



White Paper

Fabasphere Client

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1 Introduction

The Fabasphere 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 e-mail client or Microsoft Office and synchronization of documents. This document describes how to install and configure the Fabasphere Client.

The Fabasphere Client can only be used with the Fabasphere.

The Fabasphere Client consists of a native application for Microsoft Windows, Apple macOS, 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 Fabasphere 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.

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

There are two installation types:

- **Fabasphere Enterprise Client**
In general this type is the right choice. The Fabasphere Enterprise Client is installed for all users of this computer (so-called per-machine installation) and can be centrally distributed by administrators. But this installation requires administrative rights on your computer. In general, the Fabasphere Enterprise Client installation provides the appropriate settings so that the web browser extensions are installed automatically.
- **Fabasphere Client**
If the Fabasphere Enterprise Client cannot be installed or distributed by an administrator on this computer, then this installation type (so-called per user installation) may be used as alternative. But be aware that local security policies deployed by administrators may prevent that the Fabasphere Client will work correctly. Moreover, the web browser extensions have to be installed separately.

Basically, the functionality of the Fabasphere Enterprise Client and Fabasphere Client is the same.

Attention: The installation of the Fabasphere Enterprise Client and the Fabasphere Client on the same computer is not supported.

3.1 Installing

Fabasphere Enterprise Client

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

1. Download the `CloudClientEnterprise.msi` installation package from the Fabasphere.
<https://at.cloud.fabasoft.com/folio/fscasp/content/lib/CloudClientEnterprise.msi>
Make sure that you have administrative rights.
2. Run the `CloudClientEnterprise.msi` installation package and follow the installation wizard.

The Fabasphere Enterprise Client is installed in the following folder:

`C:\Program Files\Fabasoft\Cloud\Client\.`

Note: The installation of the Fabasphere Client and the Fabasphere Enterprise Client on the same computer is not supported.

Fabasphere Client

To install the Fabasphere Client (into the per-user installation context), perform the following steps:

1. Download the `CloudClient.msi` installation package from the Fabasphere.
<https://at.cloud.fabasoft.com/folio/fscasp/content/lib/CloudClient.msi>
2. Run the `CloudClient.msi` installation package and follow the installation wizard.

The Fabasphere Client is installed in the following folder:

`C:\Users\<username>\AppData\Local\Fabasoft\`

Note:

- The installation of the Fabasphere Client and the Fabasphere Enterprise Client on the same computer is not supported.
- The Google Chrome or Microsoft Edge extension uses the "Native Messaging Host" to communicate with the Fabasphere Client. Ensure that the following key is not set or set to 1.

```
[HKEY_LOCAL_MACHINE\Software\Policies\Microsoft\Edge]  
"NativeMessagingUserLevelHosts"=dword:00000001  
  
[HKEY_LOCAL_MACHINE\Software\Policies\Google\Chrome]  
"NativeMessagingUserLevelHosts"=dword:00000001
```

3.2 Fabasphere Enterprise Client

This chapter is about the advanced configuration for the Fabasphere Enterprise Client installation.

3.2.1 Browser Extensions

By default, the Fabasphere Enterprise Client 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 Fabasphere Enterprise 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` or the `ExtensionSettings` policy is rolled out centrally in JSON format, no automatic registration and configuration of the web browser extensions takes place via the Fabasphere Enterprise Client setup. This is because the modified JSON string would be overwritten by the central deployment tool.

To prevent these 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 CloudClientEnterprise.msi CHROMEEXT=0
```

3.2.2 Native Client Service

The Native Client Service can be used to synchronize or provide data even without an interactively logged in user. The service is designed to run without user interaction, therefore a password for applications is used. If the Native Client Service is installed via setup, you will automatically be asked to create a password when you start synchronization. If the password is expired, you will automatically be asked to recreate a password. The password will be stored within the Credential Manager of Microsoft Windows.

The service is by default configured to automatically start with the operating system, so you do not have to log in after a restart of the system after you have configured the synchronization with the password for applications. If the specified user logs on interactively to the respective device, the processes of the service are stopped, and an interactive process takes over the synchronization until it is terminated again.

