



# System Requirements

## enaio®

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# enaio® System Requirements

The following overview lists the minimum system requirements for the operation of enaio®.

The systems listed have been tested in the listed versions together with this release in the OPTIMAL SYSTEMS release tests and their compatibility has been ensured.

enaio® uses standardized interfaces and integration technologies, meaning that enaio® also works with a wide range of older or more recent versions of the systems listed and with other unlisted systems. OPTIMAL SYSTEMS does not guarantee compatibility for systems not listed in the system requirements and performs its services subject to restrictions (in particular, no damage repair) in accordance with the prevailing maintenance contracts. In addition, OPTIMAL SYSTEMS guarantees compatibility with a listed system up until the date that the manufacturer guarantees regular (for example, not extended, expanded, individually agreed) support.

Moreover, the minimum system requirements describe the system equipment needed for a productive enaio® system to provide adequate operational performance. This information is a set of non-binding guidelines. OPTIMAL SYSTEMS can only give a guarantee for a specific system environment on the basis of a customized hardware constellation. Likewise, it can be possible to still have full operational capability of the test systems, demo systems, or systems with only partially used functionality if the minimum system requirements are not reached.

## Virtualization

enaio® can be operated in a virtualized environment as long as it meets the minimum hardware and software requirements. For issues that cannot be reproduced in a native environment with sufficient processing, storage, and disk resources, you need to work with the virtual environment provider to resolve them. Operating enaio® in a virtualized environment with shared CPU and storage resources is not supported.

## Antivirus Protection

Antivirus applications protect the company's network from external attacks and malware. At the same time, antivirus protection systems influence the performance of applications with frequent access to the file system.

We therefore highly recommend that virus scanners do not scan the enaio® Work and Cache areas. These areas in the file system are exclusively written and read by enaio®.

## International Character Sets

enaio® is tested and released for use on Windows operating systems with the Western European code page (Windows code page 1252-Western European) in the release test.

enaio® can be used with code pages other than 1252 and is supported by OPTIMAL SYSTEMS in accordance with the maintenance contracts and, in particular, guarantees bug fixing if the system has been tested and approved by the customer before going live. The code page used must be used on all computers involved in data processing in connection with enaio®, particularly user computers, enaio® server, and database servers. Use in infrastructures with different code pages is not supported.

**Hinweis:** The option: 'Beta: Use Unicode UTF-8 for worldwide language support' in Windows 10 Regional Options can lead to display errors.

# Databases

enaio® requires a relational database instance to store and manage index data and documents. To ensure performance, we highly recommend installing an exclusive database for enaio®. Access by third-party programs to the data structures and data managed by enaio®, particularly extending the database to include other database objects (tables, views, etc.) and manipulating existing database objects (tables, indexes, etc.) is not permitted.

The system prerequisites for the individual manufacturers must be observed for operation of the relevant database system.

**Hinweis:** A database user with the 'db\_owner' role is required.

The following databases are supported:

DBMS	Version	Operating system DB server	ODBC driver
Microsoft SQL Server	2014 (32- and 64-bit)	Windows 2012 64-bit	6.02.9200.16384 (Microsoft SQL Server) 2014.120.2000.08 (Microsoft SQL Native Client 11.0)
	2016 (32- and 64-bit)	Windows 2016 64-bit	2015.130.811.168 (MS ODBC Driver 13 for SQL Server) 10.00.14393.00 – SQL Server
	2017 (32- and 64-bit)	Windows 2016 64-bit	MS ODBC Driver for SQL Server – 17.4.2.1 (32- and 64-bit)
	2019 (32- and 64-bit)	Windows 2019 64-bit	MS ODBC Driver for SQL Server – 17.5.2.1 (32- and 64-bit)
	<p><b>Hinweis:</b> If you are using Microsoft SQL Server in a Unicode installation, you must use the sort order 'Latin1_General_100_CI_AS_WS' for the database; for an Ansi installation, you must use 'Latin1_General_CI_AS'.</p>		
Oracle DB Server	12c R2		12.2.0.1.0 (Oracle) – 32-bit
	19c (32- and 64-bit)		19.3 (Oracle) – 32- and 64-bit
<p><b>Hinweis:</b> For enaio® server 64-bit and Oracle databases with native Oracle ODBC driver, the following registry entry must be added to the DataBase key: String: AlternativeODBC / value: 1</p> <p><b>Hinweis:</b> Unicode character sets are not supported for Oracle databases. If Unicode character sets are used, we cannot guarantee proper functionality of the system. For example, WEMSWIN1252 or WE8ISO8859P15 can be used as character sets.</p>			

enaio® requires a high-performance network connection for the database. The database memory should be dimensioned in such a way that all database indexes can be stored there. At least 4 GB of memory and two exclusive processor cores are recommended.

