

Permissions

A file or directory may have read, write, and execute permission. When a file is created, it is automatically given read and write permission for the owner, enabling you to display and modify the file. You may change these permissions to any combination you want. A file can also have read-only permission, preventing any modifications.

Read Write Execute Permission

Each category has its own set of read, write, and execute permission. The first set controls the user's own access to his or her files (the owner access), the second set controls the access of the group to a user's file. The third set controls the access of all other users to the user's files.

The three sets of read, write, and execute permission for the three categories (owner, group, and other) make a total of nine types of permission. The `ls` command with the `-l` option displays detailed information about the file, including the permission. Example: `$ls -l demofile`

chmod Command

`chmod` stands for "change mode" and it is used to define the way a file can be accessed. You use the `chmod` command to change different permission configurations. `chmod` takes two lists as its arguments: permission change and filenames.

You can specify the list of permission in two different ways. One way uses permission symbols (alphanumeric characters) and is referred to as the symbolic method. The other is to use octal numbers (the digits 0 to 7). The following example shows how to assign permission for a demo file.

```
chmod u=rwx,g=r,o=r demofile
```

This is the symbolic permission notation. The letter "u" stands for User, "g" stands for Group, and "o" stands for Others. Similarly, "r" stands for Read, "w" stands for Write, and "x" stands for Execute. The equals sign (=) is used to assign the permission, separated by commas.

Octal Permission Notations

```
chmod 754 demofile
```

Here, the digits 7, 5, and 4 each individually represent the permission for the user, group, and others in order. Each digit is a combination of the numbers 4, 2, 1, and 0. "4" stands for Read, "2" stands for Write, "1" stands for Execute, and "0" stands for No Permission.