# 进程的管理

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## 进程管理





### 进程监控命令

- ps
- pstree



监控静态和动态的进程

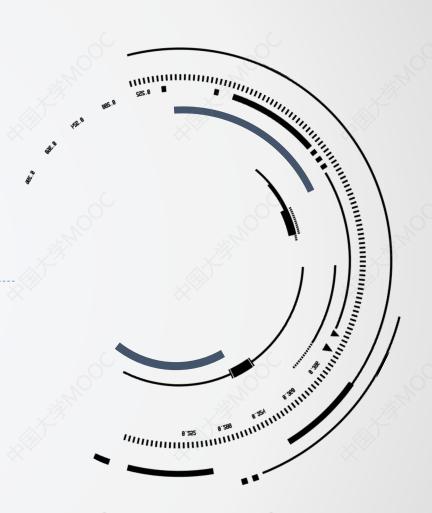
top



### 进程控制命令

- kill [信号编号] PID
- killall [选项] 进程名







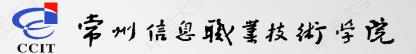


ps: process status ——显示系统中当前的进程状态

#### 常用选项:

```
[root@ccit ~]# ps -a
                  TIME CMD
  PID TTY
 2233 pts/0 00:00:00 ps
[root@ccit ~]# ps a
              STAT
  PID TTY
                     TIME COMMAND
 1296 tty1
                     0:00 -bash
              Ss+
 1321 pts/0
              Ss
                     0:00 -bash
                     0:00 ps a
 2234 pts/0
             R+
```

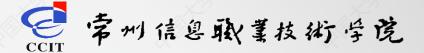




```
[root@ccit ~]# ps u
USER
                                   RSS TTY
                                                 STAT START
                                                              TIME COMMAND
                             VSZ
                                                              0:00 -bash
                      0.0 115432
                                   1980 tty1
                                                      20:34
root
           1321
                      0.0 115436
                                   2056 pts/0
                                                      20:34
                                                              0:00 -bash
root
root
           2236
                0.0 0.0 155324
                                  1852 pts/0
                                                      21:54
                                                              0:00 ps u
```

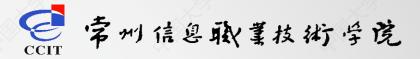
```
[root@ccit ~]# ps x
                       TIME COMMAND
  PID TTY
                STAT
    1 ?
                       0:02 /usr/lib/systemd/systemd --switched-root --system --deserialize 22
                       0:00 [kthreadd]
                       0:00 [ksoftirqd/0]
                       0:00 [kworker/0:0H]
                       0:00 [migration/0]
                       0:00 [rcu_bh]
                       0:00 [rcu sched]
   10 ?
                       0:00 [lru-add-drain]
   11 ?
                       0:00 [watchdog/0]
   12 ?
                       0:00 [watchdog/1]
   13 ?
                       0:00 [migration/1]
   14 ?
                       0:00 [ksoftirqd/1]
   16 ?
                       0:00 [kworker/1:0H]
   18 ?
                       0:00 [kdevtmpfs]
                       0:00 [netns]
   19 ?
                S<
   20 ?
                       0:00 [khungtaskd]
   21 ?
                       0:00 [writeback]
```





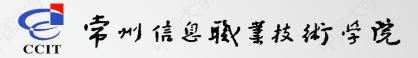
```
[root@ccit ~]# ps -f
                        C STIME TTY
UID
            PID
                  PPID
                                              TIME CMD
                        0 20:34 pts/0
           1321
                  1316
                                          00:00:00 -bash
root
                                          00:00:00 ps -f
           2275
                  1321
                        0 22:10 pts/0
root
[root@ccit ~]# ps -e
                    TIME CMD
   PID TTY
                00:00:02 systemd
                00:00:00 kthreadd
                00:00:00 ksoftirqd/0
                00:00:00 kworker/0:0H
                00:00:00 migration/0
                00:00:00 rcu_bh
                00:00:00 rcu_sched
                00:00:00 lru-add-drain
    10
                00:00:00 watchdog/0
    11
    12 ?
                00:00:00 watchdog/1
    13 ?
                00:00:00 migration/1
```





		_											
[root	@ccit ~	·]#[p	s aux										
USER		PΙυ	%CPU	%MEM	VSZ	RSS	TTY	•	STAT	START	TIME	COMMAND	
root		1	0.0	0.1	127936	6480	?		Ss	20:33	0:02	/usr/lib/systemd/systemd	switched-r
root		2	0.0	0.0	0	0	?		S	20:33	0:00	[kthreadd]	
root		<b>3</b>	0.0	0.0	0	0	?		S	20:33	0:00	[ksoftirqd/0]	
root		5	0.0	0.0	0	0	?		<b>S</b> <	20:33	0:00	[kworker/0:0H]	
root		7	0.0	0.0	0	0	?		S	20:33	0:00	[migration/0]	
root		8	0.0	0.0	0	0	?		S	20:33	0:00	[rcu_bh]	
root		9	0.0	0.0	0	0	?		S	20:33	0:00	[rcu_sched]	
root		10	0.0	0.0	0	0	?		S<	20:33	0:00	[lru-add-drain]	
root		11	0.0	0.0	0	0	?		S	20:33	0:00	[watchdog/0]	
root		12	0.0	0.0	0	0	?		S	20:33	0:00	[watchdog/1]	
root		13	0.0	0.0	0	0	?		S	20:33	0:00	[migration/1]	
root		14	0.0	0.0	0	0	?		S	20:33	0:00	[ksoftirqd/1]	
root		16	0.0	0.0	0	0	?		<b>S</b> <	20:33	0:00	[kworker/1:0H]	
root		18	0.0	0.0	0	0	?		S	20:33	0:00	[kdevtmpfs]	
root		19	0.0	0.0	Ø 0	0	?		S<	20:33	0:00	[netns]	
root		20	0.0	0.0	0	0	?		S	20:33	0:00	[khungtaskd]	





