

How to View File and Folder Permissions in Ubuntu Linux Command Line

: 25/2/2017

To View Permissions

To list permission of each file in a directory, in this example `/var`:

```
ls -l /var
```

Output:

```
total 48
drwxr-xr-x  2 root root  4096 Feb  8  06:25 backups
drwxr-xr-x 13 root root  4096 Oct 22  00:29 cache
drwxrwxrwt  2 root root  4096 Aug 13  17:32 crash
```

To list file permissions for `filename.txt`:

```
ls -l filename.txt
```

Output:

```
-rw-r--r-- 1 root root 0 Jan 29  2018 filename.txt
```

To list directory permissions for `/var`:

```
ls -ld /var
```

Output:

```
drwxr-xr-x 15 root root 4096 Apr 23 12:03 /var
```

To list permissions files in a folder including hidden files.

```
ls -la /var
```

To list file permissions in a folder with human readable file size:

```
ls -lh /var
```

Output:

```
total 52K
drwxr-xr-x  2 root root   4.0K Apr  9 08:52 backups
drwxr-xr-x 11 root root   4.0K Jan 29  2018 cache
drwxrwxrwt  2 root root   4.0K Apr 27  2019 crash
```

Changing Permissions

Single File or Folder

To change permissions of file to 644 for example:

```
sudo chmod 664 foo.txt
```

To change permissions of directory to 755 for example:

```
sudo chmod 755 /path/to/directory/
```

All Files

To change all files recursively to 644.

```
sudo find /path/to/directory/ -type f -exec chmod 644 {} \;
```

All Folders

To change all directories recursively to 755.

```
sudo find /path/to/directory/ -type d -exec chmod 755 {} \;
```

Changing Owner/Group

Change Owner/Group of a File

```
sudo chown username:groupname filename.txt
```

Change Owner/Group of All Files/Directories

To change the owner and group of all files and directories recursively within a directory.

```
sudo chown -R username:groupname /path/to/directory/*
```

To change the owner and group of a directory, and all the files and directories within it recursively.

```
sudo chown -R username:groupname /path/to/directory*
```

Permission Groups

Each file and directory has three user based permission groups:

- **owner** – The Owner permissions apply only the owner of the file or directory, they will not impact the actions of other users.
- **group** – The Group permissions apply only to the group that has been assigned to the file or directory, they will not effect the actions of other users.
- **all users** – The All Users permissions apply to all other users on the system, this is the permission group that you want to watch the most.

Permission Types

Each file or directory has three basic permission types:

- **read** – The Read permission refers to a user's capability to read the contents of the file.
- **write** – The Write permissions refer to a user's capability to write or modify a file or directory.
- **execute** – The Execute permission affects a user's capability to execute a file or view the contents of a directory.

Numeric Meanings

Numeric Readable Explanation

0	—	No access.
1	-x	Execute access.
2	-w-	Write access.
3	-wx	Write and execute access.
4	r—	Read access.
5	r-x	Read and execute access.
6	rw-	Read and write access.
7	rwX	Read, write and execute access.

Common File Permissions

Setting	Numerical	Owner	Group	Others
-rw——	600	Read/Write		
-rw-r—	640	Read/Write	Read	
-rw-r-r—	644	Read/Write	Read	Read
-rw-rw-r—	664	Read/Write	Read/Write	Read
-rwx——	700	Read/Write/Execute		
-rwxr-xr-x	755	Read/Write/Execute	Read/Execute	Read/Execute
-rwx-x-x	711	Read/Write/Execute	Execute	Execute
-rw-rw-rw-	666	Read/Write	Read/Write	Read/Write
-rwxrwxrwx	777	Read/Write/Execute	Read/Write/Execute	Read/Write/Execute

Common Directory Permissions

Setting	Numerical	Owner	Group	Others
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Setting	Numerical	Owner	Group	Others
drwx——	(700)	Read/Write/Execute		
drwxr——	(750)	Read/Write/Execute	Read	
drwxr-xr-x	(755)	Read/Write/Execute	Read/Execute	Read/Execute
drwxrwx—	(770)	Read/Write/Execute	Read/Write/Execute	
drwxrwxr-x	(775)	Read/Write/Execute	Read/Write/Execute	Read/Execute

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