

White Paper

Fabasoft Cloud Client

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1 Introduction

Fabasoft provides a native client that allows, for example, editing documents directly via the web client or synchronizing documents on the device. This document describes how to install and configure the Fabasoft Cloud Client.

The Fabasoft Cloud Client can be used with following products:

- Fabasoft Cloud
- Fabasoft Private Cloud

There are two native client types:

- **Fabasoft Cloud Client**
In general this client is the right choice. If enterprise policies do not allow installing software, administrators can distribute the enterprise client. The functionality of the Fabasoft Cloud Client and Fabasoft Cloud Enterprise Client is the same.
- **Fabasoft Cloud Enterprise Client**
In the enterprise environment the installation of software in local user profiles is sometimes not possible (e.g. users are not allowed to execute MSI files or with the use of terminal servers). The enterprise client is installed for all users of a computer (so-called per-machine installation) and can be centrally distributed by administrators.
Attention: The installation of the Fabasoft Cloud Client and the Fabasoft Cloud Enterprise Client on the same computer is not supported.

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 12.0 (x64)
- Ubuntu 20.04 (x64) with Xorg window system

3 Microsoft Windows

This chapter refers to a Microsoft Windows operating system.

3.1 Installing

Fabasoft Cloud Client

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

1. Download the `CloudClient.msi` installation package from the Fabasoft Cloud or Fabasoft Private Cloud.

<https://at.cloud.fabasoft.com/folio/fscasp/content/lib/CloudClient.msi>
<https://<host private cloud>/cloud/fscasp/content/lib/CloudClient.msi>

2. Run the `CloudClient.msi` installation package and follow the installation wizard.

The Fabasoft Cloud Client is installed in the following folder:

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

Note:

- The installation of the Fabasoft Cloud Client and the Fabasoft Cloud Enterprise Client on the same computer is not supported.
- If you perform the rollout for the Webview2 Evergreen Runtime yourself in your company, you can also use the Windows 11 Installer under Windows 10, since in Windows 11 the Webview2 Runtime is supplied with the operating system and is therefore not included in the installation package anymore.

<https://at.cloud.fabasoft.com/folio/fscasp/content/lib/CloudClient-Win11.msi>
<https://<host private cloud>/cloud/fscasp/content/lib/CloudClient-Win11.msi>

- The Google Chrome or Microsoft Edge extension uses the “Native Messaging Host” to communicate with the Fabasoft Cloud 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

Fabasoft Cloud Enterprise Client

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

1. Download the `CloudClientEnterprise.msi` installation package from the Fabasoft Cloud or Fabasoft Private Cloud.

<https://at.cloud.fabasoft.com/folio/fscasp/content/lib/CloudClientEnterprise.msi>
<https://<host private cloud>/cloud/fscasp/content/lib/CloudClientEnterprise.msi>

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

The Fabasoft Cloud Enterprise Client is installed in the following folder:

`C:\Program Files (x86)\Fabasoft\Cloud\Client\.`

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

Note:

- The installation of the Fabasoft Cloud Client and the Fabasoft Cloud Enterprise Client on the same computer is not supported.
- If you perform the rollout for the Webview2 Evergreen Runtime yourself in your company, you can also use the Windows 11 Installer under Windows 10, since in Windows 11 the Webview2 Runtime is supplied with the operating system and is therefore not included in the installation package anymore.

<https://at.cloud.fabasoft.com/folio/fscasp/content/lib/CloudClientEnterprise-Win11.msi>
<https://<host private cloud>/cloud/fscasp/content/lib/CloudClientEnterprise-Win11.msi>

3.1.1 Advanced Configuration

On Microsoft Windows 10 Pro workstations that are joined to a Microsoft Active Directory domain, the Fabasoft Cloud Enterprise Client setup automatically installs the web browser extensions for all supported web browsers (security feature of the web browsers).

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
```

Fabasoft Private Cloud Installation

If you have an on-premise Fabasoft Private Cloud installation that does not run under *.fabasoft.com, then the Fabasoft Client extension for the respective web browser is needed. This extension can be installed with the following MSI package parameter:

```
msiexec /i <msipath> CHROMEEXTENTERPRISE=1 EDGEEXTENTERPRISE=1  
FIREFOXEXTENTERPRISE=1
```

3.2 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 Cloud Client setup terminates with an error message or in case of the Fabasoft Cloud Enterprise Client the setup terminates with a corresponding exit code.

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

3.3 Deployment via Active Directory

The deployment of per-machine installation packages (MSI) via Active Directory is described in the white paper "[Deployment of Microsoft Installer Packages via Microsoft Windows Active Directory](#)".

3.3.1 Deployment of the Microsoft Edge Extension

On Microsoft Windows workstations that are joined to a Microsoft Active Directory domain, the Microsoft Edge Extension is automatically deployed when running the Fabasoft Cloud Client Enterprise setup. Otherwise 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"="jdibaejnicnoojmhcbaohifohjamlg"
```

