```
pscqubuntu:-S is
2020203002 Documents execl execv execve execvp fork main.sh mecrol.c mecro2.c Pictures Templates wait.c pscqubuntu:-S cat wait.-S cat
```

```
psc@ubuntu:-$ 1s
2020203002 Documents exect execv execve execvp fork main.sh mecroi.c mecro2.c Pictures Templates wait
Docktop Downloads exect.c execv.c execve.c execvp.c fork.c mecro1 mecro2 Nusic Public Videos wait.c
psc@ubuntu:-$ cat mecro1.c
#include stdio.h>
#include stdio.h>
#include sys/types.h>
#include sys/types.h>
#include sys/types.h>
#include sys/types.h>
#include sys/types.h
#include sys/type
```

```
psc@ubuntu:-$ ls
2020203002 Documents exect execv execve execvp fork main.sh mecrol.c mecro2.c Pictures Templates wait
Desktop Downloads execl.c execv.c execve.c execvp.c fork.c mecro1 mecro2 Music Public Videos wait.c
psc@ubuntu:-$ cat mecro2.c
finclude exidio.h>
finclude exidio.h>
finclude exsys/types.h>
finclude exsys/types.h>
finclude exps/wait.h>
finclude exps/wait.h
```

```
psc@ubuntu:-$ ls
2020203002 Documents execl execv execve execvp fork main.sh mecrol.c mecro2.c Pictures Templates wait
Desktop Downloads execl.c execv.c execve.c execvp.c fork.c mecro1 mecro2 Husic Public Videos wait.c
psc@ubuntu:-$ cat execl.c
#include <stdio.h>
#include <stdio.h>
#include <sys/types.h>
#include <sys/types.h>
#include <sys/types.h>
#include <sys/types.h>
#include <sys/types.h>
#include <sys/wait.h>
                                             int main(int argc, char const * argv[]){
  pid_t pid = 0;
  int status = 0;
                                                                          pid =fork();
switch(pid){
    case -1:
        perror("fork() error!");
    exit(-1);
    case 0:
    execl("/bin/ls", "ls", "-a", "-l", NULL);
    break;
                                 return 0;
}
pscabuntu:—$ ./execl
total 300
drwxr-xr-x 3 root root 4096 Sep 26 22:13 .
drwxr-xr-x 3 root root 4996 Apr 20 20:05 ...
-rw-rw-r- 1 psc psc 1775 May 24 10:23 2020203002
-rw---- 1 psc psc 1022 Sep 25 04:17 .bash_history
-rw-r-r- 1 psc psc 22.04 pr 20 20:05 .bash_logout
-rw-r-r- 1 psc psc 3771 Apr 20 20:05 .bash_logout
-rw-r---- 13 psc psc 4096 May 24 10:31 .cache
drwx----- 13 psc psc 4096 May 24 10:31 .cache
drwx----- 13 psc psc 4096 Apr 20 20:51 Documents
drwxr-xr-x 2 psc psc 4096 Apr 20 20:51 Documents
drwxr-xr-x 2 psc psc 4096 Apr 20 20:51 Documents
drwxr-xr-x 2 psc psc 4096 Apr 20 20:51 Documents
drwxr-xr-x 1 psc psc 10920 Sep 24 17:14 exect
-rw-rw-r-- 1 psc psc 445 Sep 24 17:41 execv.
-rw-rw-r-- 1 psc psc 10920 Sep 24 17:41 execv.
-rw-rw-r-- 1 psc psc 10920 Sep 20 22:13 execve-
-rw-rw-rw-r- 1 psc psc 10920 Sep 28 24:12:4 exect.
