

How to install ELFI

Installation instructions for ELFI and the FUSE kernel module.

This page tells you how to download and install [ELFI](#). [EGRID](#) provides precompiled RPM packages for [Scientific Linux CERN](#) that also fit other RPM-based distros. Instructions for compiling from source are given, for the really daring.

Note

We value your feed back!

This document is a first draft; if you find anything missing, incorrect, or simply unclear, please report it to the email address above, or to the ELFI mailing-list: elfi@egrid.it. Thank you!

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Install from RPM packages

We describe here two ways of installing [ELFI](#):

Using apt-get

This is the easiest method; it should work on any [Scientific Linux CERN 3.0.x](#) box, but *might* work on any other Linux distribution which uses the APT4RPM tools.

Manual install RPMs

These are generic installation instructions that should work on any RPM-based distribution.

Using apt-get

This is the easiest method; it should work on any [Scientific Linux CERN 3.0.x](#) box.

Note: The version of the FUSE kernel module (package

kernel-module-fuse) needs to match *exactly* the version of the kernel installed on the Linux box. [EGRID](#) provides RPMs of the FUSE kernel module, matching the latest [Scientific Linux CERN 3](#) kernels. If you are using a different kernel, see section [Recompiling the FUSE kernel module](#).

The following commands need to be entered as `root` user.

1. Add the [EGRID RPM repository](#) to the APT sources list:

```
echo 'rpm http://www.egrid.it/download/rpm . egrid' \  
>> /etc/apt/sources.list.d/egrid.list  
echo 'rpm-src http://www.egrid.it/download/rpm . egrid' \  
>> /etc/apt/sources.list.d/egrid.list
```

2. Update the package availability list:

```
apt-get update
```

3. Install ELFI and its dependencies:

```
apt-get install elfi
```

4. Install the FUSE kernel module matching your running kernel:

```
apt-get install kernel-module-fuse-`uname -r`
```

If the installed version of `kernel-module-fuse` does not match the kernel installed on the Linux box, see the Recompiling the FUSE kernel module section.

Manual install RPMs

To install ELFI using only the `rpm` tool, you will need to also install a few packages (from the EGEE gLite distribution) that ELFI depends on.

1. Install the following system packages (any version later than written here should do fine):

```
cyrus-sasl-2.1.15-10  
e2fsprogs-1.32-15.1  
gdbm-1.8.0-20  
glib2-2.2.3-2.0  
glibc-2.3.2-95.39  
krb5-libs-1.2.7-52.slc3.1  
laus-libs-0.1-70RHEL3  
libacl-2.2.23-1  
libattr-2.4.16-1  
libgcc-3.2.3-54  
libstdc++-3.2.3-54  
openldap-2.0.27-22  
openssl-0.9.7a-33.17  
pam-0.75-67  
zlib-1.1.4-8.1
```

These are probably already present in your distro standard RPM repository (e.g., you just need issue a `yum install "package"` or `apt-get install "package"`); if not, you may download the RPM from <http://www.rpmfind.net/>

2. Install the gLite packages ELFI depends on:

```
vdt_globus_essentials  
    at least version VDT1.2.2rh9_LCG-1  
CGSI_gSOAP_2.6  
    at least version 1.1.9-1.slc3  
DPM-client  
    at least version 1.4.5-1sec_sl3  
LFC-client  
    at least version 1.4.5-1sec_sl3
```

You will find these in the gLite RPM repository.

3. Download and install FUSE packages, *at least* version 2.5.3.

These are probably part of your Linux distro already; in the [EGRID RPM repository](#) you will find [FUSE RPMs](#) compiled for [Scientific Linux CERN 3.0.x](#).

For instance, you can install [FUSE](#) version 2.5.3 on [Scientific Linux CERN 3.0.x](#) with the commands:

```
rpm -Uhv http://www.egrid.it/download/rpm/RPMS.egrid/fuse-2.5.2-3.i386.rpm
```

4. Download and install the FUSE kernel module matching the kernel installed on your Linux box. You can find binary packages of the FUSE kernel modules matching the official [Scientific Linux CERN 3.0.x](#) kernels in the [EGRID RPM repository](#).

So, you can install the FUSE kernel module for your running kernel with:

```
rpm -Uhv http://www.egrid.it/download/rpm/RPMS.egrid/kernel-module-fuse-`uname -r`-2.5.2-3
```

If no version of `kernel-module-fuse` in the [EGRID RPM repository](#) matches the kernel installed on the Linux box, see the [Recompiling the FUSE kernel module](#) section.

