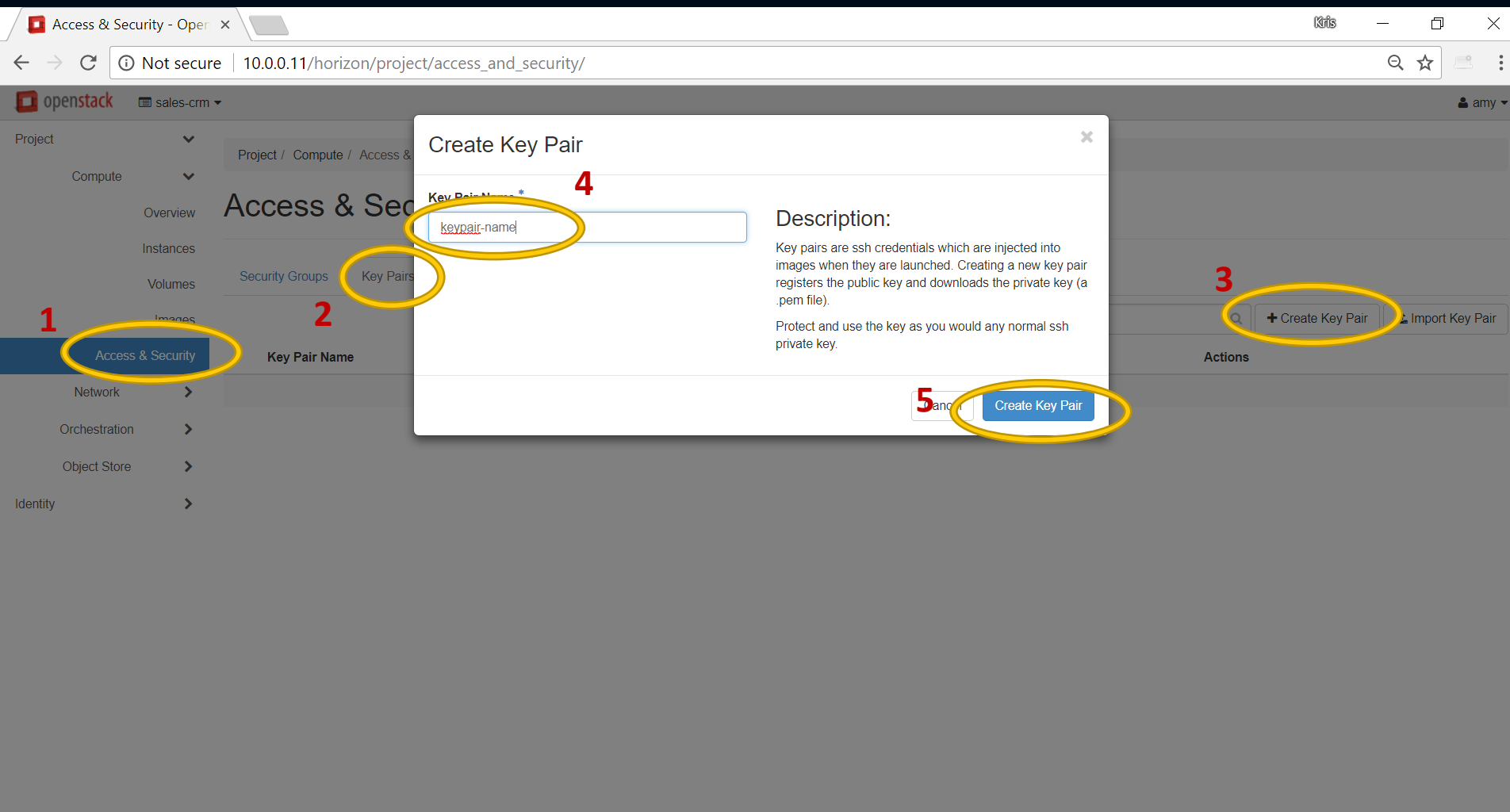


Preparing to **Certified OpenStack Administrator** Exam

Section 6 – Nova Compute Service

Lecture 25. Nova Summary and Review

Create a Keypair



The screenshot shows the OpenStack Horizon interface with the 'Create Key Pair' dialog box open. The dialog box has a title bar 'Create Key Pair' and a close button. It contains a 'Key Pair Name' field with the value 'keypair-name1' and a 'Description' field. The 'Description' field contains the text: 'Key pairs are ssh credentials which are injected into images when they are launched. Creating a new key pair registers the public key and downloads the private key (a .pem file). Protect and use the key as you would any normal ssh private key.' At the bottom right of the dialog is a 'Create Key Pair' button. The background shows the 'Access & Security' section of the dashboard, with the 'Key Pairs' tab selected. The 'Create Key Pair' button is also visible in the background. Red numbers 1 through 5 are overlaid on the image to indicate the steps: 1. Click on 'Access & Security' in the left sidebar. 2. Click on 'Key Pairs' in the 'Access & Security' section. 3. Click on the '+ Create Key Pair' button in the 'Actions' column. 4. Enter the key pair name in the 'Key Pair Name' field. 5. Click on the 'Create Key Pair' button in the dialog box.

Create a Flavor

Flavours - OpenStack Dashboard

Not secure | 10.0.0.11/horizon/admin/flavors/

openstack admin

Project > Admin > System > Flavours

Overview
Hypervisors
Host Aggregates
Instances
Images
Networks
Routers
Floating IPs
Defaults
Metadata Definitions
System Information
Identity

Flavour Name

m1.large
m1.medium
m1.small
m1.tiny
m1.xlarge

Displaying 5 items

Create Flavour

Flavour Information * Flavour Access 3

Name
flavor-name

ID 10

VCPUs *
1

RAM (MB) *
600

Root Disk (GB) *
2

Ephemeral Disk (GB)
0

Swap Disk (MB)
0

RX/TX Factor
1

Flavours define the sizes for RAM, disk, number of cores, and other resources and can be selected when users deploy instances.

