

CSE 383

Module 11

OpenStack

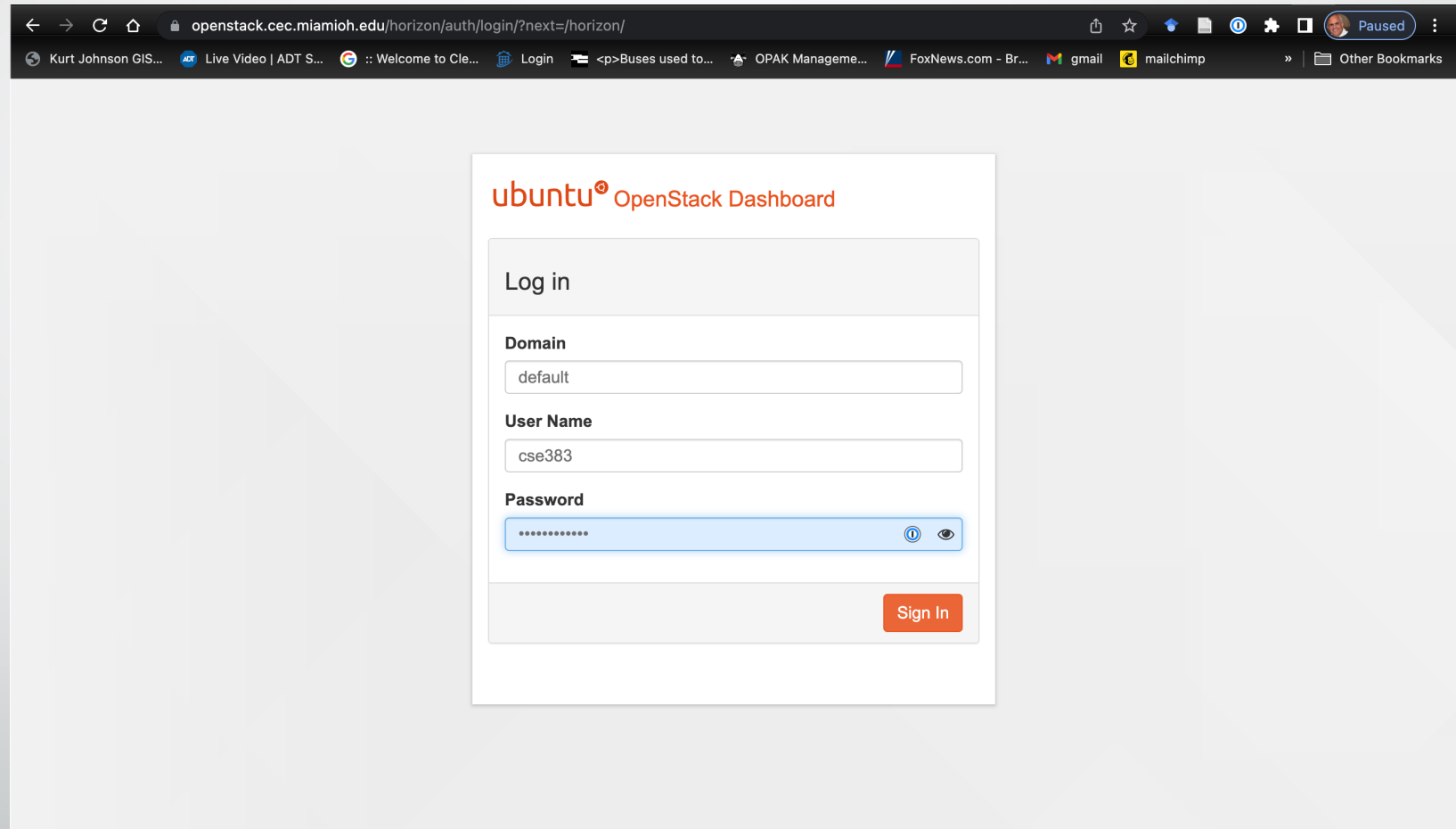
Login

<https://openstack.cec.miamioh.edu/>

Domain: default

User Name: cse383

Password: (as given)



The screenshot shows a web browser window with the URL `openstack.cec.miamioh.edu/horizon/auth/login/?next=/horizon/`. The browser's address bar and tabs are visible at the top. The main content area displays the 'ubuntu® OpenStack Dashboard' login form. The form includes a 'Log in' header, a 'Domain' field with the value 'default', a 'User Name' field with the value 'cse383', and a 'Password' field with masked characters. A 'Sign In' button is located at the bottom right of the form.