5. Download and install ELFI packages from the [EGRID RPM repository](#). For instance, you can install ELFI version 20060919-1340 with the commands:

```
rpm -Uhv http://www.egrid.it/download/rpm/RPMS.egrid/elfi-20060919-1340.i386.rpm
```

[ELFI](#) packages are given version numbers after the date and time of their release; so, for instance, package version 20060919-1340 is the one released on September 19th, 2006, at 13L40 hrs.

Recompiling the FUSE kernel module

Note

Note:

The [FUSE](#) kernel module has been part of the standard Linux kernel since Linux 2.6.14; in case your Linux distro comes with a 2.6 kernel, you should seek instructions to install [FUSE](#) in your distro website. Please refer to the [FUSE](#) website for additional information on how to compile and install [FUSE](#).

This section will tell you how to compile and install the [FUSE](#) kernel module, in case you cannot find a precompiled package that matches your running kernel.

1. `cd` to the directory at the top of the the RPM packages build hierarchy. This is directory `/usr/src/redhat` on [Scientific Linux CERN 3.0.x](#) ; but you can use any other directory, by following the directions at <http://dag.wieers.com/howto/bits/rpm-build-user.php>

```
# you will need to be ``root`` to compile here
cd /usr/src/redhat
```

2. Download the source RPM from the [EGRID RPM repository](#)

The following commands (you may need `root` privileges) will download the `fuse-*.src.rpm` file in the current directory:

```
# add the EGRID RPM repository to system pkg list
echo 'rpm http://www.egrid.it/download/rpm .egrid' \
> /etc/apt-sources.list.d/egrid.list
```

```
# update package availability list
apt-get update
```

```
# download the source RPM package
apt-get source fuse
```

3. Rebuild the binary package:

```
rpmbuild --rebuild -bb fuse*.src.rpm
```

The command above will put the binary RPM package in /usr/src/redhat/RPMS/fuse*.rpm.

Note

Note:

If your running kernel sources are not located under /usr/src/, then you will need to pass the location to the rpmbuild command as follows:

```
rpmbuild --define='kernelsrc PATH' --rebuild -bb fuse*.src.rpm
```

4. Install the generated RPM package:

```
rpm --nodeps -Uvh /usr/src/RPMS/*/kernel-module-fuse-`uname -r`.rpm
```

How to build ELFI from source

ELFI can be compiled on a gLite User Interface: You will need to have the commands svn, rpm2cpio, and wget installed.

0. Unfortunately, the ELFI Makefile triggers a bug in GNU make 3.79, which is the make provided in Scientific Linux CERN 3, so you will need to install make-3.80 or later. We used the following on our SLC3 machines:

```
rpm -Uvh ftp://rpmfind.net/linux/fedora/core/3/i386/os/Fedora/RPMS/make-3.80-5.i386.rpm
```

1. Download the ELFI source code:

```
svn co http://www.egrid.it/srv/svn/products/elfi/current elfi-src
```

This will check out a copy of the latest sources of ELFI into a directory elfi-src.

2. Install build-time dependencies, step 1. Some packages are already provided from the OS vendor: you should install the following packages with apt-get install (choose the package name according to your distribution):

SLC3	Debian (etch) [#1]
libacl-devel libattr-devel glib2-devel openldap-devel fuse [#2]	libacl1-dev libattr1-dev libglib2.0-dev libldap2-dev libfuse-dev

[3] You may also compile and use ELFI on Debian sarge (current stable distro), but the FUSE version distributed with sarge is too old: you will need to download and install the FUSE development libraries from another source.

[4] Available from the EGRID RPM repository at <http://www.egrid.it/download/rpm/RPMS.egrid/>

Thus on Scientific Linux CERN 3 you would use:

```

# add the EGRID RPM repository to the APT sources list
# (for the FUSE package)
echo 'rpm http://egrid-doc.egrid.it/download/rpm . egrid' \
    > /etc/apt/sources.list.d/egrid.list

# update package availability
apt-get update

# on Scientific Linux CERN 3
apt-get install \
    libacl-devel \
    libattr-devel \
    fuse \
    glib2-devel \
    openldap-devel

```

Whereas on Debian (etch) you would use the following commands instead:

```

# on Debian (etch)
apt-get install \
    libacl1-dev \
    libattr1-dev \
    libfuse-dev \
    libglib2.0-dev \
    libldap2-dev

