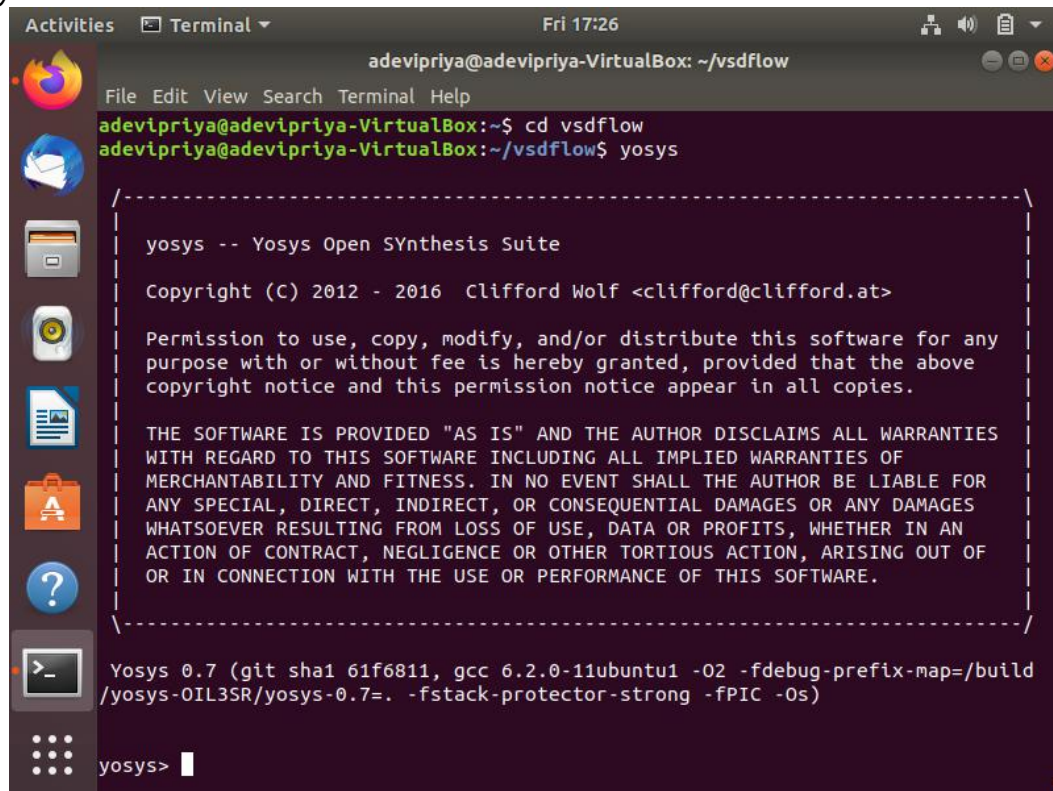


1. Yosys :



A terminal window titled 'adevipriya@adevipriya-VirtualBox: ~/vsdfow' showing the installation of Yosys. The user runs 'cd vsdfow' and then 'yosys'. The output displays the Yosys version (0.7), copyright information (2012-2016 Clifford Wolf), and a license notice. The prompt changes to 'yosys>'.

```
adevipriya@adevipriya-VirtualBox:~/vsdfow$ cd vsdfow
adevipriya@adevipriya-VirtualBox:~/vsdfow$ yosys

-----
yosys -- Yosys Open SYNthesis Suite

Copyright (C) 2012 - 2016 Clifford Wolf <clifford@clifford.at>

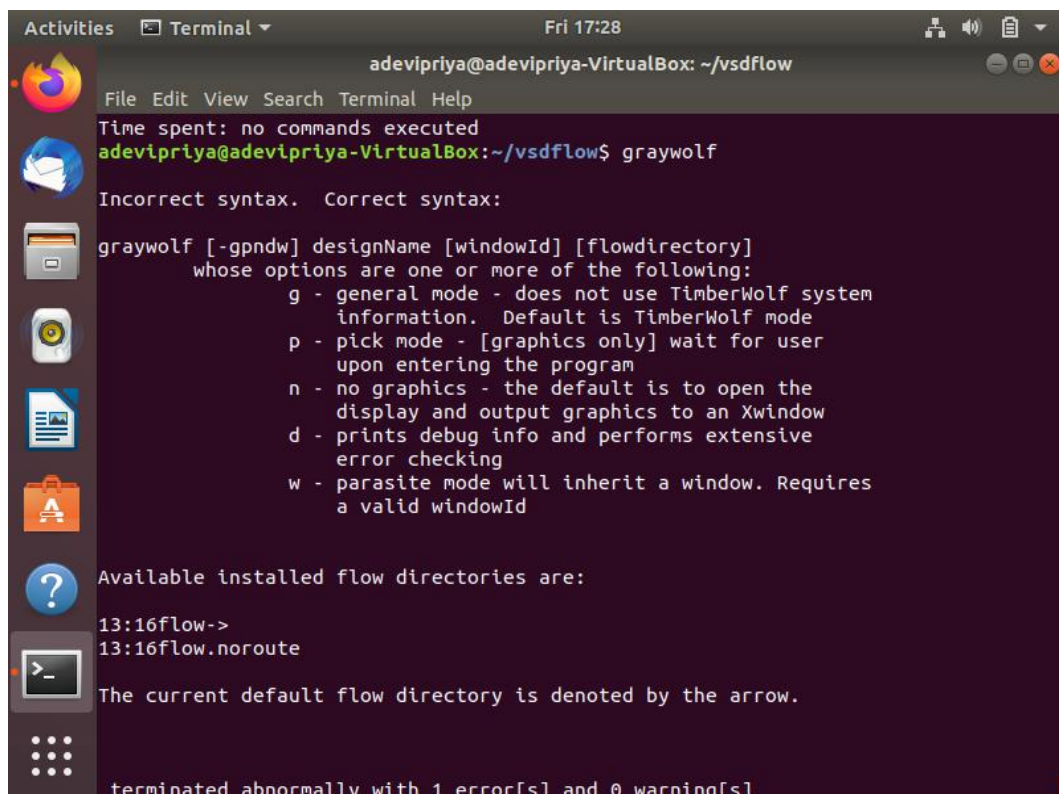
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WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR
ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES
WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN
ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF
OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.
-----

Yosys 0.7 (git sha1 61f6811, gcc 6.2.0-11ubuntu1 -O2 -fdebug-prefix-map=/build
/yosys-0IL3SR/yosys-0.7=. -fstack-protector-strong -fPIC -Os)

yosys>
```

