Permissions

Adapted from materials by Dr. Carrier

Permissions

Who can access your files?

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We break things into categories:

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Who?

- Owner (you)
- Group
- Others (everyone!)

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- Write
- Execute

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How many yes/no options do we have?

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Viewing permissions

How do we see what files we have?

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`ls`

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ls has an extra flag to tell us more about files:

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How do we see what files we have?

`ls`

Is has an extra flag to tell us more about files:

`ls -l`

```
-rw-rw-r--  1 ferguaus ferguaus        118 Sep  6 10:06 test_2.cpp
```

Breaking it down

```
-rw-rw-r--  1 ferguaus ferguaus        118 Sep  6 10:06 test_2.cpp
```

```
-rw-rw-r--  1
```

Breaking it down

```
-rw-rw-r--   1 ferguaus ferguaus         118 Sep  6 10:06 test_2.cpp
```

```
-rw-rw-r--   1
```
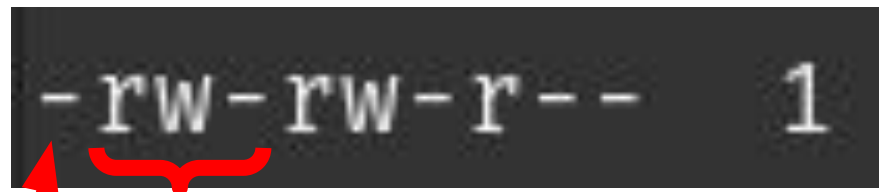
What type of
file is this?
d = directory
l = link

Breaking it down

```
-rw-rw-r--   1 ferguaus  ferguaus        118 Sep  6 10:06 test_2.cpp
```

```
-rw-rw-r--    1
```

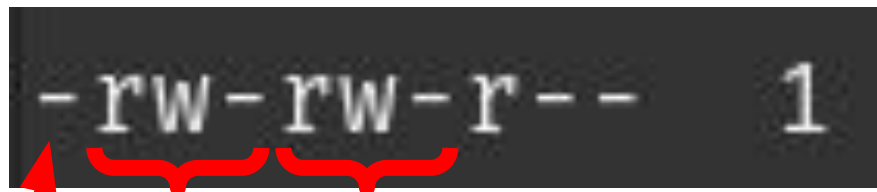What type of
file is this?
d = directory
l = link

Owner
permissions

Breaking it down

```
-rw-rw-r--  1 ferguaus ferguaus        118 Sep  6 10:06 test_2.cpp
```

What type of file is this?
d = directory
l = link

Owner permissions

Group permissions

Breaking it down

`-rw-rw-r--   1 ferguaus  ferguaus          118 Sep  6 10:06 test_2.cpp`

`-rw-rw-r--    1`

What type of
file is this?
d = directory
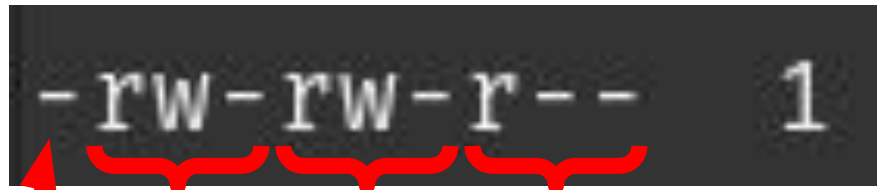l = link

Owner
permissions

Group
permissions

Other
permissions

Breaking it down

```
-rw-rw-r--  1 ferguaus ferguaus        118 Sep  6 10:06 test_2.cpp
```

`-rw-rw-r--        1`

Number of links

What type of
file is this?
d = directory
l = link

Owner
permissions

Group
permissions

Other
permissions

Breaking it down

-rw-rw-r-- 1 ferguaus ferguaus 118 Sep 6 10:06 test_2.cpp

-rw-rw-r-- 1

Number of links

What type of file is this?
d = directory
l = link

Owner permissions

Group permissions

Other permissions

ferguaus ferguaus

Owner

Breaking it down

```
-rw-rw-r--   1 ferguaus  ferguaus       118 Sep  6 10:06 test_2.cpp
```

```
-rw-rw-r--      1
```

Number of links

What type of
file is this?
d = directory
l = link

Owner
permissions

Group
permissions

Other
permissions

```
ferguaus  ferguaus
```

Owner   Group

Breaking it down

`-rw-rw-r--  1 ferguaus ferguaus        118 Sep  6 10:06 test_2.cpp`

`-rw-rw-r--    1`

Number of links

What type of
file is this?
d = directory
l = link

Owner
permissions

Group
permissions

Other
permissions

`ferguaus ferguaus` `118 Sep  6 10:06 test_2.cpp`

Owner

Group

File size

Breaking it down

`-rw-rw-r--  1 ferguaus ferguaus        118 Sep  6 10:06 test_2.cpp`

`-rw-rw-r--   1`

Number of links

What type of
file is this?
d = directory
l = link

Owner
permissions

Group
permissions

Other
permissions

`ferguaus ferguaus` `118 Sep  6 10:06 test_2.cpp`

Owner

Group

File size

Modified
date+time

Breaking it down

`-rw-rw-r--  1 ferguaus ferguaus      118 Sep  6 10:06 test_2.cpp`

`-rw-rw-r--    1`

Number of links

What type of file is this?
d = directory
l = link

Owner permissions

Group permissions

Other permissions

`ferguaus ferguaus`   `118 Sep  6 10:06 test_2.cpp`

Owner

Group

File size

Modified date+time

Filename

Examples

What do each of these mean?

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`rwxrwxr-x`

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`rwxrwxr-x`

`rw-r-----`

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What do each of these mean?

```
rwxrwxr-x

rw-r-----

------rw-
```

Changing permissions

New command: chmod (**CH**ange **MOD**e)

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New command: chmod (**CH**ange **MOD**e)

Usage 1: `chmod (who)(op)(perms) file`

`chmod u+r file`

`chmod o+rw file`

Who: owner (u), group (g), other (o), all (a)

Changing permissions

New command: chmod (**CH**ange **MOD**e)

Usage 1: `chmod (who)(op)(perms) file`

`chmod u+r file`

`chmod o+rw file`

Who: owner (u), group (g), other (o), all (a)

Perms: read (r), write (w), execute (x)

Changing permissions

New command: chmod (**CH**ange **MOD**e)

Usage 2: `chmod ### file`

Where each # is a number in `[0,7]`

Take each possible permission:

- 4 = read
- 2 = write
- 1 = execute

And sum them up for owner, group, other

Examples

What is the number code for each of these?

```
rwxrwxr-x     775

rw-r-----

------rw-
```

- 4 = read
- 2 = write
- 1 = execute

Examples

What is the number code for each of these?

```
rwxrwxr-x      775

rw-r-----

------rw-
```

- 4 = read
- 2 = write
- 1 = execute

Examples

What is the number code for each of these?

```
rwxrwxr-x        775

rw-r-----        640

------rw-
```

- 4 = read
- 2 = write
- 1 = execute

Examples

What is the number code for each of these?

```
rwxrwxr-x      775

rw-r-----      640

------rw-      006
```

- 4 = read
- 2 = write
- 1 = execute