InteProxy Users Manual

Status: May, 16th 2007 for InteProxy 0.2.0

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1 General

Note: InteProxy is a prototype and currently in „beta phase“. This means, not all features are implemented yet and usability is not as comfortable as it could be.

InteProxy is a helper for those applications that use HTTP for arbitrary services that also need secure transmission via SSL and user authentication, but are not able to do it by themselves.

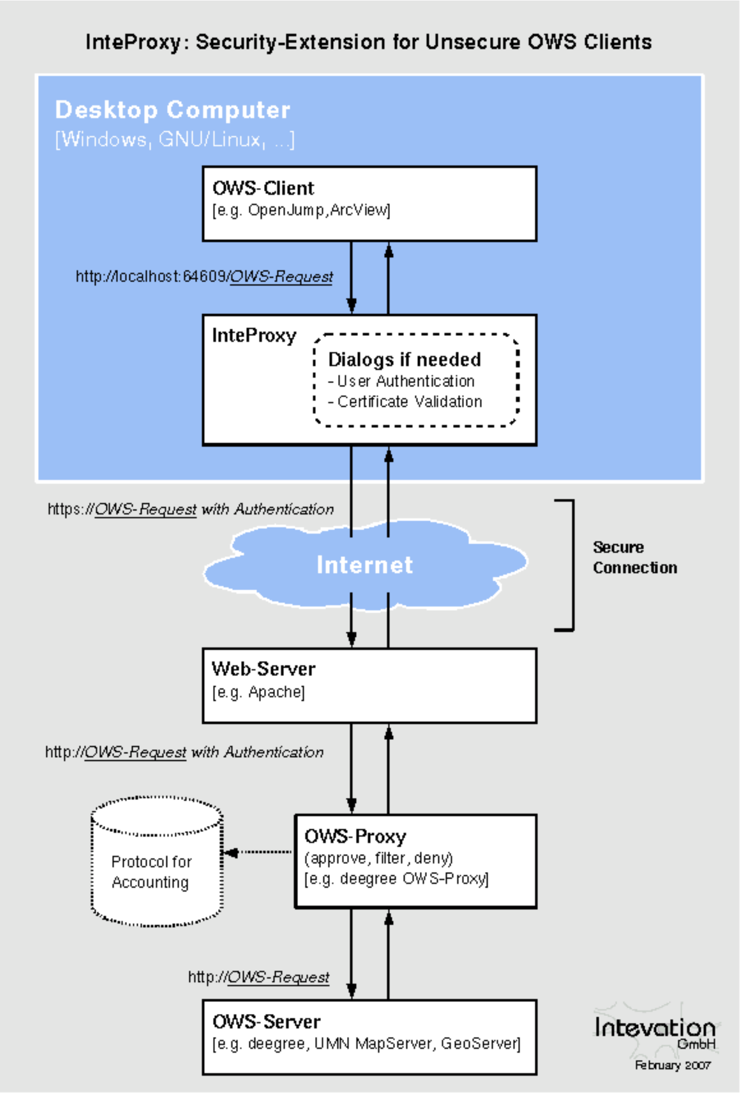


Figure 1: Illustration how InteProxy works

The proxy runs on the same system as the actual application.

A typical case are the services that have been specified by the Open Geospatial Consortium (WMS, WFS, WFS-T, etc.).

Figure 1 illustrates how InteProxy basically works.

2 Download

The current version of InteProxy can be found under http://inteproxy.wald.intevation.org.

For the Windows operating system you should download the Windows installer package (e.g. „InteProxy-0.2.0-setup.exe“).

3 Installation

MS Windows: Execute the setup program of InteProxy as administrator on your Windows system. There is no need to install any other applications.

GNU/Linux: Currently no installation packages are available for the various GNU/Linux distributions. The only requirement is the availability of Python 2.4, the Python library lxml and python-gtk2 (>=2.10.11). Then you only need to run 'InteProxy.py' inside your InteProxy source directory.

4 Starting InteProxy

MS Windows: Start InteProxy as user via your Windows menu. A DOS box is opened where log information will appear. You can minimize the box if you like. Furthermore you will get a graphical user interface and a tray-icon inside the task-bar as well (see fig. 2).