```
msiexec /i <msipath> INSTALLNCLSERVICE=1 NCLSERVICE_ACCOUNT="<fully qualified Windows account name>" NCLSERVICE_PASSWORD="<Windows account password>"
```

Note:

- Keep in mind that the appropriate Microsoft Windows user account needs the “Log on as Service” permission (see <https://learn.microsoft.com/en-us/system-center/scsm/enable-service-log-on-sm?view=sc-sm-2022>)
- On a device where the Native Client Service is installed it is recommended that only the user that was used for the service should login because system configurations can affect the synchronization process. Therefore, it is not allowed to install the service in a multi user environment (e.g. terminal services or similar).

3.3 Central Distribution of the Web Browser Extensions

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

3.3.1 Deployment of the Microsoft Edge Extension

The Microsoft Edge Extension is automatically deployed when running the Fabasphere Enterprise 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 the Microsoft Store for automatic deployment the following key has to be deployed:

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

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>) then it should be considered to allow the functionality for the Microsoft Edge Extension.

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

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

3.3.2 Deployment of the Google Chrome Extension

The Google Chrome Extension is automatically deployed when running the Fabasphere Enterprise 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"="icjlkccflchmagmkfidekficomdnlcig;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/>) then it should be considered to allow the functionality for the Google Chrome extension.

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

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

3.3.3 Deployment of the Mozilla Firefox Extension

The Mozilla Firefox Extension is automatically deployed when running the Fabasphere Enterprise Client setup. If the Fabasphere Client setup will be installed 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 has to be deployed:

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

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

3.4 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 Fabasphere Client setup terminates with an error message or in case of the Fabasphere Enterprise Client the 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 Fabasphere 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.

3.5 Uninstalling

For uninstalling the Fabasphere Client or the Fabasphere Enterprise Client manually use the “Apps and Features” dialog provided by Microsoft Windows.

For uninstalling the Fabasphere Client or the Fabasphere Enterprise 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.

Fabasphere Client: %LOCALAPPDATA%\Fabasoft\uninstall.ps1

Fabasphere Enterprise Client: %PROGRAMFILES%\Fabasoft\Cloud\uninstall.ps1

3.6 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>.

3.7 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\Cloud

For more information about the functionality, see <https://help.cloud.fabasoft.com/index.php?topic=doc/User-Help-Fabasphere-AI-Core-eng/the-fabasphere-client.htm#options-dialog>

- **Enable Automatic Update**
Value name: AUTOUPDATE
Type: REG_DWORD
Value data (disabled): 0
Value data (enabled): 1
- **Automatic Update URL**
Value name: AUTOUPDATE_URL
Type: REG_SZ
Value data: <web server>/<vdir>
- **Enable Synchronization**
Value name: SYNC_FS
Type: REG_DWORD
Value data (disabled): 0
Value data (enabled): 1
- **Enable Document Exchange via LAN**
Value name: SYNC_FS_LAN
Type: REG_DWORD
Value data (disabled): 0
Value data (enabled): 1
- **Configure Port for Document Exchange via LAN**
Value name: SYNC_FS_LANPORT
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**
Value name: `VALIDDOMAINS`
Type: `REG_SZ`
Value data (only *.fabasoft.com): `<empty>`
Value data (additional): `<domain>(:<port>)`
- **Manually defined proxy server (see also 6.1.3 "Manual Proxy Configuration")**
Value name: `PROXYSERVER`
Type: `REG_SZ`
Value data: `<proxy server>(:<port>)`

3.8 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\Fabasoftware\Fabasoftware Cloud Enterprise Client)
- HKEY_CURRENT_USER\Software\Fabasoftware
- 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\Fabasoftware
- HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Fabasoftware
- 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\Microsoft\Edge\ExtensionInstallForcelist\<ID>

4 Apple macOS

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. Click "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 Fabasphere Client, perform the following steps:

1. Download the installation package that fits the chip type of the device from the Fabasphere.
Apple Chip
`https://at.cloud.fabasoft.com/folio/fscasp/content/lib/CloudClient-Apple.dmg`
Intel Chip
`https://at.cloud.fabasoft.com/folio/fscasp/content/lib/CloudClient-Intel.dmg`
2. Double-click the downloaded DMG file.
3. Drag the app to the "Applications" folder.
Note: In case of an update keep in mind to close the Fabasphere Client (menu bar > Fabasphere symbol > Quit) before dragging the new app to the "Applications" folder and replacing the old one.
4. Open the "Applications" folder and run the Fabasphere 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 Fabasphere 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.foliosystraypu	Accessibility	Allow	<div>identifier</div> <code>"com.fabasoft.foliosystraypu"</code>

System Events	Allow	" and anchor apple generic and certificate 1[field.1.2.840.113635.100.6 .2.6] /* exists */ and certificate leaf[field.1.2.840.113635.10 0.6.1.13] /* exists */ and certificate leaf[subject.OU] = "9FUG84LZ2G"
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 Fabasphere Client, perform the following steps:

1. Quit the Fabasphere Client.
2. Open "System Preferences" > "Extensions" and disable the "Finder" entry under "Fabasphere".
3. Open "Finder" and delete the following files:
 - /Applications/Fabasoft Cloud.app
 - /Library/PrivilegedHelperTools/com.fabasoft.finderinjectorpu
 - ~/Library/Application Support/Fabasoft
 - /Library/Application Support/Adobe/CEP/extensions/com.fabasoft.cloud
4. Open the following files and remove all lines containing the following:


```
Fabasoft Cloud, nmextmozpu@fabasoft.com, icjlkccflchmagmkfidekficomdnlcig,
jdibaejnifcnoojmhgcbaohifohjamlg
```

 - /Library/Preferences/org.mozilla.firefox.plist
 - /Library/Preferences/org.mozilla.thunderbird.plist

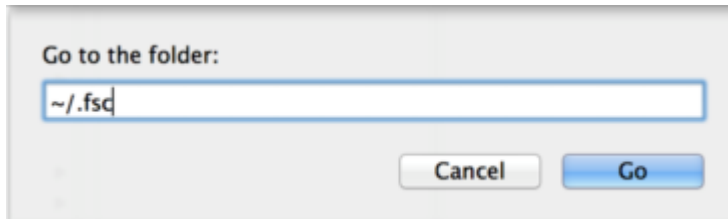
- `/Library/Managed Preferences/com.google.Chrome.plist`
- `/Library/Managed Preferences/com.microsoft.Edge.plist`

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 Fabasphere Client.

- Access for "Accessibility Access"
The corresponding pop-up appears directly after the first start of the Fabasphere Client.
- Allow Control for "Finder.app"
The corresponding pop-up appears when clicking "Open Fabasphere 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 the Fabasphere.

4.5 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.

- `/Applications/Fabasoft Cloud.app`
- `/Library/PrivilegedHelperTools/com.fabasoft.finderinjectorpu`
- `~/Library/Application Support/Fabasoft`
- `~/fsc/`
- `/Library/Application Support/Adobe/CEP/extensions/com.fabasoft.cloud`

5 Ubuntu

This chapter refers to an Ubuntu operating system.

5.1 Installing

To install the Fabasphere Client, perform the following steps:

1. Download the `cloudclient_amd64.deb` installation package from the Fabasphere.
`https://at.cloud.fabasoft.com/folio/fscasp/content/lib/cloudclient_amd64.deb`
2. Double-click the downloaded DEB file and install it.

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

5.2 Firefox Snap

Firefox Snap needs a permission to use the native messaging host in order for the web browser extension to work. The web browser will normally ask the user to grant access. The permissions can also be set as follows (per user, no administrative rights required):

