

## Introduction

In the following overview you will find the minimum system requirements for operating the enaio® enterprise content management system.

The systems listed have been tested and found to be compatible with this enaio® release in the OPTIMAL SYSTEMS release tests.

enaio® uses standardized interfaces and integration technologies so it can work with many older or newer versions of the systems listed and with systems other than those listed. OPTIMAL SYSTEMS does not guarantee the compatibility of systems not listed in these system requirements and provides limited services according to the maintenance contracts in force; in particular, it has no obligation to remedy defects. In addition, OPTIMAL SYSTEMS guarantees compatibility of a listed system only up to the date to which the manufacturer guarantees regular (e.g. not extended, individually agreed) support.

In addition, the minimum system requirements describe the system equipment from which a productive enaio® system can be operated with a suitable level of performance. These data are non-binding guidelines. OPTIMAL SYSTEMS can only give a guarantee for a particular system environment based on a client-tailored hardware setup. Equally, it may be possible to fall below these minimum system requirements despite full operation functioning in test systems, demo systems, or systems with partially used functionality.

## Databases

For saving and managing index data and documents, enaio® needs a relational database instance. To ensure high performance, we highly recommend providing enaio® with an exclusive database. Access to the data structures and data managed by enaio® by third-party programs, especially extending the database with other database objects (tables, views, etc.) and manipulation of existing database objects (tables, indices, etc.) is not permitted.

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

In addition, you must have a database user with the role 'db\_owner'.



July 2018

The following databases are supported:

DBMS	Version	DB server operating system	ODBC driver	Comment
Microsoft SQL Server	2008 R2 (32 and 64 bit)	Windows 2008 R2 64 bit	6.01.7600.16385 (Microsoft SQL Server) 2009.100.1600.01 (Microsoft SQL Native Client 10.0)	
	2012 (32 and 64 bit)	Windows 2008 R2 64 bit	6.02.9200.16384 (Microsoft SQL Server) 2011.110.2100.60 (Microsoft SQL Native Client 11.0)	
	2012 (32 and 64 bit)	Windows 2012 64 bit	6.02.9200.16384 (Microsoft SQL Server) 2011.110.2100.60 (Microsoft SQL Native Client 11.0)	
	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	
	Oracle DB Server	11g R1		11.1.0.6 (Oracle)
	11g R2		11.2.0.4 (Oracle) – 32/64 bit	Oracle patch '11G 11.2.0.1 Patch 6 Bug for 32 Bit' is required. *
	12c		12.01.00.01 (Oracle) – 32 bit 12.01.00.02 (Oracle) – 32 bit	

enaio® requires a high-performance database network connection. The database working memory should have enough space for all database indices in the working memory. At least 4 GB working memory and 2 exclusive processor cores are recommended.

As a rule of thumb, around 1 GB working memory is required for every 1 million saved objects to have high-performance access to the indices.



July 2018

If the database is virtualized, the settings for configuration and installation of the relevant virtualization software must be observed.

As per the ORACLE release notes, at least Oracle patch '11G 11.2.0.1 Patch 7 Bug for 32 Bit' must be used from Windows 8/Windows Server 2008 R2. All older patch levels are no longer supported, i.e. all patch levels from 11G 11.2.0.1 Patch 7 (int. patch number: 10155838) to 11G 11.2.0.1 Patch 15 (int. patch number: 13329696) can be used.

## Application Server

The enaio® application server must run on a Windows server operating system. The license models for the operating system must also be adhered to. The same system requirements apply to load balancing scenarios. For all operating systems we assume that the necessary security patches from the manufacturer are immediately imported. For installations at different geographical locations, we recommend measuring the data throughput and network latency times, especially between the application servers used and RDBMS, and testing their suitability in the project scenarios as part of the concept design.

### Operating Systems

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

Operating system	Version	Service pack	Comment
Windows Server 2008	Standard Edition 32 bit	2	
Windows Server 2008	Standard Edition 64 bit	2	The enaio® application server is a 32-bit application.
Windows Server 2008 R2	Standard Edition 64 bit	1	The enaio® application server is a 32-bit application.
Windows Server 2012	Standard Edition 64 bit		The enaio® application server is a 32-bit application.
Windows Server 2012 R2	Standard Edition 64 bit		The enaio® application server is a 32-bit application.
Windows Server 2016	Standard Edition 64 bit		The enaio® application server is a 32-bit application.

July 2018

### Other Components

For secure, correct operation of the application server, the following components must be properly installed and fully functional:

Components	Parameters/Value	Comment
Database connection	Locally or via high-speed network (1 GBit)	For local database operation, note that enough memory must be available in total.
Connection to storage media	Locally or via high-speed network (1 GBit) for working, cache, and archive media.	See Storage Guide.
Storage media	Latency period <=60 ms	
Data backup	The work area and database must be backed up regularly.	
Network connection for client applications	At least 100 MBit	

### Hardware Requirements

enaio® is easily configurable as an enterprise content management system and covers a wide range of small to very large systems.

