It does not store the CAD data itself.
2. **Collaborative Database Service** – This is also included in the purchase of SOLIDWORKS Electrical Schematic Professional or Standard. This is the software that communicates between SQL and the data. Only when this service is operating, will the Electrical Schematic software save any data or project changes.
3. **Data Files** – This is included in the purchase of SOLIDWORKS Electrical Schematic Professional or Standard. This area houses the CAD data, templates, and project files. This folder must be installed on a network shared area if collaborating between multiple users. For a single user, then this folder can be installed on a client machine.
4. **License Manager (SNL)** – This is a separate purchase from SOLIDWORKS. This software serves the licenses available for client use. This software is not required if purchasing stand-alone licenses that will not be shared.

These are the four major server components. These can be installed on the same server or partially split up onto multiple servers. The Microsoft SQL Express and the Collaborative Service should not be split onto separate servers.

## Recommendations

Having a dedicated Server for SQL and the Data Folder is a good idea. With no other software running on that server, it leaves the most resources for SQL and minimizes network traffic for SQL as well. This allows for the ease of isolating and troubleshooting performance issues when SQL is on a dedicated server.

**PDM and Electrical Schematic SQL:** It is recommended that these are separate installations on separate servers. This is due to troubleshooting and isolating performance issues as well as the amount of continuous traffic Electrical SQL uses affecting the performance of other software on the server.



**Microsoft SQL and SQL Express:** SQL Express is provided with the Electrical Schematic installation package. SQL Express can be used for up to five concurrent users. There will start to be a performance lag for each additional user after three concurrent clients. Microsoft SQL full version is recommended for five concurrent users or more.

Microsoft SQL's full version is not provided with Electrical Schematic software and would need to be purchased separately from Microsoft. Even though Microsoft SQL is provided with PDM, the licensing for this software is specific to the use for PDM and cannot be used for Electrical Schematic at this time.

Only if Microsoft SQL was purchased directly from Microsoft and licensing purchased for your company for multiple users could it then also be used for Electrical Schematic.

If a pre-existing SQL instance exists and it is determined that this is what will be used for the Electrical Schematic SQL, then a separate named instance will need to be added. It is not recommended that the pre-existing default instance be used for the Electrical Schematic.

The License Manager can go on any server. It's a very lightweight application, so it's not a performance consideration.

## Not Recommended

Running SQL, Electrical Data, along with other software packages on the same server is not recommended. This makes troubleshooting difficult and takes down those other software packages while that server reboots (this is needed during updates). SQL is a very heavy software resource-wise, and we recommend keeping it isolated.

## Virtual Machines

Virtual machines and cloud-based operations are not recommended. Even though Electrical Schematic server components may run on virtual machines and cloud-based servers, SOLIDWORKS does not support this setup. If one of these is utilized, we cannot guarantee the operation of the software nor can we support it if problems arise.

## RAM/Processor/Hard Drive Space Requirements

SOLIDWORKS has its recommended minimums on its website. Below is an outline of our recommendations.

### SQL server

SQL will use as much RAM as you give it. In fact, you'll need to go into SQL settings and limit it, or else it will use everything available. Typically, companies run 8Gb, 16Gb, or 32Gb depending on size, activity, and number of users. You'll want to have enough available that you could load the entire database into memory. This means it may need to be adjusted down the road.

The amount of storage space required is minimal. The database itself starts small and will grow over time, (e.g., 10Gb is pretty large for an Electrical Schematic Database). However, the OS and SQL software will require 35Gb - 60Gb, so a hard disk of 100Gb should be adequate. SQL, again, will use as much processor as allowed, but you need to follow the SQL licensing here. When purchasing Microsoft SQL through Microsoft, purchasing additional core licensing can be discussed.

### **SQL Express server**

Everything mentioned above applies, however, SQL Express limits to 1Gb of RAM used by SQL, so adding more RAM will not help. The Database size is limited to 10Gb.

### **Data Share folder**

This folder needs access to much more hard drive space and ample drive speed. Sizing should be based on how much data you plan to store, plus room for growth over at least one year, with a buffer. If building a new server, it is recommended to have space for at least three years of growth. A typical installation for Electrical Schematic will have less than 10Gb of data after the first year. Each additional year should need less than 3Gb for growth.

### **Client machines**

The client does not require much storage space – the program files that will need to be resident take less than 500Mb. At least 16Gb RAM is recommended while 32Gb of RAM provides the best results in performance. The processor should have at least four cores, but again having more provides better performance. Graphics cards can be reviewed through SOLIDWORKS recommendations.

Communications to servers through hardwire lines rather than wireless or VPN will provide the best results based on speed of transmissions. Electrical Schematic is continuous communications with databases.

### **Ports through Firewall**

For the Database communications, 1433 and 1434 are needed for the SQL instance. The License Manager communicates through port 25734 and 25735 for the vendor daemon port by default. The Collaborative Service will use port 26666 for the first user of the software. Each additional user will then use an additional port. If three concurrent users are required, then ports 26666-26668 should be opened. Open all these ports incoming and outgoing, TCP/IP, and UDP rules.