

Operating Systems Lab 9

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1. File creation:

The following code is added to function `common_open()` in `open.c` to notify when a file is created.

```
struct vmnt *vmpPath;
    vmpPath = find_vmnt(vp->v_fs_e);
    if (strcmp(vmpPath->m_mount_path, "/home") == 0)
    {
        printf("MINIX 210010032: file created: %llu\n", vp->v_inode_nr);
    }
```

```
# touch b.txt
MINIX 210010032: file created: 10
```

2. File reading and file writing:

The following code is added to function `read_write()` in `read.c` to notify when a file is read or written into.

```
struct vmnt *vmp;
    vmp = find_vmnt(vp->v_fs_e);
    if (rw_flag == WRITING && strcmp(vmp->m_mount_path, "/home") == 0)
    {
        printf("MINIX 210010032: file write: %llu; nbytes = %zu; offset = %llu\n", vp->v_inode_nr, size, f->filp_pos);
    }
    if (rw_flag == READING && strcmp(vmp->m_mount_path, "/home") == 0)
    {
        printf("MINIX 210010032: file read: %llu; nbytes = %zu; offset = %llu\n", vp->v_inode_nr, size, f->filp_pos);
    }
```

```
# cat a.txt
MINIX 210010032: file read: 7; nbytes = 4096; offset = 0
```

```
# echo "hello" > a.txt
MINIX 210010032: file write: 7; nbytes = 6; offset = 6
```

3. File deletion:

The following code is added to function `do_unlink()` in `link.c` to notify when a file is deleted.

```
lookup_init(&stickycheck, resolve.l_path, PATH_RET_SYMLINK, &vmp2, &vp);
stickycheck.l_vmnt_lock = VMNT_READ;
stickycheck.l_vnode_lock = VNODE_READ;

vp = advance(dirp, &stickycheck, fp);

if (strcmp(vmp->m_mount_path, "/home") == 0)
{
    printf("MINIX 210010032: file deleted: %llu\n", vp->v_inode_nr);
}
if (vp != NULL)
{
    unlock_vnode(vp);
    put_vnode(vp);
}
```

```
# rm a.txt
MINIX 210010032: file deleted: 7
```