The minimum system requirements describe the system equipment from which a productive enaio® system with around 50 users in an average office usage scenario with average mass data processing can be operated with a suitable level of performance. These data are non-binding guidelines. OPTIMAL SYSTEMS can only give a guarantee for a particular system environment based on a client-tailored system concept, which we highly recommend.

Equally, it may be possible to fall below these minimum system requirements despite full operation functioning in test systems, demo systems, or systems with partially used functionality.

It is assumed that the corresponding resources (memory, processor cores) are exclusively available for the corresponding services, i.e. beyond the memory requirements of the operating system or other components installed on the hardware unit. So if various services are operated on a joint hardware platform, the relevant criteria (memory, processor cores) must be added together.



July 2018

Parameter	Value	Comment
enaio® server	Excluding working memory: 2 GB Processor cores: 2	Address space available up to 4 GB (64 bit)
Web server for enaio® webclient	Excluding Working memory: see below Processor cores: 2 Data storage: 100 GB	
enaio® appconnector	Excluding Working memory: see below Processor cores: 2 Data storage: 100 GB	
Services 'index' / 'search'	Excluding Working memory: see below Processor cores: 2 Data storage: 200 GB Operating system environment: 64 bit	
enaio® documentviewer/ enaio® renditionplus	Excluding Working memory: see below Processor cores: 4 Online cache: > 100 GB; see comment	Approx. 1 MB data storage is required per document (8 pages). For example, if 100,000 documents are to be kept in the online cache, data storage of 100 GB is required.
enaio® gateway	Excluding Working memory: see below Data storage: 100 GB	
enaio® service-manager	Excluding Working memory: see below Processor cores: 4 Data storage: > 100 GB	
Service 'ocr'	Excluding processor core: 1 – 4	1 processor core from the integrated ABBYY FineReader Engine is supported as standard. 1-4 are connectable through other licenses. OCR throughput is approx. 6-10 sec/processor core.
elasticsearch	Excluding Working memory: see below Processor cores: 2-4 Data storage: 400 GB Operating system environment: 64 bit	A fast internal memory for the index is important on this server. The size of the data storage for the index should be 25 % of the size of the text documents to be indexed in the enaio® system. During an update, the VTX database doubles in size.

An Apache Tomcat and a JAVA JDK are installed for every service by the enaio® services setup. The individual product requirements apply to these. HTTP ports are occupied by the enaio® service setup and may not be blocked by other applications. Free shutdown ports are dynamically determined and allocated by the setup.



July 2018

The individual services in the installed instances are configured as follows:

Service	Description	Storage	HTTP port
enaio® documentviewer and enaio® renditionplus	Document display and conversion components	1024 MB	8070
enaio® appconnector	REST service and enaio® detailsviewer	1024 MB	8060
enaio® webservice	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 specified during installation.
Service 'license'	Manages preconfigured licenses and controls the assignment to clients	128 MB	7371
Service 'mailstorage'	Archives e-mails in connection with the MS Outlook NG Add-In	128 MB	7361
Service 'extraction'	Extracts XMP and meta data from files	256 MB	7211
Service 'ocr'	OCR only in connection with ABBYY FineReader	512 MB	7241
Service 'search'	Microservice for the full text search	2048 MB	8040
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 'index'	Microservice for the full text indexing	2048 MB	8045

For the operation of enaio® fulltext an Elasticsearch service, version 2.4.2 is installed. This is configured as follows:

Service	Description	Storage	HTTP port
Elasticsearch	Full text database for enaio® fulltext	2048 MB	8041

The enaio® microservices 8.50 can only be run in 64-bit environments. An update of earlier versions in 32-bit environments is not performed by the setup. This also applies to the update of the enaio® fulltext.

High-quality display of Office documents with enaio® documentviewer is only guaranteed if Microsoft Office 2010 (32 bit) is installed on the computer with enaio® renditionplus. In principle, enaio® documentviewer can also be used without Microsoft Office 2010. However, the quality of the Office documents displayed is lower. To generate TIFF files from the PDF format, Ghostscript version 8.6 or higher (32 bit) must be installed.

## Client Workstations

The client workstations include administration, scanning, and user workstations.



July 2018

Operating Systems

Name	Version	Service pack	Comment
Windows 7	Professional, Enterprise 32 and 64 bit	SP 1	enaio® components are basically 32-bit versions. Product components of enaio® that can be integrated into applications of the operating system (e.g. enaio® filesystem-plugin) do not work in the 64-bit versions of these programs. In order to install the enaio® printer driver in silent mode in Windows 7, SP1 and Windows patch KB2921916 are required. Without KB2921916 a Windows dialog appears during installation.
Windows 8	Standard, Professional, Enterprise 32 and 64 bit		enaio® components are basically 32-bit versions. Product components of enaio® that can be integrated into applications of the operating system (e.g. enaio® filesystem-plugin) do not work in the 64-bit versions of these programs.
Windows 8.1	Standard, Professional, Enterprise 32 and 64 bit		enaio® components are basically 32-bit versions. Product components of enaio® that can be integrated into applications of the operating system (e.g. enaio® filesystem-plugin) do not work in the 64-bit versions of these programs.
Windows 10	Pro, Enterprise 32 and 64 bit		enaio® components are basically 32-bit versions. Product components of enaio® that can be integrated into applications of the operating system (e.g. enaio® filesystem-plugin) do not work in the 64-bit versions of these programs.
Citrix XenApp for Windows	7.17		A sufficient number of GDI handles and sufficient memory are required for client operation. No statements about the compatibility of rollout packages can be made here.



