System recommendations for version 17.1

This article contains information about recommended hardware resources and network environments for version 17.1 of Sage 300 Construction and Real Estate.

NOTE: Starting with version 17.1 of Sage 300 Construction and Real Estate, 32-bit operating systems are no longer supported for servers or workstations.

Executive summary

New customers
You should obtain a robust and reliable server that will support your business and accommodate your growth. Each situation is unique, so review the detailed considerations in the remainder of this document. For average daily processing loads, we recommend that servers have multi-core processors with base frequency of at least 3 GHz, 32 gigabytes or more RAM, and solid state drives (SSD's). Workstations must have 64-bit installations of Windows 8.1 or Windows 10.

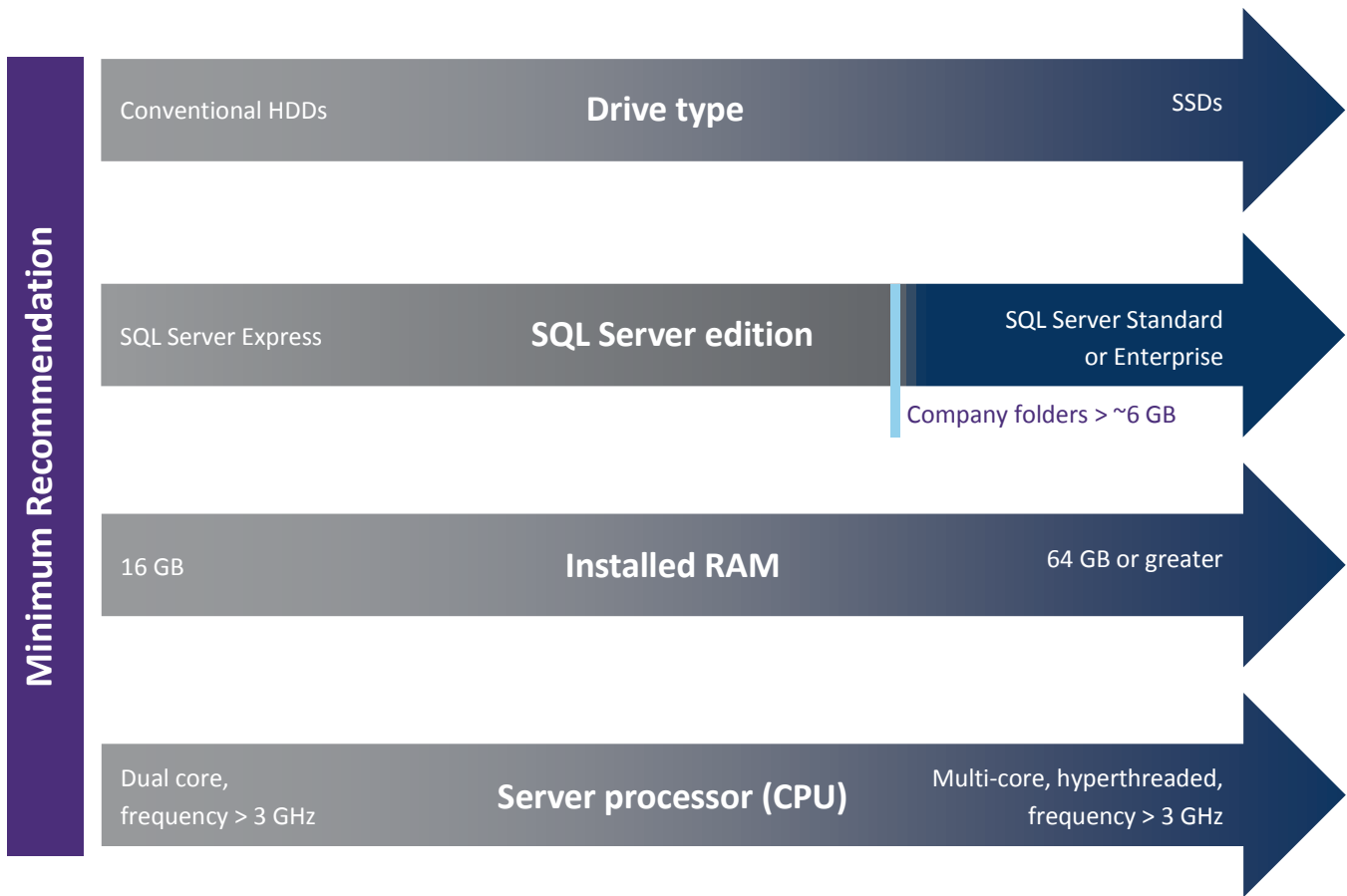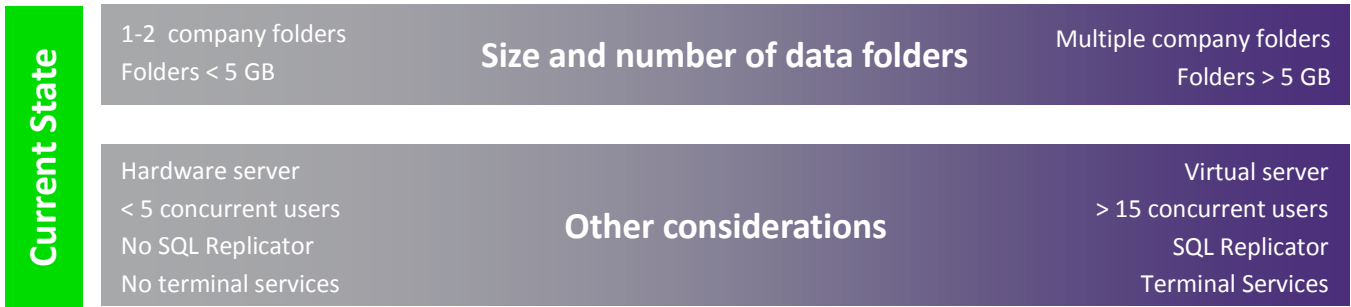| Existing customers … |
|---|
| **… who will not implement SQL Replicator or Mobile Projects** |
| You probably don't need to upgrade your server for this release, provided it performs adequately today. Your server can continue to run on Windows Server 2008 R2, 2012, or 2012 R2. Small or standalone systems can continue to use Windows 7, Windows 8.1 or Windows 10.

