System Requirements Enterprise Edition for v5

Contents

1   Introduction

1.1   Purpose of the Document

➢ To define the minimum system requirements for the operation of 12d Synergy which is dependent on the size of your organization. This document is for an organization that has more than 300 12d Synergy users.

➢ We aim to highlight key areas of focus that are dependent on the configurations that apply to you.

1.2   Intended Audience

➢ System Administrators

➢ IT Support staff

2   12d Synergy Server Requirements

2.1   Hardware Requirements

No. of users in an installation Hardware	> 300 Users
CPU	➢ Intel i5 or AMD equivalent processor, 2 GHz or Higher (Minimum) ➢ Intel Xeon E7 or AMD equivalent processor, 3 GHz or Higher (Recommended) ➢ The processor should not be older than 3 generations, with a minimum of 8 cores.
RAM	>=24 GB, 32 GB recommended
HDD	5.0 GB for installation

2.2   Software Requirements

No. of users in an installation Software	> 300 Users
Operating System	Windows 10 or later, or Server 2016 or later. 12d Synergy is installed as a 32-bit application.
Microsoft .NET	Version 4.8
Microsoft SQL Server	Version 2014 Standard Recommended version: 2019 Standard or later

	Full-text Search must be enabled. **AutoClose** must be set to **False** on the database.
MS Office (Optional)	Microsoft Office 2010 or later for converting Office documents to PDF (12d Synergy is shipped with a converter though.)

2.3   Requirements for Hosting 12d Synergy in the Cloud

If you are installing 12d Synergy within your own cloud, then you will need to make multiple considerations.

It is recommended that you review the SQL requirements and reassess which configuration will apply to your setup.

Additionally, note that the cloud offerings change over time and the below requirements may not represent the current offerings but should still provide a guideline.

2.3.1   Compute

No.of users in an installation / Compute	< 30 Users	> 30 Users	> 100 Users
Compute (with SQL)	4 Cores + 16GB RAM (Azure DS3 or AWS EC2)	4 Cores + 24GB RAM (Azure DS3 or AWS EC2)	
Compute (without SQL)	2 Cores + 8GB RAM (Azure DS3 or AWS EC2)	4 Cores + 16GB RAM (Azure DS3 or AWS EC2)	4 Cores + 16GB RAM (Azure DS3 or AWS EC2)

2.3.2   Storage

The storage resource can be divided into the following.

	OS Disk	Application Data	SQL (optional)
Azure	Managed Disk – Premium SSD	Managed Disk – Premium SSD	Managed Disk – Premium SSD

AWS	EBS GP3	EBS GP3	EBS GP3

Note:

➤ Please consider best practices for the configuration of Microsoft SQL databases in the link below.

https://docs.microsoft.com/en-us/azure-stack/user/azure-stack-sql-server-vm-considerations?view=azs-2102

➤ 12d Synergy recommends that the applications should run from a specific Application Disk and not be shared with any other applications.

2.3.3 SQL Compute:

No.of users in an installation / Compute	< 30 Users	> 30 Users	> 100 Users
Compute	2 Cores + 8GB RAM (Azure DS3 or AWS EC2)	2 Cores + 8GB RAM (Azure DS3 or AWS EC2)	4 Cores + 16GB RAM (Azure DS3 or AWS EC2)

2.3.4 SQL Storage:

	OS Disk	SQL
Azure	Managed Disk – Premium SSD	Managed Disk – Premium SSD
AWS	EBS GP3	EBS GP3

Note:

➤ Please consider best practices for the configuration of Microsoft SQL databases in the link below.

https://docs.microsoft.com/en-us/azure-stack/user/azure-stack-sql-server-vm-considerations?view=azs-2102

2.3.4.1 Azure SQL (PaaS):

If your environment makes use of the Azure SQL services (PaaS), you can use an existing service for your database. Please ensure that your service has sufficient resources to support the additional load of the 12d Synergy Database and resource accordingly.

Warning: Server-less SQL Configurations are NOT supported and are a known source of issues.

File Store Storage Alternatives

While alternative storage platforms are not officially supported, we understand that large amounts of data can cause ongoing cost problems.

If you are considering using an alternative storage platform such as Azure Files or AWS Simple Storage, it is recommended that you use the highest tier service to minimise the amount of performance degradation. Please ensure that you benchmark the performance of your system and that it is of an acceptable level. 12d Synergy will not provide any support for this scenario.

