Fabasoft

Technical Information

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1 Introduction

The Fabasoft Cloud for secure document and process management, together with Mindbreeze AI for AI-supported knowledge management, forms the Fabasphere AI Core.

Fabasoft Solutions offer tailor-made solutions for document-intensive processes. The Fabasphere is the digital ecosystem that unites Fabasphere AI Core and Fabasoft Solutions.

This technical information refers to the Fabasphere in all operating models. Depending on the operating model, functionality may vary as described.

2 Supported Client Platforms

The following third-party products are supported.

2.1 Desktop

The following web browsers can be used:

- Microsoft Edge
- Mozilla Firefox
- Google Chrome
- Apple Safari

The following reference platforms provide optimal functionality and performance:

- Microsoft Windows 11 (25H2) (x64, ARM64)
  - Microsoft Edge 156.0 (as desktop program)
  - Mozilla Firefox 158.0 (as desktop program)
  - Google Chrome 156.0 (as desktop program)
- Apple macOS 27.0 (x64, Apple Silicon)
  - Apple Safari 27.0
  - Mozilla Firefox 158.0
  - Google Chrome 156.0
- Ubuntu 26.04 (x64) with Xorg window system
  - Mozilla Firefox 158.0

2.1.1 Office Applications

The Fabasphere Client enables you to open, edit, and save documents directly via the corresponding third-party products. The following reference versions are tested:

- Adobe InDesign 2024
  Note: InDesign documents can be edited only if the document format of the document to be opened (for example, InDesign 2024 document) matches the InDesign application version (for example, Adobe InDesign 2024).
- Adobe Illustrator 2024

- Adobe Photoshop 2024
- Adobe Reader DC 2026
- Apple Keynote 15.4
- Apple Numbers 15.4
- Apple Pages 15.4
- Apple Calendar 11.0
- Autodesk AutoCAD 2023 (x64) / 2024 (x64)
  Note: ARM64 is not supported.
- HCL Notes 14.0
  Note: ARM64 is not supported.
- LibreOffice 26.2.6
- Microsoft Excel 2021 / 2024 / 365 (2508; Desktop Version) / for the Web
- Microsoft Outlook 2021 / 2024 / 365 (2508; Desktop Version)
  Note: The new Outlook for Windows is not supported.
- Microsoft PowerPoint 2021 / 2024 / 365 (2508; Desktop Version) / for the Web
- Microsoft Project 2021 / 2024
- Microsoft Visio 2021 / 2024
- Microsoft Word 2021 / 2024 / 365 (2508; Desktop Version) / for the Web
- Microsoft Excel for Mac 2024
- Microsoft Outlook for Mac 2024
- Microsoft PowerPoint for Mac 2024
- Microsoft Word for Mac 2024
- Mozilla Thunderbird 158

Note: Microsoft Office 365 Business or Education is required for using Microsoft Office for the Web.

The following prerequisites apply for the integration of SAP:

- SAP ERP Central Component (ECC) 6.0 EHP 8
- SAP Content Server HTTP Interface 4.7
- Microsoft Windows (ARM64) is not supported for the client extension.

2.1.2 Multimedia Files

It is possible to play back multimedia files directly in the current versions of the following web browsers.

Web browser	Supported formats
Microsoft Edge	Audio: MP3, Wav, Ogg Video: MP4, WebM, Ogg
Mozilla Firefox	Audio: MP3, Wav, Ogg Video: MP4, WebM, Ogg
Google Chrome	Audio: MP3, Wav, Ogg Video: MP4, WebM, Ogg
Apple Safari	Audio: MP3, Wav Video: MP4

The specific formats that are supported by your web browser can be found here:

https://caniuse.com/#search=audio%20format

https://caniuse.com/#search=video%20format

2.2 Mobile Devices

The following reference platforms provide optimal functionality and performance.