 If your workstations are 64-bit and you are satisfied with their performance, you probably don't need to upgrade them. Any 32-bit workstations must be replaced with 64-bit systems. |
| **… who will implement SQL Replicator** |
| Verify that your server's resources are sufficient to handle the additional components. You might need to upgrade your server. For average daily processing loads, we recommend that servers have multi-core processors with base frequency of at least 3 GHz, 32 gigabytes or more RAM, and solid state drives (SSD's). The operating system can be Windows Server 2012 R2 or 2016.

 If your workstations are 64-bit and you are satisfied with their performance, you probably don't need to upgrade them. Any 32-bit workstations must be replaced with 64-bit systems running Windows 8.1 or Windows 10. |

Planning for upgrades

As computer technology advances, your business-critical infrastructure depends on keeping your hardware and software up-to-date. Your organization is unique, and the hardware configuration that works best for you depends on many factors, including the size of your existing data folders, number of concurrent users, network bandwidth, and other software running on your server. As you grow, so will your hardware needs.

If you are an existing customer, the most important factor in determining future upgrades is how satisfied you are with the hardware you use today. Based on the information that follows, decide whether to continue using the same server, swap some server components for more powerful ones to support new features, or obtain a brand-new server to support the exciting new components in this and future releases.

Server hardware

Our hardware recommendations are based on a server running Sage 300 Construction and Real Estate version 17.1, SQL Server 2016 Standard Edition, and the SQL Replicator—assuming no other resource-intensive software is running on the same server. This illustration shows the factors to keep in mind when investing in a server.

Current State

1-2 company folders Folders < 5 GB	**Size and number of data folders**	Multiple company folders Folders > 5 GB
Hardware server < 5 concurrent users No SQL Replicator No terminal services	**Other considerations**	Virtual server > 15 concurrent users SQL Replicator Terminal Services

Minimum Recommendation

Conventional HDDs	**Drive type**	SSDs
SQL Server Express	**SQL Server edition**	SQL Server Standard or Enterprise
		Company folders > ~6 GB
16 GB	**Installed RAM**	64 GB or greater
Dual core, frequency > 3 GHz	**Server processor (CPU)**	Multi-core, hyperthreaded, frequency > 3 GHz

In the pages that follow, for each component we've listed a solid "middle-of-the-road" option, with factors to consider when determining your final selection. Review these considerations to determine the best option for your business.

Should I use a virtual or hardware server?

Recommendation: Virtual or hardware server	
Make this decision based on the needs of your business. We support either option.	
Considerations	
Virtual servers	If you use a virtual server, you'll need to dedicate sufficient resources from the host machine to the virtual machine. Review the information that follows about the remaining hardware components and decide whether your host machine can support a VM with sufficient dedicated resources.

What type of hard drives do I need?