-rw-rw-r-- 1 psc psc 10920 Sep 28 24:12:4 execv-
-rw-rw-rw-r- 1 psc psc 10920 Sep 28 24:11 execv-
-rw-rw-rw-r- 1 psc psc 10920 Sep 28 24:11 execv-
-rw-rw-rw-r- 1 psc psc 4096 Apr 20 20:51 Local
-rw-rw-r-- 1 psc psc 4096 Apr 20 20:51 .local
-rw-rw-r-- 1 psc psc 10920 Sep 24 17:25 fork.
drwx----- 3 psc psc 4096 Apr 20 20:51 .local
-rw-rw-r-- 1 psc psc 10968 Sep 24 17:26 mecrol
-rw-rw-r-- 1 psc psc 10968 Sep 24 17:27 mecro2
-rw-rw-rw-- 1 psc psc 10968 Sep 24 17:27 mecro2
-rw-rw-r-- 1 psc psc 10968 Sep 24 17:27 mecro2
-rw-rw-r-- 1 psc psc 10968 Sep 24 17:27 mecro2
-rw-rw-r-- 1 psc psc 10968 Sep 24 17:27 mecro2
-rw-rw-r-- 1 psc psc 10968 Sep 24 17:27 mecro2
-rw-rw-r-- 1 psc psc 4096 May 24 10:25 .nozilla
drwxr-xr-x 2 psc psc 4096 May 24 10:25 .nozilla
drwxr-xr-x 2 psc psc 4096 Apr 20 20:51 Public
drwxr-xr-x 2 psc psc 4096 Apr 20 20:51 Public
drwxr-xr-x 2 psc psc 4096 Apr 20 20:51 Public
drwxr-xr-x 2 psc psc 4096 Apr 20 20:51 Public
drwxr-xr-x 2 psc psc 4096 Apr 20 20:51 Public
drwxr-xr-x 2 psc psc 4096 Apr 20 20:51 Public
drwxr-xr-x 2 psc psc 4096 Apr 20 20:51 Public
drwxr-xr-x 2 psc psc 4096 Apr 20 20:51 Public
drwxr-xr-x 2 psc psc 4096 Apr 20 20:51 Public
drwxr-xr-x 2 psc psc
                                                                      return 0:
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psc@ubuntu: ~
psc@ubuntu: $ cat execl.c
#include <stdio.h>
#include <stdlib.h>
#include <sys/types.h>
#include <sys/wait.h>
#include <unistd.h>
int main(int argc, char const * argv[]){
     pid_t pid = 0;
     int status = 0;
     pid =fork();
     switch(pid){
         case -1:
              perror("fork() error!");
exit(-1);
          case 0:
               execl("/bin/ls", "ls", "-a", "-l", NULL);
               break:
     if (pid > 0) { wait(&status); }
     return 0;
psc@ubuntu:~$ ./execl
total 300
                               4096 Sep 26 22:13 .
drwxr-xr-x 17 psc psc
                               4096 Apr 20 20:05 ..
1775 May 24 10:23 2020203002
drwxr-xr-x 3 root root
- rw- rw- r--
               1 psc psc
               1 psc
- rw-----
                        psc
                               1622 Sep 25 04:17 .bash_history
                               220 Apr 20 20:05 .bash_logout
3771 Apr 20 20:05 .bashrc
- CM- C-- C--
              1 psc
                        psc
-rw-r--r-- 1 psc
                        psc
drwx----- 13 psc
drwx----- 13 psc
                               4096 May 24 10:31 .cache
                       DSC
                               4096 Sep 24 17:19 .config
                       DSC
drwxr-xr-x
                                4096 Apr 20 20:51 Desktop
              2 psc
                       psc
drwxr-xr-x
               2 psc
                               4096 Apr 20 20:51 Documents
                        psc
drwxr-xr-x
               2 psc
                        psc
                               4096 Apr 20 20:51 Downloads
                              16920 Sep 24 17:34 execl
445 Sep 24 17:34 execl.c
- CMXCMXC-X
               1 psc
                        psc
- FW- FW- F--
               1 psc
                        DSC
-rwxrwxr-x 1 psc
                              16920 Sep 24 17:41 execv
                       DSC
- FW- FW- F--
                                448 Sep 24 17:41 execv.c
               1 psc
                       psc
- FWXFWXF-X
                              16920 Sep 26 22:13 execve
               1 psc
                       psc
                                 513 Sep 26 22:13 execve.c
               1 psc
                              16920 Sep 25 04:11 execvp
445 Sep 25 04:11 execvp.c
16912 Sep 24 12:25 fork
-rwxrwxr-x
               1 psc
                        psc
- FW- FW- F--
               1 psc
                        psc
