

Sirius manual

Outline

- Login
- Structure
- Permissions
- Data transfer
- Useful commands

Login

- Terminal:
 - `ssh user@sirius.eeb.ucla.edu`
 - `slogin user@sirius.eeb.ucla.edu`

Structure

- 64 cores
 - parallel computing
- 512 Gb Memory
- */home/user*
- Installed programs:
 - */usr/local/bin*
 - */opt/*
- 64 bit file system (x86_64)
 - `uname -a`

How to organize stuff

- home folder <5 Gb
- use the new drive (`/new_drive/user`) for genome data and everything above 5 Gb
- use the `/databases` for databases and reference genomes etc.
- Ideas?

Rules

- Developing a pipeline:
 - copy a small but representative part of your data to sirius
 - run all the programs you need on them
 - debug and save final version of pipeline e.g. in a text file
 - copy all your data
 - run your pipeline on all data
 - debug and update pipeline
 - mv results wherever you want
 - erase data
- never start more jobs than the number of available cores
- look at the memory and cpu usage before you start to load sirius with commands (cmd)
- htop or top

htop

marxp@sirius:~/regex

File Edit View Search Terminal Tabs Help

marxp@livingstone: ~

marxp@sirius:~/regex

marxp@sirius:~

Mem[|||||||||||||||||||||||||||||||||||||13086/516843MB]

Swp:4095M used:0K

Avg[|||

1.8%]

Load average: 1.02 1.02 0.92

Tasks: 101, 84 thr; 2 running

Load average: 1.02 1.02 0.92

Uptime: 13 days, 22:43:25

Load: 1.02

Time: 13:33:21

PID	USER	PRI	NI	VIRT	RES	SHR	S	CPU%	MEM%	TIME+	Command
2821	avahi	20	0	27800	1572	1316	S	0.0	0.0	0:00.32	avahi-daemon: running [linux.local]
2822	avahi	20	0	27668	368	184	S	0.0	0.0	0:00.00	avahi-daemon: chroot helper
2799	dbus	20	0	22396	2100	944	S	0.0	0.0	0:09.33	dbus-daemon --system
11952	gdm	20	0	20032	680	432	S	0.0	0.0	0:00.00	/usr/bin/dbus-launch --exit-with-session
3030	haldaemon	20	0	26732	5492	4088	S	0.0	0.0	0:06.29	hald
3068	haldaemon	20	0	17804	1052	904	S	0.0	0.0	0:00.00	hald-addon-acpi: listening on acpid socket /var/run/acpid.socket
24338	jrodgers	20	0	147M	3528	2888	S	0.0	0.0	0:00.00	/usr/bin/gnome-keyring-daemon --daemonize --login
24437	jrodgers	20	0	147M	3528	2888	S	0.0	0.0	0:00.00	/usr/bin/gnome-keyring-daemon --daemonize --login
24337	jrodgers	20	0	147M	3528	2888	S	0.0	0.0	0:00.02	/usr/bin/gnome-keyring-daemon --daemonize --login
24430	jrodgers	20	0	241M	6324	4968	S	0.0	0.0	0:00.00	gnome-session
24346	jrodgers	20	0	241M	6324	4968	S	0.0	0.0	0:00.77	gnome-session
24354	jrodgers	20	0	20032	672	424	S	0.0	0.0	0:00.00	dbus-launch --sh-syntax --exit-with-session
24355	jrodgers	20	0	21928	1444	608	S	0.0	0.0	0:00.73	/bin/dbus-daemon --fork --print-pid 5 --print-address 7 --session
24428	jrodgers	20	0	130M	5596	2124	S	0.0	0.0	0:05.12	/usr/libexec/gconfd-2
24457	jrodgers	20	0	522M	18652	10272	S	0.0	0.0	0:00.00	/usr/libexec/gnome-settings-daemon
24436	jrodgers	20	0	522M	18652	10272	S	0.0	0.0	0:25.12	/usr/libexec/gnome-settings-daemon
24438	jrodgers	20	0	285M	7792	5824	S	0.0	0.0	0:00.34	seahorse-daemon
24440	jrodgers	20	0	131M	2080	1744	S	0.0	0.0	0:00.01	/usr/libexec/gvfsd
24746	jrodgers	20	0	398M	12056	8868	S	0.0	0.0	0:00.00	metacity
24460	jrodgers	20	0	398M	12056	8868	S	0.0	0.0	0:02.47	metacity
24467	jrodgers	9	0	355M	3736	2844	S	0.0	0.0	0:00.02	/usr/bin/pulseaudio --start --log-target=syslog
24464	jrodgers	9	-11	355M	3736	2844	S	0.0	0.0	0:00.07	/usr/bin/pulseaudio --start --log-target=syslog
24465	jrodgers	20	0	318M	14216	10080	S	0.0	0.0	0:20.66	gnome-panel
24466	jrodgers	20	0	90256	2572	2116	S	0.0	0.0	0:00.00	/usr/libexec/pulse/gconf-helper
24468	jrodgers	20	0	533M	21076	13676	S	0.0	0.0	0:51.00	nautilus
24471	jrodgers	20	0	615M	3356	2376	S	0.0	0.0	0:00.00	/usr/libexec/bonobo-activation-server --ac-activate --ior-output-fd=18
24470	jrodgers	20	0	615M	3356	2376	S	0.0	0.0	0:00.05	/usr/libexec/bonobo-activation-server --ac-activate --ior-output-fd=18
24473	jrodgers	20	0	244M	6488	5152	S	0.0	0.0	0:00.03	/usr/libexec/gdu-notification-daemon
24475	jrodgers	20	0	313M	19244	9156	S	0.0	0.0	0:00.31	python /usr/share/system-config-printer/applet.py