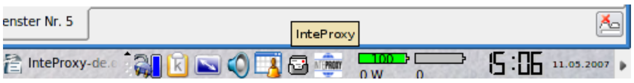


Figure 2: InteProxy tray-icon embedded in task-bar (GNU/Linux)

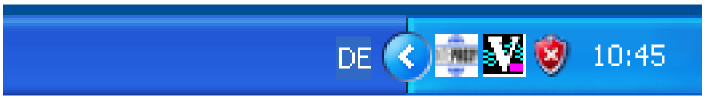


Figure 3: InteProxy trayicon embedded in task-bar (Windows XP)

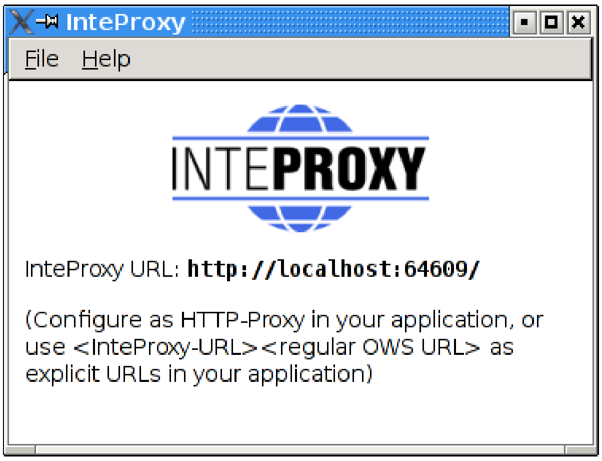
The tray-icon presents information about InteProxy status to the user. Pushing the right mouse-button pops up the GUI of InteProxy (see fig. 4).

This GUI presents the current InteProxy-URL; in fig. 4 you can see the default port 64609 listening on the local computer (localhost).

If you like to use InteProxy as a normal HTTP-Web-Proxy as well, you need to create a configuration file or adopt the file 'inteproxy.cfg' with the needed values. This is the default configuration file InteProxy looks for, if no dedicated file is provided at startup. If you like to use an alternative file, provide the filename during startup. Change to the folder where InteProxy.exe resides and run the following command:

```
InteProxy.exe --config-file=demo.cfg [optional: more parameters]
```

Alternatively you can tweak your InteProxy-entry inside the Windows start menu. More detailed information can be found in section 4.2.



InteProxy URL: **http://localhost:64609/**

(Configure as HTTP-Proxy in your application, or use <InteProxy-URL><regular OWS URL> as explicit URLs in your application)

Figure 4: Graphical user interface of InteProxy (GNU/Linux)

GNU/Linux: In a command shell, change to the directory where you installed InteProxy and enter this command:

```
$ python2.4 InteProxy.py --config-file=demo.cfg [optional: more parameters]
```

4.1 Calling-Parameters

The available calling parameters of InteProxy.py can be shown with the option -h.

```
usage: InteProxy.py [options]
options:
  -h, --help            show this help message and exit
  --logfile=LOGFILE
  --allow-shutdown
  --port=PORT
  --workers=WORKERS
  --debug-level=DEBUG_LEVEL
  --config-file=CONFIG_FILE
```

The options have the following meanings:

`--help`	Prints the syntax-help and exits InteProxy.
--logfile	Writes all output of InteProxy in the provided logfile.
--allow-shutdown	Not relevant for normal starting; will be used for

	automated starting, in tests for example.
--port	Allows the setting of an alternative port. The default is 64609.
--workers	Expert-function: sets the number of parallel worker-threads. The default is 5.
--debug-level	Expert-function: Values larger 0 show the verbosity of output. The larger the value, the more information will be printed out. 0 means no output (default). Currently values of 0, 1 and 2 are implemented.
--config-file	Allows the user to specify alternative configuration files for OWS-services. The default is 'inteproxy.cfg'.