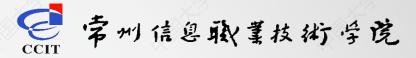
[root	@ccit	~]# ps	-ef					
UID		PID	PPID	C	STIME	TTY	TIME	CMD
root		1	0	0	20:33	?	00:00:02	! /usr/lib/systemd/systemdswitched-rootsystem -
root		2	0	0	20:33	?	00:00:00	[kthreadd]
root		3	2	0	20:33	?	00:00:00	[ksoftirqd/0]
root		5	2	0	20:33	?	00:00:00	[kworker/0:0H]
root		7	2	0	20:33	?	00:00:00	[migration/0]
root		8	2	0	20:33	?	00:00:00	[rcu_bh]
root		9	2	0	20:33	?	00:00:00	[rcu_sched]
root		10	2	0	20:33	?	00:00:00	[lru-add-drain]
root		11	2	0	20:33	?	00:00:00	[watchdog/0]
root		12	2	0	20:33	?	00:00:00	[watchdog/1]
root		13	2	0	20:33	?	00:00:00	[migration/1]
root		14	2	0	20:33	?	00:00:00	[ksoftirqd/1]
root		16	2	0	20:33	?	00:00:00	[kworker/1:0H]
root		18	2	0	20:33	?	00:00:00	[kdevtmpfs]
root		19	2	0	20:33	?	00:00:00	[netns]
root		20	2	0	20:33	?	00:00:00	[khungtaskd]





[root	@ccit ~]#	ps au	X								
USER	PI	%CPU	%MEM	VSZ	RSS	TTY	STAT	START	TIME	COMMAND	
root	1	L 0.0	0.1	127936	6480	?	Ss	20:33	0:02	/usr/lib/systemd/systemd	switched-r
root	2	0.0	0.0	0	0	?	S	20:33	0:00	[kthreadd]	
root	<b>~</b> 3	0.0	0.0	0	0	?	S	20:33	0:00	[ksoftirqd/0]	
root		0.0	0.0	0	0	?	<b>S</b> <	20:33	0:00	[kworker/0:0H]	
root	-4/2/	7 0.0	0.0	0	0	?	S	20:33	0:00	[migration/0]	
root	<u> </u>	0.0	0.0	0	0	? ×	S	20:33	0:00	[rcu_bh]	
root	9	0.0	0.0	0	0	?	S	20:33	0:00	[rcu_sched]	
root	10	0.0	0.0	0	<b>0</b>	?	<b>S</b> <	20:33	0:00	[lru-add-drain]	
root	11	L 0.0	0.0	0	0	?	S	20:33	0:00	[watchdog/0]	
root	12	0.0	0.0	0	0	?	S	20:33	0:00	[watchdog/1]	
root	13	0.0	0.0	0	0	?	S	20:33	0:00	[migration/1]	
root	14	1 0.0	0.0	0	0	?	S	20:33	0:00	[ksoftirqd/1]	
root	16	0.0	0.0	0	0	?	<b>S</b> <	20:33	0:00	[kworker/1:0H]	
root	18	0.0	0.0	0	0	?	S	20:33	0:00	[kdevtmpfs]	
root		0.0	0.0	<b>6</b>	0	?	<b>S</b> <	20:33	0:00	[netns]	
root	20	0.0	0.0	0	0	?	S	20:33	0:00	[khungtaskd]	

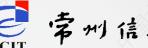




[root@ccit	~]# ps	s-ef							
UID	PID	PPID	C	STIME	TTY	TIME	CMD		
root	1	0	0	20:33	?	00:00:02	/usr/lib/systemd/sy	stemdswitched	d-rootsystemd
root	2	0	0	20:33	?	00:00:00	[kthreadd]		-
root	3	2	0	20:33	?	00:00:00	[ksoftirqd/0]		
root	5	2	0	20:33	?	00:00:00	[kworker/0:0H]		
root	7	2	0	20:33	?	00:00:00	[migration/0]		
root	8	2	0	20:33	?	00:00:00	[rcu bh]		
root	9	2	0	20:33	?	00:00:00	[rcu_sched]		
root	10	2	0	20:33	?	00:00:00	[lru-add-drain]		
root	11	2	0	20:33	?	00:00:00	[watchdog/0]		
root	12	2	0	20:33	?	00:00:00	[watchdog/1]		
root	13	2	0	20:33	?	00:00:00	[migration/1]		
root	14	2	0	20:33	?	00:00:00	[ksoftirqd/1]		
root	16	2	0	20:33	?	00:00:00	[kworker/1:0H]		
root	18	2	0	20:33	?	00:00:00	[kdevtmpfs]		
root	19	2	0	20:33	?	00:00:00	[netns]		
root	20	2	ି 0	20:33	?	00:00:00	[khungtaskd]		
							7/4-2/		



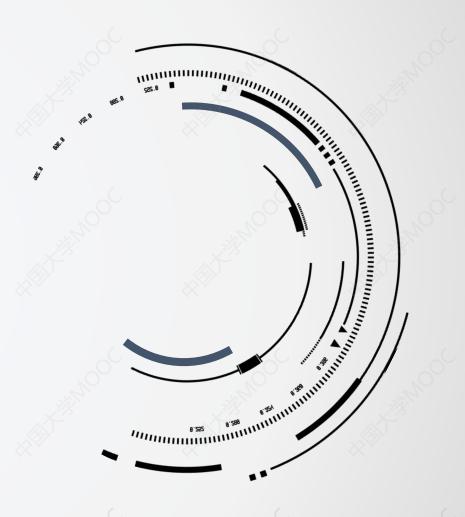
### pstree命令



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#### pstree ——显示系统的进程树

```
[root@ccit ~]# pstree
systemd——NetworkManager——2*[{NetworkManager}]
         -VGAuthService
          -auditd----{auditd}
          -crond
          -dbus-daemon——{dbus-daemon}
          -firewalld---{firewalld}
          -irgbalance
          -login---bash
          -lvmetad
          -master——pickup
                   -qmgr
          -polkitd---5*[{polkitd}]
          -rsyslogd---2*[{rsyslogd}]
          -sshd---sshd---bash---pstree
          -systemd-journal
          -systemd-logind
          -systemd-udevd
          -tuned----4*[{tuned}]
```





