Digidoc Open-EID - Installation instructions for Debian 9 Stretch

Release 1.5.0

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Contents:

This note shows how to install the Estonian Electronic Identity Software on Debian 9.

Important: Update 20180621: Ria does not maintain the *zesti* binaries any more. Therefor I replaced the link in script to *xenial* instead. Although there are no dependency clashes on my system, I do not have the time to test a fresh install now. Feedback is appreciated.

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1 ID-software – what's this?

ID-software allows you to use your ID-card electronically – use private and governmental e-services, digitally sign documents and encrypt documents for safe transfer.

During ID-software installation 3 programs are installed into your computer: ID-card utility, DigiDoc3 client and DigiDoc3 crypto.

With ID-card utility you can check the functioning of your ID-card and certificate validity, change PIN and PUK codes. The ID-card utility window displays the ID-card owner's data and ID-card validity data. This information is constantly visible when ID-card utility is running. ID-card utility enables you to perform actions with certificates (extend them, change and unblock PIN codes and PUK code), configure @eesti.ee email address.

2 Installation

Tip: The installer script will automatically install a plugin for Firefox-ESR. The plugin works out of the box with Firefox 57 Quantum.

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1. Download the installer script.

2. Edit the script

   Replace:

   ```
   case $codename in
     wheezy)
       add_repository trusty
     *)
       make_fail "Debian $codename is not officially supported"
       ;;
   ```

   With:

   ```
   case $codename in
     wheezy)
       add_repository trusty
       ;;
     stretch)
       add_repository xenial
       ;;
     *)
       make_fail "Debian $codename is not officially supported"
       ;;
   ```

3. Download libssl1.0.0 for your architecture (scroll down)

4. Install *libssl1.0.0*:

   ```
   sudo dpkg -i libssl1.0.0_1.0.1t-1+deb8u5_amd64.deb
   ```

   (your exact package name might be different).

5. Run the modified installation script[2]

   ```
   chmod 755 install-open-eid.sh
   ./install-open-eid.sh
   ```

Note: The source code of the Estonian ID software is hosted on Github.

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[2] The script creates the file */etc/apt/sources.list.d/ria-repository.list* with the following content:

```
deb https://installer.id.ee/media/ubuntu/ xenial main
```

Then it imports the repository key and runs *apt-get update* and *apt-get install open-eid*.

3 Check the installation

Among other things the installer script installs a meta package `open-eid` which installs `chrome-token-signing`, `firefox-pkcs11-loader`, `libdigidoc-tools`, `libdigidocpp-tools`, `libnss3-tools`, `qdigidoc-tera` and `qdigidoc4`. These packages also depend on other packages and install them.

To check if the `Digidoc Open-EID` extensions are properly installed in *Firefox Quantum*, open in the main menu: `Tools->Add-ons->extensions`.

Here you should see two extensions loaded:

- Firefox PKCS11 loader (Configures Firefox to use PKCS11 for authentication)

- Token signing (Use your eID smart card on the web)

4 Troubeshooting

Update 2018-06-21:

Ria does not maintain the `zesti` binaries any more. Therefor I replaced the link in script to `xenial` instead. Although there are no dependency clashes on my system, I do not have the time to test a fresh install now. Feedback is appreciated.

Update 2018-12-12:

1. Bugreport

   During the last update of the package `AWP` to version 5.3.0.16.04.130 on my Debian 9 machine, I experienced the following problem:

   ```
   # apt upgrade
   Reading package lists... Done
   Building dependency tree
   Reading state information... Done
   Calculating upgrade... Done
   0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
   2 not fully installed or removed.
   After this operation, 0 B of additional disk space will be used.
   Do you want to continue? [Y/n]
   Setting up awp (5.3.0.16.04.130) ...
   Adding smartcard support in Google Chrome ...
   dpkg: error processing package awp (--configure):
    subprocess installed post-installation script returned error exit␣
   ↪status 1
   dpkg: dependency problems prevent configuration of open-eid:
    open-eid depends on awp; however:
     Package awp is not configured yet.

   dpkg: error processing package open-eid (--configure):
    dependency problems - leaving unconfigured
   Errors were encountered while processing:
    awp
    open-eid
   E: Sub-process /usr/bin/dpkg returned an error code (1)
   ```

