

# CS202 Handout 13

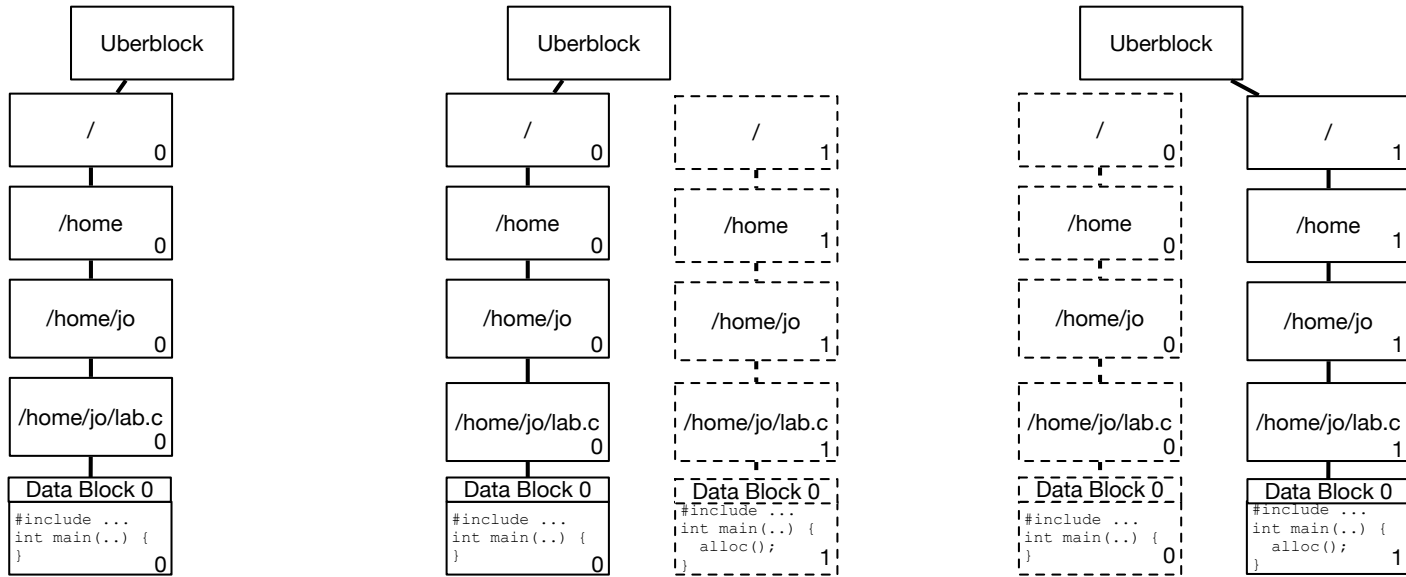
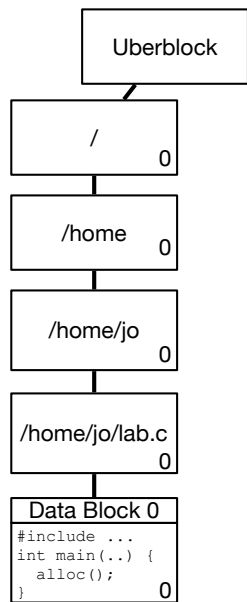
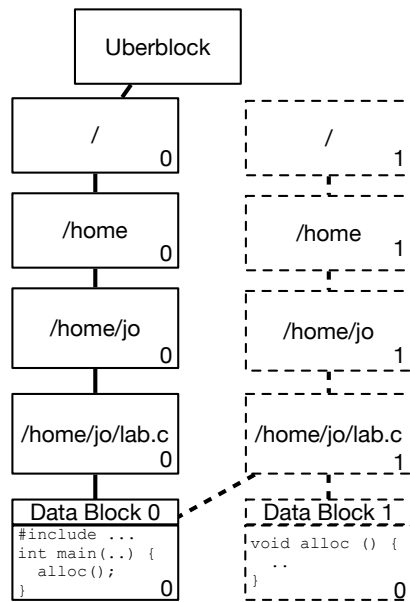


