



White Paper

Fabasoft Folio Client

Fabasoft Folio 2025 Update Rollup 1

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1 Introduction

The Fabasoft Folio Client provides seamless integration into the operating system and third-party applications, such as direct editing of documents, importing via copy-and-paste, integration of your mail client or Microsoft Office and synchronization of documents. This document describes how to install and configure the Fabasoft Folio Client.

The Fabasoft Folio Client can be used with following products:

- Fabasoft Folio
- Fabasoft eGov-Suite

The Fabasoft Folio Client consists of a native application for Microsoft Windows, Apple macOS, and Ubuntu and a web browser extension for Microsoft Edge, Google Chrome, Mozilla Firefox, and Apple Safari. The web browser extension is required to allow the communication between the Fabasoft Folio web client and the native application.

2 Software Requirements

System environment: All information contained in this document implicitly assumes a Microsoft Windows, Ubuntu or Apple macOS environment.

Supported platforms: For detailed information on supported operating systems and software, see the software product information.

Descriptions in this document are based on the following software:

- Microsoft Windows 10 Enterprise
- Microsoft Windows 11 Enterprise
- Apple macOS 15.1
- Ubuntu 24.04 with Xorg window system
- Google Chrome 135.0
- Microsoft Edge 135.0
- Mozilla Firefox 137.0
- Apple Safari 18.4

Note: Make sure that the WebView2 Runtime is available on the client (included by default in current versions of Microsoft Windows 10 and 11).

3 Microsoft Windows

This chapter refers to a Microsoft Windows operating system.

3.1 Installing

To install the Fabasoft Folio Client (into the per-machine installation context), perform the following steps:

1. Download the `FolioClient.msi` installation package from the Fabasoft Folio installation.
`https://<host>/<vdir>/fscasp/content/lib/FolioClient.msi`
Alternatively, you find the MSI file in the `Setup\ComponentBase\Client` folder of the Fabasoft Folio distribution media.

2. Make sure that you have administrative rights.
3. Run the `FolioClient.msi` installation package and follow the installation wizard.

The Fabasoft Folio Client is installed in the following folder:

```
C:\Program Files\Fabasoft\Folio 2025\Client\
```

In case of a 32 bit operating system the base folder is `Program Files`.

3.1.1 Advanced Configuration

By default, the setup will register all web browser extensions for all supported web browsers. The extension for Mozilla Firefox will always be installed locally. For Google Chrome and Microsoft Edge this will require a connection to the respective online extension store of the web browser. If no connection to the store is available you can specify that a local version of the extension should be registered instead. This only works for Microsoft Windows workstations that are joined to a Microsoft Active Directory domain (security feature of the web browsers).

```
msiexec /i <msipath> EXTLOCAL=1
```

Note:

- In addition to installing the local extension, the configuration parameters `override_update_url`, `ExtensionInstallAllowList` and `NativeMessagingAllowlist` are automatically set so that the extension can be functionally installed and updated. A more detailed description of the respective configuration parameters can be found on the websites of the web browser manufacturers.
- If the Fabasoft Folio Client Setup installs the local extension and therefore sets the configuration parameter `override_update_url`, the corresponding extension must not be installed via the store in the user profile of the web browser, otherwise the web browser extension will be marked as "broken". The configuration parameter `override_update_url` is necessary for the web browser to update the locally installed extension.
- If the `ExtensionInstallForceList` policy or the `ExtensionSettings` policy are rolled out centrally as JSON format, no automatic registration and configuration of the browser extensions happens via the Fabasoft Folio Client setup. This is because our modified JSON string would be overwritten by the central deployment tool.

To prevent web browser extensions from being installed, there are parameters that can be specified when installing the MSI package:

```
msiexec /i <msipath> CHROMEEXT=0 EDGEEXT=0 FIREFOXEXT=0 THUNDERBIRDEXT=0
```

For example, the following command disables the installation of the Google Chrome extension:

```
msiexec /i FolioClient.msi CHROMEEXT=0
```

3.2 Central Distribution of the Web Browser Extensions

This chapter is about the own deployment of the web browser extensions and the corresponding policies.

3.2.1 Deployment of the Microsoft Edge Extension

The Microsoft Edge Extension is automatically deployed when running the Fabasoft Folio Client setup using the Microsoft Store. The deployment of the Microsoft Edge Extension is described in the official Microsoft Edge documentation: <https://docs.microsoft.com/en-us/deployedge/microsoft-edge-policies#extensioninstallforcelist>

If you want to use an own policy for automatic deployment, the following key has to be deployed:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Edge\ExtensionInstallForcelist  
"1"="fabncpfbjhdplfapghonnbhnenohncpp"
```

Note: If there are security policies rolled out (e.g. `ExtensionInstallBlocklist` or `NativeMessagingBlocklist`), see also <https://learn.microsoft.com/de-de/deployedge/microsoft-edge-policies>, it should be considered to allow the functionality for the Microsoft Edge Extension.

```
HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Edge\ExtensionInstallAllowlist  
"1"="fabncpfbjhdplfapghonnbhnenohncpp"
```

```
HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Edge\NativeMessagingAllowlist  
"1"="com.fabasoft.nmhostpm24"
```

3.2.2 Deployment of the Google Chrome Extension

The Google Chrome Extension is automatically deployed when running the Fabasoft Folio Client setup using the Google Chrome web store. The deployment of the Google Chrome Extension is described in the official Chromium documentation:

<https://chromeenterprise.google/policies/#ExtensionInstallForcelist>

If you want to use an own policy for automatic deployment, the following key has to be deployed:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Google\Chrome\ExtensionInstallForcelist  
"1"="alcgpfgkdjbabelklflpfkooadcfgoao;https://clients2.google.com/service/update2/crx"
```

Note: If there are security policies rolled out (e.g. `ExtensionInstallBlocklist` or `NativeMessagingBlocklist`), see also <https://chromeenterprise.google/policies/>, it should be considered to allow the functionality for the Google Chrome extension.

```
HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Google\Chrome\ExtensionInstallAllowlist  
"1"="alcgpfgkdjbabelklflpfkooadcfgoao"
```

```
HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Google\Chrome\NativeMessagingAllowlist  
"1"="com.fabasoft.nmhostpm24"
```

3.2.3 Deployment of the Mozilla Firefox Extension

The Mozilla Firefox Extension is automatically deployed, when running the Fabasoft Folio Client setup. If you deactivate the installation of the extension you can install it manually. The deployment of the Mozilla Firefox Extension is described in the official Mozilla documentation:

https://developer.mozilla.org/en-US/Add-ons/WebExtensions/Alternative_distribution_options/Add-ons_in_the_enterprise

If you want to deploy the Mozilla Firefox extension on your own, the following keys have to be deployed:

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Mozilla\Firefox\Extensions\Install]  
"1"="file://C:\\Program Files\\Fabasoft\\Folio  
2025\\Client\\x64\\FolioFirefoxExtension.xpi"
```

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Mozilla\Firefox\Extensions\Locked]  
"1"="nmextmozpm21@fabasoft.com"
```

<https://github.com/mozilla/policy-templates/blob/master/README.md#extensions>

Note: Without changing the Mozilla Firefox preferences (as described in the documentation: `extensions.autoDisableScopes`, `extensions.enabledScopes`), each user will be notified on the next application startup, that a new Mozilla Firefox Extension was installed. In this case, the user must explicitly confirm, that the Mozilla Firefox Extension should be enabled.