As a general guideline, it takes about 1 GB of memory per one million saved objects in order to have rapid access to the indexes.

The settings for configuration and installation of the respective virtualization software must be observed when virtualizing the database.

# enaio® server

enaio® server must be run on a Windows server operating system. For this reason, you need to take into consideration licenses for the operating system. The same system requirements apply to load balancing scenarios. It is assumed for all operating systems that necessary security patches provided by the manufacturer are promptly installed. For installations at distributed locations, recommend checking and measuring the data throughput and latency of the network, in particular between the application server and RDBMS in order to verify its suitability in project scenarios.

## Operating Systems

The following operating systems (including the service pack level) are supported by enaio®:

Operating system	Version	Service pack
Windows Server 2012	Standard Edition 64-bit	
Windows Server 2012 R2	Standard Edition 64-bit	
Windows Server 2016	Standard Edition 64-bit	
Windows Server 2019	Standard Edition 64-bit	
Windows Server 2022	Standard Edition 64-bit	

enaio® supports server operating systems from the Long Term Servicing Channel (LTSC). Server operating systems from Microsoft's Semi-annual Channel are not supported for use with enaio®. Operating systems that are no longer supported by Microsoft are not supported. The Core versions of the Microsoft server are not supported.

## Other Components

The following components have to be installed and must work properly to ensure secure and correct operation of enaio® server:

Component	Parameter/value	Comment
Connection to database	Local or via high-speed network (1 Gbit)	Please make sure there is enough memory available for local database operation.
Connection to storage media	Local or via high-speed network (1 Gbit) for work, cache, and archive media.	
Storage media	Latency period $\leq 60$ ms	
Data backup	A backup of the Work area and the database has to be executed on a regular basis.	
Network connection for client applications	At least 100 Mbps	

## Hardware Requirements

enaio® can be configured in many ways and covers an extremely wide field of application from small to very large systems.

The listed requirements are the minimum for the system equipment needed for a productive enaio® system to provide adequate operational performance for approximately 50 users in an average office scenario with average data processing.

This information is a set of non-binding guidelines. OPTIMAL SYSTEMS can only give a guarantee for a specific system environment on the basis of a customized system concept, which we absolutely recommend.

Likewise, it can be possible to still have full operational capability of the test systems, demo systems, or systems with only partially used functionality if the minimum system requirements are not reached.

The requirements are based on the assumption that the corresponding resources (memory, processor cores) are solely used by the relevant services, that is, they are not used by the operating system and other components that are installed on the hardware unit. If different services are operated on a shared hardware platform, the relevant values must be totaled (memory/storage, processor cores).

Parameter	Value	Comment
enaio® server 64-bit	Excl. memory: 8 GB Processor cores: 2	Exclusive memory: At least enough memory for the operating system has to be added as a minimum system requirement.
enaio® server 32-bit	Excl. memory: 2 GB Processor cores: 2	Address space up to 4 GB is available (64-bit)
Web server for enaio® webclient	Excl. memory: see below Processor cores: 2 Storage: 100 GB	
enaio® appconnector	Excl. memory: see below Processor cores: 2 Storage: 100 GB	

Parameter	Value	Comment
Services 'index'/'search'	Excl. memory: see below Processor cores: 2 Storage: 200 GB Operating system environment: 64-bit	
enaio® documentviewer / enaio® rendition-plus	Excl. memory: see below Processor cores: 4 Online cache: >100 GB; see comment	About 1 MB of storage is necessary for each document (8 pages). For example, 100 GB of storage are required if 100,000 documents are to be cached.
enaio® gateway	Excl. memory: see below Storage: 100 GB	
enaio® service-manager	Excl. memory: see below Processor cores: 4 Data storage: >100 GB	

Parameter	Value	Comment
Service 'ocr'	Excl. processor core(s): 1 to 4	1 processor core is supported by the integrated ABBYY FineReader Engine by default. 1 to 4 can be connected through acquisition of additional licenses. OCR throughput is approximately 6 to 10 seconds per processor core.
elasticsearch	Excl. memory: see below Processor cores: 2 to 4 Storage: 400 GB Operating system environment: 64-bit	As for indexing, fast internal memory is important for this server. We recommend having storage with 25% of the size required for all text documents to be indexed in the system. The VTX database doubles in size during an update.

