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# Linux-IPC-Shared-memory

Ex06-Linux IPC-Shared-memory

## AIM:

To Write a C program that illustrates two processes communicating using shared memory.

## DESIGN STEPS:

### Step 1:

Navigate to any Linux environment installed on the system or installed inside a virtual environment like virtual box/vmware or online linux JSLinux (<https://bellard.org/jslinux/vm.html?url=alpine-x86.cfg&mem=192>) or docker.

### Step 2:

Write the C Program using Linux Process API - Shared Memory

### Step 3:

Execute the C Program for the desired output.

## PROGRAM:

Write a C program that illustrates two processes communicating using shared memory.

```
#include <stdio.h>
#include <sys/ipc.h>
#include <sys/shm.h>
```



```
int main()
{
    // Generate a unique key using ftok
    key_t key = ftok("shmfile", 65);

    // Get an identifier for the shared memory segment using shmget
    int shmid = shmget(key, 1024, 0666 | IPC_CREAT);
    printf("Shared memory id = %d \n", shmid);
    // Attach to the shared memory segment using shmat
    char* str = (char*)shmat(shmid, (void*)0, 0);

    printf("Write Data : ");
    fgets(str, 1024, stdin);

    printf("Data written in memory: %s\n", str);

    // Detach from the shared memory segment using shmdt
    shmdt(str);

    return 0;
}
```

# OUTPUT

```

sec@sec-HP-250-15-6-inch-G9-Notebook-PC: ~
(base) sec@sec-HP-250-15-6-inch-G9-Notebook-PC:~$ nano ex.c
(base) sec@sec-HP-250-15-6-inch-G9-Notebook-PC:~$ cc ex.c
(base) sec@sec-HP-250-15-6-inch-G9-Notebook-PC:~$ cc ex.c > ex.o
(base) sec@sec-HP-250-15-6-inch-G9-Notebook-PC:~$ ./a.out
Shared memory id = 44
Write Data : hello
Data written in memory: hello

(base) sec@sec-HP-250-15-6-inch-G9-Notebook-PC:~$ ipcs

----- Message Queues -----
key          msqid      owner      perms      used-bytes   messages

----- Shared Memory Segments -----
key          shmid      owner      perms      bytes       nattch     status
0x00000000   27         sec        600        1048576     2         dest
0x00000000   28         sec        600        245760     2         dest
0x00000000   29         sec        600        245760     2         dest
0x00000000   37         sec        600        40960      2         dest
0x00000000   38         sec        600        40960      2         dest
0x00000000   40         sec        600        57344      2         dest
0x00000000   41         sec        600        356352     2         dest
0x00000000   42         sec        600        356352     2         dest
0x00000000   43         sec        600        57344      2         dest
0xffffffff   44         sec        666        1024       0

----- Semaphore Arrays -----
key          semid      owner      perms      nsems

(base) sec@sec-HP-250-15-6-inch-G9-Notebook-PC:~$ 

```

## RESULT:

The program is executed successfully.