2.2.1 Web Browser

- Tablets/Phones with iPadOS/iOS 27.0
  Apple Safari (version corresponding to the supported operating system)
- Tablets/Phones with Android 17.0
  Google Chrome 156.0 (setting: mobile version)

2.2.2 Fabasphere App

- Tablets/Phones with iPadOS/iOS 27.0
- Tablets/Phones with Android 17.0

2.3 Accessibility

Accessibility is a core concept of the Fabasoft products. The product employs assistive technologies such as screen readers and screen magnifiers based upon these standards:

- Accessible Rich Internet Applications (WAI-ARIA) 1.3
- Web Content Accessibility Guidelines (WCAG) 2.2, Conformity Level AA

- ISO 9241-171:2008 Guidance on software accessibility

The following screen readers are recommended:

- Microsoft Windows
  - NVDA (NonVisual Desktop Access)
  - JAWS 2026
- Apple iPhone/iPad
  - VoiceOver (Fabasphere App)
- Android
  - TalkBack (Fabasphere App)

Note: VoiceOver and TalkBack provide only limited support for WAI-ARIA. Consequently, the web browser user interface cannot be used with these screen readers.

Accessibility Exceptions

The following functions are partially or entirely non-accessible:

- BPMN Editor
- Document View
- Content of Widgets
- Adjusting Screenshots (Support Button)

More information on the restricted functions and alternatives thereto are available in the user help chapter "Accessibility Exceptions".

2.4 Video and Audio Metadata

Extracting video and audio metadata is supported for the following file types:

- audio (`mp3`, `ogg`, `wav`)
- video (`mp4`, `mov`, `flv`, `webm`, `avi`, `wmv`)

2.5 The Fabasphere Client

The Fabasphere Client is necessary for seamlessly integrating with desktop productivity tools, such as Microsoft Office or LibreOffice. The Fabasphere Client is available on all reference platforms listed in chapter 2.1 "Desktop".

If the Fabasphere Client is installed, you have the following upload options:

Web Browser	Drag and Drop	Copy and Paste	"Upload" Action
Microsoft Edge (Microsoft Windows)	Multiple files and folders E-mails, contacts and	Multiple files and folders E-mails, contacts and	Multiple files

	events from Microsoft Outlook	events from Microsoft Outlook	
Mozilla Firefox (Microsoft Windows)	Multiple files and folders E-mails, contacts and events from Microsoft Outlook	Multiple files and folders E-mails, contacts and events from Microsoft Outlook	Multiple files
Mozilla Firefox (Ubuntu)	Multiple files and folders	Multiple files and folders SMB shares are not supported	Multiple files
Mozilla Firefox (Apple macOS)	Multiple files and folders	Multiple files and folders	Multiple files
Apple Safari (Apple macOS)	Multiple files and folders	Multiple files and folders	Multiple files
Google Chrome (Microsoft Windows)	Multiple files and folders E-mails, contacts and events from Microsoft Outlook	Multiple files and folders E-mails, contacts and events from Microsoft Outlook	Multiple files
Google Chrome (Apple macOS)	Multiple files and folders	Multiple files and folders	Multiple files

If the Fabasphere Client is not installed, you have the following upload options:

Web Browser	Drag and Drop	"Upload" Action
Microsoft Edge (Microsoft Windows)	Multiple files and folders E-mails from Microsoft Outlook	A single file
Mozilla Firefox (Microsoft Windows, Apple macOS, Ubuntu)	Multiple files and folders	A single file
Apple Safari	Multiple files and folders	A single file

(Apple macOS)		
Google Chrome **(Microsoft Windows, Apple macOS)**	Multiple files and folders	A single file

Note:

- If the Fabasphere Client is not installed on your device already, you will be asked to install it following the log-in.
- The integration into Microsoft Office (buttons) is only available on Microsoft Windows.
- The maximum file size is 16 GB.
- The Fabasphere Folder (synchronization with the file system) supports local NTFS 3.1 file systems on Microsoft Windows 11, and local HFS+ or APFS file systems on Apple macOS. **Note:** Each Fabasphere Folder is assigned to one user and one device only. Hence, several users cannot synchronize into the same Fabasphere Folder, and one user cannot synchronize from several devices into the same Fabasphere Folder. The Fabasphere Folder is not supported on Microsoft Windows server operating systems.