2. Graywolf :



A terminal window titled 'adevipriya@adevipriya-VirtualBox: ~/vsdfow' showing the help output of Graywolf. The user runs 'graywolf'. The output displays the correct syntax for the command, a list of options (g, p, n, d, w), and the available installed flow directories (13:16flow-> and 13:16flow.noroute). The prompt changes to '13:16flow->'.

```
adevipriya@adevipriya-VirtualBox:~/vsdfow$ graywolf

Incorrect syntax. Correct syntax:

graywolf [-gpndw] designName [windowId] [flowdirectory]
    whose options are one or more of the following:
        g - general mode - does not use TimberWolf system
            information. Default is TimberWolf mode
        p - pick mode - [graphics only] wait for user
            upon entering the program
        n - no graphics - the default is to open the
            display and output graphics to an Xwindow
        d - prints debug info and performs extensive
            error checking
        w - parasite mode will inherit a window. Requires
            a valid windowId

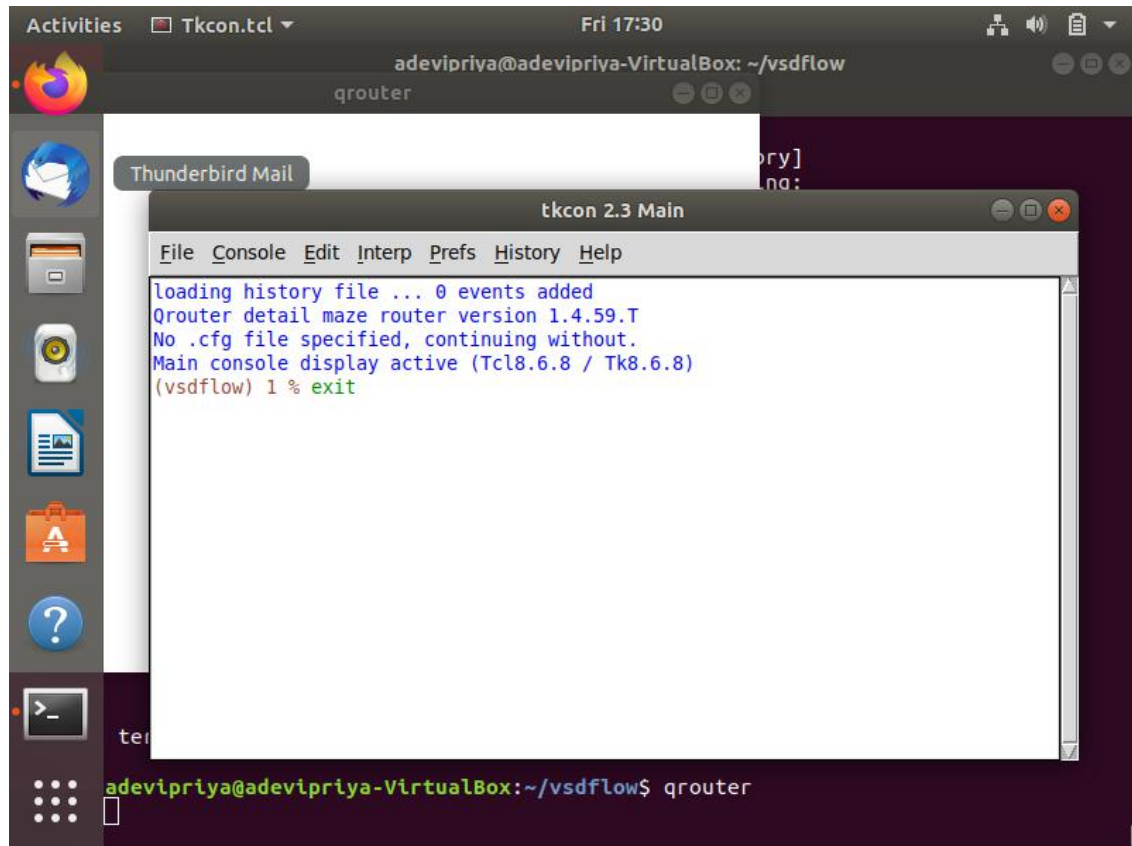
Available installed flow directories are:

13:16flow->
13:16flow.noroute

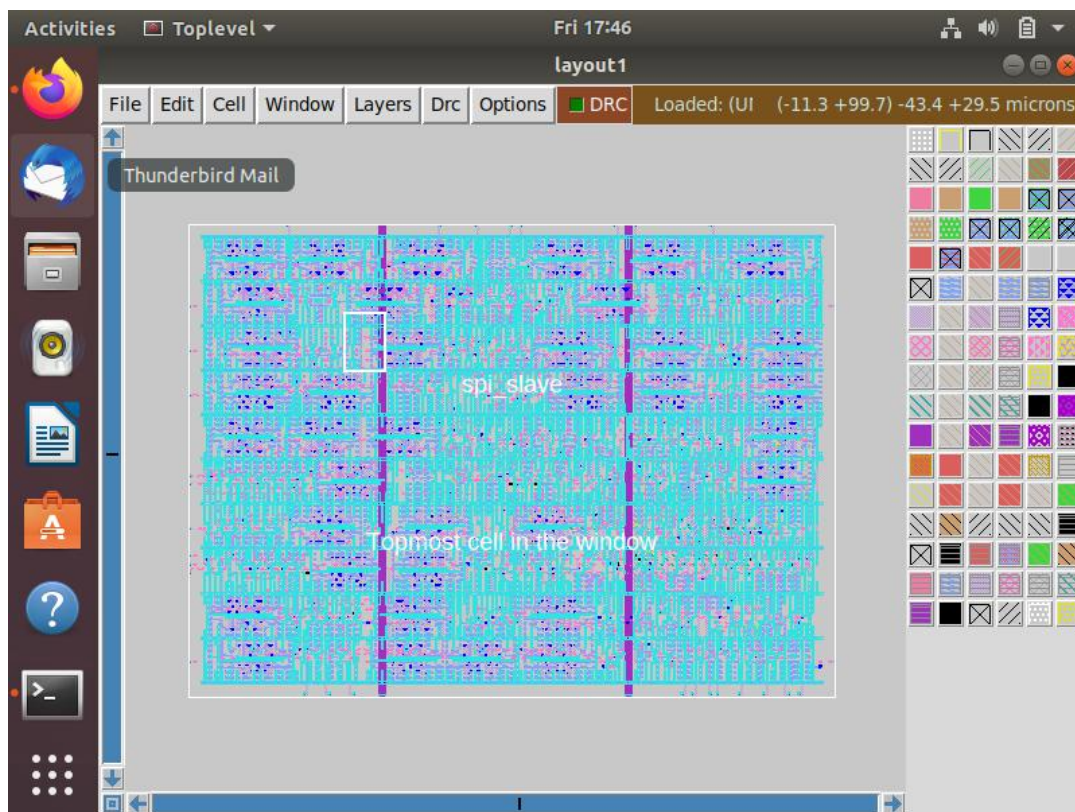
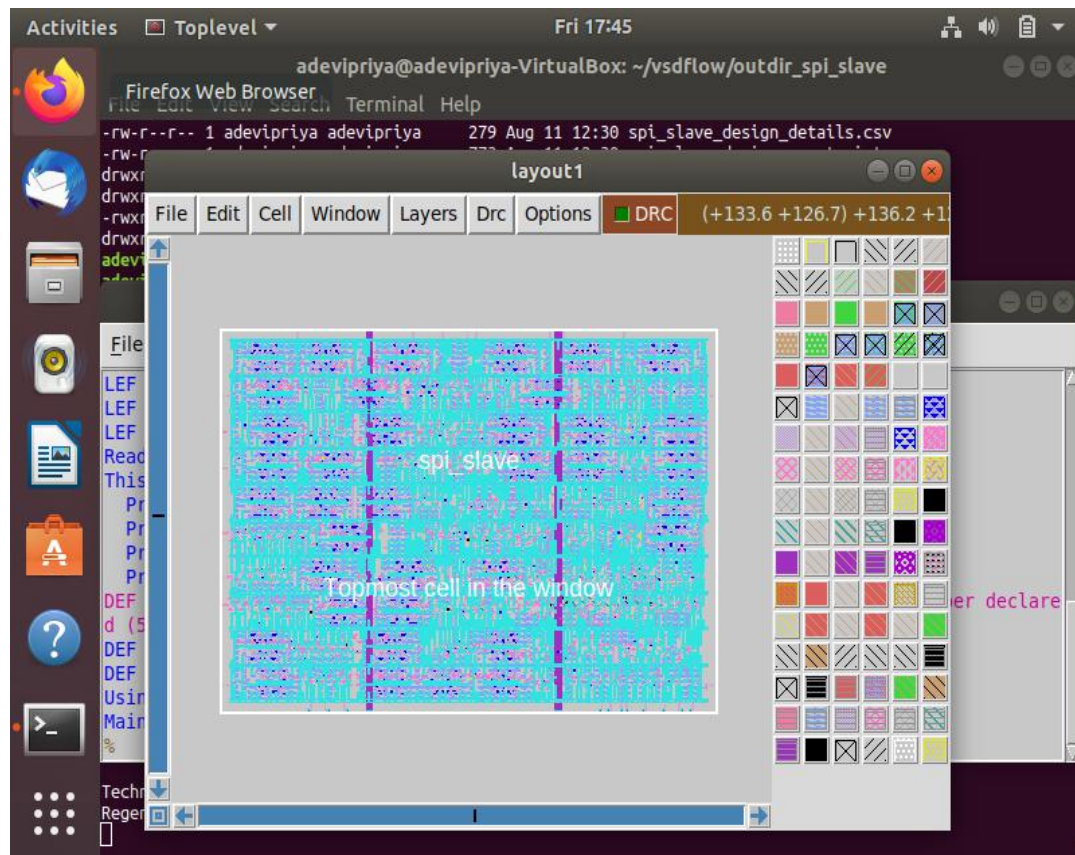
The current default flow directory is denoted by the arrow.

13:16flow->
```