Conventional HDDs	**Drive type**	SSDs

Recommendation: Type of drives	
Solid state drives (SSD's) instead of hard disk drives (HDD's).	
Considerations	
SSD's vs. HDD's	HDD technology uses tiny mechanical parts to read data from a spinning disk. The moving parts mean HDD's can be slower and more liable to failure. SSD technology involves no moving parts, with information stored on microchips and read by a controller. SSD's with a high-quality controller offer faster and more reliable data storage.
System and data drives	If your current server's system drive is not an SSD, you can still benefit from SSD technology without purchasing all-new server equipment. Install secondary SSD's, and then move Pervasive data folders, the SQL Server instance's default data location, and SQL Server's Tempdb database to the SSD.
	Having limited free space on a drive can slow performance considerably. To improve performance on slower systems, move activity from earlier years to archives, and remove unnecessary files.
Virtual servers	If you use a virtual server, using SSD's on the host can result in improved performance on the virtual server.
Number of concurrent users	A greater number of concurrent users increases demands on the hard drives.
Without SQL Replicator and Mobile Projects	If you are an existing customer and you are satisfied with your current server's performance, you don't need to upgrade your hard drives.

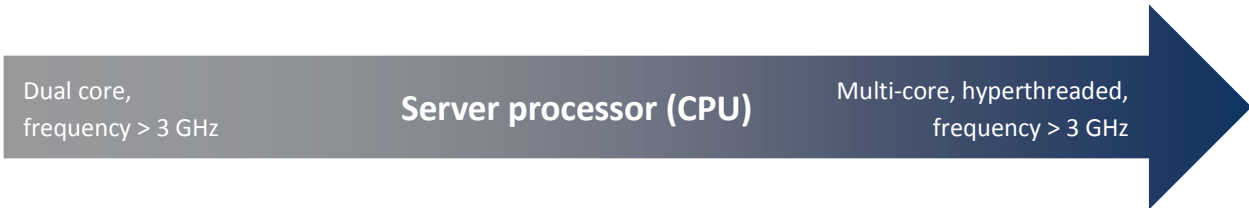| Recommendation: Type of drives	
With SQL Replicator and Mobile Projects	SQL Replicator places heavy, sustained read-write demands on system disks. SSDs with at least 200 MB/second read-write speeds will provide good performance. If adding SSDs is not practical at this time, consider increasing RAM or upgrading your processor. Be sure to maintain sufficient free space on the drives that hold your data.
Anti-virus	Some anti-virus applications can slow disk performance considerably. Upgrading to SSD's can help with this issue.

How much RAM does my server need?

16 GB	**Installed RAM**	64 GB or greater

Recommendation: RAM
32 GB or more of installed RAM.

Considerations	
Size of company folders	Larger company folders can increase the demands on RAM.
Number of company folders	If you will replicate multiple company folders, each replication process requires processor resources and RAM.
Number of concurrent users	A greater number of concurrent users increases demands on RAM.
Terminal services	If your users connect through terminal services, your server's RAM requirements will be greater.
Virtual servers	You'll need enough RAM installed on the host machine that you can dedicate a sufficient amount to the virtual machine and still leave enough for the host's operating system and other functions. If your host server has 32 GB RAM total, you most likely cannot dedicate more than 28 GB to the virtual machine. If you implement SQL Replicator and Mobile Projects, this might not be sufficient.
Without SQL Replicator and Mobile Projects	Your system will require significantly less RAM than the suggested amount. If you are an existing customer and you are satisfied with your current server's performance, you don't need to add more RAM. If you are a new customer or you are planning to purchase a new server, carefully note the amount of RAM provided with different models you are evaluating. You might find that you can obtain a large amount of RAM for not much more cost. Alternately, consider a model that will allow the addition of RAM later.

Recommendation: RAM	
With SQL Replicator and Mobile Projects	The additional components will add to the demands on RAM resources. If adding RAM is not a practical option at this time, you can try using as little as 16 GB RAM—but you might want to delay implementing SQL Replicator until you can add RAM. If your current server has the maximum amount of RAM it can use, and you are not satisfied with performance after installing SQL Server and running SQL Replicator, we recommend that you stop replication and the SQL Server service until you can obtain more RAM.
SQL Express	The Express edition of SQL Server limits itself to 1 GB RAM. However, other components such as the Pervasive database engine, accounting software, and any additional applications running on the server will place demands on the remainder of the available RAM. Include these components when analyzing your need for more RAM.

What type of server processor (CPU) do I need?

