

Operating System Assignment 9

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This assignment expects you to trace the working on the mfs file system, only for the file system mounted at /home (or /mnt/test), so we demonstrate the working for two directories /home and /usr/src.

1. File open:

- /usr/src:

```
# cat temp.txt
HI
```

- /home

```
# cat f.txt
MINIX 210010020: file read: 6; nbytes = 4096; offset = 19
Assignment9 OS Lab
MINIX 210010020: file read: 6; nbytes = 4096; offset = 19
```

Inserted printf statements in open.c

```
/* **** */
if (r == OK) {
    exist = FALSE;
    struct vmnt *vmpPath;
    vmpPath = find_vmnt(vp->v_fs_e);
    if (strcmp(vmpPath->m_mount_path, "/home") == 0)
        printf("MINIX 210010020: file created: %llu\n", vp->v_inode_nr);
} /* We just created the file */
/* **** */
```

2. Create and Read:

- /usr/src:

```
# echo HI > temp.txt
# cat temp.txt
.git          common      games      LICENSE     params      temp.txt
.gitignore    distrib    gnu        log.txt     releasetools tests
.gitreview    docs       include    Makefile    sbin        tools
bin           etc        lib        Makefile.inc share       usr.bin
build.sh      external  libexec    minix       sys         usr.sbin
```

- /home

```
# cd /home
# ls
link.c open.c read.c run.sh
# echo Assignment9 OS Lab > f.txt
MINIX 210010020: file created: 6
MINIX 210010020: file written: 6; nbytes = 19; offset = 19
```

Inserted printf statements read.c

```

252  /*****/
253  struct vmnt *vmp;
254  vmp = find_vmnt(vp->v_fs_e);
255  if (rw_flag == WRITING && strcmp(vmp->m_mount_path, "/home") == 0) {
256      printf("MINIX 210010020: file written: %llu; nbytes = %zu; offset = %llu\n", vp->v_inode_nr, size, f->filp_pos);
257  }
258
259  if (rw_flag == READING && strcmp(vmp->m_mount_path, "/home") == 0) {
260      printf("MINIX 210010020: file read: %llu; nbytes = %zu; offset = %llu\n ", vp->v_inode_nr, size, f->filp_pos);
261  }
262
263  /*****/

```

3. Deleting/ removing file:

- /usr/src:

```

#
# rm temp.txt
#
# -

```

- /home:

```

MINIX 210010020: file read: 6; nbytes = 4096; offset = 19
# rm f.txt
MINIX 210010020: file deleted: 6
# -

```

Inserted print statements in link.c

```

157  /*****/
158  lookup_init(&stickycheck, resolve.l_path, PATH_RET_SYMLINK, &vmp2, &vp);
159  stickycheck.l_vmnt_lock = VMNT_READ;
160  stickycheck.l_vnode_lock = VNODE_READ;
161  vp = advance(dirp, &stickycheck, fp);
162
163  // Printing the inode
164  if (strcmp(vmp->m_mount_path, "/home") == 0){
165      printf("MINIX 210010020: file deleted: %llu\n", vp->v_inode_nr);
166  }
167
168  if (vp != NULL){
169      unlock_vnode(vp);
170      put_vnode(vp);
171  }
172  /*****/

```