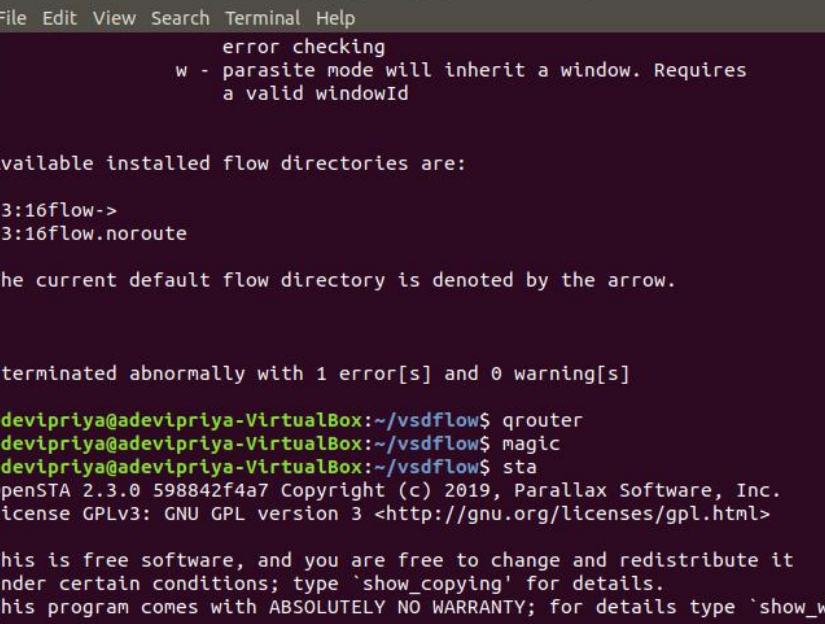
3. qrouter :



4. magic :



5. sta :



```
FRI 17:31
adevipriya@adevipriya-VirtualBox: ~/v sdflow
File Edit View Search Terminal Help
error checking
w - parasite mode will inherit a window. Requires
a valid windowId
Available installed flow directories are:
13:16flow->
13:16flow.noroute
The current default flow directory is denoted by the arrow.
terminated abnormally with 1 error[s] and 0 warning[s]
adevipriya@adevipriya-VirtualBox:~/v sdflow$ grouter
adevipriya@adevipriya-VirtualBox:~/v sdflow$ magic
adevipriya@adevipriya-VirtualBox:~/v sdflow$ sta
OpenSTA 2.3.0 598842f4a7 Copyright (c) 2019, Parallax Software, Inc.
License GPLv3: GNU GPL version 3 <http://gnu.org/licenses/gpl.html>
This is free software, and you are free to change and redistribute it
under certain conditions; type `show_copyright' for details.
This program comes with ABSOLUTELY NO WARRANTY; for details type `show_warranty'
.
% exit
adevipriya@adevipriya-VirtualBox:~/v sdflow$
```

6. OpenTimer :

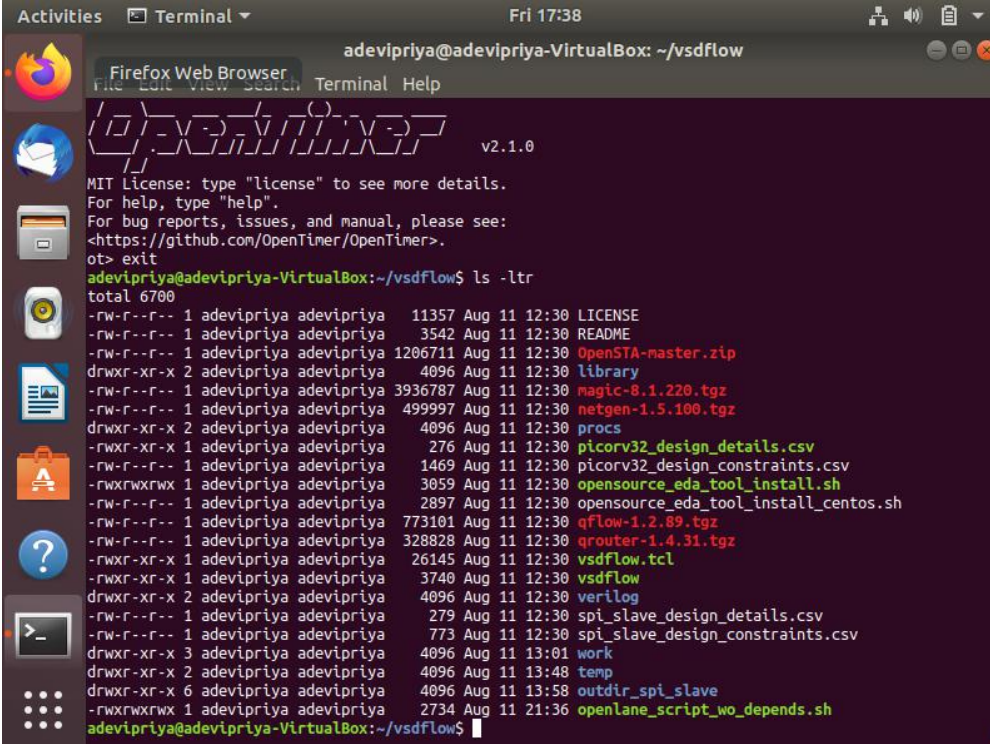
The screenshot shows a Linux desktop environment with a terminal window open. The terminal title bar indicates the user is logged in as 'adevipriya' at 'adevipriya-VirtualBox'. The terminal output shows the following sequence of commands and responses:

```
adevipriya@adevipriya-VirtualBox: ~/vsdflow  
adevipriya@adevipriya-VirtualBox:~/vsdflow$ grouter  
adevipriya@adevipriya-VirtualBox:~/vsdflow$ magic  
adevipriya@adevipriya-VirtualBox:~/vsdflow$ sta  
OpenSTA 2.3.0 598842f4a7 Copyright (c) 2019, Parallax Software, Inc.  
License GPLv3: GNU GPL version 3 <http://gnu.org/licenses/gpl.html>  
  
This is free software, and you are free to change and redistribute it  
under certain conditions; type `show_copying` for details.  
This program comes with ABSOLUTELY NO WARRANTY; for details type `show_warranty`  
%.  
% exit  
adevipriya@adevipriya-VirtualBox:~/vsdflow$ OpenTimer
```