- FWXFWXF-X
               1 psc
                        psc
- FW- FW- F--
                                559 Sep 24 12:25 fork.c
               1 DSC
                       DSC
drwx-----
                               4096 Apr 20 20:52 .gnupg
               3 psc
                       psc
drwxr-xr-x
               3 psc
                                4096 Apr 20 20:51 .local
                       psc
               1 root
                               5278 May 24 18:53 main.sh
                        root
- FWXFWXF-X
                              16968 Sep 24 17:26 mecro1
               1 psc psc
                                593 Sep 24 17:16 mecro1.c
- FW- FW- F--
               1 psc
                        psc
                              16968 Sep 24 17:27 mecro2
- FWXFWXF-X
               1 psc
                        psc
                                591 Sep 24 17:27 mecro2.c
- FW- FW- F--
               1 DSC
                       DSC
                               4096 May 24 10:25 .mozilla
4096 Apr 20 20:51 Music
drwx-----
                4 DSC
                       DSC
drwxr-xr-x
               2 psc
                       psc
drwxr-xr-x
               2 psc
                               4096 Apr 20 20:51 Pictures
                               807 Apr 20 20:05 .profile
4096 Apr 20 20:51 Public
4096 Apr 20 20:52 .ssh
- FW-F--F--
               1 psc
                        psc
drwxr-xr-x
              2 psc
                        psc
drwx-----
               2 psc
                        psc
                               0 Apr 20 20:53 .sudo_as_admin_successful
4096 Apr 20 20:51 Templates
-rw-r--r--
               1 DSC
                       DSC
drwxr-xr-x
               2 psc
                       DSC
                               4096 May 24 10:25 .thunderbird
4096 Apr 20 20:51 Videos
7570 Sep 26 22:13 .viminfo
               6 psc
                        psc
drwxr-xr-x
               2 psc
                        psc
- FW-----
               1 psc
                        psc
                              1007 May 24 09:44 .vimrc
17048 Sep 24 16:57 wait
796 Sep 24 16:57 wait.c
- FW- FW- F--
               1 psc
                        psc
- FWXFWXF-X
              1 psc
                       psc
- FW- FW- F--
-rw-rw-r-- 1 psc
psc@ubuntu:~$
                       DSC
```

```
psc@ubuntu: ~
                                                                                                                                                                                                                           execl.c execv.c execve.c execvp.c fork.c mecro1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  wait.c
    Desktop Downloads exe
psc@ubuntu:=$ cat execv.c
#include <stdio.h>
#include <stdiib.h>
#include <sys/types.h>
#include <sys/kwait.h>
#include <unistd.h>
    int main(int argc, char const * argv[]){
  ptd_t ptd = 0;
  int status = 0;
  char * args[] = {"ls", "-a", "-l", NULL};
                                        pid = fork();
switch(pid){
                                                                              case -1:
    perror("fork() error!"); exit(-1);
                                                                                  case 0:
                                                                                                                             execv("/bin/ls", args); break;
                                      if(pid > 0) { wait(&status);}
                                      return 0:
                                                                                                                                                                                   psc 4096 Sep 26 22:13 .
t root 4096 Apr 20 20:05 ..