```
flatpak permission-set webextensions com.fabasoft.nmhostpu snap.firefox yes
```

As an alternative to `flatpak`, the following command can be used:

```
dbus-send --print-reply --dest=org.freedesktop.impl.portal.PermissionStore  
/org/freedesktop/impl/portal/PermissionStore  
org.freedesktop.impl.portal.PermissionStore.SetPermission  
string:'webextensions' boolean:'true' string:'com.fabasoft.nmhostpu'  
string:'snap.firefox' array:string:'yes'
```

5.3 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.

5.4 Uninstalling

To uninstall the Fabasphere Client, perform the following steps:

1. Open a terminal and execute the following command:
`sudo dpkg -r foliocloudplugin`
2. Delete the `.fsc` folder in your home directory.

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

5.5 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`
- `/etc/opt/chrome/policies/managed`
- `/etc/firefox/policies`
- `/usr/lib/firefox/distribution`
- `/etc/thunderbird/policies`
- `/usr/lib/thunderbird/distribution`
- `/usr/share/applications/`
- `/var/snap/firefox/common/fabasoft`
- `/var/snap/thunderbird/common/fabasoft`
- `~/.fsc/`
- `~/Documents/.fsc/`
- `~/Documents/.fscdata/`
- `~/.fscipc/`

6 Network Settings

To ensure the proper functionality of the Fabasphere 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.

6.1 Proxy Settings

The following chapters show how to define proxy settings.

6.1.1 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
```

6.1.2 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.

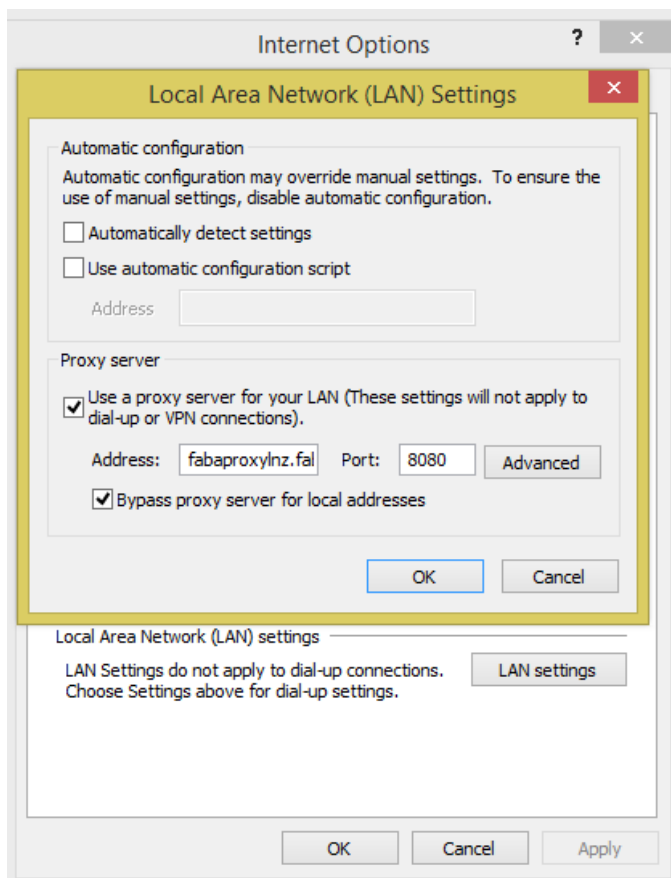
We first look for a proxy server bypass configuration, then for a manually configured proxy server. If there is no bypass and no manually proxy server configuration we evaluate the PAC URL.