Log in

Domain

default

User Name

cse383

Password

.....

Sign In

Brings up Dashboard

openstack.cec.miamioh.edu/horizon/project/

Kurt Johnson GIS... ADT Live Video | ADT S... :: Welcome to Cle... Login <p>Buses used to... OPAK Manageme... FoxNews.com - Br... gmail mailchimp » Other Bookmarks

ubuntu[®] Default • cse383 cse383

Project ^

API Access

Compute ^

Overview

Instances

Images

Key Pairs

Server Groups

Network v




Identity v

Project / Compute / Overview

Overview







Limit Summary

Compute

 <p>Instances Used 2 of 10</p>	 <p>VCPUs Used 2 of 20</p>	 <p>RAM Used 4GB of 50GB</p>
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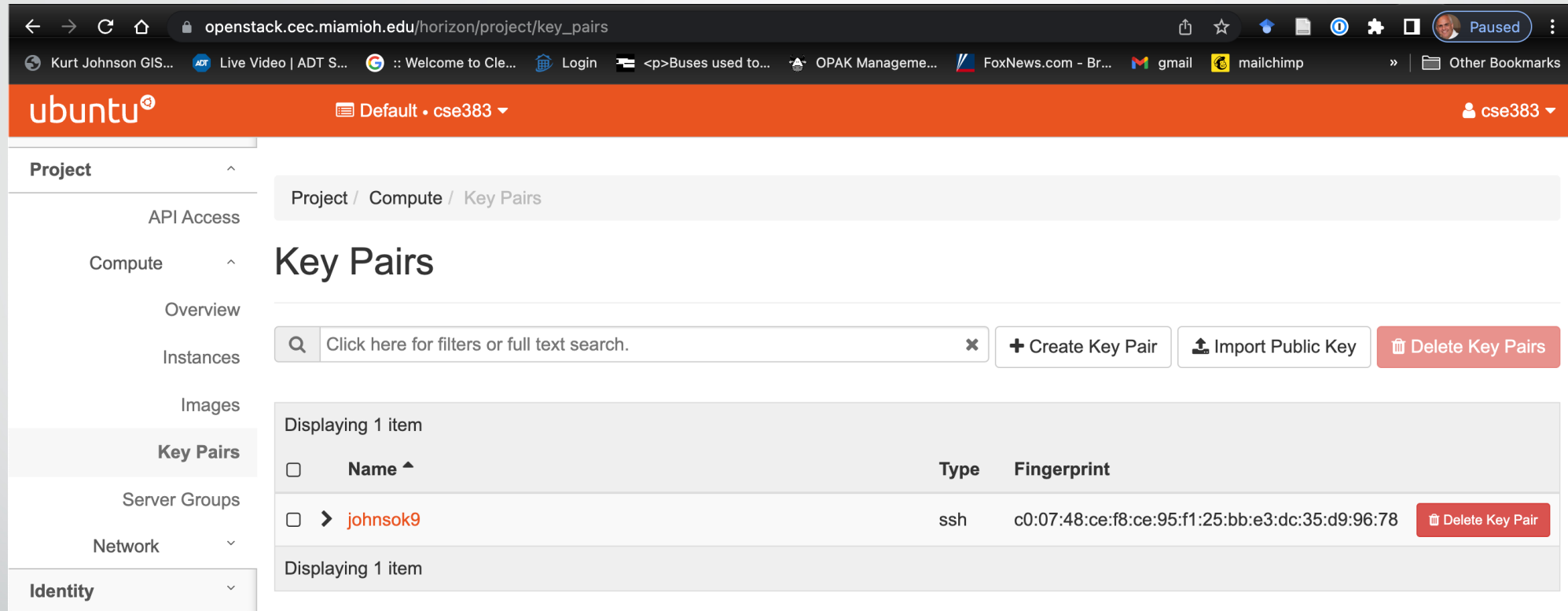
Volume

