

Chmod

This quick reference cheat sheet provides a brief overview of file permissions, and the operation of the chmod command

Getting Started

Syntax

```
$ chmod [options] <permissions> <file>
```

Example

Change files and directories recursively



Chmod Generator

Permissions:

777

rwxrwxrwx

	User	Group	Other
Read	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Write	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Execute	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Chmod Generator allows you to quickly and visually generate permissions in numerical and symbolic.

Common Permissions

400	r-----	Readable by owner only
500	r-x-----	Avoid Changing
600	rw-----	Changeable by user
644	rw-r--r--	Read and change by user
660	rw-rw----	Changeable by user and group
700	rwx-----	Only user has full access
755	rwxr-xr-x	Only changeable by user
775	rwxrwxr-x	Sharing mode for a group
777	rwxrwxrwx	Everybody can do everything

Explains

```
$ ls -l
-rw-r--r-- 1 root root 3 Jun 29 15:35 a.log
drwxr-xr-x 2 root root 2 Jun 30 18:06 dir
```

Permission analysis of "dir"

```
d  rwx  r-x  r-x
T  T    T    T
|  |    |    |
|  |    |    |  4. Other | 5 (4+0+1)
|  |    |    |  3. Group | 5 (4+0+1)
|  |    |    |  2+1)
|  |    |    |  directory
```

Permission Modes			
Permission	Description	Octal	Decimal
---	No Permission	000	0 (0+0+0)
--x	Execute	001	1 (0+0+1)
-w-	Write	010	2 (0+2+0)
-wx	Execute and Write	011	3 (0+2+1)
r--	Read	100	4 (4+0+0)
r-x	Read and Execute	101	5 (4+0+1)
rw-	Read and Write	110	6 (4+2+0)
rwX	Read, Write and Execute	111	7 (4+2+1)

Objects	
Who (abbr.)	Meaning
u	User
g	Group
o	Others
a	All, same as ugo

Permissions		
Abbreviation	Permission	Value
r	Read	4
w	Write	2
x	Execute	1
-	No permission	0

File Types	
Abbreviation	File Type
# Chmod Examples	Directory
Operators	
	Add
	Remove
	Set

chmod 600

```
$ chmod 600 example.txt
$ chmod u=rw,g=,o= example.txt
$ chmod a+rw,u-x,g-rwx,o-rwx example.txt
```

chmod 664

```
$ chmod 664 example.txt
$ chmod u=rw,g=rw,o=r example.txt
$ chmod a+rw,u-x,g-x,o-wx example.txt
```

chmod 777

```
$ chmod 777 example.txt
$ chmod u=rwx,g=rwx,o=rwx example.txt
$ chmod a=rwx example.txt
```

Symbolic mode

Deny execute permission to everyone.

```
$ chmod a-x chmodExampleFile.txt
```

Allow read permission to everyone.

```
$ chmod a+r chmodExampleFile.txt
```

Make a file readable and writable by the group and others.

```
$ chmod go+rw chmodExampleFile.txt
```

Make a shell script executable by the user/owner.

```
$ chmod u+x chmodExampleScript.sh
```

Allow everyone to read, write, and execute the file and turn on the set group-ID.

```
$ chmod =rwx,g+s chmodExampleScript.sh
```

Removing Permissions

In order to remove read write permissions given to a file, use the following syntax:

```
$ chmod o-rw example.txt
```

For our file example.txt, we can remove read write permissions using chmod for group by running the following command:

```
$ chmod g-rx example.txt
```

To remove chmod read write permissions from the group while adding read write permission to public/others, we can use the following command:

```
$ chmod g-rx, o+rx example.txt
```

But, if you wish to remove all permissions for group and others, you can do so using the go= instead:

Chmod Practices

SSH Permissions

```
$ chmod 700 ~/.ssh
$ chmod 600 ~/.ssh/authorized_keys
$ chmod 600 ~/.ssh/id_rsa
$ chmod 600 ~/.ssh/id_rsa.pub
$ chmod 400 /path/to/access_key.pem
```

Executable

Web Permissions

```
$ chmod -R 644 /var/www/html/
$ chmod 644 .htaccess
$ chmod 644 robots.txt
$ chmod 755 /var/www/uploads/
$ find /var/www/html -type d -exec chmod 755 {} \;
```

Batch Change

```
$ chmod -R 644 /your_path
$ find /path -type d -exec chmod 755 {} \;
$ find /path -type f -exec chmod 644 {} \;
```

See: Command Substitution

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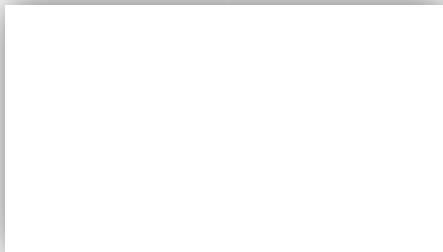
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