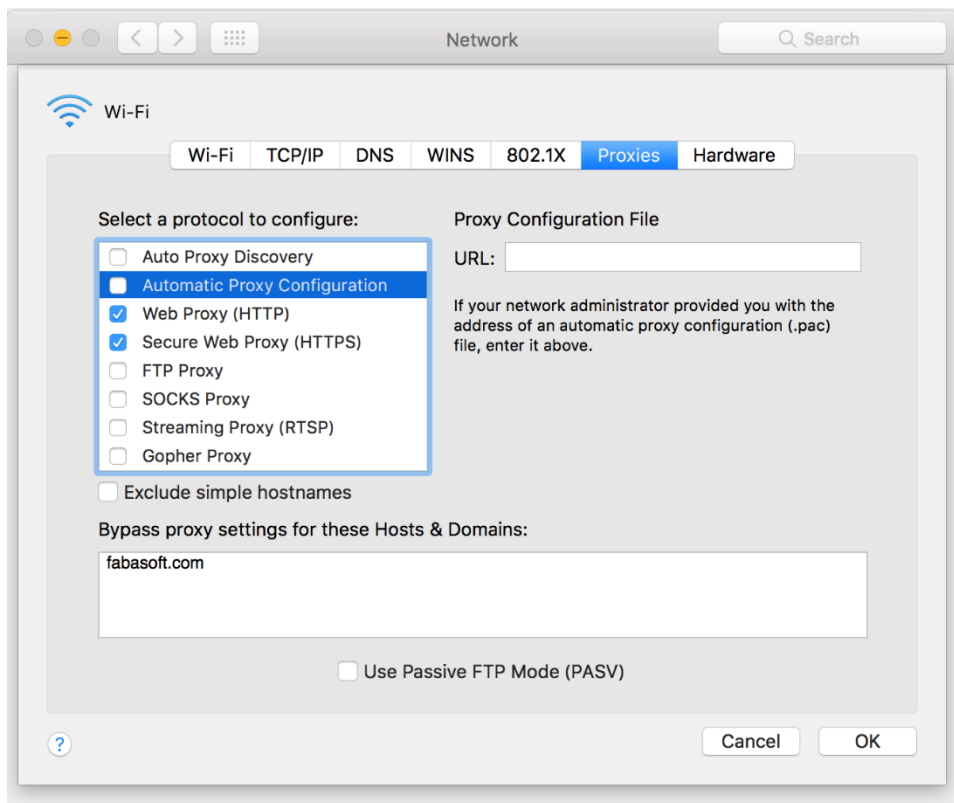
Our fallback for every error or misconfiguration is a direct connection to the server.

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.





6.1.3 Manual Proxy Configuration

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

HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Fabasoft\NativeClient\Cloud

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.

7 Web Browser Settings

When installing the native client also extensions for Microsoft Edge, Google Chrome, Mozilla Firefox and Apple Safari are provided (see chapters 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".

7.1 Microsoft Edge

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

To install the Fabasphere web browser extension, perform the following steps:

1. Search in the Microsoft Edge Add-ons Store for the extension:
<https://microsoftedge.microsoft.com/addons/search/Fabasoft%20Cloud?hl=en-US>
2. Click "Get".
3. 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

```
// Use the URL parameter motoky_params=cert_autologin to automatically
// login with an installed certificate (can be selected)
https://at.cloud.fabasoft.com/folio/homelocation?motoky_params=cert_autologin

// Define the following registry key to automatically select the wanted
// certificate
[HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Microsoft\Edge\AutoSelectCertificateForUrls]
"1"="{\"pattern\": \"https://at-
cert.idp.cloud.fabasoft.com\", \"filter\": {\"ISSUER\": {\"CN\": \"Example CA\"},
\"SUBJECT\": {\"CN\": \"FirstName.LastName\"}}}"
"2"="{\"pattern\": \"https://de-
cert.idp.cloud.fabasoft.com\", \"filter\": {\"ISSUER\": {\"CN\": \"Example CA\"},
\"SUBJECT\": {\"CN\": \"FirstName.LastName\"}}}"
"3"="{\"pattern\": \"https://ch-
cert.idp.cloud.fabasoft.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 Fabasphere 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 Fabasphere 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 Fabasphere Client using the corresponding browser technology "nativeMessaging".

7.2 Google Chrome

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

To install the Fabasphere web browser extension, perform the following steps:

1. Search in the Google Chrome Web Store for the extension:
<https://chrome.google.com/webstore/search/fabasoft%20cloud>
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

