

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=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 \$HOME/.bashrc:

```
module load cmake hdf5
```

But unfortunately the CMake 3.0.0 loaded on the head node 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).

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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<https://www.astron.nl/lofarwiki/> - **LOFAR Wiki**

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https://www.astron.nl/lofarwiki/doku.php?id=public:install_lofar_centos6.5&rev=1435398996

Last update: **2015-06-27 09:56**

