System requirements for BiZZdesign applications

Applies to the latest version of Enterprise Studio

Enterprise Studio has a general set of software requirements for the application, the HoriZZon web portal, and the Team Server, which also acts as a license server.

As resource requirements are largely driven by the usage of the software, the necessary hardware depends on various factors. Important factors are the number of users and type of users the system faces, and what size and type of model packages will be used within the system.

The system requirements apply to the latest release of Enterprise Studio.

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Components of the BiZZdesign solution

Enterprise Studio

- BiZZdesign Enterprise Studio is a collaborative business design software solution that offers powerful, integrated modeling across multiple disciplines.
- Enterprise Studio is a powerful 64-bit, windows-based, desktop application and is bundled with the Activity Console, a vital component of the Team Platform functionality in Enterprise Studio. Enterprise Studio and the Activity Console together form the client-side solution for easy and fast collaboration between users.
- As Enterprise Studio and the Activity Console run client-side, its resource requirements are mainly driven by the need of the individual user. For most users, a recent multi-core CPU workstation, 4 GB of system memory and a reasonably fast hard drive should be sufficient (7200 RPM or faster would be preferred). Also, a system with 8 GB of system memory is preferred, but not required.
- Enterprise Studio Online is the hosted solution of Enterprise Studio.
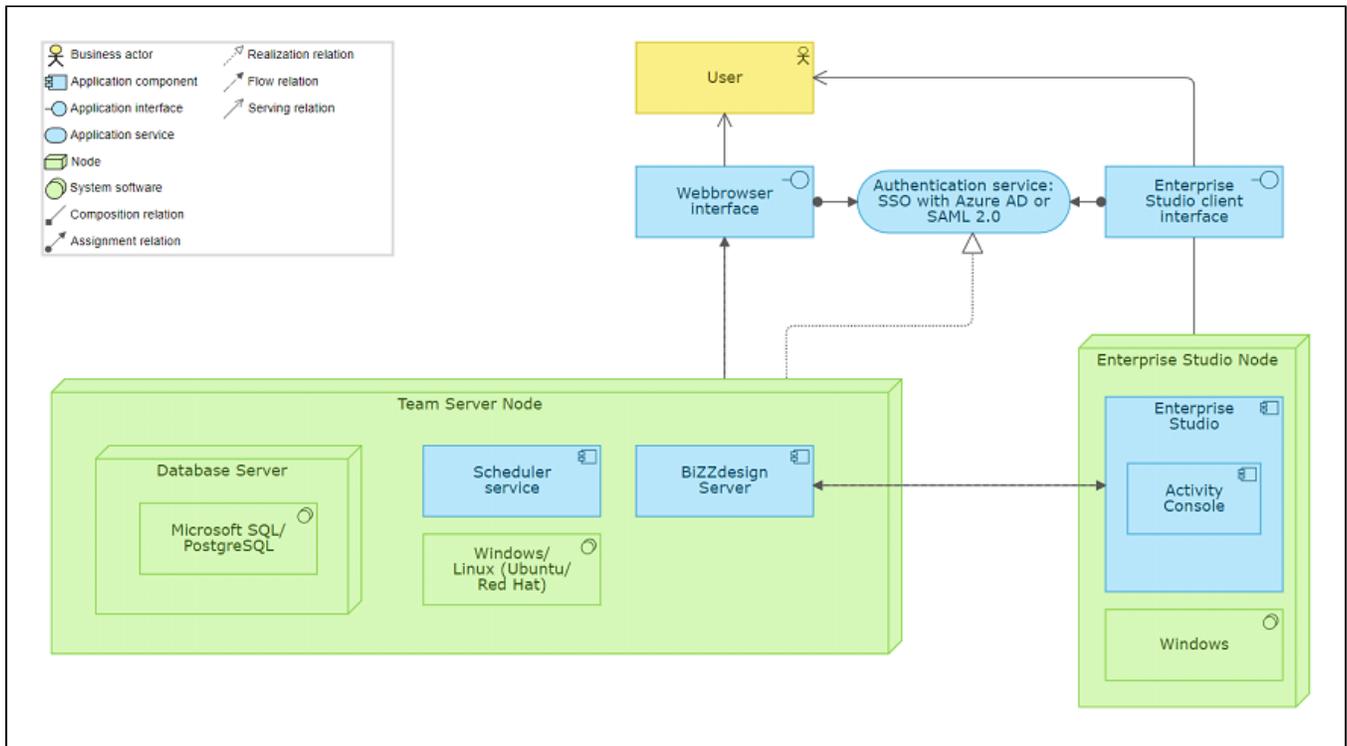
Team Server

- The Team Server is a component of the Team Platform functionality in Enterprise Studio. The Team Server facilitates working together on model packages, stores the administration of shared model packages and the participating users, and provides the license to Enterprise Studio.
- The Team Server is a lightweight Java-based server, which should run on a sufficiently scaled server machine with high-performance networking attached. The exact requirements depend on various factors. In principle, the server does not need a lot of resources to do its work due to the distributed nature of BiZZdesign team collaboration solution.
- The Team Server requires an SQL Server or PostgreSQL database, in the same network as the Team Server, with a very fast and low latency network connection. SQL Server Express is not acceptable for production servers.