Network

 <p>Floating IPs Allocated 0 of 50</p>	 <p>Security Groups Used 1 of 10</p>	 <p>Security Group Rules Used 5 of 100</p>	 <p>Networks Used 0 of 100</p>	 <p>Ports Used 2 of 500</p>	 <p>Routers Used 0 of 10</p>
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Set up "Key Pairs"

Under Compute – Select Key pairs



The screenshot shows the OpenStack Horizon web interface. The browser address bar displays `openstack.cec.miamioh.edu/horizon/project/key_pairs`. The interface includes a top navigation bar with the 'ubuntu' logo, a 'Default' project dropdown, and a user profile 'cse383'. The left-hand navigation menu is expanded, showing options like Project, API Access, Compute, Overview, Instances, Images, Key Pairs, Server Groups, Network, and Identity. The 'Key Pairs' option is highlighted. The main content area is titled 'Key Pairs' and features a search bar with the placeholder text 'Click here for filters or full text search.' To the right of the search bar are three buttons: '+ Create Key Pair', 'Import Public Key', and 'Delete Key Pairs'. Below these buttons, a table displays one key pair:

Displaying 1 item			
<input type="checkbox"/>	Name ^	Type	Fingerprint
<input type="checkbox"/>	> johnsok9	ssh	c0:07:48:ce:f8:ce:95:f1:25:bb:e3:dc:35:d9:96:78

Below the table, another section indicates 'Displaying 1 item'.

Login to Ceclinux to prepare Keypair

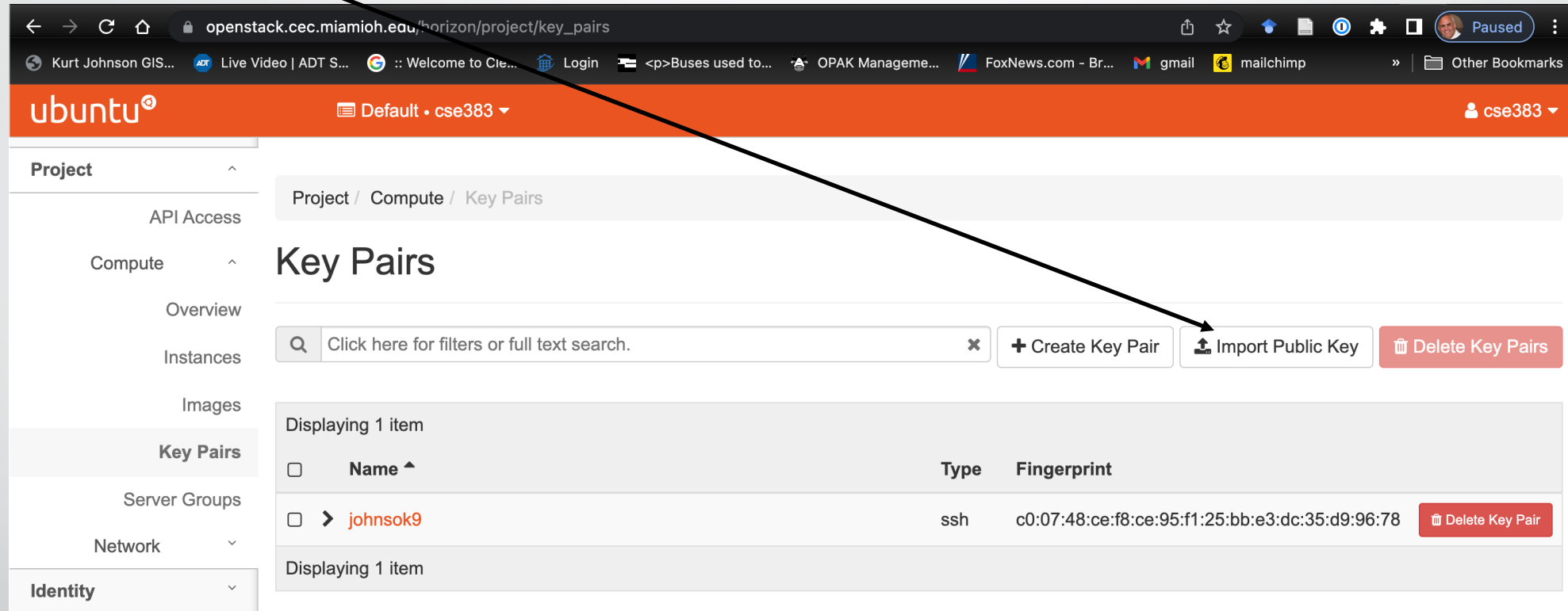
1. Log into ceclinux01
2. Type: `cat ~/.ssh/id_rsa.pub`
3. (do NOT try to use `id_ed25519`, our git key)
4. If no file found, then create it by
 1. `ssh-keygen -t rsa` (hit enter at all prompts without entering any response to get default settings)
 2. When complete – retry step 2
5. Copy the entire output of step 2 (my key is shown below as an example)