2.4　SQL Server Requirements

Microsoft SQL Server is provided by Microsoft and has its own set of requirements, including configurations that may be considered invalid or not recommended, such as running SQL Server on a Domain Controller.

Please see the following link for more information:

https://docs.microsoft.com/en-us/sql/sql-server/install/hardware-and-software-requirements-for-installing-sql-server

2.4.1　Microsoft SQL Supported Editions

12d Synergy supports both, the Express and Standard editions of Microsoft SQL Server. Based on the size of the installation, one of these editions must be used.

No. of users in an installation / SQL Edition	> 300 Users
SQL Express	No
SQL Standard	Yes
Microsoft SQL Server	Version 2014 Standard Recommended version: 2019 Standard or later **Full-text Search** must be enabled. **AutoClose** must be set to **False** on the database.

While 12d Synergy comes with an inbuilt version of SQL Server Express, it is highly recommended that you ensure if it works for all your requirements.

2.4.2   SQL Server on a Separate Machine

Please note the following requirements when running SQL Server on a separate machine from your 12d Synergy server.

No. of users in an installation Requirements	> 300 Users
12d Synergy Server	>= 16 GB of RAM SQL Server should have access to at least 12 GB of RAM
SQL Server	>= 16 GB of RAM
Latency between the SQL and 12d Synergy servers	< 10 ms <1 ms is recommended for optimal performance.

Recommendation: For installations larger than 100 users, we strongly recommend having the SQL Server and the 12d Synergy server on separate machines. This allows them to NOT compete for memory, processing power, or disk use.

Recommendation: Note that between service restarts, 12d Synergy and SQL Server's RAM consumption will grow as more users connect and use the system. This is particularly true of SQL Server, which will attempt to utilize more RAM to speed up data access by caching results in memory.

If your server is already starved for RAM (say at 75% capacity), you will experience poor performance because many of its calculations will be paged to disk.

The more disk activity there is on a single server, the poorer your performance will be.

It is important to make sure that the servers that host these services are not over-utilized.

This should all be considered when selecting the infrastructure for your 12d Synergy server.

2.4.3   SQL Server Stacking

SQL Server stacking is the practice of installing multiple instances of SQL Server on a single Windows Server.

Recommendation: SQL Server Stacking should not be used if you do NOT have an experienced Database Administrator to manage and monitor your SQL Server performance. Else it may lead to performance bottlenecks and time-outs.

For installations involving SQL Server Stacking, you must ensure you reserve enough memory for the SQL Server to operate well.

2.5   Additional Requirements

2.5.1   Files Over the Web

12d Synergy provides the capability to deliver files to external users over HTTP/HTTPS, or for validated external parties to upload data. This is disabled by default. But if required, a port must be nominated for access. This defaults to 8080 for HTTP and 8443 for HTTPS.

It is recommended that HTTPS is enabled, the installation of which requires an SSL Certificate.

2.5.2   Data Storage

The 12d Synergy Server requires two types of storage:

1. **Temporary Storage** – This is storage that 12d Synergy Server uses to handle transactions from the client.

   The size of this storage will be determined by the largest transaction you perceive. If your user base tends to upload 10s of GB of data, then you will need to accommodate that. It is best to keep this location off the OS Drive and 'physical' to the server.

2. **File Store Storage** – This is storage where 12d Synergy Server will save all data. You will need to consider how much data you will be uploading to the application and accommodate appropriately. This storage requirement will grow based on your usage and we recommend assessing this regularly to ensure you have the required space. Running out of storage can lead to data loss.

   Within the file store storage, there are different segments of data that can be separated later. Please refer to our Migration Guide for more information and recommendations on large systems.

2.5.3   Service Account

A Service Account is a Windows user that has permission to log into the Windows Server as a service rather than a user. Without this permission, the service will not start correctly.

You can change your service login credentials after it is installed via the Windows Services window. However, in a domain environment, this may be overwritten by the Group Policy. This may need to be validated against your internal policies to ensure there are no conflicts.

The 12d Synergy Server will run under a service account which will have the following permissions:

➢ to connect to the SQL Server and create a database and temporary tables

➢ to have full access to the data storage areas

➢ to access the Active Directory (see Windows Login Credentials for more details)

➢ to be able to access the web ports using NETSH, if you are using File Publishing or Web Drops

2.5.4   Environment Variables

12d Synergy Server makes use of the following Windows Environment Variables that point to the path of temporary storage:

1) TEMP

2) TMP

These are accessed by the Service Account and should have significant space to handle the largest file upload. Else, an additional Windows Environment Variable, **12dSynergyTempPath**, can be set up to store the location where 12d Synergy saves the temporary files.

