

Some basic Unix commands

and other helpful hints

Watching memory and CPU usage

- top
 - Shows individual program usage
 - Automatic refreshes to show usage over time
- ps
 - Shows individual program usage
 - One view only
- Ganglia
 - Shows overall usage on machine
 - Differentiates between cached and active use

top

- u
 - Enter an user name at the prompt and see that users processes only. Helpful for finding processes buried in list.
- M
 - List by memory usage, highest first
- P
 - List by processor usage, highest first
- 1
 - Show each processor separately
- q
 - quit

mal.bx.psu.edu - PuTTY

```
top - 11:31:38 up 5 days, 9:25, 6 users, load average: 0.00, 0.00, 0.00
Tasks: 266 total, 1 running, 251 sleeping, 14 stopped, 0 zombie
Cpu(s): 0.0%us, 0.0%sy, 0.0%ni,100.0%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Mem: 66069268k total, 63413152k used, 2656116k free, 130824k buffers
Swap: 4192956k total, 140k used, 4192816k free, 49149212k cached
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
28279	giardine	15	0	11008	1188	784	R	0.7	0.0	0:00.04	top
4604	ganglia	15	0	99.9m	2312	720	S	0.3	0.0	0:25.08	gmond
1	root	15	0	10364	692	580	S	0.0	0.0	0:02.67	init
2	root	RT	-5	0	0	0	S	0.0	0.0	0:00.32	migration/0
3	root	34	19	0	0	0	S	0.0	0.0	0:00.00	ksoftirqd/0
4	root	RT	-5	0	0	0	S	0.0	0.0	0:00.00	watchdog/0
5	root	RT	-5	0	0	0	S	0.0	0.0	0:00.56	migration/1
6	root	34	19	0	0	0	S	0.0	0.0	0:00.00	ksoftirqd/1
7	root	RT	-5	0	0	0	S	0.0	0.0	0:00.00	watchdog/1

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6	root	34	19	0	0	0	S	0.0	0.0	0:00.00	ksoftirqd/1
7	root	RT	-5	0	0	0	S	0.0	0.0	0:00.00	watchdog/1

mal.bx.psu.edu - PuTTY

top - 11:32:57 up 5 days, 9:26, 6 users, load average: 0.00, 0.00, 0.00
Tasks: 266 total, 1 running, 251 sleeping, 14 stopped, 0 zombie
Cpu(s): 0.0%us, 0.1%sy, 0.0%ni, 99.9%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Mem: 66069268k total, 63413232k used, 2656036k free, 130868k buffers
Swap: 4192956k total, 140k used, 4192816k free, 49149212k cached



PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
22700	dpj120	16	0	4617m	4.4g	3340	S	0.0	7.0	7:52.45	R
14667	dpj120	15	0	3662m	3.5g	3248	S	0.0	5.5	6:26.06	R
3683	weisheng	15	0	3084m	2.9g	2808	T	0.0	4.6	1:35.66	R
12996	weisheng	15	0	330m	234m	3088	T	0.0	0.4	16:52.93	R
14941	weisheng	15	0	173m	78m	2784	T	0.0	0.1	0:05.10	R
2531	weisheng	15	0	170m	76m	2812	T	0.0	0.1	0:05.61	R
17654	weisheng	15	0	169m	75m	2784	T	0.0	0.1	0:06.09	R
3810	root	6	-10	38932	32m	1732	S	0.0	0.0	0:00.02	iscsiuio
4523	root	15	0	154m	8132	4120	S	0.0	0.0	0:31.20	snmpd
14898	weisheng	15	0	100m	5716	1328	S	0.0	0.0	0:04.85	sshd

mal.bx.psu.edu - PuTTY

