

# System requirements

*blomesystem*<sup>®</sup>

since version: 15.0.1



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## System requirements

### General

The system requirements listed here are standard requirements that may differ in individual cases. The required performance of the servers depends on the number of users working with the system at the same time. If a server is used for additional tasks (background processes, file server, office server, mail server, etc.), its equipment must be adapted accordingly.

In the case of a database server, the size of the database to be provided depends, for example, on how many years of data are to be directly accessible, how many samples per year/test methods per sample/individual measurements per test method have to be stored and, in particular, to what extent digitized documents (reports, images, certificates) are to be stored in the system.

**blomesystem**® applications are executed on client PCs or notebooks. At least one database server is required as a server component. In smaller configurations, this can also take over the task of a file server.

Databases from Oracle and Microsoft are supported. The versions that can be used depend on the existing operating system and the **blomesystem**® version to be used. Details can be found in the "Support Matrix **blomesystem**® " at <https://support.gus-lab.com>.

When using the optional **blomesystem**® Web Feature, a web server is also required to process the requests of the browser clients.

Following, the servers are listed individually with their respective requirements.

(If several functions are operated together on one server, the requirements for CPUs, hard disks, main memory and network cards must be set accordingly).

Minimum values under which the system can run are given in each case.

To achieve a performant access, the recommended values should be taken into account.

### Clients

The **blomesystem**® components Designer, Report Generator, Runtime, etc. are usually executed on a client operating system.

Client (Runtime/Viewer)	Requirements
Operating system	Minimum: Windows operating systems according to the current "Support Matrix <b>blomesystem</b> ®", to be found at <a href="https://support.gus-lab.com">https://support.gus-lab.com</a> Recommended: Windows 10 Professional
Processor	Minimum: Single-Core CPU (with Hyperthreading) > 2,0 GHz Recommended: Dual-Core CPU (with Hyperthreading) > 2,5 GHz
Working memory	Minimum: 2 GB Recommended: 4 GB
Hard disks	Minimum: 5 GB free capacity, HDD Recommended: 10 GB free capacity, SSD
Network cards	Minimum: 1 GBit/s

**When using an Oracle database**, an "Oracle Client" is required to access the database:

- Oracle Full Clients and Oracle Instant Clients are supported.
- When using **blomesystem**® in the 32-bit version, the Oracle Client must also be installed in 32-bit version.
- When using **blomesystem**® in the 64-bit version, the Oracle Client must also be installed in 64-bit version

**When using a Microsoft SQL Server database**, an "ODBC Client" is required to access the database:

- An ODBC client with the name "SQL Server" must not be used, as this only provides a limited range of functions.  
As a rule, the ODBC client appropriate to the DB version should be used (e.g. "SQL Server Native Client ..." or "ODBC Driver ... for SQL Server").
- Note: For compatibility reasons, **blomesystem**® also supports the login via OLEDB to the Microsoft SQL Server. This access method is no longer recommended, as not all functionalities are available.

### **blomesystem**® Web Feature (option)

Starting with **blomesystem**® version 14, a web browser can be used to access contents of the application. For this, a web server must be made available with which the web browsers communicate. The Web Feature is a chargeable option that is already included in all licences purchased from 01.01.2020 onwards.

No programmes other than the web browser are required on the client, so mobile platforms such as smartphones and tablets can also be used with the Web Feature.

The following information refers to desktop PCs with Windows operating systems. Other values for processor or RAM may apply on tablets and smartphones.

Client (Browser)	Requirements
Web browser	Chrome, Firefox, Edge, Safari
Processor	Minimum: Single-Core CPU > 1,5 GHz Recommended: Dual-Core CPU > 2,0 GHz
Working memory	Minimum: 2 GB Recommended: 4 GB
Hard disks	Minimum: 500 MB free capacity, HDD Recommended: 500 MB free capacity, SSD
Network cards	Minimum: 1 GBit/s

## Small systems up to 30 users

The **blomesystem**® programme can be provided either on the respective workstations (recommended) or centrally on a file server.

Due to easier maintenance and servicing of the system, the **blomesystem**® application files (e.g. **LABbase**®) should be stored centrally on a file server (the clients need access to this file folder) or made

available in the database for automatic distribution (up to 2 GB of local hard disk space is needed on the clients to cache the application files).

The user data is stored in a database located on a central database server. In a configuration for up to 30 users, the use of a Windows server, which is used as a file and database server at the same time, is often sufficient. If there are many file accesses in the network - for example, because other programmes are to use files on a central server - the use of a dedicated file server in addition to the database server is advisable.

If the system is expanded at a later date, the individual tasks can also be distributed among several servers. This scalability protects the existing investments and guarantees the application's usability even with an increasing number of users.

Database- / Fileserver	Requirements
Operating system	Minimum: Operating system on which the Oracle/Microsoft database version (e.g. Windows Server) can run. Recommended: Windows Server 2016 / 2022
Processor	Minimum: 2,0 GHz-Intel Xeon-4-Core Recommended: 2x 2,5 GHz-Intel Xeon-4-Core
Working memory	Minimum: 32 GB DDR4-RAM Recommended: 128 GB DDR4-RAM
Hard disks	The size is strongly dependent on the quantity structure and the number of data from previous years to be kept available. In particular, the storage of scanned documents and images can multiply the space required, as can the number of backups to be kept on hand. Minimum: >50 GB free capacity, RAID-system with HDDs Recommended: >100 GB free capacity, RAID-system with SSDs
Network cards	Minimum: 1x 1 GBit/s Recommended: 1x 10 GBit/s
Oracle Database	Minimum: Oracle 12c R2 / 18c / 19c / 21c Standard Edition 2 (Enterprise Edition is supported as well) Recommended: Oracle 19c
Microsoft SQL Server	Minimum: Microsoft SQL Server 2012 / 2014 / 2016 / 2017 / 2019 Standard Edition (Enterprise Edition is supported as well) Recommended: Microsoft SQL Server 2017 / 2019

## Systems with more than 30 users

In the case of use with more than 30 competing users, the central functionalities should be distributed over several servers: database server, file server, web server and interface server. Depending on the requirements for fail-safety, high-availability solutions can be used.