2. Here my workaround

1. Disable the `postinst` execution:

```
echo '#!/bin/sh' | sudo tee /var/lib/dpkg/info/awp.postinst
```

2. Extract the binaries:

```
sudo apt install awp
```

3. Extract the file `postinst` from the debian package `awp_5.3.0.16.04.130_amd64.deb` you will find in `/var/cache/apt/archives`:

```
cd /var/cache/apt/archives
cp awp_5.3.0.16.04.130_amd64.deb /tmp
cd /tmp
ar x awp_5.3.0.16.04.130_amd64.deb
tar -xzf control.tar.gz
```

If the above seems to complicated, here the content of `postinst`. Create a file named `postinst` and copy the content there.

```
#!/bin/bash

NSSDB=$HOME/.pki/nssdb
MODUTIL="/usr/bin/modutil -force -dbdir sql:$NSSDB"
CERTUTIL="/usr/bin/certutil -d sql:$NSSDB"
LIBFILE=/usr/local/AWP/lib/libOcsPKCS11Wrapper.so

if [ -n "`which apt-get`" ];
then
    sudo apt-get -y install libnss3-tools 2>/dev/null
fi
if [ -n "`which yum`" ];
then
    sudo yum install libnss3-tools 2>/dev/null
fi

echo "Adding smartcard support in Google Chrome ..."

if [ ! -f $NSSDB/cert9.db ]; then
    echo "Initializing new database"
    sudo -i -u $SUDO_USER mkdir -p $HOME/.pki
    sudo -i -u $SUDO_USER mkdir -p $NSSDB
    sudo -i -u $SUDO_USER $CERTUTIL -N --empty-password
fi

if [ -f $LIBFILE ]; then
        sudo -i -u $SUDO_USER $MODUTIL -delete idemia-pkcs11 2>/
→dev/null
        sudo -i -u $SUDO_USER $MODUTIL -add idemia-pkcs11 -
→libfile $LIBFILE -mechanisms FRIENDLY 2>/dev/null
    exit
fi
```

4. and execute it manually as normal user (not as root):

```
  ./postinst
 Reading package lists... Done
```

4

```
 Building dependency tree
 Reading state information... Done
 libnss3-tools is already the newest version (2:3.26.2-1.
↪1+deb9u1).
 libnss3-tools set to manually installed.
 0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
 2 not fully installed or removed.
After this operation, 0 B of additional disk space will be used.
 Setting up awp (5.3.0.16.04.130) ...
 Adding smartcard support in Google Chrome ...
 Module "idemia-pkcs11" added to database.
 Setting up open-eid (18.12.0.1815-1604) ...
 Adding smartcard support in Google Chrome ...
```

Read more in DigiDoc4-Client issue 435 and open-eid linux installer issue 37.

Update 15.1.2019

1. Bugreport

   After a recent system-upgrade `qdigidoc4` does not start and emits the following error message:

   ```
   $ qdigidoc4
   Chache configuration serial: 82
   Bundled configuration serial: 79
   QObject: Cannot create children for a parent that is in a different
   ↪thread.
   (Parent is QSigner(0x19b4360), parent's thread is QThread(0x183d400),
   ↪current thread is QSigner(0x19b4360)
   qdigidoc4: symbol lookup error: /usr/lib/x86_64-linux-gnu/
   ↪libdigidocpp.so.1: undefined symbol: _ZN11xalanc_1_
   ↪1114XPathEvaluator10initializeERN11xercesc_3_113MemoryManagerE
   ```

2. Cause

   The upgraded package `libxml-security-c` requires a specific version of `libxalan-c111`!

   The *version 1.7.3-1RIA1* of `libxml-security-c` pulls `libxalan-c111`, but the latter mustn't be too recent! On my debian 9 system `libxalan-c111` *version 1.11-6* works well, but *version 1.11-9~bpo9+1* does not.

3. Solution

   Downgrade the package `libxalan-c111`:

   ```
   $ sudo apt-get install libxalan-c111=1.11-6
   Reading package lists... Done
   Building dependency tree
   Reading state information... Done
   libxalan-c111 set to manually installed.
   $ sudo apt-mark hold libxalan-c111
   ```

4. Conclusion

   Digidoc on Debian 9 still works as long as you get somehow the broken package *awp* installed (see above). You also have to take care that you hold the package `libxalan-c111` at version 1.11-6 and do not upgrade it.