### top命令

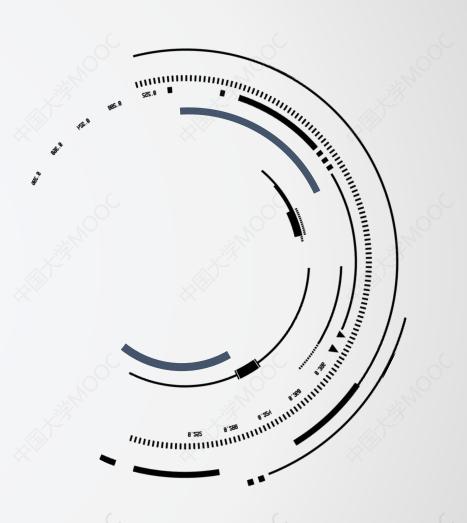


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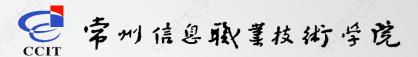
- 查看进程的瞬间信息
- 持续监视进程的信息

top:

- Linux下常用的系统性能分析工具
- 实时显示系统中各进程的资源占用情况
- 类似于Windows中的任务管理器
- 通过按键不断刷新当前状态
- 独占前台







#### 常用的选项有:

-d: 指定刷新时间间隔, 默认为5秒

top -d 3: 每过3秒刷新一次

-s: 设置为安全模式,不能使用交互命令

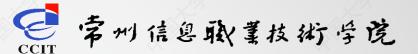
交互命令: 空格键--刷新; c键--更改显示方式; q键--退出

top -s: 禁止交互

-c: 显示整个命令行, 而不是命令名



# top命令



[root@ccit ~]# top
top - 23:53:00 up 3:19, 2 users, load average: 0.00, 0.01, 0.05
Tasks: 115 total, 1 running, 114 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.0 us, 0.2 sy, 0.0 ni, 99.7 id, 0.2 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem : 4028432 total, 3238176 free, 160152 used, 630104 buff/cache
KiB Swap: 4063228 total, 4063228 free, 0 used. 3586596 avail Mem

×										
PID	USER	PR	NI	VIRT	RES	SHR S	%CPU 9	&MEM	TIME+	COMMAND
649	root	20	0	298724	6128	4800 S	0.3	0.2	0:29.06	vmtoolsd
1316	root	20	୍ତ	156684	5484	4156 S	0.3	0.1	0:01.58	sshd
1	root	20	0	127936	6480	4080 S	0.0	0.2	0:02.46	systemd



### 终止进程



终止前台进程: Ctrl+C

终止后台进程: kill命令

进程终止命令:

♦ kill PID

◆ killall 进程名

```
[root@ccit ~]# kill -l
1) SIGHUP
                 2) SIGINT
                                                                  5) SIGTRAP
                                 SIGQUIT
                                                  4) SIGILL
                 7) SIGBUS
                                                                 10) SIGUSR1
 SIGABRT
                                 8) SIGFPE
                                                  9) SIGKILL
11) SIGSEGV
                12) SIGUSR2
                                13) SIGPIPE
                                                 14) SIGALRM
                                                                 15) SIGTERM
16) SIGSTKFLT
                17) SIGCHLD
                                18) SIGCONT
                                                 19) SIGSTOP
                                                                 20) SIGTSTP
21) SIGTTIN
                22) SIGTTOU
                                23) SIGURG
                                                 24) SIGXCPU
                                                                 25) SIGXFSZ
                                28) SIGWINCH
26) SIGVTALRM
                    SIGPROF
                                                 29) SIGIO
                                                                 30) SIGPWR
31) SIGSYS
                34) SIGRTMIN
                                35) SIGRTMIN+1
                                                 36) SIGRTMIN+2
                                                                 37) SIGRTMIN+3
38) SIGRTMIN+4
                39) SIGRTMIN+5
                                40) SIGRTMIN+6
                                                 41) SIGRTMIN+7
                                                                 42) SIGRTMIN+8
43) SIGRTMIN+9
                    SIGRTMIN+10 45) SIGRTMIN+11 46)
                                                    SIGRTMIN+12 47) SIGRTMIN+13
48) SIGRTMIN+14 49) SIGRTMIN+15 50) SIGRTMAX-14 51)
                                                    SIGRTMAX-13 52) SIGRTMAX-12
53) SIGRTMAX-11 54) SIGRTMAX-10 55) SIGRTMAX-9
                                                 56) SIGRTMAX-8
                                                                 57) SIGRTMAX-7
58) SIGRTMAX-6
                59) SIGRTMAX-5
                                60) SIGRTMAX-4
                                                 61) SIGRTMAX-3
                                                                 62) SIGRTMAX-2
63) SIGRTMAX-1
                64) SIGRTMAX
```





### killall 进程名 ——终止指定名称的进程

如:

- ◆ killall httpd: 杀死所有的http进程
- ◆ killall -9 bash: 把所有登录后的shell杀掉, 要重新连接才能登录



# 操作演示





### 第一个进程监控命令: ps

```
[root@ccit ~]# ps a
                STAT
  PID TTY
                       TIME COMMAND
 1296 tty1
                       0:00 -bash
                Ss+
 1321 pts/0
                Ss
                       0:00 -bash
 2401 pts/0
                       0:00 vim
 2566 pts/0
                       0:00 vi
 2585 pts/0
                R+
                       0:00 ps a
                                          显示所有用户所有终端的进程
[root@ccit ~] # ps -a
  PID TTY
                    TIME CMD
 2401 pts/0
                00:00:00 vim
 2566 pts/0
                00:00:00 vi
                                         显示当前终端中的所有进程
 2586 pts/0
                00:00:00 ps
[root@ccit ~]# ps u
USER
            PID %CPU %MEM
                             VSZ
                                   RSS TTY
                                                 STAT START
                                                              TIME COMMAND
           1296
                 0.0
                      0.0 115432
                                  1980 tty1
                                                              0:00 -bash
                                                 Ss+
                                                      Jan01
root
                 0.0
           1321
                      0.0 115436
                                  2068 pts/0
                                                              0:00 -bash
root
                                                 Ss
                                                      Jan01
           2401 0.0
                     0.1 146816
                                  4588 pts/0
                                                      00:50
                                                              0:00 vim
root
           25億 显示进程的用户信息 24052
                                                              0:00 vi
                                  1556 pts/0
                                                      05:02
root
                                  1848 pts/0
                                                 R+
                                                      05:39
root
           2587 0.0 0.0 155324
                                                              0:00 ps u
[root@ccit ~]# ps
```



■ <u>1</u> ccit ×	+											
2566	pts/0	Т	0:	00 vi				0			_	
2585	pts/0	R+	0:	00 ps a								
[root@d	ccit ~]#	ps -a										
PID	TTY		TIME	CMD								
2401	pts/0	00:0	0:00	vim								
2566	pts/0	00:0	0:00	vi								
2586	pts/0	00:0	0:00	ps								
[root@d	ccit ~]#	ps u								I		
USER	PI	D %CPU	%MEM	VSZ	RSS	TTY	S	TAT	START	TIME	COMMAND	
root	129	6 0.0	0.0	115432	1980	tty1	S	s+	Jan01	0:00	-bash	
root	132	1 0.0	0.0	115436	2068	pts/0	S	s	Jan01	0:00	-bash	
root	240	1 0.0	0.1	146816	4588	pts/0	Т		00:50	0:00	vim <	
root	256	6 0.0	0.0	124052	1556	pts/0	Т		05:02	0:00	vi	
root	258	7 0.0	0.0	155324	1848	pts/0	R	+	05:39	0:00	ps u	
[root@d	ccit ~]#	ps -f			● 显示进	程的父进程						
UID	PI	D PP	ID C	STIME	TTY	THE STATE OF THE S	TIME	CME	)			
root	132	1 13	16 0	Jan01	pts/0	00:0	00:00	-ba	ash			
root	240	1 13	21 0	00:50	pts/0	00:0	00:00	vir	n 🧳			
root	256	6 13	21 0	05:02	pts/0	00:0	00:00	νi				
root	258	8 13	21 0	05:39	pts/0	00:0	00:00	ps	- f			
[root@d	ccit ~]#											



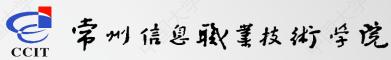
2490					kworker		PID-	- 1 丰元 3	3.统进程	systemd	<u> </u>	一个红框对应的标注都在脚本里有,	请──对应
2528					kworker	71:0	110-	XIIV	区与历史工作主	systema	प्रो	1 红色对应13700工作1工物个主行,	MI VINT
2531				ECTOR TO COLOR	oickup	Tables and the second							
2546	?		00:00	):00 l	kworker	/1.2							
2566	pts/0		00:00	):00 v	vi			问号表	<b>長示进程</b>	与终端无关			
2589	pts/0		00:00	00:0	05								
[root@c	cit ~]	# p	s aux										
USER	P	ID	%CPU	%MEM	VSZ	RS	SIT	Y	STAT	START	TIME	COMMAND	
root			0.0	0.1	127936	648	0 ?		Ss	Jan01	0:02	/usr/lib/systemd/systemd	switched-r
root		2	0.0	0.0	0		0 ?		S	Jan01		[kth readd]	-2/2/
root		3	0.0	0.0	C		0 ?		S	Jan01		[ksoftirqd/0]	
root		5	0.0	0.0	(C	į į	0 ?		S<	Jan01		[kworker/0:0H]	
root		7	0.0	0.0	G	ŭ.	0 ?		S	Jan01		[migration/0]	
root		8	0.0	0.0	0		0 ?		S	Jan01		[rcu bh]	
root		9	0.0	0.0	G		0 ?		S	Jan01		[rcu_sched]	
root		10	0.0	0.0	e		0 ?		S<	Jan01		[lru-add-drain]	
root		11	0.0	0.0	G	Ď.	0 ?		S	Jan01	0:00	[watchdog/0]	
root		12	0.0	0.0	C C		0 ?		S	Jan01		[watchdog/1]	
root		13	0.0	0.0	6		0 ?		S	Jan01		[migration/1]	
root		14	0.0	0.0	G		0 ?		S	Jan01		[ksoftirqd/1]	
root		16	0.0	0.0	G		0 ?		S<	Jan01		[kworker/1:0H]	
				)									