```
// Use the URL parameter motoky_params=cert_autologin to automatically
// login with an installed certificate (can be selected)
https://at.cloud.fabasoft.com/folio/homelocation?motoky_params=cert_autologin

// Define the following registry key to automatically select the wanted
// certificate
[HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Google\Chrome\AutoSelectCertificateForUrls]
"1"="{\"pattern\": \"https://at-
cert.idp.cloud.fabasoft.com\", \"filter\": {\"ISSUER\": {\"CN\": \"Example CA\"},
\"SUBJECT\": {\"CN\": \"FirstName.LastName\"}}}"
"2"="{\"pattern\": \"https://de-
cert.idp.cloud.fabasoft.com\", \"filter\": {\"ISSUER\": {\"CN\": \"Example CA\"},
\"SUBJECT\": {\"CN\": \"FirstName.LastName\"}}}"
"3"="{\"pattern\": \"https://ch-
cert.idp.cloud.fabasoft.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 Fabasphere 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 Fabasphere 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 Fabasphere Client using the corresponding browser technology "nativeMessaging".

7.3 Mozilla Firefox

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

To install the Fabasphere web browser extension, perform the following steps:

1. Open the Fabasphere.
<https://at.cloud.fabasoft.com/folio/>
2. In the welcome screen, you will be notified to install the Fabasphere Firefox Extension.
3. Click "Add it now".
4. Click "Allow".
5. Click "Add" to confirm adding the extension.

Security

The Fabasphere 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 Fabasphere 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 Fabasphere Client using the corresponding browser technology "nativeMessaging".

"<all_urls>"	Read and change all your data on the websites that you visit	Since customers can operate an own Fabasphere using specific domain names (resp. hostnames), it is not possible to restrict the web browser extension only to *.fabasoft.com domains in general.
--------------	--	--

8 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.

8.1 Third-Party Product Settings

When using the following third-party products, please note that following settings are strictly necessary:

Adobe Reader

Make sure that "Preferences" > "General" > "Open documents as new tabs in the same window" is disabled.

Microsoft Windows Notepad (Microsoft Windows 11)

Make sure that "Settings" > "Opening files" is set to "Open in a new window" and that "Settings" > "When notepad starts" is set to "Start new session and discard unsaved changes".

Please note that it may take a few seconds for saved changes to be uploaded after opening the file if the file remains open. All subsequent changes will be uploaded immediately, including those that were delayed. All changes will be uploaded when the file is closed.

8.2 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`.

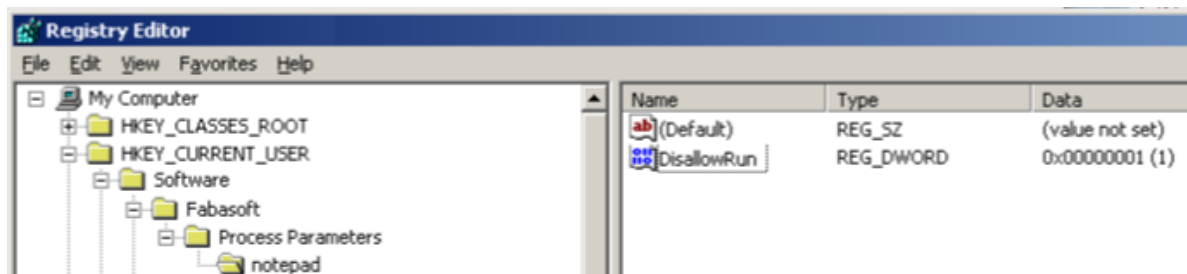
In the root of this tree one of two policies can be declared:

- 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".

