2.10.3 Link Facts

The Linux file system supports a special file type called a link file. Link files don't actually contain any content. Instead, they are redirectors that point you to a different file or directory in the file system.

This lesson covers the following topics:

- Link file types
- Create links

Link File Types

Links are files that point to another file. Linux uses two types of links:

Type	Description
Hard link	A hard link is a duplicate entry in the file system that points to a specific piece of data on the disk drive. With a hard link: • Duplicate file inodes are used. The inode specifies where a file's data physically exists on a disk. With a hard link, the link file and the original file both share the same inode. ⓘ The **ls -i** command displays the inodes for the files and directories in a directory. • The data stored in the link file is exactly the same as the data in the original file. • The data is preserved within the link file, even if the original file is deleted. • In the output from the **ls -a** command, a hyphen is used as the first character in the permission string, which is the same character used for normal files (for example, **-**rwxr-xr-x).

Symbolic link	A symbolic link (also known as a soft link) is a file that points to another file in the file system. A symbolic link is similar to shortcuts in the Windows OS. With a symbolic link:
	• Separate inodes are used. The link file has an inode that is distinct from the inode of the file being pointed to.
	• The output from the **ls -a** command:
	  ◦ A lower-case L (l) is used as the first character in the permission string (for example, lrwxrwxrwx indicates a symbolic link).
	  ◦ The -> character sequence follows the file name, which is followed by the file that the link points to.

Create Links

The following commands are used to create hard links and symbolic links:

Command	Function	Examples
ln *[source] [link_name]*	Creates links. • **ln -s** creates a symbolic link to a file. • **ln** (with no options) creates a hard link between files.	• **ln /home/jsmith/project1 /home/edunford/project1** creates a hard link to /home/jsmith/project1 in /home/edunford/. • **ln -s /home/jsmith/project1 /home/edunford/project1_ln** creates a symbolic link named /home/edunford/project1_ln that points to /home/jsmith/project1. • **ln -s /home/jsmith/project1 /home/edunford/project1_ln** creates a symbolic link named /home/edunford/project1_ln that points to /home/jsmith/project1.
cp *[source] [link_name]*	Copies files and creates links. • **cp -l** creates hard links rather than copying the files. • **cp -s** creates symbolic links rather than copying the files.	• **cp -l /home/jed/fil1 /home/esam/proj1** creates an exact copy of /home/jed/fil1 in /home/esam/. • **cp -s /home/mkon/text /home/ytew/text_ln** creates a symbolic link named /home/ytew/text_ln that points to /home/mkon/text.
unlink *[link_name]*	Removes both symbolic links and hard links.	• **unlink project1_ln** removes the project1_ln link that point to /home/jsmith/project1.