The ASCII art logo for OpenTimer is displayed, followed by the version number v2.1.0.

```
v2.1.0  
MIT License: type "license" to see more details.  
For help, type "help".  
For bug reports, issues, and manual, please see:  
<https://github.com/OpenTimer/OpenTimer>.ot> exit  
adevipriya@adevipriya-VirtualBox:~/vsdflow$
```

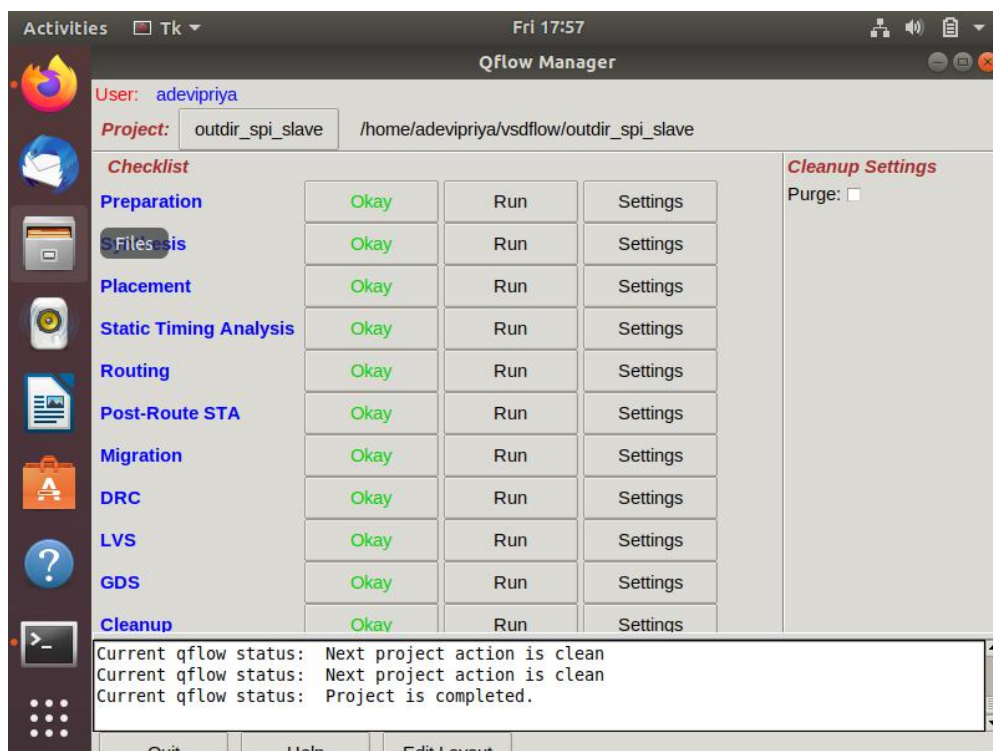

TEST CASE :

