

grep command

Grep command in Unix/Linux is the short form of 'global search for the regular expression'.

The grep command is a filter that is used to search for lines matching a specified pattern and print the matching lines to standard output.

Syntax:

grep [options] [pattern] [file]

The pattern is specified as a regular expression. A regular expression is a string of characters that is used to specify a pattern matching rule. Special characters are used to define the matching rules and positions.

#1) Anchor Characters: '^' and '\$' at the beginning and end of the pattern are used to anchor the pattern to the start of the line, and to the end of the line respectively.

Example: "^Name" matches all lines that start with the string "Name". The strings "\<" and "\>" are used to anchor the pattern to the start and end of a word respectively.

#2) Wildcard Character: '.' is used to match any character.

Example: "^.\$" will match all lines with any single character.

#3) Escaped Characters: Any of the special characters can be matched as a regular character by escaping them with a '\'.

Example: "\\$\*" will match the lines that contain the string "\$"

#4) Character Range: A set of characters enclosed in a '[' and ']' pair specify a range of characters to be matched.

Example: "[aeiou]" will match all lines that contain a vowel. A hyphen can be used while specifying a range to shorten a set of consecutive characters. E.g. "[0-9]" will match all lines that contain a digit. A caret can be used at the beginning of the range to specify a negative range. E.g. "[^xyz]" will match all lines that do not contain x, y or z.

#5) Repetition Modifier: A '\*' after a character or group of characters is used to allow matching zero or more instances of the preceding pattern.

The grep command supports a number of options for additional controls on the matching:

-i: performs a case-insensitive search.

-n: displays the lines containing the pattern along with the line numbers.

-v: displays the lines not containing the specified pattern.

-c: displays the count of the matching patterns.

Examples:

Match all lines that start with 'hello'. E.g: "hello there"

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$ grep "^hello" file1
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Match all lines that end with 'done'. E.g: "well done"

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$ grep "done$" file1
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Match all lines that contain any of the letters 'a', 'b', 'c', 'd' or 'e'.

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$ grep "[a-e]" file1
```

Match all lines that do not contain a vowel

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$ grep "[^aeiou]" file1
```

Match all lines that start with a digit following zero or more spaces. E.g: " 1." or "2."

```
$ grep " *[0-9]" file1
```

Match all lines that contain the word hello in upper-case or lower-case

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$ grep -i "hello"
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