



LAB 4

Infrastructure-as-a-Service with CITCloud

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- **Note: screenshots need to be clear and good-looking; submissions must be in PDF format.**

CITCloud (<http://cloud.cit.ctu.edu.vn/horizon>) is a private cloud environment providing infrastructure-as-a-service (IaaS) for CIT students and staff. It is implemented using OpenStack (<https://www.openstack.org>) which is a free open standard cloud computing platform. In this lab, you will learn about creating and managing virtual servers and other resources with CITCloud.

Log in to CITCloud using credentials provided by your instructor.

1. A quick look on OpenStack your project

- Please answer the following questions
 - + Name of your project?: Cloud2
 - + Name of available networks?: net_dtdm
 - + Can you delete the networks?: None
 - + Does the “default” security group allow ingress SSH, HTTP and HTTPS connections?: Yes
 - + Available floating IPs?: 10.32.2.131, 10.32.2.164, 10.32.2.175, 10.32.2.205
 - + Are there any created instances?: Yes
 - + Available images?: cirros,LUbuntu20-Img,UServer18-CloudImg,UServer20-CloudImg,Win10x64-Img

2. Cirros VM

- Create an instance:
 - + Instance name: <Your student ID>_Cirros
 - + Source: cirros; Select boot source: image; Create new Volume: No
 - + Flavor: m1.tiny
 - + Networks: Net_dtdm
 - + Security group: default
- Access the VM using web-console. Then log in to the VM using “cirros/gocubsgo” credentials, execute the “uname -a” command (**take a screenshot of the console**).

```
Connected (unencrypted) to: QEMU (instance-00001d0f)
1649726155)
[ 1.479742] BIOS EDD facility v0.16 2004-Jun-25, 0 devices found
[ 1.483039] EDD information not available.
[ 1.486853] Freeing unused kernel memory: 1480K (ffffffffff81f42000 - ffffffff8
20b4000)
[ 1.491278] Write protecting the kernel read-only data: 14336k
[ 1.495066] Freeing unused kernel memory: 1860K (ffff88000182f000 - ffff88000
1a00000)
[ 1.499896] Freeing unused kernel memory: 168K (ffff880001dd6000 - ffff880001
e00000)

further output written to /dev/ttyS0
[ 3.109272] random: dd urandom read with 19 bits of entropy available

login as 'cirros' user. default password: 'gocubsgo'. use 'sudo' for root.
b1809707-cirros login: [ 46.840949] random: nonblocking pool is initialized

login as 'cirros' user. default password: 'gocubsgo'. use 'sudo' for root.
b1809707-cirros login: cirros
Password:
$ uname -a
Linux b1809707-cirros 4.4.0-28-generic #47-Ubuntu SMP Fri Jun 24 10:09:13 UTC 20
16 x86_64 GNU/Linux
$ _
```

3. Ubuntu VM

- Create an instance:

- + Instance name: <Your student ID>_Ubuntu
- + Source: UServer18-CloudImg; Select boot source: image; Create new Volume: No
- + Flavor: m1.small
- + Security group: default
- + Networks: Net_dtdm
- + Key pair: Create a new key pair, name it <Your student ID>_Ubuntu_Key

- Launch your VM, then assign it a [floating IP](#).

- SSH to your VM

```
$chmod 600 ./<Your student ID>_Ubuntu_Key
```

```
$ssh -i ./<Your student ID>_Ubuntu_Key ubuntu@<floating IP>
```

