

# Installing LOFAR Software on a CentOS 6.5 (Final) system (cluster Newton of the AIP Potsdam)

— [Frank Breitling](#) 2015/06/26 18:47

I was mainly following the previous installation notes provided by others:

[http://www.lofar.org/operations/doku.php?id=public:user\\_software:lofar](http://www.lofar.org/operations/doku.php?id=public:user_software:lofar)

[http://www.lofar.org/operations/doku.php?id=engineering:user\\_software:ubuntu\\_12\\_4](http://www.lofar.org/operations/doku.php?id=engineering:user_software:ubuntu_12_4)

However a few problems occurred and had to be solved as described below.

Ideas and support by **Arno Schoenmakers**, **Ger van Diepen** and **Marcel Loose** were very helpful and highly appreciated.

This instruction will install all packages in \$HOME/local/.

## 1. Setup of the environment

### 1.1 Pathes

For the installation of Pyrap (python-casacore) we need a Python path with write access.

So I added the following two lines to my \$HOME/.bashrc:

```
export PYTHONPATH=$HOME/local/lib64/python2.6/site-packages:$PYTHONPATH
export PATH=$HOME/local:$PATH
```

### 1.2 CMake

The 4 Newton head nodes provide CMake 2.6 by default, but the LOFAR Software requires at least 2.6.6. A sufficiently recent version of CMake 3.0.0 is provided via [Environment Modules](#) (see also <http://modules.sourceforge.net/>).

The environment modules also provide more recent HDF5 libraries. Both could be loaded by adding the following line to my \$HOME/.bashrc:

```
module load cmake hdf5
```

Unfortunately the CMake 3.0.0 loaded on newl1 is broken. Furthermore loading the HDF5 libs has no effect on the libs found by CMake, which are still the system's default. So we don't load any module and don't add this line to the .bashrc. Instead we build our own CMake as follows:

```
mkdir -p $HOME/local/src
cd $HOME/local/src
wget http://www.cmake.org/files/v3.2/cmake-3.2.3.tar.gz
```

```
tar xf cmake-3.2.3.tar.gz
cd cmake-3.2.3
bootstrap --prefix $HOME/local
make -j12
make install
```

## 2. Installation of required packages

Next we need to build and install these other packages as follows:

```
cd $HOME/local/src/
wget ftp://ftp.atnf.csiro.au/pub/software/wcslib/wcslib.tar.bz2
tar xf packages/wcslib.tar.bz2
cd wcslib-5.6/
./configure --prefix=$HOME/local/
make install

cd $HOME/local/src/
wget http://www.fftw.org/fftw-3.3.4.tar.gz
cd fftw-3.3.4
configure --prefix=$HOME/local --enable-threads --enable-shared --enable-
float
make -j12 install
```

## 3. Installation the LOFAR software

Now we can continue building the LOFAR software.

### 3.1 Essential CMake switches

We will need these essential CMake switches:

1. -DBoost\_NO\_BOOST\_CMAKE=ON
2. -DUSE\_LOG4CPLUS=NO
3. -DUSE\_BACKTRACE=OFF
4. -DCMAKE\_INSTALL\_PREFIX:PATH=\$HOME/local

1.) Is necessary when using some older versions of boost with cmake-2.8.6-rc2 or later, where the boost finding has changed.

(See

<https://stackoverflow.com/questions/9948375/cmake-find-package-succeeds-but-returns-wrong-path.>)

Otherwise make will show this error later:

```
make[2]: *** No rule to make target
`/usr/lib64/lib64/libboost_program_options-mt.so.5', needed by `segment'.
Stop.
make[1]: *** [CMakeFiles/segment.dir/all] Error 2
make: *** [all] Error 2
```

2.) Is necessary if the Log4cplus libs are not installed.

3.) Is necessary if building shared libraries (the default with LOFAR), but libiberty.so is not installed on your system, only libiberty.a.

(See [https://support.astron.nl/lofar\\_issuetracker/issues/8046](https://support.astron.nl/lofar_issuetracker/issues/8046)).

4.) Sets the install path to \$HOME/local/.

### 3.2 Casacore

So we can build the rest of the packages as follows:

```
cd ~local/src/
git clone https://github.com/casacore/casacore
mkdir build/casacore
cd build/casacore
time cmake -DBUILD_PYTHON=yes -DCMAKE_INSTALL_PREFIX=~/.local -DUSE_FFTW3=yes
-DUSE_OPENMP=yes \
-DDATA_DIR=~/.local/data -DUSE_HDF5=yes -DCMAKE_PREFIX_PATH="$HOME/local;"
../../casacore
time make -j12
make install
```

### 3.3 Pyrap

```
pip install python-casacore --global-option=build_ext --global-option=-
I/usr/include/cfitsio:$HOME/local/include \
--global-option=-L$HOME/local/lib --install-option=--prefix=$HOME/local
```

#### 3.3.1 Alternative Pyrap installation

Or alternatively if we don't want to install Pyrap with *pip* we can do:

```
cd ~/.local/src/ git clone https://github.com/casacore/python-casacore.git
cd python-casacore
python setup.py build_ext -I/usr/include/cfitsio:$HOME/local/include -
L$HOME/local/lib
python setup.py install --prefix=$HOME/local
```

### 3.4 Casarest

Now we continue with the rest:

```
cd ~local/src/
svn co https://svn.astron.nl/casarest/trunk/casarest
mkdir build/casarest
cd build/casarest
cmake -DCASACORE_ROOT_DIR=$HOME/local -DBUILD_ALL=1 -
DCMAKE_INSTALL_PREFIX:PATH=$HOME/local \
  -DCMAKE_PREFIX_PATH=/usr/include/cfitsio -DUSE_OPENMP=yes -
DBoost_NO_BOOST_CMAKE=ON ../../casarest
time make -j12
make install
```

### 3.4 DP3 and Calibration

```
cd ~local/src/
svn checkout --ignore-externals https://svn.astron.nl/LOFAR/trunk LOFAR
mkdir -p build/gnu_opt
cd build/gnu_opt
cmake -DCASACORE_ROOT_DIR=$HOME/local -DBUILD_PACKAGES="DP3 Calibration" -
DCMAKE_INSTALL_PREFIX:PATH=$HOME/local \
  -DUSE_OPENMP=yes -DUSE_LOG4CPLUS=NO -DUSE_BACKTRACE=OFF -
DBoost_NO_BOOST_CMAKE=ON ../../LOFAR
time make -j12
make install
```

Done!

Now the commands NDPPP and calibrate-stand-alone should be available on this system.

Enjoy!

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