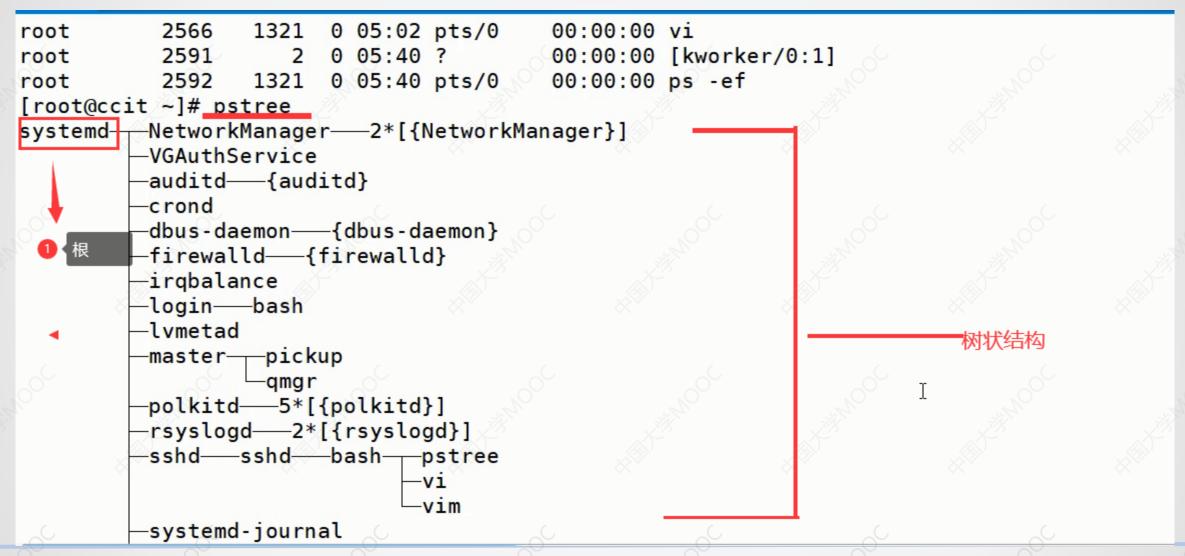


	2400	0 0	^ ^			_		02.25	0.00	[] (0.01
root	2490	0.0	0.0	0	0		S	03:25		[kworker/0:0]
root	2528	0.0	0.0	0	0	?	S	04:06	0:00	[kworker/1:0]
postfix	2531	0.0	0.1	89820	4060	?	S	04:54	0:00	pickup -l -t unix -u
root	2546	0.0	0.0	0	0	?	R	05:01	0:00	[kworker/1:2]
root	2566	0.0	0.0	124052	1556	pts/0	T	05:02	0:00	vi
root	2590	0.0	0.0	155324		pts/0	R+	05:40	0:00	ps aux
[root@ccit	~]# p	s -ef	_	_	· ① 父进	程PPID				
UID	PID	PPIC	) C	STIME T	TY		TIME	CMD		
root	1	6	0	Jan01	•	00:0	0:02	/usr/lib/s	system	d/systemdswitched-root -
root	2	6	0	Jan01	•	00:0	0:00	[kthreadd]	-//	
root	3	2	2 0	Jan01 ?		00:0	0:00	[ksoftirqo	[0/	
root	5	2	2 0	Jan01	? × × × ×	00:0	0:00	[kworker/6	0:0H]	
root	7	2	2 0	Jan01	•	00:0	0:00	[migration	1/0]	
root	8	2	2 0	Jan01	•			[rcu_bh]		
root	9	<b>2</b>	2 0	Jan01 ?	•	00:0	0:01	[rcu_sched	d]	-0° T
root	10	2	2 0	Jan01	•	00:0	0:00	[lru-add-d	drain]	
root	11	2	0	Jan01 ?	2	00:0	0:00	[watchdog/	<b>/</b> 0]	
root	12	2	2 0	Jan01 ?		00:0	0:00	[watchdog/	/1]	
root	13	2	2 0	Jan01 ?	, «	00:0	0:00	[migration	1/1]	
root	14	2	2 0	Jan01 ?	,	00:0	0:00	[ksoftirgo	1/1]	
root	16		2 0	Jan01 ?	•	00:0	0:00	[kworker/1	L:0H]	



### 第二个进程监控命令: pstree

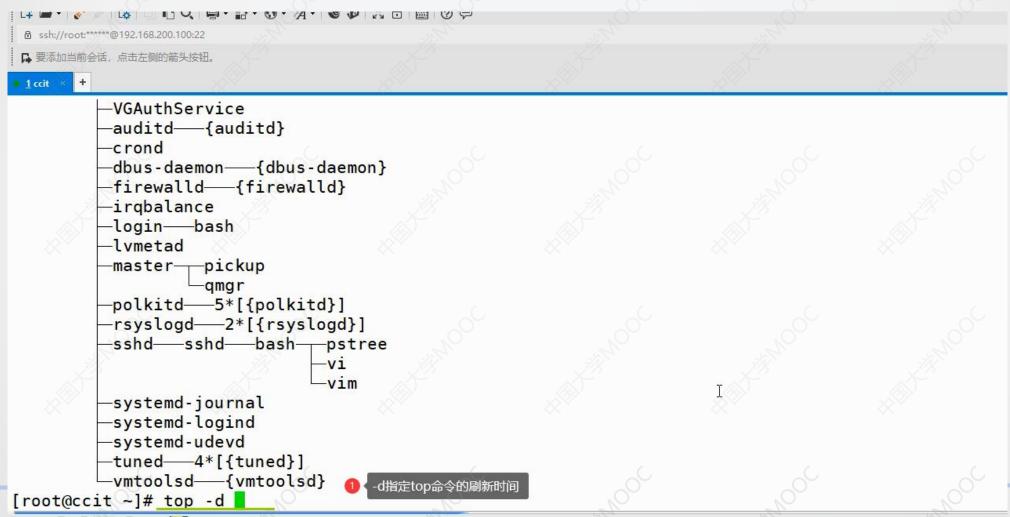








### 第三个进程监控命令: top







top - 05:41:30 up 9:07, 2 users, load average: 0.00, 0.01, 0.05

Tasks: 117 total, 1 running, 114 sleeping, 2 stopped, 0 zombie

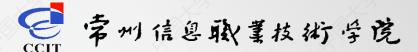
%Cpu(s): 0.2 us, 0.0 sy, 0.0 ni, 99.8 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st

KiB Mem : 4028432 total, 3230012 free, 163040 used, 635380 buff/cache KiB Swap: 4063228 total, 4063228 free, 0 used. 3583472 avail Mem

