Install Wildkatze

Dravvya Simulation and Engineering

1 Obtaining Wildkatze

Wildkatze is compiled using **cmake** (2.9 or higher). The installation is a two-step procedure:

1.1 Solver Download

One shall obtain the base package from Dravvya S&E website. Unzip the base package folder to obtain Wildkatze solver package for **Linux** OS.

The bin folder contains the executables and Java JRE file for solver GUI. Note that out of the box solver does not run, because the provided license file is not a valid one.

1.2 License File

To run Wildkatze solver one needs a valid license file, this is valid even for learning or free version. A license file can be obtained from Dravvya S&E support, email address: dravyya@dravvya.co.in.

Once the valid license file is obtained, the solver is prepared to run.

2 Running GUI Client

Wildkatze solver can run in client-server and standalone modes. The client-server mode is mainly used for setting up the simulation. We advise to run the iterations in standalone mode, since it is faster. The interaction with client slows down the solver and simulation time in client-server mode is more.

Before the GUI-client is launched, one needs to set up LD_LIBRARY_PATH to point to the vtk provided with Wildkatze. It is present in the vtk folder.

For example:

```
export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/home/savya/FVUS4/vtk
```

Then the GUI-client is launched as:

```
export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/home/savya/FVUS4/vtk
```

3 Running Wildkatze Solver

The solver is present in the bin folder with name of wildkatze. It requires OpenMPI to run, hence one needs to obtain OpenMPI (Wildkatze uses openmpi-1.10.3).

3.1 OpenMPI

Wildkatze uses **OpenMPI**. Installing OpenMPI:

```
sudo apt-get install libibnetdisc-dev
wget http://www.open-mpi.org/software/ompi/v1.10/downloads/openmpi-1.10.3.tar.gz
tar -xvzf openmpi-1.10.3.tar.gz
cd openmpi-1.10.3
./configure --prefix="/home/%USER/.openmpi"
sudo add-apt-repository ppa:ubuntu-toolchain-r/test
make && sudo make install
export PATH="$PATH:/home/$USER/openmpi/bin"
export LD_LIBRARY_PATH="LD_LIBRARY_PATH:/home/%USER/.openmpi/lib/"
mpirun
```

(A) Add environment path into global profile:

```
vim /etc/profile
```

Another alternative is to edit the **.bashrc** file. This is useful if you install the OpenMPI for local user without messing up the global environment settings.

(B) Add environment path into local user profile:

```
add PATH="$PATH:/home/$USER/.openmpi/bin" and
LD_LIBRAARY_PATH="$LD_LIBRARY_PATH:/home/$USER/.openmpi/lib/"
```

into **.badhrc** file, then run source **.bashrc**.

3.2 Standalone

Standalone solver can be run with following command:

```
path_to_bin/wildkatze -l path_to_license/license.wildkatze.dat
```

Here path_to_bin and path_to_license are full paths to the Wildkatze solver and valid license file.

3.3 Server Mode

Solver in server mode can be run with following command:

```
path_to_bin/wildkatze -l path_to_license/license.wildkatze.dat -s port_number
```

Here port_number is port number on which server shall be running. It shall be above 5000 in integer value.

3.4 Batch Mode

Solver in Batch mode is run to process TUI commands provided in a text file:

```
path_to_bin/wildkatze -l path_to_license/license.wildkatze.dat -f batch_file.txt
```

4 fvuslib

This is base library which is created to help with user coding. The main purpose of this library is to provide base classes so that user can use them. These functions are virtual in base class and over hidden in Wildkatze. This way, when user calls them in his code, the implemented functions in Wildkatze can

be called.

Here is how to compile **fvuslib**:

```
cd fvuslib
cd build
cmake -DCMAKE_CXX_COMPILER=mpic++ -DCMAKE_CXX_FLAGS=-O3 -DCMAKE_BUILD_TYPE=Release  ../
sudo make install
```