```
top - 11:33:37 up 5 days, 9:27, 6 users, load average: 0.00, 0.00, 0.00
Tasks: 266 total, 1 running, 251 sleeping, 14 stopped, 0 zombie
Cpu(s): 0.0%us, 0.0%sy, 0.0%ni, 99.9%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Mem: 66069268k total, 63413156k used, 2656112k free, 130892k buffers
Swap: 4192956k total, 140k used, 4192816k free, 49149212k cached
Which user (blank for all): tum155
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
22700	dpj120	16	0	4617m	4.4g	3340	S	0.0	7.0	7:52.45	R
14667	dpj120	15	0	3662m	3.5g	3248	S	0.0	5.5	6:26.06	R
3683	weisheng	15	0	3084m	2.9g	2808	T	0.0	4.6	1:35.66	R
12996	weisheng	15	0	330m	234m	3088	T	0.0	0.4	16:52.93	R
14941	weisheng	15	0	173m	78m	2784	T	0.0	0.1	0:05.10	R
2531	weisheng	15	0	170m	76m	2812	T	0.0	0.1	0:05.61	R

mal.bx.psu.edu - PuTTY

```
top - 11:34:19 up 5 days, 9:27, 6 users, load average: 0.00, 0.00, 0.00
Tasks: 266 total, 1 running, 251 sleeping, 14 stopped, 0 zombie
Cpu(s): 0.0%us, 0.0%sy, 0.0%ni, 100.0%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Mem: 66069268k total, 63413488k used, 2655780k free, 130896k buffers
Swap: 4192956k total, 140k used, 4192816k free, 49149212k cached
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
15434	tum155	15	0	99448	2304	1272	S	0.0	0.0	0:00.26	sshd
21245	tum155	15	0	99448	2296	1276	S	0.0	0.0	0:00.42	sshd
21246	tum155	15	0	64352	1692	1216	S	0.0	0.0	0:01.19	bash
15435	tum155	15	0	64352	1688	1216	S	0.0	0.0	0:00.51	bash

mal.bx.psu.edu - PuTTY

top - 11:52:34 up 5 days, 9:46, 6 users, load average: 0.00, 0.00, 0.00

Tasks: 266 total, 1 running, 251 sleeping, 14 stopped, 0 zombie

Cpu0	:	0.0%us,	0.0%sy,	0.0%ni,	100.0%id,	0.0%wa,	0.0%hi,	0.0%si,	0.0%st
Cpu1	:	0.0%us,	0.0%sy,	0.0%ni,	100.0%id,	0.0%wa,	0.0%hi,	0.0%si,	0.0%st
Cpu2	:	0.0%us,	0.0%sy,	0.0%ni,	100.0%id,	0.0%wa,	0.0%hi,	0.0%si,	0.0%st
Cpu3	:	0.0%us,	0.0%sy,	0.0%ni,	100.0%id,	0.0%wa,	0.0%hi,	0.0%si,	0.0%st
Cpu4	:	0.0%us,	0.0%sy,	0.0%ni,	100.0%id,	0.0%wa,	0.0%hi,	0.0%si,	0.0%st
Cpu5	:	0.3%us,	0.3%sy,	0.0%ni,	99.3%id,	0.0%wa,	0.0%hi,	0.0%si,	0.0%st
Cpu6	:	0.0%us,	0.0%sy,	0.0%ni,	100.0%id,	0.0%wa,	0.0%hi,	0.0%si,	0.0%st
Cpu7	:	0.3%us,	0.0%sy,	0.0%ni,	99.7%id,	0.0%wa,	0.0%hi,	0.0%si,	0.0%st

Mem: 66069268k total, 63414028k used, 2655240k free, 131228k buffers

Swap: 4192956k total, 140k used, 4192816k free, 49149236k cached

ps

