

## Lab 5: Mini-project

Your employer has given you the assignment to set up a Linux server with ssh for remote access, apache for web access including scripting and a postgresql server for the database. Prepare the VM in the regular fashion by creating a fresh copy in the D:\VMW folder.

1. Fix the network access in the same way as earlier labs.
2. Install ssh as in earlier lab and check that it works.
3. We are now going to add the web server Apache 2 and look into how to configure it.
  - a. Install the packet apache2 using apt-get.
  - b. Check the installation by opening up Firefox in your host (Windows) and entering the URL <http://local-ip> , where local-ip is the ip for the virtual machine. If everything works you will be presented with a page stating “It works!”.
  - c. We are now going to check where we can put our own files so they show up on the web server. Navigate to the folder `/etc/apache2/sites-available`. Using a text editor, cat or more, open up the file default. This configuration file contains the settings we are looking for. The keyword DocumentRoot indicates where the root of the web server will be located in your file structure. This means, where will the web server look if you ask for the page <http://local-ip/file.html>.

DocumentRoot is set to \_\_\_\_\_

- d. We are now going to check where the scripts are going to be stored so they can be used by the web server. Look around in the file default for the keyword ScriptAlias. The second argument specifies where scripts should be stored.

ScriptAlias is set to \_\_\_\_\_

- e. If you had to change these values, be aware that a web server restart would be necessary to reload the configuration files! The command to restart the web server would be `/etc/init.d/apache2 restart`.
  - f. Navigate to the folder given by DocumentRoot. If you are correct you will find a file named index.html. Open up this file in a text editor and replace the text “It works!” with something of your choice. Save the file and reload the page in the web browser by pressing F5 or CTRL-R.
  - g. Navigate to the folder given by ScriptAlias. This folder will be empty. Create a file named script using touch. Change the access rights to executable for everyone using chmod. Open up the file and write the following:

```
#!/bin/bash
echo "Content-Type: text/html"
echo
echo "<h1>Script-test!</h1>"
```

Save the file.
  - h. Change the url in the web browser to <http://local-ip/cgi-bin/script>. If it works you should be shown the text Script-test!. If not, start checking that you typed the script correctly.
4. Install the packet postgresql (the postgresql-server).
  5. Configure the postgresql-server.

- a. Switch to the postgres user `sudo su - postgres`
- b. Init the database
  - i. `psql -U postgres -c "CREATE DATABASE testdb" -d template1`
- c. Start the internal database connection using
  - i. `psql -U postgres -d testdb`
  - ii. From this console you can issue SQL commands directly to the database.
- d. Create a table
  - i. `CREATE TABLE workers (  
    name        varchar(40),  
    salary      int  
);`
- e. Add data to the table
  - i. `INSERT INTO workers VALUES  
    ('Kalle Andersson',1234);`
  - ii. `INSERT INTO workers...`
- f. Test it using `SELECT * FROM workers;`

### **EXTRA ASSIGNMENTS**

6. Change the network settings in VMWare from NAT to Bridged. Update your `/etc/interfaces` and set a static IP. You will find the IP on a sticker on your host. Now your virtual machine will be accessible from ANY computer in the lab. Test all installations a third time.
7. Install/ configure a firewall and allow traffic into the server for http and ssh. Block everything else.