

Sharing Files & Folders : Permissions I

see

<https://www.nersc.gov/users/storage-and-file-systems/unix-file-permissions>
for more information

```
33 [hurricane] pwd  
/
```

print working directory

```
sciclone/home04/ewalter
```

```
34 [hurricane] ls -ld results
```

list directory

```
drwx----- 2 ewalter hpcf 512 Jun 16 14:37 results
```

↑
directory

┌	┌	┌	┌	┌
user	group	other	associated	associated
r-read			user	group
w-write				
x-execute				

****directories need to be 'x' to be entered/passed through**

```
35 [hurricane] ls -l results
```

list files in directory

```
total 3
```

```
-rw----- 1 ewalter hpcf 194 Jun 16 14:37 ww.dat  
-rw----- 1 ewalter hpcf 194 Jun 16 14:37 yy.dat  
-rw----- 1 ewalter hpcf 194 Jun 16 14:37 zz.dat
```

Sharing Files & Folders : Permissions II

I want to share my results directory and files with those in the *seadas* group:

Am I in the seadas group?:

```
46 [hurricane] groups ewalter
ewalter : hpcf wmall hpcstaff www seadas vasp wm sysadmin hpcadmin hpsmh
```

Change the group for the directory and all files below:

```
47 [hurricane] chgrp -R seadas results/
```

```
49 [hurricane] ls -ld results/
drwx----- 2 ewalter seadas 512 Jun 16 14:37 results/
```

```
50 [hurricane] ls -l results/
total 3
-rw----- 1 ewalter seadas 194 Jun 16 14:37 ww.dat
-rw----- 1 ewalter seadas 194 Jun 16 14:37 yy.dat
-rw----- 1 ewalter seadas 194 Jun 16 14:37 zz.dat
```

Make:
files group readable
folders group readable **and** executable

```
51 [hurricane] chmod g+rX -R results/
```

```
52 [hurricane] ls -ld results/
drwxr-x--- 2 ewalter seadas 512 Jun 16 14:37 results/
```

```
53 [hurricane] ls -l results/
total 3
-rw-r----- 1 ewalter seadas 194 Jun 16 14:37 ww.dat
-rw-r----- 1 ewalter seadas 194 Jun 16 14:37 yy.dat
-rw-r----- 1 ewalter seadas 194 Jun 16 14:37 zz.dat
```

Sharing Files & Folders : Permissions III

What happens when a new file is created?

```
78 [hurricane] cd results/
80 [hurricane] touch newfile
81 [hurricane] ls -l
total 3
-rw----- 1 ewalter hpcf      0 Jun 16 15:13 newfile
-rw-r----- 1 ewalter seadas 194 Jun 16 14:37 ww.dat
-rw-r----- 1 ewalter seadas 194 Jun 16 14:37 yy.dat
-rw-r----- 1 ewalter seadas 194 Jun 16 14:37 zz.dat
```

This is bad since the new file isn't in the seadas group!

```
88 [hurricane] chmod g+s results/    add "setgid" to folder only
89 [hurricane] cd results/
```

```
91 [hurricane] touch newfile
92 [hurricane] ls -l
total 3
-rw----- 1 ewalter seadas      0 Jun 16 15:14 newfile
-rw-r----- 1 ewalter seadas 194 Jun 16 14:37 ww.dat
-rw-r----- 1 ewalter seadas 194 Jun 16 14:37 yy.dat
-rw-r----- 1 ewalter seadas 194 Jun 16 14:37 zz.dat
```

file group inherits the group from the folder it is in

Sharing Files & Folders : Permissions IV

The user's **umask** controls what permissions files and folders are given when created:

```
93 [hurricane] umask
77

135 [hurricane] touch file077
136 [hurricane] ls -l file077
-rw----- 1 ewalter seadas 0 Jun 16 15:24 file077

137 [hurricane] umask 022
138 [hurricane] touch file022
139 [hurricane] ls -l file0*
-rw-r--r-- 1 ewalter seadas 0 Jun 16 15:24 file022
-rw----- 1 ewalter seadas 0 Jun 16 15:24 file077

140 [hurricane] umask 027
141 [hurricane] touch file027
142 [hurricane] ls -l file0*
-rw-r--r-- 1 ewalter seadas 0 Jun 16 15:24 file022
-rw----- 1 ewalter seadas 0 Jun 16 15:24 file027
-rw----- 1 ewalter seadas 0 Jun 16 15:24 file077
```

HPC default umask is **077**

Can be changed in your startup file (.cshrc etc.)

Common Permissions Tasks I

Change the permissions of a directory **chmod**:

```
24 [hurricane] ls -ld VASP
drwx----- 4 ewalter hpcf 512 Apr  4 2014 VASP
25 [hurricane] chmod go+rX VASP
26 [hurricane] ls -ld VASP
drwxr-xr-x 4 ewalter hpcf 512 Apr  4 2014 VASP
27 [hurricane] chmod o-rX VASP
28 [hurricane] ls -ld VASP
drwxr-x--- 4 ewalter hpcf 512 Apr  4 2014 VASP
29 [hurricane] chmod g-rX VASP
30 [hurricane] ls -ld VASP
drwx----- 4 ewalter hpcf 512 Apr  4 2014 VASP
```

Change the permissions of a directory and everything under it **chmod -R**:

```
32 [hurricane] ls -ld VASP
drwx----- 4 ewalter hpcf 512 Apr  4 2014 VASP
33 [hurricane] ls -l VASP
total 52457
-rw-r----- 1 ewalter hpcf 22932904 Apr  4 2014 potpaw_LDA.52.tar.gz
-rw-r----- 1 ewalter hpcf 25958479 Apr  4 2014 potpaw_PBE.52.tar.gz
drwxr-x--- 2 ewalter hpcf 15360 Aug  6 00:01 vasp.5.3
```

```
34 [hurricane] chmod -R g+rX VASP
```

```
35 [hurricane] ls -ld VASP
drwxr-x--- 4 ewalter hpcf 512 Apr  4 2014 VASP
36 [hurricane] ls -l VASP
total 52457
-rw-r----- 1 ewalter hpcf 22932904 Apr  4 2014 potpaw_LDA.52.tar.gz
-rw-r----- 1 ewalter hpcf 25958479 Apr  4 2014 potpaw_PBE.52.tar.gz
drwxr-x--- 2 ewalter hpcf 15360 Aug  6 00:01 vasp.5.3
```

Use this command if you want to allow group access to your home, scrXX, and dataXX directories

Common Permissions Tasks II

How do I change the initial permissions that files and folders are given when created:

You need to edit your `.cshrc` file in your home directory and add: **umask**

```
umask 077 files get "-rw-----" folders get "drwx-----"
```

```
umask 027 files get "-rw-r-----" folders get "drwxr-x--"
```

```
umask 022 files get "-rw-r--r--" folders get "drwxr-xr-x"
```

HPC default umask is 077

What groups are I in?: **groups**

```
52 [hurricane] groups ewalter
```

```
ewalter : hpcf wmall hpcstaff www seadas vasp sysadmin wm hpcadmin wheel hpsmh
```

My primary (default) group is `hpcf` and the rest are secondary

Change a group associated with a file or directory: **chgrp**

```
54 [hurricane] ls -ld project
```

```
drwx----- 2 ewalter hpcf 512 Aug 18 20:47 project
```

```
55 [hurricane] chgrp hpcstaff project
```

```
56 [hurricane] ls -ld project
```

```
drwx----- 2 ewalter hpcstaff 512 Aug 18 20:47 project
```