```
mal.bx.psu.edu - PuTTY
giardine@mal:~$ ps -u giardine -O %mem,%cpu
  PID %MEM %CPU S TTY          TIME COMMAND
27021  0.0  0.0 S ?            00:00:00 sshd: giardine@pts/9
27022  0.0  0.0 S pts/9        00:00:00 -bash
28824  0.0  0.0 R pts/9        00:00:00 ps -u giardine -O %mem,%cpu
giardine@mal:~$ ps -u weisheng -O %mem,%cpu
  PID %MEM %CPU S TTY          TIME COMMAND
 2531  0.1  0.0 T pts/6        00:00:05 /usr/lib64/R/bin/exec/R
 3647  0.0  0.0 T pts/6        00:00:00 less statechange.r
 3683  4.6  0.0 T pts/6        00:01:35 /usr/lib64/R/bin/exec/R
12722  0.0  0.0 S ?            00:00:02 sshd: weisheng@pts/1
12723  0.0  0.0 S pts/1        00:00:00 -bash
12833  0.0  0.0 T pts/1        00:00:00 less fishertest.r
12996  0.3  0.2 T pts/1        00:16:52 /usr/lib64/R/bin/exec/R
```

This shows the commands and PID if you want to “kill *PID*” to remove one.

[Get Fresh Data](#)Last [Node View](#)[BX Grid](#) > [persephone](#) > [c14.persephone.bx.psu.edu](#)

c14.persephone.bx.psu.edu Overview



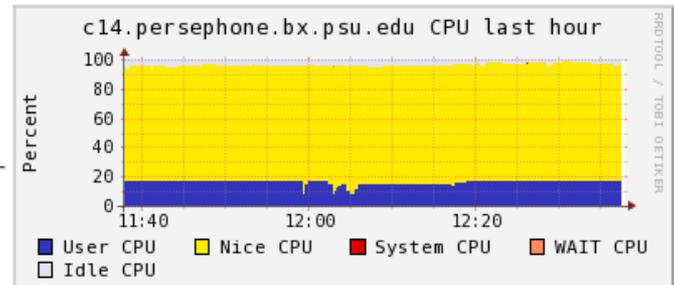
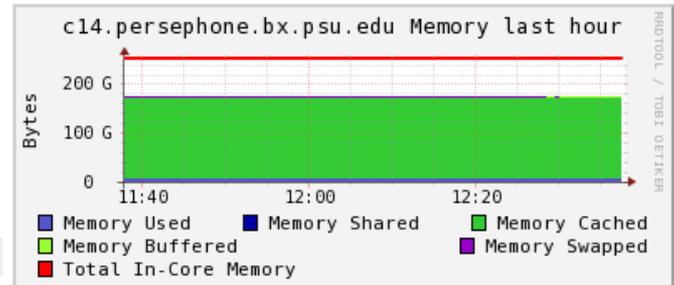
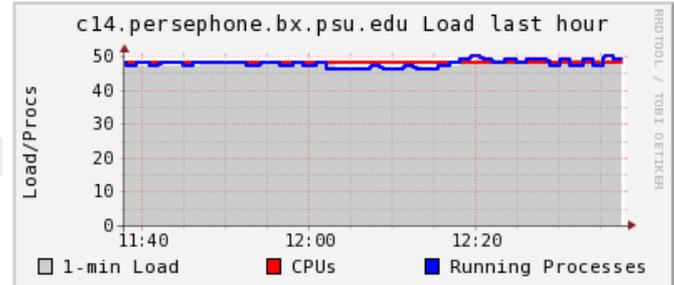
This host is up and running.

Time and String Metrics

Last Boot Time	Thu, 07 Jun 2012 17:15:16 -0400
Gexec Status	OFF
Gmond Started	Thu, 07 Jun 2012 17:16:42 -0400