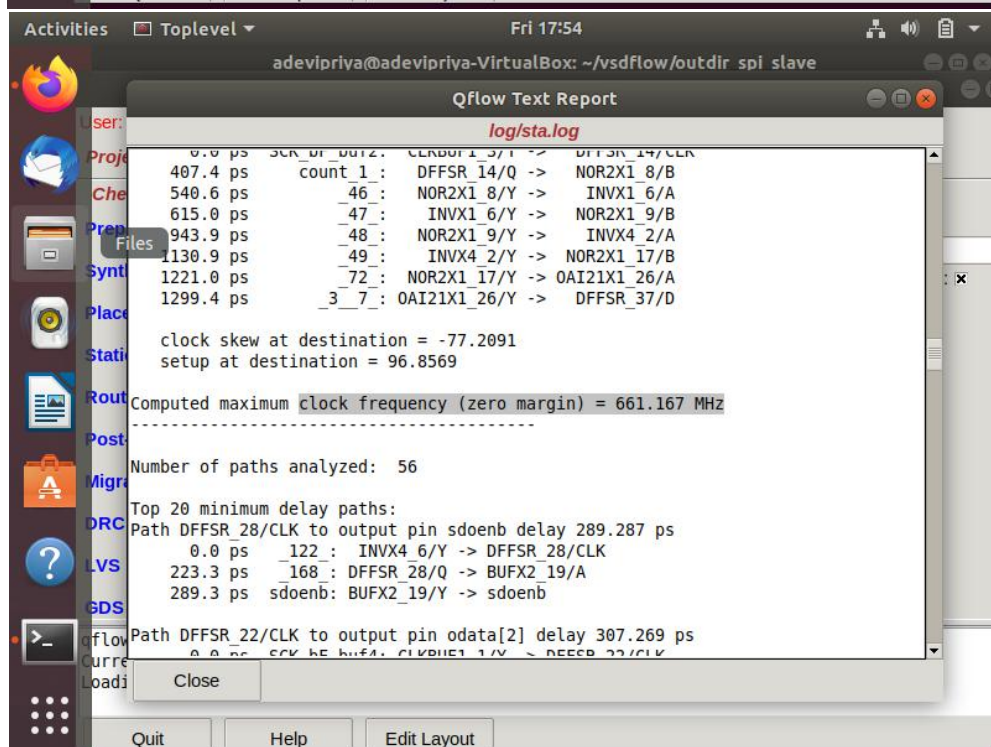
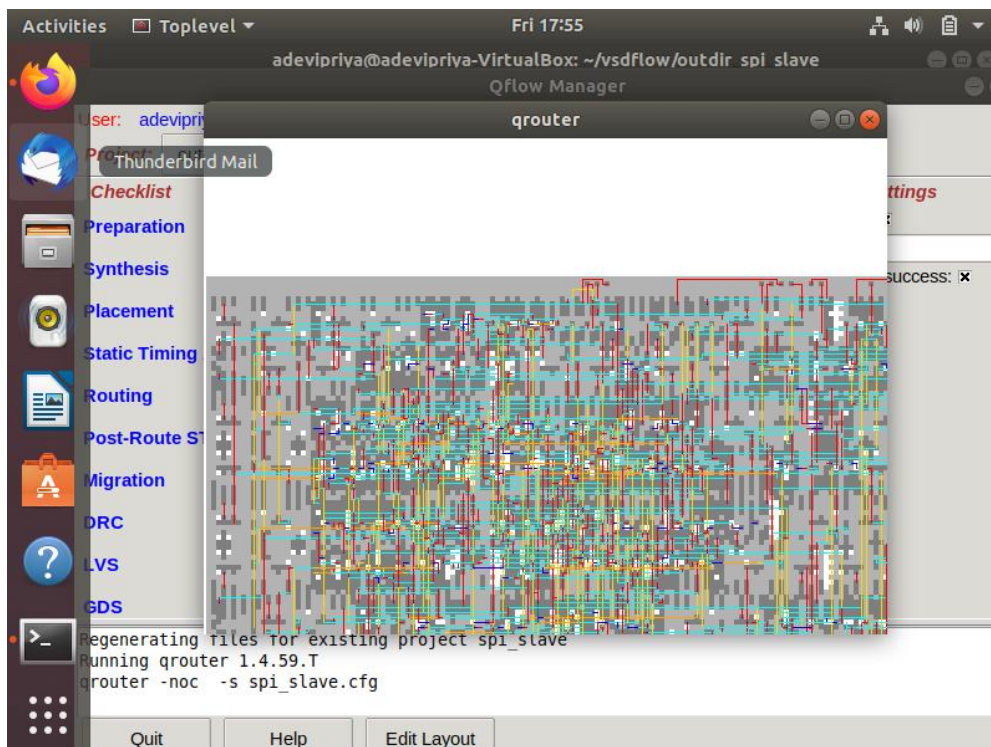


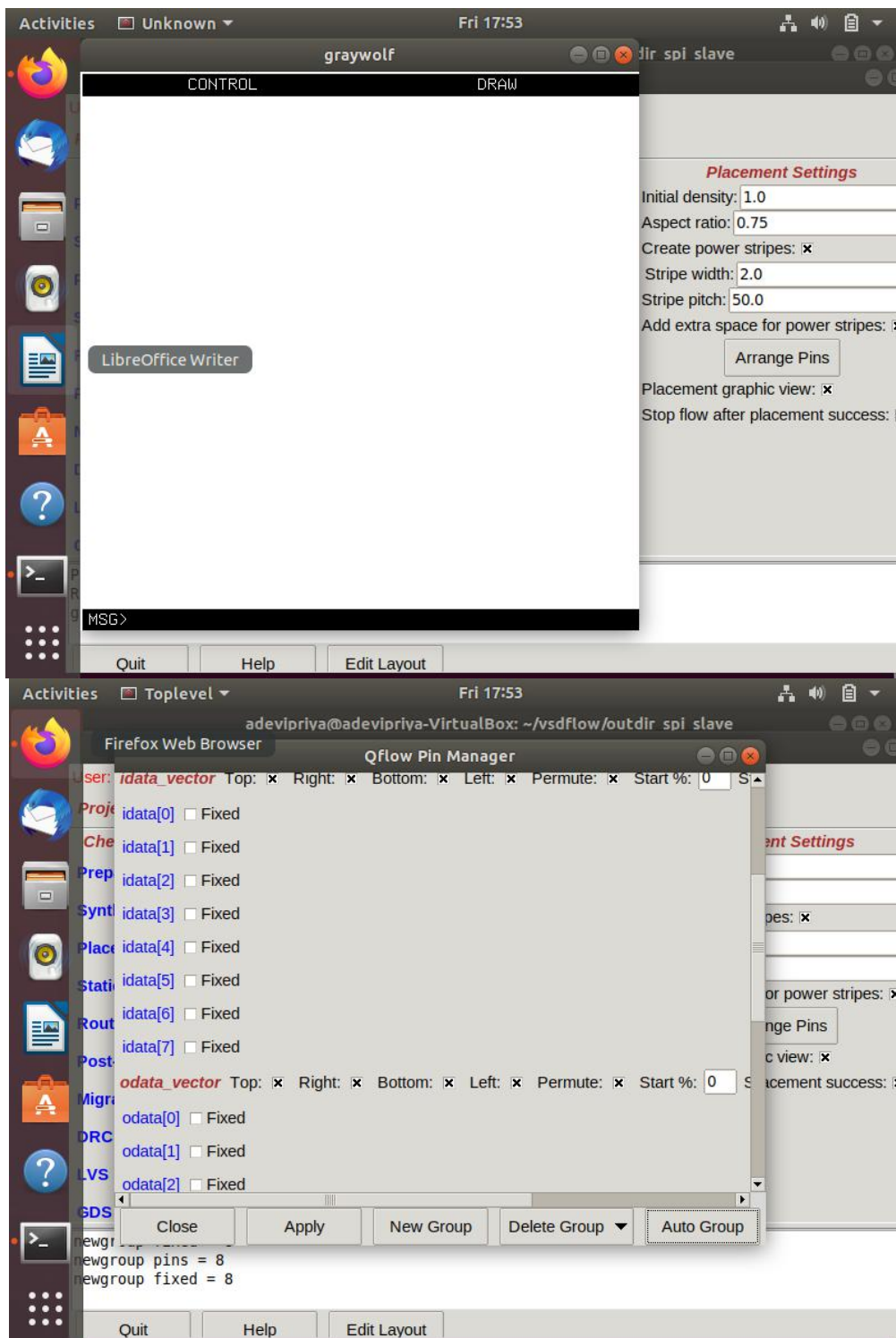
A terminal window titled 'adevipriya@adevipriya-VirtualBox: ~/vsdflow' showing the output of the 'ls -ltr' command. The output lists files and directories with their permissions, owner, group, size, date, and name. The files include LICENSE, README, OpenSTA-master.zip, library, magic-8.1.220.tgz, netgen-1.5.100.tgz, procs, picorv32_design_details.csv, picorv32_design_constraints.csv, opensource_eda_tool_install.sh, opensource_eda_tool_install_centos.sh, qflow-1.2.89.tgz, qrouter-1.4.31.tgz, vsdflow.tcl, vsdflow, verilog, spi_slave_design_details.csv, spi_slave_design_constraints.csv, work, temp, outdir_spi_slave, and openlane_script_wo_depends.sh.