0	刷新间隔2秒
	加勢川内開る化グ

PI	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND		
	1 root	20	0	127936	6480	4080	S	0.0	0.2	0:02.66	systemd	(	
	2 root	20	0	0	0	0	S	0.0	0.0	0:00.03	kthreadd		
No.	3 root	20	0	0	0	0	S	0.0	0.0	0:00.09	ksoftirqd/0	-11/2	
7.7%	5 root	0	-20	0	0	0	S	0.0	0.0	0:00.00	kworker/0:0H		
<b>*</b>	7 root	rt	0	0	0	0	S	0.0	0.0	0:00.03	migration/0		
	8 root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcu_bh		
	9 root	20	0	0	0	0	S	0.0	0.0	0:01.97	rcu_sched	❷ ← 命令名	
1	9 root	0	-20	0	0	0	S	0.0	0.0	0:00.00	lru-add-drain		
1	1 root	rt	0	0	0	0	S	0.0	0.0	0:00.33	watchdog/0	,00	
1	2 root	rt	0	0	0	0	S	0.0	0.0	0:00.32	watchdog/1	-7/2	
1	3 root	rt	0	0	0	0	S	0.0	0.0	0:00.01	migration/1		
1	4 root	20	0	0	0	0	S	0.0	0.0	0:00.21	ksoftirqd/1		
1	6 root	0	-20	0	0	0	S	0.0	0.0	0:00.00	kworker/1:0H		
1	8 root	20	0	0	0	0	S	0.0	0.0	0:00.00	kdevtmpfs		





top - 05:41:44 up 9:08, 2 users, load average: 0.00, 0.01, 0.05

Tasks: 117 total, 1 running, 114 sleeping, 2 stopped, 0 zombie

%Cpu(s): 2.9 us, 2.9 sy, 0.0 ni, 94.1 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st

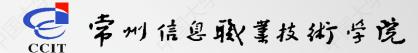
KiB Mem : 4028432 total, 3230036 free, 163016 used, 635380 buff/cache

KiB Swap: 4063228 total, 4063228 free, 0 used. 3583496 avail Mem



PID	USER	PR	NI	VIRT		RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
2595	root	20	0	162004	(2	2228	1608	R	6.2	0.1	0:00.01	top -c
1	root	20	0	127936	E	6480	4080	S	0.0	0.2	0:02.66	/usr/lib/systemd/systemdswitc+
2	root	20	0	0		0	0	S	0.0	0.0	0:00.03	[kthreadd]
3	root	20	0	0		0	0	S	0.0	0.0	0:00.09	[ksoftirqd/0]
5	root	0	-20	0		0	0	S	0.0	0.0	0:00.00	[kworker/0:0H]
7	root	rt	0	0		0	0	S	0.0	0.0	0:00.03	[migration/0]
8	root	20	0	0		0	0	S	0.0	0.0	0:00.00	[rcu_bh]
9	root	20	0	0		0	0	S	0.0	0.0	0:01.98	[rcu_sched]
10	root	0	-20	0		0	0	S	0.0	0.0	0:00.00	[lru-add-drain]
11	root	rt	0	0		0	0	S	0.0	0.0	0:00.33	[watchdog/0]
12	root	rt	0	0		0	0	S	0.0	0.0	0:00.32	[watchdog/1]
13	root	rt	0	0		0	0	S	0.0	0.0	0:00.01	[migration/1]
14	root	20	0	0		0	0	S	0.0	0.0	0:00.21	[ksoftirqd/1]
16	root	0	-20	0		0	0	S	0.0	0.0	0:00.00	[kworker/1:0H]





top - 05:42:42 up 9:09, 2 users, load average: 0.00, 0.01, 0.05
Tasks: 117 total, 1 running, 114 sleeping, 2 stopped, 0 zombio 0 执行完top-s再输入交互命令,提示已禁用

%Cpu(s): 0.0 us, 3.1 sy, 0.0 ni, 96.9 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st

KiB Mem : 4028432 total, 3230584 free, 162484 used, 635364 buff/cache KiB Swap: 4063228 total, 4063228 free, 0 used. 3584044 avail Mem

						, 10032	.20		1		U USC	u	3304044 ava	TC IICIII	
Unav	/aı	lable	1n	sec	ure m	iode									
P1	DU	USER		PR	NI	VIRT	R	ES	SHR	S	%CPU	8MEN	M TIME+	COMMAND	
	1 1	root		20	0	127936	64	80	4080	S	0.0	0.2	2 0:02.66	systemd	_(_
	2 1	root		20	0	0		0	0	S	0.0	0.0	0 0:00.03	kthreadd	
-7/2	3 1	root		20	0	0		0	• 0	S	0.0	0.0	0:00.09	ksoftirqd/0	
	5 1	root		0	-20	0		0	C	S	0.0	0.0	0:00.00	kworker/0:0H	
	7 1	root		rt	0	0		0	<b>6</b>	S	0.0	0.0	0 0:00.03	migration/0	
	8 1	root		20	0	0		0	0	S	0.0	0.0	0 0:00.00	rcu_bh	
	9 1	root		20	0	Θ		0	O	S	0.0	0.0	0 0:01.98	rcu_sched	
1	LO 1	root		0	-20	0		0	e	S	0.0	0.0	0 0:00.00	lru-add-drain	
1	11 1	root		rt	0	0		0	0	S	0.0	0.0	0 0:00.33	watchdog/0	
<i>-1/</i> / <sub>2</sub>	L2 1	root		rt	0	0		0	C	S	0.0	0.0	0 0:00.32	watchdog/1	
	L3 I	root		rt	0	0		0	(C)	S	0.0	0.0	0 0:00.01	migration/1	
× 1	L4 1	root		20	0	0		0	0	S	0.0	0.0	0 0:00.21	ksoftirqd/1	
1	L6 I	root		0	-20	0		0	C	S	0.0	0.0	0:00.00	kworker/1:0H	
1	18 I	root		20	0	0		0	0	S	0.0	0.0	0:00.00	kdevtmpfs	