2.6 The Fabasphere Enterprise Client

The ability to install software in a local user profile is often limited in an enterprise environment (e.g., users are not allowed to execute MSI packages or the software must be installed on a terminal server). In this case, you can use the Enterprise Client. This Client is installed for all users on a computer (a so-called "per machine" installation) and can be distributed centrally by administrators.

Download the installation package for this client (x64, ARM64) here:

- `https://<Fabasphere host>/<vdir>/fscasp/content/lib/FabasphereClientEnterprise-x64.msi`
- `https://<Fabasphere host>/<vdir>/fscasp/content/lib/FabasphereClientEnterprise-arm64.msi`

Example (respectively `de.cloud.fabasoft.com` or `ch.cloud.fabasoft.com`):

- https://at.cloud.fabasoft.com/folio/fscasp/content/lib/FabasphereClientEnterprise-x64.msi
- https://at.cloud.fabasoft.com/folio/fscasp/content/lib/FabasphereClientEnterprise-arm64.msi

Note: Make sure that the WebView2 Runtime is available on the client (included by default in current versions of Microsoft Windows 11).

The optimal browser settings for your users are not set automatically. Thus, administrators must ensure that the settings are rolled out in accordance with the white paper "Fabasphere Client".

Installing the Fabasphere Enterprise Client and the Fabasphere Client on the same computer is not supported.

3 "Private Cloud" Operating Model

The following requirements apply to operating the Fabasphere in the "Private Cloud" operating model.

3.1 Infrastructure

The following infrastructure is required.

Kubernetes Cluster (at least version 1.32)

For example:

- Red Hat OpenShift (at least version 4.19)
- OKD (at least version 4.19)

Data Storage via NFS File Share

- 3 x NFS file shares (version NFSv3 or NFSv4.1)

Database (one of those listed)

- PostgreSQL 18.4
  Operating system: Red Hat Enterprise Linux 9 (from 9.8) or AlmaLinux 9 (from 9.8)
- Oracle Database 19c Enterprise Edition (from 19.3.0.0.0) for Linux x86-64 with RAC
  Operating system: Red Hat Enterprise Linux 9 (from 9.8)
  Note: Oracle Database can also be run on operating systems that do not correspond to the listed reference operating system if this is supported by Oracle.
- Microsoft SQL Server 2022 Enterprise
  Operating system: Microsoft Windows Server 2025 Standard

Container Registry

- Container registry (e.g., Harbor or JFrog Artifactory) for synchronizing the Fabasphere images from registry.fabasoft.com

3.2 Operation

The following requirements apply for operation.

Required Services

- Load balancer (recommendation: nginx)
- OpenLDAP (at least version 2.6.10)

Note: The required services are not part of the Fabasphere deployment.

Optional Services

- KEDA Operator (optional)
- Istio (optional)

- Logging stack and monitoring stack of the Kubernetes cluster (e.g., Prometheus, Grafana, Logstash, Loki)
- Secrets management (e.g., Kubernetes Sealed Secrets)
- MetalLB (external cluster access to microservices via TCP, e.g., interacting with RabbitMQ from outside the cluster)

Note: The optional services are not part of the Fabasphere deployment.

Configuration Management/Deployment

- Git (e.g., GitLab, Gitea)
- Deployment tool (e.g., Argo CD)
- Alternatively with Helm (version 3)

Note: The required tools are not part of the Fabasphere deployment.

3.3 Resources and Scaling

Based on non-binding estimates, the following resources per service are required to operate the Fabasphere services in the "Private Cloud" operating model (1000 registered users, 10 TB of data).

Service	CPU (Requested)	RAM	Persistent Storage	Remarks
COO Service	4	16 GB	128 MB	DTM logs need persistent storage.
Storage Service	4	8 GB	3 x 10 TB	3 x NFS shares for redundant storage (no replicas).
Web Service	2	16 GB	-	As the number of objects increases, an increase in RAM is recommended. As user request load increases, an increase in CPU capacity is required.
AT Service	2	16 GB	-	
IdP	2	6 GB	-	
EventQ	2	2 GB	2 GB	
DTS	16	64 GB	8 GB	
MIS	4	12 GB	50 GB	

