Process

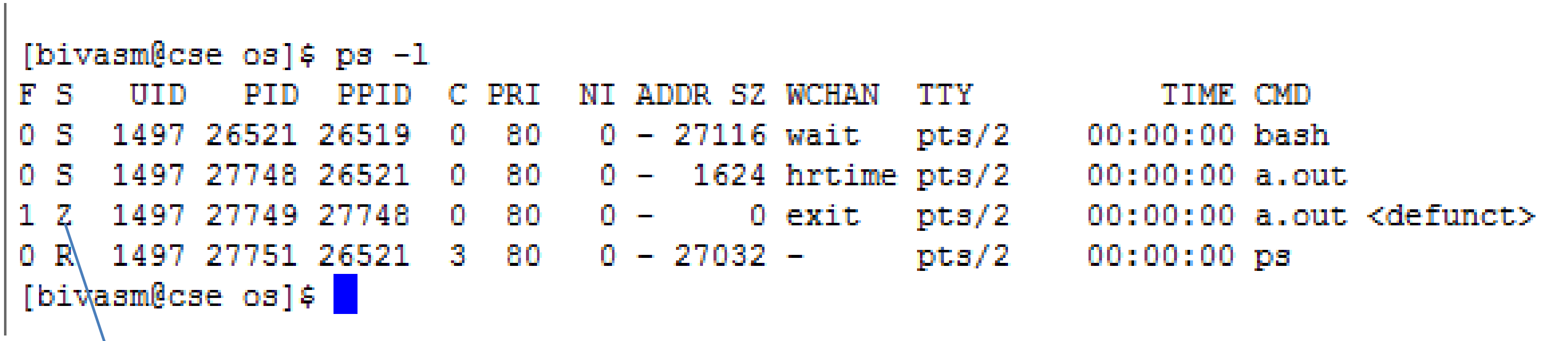
fork

```
Main()
{
Pid=fork();
If(pid==0)
{
        Child process
        getpid();
        sleep(20);
}
else
{
        Parent process
        getpid();
        sleep();
}
```

Orphan process

```
main()
{
pid=fork();
If(pid==0)
{
            getpid();
            getppid();
            sleep(10);
            getppid();
}
else
{
            getpid();
            getppid();
}
```

Process table



```
[bivasm@cse os]$ ps -l
F S   UID   PID  PPID  C PRI  NI ADDR SZ WCHAN  TTY          TIME CMD
0 S  1497 26521 26519  0  80   0 - 27116 wait   pts/2    00:00:00 bash
0 S  1497 27748 26521  0  80   0 -  1624 hrtime pts/2    00:00:00 a.out
1 Z  1497 27749 27748  0  80   0 -     0 exit   pts/2    00:00:00 a.out <defunct>
0 R  1497 27751 26521  3  80   0 - 27032 -      pts/2    00:00:00 ps
[bivasm@cse os]$
```

Zombie

```
Main()
{
Pid=fork();
If(pid==0)
{
        printf(“First Child process”)

}
else
{
        dip=fork()
        if(dip==0)
        {
                printf(“second child”)
        }
        else
        {
        cpid=wait(0);
        printf(“child died %d”, cpid);
        cpid=wait(0);
        printf(“child died %d”, cpid);
        printf(“Parent”);

}
```

```
Main()
{
Pid=fork();
If(pid==0)
{
        printf(“child process”)
        exit(i);
}
else
{       wait(&status);
        printf(“Parent process”);


}
```

Normal termination

Update	0

Abnormal termination

0	Update

```
Main()
{
        printf(“before”);
        execl(“usr/guest/ex2”, “ex2”, (char*)0);
        printf(“after”);
}
```

Ex1

```
main(int argc, char* argv[])
{
            printf(“before”);
            execl(argv[1],argv[2], argv[3], argv[4], (char*)0);
            printf(“after”);
}
```

```
./Ex1 /usr/guest/ex2  ex2 hello world
```

Ex2

```
main(int argc, char* argv[])
{
            printf(“%s %s %s”, argv[0], argv[1], argv[2]);
}
```

Ex1

```
main(int argc, char* argv[])
{
        printf(“before”);
        execl(argv[1],argv[2], argv[3], argv[4], (char*)0);
        printf(“after”);
}
```

```
./Ex1 /usr/guest/ex2  ex2 hello world
```

Ex2

```
main(int argc, char* argv[])
{
        printf(“%s %s %s”, argv[0], argv[1], argv[2]);
}
```

Ex1

```
main(int argc, char* argv[])
{
        printf(“before”);
        execl(argv[1],argv[2], argv[3], argv[4], (char*)0);
        printf(“after”);
}
```

```
./Ex1 /bin/ls  ls -l
```

```
Execv(path, temp)

Execvp(file, temp)
```

```
Temp[0]=“ex2”
Temp[1]=“hello”
Temp[2]=“world”
Temp[3]=‘\0’
Execvp(temp[0], temp)
```

```
Ex2
Printf(argv[0], argv[1], argv[2])
Ex2  hello world
```