

Assignment 1

Due: 11 October 2023 by 23:59:59 EST

Grade: 5% of final mark

Description:

As a system administrator, a substantial portion of your time will be spent working with project and task management systems. Effective use of a project management system will help you prioritize work and understand how your organization functions as a whole when it comes to IT usage.

This assignment will require you to provision a virtual machine and then install the *OpenProject* system on it. Evaluation is broken down into separate criteria so that you can still receive a passing grade even if you do not get the system functioning fully.

VM Setup:

To start the assignment, you will need to create a virtual machine (VM) using your DigitalOcean account. Login to the dashboard and proceed by following these instructions:

1. At the top right of the dashboard, click the 'Create' button, and then select 'Droplets'.
2. Select 'Toronto' as the region.
3. Under the 'Choose an Image' section, click 'Snapshots'.
4. Select the 'Ubuntu itec2210.ca-base-image'.
5. Under 'Choose a plan' select the '**Regular with SSD**' option.
6. Click the arrow to scroll to the left of the list of Droplet types, e.g. the default may be \$40/month, scroll to the far left until you can choose \$6/month.

CPU options

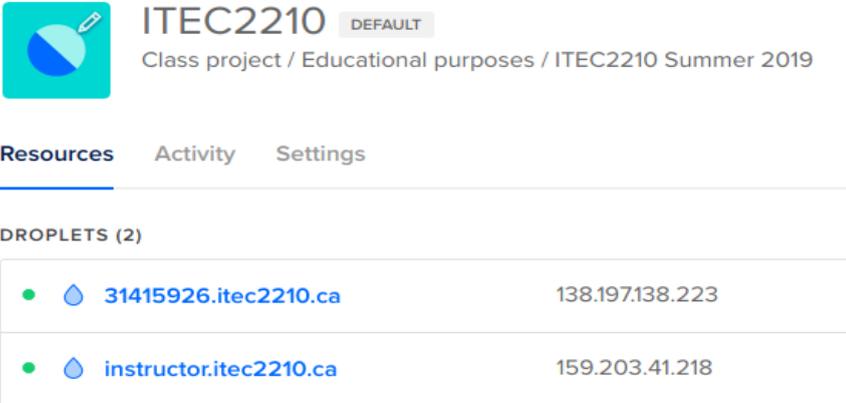
<input checked="" type="radio"/> Regular Disk type: SSD	<input type="radio"/>
\$4/mo \$0.006/hour 512 MB / 1 CPU 10 GB SSD Disk 500 GB transfer	\$6/mo \$0.009/hour 1 GB / 1 CPU 25 GB SSD Disk 1000 GB transfer

7. Switch the 'Authentication' button to Password. Choose a memorable one and be sure to record it somewhere safe. **If you do not do this I cannot login to your VM to grade your work or help with assignments.**

8. At the very bottom under 'Choose a hostname', use your student number. For example, if your student number is 31415926, make the hostname '31415926.itec2210.ca'.

9. Click 'Create'.

10. You will now be back at the dashboard. Once your VM is finished provisioning, look for it in the list and copy its IP address somewhere.



The screenshot shows the ITEC2210 dashboard. At the top left is a logo with a blue and green circle and a pencil icon. To its right is the text 'ITEC2210' with a 'DEFAULT' tag, and below it 'Class project / Educational purposes / ITEC2210 Summer 2019'. Below this are three tabs: 'Resources', 'Activity', and 'Settings'. Under 'Resources', there is a section titled 'DROPLETS (2)'. This section contains a table with two rows of droplet information.

Drop Icon	Hostname	IP Address
•	31415926.itec2210.ca	138.197.138.223
•	instructor.itec2210.ca	159.203.41.218

10. In the menu on the very left, select 'Networking'. Select the 'Domains Tab' and then click on 'itec2210.ca'.

11. In the HOSTNAME field add your student number again. This step is crucial for grading. If you do not do this your assignment cannot be graded.

12. In the 'WILL REDIRECT TO' field, input the IP address you recorded, or select your VM from the list.

13. Click 'Create Record'.

14. You may now use PuTTY or any SSH client to connect to your VM. For the hostname, use the DNS entry that you created e.g 31415926.itec2210.ca. When prompted for the username, input 'itec2210'. The password is 'limoncelli'.

For example, type ``ssh itec2210@31415926.itec2210.ca`` to connect as the ``itec2210`` user to the system identified by the DNS record

31415926.itec2210.ca. The `@` sign designates user@hostname, and you are connecting as the itec2210 user in this case.