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## 进程控制命令: kill和killall

9 root	20	0 0		0 0 S	0.0 0.0	0:01.99 rcu_sched	
10 root	0	-20 0		0 0 S	0.0 0.0	0:00.00 lru-add-drain	
11 root	rt	0 0		0 0 S	0.0 0.0	0:00.33 watchdog/0	
12 root	rt	0 0		0 0 S	0.0 0.0	0:00.32 watchdog/1	
13 root	rt	0 0		0 0 S	0.0 0.0	0:00.01 migration/1	
14 root	20	0 0		0 0 S	0.0 0.0	0:00.21 ksoftirqd/1	
[root@ccit ~]#	kill	-l	<b>今郊65/</b>	言号名称和编号			
1) SIGHUP	2)		3)	CONTRACTOR OF THE PARTY OF THE	4) SIGILL	5) SIGTRAP	
6) SIGABRT	7)	SIGBUS	8)	SIGFPE	9) SIGKILL	10) SIGUSR1	
1) SIGSEGV	12)	SIGUSR2	13)	SIGPIPE	14) SIGALRM	15) SIGTERM	
(6) SIGSTKFLT	17)	SIGCHLD	18)	SIGCONT	19) SIGSTOP	20) SIGTSTP	
21) SIGTTIN	22)	SIGTTOU	23)	SIGURG	24) SIGXCPU	25) SIGXFSZ	
26) SIGVTALRM	27)	SIGPROF	28)	SIGWINCH	29) SIGIO	30) SIGPWR	
31) SIGSYS	34)	SIGRTMIN	35)		36) SIGRTMIN+	2 37) SIGRTMIN+3	
88) SIGRTMIN+4	39)	SIGRTMIN+5	40)	SIGRTMIN+6	41) SIGRTMIN+	7 42) SIGRTMIN+8	
3) SIGRTMIN+9	44)	SIGRTMIN+10	45)	SIGRTMIN+11	46) SIGRTMIN+	12 47) SIGRTMIN+13	
8) SIGRTMIN+14	4 49)	SIGRTMIN+15	50)	SIGRTMAX-14	51) SIGRTMAX-	13 52) SIGRTMAX-12	
3) SIGRTMAX-1					56) SIGRTMAX-		
8) SIGRTMAX-6	59)		60)		61) SIGRTMAX-	A. N	
3) SIGRTMAX-1	64)	SIGRTMAX			The second secon	•	
[root@ccit ~]#	_						
					-0	-0	



root	671	0.0	0.0	96524	2444	?	Ss	Jan01	0:00 login root
root	692	0.0	0.7	357880	28824	?	Ssl	Jan01	0:00 /usr/bin/python -Es /usr/sbin/firewal
root	693	0.0	0.2	476140	8616	?	Ssl	Jan01	0:01 /usr/sbin/NetworkManagerno-daemon
root	1029	0.0	0.1	112812	4288	?	Ss	Jan01	0:00 /usr/sbin/sshd -D
root	1031	0.0	0.4	573844	19004	?	Ssl	Jan01	0:07 /usr/bin/python -Es /usr/sbin/tuned -
root	1032	0.0	0.1	222716	4680	?	Ssl	Jan01	0:03 /usr/sbin/rsyslogd -n
root	1168	0.0	0.0	89636	2164	?	Ss	Jan01	0:00 /usr/libexec/postfix/master -w
postfix	1177	0.0	0.1	89808	4076	?	S	Jan01	0:00 qmgr -l -t unix -u
root	1207	0.0	0.0	0	0	?	S<	Jan01	0:00 [kworker/1:1H]
root	1296	0.0	0.0	115432	1980	tty1	Ss+	Jan01	0:00 -bash
root	1316	0.0	0.1	156684	5484	?	Ds	Jan01	0:02 sshd: root@pts/0
root	1321	0.0	0.0	115436	2068	pts/0	Ss	Jan01	0:00 -bash
root	2401	0.0	0.1	146816	4588	pts/0	T	00:50	0:00 vim
root	2490	0.0	0.0	0	0	?	S	03:25	0:00 [kworker/0:0]
root	2528	0.0	6 Q	im进程的PIC	为 <sub>2401</sub> 0	?	S	04:06	0:00 [kworker/1:0]
postfix	2531	0.0	0.1	89820	4060	?	S	04:54	0:00 pickup -l -t unix -u
root	2546	0.0	0.0	0	0	?	S	05:01	0:00 [kworker/1:2]
root	2566	0.0	0.0	124052	1556	pts/0	Т	05:02	0:00 vi
root	2591	0.0	0.0	0	0	?	S	05:40	0:00 [kworker/0:1]
root	2600	0.0	0.0	155324	1860	pts/0	R+	05:43	0:00 ps aux
[root@ccit	~]#								



root	671	0.0	0.0	96524	2444	?		Ss	Jan01	0:00	login root
root	692	0.0	0.7	357880	28824	?		Ssl	Jan01	0:00	/usr/bin/python -Es /usr/sbin/firewal
root	693	0.0	0.2	476140	8616	?		Ssl	Jan01	0:01	/usr/sbin/NetworkManagerno-daemon
root	1029	0.0	0.1	112812	4288	?		Ss	Jan01	0:00	/usr/sbin/sshd -D
root	1031	0.0	0.4	573844	19004	?		Ssl	Jan01	0:07	/usr/bin/python -Es /usr/sbin/tuned -
root	1032	0.0	0.1	222716	4680	?		Ssl	Jan01	0:03	/usr/sbin/rsyslogd -n
root	1168	0.0	0.0	89636	2164	?		Ss	Jan01	0:00	/usr/libexec/postfix/master -w
postfix	1177	0.0	0.1	89808	4076	?		S	Jan01	0:00	qmgr -l -t unix -u
root	1207	0.0	0.0	0	0	?		S<	Jan01	0:00	[kworker/1:1H]
root	1296	0.0	0.0	115432	1980	tty1		Ss+	Jan01	0:00	-bash
root	1316	0.0	0.1	156684	5484	?		Ds	Jan01	0:02	sshd: root@pts/0
root	1321	0.0	0.0	115436	2068	pts/0		Ss	Jan01	0:00	-bash
root	2401	0.0	0.1	146816	4588	pts/0		Т	00:50	0:00	vim
root	2490	0.0	0.0	0	0	?		S	03[: 25	0:00	[kworker/0:0]
root	2528	0.0	0.0	0	0	?		S	04:06	0:00	[kworker/1:0]
postfix	2531	0.0	0.1	89820	4060	?		S	04:54	0:00	pickup -l -t unix -u
root	2546	0.0	0.0	0	0	?		S	05:01	0:00	[kworker/1:2]
root	2566	0.0	0.0	124052	1556	pts/0		T	05:02	0:00	vi
root	2591	0.0	0.0	0	0	?		S	05:40	0:00	[kworker/0:1]
root	2600	0.0	0.0	155324	1860	pts/0		R+	05:43	0:00	ps aux
[root@ccit	~]# k	ill -	15 24	401	<b>1</b>	E常终止vimi	进程				



