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# LHCb software installation

This page describes the steps needed to make a standalone LHCb software installation on a local or shared filesystem.

The recommended way to access LHCb software is however to mount the CernVM-FS filesystem, please refer to:

- The CVMFS client installation page: <https://cernvm.cern.ch/portal/filesystem/quickstart>
- the excellent CernVM-FS deployment page maintained by the UK GridPP.

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## Supported software platforms

These instructions are intended for software managers installing the LHCb software at LHCb institutes on officially supported platforms.

See also these user recipes for hints on installing on non-supported platforms.

If you find problems with these instructions, or with the `install_project.py` script, please report them to the `install_project` category of the LBCORE Jira tracker.

## Installation procedure

The following instructions assume you are using a sh-like shell. For bash like shells just replace command like `export XXX=YYYY` with `setenv XXX YYY` and use the script `LbLogin.csh` instead of `LbLogin.sh`.

You should first decide where to install the software and set `MYSITEROOT` to the full path:

- `export MYITEROOT someDirectory`
- Install the `lbininstall` python module using pip and for example in a virtual environment:

```
virtualenv install
source install/bin/activate
pip install lbininstall
```

- Install the LHCb base packages:

```
lbininstall --root=$TMPDIR/myroot install LBSCRIPTS CMT COMPAT
```

- Install the packages requested. e.g. `slc6/gcc62` packages for DaVinci `v42r1`:

```
lbininstall --root=$TMPDIR/myroot install DAVINCI_v42r1_x86_64_slc6_gcc62_opt
```

For more information about the `lbininstall` tool: <https://gitlab.cern.ch/lhcb-core/lbininstall>

## Installation procedure for historical stacks (pre-2014)

**The installation is made of several steps. The order is very important and none of them can be skipped. Make sure that the step is correctly finished before to go to the next.**

The following instructions assume you are using a csh-like shell. For bash like shells just replace command like `setenv XXX YYY` with `export XXX=YYYY` and use the script `LbLogin.sh` instead of `LbLogin.csh`.

You should first decide where to install the software and set `MYSITEROOT` to the full path (no softlink):

- `setenv MYISITEROOT someDirectory`
- `cd $MYSITEROOT`
- The python script will install
  - ◆ CMT and OpenScientist below `$MYSITEROOT/contrib`
  - ◆ LCG and externals below `$MYSITEROOT/lcg/external` and `$MYSITEROOT/lcg/app/releases`
  - ◆ scripts below `$MYSITEROOT/scripts`
  - ◆ LHCb software below `$MYSITEROOT/lhcb`

You should set the following environment variable:

- `setenv CMTCONFIG x86_64-slc5-gcc43-opt` : your binary directory name (if you can choose one of the CMTCONFIGS defined for the supported platforms you can then use the option to download the lcg software binaries)

Download the python scripts `install_project.py` [↗](#)

```
wget http://lhcbproject.web.cern.ch/lhcbproject/dist/install_project.py
python install_project.py -h
```

This will print the `install_project.py` help text, also shown here.

## Examples of using `install_project.py` to install DaVinci including binary code

```
setenv MYISITEROOT /scratch/Install
cd $MYSITEROOT
setenv CMTCONFIG x86_64-slc5-gcc43-opt
python install_project.py -b DaVinci v20r3
```

will install all required projects by DaVinci v20r3 for the `x86_64-slc5-gcc43-opt` binary platform.

The `-b` option means the pre-compiled binaries are also included and the program should have all of the requirement to run immediately.

## Running DaVinci after downloading using the released version

To use your locally installed copy of DaVinci:

```
setenv MYISITEROOT /scratch/Install
setenv CMTCONFIG x86_64-slc5-gcc43-opt
source $MYSITEROOT/LbLogin.csh ! this is essential to set all <project>_release_area environment
```

Then use `lb-run`, see [SoftwareEnvTools#Runtime](#)

To save a few lines of typing you can place the first three lines in a local script and source that instead. These need to be executed, one way or another, for each new terminal you start.

The example above is for csh like shells. For bash just use

```
export MYISITEROOT=/scratch/Install
```

```
export CMTCONFIG=x86_64-slc5-gcc43-opt
source $MYSITEROOT/LbLogin.sh ! this is essential to set all <project>_release_area environment v
```

Similarly for the examples below.

## Accessing specific packages

You should use Git. See [Git4LHCb](#)

## Running DaVinci after downloading using a private version

```
setenv MYSITEROOT /scratch/Install
setenv CMTCONFIG x86_64-slc5-gcc43-opt
setenv User_release_area $HOME/cmtuser
source $MYSITEROOT/LbLogin.csh ! this is essential to set all <project>_release_area environmen
```

Then use `lb-dev`, see [SoftwareEnvTools#Development](#)

You can also add any other package to DaVinci at the `getpack` step. See the [LHCbSoftwareTutorials](#) for examples of adding packages to DaVinci.

## Special Case for

Read the instructions [here](#)

## Documentation

- The LHCb Software distribution (*Hubert Degaudenzi*) Computing in High Energy and Nuclear Physics (CHEP 2009) Prague, Czech Republic, March 21-27, 2009 ([abstract](#), [poster](#)).

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