3.3 Update

An update is only possible if the version number of the new package is higher than the version number of the installed package. If this is the case, the old package is automatically uninstalled when the new package will be installed. Otherwise, the Fabasoft Folio Client setup terminates with a corresponding exit code.

During the update process, the installation is carried out with the same setup parameters as the current version is installed. If the setup parameters are to be changed, this must be explicitly specified via the respective parameter or an explicit uninstallation must take place beforehand.

If a downgrade is necessary, please uninstall the package itself first and then install the older package.

When the same version of the Fabasoft Folio Client will be installed again the repair mode will be triggered. The repair mode only re-registers the already installed components, but does not change the installed features like the web browser extensions or the update service even if they are applied as new parameter.

3.4 Automatic Update

To be able to use the automatic update feature the following prerequisites must be met:

The Fabasoft Folio Client has to be installed including the update service:

```
msiexec /i FolioClient.msi INSTALLUPDATESERVICE=1
```

The automatic update URL has to be configured from where the update package will be downloaded:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Fabasoft\NativeClient\Folio
```

- Automatic Update URL
Value name: `AUTOUPDATE_URL`
Type: `REG_SZ`
Value data: `<web server>/<vdir>`
- Enable Automatic Update
Value name: `AUTOUPDATE`
Type: `REG_DWORD`
Value data (disabled): `0`
Value data (enabled, default): `1`

Note: The automatic update can be disabled by removing the URL or by deactivating it using the `AUTOUPDATE` setting. If the update service is to be installed with the version that is already installed, the client must first be uninstalled. After that, the setup can be installed with the `INSTALLUPDATESERVICE=1` parameter.

3.5 Uninstalling

For uninstalling the Fabasoft Folio Client manually use the “Apps and Features” dialog provided by Microsoft Windows.

For uninstalling the Fabasoft Folio Client automatically, a signed Microsoft PowerShell script file is provided, which is added to the installation directory. This script includes the product code of the currently installed version and can be used by a deployment tool (like Microsoft Software Center) for uninstalling this version even if it was automatically updated before.