Filter + Create Flavour Delete Flavours

ID	Public	Metadata	Actions
4	Yes	No	Edit Flavour
3	Yes	No	Edit Flavour
2	Yes	No	Edit Flavour
1	Yes	No	Edit Flavour
5	Yes	No	Edit Flavour

Cancel Create Flavour

1

4

Modify Default Quotas

Defaults - OpenStack Dashboard

10.0.0.11/horizon/admin/defaults/

openstack admin

Project > Admin > System > Defaults

Overview
Hypervisors
Host Aggregates
Instances
Volumes
Flavours
Images
Networks
Routers
Floating IPs
Defaults
Metadata Definitions
System Information
Identity

Admin / System / Defaults

Defaults

Quota Name
Injected File Content Bytes
Metadata Items
Server Group Members
Server Groups
RAM (MB)
Key Pairs
Length of Injected File Path
Instances
Injected Files
VCPUs
Per Volume Size (GiB)
Total Size of Volumes and Snapshots (GiB)
Backup Size (GiB)
Volume Snapshots
Volumes
Backups

Update Default Quotas 3

from here you can update the default quotas (max limits).

Injected File Content Bytes *

Metadata Items *

RAM (MB) *

Key Pairs *

Length of Injected File Path *

Instances *

Injected Files *

VCPUs *

Total Size of Volumes and Snapshots (GiB) *

4 Cancel Update Defaults

2 Filter Update Defaults

Limit
10240
128
10
10
51200
100
255
10
5
20
-1
1000
1000
10
10
10

Modify Project Quotas

Projects - OpenStack Dashboard

10.0.0.11/horizon/identity/#

openstack admin

Project > Identity / Projects

Admin >

Identity > **Projects**

Groups

Name	Description
admin	Bootstrap project for in
demo	Demo Project
sales-crm	
service	Service Project

Displaying 4 items

Edit Project

Project Information * Project Members Project Groups Quota *

Metadata Items * 128

VCPUs * 20

Instances * 10

Injected Files * 5

Injected File Content (Bytes) * 10240

Volumes * 10

Volume Snapshots * 10

Total Size of Volumes and Snapshots (GiB) * 1000

RAM (MB) * 51200

Security Groups * 10

Security Group Rules * 100

Floating IPs * 50

2

3

4

Cancel Save

10.0.0.11/horizon/identity/c96146b52e4349f8b5a4735abc8a6bfe/update/?step=update_quotas

Project Usage Overview

Instance Overview - OpenStack

10.0.0.11/horizon/project/

openstack sales-crm

amy

Project

Compute

Overview

Instances

Volumes

Images

Access & Security

Network

Orchestration

Object Store

Identity

Project / Compute / Overview

Overview

Limit Summary

Instances

Used 2 of 10

VCPUs

Used 2 of 20

RAM

Used 1GB of 50GB

Floating IPs

Used 1 of 50

Security Groups

Used 3 of 10

Volumes

Used 0 of 10

Volume Storage

Used 0Bytes of 1000GB

Usage Summary

Select a period of time to query its usage:

From: 2018-04-08

To: 2018-04-09

Submit

The date should be in YYYY-MM-DD format.

Active Instances: 2 Active RAM: 1GB This Period's VCPU-Hours: 69.85 This Period's GB-Hours: 69.85 This Period's RAM-Hours: 35761.18

