

## About this wiki

The following best practices document aims to provide some hints and examples on how to install and configure <http://www.gnu.org/software/octave/> on a grid based infrastructure.

## About Octave

GNU Octave is a high-level interpreted language, primarily intended for numerical computations. It provides capabilities for the numerical solution of linear and nonlinear problems, and for performing other numerical experiments. It also provides extensive graphics capabilities for data visualization and manipulation. Octave is normally used through its interactive command line interface, but it can also be used to write non-interactive programs. The Octave language is quite similar to Matlab so that most programs are easily portable.

## System requirements

The instructions from this best practice have been tested on a:

- OS: Scientific Linux SL release 5.4 (Boron)
- Compiler: GNU 4.4.0;
- Arch: x86\_64.

Before to install Octave, please install from repo the following list of packages:

```
$ yum install -y gcc44 gcc44-c++.x86_64 gcc44-gfortran
$ yum install -y glibc-devel
$ yum install -y libtermcap-devel
$ yum install -y ImageMagick
$ yum install -y flex
$ yum install -y bison
$ yum install -y gperf
$ yum install -y compat-readline
$ yum install -y readline-devel
$ yum install -y texinfo
$ yum install -y suitesparse
$ yum install -y hdf5
$ yum install -y libgfortran
$ yum install -y libtermcap-devel
$ yum install -y gnuplot.x86_64 gnuplot42.x86_64
$ yum install -y pcre.x86_64 pcre-devel.x86_64
$ yum install -y blas.x86_64
$ yum install -y apack.x86_64 lapack-devel.x86_64
$ yum install -y curl-devel
$ yum install -y fftw3 fftw3-devel
$ yum install -y fltk.x86_64 fltk-devel.x86_64 fltk-fluid.x86_64
$ yum install -y libX11-devel
$ yum install -y mesa-libGLU-devel
```

## Source Pack

The following tar-zipped gtgz source packs are available for download.

Pack	File
tar.bz2	octave-3.2.4.tar.bz2
tar.gz	octave-3.2.4.tar.gz

## Unpacking the source and installation

In a grid-based infrastructure we would recommend to install the software in the experiment software directory for the VO using sgm privileges and share this software packages with other VO members. In this wiki we chosen to unpack this software under the `$VO_GRIDIT_SW_DIR` directory of the grid CE.

```
$ cd $VO_GRIDIT_SW_DIR
$ wget ftp://ftp.gnu.org/gnu/octave/octave-3.2.4.tar.gz
$ tar zxvf octave-3.2.4.tar.gz
$ rm -f octave.3.24.tar.gz
```

## Building Octave-3.2.4

```
$ ./configure --prefix=/opt/exp_soft/gridit/Octave-3.2.4
                --with-magick=ImageMagick
                --without-grupdate
                --without-curl CC=gcc44 CXX=g++44 F77=gfortran44
                --enable-docs=no >log 2>log &

$ make
$ make install
```

## Installing add-ons

Extra packages for GNU Octave-3.2.4 can be freely downloaded from [here](#)

We suggest to download and install the following packages:

Packages	details	download
<a href="#">java-1.2.8.tar.gz</a>	<a href="#">details</a>	<a href="#">download</a>
<a href="#">miscellaneous-1.0.11.tar.gz</a>	<a href="#">details</a>	<a href="#">download</a>
<a href="#">optim-1.0.17.tar.gz</a>	<a href="#">details</a>	<a href="#">download</a>
<a href="#">signal-1.1.1.tar.gz</a>	<a href="#">details</a>	<a href="#">download</a>
<a href="#">specfun-1.0.9.tar.gz</a>	<a href="#">details</a>	<a href="#">download</a>
<a href="#">struct-1.0.9.tar.gz</a>	<a href="#">details</a>	<a href="#">download</a>

Create a plugin directory for downloading the plugins:

```
$ cd /opt/exp_soft/gridit/octave-3.2.4/plugins
$ tree plugins/
plugins/
|-- java-1.2.8.tar.gz
|-- miscellaneous-1.0.11.tar.gz
|-- optim-1.0.17.tar.gz
|-- signal-1.1.1.tar.gz
|-- specfun-1.0.9.tar.gz
`-- struct-1.0.9.tar.gz
0 directories, 6 files
```

Start Octave and go to the directory where you placed the downloaded package. Then type :

```
$ octave
GNU Octave, version 3.2.4
Copyright (C) 2009 John W. Eaton and others.
This is free software; see the source code for copying conditions.
There is ABSOLUTELY NO WARRANTY; not even for MERCHANTABILITY or
FITNESS FOR A PARTICULAR PURPOSE. For details, type `warranty'.

Octave was configured for "x86_64-unknown-linux-gnu".
```

## Octave < UserSupport < TWiki

Additional information about Octave is available at <http://www.octave.org>.

Please contribute if you find this software useful.

For more information, visit <http://www.octave.org/help-wanted.html>

Report bugs to (but first, please read

<http://www.octave.org/bugs.html> to learn how to write a helpful report).

For information about changes from previous versions, type `news`.

```
octave:1> pkg install java-1.2.8.tar.gz \  
             miscellaneous-1.0.11.tar.gz \  
             struct-1.0.9.tar.gz \  
             optim-1.0.17.tar.gz \  
             specfun-1.0.9.tar.gz \  
             signal-1.1.1.tar.gz
```

## Testing the installation

Before to start, please add the Octave binary to the *PATH* and the libraries to the *LD\_LIBRARY\_PATH* variables.

```
$ export PATH=$PATH:/opt/exp_soft/gridit/Octave-3.2.4/bin/
```

```
$ export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/opt/exp_soft/gridit/Octave-3.2.4/lib/octave-3.2.4/
```

Now, you can launch the octave CLI

```
$ octave  
GNU Octave, version 3.2.4  
Copyright (C) 2009 John W. Eaton and others.  
This is free software; see the source code for copying conditions.  
There is ABSOLUTELY NO WARRANTY; not even for MERCHANTABILITY or  
FITNESS FOR A PARTICULAR PURPOSE. For details, type `warranty`.  
  
Octave was configured for "x86_64-unknown-linux-gnu".  
  
Additional information about Octave is available at http://www.octave.org.  
  
Please contribute if you find this software useful.  
For more information, visit http://www.octave.org/help-wanted.html  
  
Report bugs to (but first, please read  
http://www.octave.org/bugs.html to learn how to write a helpful report).  
  
For information about changes from previous versions, type `news`.  
  
octave:1>
```

## References

Octave Home page

-- GiuseppeLaRocca - 2011-12-15

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