The enaio® services setup installs an Apache Tomcat and a JAVA JDK for each service. Separate product requirements apply for both. HTTP ports are reserved by the enaio® services setup and must not be used by other applications. The setup determines and assigns available shutdown ports.

All services have to be configured as follows in each installed instance:

Service	Description	Memory	HTTP port
enaio® documentviewer / enaio® rendition-plus	Document display and conversion component	1024 MB	8070
enaio® appconnector	REST service and enaio® detailsviewer	1024 MB	8060

Service	Description	Memory	HTTP port
enaio® webservices	API web service interface service	512 MB	8050
enaio® gateway	Central proxy and authentication function	256 MB	80
enaio® webclient	Web server for enaio® webclient	1024 MB	The port is defined during installation.
Service 'license'	Manages preconfigured licenses and controls the assignment to clients	128 MB	7371
EMS service 'mailstorage'	E-mail creation	384 MB	7361
Service 'extraction'	Extracts XMP and meta data from files	256 MB	7211
Service 'ocr'	OCR in conjunction with ABBYY FineReader	512 MB	7241
Service 'Search'	Microservice for the full-text search	2048 MB	8040
Service 'Index'	Microservice for full-text indexing	2048 MB	8045
Service 'discovery'	Services registry	64 MB	7261
Service 'admin'	Monitor for service monitoring	64 MB	7273
Service 'messaging'	Internal message service	512 MB	7311
Service 'dms'	Microservice for enaio® coLab and SAP connections	512 MB	7981

An Elasticsearch service with version 7.2.1 is installed for full-text indexing. This is configured as follows:

Memory: 2048 MB/HTTP port: 8041

The enaio® Microservices 9.10 can only be operated in 64-bit environments. An update of earlier versions in 32-bit environments is not performed by the setup. This also applies to the updating of full-text indexing.

Office documents are only shown in high quality with enaio® documentviewer if Microsoft Office has been installed on the computer together with enaio® rendition-plus. The following versions of Microsoft Office can be used: Microsoft Office 2013, Microsoft Office 2016, Microsoft Office 2019, Office 365 – locally, 32-bit or 64-bit. As a general rule, enaio® documentviewer does not need Microsoft Office to work. Additionally, Ghostscript version 9.25 or later has to be installed for TIFF creation from files in PDF format.

# Client Workstations

Administration, scanning, and user workstations are part of client workstations.

## Operating Systems

Name	Version	Service pack	Comment
Windows 8.1	Standard, Professional, Enterprise 32- and 64-bit		enaio® components are always 32-bit versions. Product components by enaio® that integrate into applications of the operating system do not work in 64-bit versions of these programs. The Redistributable Package needs to have Windows8.1-KB2999226-x64.msu installed.
Windows 10	Pro, Enterprise 32- and 64-bit		enaio® components are always 32-bit versions. Product components by enaio® that integrate into applications of the operating system do not work in 64-bit versions of these programs.
Windows 11	Home and Pro, Enterprise and Education 64-bit		enaio® components are always 32-bit versions. Product components by enaio® that integrate into applications of the operating system do not work in 64-bit versions of these programs.
Citrix Virtual Apps and Desktops	2203 LTSR	<= CU1	A sufficient number of GDI handles and sufficient memory are required for client operation. Statements regarding the compatibility of rollout packages cannot be made here.

enaio® supports client operating systems from the Semi-annual Channel. Client operating systems from Microsoft's Long Term Servicing Branch are not supported for use with enaio®. Operating systems that are no longer supported by Microsoft are not supported.