4.2 Configuration-file

The configuration of OWSProxy-services is done with a configuration file. If you provide no OWSProxy-services inside a configuration file, InteProxy will act as a normal transparent HTTP-web-proxy.

Every source-distribution contains an example configuration file 'demo.cfg'.

If you do not provide any configuration file during starup, InteProxy looks for the file 'inteproxy.cfg' inside its directory. If this file is not found, InteProxy acts like a normal HTTP-web-proxy and passes all requests. If you plan to use InteProxy to secure OGC-services, you need to use a configuration file with appropriate entries.

An example configuration file is 'demo.cfg' inside the InteProxy-sources. This file contains one example of a currently available OWSProxy-service 'inteproxy-demo.intevation.org':

```
# Demo configuration demo.cfg for InteProxy.
#
# This file defines how different remote servers are to be
# accessed.
# There is one section for each remote server.  How the sections
# are named doesn't really matter but it's a good idea to
# include the full domain name in the section name.
#
# There might be some additional section with predefined names
# in the future for other inteproxy settings. The names for
# those section will be chosen so as to not interfere with
# existing section names. Hence the suggestion to use the full
# domain name.
#
```

```
# An example section for the host inteproxy-demo.intevation.org.
[inteproxy-demo.intevation.org]

# The hostname used in the URLs accessing this server
host=inteproxy-demo.intevation.org

# The path on the server
path=/cgi-bin/frida-wms

# the class defines how InteProxy handles the connection to the
# server.
# Supported classes are:
#
#   identity   simply passes the request through.
#   owsproxy   The remote host is an OWSProxy requiring
#              authentication and https
class=owsproxy
```

5 Examples of usage

Since version 0.2.0 InteProxy offers the possibility to act as an OWSProxy client-program as well as a normal HTTP-web-proxy. The following section shows the two modes with configuration examples in action.

5.1 Userdata

To use the following examples with the demo-services provided in this manual you can use the two groups of userdata.

Server-URL: 'http://inteproxy-demo.intevation.org/cgi-bin/frida-wms'

Two usergroups are available:

- User/Password = meier/meier: can view all WMS layers
- User/Password = schmidt/schmidt: can view all WMS layers except the roads

5.2 Using InteProxy as On-demand-proxy

Now in your application prefix the actual URL of the WMS service with the text

„http://localhost:64609/“.

This explains the term 'on-demand-proxy'. Whenever you need InteProxy to be an OWSProxy-client, add the term into your OGC-query. If you do not want to add this term every time, read on at section 5.3 about InteProxy as HTTP-web-proxy.

InteProxy caches the authorization data for each URL. Thus you have to authorize only once per URL. Once you stop InteProxy, all cached data are lost. It is necessary to stop InteProxy and restart it in case you want to log in for a URL where you already authenticated with another user account.

5.2.1 Simple Test (via Web Browser)

With this test you can check whether InteProxy basically works and is not blocked e.g. by a firewall.

To test whether InteProxy runs properly, first make sure InteProxy is running. Then open the web browser and enter the following URL:

http://localhost:64609/inteproxy-demo.intevation.org/cgi-bin/frida-wms?Request=GetMap&Version=1.1.1&service=WMS&layers=strassenall,sehenswuerdigkeiten&format=image/png&width=200&height=200&srs=epsg:31467&bbox=3427000,5787590,3444000,5800880

The browser will first request at port 64609 on your local system where InteProxy is waiting for requests. InteProxy raises a authentication dialog (see fig. 5) for username and password (see section 5.1 for details).

After you finish authentication, your browser should now show a map of the city of Osnabrück, because InteProxy executed the actual WMS request (frida.intevation.org/cgi-bin/frida_wms?VERSION=1.1&SERVICE=WMS&REQUEST=GetMap...) and relayed the answer to the browser. Especially, InteProxy uses the protocol „https“ and not „http“.

