Belgian eID Run-time Users guide

For
Fedict

From
CSC Computer Sciences
## Document History

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<thead>
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<tbody>
<tr>
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1. INTRODUCTION

This document describes the usage of the “Belgian eID run-time environment”. This run-time is used by two libraries:

- The “eID Security Middleware”, that deals with all authentication and signature issues
- The “eID Toolkit” that provides an interface to read and validate information in the card

The main goal of this guide is to explain the architecture, the installation, the usage, and the parameterisation of this environment.
2. ARCHITECTURE

The Belgian eID run-time environment consists of a client process discussing with a server process. Both processes can be on the same machine, or on different ones.

The server process is implemented as a service under Windows, as a daemon for the other environments.

The client application (in the client process) calls either the “eID Toolkit”, or the “eID Security Middleware” to connect – via the same module – to the server process. Only the server process accesses the card and the reader.
3. INSTALLATION

3.1 Requirements

- A PC/SC compliant smart card reader must be installed.
- You must have administration privileges on the machine in order to install the software.
- The environment accepts, by default, only real identity cards. Test cards are not accepted. In order to accept test cards, you must set the parameter “AllowTestroot” to “1” (see 4.6).
- The environment uses a directory to store all the downloaded certificates and the files that are cached from the cards. This directory can be parameterised (see 4.6, parameter “Main storage directory”). The end-user absolutely needs write access to that directory in order to use the environment.
- Under Linux, the following packages must be installed:
  - PC/SC drivers: see [http://www.linuxnet.com/middle.html](http://www.linuxnet.com/middle.html) (tested with version 1.2.9 beta 6)
  - WxWindows: see [http://www.wxwidgets.org/](http://www.wxwidgets.org/) (tested with version 2.4.2)
  - The GIMP Toolkit: see [http://www.gtk.org/download/](http://www.gtk.org/download/) (tested with version 1.2)
### 3.2 Windows

The run-time has been tested on “Windows 98 SE” and later.

Under Windows, the installation program installs all the components (both the client and the server part):

<table>
<thead>
<tr>
<th>Description</th>
<th>filename</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Server</strong></td>
<td></td>
</tr>
<tr>
<td>Service &quot;Belgian eID Card Access&quot;</td>
<td>%SystemRoot%\system32\Belpic PCS C Service.exe</td>
</tr>
<tr>
<td><strong>Client</strong></td>
<td></td>
</tr>
<tr>
<td>Card access client run-time</td>
<td>%SystemRoot%\system32\winscarp.dll, %SystemRoot%\system32\Belpic.dll, %SystemRoot%\system32\eid_sslkey32.dll, %SystemRoot%\system32\eid_libeay32.dll, %SystemRoot%\system32\eid_libCtrl.dll, %SystemRoot%\system32\eid_lib.dll, C:\Program Files\Belgian Identity Card\eidlib.jar, %SystemRoot%\system32*_BE.mo</td>
</tr>
<tr>
<td>Card access client configuration files (common)</td>
<td>%SystemRoot%\BEID.conf, %SystemRoot%\be.pic.conf</td>
</tr>
<tr>
<td>Card access client configuration files (personal)</td>
<td>%USERPROFILE%\BEID.conf</td>
</tr>
<tr>
<td>Security middleware</td>
<td>%SystemRoot%\system32\Belgium Identity Card PKCS11.dll, %SystemRoot%\system32\Belgium Identity Card CSP.dll</td>
</tr>
<tr>
<td><strong>eidGUI</strong> program to display and print the content of a card</td>
<td>C:\Program Files\Belgian Identity Card\eidGUI.exe</td>
</tr>
<tr>
<td>Pinpad reader support</td>
<td>%SystemRoot%\system32\xireid.dll</td>
</tr>
<tr>
<td>HTML page to install the PKCS#11 middleware in Netscape, Firefox, or Mozilla browser</td>
<td>C:\Program Files\Belgian Identity Card\pkcs11_install Netsc _Moz.htm</td>
</tr>
<tr>
<td>HTML page to uninstall the PKCS#11 middleware from Netscape Firefox, or Mozilla browser</td>
<td>C:\Program Files\Belgian Identity Card\pkcs11_uninstall Netsc _Moz.htm</td>
</tr>
<tr>
<td>Certificates</td>
<td>C:\Program Files\Belgian Identity Card\eidstore*</td>
</tr>
</tbody>
</table>
3.3 Linux

The run-time has been tested on “Debian 3.0”.
All the client and server files are provided in a TAR Gzipped archive.
The files have to be copied on the following locations:

<table>
<thead>
<tr>
<th>Description</th>
<th>filename</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Server</strong></td>
<td></td>
</tr>
<tr>
<td>Daemon “Belgian eID Card Access”</td>
<td>/usr/bin/belpcsdd</td>
</tr>
<tr>
<td><strong>Client</strong></td>
<td></td>
</tr>
<tr>
<td>Card access client run-time and PKCS#11 middleware</td>
<td>/usr/lib/*.so</td>
</tr>
<tr>
<td></td>
<td>/usr/lib/eidl/jar</td>
</tr>
<tr>
<td></td>
<td>/etc/*.mo</td>
</tr>
<tr>
<td>Card access client configuration files</td>
<td>/etc/BEID.conf</td>
</tr>
<tr>
<td></td>
<td>/usr/local/etc/belpic.conf</td>
</tr>
<tr>
<td>Card access client configuration files (personal)</td>
<td>$HOME/BEID.conf</td>
</tr>
<tr>
<td><strong>eidGUI</strong></td>
<td></td>
</tr>
<tr>
<td>program to display and print the content of a card</td>
<td>/usr/bin/eidgui</td>
</tr>
<tr>
<td>HTML page to install the PKCS#11 middleware in Netscape or Mozilla browser</td>
<td>pkcs11_install_netsc_moz.htm</td>
</tr>
<tr>
<td>HTML page to uninstall the PKCS#11 middleware from Netscape or Mozilla browser</td>
<td>pkcs11_uninstall_netsc_moz.htm</td>
</tr>
</tbody>
</table>

The directory “/usr/lib” must be added to the environment variable JAVA_PATH; alternatively, the jar file may be copied to “$JAVA_HOME/lib/ext/”.
The “Belgian eID Card Access” daemon must be installed to start automatically.
4. USAGE

4.1 eidGUI

The eidGUI program is intended to read and validate all data on a card.
Quick Start

- Click on the tab “Options”, and choose
  - the preferred language
  - the preferred reader – in case of many, otherwise, leave the option “Not specified”
- Introduce your card in the reader
- To read a card, click on the tab “Identity” and click on the chip
- To load identity data previously saved in a file on disk, click on the folder icon on the toolbar
- Click on the printer icon on the toolbar to print the identity data
- Click on the floppy icon on the toolbar to save the identity data to a file on disk
- Click on the tab “Certificates”, and select a certificate
  - Click on the button “Details” to see the certificate details
  - Click on the button “Register” to store the certificate in the “Windows Certificate Store”; This is mandatory in order to make a certificate available to Microsoft products (Internet Explorer, Outlook, etc.).
- Click on the tab “Card & PIN”, to see the card version and technical details
- Click on the tab “Card & PIN”, and select a PIN
  - The PIN details are displayed
  - Click on the button “Change PIN” to modify the PIN value.

4.2 Card Reader installation check

The easiest way to check if the card reader is correctly installed is to run the eidGUI program. In the tab “Options”, all card readers registered as PC/SC readers are displayed in the list of available readers.

4.3 Exclusive access to the card

⚠️ In order to get the full security of the Belgian eID run-time environment, the service/daemon is automatically started at boot time, and forbids any application to get a direct access to a Belgian eID card. However, other cards can be used normally by any application.

In case you really want to use a program not using the Belgian eID run-time environment to access an eID card, you must stop the service/daemon.

💻 Under Windows NT/200x/XP… you can do that either interactively, or with the command « net stop BELGIUM_ID_CARD_SERVICE ».
4.4 Internet connection

In case a program asks the Belgian eID run-time environment to access the Internet (for example to validate, or download a certificate), the run-time may be configured to use a proxy.

The parameters “proxyHost” and “proxyPort” may be adapted in the configuration file (see chapter 4.6).

4.5 Access confirmation

The environment contains an access control filtering mechanism.

Each time an unknown application tries to access the card, a confirmation box is displayed, like

![Confirmation](image)

If refused (“No”), the application will not get the desired access to the card.

If accepted (“Yes”), the application will get the desired access to the card, but only for this session.

If accepted permanently (“Always”), the application will always get the desired access to the card. This permission can be removed later by modifying the parameter corresponding to the application in the section “[Application_Filtering]” of the configuration file (see chapter 4.6).

4.6 CRL download scheduling

If the parameter “crlschedule” is enabled in the configuration file (see chapter 4.6), the service/daemon will download, each 5 minutes, the CRL that have expired. Published CRL that were never downloaded are not downloaded automatically.

Note that the “Belgian eID Card Access” service/daemon must be running, even if the client uses a service/daemon running on another machine.
4.7 Technical notes about the PKCS#11 middleware

4.7.1 About the PIN dialog

Normally, a PKCS#11 library doesn't ask for PINs because the application will do this and then give the PIN to the PKCS#11 lib (that will send it to the card).

However, the Belgian eID card enforces the following rules:

- Once the user PIN has been given, the Authentication key can always be used.
- The Signature key can only be used if the user PIN have been given just before doing a signature. This means that you have to supply your PIN for each signature you do with that key.

