

Unix-like Operating Systems

Commands: `awk` and `sed`.

Jan Trdlička



Czech Technical University in Prague, Faculty of Information Technology
Department of Computer Systems

Contents

- 1 sed
- 2 sed – print/delete
- 3 sed – text replacement
- 4 awk
- 5 awk – patterns
- 6 awk – actions
- 7 awk – functions
- 8 awk – arrays
- 9 awk – examples

- What is the meaning of the `-n` option at command `sed`?
- What is the meaning of the following `sed` commands?
 - `p`
 - `d`
 - `s`

- How to print the first 10 lines of the file `/etc/passwd` by command `sed`?
- How to print the last 10 lines of the file `/etc/passwd` by command `sed`?
- How to print line of the file `/etc/passwd`, that represents info about an user account "root" (see `man 5 passwd`)?
- How to print lines of the file `/etc/passwd`, that don't represent info about an user account "root"?

- Use the output of command `ls -l /etc`. How to replace the first character at line, which define the file type (d, -, l), by string (dir:, file:, link:).

sed – text replacement

- Use the output of command `ls -l /`. How to replace all strings "root" by strings "ADMIN"?
- Use the output of command `ls -l /`. How to print only the second column by the command sed?

- Explain the behaviour of command `awk`.
- Example

- How to print the first 10 lines of the file `/etc/passwd` by command `awk`?
- How to print the last 10 lines of the file `/etc/passwd` by command `awk`?

- How to print lines containing string "root" from the file /etc/group by command awk?
- How to print lines not containing string "root" from the file /etc/group by command awk?
- Use output of command `getent passwd`.
- How to print lines that represent account info about users whose names are Jan or Peter or Eliska?
 - Trivial solution

- How to print lines that represent account info about users whose names are Jan or Peter or Eliska?
 - Correct solution

- How to print the name and the size of every regular file in `/etc/`?
- How to print the user name and the path to home directory for every user that has account on this system?
Hint: Use command `getent passwd`.
- How to print the user name of user that has an account on this system and has the longest name (the 5th column)?

- What is the meaning of the following `awk` functions?

- `length(str)`
- `substr(str, from, len)`
- `sub(ere, repl[, in])`
- `gsub(ere, repl[, in])`
- `split(str, arr[, fs])`

- Assume that the file `m.txt` has the following contents:

1	2	3
8	7	9
3	7	2

- How to change the order of columns, such that the column i ($0 \leq i < n$) will be swap with column $(n - i)$ (reverse column order).

3	2	1
9	7	8
2	7	3

- Use output of command `ps -ef`. How to print info about processes which are running under the user `root`.

- Use output of command `ps -eo user,rss,comm`. How to print the number of processes running under the effective identity "root" and the number of memory (RSS) allocated by these processes.
- Example of output

```
$> ps -eo user,rss,comm | awk -f ps1a.awk  
root: nproc=85 rss=602264 KB
```

- Solution A

- Solution B

- Use the output from the command `ps -eo user,rss,comm`.
How to print the following information about the processes of user whose name is given?

```
user_name:  nproc=number_of_running_processes  
rss=size_of_RSS_memory_alocatted_by_these_processes,  
list=list_of_these_processes
```

- Example of output

```
$> ps -eo user,rss,comm | awk -f ps2.awk  
root: nproc=83 rss=582952 KB  
      proclist: sched, /usr/sbin/init, ...
```

- Solution A

- Solution B