Usage

Download CSV Summary

Download Juju Environment File

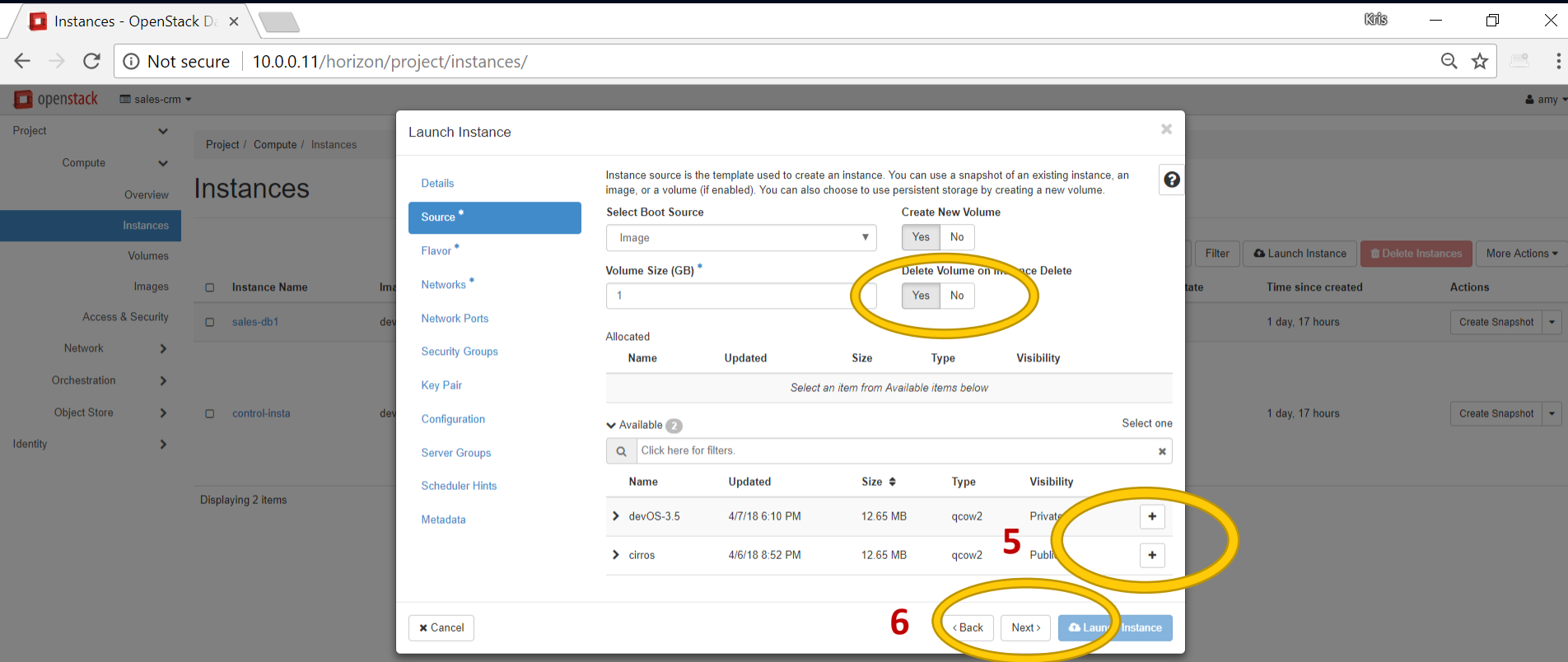
Instance Name	VCPUs	Disk	RAM	Time since created
control-1nsta	1	1GB	512MB	1 day, 18 hours
sales-db1	1	1GB	512MB	1 day, 18 hours

Displaying 2 items

Create a New Instance

The screenshot shows the OpenStack Horizon interface. On the left, the 'Instances' tab is selected in the sidebar, indicated by a red circle and the number 1. The main content area displays the 'Launch Instance' dialog box. The dialog has a 'Details' tab selected. The 'Instance Name' field is highlighted with a red circle and the number 3. The 'Availability Zone' dropdown is set to 'nova'. The 'Count' field is set to 1. The 'Launch Instance' button is highlighted with a red circle and the number 2. The background shows the OpenStack dashboard with the 'Instances' tab selected, and a table of instances is visible.

Create a New Instance



The screenshot shows the OpenStack Horizon interface with the 'Launch Instance' dialog box open. The dialog box has a sidebar with tabs: Details, Source, Flavor, Networks, Network Ports, Security Groups, Key Pair, Configuration, Server Groups, Scheduler Hints, and Metadata. The 'Source' tab is selected. The main content area shows the 'Instance source' information and a table of available images.

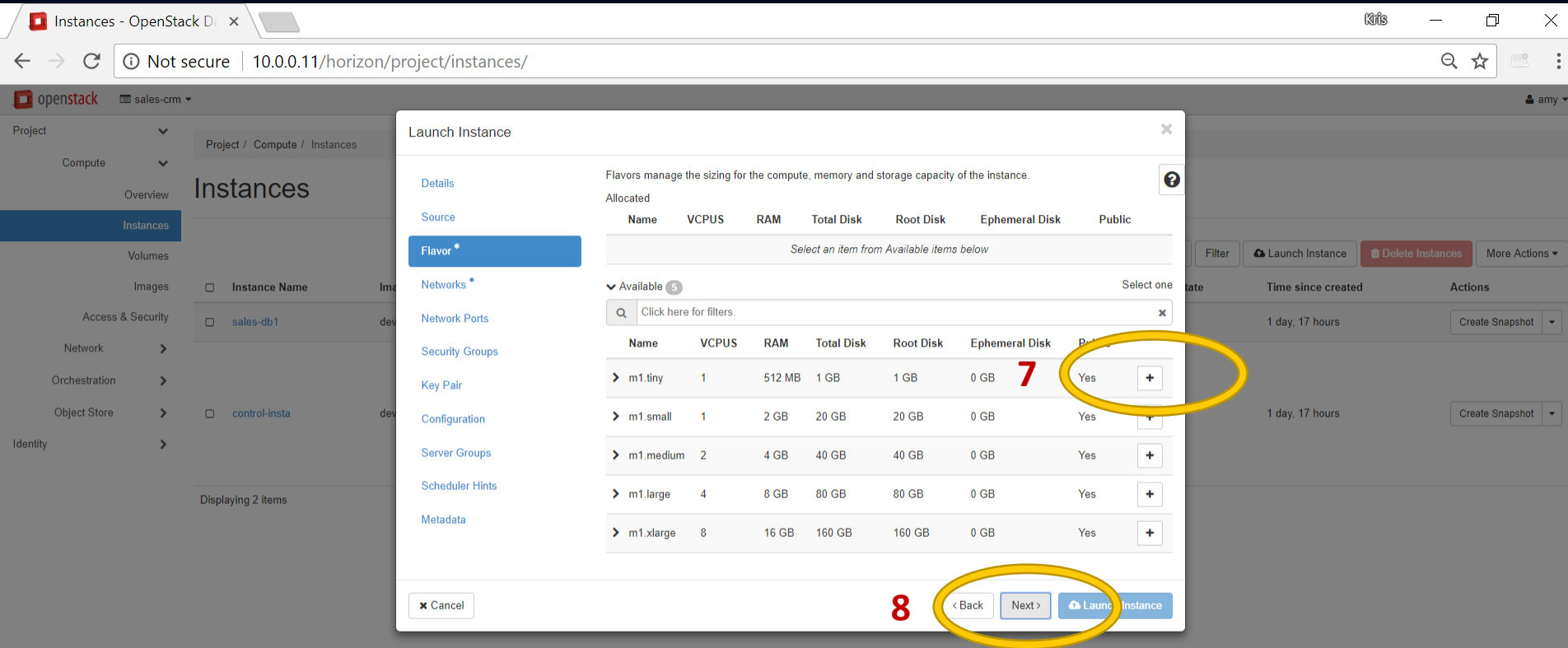
Annotations:

- 1**: Points to the 'Delete Volume on Instance Delete' 'Yes' button.
- 2**: Points to the 'Available' section header.
- 3**: Points to the 'Launch Instance' button.
- 4**: Points to the 'Next >' button.
- 5**: Points to the '+' button next to the 'devOS-3.5' image.
- 6**: Points to the '< Back' button.

Available Images Table:

Name	Updated	Size	Type	Visibility
> devOS-3.5	4/7/18 6:10 PM	12.65 MB	qcow2	Private
> cirros	4/6/18 8:52 PM	12.65 MB	qcow2	Public

Create a New Instance



Instances - OpenStack Dashboard

10.0.0.11/horizon/project/instances/

openstack sales-crm

Project / Compute / Instances

Instances

Overview

Instances

Volumes

Images

Access & Security

Network

Orchestration

Object Store

Identity

Instance Name

sales-db1

control-insta

Displaying 2 Items

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
Select an item from Available items below						

Available 5

Click here for filters.

Name	VCPUS	RAM	Total Disk	Root Disk	Ephemeral Disk	Public
> m1.tiny	1	512 MB	1 GB	1 GB	0 GB	Yes
> m1.small	1	2 GB	20 GB	20 GB	0 GB	Yes
> m1.medium	2	4 GB	40 GB	40 GB	0 GB	Yes
> m1.large	4	8 GB	80 GB	80 GB	0 GB	Yes
> m1.xlarge	8	16 GB	160 GB	160 GB	0 GB	Yes

Cancel

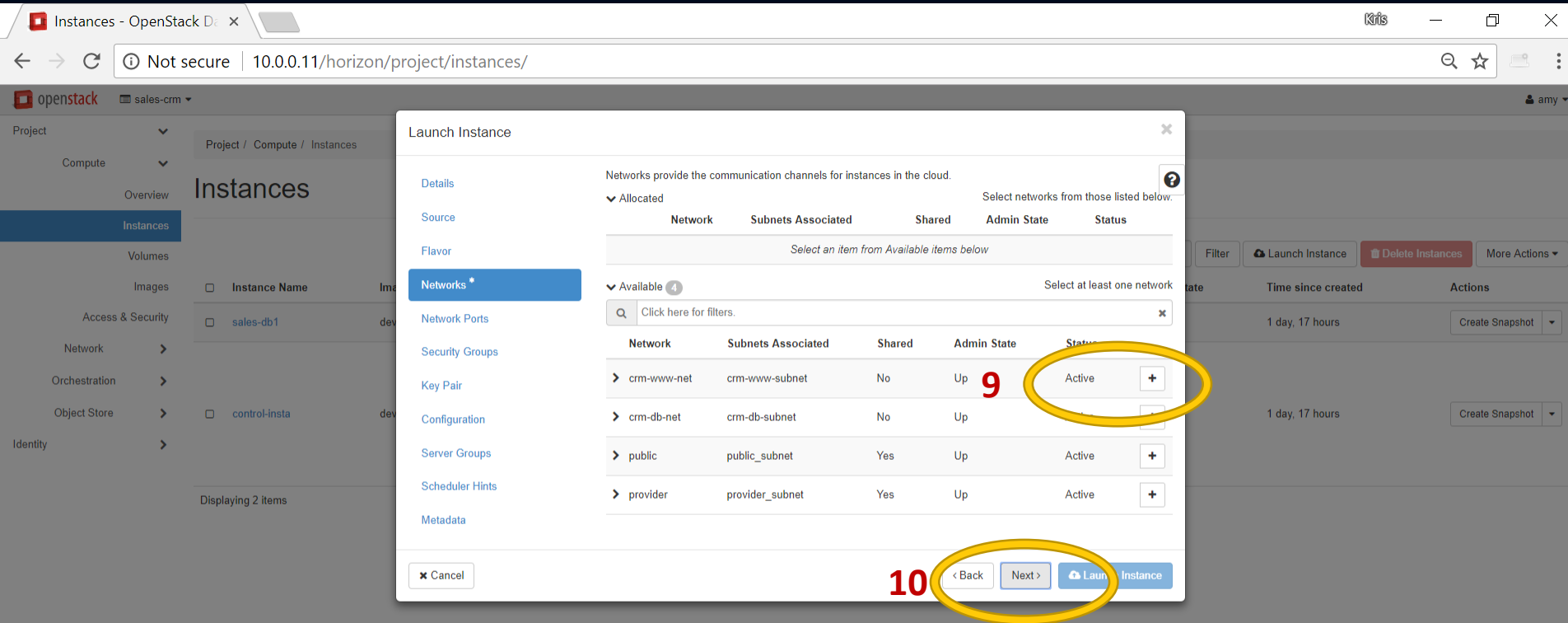
8

< Back

Next >

Launch Instance

Create a New Instance



Instances - OpenStack Dashboard

10.0.0.11/horizon/project/instances/

openstack sales-crm

Project / Compute / Instances

Instances

Overview

Instance Name

sales-db1

control-Insta

Displaying 2 Items

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

Select networks from those listed below.