3.3.2 Deployment of the Google Chrome Extension

On Microsoft Windows workstations that are joined to a Microsoft Active Directory domain, the Google Chrome Extension is automatically deployed when running the Fabasoft Cloud Client Enterprise setup. Otherwise the deployment of the Google Chrome Extension is described in the official Chromium documentation:

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

If you want to use the Google Chrome web store 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"
```

3.3.3 Deployment of the Mozilla Firefox Extension

The Mozilla Firefox Extension is automatically deployed when running the Fabasoft Cloud Client Enterprise setup. If the Fabasoft Cloud 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
(x86)/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 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\Cloud<web service URL e.g. at.cloud.fabasoft.com>

Note: For the Fabasoft Cloud/Fabasoft Private Cloud this key will be set automatically after a successful log-in.

3.5 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>.

3.6 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-Fabasoft-Cloud-eng/the-fabasoft-cloud-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 LAN Synchronization
Value name: `SYNC_FS_LAN`
Type: `REG_DWORD`
Value data (disabled): `0`
Value data (enabled): `1`
- Restrict Path Length for Synchronization
Value name: `SYNC_FS_LONGPATH`

- Type: REG_DWORD
Value data (disabled): 0
Value data (enabled): 1
- 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>)

3.7 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 (x86)\Fabasoft (Fabasoft Cloud Enterprise Client)
- 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>

4 Apple macOS

This chapter refers to an Apple macOS operating system.

4.1 Installing

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

1. Download the `CloudClient.dmg` installation package from the Fabasoft Cloud or Fabasoft Private Cloud.
<https://at.cloud.fabasoft.com/folio/fscasp/content/lib/CloudClient.dmg>
<https://<host private cloud>/cloud/fscasp/content/lib/CloudClient.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 Fabasoft Cloud Client (menu bar > Cloud 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 Cloud 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
```

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	identifier "com.fabasoft.foliosystraypu" and anchor apple generic and certificate
	System Events	Allow	1[field.1.2.840.113635.100.6.2.6] /* exists */ and certificate
	Screen Recording	Allow	leaf[field.1.2.840.113635.100.6.1.13] /* exists */ and
	Full Disk Access	Allow	

	Apple Events	Allow*	certificate leaf[subject.OU] = "9FUG84LZ2G"
--	--------------	--------	--

* 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

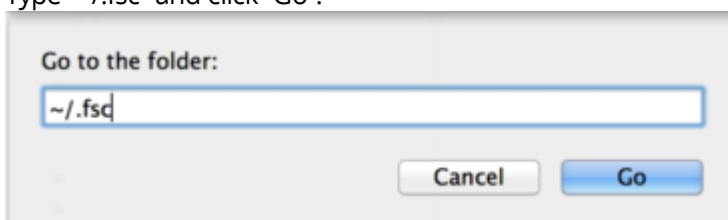
To uninstall the Fabasoft Cloud Client, perform the following steps:

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

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 Cloud Client.

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

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 Fabasoft Cloud Client, perform the following steps:

1. Download the `cloudclient_amd64.deb` installation package from the Fabasoft Cloud or Fabasoft Private Cloud.
`https://at.cloud.fabasoft.com/folio/fscasp/content/lib/cloudclient_amd64.deb`
`https://<host private cloud>/cloud/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 Fabasoft Cloud 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 Cloud 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.

5.4 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 Network Settings

To ensure the proper functionality of the Fabasoft Cloud 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 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.