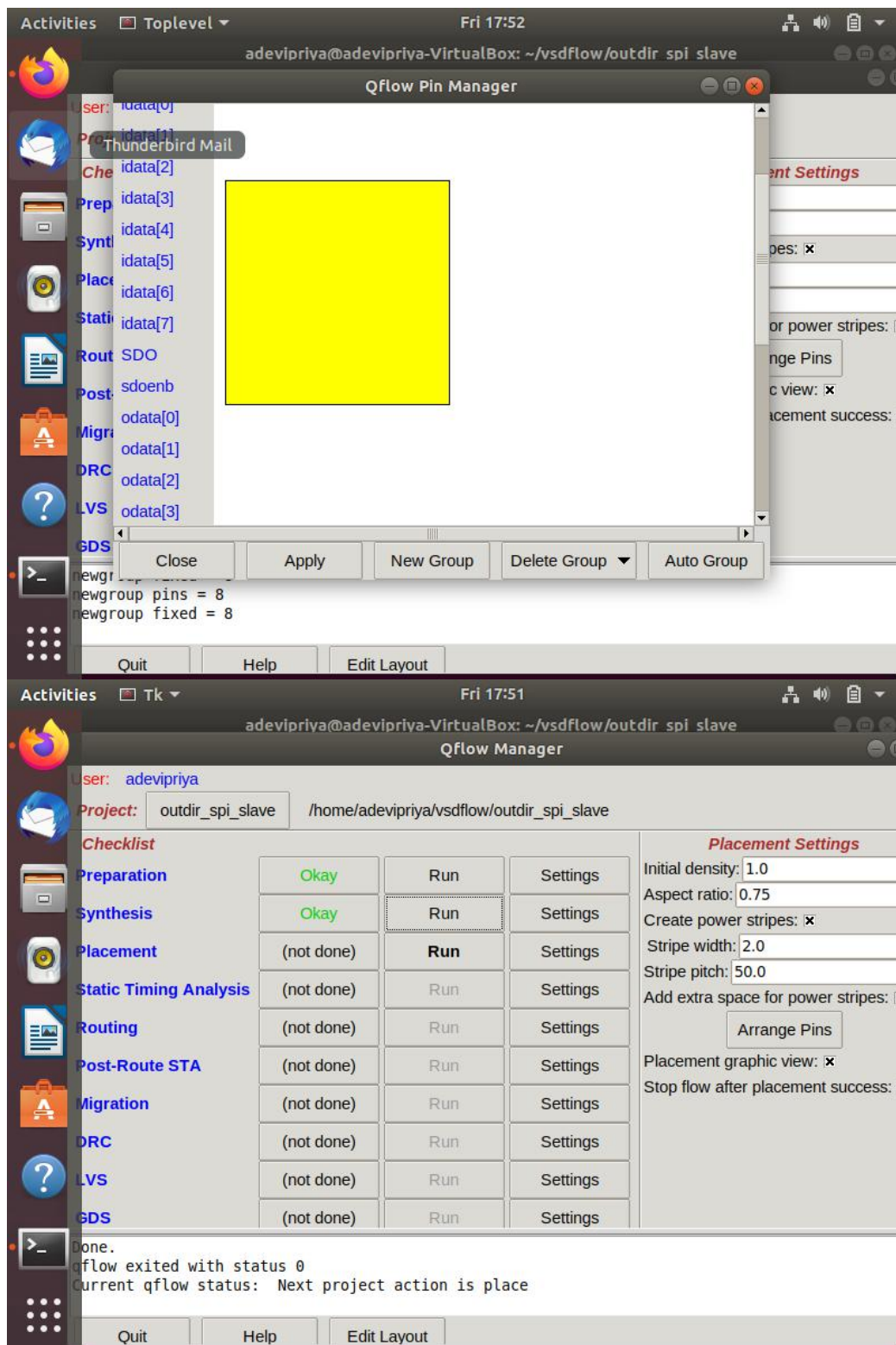
```
adevipriya@adevipriya-VirtualBox: ~/vsdflow$ ls -ltr
total 6700
-rw-r--r-- 1 adevipriya adevipriya 11357 Aug 11 12:30 LICENSE
-rw-r--r-- 1 adevipriya adevipriya 3542 Aug 11 12:30 README
-rw-r--r-- 1 adevipriya adevipriya 1206711 Aug 11 12:30 OpenSTA-master.zip
drwxr-xr-x 2 adevipriya adevipriya 4096 Aug 11 12:30 library
-rw-r--r-- 1 adevipriya adevipriya 3936787 Aug 11 12:30 magic-8.1.220.tgz
-rw-r--r-- 1 adevipriya adevipriya 499997 Aug 11 12:30 netgen-1.5.100.tgz
drwxr-xr-x 2 adevipriya adevipriya 4096 Aug 11 12:30 procs
-rw-r--r-- 1 adevipriya adevipriya 276 Aug 11 12:30 picorv32_design_details.csv
-rw-r--r-- 1 adevipriya adevipriya 1469 Aug 11 12:30 picorv32_design_constraints.csv
-rwxrwxrwx 1 adevipriya adevipriya 3059 Aug 11 12:30 opensource_eda_tool_install.sh
-rw-r--r-- 1 adevipriya adevipriya 2897 Aug 11 12:30 opensource_eda_tool_install_centos.sh
-rw-r--r-- 1 adevipriya adevipriya 773101 Aug 11 12:30 qflow-1.2.89.tgz
-rw-r--r-- 1 adevipriya adevipriya 328828 Aug 11 12:30 qrouter-1.4.31.tgz
-rw-r--r-- 1 adevipriya adevipriya 26145 Aug 11 12:30 vsdflow.tcl
-rw-r--r-- 1 adevipriya adevipriya 3740 Aug 11 12:30 vsdflow
drwxr-xr-x 2 adevipriya adevipriya 4096 Aug 11 12:30 verilog
-rw-r--r-- 1 adevipriya adevipriya 279 Aug 11 12:30 spi_slave_design_details.csv
-rw-r--r-- 1 adevipriya adevipriya 773 Aug 11 12:30 spi_slave_design_constraints.csv
drwxr-xr-x 3 adevipriya adevipriya 4096 Aug 11 13:01 work
drwxr-xr-x 2 adevipriya adevipriya 4096 Aug 11 13:48 temp
drwxr-xr-x 6 adevipriya adevipriya 4096 Aug 11 13:58 outdir_spi_slave
-rwxrwxrwx 1 adevipriya adevipriya 2734 Aug 11 21:36 openlane_script_wo_depends.sh
adevipriya@adevipriya-VirtualBox: ~/vsdflow$
```