Network	Subnets Associated	Shared	Admin State	Status
Select an item from Available items below				

▼ Available 4

Select at least one network

Click here for filters.

Network	Subnets Associated	Shared	Admin State	Status
> crm-www-net	crm-www-subnet	No	Up	Active
> crm-db-net	crm-db-subnet	No	Up	Active
> public	public_subnet	Yes	Up	Active
> provider	provider_subnet	Yes	Up	Active

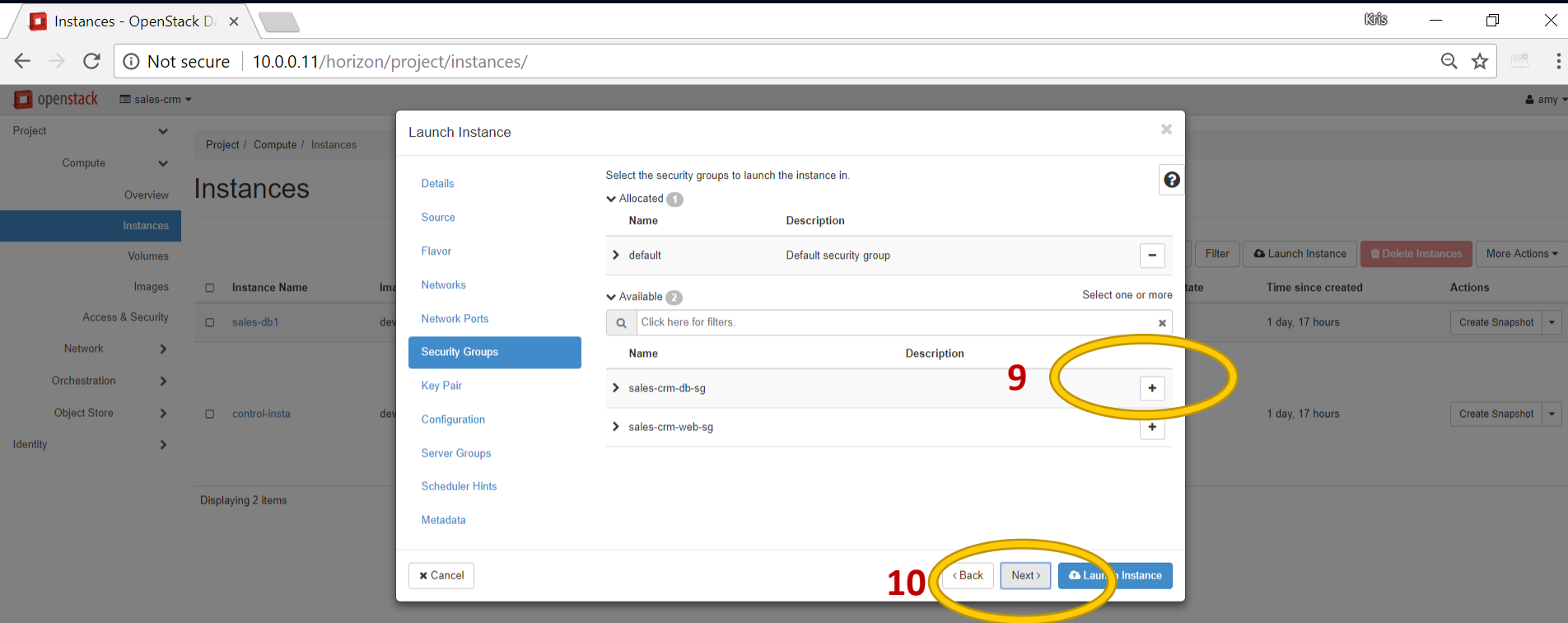
Cancel

< Back

Next >

Launch Instance

Create a New Instance



Instances - OpenStack Dashboard

10.0.0.11/horizon/project/instances/

openstack sales-crm

Project / Compute / Instances

Instances

Overview

Instance Name

sales-db1

control-inst

Displaying 2 Items

Launch Instance

Select the security groups to launch the instance in.

