Installation of HOL & HOL Light in Linux

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Installation of HOL

Following are the steps for error free installation of HOL in Linux.

1- Make sure that the GCC compiler is properly installed, if not then open the terminal and use the following command.

```
sudo apt-get update
```

```
sudo apt-get install build-essential
```

2- Download the PolyML 5.7 (Download Link: https://osdn.net/frs/g_redir.php?m=kent&f=polyml%2Fpolyml%2F5.7%2Fpolyml-5.7.tar.gz).

Untar the package into any directory of your choice.

3- Open the terminal and enter into the package directory using cd command. e.g.

```
waqar@ubuntu:~ cd /Downloads/polyml-5.7$
```

4- In the PolyML directory, type the following commands one by one;

```
./configure --prefix=/usr
```

```
make
```

```
sudo make install
```

5- The latest HOL-kananankis-12 (HOL4) can be download from GitHub (https://github.com/HOL-Theorem-Prover/HOL)
   a. If you have a GitHub account then fork the complete HOL source files (Click the fork button at top RHS)

    b. Click the button "Clone and Download" and copy the download link (https://github.com/ahmedwaqar/HOL.git)

    c. Open the Terminal shell and run the "git clone" command e-g.,

```
waqar@ubuntu:~/Downloads/git clone https://github.com/ahmedwaqar/HOL.git
```

Once the download finished and enter into the HOL package directory using cd command. e.g.

```
waqar@ubuntu:~/Downloads/HOL$
```

6- Type the following command in terminal,

```
poly < tools/smart-configure.sml
```

Wait for configuration to complete.

7- Type the following command in terminal,

```
bin/build
```

The installation of HOL begins if the above procedure is followed correctly, and after some time, it will complete the installation.

8- Install the Emacs by using the following command in the terminal.

```
sudo apt-get install emacs
```

After completion of Emacs installation, open emacs, and load the file "hol-mode.el" from HOL directory. e.g.

a) At Emacs, Press ALT-x and type "load-file" then press enter
b) A cursor appears at the bottom, type the path "~/Downloads/HOL/tools/hol-mode.el" then press enter
c) Press ALT-h 3 (it will split the Emacs screen into two columns and the HOL shell is running on the right screen)
d) The tab "HOL", at the top of Emacs bar, contains several shortcuts to interact with HOL shell.

A more detail description of the Emacs HOL commands can be found in https://hol-theorem-prover.org/hol-mode.html.

Installation of HOL LIGHT

Open the terminal and run the following commands step by step that will download, compile and install HOL LIGHT, including compatible versions of OCaml and Camlp5.

1- Make the directory for installation of HOL LIGHT by using following command.

mkdir hol-light-workbench

2- Enter into HOL LIGHT directory by using following command.

```
cd hol-light-workbench
```

3- Download the script that will download, compile and install HOL LIGHT, by using the following command.

```
wget https://bitbucket.org/akrauss/hol-light-workbench/raw/tip/setup
```

4- Go to HOL Light folder and edit the downloaded setup file as:

Replace svn checkout http://hol-light.googlecode.com/svn/trunk/hol-light at line 50 with svn checkout https://github.com/jrh13/hol-light

5- Run the following command after Step 3.

```
chmod 755 setup
```

6- Run the script by using the following command.

```
./setup
```

This will complete the OCaml, Camlp5 & HOL-LIGHT installation.

7- Now run following command to adjust paths.

```
. setpaths
```

Now, you can run HOL Light as follows:

```
cd hol-light
```

```
cd trunk
```

```
ocaml
```

```
# #use "hol.ml";;
```