

1) Analyze the structure of the /etc/passwd and /etc/group file, what fields are present in it, what users exist on the system? Specify several pseudo-users, how to define them?

```
root@CsnKhali:~# cat /etc/passwd
root:x:0:0:root,,,:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin)/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
libuuid:x:100:101::/var/lib/libuuid:
syslog:x:101:104::/home/syslog:/bin/false
messagebus:x:102:105::/var/run/dbus:/bin/false
sshd:x:103:65534::/var/run/sshd:/usr/sbin/nologin
student:x:1000:1000:Student KhAI,,,:/home/student:/bin/bash
root@CsnKhali:~#
```

username: passwd : uid : gid : uid comments: directory: shell

accounts with UIDs less than 10 belong to the system (root, daemon, bin, sys, mail, news, man), UIDs 10 to 100 are reserved for pseudo users associated with special programs (proxy, backup)

2) What are the uid ranges? What is UID? How to define it?

Uid is a simple numeric designation for an individual user. This is usually a positive number not more than 65535 (sometimes 32-bit).

3) What is GID? How to define it?

Gid - unique identifier of the group within the system to which the user belongs

4) How to determine belonging of user to the specific group?

GID; \$ groups username

5) What are the commands for adding a user to the system? What are the basic parameters required to create a user?

useradd -m username ; adduser

6) How do I change the name (account name) of an existing user?

usermod -l login-name old-name ; usermod -u UID username

7) What is skell_dir? What is its structure?

skell_dir contains files which must be copied to the new user's home directory.

8) How to remove a user from the system (including his mailbox)?

```
# userdel -r username
```

9) What commands and keys should be used to lock and unlock a user account?

```
# passwd -l username ; # usermod -L username
```

10) How to remove a user's password and provide him with a password-free login for subsequent password change?

```
# passwd -d username
```

11) Display the extended format of information about the directory, tell about the information columns displayed on the terminal.

```
root@CsnKhai:~# ls -la
total 48
drwx----- 6 root root 4096 Feb 16 16:22 .
drwxr-xr-x 21 root root 4096 Sep 15 2015 ..
drwx----- 2 root root 4096 Sep 15 2015 .aptitude
-rw----- 1 root root 863 Feb 17 08:16 .bash_history
-rw-r--r-- 1 root root 3106 Feb 20 2014 .bashrc
drwx----- 2 root root 4096 Sep 15 2015 .cache
-rw-r--r-- 1 root root 21 Feb 16 14:30 .plan
-rw-r--r-- 1 root root 140 Feb 20 2014 .profile
drwx----- 2 root root 4096 Sep 15 2015 .ssh
drwxr-xr-x 2 root root 4096 Feb 16 15:28 test
-rw-r--r-- 1 root root 42 Feb 16 16:22 test2
-rw-r--r-- 1 root root 22 Feb 16 13:40 test.txt
root@CsnKhai:~#
```

d – directory

rwX – read, write, execute permissions

username, groupname, size, datetime, filename (dir-)

12) What access rights exist and for whom (i. e., describe the main roles)? Briefly describe the acronym for access rights.

The first character indicates the file type

- regular file; d directory; b block device; c character device; l symbolic link; p pipe (fifo); s socket

The attribute string is 3 three rwx that describe the file permissions of the owner of this file (the first triplet), the group that owns the file (the second triplet) and outsiders (the third triplet)

If a letter is missing in any triplet and instead of it there is “-“ then the user in the corresponding role will be denied the corresponding type of access

13) What is the sequence of defining the relationship between the file and the user?

When the relationship between the file and the user who started the process, the role is determined as follows

If the UID of the file is the same as the UID of the process, the user is the owner of the file

If the GID of the file matches the GID of any group the user belongs to, he is a member of the group to which the file belongs

If neither the UID nor the GID of a file overlaps with the UID of the process and the list of groups that the user running it belongs to, that user is an outsider

14) What commands are used to change the owner of a file (directory), as well as the mode of access to the file? Give examples, demonstrate on the terminal.

```
root@CsnKhai:~# ls -l
total 12
drwxr-xr-x 2 root root 4096 Feb 16 15:28 test
-rw-r--r-- 1 root root  42 Feb 16 16:22 test2
-rw-r--r-- 1 root root  22 Feb 16 13:40 test.txt
root@CsnKhai:~# chmod 0766 test.txt
root@CsnKhai:~# ls -l
total 12
drwxr-xr-x 2 root root 4096 Feb 16 15:28 test
-rw-r--r-- 1 root root  42 Feb 16 16:22 test2
-rwxrw-rw- 1 root root  22 Feb 16 13:40 test.txt
root@CsnKhai:~# chmod 0764 test.txt
root@CsnKhai:~# ls -l
total 12
drwxr-xr-x 2 root root 4096 Feb 16 15:28 test
-rw-r--r-- 1 root root  42 Feb 16 16:22 test2
-rwxrw-r-- 1 root root  22 Feb 16 13:40 test.txt
root@CsnKhai:~#
```

Permission numbers are:

0 = ---

1 = --x

2 = -w-

3 = -wx

4 = r-

5 = r-x

6 = rw-

7 = rwx

15) What is an example of octal representation of access rights? Describe the umask command.

16) Give definitions of sticky bits and mechanism of identifier substitution. Give an example of files and directories with these attributes.

Sticky Bit is mainly used on folders in order to avoid deletion of a folder and its content by other users though they having write permissions on the folder contents. If Sticky bit is enabled on a folder, the folder contents are deleted by only owner who created them and the root user.

17) What file attributes should be present in the command script?

a - When this attribute is set, the file can only be opened in append mode for writing.

A - When a file with this attribute set is open, its atime record is not changed. atime (access time) is the last time the file was accessed/opened by some command or application.

e - This attribute denotes that the file is using extents for mapping the blocks on disk. The e attribute cannot be modified with chattr.

i - This attribute indicates that the file is immutable, which means that the file cannot be deleted or renamed.