

CS462 Linux Tools Notes

Gregory Ecklund

October 16, 2024

Contents

1	Sed	2
1.1	Line Addressing	2
1.2	Line Editing Commands	2
1.3	Using Editing Commands in Sed	2
1.4	Performing Multiple Commands on a Match	3
1.5	Referencing the Search String	3
1.6	Referencing Portions of a Search String	3

1 Sed

The sed utility is a stream editor that reads one or more files, makes changes according to a script of editing commands and writes the results to standard output. Sed performs many ed or ex commands. ed and ex are line editors, which were the original type of editors. Line editing commands are easier for scripting.

1.1 Line Addressing

n	absolute line number n
i, j	range of lines from line i to line j
+	go forward one line
-	go backwards one line
+n	go forward n lines
-n	go backward n lines

1.2 Line Editing Commands

addr	goto addr
[addr] 1	print line(s) to standard output
/<pattern>	goto first line that matches pattern
?<pattern>	goto last line that matches the pattern
[addr] a text .	append text (line by line) after addr until a '.' is typed in the first column
[addr] i text .	insert text (line by line) before addr until a '.' is typed in the first column
[addr] d	delete specified lines(s)
[addr] c text .	replace specified line(s) with text until a '.' is typed in the first column
[addr] s/pat1/pat2/	substitute pat2 for pat1 at addr

1.3 Using Editing Commands in Sed

Sed editing commands are implicitly global (applied to every line in the file).
Example sed scripts:

- 50d
- /^#/d
- /Smith/, \$d

- `s/old/new/`
- `s/old/new/g`
- `s/old/new/2`

1.4 Performing Multiple Commands on a Match

Can use curly braces to perform multiple commands on a single match Example: Make each list element within an ordered list a paragraph and change the ordered list to an unordered list in an html file.

```
/^<ol>/,/^<\ol>/{
s/^<ol>/<ul>/
s/^<li>/<p><li>/
s/^<\ol>/<\ul>/
}
```

1.5 Referencing the Search String

The ampersand (&) represents the extent of the pattern was matched and can be referenced in the replacement string. Examples:

- `s/[A-Z][A-Z][A-Z]*/"&"/g` — quote all acronyms
- `s/[Uu]nix/"&"/g` — quote all references to Unix or unix

1.6 Referencing Portions of a Search String

Can reference portions of a search string by enclosing them in escaped parentheses, `"\"` and `"\"`, and referencing them by `<num>` in the replacement string. Example: Reversing the order of the first two integer values separated by a colon in a file.

- `s/^\([0-9]*\) : \([0-9]*\) /|2:\1/`