psc 1775 May 24 10:23 2020203002
psc 1622 Sep 25 04:17 .bash_history
psc 220 Apr 20 20:05 .bash_logout
psc 3771 Apr 20 20:05 .bashrc
psc 4096 May 24 10:31 .cache
psc 4096 Apr 20 20:51 Desktop
psc 4096 Apr 20 20:51 Desktop
psc 4096 Apr 20 20:51 Downloads
psc 4096 Apr 20 20:51 Downloads
psc 4096 Apr 20 20:51 Downloads
psc 16920 Sep 24 17:13 execv
psc 4096 Apr 20 22:13 execve.
psc 16920 Sep 24 17:41 execv
psc 16920 Sep 26 21:13 execve
psc 16920 Sep 26 21:13 execve
psc 16920 Sep 26 22:13 execve
psc 16920 Sep 26 22:13 execve.
psc 16920 Sep 26 22:13 execve
psc 16912 Sep 24 12:25 fork
psc 559 Sep 24 12:25 fork
psc 559 Sep 24 12:25 fork.
psc 559 Sep 24 12:25 fork.
psc 4096 Apr 20 20:51 .local
t root 5278 May 24 18:53 main.sh
psc 16968 Sep 24 17:27 mecro2
psc 4096 May 24 10:25 .mozilla
psc 4096 Apr 20 20:51 Plictures
psc 4096 Apr 20 20:51 Plictures
psc 4096 Apr 20 20:51 Plictures
psc 4096 Apr 20 20:51 .profile
psc 4096 Apr 20 20:52 .ssh
psc 4096 Apr 20 20:52 .ssh
psc 4096 Apr 20 20:51 .todal
psc 4096 Apr 20 20:51 .profile
psc 4096 Apr 20 20:52 .ssh
psc 4096 Apr 20 20:51 .profile
psc 4096 Apr 20 20:51 .thunderbird
psc 1007 May 24 09:44 .vimrc
psc 17048 Sep 24 16:57 wait.c
             psc@ubuntu:~$ ./execv
total 300
drwxr-xr-x 17 psc
    drwxr-xr-x
  | drwx----- | 2 psc | psc | drwx----- | 2 psc | drwx----- | 2 psc | drwx----- | 2 psc | drwx----- | 1 psc | psc | psc | psc | drwx----- | 1 psc | psc
```

```
20202030002 Documents execl execv execve execvp fork

Desktop Downloads execl.c execv.c execve.c execvp.c fork.c

psc@ubuntu:-$ cat execve.c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 main.sh mecro1.c mecro2.c Pictures Templates
mecro1 mecro2 Music Public Videos
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                wait.c
       #include <stdio.h>
#include <stdib.h>
#include <stdib.h>
#include <sys/types.h>
#include <sys/wait.h>
#include <unistd.h>
       int main(int argc, char const * argv[]){
   pid_t pid = 0;
   int status = 0;
   char * args[] = {"ls", "-a", "-l", NULL};
   char * envp[] = {"USER=psc", "HOME=/home/psc", NULL};
                               pid = fork();
switch(pid) {
   case -1:
        perror("fork() error!"); exit(-1);
   case 0:
                                                                                         execve("/bin/ls", args, envp); break;
                              if(pid > 0){ wait(&status):}
psceubuntu:-$ ./execve
total 300
drwxr-xr-x 17 psc psc 4096 Sep 26 22:13 .
drwxr-xr-x 3 root root 4096 Apr 20 20:05 ..