OpenProject Setup

The OpenProject installation guide provides all the commands and information that you need to achieve 5/5 on this assignment (with some caveats, which I mention below). The installation guide is available here:

<https://www.openproject.org/docs/installation-and-operations/installation/packaged/>

Our virtual machines use **Ubuntu 20.04** as the operating system, so be sure to select that open when you begin the installation process.

DO NOT PROCEED until you have read through all the documentation first. If you start running commands without understanding the purpose of each, you will encounter problems and have to start again.

Notes

The documentation assumes that you are working as a non-privileged user when you are typing commands in the terminal prompt. When you are asked for a password you will use `limoncelli`, which is the password for the `itec2210` user.

The steps below correspond to the steps in the OpenProject documentation, and indicate configuration options that you should choose where applicable.

Step 0: Start the wizard

1. Before starting the installer, run the following command to create a placeholder file to allow the installer to continue:

- a. `sudo touch /etc/openproject/conf.d/sntp`
2. Next, limit the number of instances of OpenProject that will run on your server with the following command:
 - a. `sudo openproject config:set OPENPROJECT_WEB_WORKERS=1`
3. Run the command as instructed.

Step 1: Select your OpenProject Edition

1. Choose the default option (not BIM).

Step 2: PostgreSQL database configuration

1. Ensure you choose the Install option.
2. When prompted, choose Install a new PostgreSQL server and database locally (default).

Step 3: Apache2 web server

1. Install the web server.
2. When prompted for a Fully Qualified Domain Name (FQDN), use the DNS name that points to your virtual machine e.g. ``31415926.itec2210.ca``.
3. Ignore the Server path prefix option (leave it blank).
4. Choose No for the SSL/TLS configuration option.

Step 4: API key

1. Select OK

Step 5: SVN/Git integration server

1. Skip these steps.

Step 6: Memcached Server

1. Install memcached.

Step 7: Wait. It may take a minute or two for your server to settle and for Apache to detect the running OpenProject instance.

Result

1. Visit the URL to your virtual machine, e.g. <http://31415926.itec2210.ca>
2. Login as ``admin`` with the password ``admin`` and change the password when you are prompted. Be sure to write down your new password.
YOU MUST CHANGE THE PASSWORD OR YOU WILL RECEIVE A 0 ON THE ASSIGNMENT.
3. Visit the "My Account" page using the button at the top right.
4. Navigate to the "Access token" page.

5. Generate an API token and be sure to copy it down.
6. **TEST YOUR TOKEN:** use the following cURL command to validate your server is working as expected:

```
curl -H "Content-type: application/json" -u apikey:<your api key here> \
http://31415926.itec2210.ca/api/v3/users/1
```

You should receive output like the following:

```
{ "_type": "User", "id": 1, "name": "System", "createdAt": "2022-09-15T01:22:39Z", "updatedAt": "2022-09-15T01:22:39Z", "login": "", "admin": true, "firstName": "", "lastName": "System", "avatar": "", "status": "active", "identityUrl": null, "language": "", "_links": { "self": { "href": "/api/v3/users/1", "title": "System" }, "memberships": { "href": "/api/v3/memberships?filters=%5B%7B%22principal%22%3A%7B%22operator%22%3A%22%3D%22%2C%22values%22%3A%5B%221%22%5D%7D%7D%5D", "title": "Members" }, "showUser": { "href": "/users/1", "type": "text/html" }, "updateImmediately": { "href": "/api/v3/users/1", "title": "Update", "method": "patch" }, "lock": { "href": "/api/v3/users/1/lock", "title": "Set lock on", "method": "post" } } }
```

Submitting:

1. Submit your DNS name and API key using the form at <https://assignment1.itec2210.ca>. You can use the form to validate your hostname, and resubmit as many times as you like.

Evaluation Criteria:

Requirement	Test case	Grade
A working virtual machine	Your VM is available in the DigitalOcean control panel	1
A working webserver	http://\$###.itec2210.ca is usable with a web browser	1
A working database server	PostgreSQL is installed on your VM	1
OpenProject is installed on your VM	An openproject user exists on your VM, and the code has been downloaded and unpacked	1
Working login to OpenProject	cURL to http://\$###.itec2210.ca/ with your API token works	1

Final notes:

For anyone interested in using Docker to run OpenProject as opposed to following these instructions, please let me know.