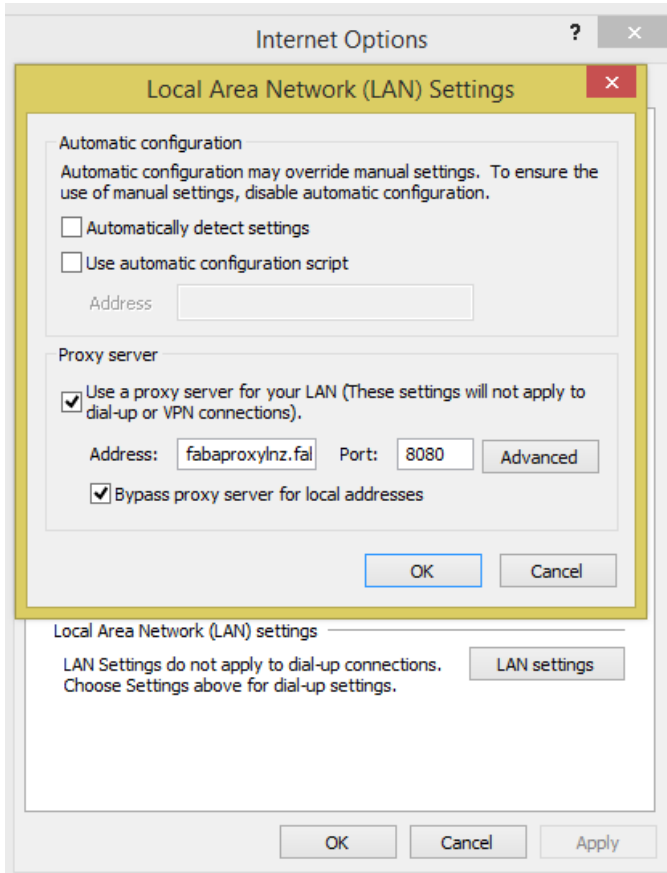
We first look for a proxy server bypass configuration, then for a manually configured proxy server. If there is no bypass and no manually proxy server configuration we evaluate the PAC URL.

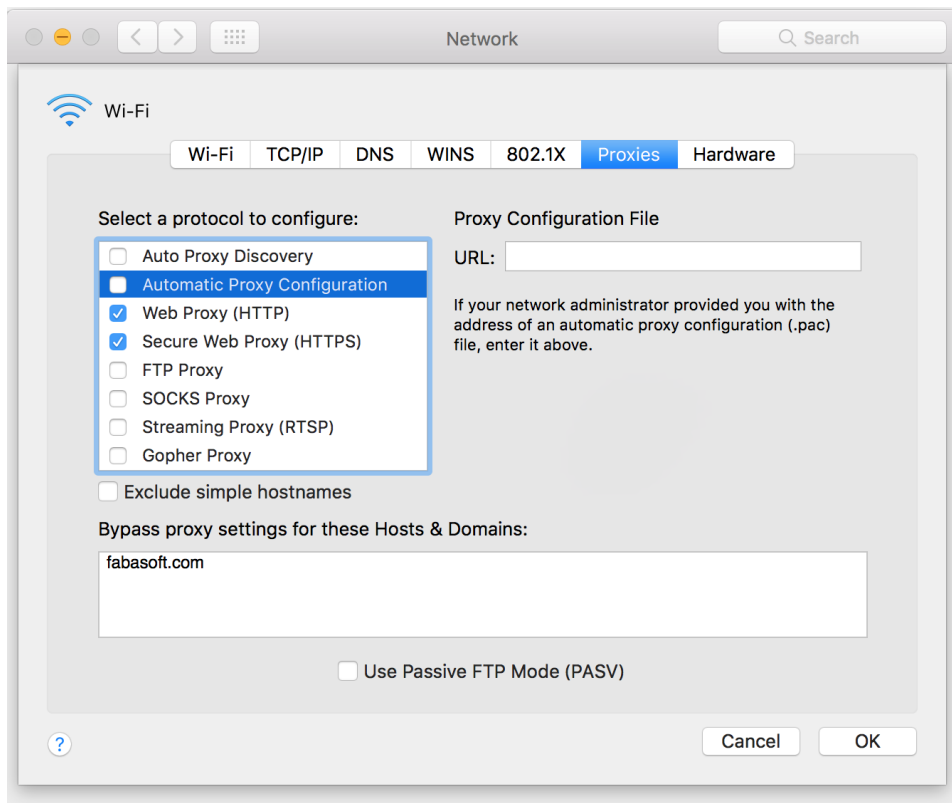
Our fallback for every error or misconfiguration is a direct connection to the server.