## Hardware Requirements

Parameter	Value	Comment
Screen resolution	1280 x 1024 pixel (min.)	
Memory	At least 1 GB exclusive , 256 MB available	
Local hard disk storage	At least 1 GB available	For cache
Network connection	At least 100 Mbps	
Processor	Pentium 4 or higher	
Peripherals	Mouse and keyboard	
Card reader and signature cards	According to recommendations, SecSigner (SecCommerce AG) or MDOC Autosigner (Mentana Claimsoft AG)	For electronic signatures

# Client Components

## Software Components for Client Workstations

Component	Parameter	Value	Comment
Browser	Edge Chromium	Latest version	JavaScript must be enabled and cookies permitted in the Internet settings.
	Firefox	Latest version	JavaScript must be enabled and cookies permitted in the Internet settings.
	Chrome	Latest version	JavaScript must be enabled and cookies permitted in the Internet settings.
	Safari	Latest version	JavaScript must be enabled and cookies permitted in the Internet settings.
Microsoft Office versions for enaio® office-utilities	Microsoft Office	2013, 2016	For Microsoft Office 2013 and 2016, the 64-bit version is also supported. ClickToRun installations are not supported.

Component	Parameter	Value	Comment
Microsoft Office versions for enaio® Office Add-In NG	Word, Excel, PowerPoint	2013, 2016, 2019, 2021, Office 365 ClickToRun (local)	For Microsoft Office 2013, 2016, 2019, 2021, Office 365 ClickToRun (local), the 64-bit version is also supported. Only the fully locally installed versions are supported (particular attention needed in the case of Office 365).
Adobe Acrobat versions for enaio® acrobat-utilities	Adobe Acrobat	Adobe Acrobat Pro 2017	The Adobe Acrobat utilities cannot be integrated into Acrobat Reader.
Microsoft Outlook for enaio® document-storage	Microsoft Outlook	2013, 2016	For Microsoft Outlook 2013 and 2016, the 64-bit version is also supported. enaio® document-storage is only supported in connection with Microsoft Exchange.
Microsoft Outlook for enaio® Outlook Add-In NG	Microsoft Outlook	2013, 2016, 2019, 2021, Office 365 ClickToRun (local)	For Microsoft Outlook 2013, 2016, 2019, and 2021 the 64-bit version is also supported. The enaio® Outlook Add-In NG is supported in conjunction with Microsoft Exchange, IMAP, and POP3 mailboxes. Only the fully locally installed versions are supported (particular attention needed in the case of Office 365).

Component	Parameter	Value	Comment
Microsoft Outlook for enaio® search	Microsoft Outlook	2013, 2016, 2019, 2021, Office 365 ClickToRun (local)	Only the fully locally installed versions are supported (particular attention needed in the case of Office 365).
Novell/Micro Focus GroupWise for enaio® GroupWise Add-On NG	Novell/Micro Focus GroupWise	18.1	
Microsoft Exchange for enaio® exchange	Microsoft Exchange	2013, 2016, 2019	For Microsoft Office 2013, 2016, and 2019, the 64-bit version is also supported.
Kofax VRS	Kofax Engine	4.50 to 5.1	
Windows Media Player			For use with M modules (multimedia files)
Softterra LDAP Browser		4.5	LDAP-S component for XSLT directory synchronization

# Mobile Applications

## enaio® mobile for Smartphones and Tablets

enaio® mobile is supported on the following mobile platforms:

Operating system	Version
iOS	<p>iOS version:</p> <ul style="list-style-type: none"><li>• Minimum: version 11.0</li><li>• Recommended: latest iOS version</li></ul> <p>Hardware:</p> <ul style="list-style-type: none"><li>• Memory: 2 GB</li><li>• Recommended: 3 GB</li></ul>
Android	<p>Android version:</p> <ul style="list-style-type: none"><li>• Minimum: version 7.1.1 (API Level 25)</li><li>• Recommended: latest Android version</li></ul> <p>Hardware:</p> <ul style="list-style-type: none"><li>• Memory: 2 GB</li><li>• Recommended: 4 GB</li></ul>

## enaio® app for Smartphones and Tablets

enaio® app is supported on the following mobile platforms:

Operating system	Version
iOS	<p>iOS version:</p> <ul style="list-style-type: none"><li>• Minimum: version 7.1</li></ul>

Operating system	Version
Android	Android version: <ul style="list-style-type: none"><li>• Minimum: version 4.0.3 (API Level 15)</li></ul>
Windows	Windows version: <ul style="list-style-type: none"><li>• Minimum: version 10</li></ul>





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