▼ Allocated 1

Name	Description
> default	Default security group

▼ Available 2

Select one or more

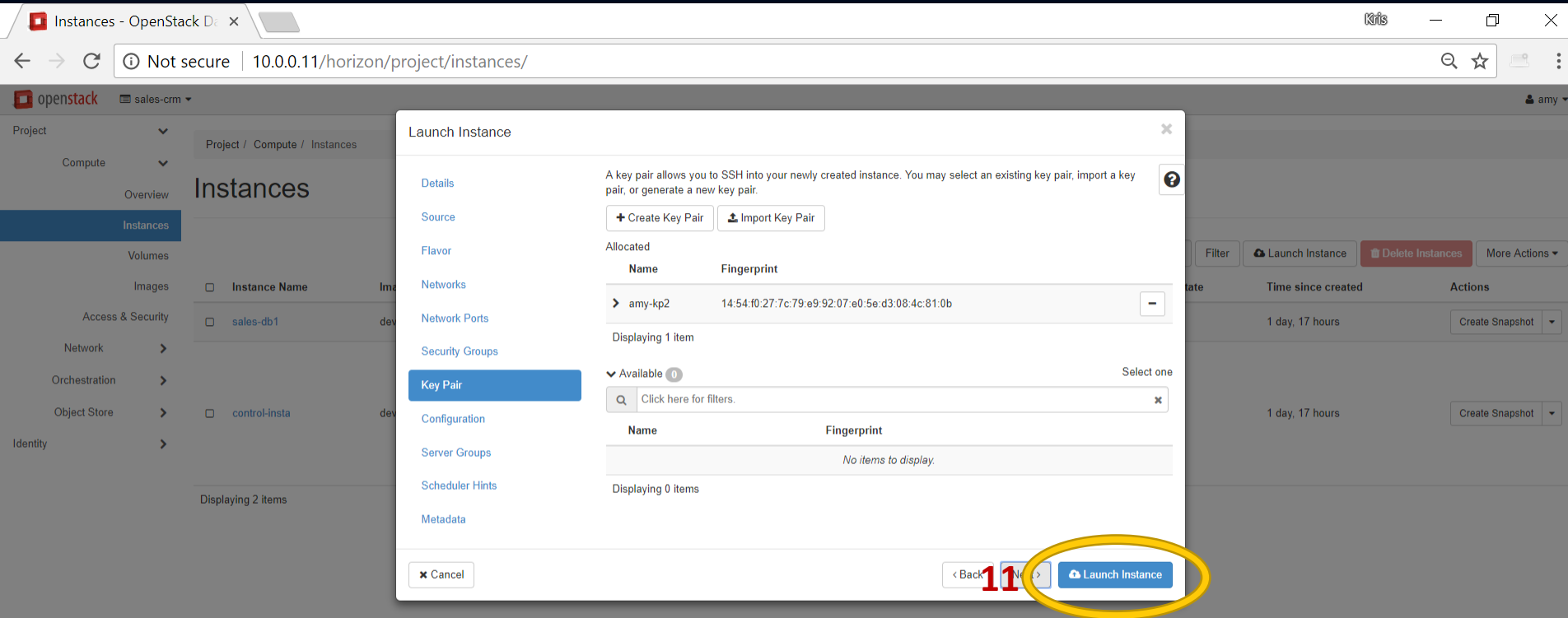
Click here for filters.

Name	Description
> sales-crm-db-sg	
> sales-crm-web-sg	

Cancel

< Back Next > Launch Instance

Create a New Instance



Instances - OpenStack Dashboard

10.0.0.11/horizon/project/instances/

openstack sales-crm

Project / Compute / Instances

Instances

Overview

Instances

Volumes

Images

Access & Security

Network

Orchestration

Object Store

Identity

Instance Name

sales-db1

control-inst

Displaying 2 Items

Launch Instance

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

Name	Fingerprint
amy-kp2	14:54:f0:27:7c:79:e9:92:07:e0:5e:d3:08:4c:81:0b

Displaying 1 item

Available 0

Select one

Click here for filters.

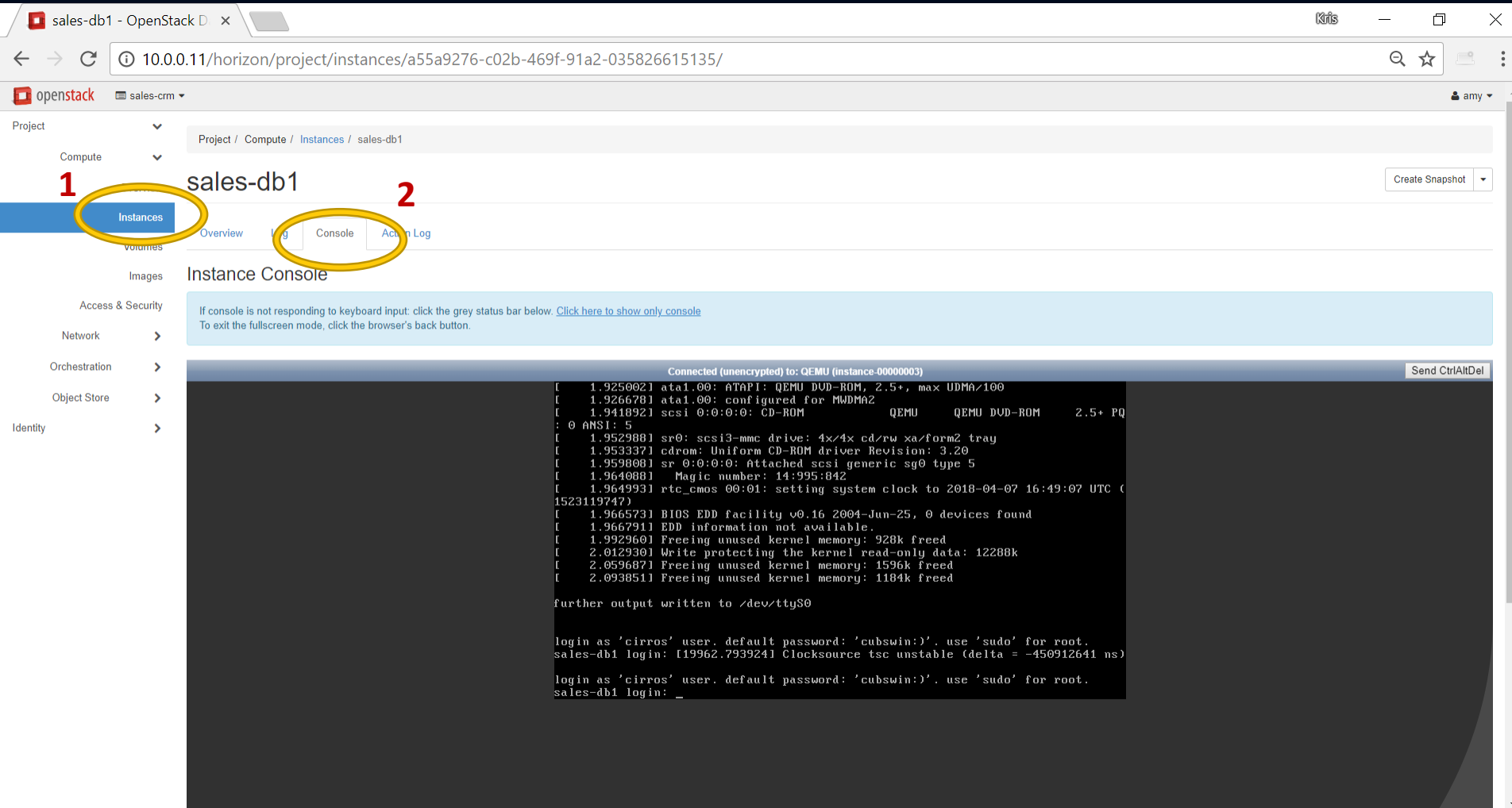
Name	Fingerprint
No items to display.	