qflow gui(The entire RTL to GDS flow can be run on gui):









Activities Tk Fri 17:50
adevipriya@adevipriya-VirtualBox: ~/vsdfow/outdir_spi_slave
Firefox Web Browser Qflow Manager

User: adevipriya
Project: outdir_spi_slave /home/adevipriya/vsdfow/outdir_spi_slave

Checklist				Synthesis Settings
Preparation	Okay	Run	Settings	Stop flow after synthesis: <input checked="" type="checkbox"/>
Synthesis	(not done)	Run	Settings	
Placement	(not done)	Run	Settings	
Static Timing Analysis	(not done)	Run	Settings	
Routing	(not done)	Run	Settings	
Post-Route STA	(not done)	Run	Settings	
Migration	(not done)	Run	Settings	
DRC	(not done)	Run	Settings	
LVS	(not done)	Run	Settings	
GDS	(not done)	Run	Settings	

>_ Uncomment lines in this file and source the file to run the flow.
qflow exited with status 0
Current qflow status: Next project action is synth

Quit Help Edit Layout

Activities Tk Fri 17:47
adevipriya@adevipriya-VirtualBox: ~/vsdfow/outdir_spi_slave
Firefox Web Browser Qflow Manager

User: adevipriya
Project: outdir_spi_slave /home/adevipriya/vsdfow/outdir_spi_slave

Checklist				Static Timing Analysis Settings
Preparation	Okay	Run	Settings	Long format output: <input checked="" type="checkbox"/> Stop flow after STA success: <input type="checkbox"/> Continue flow if STA failure: <input type="checkbox"/>
Synthesis	Okay	Run	Settings	
Placement	Okay	Run	Settings	
Static Timing Analysis	(not done)	Run	Settings	
Routing	(not done)	Run	Settings	
Post-Route STA	(not done)	Run	Settings	
Migration	(not done)	Run	Settings	
DRC	(not done)	Run	Settings	
LVS	(not done)	Run	Settings	
GDS	(not done)	Run	Settings	

>_ Status: no STA log file.
Status set to "timing"
Current qflow status: Next project action is timing

Quit Help Edit Layout