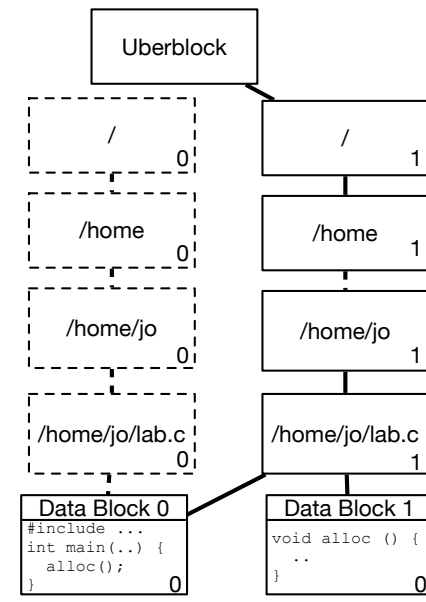
Figure 1: Copy-on-write filesystem: modifying a data block



(a) Initial State

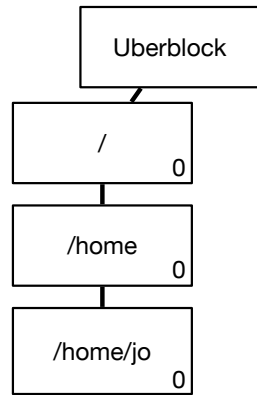


(b) System allocates and creates new versions of all modified blocks.

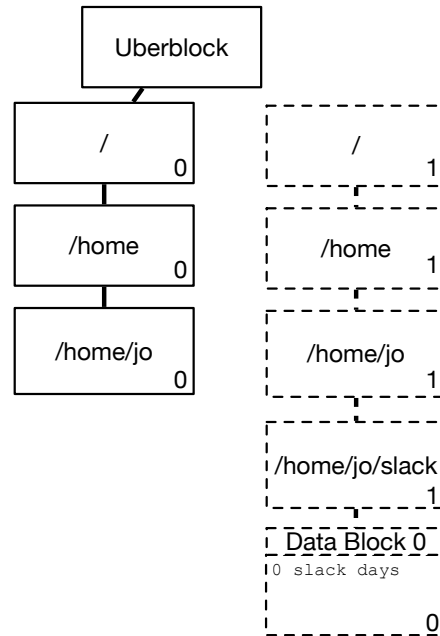


(c) System updates Uberblock to point to new version of blocks.

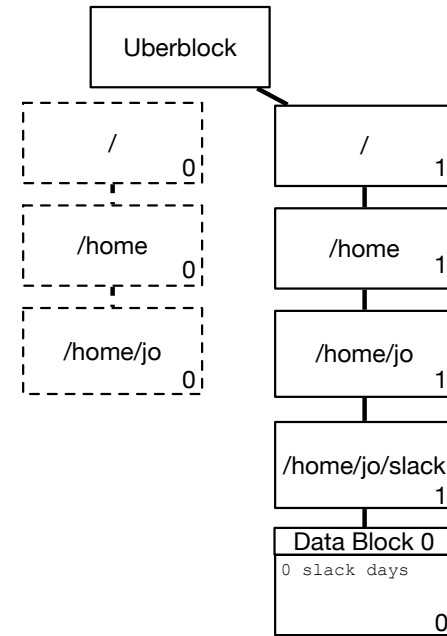
Figure 2: Copy-on-write filesystem: adding a data block



(a) Initial State



(b) System allocates and creates new versions of all modified blocks.

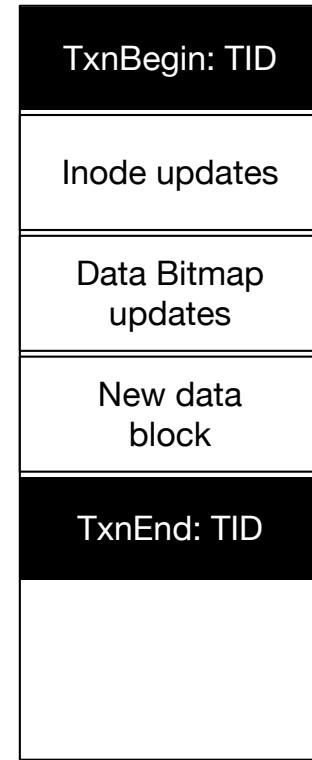


(c) System updates Uberblock to point to new version of blocks.

Figure 3: Copy-on-write filesystem: creating a file



ext3 disk layout



ext3 journal layout

Figure 4: Redo logging in a filesystem