Dual core, frequency > 3 GHz	Server processor (CPU)	Multi-core, hyperthreaded, frequency > 3 GHz

Recommendation: Processors	
Multi-core, hyperthreaded, at least 3 GHz frequency.	
Considerations	
Virtual servers	If you use a virtual server, the host and virtual machine's must share the processor. The host machine needs sufficient CPU resources that you can dedicate an appropriate amount to the virtual server and still have enough for the host's operating system and other functions.
Without SQL Replicator and Mobile Projects	If you are an existing customer and you are satisfied with your current server's performance, you don't need to upgrade the processor. If you are a new customer or you are planning to purchase a new server, note the number of cores and processing speed for models you are comparing. The higher the number of cores and greater the speed in GHz, the faster your server will be. Alternately, consider a model with multiple CPU sockets so you can add processors later.
With SQL Replicator and Mobile Projects	SQL Replicator places high demands on hard disks, with additional load sometimes placed on the processor. If you will replicate multiple company folders, each instance of replication uses its own core or thread—so you'll benefit from a greater number of cores and threads.

Recommendation: Processors	
SQL Express	The Express edition of SQL Server limits itself to 4 processor cores. To adequately support SQL Express, obtain a processor with higher speed rather than a higher number of cores. For example, you might find dual 4-core processors clocking 3.6 GHz to be more satisfactory than dual 8-core processors running at 2.2 GHz.

Which operating system do I need?

Recommendation: Operating System	
Windows Server 2012 R2 or 2016, 64-bit installations. **NOTE:** 32-bit operating systems are no longer supported.	
Considerations	
Without SQL Replicator and Mobile Projects	You can continue to use Windows Server 2008 R2 or Windows Server 2012. For small or stand-alone installations, you can continue to use Windows 8.1 or Windows 10.
With SQL Replicator and Mobile Projects	These components require Windows Server 2012 R2 or Windows Server 2016.

Which edition of SQL Server do I need?

SQL Server Express	**SQL Server edition**	SQL Server Standard or Enterprise

Company folders > ~6 GB

Recommendation: SQL Server edition	
Microsoft SQL Server 2016 Express, Standard, or Enterprise edition	
Considerations	
With SQL Replicator and Mobile Projects	Replicated databases are larger than the original Pervasive data because of added indexing to support report performance. To determine whether you can use the no-cost Express edition of SQL Server, add the size of the PVData, POIV Data, and SMData folders for each of your companies to the size of the Master_QXM file. If this sum is greater than 6 GB for any of your company folders, you must use the Standard or Enterprise edition of SQL Server.

Network environment

Some considerations apply to the network environment.

Wired network adapter: Wireless connections are subject to being disconnected for brief periodic intervals. This can generate errors and other issues with the software. Client computers must have a wired connection to the server. Users who connect to the network through Wifi or VPN must open a Remote Desktop Connection to the client on which Sage 300 Construction and Real Estate is installed.

- **Windows Active Directory domain:** This is required for SQL Replicator and Mobile Projects, as these components are not supported in peer-to-peer environments. If you will not use these components, you don't need an Active Directory domain.

- **Internet Information Services (IIS):** The installation of Sage 300 Construction and Real Estate includes configuration of IIS on your accounting server to enable access to data from client machines within your private, firewalled Intranet. This configuration is not intended to expose the server to the public Internet.

- **Domain controllers:** You should not install Sage 300 Construction and Real Estate on a domain controller. (Microsoft advises against the use of domain controllers for any function other than Active Directory.) If you currently run the software on your domain controller, you can continue to run the accounting applications, but you will be unable to implement SQL Replicator or Mobile Projects.

- **Firewall ports:** Software and hardware firewalls must be set up to accept the following ports: 25, 80, 137–139, 443, 515/TCP, 1583/TCP, 3351/TCP, 8101, 8102, 11486–11488/TCP.

Workstations

If you are satisfied with the current performance of your 64-bit workstations, you might not need to upgrade them. Review these considerations:

- We no longer support 32-bit operating systems. Upgrade workstations to 64-bit.

- Workstations can run on Windows 8.1 or Windows 10. If you will not use Mobile Projects, you can continue to run on Windows 7.

Additional configuration

These additional components apply to all installations:

- Monitors: The resolution should be at least 1024 x 768, and not more than 1920 x1080 pixels, up to full HD. Avoid 2K or greater monitors with resolutions greater than 1920 x 1080 pixels.

- Software installed with Sage 300 Construction and Real Estate (when possible):
  - Microsoft .NET 4.6.2
  - Microsoft .NET 3.5

- Additional software (optional)
  - Adobe Reader for viewing journals generated by the software.
  - Crystal Reports 2013 SP2 for creating and modifying Crystal Reports designs.
  - Microsoft Office (32-bit installations only) versions 365, 2013, or 2016.

- Supported browsers for Mobile Projects
  - IE 11
  - Edge
  - Safari
  - Chrome