Session: File System and Commands
Topic: File Permissions

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Permissions

- Who - which entities are having permissions set?

    User   – Owner/creator of file
    Group   – All members of groups user is assigned to
    Other   – Anyone else besides above

- What - what kind of permission is being set?

    Read   – Access file or list directory
    Write   – Write to / remove file (directory)
    eXecute   – Run file as program or enter directory

- Operations - granting or refusing permission?

    +   – adds permissions

    –   – removes permissions

    =   – sets permissions

- Permission meeting may differ depending on whether Directory or File

Basic format

```
d   r w x   r - x   r - x
(1)   (3)     (3)     (3)
```

- chmod *[who] [operation] [what]*   *[file or directory]*

```
chmod u-w keeper
chmod go+rwx giveitaway
chmod u=rwx beatit
```

Numeric format

```
d   r w x   r - x   r - x
(1) (1 1 1) (1 0 1) (1 0 1)
```

- Treat "What" settings as bits, treat each "Who" as decimal digit (actually octal).

- chmod *[owner bits][group bits][other bits]* *[file or directory]*

```
chmod 755 runthis
chmod 777 giveitaway
chmod 700 beatit
```

Sample Listing

```
dchang@diablo:~/cop3502-stuff>ls -l
total 10
drwx------    2 dchang   fac      512 Sep 10 14:11 assign
drwx------    2 dchang   fac      512 Sep 10 15:03 assign-key
drwxr-xr-x    2 dchang   fac      512 Sep  3 13:54 earth
-rw-------    1 dchang   fac        6 Sep 10 14:14 exam1
-rw-------    1 dchang   fac        6 Sep 10 14:14 exam2
drwxr-xr-x    5 dchang   fac      512 Sep 10 12:59 fakeroot
-rw-r--r--    1 dchang   fac       10 Sep  3 13:33 kano
-rw-r--r--    1 dchang   fac       30 Sep  3 13:47 liukang
drwxr-xr-x    2 dchang   fac      512 Sep  3 13:54 outworld
drwxr-xr-x    2 dchang   fac      512 Sep  3 13:41 thepit
```

What if…

earth: Add write permission for group

    chmod

outworld: Remove read and execute permission for other

    chmod

kano: Add execute permission for group and other (numeric)

    chmod