```
%PROGRAMFILES%\Fabasoft\Folio 2025\Client\uninstall.ps1
```

3.6 Trusted Sites for Fabasoft app.telemetry

To allow that Fabasoft app.telemetry get more information about the client configuration and taking a screenshot, when pressing the app.telemetry feedback button you have to manually set a trusted site registry key for your web service URL.

Key: HKEY_CURRENT_USER\Software\Fabasoft\WebClient\TrustedSites

Value name: <web service URL e.g. folio.example.com>

Type: REG_SZ

Value data: 1

3.7 General Settings

To avoid that users have to make settings on their own and for best performance deploy following settings on the clients:

- Increase the WebDAV file size limit to 1 GB to be able to work with large documents.
Key: HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\WebClient\Parameters
Value name: FileSizeLimitInBytes
Type: REG_DWORD
Value data: 1073741824
- Allow opening hyperlinks in Microsoft Office (<http://support.microsoft.com/kb/218153>).
Key: HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Office\9.0\Common\Internet (32 bit operating system)
or
HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Microsoft\Office\9.0\Common\Internet (64 bit operating system)
Value name: ForceShellExecute
Type: REG_DWORD
Value data: 1

For more information about the meaning of these keys, consult <http://msdn.microsoft.com>.

3.8 Predefined Settings for Users

The users have the possibility to make different settings in the options dialog. These settings can also be set by the administrator using group policies so that the users can no longer change them.

To ease the group policy setup, you can find the corresponding administrative template here: [Policy Templates](#).

The predefined settings can be defined in the following registry key:

HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Fabasoft\NativeClient\Folio

- **Enable Synchronization**
Value name: SYNC_FS
Type: REG_DWORD
Value data (disabled): 0
Value data (enabled): 1
- **Enable LAN Synchronization**
Value name: SYNC_FS_LAN
Type: REG_DWORD
Value data (disabled): 0
Value data (enabled): 1
- **Configure LAN Synchronization Port (Fabasoft Folio 2025)**
Value name: SYNC_FS_LANPORT25
Type: REG_DWORD
Value data: 1024 - 65535
- **Enable Contact Synchronization**
Value name: SYNC_MAPI_CONTACT
Type: REG_DWORD
Value data (disabled): 0
Value data (enabled): 1
- **Enable Open Network Drive**
Value name: MOUNT_WEBDAV
Type: REG_DWORD
Value data (disabled): 0
Value data (enabled): 1
- **Automatic Proxy Login**
Value name: AUTOLOGIN_PROXY
Type: REG_DWORD
Value data (disabled): 0
Value data (enabled): 1
- **Download Speed Limitation**
Value name: DOWNLOAD_KBSEC
Type: REG_DWORD
Value data (disabled): 0
Value data (enabled): <KB/s>
- **Upload Speed Limitation**
Value name: UPLOAD_KBSEC
Type: REG_DWORD
Value data (disabled): 0
Value data (enabled): <KB/s>
- **Generate PDF Preview on the Device (Unencrypted Documents)**
Value name: AUTOSAVE_PDF
Type: REG_DWORD
Value data (disabled): 0
Value data (enabled): 1

- **Generate PDF Preview on the Device (Encrypted Documents)**
Value name: AUTOSAVE_PDF_ENC
Type: REG_DWORD
Value data (disabled): 0
Value data (enabled): 1
- **Generate Thumbnails From the PDF Preview on the Device (Encrypted Documents)**
Value name: AUTOSAVE_THUMB_ENC
Type: REG_DWORD
Value data (disabled): 0
Value data (enabled): 1
- **Maximize CPU Utilization for Conversion**
Value name: CONV_THREADLIMIT
Type: REG_DWORD
Value data (disabled): 1
Value data (enabled, maximum threads depending on CPU cores): 0
Value data (enabled, defined maximum threads): <number>
- **Restrict the Allowed Domains (see also 12.4 "Restrict the Allowed Domains")**
Value name: VALIDDOMAINS
Type: REG_SZ
Value data (no restriction): <empty>
Value data (restriction): <domain>(:<port>)
- **Manually defined proxy server (see also 7.1.3 "Manual Proxy Configuration")**
Value name: PROXYSERVER
Type: REG_SZ
Value data: <proxy server>(:<port>)

3.9 File and Registry Locations

The data in these locations must not be removed or modified. The configuration settings will be written during the setup process and/or when logging in with the Fabasoft Web Browser Client.

- C:\Users\<user>\AppData\Local\Temp (%TEMP%)
- C:\Users\<user>\AppData\Local\Fabasoft (%LOCALAPPDATA%)
- C:\Users\<user>\<synchronized folder> (%USERPROFILE%)
- C:\Program Files\Fabasoft
- HKEY_CURRENT_USER\Software\Fabasoft
- HKEY_CURRENT_USER\Software\Classes\CLSID\<CLSID>
- HKEY_CURRENT_USER\Software\Classes\<ProgID>
- HKEY_CURRENT_USER\Software\Microsoft\Office\Excel\AddIns\<ProgID>
- HKEY_CURRENT_USER\Software\Microsoft\Office\Outlook\AddIns\<ProgID>
- HKEY_CURRENT_USER\Software\Microsoft\Office\PowerPoint\AddIns\<ProgID>
- HKEY_CURRENT_USER\Software\Microsoft\Office\Word\AddIns\<ProgID>
- HKEY_LOCAL_MACHINE\SOFTWARE\Fabasoft
- HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Fabasoft
- HKEY_LOCAL_MACHINE\SOFTWARE\Classes\CLSID\<CLSID>
- HKEY_LOCAL_MACHINE\SOFTWARE\Classes\<ProgID>

- HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Explorer\ShellIconOverlayIdentifiers
- HKEY_LOCAL_MACHINE\SOFTWARE\Classes*\shellex\ContextMenuHandlers\<ProgID>
- HKEY_LOCAL_MACHINE\SOFTWARE\Classes\Directory\background\shellex\ContextMenuHandlers\<ProgID>
- HKEY_LOCAL_MACHINE\SOFTWARE\Classes\Directory\shellex\ContextMenuHandlers\<ProgID>
- HKEY_LOCAL_MACHINE\SOFTWARE\Classes\Folder\Background\shellex\ContextMenuHandlers\<ProgID>
- HKEY_LOCAL_MACHINE\SOFTWARE\Classes\Folder\shellex\ContextMenuHandlers\<ProgID>
- HKEY_LOCAL_MACHINE\SOFTWARE\Classes\IE.AssocFile.URL\ShellEx\ContextMenuHandlers\<ProgID>
- HKEY_LOCAL_MACHINE\SOFTWARE\Classes\IE.AssocFile.WEBSITE\ShellEx\ContextMenuHandlers\<ProgID>
- HKEY_LOCAL_MACHINE\SOFTWARE\Classes\InternetShortcut\ShellEx\ContextMenuHandlers\<ProgID>
- HKEY_LOCAL_MACHINE\SOFTWARE\Classes\lnkfile\shellex\ContextMenuHandlers\<ProgID>
- HKEY_LOCAL_MACHINE\SOFTWARE\Classes\Microsoft.Website\shellex\ContextMenuHandlers\<ProgID>
- HKEY_LOCAL_MACHINE\Software\Microsoft\Edge\NativeMessagingHosts\<ID>
- HKEY_LOCAL_MACHINE\Software\Mozilla\NativeMessagingHosts\<ID>
- HKEY_LOCAL_MACHINE\Software\Google\Chrome\NativeMessagingHosts\<ID>
- HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Google\Chrome\ExtensionInstallForcelist\<ID>
- HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Google\Chrome\ExtensionSettings\override_update_url
- HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Edge\ExtensionInstallForcelist\<ID>
- HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Edge\ExtensionSettings\override_update_url

4 Apple macOS

This chapter refers to an Apple macOS operating system.

In order to select the correct package depending on the processor, check the chip of the macOS device you are using:

1. At the top left, open the Apple menu.
2. Select "About This Mac".
3. In the appearing window, look for "Processor" or "Chip".
4. Check if it says "Intel" or "Apple".

4.1 Installing

To install the Fabasoft Folio Client, perform the following steps:

1. Download the installation package that fits the chip type of the device from the Fabasoft Folio installation.

Apple Chip

`https://<host>/<vdir>/fscasp/content/lib//CloudClient-Apple.dmg`

Intel Chip

`https://<host>/<vdir>/fscasp/content/lib//CloudClient-Intel.dmg`

Alternatively, you find the DMG file in the `Setup\ComponentsBase\Client` folder of the Fabasoft Folio distribution media.

2. Double-click the DMG file.
3. Drag the app to the "Applications" folder.
Note: In case of an update keep in mind to close the Fabasoft Folio Client (menu bar > Folio symbol > Quit) before dragging the new app to the "Applications" folder and replacing the old one.
4. Open the "Applications" folder and run the Fabasoft Folio Client.
5. Enter the credentials of an administrative user to finish the installation.
Note: For users without administrative rights, the administrator can finish the installation by executing the following command.
`sudo /Applications/Fabasoft*/Contents/MacOS/Fabasoft*UI* -runsetup:1`
6. For optimum configuration, the authorizations required by the client should also be set. These are initially configured when the Fabasoft Folio Client is started for the first time if you confirm this in the dialogs (e.g. activating the web browser extension in Safari "Safari -> "Settings" > "Extensions").

4.2 Deployment via Mobile Device Management Profile

For preconfigured workstations, where the users do not have administrative rights, the following security settings must be configured for smooth operation.

The code requirements can be obtained by following command:

```
codesign --display -r - <path to application>
```

Identifier	Service	Access	Code Requirement
com.fabasoft.foliosys traypm24	Accessibility	Allow	identifier "com.fabasoft.foliosys traypm24" and anchor apple generic and certificate 1[field.1.2.840.113635.100.6.2. 6] /* exists */ and certificate leaf[field.1.2.840.113635.100.6 .1.13] /* exists */ and certificate leaf[subject.OU] = "9FUG84LZ2G"
	System Events	Allow	
	Screen Recording	Allow	
	Full Disk Access	Allow	
	Apple Events	Allow*	

* For "Apple Events" it is necessary to define the appropriate receiver.

Receiver Process Identifiers
com.apple.finder
com.apple.mail
com.apple.Safari

com.apple.systemevents
com.apple.systempreferences
com.microsoft.Outlook
com.microsoft.Word

4.3 Uninstalling

Uninstalling the Client

To uninstall the Fabasoft Folio Client, perform the following steps:

1. Quit the Fabasoft Folio Client.
2. Open "System Preferences" > "Extensions" and disable the "Finder" entry under "Fabasoft Folio".
3. Open "Finder" and delete the following files:
 - o /Applications/Fabasoft Folio 2025.app
 - o /Library/PrivilegedHelperTools/com.fabasoft.finderinjectorpm24
 - o ~/Library/Application Support/Fabasoft
4. Open the following files and remove all lines containing the following:

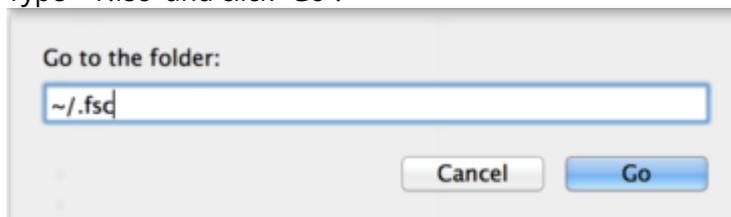
```
Fabasoft Folio, nmextmozpm21@fabasoft.com, alcgpfkdjbabelklflpfkoadcfgoaoor,
fabncpfbjhdplfapghonnbhnenohncpp
```

 - o /Library/Preferences/org.mozilla.firefox.plist
 - o /Library/Preferences/org.mozilla.thunderbird.plist
 - o /Library/Managed Preferences/com.google.Chrome.plist
 - o /Library/Managed Preferences/com.microsoft.Edge.plist
5. Run the command `killall cfprefsd` and restart your browser or restart the computer.

Removing the Fabasoft Settings (Optional)

To remove the settings, perform the following steps:

1. Open the Finder, point to "Go" and click "Go to folder". A dialog box opens.
2. Type "`~/fsc`" and click "Go".



This command leads you to the folder containing the settings.

3. Delete the `.fsc` folder.

Note: When removing the `.fsc` folder all settings and not yet saved files will be lost.

4.4 Security Settings

The following security settings must be made after installing the Fabasoft Folio Client.

- Access for “Accessibility Access”
The corresponding pop-up appears directly after the first start of the Fabasoft Folio Client.
- Allow Control for “Finder.app”
The corresponding pop-up appears when clicking "Open Folio Folder" and navigating in the synchronized folder.
- Allow Control for “Mail.app”
The corresponding pop-up appears when executing the use case "Send as Link".
- Access for “Screen Recording”
The corresponding pop-up appears when you log in for the first time in Fabasoft Folio.

4.5 File and Registry Locations

The data in this locations must not be removed or modified. The data will be written during the setup process or when logging into the web browser client.

- /Applications/Fabasoft Folio 2025.app
- /Library/PrivilegedHelperTools/com.fabasoft.finderinjectorpm24
- ~/Library/Application Support/Fabasoft
- ~/.fsc/

5 Ubuntu

This chapter refers to an Ubuntu operating system.

5.1 Installing

To install the Fabasoft Folio Client, perform the following steps:

1. Download the `folioclient_amd64.deb` installation package from the Fabasoft Folio installation.
`https://<host>/<vdir>/fscasp/content/lib/folioclient_amd64.deb`
Alternatively, you find the DEB file in the `Setup\ComponentsBase\Client` folder of the Fabasoft Folio distribution media.
2. Double-click the `folioclient_amd64.deb` file and install it.

Note: Make sure that the prerequisite packages `libgnomevfs2-0` and `libgnomevfs2-common` are installed before installing the Fabasoft Folio Client.

5.2 Client Certificates

When using a certificate-based authentication the client certificates have to be stored in the Fabasoft Client. To do so, open the context menu of the notification symbol and click “Options”. On the “Certificates” tab, import the client certificate.

5.3 Uninstalling

To uninstall the Fabasoft Folio Client, perform the following steps:

1. Open a terminal and execute the following command:
`sudo dpkg -r folioplugin`

1. Delete the `.fsc` folder in your home directory.

Note: When removing the `.fsc` folder all settings and not yet saved files will be lost.

5.4 File and Registry Locations

The data in these locations must not be removed or modified. The configuration settings will be written during the setup process and/or when logging in with the Fabasoft Web Browser Client.

- `/opt/fabasoft`
- `/etc/opt/chrome/native-messaging-hosts`
- `/etc/chromium/native-messaging-hosts`
- `/usr/lib/mozilla/native-messaging-hosts`
- `/usr/share/applications/`
- `~/.fsc/`

6 Citrix Virtual Apps and Desktops

In order to use the Fabasoft Folio Client in a Citrix environment, it must be provided to the user as a Citrix application. Furthermore, it must be ensured that the client is started automatically in its context when a user establishes a connection.

7 Network Settings

To ensure the proper functionality of the Fabasoft Folio Client, correct network settings (e.g. proxy) in the operating system are mandatory. The used web browsers must be configured so that they use these network settings.

7.1 Proxy Settings

The following chapters show how to define proxy settings.

7.1.1 General

We support the default method for defining a proxy server on the appropriate operating system. On Microsoft Windows, this configuration can be done in the „Proxy“configuration, on Apple macOS this could be done in the “System Settings -> Network -> Proxies”. On Ubuntu, this configuration has to be done via environment variables