The PKCS#11 standard does not support this behaviour: once you logged in using a PIN, you are assumed to have access to all the private keys protected by that PIN.

Therefore, this PKCS#11 library itself asks for the user PIN each time a signature with the Signature key will be done.

4.7.2 Private key objects are visible without logging in

Most PKCS#11 implementation only show info about the private key objects after a PIN has been supplied (though there is no reason for this, because all the info can be read from the card without supplying a PIN).

This PKCS#11 lib shows info about the private key objects without supplying a PIN.
5. PARAMETERISATION

5.1 Run-time common settings

The parameters common to all users on the machine may be adapted by modifying the file “BEID.conf” stored in the common directory.

This file is a usual Windows INI file. The value of a parameter can contain the value of another parameter by including the name of the parameter preceded by a $ sign.

Ex:

```
[BEID_default]
maindir = C:/Program Files/Belgian eID Card
certs = $maindir/certs/
crl = $maindir/crl/
```

The file is used by both the client and the server parts of the software. It so has to be present on both machines.

Some parameters are reserved for internal purpose and left undocumented; these cannot be modified.
<table>
<thead>
<tr>
<th>Description</th>
<th>Section</th>
<th>Parameter</th>
<th>Values</th>
<th>Default Values</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Client</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main storage directory</td>
<td>[BEID_default]</td>
<td>maindir</td>
<td>Absolute path</td>
<td>C:\Program Files\Belgian eID Card \tmp</td>
</tr>
<tr>
<td>Directory for storing downloaded CRL</td>
<td>[BEID_default]</td>
<td>crl</td>
<td>Absolute path</td>
<td>$maindir/crl/</td>
</tr>
<tr>
<td>Directory for storing downloaded certificates</td>
<td>[BEID_default]</td>
<td>certs</td>
<td>Absolute path</td>
<td>$maindir/certs/</td>
</tr>
<tr>
<td>Allow caching of identity files on disk and in memory¹</td>
<td>[BEID_default]</td>
<td>Caching</td>
<td>1 = enabled, 0 = disabled</td>
<td>1</td>
</tr>
<tr>
<td>URL for downloading issuers not found</td>
<td>[CA_certs]</td>
<td>httpstore</td>
<td>URL</td>
<td><a href="http://certs.eid.belgium.be/">http://certs.eid.belgium.be/</a></td>
</tr>
<tr>
<td>Government certificate names</td>
<td>[CA_certs]</td>
<td>Government</td>
<td>Comma delimited list</td>
<td>government,government2004</td>
</tr>
<tr>
<td>Belgium Root certificate names</td>
<td>[CA_certs]</td>
<td>Root</td>
<td>Comma delimited list</td>
<td>belgiums</td>
</tr>
<tr>
<td>Allow test cards: only for development and/or demo. This would allow test cards to be treated as real ones</td>
<td>[CA_certs]</td>
<td>AllowTestroot</td>
<td>1 = enabled, 0 = disabled</td>
<td>0</td>
</tr>
<tr>
<td>Enable the use of the service</td>
<td>[BEID_service]</td>
<td>serverAddress</td>
<td>Server IP address</td>
<td>127.0.0.1</td>
</tr>
<tr>
<td>Server address</td>
<td>[BEID_service]</td>
<td>serverAddress</td>
<td>Server IP address</td>
<td>127.0.0.1</td>
</tr>
<tr>
<td>Server port</td>
<td>[BEID_service]</td>
<td>clientConnection</td>
<td>1 = enabled, 0 = disabled</td>
<td>1</td>
</tr>
<tr>
<td>Proxy address</td>
<td>[BEID_default]</td>
<td>proxyHost</td>
<td>IP address</td>
<td></td>
</tr>
<tr>
<td>Proxy port</td>
<td>[BEID_default]</td>
<td>proxyPort</td>
<td>Port number</td>
<td></td>
</tr>
<tr>
<td><strong>Server</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum time to allow exclusive access to a client session</td>
<td>[BEID_service]</td>
<td>locktimeout</td>
<td>Seconds</td>
<td>120</td>
</tr>
<tr>
<td>IP addresses of allowed clients</td>
<td>[BEID_service]</td>
<td>IPAddr_allowed</td>
<td>Comma-delimited list of IP addresses</td>
<td>127.0.0.1</td>
</tr>
<tr>
<td>Server port</td>
<td>[BEID_service]</td>
<td>serverPort</td>
<td>Port the server listens to (any unused port)</td>
<td>2500</td>
</tr>
<tr>
<td>Enable scheduling of CRL download</td>
<td>[BEID_service]</td>
<td>crlschedule</td>
<td>1 = enabled, 0 = disabled</td>
<td>1</td>
</tr>
<tr>
<td>Enable logging</td>
<td>[BEID_service]</td>
<td>Logmode</td>
<td>1 = enabled, 0 = disabled</td>
<td>0</td>
</tr>
<tr>
<td>Log file</td>
<td>[BEID_service]</td>
<td>Logfile</td>
<td>Absolute pathname</td>
<td></td>
</tr>
</tbody>
</table>