`ssh-rsa`

```
AAAAB3NzaC1yc2EAAAADAQABAAQACzIIVC//VYTzb4JXhuwF6eUNig4d5
teJNl4ekf1kWY8LG7ElonDemhvtgW+guuhOh/T+2EWpuogssflcBmUXcoVzdVq
bvdo6QCD1ePWKb4pbl9N43GxfK63ZfJgEJJcuGmY77BlTjszXZWKiuNehnKm3
Z6aYuZMiqJqXPM+BEs8oxGUa/Ooax7+VcwH5YsUrOgkGNL/gRvzN2s78Usqn
mrq1FjWxrRNbf5vmmPatWfTEDJbo1JLs1nUZSZcP7UOd3jYL3DpqYrBitZ3xBZ
g1+eAPqFfluAP5pEAS+6YiW/mKTdWupk61BZoA8glkaASBTptVNm7g1NdG2G
l7aVnYZx johnsok9@ceclnx01
```

Import Keypair (on OpenStack console)

Import Public Key



The screenshot shows the OpenStack Horizon console interface. The browser address bar displays `openstack.cec.miamioh.edu/horizon/project/key_pairs`. The page title is "Key Pairs". The left sidebar shows the navigation menu with "Key Pairs" selected. The main content area displays a table with one key pair named "johnsok9". The "Import Public Key" button is visible in the top right corner of the main content area.

Project / Compute / Key Pairs

Key Pairs

Click here for filters or full text search.

+ Create Key Pair Import Public Key Delete Key Pairs

Name ^	Type	Fingerprint
> johnsok9	ssh	c0:07:48:ce:f8:ce:95:f1:25:bb:e3:dc:35:d9:96:78

Delete Key Pair

Import Public Key

1. Set keypair name to your unique id

Key Pair Name *

2. Select "SSH Key" as Key Type

Key Type *

SSH Key

Load Public Key from a file

Choose File No file chosen

Public Key *

Content size: 0 bytes of 16.00 KB

3. Paste your key from id_rsa.pub here

4. Import Public Key

✕ Cancel

📁 Import Public Key

- Project ^
- API Access
- Compute ^
- Overview
- Instances
- Images
- Key Pairs**
- Server Groups
- Network ▾
- Identity ▾