root	671	0.0	0.0	96524	2444	?	Ss	Jan01	0:00 login root
root	692	0.0	0.7	357880	28824	?	Ssl	Jan01	0:00 /usr/bin/python -Es /usr/sbin/firewa
root	693	0.0	0.2	476140	8616	?	Ssl	Jan01	0:01 /usr/sbin/NetworkManagerno-daemon
root	1029	0.0	0.1	112812	4288	?	Ss	Jan01	0:00 /usr/sbin/sshd -D
root	1031	0.0	0.4	573844	19004	?	Ssl	Jan01	0:07 /usr/bin/python -Es /usr/sbin/tuned
root	1032	0.0	0.1	222716	4680	?	Ssl	Jan01	0:03 /usr/sbin/rsyslogd -n
root	1168	0.0	0.0	89636	2164	?	Ss	Jan01	0:00 /usr/libexec/postfix/master -w
postfix	1177	0.0	0.1	89808	4076	?	S	Jan01	0:00 qmgr -l -t unix -u
root	1207	0.0	0.0	0	0	?	S<	Jan01	0:00 [kworker/1:1H]
root	1296	0.0	0.0	115432	1980	tty1	Ss+	Jan01	0:00 -bash
root	1316	0.0	0.1	156684	5484	?	Ds	Jan01	0:02 sshd: root@pts/0
root	1321	0.0	0.0	115436	2068	pts/0	Ss	Jan <mark>0</mark> 1	0:00 -bash
root	2401	0.0	0.1	146816	4588	pts/0	Т	00:50	0:00 vim
root	2490	0.0	0.0	0	0	?	S	03:25	0:00 [kworker/0:0]
root	2528	0.0	0.0	0	0	?	S	04:06	0:00 [kworker/1:0]
postfix	2531	0.0	0.1	89820	4060	?	S	04:54	0:00 pickup -l -t unix -u
root	2546	0.0	0.0	0	0	?	S	05:01	0:00 [kworker/1:2]
root	2566	0.0	0.0	124052	1556	pts/0	T	05:02	0:00 vi
root	2591	0.0	0.0	0	0	?	S	05:40	0:00 [kworker/0:1]
root	2600	0.0	0.0	155324	1860	pts/0	R+	05:43	0:00 ps aux
[root@ccit	~]# k	ill -	9 240	91	10 强制	冬止vim进程			



```
0.7 357880 28824 ?
root
            692
                 0.0
                                                  Ssl
                                                        Jan01
                                                                0:00 /usr/bin/python -Es /usr/sbin/firewa
            693
                 0.0
                       0.2 476140
                                   8616 ?
                                                  Ssl
                                                        Jan01
                                                                0:01 /usr/sbin/NetworkManager --no-daemon
root
                      0.1 112812
           1029
                 0.0
                                   4288 ?
                                                        Jan01
                                                                0:00 /usr/sbin/sshd -D
                                                  Ss
root
                       0.4 573844 19004 ?
           1031
                                                  Ssl
                                                        Jan01
                                                                0:07 /usr/bin/python -Es /usr/sbin/tuned
root
                 0.0
           1032
                       0.1 222716
                                   4680 ?
                                                  Ssl
                                                                0:03 /usr/sbin/rsyslogd -n
root
                 0.0
                                                       Jan01
root
           1168
                 0.0
                       0.0
                            89636
                                   2164 ?
                                                  Ss
                                                        Jan01
                                                                0:00 /usr/libexec/postfix/master -w
postfix
           1177
                 0.0
                       0.1
                            89808
                                   4076 ?
                                                  S
                                                        Jan01
                                                                0:00 qmgr -l -t unix -u
           1207
                 0.0
                       0.0
                                      0 ?
                                                  S<
                                                        Jan01
                                                                0:00 [kworker/1:1H]
root
                                0
           1296
                 0.0
                      0.0 115432
                                   1980 tty1
                                                        Jan01
                                                                0:00 -bash
                                                  Ss+
root
                                                                0:02 sshd: root@pts/0
           1316
                      0.1 156684
                                   5484 ?
                                                        Jan01
                 0.0
root
                                                  Ds
                       0.0 115436
                                                                0:00 -bash
           1321
                 0.0
                                   2072 pts/0
                                                        Jan01
root
                                                  Ss
           2490
                 0.0
                       0.0
                                                       03:25
                                                                0:00 [kworker/0:0]
root
                                       0
root
           2528
                 0.0
                       0.0
                                                        04:06
                                                                0:00 [kworker/1:0]
           2531
                            89820
                                   4060 ?
                                                       04:54
                                                                0:00 pickup -l -t unix -u
postfix
                 0.0
                       0.1
                                                                0:00 [kworker/1:2]
           2546
                 0.0
                       0.0
                                       0
                                                       05:01
root
                      0.0 124052
                                   1556 pts/0
           2566
                 0.0
                                                       05:02
                                                                0:00 vi
root
           2591
                 0.0
                       0.0
                                                        05:40
                                                                0:00 [kworker/0:1]
root
                                       0
           2605 0.0 0.0 155324
                                   1860 pts/0
                                                  R+
                                                        05:45
                                                                0:00 ps aux
root
[root@ccit ~]# killall -9 vi
                                          强制终止vi进程
[2]+ Killed
                               VI
[root@ccit ~]#
```



# 感谢您的观看!

