Server Technical Requirements

Axiom

Version 2021.2

Introduction

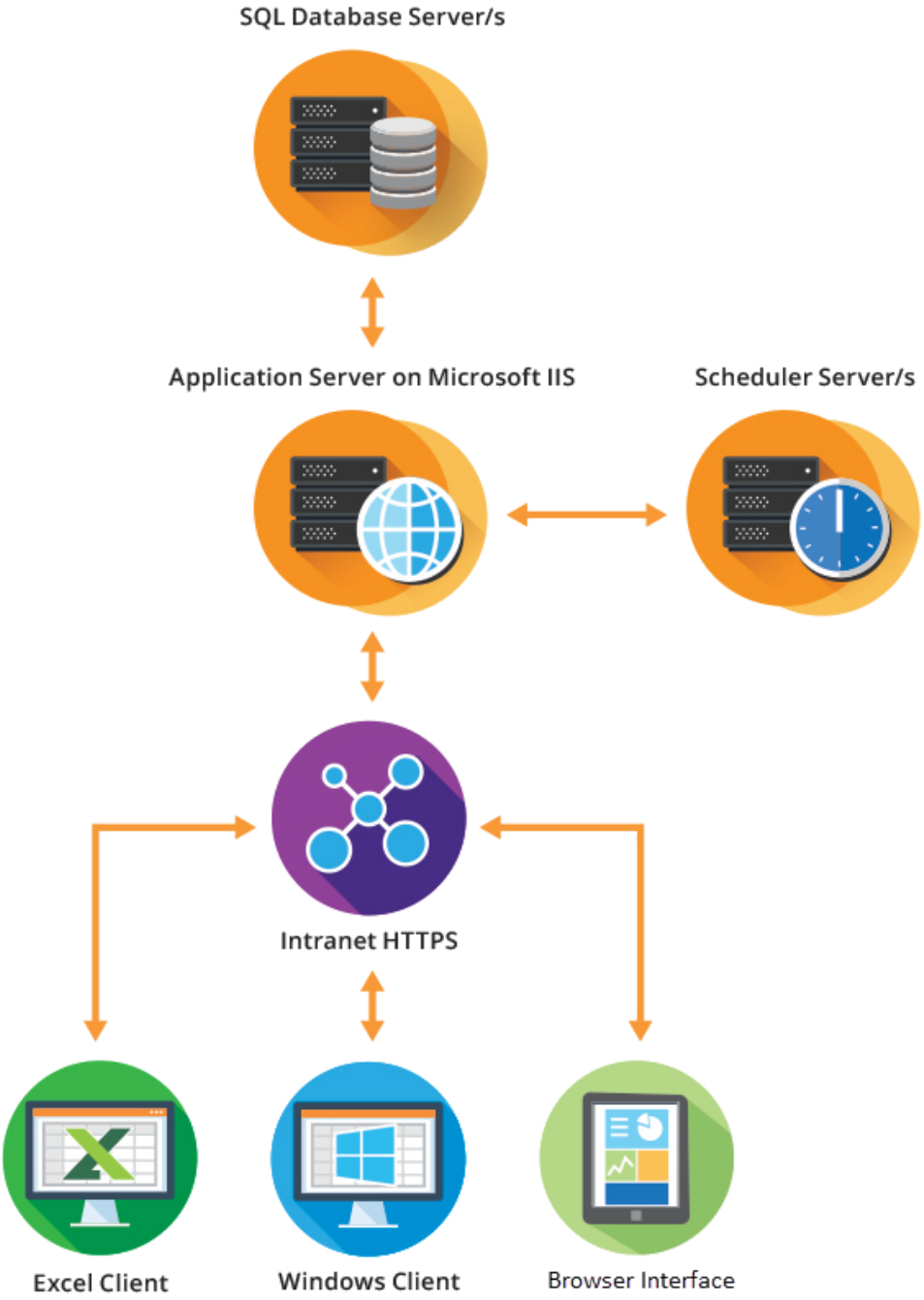
This document is intended to provide guidance regarding the server hardware and software infrastructure necessary for on-premise installations of Axiom. Each customer implementation is unique. This document provides direction, but may not address your specific configuration. If you want to discuss the structure of Axiom in your environment, please contact your Syntellis representative.

Up-front testing and evaluation of the planned environment is extremely important to achieving a smooth rollout of the software. We will partner with you to perform this testing to help ensure that Axiom will meet your performance requirements.

For more information on technical requirements for the client deployment, see the separate document *Axiom Client Technical Requirements*.

Technical architecture

The following diagram illustrates the technical architecture of Axiom. This document discusses the server tier only.