Project / Compute / Key Pairs

Key Pairs

🔍 Click here for filters or full text search. ✕ +

Displaying 1 item

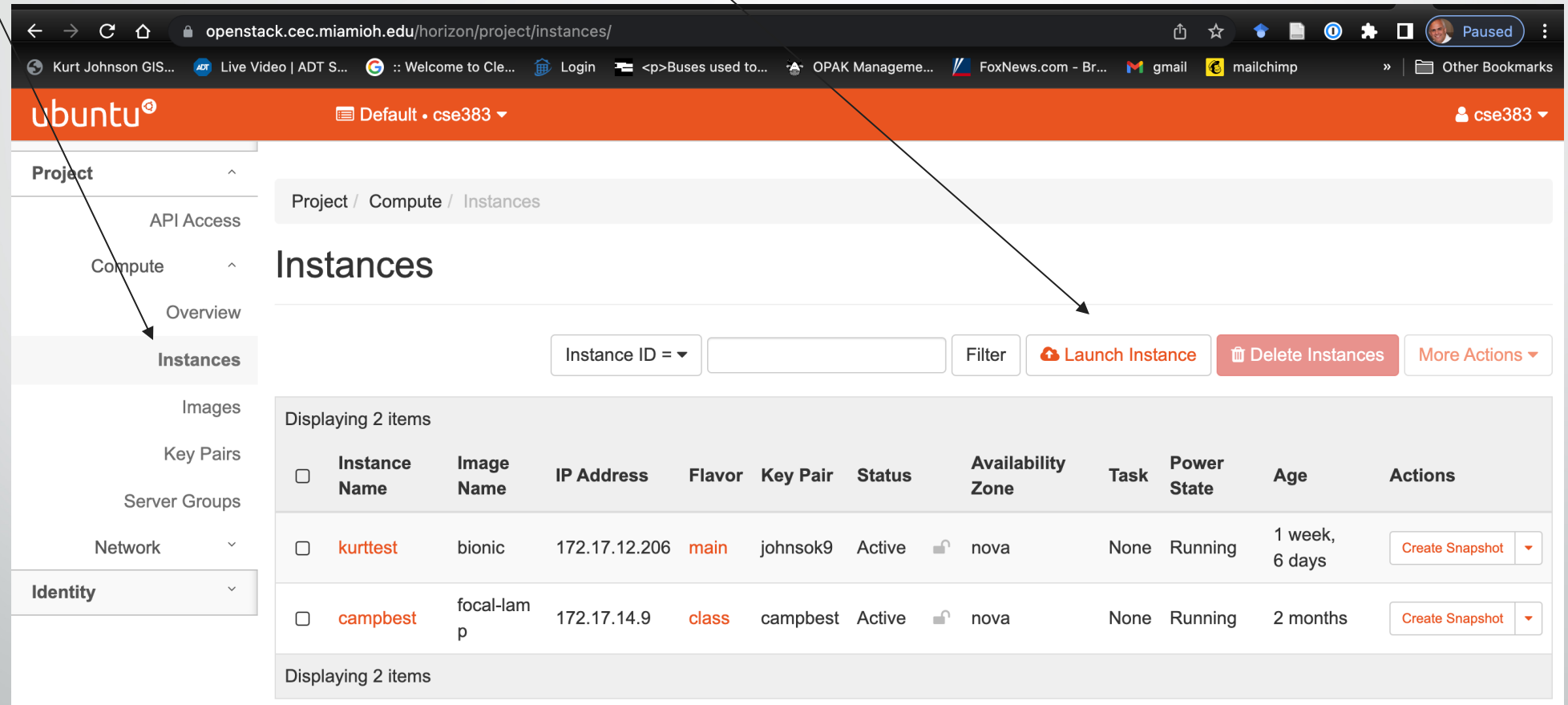
<input type="checkbox"/>	Name ^	Type	Fingerprint	
<input type="checkbox"/>	➤ johnsok9	ssh	c0:07:48:ce:f8:ce:95:f1:25:bb:e3:dc:35:d9:96:78	Delete Key Pair

Displaying 1 item

Your fingerprint will be different than mine

Launch Instance

From "Instances" menu on left. Select "Launch Instance"



The screenshot shows the OpenStack Horizon interface for managing instances. The left sidebar contains a menu with the following items: Project, API Access, Compute, Overview, **Instances** (highlighted), Images, Key Pairs, Server Groups, Network, and Identity. The main content area displays the 'Instances' page. At the top, there is a breadcrumb 'Project / Compute / Instances' and a title 'Instances'. Below the title, there is a search bar for 'Instance ID' and a 'Filter' button. To the right of the search bar are three buttons: 'Launch Instance' (with a cloud icon), 'Delete Instances' (with a trash icon), and 'More Actions' (with a dropdown arrow). Below these buttons, a table displays two instances. The table has columns for Instance Name, Image Name, IP Address, Flavor, Key Pair, Status, Availability Zone, Task, Power State, Age, and Actions. The first instance is 'kurttest' with image 'bionic', IP '172.17.12.206', flavor 'main', key pair 'johnsok9', status 'Active', availability zone 'nova', task 'None', power state 'Running', and age '1 week, 6 days'. The second instance is 'campbest' with image 'focal-lamp', IP '172.17.14.9', flavor 'class', key pair 'campbest', status 'Active', availability zone 'nova', task 'None', power state 'Running', and age '2 months'. Each instance has a 'Create Snapshot' button in the Actions column.

Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Age	Actions
kurttest	bionic	172.17.12.206	main	johnsok9	Active	nova	None	Running	1 week, 6 days	Create Snapshot
campbest	focal-lamp	172.17.14.9	class	campbest	Active	nova	None	Running	2 months	Create Snapshot

Launch Instance - Details

Launch Instance

Details

Source

Flavor *

Networks

Network Ports

Security Groups

Key Pair

Configuration

Server Groups

Scheduler Hints

Metadata

Please provide the initial hostname for the instance, the availability zone where it will be deployed, and the instance count. You can create multiple instances with the same settings.

1: UniqueId

Instance Name *

johnsok9

Description

cse383

Availability Zone

nova

Count *

1

3: Next

Total Instances (10 Max)

30%

2 Current Usage

1 Added

7 Remaining

2: Cse383

✕ Cancel

< Back

Next >

Launch Instance

Select Source (1)

Press UP
To Select

Launch Instance

Details

Source *

Flavor *

Networks

Network Ports

Security Groups

Key Pair

Configuration

Server Groups

Scheduler Hints

Metadata

Instance source is the template used to create an instance. It can be an image, a snapshot of an instance (image snapshot), a volume snapshot, or a custom image (if enabled). You can also choose to use persistent storage by creating a new volume.

Select Boot Source

Instance Snapshot

Allocated

Displaying 0 items

Name	Updated	Size	Format	Visibility
------	---------	------	--------	------------

Select an item from Available items below

Displaying 0 items

▼ Available 3

Select one

Click here for filters or full text search.

Displaying 3 items

Name	Updated	Size	Format	Visibility
------	---------	------	--------	------------

> cse383-f22	10/30/22 5:13 PM	6.06 GB	QCOW2	Private	↑
> cse383-s22	4/6/22 1:56 PM	5.48 GB	QCOW2	Private	↑
> focal-lamp	2/1/21 6:21 PM	2.64 GB	QCOW2	Public	↑

Displaying 3 items

Select Source (2)

Select
Next

Launch Instance

Details

Source

Flavor *

Networks

Network Ports

Security Groups

Key Pair

Configuration

Server Groups

Scheduler Hints

Metadata

Instance source is the template used to create an instance. You can use an image, a snapshot of an instance (image snapshot), a volume or a volume snapshot (if enabled). You can also choose to use persistent storage by creating a new volume.

Select Boot Source

Instance Snapshot

Allocated

Displaying 1 item

Name	Updated	Size	Format	Visibility
> cse383-f22	10/30/22 5:13 PM	6.06 GB	QCOW2	Private

Displaying 1 item

▼ Available 2 Select one

Click here for filters or full text search.

Displaying 2 items

Name	Updated	Size	Format	Visibility
> cse383-s22	4/6/22 1:56 PM	5.48 GB	QCOW2	Private
> focal-lamp	2/1/21 6:21 PM	2.64 GB	QCOW2	Public

Displaying 2 items

Cancel

< Back

Next >

Launch Instance

Select Flavor (instance type)

Press Up arrow next to Main –
so that it moves from Available
to Allocated

Select
Next

Launch Instance

Details

Source

Flavor

Networks

Network Ports

Security Groups

Key Pair

Configuration

Server Groups

Scheduler Hints

Metadata

Flavors manage the sizing for the compute, memory and storage capacity of the instance.

Allocated

Name	VCPUS	RAM	Total Disk	Root Disk	Ephemeral Disk	Public
> main	1	2 GB	10 GB	10 GB	0 GB	Yes

▼ Available 8 Select one

Q

Click here for filters or full text search.

×

Name	VCPUS	RAM	Total Disk	Root Disk	Ephemeral Disk	Public
> m1.nano	1	64 MB	1 GB	⚠ 1 GB	0 GB	Yes
> security	1	2 GB	20 GB	20 GB	0 GB	Yes
> bigdisk	1	2 GB	50 GB	50 GB	0 GB	Yes
> class	1	2 GB	20 GB	20 GB	0 GB	Yes
> normal	1	2 GB	10 GB	10 GB	0 GB	Yes
> Windows	2	4 GB	50 GB	50 GB	0 GB	Yes
> bigdisk+4gmem	1	4 GB	50 GB	50 GB	0 GB	Yes
> suman-pentest	16	16 GB	50 GB	50 GB	0 GB	Yes

✕ Cancel

< Back

Next >

Launch Instance

Networks

Select
Next

Launch Instance

Details

Source

Flavor

Networks

Network Ports

Security Groups

Key Pair

Configuration

Server Groups

Scheduler Hints

Metadata

Networks provide the communication channels for instances in the cloud.