8.2.1 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`

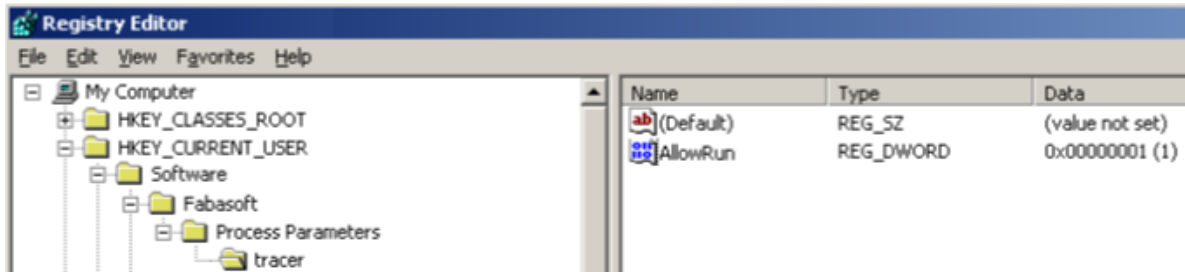
For any of these executables, no registry entry is needed to disallow its execution. If there is an explicit entry, execution can be allowed by setting the named value `DisallowRun` to the value "0".

8.2.2 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
 - rundll32 [shimgvw]
 - rundll32 [photoviewer]
 - snapview
 - ois
- Standard final format editors/viewers
 - acro32
 - acrobat
 - xpsviewer
 - xpsrchvw
- Supported package editors/viewers
 - winrar
 - winzip32
 - rundll32 [zipfldr]
- Supported signature editors/viewers
 - sigscc
- Supported help viewers
 - hh
- Supported mail clients
 - msimn

- outlook
- thunderbird
- winmail
- wlmall
- **LibreOffice**
 - soffice
 - swriter
 - scalc
 - simpress
 - sdraw
 - smath
- **Microsoft Office**
 - winword
 - excel
 - powerpnt
 - visio
 - msaccess
 - mspub
 - frontpg
 - fpeditor
 - winproj
 - wordview
 - xlview
 - pptview
 - moc
- **Autodesk AutoCAD**
 - acad
 - acadlt
 - aclauncher
 - expressviewer
- **Windows Media Player**
 - wmplayer
- **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.

8.3 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 Fabasphere 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 "Fabasphere 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\FolioPU.OxWord]
"FriendlyName"="Fabasoft Cloud Word Extension"
"LoadBehavior"=dword:00000003
```

8.4 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\Cloud\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\<user>\AppData\Local).
- <roaming>
Corresponds to CSIDL_APPDATA under Microsoft Windows (e.g. C:\Users\<user>\AppData\Roaming).
- <temp>
The temporary directory (e.g. C:\Users\<user>\AppData\Local\Temp).

8.5 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\Cloud]
"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).

9 Security Considerations of the Fabasphere Client Web Browser Integration

The Fabasphere 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 Fabasphere Client. To securely pass this information, the Fabasphere web browser extension (Microsoft Edge, Mozilla Firefox and Google Chrome) is used.

9.1 Microsoft Edge, Mozilla Firefox and Google Chrome

The web browser extension uses the WebExtension API and the native messaging protocol to communicate with the Fabasphere Client. This communication is restricted to scripts of the *.fabasoft.com domain. This is enforced by the Fabasphere 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 Fabasphere web browser extension by default configuration.

9.2 Apple Safari

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

9.3 Fabasphere Client

The Fabasphere 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 (the expiration of the cookie and the IP address are validated). If the cookie is valid, the Fabasphere Client stores the value in the in-memory cookie store of the http client and uses it for further requests.

If the user has not yet been authenticated via the web browser, the Fabasphere Client starts a hosted browser and initiates the login process (see above).

Once the Fabasphere Client is successfully authenticated it uses the trusted communication (see above) to share the session cookie on the login page of new browser sessions. There the web browser extension sends the cookie to the server for validation, and if successful, the user is logged on.

9.3.1 Communication Security

The communication with the Fabasphere 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 Fabasphere Client.

10 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 Fabasphere Enterprise Client and the Fabasphere 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.