Server recommendations and prerequisites

This section details the minimum virtual server requirements for Axiom, based on the approximate type of usage. Usage types are estimated as follows:

Usage type	Number of Concurrent Users	Number of Plan Files	Processing Activity
Medium	0 to 50	Fewer than 500	Moderate
Large	Up to 500	More than 500	Heavy
Enterprise	500 to 1000	More than 500	Heavy
Big Data	For large data sets, where the amount of data to be processed has greater impact on the technical requirements than other implementation factors (such as number of concurrent users or plan files).		

Test server

We recommend establishing a test server for the initial system development and to test future upgrades and system changes before rollout. It uses a single-tier server configuration: combined database Server, Application Server, and Scheduler Server.

CPU	RAM	Disk	OS
Virtualized Quad CPU 2.0Ghz or higher	8GB	200GB operating system disk	Windows Server Standard 64-bit 2016 or 2019
Software			
Microsoft SQL Server Standard 2017 or 2019 (version and drivers must support TLS 1.2) Microsoft IIS 8.x or 10 Microsoft .NET Framework 4.8 or higher, plus any versions required by the server operating system			

Medium footprint

The medium footprint assumes 0-50 concurrent users, fewer than 500 plan files, and moderate processing activity. It uses a three-tier server configuration: separate Database Server, Application Server, and Scheduler Server.

Database Server

CPU	RAM	Disk	
Virtualized Quad CPU 2.0Ghz or higher	16GB	2 virtual disk arrays: • 30GB operating system disk • 100GB database data and log, 1000 IOPS	
Software			
Microsoft SQL Server Standard 2017 or 2019 (version and drivers must support TLS 1.2)			

Application Server

CPU	RAM	Disk	OS
Virtualized Quad CPU 2.0Ghz or higher	8GB	30GB operating system disk	Windows Server Standard 64-bit 2016 or 2019
Software			
Microsoft IIS 8.x or 10 Microsoft .NET Framework 4.8 or higher, plus any versions required by the server operating system			

Scheduler Server

CPU	RAM	Disk	OS
Virtualized Quad CPU 2.0Ghz or higher	8GB	30GB operating system disk	Windows Server Standard 64-bit 2016 or 2019
Software			
Microsoft .NET Framework 4.8 or higher, plus any versions required by the server operating system			

Large footprint

The large footprint assumes up to 500 concurrent users, more than 500 plan files, and heavy processing activity. It uses a three-tier server configuration: dedicated Database Server, dedicated Application Server, and load-balanced Scheduler Servers.

Database Server

CPU	RAM	Disk
Virtualized Quad CPU 2.0Ghz or higher	64GB	3 virtual disk arrays: • 30GB operating system disk • 200GB database data drive, 1000 IOPS • 100GB database log drive, 1000 IOPS
Software		
Microsoft SQL Server Standard 2017 or 2019 (version and drivers must support TLS 1.2)		

Application Server

CPU	RAM	Disk	OS
Virtualized Quad CPU 2.0Ghz or higher	16GB	30GB operating system disk	Windows Server Standard 64-bit 2016 or 2019
Software			
Microsoft IIS 8.x or 10 Microsoft .NET Framework 4.8 or higher, plus any versions required by the server operating system			

Scheduler Server

CPU	RAM	Disk	OS
Virtualized Quad CPU 2.0Ghz or higher	8GB	30GB operating system disk	Windows Server Standard 64-bit 2016 or 2019
Software			
Microsoft .NET Framework 4.8 or higher, plus any versions required by the server operating system			

Big Data footprint

The "big data" footprint is for customers with large data sets. This can apply to any installation, but typically occurs when implementing data-intensive products such as Cost Accounting, Decision Support, or Cash Flow Forecasting. It uses a three-tier server configuration: dedicated Database Server, dedicated Application Server, and load-balanced Scheduler Servers.

Database Server

CPU	RAM	Disk
Virtualized Quad CPU 2.4Ghz or higher	128GB	4 virtual disk arrays: • 30GB operating system disk • 500GB database data drive, 2000 IOPS, 4000 IOPS burst • 300GB log data drive, 2000 IOPS, 4000 IOPS burst • 100GB tempdb drive, 2000 IOPS, 4000 IOPS burst
Software		
Microsoft SQL Server Enterprise 2017 or 2019 (version and drivers must support TLS 1.2)		

Application Server

CPU	RAM	Disk	OS
Virtualized Quad CPU 2.4Ghz or higher	16GB	30GB operating system disk	Windows Server Standard 64-bit 2016 or 2019
Software			
Microsoft IIS 8.x or 10 Microsoft .NET Framework 4.8 or higher, plus any versions required by the server operating system			

Scheduler Server

CPU	RAM	Disk	OS
Virtualized Quad CPU 2.4Ghz or higher	8GB	30GB operating system disk	Windows Server Standard 64-bit 2016 or 2019
Software			
Microsoft .NET Framework 4.8 or higher, plus any versions required by the server operating system			

Enterprise footprint

The enterprise footprint assumes 500-1000 concurrent users, more than 500 plan files, and heavy processing activity. It uses a three-tier server configuration: dedicated Database Server, high-memory Application Server, and load-balanced Scheduler Servers.