```

3. Install other build-time dependencies. The provided Makefile will download the other dependencies for you with the `make needed` target:

```

cd elfi-src/
make needed

```

4. Compile and install ELFI:

```

make -e
make install

```

By default, ELFI is installed under the `/opt/egrid` directory hierarchy; to install in a different location, use:

```

make install prefix=/path/to/wanted/location

```

System Message: INFO/1 (<string>, line 230)

Enumerated list start value not ordinal-1: "0" (ordinal 0)

Details of build-time dependencies

castor-devel

<http://linuxsoft.cern.ch/cern/slc30X/i386/apt/RPMS.updates/castor-devel-2.1.1-1.i386.rpm>

CGSI_gSOAP_2.6-dev

http://glitesoft.cern.ch/EGEE/gLite/APT/R3.0/rhel30/RPMS.Release3.0/CGSI_gSOAP_2.6-dev-1.1.15-6.i386.rpm

gSOAP

http://switch.dl.sourceforge.net/sourceforge/gsoap2/gsoap_linux_2.6.0.tar.gz

Warning! At present, ELFI will not compile with *any later* version of gSOAP — this is a known bug, and will be worked out eventually (although with low priority)

libfuse-dev

<http://fuse.sf.net>

Warning! version >= 2.5 is needed

libacl, libattr

ftp://sunsite.dk/mirrors/xf86/cmd_tars/

glib-2.0

http://freshmeat.net/projects/glib/?branch_id=3342&release_id=79325

libldap

<http://www.openldap.org/software>

Configuring ELFI

ELFI needs no configuration files; only the system executable search path (environment variable `PATH`) and the library search path (environment variable `LD_LIBRARY_PATH`) need to be adjusted to match the location in which you installed ELFI.

1. The `elfi` program will look for the helper application `elfi-bdii-cache` in the system executable search path (environment variable `PATH`).

So, to run ELFI you must add to the `PATH` environment variable the directory containing the `elfi-bdii-cache` executables, which by default is `/opt/egrid/bin`. You can do this for just the current session by typing the following command in your shell:

```
export PATH=$PATH:/opt/egrid/bin
```

If you have installed ELFI in a location different from the default one, you will need to replace `path /opt/egrid/bin` (in the above line) with the directory where you copied the `elfi-bdii-cache` program.

To set the executable search path for all users and all sessions, you can run the following commands (as root user):

```
# create a file that will be loaded at every login
echo 'export PATH=$PATH:/opt/egrid/bin' \
> /etc/profile.d/elfi.sh
```

(The above recipe will work in RedHat-like distros, for instance in *Scientific Linux CERN*; if you use ELFI on other systems, you might have to add the "export ..." line to file `/etc/profile`.)

2. ELFI will look for the `libelfi_*.so` libraries in the system library search path (environment variable `LD_LIBRARY_PATH`).

To set the `LD_LIBRARY_PATH` environment variable for just the current session, type the following command in your shell:

```
export LD_LIBRARY_PATH=/opt/egrid/lib:$LD_LIBRARY_PATH
```

If you have installed ELFI in a location different from the default one, you will need to replace `path /opt/egrid/lib` (in the above line) with the directory where you copied the `libelfi_*.so` libraries.

To set the library load path for all users and all sessions, you can run the following commands (as root user):

```
# add ELFI library dir to system library path
# (mind the '>>' below!)
echo /opt/egrid/lib >> /etc/ld.so.conf
```

```
# update system library index
ldconfig
```

Getting support

Mailing list

You can subscribe the ELFI mailing list at <http://www.egrid.it/cgi-bin/mailman/listinfo/elfi> ; the mailing list is a forum for discussing all issues about ELFI, including support requests and new feature suggestions.

You can post to the mailing list by sending mail to the address elfi@egrid.it.

IRC channel

You can join the ELFI team online on channel #egrid on the freenode IRC network server `irc.freenode.net`.

An IRC client is available online at <http://www.egrid.it/irc> which will take you directly to the EGRID support channel.

Bugs

Please report any bugs through our [issue tracking](http://www.egrid.it/bugs) web interface at <http://www.egrid.it/bugs>

Note

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This document is a first draft; if you find anything missing, incorrect, or simply unclear, please report it to the email address above, or to the ELFI mailing-list: elfi@egrid.it. Thank you!