- Execute “sudo apt update ; uname -a” command (**take a screenshot of the console**).

```
ubuntu@b1809707-ubuntu: ~  
ubuntu@b1809707-ubuntu:~$ sudo apt update  
Hit:1 http://nova.clouds.archive.ubuntu.com/ubuntu bionic InRelease  
Get:2 http://security.ubuntu.com/ubuntu bionic-security InRelease [88.7 kB]  
Get:3 http://nova.clouds.archive.ubuntu.com/ubuntu bionic-updates InRelease [88.7 kB]  
Get:4 http://nova.clouds.archive.ubuntu.com/ubuntu bionic-backports InRelease [74.6 kB]  
Get:5 http://security.ubuntu.com/ubuntu bionic-security/main amd64 Packages [2170 kB]  
Get:6 http://nova.clouds.archive.ubuntu.com/ubuntu bionic/universe amd64 Packages [8570 kB]  
Get:7 http://security.ubuntu.com/ubuntu bionic-security/main Translation-en [380 kB]  
Get:8 http://security.ubuntu.com/ubuntu bionic-security/restricted amd64 Packages [690 kB]  
Get:9 http://security.ubuntu.com/ubuntu bionic-security/restricted Translation-en [94.1 kB]  
Get:10 http://security.ubuntu.com/ubuntu bionic-security/universe amd64 Packages [1187 kB]  
Get:11 http://security.ubuntu.com/ubuntu bionic-security/universe Translation-en [273 kB]  
Get:12 http://security.ubuntu.com/ubuntu bionic-security/multiverse amd64 Packages [17.6 kB]  
Get:13 http://security.ubuntu.com/ubuntu bionic-security/multiverse Translation-en [3660 B]  
Get:14 http://nova.clouds.archive.ubuntu.com/ubuntu bionic/universe Translation-en [4941 kB]  
Get:15 http://nova.clouds.archive.ubuntu.com/ubuntu bionic/multiverse amd64 Packages [151 kB]  
Get:16 http://nova.clouds.archive.ubuntu.com/ubuntu bionic/multiverse Translation-en [108 kB]  
Get:17 http://nova.clouds.archive.ubuntu.com/ubuntu bionic-updates/main amd64 Packages [2517 kB]  
Get:18 http://nova.clouds.archive.ubuntu.com/ubuntu bionic-updates/main Translation-en [472 kB]  
Get:19 http://nova.clouds.archive.ubuntu.com/ubuntu bionic-updates/restricted amd64 Packages [714 kB]  
Get:20 http://nova.clouds.archive.ubuntu.com/ubuntu bionic-updates/restricted Translation-en [98.0 kB]  
Get:21 http://nova.clouds.archive.ubuntu.com/ubuntu bionic-updates/universe amd64 Packages [1802 kB]  
Get:22 http://nova.clouds.archive.ubuntu.com/ubuntu bionic-updates/universe Translation-en [390 kB]  
Get:23 http://nova.clouds.archive.ubuntu.com/ubuntu bionic-updates/multiverse amd64 Packages [24.8 kB]  
Get:24 http://nova.clouds.archive.ubuntu.com/ubuntu bionic-updates/multiverse Translation-en [6012 B]  
Get:25 http://nova.clouds.archive.ubuntu.com/ubuntu bionic-backports/main amd64 Packages [10.8 kB]  
Get:26 http://nova.clouds.archive.ubuntu.com/ubuntu bionic-backports/main Translation-en [5016 B]  
Get:27 http://nova.clouds.archive.ubuntu.com/ubuntu bionic-backports/universe amd64 Packages [11.6 kB]  
Get:28 http://nova.clouds.archive.ubuntu.com/ubuntu bionic-backports/universe Translation-en [5864 B]  
Fetched 24.9 MB in 21s (1175 kB/s)  
  
ubuntu@b1809707-ubuntu: ~  
ubuntu@b1809707-ubuntu:~$ uname -a  
Linux b1809707-ubuntu 4.15.0-55-generic #60-Ubuntu SMP Tue Jul 2 18:22:20 UTC 2019 x86_64 x86_64 x86_64 GNU  
/Linux
```

4. Deploying a online shopping website to your Ubuntu VM

- Install apache, php and heroku

```
$sudo apt update
```

```
$sudo apt install apache2 mysql-server mysql-client php  
libapache2-mod-php php-mysql php-json php-xml php-mbstring php-  
curl php-zip php-memcached php-redis php-apcu curl php-cli php-  
mbstring unzip -y
```

- Install composer

```
$cd ~ && curl -sS https://getcomposer.org/installer -o  
composer-setup.php
```

```
$HASH=`curl -sS https://composer.github.io/installer.sig`
```

```
$sudo php composer-setup.php --install-dir=/usr/local/bin --  
filename=composer
```

- Clone the source of the website

```
$cd /var/www/html/
```

```
$sudo git clone https://github.com/TuanThai/ecomweb
```

```
$cd ecomweb
```

- Install required modules using composer

```
$sudo composer update
```

```
$sudo composer install
```

- Create a mysql user and import database

```
$sudo mysql
```

```
mysql>CREATE USER 'tmtuan'@'localhost' IDENTIFIED BY  
'password';
```

```
mysql>CREATE DATABASE ecomweb;
```

```
mysql>GRANT ALL PRIVILEGES ON ecomweb.* TO  
'tmtuan'@'localhost';
```

```
mysql>use ecomweb;
```

```
mysql>source ./config/db_dump.sql;
```

```
mysql>exit;
```

- Modify database configuration

```
$sudo nano ./config/.env
```

```
#Modify the content of .env file
```

```
export STORE_URL='http://<VM_floating_IP>/ecomweb'
```

```
...
```

```
export DB_HOSTNAME='localhost'
```

```
export DB_USERNAME='tmtuan'
```

```
export DB_PASSWORD='password'
```

```
export DB_DATABASE='ecomweb'
```

```
export DB_PORT='3306'
```

- Access the website using a web browser: http://<VM_floating_IP>/ecomweb
(Take a screenshot of the website homepage)


Advanced PHP 7 eCommerce Web | 10.32.2.175/ecomweb/

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★★★★★

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