Database Server

CPU	RAM	Disk
Virtualized Quad CPU 2.4Ghz or higher	128GB	4 virtual disk arrays: • 30GB operating system disk • 500GB database data drive, 2000 IOPS, 4000 IOPS burst • 300GB log data drive, 2000 IOPS, 4000 IOPS burst • 100GB tempdb drive, 2000 IOPS, 4000 IOPS burst
Software		
Microsoft SQL Server Enterprise 2017 or 2019 (version and drivers must support TLS 1.2)		

Application Server

CPU	RAM	Disk	OS
Virtualized Quad CPU 2.4Ghz or higher	32GB	30GB operating system disk	Windows Server Standard 64-bit 2016 or 2019
Software			
Microsoft IIS 8.x or 10 Microsoft .NET Framework 4.8 or higher, plus any versions required by the server operating system			

Scheduler Server

CPU	RAM	Disk	OS
Virtualized Quad CPU 2.4Ghz or higher	8GB	30GB operating system disk	Windows Server Standard 64-bit 2016 or 2019
Software			
Microsoft .NET Framework 4.8 or higher, plus any versions required by the server operating system			

Back office support

Virtualization

We promote the use of virtualized servers for the Axiom Application Server and the Axiom Scheduler Servers. There are many benefits of virtualization, some of which are: increased control of multiple environments, reduced costs for hardware and energy through server consolidation, on-the-fly allocation of system resources, and more efficient utilization of IT resources.

A dedicated disk is required for the Axiom Database Server for performance and scalability. In all virtualized environments, the required disk subsystem throughput must be a minimum of 1000 IOPS. We can make specific recommendations in this regard and can assist you in benchmarking a virtual environment to assess the performance. Please contact us prior to deploying the Axiom solution in a virtual environment.

Data flow

Using a customer-provided SSL certificate, the Axiom Application Server will encrypt all traffic over port 443 between itself and the Axiom Clients and the Axiom Scheduler Servers. The Application and Scheduler Servers will connect to the Axiom Database Server over port 1433 for SQL Server; no other machine connects directly to the Database Server. The Application and Scheduler Servers will communicate with a customer's internal SMTP relay server over a specified port (587 by default). During ETL processes initiated by a user or by a Scheduler Server, the Application Server will perform the acquisition of data from the source via a pre-configured connection, then send the resulting data to the Database Server.

Please note that Syntellis does not support self-signed certificates for on-premise installations. The Axiom code does not explicitly prevent these certificates from working, however, Axiom Support will not provide assistance for any issues arising from self-signed certificates.

Load balancing and failover

Axiom supports failover and load balancing at the database and scheduler tiers to address high availability and scalability for mission-critical environments.

At the database level, industry best practices can be used to address redundancy for Microsoft SQL Server. It is recommended that you contact your database vendor and/or professional database administrator to discuss the appropriate strategy for your environment.

At an application level, the Axiom Application Server running in IIS may be configured for failover at the virtualization or hardware layer using appropriate hypervisor or hardware configurations for the single application server. Axiom does not support any network load balancer, nor does Axiom Support assist with configuration, maintenance, or troubleshooting of load-balancing hardware.

The Axiom Scheduler Servers are automatically load balanced by the Axiom platform. No hardware or network configuration is required for this feature.

Licensing

Customers are required to license all prerequisite software for use with Axiom. Contact the appropriate software vendor regarding your specific configuration.

Network

Connections from Axiom client workstations to the Axiom Application Server must be a minimum of 100Mb/s. If 100Mb/s performance cannot be achieved from a workstation or high latency is encountered to the application server, we recommend using Remote Desktop Services to access the application. A connection of 10Gb/s between the application server(s) and database server is recommended. A minimum connection of 1Gb/s is required between all servers in the Axiom environment.

Updates

We recommend applying all current Microsoft security patches for use with Axiom. All servers used for the Axiom installation must be fully up-to-date with Microsoft .NET Framework, up to the minimum required version (or higher).

Backup facility

All information related to the Axiom system is contained in the database. The database should be routinely backed up; there are no files that need to be included in routine backups.

Publisher certificate

Syntellis provides a signed publisher certificate for the Axiom application. When installing the Axiom Application Server, the server must have Internet access in order to validate this certificate. If it is not possible to enable Internet access to the server, additional workarounds are available, as detailed in this Microsoft Support article.