

File Attributes in Linux

Spoken Tutorial Project
National Mission on Education through ICT
<http://spoken-tutorial.org>

Script & Video:
Shahid Ali Farooqui
Narration
Anusha

29 August 2014



Tutorial Pre-requisite

- Create empty files named as **example1**, **example2**, **example3**, **example4**, **example5**, and **testchown**.



Tutorial Pre-requisite

- Create empty files named as **example1**, **example2**, **example3**, **example4**, **example5**, and **testchown**.
- Create empty directories named as **test_chown** and **directory1**.



What is File Attribute ?

- **A file attribute** is metadata that describes or is associated with a computer file.



What is File Attribute ?

- A **file attribute** is metadata that describes or is associated with a computer file.
- **File attribute** is the characteristic that describe a file.
Such as owner, file type, access permissions, etc.



Changing Ownership

- **chown** command is used to change the ownership of the file or directory.



Changing Ownership

- **chown** command is used to change the ownership of the file or directory.
- **Only administrator/root user can change the owner of a file or directory.**



Changing Ownership

The syntax of **chown** command is:

chown [options] ownername filename/directoryname



Changing Ownership

The syntax of **chown** command is:

chown [options] ownername filename/directoryname

- **-R** : Change the permission on files in the subdirectories of current directory.



Changing Ownership

The syntax of **chown** command is:

chown [options] ownername filename/directoryname

- **-R** : Change the permission on files in the subdirectories of current directory.
- **-c** : Change the permission for each file.



Changing Ownership

The syntax of **chown** command is:

chown [options] ownername filename/directoryname

- **-R** : Change the permission on files in the subdirectories of current directory.
- **-c** : Change the permission for each file.
- **-f** : Prevents **chown** from displaying error messages.



chmod command

- **chmod** command is used to change the access mode (permissions) of one or more files.



chmod command

- **chmod** command is used to change the access mode (permissions) of one or more files.
- **Syntax of the chmod command is:**
chmod [options] mode filename



chmod command

We may give the following options with **chmod** command:



chmod command

We may give the following options with **chmod** command:

- **-c**: Print information about files that are changed.



chmod command

We may give the following options with **chmod** command:

- **-c**: Print information about files that are changed.
- **-f**: Do not notify user of files that chmod cannot change.



File Permissions



File Permissions

- **r** : Read



File Permissions

- **r** : Read
- **w** : Write



File Permissions

- **r** : Read
- **w** : Write
- **x** : Execute



File Permissions

- **r** : Read
- **w** : Write
- **x** : Execute
- **s** : Set user (or group) ID



File Permissions

- Alternately, we may specify permissions by a **three-digit octal number**.
first digit: owner permission
second digit: group permission
third digit: other permission



File Permissions

- Alternately, we may specify permissions by a **three-digit octal number**.
first digit: owner permission
second digit: group permission
third digit: other permission
- **4 : Read**



File Permissions

- Alternately, we may specify permissions by a **three-digit octal number**.
 - first digit: owner permission
 - second digit: group permission
 - third digit: other permission
- **4** : Read
- **2** : Write



File Permissions

- Alternately, we may specify permissions by a **three-digit octal number**.
first digit: owner permission
second digit: group permission
third digit: other permission
- **4** : Read
- **2** : Write
- **1** :Execute



Changing Group

- **chgrp** command is used to change the group of one or more files to new group.



Changing Group

- **chgrp** command is used to change the group of one or more files to new group.
- **New group is either a group ID number or a group name located in `/etc/group`.**



Changing Group

- **chgrp** command is used to change the group of one or more files to new group.
- New group is either a group ID number or a group name located in **/etc/group**.
- **Only the owner of a file or a privileged user may change the group.**



Changing Group

- **chgrp** command is used to change the group of one or more files to new group.
- New group is either a group ID number or a group name located in **/etc/group**.
- Only the owner of a file or a privileged user may change the group.
- The syntax for the **chgrp** command is *chgrp [options] newgroup files*



Inode in Linux

- The **inode** number is a unique integer assigned to a device.



Inode in Linux

- The **inode** number is a unique integer assigned to a device.
- **inode** stores basic information about a regular file/directory.



Inode in Linux

- The **inode** number is a unique integer assigned to a device.
- **inode** stores basic information about a regular file/directory.
- **All the files are hard links to inodes.**



Inode in Linux

- Whenever a program refers to a file by name, the system actually uses the filename to search for the corresponding **inode**.



Inode in Linux

- Whenever a program refers to a file by name, the system actually uses the filename to search for the corresponding **inode**.
- We can use `ls -i` command to see the **inode** number of a file.



Hard Links

- **inodes** are associated with precisely one directory entry at a time.



Hard Links

- **inodes** are associated with precisely one directory entry at a time.
- **Hard links** are to associate multiple directory entries with a single **inode**.



Hard Links

- *ln* is the command to make link.



Hard Links

- *ln* is the command to make link.
- The syntax of *ln* command to create the hard link is:
ln source link
where, **source** is an existing file and **link** is the file to create.



Soft Links

Soft link (symbolic link)

- Is a special type of file.



Soft link (symbolic link)

- Is a special type of file.
- Contains a reference to another file or directory, in the form of an absolute or relative path.



Soft link (symbolic link)

- Is a special type of file.
- Contains a reference to another file or directory, in the form of an absolute or relative path.
- The syntax of *ln* command to create soft links is:

ln -s target-filename symbolic-filename



Summary

In this tutorial, we learnt

- Changing permission
- Ownership and Group of file
- inode
- Soft and hard links



Acknowledgement

- Spoken Tutorial is a part of the Talk to a Teacher project
- Supported by the National Mission on Education through ICT (NMEICT), MHRD, Government of India
- More information on this mission is available at

<http://spoken-tutorial.org/NMEICT-Intro>