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 Fabasoft Cloud 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 Usage Settings

The Fabasoft Cloud Client can only be used for certain domains. By default, only domains *.fabasoft.com are allowed. If you want to use the Fabasoft Cloud Client for a Fabasoft Private Cloud installation, you can allow the domain with the following registry key (see also 3.6 "Predefined Settings for Users").

```
HKEY_LOCAL_MACHINE\SOFTWARE\Policies\Fabasoft\NativeClient\Cloud
```

```
"VALIDDOMAINS"="<domain> (:<port>)"
```

This restriction can also be defined per user:

```
KEY_CURRENT_USER\Software\Fabasoft\WebClient\ConfigValues\Cloud\
```

```
"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`

8 Certificate Settings

If you use your own server certificates for your Fabasoft Private Cloud installation 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 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".

9.1 Microsoft Edge

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

To install the Fabasoft Cloud 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 Fabasoft Cloud 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 Cloud 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 Cloud Client using the corresponding browser technology "nativeMessaging".

9.2 Google Chrome

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

To install the Fabasoft Cloud 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 Fabasoft Cloud 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 Cloud 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 Cloud Client using the corresponding browser technology "nativeMessaging".

9.3 Mozilla Firefox

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

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

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

Security

The Fabasoft Cloud 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 Cloud 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 Cloud 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 a Fabasoft Private Cloud using specific domain names (resp. hostnames), it is not possible to restrict the web browser extension only to *.fabasoft.com domains in general.

10 Working With Third-Party Products on Microsoft Windows

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 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`.

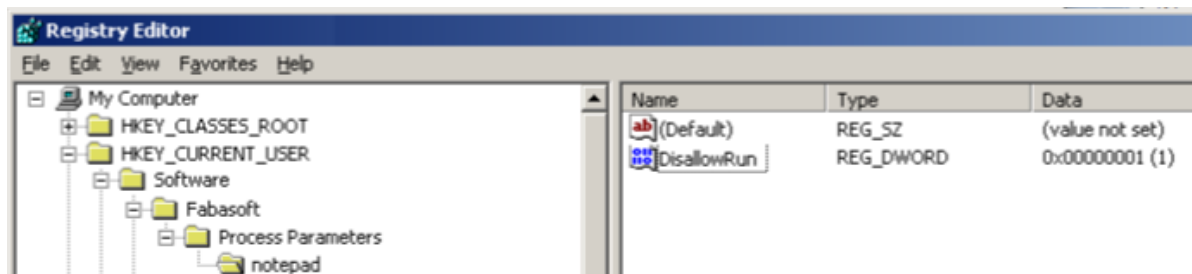
In the root of this tree one of two policies can be declared:

- 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".

10.1.1 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

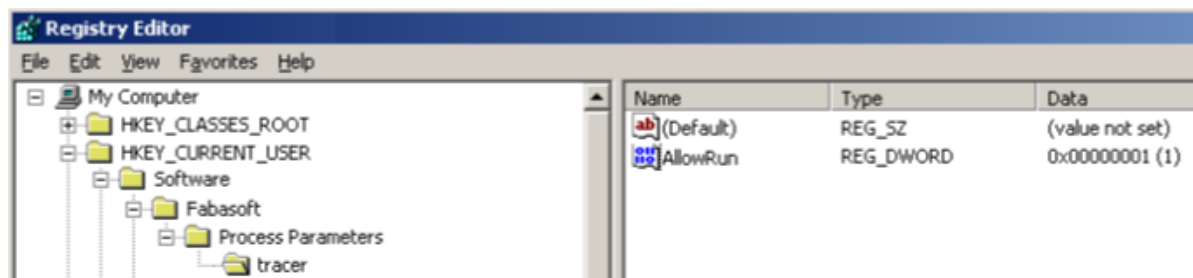
For any of these executables, no registry entry is needed to disallow its execution. If there is an explicit entry, execution can be allowed by setting the named value `DisallowRun` to the value "0".

10.1.2 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
 - sigsec

- Supported help viewers
 - hh
- Supported mail clients
 - msimn
 - outlook
 - thunderbird
 - winmail
 - wlmmail
- 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.

10.2 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 Cloud 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 Cloud 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
```

10.3 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\- <roaming>
Corresponds to CSIDL_APPDATA under Microsoft Windows (e.g. C:\Users\- <temp>
The temporary directory (e.g. C:\Users\

11 Security Considerations of the Fabasoft Cloud Client Web Browser Integration

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

11.1 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 Cloud Client. This communication is restricted to scripts of the

*.fabasoft.com domain. This is enforced by the Fabasoft Cloud 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 Cloud web browser extension by default configuration.

11.2 Apple Safari

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

11.3 Fabasoft Cloud Client

The Fabasoft Cloud 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 Fabasoft Cloud 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 Fabasoft Cloud Client starts a hosted browser and initiates the login process (see above).

Once the Fabasoft Cloud 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.

11.3.1 Communication Security

The communication with the Fabasoft Cloud 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 Cloud Client.

12 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 Cloud Enterprise Client and the Fabasoft Cloud 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.