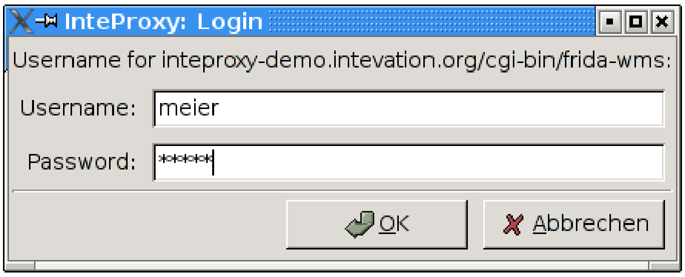
5.2.2 Full Test (via OpenJUMP)

The desktop GIS „OpenJUMP“ (www.openjump.org) is Free Software and supports WMS 1.1.1 layers in the map view.

Start InteProxy and OpenJUMP. In OpenJUMP choose menu „layers“ and the item „add WMS request“. You will be asked for a URL. Enter this one:

http://localhost:64609/inteproxy-demo.intevation.org/cgi-bin/frida-wms

For the use of the data two accounts are available (see section 5.1):



Username for inteproxy-demo.intevation.org/cgi-bin/frida-wms:

Username: meier

Password: *****

Figure 5: Login-dialogue for authentication (GNU/Linux)

If you authenticate as user „meier“, the layer choice contains more layers than for user „schmidt“. Note, that due to the password caching you need to stop and restart InteProxy to change the user.

5.3 Using of InteProxy as web-proxy

The usage of InteProxy as normal HTTP-web-proxy has the big advantage, that you do not need to add the clause 'http://localhost:64609' to every OWSProxy-rquest as described in the former chapter 5.2. A HTTP-web-proxy usually gets set system-wide and/or configured for specific applications and then deals with all HTTP-requests.

Based on the entries in the configuration file InteProxy decides if the requested server is an OWSProxy-secured service or not. If so, it adds username and password automatically.

If you need an internal proxy for you internet connection, you need to publish this to InteProxy as well.

5.3.1 Configuration as web-proxy under GNU/Linux

If you already have configured an internal web-proxy to connect to the Internet you need to tell InteProxy that this is the proxy to handle over all requests not dealing with secured SDI-services.

In this case you need to export the URL of your external web-proxy as an environment variable in the same shell where you will start InteProxy afterwards:

```
$ export http_proxy="http://myproxyhost.fqdn:port"
$ export https_proxy="http://myproxyhost.fqdn:port"
```

Now you can start InteProxy locally in this shell; it uses your internal proxy as well.

```
$ python2.4 InteProxy.py --config-file=demo.cfg [optional
parameters]
```

Please note, that InteProxy needs to be added into your application, e.g. your web browser or your desktop-GIS.

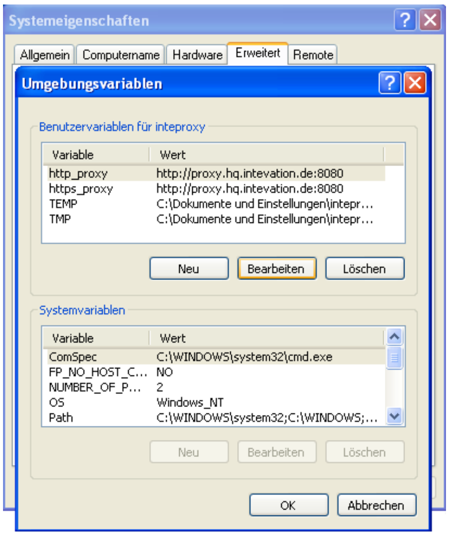
Mozilla Firefox: Edit-> Preferences -> advanced -> network-tab -> settings -> manual proxy configuration: Enter localhost as HTTP-proxy and the port InteProxy is running (default is 64609).

5.3.2 Configuration as web-proxy under Windows

The internal web-proxy for InteProxy can be adjusted as follows:

Start -> system resources -> system -> extended -> Environment variables

There you can add the environment variables 'http_proxy' and 'https_proxy' (depends on your network configuration) and set appropriate values. An example is shown in fig. 6:



Benutzervariablen für inteproxy

Variable	Wert
http_proxy	http://proxy.hq.intevation.de:8080
https_proxy	http://proxy.hq.intevation.de:8080
TEMP	C:\Dokumente und Einstellungen\intepr...
TMP	C:\Dokumente und Einstellungen\intepr...