-rw----- 1 psc psc 52 220 Apr 20 20:05 .bash history
-rw-r--r- 1 psc psc 3771 Apr 20 20:05 .bash logout
-rw-r--- 1 psc psc 4096 May 24 10:31 .cache
drwx---- 13 psc psc 4096 May 24 10:31 .cache
drwx---- 13 psc psc 4096 Apr 20 20:52 .gnupg
drwxr-xr-x 3 psc psc 4096 Apr 20 20:51 .local
drwx---- 4 psc psc 4096 Apr 20 20:51 .local
drwx---- 1 psc psc 4096 Apr 20 20:51 .local
drwx---- 1 psc psc 87 Apr 20 20:05 .mozilla
-rw-r-r-1 psc psc 87 Apr 20 20:53 .sudo_as_admin_successful
drwx---- 6 psc psc 4096 May 24 10:25 .thunderbird
drwx---- 1 psc psc 7570 Sep 26 22:13 .viminfo
-rw-rw-r-- 1 psc psc 1075 May 24 10:23 2020203002
drwxr-xr-x 2 psc psc 4096 Apr 20 20:51 Desktop
drwxr-xr-x 2 psc psc 4096 Apr 20 20:51 Downloads
drwxr-xr-x 2 psc psc 4096 Apr 20 20:51 Downloads
drwxr-xr-x 2 psc psc 4096 Apr 20 20:51 Videos
-rw-rw-rx-x 2 psc psc 4096 Apr 20 20:51 Videos
-rw-rw-rx-x 2 psc psc 4096 Apr 20 20:51 Videos
-rw-rw-rx-x 2 psc psc 4096 Apr 20 20:51 Videos
-rw-rw-rx-x 1 psc psc 16920 Sep 24 17:34 execl.
-rw-rw-r-- 1 psc psc 16920 Sep 24 17:34 execl.
-rw-rw-r-- 1 psc psc 16920 Sep 24 17:34 execl.
-rw-rw-r-- 1 psc psc 16920 Sep 24 17:34 execl.
-rw-rw-r-- 1 psc psc 16920 Sep 24 17:34 execl.
-rw-rw-r-- 1 psc psc 16920 Sep 24 17:34 execl.
-rw-rw-r-- 1 psc psc 16920 Sep 24 17:34 execl.
-rw-rw-r-- 1 psc psc 16920 Sep 24 17:34 execl.
-rw-rw-r-- 1 psc psc 16920 Sep 24 17:34 execl.
-rw-rw-r-- 1 psc psc 16920 Sep 25 04:11 execvy.
-rw-rw-r-- 1 psc psc 16920 Sep 25 04:11 execvy.
-rw-rw-r-- 1 psc psc 16920 Sep 25 04:11 execvy.
-rw-rw-r-- 1 psc psc 16920 Sep 25 04:11 execvy.
-rw-rw-r-- 1 psc psc 16920 Sep 25 04:11 execvy.
-rw-rw-r-- 1 psc psc 16920 Sep 25 04:11 execvy.
-rw-rw-r-- 1 psc psc 595 Sep 24 17:27 mecro2.
-rw-rw-rw-r-- 1 psc psc 595 Sep 24 17:27 mecro2.
-rw-rw-rw-r-- 1 psc psc 595 Sep 24 16:57 wait.
-rw-rw-r-- 1 psc psc 16988 Sep 24 17:27 mecro2.
-rw-rw-r-- 1 psc psc 16988 Sep 24 16:57 wait.
         psc@ubuntu: $ ./execve total 300
```

```
psc@ubuntu: ~
            buntu: S ls
 psc@buntur=5 ls
2020203002 Documents execl execv execve execvp fork main.sh mecro1.c mecro2.c Pictures Templates wait
Desktop Downloads execl.c execv.c execve.c execvp.c fork.c mecro1 mecro2 Nusic Public Videos wait.c
psc@buntur=5 cat execvp.c
#include <stdio.h>
#include <stdio.h>
#include <sys/ytypes.h>
#include <sys/ytypes.h>
#include <sys/ytypes.h>
#include <sys/wait.h>
#include <sys/wait.h>
 int main(int argc, char const * argv[]) {
   pid_t pid = 0;
   int status = 0;
   char * args[] = {"ls", "-a", "-l", NULL};
         pid = fork();
switch(pid){
    case -1:
                case -1:
    perror("fork() error!"); exit(-1);
case 0:
    execvp("ls", args); break;
        if(pid > 0) { wait(&status);}
return 0:
```