EXTCACHE	2	8 GB	-	
OData	2	8 GB	-	Optional
OpenAPI	2	8 GB	-	Optional
State Server	2	4 GB	-	
COODOTNET	4	16 GB	-	Optional

For an exemplary standard operation with 1000 registered users and 10 TB of data, at least the following number of replicas per service is required:

Service	Number	Remarks on Scaling
COO Service	3	A dedicated database is required for each COO service. The minimum required resources of the individual COO service instances may vary depending on the configured object placement and may require different configurations.
Storage Service	3	Two replicas are required to be active for handling requests. The third replica writes an online backup of the data and serves as a fallback.
Web Service	12	Each web service provides a maximum of 64 threads. As the number of requests increases, the number of instances must be increased accordingly.
AT Service	2	Depending on the number of automated tasks to be processed, it may be necessary to increase the number of AT services.
IdP	2	The IdP is operated redundantly with two replicas. Higher scaling is not required.
EventQ	3	Three replicas are required for operating the EventQ. This number must neither be increased nor decreased.
DTS	1	DTS consists of individual microservices for the respective conversion tools. Scaling is only possible at the tool level. Automatic scaling mechanisms are provided to enable load-dependent scaling.
MIS	1	MIS consists of individual microservices. Higher scaling is not required.

EXTCACHE	3	It is recommended to provide one replica per worker node of the orchestration platform.
OData	2	With increased request load, it may be necessary to increase the number of replicas. If predominantly larger data queries are performed, an increase in RAM is required.
OpenAPI	2	With increased request load, it may be necessary to increase the number of replicas.
State Server	2	With increased request load, it may be necessary to increase the number of replicas.
COODOTNET	2	With increased request load through OData and OpenAPI, it may be necessary to increase the number of replicas.

The specifications regarding resources and scaling are based on non-binding estimates. Depending on the hardware used, the actual request load, and user behavior, an increase in resources or instances may be necessary.

3.4 Mindbreeze AI

Mindbreeze AI is operated on the same Kubernetes cluster. The required language model must be obtained directly, for example, from Hugging Face. Mindbreeze AI requires a "Persistent Volume Claim" to store the data necessary for AI use cases.

Note: The required language model is not part of the Fabasphere deployment.

Recommendations:

- To improve performance, it is recommended running Mindbreeze AI pods on servers with GPUs.
- For the operation of large language models (LLM), it is recommended providing own servers with graphics cards (GPU) in the Kubernetes cluster.
- For fail-safe operation, it is recommended running two servers per LLM.
- One graphics card per server is recommended, each fully dedicated to the LLM.
- The LLM should have at least 7b parameters.
- For more general usability, the LLM should be multilingual or at least offer good support for the languages used.
- Depending on the use case, the LLM should provide at least 8 to 10 tokens per second per user.
- The LLM used should be instruction-tuned or chat-tuned.

Supported GPUs:

Mindbreeze AI supports CUDA GPUs with the following compute capability versions: 6.0, 6.1, 7.0, 7.5, 8.0, 9.0

A list of devices is maintained at the following external link: CUDA GPU Compute Capability

4 Limits

Server Limits

- A Fabasphere Domain or tenant can consist of a maximum of 255 Fabasphere COO Stores.
- A Fabasphere Backend Service can run a maximum of 10000 client connections at the same time.
- A maximum of 16 million objects can be created in a store.
- A maximum of 65534 tenants can be created in a Fabasphere Domain.
- A maximum of 120 worker-threads can be created in a Fabasphere Backend Service.

The specified limits can be reduced by operating system limitations.

Fabasphere Kernel Limits

- A Fabasphere Kernel can run a maximum of 1000 service connections at the same time.
- A Fabasphere Kernel can process a maximum of 1000 open connections.
- In one process a maximum of one Fabasphere Kernel can run.
- A Fabasphere Kernel can run a maximum of 1024 threads.
- A Fabasphere Kernel can connect directly to a maximum of one Fabasphere Domain.

The specified limits can be reduced by operating system limitations.

Limits

- The size of a web service call is limited to 4 GB.
- A maximum of 10000 entries should be stored in an object list.
- A maximum of 10000 search hits are displayed.
- String lists are limited to 10000 lines.