¹ The files are stored in the directory « %USERPROFILE%\eid-cache » or "$HOME\eid-cache ».
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<table>
<thead>
<tr>
<th>Description</th>
<th>Section</th>
<th>Parameter</th>
<th>Values</th>
<th>Default Values</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Version Check</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enable version check</td>
<td>[VersionCheck]</td>
<td>enabled</td>
<td>1 = enabled</td>
<td>0 = disabled</td>
</tr>
<tr>
<td>Delay between version checks</td>
<td>[VersionCheck]</td>
<td>delay</td>
<td>Days</td>
<td>30</td>
</tr>
<tr>
<td>URL for version check</td>
<td>[VersionCheck]</td>
<td>url</td>
<td>1 = enabled</td>
<td><a href="https://drivers.eid.belgium.be/drivers.txt">https://drivers.eid.belgium.be/drivers.txt</a></td>
</tr>
</tbody>
</table>

5.2 Run-time personal settings

The parameters individual to one user may be adapted by modifying the file “BEID.conf” stored in the personal directory.

The syntax of the file is the same as the common one.

This file is used by the client only; it does not have to be present on the machine running the server.

5.3 EidGUI personal settings

The parameters are stored in Windows registry (HKCU\Software\Fedict\eidGUI).

The parameters are stored in the file “$HOME/eidgui.conf”.

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2 The Internet browsers can receive full access to the card, as a Web site will have no privilege to use the eID run-time environment. The Web sites using the Java applet provided by the Government to access the card will receive an interactive confirmation message.
6. RELATED DOCUMENTS


*Middleware Programmer’s Guide*: Description of the security middleware API.

*eID Toolkit Developer’s guide*: Description of the eID Toolkit API.
7. LICENSE ISSUES

The eID Run-time uses several third-party libraries or code.

Redistributions in any form of the eID Run-time— even embedded in a compiled application— must reproduce all the eID Run-time, and third-party’s copyright notices, list of conditions, disclaimers, and any other materials provided with the distribution.

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Article 5: Termination

5.1 The Agreement and all licenses granted by the Licensor hereunder shall automatically terminate by law if you breach this Agreement.

5.2 Upon termination of the Agreement, you shall cease all use of the eID Toolkit and shall destroy all copies of the eID Toolkit within your possession or control.

Article 6: General

6.1 If any term or provision of this Agreement is determined to be illegal or unenforceable, such term or provision shall be deemed stricken, and all other terms and provisions shall remain in full force and effect. Each such provision shall be modified by the parties to the extent necessary to make it valid, legal and enforceable whilst preserving the intent of and balance between the parties.

6.2 This Agreement constitutes the entire understanding and agreement with respect to the eID Toolkit and supersedes all prior oral and written communications.

6.3 This Agreement shall be governed by the laws of Belgium. Any dispute that cannot be settled amicably shall be subject to the courts of Brussels.
The Belgian eID Run-time – see Belgian eID Run-time User’s Guide – consist of
- The Belgian eID Toolkit
- The Belgian e-ID Security Middleware

### 7.2 Third-party licenses

#### 7.2.1 GNU Lesser General Public License

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*Version 2.1, February 1999*

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This product includes cryptographic software written by Eric Young (eay@cryptsoft.com).
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This package is an SSL implementation written by Eric Young (eay@cryptsoft.com). The implementation was written so as to
conform with Netscapes SSL.

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7.2.3 OpenSC

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7.2.5 libstdc

This run-time uses the libstdc++ run-time libraries developed by the Gnu CC Project (http://www.gnucc.org/).

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The Code: Runtime GPL

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Hopefully that text is self-explanatory. If it isn’t, you need to speak to your lawyer, or the Free Software Foundation.

Q: So any program which uses libstdc++ falls under the GPL?
A: No. The special exception permits use of the library in proprietary applications.

Q: How is that different from the GNU (Lesser, Library) GPL?
A: The LGPL requires that users be able to replace the LGPL code with a modified version; this is trivial if the library in question is a C shared library. But there’s no way to make that work with C++, where much of the library consists of inline functions and templates, which are expanded inside the code that uses the library. So to allow people to replace the library code, someone using the library would have to distribute their own source, rendering the LGPL equivalent to the GPL.

Q: I see. So, what restrictions are there on programs that use the library?
A: None, We encourage such programs to be released as open source, but we won’t punish you or sue you if you choose otherwise.