Systemvariablen

Variable	Wert
ComSpec	C:\WINDOWS\system32\cmd.exe
FP_NO_HOST_C...	NO
NUMBER_OF_P...	2
OS	Windows_NT
Path	C:\WINDOWS\system32;C:\WINDOWS;...

Figure 6: Adjust environment-variables (Windows XP)

After adjusting the proxy-settings for your internal web-proxy you can start InteProxy with the following parameters:

```
InteProxy.exe --config-file=demo.cfg [optional parameters]
```

Naturally you need to tell your Windows-browser which proxy-address to use:

Mozilla Firefox: Edit-> Preferences -> advanced -> network-tab -> settings -> manual proxy configuration: Enter localhost as HTTP-proxy and the port InteProxy is running (default is 64609).

Internet Explorer: Internet options -> Connections -> LAN-settings -> settings -> Proxy-server -> advanced: add 'localhost' and the port InteProxy is running (default is 64609).

Please note, that the steps above are translated from the German GUI due to the lack of English windows version.

5.3.3 Using of InteProxy with a Desktop-GIS (example OpenJUMP)

OpenJUMP is a Java application. Java-applications also need to know information about proxy-servers. Therefore you can add the needed parameters to the startup-script of OpenJUMP (usually openjump.bat, openjump-mac.sh or openjump-unix.sh):

```
-DproxySet=true -DproxyHost=localhost -DproxyPort=64609
```

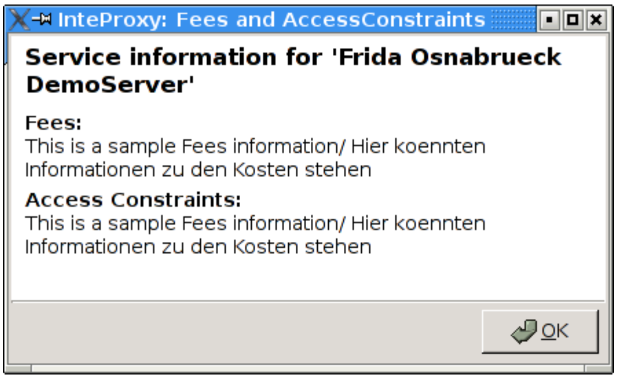
The entries above assume that InteProxy is running on the local computer with its default port 64609. Additionally the OWSProxy-services are configured properly inside the configuration file.

Now you are able to use OWSProxy-secured services inside OpenJUMP as you are used to. Enter the secure OWSProxy-Service using the menu „layers“ and their item „add WMS request“. The URL is the following:

http://inteproxy-demo.intevation.org/cgi-bin/frida-wms

InteProxy now recognizes that you are querying an OWSProxy and asks you for a OWSProxy-user with password which will be used by InteProxy to authenticate against the OWSProxy.

After connection a window with the servers fees and access-constraints will be shown (see fig. 7).



Service information for 'Frida Osnabrueck DemoServer'

Fees:
This is a sample Fees information/ Hier koennten Informationen zu den Kosten stehen

Access Constraints:
This is a sample Fees information/ Hier koennten Informationen zu den Kosten stehen

Figure 7: AccessConstraints and fees dialog after loading a OWSProxy-service

This information will be extracted from the WMS-server after loading initially.

Note:

As an alternative you could use QGIS (http://www.qgis.org) in its current version 0.8.0. QGIS is a QT based Desktop-GIS-client which supports WMS 1.1.1;and is Free Software under GPL of course.

When creating a WMS-connection make sure that you fill the forms for proxy and proxy-port with your local InteProxy-details. After that you can retrieve secure WMS-connections within QGIS.

5.3.4 Using inside a JavaApplet based webmapping-application (Example Niedersachsenviewer Plus)

Including secured WMS-layers inside a (non-secure) JavaApplet based webmapping-application assumes that the WMS-query gets done by the client-program instead of the server.

