

Project 3 – Part 4 Solutions

Part 4.1.1: Create files/directory on mounting

File Name – s2fs.c

Line Number – 15-65

Part 4.1.2: Testing Code

Screenshot is attached in folder also.

```
[student@v155:~/Project3/Part4$ make mount
sudo insmod s2fs.ko
sudo mount -t s2fs nodev mnt
[student@v155:~/Project3/Part4$ cd mnt/
[student@v155:~/Project3/Part4/mnt$ tree
.
├── 1
│   ├── 1
│   ├── 1051
│   ├── 1064
│   │   ├── 1064
│   │   └── 1390
│   │       ├── 1390
│   │       └── 1458
│   │           ├── 1458
│   │           └── 1459
│   │               ├── 1459
│   │               └── 7226
│   │                   ├── 7226
│   │                   └── 7229
│   │                       ├── 7229
│   │                       └── 7230
│   ├── 1067
│   ├── 1068
│   ├── 1119
│   ├── 1152
│   ├── 1397
│   │   ├── 1397
│   │   └── 1398
│   ├── 481
│   ├── 505
│   ├── 527
│   ├── 537
│   ├── 551
│   ├── 879
│   ├── 899
│   ├── 900
│   ├── 901
│   ├── 902
│   ├── 904
│   ├── 905
│   ├── 907
│   ├── 919
│   ├── 920
│   ├── 948
│   └── 952
8 directories, 32 files
```

Part 4.2.1: Get Task Info

File Name – file.h

Line Number – 10-35

Part 4.2.2: Modify the inode creation file to store the PID

File Name – file.h

Line Number – 137

Part 4.2.3: Modify the file open and read function

File Name – file.h

Line Number – 41-84

Part 4.2.4: Test your code

Screenshot for the given commands is given in the folder

```
[student@v155:~/Project3/Part4$ mkdir mnt
[student@v155:~/Project3/Part4$ sudo insmod s2fs.ko
[student@v155:~/Project3/Part4$ sudo mount -t s2fs nodev mnt
[student@v155:~/Project3/Part4$ mount|tail
cgroup on /sys/fs/cgroup/cpu,cpuacct type cgroup (rw,nosuid,nodev,noexec,relatime,cpu,cpuacct)
cgroup on /sys/fs/cgroup/devices type cgroup (rw,nosuid,nodev,noexec,relatime,devices)
cgroup on /sys/fs/cgroup/blkio type cgroup (rw,nosuid,nodev,noexec,relatime,blkio)
mqueue on /dev/mqueue type mqueue (rw,relatime)
debugfs on /sys/kernel/debug type debugfs (rw,relatime)
hugetlbfs on /dev/hugepages type hugetlbfs (rw,relatime,pagesize=2M)
fusectl on /sys/fs/fuse/connections type fusectl (rw,relatime)
lxcfs on /var/lib/lxcfs type fuse.lxcfs (rw,nosuid,nodev,relatime,user_id=0,group_id=0,allow_other)
tmpfs on /run/user/1002 type tmpfs (rw,nosuid,nodev,relatime,size=100856k,mode=700,uid=1002,gid=1002)
nodev on /home/student/Project3/Part4/mnt type s2fs (rw,relatime)
[student@v155:~/Project3/Part4$ cat mnt/1/1
No. of bytes: 0
[student@v155:~/Project3/Part4$ sudo umount ./mnt
[student@v155:~/Project3/Part4$ sudo rmmod s2fs.ko
[student@v155:~/Project3/Part4$ dmesg |tail
[ 17.857575] audit: type=1400 audit(1576031802.165:10): apparmor="STATUS" operation="profile_load" profile="unconfined" name="/usr/bin/lxc-start" pid=704 comm="apparmor_parser"
[ 17.877611] audit: type=1400 audit(1576031802.185:11): apparmor="STATUS" operation="profile_load" profile="unconfined" name="/usr/lib/lxd/lxd-bridge-proxy" pid=718 comm="apparmor_parser"
[ 18.683472] Adding 998396k swap on /dev/sda5. Priority:-2 extents:1 across:998396k FS
[ 19.127378] vmxnet3 0000:03:00.0 ens160: intr type 3, mode 0, 3 vectors allocated
[ 19.130055] vmxnet3 0000:03:00.0 ens160: NIC Link is Up 10000 Mbps
[ 19.329589] new mount options do not match the existing superblock, will be ignored
[ 119.059416] s2fs: loading out-of-tree module taints kernel.
[ 119.059575] s2fs: module verification failed: signature and/or required key missing - tainting kernel
[ 125.872566] s2fs mounted successfully
[ 212.494122] s2fs mounted successfully
student@v155:~/Project3/Part4$
```