2.5.5   Windows Login Credentials

12d Synergy can operate in two modes for logins:

1) Windows Credentials

2) Custom logins

When using Windows credentials, 12d Synergy can access login information from one of the following:

➢   Machine local logins

➢   Active directory

Recommendation: Windows credentials are preferred as it provides single sign-on.

When using Windows credentials, 12d Synergy does not store any passwords. Also, the 12d Synergy Administrator has to configure the access to 12d Synergy for Active Directory users.

If you are using Active Directory, you must nominate the Active Directory server at installation time.

Custom logins will require the use of a server-side SSL Certificate for encryption and identification purposes.

2.5.6   Client and Server Communications

12d Synergy operates using TCP/IP over ports 1212 for metadata and 1250 for file transfer. These ports should be opened/forwarded in all applicable software, hardware firewalls, or routers for your LAN and WAN connections.

For optimal performance, latency between 12d Synergy Client to 12d Synergy Server is as follows.

Performance Level	Latency in milliseconds
Excellent performance	50
Good performance	100
Acceptable performance	250

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Low performance	>250

2.5.7 File Replication and Server Communications

Each File Replication Server will communicate with the Master Server over the installed File Server/Data Port 1250. This port should be opened/forwarded for all software firewalls, hardware firewalls, or routers for your LAN and WAN connections.

2.6 Optional Requirements

2.6.1 Mail Server

12d Synergy needs to access a mail server via SMTP to be able to email users about updates on files, job notifications, etc. The 12d Synergy Administrator has to configure the following in the 12d Synergy Administration application.

- Mail server address
- Optional mail server port, if non-standard
- Mail server credentials, if required
- Default sender's e-mail address

3 File Replication Server (FRS) Requirements

The File Replication Server (FRS) communicates using the TCP/IP protocol (encrypted with SSL/TLS), over the default port 1212 with the following:

- The Master Server
- Other File Replication Servers
- Any Clients using the FRS

The installed port should be opened in all applicable software firewalls, hardware firewalls, or routers.

3.1 Hardware Requirements

CPU	• Intel i5 or AMD equivalent processor, 2 GHz or Higher (Minimum) • Intel Xeon E7 or AMD equivalent processor, 3 GHz or Higher (Recommended)
RAM	>8GB, 16 GB recommended
HDD	5 GB for installation

3.2 Software Requirements

Operating System	Windows 7 or later, or Server 2008 SP2 or later. 12d Synergy is installed as a 32bit application.
Microsoft .NET	4.8
Microsoft SQL Server	Minimum version: SQL Server 2012 Recommended version: SQL Server 2014 or later Full-text Search must be enabled

3.3 SQL Server

You can use the SQL Server Express edition for an FRS installation.

Recommendation: It is recommended to use SQL Server Standard Edition if it is available.

3.4 Additional Requirements

3.4.1 Data Storage

Data storage is based on two factors. They are as follows:

1) Data that 12d Synergy is expected to manage
2) Growth of this data with time

3.4.2 Service Account

The 12d Synergy Server will run under a service account which will have the following permissions:

➢ to connect to the SQL Server and create a database and temporary tables
➢ to have full access to the data storage areas

4   12d Synergy Client Requirements

4.1   Hardware Requirements

CPU	Intel i5 or AMD equivalent processor, 2 GHz or Higher (minimum)
RAM	>=4 GB, 8 GB recommended
HDD	5.0 GB for installation Include additional storage for your workspace

4.2   Software Requirements

Operating System	Windows 10 or later
Microsoft .NET	4.8 AUTO CAD 2019 requires .Net 4.8
Optional Components	➢ Microsoft Office 2016 or later ➢ 12d Model V11 or later ➢ AutoCAD 2014 or later ➢ BricsCAD Pro V14 or later

Recommendation: If you wish to use the Microsoft Office plugins, please note that 12d Synergy is not compatible with the store versions of Windows/Microsoft. You must use the **Desktop** or **Click to Run** version.

You can check which version of Microsoft Office is installed in your system by clicking **File > Office Account** in any Microsoft Office product.

Note:

➢ To drag and drop a file from 12d Synergy to Microsoft Office, you need to use 32-bit Outlook. 64-bit Outlook is currently NOT supported for drag and drop operations.