The configuration of the web server reflects that the **blomesystem®** client instances are also executed on it.

The following list describes example configurations for network operation with > 30 users.

Database server	Requirements
Operating system	Minimum: Operating system on which the Oracle/Microsoft database version (e.g. Windows Server) can run. Recommended: Windows Server 2016 / 2022
Processor	Minimum: 2x 2,5 GHz-Intel Xeon-4-Core (with Hyperthreading) Recommended: 2x 3,0 GHz-Intel Xeon-6-Core (mit Hyperthreading)
Working memory	Minimum: 32 GB DDR4-RAM Recommended: 128 GB DDR4-RAM
Hard disks	The size is strongly dependent on the quantity structure and the number of data from previous years to be kept available. In particular, the storage of scanned documents and images can multiply the space required, as can the number of backups to be kept on hand. Minimum: >100 GB free capacity, RAID-system with HDDs Recommended: >200 GB free capacity, RAID-system with SSDs
Network cards	Minimum: 1x 1 GBit/s Recommended: 1x 10 GBit/s
Oracle Database	Minimum: Oracle 12c R2 / 18c / 19c / 21c Standard Edition 2 (Enterprise Edition is supported as well) Recommended: Oracle 19c
Microsoft SQL Server	Minimum: Microsoft SQL Server 2012 / 2014 / 2016 / 2017 / 2019 Standard Edition (Enterprise Edition is supported as well) Recommended: Microsoft SQL Server 2017 / 2019

File server or Interface server	Requirements
Operating system	Minimum: Operating system that allows file access by Windows clients (via fileshare). Recommended: Windows Server 2016 / 2022
Processor	Minimum: 1x 2,0 GHz-Intel Xeon-2-Core (with Hyperthreading) Recommended: 1x 3,0 GHz-Intel Xeon-4-Core (with Hyperthreading)
Working memory	Minimum: 16 GB DDR4-RAM Recommended: 32 GB DDR4-RAM
Hard disks	Minimum: >50 GB free capacity, RAID-system with HDDs Recommended: >100 GB free capacity, RAID-system with SSDs
Network cards	Minimum: 1x 1 GBit/s Recommended: 1x 10 GBit/s

**blomesystem®** is released for use under CITRIX XenApp and can also be used in combination with existing network structures. The use of CITRIX XenApp requires a powerful, fail-safe Windows server. As requirements or the number of users increase, the CITRIX server can be expanded or freely scaled to several servers.

## Webserver

The operation of a web server is necessary to be able to use the **blomesystem® Webportal**.

LIMS, WebService and database server can be installed on the same hardware. Depending on the workload of the system, it may be necessary to divide it among dedicated servers.

The following specifications are designed for the operation of the WebService without database server. If the web server is operated together with LIMS and database server, the specifications under [Small system up to 30 / system with more users](#), must be extended by the values listed here.

For the communication between client and web server the corresponding standard ports 80/TCP (unsecured connection) or 443/TCP (encrypted connection) must be enabled on the web server.

Note: When using an encrypted connection, the system operator must provide an SSL certificate for the web server.

For the communication between the web server and the database, the communication ports of the database must be enabled.

For Oracle, the default network port is 1521/TCP.

For SQL Server, the default is network port 1433/TCP.

For the access of the **blomesystem®** client instances to the database, the notes in the section [Clients](#) must be taken into account.

Web server	Requirements
Web server	<p>Minimum: web servers that support reverse proxy configuration can be used, such as Microsoft Internet Information Service (IIS), NGINX, or Apache web server (planned).</p> <p>Recommended: Microsoft IIS</p>
Operating system	<p>Minimum: Windows Server 2012 (R2) and later</p> <p>Recommended: Windows Server 2016 / 2022</p>
Processor	<p>The processor performance must be designed according to the parallel accesses expected from users of the <b>blomesystem® Webportal</b>.</p> <p>Minimum: 1x 2,0 GHz-Intel Xeon-2-Core (with Hyperthreading)</p> <p>Recommended: 1x 3,0 GHz-Intel Xeon-4-Core (with Hyperthreading)</p>
Working memory	<p>For each <b>blomesystem®</b> client instance, approx. 500-1000 MB of RAM should be provided, depending on the user's requirements and mode of operation.</p> <p>Minimum: 32 GB DDR4-RAM</p> <p>Recommended: 128 GB DDR4-RAM</p>
Hard disks	<p>For each <b>blomesystem®</b> client instance, approx. 200-500 MB of hard disk capacity should be provided, depending on the user's requirements and mode of</p>

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Web server	Requirements
	operation. Minimum: >50 GB free capacity, RAID-system with HDDs Recommended: >100 GB free capacity, RAID-system with SSDs
Network cards	Minimum: 1x 1 GBit/s Recommended: 1x 10 GBit/s
.Net Framework	4.5.2

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## How to receive support

### Get help

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If you need phone support and you are not a support customer yet, simply call us at the phone numbers below and we will discuss the conditions.

[GUS LAB Support Area](#) (registration required)

### By telephone, fax or e-mail

You can contact us by phone, fax or email as follows:

Monday to Friday, 08:00 am to 05:00 pm

#### Branch Gera

Tel.: +49 365 527878 00

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### By letter

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