▼ Allocated ¹ Select networks from those listed below.

	Network	Subnets Associated	Shared	Admin State	Status
1	provider	provider1 provider	Yes	Up	Active

▼ Available ⁰ Select at least one network

Network	Subnets Associated	Shared	Admin State	Status
No available items				

Cancel

< Back

Next >

Launch Instance

Network Ports

Select
Next

Launch Instance

Details

Source

Flavor

Networks

Network Ports

Security Groups

Key Pair

Configuration

Server Groups

Scheduler Hints

Metadata

Ports provide extra communication channels to your instances. You can select ports instead of networks or a mix of both.

▼ Allocated Select ports from those listed below.

Name	IP	Admin State	Status
Select an item from Available items below			

▼ Available 0 Select one

Q

Filter

Name	IP	Admin State	Status
No available items			

11/2/22

15

✕ Cancel

< Back

Next >

Launch Instance

Security Groups

Make sure cse383
Security group is
selected – and
default is un-selected
(Available)

Select
Next

Launch Instance

Details

Source

Flavor *

Networks

Network Ports

Security Groups

Key Pair

Configuration

Server Groups

Scheduler Hints

Metadata

Select the security groups to launch the instance in.

▼ Allocated 1

Displaying 1 item

Name	Description
> cse383	

Displaying 1 item

▼ Available 1

Click here for filters or full text search.

Displaying 1 item

Name	Description
> default	Default security group

Displaying 1 item

Select one or more

✕ Cancel

< Back

Next >

Launch Instance

11/2/22

16

Key Pair

Press Up arrow next to your Unique ID (if it is not available – cancel – and repeat the key import process) – so that it moves from Available to Allocated.

This example shows my key pair selected (use yours – not mine)

Select
Launch Instance

Launch Instance

Details

Source

Flavor

Networks

Network Ports

Security Groups

Key Pair

Configuration

Server Groups

Scheduler Hints

Metadata

A key pair allows you to SSH into your newly created instance. You may select an existing key pair, import a key pair, or generate a new key pair.

+ Create Key Pair

Import Key Pair

Allocated

Displaying 1 item

Name	Type	Fingerprint	
> johnsok9	ssh	c0:07:48:ce:f8:ce:95:f1:25:bb:e3:dc:35:d9:96:78	↓

Displaying 1 item

▼ Available 0

Select one

Click here for filters or full text search.

Displaying 0 items

Name	Type	Fingerprint
No items to display.		

Displaying 0 items

11/2/2217

Cancel

< Back

Next >

Launch Instance

Instance being created – and booting

Browser address bar: openstack.cec.miamioh.edu/horizon/project/instances/

Browser tabs: Kurt Johnson GIS..., Live Video | ADT S..., Welcome to Cle..., Login, <p>Buses used to..., OPAK Manageme..., FoxNews.com - Br..., gmail, mailchimp, Other Bookmarks

Ubuntu logo | Default • cse383 | cse383

Project / Compute / Instances

Instances

Instance ID = Filter [Launch Instance](#) [Delete Instances](#) [More Actions](#)

Displaying 3 items

<input type="checkbox"/>	Instance Name	Image Name	IP Address	Flavor	Key Pair	Status		Availability Zone	Task	Power State	Age	Actions
<input type="checkbox"/>	johnsok9	cse383-s22	172.17.15.96	main	johnsok9	Build		nova	Spawning	No State	0 minutes	Associate Floating IP
<input type="checkbox"/>	kurttest	bionic	172.17.12.206	main	johnsok9	Active		nova	None	Running	2 weeks	Create Snapshot
<input type="checkbox"/>	campbest	focal-lamp	172.17.14.9	class	campbest	Active		nova	None	Running	2 months	Create Snapshot

Displaying 3 items

Go back to instances and find IP address.