Here a list of packages with version numbers I installed from the RIA-repository https://installer.id.ee/media/ubuntu/:

```
Package                Installed version
--------------------   ------------------
awp                    5.3.0,.16.04.130
chrome-token-signing   1:1.0.8.500-1604
firefox-pkcs11-loader  3,13.0.1074-1604
firefox-pkes11-loader  3,13.0.1074-1604
libdigidoc-common      3,10.1.1212-1510
libdigidoc-common      3,10.1.1212-1510
libdigidoc-tools       3,10,1.1212-1510
libdigidoc2            3,10.1.1212-1510
libdigidocpp-common    3,13.8.1379-1604
libdigidocpp-common    3,13.8.1379-1604
libdigidocpp-tools     3,13.8.1379-1604
libdigidocpp1          3,13.8.1379-1604
libxml-security-c17v5  L7.3-1RIAL
open-eid               18.12.0.1815-1604
open-eid               18.12.0.1815-1604
opensc                 0.19.0-0RIA2
opensc-pkesi1          0.19.0-0RIA2
adigidoc-tera          1.1.0,12-1604
adigidoca              4.2.0.43-1604
```

5 Critics and outlook

From my point of view the DigiDoc Linux (hence FOSS) support has been neglected recklessly. There is only one distribution left with only 2 versions supported in total. But the common argument that support for more Linux distributions is too expensive is not valid any more: A reasonable remedy to improve this situation at low costs is the Flatpack technology. Today Flatpacks are well-supported on every Linux system[1].

In addition to the DigiDoc Desktop application, the question rises how to distribute the corresponding browser plugin.

Here a statement of RIA:

Currently Information Authority does not have plans to address this issue due to nature of Open-EID software architecture. Releasing Digidoc client is possible through other mediums such as Applemage, Sncapcraft or in your case Flatpak but necessary plugins for browsers can not be transferred through those services. [. . .]

Although Digidoc client is functional without browser plugins installed, are significant components that shouldn't be separated.

—Markus Kullerkup, 5 Sep 2018, Flatpak support, Issue #318, open-eid/DigiDoc4-Client

I disagree with this statement: Internet browsers always have had their proper infrastructure to distribute and install plugins. Is common that a Desktop application needs an additional plugin that has to be

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[1] I suggest Flagtpack in favour of its compeditor SnapCraft because Flatpack is well-supported on all Linux system and its build in application sandboxing: All applications are limited to a set of predefined permissions, enhancing privacy and security. Setting up a Flatpack repositiory is a child's play. Flatpak is developed by an independent community, with no lock-in to a single vendor.

SnapCraft (Snappy) is developed by Ubuntu and not well-supported on other Linux distributions than Ubuntu. Thus, distribution DigiDoc as SnapCraft packages would have very little advantage compared to the current situtation.

installed from the browser's plugin repositories (a kind of app-store for browser): For example, the very popular and widespread Zotero software shows that this model works well and is widely accepted. As a result, distributing the DigiDoc Desktop Application as a Flatpack package and the browser plugin through the browser's plugin store would not pose a problem. This is especially true for Linux users who are in general more technical adapt than the average Windows user.

For Estonians the DigiDoc software is crucial because it is indispensable to deal with legal digital signatures. As of 22.04.2019 RIA the only Open Source Desktop operating system that has support for DigiDoc is Ubuntu 16.04 (LTS), 18.04 (LTS) (64bit), 18.10. All other Linux distributions are ruled out which discriminates Open Source technologies in favour of Microsoft.

What to do? Digidoc is developed by RIA the Information System Authority of Estonia, a governmental authority in the jurisdiction of the Ministry of Economic Affairs and Communications. Technically the problem is easy to remediate : Flatpack provides the technical platform for a cross-Linux-distribution development and distribution of software. What is missing is the RIA's political will to invest in open source technologies and infrastructure. How to improve this situation? As RIA is a public agent actor, I suggest to write to RIA and manifest your interest in Linux support.