HoriZZon

- HoriZZon is the web portal of Enterprise Studio that can be used to share real-time content from Enterprise Studio (model packages, projects) with a wide range of users, and runs in a web browser.

On-premise deployment architecture

The following scheme shows the deployment architecture of an on-premise Enterprise Studio, including the infrastructure of Enterprise Studio and the Team Server, the licensing infrastructure, and the relations between these components.

Business actor
Application component
Application interface
Application service
Node
System software
Composition relation
Assignment relation
Realization relation
Flow relation
Serving relation

User

Webbrowser interface

Authentication service: SSO with Azure AD or SAML 2.0

Enterprise Studio client interface

Team Server Node

Database Server

Microsoft SQL/ PostgreSQL

Scheduler service

BiZZdesign Server

Windows/ Linux (Ubuntu/ Red Hat)

Enterprise Studio Node

Enterprise Studio

Activity Console

Windows

Hardware guidelines

There are several factors involved which influence resource requirements for the Enterprise Studio software, including types of users, model packages and user collaboration.

As each situation is unique, the resources should be tweaked for each situation. BiZZdesign is more than able to help you determine your specific hardware setup. Several examples are available to guide you. Depending on your own situation you can use these examples to help size the needed hardware.

Types of users

Light user A light user is someone who makes a few (smaller) contributions with Enterprise Studio per week and keeps up to date with new interesting changes in the model packages and projects the user is involved in. Alternately a light user is only involved in a small project with a limited number of changes every week, or an admin user keeping track of the progress of the model package, but not actively modeling.

Medium user A medium user is more actively involved in the modeling process, contributing to several model packages and projects, or to several models in one model package. The user keeps up to date with the latest changes daily.

Heavy user A heavy user is modeling with Enterprise Studio daily, contributing heavily to one or more model packages and projects. The user makes several new contributions per day, or one bigger contributions every (other) day.

Types of model packages

As a baseline to help understand how model packages are sized, the example model package "Archisurance and Profit with Canvas" is used, which is one of the example model packages for the ArchiMate® metamodel in Enterprise Studio. This example model package has roughly 1300 user objects.

Small model package A small model package is comparable to 50 times the Archisurance and Profit with Canvas example available in Enterprise Studio (roughly 65,000 user objects).

Medium model package A medium model package is comparable to 250 times the Archisurance and Profit with Canvas example available in Enterprise Studio (roughly 325,000 user objects).

Large model package A large model package is comparable to 500 times the Archisurance and Profit with Canvas example available in Enterprise Studio (roughly 650,000 user objects).

Extra-large model package An extra-large model package is comparable to 1000+ times the Archisurance and Profit with Canvas example available in Enterprise Studio (over 1,300,000 user objects).

Types of user collaboration

Short cyclic user collaboration In short cyclic user collaboration styles the interaction between users is very frequent, users tend to exchange small and concise contributions instead of waiting many days/weeks or even months to share their results with their peers. In a short cyclic approach, there will be many small contributions, which are frequently distributed and consumed by other users. BiZZdesign recommends such an approach, as it positively enhances collaboration and helps to spread resource usage.

Long cyclic user collaboration In long cyclic user collaboration styles the interaction between users is less frequent. Users tend to wait longer periods (a week or more) before publishing (committing) their contribution to their peers in the model package or project. Also, projects wait longer periods (a month or more) before synchronizing with their main model package. This requires slightly more resources on the Team Server side to accommodate this (which are dynamically increased/decreased as demanded).

Java Virtual Machine memory

The Team Server component uses a Java Virtual Machine (JVM) to run, which requires additional settings to ensure the JVM can fully use the desired memory. The steps needed to configure the JVM can be found in the Enterprise Studio Installation Guide.

Example deployment sizes

The following tables show the hardware requirements for the relevant servers, based on an example basic, medium and large size deployment of respectively 400, 750 and 1500 users.