```
export http_proxy=http://your.proxy.server:port/  
export https_proxy=https://your.proxy.server:port/  
auto_proxy=http://your.server/wpad.dat
```

7.1.2 Automatic Proxy Configuration

For security reasons we only support the automatic proxy configuration via the direct configuration of the Proxy-Auto-Config URL (PAC-URL). We do not support automatically retrieving this URL via Web Proxy Autodiscovery Protocol.

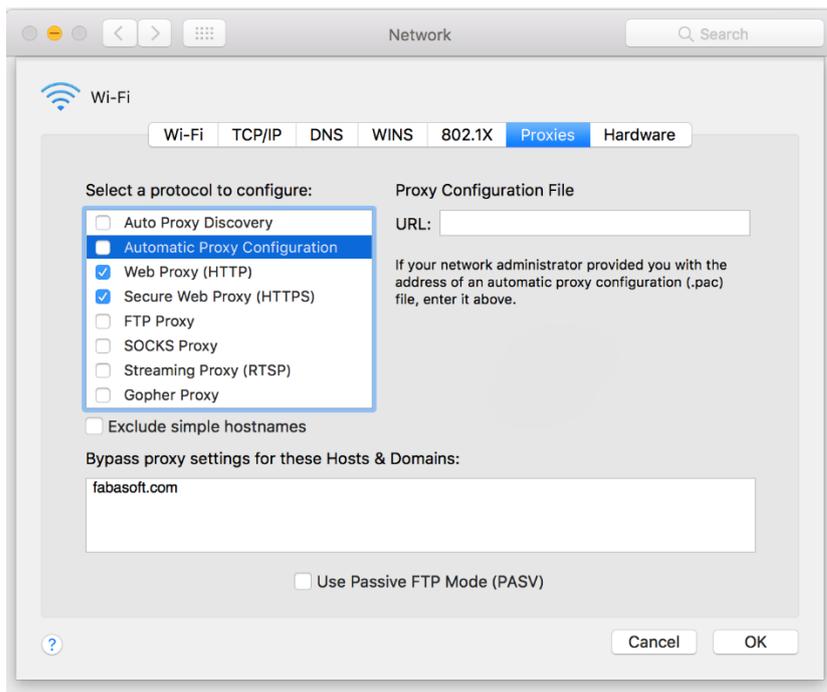
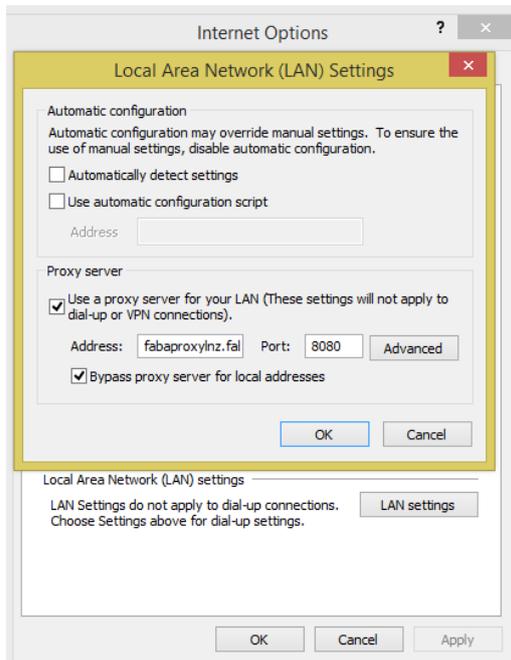
We first look for a proxy server bypass configuration, then for a manually configured proxy server. If there's no bypass and no manually proxy server configuration we evaluate the PAC URL.

Our fallback for every error or misconfiguration is a direct connection to the server.

This file will be evaluated every 30 minutes and additionally on a change of the system configuration, except on Ubuntu, there you have to restart the system.

If the URL or any proxy server evaluated from the URL is not reachable it will be ignored for the next 30 minutes.

If the script delivered from the PAC URL hangs or needs longer than 5 seconds, we abort the evaluation.



7.1.3 Manual Proxy Configuration

You can also define a specific proxy server for the Fabasoft Folio Client only. This setting can be defined in the following registry key:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Fabasoft\NativeClient\Folio
```

Value name: PROXYSERVER

Type: REG_SZ

Value data: <proxy server>(:<port>)

Note: If the value is empty, the policy is ignored. If there is no port configured the ports 8080, 3128 and 80 are tried. The proxy server defined here must match the proxy server of the used web browser.

8 Certificate Settings

If you use your own server certificates that are not commonly trusted, you have to add the corresponding CA as a trusted root certificate on the clients.

For detailed information about adding trusted root certificates consult the documentation of the corresponding operating system.

Microsoft Windows

You can use the “Certificates” MMC snap-in.

Apple macOS

Double-click the CA certificate, add it to the keychain and choose “Always Trust”.

Ubuntu

Store the CA certificate (X.509 format with crt as extension) in `/usr/local/share/ca-certificates/` and execute the following command: `sudo dpkg-reconfigure ca-certificates`

9 Web Browser Settings

When installing the native client also extensions for Microsoft Edge, Google Chrome, Mozilla Firefox and Apple Safari are provided (see chapter 3.3 for Restrictions). Make sure that the extensions are allowed in the used web browser (“allow always”).

Microsoft Edge

“Settings and more” > “Extensions”

Google Chrome

“Customize and control Google Chrome” > “More tools” > “Extensions”

Mozilla Firefox

“Open menu” > “Add-ons” > “Extensions”

Apple Safari

“Safari” > “Preferences” > “Extensions”

Further configuration steps

If a web browser is not optimally configured, the Fabasoft Web Client shows the necessary configuration steps in the “Web Browser State”.

9.1 Microsoft Edge

For Microsoft Edge beside the native client also an Edge extension is needed.

To install the Fabasoft Folio web browser extension, perform the following steps:

2. Search in the Microsoft Edge Add-ons Store for the extension “Fabasoft Client”:
<https://microsoftedge.microsoft.com/addons/search/Fabasoft%20client?hl=en-US>
3. Click “Get”.
4. Click “Add extension” to confirm adding the extension.

Note: If you want to use the extension in the Microsoft Edge InPrivate window, you have to select “Allow in InPrivate” for the extension.

If client certificates are used for authentication, it may be useful to automatically login with the corresponding certificate. This can be done the following way:

Example

```
// Define the following registry key to automatically select the wanted
// certificate
[HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Edge\AutoSelectCertificateForUrls]
"1"="{\"pattern\": \"https://folio.example.com\", \"filter\": {\"ISSUER\": {\"CN\": \"Example CA\"}, \"SUBJECT\": {\"CN\": \"FirstName.LastName\"}}}"
```

More information about the Microsoft Edge policy can be found here:

<https://docs.microsoft.com/en-us/deployedge/microsoft-edge-policies#autoselectcertificateforurls>

Security

The Fabasoft Folio web browser extension requires the following permissions:

Permission	Browser Description	Purpose
"cookies"		This permission is needed to read HTTP-only cookies issued from the server. These cookies are passed to the Fabasoft Folio Client so that the client can share the current session information.
"nativeMessaging"	Communicate with cooperating native applications	This permission is required to ensure a communication channel from the web browser to the Fabasoft Folio Client using the corresponding browser technology “nativeMessaging”.
"<all_urls>"	Read and change all your data on the websites that you visit	The Fabasoft Folio may run on different domains, so the use of the extension is not

		restricted by default. Please note the following information on how to apply restrictions.
--	--	--

To restrict the sites where the Fabasoft Folio web browser extension can be used, use the appropriate browser possibilities:

<https://docs.microsoft.com/en-us/deployedge/microsoft-edge-manage-extensions-ref-guide>

To restrict the usage of the Fabasoft Folio web browser extension to “*.example.com” the following configuration may be used:

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Edge\ExtensionSettings\alcgpfkgdjbabelklflplfkooadcfgoao\runtime_allowed_hosts]
"1"="*://*.example.com"
```

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Edge\ExtensionSettings\alcgpfkgdjbabelklflplfkooadcfgoao\runtime_blocked_hosts]
"1"="*://*"
```

9.2 Google Chrome

For Google Chrome beside the native client also a Chrome extension is needed.

