# Operating Systems Lab - CS 314

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# 1 Abstract

In this assignment, `/home` is a separate file system of type `mfs`. With this trace the working on the `mfs` file system, only for the file system mounted at `/home` has to be taken care of.

## 1.1 File Created

For the file creation, the file `open.c` at location: `minix/servers/vfs/open.c` was changed. It was used in function `common_open()`.

```
printf("file created: %llu\n", vp->v_inode_nr);
```

Figure 1 shows the implementation in Minix. A simple file named `newFile` was created using `touch newFile`.

## 1.2 File Read

For the file read, the file `read.c` at location: `minix/servers/vfs/read.c` was changed. It was used in function `read_write()`.

```
printf("file read: %llu; nbytes = %zu; offset = %llu\n", vp->v_inode_nr,
size, f->filp_pos);
```

Figure 2 & 3 shows the implementation in Minix. In order to read the file, `cat newFile` was used after some strings were written in file using Nano.

## 1.3 File Write

For the file write, the file `read.c` at location: `minix/servers/vfs/read.c` was changed. It was used in function `read_write()`.

```
printf("file written: %llu; nbytes = %zu; offset = %llu\n", vp->v_inode_nr,
size, f->filp_pos);
```

Figure 4 shows the implementation for the file write case. Using, `echo "Writing new Line" > newFile` to write into the file.

Figure 1: File Created



Figure 2: Write using Nano

```
                             [ Wrote 1 line ]
Minix: PID 310 exited
# ls
Minix: PID 311 created
Alloted Quantum is: 200, Used Quantum is: 200
PID 60 swapped in
byte-unixbench-mod   newFile
Minix: PID 311 exited
# cat newFile
Minix: PID 312 created
Alloted Quantum is: 200, Used Quantum is: 200
PID 61 swapped in
file read: 2; nbytes = 4096; offset = 24
This is the first line.
file read: 2; nbytes = 4096; offset = 24
Minix: PID 312 exited
#
```

Figure 3: File Read

```
                             [ Read 1 line ]
Minix: PID 313 exited
# echo "Writing new Line" > newFile
file written: 2; nbytes = 17; offset = 17
#
```

Figure 4: File Write

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```
Minix: PID 315 exited
# rm newFile
Minix: PID 316 created
Alloted Quantum is: 200, Used Quantum is: 200
PID 65 swapped in
file deleted: 2
Minix: PID 316 exited
#
```

Figure 5: File Delete

## 1.4   File Deleted

For the file delete, the file `link.c` at location: `minix/servers/vfs/link.c` was changed. It was used in function `do_unlink()`.

```
printf("file deleted: %llu\n", vp->v_inode_nr);
```

Figure 5 shows the implementation for the file delete case. In order to delete the file, `rm newFile` was used.