Last Reported	0 days, 0:00:01
Machine Type	x86_64
Operating System	Linux
Operating System Release	2.6.18-274.3.1.el5
Uptime	80 days, 19:22:17

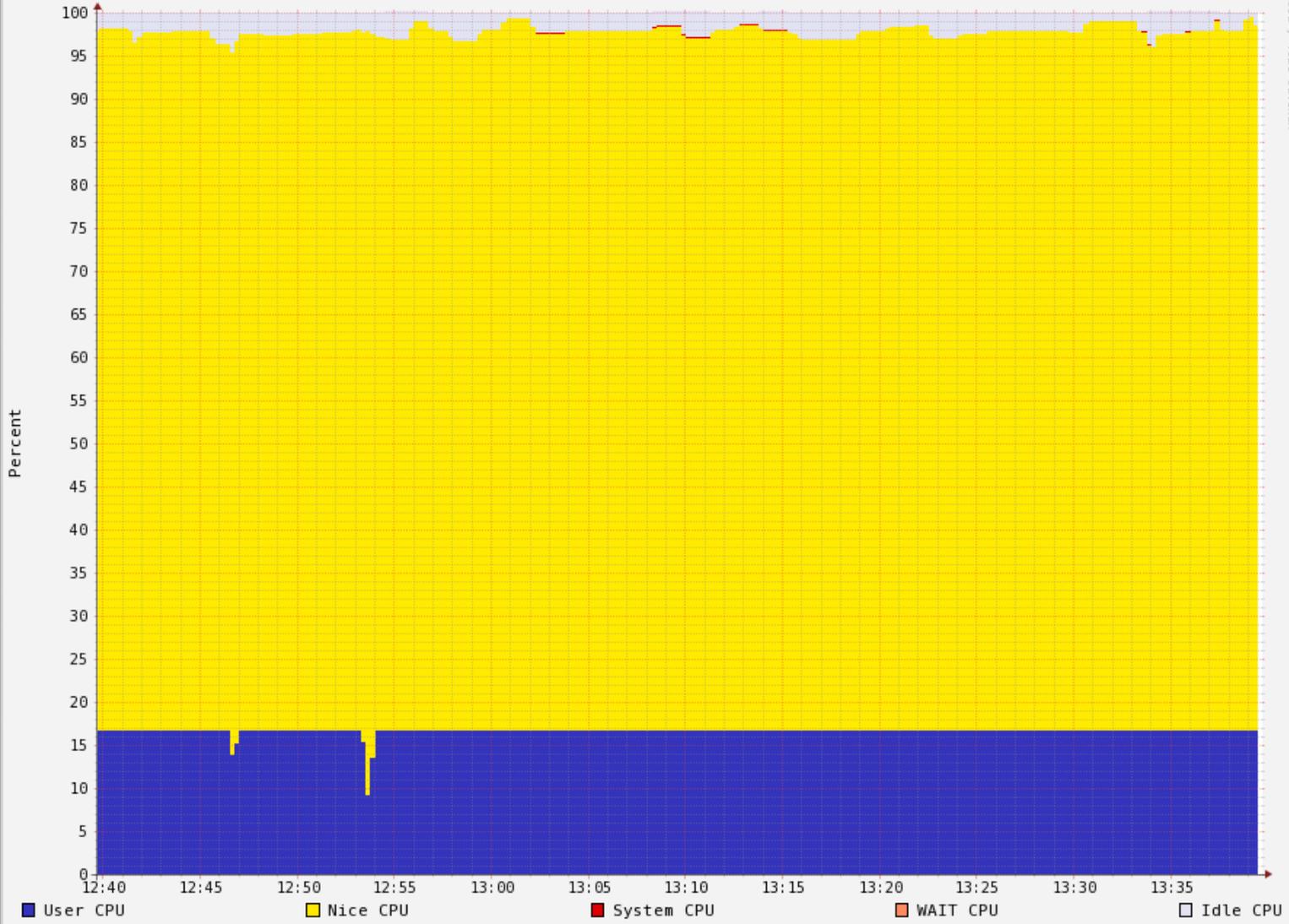
Constant Metrics

CPU Count	48 CPUs
CPU Speed	2100 MHz
Memory Total	264279232 KB
Swap Space Total	2047992 KB



c14.persephone.bx.psu.edu CPU last hour

RRDTOOL / TOBI OETIKER



Last month



Node View

BX Grid > bx workservers > ella.bx.psu.edu

ella.bx.psu.edu Overview



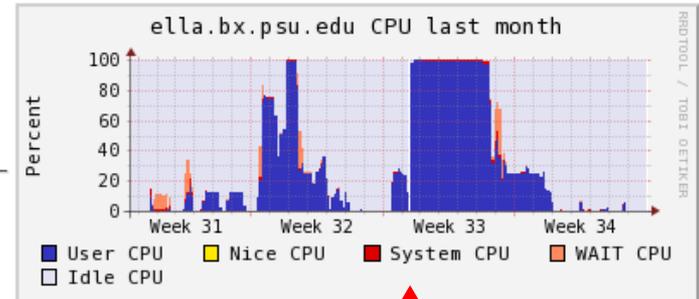
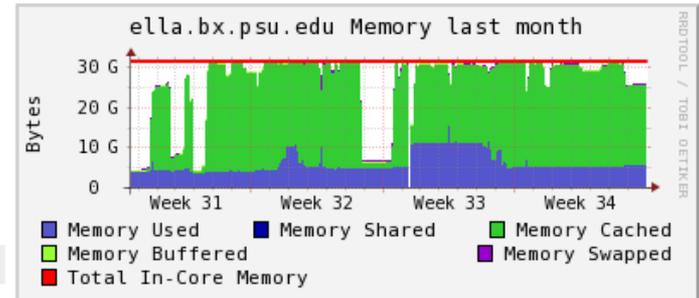
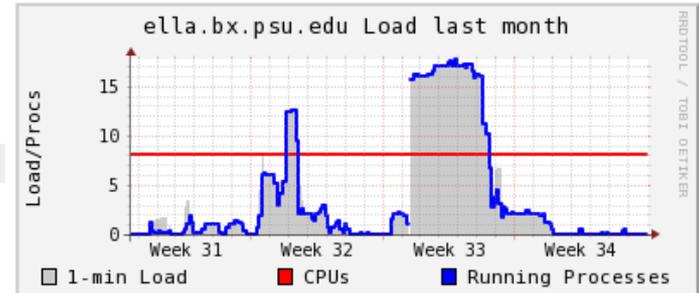
This host is up and running.

Time and String Metrics

Last Boot Time	Tue, 14 Aug 2012 10:58:35 -0400	←
Gexec Status	OFF	
Gmond Started	Tue, 14 Aug 2012 10:59:06 -0400	
Last Reported	0 days, 0:00:08	
Machine Type	x86_64	
Operating System	Linux	
Operating System Release	2.6.32-131.12.1.el6.x86_64	
Uptime	13 days, 1:42:05	

Constant Metrics

CPU Count	8 CPUs
CPU Speed	2826 MHz
Memory Total	32878456 KB
Swap Space Total	33619960 KB



R memory usage

- R keeps all the variables in the memory for as long as the session is open. To keep from slowly growing the memory usage over time, remove variables when you are done with them.
 - `rm(variable)`

samtools

- View the bam files without writing the large sam file to disk
 - `samtools view in.bam | less`
- Get number of reads, mapped reads, or paired reads from a bam file
 - `samtools flagstat in.bam`

wget

- Bring in large files from other websites. Also works for Galaxy main if you right click the disk icon and copy the link location.
 - `wget -O filename.ext www.whereever.edu/bigfile.ext`
 - Other options under `man wget`
 - `-i infile.txt -w N`
 - Fetch all files listed in `infile.txt`, waiting `N` seconds between them
 - `--user=user --password=password`
 - Use an username and password

screen

- Useful for working remotely. Keeps connection and allows programs to run without being logged in. Survives breaks in internet connections.
 - pagscr
 - kinit; aklog
 - <control>a d
 - screen -r

Other miscellaneous commands

- `head -N`
 - Show the first N lines in a file
- `tail -N`
 - Show the last N lines in a file
- `du -h .`
 - Show disk usage of current directory and below (-s will give the total)
- `ls -lh`
 - List files, permissions, and sizes in human readable format
- `wc -l file`
 - Line count of file
 - `ls -1 | wc -l`
 - Number of files in the directory
- `finger <person>`
 - Lookup another user in the network
 - `.plan` in home directory adds to what is displayed (phone #s, schedule, etc.)

Questions?