To install the Fabasoft Folio web browser extension, perform the following steps:

1. Search in the Google Chrome Web Store for the extension “Fabasoft Client”:
<https://chrome.google.com/webstore/search/fabasoft%20client>
2. Click “Add to Chrome”.
3. Click “Add extension” to confirm adding the extension.

Note: If you want to use the extension in the Google Chrome incognito mode, you have to select “Allow in incognito” for the extension.

If client certificates are used for authentication, it may be useful to automatically login with the corresponding certificate. This can be done the following way:

Example

```
// Define the following registry key to automatically select the wanted
// certificate
[HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Google\Chrome\AutoSelectCertificateForUrls]
"1"="{\"pattern\": \"https://folio.example.com\", \"filter\": {\"ISSUER\": {\"CN\": \"Example CA\"}, \"SUBJECT\": {\"CN\": \"FirstName.LastName\"}}}"
```

More information about the Google Chrome policy can be found here:

<https://cloud.google.com/docs/chrome-enterprise/policies/?policy=AutoSelectCertificateForUrls>

Security

The Fabasoft Folio web browser extension requires the following permissions:

Permission	Browser Description	Purpose
"cookies"		This permission is needed to read HTTP-only cookies issued from the server. These cookies are passed to the Fabasoft Folio Client so that

		the client can share the current session information.
"nativeMessaging"	Communicate with cooperating native applications	This permission is required to ensure a communication channel from the web browser to the Fabasoft Folio Client using the corresponding browser technology "nativeMessaging".
"<all_urls>"	Read and change all your data on the websites that you visit	The Fabasoft Folio may run on different domains, so the use of the extension is not restricted by default. Please note the following information on how to apply restrictions.

To restrict the sites where the Fabasoft Folio web browser extension can be used, use the appropriate browser possibilities:

<https://chromeenterprise.google/policies/?policy=ExtensionSettings>

To restrict the usage of the Fabasoft Folio web browser extension to "*.example.com" the following configuration may be used:

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Google\Chrome\ExtensionSettings\alcgpfgkdjba
belklflpfkooadcfgoao\runtime_allowed_hosts]
"1"="*://*.example.com"

[HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Google\Chrome\ExtensionSettings\alcgpfgkdjba
belklflpfkooadcfgoao\runtime_blocked_hosts]
"1"="*://*"
```

9.3 Mozilla Firefox

For Mozilla Firefox beside the native client also a Firefox extension is needed.

To install the Fabasoft Folio web browser extension, perform the following steps:

4. Open Fabasoft Folio
`https://<host>/<vdir>/`
5. In the web browser state, you will be notified to install the Fabasoft Folio Firefox Extension.
6. Click "Add it now".
7. Click "Allow".
8. Click "Add" to confirm adding the extension.

10 Working With Third-Party Products

A core feature of Fabasoft products is the management of a varied range of content. This includes running the tools needed for viewing and editing content like documents or pictures.

These tools are required to be installed on client devices.

The native client identifies the type of content and uses mechanisms of the client operating system to map a tool to the identified type. The native client honors security policies of the client operating system and adds Fabasoft-specific security structures on top of the operating system.

10.1 Deploying predefined configuration

For the rollout of the Fabasoft Folio Client configuration, there is the possibility that the Fabasoft Folio Client automatically fetches the configuration from the server at startup. This configuration is necessary if the Microsoft Office ribbons or the synchronized folder should be used before a user has ever logged on to the respective domain. Because the first time the user accesses the domain via a web browser, this configuration will be loaded. Therefore, you only have to configure your web service URL on all clients.

Key: HKEY_LOCAL_MACHINE\SOFTWARE\Fabasoft\NativeClient\Folio\cx

Value name: DomainHref

Type: REG_SZ

Value data: <web service URL e.g. https://folio.example.com/folio/>

Note: This setting can only be used with integrated authentication.

10.2 Security Settings

When performing operations like viewing, editing or playing content the native client runs tools installed on the device. Which tool has to perform a given operation on a given type of content is determined by mechanisms defined by the Microsoft Windows Shell. These mechanisms are described in:

<https://docs.microsoft.com/en-us/windows/win32/shell/default-programs>

<https://docs.microsoft.com/en-us/windows/win32/shell/fa-verbs>

In addition, the native client defines restriction points applying to Fabasoft products only. These are part of the broader customization mechanisms for running tools, defined by the registry sub tree HKEY_CURRENT_USER\Software\Fabasoft\Process Parameters.

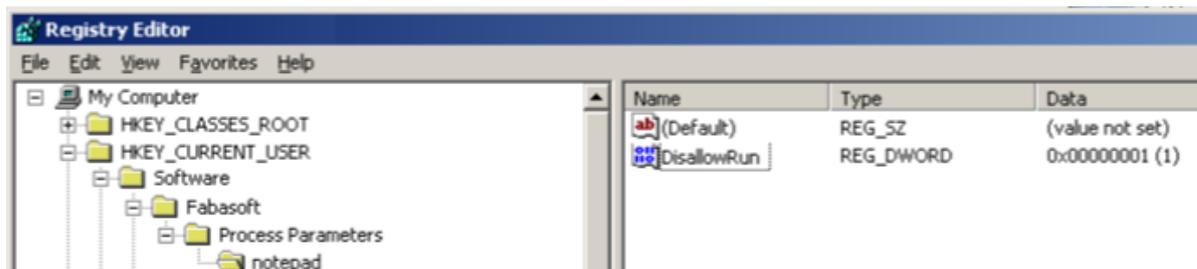
In the root of this tree one of two policies can be declared:

- If a named value of type `String` with the name `Security` and the value “Black” is present, the so called “Blacklist Security” policy applies.
- Otherwise, the mode of operation is “Whitelist Security”.

10.2.1 Blacklist Security

This security policy is the less secure tool restriction mode. It is therefore switched off by default. Any program not restricted by operating system policies and not explicitly disallowed by the native client is allowed to run. To explicitly disallow the execution of a tool, there must be a registry key HKEY_CURRENT_USER\Software\Fabasoft\Process Parameters\<base name of the tool executable> holding a named value of type `DWORD` with the name `DisallowRun` and the value “1”.

Example:



The setting in this example does not allow loading any executable from a file with the base name "notepad". The base name comparison is case-insensitive.

Default Blacklist

If the native client security is set to "Black", the following executables are disallowed by default:

- Standard script engine hosts
 - wscript
 - cscript
- Elevated browsers
 - mshta
- Standard registry editors
 - regedit
 - regedt32

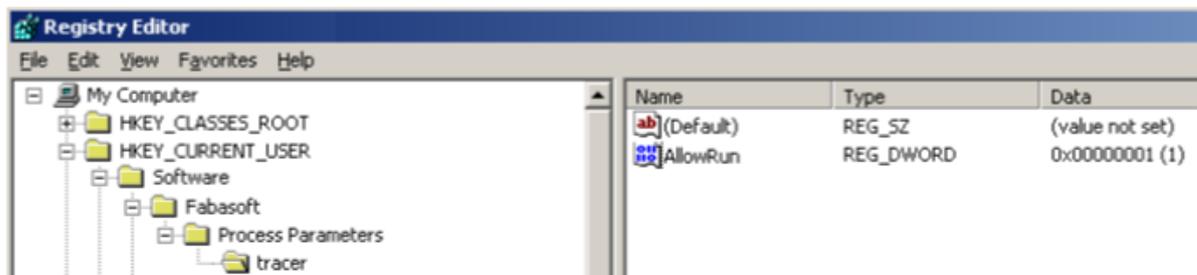
For any of these executables, no registry entry is needed to disallow its execution. If there is an explicit entry, execution can be allowed by setting the named value `DisallowRun` to the value "0".

10.2.2 Whitelist Security

This is the default native client security mode. Tool execution is restricted to an explicit list of executables. Only executables defined by that list can be executed within a Fabasoft product if not restricted by operating system policies.

To explicitly allow the execution of a tool, there must be a registry key `HKEY_CURRENT_USER > Software > Fabasoft > Process Parameters > <base name of the tool executable>` holding a named value of type `DWORD` with the name `AllowRun` and the value "1".

Example:



The setting in this example allows loading an executable from a file with the base name "tracer". The base name comparison is case-insensitive.

Default Whitelist

If the native client security is set to any value other than "Black", the following executables are allowed by default:

- Standard text editors/viewers
 - notepad
 - tracer
 - wordpad
- Standard image editors/viewers
 - mspaint

- o rundll32 [shimgvw]
- o rundll32 [photoviewer]
- o snapview
- o ois
- **Standard final format editors/viewers**
 - o acord32
 - o acrobat
 - o xpsviewer
 - o xpsrchvw
- **Supported package editors/viewers**
 - o winrar
 - o winzip32
 - o rundll32 [zipfldr]
- **Supported signature editors/viewers**
 - o siqsc
- **Supported help viewers**
 - o hh
- **Supported mail clients**
 - o msimn
 - o outlook
 - o thunderbird
 - o winmail
 - o wlmml
- **LibreOffice**
 - o soffice
 - o swriter
 - o scalc
 - o simpress
 - o sdraw
 - o smath
- **Microsoft Office**
 - o winword
 - o excel
 - o powerpnt
 - o visio
 - o msaccess
 - o mspub
 - o frontpg
 - o fpeditor
 - o winproj
 - o wordview
 - o xlview
 - o pptview
 - o moc
- **Autodesk AutoCAD**
 - o acad

- acadlt
- aclauncher
- expressviewer
- Windows Media Player
 - wmpplayer
- Apple Quicktime Player
 - quicktimeplayer
- Siemens JT2Go
 - Visview_ng
- SAP GUI Starter
 - sapgui

For any of these executables, no registry entry is needed to allow its execution.

10.3 Document Properties

Document properties allow you to embed read-only metadata in documents edited with Microsoft Word. Before you can insert document properties into a Microsoft Word document, you have to activate the Fabasoft Folio COM add-in that is installed with the native client. To enable the COM add-in, click the Office button and click "Word Options". In the dialog box, click "Add-Ins", select "COM Add-Ins" in the *Manage* drop-down list box and click "Go". In the dialog box that is opened, select "Fabasoft Folio 2025 Word Extension" and click "OK".

Note: The document properties will only be refreshed when opening the document, if the add-in is active.

The COM add-in can be activated manually as described above, or the corresponding registry keys can be deployed after installing the native client.