July 2018

## Hardware Requirements

Parameter	Value	Comment
Screen resolution	At least 1280 x 1024 pixels	
Storage	At least 1 GB, 256 MB free	
Local hard drive space	At least 1 GB free	For cache
Network connector	At least 100 MBit/s	
Processor	Pentium 4 or higher	
Periphery	Mouse and keyboard	
Card readers and signature cards	According to the recommendations of SecSigner (SecCommerce AG) or MDOC-Autosigner (Mentana Claimssoft AG)	For electronic signatures

## Other Software Components

Components	Parameter	Value	Comment
Browser	Internet Explorer	Version 11	In the Internet setting, JavaScript must be activated and cookies permitted.
	Edge	latest version	In the Internet setting, JavaScript must be activated and cookies permitted.
	Firefox	latest version	In the Internet setting, JavaScript must be activated and cookies permitted.
	Chrome	latest version	In the Internet setting, JavaScript must be activated and cookies permitted.
	JavaScript	Version 2.0 and later	
MS Office versions for enaio® office-utilities	MS Office	2010, 2013, 2016	For MS Office 2010, 2013, and 2016, the 64-bit version is also supported. ClickToRun installations are not supported
MS Office versions for enaio® office add-in NG	MS Office: Word, Excel, PowerPoint	2010, 2013, 2016, Office 365 ClickToRun (locally)	For MS Office 2010, 2013, 2016, and Office 365 ClickToRun (locally), the 64-bit version is also supported. Only fully locally installed versions are supported (take note especially with Office 365). ClickToRun installations are supported beginning with SP1.
Adobe Acrobat versions for enaio® acrobat-utilities	Adobe Acrobat	6, 7, 8, 9, X, XI, Pro DC	



July 2018

Groupware systems for e-mail management with enaio®	MS Outlook for enaio® outlook	2010, 2013, 2016	For MS Outlook 2010, 2013, and 2016, the 64-bit version is also supported. The MS Outlook add-ins are only supported in connection with MS Exchange.
	MS Outlook for enaio® Outlook add-in NG	2010, 2013, 2016, Office 365 ClickToRun (locally)	For MS Outlook 2016, the 64-bit version is also supported. The enaio® Outlook add-in NG is supported in connection with MS Exchange, IMAP and POP3 mailboxes.
	MS Outlook for enaio® search	2010, 2013, 2016, Office 365 ClickToRun (locally)	Only versions installed completely locally are supported (especially important with Office 365).
	Novell GroupWise	2012.0.0.0, 2014.0.0.0	Only in connection with the enaio® groupwise NG add-in
	Lotus Notes	8.5, 9.0	
	MS Exchange	2010, 2013, 2016	For MS Exchange 2010, 2013, and 2016, the 64-bit version is also supported.
ABBYY	FineReader	11 Release 8 (11.1.19.48)	For version 8.10 and later, ABBYY FineReader is integrated into the enaio® ocr-pdf-a license. ABBYY FineReader cannot be bought and used separately.
Kofax VRS	Kofax Engine	4.50 to 5.1	
Windows Media Player			When using M-modules (multimedia files)
Elasticsearch		2.4.2	

July 2018

## Mobile Applications

enaio® app is supported on the following mobile platforms:

Operating system	Version
iOS	Version 7.1 and later
Android	Version 4.0.3 (API level 15) and later
Windows	Version 10 and later



July 2018

## Notes on Systems and Versions That Are No Longer Supported

With Version 8.50, systems and certain versions of systems are no longer supported. Please read the document "enaio® End-of-Life Discontinuations – Lifecycles."

### Virus Scanner

Virus scanners protect the company network from external attacks and malware. At the same time, virus scanners influence the performance of applications with frequent access to the file system.

We therefore highly recommend that virus scanners explicitly do not scan the enaio® working and cache areas. These areas of the file system are written and read only by enaio®.

### International Character Sets

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

enaio® can be used with code pages other than 1252 and is supported by OPTIMAL SYSTEMS according to the maintenance contracts. Fault clearance in particular is guaranteed if the system has been tested and approved by the client before productive operation. The code page applied must be used on all computers involved in data processing in connection with enaio®, especially user computers, enaio® server, and database servers. Use in infrastructures with different code pages is not supported.