

Task2

Task assignment.

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?

These files store essential information about users and groups on the system. The **/etc/passwd** file contains user account information, including usernames, user IDs (UIDs), group IDs (GIDs), home directories, default shells, and more. Each line in the file corresponds to a single user account.

The **/etc/group** file contains group information, including group names, GIDs, and the list of users who are members of each group.

Pseudo-users are special accounts used by the system for specific purposes, such as running services or managing system resources. They typically have restricted or no login capabilities. Some examples include: root (superuser), nobody (user with minimal privileges), daemon (user account used to run system background services).

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

The User Identifier (UID) is a unique numeric identifier assigned to each user account.

UIDs in the range 0 to 999 are often reserved for system accounts and pseudo-users. These accounts are used for system processes, services, and management. They typically do not have login capabilities and are used to manage specific aspects of the system.

UIDs from 1000 and above are typically used for regular user accounts. These are accounts created for individual users, and they often have login capabilities.

To define a new user with a specific UID, you can use the “useradd” command with the “-u” option.

3) What is GID? How to define it?

The Group Identifier (GID) is a unique numeric identifier assigned to each group.

System and system-related groups often have GIDs within the lower range, such as 0 to 999.

Regular user-created groups usually start from 1000 and above.

To define a new group with a specific GID, you can use the “groupadd” command with the “-g” option.

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

Using the “groups” command.

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

To add a user you can use the “useradd” command. The basic parameters required to create a user include the username and the user's home directory.

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

You have to execute command: `usermod -l [newUsername] [oldUsername]`.

7) What is skel_dir? What is its structure?

skel is derived from the skeleton because it contains basic structure of home directory. The **/etc/skel** directory contains files and directories that are automatically

copied over to a new user's when it is created from useradd command.

This will ensure that all the users gets same initial settings and environment:

- `ls -la /etc/skel/`
- total 24
- `drwxr-xr-x. 2 root root 62 Apr 11 2018 .`
- `drwxr-xr-x. 77 root root 2880 Mar 28 03:38 ..`
- `-rw-r--r--. 1 root root 18 May 30 17:07 .bash_logout`
- `-rw-r--r--. 1 root root 193 May 30 17:07 .bash_profile`
- `-rw-r--r--. 1 root root 231 May 30 17:07 .bashrc`

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

To remove a user from the system, including their home directory and mailbox, you can use the “userdel” command with appropriate options.

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

To lock and unlock a user account in a Unix-like operating system, you can use the `passwd` command with the `-l` (lock) and `-u` (unlock) options. These options allow you to prevent or restore the user's ability to log in.

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

To remove a user's password temporarily and allow them to perform a password change upon their next login, you can use the `passwd` command with the `-d` option. This option removes the user's password, effectively disabling their ability to log in until they set a new password.

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

```
student@CsnKhai:~$ ls -la test
total 12
drwxrwxr-x 2 student student 4096 Aug 16 18:50 .
drwxr-xr-x 4 student student 4096 Aug 16 18:24 ..
-rw----- 2 student student 11 Aug 16 18:49 hard_lnk_labwork2
lrwxrwxrwx 1 student student 11 Aug 16 18:27 symb_lnk_labwork2_file -> ../labwork2
```

The first column indicates the file type and permissions. The second column shows the number of hard links to the file or directory. The third column indicates the username of the owner. The fourth column indicates the group name of the file or directory. The fifth column shows the size of the file in bytes. The sixth column shows the date and time when the file or directory was last modified. The final column displays the name of the file or directory.

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

Access rights are categorized into three roles: owner, group, and others. Each role has its own set of permissions. The acronym used to describe access rights is "rwx."

- Read (r): Allows selected role to view the content of the file and list the contents of a directory.
- Write (w): Allows selected role to modify the content of the file or create, delete, and rename files within a directory.
- Execute (x): Allows selected role to execute the file if it's a program or script, or access the contents of a directory if the user has read and execute permissions on the directory.

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

user?

The relationship between a file and a user is defined based on three primary roles: owner, group, and others.

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.

To change the owner of a file or directory, as well as the mode of access (permissions), you can use the `chown` command to change ownership and the `chmod` command to change permissions.

Changing owner of the file:

```
student@CsnKhai:~$ sudo chown nobody test
```

Changing permissions of the file:

```
student@CsnKhai:~$ sudo chmod 744 test
```

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

An example of an octal representation of access rights is a three-digit number that represents the combined permission settings for the owner, group, and others. Each digit corresponds to a role, and the digit's value is the sum of the permission values for read, write, and execute permissions.

Here's an example of an octal representation of access rights:

Read permission (r): 4

Write permission (w): 2

Execute permission (x): 1

So, a three-digit octal number like "764" represents:

7: Read, write, and execute permissions for the owner (4 + 2 + 1).

6: Read and write permissions for the group (4 + 2).

4: Read-only permissions for others (4).

Together, the octal representation "764" indicates read, write, and execute permissions for the owner, read and write permissions for the group, and read-only permissions for others.

The `umask` command is used to set the default permissions that are applied when new files and directories are created. It is often used to restrict default permissions to enhance security or to ensure that newly created files don't have overly permissive permissions.

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

When the sticky bit is set on a directory, it allows users to delete or move only the files they own within that directory.

The sticky bit is represented by a lowercase "t" at the end of the permission bits for the directory. For example, if the directory's permissions are "drwxrwxrwx," setting the sticky bit would make them "drwxrwxrwt."

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

Three strings of rwx the file permissions in the symbolic or octal way.