```
[HKEY_CURRENT_USER\Software\Microsoft\Office\Word\Addins\FolioPM24.OxWord]
"FriendlyName"="Fabasoft Folio 2025 Word Extension"
"LoadBehavior"=dword:00000003
```

10.4 Temporary Files

To be able to edit or read a document in a third-party product the document file has to be stored temporarily on the client. The location of the temporary files can be manually defined by setting the following registry key:

```
[HKEY_CURRENT_USER\Software\Fabasoft\WebClient\ConfigValues\Enterprise25\DocDir]
@="directory path"
```

The directory path can be defined the following way:

- absolute directory path (e.g. C:\MyTempFolder)
The user needs write access to the directory.
- <local>
Corresponds to CSIDL_LOCAL_APPDATA under Microsoft Windows (e.g. C:\Users\- <roaming>
Corresponds to CSIDL_APPDATA under Microsoft Windows (e.g. C:\Users\

- <temp>
The temporary directory (e.g. C:\Users\

10.5 Mail Merge on Microsoft Windows

10.5.1 Microsoft Office

Working with Microsoft Word mail merge documents differs from working with normal documents.

- First the document is opened in the background (invisible) and the mail merge data is applied.
- Subsequently the document is saved, closed and reopened including the mail merge data.
- After closing the document, the document will be opened again in the background (invisible) and the mail merge data will be removed from the document.

The steps in which the mail merge data source operations are carried out can be influenced by customer macros that may prevent a correct processing. Therefore all macros will be deactivated for the background steps and are only active when the document is opened regularly including a Microsoft Word user interface. Macros can be activated at your own risk with the with following registry key:

```
Windows Registry Editor Version 5.00
[HKEY_CURRENT_USER\Software\Fabasoft\WebClient\ConfigValues\Enterprise25]
"MSWORD_disablemacros"="false"
```

It is also possible to define the maximum delay (ms) and retry time (ms) for the attaching mail merge data call. This may be necessary because opening a mail merge document with macros often lasts longer.