F1Help F2Setup F3Search F4Filter F5Tree F6SortBy F7Nice -F8Nice +F9Kill F10Quit

Rules if you don't know something

- Look at the tutorials we will create in future
- Man/manual
 - `man ls`
- Google it
- Ask a geek or an administrator
- Admins:
 - general: Jonathan Rodgers, Ron Pulido
 - in-lab: Rena, Xin, Peter

Installing programs for yourself 1

- Check whether it is installed already
- Create dir in your home folder (for first time only)
 - `mkdir ~/bin`
- Put it in your path or check if it is already there
 - `cat .bash_profile`
 - `PATH=$PATH:$HOME/bin`
 - `export PATH`

Installing programs for yourself 2

- Install programs to bin
 - Compile it with prefix ~/bin
- Or/and create symlinks
 - `ln -s /opt/pam14.6/bin/codem1 ~/bin/codem1`
 - this works with already installed programs but you don't have to do that for those which are already in the path
 - look it up

Permissions

- 'Permission denied'
- Use dedicated part of disk
- `ls -hal`
 - to list the current dir contents in human readable format and show hidden files

```
[marxp@sirius ~]$ ls -hal
```

```
total 46M
```

```
drwx-----. 18 marxp marxp 4.0K Dec 11 14:10 .
```

```
drwxr-xr-x. 23 root root 4.0K Dec 11 08:36 ..
```

```
drwxr-xr-x  5 marxp marxp 4.0K Dec  5 17:12 b2g4pipe
```

```
-rwxrwxr-x  1 marxp marxp 32M Dec  5 17:11 b2g4pipe_v2.5.zip
```

```
-rw-----. 1 marxp marxp 19K Dec 11 15:03 .bash_history
```

```
-rw-r--r--. 1 marxp marxp 18 May 10 2012 .bash_logout
```

```
-rw-r--r--. 1 marxp marxp 176 May 10 2012 .bash_profile
```

```
-rw-r--r--. 1 marxp marxp 124 May 10 2012 .bashrc
```

```
drwxrwxrwx  2 marxp marxp 4.0K Dec 10 15:13 fastx
```

Data transfer (local)

- cp for copy
 - `cp /path/to/source /path/to/dest`
- mv for moving data
 - use this for renaming files
 - `mv /path/to/source /path/to/dest`

Data transfer (network)

- Command line interface (CLI)
 - scp
- Graphical User Interface (GUI)
 - WinSCP
 - Fugu?
 - CaptainFTP?
 - Filezilla?
 - Cyberduck?

General ideas

- Check out first if there is enough space available for moving your data there
 - to check disk usage
 - `df -h`
 - to check disk space used by a dir
 - `du -hs /path`
 - `du -h --max-depth=1 /path`

Using scp

- `scp [options] user@host_source: file1 user@host_dest:file2`
- `-r` flag for copy dirs
- `user@host:file1 = /path/to/file1` on pc you run the command

CLI editors

- Easier to make small modifications without copying some files again
- vi/vim
 - `vim filename`
 - for open a file if there is no file named filename it will create a new one

Useful commands

- history
 - ctrl+r for searching history
 - start to type the command
 - use ctrl+r again to search for commands ran earlier containing the same string
 - history
 - !#cmd_num
- alias
 - useful if you are running cmds with the same options
 - put aliases .bashrc
 - # User specific aliases and functions
 - alias panga='ssh marxpeter@panga.eeb.ucla.edu'

Useful commands

- basic regexp
 - wildcards: *,?,[aA-zZ][o-g]
 - live show 😊
- screen
 - gives you a new cli window
 - run cmds
 - detach: ctrl+a+d
 - list running screens: `screen -ls`
 - reattach screen pid

Useful commands

- nohup
 - nohup my_favourite_command &
 - writes the stdout to nohup.out
 - detaches the cmd from the cli
 - if something happens (loosing connection etc) it will be still running until the server is up
- passwd
- rm
 - no way to get it back
 - think twice before do that especially if you are using wildcars (it matters in which dir you actually are e.g. rm *)
 - useful to test cmd with ls first instead of deleting it immediately

Redirecting

- Stdout, stderr, stdin
- `cmd >output`
- `cmd >>output`
- `cmd 1>output 2>error`
- pipes
- live show 😊