Unix-like Operating Systems

Commands: awk and sed.

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Contents

sed

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

sed – print/delete

- 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"`?

sed – text replacement

- 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`?

awk

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

awk – patterns

- 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`?

awk – patterns

- 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

awk – patterns

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

awk – actions

- 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)?

awk – functions

- 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])`

awk – arrays

- 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
```

awk – examples

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

awk – examples

- 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

awk – examples

- Solution B

awk – examples

- 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, ...
```

awk – examples

- Solution A

awk – examples

- Solution B