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CS314 Operating Systems Lab
Lab 10

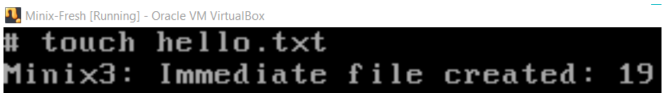
1 Immediate File System: Code Changes

To implement **Immediate Files** in Minix the following files were modified.

1. **/minix/include/minix/const.h**: Here, we added a global constant to identify an immediate file in the entire system.
2. **minix/lib/libc/gen/fslib.c**: Here, we added an entry for conversion from file system mode to the type of file.
3. **minix/fs/mfs/read.c**: Added a function to remove data blocks associated with an inode. Also added functionality to implement read and write to inode buffer and moving text from inode buffer to the data block.
4. **minix/fs/mfs/write.c**: Prevented creation of new block if file type is Immediate.
5. **minix/servers/vfs/link.c**: Raised error if truncating Immediate file.
6. **minix/servers/vfs/open.c**: Changed initial file type from Regular to Immediate at the time of creation.

2 Screenshots

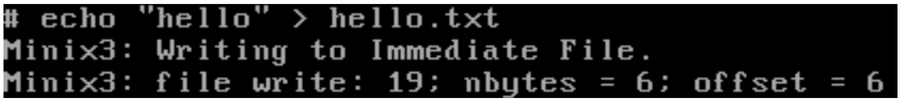
2.1 File Creation



```
# touch hello.txt
Minix3: Immediate file created: 19
```

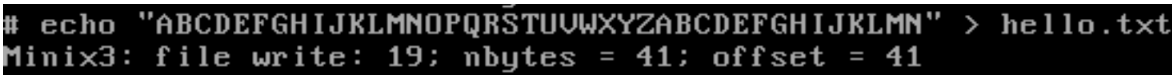
Figure 1: File `hello.txt` Created

2.2 File Writing



```
# echo "hello" > hello.txt
Minix3: Writing to Immediate File.
Minix3: file write: 19; nbytes = 6; offset = 6
```

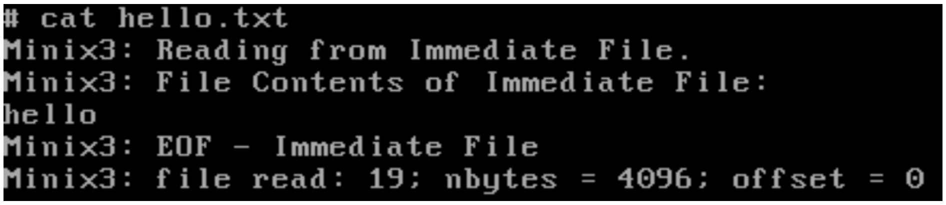
Figure 2: Content less than 32B is written - Immediate file write



```
# echo "ABCDEFGHIJKLMNOPQRSTUVWXYZABCDEFGHIJKLMN" > hello.txt
Minix3: file write: 19; nbytes = 41; offset = 41
```

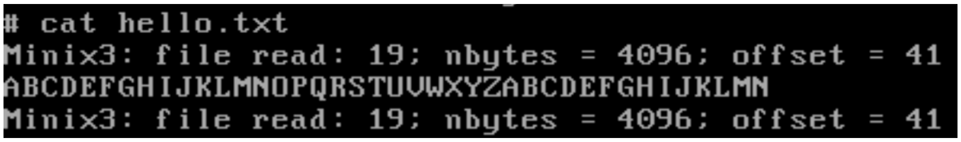
Figure 3: Content greater than 32B is written - Regular file write

2.3 File Reading



```
# cat hello.txt
Minix3: Reading from Immediate File.
Minix3: File Contents of Immediate File:
hello
Minix3: EOF - Immediate File
Minix3: file read: 19; nbytes = 4096; offset = 0
```

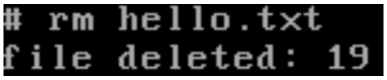
Figure 4: Content less than 32B is read - Immediate file read



```
# cat hello.txt
Minix3: file read: 19; nbytes = 4096; offset = 41
ABCDEFGHIJKLMNOPQRSTUVWXYZABCDEFGHIJKLMN
Minix3: file read: 19; nbytes = 4096; offset = 41
```

Figure 5: Content greater than 32B is read - Regular file read

2.4 File Deletion



```
# rm hello.txt
file deleted: 19
```

Figure 6: File `hello.txt` Deleted