Displaying 0 items

Cancel

< Back Next > Launch Instance

Access Instance's Console



The screenshot shows the OpenStack Horizon web interface in a browser window. The address bar displays the URL: `10.0.0.11/horizon/project/instances/a55a9276-c02b-469f-91a2-035826615135/`. The page title is "sales-db1 - OpenStack". The left sidebar contains a navigation menu with categories: Project, Compute, Volumes, Images, Access & Security, Network, Orchestration, Object Store, and Identity. The "Compute" category is expanded, showing "Instances" (circled in yellow with a red "1"), "Overview", "Log", "Console" (circled in yellow with a red "2"), and "Action Log". The main content area shows the "Instance Console" for "sales-db1". A blue banner at the top of the console area contains the text: "If console is not responding to keyboard input: click the grey status bar below. [Click here to show only console](#). To exit the fullscreen mode, click the browser's back button." Below this banner, the console output is displayed in a terminal window titled "Connected (unencrypted) to: QEMU (instance-00000003)". The output shows boot logs for a QEMU instance, including BIOS EDD facility information, kernel memory freeing, and login prompts for the 'cirros' user. The console output is as follows:

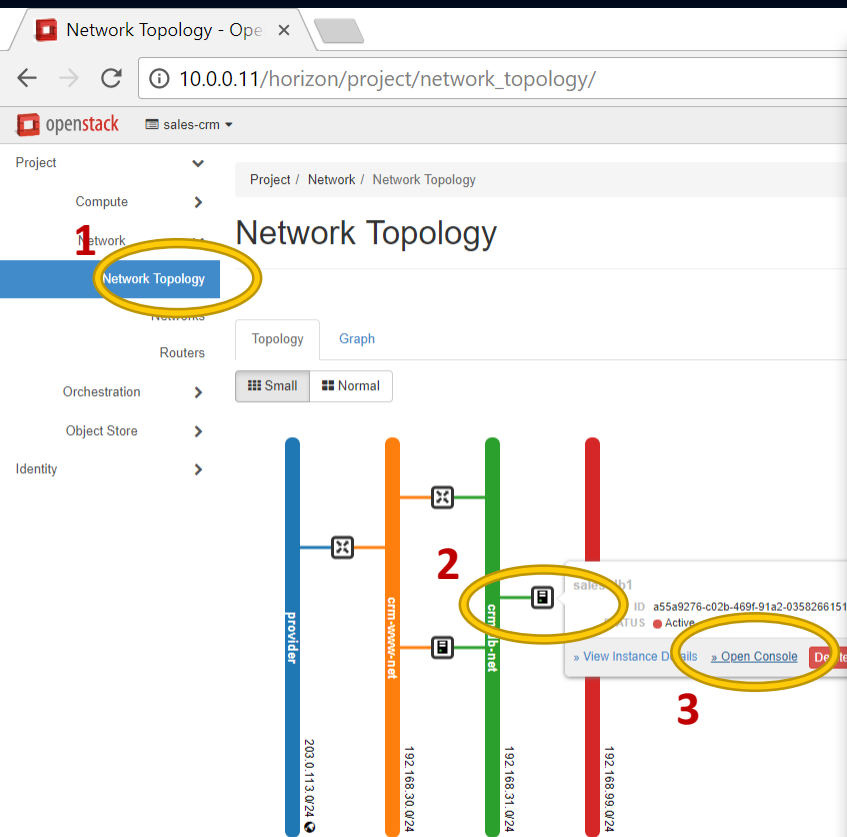
```
Connected (unencrypted) to: QEMU (instance-00000003)
[ 1.925002] ata1.00: ATAPI: QEMU DVD-ROM, 2.5+, max UDMA/100
[ 1.926678] ata1.00: configured for MWDMA2
[ 1.941892] scsi 0:0:0:0: CD-ROM          QEMU    QEMU DVD-ROM    2.5+ PQ
: 0 ANSI: 5
[ 1.952988] sr0: scsi3-mmc drive: 4x/4x cd/rw xa/form2 tray
[ 1.953337] cdrom: Uniform CD-ROM driver Revision: 3.20
[ 1.959808] sr 0:0:0:0: Attached scsi generic sg0 type 5
[ 1.964088]   Magic number: 14:995:842
[ 1.964993] rtc_cmos 00:01: setting system clock to 2018-04-07 16:49:07 UTC (
1523119747)
[ 1.966573] BIOS EDD facility v0.16 2004-Jun-25, 0 devices found
[ 1.966791] EDD information not available.
[ 1.992960] Freeing unused kernel memory: 928k freed
[ 2.012930] Write protecting the kernel read-only data: 12288k
[ 2.059687] Freeing unused kernel memory: 1596k freed
[ 2.093851] Freeing unused kernel memory: 1104k freed

further output written to /dev/ttyS0

login as 'cirros' user. default password: 'cubswin:'). use 'sudo' for root.
sales-db1 login: [19962.793924] Clocksource tsc unstable (delta = -450912641 ns)

login as 'cirros' user. default password: 'cubswin:'). use 'sudo' for root.
sales-db1 login: _
```