The JavaApplet 'Niedersachenviewer Plus' (http://geoportal.geodaten.niedersachsen.de/organizer/) includes the possibility to add own WMS-services. A working Java-installation on the clientside needs to be available. To include secured WMS-layers in a webmapping-client InteProxy needs to be configured as normal HTTP-web-proxy as described in chapter 5.3.

The tab 'layercontrol' provides a symbol (green plus) to add own WMS-services to the map. Depending on your OWSProxy-user the layers are available in tab 'layercontrol'. The layers can be enabled for viewing by checking the appropriate box.

5.3.5 Using with a pure JavaScript-base webmapping application (example OpenLayers)

OpenLayers (http://www.openlayers.org) is a free, pure JavaScript-base API, which facilitate the creation of dynamic maps in webmapping applications. OpenLayers completely runs inside the client (web browser).

A testinstallation is made available at

http://demo.intevation.de/openlayers/

There you have two simple text boxes where you can specify the secured WMS-services by URL and its layers.

You can use the URl

http://inteproxy-demo.intevation.org/cgi-bin/frida-wms

for testing. Depending on your chosen OWSProxy-user (see sec. 5.1) you can use the layers gewaesser, sehenswuerdigkeiten, strassenall, gruenflaechen for testing.

Note:

Naturally you need a local configuration for your InteProxy as HTTP-web-proxy (see sec. 5.3) as well as a working browser configuration.

6 Note when using Intranet-Proxies

In case all HTTP/HTTPS request of your system need to go over a proxy service, you might experience various problems depending on the actual configurations. Here are some hints on what you can do to cope with this:

- Configure environment variable „https_proxy“: InteProxy interprets and uses the environment variable „https_proxy“. In case this variable defines e.g. „http://proxy.hq.sample“, InteProxy will submit all requests to this service. This holds for both, MS Windows and GNU/Linux. Attention: Problems may occur when concurrently defining „http_proxy“.

7 Limitations and Perspectives

Currently, InteProxy expects a deegree OWSProxy on the server side. Any other proxy that uses the URL parameters „user=“ and „password=“ will work for WMS as well.

It is very simple (because already implemented) to have InteProxy use the standard HTTP authentication method. If a corresponding server is used, you need to comment the deegree-specific element (user, password) inside the source code.

An adoption for MapBenders OWSProxy is also relatively easy to realize („sid“ and „wms“ instead of „user“ and „password“).

User-friendly (graphical dialogs) of these (and other) configurations are planned.

InteProxy does not work with webmapping-clients which parse a WMS-URL on server-side. This applies to NiedersachsenViewer, Mapbender and iGeoporal. In this cases InteProxy eventually needs to be installed and configured on server-side to pass the secured connections between portal and OWS-services. This step is already prepared, but it will be tested and described in detail in the upcoming version of InteProxy.

See known bugs and report new problems:

http://wald.intevation.org/tracker/?group_id=23

8 Version History

Current Release is 0.2.0 from May, 18th 2007.

New since version 0.1.2 from March, 29th 2007.

- New: GUI, plattform independent (GTK2)
- New: HTTP-WebProxy and introduction of a configuration file
- New: Internationalisation (I18N) (currently only german available)
- New: Access-Constraints and Fees provided in dialogs

- Internal code-restructuring
- Solved issue No. 369 “InteProxy does not handle redirects correct”, http://wald.intevation.org/tracker/index.php?func=detail&aid=369&group_id=23&atid=178

New since version 0.1.1 as of December 4th 2006:

- New: Command-line parameter „--debug-level“ to switch on debug information. This is an expert function. Values larger than 0 describe the level of details for the debug information (currently only one level is implemented). A value of 0 means that no debug information are collected. The default is 0.
- New: Command-line parameter „--worker“ to define the number of parallel connections. The default is 5.
- Solved issue No. 271 „Firefox/Konqueror couldn't display Image (REQUEST=GetMap).“, http://wald.intevation.org/tracker/index.php?func=detail&aid=271&group_id=23&atid=178
- New: Support of WFS für deegree OWS-Proxy.
- Improved manual.
- calling-parameters added
- Szenario for usage of InteProxy as webproxy AND OWSProxy-client with OpenJUMP