Your public ip is on the instances page

Project / Compute / Instances

Instances

Instance ID = Filter [Launch Instance](#) [Delete Instances](#) [More Actions](#)

Displaying 3 items

<input type="checkbox"/>	Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Age	Actions
<input type="checkbox"/>	johnsok9	cse383-s22	172.17.15.96	main	johnsok9	Active	nova	None	Running	0 minutes	Create Snapshot
<input type="checkbox"/>	kurttest	bionic	172.17.12.206	main	johnsok9	Active	nova	None	Running	2 weeks	Create Snapshot
<input type="checkbox"/>	campbest	focal-lamp	172.17.14.9	class	campbest	Active	nova	None	Running	2 months	Create Snapshot







Displaying 3 items

status

(will take 3-4 minutes before ready)

ssh ubuntu@IP
(my example is: 172.17.15.96)
(use the ip from your instance)

Displaying 3 items

<input type="checkbox"/>	Instance Name	Image Name	IP Address	Flavor	Key Pair	Status		Availability Zone	Task	Power State	Age	Actions
<input type="checkbox"/>	johnsok9	cse383-s22	172.17.15.96	main	johnsok9	Active		nova	None	Running	0 minutes	Create Snapshot 
<input type="checkbox"/>	kurttest	bionic	172.17.12.206	main	johnsok9	Active		nova	None	Running	2 weeks	Create Snapshot 
<input type="checkbox"/>	campbest	focal-lamp	172.17.14.9	class	campbest	Active		nova	None	Running	2 months	Create Snapshot 

Displaying 3 items

```
johnsok9@ceclnx01:~$ ssh ubuntu@172.17.14.146
The authenticity of host '172.17.14.146 (172.17.14.146)' can't be established.
ECDSA key fingerprint is SHA256:Evo5zqxKDcSjIvnmbVLKmT+/z25pnN6Ui9dYTfaVkq8.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '172.17.14.146' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 20.04.4 LTS (GNU/Linux 5.4.0-107-generic x86_64)
```

```
* Documentation:  https://help.ubuntu.com
* Management:    https://landscape.canonical.com
* Support:        https://ubuntu.com/advantage
```

```
System information disabled due to load higher than 1.0
```

```
* Super-optimized for small spaces – read how we shrank the memory
  footprint of MicroK8s to make it the smallest full K8s around.
```

```
https://ubuntu.com/blog/microk8s-memory-optimisation
```

```
0 updates can be applied immediately.
```

```
Last login: Wed Apr  6 13:45:49 2022 from 134.53.148.193
```

```
ubuntu@kj2:~$ █
```

Next Steps - prepare database software

- 1) `sudo su` (this makes you root)
- 2) `Cd /var/www/html`
- 3) `wget https://bitbucket.org/phpliteadmin/public/downloads/phpLiteAdmin_v1-9-8-2.zip`
 - a) `unzip phpLiteAdmin_v1-9-8-2.zip`
- 4) `vim phpliteadmin.php` (or nano if you prefer)
 - a) Set `$password` to any password you want
 - b) Set `$directory` to `"/home/ubuntu/cse383/database"`
- 5) `Ctrl-D` (exit out of sudo) (or type exit)

Next Steps – verify web server

- 1) As user ubuntu
- 2) `cd /var/www/html`
- 3) `sudo vim index.html` (or your editor)
 - a) `sudo nano index.html` (if you prefer nano)
 - b) Find the “Apache2 Ubuntu Default Page” and change it to “Hello and welcome from ID (your id)”

Set web password

- `htpasswd /home/ubuntu/.htpasswd USERNAME`
(make up your own username)
- Enter the password
- Re-enter the password

Test web server

- 1) Test the web page at
 - a) <http://IP> (your IP Address of the server)
 - b) Note: http not https
 - c) If nothing happens - you have not used the correct security group (slide 16)
 - d) Verify your new message appears
- 2) Test the Database Admin program
 - a) <http://IP/phpliteadmin.php>
- 3) Should ask for password and then show

Welcome to phpLiteAdmin. It appears that you have selected to scan a directory for databases to manage. However, phpLiteAdmin could not find any valid SQLite databases. You may use the form below to create your first database.

Create New Database

Create

If not - verify all steps in slides 22 and slide 23



End of Presentation