	Deployment size		
	Basic	**Medium**	**Large**
Light users	100	100	200
Medium users	200	250	500
Heavy users	100	400	800
Small model packages	15 max.	25 max.	50 max.
Medium model packages	15 max.	25 max.	50 max.
Large model packages	15 max.	25 max.	50 max.
Extra large model packages	2 max.	5 max.	10 max.
Users using the short cyclic collaboration style	50%	50%	50%
Users using the long cyclic collaboration style	50%	50%	50%

Team Server hardware

The listed memory must be fully usable by (e.g., allocated to) the Team Server JVM.

	Deployment size		
	Basic	**Medium**	**Large**
CPU cores	4	6	8
Memory	6 GB	8 GB	12 GB
Disk space	50 GB	50 GB	50 GB

Team Server SQL Server or PostgreSQL database

	Deployment size		
	Basic	**Medium**	**Large**
Database size	15 GB	20 GB	25 GB

Enterprise Studio for different types of users

The following requirements apply to all deployment sizes.

	Light users	**Medium users**	**Heavy users**
CPU	2	2	4
Memory	4 GB	8 GB	12 GB

Disk space	10 GB	15 GB	20 GB

Network and firewall requirements

To ensure proper operation it is recommended to allowlist the URLs used by the different service components in all proxy servers, virus scanners and other security software that is in use within your network. The relevant URLs are:

- For on-premise installations of a Team Server the protocol (HTTP or HTTPS), URLs and port numbers are configured when setting up the server components.
- When using a Team Server, Enterprise Studio and HoriZZon as a service hosted by BiZZdesign (SaaS services) all components are accessed using the HTTPS protocol over the default port (TCP port 443). In this case, the following URLs should be allowlisted:
  - Team Server: `https://*.bizzdesign.cloud/`
  - HoriZZon: `https://*.horizzon.cloud/`
- When using Enterprise Studio Online (the hosted solution), it is recommended to allow browser pop-ups from `https://*.amazonappstream.com/`
- Enterprise Studio Online: `https://*.amazonappstream.com/`, `https://appstream2.*.aws.amazon.com/`, `https://appstream2.*.amazonaws.com/` and `https://*.cloudfront.net/`
- BiZZdesign has a number of fixed IP addresses, which are used to launch Enterprise Studio Online (the hosted solution). For more information about this, please refer to IP addresses for Enterprise Studio Online.

> ⓘ If you cannot allowlist URLs using wildcards, then you can remove the wildcard and allowlist the domain (e.g. `*.amazonappstream.com` becomes `amazonappstream.com`). This is not possible for URLs that have wildcards between subdomains/domains (e.g. `https://appstream2.*.amazonaws.com` cannot be allowlisted. Only `amazonaws.com` can be allowlisted in this case).

Software requirements

Enterprise Studio

Enterprise Studio can be used in a Windows 8 or Windows 10 environment. To install Enterprise Studio, you must have administrator rights on that computer. The tool requires the following configuration:

Client software	Requirements	Recommended software
Web browser /Insite Lite	Google Chrome or Mozilla Firefox Web browsers based on the same rendering engines, such as Microsoft Edge and Safari, are generally expected to work as well.	Latest version recommended. JavaScript must be enabled.
Activity Console	Microsoft .NET Framework 4.5	

Enterprise Studio Online

For a good performance of Enterprise Studio Online, it is advised to follow the bandwith recommendations from AWS for Graphics applications.

Bandwidth recommended per user	Recommended maximum roundtrip latency
5 Mbps	< 100 ms

For more information, please refer to: https://docs.aws.amazon.com/appstream2/latest/developerguide/bandwidth-recommendations-user-connections.html

Team Server

The Team Server is a multithreaded, high-performance Java-based server. The following tables detail the minimum software requirements along with a set of recommended software products and their versions. We strongly recommend configuring two co-located machines for the Team Server and the database server. These recommended settings apply to environments that have an average user load and tool usage. Additionally, configuring the Team Server requires a mail server.

Server software	Recommended settings	Notes

Operating system	Windows Server 2012	Or later version. Limited support on Linux.
Run-time environment	A Java 11 implementation, like OpenJDK 11	OpenJDK11 can be downloaded here: https://github.com/ojdkbuild/ojdkbuild . Choose the 11 version. For easier installation, it is advised to download the MSI file.
Relational database	Microsoft SQL Server 2019 or PostgreSQL 9.6.5	Or later version.
HDD transfer speed	Data transfer at the rate of 300 MB/s to 1500 MB/s	Or better.

HoriZZon

HoriZZon is the web portal of Enterprise Studio for sharing real-time content from Enterprise Studio. HoriZZon can be used with a modern web browser (Chrome, Firefox, Microsoft Edge, or Internet Explorer[*]) in a modern environment like Windows 10.

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