```
Windows Registry Editor Version 5.00
[HKEY_CURRENT_USER\Software\Fabasoft\WebClient\ConfigValues\Enterprise25]
"MSWORD_timeout"=dword:00007530
```

```
Windows Registry Editor Version 5.00
[HKEY_CURRENT_USER\Software\Fabasoft\WebClient\ConfigValues\Enterprise25]
"MSWORD_retrydelay"=dword:000003e8
```

10.5.2 LibreOffice

To use the mail merge functionality, a LibreOffice extension is required. To install the Fabasoft Folio Client for LibreOffice, perform the following steps:

1. Download the `FolioClientLibreOffice.msi` installation package from the Fabasoft Folio installation.
`https://<host>/<vdir>/fscasp/content/lib/FolioClientLibreOffice.msi`
Alternatively, you find the MSI file in the `Setup\ComponentsBase\Client` folder of the Fabasoft Folio distribution media.
2. Make sure that you have administrative rights.
3. Run the `FolioClientLibreOffice.msi` installation package and follow the installation wizard.

After the installation is successfully completed, the extension appears in the "Extension Manager" of LibreOffice.

10.6 Mail Merge on Linux

To use the mail merge functionality, a LibreOffice extension is required. To install the Fabasoft Folio Client for LibreOffice, perform the following steps:

1. Download the `FolioClientLibreOffice.zip` package from the Fabasoft Folio installation.
`https://<host>/<vdir>/fscasp/content/lib/FolioClientLibreOffice.msi`
Alternatively, you find the ZIP file in the `Setup\ComponentsBase\Client` folder of the Fabasoft Folio distribution media.
2. Open the LibreOffice Writer application
3. Open the "Extension Manager" in the "Tools" menu and click on "Add"
4. In the file dialog choose the `FolioClientLibreOffice.zip` file and click "Open"
5. The extension will now be installed and appear in the list of the installed extensions.
6. After the installation is successfully completed, the extension appears in the "Extension Manager" of LibreOffice.

Note: Make sure that `libreoffice-base_<version>.deb` is installed. If you install LibreOffice manually, make sure that a symbolic link to `soffice` exists:

```
sudo ln -s /opt/libreoffice<version>/program/soffice /usr/sbin/soffice
```

10.7 Delay Uploading a Changed Document

The upload of a changed document can be delayed. In normal circumstances, this setting is not necessary. However, if you use Microsoft Office and specially configured virus scanners, this setting can be used to prevent documents from being locked and opened read-only.

```
Windows Registry Editor Version 5.00
[HKEY_CURRENT_USER\Software\Fabasoft\WebClient\ConfigValues\Enterprise25]
"UPLOAD_handsoffseconds"=dword:00000002
```

The registry entry defines the minimum time in seconds between the last change and the upload. The default value is 0. If you notice problems, try the value 2 (possible values are from 0 to 5).

10.8 Load Testing

For load tests, it can be helpful to prevent third-party applications from opening. With the following registry key, all server requests are sent without starting the third party application.

```
Windows Registry Editor Version 5.00
[HKEY_CURRENT_USER\SOFTWARE\Fabasoft\WebClient\ConfigValues\Enterprise25]
"TEST_NOTOOLEXECUTION"="true"
```

Note: This setting may only be used in test environments.

11 Importing

It may be necessary to adjust the following limits.

11.1 E-Mails With Long Subject

If the subject of an imported e-mail contains a long text, the request URL may exceed the default limit of Microsoft Internet Information Services. Information about increasing the limit can be found here (`UrlSegmentMaxLength`):

<http://support.microsoft.com/kb/820129>

11.2 Special Characters

If the file name of an imported file contains many special characters, the escaped request URL may exceed the default limit of Microsoft Internet Information Services. Information about increasing the limit can be found here:

<http://www.iis.net/ConfigReference/system.webServer/security/requestFiltering/requestLimits>

12 Security Considerations of the Fabasoft Folio Client Web Browser Integration

The Fabasoft Folio Client runs as a local process on the workstation in the context of the user currently logged on and may share the user session with a web browser.

Once a user creates a session in the web browser client, the session cookie issued to the user is passed to the Fabasoft Folio Client. To securely pass this information, the Fabasoft Folio web browser extension (Microsoft Edge, Mozilla Firefox and Google Chrome) is used.

Note: This is only valid if a corresponding session cookie has been configured.

12.1 Microsoft Edge, Mozilla Firefox and Google Chrome

The web browser extension uses the WebExtension API and the native messaging protocol to communicate with the Fabasoft Folio Client. This communication can be restricted to scripts of a specified domain. This is enforced by the Fabasoft Folio Client by validating the source URL. The source URL cannot be manipulated by a script (security mechanism of the web browser extension technology). The native messaging host may only be used by the Fabasoft Folio web browser extension by default configuration.

12.2 Apple Safari

The Fabasoft Folio Browser App Extension uses the macOS Framework API to communicate with the Fabasoft Folio Client. In detail a ContentScript (on page), an extension handler (native extension background process) and local socket communication with the Fabasoft Folio UI process is used. This communication can be restricted to scripts of a specified domain. This is enforced by the Fabasoft Folio Client by validating the source URL. The source URL cannot be manipulated by a script (security mechanism of the Safari App Extension technology).

12.3 Fabasoft Folio Client

The Fabasoft Folio Client validates a cookie received from the web browser (expected format, size and parameters) and stores the current value in the cookie store. After the local checks, the cookie is sent to the server, where the authenticity and session information is validated. If the

cookie is valid, the Fabasoft Folio Client stores the value in the in-memory cookie store of the HTTP client and uses it for further requests.

12.3.1 Communication Security

The communication with the Fabasoft Folio Client is only possible if the respective application was signed with a digital signature certificate and the issuer of this certificate is known to the Fabasoft Folio Client.

12.4 Restrict the Allowed Domains

The usage of the Fabasoft Folio Client can be restricted to certain domains. By default, all domains are allowed. It is strongly recommended to restrict the usage of the Fabasoft Folio Client only to your specific installations. You can configure the restriction with the following registry key.

```
HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Fabasoft\NativeClient\Folio  
"VALIDDOMAINS"="<domain>(:<port>)"
```

This restriction can also be defined per user:

```
KEY_CURRENT_USER\Software\Fabasoft\WebClient\ConfigValues\Enterprise25\  
"VALIDDOMAINS"="<domain>(:<port>)"
```

Note: The value of `VALIDDOMAINS` can consist of a list of domains, separated by semicolons, commas or spaces. Subdomains can be defined by the appropriate name or `*` as wildcard and you can also restrict to specific ports (e.g. 443, 80).

Example: `*.example.com; example.com; *.example:443; sub.example:8080`

13 Export Control Classification Number (ECCN)

According to the policy guidance for "Encryption and Export Administration Regulations (EAR)" published by The Bureau of Industry and Security (BIS) of United States Department of Commerce (see <https://www.bis.doc.gov/index.php/policy-guidance/encryption>) the Export Control Classification Number (ECCN) for the Fabasoft Folio Client fall under **5D992.c** (Information Security – Software – Mass Market encryption item).

Fabasoft provides the ECCN in order to facilitate export operations. The exporter is responsible for complying with the Export Administration Regulations (EAR). Therefore, you should consult the Export Administration Regulations (EAR) or your export counsel to determine the appropriate license type and eligible countries for export purposes.