Access Instance's Console



sales-db1(a55a9276-c02b-469f-91a2-035826615135) - Google Chrome

10.0.0.11:6080/vnc_auto.html?token=cd969577-1aae-4659-bcc1-1e0f62bdcd82&title=sales-db1(a55a9276-c02b-469f-91a2-035826615135)

Connected (unencrypted) to: QEMU (instance-00000003)

```
[ 1.925002] ata1.00: ATA1: QEMU DVD-ROM, 2.5+, max UDMA/100
[ 1.926678] ata1.00: configured for MWDMA2
[ 1.941892] scsi 0:0:0:0: CD-ROM           QEMU      QEMU DVD-ROM    2.5+ PQ
: 0 ANSI: 5
[ 1.952988] sr0: scsi3-mmc drive: 4x/4x cd/rw xa/rom2 tray
[ 1.953337] cdrom: Uniform CD-ROM driver Revision: 3.20
[ 1.959808] sr 0:0:0:0: Attached scsi generic sg0 type 5
[ 1.964088]   Magic number: 14:995:842
[ 1.964993] rtc_cmos 00:01: setting system clock to 2018-04-07 16:49:07 UTC (
1523119747)
[ 1.966573] BIOS EDD facility v0.16 2004-Jun-25, 0 devices found
[ 1.966791] EDD information not available.
[ 1.992960] Freeing unused kernel memory: 928k freed
[ 2.012930] Write protecting the kernel read-only data: 12288k
[ 2.059687] Freeing unused kernel memory: 1596k freed
[ 2.093851] Freeing unused kernel memory: 1184k freed

further output written to /dev/ttyS0

login as 'cirros' user. default password: 'cubswin:}'. use 'sudo' for root.
sales-db1 login: [19962.793924] Clocksource tsc unstable (delta = -450912641 ns)

login as 'cirros' user. default password: 'cubswin:}'. use 'sudo' for root.
sales-db1 login:
```

Instance Management

Instances - OpenStack Dashboard

10.0.0.11/horizon/project/instances/

openstack sales-crm amy

1 Instances

Instance Name = Filter Launch Instance Delete Instances More Actions

Instance Name	Image Name	IP Address	Size	Key Pair	Status	Availability Zone	Task	Power State	Time since created	Actions
<input type="checkbox"/> sales-db1	devOS-3.5	• 192.168.31.107	m1.tiny	-	Active	nova	None	Running	1 day, 17 hours	2 Create Snapshot
<input type="checkbox"/> control-insta	devOS-3.5	Floating IPs: • 192.168.30.5 • 203.0.113.212	m1.tiny	-	Active	nova	None	Running	1 day, 18 hours	Associate Floating IP Attach Interface Detach Interface Edit Instance Attach Volume Detach Volume Update Metadata Edit Security Groups Console View Log Pause Instance Suspend Instance Shelf Instance Resize Instance Lock Instance Unlock Instance Soft Reboot Instance Hard Reboot Instance Shut Off Instance Rebuild Instance Delete Instance

Displaying 2 items

CLI Review

```
$ openstack keypair create <keypair-name> > <kp-file>
```

```
$ openstack keypair create --public-key <file> <keypair-name>
```

```
$ openstack keypair list
```

```
$ openstack flavor create --id <id> --ram <size-MB> \  
--disk <size-GB> --vcpus <cores> \  
--public | --private \  
--property <key=value> flavor-name
```

```
$openstack flavor list --long
```


CLI Review

```
$ nova quota-defaults --tenant <project>
```

```
$ nova quota-show --tenant <project>
```

```
$ nova quota-update \  
  --instances <new-limit> --ram <new-limit> \  
  --cores <new-limit> --key-pairs <new-limit> \  
  <project>
```

```
$ nova help
```

```
$ nova help <subcommand>
```

CLI Review

```
$ openstack server create --flavor <flavor> \  
  --image <image> | --volume <volume> \  
  --security-group <sg1> --security-group <sg2> \  
  --key-name <keypair> --property <key=value> \  
  --nic net-id=<network> \  
  <server-name>
```

```
$ openstack server list
```

```
$ openstack server show
```

```
$ openstack server stop <server-name>
```

```
$ openstack server start <server-name>
```

CLI Review

```
$ openstack network list
$ ip netns
$ sudo su
# ip netns exec qdhcp-<network UUID> bash
# ping -c 3 <instance-address>
# ssh <user>@<instance-address>

$ openstack server image create \
  --name <new-image-name> \
  <server-name>
$ openstack image list
```

CLI Review

```
$ openstack compute service set --disable \  
--disable-reason "maintenance" \  
<host-name> nova-compute
```

```
$ openstack compute service set --enable <host-name> \  
nova-compute
```

```
$ openstack compute service list --long
```

```
$ openstack host list
```

```
$ openstack host show <host-name>
```

```
$ nova diagnostics <instance>
```

```
$ openstack usage list
```

Preparing to **Certified OpenStack Administrator** Exam

Section 6 – Nova Compute Service

Lecture 25. Nova Summary and Review

Thank you!