

Diff Command in Linux

diff is a command-line utility that allows you to compare two files line by line. It can also compare the contents of directories.

The diff command is most commonly used to create a patch containing the differences between one or more files that can be applied using the patch command.

How to Use the diff Command

The syntax for the diff command is as follows:

```
diff [OPTION]... FILES
```

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The diff command can display the output in several formats with the normal, context, and unified format being the most common ones. The output includes information about which lines in the files must be changed so that they become identical. If the files match, no output is produced.

To save the command output to a file, use the redirection operator:

```
diff file1 file2 > patch
```

we'll use the following two files to explain how the diff command works:

file1

Ubuntu

Arch Linux

Debian

CentOS

Fedora

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file2

Kubuntu

Ubuntu

Debian

Arch Linux

Centos

Fedora

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Normal Format

In its simplest form when the diff command is run on two text files without any option, it produces an output in the normal format:

```
diff file1 file2
```

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The output will look something like this:

```
0a1
```

```
> Kubuntu
```

```
2d2
```

```
< Arch Linux
```

```
4c4,5
```

```
< CentOS
```

```
---
```

```
> Arch Linux
```

```
> Centos
```

The normal output format consists of one or more sections that describe the differences. Each section looks like this:

```
change-command
```

```
< from-file-line...
```

```
---
```

> to-file-line...

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0a1, 2d2 and 4c4,5 are change commands. Each change command contains the following, from left to right:

The line number or range of lines in the first file.

A special change character.

The line number or range of lines in the second file.

The change character can be one of the following:

a - Add the lines.

c - Change the lines.

d - Delete the lines.

The change command is followed by the complete lines that are removed (<) and added to the file (>).

Let's explain the output:

0a1 - Add line 1 of the second file at the beginning of the file1 (after the line 0).

> Kubuntu - The line from the second line that is added to the first file as described above.

2d2 - Delete line 2 in the first file. The 2 after the d symbol means that if the line is not deleted it would appear on line 2 in the second file.

< Arch Linux - the deleted line.

4c4,5 - Replace (change) line 5 in the first file with lines 4-5 from the second file.

< CentOS - The line in the first file to be replaced.

--- - Separator.

> Arch Linux and > Centos - Lines from the second file replacing the line in the first file.