Lab Exercises

Lab 2

Objective

You will install a wiki software for your web server, learn to use Linux documentation, very basic user administration, a simple shell script and explore the `cron` job scheduler utility.

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1. **Take snapshots of VMs**

   Before you start the VMs and do further work on them, take a snapshot for each of them. A snapshot saves your current VM with all your programs, configurations and files. You can revert a VM to any of snapshots as you need at a later time.

   - To create a snapshot, click at the **Take** icon from the Snapshots pane under Machine Tools. Give **Lab 1** as the Snapshot Name.

     (*You can also take a snapshot from the menu of the VM.*)

   - Do it for both VMs
   - Please remember to take snapshots at the beginning of all labs and name them as **Lab 2**, **Lab 3** etc, respectively. There will be no instruction in the lab spec to do so in subsequent labs and it is assumed you would have done so.

2. **Install DokuWiki**

   - [DokuWiki](#) is a simple Open Source wiki software that does not require a database, which is an administrator's favorite. We will use it as our knowledge base and notebook for documentation.

   - Download the newest release from the DokuWiki.

     ```
     cd /tmp
     wget https://download.dokuwiki.org/src/dokuwiki/dokuwiki-stable.tgz
     ```

   - Unpack the distribution tarball.

     ```
     tar -zxvf dokuwiki-stable.tgz
     ```

   - Move all files to the webspace.

     ```
     sudo mv dokuwiki-*/  /var/www/html/dokuwiki
     sudo chown -Rh www-data:www-data /var/www/html/dokuwiki
     ```

   - Now point your browser on the *desktop* to `serverIP/dokuwiki` and you should see a Dokuwiki page with a message: "**This topic does not exist yet**".
   - Follow the instruction on the page to create a new page with the following content:

     ```
     ====== YourName's Wiki ======
     ```

```
        Created for the lab
```
Save the page.

- Useful information:

  Tips on syntax: https://www.dokuwiki.org/wiki:syntax
  User manual: https://www.dokuwiki.org/manual

3. `man` **pages**

All common commands under Unix should have what is referred to as a "man page". Nothing to do with Fathers' Day, "man" is short for "manual", as in reference manual. These man pages have a well-defined format, but it may take you some time to get used to it. For now, just know that you can find some documentation about each command.
So to see the information on the "`chown`" command, you would type:

```
man chown
```

Note towards the end (you can scroll up and down) there is a section called `SEE ALSO` that mentions `chown(2)`. This is to say that there is another section in the manual that may tell you something different about the command. So to read the section 2 entry for `chown` instead of the default page, type

```
man 2 chown
```

If you want to know in which section you might find a certain kind of command, that information is listed in the `man` page for `man`.
(Yes, even the man command has a man page.)

```
man man
```

Question: What kind of documentation does Section 3 typically contain?

If you don't know what the exact name of the command is, you might be able to find it with the `-k` option (key word)

```
man -k user
```

Note that this approach sometimes gives too much data back. It is a simple text match, so if you want to know about pages containing the word cat, you will also be suggested pages that contain words *containing* cat, like **allocate** and **certificate**.

4. **Users and groups**

When you originally installed your VM, you added a single user with which to access it. That user has a username and password and other attributes. How do you add more (from the command line)?

```
sudo useradd testuser
```

Oops, I meant test1. Let's delete the account that was just created.

```
sudo userdel testuser
```

But I now want 5 accounts: `test1`, `test2`, `test3`, `test4` and `test5`.

What if I wanted 50 or 500 new accounts… should I do that kind of thing by hand??? Absolutely not. It should be scripted.

So let's create a script:

```
cd /tmp; pico testaddusers.sh
```

Type in the following script:

```
#!/bin/bash
for (( i=1 ; i< 6 ; i++ )); do
  sudo useradd test$i;
done
```

Save and exit (^X).

Now adjust this file so that only the root user can utilise it.

```
sudo chown root testaddusers.sh
sudo chmod 700 testaddusers.sh
```

And run it!

```
sudo ./testaddusers.sh
```

To see signs of the positive result :

```
tail /etc/passwd
```

Now we want to add a special group for users called `shark`.

```
sudo addgroup shark
```

To see signs of the positive result:

```
tail /etc/group
```

And we want to add some users to the group, but we don't want to change their primary group! So instead add a supplementary group membership to two users:

```
sudo usermod -a -G shark test3 sudo usermod -a -G shark test4
```

Who is in the shark group now?

```
grep shark /etc/group
```

5. **cron**

What if I wanted to run a regular report, telling me who was in the shark group? Instead of running the above report by hand, what if I wrote the answer into a file that I could check at any time? cron

is a time-based job scheduler running as a system daemon that runs commands at specific times designated by you. (For one-off tasks, consider `at` instead.)

To edit your crontab:

```
crontab -u abc123 -e
```
(Select the default editor `nano` which is a clone of `pico`.)

and add the line to the end:

```
* * * * *  grep shark /etc/group 2>&1 > /tmp/sharks
```

The 5 asterisks are important. They define times.

You can be more specific than 'every minute' though. See the following reference for details:

https://help.ubuntu.com/community/CronHowto

To list what cron jobs you have in the system:

```
crontab -u abc123 -l
```

(The last letter l is the letter l, not number one 1)

Once you have that working, alter the `cron` job to only report at `9am` on a `Monday`.

Submission and mark

For full marks today, show your teacher

1. your first new wiki page of Dokuwiki
2. your answer to the "Section 3" question for `man` command;
3. your altered `crontab` entry;
4. the contents of the file `/tmp/sharks`.

6 marks for all 4 items above;
3 mark for 3 items, missing any one of 4 items above;
0 mark for all other than above.

You should be ready to answer any questions to demonstrate that all work is done by yourself otherwise you may receive 0 mark.

IMPORTANT NOTE: You will need to document all of your lab work in your wiki. Organising your page by creating a link for each lab. You document what you have done and learned in labs. Creating a list of commands you have used in labs with excerpts from `man` pages. You can do this task after the class.